MILLING TOOLS

MILLING TOOLS

CBN END MILLS
i-Xmill END MILLS
i-SMART END MILLS
X5070 NANO SOLID CARBIDE END MILLS
4G Mill SOLID CARBIDE END MILLS
X-POWER SOLID CARBIDE END MILLS
TitaNox-POWER SOLID CARBIDE END MILLS
JET-POWER SOLID CARBIDE & HSS-PM END MILLS
V7 PLUS SOLID CARBIDE END MILLS
V7 Mill INOX SOLID CARBIDE END MILLS
ALU-POWER SOLID CARBIDE & HSS-PM END MILLS
D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)
D-POWER CFRP SOLID CARBIDE END MILLS (DIAMOND COATED)
SOLID CARBIDE ROUTERS (DIAMOND COATED)
CRX S SOLID CARBIDE END MILLS
K-2 SOLID CARBIDE END MILLS
GENERAL SOLID CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER HSS-PM END MILLS
GENERAL HSS (8% Cobalt) END MILLS
HSS-E MILLING CUTTERS
TECHNICAL DATA

YG-1 CO., LTD.

Contents
MILLING TOOLS

CBN END MILLS

CARBIDE INSERT END MILLS

SOLID CARBIDE END MILLS

HSS END MILLS

TECHNICAL DATA

YG-1 CO., LTD.

CBN END MILLS
CBN(Cubic Boron Nitride) Machining High Hardened Steels up to HRc70 / Mirror Finish — CBN END MILLS

i-Xmills, CARBIDE INSERT END MILLS
For General Steels and Hardened Steels up to HRc65 — i-Xmill END MILLS

i-Smart MODULAR TYPE END MILLS
Indexable Modular Head for Semi-finishing and finishing on Pre-Hardened Steels up to HRc55 — i-SMART MODULAR TYPE END MILLS

X5070 NANO SOLID CARBIDE END MILLS
For High Hardened Steels HRc45 to HRc70 / High Speed Machining / Dry Cutting — X5070 END MILLS

4G Mill SOLID CARBIDE END MILLS
High Speed Cutting for Pre-Hardened Steels up to HRc55 — 4G MILL END MILLS

X-POWER SOLID CARBIDE END MILLS
For Medium Steels to High Hardened Steels up to HRc65 — X-POWER END MILLS

TitaNox-POWER SOLID CARBIDE END MILLS
High Speed Machining for Exotic Materials: Titanium, Inconel and Stainless Steels — TitaNox-POWER END MILLS

JET-POWER SOLID CARBIDE & HSS-PM END MILLS
For Exotic materials like Stainless Steels, Nickel alloys and Titanium — JET-POWER END MILLS

V7 PLUS SOLID CARBIDE END MILLS
High Performance Carbide end Mills for Steels, Cast Iron and Stainless Steels — V7 PLUS END MILLS

V7 Mill SOLID CARBIDE END MILLS
The unique design for High speed and Heavy duty cutting — V7 MILL INOX END MILLS

ALU-POWER SOLID CARBIDE & HSS-PM END MILLS
For Aluminium Alloys and Silent Cutting — ALU-POWER END MILLS

D-POWER GRAPHITE SOLID CARBIDE END MILLS (DIAMOND COATED)
For Graphites — D-POWER GRAPHITE END MILLS

D-POWER CFRP SOLID CARBIDE END MILLS (DIAMOND COATED)
For Composite Materials including CFRP and GFRP — D-POWER CFRP END MILLS

SOLID CARBIDE ROUTERS (DIAMOND COATED)
For Composite Materials including CFRP and GFRP — ROUTERS

CRX S SOLID CARBIDE END MILLS
DLC Coated End Mills for Copper — CRX S END MILLS

K-2 SOLID CARBIDE END MILLS
General Purpose with Coating Conventional or High Speed Milling / Wet or Dry Cutting — K-2 END MILLS

GENERAL SOLID CARBIDE END MILLS
General Purpose / Non-coated / Any Coating Available — GENERAL CARBIDE END MILLS

ONLY ONE COATED PM60 END MILLS
The optimal solution for unstable cutting condition — ONLY ONE COATED PM60 END MILLS

TANK-POWER HSS-PM END MILLS
High Toughness, for Stainless Steels, Carbon steels, Alloy Steels.
For General Application, Rough & Finish — TANK-POWER END MILLS

GENERAL HSS END MILLS
General Purpose, Non-coated, Any Coating Available — GENERAL HSS END MILLS

HSS MILLING CUTTERS
General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% Cobalt) Corner Rounding, Shell End Mills — MILLING CUTTERS

TECHNICAL DATA — TECHNICAL DATA

	ITEM	MODEL	DESCRIPTION	SIZE RANGE MIN	SIZE RANGE MAX	PAGE
i-Xmill	XMB110A		BALL INSERTS for GENERAL PURPOSE	R4.0	R16.5	**718**
	XMB120C		BALL INSERTS for PRE-HARDENED STEELS	R4.0	R16.5	**718**
	XMB260T		BALL INSERTS for HIGH HARDENED STEELS	R4.0	R16.5	**718**
	XMB130A		BALL INSERTS for STAINLESS STEELS	R4.0	R16.5	**719**
	XMM110V		BALL INSERTS for GENERAL PURPOSE - FULL RADIUS	R4.0	R16.5	**719**
	XMB110D		BALL INSERTS for GRAPHITE	R4.0	R16.5	**719**
	XMR110A		CORNER RADIUS INSERTS for GENERAL PURPOSE & STAINLESS STEELS	D8.0	D33.0	**720**
	XMR120C		CORNER RADIUS INSERTS for PRE-HARDENED STEELS	D8.0	D33.0	**720**
	XMR260T		CORNER RADIUS INSERTS for HIGH HARDENED STEELS	D8.0	D33.0	**720**
	XMF110V		CORNER RADIUS INSERTS for GENERAL PURPOSE - HIGH FEED	D8.0	D33.0	**725**
	XMR110D		CORNER RADIUS INSERTS for GRAPHITE	D8.0	D33.0	**725**

◎ : Excellent ○ : Good

P								H	M	K	N	
Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc40~45	HRc45~55	HRc55~	~HRc28	~HRc35	~HRc8	
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	○		○		○	○	◎	◎		○		
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											○	◎

	ITEM	MODEL	DESCRIPTION	SIZE RANGE MIN	SIZE RANGE MAX	PAGE
i-Smart	XSEMD98		CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE	R5.0	R16.0	**744**
	XSEME59		CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE	R5.0	R16.0	**745**
	XSEME60		CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE	R5.0	R16.0	**746**
	XSEME01		CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS	D10.0	D32.0	**747**
	XSEME68		CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX CORNER RADIUS	D10.0	D32.0	**749**
	XSEME36		CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX	D10.0	D32.0	**750**
	XSEME75		CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX	D10.0	D32.0	**751**

◎ : Excellent ○ : Good

P					H	M	K	N							S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
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○	◎	◎	◎	○		○	○							

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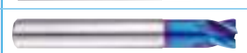
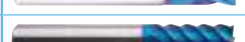
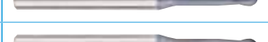
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
CBN	ESB94		2Flute	30°	Ball	R0.2	R1.5	**712**					◎	◎									
	ESD02		2Flute	0°	Radius	D0.5	D2.0	**713**					◎	◎									
X5070	G8B59		4Flute	0°	Stub Radius High Feed	D2.0	D12.0	**764**			○	○	◎	◎									
	G8B54		4Flute	0°	Stub Radius High Feed	D2.0	D16.0	**765**			○	○	◎	◎									
	G8A46		2Flute	30°	Ball for Rib	R0.05	R2.0	**766**			○	○	◎	◎									
	G8A54		2Flute	30°	Ball for Rib	R0.25	R1.0	**769**			○	○	◎	◎									
	G8A28		2Flute	30°	Ball	R0.05	R6.0	**770**			○	○	◎	◎									
	G8A38		2Flute	30°	Stub Ball with Extended Neck	R0.5	R12.5	**771**			○	○	◎	◎									
	G8A53		2Flute	30°	Miniature Ball	R0.2	R1.0	**772**			○	○	◎	◎									
	G8A59		3Flute	30°	Ball	R1.5	R10.0	**773**			○	○	◎	◎									
	G8D62		4Flute	30°	Ball Center Match	R1.5	R10.0	**774**			○	○	◎	◎									
	G8A60		2Flute	30°	Radius for Rib	D0.5	D12.0	**775**			○	○	◎	◎									
	G8A36		2Flute	30°	Stub Radius with Extended Neck	D0.3	D20.0	**778**			○	○	◎	◎									
	G8A52		2Flute	30°	Radius for Rib	D0.5	D2.0	**780**			○	○	◎	◎									
	G8A50		2Flute	30°	Miniature Radius	D0.3	D2.0	**781**			○	○	◎	◎									
	G8A47		4Flute	30°	Radius	D3.0	D12.0	**782**			○	○	◎	◎									
	G8A37		4Flute	30°	Stub Radius with Extended Neck	D1.0	D20.0	**783**			○	○	◎	◎									
	G8B08		4Flute	30°	Radius with Extended Neck	D6.0	D12.0	**784**			○	○	◎	◎									
	G8A39		6Flute	45°	Radius	D6.0	D20.0	**785**			○	○	◎	◎									
	G8A45		2Flute	30°	Square for Rib	D0.1	D4.0	**786**			○	○	◎	◎									
	G8A01		2Flute	30°	Square	D0.1	D20.0	**789**			○	○	◎	◎									
	G8A02		4Flute	30°	Square	D1.0	D20.0	**790**			○	○	◎	◎									
	G8D63		6&8Flute	45°	Long Square	D6.0	D25.0	**791**			○	○	◎	◎									
	G8D64		6&8Flute	45°	Extra Long Square	D6.0	D25.0	**792**			○	○	◎	◎									
4G MILLS	SEMD98		2Flute	30°	Ball	R0.05	R12.5	**816**	○	◎	◎	◎	○			○							
	SEM846		2Flute	30°	Long Neck Ball	R0.05	R6.0	**821**	○	◎	◎	◎	○			○							
	SEM846		2Flute	30°	Long Neck Ball	R0.25	R1.0	**829**	○	◎	◎	◎	○			○							
	SEMD99		2Flute	30°	Radius	D0.2	D20.0	**832**	◎	◎	◎	◎	○			○							
	SEME61		2Flute	30°	Long Neck Radius	D0.2	D20.0	**838**	◎	◎	◎	◎	○			○							

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◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
4G MILLS	SEME01		4Flute	Multiple	Radius	D1.0	D20.0	**853**	◎	◎	◎	◎	○			○							
	SEME64		4Flute	Multiple	Long Neck Radius	D1.0	D20.0	**858**	◎	◎	◎	◎	○			○							
	SEME35		2Flute	30°	Square	D0.03	D25.0	**870**	◎	◎	◎	◎	○		○	○							
	SEME70		2Flute	30°	Long Square	D1.0	D25.0	**875**	◎	◎	◎	◎	○			○							
	SEM845		2Flute	30°	Long Neck Square	D0.1	D12.0	**880**	◎	◎	◎	◎	○		○	○							
	SEME36		4Flute	Multiple	Square	D0.8	D25.0	**887**	◎	◎	◎	◎	○		○	○							
	SEME71		4Flute	Multiple	Square	D1.0	D20.0	**889**	○	◎	◎	◎	○			○							
	SEME72		4Flute	30°	Long Square	D1.0	D25.0	**892**	◎	◎	◎	◎	○			○							
	SEME73		4Flute	30°	Long Neck Square	D1.0	D12.0	**897**	◎	◎	◎	◎	○		○	○							
	SEME75		6Flute	45°	Square	D6.0	D20.0	**901**	◎	◎	◎	◎	○			○							
	G9D75 G9D67		4&5Flute	Multiple	Short Radius	D6.0	D20.0	**902**	◎	◎	◎	○			○	◎	○						
	G9D76 G9D68		4&5Flute	Multiple	Long Radius	D6.0	D20.0	**903**	◎	◎	◎	○			○	◎	○						
	G9D77 G9D69		4&5Flute	Multiple	Long Reach Radius	D6.0	D20.0	**904**	◎	◎	◎	○			○	◎	○						
	GAE53		4&5Flute	Multiple	Short Radius	D6.0	D20.0	**905**	◎	◎	○				◎	◎	○						
X-POWER	EM865		2Flute	30°	Miniature Ball	R0.3	R1.5	**968**	○	◎	◎	◎	○			○							
	EM876 EM877		2Flute	30°	Short Ball	R0.5	R12.5	**969**	○	◎	◎	◎	○	○		○							
	EM813 EM823		2Flute	30°	Long Ball	R0.5	R12.5	**970**	○	◎	◎	◎	○	○		○							
	EM899 EM900		2Flute	30°	Medium Ball with Neck	R1.5	R12.5	**971**	○	◎	◎	◎	○	○		○							
	EM886		2Flute	30°	Ball for Rib	R0.2	R3.0	**972**	○	◎	◎	◎	○			○							
	EM838 EM848		2Flute	30°	Long Reach Ball	R1.0	R10.0	**975**	○	◎	◎	◎	○	○		○							
	EM902 EM904		2Flute	30°	Ball with Taper Neck	R0.5	R6.0	**976**	○	○	◎	◎	○										
	EM878 EM879		2Flute	30°	Stub Ball	R0.5	R12.5	**977**		○	◎	◎	○	○		○							
	EM815 EM825		4Flute	30°	Long Ball	R0.5	R12.5	**978**	○	◎	◎	◎	○	○		○							
	EM890		4Flute	25°	Taper Ball for Rib	R0.5	R1.0	**979**	○	◎	◎	◎	○			○							
	EM669		2Flute	30°	Long Ball	R1.5	R8.0	**982**	○	◎	◎	◎	○	○		○							
	EM673		4Flute	30°	Long Ball	R2.5	R8.0	**983**	○	◎	◎	◎	○	○		○							
	EM863		2Flute	30°	Long Ball	R1.5	R8.0	**984**	○	◎	◎	◎	○	○		○							
	EM864		4Flute	30°	Long Ball	R2.5	R8.0	**985**	○	◎	◎	◎	○	○		○							
	EM818 EM828		2Flute	30°	Long Radius	D3.0	D20.0	**986**	○	◎	◎	◎	○										

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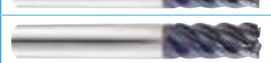
	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P Carbon Steels ~HB225	P Alloy Steels HB225~325	P Prehardened Steels HRc30~40	P Hardened Steels HRc40~45	P Hardened Steels HRc45~55	H High Hardened Steels HRc55~70	M Stainless Steels	K Cast Iron	N Copper	N Graphite	N Aluminum	N Acrylic	N CFRP	S Titanium	S High Temperature Alloy
X-POWER	EM8A1		2Flute	30°	Radius for Rib	D0.5	D6.0	**987**	○	◎	◎	◎	○			○							
	EM839 EM849		4Flute	30°	Stub Radius	D2.0	D16.0	**991**	○	◎	◎	◎	○			○							
	EM905		4Flute	45°	Short Radius	D10.0	D22.0	**992**	○	◎	◎	◎	○		○	○							
	EM819 EM829		4Flute	30°	Long Radius	D3.0	D20.0	**993**	○	◎	◎	◎	○		○	○							
	EM897 EM898		6Flute	45°	Stub Radius	D6.0	D12.0	**994**	○	◎	◎	◎	○			○							
	EM835 EM845		6Flute	45°	Long Radius	D6.0	D20.0	**995**	○	◎	◎	◎	○			○							
	EM810		2Flute	30°	Miniature Square	D0.4	D1.5	**996**	○	◎	◎	◎	○			○							
	EM810 EM820		2Flute	30°	Short Square	D1.0	D25.0	**997**	○	◎	◎	◎	○		○	○							
	EM816 EM826		2Flute	30°	Long Square	D2.0	D25.0	**999**	○	◎	◎	◎	○		○	○							
	EM883		2Flute	30°	Square for Rib	D0.4	D6.0	**1000**	○	◎	◎	◎	○			○							
	EM837 EM847		2Flute	30°	Taper	D2.0	D8.0	**1004**	○	◎	◎	◎	○			○							
	EM836 EM846		3Flute	30°	Miniature Square	D1.0	D20.0	**1005**	○	◎	◎	◎	○		○	○							
	EM895 EM896		3Flute	38°	Short Square	D1.0	D20.0	**1006**	○	◎	◎	◎	○		○	○							
	EM811 EM821		4Flute	30°	Short Square	D2.0	D25.0	**1007**	○	◎	◎	◎	○		○	○							
	EM817 EM827		4Flute	30°	Long Square	D2.0	D25.0	**1009**	○	◎	◎	◎	○			○							
	EM889		4Flute	25°	Taper for Rib	D1.0	D2.0	**1010**	○	◎	◎	◎	○			○							
	EM812 EM822		6&8Flute	45°	Long Square	D6.0	D25.0	**1012**	○	◎	◎	◎	○			○							
	EM834 EM844		6Flute	45°	Extra Long Square	D6.0	D25.0	**1013**	○	◎	◎	◎	○			○							
	EM833 EM843		3&4Flute	20°	Long Roughing Ball	R3.0	R10.0	**1014**	○	◎	◎	◎	○		○	○							
	EM832 EM842		3~5Flute	20°	Short Roughing	D6.0	D25.0	**1015**	○	◎	◎	◎	○		○	○							
	EM814 EM824		3~5Flute	20°	Long Roughing	D6.0	D25.0	**1016**	○	◎	◎	◎	○		○	○							
TitaNox-POWER	GMG40 GMG41		4Flute	Multiple	Radius	D6.0	D25.0	**1058**	○	○	○				◎							◎	○
	GMG28 GMG29		5Flute	Multiple	Short Radius	D6.0	D25.0	**1060**	○	○	○				◎							◎	○
	GMG30 GMG31		5Flute	Multiple	Long Radius	D6.0	D25.0	**1061**	○	○	○				◎							◎	○
	GMG24 GMG25		5Flute	Multiple	Short Square	D6.0	D25.0	**1063**	○	○	○				◎							◎	○
	GMG26 GMG27		5Flute	Multiple	Long Square	D6.0	D25.0	**1064**	○	○	○				◎							◎	○
	EHE54 EHE55		5Flute	40°	Radius Roughing	D6.0	D25.0	**1065**							○							◎	○
JET-POWER	EH911 EH912		2Flute	35°	Short Square	D1.0	D25.0	**1074**	○	◎	◎	○			◎							◎	
	EH913 EH914		4Flute	35°	Short Square	D2.0	D25.0	**1075**	○	◎	◎	○			◎							◎	

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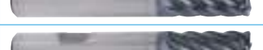
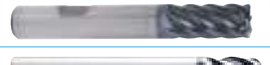
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
JET-POWER	EH830 EH840		3&4Flute	50°	Long Square	D6.0	D25.0	**1076**	○	◎	◎	○			◎							◎	○
	EH915 EH916		6&8Flute	45°	Long Square	D6.0	D25.0	**1077**	○	◎	◎	○			◎							◎	○
	EE515		4&6Flute	30°	Short Square	D3.0	D25.0	**1078**	○	◎	◎	○			◎							◎	○
	EH852 EH862		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1079**	○	◎	◎	○			◎							◎	○
	EH831 EH841		3~5Flute	30°	Long Roughing	D6.0	D25.0	**1080**	○	◎	◎	○			◎							◎	○
	EH917 EH918		4~6Flute	45°	Short Roughing	D6.0	D20.0	**1081**	○	◎	◎	○			◎							◎	○
	EH919 EH920		3~6Flute	45°	Long Roughing	D4.0	D25.0	**1082**	○	◎	◎	○			◎							◎	○
	EH921 EH942		4~6Flute	45°	Long Reach Roughing	D6.0	D20.0	**1083**	○	◎	◎	○			◎							◎	○
V7 PLUS	GMG55 GMG56		4Flute	Multiple	Ball	R1.5	R12.5	**1100**	◎	◎	◎	○	○		◎	◎						○	○
	GMF54 GMF55		4Flute	Multiple	Short Radius	D3.0	D20.0	**1101**	◎	◎	◎	○	○		◎	◎						○	○
	GMF58 GMF59		4Flute	Multiple	Long Radius	D3.0	D25.0	**1102**	◎	◎	◎	○	○		◎	◎						○	○
	GMF62 GMF63		4Flute	Multiple	Radius with Extended Neck	D3.0	D20.0	**1103**	◎	◎	◎	○	○		◎	◎						○	○
	GMF52 GMF53		4Flute	Multiple	Square	D3.0	D20.0	**1105**	◎	◎	◎	○	○		◎	◎						○	○
	GMF56 GMF57		4Flute	Multiple	Long Square	D3.0	D25.0	**1106**	◎	◎	◎	○	○		◎	◎						○	○
	GMF60 GMF61		4Flute	Multiple	Square with Extended Neck	D3.0	D20.0	**1107**	◎	◎	◎	○	○		◎	◎						○	○
	GMG16 GMG17		6Flute	45°	Long Radius	D6.0	D25.0	**1109**	◎	◎	◎	○	○		◎	◎						○	○
	GMG18 GMG19		6Flute	45°	Extra Long Radius	D6.0	D25.0	**1110**	◎	◎	◎	○	○		◎	◎						○	○
	GMG12 GMG13		6Flute	45°	Long Square	D6.0	D25.0	**1112**	◎	◎	◎	○	○		◎	◎						○	○
	GMG14 GMG15		6Flute	45°	Extra Long	D6.0	D25.0	**1112**	◎	◎	◎	○	○		◎	◎						○	○
V7 MILL INOX	EMB74 EMB75		4Flute	Sinusoidal	Long Ball	R1.5	R12.5	**1122**	◎	○	○				◎							◎	○
	EMB43 EMB44		4Flute	Sinusoidal	Short Radius	D3.0	D20.0	**1123**	◎	○	○				◎							◎	○
	EMB15 EMB40		4Flute	Sinusoidal	Long Radius	D3.0	D25.0	**1124**	◎	○	○				◎							◎	○
	EME31 EME32		4Flute	Sinusoidal	Radius with Extended Neck	D3.0	D20.0	**1125**	◎	○	○				◎							◎	○
	EMB41 EMB42		4Flute	Sinusoidal	Short Square	D3.0	D20.0	**1126**	◎	○	○				◎							◎	○
	EMB14 EMB39		4Flute	Sinusoidal	Long Square	D3.0	D25.0	**1127**	◎	○	○				◎							◎	○
	EMC84 EMC85		4Flute	Sinusoidal	with Extended Neck	D3.0	D20.0	**1128**	◎	○	○				◎							◎	○
	EMB72 EMB73		5Flute	Sinusoidal	Long Square	D6.0	D25.0	**1129**	◎	○	○				◎							◎	○
ALU-POWER	E5910		2Flute	50°	Ball With Neck	R3.0	R10.0	**1136**									○		◎				
	E5908		3Flute	40°	Ball With Neck	R1.0	R8.0	**1137**									○		◎				

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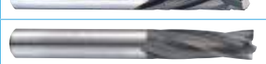
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
ALU-POWER	E5909		2Flute	30°	Radius With Neck	D4.0	D20.0	**1138**									○		◎				
	E5930		2Flute	25°	Radius	D2.0	D20.0	**1139**											◎				
	E5E51		3Flute	45°	Long Radius	D3.0	D20.0	**1140**											◎				
	E5E47		1Flute	30°	Square	D2.0	D12.0	**1141**											◎	◎			
	E5E48		2Flute	45°	Short Square	D3.0	D20.0	**1142**											◎				
	E5522 E5521		2Flute	45°	Long Square	D3.0	D20.0	**1143**											◎				
	E5E49		3Flute	45°	Long Square	D3.0	D20.0	**1144**											◎				
	E5E50		3Flute	45°	Square With Neck	D3.0	D20.0	**1145**											◎				
	E5742 E5711		3Flute	30°	Long Roughing	D6.0	D25.0	**1146**	○	○						○			◎				
	E5E39 E5E40		3Flute	30°	Roughing With Neck	D6.0	D20.0	**1147**	○	○						○			◎				
	EP922 EP923		3Flute	42°	Short Roughing	D12.0	D32.0	**1148**								○			◎				
	EP924 EP925		3Flute	42°	Long Roughing	D12.0	D32.0	**1149**								○			◎				
D-POWER GRAPHITE	EI997		2Flute	30°	Miniature Ball	R0.1	R3.0	**1160**										◎	○		○		
	EIB93		2Flute	30°	Miniature Ball	R0.2	R2.0	**1162**										◎	○		○		
	EI880		2Flute	30°	Short Ball	R1.0	R6.0	**1163**										◎	○		○		
	EI451		2Flute	30°	Long Ball	R1.0	R6.0	**1164**										◎	○		○		
	EI450		2Flute	30°	Long Reach Ball	R1.0	R6.0	**1165**										◎	○		○		
	EIB87		2Flute	30°	Ball with Taper Neck	R0.5	R1.0	**1166**										◎	○		○		
	EI881		3Flute	30°	Short Ball	R1.0	R6.0	**1167**										◎	○		○		
	EI996		2Flute	30°	Miniature Radius	D0.2	D6.0	**1168**										◎	○		○		
	EIB86		2Flute	30°	Radius with Taper Neck	D1.0	D2.0	**1170**										◎	○		○		
	EIA13		3Flute	40°	Short Radius	D2.0	D12.0	**1171**										◎	○		○		
	EIA14		3Flute	40°	Long Radius	D2.0	D12.0	**1172**										◎	○		○		
	EIB88		4Flute	30°	Radius	D6.0	D12.0	**1173**										◎	○		○		
	EIB04		2Flute	30°	Long Square	D0.5	D12.0	**1174**										◎	○		○		
D-POWER CFRP	GUF40		4~8Flute	20°/20°	-	D6.0	D12.0	**1180**										○			◎		
	GUF39		4Flute	15°	-	D6.0	D12.0	**1181**										○			◎		
ROUTERS	RTI104		-	-	-	D3.0	D12.0	**1186**													◎		

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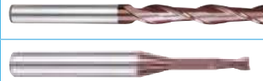
	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P Carbon Steels ~HB225	P Alloy Steels HB225~325	P Prehardened Steels HRc30~40	P Hardened Steels HRc40~45	P Hardened Steels HRc45~55	H High Hardened Steels HRc55~70	M Stainless Steels	K Cast Iron	N Copper	N Graphite	N Aluminum	N Acrylic	N CFRP	S Titanium	S High Temperature Alloy
CRX S	SGED28		2Flute	30°	Ball	R0.5	R6.0	**1192**									◎		○				
	SGED27		2Flute	30°	Long Ball	R0.25	R6.0	**1193**									◎		○				
	SGED29		2Flute	30°	Long Radius	D1.0	D12.0	**1195**									◎		○				
	SGED31		2Flute	30°	Square	D1.0	D12.0	**1197**									◎		○				
	SGED30		2Flute	30°	Long	D0.5	D12.0	**1198**									◎		○				
	G9624		2Flute	30°	Short Ball	R1.0	R10.0	**1208**	◎	◎	◎	○			○	○	○		○			○	○
	G9A70		2Flute	30°	Short Ball	R0.5	R10.0	**1209**	◎	◎	◎	○			○	○	○		○			○	○
	G9437		2Flute	≒30°	Short Ball	R1.0	R10.0	**1210**	◎	◎	◎	○			○	○	○		○			○	○
	G9438		2Flute	≒30°	Long Ball	R1.0	R10.0	**1211**	◎	◎	◎	○			○	○	○		○			○	○
	G9454		2Flute	30°	Long Reach Ball	R1.5	R10.0	**1212**	◎	◎	◎	○			○	○	○		○			○	○
	G9455		2Flute	30°	Extra Long Ball	R1.5	R10.0	**1213**	◎	◎	◎	○			○	○	○		○			○	○
	G9B81		2Flute	30°	Ball for Rib	R0.2	R2.0	**1214**	◎	◎	◎				○	○	○		○				
	G9634		4Flute	30°	Short Ball	R1.0	R10.0	**1216**	◎	◎	◎	○			○	○	○		○			○	○
	G9B82		2Flute	30°	Short Radius	D2.0	D12.0	**1217**	◎	◎	◎				○	○	○		○				
	G9B83		2Flute	30°	Long Reach Radius	D3.0	D12.0	**1219**	◎	◎	◎				○	○	○		○				
	G9B84		4Flute	30°	Short Radius	D2.0	D12.0	**1220**	◎	◎	◎				○	○	○		○				
	G9B85		4Flute	30°	Long Reach Radius	D3.0	D12.0	**1222**	◎	◎	◎				○	○	○		○				
K-2 CARBIDE	G9424		2Flute	30°	Short Square	D1.0	D20.0	**1223**	◎	◎	◎				○	○	○		○			○	○
	G9G44		2Flute	30°	Short Square	D3.0	D20.0	**1224**	◎	◎	◎				○	○	○		○			○	○
	G9A68		2Flute	30°	Short Square	D1.0	D20.0	**1225**	◎	◎	◎				○	○	○		○			○	○
	G9444		2Flute	≒30°	Short Square	D2.0	D20.0	**1226**	◎	◎	◎				○	○	○		○			○	○
	G9527		2Flute	≒30°	Long Square	D3.5	D20.0	**1227**	◎	◎	◎				○	○	○		○			○	○
	G9445		2Flute	≒30°	Long Square	D2.0	D20.0	**1228**	◎	◎	◎				○	○	○		○			○	○
	G9G45		2Flute	≒30°	Long Square	D3.0	D20.0	**1229**	◎	◎	◎				○	○	○		○			○	○
	G9452		2Flute	30°	Extra Long Square	D3.0	D20.0	**1230**	◎	◎	◎				○	○	○		○			○	○
	G9B80		2Flute	30°	Square for Rib	D0.4	D4.0	**1231**	◎	◎	◎				○	○	○		○				
	G9553 G9410		3Flute	30°	Short Throw Away	D0.5	D20.0	**1233**	◎	◎	◎				○	○	○		○			○	○
	G9G46		3Flute	30°	Short Throw Away	D3.0	D20.0	**1234**	◎	◎	◎				○	○	○		○			○	○
	G9425		3Flute	30°	Short Square	D1.0	D20.0	**1235**	◎	◎	◎				○	○	○		○			○	○

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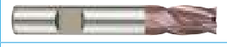
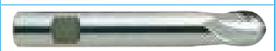
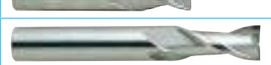
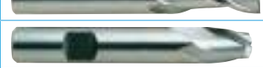
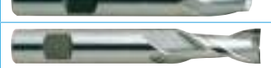
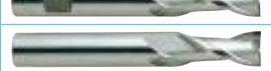
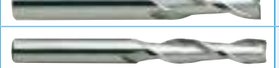
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
K-2 CARBIDE	G9G47		3Flute	30°	Short Square	D3.0	D20.0	**1236**	◎	◎	◎				○	○	○		○			○	○
	G9439		3Flute	≒30°	Short Square	D2.0	D20.0	**1237**	◎	◎	◎				○	○	○		○			○	○
	G9528		3Flute	≒30°	Long Square	D3.5	D20.0	**1238**	◎	◎	◎				○	○	○		○			○	○
	G9433		3Flute	≒30°	Long Square	D3.0	D20.0	**1239**	◎	◎	◎				○	○	○		○			○	○
	G9G48		3Flute	≒30°	Long Square	D3.0	D20.0	**1240**	◎	◎	◎				○	○	○		○			○	○
	G9447		3Flute	45°	Long Square	D3.0	D20.0	**1241**	◎	◎	◎				○	○	◎		◎			○	○
	G9G49		3Flute	45°	Long Square	D3.0	D20.0	**1242**	◎	◎	◎				○	○	◎		◎			○	○
	G9432		4Flute	30°	Short Square	D1.0	D20.0	**1243**	◎	◎	◎				○	○	○		○			○	○
	G9G50		4Flute	30°	Short Square	D3.0	D20.0	**1244**	◎	◎	◎				○	○	○		○			○	○
	G9A69		4Flute	30°	Short Square	D1.0	D20.0	**1245**	◎	◎	◎				○	○	○		○			○	○
	G9448		4Flute	≒30°	Short Square	D2.0	D20.0	**1246**	◎	◎	◎				○	○	○		○			○	○
	G9540		4Flute	≒30°	Long Square	D3.5	D20.0	**1247**	◎	◎	◎				○	○	○		○			○	○
	G9449		4Flute	≒30°	Long Square	D2.0	D20.0	**1248**	◎	◎	◎				○	○	○		○			○	○
	G9G51		4Flute	≒30°	Long Square	D3.0	D20.0	**1249**	◎	◎	◎				○	○	○		○			○	○
	G9453		4Flute	30°	Extra Long Square	D3.0	D20.0	**1250**	◎	◎	◎				○	○	○		○			○	○
	G9F45 G9F46		6Flute	45°	Short / Long Square	D3.0	D20.0	**1251**		○	◎	◎				○							
	G9A42		3~5Flute	30°	Long Roughing	D6.0	D25.0	**1252**	◎	◎	◎				○	○	○		○			○	○
GENERAL CARBIDE	E5624 E5650		2Flute	30°	Short Ball	R1.0	R10.0	**1270**	◎	◎	◎	○				○			○				
	E5437		2Flute	≒30°	Short Ball	R1.0	R10.0	**1271**	◎	◎	◎	○				○			○				
	E5438		2Flute	≒30°	Long Ball	R1.0	R10.0	**1272**	◎	◎	◎	○				○			○				
	E5454		2Flute	30°	Long Reach Ball	R1.5	R10.0	**1273**	◎	◎	◎	○				○			○				
	E5455		2Flute	30°	Extra Long Ball	R1.5	R10.0	**1274**	◎	◎	◎	○				○			○				
	E5634 E5524		4Flute	30°	Short Ball	R1.0	R10.0	**1275**	◎	◎	◎	○				○			○				
	E5882		3Flute	35°	Short Radius	D3.0	D20.0	**1276**	◎	◎	◎				◎	○	○		○				
	E5424 E5416		2Flute	30°	Short Square	D1.0 D6.0	D20.0	**1277**	◎	◎	◎				○	○	○		○				
	E5444		2Flute	≒30°	Short Square	D2.0	D20.0	**1278**	◎	◎	◎				○	○	○		○				
	E5445		2Flute	≒30°	Long Square	D2.0	D20.0	**1279**	◎	◎	◎				○	○	○		○				
	E5527		2Flute	≒30°	Long Square	D3.5	D20.0	**1280**	◎	◎	◎				○	○	○		○				
	E5452		2Flute	30°	Extra Long Square	D3.0	D20.0	**1281**	◎	◎	◎				○	○	○		○				

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◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
GENERAL CARBIDE	E5553 E5410		3Flute	30°	Short Throw Away	D0.5	D20.0	**1282**	◎	◎	◎				○	○	○		○				
	E5425 E5417		3Flute	30°	Short Square	D2.0 D6.0	D20.0	**1284**	◎	◎	◎				○	○	○		○				
	E5439		3Flute	≒30°	Short Square	D2.0	D20.0	**1285**	◎	◎	◎				○	○	○		○				
	E5433		3Flute	≒30°	Long Square	D3.0	D20.0	**1286**	◎	◎	◎				○	○	○		○				
	E5528		3Flute	≒30°	Long Square	D3.5	D20.0	**1287**	◎	◎	◎				○	○	○		○				
	E5423 E5415		3Flute	45°	Short Square	D3.0	D20.0	**1288**	◎	◎	◎					○	◎		◎				
	E5446		3Flute	45°	Short Square	D1.5	D20.0	**1289**	◎	◎	◎					○	◎		◎				
	E5447		3Flute	45°	Long Square	D3.0	D20.0	**1290**	◎	◎	◎					○	◎		◎				
	E5432 E5595		4Flute	30°	Short Square	D2.0 D6.0	D20.0	**1291**	◎	◎	◎				○	○	○		○				
	E5448		4Flute	≒30°	Short Square	D2.0	D20.0	**1292**	◎	◎	◎				○	○	○		○				
	E5449		4Flute	≒30°	Long Square	D2.0	D20.0	**1293**	◎	◎	◎				○	○	○		○				
	E5540		4Flute	≒30°	Long Square	D3.5	D20.0	**1294**	◎	◎	◎				○	○	○		○				
	E5453		4Flute	30°	Extra Long Square	D3.0	D20.0	**1295**	◎	◎	◎				○	○	○		○				
	E5400		2Flute	30°	Drill Mill	D3.0	D20.0	**1296**	◎	◎	◎				○	○			○				
ONLY ONE	GYG77 GYF97		2Flute	30°	Short Ball	R0.5	R12.5	**1320**	◎	◎	○	○			◎	◎	○						
	GYG72 GYF99		2Flute	30°	Short Square	D1.0	D25.0	**1321**	◎	◎	○	○			◎	◎	○						
	GYG01		3Flute	30°	Short Square	D1.0	D25.0	**1322**	◎	◎	○	○			◎	◎	○						
	GYG74 GYF96		4Flute	30°	Short Square	D1.0	D25.0	**1323**	◎	◎	○	○			◎	◎	○						
	GYG52		4Flute	Multiple	Short Square	D3.0	D25.0	**1324**	◎	◎	○	○			◎	◎	○						
	GYG76 GYG02		4Flute	30°	Long Square	D2.0	D25.0	**1325**	◎	◎	○	○			◎	◎	○						
	GYF95		4~5Flute	Multiple	Short Roughing	D6.0	D25.0	**1326**	◎	◎	○	○			◎	◎	○						
	GYF94		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1327**	◎	◎	○	○			◎	◎	○						
	GYF98		3~5Flute	30°	Long Roughing	D6.0	D25.0	**1328**	◎	◎	○	○			◎	◎	○						
	GYG03		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1329**	◎	◎	○	○			◎	◎	○						
TANK-POWER	E9940 GA940		2Flute	30°	Short Ball	R0.5	R12.5	**1342**	◎	◎	○				◎	◎	○						
	E9A32 GAA32		2Flute	30°	Long Ball	R1.0	R12.5	**1343**	◎	◎	○				◎	◎	○						
	E9936 GA936		2Flute	30°	Short Square	D1.0	D25.0	**1344**	◎	◎	○				◎	◎	○						
	E9A29 GAA29		2Flute	30°	Long Square	D1.0	D25.0	**1345**	◎	◎	○				◎	◎	○						
	E9942 GA942		3Flute	30°	Stub Square	D1.0	D25.0	**1346**	◎	◎	○				◎	◎	○						

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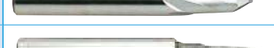
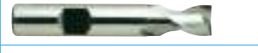
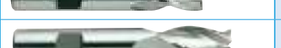
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
TANK-POWER	E9A30 GAA30		3Flute	30°	Short Square	D1.0	D25.0	**1347**	◎	◎	○				◎	◎	○						
	E9938 GA938		4Flute	30°	Short Square	D1.0	D25.0	**1348**	◎	◎	○				◎	◎	○						
	E9A31 GAA31		4Flute	30°	Long Square	D2.0	D25.0	**1349**	◎	◎	○				◎	◎	○						
	E9941 GA941		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1350**	◎	◎	○				◎	◎	○						
	E9A35 GAA35		3~5Flute	30°	Long Roughing	D6.0	D25.0	**1351**	◎	◎	○				◎	◎	○						
	E9A26 GAA26		3~6Flute	45°	Short Roughing	D4.0	D25.0	**1352**	◎	◎	○				◎	◎	○						
	E9A33 GAA33		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1353**	◎	◎	○				◎	◎	○						
	E9A34 GAA34		3~5Flute	30°	Long Roughing	D6.0	D25.0	**1354**	◎	◎	○				◎	◎	○						
	E9E43 GAE43		4~5Flute	30°	Roughing With Neck	D10.0	D25.0	**1355**	◎	◎	○				◎	◎	○						
	E9410		**2Flute**	≒30°	**Short Square**	**D2.0**	**D25.0**	**1380**	◎	◎	○								○				
	E9720		4&6Flute	30°	Short Roughing	D6.0	D30.0	**1381**	◎	◎	○								○				
	E3570		2Flute	≒30°	Short Square	D2.0	D30.0	**1382**	◎	◎	○								○				
	E3574 E3575		4&6Flute	≒30°	Short Square	D2.0 D22.0	D20.0 D30.0	**1383**	◎	◎	○								○				
	E3462 E3463		3&4Flute	60°	Short Square	D6.0 D25.0	D20.0 D30.0	**1384**	◎	◎	○								○				
	E2535		2Flute	≒30°	Short Ball	R1.0	R16.0	**1385**	◎	◎	○								○				
GENERAL HSS	E2492		2Flute	≒30°	Long Ball	R1.0	R15.0	**1386**	◎	◎	○								○				
	E2512		3Flute	30°	Short Ball Throw Away	R1.0	R3.0	**1387**	◎	◎	○								○				
	E2410		4&6Flute	30°	Short Ball	R3.0	R12.5	**1388**	◎	◎	○								○				
	E2429		4&6Flute	30°	Long Ball	R5.0	R12.5	**1389**	◎	◎	○								○				
	EL623		1Flute	≒30°	Square	D3.0	D10.0	**1390**	◎	◎									○				
	EL612		1Flute	≒30°	Square	D3.0	D10.0	**1391**	○										◎				
	E2570		2Flute	≒30°	Short Square	D1.0	D40.0	**1392**	◎	◎	○								○				
	E2571		2Flute	≒30°	Long Square	D1.5	D40.0	**1395**	◎	◎	○								○				
	E2510		2Flute	30°	Extra Long Square	D2.5	D40.0	**1397**	◎	◎	○								○				
	E2464		2Flute	42°	Short Square	D1.0	D32.0	**1398**	○										◎				
	E2509		2Flute	42°	Long Square	D2.0	D20.0	**1400**	○										◎				
	E2572		3Flute	≒30°	Stub Square	D1.5	D32.0	**1401**	◎	◎	○								○				
	E2573		3Flute	≒30°	Short Square	D1.0	D40.0	**1402**	◎	◎	○								○				
	E2516		3Flute	30°	Long Square	D2.0	D40.0	**1404**	◎	◎	○								○				

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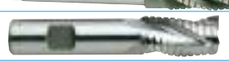
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
GENERAL HSS	E2553		3Flute	30°	Short Throw Away	D1.0	D20.0	**1406**	◎	◎	○								○				
	E2554		3Flute	30°	Long Throw Away	D1.5	D10.0	**1408**	◎	◎	○								○				
	E2551		3Flute	30°	Short Throw Away	D1.0	D10.0	**1409**	◎	◎	○								○				
	E2552		3Flute	30°	Long Throw Away	D1.5	D10.0	**1410**	◎	◎	○								○				
	E2574 E2575		4&6Flute	≒30°	Short Square	D2.0 D21.0	D20.0 D40.0	**1411**	◎	◎	○								○				
	E2595 E2596		4&6Flute	≒30°	Short Square	D2.0 D22.0	D25.0 D40.0	**1412**	◎	◎	○								○				
	E2576 E2577		4&6Flute	≒30°	Long Square	D2.0 D22.0	D20.0 D40.0	**1413**	◎	◎	○								○				
	E2597 E2598		4&6Flute	≒30°	Long Square	D2.0 D22.0	D20.0 D40.0	**1414**	◎	◎	○								○				
	E2776		4~8Flute	30°	Short Square	D14.0	D50.0	**1415**	◎	◎	○								○				
	E2461 E2462 E2463		2~4Flute	50°	Short Square	D2.0 D6.0 D22.0	D5.0 D23.0 D30.0	**1416**	◎	◎	○												
	E2761		3~5Flute	30°	Short Roughing	D6.0	D25.0	**1417**	◎	◎	○								○				
	E2606		3&4Flute	30°	Short Roughing Ball	R3.0	R20.0	**1418**	◎	◎	○								○				
	E2524		3&4Flute	30°	Stub Roughing	D6.0	D20.0	**1419**	◎	◎	○								○				
	E2753		3~6Flute	30°	Short Roughing	D6.0	D40.0	**1420**	◎	◎	○								○				
	E2762		3~6Flute	30°	Long Roughing	D6.0	D40.0	**1421**	◎	◎	○								○				
	E2757		3&4Flute	30°	Short Roughing Ball	R3.0	R20.0	**1422**	◎	◎	○								○				
	E2751 E2764		3Flute	30°	Short Roughing	D6.0 D10.0	D8.0 D40.0	**1423**	◎	◎	○								○				
	E2752 E2765		3Flute	30°	Long Roughing	D6.0 D10.0	D8.0 D40.0	**1424**	◎	◎	○								○				
	E2755		3Flute	37°	Short Roughing	D6.0	D30.0	**1425**	◎	○									◎				
	E2756		3Flute	37°	Long Roughing	D10.0	D30.0	**1426**	◎	○									◎				
	E2751		3~6Flute	30°	Short Roughing	D6.0	D50.0	**1427**	◎	◎	○								○				
	E2752		3~6Flute	30°	Long Roughing	D6.0	D40.0	**1429**	◎	◎	○								○				
	E2778		4~6Flute	30°	Short Roughing	D16.0	D50.0	**1430**	◎	◎	○								○				
	E2777		4~6Flute	30°	Short Roughing	D14.0	D50.0	**1431**	◎	◎	○								○				
	E2779		4~6Flute	30°	Short Roughing & Finishing	D16.0	D50.0	**1432**	◎	◎	○								○				
	E2766		3Flute	30°	Short Roughing & Finishing	D6.0	D40.0	**1433**	◎	◎	○								○				
	E2767		3Flute	30°	Long Roughing & Finishing	D6.0	D40.0	**1434**	◎	◎	○								○				
	E2754		3~6Flute	30°	Short Roughing & Finishing	D6.0	D40.0	**1435**	◎	◎	○								○				
	E2768		3~6Flute	30°	Long Roughing & Finishing	D6.0	D45.0	**1436**	◎	◎	○								○				

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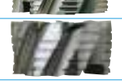
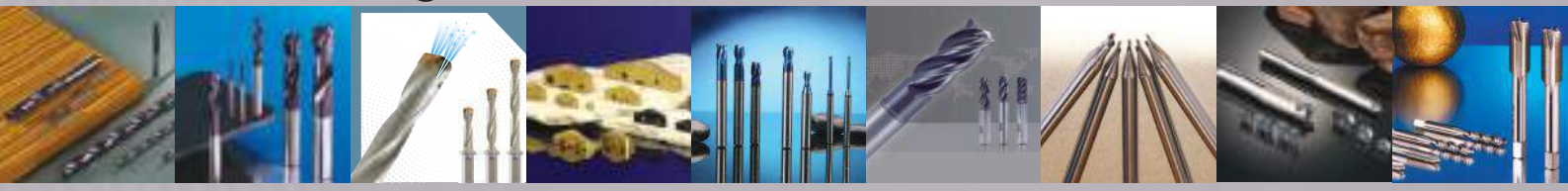
◎ : Excellent ○ : Good

	ITEM	MODEL	FLUTES	HELIX	TYPE	SIZE RANGE MIN	SIZE RANGE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
MILLING CUTTER	ML012, ML022 ML112, ML122 ML212, ML222		6~16 Teeth	0°	Dovetail Cutters	D16.0	D50.0	**1478**	◎	◎	○								○				
	ML032, ML042 ML132, ML142 ML232, ML242		6~12 Teeth	0°	Dovetail Cutters	D16.0	D38.0	**1479**	◎	◎	○								○				
	ML062 ML162 ML262		8~14 Teeth	10°~12°	Woodruff Keyseat Cutters	D10.5	D45.5	**1480**	◎	◎	○								○				
	ML072 ML172 ML272		6~8 Teeth	10°	T-Slot Cutters	D12.5	D40.0	**1482**	◎	◎									○				
	ML092		18~24 Teeth	0°	Side and Face with Straight Teeth	D50.0	D125.0	**1483**	◎	◎	○								○				
	ML102		14~30 Teeth	10°	Side and Face with Staggered Teeth	D50.0	D200.0	**1484**	◎	◎	○								○				
	E2675		6~14 Teeth	30°	Shell	D30.0	D160.0	**1488**	◎	◎	○												
	E2676		4~6 Teeth	42°	Shell for Aluminum	D30.0	D100.0	**1489**	○	○									◎				
	E2677		6~12 Teeth	30°	Roughing Shell	D40.0	D160.0	**1490**	◎	◎	○								○				
	E2678		6~12 Teeth	30°	Roughing Shell	D40.0	D160.0	**1491**	◎	◎	○								○				
	E2679		6~12 Teeth	30°	Roughing & Finishing Shell	D40.0	D160.0	**1492**	◎	◎	○								○				
	E2498		4 Teeth	0°	Corner Rounding Cutters	D8.0	D56.0	**1493**	◎	◎	○								○				

Global Cutting Tool Leader **YG-1**



CBN

Leading Through Innovation

CBN (Cubic Boron Nitride)

CBN FRÄSER

- **Cubic Boron Nitride, Machining High Hardened Steels up to HRc70, Mirror Finish**
- **Kubisches Bornitrid, Zum Fräsen hoch gehärteter Stähle bis HRc70. Spiegelglanz**

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
ESB94		CBN, 2 FLUTE BALL NOSE CBN, 2 SCHNEIDEN STIRNRADIUS	R0.2	R1.5	712
ESD02		CBN, 2 FLUTE CORNER RADIUS CBN, 2 SCHNEIDEN ECKENRADIUS	D0.5	D2.0	713
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			714

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
				◎	◎									
				◎	◎									

CBN END MILLS

ESB94 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CBN, 2 FLUTE BALL NOSE

CBN, 2 SCHNEIDEN STIRNRADIUS
CBN, fraise 2 dents, hémisphérique
CBN, 2 TAGLIENTI, SEMISFERICA

- ▶Achieves stable machining and higher accuracy for duration.
- ▶Saves setting time and cost from the reduction of frequent tool change.
- ▶Improves repeatability in performance.
- ▶Special designed geometry improving tool rigidity at High Speed Cutting.
- ▶Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- ▶ Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.
- ▶ Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.
- ▶ Verbessert die Wiederholgenauigkeit.
- ▶ Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.
- ▶ Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.

CBN | 2 | 30° | R ±0.005 | PLAIN P.714

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
ESB94004012	R0.2	0.4	4	0.3	1.2	50	0.37
ESB94005015	R0.25	0.5	4	0.4	1.5	50	0.46
ESB94006015	R0.3	0.6	4	0.5	1.5	50	0.56
ESB94008020	R0.4	0.8	4	0.6	2	50	0.76
ESB94010025	R0.5	1.0	4	0.6	2.5	50	0.95
ESB94010040	R0.5	1.0	4	0.6	4	50	0.95
ESB94010060	R0.5	1.0	4	0.6	6	50	0.95
ESB94012030	R0.6	1.2	4	0.8	3	50	1.15
ESB94015030	R0.75	1.5	4	0.95	3	50	1.45
ESB94015040	R0.75	1.5	4	0.95	4	50	1.45
ESB94015060	R0.75	1.5	4	0.95	6	50	1.45
ESB94020050	R1.0	2.0	4	1.2	5	50	1.95
ESB94020060	R1.0	2.0	4	1.2	6	50	1.95
ESB94030060	R1.5	3.0	4	1.8	6	50	2.85

Radius Tolerance(mm)	Shank Dia. Tolerance
±0.005	h5

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
				◎	◎									

CBN END MILLS

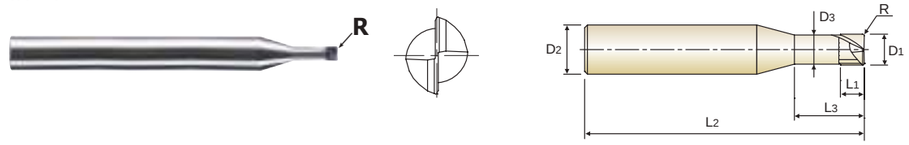
ESD02 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CBN, 2 FLUTE CORNER RADIUS

CBN, 2 SCHNEIDEN ECKENRADIUS
CBN, fraise 2 dents, torique
CBN, 2 TAGLIENTI, TORICA

- ▶Achieves stable machining and higher accuracy for duration.
- ▶Saves setting time and cost from the reduction of frequent tool change.
- ▶Improves repeatability in performance.
- ▶Special designed geometry improving tool rigidity at High Speed Cutting.
- ▶Tighter Radius Tolerance of ±0.005mm and higher accuracy with longer tool life.

- ▶ Sichert dauerhaft stabile Bearbeitung und höhere Genauigkeit.
- ▶ Spart Rüstzeit und -kosten durch weniger Werkzeugwechsel.
- ▶ Verbessert die Wiederholgenauigkeit.
- ▶ Eine besondere Werkzeuggeometrie verbessert die Steifigkeit bei HSC-Bearbeitung.
- ▶ Engere Radiustoleranz ±0.005, höhere Genauigkeit und längere Werkzeuglebenszeit.



CBN | 2 | 0° | R ±0.005 | PLAIN P.714

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
ESD02005052	R0.05	0.5	4	0.3	2	50	0.46
ESD02005053	R0.05	0.5	4	0.3	3	50	0.46
ESD02010053	R0.05	1.0	4	0.7	3	50	0.95
ESD02010055	R0.05	1.0	4	0.7	5	50	0.95
ESD02010103	R0.1	1.0	4	0.7	3	50	0.95
ESD02010105	R0.1	1.0	4	0.7	5	50	0.95
ESD02015105	R0.1	1.5	4	1.0	5	50	1.45
ESD02015108	R0.1	1.5	4	1.0	8	50	1.45
ESD02015205	R0.2	1.5	4	1.0	5	50	1.45
ESD02015208	R0.2	1.5	4	1.0	8	50	1.45
ESD02020106	R0.1	2.0	4	1.2	6	50	1.95
ESD02020100	R0.1	2.0	4	1.2	10	50	1.95
ESD02020206	R0.2	2.0	4	1.2	6	50	1.95
ESD02020200	R0.2	2.0	4	1.2	10	50	1.95

Corner Radius Tolerance(mm)	Shank Dia. Tolerance
±0.005	h5

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
				◎	◎									

CBN END MILLS

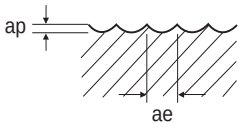
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CBN, 2 FLUTE BALL NOSE
CBN, 2 SCHNEIDEN STIRNRADIUS

ESB94 SERIES

MATERIAL	P				H			
	HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HRc50 ~ HRc60				HRc60 ~ HRc70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.2 × 0.4	50000	1200	65	0.012	50000	1200	65	0.012
R0.25 × 0.5	50000	1500	80	0.015	50000	1500	80	0.015
R0.3 × 0.6	50000	2000	95	0.020	50000	2000	95	0.020
R0.4 × 0.8	50000	2000	125	0.020	50000	2000	125	0.020
R0.5 × 1.0	50000	3000	155	0.030	50000	3000	155	0.030
R0.6 × 1.2	50000	3000	190	0.030	50000	3000	190	0.030
R0.75 × 1.5	50000	3000	235	0.030	50000	3000	235	0.030
R1.0 × 2.0	40000	3200	250	0.040	32000	2500	200	0.039
R1.5 × 3.0	26500	2100	250	0.040	21500	1700	205	0.040

ap : R0.2 ~ R0.4 =0.005mm
R0.5 ~ R1.5 =0.01mm
ae : R0.2 ~ R0.4 =0.005mm
R0.5 ~ R1.5 =0.01mm

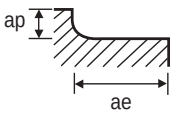


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CBN, 2 FLUTE CORNER RADIUS
CBN, 2 SCHNEIDEN ECKENRADIUS

ESD02 SERIES

MATERIAL	P						H					
	HARDENED STEELS						HIGH HARDENED STEELS					
HARDNESS	HRc50 ~ HRc60						HRc60 ~ HRc70					
DIAMETER	RPM	FEED	Vc	fz	DEPTH OF CUT ae[mm]	DEPTH OF CUT ap[mm]	RPM	FEED	Vc	fz	DEPTH OF CUT ae[mm]	DEPTH OF CUT ap[mm]
0.5	50000	700	80	0.007	0.10	0.01	50000	550	80	0.006	0.06	0.005
1.0	43000	1000	135	0.012	0.20	0.01	30000	700	95	0.012	0.10	0.10
1.5	30000	1000	140	0.017	0.40	0.02	19000	700	90	0.018	0.20	0.20
2.0	22000	900	140	0.020	0.60	0.03	14000	800	90	0.029	0.30	0.30



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE INSERT & HOLDER

Leading Through Innovation

i-Xmill END MILLS

i-Xmill FRÄSER

- Available for General Steels, Pre-Hardened Steels, High Hardened Steels, Stainless Steel and Graphite
- Lieferbar für Allgenmeine Stahl, Vorgehärteten Stahl, durchgehärteten Stahl, rostfreier Stahl und Graphit

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
XMB110A		i-Xmill BALL INSERTS for GENERAL PURPOSE i-Xmill WENDEPLATTE mit RUNDER STIRN für ALLGENMEINEN EINSATZ	R4.0	R16.5	718
XMB120C		i-Xmill BALL INSERTS for PRE-HARDENED STEELS i-Xmill WENDEPLATTE mit RUNDER STIRN für VORGEHÄRTETEN STAHL	R4.0	R16.5	718
XMB260T		i-Xmill BALL INSERTS for HIGH HARDENED STEELS i-Xmill WENDEPLATTE mit RUNDER STIRN für DURCHGEHÄRTETEN STAHL	R4.0	R16.5	718
XMB130A		i-Xmill BALL INSERTS for STAINLESS STEELS i-Xmill WENDEPLATTE mit RUNDER STIRN für ROSTFREIER STAHL	R4.0	R16.5	719
XMM110V		i-Xmill BALL INSERTS for GENERAL PURPOSE - FULL RADIUS i-Xmill WENDEPLATTE mit RUNDER STIRN für ALLGENMEINEN EINSATZ-VOLLRADIUS	R4.0	R16.5	719
XMB110D		i-Xmill BALL INSERTS for GRAPHITE i-Xmill WENDEPLATTE mit RUNDER STIRN für GRAPHIT	R4.0	R16.5	719
XMR110A		i-Xmill CORNER RADIUS INSERTS for GENERAL PURPOSE & STAINLESS STEELS i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS für ALLGENMEINEN EINSATZ & ROSTFREIER STAHL	D8.0	D33.0	720
XMR120C		i-Xmill CORNER RADIUS INSERTS for PRE-HARDENED STEELS i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS für VORGEHÄRTETEN STAHL	D8.0	D33.0	720
XMR260T		i-Xmill CORNER RADIUS INSERTS for HIGH HARDENED STEELS i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS für DURCHGEHÄRTETEN STAHL	D8.0	D33.0	720
XMF110V		i-Xmill CORNER RADIUS INSERTS for GENERAL PURPOSE - HIGH FEED i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS für ALLGENMEINEN EINSATZ–HOCH VORSCHUB	D8.0	D33.0	725
XMR110D		i-Xmill CORNER RADIUS INSERTS for GRAPHITE i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS für GRAPHIT	D8.0	D33.0	725
ZBC		i-Xmill CARBIDE BALL HOLDER - STRAIGHT NECK i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT			730
ZBS		i-Xmill STEEL BALL HOLDER - STRAIGHT NECK i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT			731
ZBT		i-Xmill STEEL BALL HOLDER - TAPER NECK i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit KONISCH ABGESETZTEM SCHAFTTEIL			732
ZRS		i-Xmill STEEL CORNER RADIUS HOLDER - STRAIGHT NECK i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT			733
ZRT		i-Xmill STEEL CORNER RADIUS HOLDER - TAPER NECK i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit KONISCH ABGESETZTEM SCHAFTTEIL			734
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			735

◎ : Excellent ○ : Good

P								H	M	K	N	
Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc40~45	HRc45~55	HRc55~	~HRc28	~HRc35	~HRc8	
◎	○	◎	○	◎	○	○						
○	◎	○	◎	○	◎	◎	○	○		◎		
	○		○		○	○	◎	◎		○		
○		○		○					◎		○	
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											○	◎
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	○		○		○	○	◎	◎		○		
◎	○	◎	○	◎	○							
											○	◎

i-Xmill END MILLS

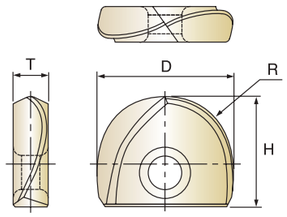
XMB110A
XMB120C
XMB260T

i-Xmill BALL INSERTS

i-Xmill WECHSELPLATTE mit RUNDER STIRN
i-Xmill - Plaquette hémisphérique
INSERTI IN MD, TORICI & TORICI HIGH FEED

- ▶Indexable Ball End Mill for economic use
- ▶Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



cutting conditions : p.736-737

Unit : mm

EDP No.			Radius Of Ball Nose	Mill Diameter	Height	Thickness
PVD Coated						
For General Purpose	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMB110A080	XMB120C080	XMB260T080	R4.0	8.0	8	2.4
XMB110A100	XMB120C100	XMB260T100	R5.0	10.0	9.5	2.7
XMB110A110	XMB120C110	XMB260T110	R5.5	11.0	10	2.7
XMB110A120	XMB120C120	XMB260T120	R6.0	12.0	11	3.2
XMB110A130	XMB120C130	XMB260T130	R6.5	13.0	11.5	3.2
XMB110A160	XMB120C160	XMB260T160	R8.0	16.0	13	4.2
XMB110A170	XMB120C170	XMB260T170	R8.5	17.0	13.5	4.2
XMB110A200	XMB120C200	XMB260T200	R10.0	20.0	16	5.2
XMB110A210	XMB120C210	XMB260T210	R10.5	21.0	16.5	5.2
XMB110A250	XMB120C250	XMB260T250	R12.5	25.0	19.5	6.2
XMB110A260	XMB120C260	XMB260T260	R13.0	26.0	20	6.2
XMB110A300	XMB120C300	XMB260T300	R15.0	30.0	23.5	7.2
XMB110A320	XMB120C320	XMB260T320	R16.0	32.0	24.5	7.2
XMB110A330	XMB120C330	XMB260T330	R16.5	33.0	25	7.2

◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite	
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMB110A	◎	○	◎	○	◎	○	○							
XMB120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMB260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

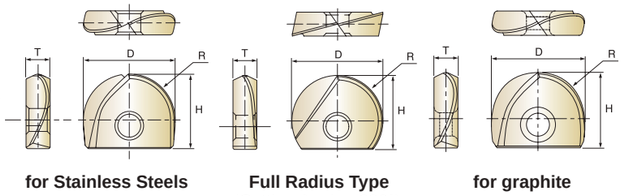
XMB130A
XMM110V
XMB110D

i-Xmill BALL INSERTS

i-Xmill WECHSELPLATTE mit RUNDER STIRN
i-Xmill - Plaquette hémisphérique
INSERTI IN MD, TORICI & TORICI HIGH FEED

- ▶Indexable Ball End Mill for economic use
- ▶Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu



for Stainless Steels **Full Radius Type** (Cutting Angle : 220˚) **for graphite**

cutting conditions : p.736-737

Unit : mm

EDP No.			Radius Of Ball Nose	Mill Diameter	Height	Thickness
PVD Coated		Diamond Coated				
For Stainless Steels	For General Purpose Full Radius Type	For Graphite	R	D	H	T
XMB130A080	XMM110V080	XMB110D080	R4.0	8.0	8	2.4
XMB130A100	XMM110V100	XMB110D100	R5.0	10.0	9.5	2.7
XMB130A110	XMM110V110	XMB110D110	R5.5	11.0	10	2.7
XMB130A120	XMM110V120	XMB110D120	R6.0	12.0	11	3.2
XMB130A130	XMM110V130	XMB110D130	R6.5	13.0	11.5	3.2
XMB130A160	XMM110V160	XMB110D160	R8.0	16.0	13	4.2
XMB130A170	XMM110V170	XMB110D170	R8.5	17.0	13.5	4.2
XMB130A200	XMM110V200	XMB110D200	R10.0	20.0	16	5.2
XMB130A210	XMM110V210	XMB110D210	R10.5	21.0	16.5	5.2
XMB130A250	XMM110V250	XMB110D250	R12.5	25.0	19.5	6.2
XMB130A260	XMM110V260	XMB110D260	R13.0	26.0	20	6.2
XMB130A300	XMM110V300	XMB110D300	R15.0	30.0	23.5	7.2
XMB130A320	XMM110V320	XMB110D320	R16.0	32.0	24.5	7.2
XMB130A330	XMM110V330	XMB110D330	R16.5	33.0	25	7.2

◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite	
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMB130A	○		○		○					◎		○		
XMM110V	◎	○	◎	○	◎	○								
XMB110D												○	◎	

i-Xmill END MILLS

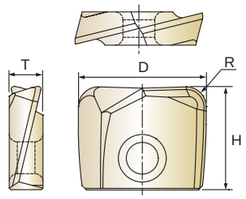
XMR110A
XMR120C
XMR260T

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI & TORICI HIGH FEED

- ▶ The optimum geometry of the tool to achieve the better reliability and less vibration and cutting load.
- ▶ Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The various and wide cutting range makes it possible to machine over the roughing and finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



cutting conditions : p.738-739

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
PVD Coated						
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A080 03	XMR120C080 03	XMR260T080 03	R0.3	8.0	8	2.4
XMR110A080 05	XMR120C080 05	XMR260T080 05	R0.5			
XMR110A080 10	XMR120C080 10	XMR260T080 10	R1.0			
XMR110A080 20	XMR120C080 20	XMR260T080 20	R2.0			
XMR110A100 03	XMR120C100 03	XMR260T100 03	R0.3	10.0	9.5	2.7
XMR110A100 05	XMR120C100 05	XMR260T100 05	R0.5			
XMR110A100 10	XMR120C100 10	XMR260T100 10	R1.0			
XMR110A100 15	XMR120C100 15	XMR260T100 15	R1.5			
XMR110A100 20	XMR120C100 20	XMR260T100 20	R2.0			
XMR110A100 30	XMR120C100 30	XMR260T100 30	R3.0			
XMR110A110 03	XMR120C110 03	XMR260T110 03	R0.3	11.0	9.5	2.7
XMR110A110 05	XMR120C110 05	XMR260T110 05	R0.5			
XMR110A110 10	XMR120C110 10	XMR260T110 10	R1.0			
XMR110A110 15	XMR120C110 15	XMR260T110 15	R1.5			
XMR110A110 20	XMR120C110 20	XMR260T110 20	R2.0			
XMR110A110 30	XMR120C110 30	XMR260T110 30	R3.0			

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◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite	
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMR110A	◎	○	◎	○	◎	○	○			◎				
XMR120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMR260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

XMR110A
XMR120C
XMR260T

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
INSERTI IN MD, TORICI & TORICI HIGH FEED

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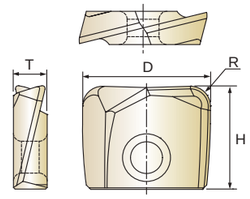

cutting conditions : p.738-739

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
PVD Coated						
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A120 03	XMR120C120 03	XMR260T120 03	R0.3	12.0	11	3.2
XMR110A120 05	XMR120C120 05	XMR260T120 05	R0.5			
XMR110A120 10	XMR120C120 10	XMR260T120 10	R1.0			
XMR110A120 15	XMR120C120 15	XMR260T120 15	R1.5			
XMR110A120 20	XMR120C120 20	XMR260T120 20	R2.0			
XMR110A120 30	XMR120C120 30	XMR260T120 30	R3.0			
XMR110A130 03	XMR120C130 03	XMR260T130 03	R0.3	13.0	11.2	3.2
XMR110A130 05	XMR120C130 05	XMR260T130 05	R0.5			
XMR110A130 10	XMR120C130 10	XMR260T130 10	R1.0			
XMR110A130 15	XMR120C130 15	XMR260T130 15	R1.5			
XMR110A130 20	XMR120C130 20	XMR260T130 20	R2.0			
XMR110A130 30	XMR120C130 30	XMR260T130 30	R3.0			
XMR110A160 03	XMR120C160 03	XMR260T160 03	R0.3	16.0	13	4.2
XMR110A160 05	XMR120C160 05	XMR260T160 05	R0.5			
XMR110A160 10	XMR120C160 10	XMR260T160 10	R1.0			
XMR110A160 15	XMR120C160 15	XMR260T160 15	R1.5			
XMR110A160 20	XMR120C160 20	XMR260T160 20	R2.0			
XMR110A160 30	XMR120C160 30	XMR260T160 30	R3.0			

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◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite	
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMR110A	◎	○	◎	○	◎	○	○			◎				
XMR120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMR260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

XMR110A
XMR120C
XMR260T

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
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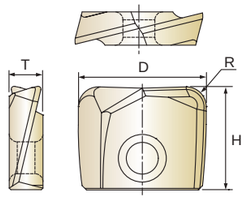

cutting conditions : p.738-739

EDP No. PVD Coated			Corner Radius	Mill Diameter	Height	Thickness
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A170 03	XMR120C170 03	XMR260T170 03	R0.3	17.0	13	4.2
XMR110A170 05	XMR120C170 05	XMR260T170 05	R0.5			
XMR110A170 10	XMR120C170 10	XMR260T170 10	R1.0			
XMR110A170 15	XMR120C170 15	XMR260T170 15	R1.5			
XMR110A170 20	XMR120C170 20	XMR260T170 20	R2.0			
XMR110A170 30	XMR120C170 30	XMR260T170 30	R3.0			
XMR110A200 03	XMR120C200 03	XMR260T200 03	R0.3	20.0	16	5.2
XMR110A200 05	XMR120C200 05	XMR260T200 05	R0.5			
XMR110A200 10	XMR120C200 10	XMR260T200 10	R1.0			
XMR110A200 15	XMR120C200 15	XMR260T200 15	R1.5			
XMR110A200 20	XMR120C200 20	XMR260T200 20	R2.0			
XMR110A200 30	XMR120C200 30	XMR260T200 30	R3.0			
XMR110A210 03	XMR120C210 03	XMR260T210 03	R0.3	21.0	16	5.2
XMR110A210 05	XMR120C210 05	XMR260T210 05	R0.5			
XMR110A210 10	XMR120C210 10	XMR260T210 10	R1.0			
XMR110A210 15	XMR120C210 15	XMR260T210 15	R1.5			
XMR110A210 20	XMR120C210 20	XMR260T210 20	R2.0			
XMR110A210 30	XMR120C210 30	XMR260T210 30	R3.0			

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◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum		Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMR110A	◎	○	◎	○	◎	○	○			◎				
XMR120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMR260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

XMR110A
XMR120C
XMR260T

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
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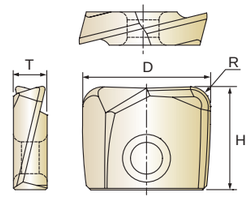

cutting conditions : p.738-739

EDP No. PVD Coated			Corner Radius	Mill Diameter	Height	Thickness
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A250 03	XMR120C250 03	XMR260T250 03	R0.3	25.0	19.5	6.2
XMR110A250 05	XMR120C250 05	XMR260T250 05	R0.5			
XMR110A250 10	XMR120C250 10	XMR260T250 10	R1.0			
XMR110A250 15	XMR120C250 15	XMR260T250 15	R1.5			
XMR110A250 20	XMR120C250 20	XMR260T250 20	R2.0			
XMR110A250 30	XMR120C250 30	XMR260T250 30	R3.0			
XMR110A260 03	XMR120C260 03	XMR260T260 03	R0.3	26.0	19.5	6.2
XMR110A260 05	XMR120C260 05	XMR260T260 05	R0.5			
XMR110A260 10	XMR120C260 10	XMR260T260 10	R1.0			
XMR110A260 15	XMR120C260 15	XMR260T260 15	R1.5			
XMR110A260 20	XMR120C260 20	XMR260T260 20	R2.0			
XMR110A260 30	XMR120C260 30	XMR260T260 30	R3.0			
XMR110A300 03	XMR120C300 03	XMR260T300 03	R0.3	30.0	23.5	7.2
XMR110A300 05	XMR120C300 05	XMR260T300 05	R0.5			
XMR110A300 10	XMR120C300 10	XMR260T300 10	R1.0			
XMR110A300 15	XMR120C300 15	XMR260T300 15	R1.5			
XMR110A300 20	XMR120C300 20	XMR260T300 20	R2.0			
XMR110A300 30	XMR120C300 30	XMR260T300 30	R3.0			

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◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum		Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMR110A	◎	○	◎	○	◎	○	○			◎				
XMR120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMR260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

XMR110A
XMR120C
XMR260T

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
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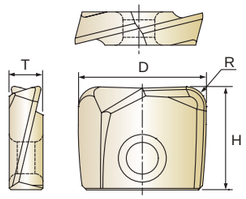

cutting conditions : p.738-739

EDP No.			Corner Radius	Mill Diameter	Height	Thickness
PVD Coated						
For General Purpose & Stainless Steels	For Pre-Hardened Steels	For High Hardened Steels	R	D	H	T
XMR110A320 03	XMR120C320 03	XMR260T320 03	R0.3	32.0	23.5	7.2
XMR110A320 05	XMR120C320 05	XMR260T320 05	R0.5			
XMR110A320 10	XMR120C320 10	XMR260T320 10	R1.0			
XMR110A320 15	XMR120C320 15	XMR260T320 15	R1.5			
XMR110A320 20	XMR120C320 20	XMR260T320 20	R2.0			
XMR110A320 30	XMR120C320 30	XMR260T320 30	R3.0			
XMR110A330 03	XMR120C330 03	XMR260T330 03	R0.3	33.0	23.5	7.2
XMR110A330 05	XMR120C330 05	XMR260T330 05	R0.5			
XMR110A330 10	XMR120C330 10	XMR260T330 10	R1.0			
XMR110A330 15	XMR120C330 15	XMR260T330 15	R1.5			
XMR110A330 20	XMR120C330 20	XMR260T330 20	R2.0			
XMR110A330 30	XMR120C330 30	XMR260T330 30	R3.0			

◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum		Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMR110A	◎	○	◎	○	◎	○	○			◎				
XMR120C	○	◎	○	◎	○	◎	◎	○	○		◎			
XMR260T		○		○		○	○	◎	◎		○			

i-Xmill END MILLS

XMF110V
XMR110D

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
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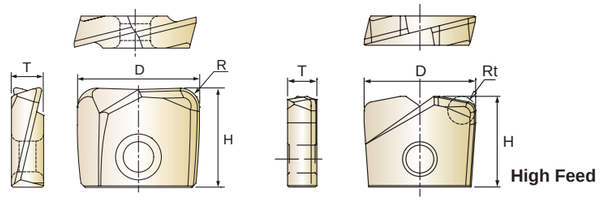

High Feed

cutting conditions : p.738-739

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
PVD Coated	Diamond Coated					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D080 03	R0.3	8.0	8	2.4	0.4
-	XMR110D080 05	R0.5				
XMF110V080 08	-	R0.8				
-	XMR110D080 10	R1.0				
-	XMR110D080 20	R2.0				
-	XMR110D100 03	R0.3	10.0	9.5	2.7	0.5
-	XMR110D100 05	R0.5				
XMF110V100 10	XMR110D100 10	R1.0				
-	XMR110D100 15	R1.5				
-	XMR110D100 20	R2.0				
-	XMR110D100 30	R3.0				
-	XMR110D110 03	R0.3	11.0	9.5	2.7	0.5
-	XMR110D110 05	R0.5				
XMF110V110 10	XMR110D110 10	R1.0				
-	XMR110D110 15	R1.5				
-	XMR110D110 20	R2.0				
-	XMR110D110 30	R3.0				

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◎ : Excellent ○ : Good

	P								H	M	K	N		
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum		Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8		
XMF110V	◎	○	◎	○	◎	○								
XMR110D												○	◎	

i-Xmill END MILLS

XMF110V
XMR110D

i-Xmill CORNER RADIUS INSERT

i-Xmill WECHSELPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill - Plaquette pour usage général et inox
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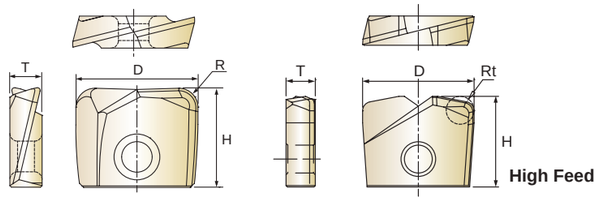


High Feed

cutting conditions : p.738-739

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
PVD Coated	Diamond Coated	R (Rt)	D	H	T	apMax.
-	XMR110D120 03	R0.3	12.0	11	3.2	0.6
-	XMR110D120 05	R0.5				
XMF110V120 10	XMR110D120 10	R1.0				
-	XMR110D120 15	R1.5				
-	XMR110D120 20	R2.0				
-	XMR110D120 30	R3.0				
-	XMR110D130 03	R0.3	13.0	11.2	3.2	0.6
-	XMR110D130 05	R0.5				
XMF110V130 10	XMR110D130 10	R1.0				
-	XMR110D130 15	R1.5				
-	XMR110D130 20	R2.0				
-	XMR110D130 30	R3.0				
-	XMR110D160 03	R0.3	16.0	13	4.2	0.8
-	XMR110D160 05	R0.5				
-	XMR110D160 10	R1.0				
XMF110V160 15	XMR110D160 15	R1.5				
-	XMR110D160 20	R2.0				
-	XMR110D160 30	R3.0				

▶ NEXT PAGE

◎ : Excellent ○ : Good

	P								H	M	K	N	
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8	
XMF110V	◎	○	◎	○	◎	○							
XMR110D												○	◎

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Xmill END MILLS

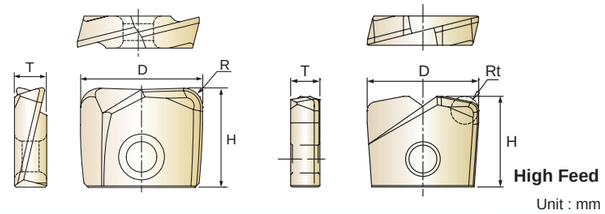
XMF110V
XMR110D

i-Xmill CORNER RADIUS INSERT

i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
i-Xmill INSERTI TORICI

- ▶ The optimum geometry of the tool to achieve the better reliability and less vibration and cutting load.
- ▶ Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
- ▶ The various and wide cutting range makes it possible to machine over the roughing and finishing.
- ▶ Special coating makes high hardness with high thermal stability against oxidation.

- ▶ Die optimale Werkzeuggeometrie für große Betriebssicherheit und geringe Vibration und Schneidendruck.
- ▶ Einsetzbar wie i-Xmill Rundplattenhalter, aber eine größere Schnittgenauigkeit ist mit dem Vierkantplattenhalter möglich, wegen der größeren Steifigkeit und Stärke des Werkzeugs.
- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
- ▶ Eine spezielle Beschichtung verleiht der Schneide große Härte und Hitzebeständigkeit.



High Feed

Unit : mm

cutting conditions : p.738-739

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
PVD Coated	Diamond Coated	R (Rt)	D	H	T	apMax.
-	XMR110D170 03	R0.3	17.0	13	4.2	0.8
-	XMR110D170 05	R0.5				
-	XMR110D170 10	R1.0				
XMF110V170 15	XMR110D170 15	R1.5				
-	XMR110D170 20	R2.0				
-	XMR110D170 30	R3.0				
-	XMR110D200 03	R0.3	20.0	16	5.2	1.0
-	XMR110D200 05	R0.5				
-	XMR110D200 10	R1.0				
-	XMR110D200 15	R1.5				
XMF110V200 20	XMR110D200 20	R2.0				
-	XMR110D200 30	R3.0				
-	XMR110D210 03	R0.3	21.0	16	5.2	1.0
-	XMR110D210 05	R0.5				
-	XMR110D210 10	R1.0				
-	XMR110D210 15	R1.5				
XMF110V210 20	XMR110D210 20	R2.0				
-	XMR110D210 30	R3.0				

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◎ : Excellent ○ : Good

	P								H	M	K	N	
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8	
XMF110V	◎	○	◎	○	◎	○							
XMR110D												○	◎

i-Xmill END MILLS

XMF110V
XMR110D

i-Xmill CORNER RADIUS INSERT

i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
i-Xmill INSERTI TORICI

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- ▶ Interchangeability with i-Xmill ball holder, but the precise cutting is possible with i-Xmill corner radius holder due to higher stability and strength of tool.
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- ▶ Die große Einsatzbreite des Werkzeugs macht den Einsatz sowohl zum Schruppen als auch zum Schlichten möglich.
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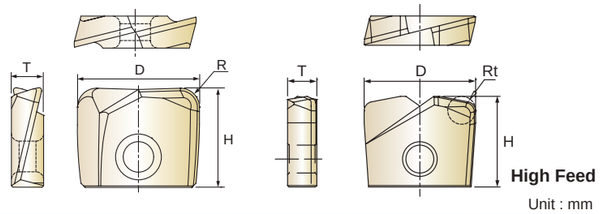

High Feed

Unit : mm

cutting conditions : p.738-739

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
PVD Coated	Diamond Coated					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D250 03	R0.3	25.0	19.5	6.2	1.25
-	XMR110D250 05	R0.5				
-	XMR110D250 10	R1.0				
-	XMR110D250 15	R1.5				
-	XMR110D250 20	R2.0				
XMF110V250 25	-	R2.5				
-	XMR110D250 30	R3.0				
-	XMR110D260 03	R0.3	26.0	19.5	6.2	1.25
-	XMR110D260 05	R0.5				
-	XMR110D260 10	R1.0				
-	XMR110D260 15	R1.5				
-	XMR110D260 20	R2.0				
XMF110V260 25	-	R2.5				
-	XMR110D260 30	R3.0				
-	XMR110D300 03	R0.3	30.0	23.5	7.2	1.6
-	XMR110D300 05	R0.5				
-	XMR110D300 10	R1.0				
-	XMR110D300 15	R1.5				
-	XMR110D300 20	R2.0				
XMF110V300 30	XMR110D300 30	R3.0				

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◎ : Excellent ○ : Good

	P								H		M	K	N	
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8	
XMF110V	◎	○	◎	○	◎	○							
XMR110D												○	◎

i-Xmill END MILLS
XMF110V
XMR110D
i-Xmill CORNER RADIUS INSERT
i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS
i-Xmill Plaquette Torique AVEC RAYON de coupe frontale
i-Xmill INSERTI TORICI
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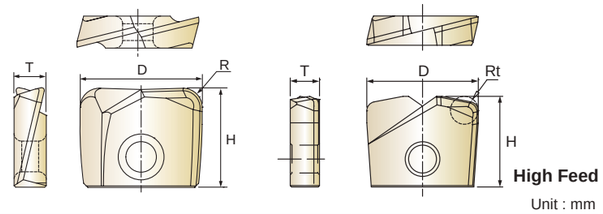


High Feed
Unit : mm
cutting conditions : p.738-739

EDP No.		Corner Radius	Mill Diameter	Height	Thickness	for High Feed
PVD Coated	Diamond Coated					
For General Purpose High Feed	For Graphite	R (Rt)	D	H	T	apMax.
-	XMR110D320 03	R0.3	32.0	23.5	7.2	1.6
-	XMR110D320 05	R0.5				
-	XMR110D320 10	R1.0				
-	XMR110D320 15	R1.5				
-	XMR110D320 20	R2.0				
-	XMR110D320 30	R3.0				
XMF110V320 32	XMR110D320 32	R3.2				
-	XMR110D330 03	R0.3	33.0	23.5	7.2	1.6
-	XMR110D330 05	R0.5				
-	XMR110D330 10	R1.0				
-	XMR110D330 15	R1.5				
-	XMR110D330 20	R2.0				
-	XMR110D330 30	R3.0				
XMF110V330 32	XMR110D330 32	R3.2				

◎ : Excellent ○ : Good

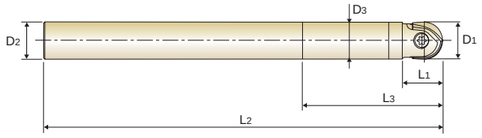
	P								H		M	K	N	
	Carbon Steels		Alloy Steels		Tool Steels		Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Aluminum	Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	HRc55~	~HRc28	~HRc35	~HRc8	
XMF110V	◎	○	◎	○	◎	○							
XMR110D												○	◎

i-Xmill END MILLS

ZBC

i-Xmill CARBIDE BALL HOLDER - STRAIGHT NECK

i-Xmill HARTMETAL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT
Porte-plaquette i-Xmill en Carbure, entrée droite, pour plaquette à bout hémisphérique
CORPO FRESA IN MD PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D_1	D_2	D_3	L_1	L_3	L_2			
★ZBC0801080	8	8	7.6	12	25	130	Regular	TWFT07	TX2508T07
★ZBC0802080					40				
★ZBC0803080					65				
ZBC0804080					60	150			
ZBC0805080					60	200	Long		
ZBC0806080					25	80	Short		
★ZBC1001100	10, 11	10	9.5	15	30	140	Regular	TWFT08	TX3010T08
★ZBC1002100					50				
★ZBC1003100					75				
ZBC1004100					60	180			
ZBC1005100					60	200	Long		
ZBC1006100					30	80	Short		
ZBC120001P					40	200	Long		
★ZBC1201120	12, 13	12	11.4	17	35	150	Regular	TWFT10	TX3512T10
★ZBC1202120					60				
★ZBC1203120					85				
ZBC1204120					60	250	Long		
ZBC1205120					35	100	Short		
ZBC160001P	16, 17	16	15.0	20	50	150	Regular	TWFT15	TX4016T15
★ZBC1601160					50	200	Long		
★ZBC1602160					80				
★ZBC1603160					120				
★ZBC1604160					80	250			
ZBC1605160					50	120	Short		
ZBC200002P	20, 21	20	19.0	25	60	150	Regular	●TWBT20	TX5020T20
★ZBC2001200					60	200			
★ZBC2002200					80				
★ZBC2003200					100	250	Long		
★ZBC2004200					150				
ZBC2005200					100	300			
ZBC250001P	25, 26	25	24.0	30	75	150	Regular	●TWBT25	TX6025T25
★ZBC2501250					75	200			
★ZBC2502250					120	250			
★ZBC2503250					190	300	Long		
ZBC2504250					120	350			
ZBC2505250					60	300			
★ZBC3001320	30, 32, 33	32	29.0	40	90	250	Regular	●TWBT30	TX8030T30
★ZBC3002320					150	300	Long		
★ZBC3003320					190				
ZBC3004320					120	350			
ZBC3005320					150	400			

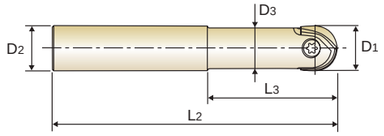
* Upon request, the broken holder is able to be regenerated
* Your carbide holder can be regenerated as YG-1 type upon request
* ● Required to use T-HANDLE (TWH600)
* ★Stock Item

i-Xmill END MILLS

ZBS

i-Xmill STEEL BALL HOLDER - STRAIGHT NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit GERADER SCHAFT
Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette à bout hémisphérique
CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length Below Shank	Overall Length	Length Type	Wrench No.	Screw No.
	D_1	D_2	D_3	L_3	L_2			
★ZBS1201120	12, 13	12	10.5	35	90	Short	TWFT10	TX3512T10
★ZBS1202120				55	110	Regular		
ZBS120001P				40	150	Long		
★ZBS1601160	16, 17	16	14.5	35	95	Short	TWFT15	TX4016T15
★ZBS1602160				65	125	Regular		
ZBS160001P				60	200	Long		
★ZBS2001200	20, 21	20	18	40	110	Short	●TWBT20	TX5020T20
★ZBS2002200				75	145	Regular		
ZBS200001P				80	200	Long		
ZBS200002P				60	200	Long		
★ZBS2501250	25, 26	25	22.5	45	125	Short	●TWBT25	TX6025T25
★ZBS2502250				90	170	Regular		
ZBS2503250				100	250	Long		
ZBS250001P				90	200	Long		
ZBS250002P				60	200	Long		
★ZBS3001320	30, 32, 33	32	27	55	140	Short	●TWBT30	TX8030T30
★ZBS3002320				110	195	Regular		
ZBS3004320				150	350	Long		
ZBS300001P				100	250	Long		

● Required to use T-HANDLE (TWH600)
* ★ Stock Item

i-Xmill END MILLS

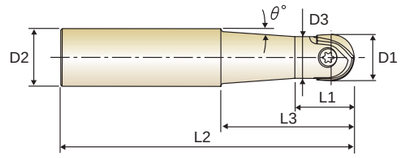
ZBT

i-Xmill STEEL BALL HOLDER - TAPER NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit RUNDER STIRN - mit KONISCH ABGESETZTEM SCHAFTTEIL

Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette à bout hémisphérique

CORPO FRESA IN ACCIAIO PER INSERTI SEMISFERICI i-Xmill - CONICO



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Neck Diameter D3	Length of Cut L1	Length Below Shank L3	Overall Length L2	Interference Angle θ°	Length Type	Wrench No.	Screw No.
★ZBT0801120	8	12	7.2	12	35	90	4° 43′	Short	TWFT07	TX2508T07
★ZBT0802120				25	55	110	3° 37′	Regular		
★ZBT1001120	10, 11	12	9	15	35	90	2° 51′	Short	TWFT08	TX3010T08
★ZBT1002120				30	55	110	2° 17′	Regular		
★ZBT1201160	12, 13	16	10.5	17	55	110	3° 23′	Short	TWFT10	TX3512T10
★ZBT1601200	16, 17	20	14.5	20	65	125	2° 51′	Short	TWFT15	TX4016T15
ZBT1604200					115	200	1° 22′	Regular		
★ZBT2001250	20, 21	25	18	25	75	145	3° 26′	Short	●TWBT20	TX5020T20
ZBT2004250					115	200	1° 55′	Regular		
ZBT2005250					160	250	1° 17′	Long		
★ZBT2501320	25, 26	32	22.5	30	90	170	4° 03′	Short	●TWBT25	TX6025T25
ZBT2504320					160	250	1° 53′	Regular		
ZBT2505320					190	300	1° 32′	Long		
★ZBT3001320	30, 32, 33	32	27	40	110	195	1° 38′	Short	●TWBT30	TX8030T30
ZBT3004320					160	250	0° 58′	Regular		
ZBT3005320					190	300	0° 46′	Long		

* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

i-Xmill END MILLS

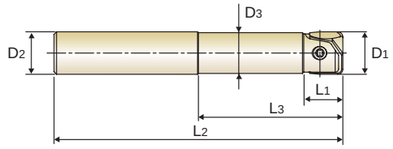
ZRS

i-Xmill STEEL CORNER RADIUS HOLDER - STRAIGHT NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit GERADER SCHAFT

Porte-plaquette i-Xmill en acier, entrée droite, pour plaquette torique

CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CILINDRICO



Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Neck Diameter D3	Length of Cut L1	Length Below Shank L3	Overall Length L2	Length Type	Wrench No.	Screw No.
★ZRS1201120	12, 13	12	11	13	30	110	Regular	TWFT10	TX3512T10
★ZRS1601160	16, 17	16	15	15	50	130	Regular	TWFT15	TX4016T15
★ZRS1602160					65	165	Intermediate		
ZRS1603160					65	200	Long		
★ZRS2001200	20, 21	20	19	18	60	140	Regular	●TWBT20	TX5020T20
★ZRS2002200					80	180	Intermediate		
ZRS2003200					80	250	Long		
★ZRS2501250	25, 26	25	24	23	70	150	Regular	●TWBT25	TX6025T25
★ZRS2502250					90	200	Intermediate		
ZRS2503250					90	300	Long		
★ZRS3001320	30, 32, 33	32	29	27	80	160	Regular	●TWBT30	TX8030T30
★ZRS3002320					100	220	Intermediate		
ZRS3003320					100	350	Long		

* ● Required to use T-HANDLE (TWH600)
* ★ Stock Item

i-Xmill END MILLS

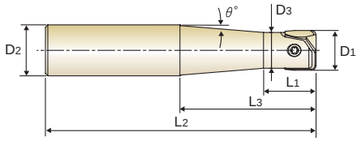
ZRT

i-Xmill STEEL CORNER RADIUS HOLDER - TAPER NECK

i-Xmill STAHL HALTER für WECHSEL PLATTE mit ECKRADIUS - mit KONISCH ABGESETZTEM SCHAFTTEIL

Porte-plaquette i-Xmill en acier, entrée conique, pour plaquette torique

CORPO FRESA IN ACCIAIO PER INSERTI TORICI i-Xmill - CONICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Neck Diameter	Length of Cut	Length Below Shank	Overall Length	Interference Angle	Length Type	Wrench No.	Screw No.
	D_1	D_2	D_3	L_1	L_3	L_2	θ°			
★ZRT0801120	8	12	6.7	10.0	22	100	9°	Regular	TWFT07	TX2508T07
★ZRT0802120					50	130	2° 43´	Long		
★ZRT1001120	10, 11	12	8.6	13.0	25	100	4° 45´	Regular	TWFT08	TX3010T08
★ZRT1002120					50	150	1° 32´	Long		
★ZRT1202160	12, 13	16	10.2	15.0	60	160	2° 32´	Long	TWFT10	TX3512T10

* ★ Stock Item

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

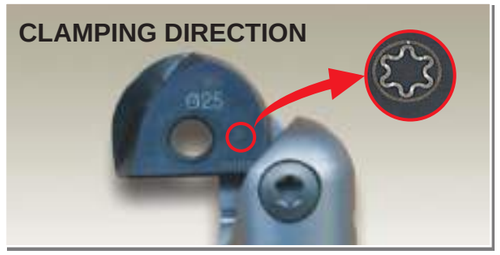
ASSEMBLY of i-Xmill
MONTAGE DES i-Xmill

▲ Make sure to clean the insert and insert seat.
Wechselplatte und Plattensitz sorgfältig reinigen.

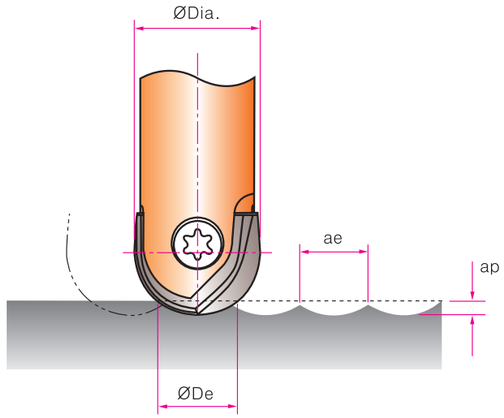
▲ Slide the insert into the slot of the holder.
Tighten the screw using anti-seize compound.
Wechselplatte in den Sitz des Halters einf¸hren.
Die Schraube fest anziehen und dabei Spezialfett verwenden

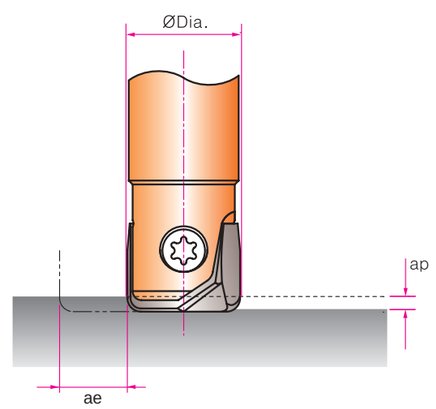
SIZE (ØD)	CLAMPING TORQUE [N·m]
Ø8.0	1.0
Ø10.0	1.5
Ø12.0, Ø13.0	2.5
Ø16.0, Ø17.0	3.5
Ø20.0, Ø21.0	5.0
Ø25.0, Ø26.0	6.0
Ø30.0, Ø32.0	6.5

* When the screw is worn out, please change the new screw.
* Wenn das Schraubengewinde verschlissen ist, bitte neue Schraube verwenden.
* Please tighten up the screw with recommended torque. (Please refer to the table)
* Die Feststellschraube mit dem empfohlenen Anzugsmoment anziehen (siehe Tabelle).
* Don't press down the insert, when the screw is tightened.
* Die Wechselplatte nicht nach unten dr¸cken, wenn die Schraube angezogen ist.



CUTTING CONDITION
SCHNEIDKONDITIONEN





RPM = revolution per minute (rev/min)
Vc = surface meter per minute (M/min)
Dia. = diameter of insert (mm)
Vf = feed speed (mm/min)
f = feed per revolution (mm/rev)
De = effective tool diameter (mm)
ap = axial depth of cut (mm)
ae = radial depth of cut (mm)

$$Vc\ [M/min] = \frac{(RPM) \cdot (\pi) \cdot (Dia.)}{1000}$$

$$Vf\ [mm/min] = (RPM) \cdot (f)$$

$$RPM\ [rev/min] = \frac{(Vc) \cdot (1000)}{(\pi) \cdot (Dia.)}$$

$$De\ [mm] = 2\sqrt{(ap) \cdot (Dia. - ap)}$$

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

i-Xmill BALL INSERTS
i-Xmill WENDEPLATTE mit RUNDER STIRN

WORK MATERIALS		P				P			
		NON-ALLOYED STEELS ALLOY STEELS				FULL RADIUS NON-ALLOYED STEELS ALLOY STEELS			
HARDNESS	HB	~280				~280			
	HRc	~30				~30			
STRENGTH	N/mm²	~1000				~1000			
i-Xmill TYPE		XMB110A				XMM110V			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		6370~12730	2550~5090	160~320	0.20~0.20	6370~12730	2550~5090	160~320	0.20~0.20
10, 11		5090~11460	2040~4580	160~360	0.20~0.20	5090~11460	2040~4580	160~360	0.20~0.20
12, 13		4240~10080	1700~4030	160~380	0.20~0.20	4240~10080	1700~4030	160~380	0.20~0.20
16, 17		3180~9550	1590~5730	160~480	0.25~0.30	3180~9550	1590~5730	160~480	0.25~0.30
20, 21		2550~9230	1270~7380	160~580	0.25~0.40	2550~9230	1270~7380	160~580	0.25~0.40
25, 26		2040~7640	1020~7640	160~600	0.25~0.50	2040~7640	1020~7640	160~600	0.25~0.50
30, 32, 33		1700~7430	850~8910	160~700	0.25~0.60	1700~7430	850~8910	160~700	0.25~0.60

WORK MATERIALS		P				P			
		ALLOY STEELS HEAT RESISTANT STEELS				DIE TOOL STEELS PRE-HARDENED STEELS			
HARDNESS	HB	280~380				380~480			
	HRc	30~40				40~50			
STRENGTH	N/mm²	1000~1250				1250~1500			
i-Xmill TYPE		XMB110A				XMB110A, XMB120C			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		4770~11140	1910~4460	120~280	0.20~0.20	3980~8750	1190~3500	100~220	0.15~0.20
10, 11		3820~9550	1530~3820	120~300	0.20~0.20	3180~8280	950~3310	100~260	0.15~0.20
12, 13		3180~9280	1270~3710	120~350	0.20~0.20	2650~7430	800~2970	100~280	0.15~0.20
16, 17		2390~7560	1190~4540	120~380	0.25~0.30	1990~6960	800~4180	100~350	0.20~0.30
20, 21		1910~6680	950~5350	120~420	0.25~0.40	1590~6370	640~5090	100~400	0.20~0.40
25, 26		1530~6110	760~6110	120~480	0.25~0.50	1270~5730	510~5730	100~450	0.20~0.50
30, 32, 33		1270~5840	640~7000	120~550	0.25~0.60	1060~5310	420~6370	100~500	0.20~0.60

WORK MATERIALS		P				H			
		HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HB	420~550				550~740			
	HRc	45~55				55~65			
STRENGTH	N/mm²	1500~				1500~			
i-Xmill TYPE		XMB120C				XMB260T			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		3180~7160	640~2860	80180	0.10~0.20	3180~7160	640~2150	80~180	0.10~0.15
10, 11		2550~6370	510~2550	80200	0.10~0.20	2550~6370	510~1910	80~200	0.10~0.15
12, 13		2120~5840	420~2330	80220	0.10~0.20	2120~5840	420~1750	80~220	0.10~0.15
16, 17		1590~5170	480~3100	80260	0.15~0.30	1590~5170	480~2590	80~260	0.15~0.25
20, 21		1270~5090	380~4070	80320	0.15~0.40	1270~5090	380~2550	80~320	0.15~0.25
25, 26		1020~4580	310~4580	80360	0.15~0.50	1020~4580	310~2290	80~360	0.15~0.25
30, 32, 33		850~4240	250~5090	80400	0.15~0.60	850~4240	250~2550	80~400	0.15~0.30

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

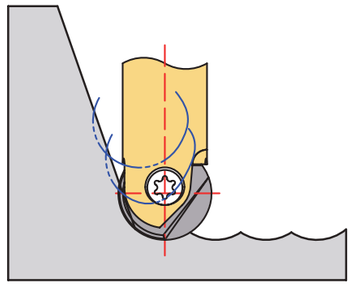
i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

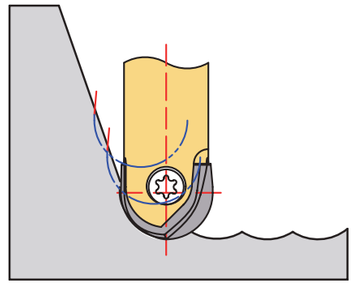
i-Xmill BALL INSERTS
i-Xmill WENDEPLATTE mit RUNDER STIRN

WORK MATERIALS		M	K
		STAINLESS STEELS	CAST IRON
HARDNESS	HB		
	HRc		
STRENGTH	N/mm²		
i-Xmill TYPE		XMB130A	XMB120C
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min] / Feed (Vf) [mm/min] / Vc [m/min] / fz [mm/tooth]	RPM [rev/min] / Feed (Vf) [mm/min] / Vc [m/min] / fz [mm/tooth]
8		3580~5170 / 720~1290 / 90~130 / 0.10~0.12	6370~12730 / 3820~5090 / 160~320 / 0.30~0.20
10, 11		2860~4140 / 720~1240 / 90~130 / 0.13~0.15	5090~11460 / 3060~6880 / 160~360 / 0.30~0.30
12, 13		2390~3450 / 720~1380 / 90~130 / 0.15~0.20	4240~10610 / 2550~6370 / 160~400 / 0.30~0.30
16, 17		1790~2590 / 540~1030 / 90~130 / 0.15~0.20	3180~9950 / 2230~5970 / 160~500 / 0.35~0.30
20, 21		1430~2070 / 430~830 / 90~130 / 0.15~0.20	2550~8750 / 1780~7000 / 160~550 / 0.35~0.40
25, 26		1150~1660 / 460~830 / 90~130 / 0.20~0.25	2040~7890 / 1430~7890 / 160~620 / 0.35~0.50
30, 32, 33		950~1380 / 380~690 / 90~130 / 0.20~0.25	1700~7640 / 1190~9170 / 160~720 / 0.35~0.60

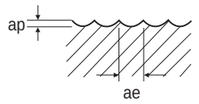
WORK MATERIALS		N
		GRAPHITE
HARDNESS	HB	
	HRc	
STRENGTH	N/mm²	
i-Xmill TYPE		XMB110D
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min] / Feed (Vf) [mm/min] / Vc [m/min] / fz [mm/tooth]
8		11940~15920 / 4770~6370 / 300~400 / 0.20~0.20
10, 11		9550~12730 / 3820~5090 / 300~400 / 0.20~0.20
12, 13		7960~10610 / 3180~4240 / 300~400 / 0.20~0.20
16, 17		5970~7960 / 2980~4770 / 300~400 / 0.25~0.30
20, 21		4770~7640 / 2860~5350 / 300~480 / 0.30~0.35
25, 26		3820~7130 / 2670~5700 / 300~560 / 0.35~0.40
30, 32, 33		3180~6900 / 2550~6900 / 300~650 / 0.40~0.50



Full Radius Type



Ball Radius Type



ae : Roughing - 0.1 x D
Finishing - Under Ø12 : 0.25mm
Under Ø20 : 0.30mm
From Ø20 : 0.40mm

ap : Roughing - Under Ø16 : 0.025 x D
From Ø16 : 0.05 x D
Finishing - Under Ø16 : 0.1mm

▶ When the length of overhang exceed 4xD, we recommend to use carbide shank holder. (Feed 20% down)
▶ Recommend to reduce the feed rate to 70~85% when you use long(long & intermediate Type Holder) tools.

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

i-Xmill CORNER RADIUS INSERT
i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS

WORK MATERIALS		P								
		NON-ALLOYED STEELS ALLOY STEELS				HIGH FEED NON-ALLOYED STEELS ALLOY STEELS				
HARDNESS	HB	~280				~280				
	HRc	~30				~30				
STRENGTH	N/mm²	~1000				~1000				
i-Xmill TYPE		XMR110A				XMF110V				
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	ap (max)
8		6370~11940	2550~3580	160~300	0.20~0.15	5970~7960	7160~6370	150~200	0.60~0.40	0.4
10, 11		5090~9550	2040~2860	160~300	0.20~0.15	4770~6370	7160~6370	150~200	0.75~0.50	0.5
12, 13		4240~7960	1700~2390	160~300	0.20~0.15	3980~5310	7160~6370	150~200	0.90~0.60	0.6
16, 17		3180~5970	1590~2390	160~300	0.25~0.20	2980~3980	7160~6370	150~200	1.20~0.80	0.8
20, 21		2550~4770	1270~1910	160~300	0.25~0.20	2390~3180	7160~6370	150~200	1.50~1.00	1.0
25, 26		2040~3820	1020~1530	160~300	0.25~0.20	1910~2550	7640~7640	150~200	2.00~1.50	1.3
30, 32, 33		1700~3180	850~1270	160~300	0.25~0.20	1590~2120	7320~7640	150~200	2.30~1.80	1.6

WORK MATERIALS		P							
		ALLOY STEELS HEAT RESISTANT STEELS				DIE TOOL STEELS PRE-HARDENED STEELS			
HARDNESS	HB					380~480			
	HRc	30~40				40~50			
STRENGTH	N/mm²	1000~1250				1250~1500			
i-Xmill TYPE		XMR110A				XMR110A, XMR120C			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		4770~11140	1910~3340	120~280	0.20~0.15	3980~11140	990~1340	100~280	0.12~0.06
10, 11		3820~8910	1530~2670	120~280	0.20~0.15	3180~8910	800~1070	100~280	0.13~0.06
12, 13		3180~7430	1270~2230	120~280	0.20~0.15	2650~7430	660~890	100~280	0.12~0.06
16, 17		2390~5570	1190~2230	120~280	0.25~0.20	1990~5570	600~840	100~280	0.15~0.08
20, 21		1910~4460	950~1780	120~280	0.25~0.20	1590~4460	480~670	100~280	0.15~0.08
25, 26		1530~3570	760~1430	120~280	0.25~0.20	1270~3570	380~530	100~280	0.15~0.07
30, 32, 33		1270~2970	640~1190	120~280	0.25~0.20	1060~2970	320~450	100~280	0.15~0.08

WORK MATERIALS		P				H			
		HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HB	420~550				550~740			
	HRc	45~55				55~65			
STRENGTH	N/mm²	1500~				1500~			
i-Xmill TYPE		XMR120C				XMR260T			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		3180~8750	640~880	80~220	0.10~0.05	3180~8750	640~880	80~220	0.10~0.05
10, 11		2550~7000	510~700	80~220	0.10~0.05	2550~7000	510~700	80~220	0.10~0.05
12, 13		2120~5840	420~580	80~220	0.10~0.05	2120~5840	420~580	80~220	0.10~0.05
16, 17		1590~4380	420~530	80~220	0.15~0.06	1590~4380	480~530	80~220	0.15~0.06
20, 21		1270~3500	380~420	80~220	0.15~0.06	1270~3500	380~420	80~220	0.15~0.06
25, 26		1020~2800	310~340	80~220	0.15~0.06	1020~2800	310~340	80~220	0.15~0.06
30, 32, 33		850~2330	250~280	80~220	0.15~0.06	850~2330	250~280	80~220	0.15~0.06

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

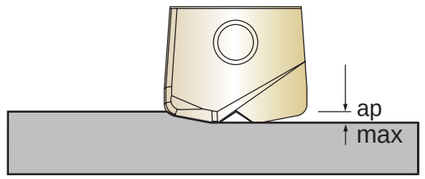
i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

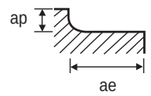
i-Xmill CORNER RADIUS INSERT
i-Xmill WENDEPLATTE mit GERADER STIRN UND ECKRADIUS

WORK MATERIALS		M				K			
		STAINLESS STEELS				CAST IRON			
HARDNESS	HB								
	HRc								
STRENGTH	N/mm²								
i-Xmill TYPE		XMR110A				XMR120C			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]	RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		3580~5170	720~1030	90~130	0.10~0.10	6370~15120	3820~6050	160~380	0.30~0.20
10, 11		2860~4140	630~910	90~130	0.11~0.11	5090~12100	3060~4840	160~380	0.30~0.20
12, 13		2390~3450	550~790	90~130	0.12~0.11	4240~10080	2550~4030	160~380	0.30~0.20
16, 17		1790~2590	450~650	90~130	0.13~0.13	3180~7560	2230~4540	160~380	0.35~0.30
20, 21		1430~2070	360~520	90~130	0.13~0.13	2550~6050	1780~3630	160~380	0.35~0.30
25, 26		1150~1660	290~410	90~130	0.13~0.12	2040~4840	1430~2900	160~380	0.35~0.30
30, 32, 33		950~1380	240~340	90~130	0.13~0.12	1700~4030	1190~2420	160~380	0.35~0.30

WORK MATERIALS		N			
		GRAPHITE			
HARDNESS	HB				
	HRc				
STRENGTH	N/mm²				
i-Xmill TYPE		XMR110D			
CUTTING CONDITIONS Roughing~Finishing		RPM [rev/min]	Feed (Vf) [mm/min]	Vc [m/min]	fz [mm/tooth]
8		11940~15920	4770~6370	300~400	0.20~0.20
10, 11		9550~12730	3820~5090	300~400	0.20~0.20
12, 13		7960~10610	3180~4240	300~400	0.20~0.20
16, 17		5970~7960	2390~3180	300~400	0.20~0.20
20, 21		4770~6370	2390~3180	300~400	0.25~0.25
25, 26		3820~5090	1910~2550	300~400	0.25~0.25
30, 32, 33		3180~4240	1590~2120	300~400	0.25~0.25



High Feed

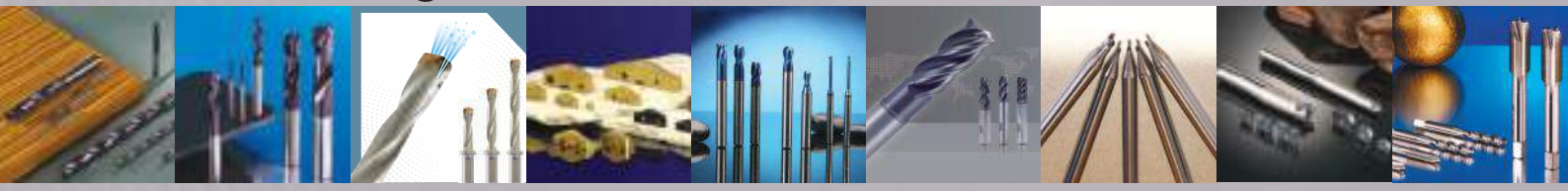


ae : Roughing - 0.1 x D
Finishing - 0.2mm

ap : Roughing - Under Ø16 : 0.025 x D
From Ø16 : 0.05 x D
Finishing - Under Ø16 : 0.1mm
From Ø16 : 0.2mm

▶ When the length of overhang exceed 4 x D, we recommend to use carbide shank holder. (Feed 20% down)
▶ Recommend to reduce the feed rate to 70 ~ 85% when you use long(long & intermediate Type Holder) tools.

Global Cutting Tool Leader **YG-1**



CARBIDE MODULAR HEAD & HOLDER

YG

Leading Through Innovation

i-Smart MODULAR TYPE END MILL

i-Smart System für auswechselbare VHM Köpfe

- Ultra-micro Grain Carbide Heads with Carbide & Steel Holders
- Ultrafeinkörnige VHM Köpfe mit VHM- & Stahlschäften

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
XSEMD98		CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match) Vollhartmetall, 2 Schneiden mit Stirnradius (Schneiden Mittelpunkt)	R5.0	R16.0	744
XSEME59		CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE (Center Match) Vollhartmetall, 3 Schneiden mit Stirnradius (Schneiden Mittelpunkt)	R5.0	R16.0	745
XSEME60		CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE (Center Match) Vollhartmetall, 4 Schneiden mit Stirnradius (Schneiden Mittelpunkt)	R5.0	R16.0	746
XSEME01		CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius	D10.0	D32.0	747
XSEME68		CARBIDE MODULAR HEAD, 6 FLUTE 45˚ HELIX CORNER RADIUS Vollhartmetall, 6 Schneiden mit 45° und Eckradius	D10.0	D32.0	749
XSEME36		CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX Vollhartmetall, 4 Schneiden mit M-Helix	D10.0	D32.0	750
XSEME75		CARBIDE MODULAR HEAD, 6 FLUTE 45˚ HELIX Vollhartmetall, 6 Schneiden mit 45°	D10.0	D32.0	751
ZMC		CARBIDE HOLDER, STRAIGHT NECK TYPE Vollhartmetallschaft - zylindrisch			752
ZMS		STEEL HOLDER, STRAIGHT NECK TYPE Stahlschaft - zylindrisch			753
ZMT		STEEL HOLDER, TAPER NECK TYPE Stahlschaft - konisch			754
		RECOMMENDED CUTTING CCNDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			755

◎ : Excellent ○ : Good

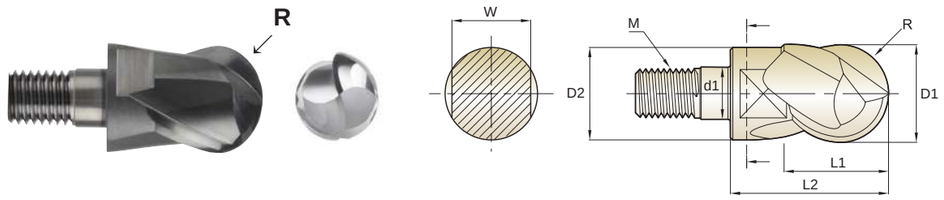
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○			○							
○	◎	◎	◎	○		○	○							
○	◎	◎	◎	○		○	○							

i-Smart END MILLS

XSEMD98 SERIES

CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 2 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 2 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 2 TAGLIENTI, SEMISFERICA



MG HM | 2 | 30° P.756

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEMD98100	R5.0	10.0	9	10	17.5	8	6.5	M6
XSEMD98120	R6.0	12.0	11	12	20.5	10	6.5	M6
XSEMD98160	R8.0	16.0	15	16	25.5	13	8.5	M8
XSEMD98200	R10.0	20.0	19	20	30	17	10.5	M10
XSEMD98250	R12.5	25.0	24	25	37	22	12.5	M12
XSEMD98300	R15.0	30.0	29	30	43	27	17.0	M16
XSEMD98320	R16.0	32.0	31	32	45	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.010	0~-0.015

◎ : Excellent ○ : Good

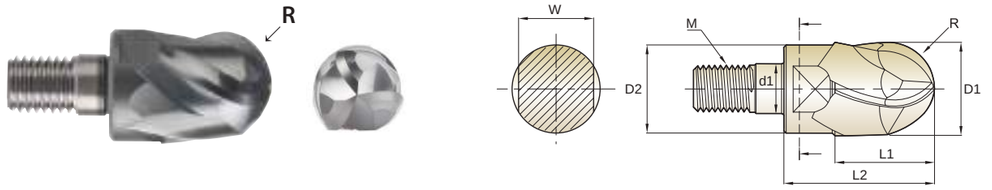
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME59 SERIES

CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 3 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 3 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 3 TAGLIENTI, SEMISFERICA



MG HM | 3 | 30° P.756

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME59100	R5.0	10.0	9	10	17.5	8	6.5	M6
XSEME59120	R6.0	12.0	11	12	20.5	10	6.5	M6
XSEME59160	R8.0	16.0	15	16	25.5	13	8.5	M8
XSEME59200	R10.0	20.0	19	20	30	17	10.5	M10
XSEME59250	R12.5	25.0	24	25	37	22	12.5	M12
XSEME59300	R15.0	30.0	29	30	43	27	17.0	M16
XSEME59320	R16.0	32.0	31	32	45	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.010	0~-0.02

◎ : Excellent ○ : Good

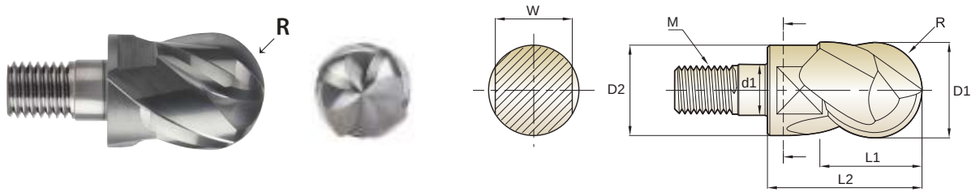
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME60 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE (Center Match)

Vollhartmetall, 4 Schneiden mit Stirnradius (Schneiden Mittelpunkt)
CARBURE TÊTE MODULAIRE, 4 DENTS À BOUT HÉMISPHÉRIQUE (Coupe au Centre)
TESTINA MODULARE IN MD, 4 TAGLIENTI, SEMISFERICA



MG HM | 4 | 30° | P.757

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME60100	R5.0	10.0	9	10	17.5	8	6.5	M6
XSEME60120	R6.0	12.0	11	12	20.5	10	6.5	M6
XSEME60160	R8.0	16.0	15	16	25.5	13	8.5	M8
XSEME60200	R10.0	20.0	19	20	30	17	10.5	M10
XSEME60250	R12.5	25.0	24	25	37	22	12.5	M12
XSEME60300	R15.0	30.0	29	30	43	27	17.0	M16
XSEME60320	R16.0	32.0	31	32	45	27	17.0	M16

Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.010	0~-0.02

◎ : Excellent ○ : Good

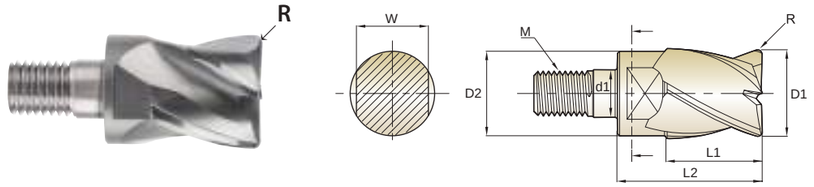
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME01 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS

Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



MG HM | 4 | 27°/30° | P.757

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME01100 010	R0.1	10.0	9	10	17.5	8	6.5	M6
XSEME01100 020	R0.2	10.0	9	10	17.5	8	6.5	M6
XSEME01100 030	R0.3	10.0	9	10	17.5	8	6.5	M6
XSEME01100 050	R0.5	10.0	9	10	17.5	8	6.5	M6
XSEME01100 100	R1.0	10.0	9	10	17.5	8	6.5	M6
XSEME01100 150	R1.5	10.0	9	10	17.5	8	6.5	M6
XSEME01100 200	R2.0	10.0	9	10	17.5	8	6.5	M6
XSEME01100 250	R2.5	10.0	9	10	17.5	8	6.5	M6
XSEME01100 300	R3.0	10.0	9	10	17.5	8	6.5	M6
XSEME01100 400	R4.0	10.0	9	10	17.5	8	6.5	M6
XSEME01120 010	R0.1	12.0	11	12	20.5	10	6.5	M6
XSEME01120 020	R0.2	12.0	11	12	20.5	10	6.5	M6
XSEME01120 030	R0.3	12.0	11	12	20.5	10	6.5	M6
XSEME01120 050	R0.5	12.0	11	12	20.5	10	6.5	M6
XSEME01120 100	R1.0	12.0	11	12	20.5	10	6.5	M6
XSEME01120 150	R1.5	12.0	11	12	20.5	10	6.5	M6
XSEME01120 200	R2.0	12.0	11	12	20.5	10	6.5	M6
XSEME01120 250	R2.5	12.0	11	12	20.5	10	6.5	M6
XSEME01120 300	R3.0	12.0	11	12	20.5	10	6.5	M6
XSEME01120 400	R4.0	12.0	11	12	20.5	10	6.5	M6
XSEME01120 500	R5.0	12.0	11	12	20.5	10	6.5	M6

▶ NEXT PAGE

◎ : Excellent ○ : Good

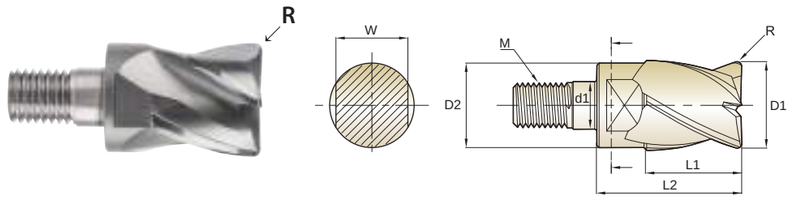
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME01 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS

Vollhartmetall, 4 Schneiden mit M-Helix und Eckradius
CARBURE TÊTE MODULAIRE, 4 DENTS TORIQUE, HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE, TORICA



MG HM | 4 | 27°/30° | P.757

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME01160 050	R0.5	16.0	15	16	25.5	13	8.5	M8
XSEME01160 100	R1.0	16.0	15	16	25.5	13	8.5	M8
XSEME01160 150	R1.5	16.0	15	16	25.5	13	8.5	M8
XSEME01160 200	R2.0	16.0	15	16	25.5	13	8.5	M8
XSEME01200 050	R0.5	20.0	19	20	30	17	10.5	M10
XSEME01200 100	R1.0	20.0	19	20	30	17	10.5	M10
XSEME01200 150	R1.5	20.0	19	20	30	17	10.5	M10
XSEME01200 200	R2.0	20.0	19	20	30	17	10.5	M10
XSEME01250 050	R0.5	25.0	24	25	37	22	12.5	M12
XSEME01250 100	R1.0	25.0	24	25	37	22	12.5	M12
XSEME01250 150	R1.5	25.0	24	25	37	22	12.5	M12
XSEME01250 200	R2.0	25.0	24	25	37	22	12.5	M12
XSEME01300 050	R0.5	30.0	29	30	43	27	17.0	M16
XSEME01300 100	R1.0	30.0	29	30	43	27	17.0	M16
XSEME01300 150	R1.5	30.0	29	30	43	27	17.0	M16
XSEME01300 200	R2.0	30.0	29	30	43	27	17.0	M16
XSEME01320 050	R0.5	32.0	31	32	45	27	17.0	M16
XSEME01320 100	R1.0	32.0	31	32	45	27	17.0	M16
XSEME01320 150	R1.5	32.0	31	32	45	27	17.0	M16
XSEME01320 200	R2.0	32.0	31	32	45	27	17.0	M16

Comer Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.02	0~-0.03

◎ : Excellent ○ : Good

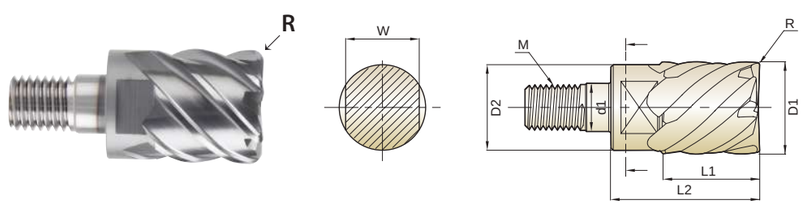
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME68 SERIES

CARBIDE MODULAR HEAD, 6 FLUTE 45˚ HELIX CORNER RADIUS

Vollhartmetall, 6 Schneiden mit 45° und Eckradius
CARBURE TÊTE MODULAIRE, 6 DENTS TORIQUE, HÉLICE À 45°
TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°, TORICA



MG HM | 6 | 45° | P.758

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	R	D_1	D_2	L_1	L_2	W	d_1	M
XSEME68100 030	R0.3	10.0	9	10	17.5	8	6.5	M6
XSEME68100 050	R0.5	10.0	9	10	17.5	8	6.5	M6
XSEME68100 100	R1.0	10.0	9	10	17.5	8	6.5	M6
XSEME68120 030	R0.3	12.0	11	12	20.5	10	6.5	M6
XSEME68120 050	R0.5	12.0	11	12	20.5	10	6.5	M6
XSEME68120 100	R1.0	12.0	11	12	20.5	10	6.5	M6
XSEME68160 050	R0.5	16.0	15	16	25.5	13	8.5	M8
XSEME68160 100	R1.0	16.0	15	16	25.5	13	8.5	M8
XSEME68160 150	R1.5	16.0	15	16	25.5	13	8.5	M8
XSEME68160 200	R2.0	16.0	15	16	25.5	13	8.5	M8
XSEME68200 050	R0.5	20.0	19	20	30	17	10.5	M10
XSEME68200 100	R1.0	20.0	19	20	30	17	10.5	M10
XSEME68200 150	R1.5	20.0	19	20	30	17	10.5	M10
XSEME68200 200	R2.0	20.0	19	20	30	17	10.5	M10
XSEME68250 050	R0.5	25.0	24	25	37	22	12.5	M12
XSEME68250 100	R1.0	25.0	24	25	37	22	12.5	M12
XSEME68250 150	R1.5	25.0	24	25	37	22	12.5	M12
XSEME68250 200	R2.0	25.0	24	25	37	22	12.5	M12
XSEME68300 050	R0.5	30.0	29	30	43	27	17.0	M16
XSEME68300 100	R1.0	30.0	29	30	43	27	17.0	M16
XSEME68300 150	R1.5	30.0	29	30	43	27	17.0	M16
XSEME68300 200	R2.0	30.0	29	30	43	27	17.0	M16
XSEME68320 050	R0.5	32.0	31	32	45	27	17.0	M16
XSEME68320 100	R1.0	32.0	31	32	45	27	17.0	M16
XSEME68320 150	R1.5	32.0	31	32	45	27	17.0	M16
XSEME68320 200	R2.0	32.0	31	32	45	27	17.0	M16

Comer Radius Tolerance(mm)	Mill Dia. Tolerance(mm)
±0.015	0~-0.03

◎ : Excellent ○ : Good

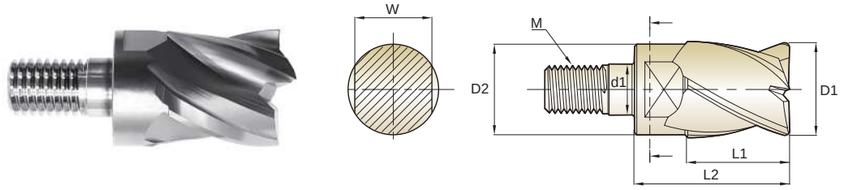
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

i-Smart END MILLS

XSEME36 SERIES

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX

Vollhartmetall, 4 Schneiden mit M-Helix
CARBURE TÊTE MODULAIRE, 4 DENTS HÉLICE MULTIPLE
TESTINA MODULARE IN MD, 4 TAGLIENTI, ELICA VARIABILE



MG HM | 4 | 27°/30° | P.759

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D_1	D_2	L_1	L_2	W	d_1	M
XSEME36100	10.0	9	10	17.5	8	6.5	M6
XSEME36120	12.0	11	12	20.5	10	6.5	M6
XSEME36160	16.0	15	16	25.5	13	8.5	M8
XSEME36200	20.0	19	20	30	17	10.5	M10
XSEME36250	25.0	24	25	37	22	12.5	M12
XSEME36300	30.0	29	30	43	27	17.0	M16
XSEME36320	32.0	31	32	45	27	17.0	M16

Mill Dia. Tolerance(mm)
0~-0.03

◎ : Excellent ○ : Good

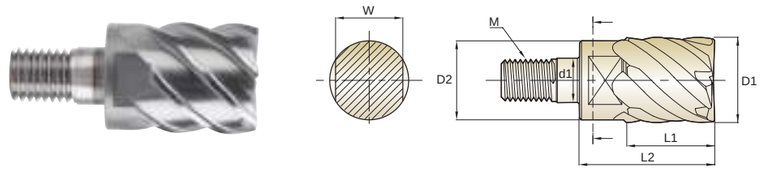
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

i-Smart END MILLS

XSEME75 SERIES

CARBIDE MODULAR HEAD, 6 FLUTE 45˚ HELIX

Vollhartmetall, 6 Schneiden mit 45°
CARBURE TÊTE MODULAIRE, 6 DENTS HÉLICE À 45°
TESTINA MODULARE IN MD, 6 TAGLIENTI, ELICA 45°



MG HM | 6 | 45° | P.760

Unit : mm

EDP No.	Mill Diameter	Neck Diameter	Length of Cut	Length Below Shank	Wrench Width	Coupling Diameter	Thread
Y-COATED	D_1	D_2	L_1	L_2	W	d_1	M
XSEME75100	10.0	9	10	17.5	8	6.5	M6
XSEME75120	12.0	11	12	20.5	10	6.5	M6
XSEME75160	16.0	15	16	25.5	13	8.5	M8
XSEME75200	20.0	19	20	30	17	10.5	M10
XSEME75250	25.0	24	25	37	22	12.5	M12
XSEME75300	30.0	29	30	43	27	17.0	M16
XSEME75320	32.0	31	32	45	27	17.0	M16

Mill Dia. Tolerance(mm)
0~-0.03

◎ : Excellent ○ : Good

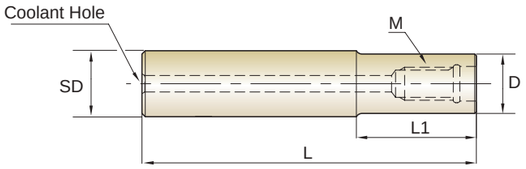
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

i-Smart END MILLS

ZMC SERIES

CARBIDE HOLDER - STRAIGHT NECK TYPE

Vollhartmetallschaft - zylindrisch
PORTE-OUTIL CARBURE - Entrée Droite
STELO IN MD, SCARICO CILINDRICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread Size	Wrench No.	Coolant Hole
		SD	L	L_1	D	M		
ZMC1001100	10.0	10.0	70	20	9.5	M6	SPIS0810	2
ZMC1002100	10.0	10.0	100	40	9.5	M6	SPIS0810	2
ZMC1003100	10.0	10.0	130	70	9.5	M6	SPIS0810	2
ZMC1201120	12.0	12.0	80	20	11.5	M6	SPIS0810	2
ZMC1202120	12.0	12.0	100	40	11.5	M6	SPIS0810	2
ZMC1203120	12.0	12.0	130	70	11.5	M6	SPIS0810	2
ZMC1601160	16.0	16.0	100	40	15.5	M8	SPIS1300	3
ZMC1602160	16.0	16.0	150	80	15.5	M8	SPIS1300	3
ZMC1603160	16.0	16.0	200	120	15.5	M8	SPIS1300	3
ZMC2001200	20.0	20.0	100	40	19.5	M10	SPIS1700	4
ZMC2002200	20.0	20.0	150	80	19.5	M10	SPIS1700	4
ZMC2003200	20.0	20.0	200	120	19.5	M10	SPIS1700	4
ZMC2004200	20.0	20.0	250	160	19.5	M10	SPIS1700	4
ZMC2501250	25.0	25.0	150	70	24.3	M12	SPIS2200	5
ZMC2502250	25.0	25.0	200	100	24.3	M12	SPIS2200	5
ZMC2503250	25.0	25.0	250	150	24.3	M12	SPIS2200	5
ZMC2504250	25.0	25.0	300	200	24.3	M12	SPIS2200	5
ZMC3001320	30.0/32.0	32.0	150	70	29.0	M16	SPIS2700	6
ZMC3002320	30.0/32.0	32.0	200	120	29.0	M16	SPIS2700	6
ZMC3003320	30.0/32.0	32.0	250	150	29.0	M16	SPIS2700	6
ZMC3004320	30.0/32.0	32.0	300	200	29.0	M16	SPIS2700	6
ZMC3005320	30.0/32.0	32.0	350	250	29.0	M16	SPIS2700	6

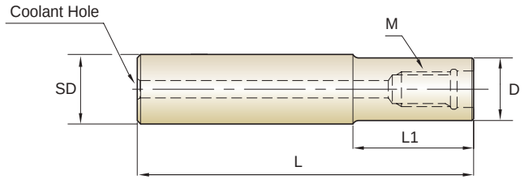
▶The wrench (1pc) for the relevant item is included.
If more is needed, available for sale.
▶Please refer to the wrench table on the next page.

i-Smart END MILLS

ZMS SERIES

STEEL HOLDER - STRAIGHT NECK TYPE

Stahlschaft - zylindrisch
PORTE-OUTIL ACIER - Entrée Droite
STELO IN ACCIAIO, SCARICO CILINDRICO

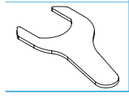


Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread Size	Wrench No.	Coolant Hole
		SD	L	L_1	D	M		
ZMS1001100	10.0	10.0	70.0	20.0	9.0	M6	SPIS0810	3
ZMS1201120	12.0	12.0	90.0	30.0	11.0	M6	SPIS0810	3
ZMS1601160	16.0	16.0	100.0	30.0	15.0	M8	SPIS1300	4
ZMS2001200	20.0	20.0	100.0	30.0	19.0	M10	SPIS1700	5
ZMS2501250	25.0	25.0	115.0	40.0	24.0	M12	SPIS2200	5
ZMS3001320	30.0 / 32.0	32.0	125.0	40.0	29.0	M16	SPIS2700	6

▶The wrench (1pc) for the relevant item is included.
If more is needed, available for sale.

Wrench

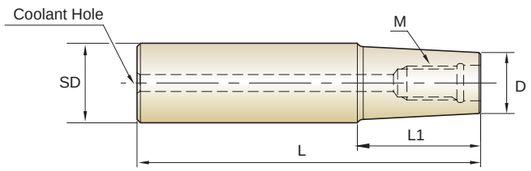
Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

i-Smart END MILLS

ZMT SERIES

STEEL HOLDER - TAPER NECK TYPE

Stahlschaft - konisch
PORTE-OUTIL ACIER - Entrée Coniquee
STELO IN ACCIAIO, SCARICO CONICO



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Overall Length	Neck Length	Neck Diameter	Thread Size	Wrench No.	Coolant Hole
		SD	L	L1	D	M		
ZMT1001120	10.0	12.0	100.0	50.0	9.0	M6	SPIS0810	3
ZMT1201160	12.0	16.0	130.0	70.0	11.0	M6	SPIS0810	3
ZMT1601200	16.0	20.0	150.0	90.0	15.0	M8	SPIS1300	4
ZMT2001250	20.0	25.0	170.0	100.0	19.0	M10	SPIS1700	5
ZMT2501320	25.0	32.0	200.0	110.0	24.0	M12	SPIS2200	5
ZMT3001320	30.0 / 32.0	32.0	200.0	110.0	29.0	M16	SPIS2700	6

▶The wrench(1pc) for the relevant item is included.
If more is needed, available for sale.

Wrench

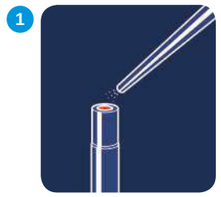
Model	Wrench No.	Wrench Width	Mill Diameter	Clamping Torque [N·m]
	SPIS0810	8	10.0	6.5
		10	12.0	6.5
	SPIS1300	13	16.0	10
	SPIS1700	17	20.0	12
	SPIS2200	22	25.0	15
	SPIS2700	27	30.0 32.0	20

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

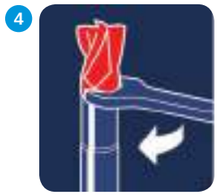
Instruction Manual
BEDIENUNGSAMLEITUNG



Step 1, 2 : Clean

Please be sure to remove dirt and debris on all adjoining surfaces before assembling. (air preferred)

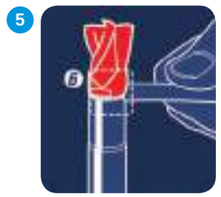
Schritt 1, 2: Reinigen
Achten Sie darauf, Schmutz und Verunreinigungen an allen angrenzenden Flächen vor dem Zusammenbau zu entfernen. (bevorzugt durch Luft)

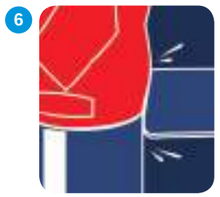


Step 3, 4 : Assembly

Mount the modular head onto the shank by hand until it fits then use the supplied wrench to tighten.

Schritt 3, 4: Zusammenbau
Montieren Sie den modularen Kopf von Hand auf den Schaft, bis er passt. Benutzen Sie dann den mitgelieferten Schraubenschlüssel.





Step 5, 6 : Final Check

Re-check that there is no gap.

Schritt 5, 6: Endkontrolle
Überprüfen Sie, dass es kein mehr Spalt sichtbar ist.

Notice
Please tighten the screw with designated torque, too much torque will damage the screw.

Achtung
Ziehen Sie die Schraube mit dem vorgesehenen Drehmoment an, zu viel Drehmoment wird die Schraube beschädigen.

Mill Diameter	Clamping Torque
(D)	[N·m]
10	6.5
12	6.5
16	10.0
20	12.0
25	15.0
30	20.0
32	20.0

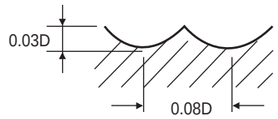
i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE MODULAR HEAD, 2 FLUTE BALL NOSE (Center Match)
VOLLHARTMETALL, 2 SCHNEIDEN mit STIRNRADIUS (SCHNEIDEN Mittelpunkt)

XSEMD98 SERIES

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55							
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	5580	2220	175	0.199	5340	1860	168	0.174	4500	1440	141	0.160	5580	2220	175	0.199
12.0	4170	1770	157	0.212	4000	1500	151	0.188	3360	1140	127	0.170	4170	1770	157	0.212
16.0	3340	1590	168	0.238	3210	1320	161	0.206	2700	1020	136	0.189	3340	1590	168	0.238
20.0	2670	1410	168	0.264	2580	1170	162	0.227	2160	900	136	0.208	2670	1410	168	0.264
25.0	2130	1150	167	0.270	2060	950	162	0.231	1730	730	136	0.211	2130	1150	167	0.270
30.0	1770	1060	167	0.299	1720	860	162	0.250	1440	660	136	0.229	1770	1060	167	0.299
32.0	1660	995	167	0.300	1610	805	162	0.250	1350	620	136	0.230	1660	995	167	0.300

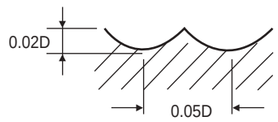


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE MODULAR HEAD, 3 FLUTE BALL NOSE (Center Match)
VOLLHARTMETALL, 3 SCHNEIDEN mit STIRNRADIUS (SCHNEIDEN Mittelpunkt)

XSEME59 SERIES

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55							
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	9720	5870	305	0.201	8190	4130	257	0.168	6620	3100	208	0.156	9720	5870	305	0.201
12.0	8150	5490	307	0.225	6830	3830	257	0.187	5520	2870	208	0.173	8150	5490	307	0.225
16.0	6100	4280	307	0.234	5110	3050	257	0.199	4140	2240	208	0.180	6100	4280	307	0.234
20.0	4880	3490	307	0.238	4090	2560	257	0.209	3310	1890	208	0.190	4880	3490	307	0.238
25.0	3910	2910	307	0.248	3270	2150	257	0.219	2650	1590	208	0.200	3910	2910	307	0.248
30.0	3260	2530	307	0.259	2730	1880	257	0.230	2210	1390	208	0.210	3260	2530	307	0.259
32.0	3050	2450	307	0.268	2560	1800	257	0.234	2070	1370	208	0.221	3050	2450	307	0.268



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

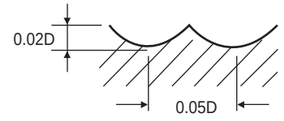
i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE MODULAR HEAD, 4 FLUTE BALL NOSE (Center Match)
VOLLHARTMETALL, 4 SCHNEIDEN mit STIRNRADIUS (SCHNEIDEN Mittelpunkt)

XSEME60 SERIES

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55							
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	10850	6430	341	0.148	9100	4590	286	0.126	7350	3450	231	0.117	10850	6430	341	0.148
12.0	9050	5960	341	0.165	7500	4260	286	0.140	6130	3190	231	0.130	9050	5960	341	0.165
16.0	6780	4750	341	0.175	5680	3390	286	0.149	4600	2490	231	0.135	6780	4750	341	0.175
20.0	5430	3880	341	0.179	4550	2840	286	0.156	3680	2100	231	0.143	5430	3880	341	0.179
25.0	4340	3230	341	0.186	3640	2390	286	0.164	2940	1760	231	0.150	4340	3230	341	0.186
30.0	3620	2810	341	0.194	3030	2090	286	0.172	2450	1540	231	0.157	3620	2810	341	0.194
32.0	3390	2720	341	0.201	2840	2000	286	0.176	2300	1520	231	0.165	3390	2720	341	0.201

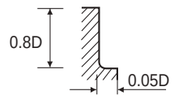


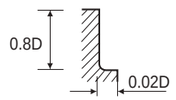
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN mit M-HELIX UND ECKRADIUS

XSEME01 SERIES

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55							
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	5040	460	158	0.023	3280	360	103	0.027	2020	170	63	0.021	5040	460	158	0.023
12.0	4120	360	155	0.022	2780	320	105	0.029	1680	140	63	0.021	4120	360	155	0.022
16.0	3100	280	156	0.023	2100	230	106	0.027	1280	115	64	0.022	3100	280	156	0.023
20.0	2520	230	158	0.023	1640	180	103	0.027	1000	90	63	0.023	2520	230	158	0.023
25.0	1990	180	156	0.023	1340	145	105	0.027	800	75	63	0.023	1990	180	156	0.023
30.0	1650	150	156	0.023	1110	120	105	0.027	670	65	63	0.024	1650	150	156	0.023
32.0	1550	140	156	0.023	1040	110	105	0.026	630	60	63	0.024	1550	140	156	0.023





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

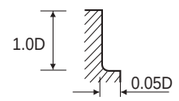
i-Smart END MILLS

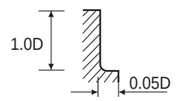
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

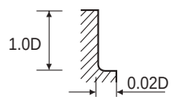
CARBIDE MODULAR HEAD, 6 FLUTE 45° HELIX CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN mit 45° UND ECKRADIUS

XSEME68 SERIES

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	9600	2940	302	0.051	9300	1370	292	0.025	5700	210	179	0.006
12.0	7800	2700	294	0.058	7500	1160	283	0.026	4800	180	181	0.006
16.0	6000	2400	302	0.067	5820	880	293	0.025	3600	130	181	0.006
20.0	4800	2010	302	0.070	4680	690	294	0.025	2880	110	181	0.006
25.0	3850	1615	302	0.070	3740	600	294	0.027	2305	90	181	0.007
30.0	3200	1440	302	0.075	3120	540	294	0.029	1920	85	181	0.007
32.0	3000	1350	302	0.075	2920	525	294	0.030	1800	80	181	0.007

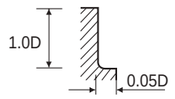






RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	K			
	CAST IRON			
HARDNESS				
STRENGTH				
DIAMETER	RPM	FEED	Vc	fz
10.0	9600	2940	302	0.051
12.0	7800	2700	294	0.058
16.0	6000	2400	302	0.067
20.0	4800	2010	302	0.070
25.0	3850	1615	302	0.070
30.0	3200	1440	302	0.075
32.0	3000	1350	302	0.075



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

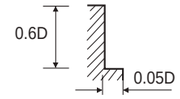
i-Smart END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE MODULAR HEAD, 4 FLUTE MULTIPLE HELIX
VOLLHARTMETALL, 4 SCHNEIDEN mit M-HELIX

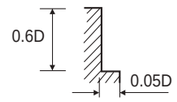
XSEME36 SERIES

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	4080	640	128	0.039	2500	300	79	0.030	1700	90	53	0.013
12.0	3430	545	129	0.040	2100	250	79	0.030	1450	80	55	0.014
16.0	2750	440	138	0.040	1700	205	85	0.030	1130	60	57	0.013
20.0	2100	335	132	0.040	1330	160	84	0.030	850	40	53	0.012
25.0	1700	265	134	0.039	1050	130	82	0.031	680	30	53	0.011
30.0	1420	230	134	0.040	870	110	82	0.032	560	25	53	0.011
32.0	1330	215	134	0.040	820	105	82	0.032	530	25	53	0.012



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	2100	300	66	0.036	4080	640	128	0.039
12.0	1700	240	64	0.035	3430	545	129	0.040
16.0	1380	200	69	0.036	2750	440	138	0.040
20.0	1050	150	66	0.036	2100	335	132	0.040
25.0	850	120	67	0.035	1700	265	134	0.039
30.0	710	100	67	0.035	1420	230	134	0.040
32.0	670	95	67	0.035	1330	215	134	0.040



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

i-Smart END MILLS

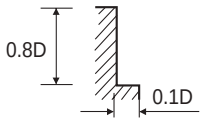
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

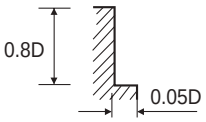
CARBIDE MODULAR HEAD, 6 FLUTE 45˚ HELIX
VOLLHARTMETALL, 6 SCHNEIDEN mit 45°

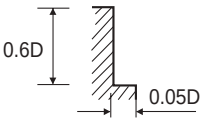
XSEME75 SERIES

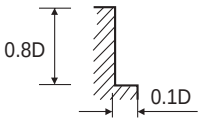
■ NORMAL SPEED

MATERIAL	P												K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				CAST IRON			
HARDNESS	~ HRc 35				HRc 35~ HRc 45				HRc 45~ HRc 55							
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	3530	2100	111	0.099	2435	1370	76	0.094	1050	210	33	0.033	3530	2100	111	0.099
12.0	2980	1765	112	0.099	2100	1160	79	0.092	880	180	33	0.034	2980	1765	112	0.099
16.0	2205	1325	111	0.100	1555	880	78	0.094	670	130	34	0.032	2205	1325	111	0.100
20.0	1765	1060	111	0.100	1220	690	77	0.094	525	110	33	0.035	1765	1060	111	0.100
25.0	1410	845	111	0.100	980	555	77	0.094	420	85	33	0.034	1410	845	111	0.100
30.0	1180	710	111	0.100	820	460	77	0.093	350	75	33	0.036	1180	710	111	0.100
32.0	1100	660	111	0.100	765	430	77	0.094	330	70	33	0.035	1100	660	111	0.100





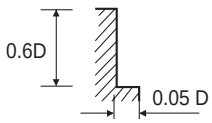


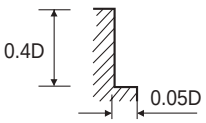


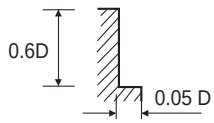
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

■ HIGH SPEED

MATERIAL	P								K			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				CAST IRON			
HARDNESS	~ HRc 50				HRc 50~ HRc 60							
STRENGTH	1750N/mm²				1750 ~ 2080N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	10480	5990	329	0.095	5290	3050	166	0.096	10480	5990	329	0.095
12.0	8820	5040	333	0.095	4410	2520	166	0.095	8820	5040	333	0.095
16.0	6615	3780	333	0.095	3320	1890	167	0.095	6615	3780	333	0.095
20.0	5290	3050	332	0.096	2645	1470	166	0.093	5290	3050	332	0.096
25.0	4230	2400	332	0.095	2114	1200	166	0.095	4230	2400	332	0.095
30.0	3520	2000	332	0.095	1761	1000	166	0.095	3520	2000	332	0.095
32.0	3300	1890	332	0.095	1651	940	166	0.095	3300	1890	332	0.095



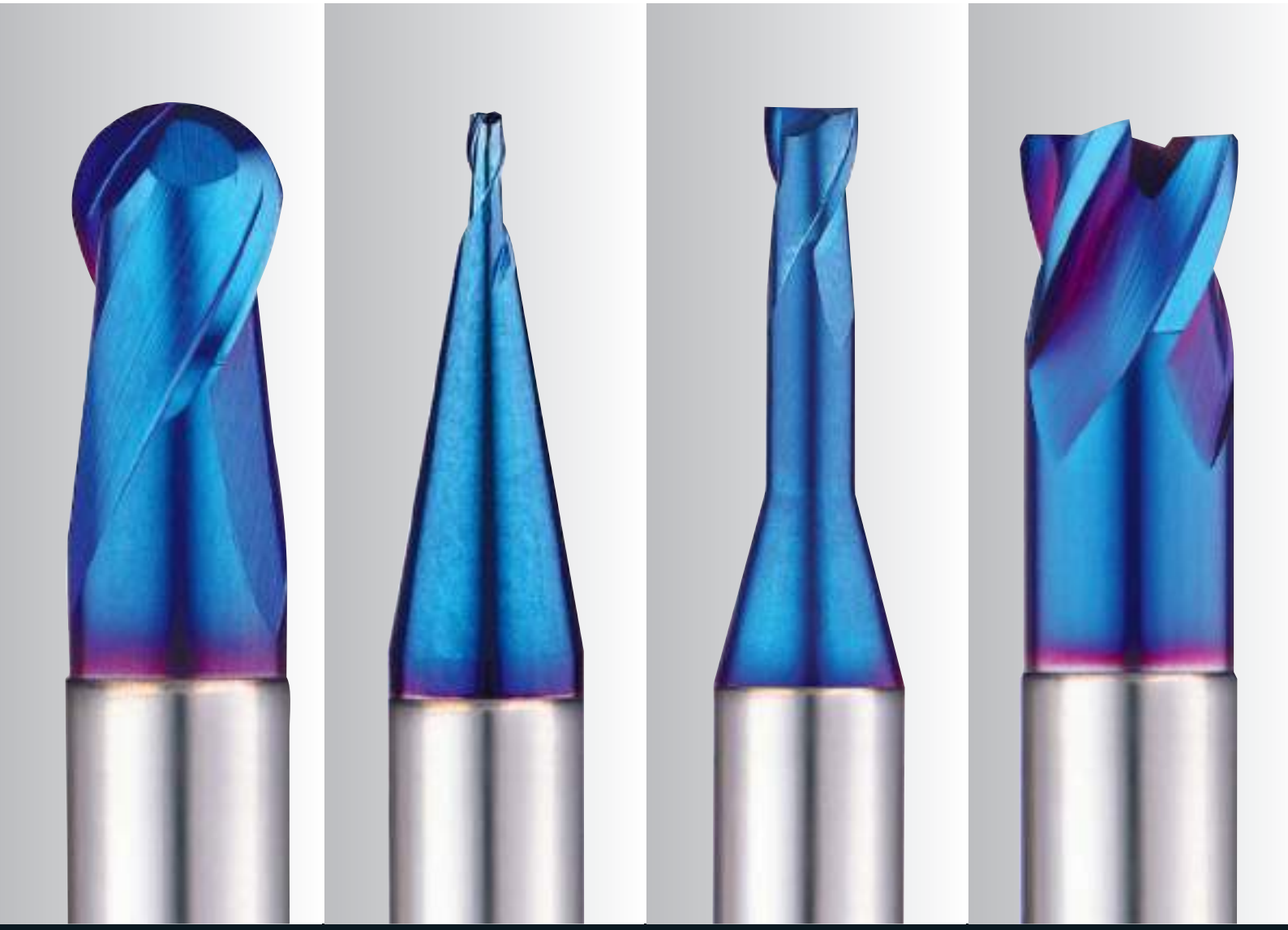




RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

Leading Through Innovation



X5070 END MILLS

X5070 FRÄSER

- High Hardened Steels HRc45 to HRc70, High Speed Machining, Dry Cutting
- Für hoch gehärtete Stähle von Hrc45 bis HRc70. HSC-Technik. Trockenfräsen

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
G8B59		CARBIDE, 4FLUTE STUB LENGTH CORNER RADIUS HIGH FEED VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB	D2.0	D12.0	764
G8B54		CARBIDE, 4FLUTE STUB LENGTH CORNER RADIUS HIGH FEED VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB	D2.0	D16.0	765
G8A46		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN	R0.05	R2.0	766
G8A54		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN	R0.25	R1.0	769
G8A28		CARBIDE, 2 FLUTE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS	R0.05	R6.0	770
G8A38		CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN EXTER KURZ STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R0.5	R12.5	771
G8A53		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.2	R1.0	772
G8A59		CARBIDE, 3 FLUTE BALL NOSE - Center Match VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt	R1.5	R10.0	773
G8D62		CARBIDE, 4 FLUTE BALL NOSE - Center Match VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt	R1.5	R10.0	774
G8A60		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN	D0.5	D12.0	775
G8A36		CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN EXTER KURZ EXKENRADIUS mit ABGESETZTEM SCHAFTTETL	D0.3	D20.0	778
G8A52		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN	D0.5	D2.0	780
G8A50		CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS	D0.3	D2.0	781
G8A47		CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D3.0	D12.0	782
G8A37		CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D1.0	D20.0	783
G8B08		CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D6.0	D12.0	784
G8A39		CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D6.0	D20.0	785
G8A45		CARBIDE, 2 FLUTE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN	D0.1	D4.0	786
G8A01		CARBIDE, 2 FLUTE with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL	D0.1	D20.0	789
G8A02		CARBIDE, 4 FLUTE with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL	D1.0	D20.0	790
G8D63		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG	D6.0	D25.0	791
G8D64		CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG LENGTH VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG	D6.0	D25.0	792
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			793

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									
		○	○	◎	◎									
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		○	○	◎	◎									

◎ : Excellent ○ : Good

X5070 END MILLS

G8B59 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

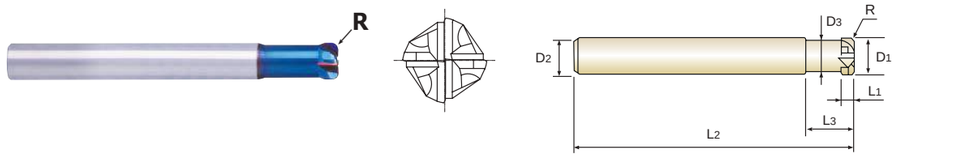
VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB

Fraise carbure, 4 dents, torique, grande avance, extra-courte

4 TAGLIENTI, TORICA

- Excellent wear resistance at heavy feed rates on high hardened material.
- Designed with reduced clearance angles and short flutes for strength.
- High hardness & heat resistance coating for long life in dry applications.

- Hervorragende Verschleißeigenschaften bei hohen Schnittwerten in gehärteten Materialien
- Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



NG HM | 4 | BLUE | 0° | R ±0.005 | PLAIN

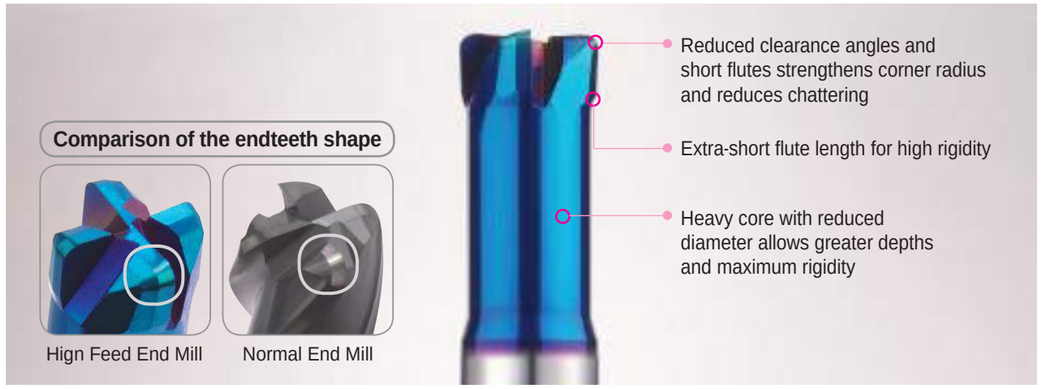
P.793-794

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8B5902005	R0.5	2.0	6	1	6	50	1.8
G8B5903005	R0.5	3.0	6	1.2	8	50	2.8
G8B5904005	R0.5	4.0	6	1.5	10	50	3.8
G8B5906005	R0.5	6.0	6	2.5	12	60	5.4
G8B5906010	R1.0	6.0	6	2.5	12	60	5.4
G8B5908010	R1.0	8.0	8	3.5	16	60	7.2
G8B5908020	R2.0	8.0	8	3.5	16	60	7.2
G8B5910010	R1.0	10.0	10	4	20	70	9
G8B5910020	R2.0	10.0	10	4	20	70	9
G8B5912020	R2.0	12.0	12	5	25	80	11
G8B5912030	R3.0	12.0	12	5	25	80	11

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0~-0.02	±0.005	h6

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.



◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8B54 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS HIGH FEED

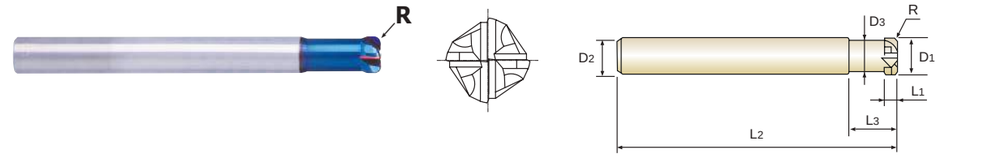
VOLLHARTMETALL, 4 SCHNEIDEN EXTER KURZ ECKENRADIUS HOCHVORSCHUB

Fraise carbure, 4 dents, torique, grande avance, extra-courte

4 TAGLIENTI, TORICA EXTRA LUNGA

- Excellent wear resistance at heavy feed rates on high hardened material.
- Designed with reduced clearance angles and short flutes for strength.
- High hardness & heat resistance coating for long life in dry applications.

- Hervorragende Verschleißeigenschaften bei hohen Schnittwerten in gehärteten Materialien
- Mit reduzierten Freiwinkeln und kurzen Spannuten für hohe Festigkeiten konstruiert.
- Große Härte u. hitzebeständige Beschichtung für lange Lebensdauer bei Trockenbearbeitung



NG HM | 4 | BLUE | 0° | R ±0.005 | PLAIN

P.793-794

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8B5402005	R0.5	2.0	6	1	6	70	1.8
G8B5403005	R0.5	3.0	6	1.2	8	70	2.8
G8B5404005	R0.5	4.0	6	1.5	10	70	3.8
G8B5405005	R0.5	5.0	6	2	10	70	4.6
G8B5406005	R0.5	6.0	6	2.5	12	90	5.4
G8B5406010	R1.0	6.0	6	2.5	12	90	5.4
G8B5408010	R1.0	8.0	8	3.5	16	100	5.4
G8B5408020	R2.0	8.0	8	3.5	16	100	7.2
G8B5410010	R1.0	10.0	10	4	20	100	7.2
G8B5410020	R2.0	10.0	10	4	20	100	9
G8B5412020	R2.0	12.0	12	5	25	110	9
G8B5412030	R3.0	12.0	12	5	25	110	11
G8B5416030	R3.0	16.0	16	6.5	30	130	11

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0~-0.02	±0.005	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A46 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.

NG HM | 2 | BLUE | 30° | R ±0.005 | PLAIN

P.795

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46805	R0.05	0.1	4	0.1	0.3	45	0.085
G8A46806	R0.05	0.1	4	0.1	0.5	45	0.085
G8A46002	R0.1	0.2	4	0.2	0.5	45	0.17
G8A46977	R0.1	0.2	4	0.2	1	45	0.17
G8A46958	R0.1	0.2	4	0.2	1.5	45	0.17
G8A46003	R0.15	0.3	4	0.3	1	45	0.27
G8A46959	R0.15	0.3	4	0.3	2	45	0.27
G8A46986	R0.15	0.3	4	0.3	3	45	0.27
G8A46004	R0.2	0.4	4	0.4	1	45	0.37
G8A46960	R0.2	0.4	4	0.4	2	45	0.37
G8A46961	R0.2	0.4	4	0.4	3	45	0.37
G8A46981	R0.2	0.4	4	0.4	4	45	0.37
G8A46987	R0.2	0.4	4	0.4	5	45	0.37
G8A46005	R0.25	0.5	4	0.4	2	45	0.45
G8A46804	R0.25	0.5	4	0.4	2.5	45	0.45
G8A46962	R0.25	0.5	4	0.4	4	45	0.45
G8A46963	R0.25	0.5	4	0.4	6	45	0.45
G8A46964	R0.25	0.5	4	0.4	8	45	0.45
G8A46957	R0.3	0.6	4	0.5	2	45	0.55
G8A46988	R0.3	0.6	4	0.5	3	45	0.55
G8A46915	R0.3	0.6	4	0.5	4	45	0.55
G8A46989	R0.3	0.6	4	0.5	5	45	0.55
G8A46916	R0.3	0.6	4	0.5	6	45	0.55
G8A46917	R0.3	0.6	4	0.5	8	45	0.55
G8A46990	R0.3	0.6	4	0.5	10	45	0.55
G8A46918	R0.4	0.8	4	0.6	2	45	0.75
G8A46919	R0.4	0.8	4	0.6	4	45	0.75
G8A46008	R0.4	0.8	4	0.6	6	45	0.75
G8A46901	R0.4	0.8	4	0.6	8	45	0.75

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

G8A46 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finishes.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Exzellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.

NG HM | 2 | BLUE | 30° | R ±0.005 | PLAIN

P.795

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46965	R0.4	0.8	4	0.6	10	45	0.75
G8A46920	R0.5	1.0	4	0.8	3	45	0.95
G8A46921	R0.5	1.0	4	0.8	4	45	0.95
G8A46923	R0.5	1.0	4	0.8	5	45	0.95
G8A46010	R0.5	1.0	4	0.8	6	45	0.95
G8A46924	R0.5	1.0	4	0.8	7	45	0.95
G8A46902	R0.5	1.0	4	0.8	8	45	0.95
G8A46925	R0.5	1.0	4	0.8	9	45	0.95
G8A46903	R0.5	1.0	4	0.8	10	45	0.95
G8A46904	R0.5	1.0	4	0.8	12	45	0.95
G8A46926	R0.5	1.0	4	0.8	14	50	0.95
G8A46927	R0.5	1.0	4	0.8	16	50	0.95
G8A46966	R0.5	1.0	4	0.8	20	55	0.95
G8A46982	R0.6	1.2	4	1.0	6	45	1.15
G8A46012	R0.6	1.2	4	1.0	8	45	1.15
G8A46983	R0.6	1.2	4	1.0	10	45	1.15
G8A46905	R0.6	1.2	4	1.0	12	45	1.15
G8A46930	R0.75	1.5	4	1.2	6	45	1.45
G8A46015	R0.75	1.5	4	1.2	8	45	1.45
G8A46931	R0.75	1.5	4	1.2	10	45	1.45
G8A46906	R0.75	1.5	4	1.2	12	45	1.45
G8A46992	R0.75	1.5	4	1.2	14	50	1.45
G8A46907	R0.75	1.5	4	1.2	16	50	1.45
G8A46932	R0.75	1.5	4	1.2	20	55	1.45
G8A46939	R1.0	2.0	4	1.6	4	45	1.95
G8A46940	R1.0	2.0	4	1.6	6	45	1.95
G8A46020	R1.0	2.0	4	1.6	8	45	1.95
G8A46941	R1.0	2.0	4	1.6	10	45	1.95
G8A46942	R1.0	2.0	4	1.6	12	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A46 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.

NG HM | 2 | BLUE | 30° | R ±0.005 | PLAIN

P.795

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A46943	R1.0	2.0	4	1.6	14	50	1.95
G8A46909	R1.0	2.0	4	1.6	16	50	1.95
G8A46993	R1.0	2.0	4	1.6	18	55	1.95
G8A46910	R1.0	2.0	4	1.6	20	55	1.95
G8A46944	R1.0	2.0	4	1.6	22	60	1.95
G8A46945	R1.0	2.0	4	1.6	25	60	1.95
G8A46967	R1.0	2.0	4	1.6	30	70	1.95
G8A46948	R1.5	3.0	6	2.4	12	50	2.85
G8A46984	R1.5	3.0	6	2.4	14	55	2.85
G8A46030	R1.5	3.0	6	2.4	16	55	2.85
G8A46985	R1.5	3.0	6	2.4	18	60	2.85
G8A46911	R1.5	3.0	6	2.4	20	60	2.85
G8A46968	R1.5	3.0	6	2.4	25	65	2.85
G8A46969	R1.5	3.0	6	2.4	30	70	2.85
G8A46970	R1.5	3.0	6	2.4	35	80	2.85
G8A46950	R2.0	4.0	6	3.2	12	60	3.85
G8A46040	R2.0	4.0	6	3.2	16	60	3.85
G8A46912	R2.0	4.0	6	3.2	20	65	3.85
G8A46913	R2.0	4.0	6	3.2	25	70	3.85
G8A46971	R2.0	4.0	6	3.2	30	70	3.85
G8A46972	R2.0	4.0	6	3.2	35	80	3.85
G8A46973	R2.0	4.0	6	3.2	40	90	3.85
G8A46974	R2.0	4.0	6	3.2	45	90	3.85
G8A46975	R2.0	4.0	6	3.2	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A54 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

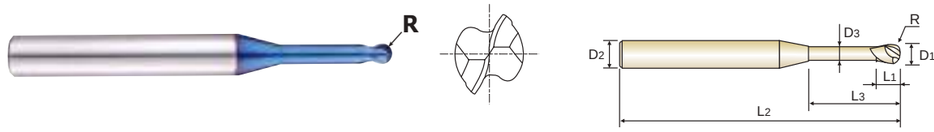
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.005 | PLAIN

P.795

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.005)	D1	D2	L1	L3	L2	D3
G8A54005	R0.25	0.5	6	0.5	1.5	50	0.45
G8A54901	R0.25	0.5	6	0.5	3.3	50	0.45
G8A54006	R0.3	0.6	6	0.6	2	50	0.55
G8A54902	R0.3	0.6	6	0.6	4	50	0.55
G8A54008	R0.4	0.8	6	0.8	2.5	50	0.75
G8A54903	R0.4	0.8	6	0.8	5.5	50	0.75
G8A54010	R0.5	1.0	6	1	3.3	50	0.95
G8A54904	R0.5	1.0	6	1	6.7	50	0.95
G8A54905	R0.5	1.0	6	1	12	50	0.95
G8A54012	R0.6	1.2	6	1.2	4.4	50	1.15
G8A54906	R0.6	1.2	6	1.2	8	50	1.15
G8A54015	R0.75	1.5	6	1.5	5	50	1.45
G8A54907	R0.75	1.5	6	1.5	9.7	50	1.45
G8A54908	R0.75	1.5	6	1.5	15	50	1.45
G8A54020	R1.0	2.0	6	2	6	50	1.95
G8A54909	R1.0	2.0	6	2	13	50	1.95
G8A54910	R1.0	2.0	6	2	20	60	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A28 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE

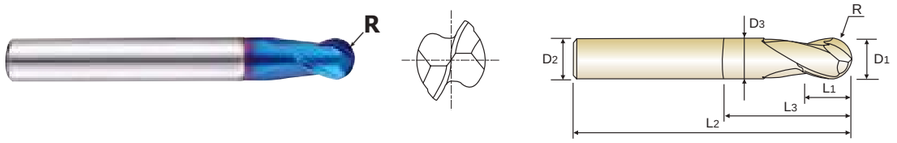
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique

2 TAGLIENTI, SEMISFERICA

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.005 R0.05~R3 | R ±0.010 R4~R6 | PLAIN

P.796

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A28001	R0.05	0.1	4	0.2	-	40	-
G8A28002	R0.1	0.2	4	0.3	-	40	-
G8A28003	R0.15	0.3	4	0.5	-	40	-
G8A28004	R0.2	0.4	4	0.6	-	40	-
G8A28005	R0.25	0.5	4	0.7	-	40	-
G8A28006	R0.3	0.6	4	0.9	-	40	-
G8A28007	R0.35	0.7	4	1.1	-	40	-
G8A28008	R0.4	0.8	4	1.2	-	40	-
G8A28009	R0.45	0.9	4	1.4	-	40	-
G8A28010	R0.5	1.0	6	1.5	3	50	0.95
G8A28015	R0.75	1.5	6	2	4	50	1.45
G8A28020	R1.0	2.0	6	2.5	5	50	1.95
G8A28025	R1.25	2.5	6	3	7	50	2.4
G8A28030	R1.5	3.0	6	4	10	60	2.85
G8A28035	R1.75	3.5	6	4.5	10	60	3.35
G8A28040	R2.0	4.0	6	5	10	60	3.85
G8A28045	R2.25	4.5	6	5.5	10	60	4.35
G8A28050	R2.5	5.0	6	6	12	60	4.85
G8A28055	R2.75	5.5	6	6.5	12	60	5.35
G8A28060	R3.0	6.0	6	7	15	60	5.85
G8A28903	R3.0	6.0	6	9	30	90	5.85
G8A28901	R4.0	8.0	8	9	15	60	7.7
G8A28080	R4.0	8.0	8	9	15	80	7.7
G8A28904	R4.0	8.0	8	12	30	100	7.7
G8A28902	R5.0	10.0	10	11	25	60	9.7
G8A28100	R5.0	10.0	10	11	25	80	9.7
G8A28905	R5.0	10.0	10	15	30	100	9.7
G8A28120	R6.0	12.0	12	14	25	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A38 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE STUB LENGTH BALL NOSE with EXTENDED NECK

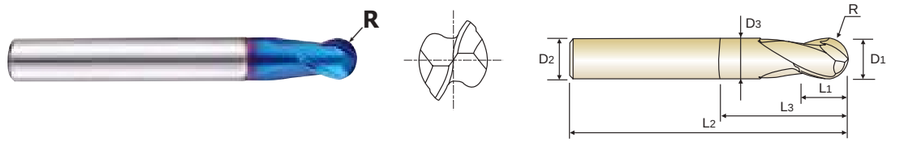
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, hémisphérique, détalonnée, extra-courte

2 TAGLIENTI, SEMISFERICA TAGLIENTE CORTO CON SCARICO ESTESO

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.005 R0.5~R3 | R ±0.010 R3.5~R12.5 | PLAIN

P.796

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A38010	R0.5	1.0	4	1	2.2	50	0.95
G8A38012	R0.6	1.2	4	1.2	2.6	50	1.15
G8A38015	R0.75	1.5	4	1.5	3	50	1.45
G8A38020	R1.0	2.0	6	2	4	50	1.95
G8A38030	R1.5	3.0	6	3	6	60	2.85
G8A38040	R2.0	4.0	6	4	8	70	3.85
G8A38050	R2.5	5.0	6	5	10	80	4.85
G8A38060	R3.0	6.0	6	6	12	90	5.85
G8A38070	R3.5	7.0	8	7	14	90	6.7
G8A38080	R4.0	8.0	8	8	16	100	7.7
G8A38090	R4.5	9.0	10	9	18	100	8.7
G8A38100	R5.0	10.0	10	10	20	100	9.7
G8A38120	R6.0	12.0	12	12	24	110	11.7
G8A38140	R7.0	14.0	14	14	28	110	13.7
G8A38160	R8.0	16.0	16	16	32	140	15.7
G8A38180	R9.0	18.0	18	18	36	140	17.7
G8A38200	R10.0	20.0	20	20	40	160	19.7
G8A38250	R12.5	25.0	25	25	50	180	24.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A53 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

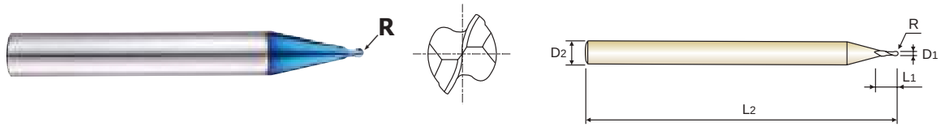
VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, micro-fraise

2 TAGLIENTI, SEMISFERICA MINI

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.005 | PLAIN

P.796

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.005)	D_1	D_2	L_1	L_2
G8A53004	R0.2	0.4	6	0.4	50
G8A53005	R0.25	0.5	6	0.5	50
G8A53006	R0.3	0.6	6	0.6	50
G8A53008	R0.4	0.8	6	0.8	50
G8A53010	R0.5	1.0	6	1.0	50
G8A53012	R0.6	1.2	6	1.2	50
G8A53015	R0.75	1.5	6	1.5	50
G8A53020	R1.0	2.0	6	2.0	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A59 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE BALL NOSE - Center Match

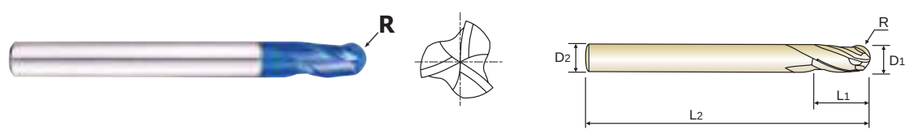
VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt

Fraise carbure, 3 dents, hémisphérique, coupe au centre

3 TAGLIENTI, SEMISFERICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 3 | BLUE | 30° | R ±0.005 (R1.5~R3) | R ±0.010 (R4~R10) | PLAIN

P.797

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
G8A59030	R1.5	3.0	6	8	60
G8A59040	R2.0	4.0	6	8	70
G8A59050	R2.5	5.0	6	10	80
G8A59060	R3.0	6.0	6	12	90
G8A59080	R4.0	8.0	8	14	100
G8A59100	R5.0	10.0	10	18	100
G8A59120	R6.0	12.0	12	22	110
G8A59160	R8.0	16.0	16	30	140
G8A59200	R10.0	20.0	20	38	160

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8D62 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE BALL NOSE - Center Match

VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt

Fraise carbure, 4 dents, hémisphérique - coupe au centre

4 TAGLIENTI, SEMISFERICA - 4 TAGLIENTI A CENTRO FRESA

- ▶ Applied center match type & special new design on ball center shape.
- ▶ Excellent high wear resistance and high performance.
- ▶ Applied for high speed and feed.
- ▶ Increased the surface roughness.

- ▶ Neues Design der Kugelschneidengeometrie
- ▶ Hohe Verschleißfestigkeit, hohe Leistung.
- ▶ Geeignet für hohe Schnittgeschwindigkeiten und hohe Vorschübe
- ▶ verbessert deutlich die Oberflächenrauhigkeit

NG HM | 4 | BLUE | 30° | R ±0.005 (R1.5~R3) | R ±0.010 (R4~R10) | PLAIN

P.798

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D1	D2	L1	L2
G8D62030	R1.5	3.0	6	8	60
G8D62040	R2.0	4.0	6	8	70
G8D62050	R2.5	5.0	6	10	80
G8D62060	R3.0	6.0	6	12	90
G8D62080	R4.0	8.0	8	14	100
G8D62100	R5.0	10.0	10	18	100
G8D62120	R6.0	12.0	12	22	110
G8D62160	R8.0	16.0	16	30	140
G8D62200	R10.0	20.0	20	38	160

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A60 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, torique pour usinage de rainure

2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.

NG HM | 2 | BLUE | 30° | R ±0.010 (Ø0.5~Ø6) | R ±0.015 (Ø8~Ø12) | PLAIN

P.799-800

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
G8A60936	R0.05	0.5	4	0.7	1.5	45	0.45
G8A60932	R0.05	0.5	4	0.7	2.5	45	0.45
G8A60935	R0.05	0.5	4	0.7	4	45	0.45
G8A60931	R0.05	0.6	4	0.9	2	45	0.55
G8A60933	R0.05	0.6	4	0.9	3	45	0.55
G8A60934	R0.05	0.6	4	0.9	4	45	0.55
G8A600060102	R0.1	0.6	4	0.9	2	45	0.55
G8A600070104	R0.1	0.7	4	1	4	45	0.65
G8A600080102	R0.1	0.8	4	1.2	2	45	0.75
G8A60008	R0.1	0.8	4	1.2	4	45	0.75
G8A60924	R0.1	0.8	4	1.2	6	45	0.75
G8A60925	R0.1	1.0	6	1.5	4	50	0.95
G8A60926	R0.1	1.0	6	1.5	6	50	0.95
G8A60010	R0.2	1.0	6	1.5	4	50	0.95
G8A60910	R0.2	1.0	6	1.5	6	50	0.95
G8A60911	R0.2	1.0	6	1.5	8	50	0.95
G8A60912	R0.3	1.0	6	1.5	4	50	0.95
G8A60930	R0.3	1.0	6	1.5	6	50	0.95
G8A600100308	R0.3	1.0	6	1.5	8	50	0.95
G8A60015	R0.2	1.5	6	2.5	4	50	1.45
G8A600150206	R0.2	1.5	6	2.5	6	50	1.45
G8A600150208	R0.2	1.5	6	2.5	8	50	1.45
G8A60913	R0.2	1.5	6	2.5	10	50	1.45
G8A60914	R0.2	1.5	6	2.5	12	50	1.45
G8A60915	R0.3	1.5	6	2.5	4	50	1.45
G8A600150306	R0.3	1.5	6	2.5	6	50	1.45
G8A600150308	R0.3	1.5	6	2.5	8	50	1.45
G8A60927	R0.2	2.0	6	3	6	50	1.95
G8A600200208	R0.2	2.0	6	3	8	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A60 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

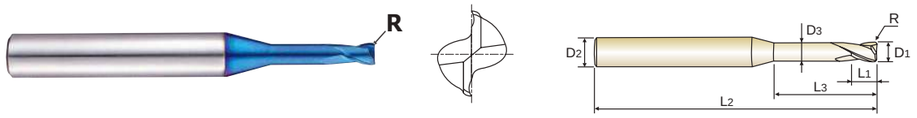
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, torique pour usinage de rainure

2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 (Ø0.5~Ø6) | R ±0.015 (Ø8~Ø12) | PLAIN

P.799-800

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A600200210	R0.2	2.0	6	3	10	55	1.95
G8A600200212	R0.2	2.0	6	3	12	55	1.95
G8A60916	R0.3	2.0	6	3	6	50	1.95
G8A600200308	R0.3	2.0	6	3	8	50	1.95
G8A600200310	R0.3	2.0	6	3	10	55	1.95
G8A600200312	R0.3	2.0	6	3	12	55	1.95
G8A600200316	R0.3	2.0	6	3	16	55	1.95
G8A60917	R0.5	2.0	6	3	6	50	1.95
G8A60020	R0.5	2.0	6	3	10	55	1.95
G8A60918	R0.5	2.0	6	3	12	55	1.95
G8A600300208	R0.2	3.0	6	4	8	55	2.85
G8A600300210	R0.2	3.0	6	4	10	55	2.85
G8A600300212	R0.2	3.0	6	4	12	55	2.85
G8A600300216	R0.2	3.0	6	4	16	55	2.85
G8A600300308	R0.3	3.0	6	4	8	55	2.85
G8A60919	R0.3	3.0	6	4	10	55	2.85
G8A600300312	R0.3	3.0	6	4	12	55	2.85
G8A600300316	R0.3	3.0	6	4	16	55	2.85
G8A60030	R0.5	3.0	6	4	10	55	2.85
G8A600300512	R0.5	3.0	6	4	12	55	2.85
G8A60901	R0.5	3.0	6	4	16	55	2.85
G8A60902	R0.5	3.0	6	4	20	55	2.85
G8A600400212	R0.2	4.0	6	5	12	55	3.85
G8A600400216	R0.2	4.0	6	5	16	55	3.85
G8A600400220	R0.2	4.0	6	5	20	55	3.85
G8A600400310	R0.3	4.0	6	5	10	55	3.85
G8A60920	R0.3	4.0	6	5	12	55	3.85
G8A600400316	R0.3	4.0	6	5	16	55	3.85
G8A600400320	R0.3	4.0	6	5	20	55	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

G8A60 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

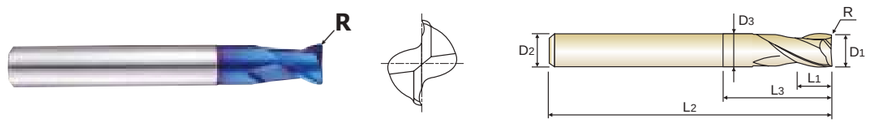
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, torique pour usinage de rainure

2 TAGLIENTI, TORICA, SCARICATA PER ENRVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 (Ø0.5~Ø6) | R ±0.015 (Ø8~Ø12) | PLAIN

P.799-800

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A60040	R0.5	4.0	6	5	12	55	3.85
G8A60903	R0.5	4.0	6	5	16	55	3.85
G8A60904	R0.5	4.0	6	5	20	55	3.85
G8A600401012	R1.0	4.0	6	5	12	55	3.85
G8A600401016	R1.0	4.0	6	5	16	55	3.85
G8A60921	R0.3	6.0	6	7	20	60	5.85
G8A60060	R0.5	6.0	6	7	20	60	5.85
G8A60905	R1.0	6.0	6	7	20	60	5.85
G8A60906	R1.5	6.0	6	7	20	60	5.85
G8A600602020	R2.0	6.0	6	7	20	60	5.85
G8A60922	R0.3	8.0	8	9	25	60	7.7
G8A60929	R0.5	8.0	8	9	25	60	7.7
G8A60080	R1.0	8.0	8	9	25	60	7.7
G8A60907	R1.5	8.0	8	9	25	60	7.7
G8A600802025	R2.0	8.0	8	9	25	60	7.7
G8A60923	R0.3	10.0	10	11	32	70	9.7
G8A601000532	R0.5	10.0	10	11	32	70	9.7
G8A60100	R1.0	10.0	10	11	32	70	9.7
G8A60908	R1.5	10.0	10	11	32	70	9.7
G8A601002032	R2.0	10.0	10	11	32	70	9.7
G8A601200538	R0.5	12.0	12	12	38	80	11.7
G8A60120	R1.0	12.0	12	12	38	80	11.7
G8A60909	R1.5	12.0	12	12	38	80	11.7
G8A601202038	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A36 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

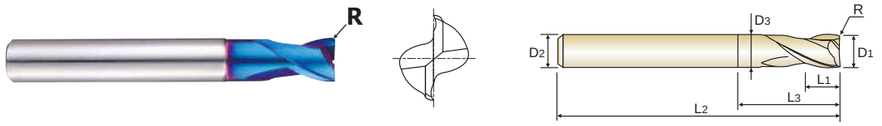
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, torique, détalonnée, extra-courte

2 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 Ø0.3~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.805-806

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A36003	-	0.3	3	0.45	-	40	-
G8A36004	-	0.4	3	0.6	-	40	-
G8A36005	R0.05	0.5	3	0.7	-	40	-
G8A36907	R0.05	0.5	4	1	-	40	-
G8A36006	R0.05	0.6	3	0.9	-	40	-
G8A36908	R0.05	0.6	4	1.2	-	40	-
G8A36909	R0.05	0.7	4	1.4	-	40	-
G8A36008	R0.05	0.8	3	1.2	-	40	-
G8A36910	R0.05	0.8	4	1.6	-	40	-
G8A36911	R0.05	0.9	4	2	-	40	-
G8A36010	R0.1	1.0	3	1.5	-	40	-
G8A36901	R0.1	1.0	4	1.5	-	40	-
G8A36903	R0.1	1.0	6	1.5	-	40	-
G8A36015	R0.1	1.5	3	2.2	-	40	-
G8A36904	R0.1	1.5	6	2.2	-	40	-
G8A36020	R0.1	2.0	3	3	6	40	1.95
G8A36902	R0.1	2.0	4	3	6	40	1.95
G8A36905	R0.1	2.0	6	3	6	40	1.95
G8A36025	R0.1	2.5	3	4	6	40	2.4
G8A36906	R0.1	2.5	6	4	6	40	2.4
G8A36030	R0.1	3.0	6	4	7	45	2.85
G8A36035	R0.1	3.5	6	5	9	45	3.35
G8A36040	R0.1	4.0	6	5	9	45	3.85
G8A36045	R0.1	4.5	6	6	10	45	4.35

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

G8A36 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

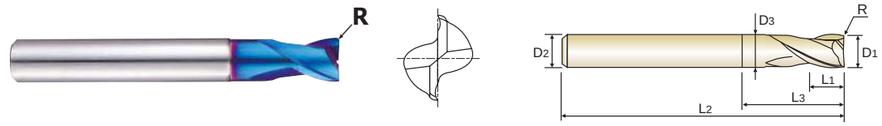
VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, torique, détalonnée, extra-courte

2 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 Ø0.3~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.805-806

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A36050	R0.2	5.0	6	6	11	50	4.85
G8A36060	R0.2	6.0	6	7	14	50	5.85
G8A36080	R0.2	8.0	8	9	18	60	7.7
G8A36100	R0.2	10.0	10	12	25	75	9.7
G8A36120	R0.3	12.0	12	15	30	75	11.7
G8A36160	R0.3	16.0	16	18	38	90	15.7
G8A36200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A52 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

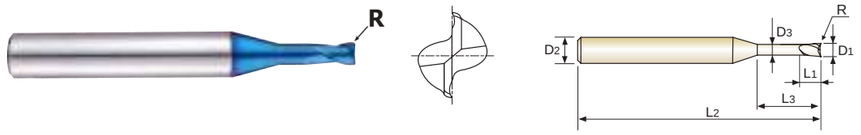
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, torique pour usinage de rainure

2 TAGLIENTI, TORICA, SCARIATA PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 | PLAIN

P.801

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.010)	D1	D2	L1	L3	L2	D3
G8A52005	R0.05	0.5	6	0.7	1.5	50	0.45
G8A52901	R0.05	0.5	6	0.7	3.3	50	0.45
G8A52006	R0.05	0.6	6	0.9	2	50	0.55
G8A52902	R0.05	0.6	6	0.9	4	50	0.55
G8A52008	R0.05	0.8	6	1.2	2.5	50	0.75
G8A52903	R0.05	0.8	6	1.2	5.5	50	0.75
G8A52010	R0.10	1.0	6	1.5	3.3	50	0.95
G8A52904	R0.10	1.0	6	1.5	6.7	50	0.95
G8A52012	R0.10	1.2	6	1.8	4.4	50	1.15
G8A52905	R0.10	1.2	6	1.8	8	50	1.15
G8A52015	R0.15	1.5	6	2.2	5	50	1.45
G8A52906	R0.15	1.5	6	2.2	9.7	50	1.45
G8A52020	R0.15	2.0	6	2.2	6	50	1.95
G8A52907	R0.15	2.0	6	2.2	13	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A50 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS

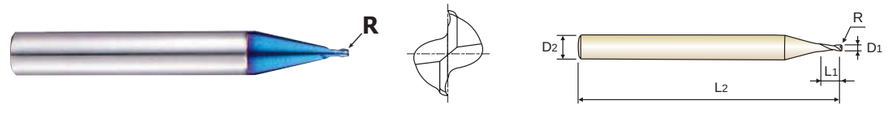
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

Fraise carbure, 2 dents, torique, micro-fraise

2 TAGLIENTI, TORICA MINI

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | R ±0.010 | PLAIN

P.802

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R (±0.010)	D1	D2	L1	L2
G8A50003	-	0.3	6	0.45	50
G8A50004	-	0.4	6	0.6	50
G8A50005	R0.05	0.5	6	0.7	50
G8A50006	R0.05	0.6	6	0.9	50
G8A50008	R0.05	0.8	6	1.2	50
G8A50010	R0.10	1.0	6	1.5	50
G8A50012	R0.10	1.2	6	1.8	50
G8A50015	R0.15	1.5	6	2.2	50
G8A50020	R0.15	2.0	6	2.2	50

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A47 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, torique, micro-fraise

4 TAGLIENTI, TORICA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.

NG HM | 4 | BLUE | 30° | R ±0.010 Ø3~Ø6 | R ±0.015 Ø8~Ø12 | PLAIN

P.803

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A47916	R0.3	3.0	6	4	12	55	2.85
G8A47917	R0.3	3.0	6	4	16	55	2.85
G8A47918	R0.3	3.0	6	4	20	55	2.85
G8A47030	R0.5	3.0	6	4	10	55	2.85
G8A47901	R0.5	3.0	6	4	16	55	2.85
G8A47902	R0.5	3.0	6	4	20	55	2.85
G8A47919	R0.3	4.0	6	5	12	55	3.85
G8A47920	R0.3	4.0	6	5	16	55	3.85
G8A47921	R0.3	4.0	6	5	20	55	3.85
G8A47040	R0.5	4.0	6	5	12	55	3.85
G8A47903	R0.5	4.0	6	5	16	55	3.85
G8A47904	R0.5	4.0	6	5	20	55	3.85
G8A47922	R1.0	4.0	6	5	12	55	3.85
G8A47060	R0.5	6.0	6	7	20	60	5.85
G8A47905	R1.0	6.0	6	7	20	60	5.85
G8A47906	R1.5	6.0	6	7	20	60	5.85
G8A47910	R0.5	8.0	8	9	25	60	7.7
G8A47080	R1.0	8.0	8	9	25	60	7.7
G8A47907	R1.5	8.0	8	9	25	60	7.7
G8A47913	R2.0	8.0	8	9	25	60	7.7
G8A47911	R0.5	10.0	10	11	32	70	9.7
G8A47100	R1.0	10.0	10	11	32	70	9.7
G8A47908	R1.5	10.0	10	11	32	70	9.7
G8A47914	R2.0	10.0	10	11	32	70	9.7
G8A47912	R0.5	12.0	12	12	38	80	11.7
G8A47120	R1.0	12.0	12	12	38	80	11.7
G8A47909	R1.5	12.0	12	12	38	80	11.7
G8A47915	R2.0	12.0	12	12	38	80	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A37 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 4 dents, torique, détalonnée, extra-courte

4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.

NG HM | 4 | BLUE | 30° | R ±0.010 Ø1~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.807

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A37010	R0.1	1.0	3	1.5	-	40	-
G8A37901	R0.1	1.0	6	1.5	-	40	-
G8A37015	R0.1	1.5	3	2.2	-	40	-
G8A37902	R0.1	1.5	6	2.2	-	40	-
G8A37020	R0.1	2.0	3	3	6	40	1.95
G8A37903	R0.1	2.0	6	3	6	40	1.95
G8A37025	R0.1	2.5	3	4	6	40	2.4
G8A37904	R0.1	2.5	6	4	6	40	2.4
G8A37030	R0.1	3.0	6	4	7	45	2.85
G8A37035	R0.1	3.5	6	5	9	45	3.35
G8A37040	R0.1	4.0	6	5	9	45	3.85
G8A37045	R0.1	4.5	6	6	10	45	4.35
G8A37050	R0.2	5.0	6	6	11	50	4.85
G8A37060	R0.2	6.0	6	7	14	50	5.85
G8A37080	R0.2	8.0	8	9	18	60	7.7
G8A37100	R0.2	10.0	10	12	25	75	9.7
G8A37120	R0.3	12.0	12	15	30	75	11.7
G8A37160	R0.3	16.0	16	18	38	90	15.7
G8A37200	R0.3	20.0	20	24	45	100	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8B08 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE CORNER RADIUS with EXTENDED NECK

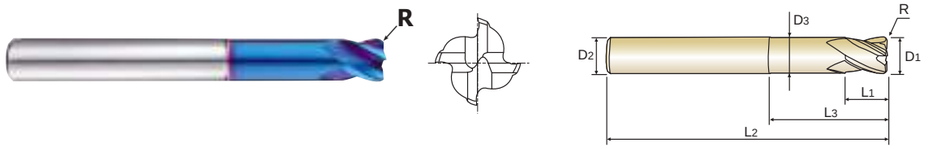
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, détalonnée

4 TAGLIENTI, TORICA, TAGLIENTE CORTO CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 4 | BLUE | 30° | R ±0.010 Ø6 | R ±0.015 Ø8~Ø12 | PLAIN

P.803

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8B0806005090	R0.5	6.0	6	9	20	90	5.85
G8B0806010090	R1.0	6.0	6	9	20	90	5.85
G8B0808005100	R0.5	8.0	8	12	25	100	7.7
G8B0808010100	R1.0	8.0	8	12	25	100	7.7
G8B0810005100	R0.5	10.0	10	15	32	100	9.7
G8B0810010100	R1.0	10.0	10	15	32	100	9.7
G8B0810020100	R2.0	10.0	10	15	32	100	9.7
G8B0812005110	R0.5	12.0	12	18	38	110	11.7
G8B0812010110	R1.0	12.0	12	18	38	110	11.7
G8B0812020110	R2.0	12.0	12	18	38	110	11.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

* Mill Dia. Tolerance(mm) for Extra Long Type : 0~-0.03

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A39 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS with EXTENDED NECK

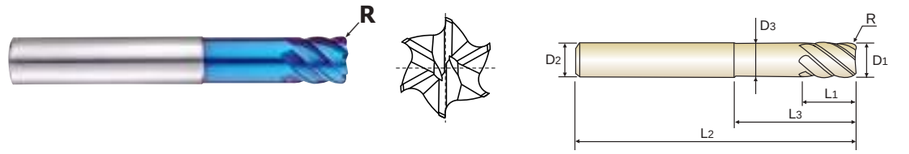
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 6 dents, torique, hélice 45°, détalonnée

6 TAGLIENTI, TORICA, ELICA 45°, SCARICATA

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Deep slotting is possible by reduced neck.
- ▶ Corner radius for preventing the chipping in high speed machining.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Abgesetzter Schaft für größere Reichweite.
- ▶ Schneidkantenschutz durch definierten Radius.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 6 | BLUE | 45° | R ±0.010 Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.808

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A39916	R0.25	6.0	6	6	14	50	5.85
G8A39060	R0.5	6.0	6	6	14	50	5.85
G8A39901	R0.5	6.0	6	13	-	70	-
G8A39910	R0.5	6.0	* 6	26	-	70	-
G8A39080	R0.5	8.0	8	8	24	60	7.7
G8A39902	R0.5	8.0	8	19	-	90	-
G8A39911	R0.5	8.0	* 8	36	-	90	-
G8A39903	R0.5	10.0	10	22	-	100	-
G8A39100	R1.0	10.0	10	10	30	70	9.7
G8A39904	R1.0	10.0	10	22	-	100	-
G8A39912	R1.0	10.0	* 10	46	-	100	-
G8A39905	R0.5	12.0	12	26	-	110	-
G8A39120	R1.0	12.0	12	12	30	75	11.7
G8A39906	R1.0	12.0	12	26	-	110	-
G8A39913	R1.0	12.0	* 12	56	-	110	-
G8A39160	R1.0	16.0	16	32	-	130	-
G8A39907	R1.5	16.0	16	32	-	130	-
G8A39914	R1.5	16.0	* 16	66	-	130	-
G8A39200	R1.0	20.0	20	38	-	140	-
G8A39908	R1.5	20.0	20	38	-	140	-
G8A39909	R2.0	20.0	20	38	-	140	-
G8A39915	R2.0	20.0	* 20	76	-	140	-

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.02	h6
over Ø6	±0.015		

* Mill Dia. Tolerance(mm) for Extra Long Type : 0~-0.03

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A45 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE for RIB PROCESSING

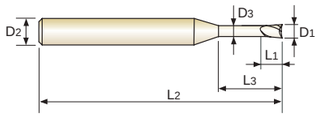
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | PLAIN

P.804

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45863	0.1	4	0.15	0.3	45	0.085
G8A45864	0.1	4	0.15	0.5	45	0.085
G8A45002	0.2	4	0.3	0.5	45	0.17
G8A45815	0.2	4	0.3	1	45	0.17
G8A45816	0.2	4	0.3	1.5	45	0.17
G8A45003	0.3	4	0.45	1	45	0.27
G8A45844	0.3	4	0.45	1.5	45	0.27
G8A45817	0.3	4	0.45	2	45	0.27
G8A45818	0.3	4	0.45	3	45	0.27
G8A45842	0.3	4	0.45	4	45	0.27
G8A45843	0.4	4	0.6	1	45	0.37
G8A45004	0.4	4	0.6	2	45	0.37
G8A45984	0.4	4	0.6	3	45	0.37
G8A45985	0.4	4	0.6	4	45	0.37
G8A45986	0.4	4	0.6	5	45	0.37
G8A45005	0.5	4	0.7	2	45	0.45
G8A45861	0.5	4	0.7	2.5	45	0.45
G8A45988	0.5	4	0.7	4	45	0.45
G8A45989	0.5	4	0.7	6	45	0.45
G8A45990	0.5	4	0.7	8	45	0.45
G8A45006	0.6	4	0.9	2	45	0.55
G8A45860	0.6	4	0.9	3	45	0.55
G8A45991	0.6	4	0.9	4	45	0.55
G8A45992	0.6	4	0.9	6	45	0.55
G8A45993	0.6	4	0.9	8	45	0.55
G8A45819	0.6	4	0.9	10	45	0.55
G8A45862	0.8	4	1.2	2	45	0.75
G8A45008	0.8	4	1.2	4	45	0.75
G8A45908	0.8	4	1.2	6	45	0.75

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

G8A45 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE for RIB PROCESSING

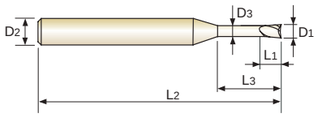
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI PER NERVATURE

- Designed to machine high hardened materials.
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- Excellent workpiece finish.
- Designed for high precision milling operation.
- Higher wear-resistance.

- Geeignet zum Fräsen hochgehärteter Stähle.
- Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- Excellente Werkstückoberflächen.
- Geeignet für hochpräzises Fräsen.
- Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | PLAIN

P.804

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45909	0.8	4	1.2	8	45	0.75
G8A45994	0.8	4	1.2	10	45	0.75
G8A45995	0.8	4	1.2	12	45	0.75
G8A45996	1.0	4	1.5	4	45	0.95
G8A45010	1.0	4	1.5	6	45	0.95
G8A45912	1.0	4	1.5	8	45	0.95
G8A45913	1.0	4	1.5	10	45	0.95
G8A45914	1.0	4	1.5	12	45	0.95
G8A45997	1.0	4	1.5	16	50	0.95
G8A45998	1.0	4	1.5	20	55	0.95
G8A45012	1.2	4	1.8	6	45	1.15
G8A45915	1.2	4	1.8	8	45	1.15
G8A45916	1.2	4	1.8	10	45	1.15
G8A45917	1.2	4	1.8	12	45	1.15
G8A45999	1.2	4	1.8	16	50	1.15
G8A45015	1.5	4	2.3	6	45	1.45
G8A45923	1.5	4	2.3	8	45	1.45
G8A45924	1.5	4	2.3	10	45	1.45
G8A45925	1.5	4	2.3	12	45	1.45
G8A45926	1.5	4	2.3	14	50	1.45
G8A45927	1.5	4	2.3	16	50	1.45
G8A45928	1.5	4	2.3	18	55	1.45
G8A45810	1.5	4	2.3	20	55	1.45
G8A45958	2.0	4	3.0	6	45	1.95
G8A45020	2.0	4	3.0	8	45	1.95
G8A45959	2.0	4	3.0	10	45	1.95
G8A45960	2.0	4	3.0	12	45	1.95
G8A45961	2.0	4	3.0	14	50	1.95
G8A45962	2.0	4	3.0	16	50	1.95

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A45 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE for RIB PROCESSING

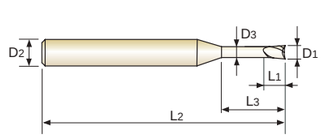
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI PER NERVATURE

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 2 | BLUE | 30° | PLAIN

P.804

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A45963	2.0	4	3.0	18	55	1.95
G8A45964	2.0	4	3.0	20	55	1.95
G8A45966	2.0	4	3.0	25	60	1.95
G8A45814	2.0	4	3.0	30	70	1.95
G8A45975	3.0	6	4.5	10	45	2.85
G8A45976	3.0	6	4.5	12	45	2.85
G8A45977	3.0	6	4.5	14	50	2.85
G8A45978	3.0	6	4.5	16	55	2.85
G8A45979	3.0	6	4.5	18	55	2.85
G8A45980	3.0	6	4.5	20	60	2.85
G8A45981	3.0	6	4.5	25	65	2.85
G8A45832	3.0	6	4.5	30	70	2.85
G8A45833	3.0	6	4.5	35	80	2.85
G8A45983	3.0	6	4.5	40	90	2.85
G8A45040	4.0	6	6	12	50	3.85
G8A45801	4.0	6	6	16	60	3.85
G8A45802	4.0	6	6	20	60	3.85
G8A45803	4.0	6	6	25	70	3.85
G8A45834	4.0	6	6	30	70	3.85
G8A45835	4.0	6	6	35	80	3.85
G8A45836	4.0	6	6	40	90	3.85
G8A45837	4.0	6	6	45	90	3.85
G8A45838	4.0	6	6	50	100	3.85

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.012	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A01 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE with EXTENDED NECK

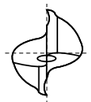
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL

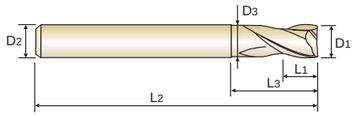
Fraise carbure, 2 dents, détalonnée

2 TAGLIENTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.





NG HM | 2 | BLUE | 30° | PLAIN

P.805-806

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G8A01001	0.1	4	0.2	-	40	-
G8A01002	0.2	4	0.4	-	40	-
G8A01003	0.3	4	0.6	-	40	-
G8A01004	0.4	4	0.8	-	40	-
G8A01005	0.5	4	1	-	40	-
G8A01006	0.6	4	1.2	-	40	-
G8A01007	0.7	4	1.4	-	40	-
G8A01008	0.8	4	1.6	-	40	-
G8A01009	0.9	4	2	-	40	-
G8A01010	1.0	6	1.5	3	50	0.95
G8A01015	1.5	6	1.7	4	50	1.45
G8A01020	2.0	6	2	5	50	1.95
G8A01025	2.5	6	2.5	6	55	2.4
G8A01030	3.0	6	3	8	55	2.85
G8A01035	3.5	6	3.5	9	55	3.35
G8A01040	4.0	6	4	10	55	3.85
G8A01050	5.0	6	5	13	55	4.85
G8A01060	6.0	6	6	15	55	5.85
G8A01080	8.0	8	8	20	65	7.7
G8A01100	10.0	10	10	25	75	9.7
G8A01120	12.0	12	12	28	85	11.7
G8A01160	16.0	16	16	32	90	15.7
G8A01200	20.0	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8A02 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE with EXTENDED NECK

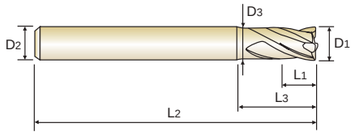
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTEIL

Fraise carbure, 4 dents, détalonnée

4 TAGLIENTI CON SCARICO ESTESO

- ▶ Designed to machine high hardened materials.
- ▶ Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating.
- ▶ Excellent workpiece finish.
- ▶ Designed for high precision milling operation.
- ▶ Higher wear-resistance.

- ▶ Geeignet zum Fräsen hochgehärteter Stähle.
- ▶ Geeignet zum Trockenfräsen und HSC-Fräsen dank neuentwickeltem Material und Beschichtung.
- ▶ Excellente Werkstückoberflächen.
- ▶ Geeignet für hochpräzises Fräsen.
- ▶ Höhere Verschleißfestigkeit.



NG HM | 4 | BLUE | 30° | PLAIN

P.807

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Len gth L2	Neck Diameter D3
G8A02010	1.0	6	1.5	3	50	0.95
G8A02020	2.0	6	2	5	50	1.95
G8A02030	3.0	6	3	8	55	2.85
G8A02040	4.0	6	4	10	55	3.85
G8A02050	5.0	6	5	13	55	4.85
G8A02060	6.0	6	6	15	55	5.85
G8A02080	8.0	8	8	20	65	7.7
G8A02100	10.0	10	10	25	75	9.7
G8A02120	12.0	12	12	28	85	11.7
G8A02160	16.0	16	16	32	90	15.7
G8A02200	20.0	20	20	40	105	19.7

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8D63 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

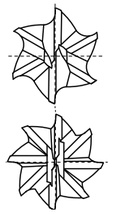
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG

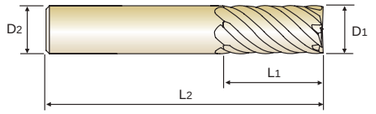
Fraise carbure, 6&8 dents, hélice 45°, longue

6&8 TAGLIENTI, ELICA 45°, TAGLIENTE LUNGO

- ▶ Designed to machine high hardened materials.
- ▶ Designed for high abrasion resistance thanks to negative rake angle.
- ▶ Excellent side-cutting of press mold field.

- ▶ Speziell ausgelegt für die Hartbearbeitung
- ▶ Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- ▶ hervorragend geeignet für die Seitenbearbeitung im Formenbau





NG HM | 6&8 | BLUE | 45° | PLAIN

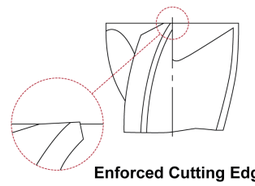
P.809

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute
G8D63060	6.0	6	13	57	6
G8D63080	8.0	8	19	63	6
G8D63100	10.0	10	22	72	6
G8D63120	12.0	12	26	83	6
G8D63140	14.0	14	26	83	6
G8D63160	16.0	16	32	92	6
G8D63180	18.0	18	32	92	8
G8D63200	20.0	20	38	104	8
G8D63250	25.0	25	44	104	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

G8D64 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG LENGTH

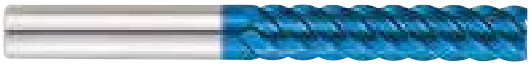
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG

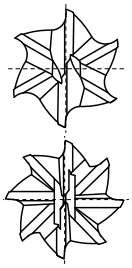
Fraise carbure, 6&8 dents, hélice 45°, extra-longue

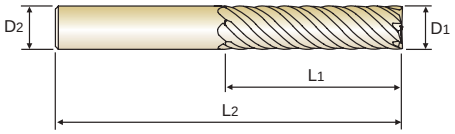
6&8 TAGLIENTI, ELICA 45°, TAGLIENTE EXTRA LUNGO

- Designed to machine high hardened materials.
- Designed for high abrasion resistance thanks to negative rake angle.
- Excellent side-cutting of press mold field.

- Speziell ausgelegt für die Hartbearbeitung
- Ausgelegt für hohe Abriebfestigkeit dank der negativen Spanwinkel.
- Hervorragend geeignet für die Seitenbearbeitung im Formenbau







NG HM | 6&8 | BLUE | 45° | PLAIN

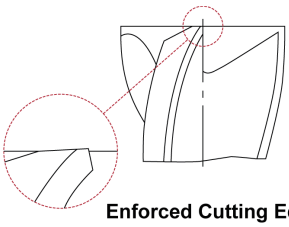
P.810

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	No. of Flute
G8D64060	6.0	6	26	70	6
G8D64080	8.0	8	36	90	6
G8D64100	10.0	10	46	100	6
G8D64120	12.0	12	56	110	6
G8D64160	16.0	16	66	130	6
G8D64200	20.0	20	76	140	8
G8D64250	25.0	25	92	180	8

Due to the characteristics of the blue decoration layer, it might be erased during short term use and the color layer might not be uniformed. However, it doesn't affect the performance of the tool.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
		○	○	◎	◎									

X5070 END MILLS

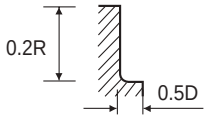
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4FLUTE CORNER RADIUS HIGH FEED
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

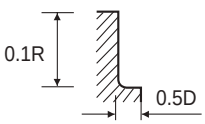
G8B59, G8B54 SERIES

■ NORMAL SPEED

MATERIAL	P											
	HARDENED STEELS											
HARDNESS	~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0 × R0.5	13500	6500	85	0.120	9550	3800	60	0.099	5500	2200	35	0.100
3.0 × R0.5	9550	6500	90	0.170	6900	4150	65	0.150	4550	2750	45	0.151
4.0 × R0.5	7950	7000	100	0.220	5750	4600	70	0.200	4000	3200	50	0.200
5.0 × R0.5	6500	7300	100	0.281	4800	4800	75	0.250	3400	3200	55	0.235
6.0 × R0.5	5800	7650	110	0.330	4100	4900	75	0.299	2900	3500	55	0.302
6.0 × R1.0	5800	7650	110	0.330	4100	4900	75	0.299	2900	3500	55	0.302
8.0 × R1.0	4350	7650	110	0.440	3050	4900	75	0.402	2200	3500	55	0.398
8.0 × R2.0	4350	7650	110	0.440	3050	4900	75	0.402	2200	3500	55	0.398
10.0 × R1.0	3500	7650	110	0.546	2450	4900	75	0.500	1750	3500	55	0.500
10.0 × R2.0	3500	7650	110	0.546	2450	4900	75	0.500	1750	3500	55	0.500
12.0 × R2.0	2900	7650	110	0.659	2050	4900	75	0.598	1450	3500	55	0.603
12.0 × R3.0	2900	7650	110	0.659	2050	4900	75	0.598	1450	3500	55	0.603
16.0 × R3.0	2200	7650	110	0.869	1550	4900	80	0.790	1100	3500	55	0.795



MATERIAL	H							
	HIGH HARDENED STEELS							
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0 × R0.5	3200	1000	20	0.078	2200	550	15	0.063
3.0 × R0.5	2850	1150	25	0.101	1900	610	20	0.080
4.0 × R0.5	2550	1350	30	0.132	1750	700	20	0.100
5.0 × R0.5	2200	1600	35	0.182	1500	700	25	0.117
6.0 × R0.5	1850	1850	35	0.250	1350	795	25	0.147
6.0 × R1.0	1850	1850	35	0.250	1350	795	25	0.147
8.0 × R1.0	1400	1850	35	0.330	995	795	25	0.200
8.0 × R2.0	1400	1850	35	0.330	995	795	25	0.200
10.0 × R1.0	1100	1850	35	0.420	795	795	25	0.250
10.0 × R2.0	1100	1850	35	0.420	795	795	25	0.250
12.0 × R2.0	925	1850	35	0.500	665	795	25	0.299
12.0 × R3.0	925	1850	35	0.500	665	795	25	0.299
16.0 × R3.0	700	1850	35	0.661	500	795	25	0.398



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

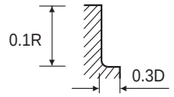
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4FLUTE CORNER RADIUS HIGH FEED
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

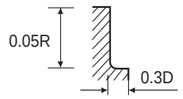
G8B59, G8B54 SERIES

■ **HIGH SPEED**

MATERIAL		P											
		HARDENED STEELS											
HARDNESS		~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER		RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	× R0.5	29000	15000	180	0.129	22000	9800	140	0.111	15000	7850	95	0.131
3.0	× R0.5	22000	16000	205	0.182	17000	10000	160	0.147	12500	8000	200	0.160
4.0	× R0.5	17000	17500	215	0.257	13000	12000	165	0.231	11000	9200	140	0.209
5.0	× R0.5	15000	18000	235	0.300	11000	12500	175	0.284	10000	10000	155	0.250
6.0	× R0.5	13500	18500	255	0.343	10500	13800	200	0.329	9000	11000	170	0.306
6.0	× R1.0	13500	18500	255	0.343	10500	13800	200	0.329	9000	11000	170	0.306
8.0	× R1.0	10000	18500	250	0.463	8000	14000	200	0.438	6800	11000	170	0.404
8.0	× R2.0	10000	18500	250	0.463	8000	14000	200	0.438	6800	11000	170	0.404
10.0	× R1.0	8000	18500	250	0.578	6400	14000	200	0.547	5400	11000	170	0.509
10.0	× R2.0	8000	18500	250	0.578	6400	14000	200	0.547	5400	11000	170	0.509
12.0	× R2.0	6600	18500	250	0.701	5300	14000	200	0.660	4500	11000	170	0.611
12.0	× R3.0	6600	18500	250	0.701	5300	14000	200	0.660	4500	11000	170	0.611
16.0	× R3.0	5000	18500	250	0.925	3900	14000	195	0.897	3300	11000	165	0.833



MATERIAL		H							
		HIGH HARDENED STEELS							
HARDNESS		HRc 55 ~ HRc 60				HRc 60 ~ HRc 65			
DIAMETER		RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	× R0.5	11000	4450	70	0.101	8700	2450	55	0.070
3.0	× R0.5	9500	4600	90	0.121	6900	2500	65	0.091
4.0	× R0.5	8000	5500	100	0.172	5600	2900	70	0.129
5.0	× R0.5	7000	6000	110	0.214	4900	3100	75	0.158
6.0	× R0.5	6400	6400	120	0.250	4500	3600	85	0.200
6.0	× R1.0	6400	6400	120	0.250	4500	3600	85	0.200
8.0	× R1.0	4800	6700	120	0.349	3400	4100	85	0.301
8.0	× R2.0	4800	6700	120	0.349	3400	4100	85	0.301
10.0	× R1.0	3800	6800	120	0.447	2700	3800	85	0.352
10.0	× R2.0	3800	6800	120	0.447	2700	3800	85	0.352
12.0	× R2.0	3200	7000	120	0.547	2250	3600	85	0.400
12.0	× R3.0	3200	7000	120	0.547	2250	3600	85	0.400
16.0	× R3.0	2400	7000	120	0.729	1650	3300	85	0.500



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

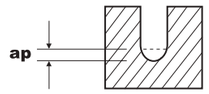
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

G8A46, G8A54 SERIES

MATERIAL		P									
		ALLOY STEELS HEAT RESISTANT STEELS					HARDENED STEELS				
HARDNESS		HRc 30 ~ HRc 45					HRc 45 ~ HRc 55				
DIAMETER		RPM	FEED	ap(mm)	Vc	fz	RPM	FEED	ap(mm)	Vc	fz
R0.1	x 0.2	50000	300~350	0.006~0.016	31	0.012~0.014	50000	265~310	0.005~0.013	31	0.011~0.012
R0.15	x 0.3	48000~50000	480~520	0.010~0.017	45~47	0.020~0.021	48000~50000	440~460	0.008~0.014	45~47	0.018~0.018
R0.2	x 0.4	48000~50000	720~790	0.013~0.032	60~63	0.030~0.032	48000~50000	450~550	0.011~0.026	60~63	0.019~0.022
R0.25	x 0.5	34100~49500	600~870	0.007~0.028	54~78	0.035~0.035	31900~35200	490~540	0.005~0.023	50~55	0.031~0.031
R0.3	x 0.6	28600~40700	590~850	0.007~0.034	54~77	0.041~0.042	26400~29700	480~540	0.006~0.028	50~56	0.036~0.036
R0.4	x 0.8	22000~30800	640~890	0.016~0.064	55~77	0.058~0.058	19800~22000	490~550	0.013~0.052	50~55	0.049~0.05
R0.5	x 1.0	17600~24200	600~850	0.008~0.080	55~76	0.068~0.070	15400~17600	470~540	0.007~0.065	48~55	0.061~0.061
R0.6	x 1.2	14300~18700	590~780	0.024~0.032	54~70	0.083~0.083	12000~14000	480~540	0.020~0.026	45~53	0.080~0.077
R0.75	x 1.5	11000~14300	580~760	0.031~0.048	52~67	0.105~0.106	10000~11500	480~540	0.025~0.039	47~54	0.096~0.094
R1.0	x 2.0	8500~11000	590~800	0.024~0.160	53~69	0.139~0.145	7900~8800	470~530	0.020~0.130	50~55	0.119~0.12
R1.5	x 3.0	5700~8200	730~1000	0.064~0.240	54~77	0.256~0.244	5300~5800	590~650	0.052~0.195	50~55	0.223~0.224
R2.0	x 4.0	4300~6200	680~990	0.080~0.320	54~78	0.316~0.319	3950~4400	550~620	0.065~0.260	50~55	0.299~0.282

MATERIAL		H				
		HIGH HARDENED STEELS				
HARDNESS		HRc 55 ~ HRc 65				
DIAMETER		RPM	FEED	ap(mm)	Vc	fz
R0.1	x 0.2	50000	225~265	0.005~0.012	31~31	0.009~0.011
R0.15	x 0.3	46000~50000	390~420	0.007~0.013	43~47	0.017~0.017
R0.2	x 0.4	46000~50000	400~460	0.010~0.024	58~63	0.017~0.018
R0.25	x 0.5	31900~35200	440~480	0.005~0.021	50~55	0.028~0.027
R0.3	x 0.6	26400~29700	400~480	0.006~0.025	50~56	0.030~0.032
R0.4	x 0.8	19800~22000	440~500	0.012~0.048	50~55	0.044~0.045
R0.5	x 1.0	15400~17600	440~500	0.006~0.060	48~55	0.057~0.057
R0.6	x 1.2	12000~14000	420~480	0.018~0.024	45~53	0.070~0.069
R0.75	x 1.5	10000~11500	420~480	0.023~0.036	47~54	0.084~0.083
R1.0	x 2.0	7900~8800	440~480	0.018~0.120	50~55	0.111~0.109
R1.5	x 3.0	5300~5800	550~620	0.048~0.120	50~55	0.208~0.214
R2.0	x 4.0	3850~4400	530~570	0.060~0.240	48~55	0.275~0.259



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

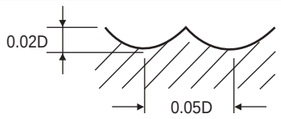
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

G8A28, G8A38, G8A53 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.1 × 0.2	50000	1200	30	0.012	50000	1050	30	0.011	45000	960	30	0.011
R0.15 × 0.3	50000	1500	45	0.015	50000	1350	45	0.014	45000	1200	40	0.013
R0.2 × 0.4	50000	1900	65	0.019	50000	1700	65	0.017	45000	1500	55	0.017
R0.25 × 0.5	50000	2400	80	0.024	50000	2100	80	0.021	45000	1900	70	0.021
R0.3 × 0.6	50000	2900	95	0.029	50000	2500	95	0.025	45000	2200	85	0.024
R0.4 × 0.8	50000	3900	125	0.039	50000	3300	125	0.033	45000	3000	115	0.033
R0.5 × 1.0	50000	4800	155	0.048	50000	4200	155	0.042	45000	3800	140	0.042
R0.6 × 1.2	50000	5100	190	0.051	48000	4300	180	0.045	43000	3850	160	0.045
R0.75 × 1.5	50000	5400	235	0.054	48000	4500	225	0.047	43000	4000	205	0.047
R1.0 × 2.0	49700	5700	310	0.057	47800	4800	300	0.050	40000	4000	250	0.050
R1.5 × 3.0	33100	6000	310	0.091	31800	5300	300	0.083	26500	4000	250	0.075
R2.0 × 4.0	24900	6000	315	0.120	23900	5300	300	0.111	20000	4000	250	0.100
R2.5 × 5.0	18600	5800	290	0.156	17800	4900	280	0.138	15000	3750	235	0.125
R3.0 × 6.0	13900	4850	260	0.174	13400	4100	255	0.153	11000	3100	205	0.141
R4.0 × 8.0	11100	4200	280	0.189	10700	3500	270	0.164	9000	2700	225	0.150
R5.0 × 10.0	9300	3700	290	0.199	8900	3100	280	0.174	7500	2400	235	0.160
R6.0 × 12.0	6950	2950	260	0.212	6680	2500	250	0.187	5600	1900	210	0.170
R8.0 × 16.0	5570	2650	280	0.238	5350	2200	270	0.206	4500	1700	225	0.189
R10.0 × 20.0	4450	2350	280	0.264	4300	1950	270	0.227	3600	1500	225	0.208

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.1 × 0.2	40000	770	25	0.010	35000	674	20	0.010	31500	570	20	0.009
R0.15 × 0.3	40000	965	40	0.012	35000	840	35	0.012	31500	700	30	0.011
R0.2 × 0.4	40000	1200	50	0.015	35000	1050	45	0.015	31500	890	40	0.014
R0.25 × 0.5	40000	1500	65	0.019	35000	1300	55	0.019	31500	1100	50	0.017
R0.3 × 0.6	40000	1800	75	0.023	35000	1600	65	0.023	31500	1400	60	0.022
R0.4 × 0.8	40000	2400	100	0.030	35000	2100	90	0.030	31500	1800	80	0.029
R0.5 × 1.0	40000	3000	125	0.038	35000	2600	110	0.037	35000	2300	110	0.033
R0.6 × 1.2	38000	3000	145	0.039	34000	2700	130	0.040	30600	2300	115	0.038
R0.75 × 1.5	37000	3100	175	0.042	33000	2700	155	0.041	29700	2300	140	0.039
R1.0 × 2.0	35000	3150	220	0.045	32000	2800	200	0.044	28500	2300	180	0.040
R1.5 × 3.0	23500	3150	220	0.067	21000	2800	200	0.067	19000	2300	180	0.061
R2.0 × 4.0	17500	3150	220	0.090	16000	2800	200	0.088	14500	2300	180	0.079
R2.5 × 5.0	13500	3050	210	0.113	11500	2550	180	0.111	10500	2100	165	0.100
R3.0 × 6.0	10000	2500	190	0.125	8800	2150	165	0.122	8000	1750	150	0.109
R4.0 × 8.0	8000	2150	200	0.134	7000	1850	175	0.132	6500	1550	165	0.119
R5.0 × 10.0	6600	1900	205	0.144	5800	1650	180	0.142	5300	1380	165	0.130
R6.0 × 12.0	5000	1550	190	0.155	4400	1250	165	0.142	4000	1050	150	0.131
R8.0 × 16.0	4000	1350	200	0.169	3500	1000	175	0.143	3200	850	160	0.133
R10.0 × 20.0	3200	1200	200	0.188	2800	800	175	0.143	2550	660	160	0.129



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

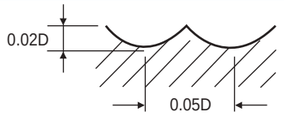
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE BALL NOSE - Center Match
VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt

G8A59 SERIES

MATERIAL	P								H			
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HRc 30 ~ HRc 45				HRc 45 ~ HRc 55				HRc 55 ~ HRc 60			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	32000	8600	300	0.090	26840	5800	255	0.072	19840	4280	185	0.072
R2.0 × 4.0	24080	7700	305	0.107	20130	5430	255	0.090	14880	3880	185	0.087
R2.5 × 5.0	20000	7250	315	0.121	16780	5430	265	0.108	12400	3690	195	0.099
R3.0 × 6.0	18000	8570	340	0.159	15200	6220	285	0.136	12200	4500	230	0.123
R4.0 × 8.0	13500	7350	340	0.181	11300	5250	285	0.155	9200	3980	230	0.144
R5.0 × 10.0	10800	6530	340	0.202	9100	4590	285	0.168	7350	3450	230	0.156
R6.0 × 12.0	9050	6100	340	0.225	7590	4260	285	0.187	6130	3190	230	0.173
R8.0 × 16.0	6700	4600	335	0.229	5690	3250	285	0.190	4600	2480	230	0.180
R10.0 × 20.0	5400	3600	340	0.222	4550	2620	285	0.192	3670	1980	230	0.180

MATERIAL	H							
	HIGH HARDENED STEELS							
HARDNESS	HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	18680	4040	175	0.072	12780	2760	120	0.072
R2.0 × 4.0	14220	3650	180	0.086	9580	2500	120	0.087
R2.5 × 5.0	11670	3470	185	0.099	8000	2370	125	0.099
R3.0 × 6.0	11100	3830	210	0.115	7590	2460	145	0.108
R4.0 × 8.0	8320	3350	210	0.134	5690	2130	145	0.125
R5.0 × 10.0	6660	2870	210	0.144	4550	1960	145	0.144
R6.0 × 12.0	5530	2400	210	0.145	3800	1640	145	0.144
R8.0 × 16.0	4160	1800	210	0.144	2850	1230	145	0.144
R10.0 × 20.0	3300	1440	205	0.145	2280	980	145	0.143



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

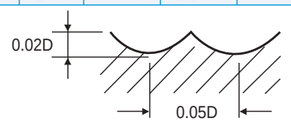
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE BALL NOSE - Center Match
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS - Schneiden Mittelpunkt

G8D62 SERIES

MATERIAL	P								H			
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HRc 30 ~ HRc 45				HRc 45 ~ HRc 55				HRc 55 ~ HRc 60			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	36100	10200	340	0.071	30250	7300	285	0.060	24440	4880	230	0.050
R2.0 × 4.0	27050	8700	340	0.080	22650	6350	285	0.070	18300	4400	230	0.060
R2.5 × 5.0	21600	7800	340	0.090	17820	5750	280	0.081	14650	4150	230	0.071
R3.0 × 6.0	18040	7320	340	0.101	15180	5560	285	0.092	12210	4020	230	0.082
R4.0 × 8.0	13530	6270	340	0.116	11330	4680	285	0.103	9190	3520	230	0.096
R5.0 × 10.0	10840	5560	340	0.128	9130	4070	285	0.111	7370	3080	230	0.104
R6.0 × 12.0	9020	5230	340	0.145	7590	3800	285	0.125	6110	2810	230	0.115
R8.0 × 16.0	6770	3910	340	0.144	5670	2920	285	0.129	4620	2200	230	0.119
R10.0 × 20.0	5450	3140	340	0.144	4570	2310	285	0.126	3690	1760	230	0.119

MATERIAL	H							
	HIGH HARDENED STEELS							
HARDNESS	HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	22280	4010	210	0.045	15170	2430	145	0.040
R2.0 × 4.0	16710	3680	210	0.055	11380	2280	145	0.050
R2.5 × 5.0	13370	3590	210	0.067	9100	2260	145	0.062
R3.0 × 6.0	11110	3410	210	0.077	7590	2200	145	0.072
R4.0 × 8.0	8310	2970	210	0.089	5670	1870	145	0.082
R5.0 × 10.0	6660	2530	210	0.095	4570	1760	145	0.096
R6.0 × 12.0	5560	2150	210	0.097	3800	1430	145	0.094
R8.0 × 16.0	4180	1600	210	0.096	2860	1100	145	0.096
R10.0 × 20.0	3300	1270	205	0.096	2260	880	140	0.097



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

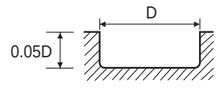
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

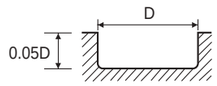
CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN - NUTENFRÄSEN

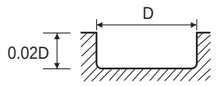
G8A60 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	50000	144	80	0.001	45000	110	70	0.001	40000	85	65	0.001
0.6	50000	185	95	0.002	45000	140	85	0.002	40000	110	75	0.001
0.8	50000	235	125	0.002	40000	170	100	0.002	30000	115	75	0.002
1.0	48000	590	150	0.006	38000	460	120	0.006	25500	285	80	0.006
2.0	33300	670	210	0.010	26000	540	165	0.010	17500	335	110	0.010
3.0	21800	670	205	0.015	17300	540	165	0.016	11500	335	110	0.015
4.0	16700	700	210	0.021	13200	560	165	0.021	8800	350	110	0.020
5.0	15700	810	245	0.026	12500	645	195	0.026	8300	395	130	0.024
6.0	13100	755	245	0.029	10350	615	195	0.030	6900	385	130	0.028
8.0	9880	740	250	0.037	7800	575	195	0.037	5200	355	130	0.034
10.0	7800	670	245	0.043	6150	540	195	0.044	4100	330	130	0.040
12.0	6650	672	250	0.051	5250	540	200	0.051	3500	330	130	0.047



MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	33000	55	50	0.001	25000	30	40	0.001	20000	20	30	0.250
0.6	30000	65	55	0.001	25000	40	45	0.001	20000	25	40	0.278
0.8	25000	70	65	0.001	19000	45	50	0.001	16000	28	40	0.280
1.0	20500	170	65	0.004	16000	105	50	0.003	12500	70	40	0.700
2.0	14500	205	90	0.007	11000	130	70	0.006	9500	90	60	0.643
3.0	9500	205	90	0.011	7500	130	70	0.009	6400	90	60	0.643
4.0	7200	215	90	0.015	5600	135	70	0.012	4750	95	60	0.679
5.0	6400	230	100	0.018	5100	145	80	0.014	4450	105	70	0.656
6.0	5300	225	100	0.021	4200	140	80	0.017	3700	100	70	0.625
8.0	4000	205	100	0.026	3200	130	80	0.020	2800	95	70	0.594
10.0	3200	190	100	0.030	2550	120	80	0.024	2200	90	70	0.563
12.0	2650	190	100	0.036	2100	120	80	0.029	1860	90	70	0.563





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

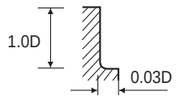
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN - SEITENFRÄSEN

G8A60 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	50000	205	80	0.002	45000	160	70	0.002	40000	125	65	0.002
0.6	50000	265	95	0.003	45000	200	85	0.002	40000	160	75	0.002
0.8	50000	335	125	0.003	40000	245	100	0.003	30000	165	75	0.003
1.0	48000	840	150	0.009	38000	656	120	0.009	25500	408	80	0.008
2.0	33300	960	210	0.014	26000	776	165	0.015	17500	480	110	0.014
3.0	21800	960	205	0.022	17300	776	165	0.022	11500	480	110	0.021
4.0	16700	1000	210	0.030	13200	800	165	0.030	8800	500	110	0.028
5.0	15700	1160	245	0.037	12500	920	195	0.037	8300	568	130	0.034
6.0	13100	1080	245	0.041	10350	880	195	0.043	6900	552	130	0.040
8.0	9880	1056	250	0.053	7800	824	195	0.053	5200	508	130	0.049
10.0	7800	960	245	0.062	6150	776	195	0.063	4100	472	130	0.058
12.0	6650	960	250	0.072	5250	776	200	0.074	3500	472	130	0.067

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	33000	80	50	0.001	25000	45	40	0.001	20000	30	30	0.001
0.6	30000	90	55	0.002	25000	60	45	0.001	20000	35	40	0.001
0.8	25000	100	65	0.002	19000	65	50	0.002	16000	40	40	0.001
1.0	20500	248	65	0.006	16000	152	50	0.005	12500	100	40	0.004
2.0	14500	296	90	0.010	11000	184	70	0.008	9500	132	60	0.007
3.0	9500	296	90	0.016	7500	184	70	0.012	6400	132	60	0.010
4.0	7200	308	90	0.021	5600	192	70	0.017	4750	136	60	0.014
5.0	6400	328	100	0.026	5100	208	80	0.020	4450	152	70	0.017
6.0	5300	320	100	0.030	4200	204	80	0.024	3700	148	70	0.020
8.0	4000	292	100	0.037	3200	188	80	0.029	2800	136	70	0.024
10.0	3200	272	100	0.043	2550	176	80	0.035	2200	128	70	0.029
12.0	2650	272	100	0.051	2100	176	80	0.042	1860	128	70	0.034



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

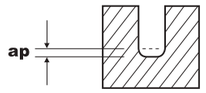
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

G8A52 SERIES

MATERIAL	P									
	ALLOY STEELS HEAT RESISTANT STEELS					HARDENED STEELS				
HARDNESS	HRc 30 ~ HRc 45					HRc 45 ~ HRc 55				
DIAMETER	RPM	FEED	ap(mm)	Vc	fz	RPM	FEED	ap(mm)	Vc	fz
0.5	25650~33000	370~470	0.0056~0.0350	40~52	0.029~0.028	23750~26000	285~315	0.0040~0.0250	37~41	0.024~0.024
0.6	20900~35200	330~560	0.0063~0.0294	39~66	0.032~0.032	19900~22000	260~290	0.0450~0.0210	38~41	0.026~0.026
0.8	16150~26400	360~590	0.0084~0.0392	41~66	0.045~0.045	15200~16700	280~310	0.0060~0.0280	38~42	0.037~0.037
1.0	12300~18700	350~540	0.0105~0.0280	39~59	0.057~0.058	10500~11500	250~280	0.0075~0.0200	33~36	0.048~0.049
1.2	10450~17600	350~590	0.0245~0.0700	39~66	0.067~0.067	9100~10000	250~280	0.0150~0.0420	34~38	0.055~0.056
1.5	9100~17600	430~830	0.0161~0.0770	43~83	0.095~0.094	7000~8000	250~280	0.0115~0.0550	33~38	0.071~0.070
2.0	6350~10550	340~570	0.0210~0.1400	40~66	0.107~0.108	6100~6700	270~300	0.0150~0.1000	38~42	0.089~0.090

MATERIAL	H					
	HIGH HARDENED STEELS					
HARDNESS	HRc 55 ~ HRc 60					
DIAMETER	RPM	FEED	ap(mm)	Vc	fz	
0.5	14200~18000	115~130	0.0024~0.0150	22~28	0.016~0.014	
0.6	11900~15500	100~120	0.0027~0.0126	22~29	0.017~0.015	
0.8	9000~11700	110~125	0.0036~0.0168	23~29	0.024~0.021	
1.0	6300~8050	100~115	0.0045~0.0120	20~25	0.032~0.029	
1.2	5400~7000	100~115	0.0090~0.0252	20~26	0.037~0.033	
1.5	4300~5500	100~115	0.0069~0.0330	20~26	0.047~0.042	
2.0	3600~4700	100~120	0.0090~0.0600	23~30	0.056~0.051	



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

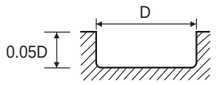
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

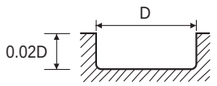
CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS - NUTENFRÄSEN

G8A50 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.3	50000	190	45	0.002	45000	140	40	0.002	40000	115	40	0.001
0.4	50000	235	65	0.002	45000	180	55	0.002	40000	140	50	0.002
0.5	50000	370	80	0.004	45000	280	70	0.003	40000	220	65	0.003
0.6	50000	470	95	0.005	45000	360	85	0.004	40000	285	75	0.004
0.8	50000	600	125	0.006	40000	440	100	0.006	30000	295	75	0.005
1.0	48000	750	150	0.008	38000	570	120	0.008	25500	360	80	0.007
1.2	42000	790	160	0.009	34000	640	130	0.009	22500	380	85	0.008
1.5	37000	800	175	0.011	30500	670	145	0.011	21000	410	100	0.010
2.0	33300	850	210	0.013	26000	680	165	0.013	17500	420	110	0.012



MATERIAL	H							
	HIGH HARDENED STEELS							
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.3	33000	70	30	0.001	25000	40	25	0.001
0.4	33000	90	40	0.001	25000	55	30	0.001
0.5	33000	140	50	0.002	25000	85	40	0.002
0.6	30000	160	55	0.003	25000	105	45	0.002
0.8	25000	185	65	0.004	19000	110	50	0.003
1.0	20500	215	65	0.005	16000	135	50	0.004
1.2	20000	250	75	0.006	14500	145	55	0.005
1.5	17000	250	80	0.007	13000	155	60	0.006
2.0	14500	260	90	0.009	11000	160	70	0.007



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

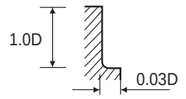
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

G8A47, G8B08 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	48000	1184	150	0.006	38000	840	120	0.006	25500	568	80	0.006
2.0	33300	1400	210	0.011	26000	1000	165	0.010	17500	672	110	0.010
3.0	21800	1400	205	0.016	17300	1000	165	0.014	11500	672	110	0.015
4.0	16700	1440	210	0.022	13200	1040	165	0.020	8800	704	110	0.020
5.0	15700	1600	245	0.025	12500	1200	195	0.024	8300	800	130	0.024
6.0	13100	1560	245	0.030	10350	1120	195	0.027	6900	760	130	0.028
8.0	9880	1504	250	0.038	7800	1080	195	0.035	5200	720	130	0.035
10.0	7800	1400	245	0.045	6150	1008	195	0.041	4100	672	130	0.041
12.0	6650	1400	250	0.053	5250	1008	200	0.048	3500	672	130	0.048
16.0	4900	1200	245	0.061	3900	880	195	0.056	2600	584	130	0.056
20.0	3900	1040	245	0.067	3100	776	195	0.063	2050	520	130	0.063

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	20500	344	65	0.004	16000	216	50	0.003	12500	140	40	0.003
2.0	14500	416	90	0.007	11000	256	70	0.006	9500	184	60	0.005
3.0	9500	416	90	0.011	7500	256	70	0.009	6400	184	60	0.008
4.0	7200	432	90	0.015	5600	268	70	0.012	4750	192	60	0.011
5.0	6400	464	100	0.018	5100	296	80	0.015	4450	216	70	0.013
6.0	5300	448	100	0.021	4200	280	80	0.017	3700	208	70	0.015
8.0	4000	416	100	0.026	3200	264	80	0.021	2800	192	70	0.018
10.0	3200	384	100	0.030	2550	248	80	0.024	2200	176	70	0.020
12.0	2650	384	100	0.036	2100	240	80	0.029	1860	176	70	0.024
16.0	2000	336	100	0.042	1600	216	80	0.034	1400	160	70	0.029
20.0	1600	304	100	0.048	1300	200	80	0.038	1100	144	70	0.033



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

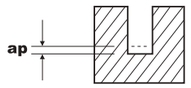
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

G8A45 SERIES

MATERIAL	P									
	ALLOY STEELS HEAT RESISTANT STEELS					HARDENED STEELS				
HARDNESS	HRc 30 ~ HRc 45					HRc 45 ~ HRc 55				
DIAMETER	RPM	FEED	ap(mm)	Vc	fz	RPM	FEED	ap(mm)	Vc	fz
0.2	50000	300~350	0.006~0.016	31	0.003~0.004	50000	265~310	0.005~0.013	31	0.003~0.003
0.3	43000~50000	330~420	0.006~0.015	41~47	0.004~0.004	39900~46200	265~310	0.004~0.011	38~44	0.003~0.003
0.4	31400~50000	350~590	0.005~0.028	39~63	0.006~0.006	30500~35200	295~340	0.003~0.020	38~44	0.005~0.005
0.5	25650~33000	370~470	0.006~0.035	40~52	0.007~0.007	23750~26000	285~315	0.004~0.025	37~41	0.006~0.006
0.6	20900~35200	330~560	0.007~0.030	39~66	0.008~0.008	19900~22000	260~290	0.005~0.021	38~41	0.007~0.007
0.8	16150~26400	360~590	0.009~0.040	41~66	0.011~0.011	15200~16700	280~310	0.006~0.028	38~42	0.009~0.009
1.0	12300~18700	350~540	0.011~0.028	39~59	0.014~0.014	10500~11500	250~280	0.008~0.020	33~36	0.012~0.012
1.2	10450~17600	350~590	0.025~0.070	39~66	0.017~0.017	9100~10000	250~280	0.015~0.042	34~38	0.014~0.014
1.5	9100~17600	430~830	0.017~0.077	43~83	0.024~0.024	7000~8000	250~280	0.012~0.055	33~38	0.018~0.018
2.0	6350~10550	340~570	0.021~0.140	40~66	0.027~0.027	6100~6700	270~300	0.015~0100	38~42	0.022~0.022
3.0	4300~7050	550~900	0.056~0.210	41~66	0.064~0.064	3990~4600	445~515	0.040~0.150	38~43	0.056~0.056
4.0	3200~5300	400~675	0.074~0.280	40~67	0.063~0.064	3000~3400	335~380	0.053~0.200	38~43	0.056~0.056

MATERIAL	H				
	HIGH HARDENED STEELS				
HARDNESS	HRc 55 ~ HRc 65				
DIAMETER	RPM	FEED	ap(mm)	Vc	fz
0.2	50000	225~265	0.005~0.012	31	0.002~0.003
0.3	23900~32300	105~185	0.003~0.007	23~30	0.002~0.003
0.4	18300~24600	120~200	0.002~0.012	23~31	0.003~0.004
0.5	14200~18000	115~130	0.003~0.015	22~28	0.004~0.004
0.6	11900~15500	100~120	0.003~0.013	22~29	0.004~0.004
0.8	9000~11700	110~125	0.004~0.017	23~29	0.006~0.005
1.0	6300~8050	100~115	0.005~0.012	20~25	0.008~0.007
1.2	5400~7000	100~115	0.009~0.026	20~26	0.009~0.008
1.5	4300~5500	100~115	0.007~0.033	20~26	0.012~0.01
2.0	3600~4700	100~120	0.009~0.060	23~30	0.014~0.013
3.0	2400~3200	105~310	0.024~0.090	23~30	0.022~0.048
4.0	1800~2400	75~230	0.032~0.120	23~30	0.021~0.048



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

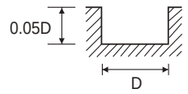
CARBIDE, 2 FLUTE - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN - NUTENFRÄSEN

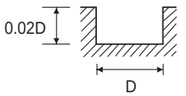
G8A01, G8A36 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.2	50000	130	30	0.001	45000	115	30	0.001	40000	95	25	0.001
0.3	50000	190	45	0.002	45000	140	40	0.002	40000	115	40	0.001
0.4	50000	235	65	0.002	45000	180	55	0.002	40000	140	50	0.002
0.5	50000	370	80	0.004	45000	280	70	0.003	40000	220	65	0.003
0.6	50000	470	95	0.005	45000	360	85	0.004	40000	285	75	0.004
0.8	50000	600	125	0.006	40000	440	100	0.006	30000	295	75	0.005
0.9	49000	655	140	0.007	39000	520	110	0.007	27800	330	80	0.006
1.0	48000	750	150	0.008	38000	570	120	0.008	25500	360	80	0.007
2.0	33300	850	210	0.013	26000	680	165	0.013	17500	420	110	0.012
3.0	21800	850	205	0.019	17300	680	165	0.020	11500	420	110	0.018
4.0	16700	880	210	0.026	13200	700	165	0.027	8800	440	110	0.025
5.0	15700	1000	245	0.032	12500	805	195	0.032	8300	500	130	0.030
6.0	13100	950	245	0.036	10350	770	195	0.037	6900	480	130	0.035
8.0	9880	930	250	0.047	7800	720	195	0.046	5200	445	130	0.043
10.0	7800	850	245	0.054	6150	680	195	0.055	4100	415	130	0.051
12.0	6650	850	250	0.064	5250	680	200	0.065	3500	415	130	0.059
16.0	4900	730	245	0.074	3900	580	195	0.074	2600	365	130	0.070
20.0	3900	660	245	0.085	3100	525	195	0.085	2050	335	130	0.082

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.2	33000	60	20	0.001	33000	45	20	0.001	26400	30	15	0.001
0.3	33000	70	30	0.001	25000	50	25	0.001	20000	35	20	0.001
0.4	33000	90	40	0.001	25000	55	30	0.001	20000	40	25	0.001
0.5	33000	140	50	0.002	25000	85	40	0.002	20000	60	30	0.002
0.6	30000	160	55	0.003	25000	105	45	0.002	20000	75	40	0.002
0.8	25000	185	65	0.004	19000	110	50	0.003	15200	80	40	0.003
0.9	22700	205	65	0.005	17500	125	50	0.004	14000	90	40	0.004
1.0	20500	215	65	0.005	16000	135	50	0.004	12500	85	40	0.004
2.0	14500	260	90	0.009	11000	160	70	0.007	9500	115	60	0.007
3.0	9500	260	90	0.014	7500	160	70	0.011	6400	115	60	0.009
4.0	7200	270	90	0.019	5600	170	70	0.015	4750	118	60	0.013
5.0	6400	285	100	0.022	5100	180	80	0.018	4450	132	70	0.015
6.0	5300	280	100	0.026	4200	180	80	0.021	3700	130	70	0.018
8.0	4000	255	100	0.032	3200	165	80	0.026	2800	120	70	0.022
10.0	3200	240	100	0.038	2550	155	80	0.030	2200	112	70	0.026
12.0	2650	240	100	0.045	2100	155	80	0.037	1860	112	70	0.031
16.0	2000	210	100	0.053	1600	135	80	0.042	1400	95	70	0.034
20.0	1600	195	100	0.061	1300	125	80	0.048	1100	85	70	0.039

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth





X5070 END MILLS

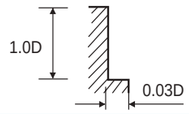
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN - SEITENFRÄSEN

G8A01, G8A36 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	48000	1050	150	0.011	38000	820	120	0.011	25500	510	80	0.010
2.0	33300	1200	210	0.018	26000	970	165	0.019	17500	600	110	0.017
3.0	21800	1200	205	0.028	17300	970	165	0.028	11500	600	110	0.026
4.0	16700	1250	210	0.037	13200	1000	165	0.038	8800	625	110	0.036
5.0	15700	1450	245	0.046	12500	1150	195	0.046	8300	710	130	0.043
6.0	13100	1350	245	0.052	10350	1100	195	0.053	6900	690	130	0.050
8.0	9880	1320	250	0.067	7800	1030	195	0.066	5200	635	130	0.061
10.0	7800	1200	245	0.077	6150	970	195	0.079	4100	590	130	0.072
12.0	6650	1200	250	0.090	5250	970	200	0.092	3500	590	130	0.084
16.0	4900	1050	245	0.107	3900	840	195	0.108	2600	520	130	0.100
20.0	3900	950	245	0.122	3100	750	195	0.121	2050	475	130	0.116

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	20500	310	65	0.008	16000	190	50	0.006	12500	125	40	0.005
2.0	14500	370	90	0.013	11000	230	70	0.010	9500	165	60	0.009
3.0	9500	370	90	0.019	7500	230	70	0.015	6400	165	60	0.013
4.0	7200	385	90	0.027	5600	240	70	0.021	4750	170	60	0.018
5.0	6400	410	100	0.032	5100	260	80	0.025	4450	190	70	0.022
6.0	5300	400	100	0.038	4200	255	80	0.030	3700	185	70	0.025
8.0	4000	365	100	0.046	3200	235	80	0.037	2800	170	70	0.031
10.0	3200	340	100	0.053	2550	220	80	0.043	2200	160	70	0.037
12.0	2650	340	100	0.064	2100	220	80	0.052	1860	160	70	0.044
16.0	2000	300	100	0.075	1600	190	80	0.059	1400	140	70	0.050
20.0	1600	275	100	0.086	1300	175	80	0.067	1100	125	70	0.057



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

X5070 END MILLS

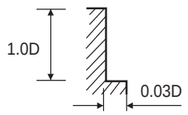
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN - SEITENFRÄSEN

G8A02, G8A37 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	48000	1480	150	0.008	38000	1050	120	0.007	25500	710	80	0.007
2.0	33300	1750	210	0.013	26000	1250	165	0.012	17500	840	110	0.012
3.0	21800	1750	205	0.020	17300	1250	165	0.018	11500	840	110	0.018
4.0	16700	1800	210	0.027	13200	1300	165	0.025	8800	880	110	0.025
5.0	15700	2000	245	0.032	12500	1500	195	0.030	8300	1000	130	0.030
6.0	13100	1950	245	0.037	10350	1400	195	0.034	6900	950	130	0.034
8.0	9880	1880	250	0.048	7800	1350	195	0.043	5200	900	130	0.043
10.0	7800	1750	245	0.056	6150	1260	195	0.051	4100	840	130	0.051
12.0	6650	1750	250	0.066	5250	1260	200	0.060	3500	840	130	0.060
16.0	4900	1500	245	0.077	3900	1100	195	0.071	2600	730	130	0.070
20.0	3900	1300	245	0.083	3100	970	195	0.078	2050	650	130	0.079

MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	20500	430	65	0.005	16000	270	50	0.004	12500	175	40	0.004
2.0	14500	520	90	0.009	11000	320	70	0.007	9500	230	60	0.007
3.0	9500	520	90	0.014	7500	320	70	0.011	6400	230	60	0.009
4.0	7200	540	90	0.019	5600	335	70	0.015	4750	240	60	0.013
5.0	6400	580	100	0.023	5100	370	80	0.018	4450	270	70	0.016
6.0	5300	560	100	0.026	4200	350	80	0.021	3700	260	70	0.018
8.0	4000	520	100	0.033	3200	330	80	0.026	2800	240	70	0.022
10.0	3200	480	100	0.038	2550	310	80	0.030	2200	220	70	0.025
12.0	2650	480	100	0.045	2100	300	80	0.036	1860	220	70	0.030
16.0	2000	420	100	0.053	1600	270	80	0.042	1400	200	70	0.036
20.0	1600	380	100	0.059	1300	250	80	0.048	1100	180	70	0.041



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

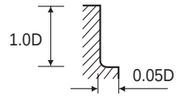
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

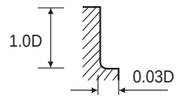
CARBIDE, 6 FLUTE 45° HELIX CORNER RADIUS
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE, ECKENRADIUS

G8A39 SERIES

MATERIAL	P											
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS							
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 50				HRc 50 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	24800	5350	465	0.036	23500	4900	445	0.035	16000	4900	300	0.051
8.0	20000	5500	505	0.046	19000	5000	480	0.044	12000	4500	300	0.064
10.0	16000	4900	505	0.051	15500	4500	485	0.048	9500	4100	300	0.072
12.0	13000	4500	490	0.058	12500	4100	470	0.055`	8000	3800	300	0.079
16.0	10000	4000	505	0.067	9700	3700	490	0.064	6000	3400	300	0.094
20.0	8000	3350	505	0.070	4800	3400	490	0.079	4800	3200	300	0.111



MATERIAL	H											
	HIGH HARDENED STEELS											
HARDNESS	HRc 55 ~ HRc 60				HRc 60 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	13500	3300	255	0.041	10500	2100	200	0.033	8000	1450	150	0.031
8.0	10000	3100	250	0.052	8000	2000	200	0.042	6000	1400	150	0.039
10.0	8000	2900	250	0.060	6400	1800	200	0.047	4800	1300	150	0.046
12.0	6600	2500	250	0.063	5300	1600	200	0.050	4000	1150	150	0.048
16.0	500	2300	250	0.077	4000	1250	200	0.052	3000	870	150	0.049
20.0	4000	2100	250	0.088	3200	1020	200	0.053	2400	690	150	0.048



※ The Feed, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

X5070 END MILLS

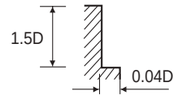
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 6&8 FLUTE 45° HELIX LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG - SEITENFRÄSEN

G8D63 SERIES

MATERIAL	P							
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	6360	1500	120	0.039	5040	1045	95	0.035
8.0	4800	1510	120	0.052	3840	1070	95	0.046
10.0	3840	1450	120	0.063	3000	995	95	0.055
12.0	3240	1355	120	0.070	2520	935	95	0.062
14.0	2730	1320	120	0.081	2180	920	95	0.070
16.0	2400	1300	120	0.090	1920	910	95	0.079
18.0	2120	1610	120	0.095	1700	1090	95	0.080
20.0	1920	1210	120	0.079	1560	1130	100	0.091
25.0	1560	1370	125	0.110	1200	925	95	0.096

MATERIAL	H							
	HIGH HARDENED STEELS							
HARDNESS	HRc 55 ~ HRc 65				HRc 65 ~ HRc 70			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3840	720	70	0.031	2520	430	50	0.028
8.0	2880	720	70	0.042	1920	430	50	0.037
10.0	2280	685	70	0.050	1560	420	50	0.045
12.0	1920	650	70	0.056	1320	395	50	0.050
14.0	1600	630	70	0.066	1070	325	45	0.051
16.0	1440	625	70	0.072	960	370	50	0.064
18.0	1280	750	70	0.073	850	450	50	0.066
20.0	1200	660	75	0.069	720	410	45	0.071
25.0	960	670	75	0.087	610	385	50	0.079



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

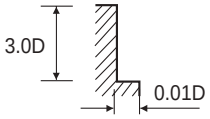
X5070 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 6&8 FLUTE 45° HELIX EXTRA LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG - SEITENFRÄSEN

G8D64 SERIES

MATERIAL	P								H			
	ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS				HIGH HARDENED STEELS			
HARDNESS	HRc 30 ~ HRc 40				HRc 40 ~ HRc 55				HRc 55 ~ HRc 65			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3180	770	60	0.040	3180	575	60	0.030	2540	455	50	0.030
8.0	2390	720	60	0.050	2390	575	60	0.040	1910	455	50	0.040
10.0	1910	685	60	0.060	1910	575	60	0.050	1520	455	50	0.050
12.0	1580	660	60	0.070	1580	575	60	0.061	1270	455	50	0.060
14.0	1370	620	60	0.075	1370	540	60	0.066	1090	430	50	0.066
16.0	1190	575	60	0.081	1190	505	60	0.071	960	410	50	0.071
18.0	1070	730	60	0.085	1070	685	60	0.080	850	550	50	0.081
20.0	960	660	60	0.086	960	695	60	0.090	770	560	50	0.091
25.0	770	550	60	0.089	770	490	60	0.080	610	395	50	0.081



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

Leading Through Innovation

4G Mill END MILLS

4G Mill FRÄSER

- High Speed Cutting for Pre-Hardened Steels up to HRc55
- High-Speed-Bearbeitung (HSC) von vorvergüteten Stählen bis HRc55

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N						S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
SEMD98		CARBIDE, 2 FLUTE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS	R0.05	R12.5	816	○	◎	◎	◎	○			○							
SEM846		CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R0.05	R6.0	821	○	◎	◎	◎	○			○							
SEM846		CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm Shank) VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)	R0.25	R1.0	829	○	◎	◎	◎	○			○							
SEMD99		CARBIDE, 2 FLUTE CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS	D0.2	D20.0	832	◎	◎	◎	◎	○			○							
SEME61		CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D0.2	D20.0	838	◎	◎	◎	◎	○			○							
SEME01		CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS	D1.0	D20.0	853	◎	◎	◎	◎	○			○							
SEME64		CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D1.0	D20.0	858	◎	◎	◎	◎	○			○							
SEME35		CARBIDE, 2 FLUTE VOLLHARTMETALL, 2 SCHNEIDEN	D0.03	D25.0	870	◎	◎	◎	◎	○		○	○							
SEME70		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D1.0	D25.0	875	◎	◎	◎	◎	○			○							
SEM845		CARBIDE, 2 FLUTE with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL	D0.1	D12.0	880	◎	◎	◎	◎	○		○	○							
SEME36		CARBIDE, 4 FLUTE MULTIPLE HELIX VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL	D0.8	D25.0	887	◎	◎	◎	◎	○		○	○							
SEME71		CARBIDE, 4 FLUTE MULTIPLE HELIX (Sharp corner removal) VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL (Scharfe Schneidenecken entfernt)	D1.0	D20.0	889	○	◎	◎	◎	○			○							
SEME72		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D1.0	D25.0	892	◎	◎	◎	◎	○			○							
SEME73		CARBIDE, 4 FLUTE with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL	D1.0	D12.0	897	◎	◎	◎	◎	○		○	○							
SEME75		CARBIDE, 6 FLUTE 45° HELIX VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE	D6.0	D20.0	901	◎	◎	◎	◎	○			○							

X-SPEED ROUGHER

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
G9D75 G9D67		CARBIDE, 4&5 FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser KURZ ECKENRADIUS	D6.0	D20.0	902
G9D76 G9D68		CARBIDE, 4&5 FLUTE MULTIPLE HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL Fräser LANG ECKENRADIUS	D6.0	D20.0	903
G9D77 G9D69		CARBIDE, 4&5 FLUTE MULTIPLE HELIX LONG REACH CORNER RADIUS VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL FRÄSER GROßE REICHWEITE ECKENRADIUS	D6.0	D20.0	904
GAE53		HSS-PM, 4&5 FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS HSS-PM, 4&5 SCHNEIDEN MEHRSPIRAL FRÄSER KURZ ECKENRADIUS	D6.0	D20.0	905
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			906

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	◎	○						
◎	◎	◎	○			○	◎	○						
◎	◎	◎	○			○	◎	○						
◎	◎	○				◎	◎	○						

CHARACTERISTICS

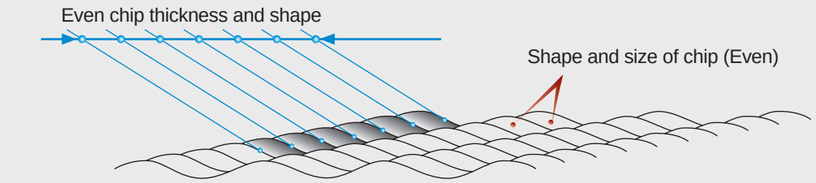
Unique flute design for excellent chip evacuation and vibration reduction.
Optimal roughing tooth profile to reduce cutting forces.
Special tool geometry for high feed rate and heavy cutting.
Strong end tooth design for plunge and pocket milling.
Custom engineered coating to allow long tool life and excellent chip evacuation.

▶ 4 FLUTE

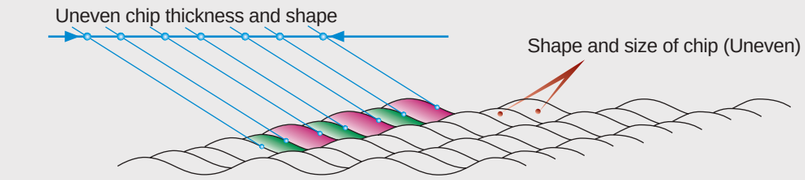
▶ 5 FLUTE

CHIP THICKNESS AND SHAPE

▶ **Conventional Roughing End Mills**



▶ **X-SPEED Rougher**



4G MILL END MILLS

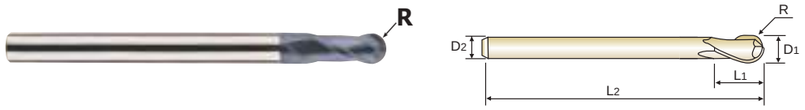
SEMD98 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN

R0.05~R3 R3.25~R12.5

P.906-907

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98001SE	R0.05	0.1	4	0.1	40	Short
★ SEMD98001E	R0.05	0.1	4	0.2	40	Regular
SEMD980013SE	R0.05	0.1	3	0.2	40	3mm Shank
SEMD980015SE	R0.075	0.15	4	0.15	40	Short
SEMD980015E	R0.075	0.15	4	0.3	40	Regular
SEMD9800153SE	R0.075	0.15	3	0.3	40	3mm Shank
★ SEMD98002SE	R0.1	0.2	4	0.2	40	Short
★ SEMD98002E	R0.1	0.2	4	0.4	40	Regular
SEMD980023SE	R0.1	0.2	3	0.4	40	3mm Shank
★ SEMD98003SE	R0.15	0.3	4	0.3	40	Short
★ SEMD98003E	R0.15	0.3	4	0.6	40	Regular
SEMD980033SE	R0.15	0.3	3	0.6	40	3mm Shank
SEMD98004SE	R0.2	0.4	4	0.4	40	Short
★ SEMD98004E	R0.2	0.4	4	0.8	40	Regular
SEMD980043SE	R0.2	0.4	3	0.8	40	3mm Shank
★ SEMD98005SE	R0.25	0.5	4	0.5	40	Short
★ SEMD98005E	R0.25	0.5	4	1.0	40	Regular
SEMD980053SE	R0.25	0.5	3	1.0	40	3mm Shank
SEMD98006SE	R0.3	0.6	4	0.6	40	Short
★ SEMD98006E	R0.3	0.6	4	1.2	40	Regular
SEMD980063SE	R0.3	0.6	3	1.2	40	3mm Shank
SEMD98007SE	R0.35	0.7	4	0.7	40	Short
★ SEMD98007E	R0.35	0.7	4	1.4	40	Regular
SEMD980073SE	R0.35	0.7	3	1.4	40	3mm Shank
SEMD98008SE	R0.4	0.8	4	0.8	40	Short
★ SEMD98008E	R0.4	0.8	4	1.6	40	Regular
SEMD980083SE	R0.4	0.8	3	1.6	40	3mm Shank
SEMD98009SE	R0.45	0.9	4	0.9	40	Short
★ SEMD98009E	R0.45	0.9	4	1.8	40	Regular
SEMD980093SE	R0.45	0.9	3	1.8	40	3mm Shank

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

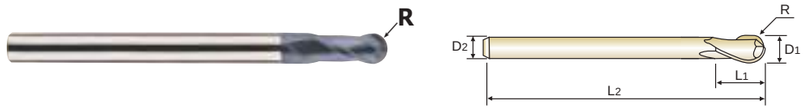
SEMD98 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN

R0.05~R3 R3.25~R12.5

P.906-907

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD98010040E	R0.5	1.0	6	1.5	40	Short
SEMD980103SE	R0.5	1.0	3	2.5	50	3mm Shank
★ SEMD980104SE	R0.5	1.0	4	2.5	50	Regular
★ SEMD98010E	R0.5	1.0	6	2.5	50	Regular
★ SEMD98010070E	R0.5	1.0	6	2.5	70	Long Shank
SEMD98010100E	R0.5	1.0	6	2.5	100	Long Shank
SEMD98012040E	R0.6	1.2	6	2	40	Short
SEMD980123SE	R0.6	1.2	3	3	50	3mm Shank
SEMD980124SE	R0.6	1.2	4	3	50	Regular
★ SEMD98012E	R0.6	1.2	6	3	50	Regular
SEMD98012070E	R0.6	1.2	6	3	70	Long Shank
SEMD98012100E	R0.6	1.2	6	3	100	Long Shank
SEMD98015040E	R0.75	1.5	6	2.5	40	Short
SEMD980153SE	R0.75	1.5	3	4	50	3mm Shank
★ SEMD980154SE	R0.75	1.5	4	4	50	Regular
★ SEMD98015E	R0.75	1.5	6	4	50	Regular
★ SEMD98015070E	R0.75	1.5	6	4	70	Long Shank
SEMD98015100E	R0.75	1.5	6	4	100	Long Shank
★ SEMD98020040E	R1.0	2.0	6	3	40	Short
SEMD980203SE	R1.0	2.0	3	5	50	3mm Shank
★ SEMD980204SE	R1.0	2.0	4	5	50	Regular
★ SEMD98020E	R1.0	2.0	6	5	50	Regular
★ SEMD98020080E	R1.0	2.0	6	5	80	Long Shank
SEMD98020100E	R1.0	2.0	6	5	100	Long Shank
SEMD98025040E	R1.25	2.5	6	4	40	Short
SEMD980253SE	R1.25	2.5	3	6	60	3mm Shank
★ SEMD980254SE	R1.25	2.5	4	6	60	Regular
★ SEMD98025E	R1.25	2.5	6	6	60	Regular
★ SEMD98025080E	R1.25	2.5	6	6	80	Long Shank
SEMD98025100E	R1.25	2.5	6	6	100	Long Shank

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

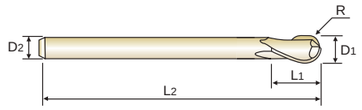
SEMD98 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN

R0.05~R3 R3.25~R12.5

P.906-907

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98030040E	R1.5	3.0	6	4.5	40	Short
SEMD980303SE	R1.5	3.0	3	6	60	3mm Shank
★ SEMD980304SE	R1.5	3.0	4	6	60	Regular
★ SEMD98030E	R1.5	3.0	6	6	60	Regular
★ SEMD98030080E	R1.5	3.0	6	6	80	Long Shank
★ SEMD98030100E	R1.5	3.0	6	6	100	Long Shank
★ SEMD98035E	R1.75	3.5	6	8	70	-
★ SEMD98040050E	R2.0	4.0	6	6	50	Short
★ SEMD980404SE	R2.0	4.0	4	8	70	Regular
★ SEMD98040E	R2.0	4.0	6	8	70	Regular
★ SEMD980401004SE	R2.0	4.0	4	8	100	Long Shank
SEMD980401204SE	R2.0	4.0	4	8	120	Long Shank
★ SEMD98040100E	R2.0	4.0	6	8	100	Long Shank
★ SEMD98040120E	R2.0	4.0	6	8	120	Long Shank
★ SEMD98045E	R2.25	4.5	6	9	80	-
★ SEMD98050060E	R2.5	5.0	6	7.5	60	Short
★ SEMD98050E	R2.5	5.0	6	10	80	Regular
SEMD980505SE	R2.5	5.0	5	10	80	5mmShank
★ SEMD98055E	R2.75	5.5	6	11	90	-
★ SEMD98060050E	R3.0	6.0	6	9	50	Short
★ SEMD98060060E	R3.0	6.0	6	9	60	Short
★ SEMD98060080E	R3.0	6.0	6	9	80	Short
★ SEMD98060E	R3.0	6.0	6	12	90	Regular
★ SEMD98060110E	R3.0	6.0	6	12	110	Long Shank
★ SEMD98060130E	R3.0	6.0	6	12	130	Long Shank
★ SEMD98060150E	R3.0	6.0	6	12	150	Long Shank
★ SEMD98065E	R3.25	6.5	8	13	90	-
★ SEMD98070E	R3.5	7.0	8	14	90	-
★ SEMD980800050E	R4.0	8.0	8	12	50	Short
★ SEMD980800060E	R4.0	8.0	8	12	60	Short

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

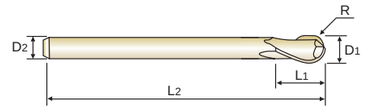
SEMD98 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | R ±0.010 | PLAIN

R0.05~R3 R3.25~R12.5

P.906-907

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD98080080E	R4.0	8.0	8	12	80	Short
★ SEMD98080090E	R4.0	8.0	8	12	90	Short
★ SEMD98080E	R4.0	8.0	8	14	100	Regular
★ SEMD98080130E	R4.0	8.0	8	14	130	Long Shank
★ SEMD98080150E	R4.0	8.0	8	14	150	Long Shank
★ SEMD98085E	R4.25	8.5	10	16	100	-
★ SEMD98090E	R4.5	9.0	10	18	100	-
SEMD98100050E	R5.0	10.0	10	15	50	Short
★ SEMD98100060E	R5.0	10.0	10	15	60	Short
★ SEMD98100080E	R5.0	10.0	10	15	80	Short
★ SEMD98100090E	R5.0	10.0	10	15	90	Short
★ SEMD98100E	R5.0	10.0	10	18	100	Regular
★ SEMD98100130E	R5.0	10.0	10	18	130	Long Shank
★ SEMD98100150E	R5.0	10.0	10	18	150	Long Shank
★ SEMD98100180E	R5.0	10.0	10	18	180	Long Shank
SEMD98100200E	R5.0	10.0	10	18	200	Long Shank
★ SEMD98110E	R5.5	11.0	12	20	100	-
SEMD98120060E	R6.0	12.0	12	18	60	Short
★ SEMD98120080E	R6.0	12.0	12	18	80	Short
SEMD98120090E	R6.0	12.0	12	18	90	Short
★ SEMD98120100E	R6.0	12.0	12	18	100	Short
★ SEMD98120E	R6.0	12.0	12	22	110	Regular
★ SEMD98120130E	R6.0	12.0	12	22	130	Long Shank
★ SEMD98120150E	R6.0	12.0	12	22	150	Long Shank
★ SEMD98120180E	R6.0	12.0	12	22	180	Long Shank
★ SEMD98120200E	R6.0	12.0	12	22	200	Long Shank
★ SEMD98130E	R6.5	13.0	12	24	100	-
★ SEMD98140E	R7.0	14.0	12	26	100	Regular
★ SEMD9814014SE	R7.0	14.0	14	26	100	-
SEMD9814016SE	R7.0	14.0	16	26	100	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

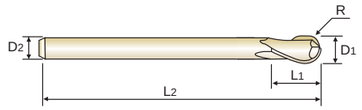
SEMD98 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique
MD, 2 TAGLIENTI, SEMISFERICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 R0.05~R3 | R ±0.010 R3.25~R12.5 | PLAIN | P.906-907

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD98150E	R7.5	15.0	16	28	140	-
★ SEMD98160100E	R8.0	16.0	16	24	100	Short
SEMD98160130E	R8.0	16.0	16	24	130	Short
★ SEMD98160E	R8.0	16.0	16	30	150	Regular
SEMD98160180E	R8.0	16.0	16	30	180	Long Shank
★ SEMD98160200E	R8.0	16.0	16	30	200	Long Shank
★ SEMD98180E	R9.0	18.0	16	34	150	Regular
SEMD98180185E	R9.0	18.0	18	34	150	-
★ SEMD98200100E	R10.0	20.0	20	30	100	Short
SEMD98200130E	R10.0	20.0	20	30	130	Short
★ SEMD98200E	R10.0	20.0	20	38	150	Regular
SEMD98200200E	R10.0	20.0	20	38	200	Long Shank
SEMD98250120E	R12.5	25.0	25	50	120	Short
SEMD98250E	R12.5	25.0	25	50	180	Regular

▶ ★ Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

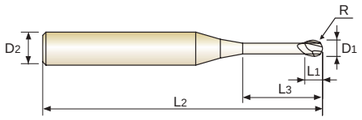
SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, hémisphérique, détalonnée
MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 R0.05~R3 | R ±0.010 R4~R6 | PLAIN | P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SEM846001002E	R0.05	0.1	4	0.1	0.2	40
SEM846001003E	R0.05	0.1	4	0.1	0.3	40
SEM846001005E	R0.05	0.1	4	0.1	0.5	40
SEM84600101E	R0.05	0.1	4	0.1	1	40
★ SEM846002005E	R0.1	0.2	4	0.2	0.5	40
★ SEM84600201E	R0.1	0.2	4	0.2	1	40
SEM846002015E	R0.1	0.2	4	0.2	1.5	40
★ SEM84600202E	R0.1	0.2	4	0.2	2	40
SEM84600203E	R0.1	0.2	4	0.2	3	40
★ SEM84600301E	R0.15	0.3	4	0.3	1	40
★ SEM846003015E	R0.15	0.3	4	0.3	1.5	40
★ SEM84600302E	R0.15	0.3	4	0.3	2	40
SEM846003025E	R0.15	0.3	4	0.3	2.5	40
★ SEM84600303E	R0.15	0.3	4	0.3	3	40
★ SEM84600304E	R0.15	0.3	4	0.3	4	40
SEM84600305E	R0.15	0.3	4	0.3	5	40
★ SEM84600401E	R0.2	0.4	4	0.4	1	40
★ SEM846004015E	R0.2	0.4	4	0.4	1.5	40
★ SEM84600402E	R0.2	0.4	4	0.4	2	40
★ SEM846004025E	R0.2	0.4	4	0.4	2.5	40
★ SEM84600403E	R0.2	0.4	4	0.4	3	40
★ SEM84600404E	R0.2	0.4	4	0.4	4	40
★ SEM84600405E	R0.2	0.4	4	0.4	5	40
★ SEM84600406E	R0.2	0.4	4	0.4	6	40
SEM84600408E	R0.2	0.4	4	0.4	8	40
SEM84600410E	R0.2	0.4	4	0.4	10	40
★ SEM84600501E	R0.25	0.5	4	0.5	1	45
SEM846005015E	R0.25	0.5	4	0.5	1.5	45
★ SEM84600502E	R0.25	0.5	4	0.5	2	45

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
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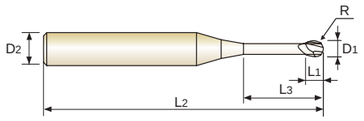
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SEM846005025E	R0.25	0.5	4	0.5	2.5	45
★ SEM84600503E	R0.25	0.5	4	0.5	3	45
★ SEM84600504E	R0.25	0.5	4	0.5	4	45
★ SEM84600505E	R0.25	0.5	4	0.5	5	45
★ SEM84600506E	R0.25	0.5	4	0.5	6	45
★ SEM84600508E	R0.25	0.5	4	0.5	8	45
★ SEM84600510E	R0.25	0.5	4	0.5	10	45
SEM84600512E	R0.25	0.5	4	0.5	12	45
SEM84600514E	R0.25	0.5	4	0.5	14	45
SEM84600516E	R0.25	0.5	4	0.5	16	45
★ SEM84600601E	R0.3	0.6	4	0.6	1	45
★ SEM84600602E	R0.3	0.6	4	0.6	2	45
★ SEM84600603E	R0.3	0.6	4	0.6	3	45
★ SEM84600604E	R0.3	0.6	4	0.6	4	45
★ SEM84600605E	R0.3	0.6	4	0.6	5	45
★ SEM84600606E	R0.3	0.6	4	0.6	6	45
★ SEM84600608E	R0.3	0.6	4	0.6	8	45
★ SEM84600610E	R0.3	0.6	4	0.6	10	45
★ SEM84600612E	R0.3	0.6	4	0.6	12	45
SEM84600614E	R0.3	0.6	4	0.6	14	45
SEM84600616E	R0.3	0.6	4	0.6	16	45
★ SEM84600702E	R0.35	0.7	4	0.7	2	45
★ SEM84600704E	R0.35	0.7	4	0.7	4	45
★ SEM84600706E	R0.35	0.7	4	0.7	6	45
SEM84600708E	R0.35	0.7	4	0.7	8	45
SEM84600710E	R0.35	0.7	4	0.7	10	45
SEM84600712E	R0.35	0.7	4	0.7	12	45
SEM84600801E	R0.4	0.8	4	0.8	1	45
★ SEM84600802E	R0.4	0.8	4	0.8	2	45

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

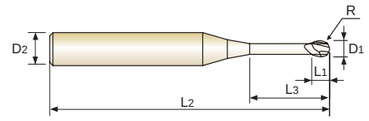
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
★ SEM84600803E	R0.4	0.8	4	0.8	3	45
★ SEM84600804E	R0.4	0.8	4	0.8	4	45
★ SEM84600805E	R0.4	0.8	4	0.8	5	45
★ SEM84600806E	R0.4	0.8	4	0.8	6	45
★ SEM84600808E	R0.4	0.8	4	0.8	8	45
★ SEM84600810E	R0.4	0.8	4	0.8	10	45
★ SEM84600812E	R0.4	0.8	4	0.8	12	45
SEM84600814E	R0.4	0.8	4	0.8	14	45
SEM84600816E	R0.4	0.8	4	0.8	16	45
SEM84600820E	R0.4	0.8	4	0.8	20	45
★ SEM84600904E	R0.45	0.9	4	0.9	4	45
SEM84600906E	R0.45	0.9	4	0.9	6	45
★ SEM84600908E	R0.45	0.9	4	0.9	8	45
SEM84600910E	R0.45	0.9	4	0.9	10	45
★ SEM84601002E	R0.5	1.0	4	1	2	50
★ SEM84601003E	R0.5	1.0	4	1	3	50
★ SEM84601004E	R0.5	1.0	4	1	4	50
★ SEM84601005E	R0.5	1.0	4	1	5	50
★ SEM84601006E	R0.5	1.0	4	1	6	50
★ SEM84601007E	R0.5	1.0	4	1	7	50
★ SEM84601008E	R0.5	1.0	4	1	8	50
SEM84601009E	R0.5	1.0	4	1	9	50
★ SEM84601010E	R0.5	1.0	4	1	10	50
★ SEM84601012E	R0.5	1.0	4	1	12	50
★ SEM84601014E	R0.5	1.0	4	1	14	50
★ SEM84601016E	R0.5	1.0	4	1	16	50
★ SEM84601018E	R0.5	1.0	4	1	18	50
★ SEM84601020E	R0.5	1.0	4	1	20	50
SEM84601022E	R0.5	1.0	4	1	22	60

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

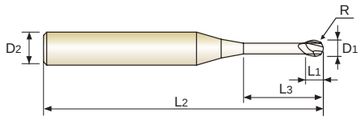
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R	D1	D2	L1	L3	L2
★ SEM84601026E	R0.5	1.0	4	1	26	60
★ SEM84601030E	R0.5	1.0	4	1	30	70
SEM84601040E	R0.5	1.0	4	1	40	80
SEM84601050E	R0.5	1.0	4	1	50	100
★ SEM84601204E	R0.6	1.2	4	1.2	4	50
★ SEM84601206E	R0.6	1.2	4	1.2	6	50
★ SEM84601208E	R0.6	1.2	4	1.2	8	50
★ SEM84601210E	R0.6	1.2	4	1.2	10	50
★ SEM84601212E	R0.6	1.2	4	1.2	12	50
★ SEM84601216E	R0.6	1.2	4	1.2	16	50
SEM84601220E	R0.6	1.2	4	1.2	20	50
SEM84601226E	R0.6	1.2	4	1.2	26	60
SEM84601406E	R0.7	1.4	4	1.4	6	50
SEM84601408E	R0.7	1.4	4	1.4	8	50
SEM84601410E	R0.7	1.4	4	1.4	10	50
SEM84601412E	R0.7	1.4	4	1.4	12	50
SEM84601416E	R0.7	1.4	4	1.4	16	50
★ SEM84601503E	R0.75	1.5	4	1.5	3	50
★ SEM84601504E	R0.75	1.5	4	1.5	4	50
★ SEM84601505E	R0.75	1.5	4	1.5	5	50
★ SEM84601506E	R0.75	1.5	4	1.5	6	50
SEM84601507E	R0.75	1.5	4	1.5	7	50
★ SEM84601508E	R0.75	1.5	4	1.5	8	50
★ SEM84601510E	R0.75	1.5	4	1.5	10	50
★ SEM84601512E	R0.75	1.5	4	1.5	12	50
★ SEM84601514E	R0.75	1.5	4	1.5	14	50
★ SEM84601516E	R0.75	1.5	4	1.5	16	50
★ SEM84601518E	R0.75	1.5	4	1.5	18	50
★ SEM84601520E	R0.75	1.5	4	1.5	20	50

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

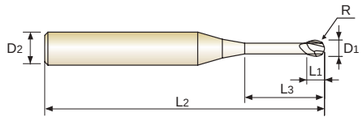
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Due to unique ball nose geometry and cutting edges, cutting force decreased, and so wear resistance increased.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R	D1	D2	L1	L3	L2
SEM84601522E	R0.75	1.5	4	1.5	22	60
SEM84601526E	R0.75	1.5	4	1.5	26	60
SEM84601530E	R0.75	1.5	4	1.5	30	70
SEM84601535E	R0.75	1.5	4	1.5	35	70
SEM84601540E	R0.75	1.5	4	1.5	40	80
SEM84601604E	R0.8	1.6	4	1.6	4	50
SEM84601606E	R0.8	1.6	4	1.6	6	50
★ SEM84601608E	R0.8	1.6	4	1.6	8	50
SEM84601610E	R0.8	1.6	4	1.6	10	50
★ SEM84601612E	R0.8	1.6	4	1.6	12	50
★ SEM84601616E	R0.8	1.6	4	1.6	16	50
SEM84601620E	R0.8	1.6	4	1.6	20	50
★ SEM84601804E	R0.9	1.8	4	1.8	4	50
SEM84601806E	R0.9	1.8	4	1.8	6	50
★ SEM84601808E	R0.9	1.8	4	1.8	8	50
SEM84601810E	R0.9	1.8	4	1.8	10	50
★ SEM84601812E	R0.9	1.8	4	1.8	12	50
★ SEM84601816E	R0.9	1.8	4	1.8	16	50
SEM84601820E	R0.9	1.8	4	1.8	20	50
★ SEM84602004E	R1.0	2.0	4	2	4	50
★ SEM84602006E	R1.0	2.0	4	2	6	50
★ SEM84602008E	R1.0	2.0	4	2	8	50
★ SEM84602010E	R1.0	2.0	4	2	10	50
★ SEM84602012E	R1.0	2.0	4	2	12	50
★ SEM84602014E	R1.0	2.0	4	2	14	50
★ SEM84602016E	R1.0	2.0	4	2	16	50
★ SEM84602018E	R1.0	2.0	4	2	18	50
★ SEM84602020E	R1.0	2.0	4	2	20	50
SEM84602022E	R1.0	2.0	4	2	22	60

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

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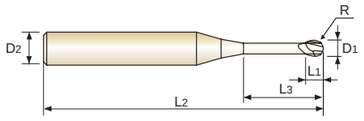
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
★ SEM84602026E	R1.0	2.0	4	2	26	60
★ SEM84602030E	R1.0	2.0	4	2	30	70
★ SEM84602035E	R1.0	2.0	4	2	35	70
SEM84602040E	R1.0	2.0	4	2	40	80
SEM84602045E	R1.0	2.0	4	2	45	90
SEM84602050E	R1.0	2.0	4	2	50	100
SEM84602060E	R1.0	2.0	4	2	60	110
★ SEM84602508E	R1.25	2.5	4	2.5	8	50
★ SEM84602510E	R1.25	2.5	4	2.5	10	50
★ SEM84602512E	R1.25	2.5	4	2.5	12	50
★ SEM84602516E	R1.25	2.5	4	2.5	16	50
★ SEM84602520E	R1.25	2.5	4	2.5	20	50
SEM84602522E	R1.25	2.5	4	2.5	22	60
SEM84602526E	R1.25	2.5	4	2.5	26	60
SEM84602530E	R1.25	2.5	4	2.5	30	70
SEM84602535E	R1.25	2.5	4	2.5	35	70
SEM84602540E	R1.25	2.5	4	2.5	40	80
SEM84602545E	R1.25	2.5	4	2.5	45	90
SEM84602550E	R1.25	2.5	4	2.5	50	100
★ SEM84603006E	R1.5	3.0	6	3	6	50
★ SEM84603008E	R1.5	3.0	6	3	8	50
★ SEM84603010E	R1.5	3.0	6	3	10	50
★ SEM84603012E	R1.5	3.0	6	3	12	50
★ SEM84603014E	R1.5	3.0	6	3	14	60
★ SEM84603016E	R1.5	3.0	6	3	16	60
★ SEM84603018E	R1.5	3.0	6	3	18	60
★ SEM84603020E	R1.5	3.0	6	3	20	60
★ SEM84603022E	R1.5	3.0	6	3	22	65
★ SEM84603026E	R1.5	3.0	6	3	26	65

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

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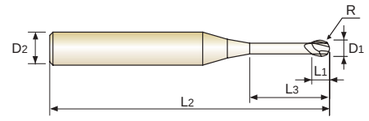
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
★ SEM84603030E	R1.5	3.0	6	3	30	70
★ SEM84603035E	R1.5	3.0	6	3	35	70
★ SEM84603040E	R1.5	3.0	6	3	40	80
★ SEM84603045E	R1.5	3.0	6	3	45	90
★ SEM84603050E	R1.5	3.0	6	3	50	100
SEM84603060E	R1.5	3.0	6	3	60	100
★ SEM84604008E	R2.0	4.0	6	4	8	50
★ SEM84604010E	R2.0	4.0	6	4	10	50
★ SEM84604012E	R2.0	4.0	6	4	12	50
★ SEM84604014E	R2.0	4.0	6	4	14	60
★ SEM84604016E	R2.0	4.0	6	4	16	60
★ SEM84604018E	R2.0	4.0	6	4	18	60
★ SEM84604020E	R2.0	4.0	6	4	20	60
★ SEM84604022E	R2.0	4.0	6	4	22	65
★ SEM84604026E	R2.0	4.0	6	4	26	65
★ SEM84604030E	R2.0	4.0	6	4	30	70
★ SEM84604035E	R2.0	4.0	6	4	35	70
★ SEM84604040E	R2.0	4.0	6	4	40	80
SEM84604045E	R2.0	4.0	6	4	45	90
★ SEM84604050E	R2.0	4.0	6	4	50	100
SEM84604055E	R2.0	4.0	6	4	55	100
SEM84604060E	R2.0	4.0	6	4	60	100
SEM84605015E	R2.5	5.0	6	6	15	60
★ SEM84605020E	R2.5	5.0	6	6	20	60
★ SEM84605026E	R2.5	5.0	6	6	26	65
★ SEM84605030E	R2.5	5.0	6	6	30	70
★ SEM84605035E	R2.5	5.0	6	6	35	70
★ SEM84605040E	R2.5	5.0	6	6	40	80
SEM84605045E	R2.5	5.0	6	6	45	90

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK

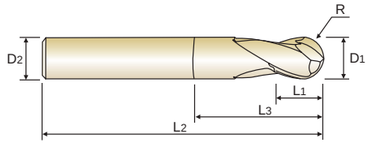
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit LANG ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 (R0.05~R3) | R ±0.010 (R4~R6) | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R	D1	D2	L1	L3	L2
★ SEM84605050E	R2.5	5.0	6	6	50	100
SEM84605055E	R2.5	5.0	6	6	55	100
SEM84605060E	R2.5	5.0	6	6	60	100
★ SEM84606020E	R3.0	6.0	6	8	20	60
★ SEM84606030E	R3.0	6.0	6	8	30	60
★ SEM84606020090E	R3.0	6.0	6	12	20	90
★ SEM84606030090E	R3.0	6.0	6	12	30	90
★ SEM84608025E	R4.0	8.0	8	10	25	70
★ SEM84608035E	R4.0	8.0	8	10	35	70
SEM8460802510OE	R4.0	8.0	8	14	25	100
★ SEM8460803510OE	R4.0	8.0	8	14	35	100
★ SEM84610030E	R5.0	10.0	10	12	30	75
★ SEM84610040E	R5.0	10.0	10	12	40	75
★ SEM8461003010OE	R5.0	10.0	10	18	30	100
★ SEM8461004010OE	R5.0	10.0	10	18	40	100
★ SEM84612032E	R6.0	12.0	12	14	32	80
SEM84612045E	R6.0	12.0	12	14	45	80
★ SEM8461203211OE	R6.0	12.0	12	22	32	110
★ SEM8461204511OE	R6.0	12.0	12	22	45	110

▶ ★ Stock Item

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3	±0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

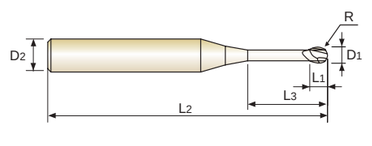
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)

Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R	D1	D2	L1	L3	L2
SEM846005016SE	R0.25	0.5	6	0.5	1	45
SEM846005026SE	R0.25	0.5	6	0.5	2	45
SEM846005046SE	R0.25	0.5	6	0.5	4	45
SEM846006016SE	R0.3	0.6	6	0.6	1	45
SEM846006026SE	R0.3	0.6	6	0.6	2	45
SEM846006036SE	R0.3	0.6	6	0.6	3	45
SEM846006046SE	R0.3	0.6	6	0.6	4	45
SEM846006056SE	R0.3	0.6	6	0.6	5	45
★ SEM846006066SE	R0.3	0.6	6	0.6	6	45
SEM846006086SE	R0.3	0.6	6	0.6	8	45
SEM846006106SE	R0.3	0.6	6	0.6	10	45
SEM846006126SE	R0.3	0.6	6	0.6	12	45
SEM846006146SE	R0.3	0.6	6	0.6	14	45
SEM846006166SE	R0.3	0.6	6	0.6	16	45
SEM846008016SE	R0.4	0.8	6	0.8	1	45
SEM846008026SE	R0.4	0.8	6	0.8	2	45
SEM846008036SE	R0.4	0.8	6	0.8	3	45
SEM846008046SE	R0.4	0.8	6	0.8	4	45
SEM846008056SE	R0.4	0.8	6	0.8	5	45
SEM846008066SE	R0.4	0.8	6	0.8	6	45
SEM846008086SE	R0.4	0.8	6	0.8	8	45
SEM846008106SE	R0.4	0.8	6	0.8	10	45
SEM846008126SE	R0.4	0.8	6	0.8	12	45
SEM846008146SE	R0.4	0.8	6	0.8	14	45
SEM846008166SE	R0.4	0.8	6	0.8	16	45
SEM846008206SE	R0.4	0.8	6	0.8	20	45
SEM846010026SE	R0.5	1.0	6	1	2	50
SEM846010036SE	R0.5	1.0	6	1	3	50
★ SEM846010046SE	R0.5	1.0	6	1	4	50

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

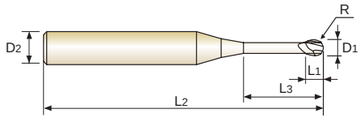
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)

Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SEM846010056SE	R0.5	1.0	6	1	5	50
★ SEM846010066SE	R0.5	1.0	6	1	6	50
SEM846010076SE	R0.5	1.0	6	1	7	50
SEM846010086SE	R0.5	1.0	6	1	8	50
SEM846010096SE	R0.5	1.0	6	1	9	50
★ SEM846010106SE	R0.5	1.0	6	1	10	50
SEM846010126SE	R0.5	1.0	6	1	12	50
SEM846010146SE	R0.5	1.0	6	1	14	50
SEM846010166SE	R0.5	1.0	6	1	16	50
SEM846010186SE	R0.5	1.0	6	1	18	50
SEM846010206SE	R0.5	1.0	6	1	20	50
SEM846010226SE	R0.5	1.0	6	1	22	60
SEM846010266SE	R0.5	1.0	6	1	26	60
SEM846010306SE	R0.5	1.0	6	1	30	70
SEM846015036SE	R0.75	1.5	6	1.5	3	50
SEM846015046SE	R0.75	1.5	6	1.5	4	50
★ SEM846015066SE	R0.75	1.5	6	1.5	6	50
★ SEM846015086SE	R0.75	1.5	6	1.5	8	50
★ SEM846015106SE	R0.75	1.5	6	1.5	10	50
★ SEM846015126SE	R0.75	1.5	6	1.5	12	50
SEM846015146SE	R0.75	1.5	6	1.5	14	50
SEM846015166SE	R0.75	1.5	6	1.5	16	50
SEM846015186SE	R0.75	1.5	6	1.5	18	50
SEM846015206SE	R0.75	1.5	6	1.5	20	50
SEM846015226SE	R0.75	1.5	6	1.5	22	60
SEM846015266SE	R0.75	1.5	6	1.5	26	60
SEM846015306SE	R0.75	1.5	6	1.5	30	70
SEM846015356SE	R0.75	1.5	6	1.5	35	70
SEM846015406SE	R0.75	1.5	6	1.5	40	80

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

SEM846 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK (6mm shank)

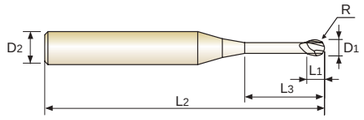
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL (6mm ZYLINDERSCHAFT)

Fraise carbure, 2 dents, hémisphérique, détalonnée (Ø queue 6mm)

MD, 2 TAGLIENTI, SEMISFERICA, SCARICATA (gambo 6mm)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ With its unique ball nose geometry and cutting edges the cutting force has decreased, also increasing wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit.
- ▶ Aufgrund der einzigartigen Kugelgeometrie und Schneidkantenpräparation wird die Schniitkraft reduziert und die Verschleißfestigkeit erhöht.
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.



NG HM | 2 | 30° | R ±0.005 | PLAIN

P.908-915

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SEM846020046SE	R1.0	2.0	6	2	4	50
★ SEM846020066SE	R1.0	2.0	6	2	6	50
★ SEM846020086SE	R1.0	2.0	6	2	8	50
★ SEM846020106SE	R1.0	2.0	6	2	10	50
★ SEM846020126SE	R1.0	2.0	6	2	12	50
SEM846020146SE	R1.0	2.0	6	2	14	50
★ SEM846020166SE	R1.0	2.0	6	2	16	50
SEM846020186SE	R1.0	2.0	6	2	18	50
★ SEM846020206SE	R1.0	2.0	6	2	20	50
SEM846020226SE	R1.0	2.0	6	2	22	60
SEM846020266SE	R1.0	2.0	6	2	26	60
SEM846020306SE	R1.0	2.0	6	2	30	70
SEM846020356SE	R1.0	2.0	6	2	35	70
SEM846020406SE	R1.0	2.0	6	2	40	80
SEM846020456SE	R1.0	2.0	6	2	45	90
SEM846020506SE	R1.0	2.0	6	2	50	100

▶ ★ Stock Item

Mill Dia. Tolerance (mm)	Radius Tolerance (mm)	Shank Dia. Tolerance
0~-0.012	±0.005	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

4G MILL END MILLS

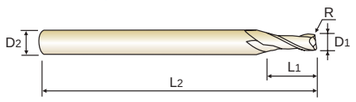
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available in short, regular and long shank end mills.
- Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN

P.916-917

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD99002002E	R0.02	0.2	4	0.4	40	-
★ SEMD99002005E	R0.05	0.2	4	0.4	40	-
SEMD99003002E	R0.02	0.3	4	0.6	40	-
SEMD99003005E	R0.05	0.3	4	0.6	40	-
★ SEMD99004005E	R0.05	0.4	4	0.8	40	-
SEMD9900401E	R0.1	0.4	4	0.8	40	-
SEMD99005005E	R0.05	0.5	4	1.0	40	-
SEMD9900501E	R0.1	0.5	4	1.0	40	-
SEMD99006005E	R0.05	0.6	4	1.2	40	-
SEMD9900601E	R0.1	0.6	4	1.2	40	-
SEMD9900602E	R0.2	0.6	4	1.2	40	-
SEMD99007005E	R0.05	0.7	4	1.4	40	-
SEMD9900701E	R0.1	0.7	4	1.4	40	-
SEMD9900702E	R0.2	0.7	4	1.4	40	-
SEMD99008005E	R0.05	0.8	4	1.6	40	-
SEMD9900801E	R0.1	0.8	4	1.6	40	-
SEMD9900802E	R0.2	0.8	4	1.6	40	-
SEMD99009005E	R0.05	0.9	4	1.8	40	-
SEMD9900901E	R0.1	0.9	4	1.8	40	-
SEMD99010005E	R0.05	1.0	6	2.5	50	-
★ SEMD9901001E	R0.1	1.0	6	2.5	50	-
★ SEMD9901002E	R0.2	1.0	6	2.5	50	-
★ SEMD9901003E	R0.3	1.0	6	2.5	50	-
SEMD99012005E	R0.05	1.2	6	3	50	-
SEMD9901201E	R0.1	1.2	6	3	50	-
★ SEMD9901202E	R0.2	1.2	6	3	50	-
SEMD9901203E	R0.3	1.2	6	3	50	-
SEMD99015005E	R0.05	1.5	6	4	50	-
★ SEMD9901501E	R0.1	1.5	6	4	50	-
★ SEMD9901502E	R0.2	1.5	6	4	50	-

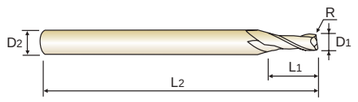
▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)
- New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- Available in short, regular and long shank end mills.
- Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.
- Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN
P.916-917
Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9901503E	R0.3	1.5	6	4	50	-
★ SEMD9901505E	R0.5	1.5	6	4	50	-
★ SEMD9902001E	R0.1	2.0	6	6	50	-
★ SEMD9902002E	R0.2	2.0	6	6	50	-
★ SEMD9902003E	R0.3	2.0	6	6	50	-
★ SEMD9902005E	R0.5	2.0	6	6	50	-
SEMD9902501E	R0.1	2.5	6	7	60	-
★ SEMD9902502E	R0.2	2.5	6	7	60	-
★ SEMD9902503E	R0.3	2.5	6	7	60	-
★ SEMD9902505E	R0.5	2.5	6	7	60	-
★ SEMD9903001E	R0.1	3.0	6	8	60	-
★ SEMD9903002E	R0.2	3.0	6	8	60	-
★ SEMD9903003E	R0.3	3.0	6	8	60	-
★ SEMD9903005E	R0.5	3.0	6	8	60	-
★ SEMD9903010E	R1.0	3.0	6	8	60	-
SEMD9903501E	R0.1	3.5	6	10	70	-
SEMD9903502E	R0.2	3.5	6	10	70	-
SEMD9903503E	R0.3	3.5	6	10	70	-
SEMD9903505E	R0.5	3.5	6	10	70	-
SEMD99040014SE	R0.1	4.0	4	10	70	4mm Shank
SEMD99040024SE	R0.2	4.0	4	10	70	4mm Shank
SEMD99040034SE	R0.3	4.0	4	10	70	4mm Shank
★ SEMD99040054SE	R0.5	4.0	4	10	70	4mm Shank
SEMD99040104SE	R1.0	4.0	4	10	70	4mm Shank
SEMD99040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEMD99040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEMD99040031004SE	R0.3	4.0	4	10	100	4mm Shank
★ SEMD99040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEMD99040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEMD9904001E	R0.1	4.0	6	10	70	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

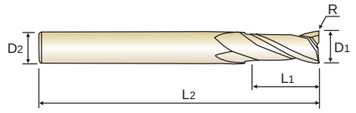
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN | P.916-917

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9904002E	R0.2	4.0	6	10	70	Regular
★ SEMD9904003E	R0.3	4.0	6	10	70	Regular
★ SEMD9904005E	R0.5	4.0	6	10	70	Regular
★ SEMD9904010E	R1.0	4.0	6	10	70	Regular
SEMD9904501E	R0.1	4.5	6	11	80	-
SEMD9904502E	R0.2	4.5	6	11	80	-
SEMD9904503E	R0.3	4.5	6	11	80	-
SEMD9904505E	R0.5	4.5	6	11	80	-
SEMD9905001E	R0.1	5.0	6	13	90	-
★ SEMD9905002E	R0.2	5.0	6	13	90	-
★ SEMD9905003E	R0.3	5.0	6	13	90	-
★ SEMD9905005E	R0.5	5.0	6	13	90	-
★ SEMD9905010E	R1.0	5.0	6	13	90	-
SEMD9905501E	R0.1	5.5	6	13	90	-
SEMD9905502E	R0.2	5.5	6	13	90	-
SEMD9905503E	R0.3	5.5	6	13	90	-
SEMD9905505E	R0.5	5.5	6	13	90	-
SEMD9905510E	R1.0	5.5	6	13	90	-
★ SEMD9906002060E	R0.2	6.0	6	15	60	Short
★ SEMD9906003060E	R0.3	6.0	6	15	60	Short
★ SEMD9906005060E	R0.5	6.0	6	15	60	Short
★ SEMD9906010060E	R1.0	6.0	6	15	60	Short
★ SEMD9906001E	R0.1	6.0	6	15	90	Regular
★ SEMD9906002E	R0.2	6.0	6	15	90	Regular
★ SEMD9906003E	R0.3	6.0	6	15	90	Regular
★ SEMD9906005E	R0.5	6.0	6	15	90	Regular
★ SEMD9906010E	R1.0	6.0	6	15	90	Regular
SEMD9906015E	R1.5	6.0	6	15	90	Regular
★ SEMD9906020E	R2.0	6.0	6	15	90	Regular
★ SEMD9906005110E	R0.5	6.0	6	15	110	Long Shank

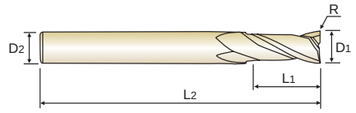
▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)
▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available in short, regular and long shank end mills.
▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN | P.916-917

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9906010110E	R1.0	6.0	6	15	110	Long Shank
SEMD9906005130E	R0.5	6.0	6	15	130	Long Shank
SEMD9906010130E	R1.0	6.0	6	15	130	Long Shank
SEMD9907001E	R0.1	7.0	8	16	90	-
SEMD9907002E	R0.2	7.0	8	16	90	-
SEMD9907003E	R0.3	7.0	8	16	90	-
SEMD9907005E	R0.5	7.0	8	16	90	-
SEMD9907010E	R1.0	7.0	8	16	90	-
SEMD9907020E	R2.0	7.0	8	16	90	-
★ SEMD9908003070E	R0.3	8.0	8	20	70	Short
★ SEMD9908005070E	R0.5	8.0	8	20	70	Short
★ SEMD9908010070E	R1.0	8.0	8	20	70	Short
SEMD9908001E	R0.1	8.0	8	20	100	Regular
★ SEMD9908002E	R0.2	8.0	8	20	100	Regular
★ SEMD9908003E	R0.3	8.0	8	20	100	Regular
★ SEMD9908005E	R0.5	8.0	8	20	100	Regular
★ SEMD9908010E	R1.0	8.0	8	20	100	Regular
★ SEMD9908015E	R1.5	8.0	8	20	100	Regular
★ SEMD9908020E	R2.0	8.0	8	20	100	Regular
SEMD9908025E	R2.5	8.0	8	20	100	Regular
★ SEMD9908030E	R3.0	8.0	8	20	100	Regular
SEMD9908005120E	R0.5	8.0	8	20	120	Long Shank
SEMD9908010120E	R1.0	8.0	8	20	120	Long Shank
SEMD9908005150E	R0.5	8.0	8	20	150	Long Shank
SEMD9908010150E	R1.0	8.0	8	20	150	Long Shank
SEMD9910003075E	R0.3	10.0	10	25	75	Short
★ SEMD9910005075E	R0.5	10.0	10	25	75	Short
★ SEMD9910010075E	R1.0	10.0	10	25	75	Short
SEMD9910001E	R0.1	10.0	10	25	100	Regular
★ SEMD9910002E	R0.2	10.0	10	25	100	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

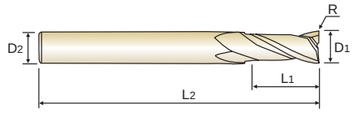
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN | P.916-917

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEMD9910003E	R0.3	10.0	10	25	100	Regular
★ SEMD9910005E	R0.5	10.0	10	25	100	Regular
★ SEMD9910010E	R1.0	10.0	10	25	100	Regular
★ SEMD9910015E	R1.5	10.0	10	25	100	Regular
★ SEMD9910020E	R2.0	10.0	10	25	100	Regular
SEMD9910025E	R2.5	10.0	10	25	100	Regular
SEMD9910030E	R3.0	10.0	10	25	100	Regular
SEMD9910040E	R4.0	10.0	10	25	100	Regular
SEMD9910005130E	R0.5	10.0	10	25	130	Long Shank
★ SEMD9910010130E	R1.0	10.0	10	25	130	Long Shank
SEMD9910005150E	R0.5	10.0	10	25	150	Long Shank
★ SEMD9910010150E	R1.0	10.0	10	25	150	Long Shank
SEMD9911002E	R0.2	11.0	12	25	110	-
SEMD9911003E	R0.3	11.0	12	25	110	-
SEMD9911005E	R0.5	11.0	12	25	110	-
SEMD9911010E	R1.0	11.0	12	25	110	-
SEMD9911020E	R2.0	11.0	12	25	110	-
SEMD9912003080E	R0.3	12.0	12	30	80	Short
★ SEMD9912005080E	R0.5	12.0	12	30	80	Short
★ SEMD9912010080E	R1.0	12.0	12	30	80	Short
SEMD9912001E	R0.1	12.0	12	30	110	Regular
★ SEMD9912002E	R0.2	12.0	12	30	110	Regular
★ SEMD9912003E	R0.3	12.0	12	30	110	Regular
★ SEMD9912005E	R0.5	12.0	12	30	110	Regular
★ SEMD9912010E	R1.0	12.0	12	30	110	Regular
★ SEMD9912015E	R1.5	12.0	12	30	110	Regular
★ SEMD9912020E	R2.0	12.0	12	30	110	Regular
★ SEMD9912025E	R2.5	12.0	12	30	110	Regular
★ SEMD9912030E	R3.0	12.0	12	30	110	Regular
★ SEMD9912040E	R4.0	12.0	12	30	110	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

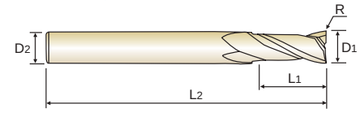
SEMD99 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
Fraise carbure, 2 dents, torique
MD, 2 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available in short, regular and long shank end mills.
- ▶ Available with various corner radius end mills, from 0.02mm to 5.0mm corner radius.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: kurz, standard und lang
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 5,0mm Eckradius.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø7~Ø20 | PLAIN | P.916-917

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEMD9912050E	R5.0	12.0	12	30	110	Regular
★ SEMD9912005130E	R0.5	12.0	12	30	130	Long Shank
★ SEMD9912010130E	R1.0	12.0	12	30	130	Long Shank
★ SEMD9912005150E	R0.5	12.0	12	30	150	Long Shank
★ SEMD9912010150E	R1.0	12.0	12	30	150	Long Shank
SEMD9914005E	R0.5	14.0	16	35	150	-
★ SEMD9914010E	R1.0	14.0	16	35	150	-
SEMD9914020E	R2.0	14.0	16	35	150	-
SEMD9916005E	R0.5	16.0	16	32	150	-
★ SEMD9916010E	R1.0	16.0	16	32	150	-
SEMD9916015E	R1.5	16.0	16	32	150	-
★ SEMD9916020E	R2.0	16.0	16	32	150	-
SEMD9920005E	R0.5	20.0	20	38	150	-
★ SEMD9920010E	R1.0	20.0	20	38	150	-
SEMD9920015E	R1.5	20.0	20	38	150	-
★ SEMD9920020E	R2.0	20.0	20	38	150	-

▶ ★ Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

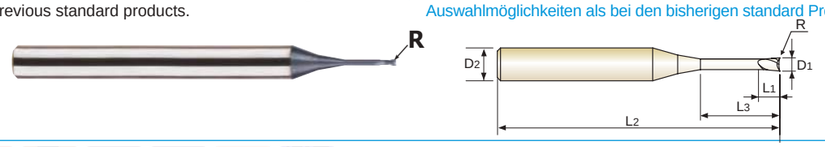
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN

Ø0.2~Ø6 Ø8~Ø20

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME61002002005E	R0.02	0.2	4	0.3	0.5	40	-
★ SEME6100200201E	R0.02	0.2	4	0.3	1	40	-
SEME61002002015E	R0.02	0.2	4	0.3	1.5	40	-
SEME6100200202E	R0.02	0.2	4	0.3	2	40	-
SEME61002005005E	R0.05	0.2	4	0.3	0.5	40	-
★ SEME6100200501E	R0.05	0.2	4	0.3	1	40	-
SEME61002005015E	R0.05	0.2	4	0.3	1.5	40	-
SEME6100200502E	R0.05	0.2	4	0.3	2	40	-
★ SEME6100300201E	R0.02	0.3	4	0.5	1	40	-
★ SEME6100300202E	R0.02	0.3	4	0.5	2	40	-
SEME6100300203E	R0.02	0.3	4	0.5	3	40	-
★ SEME6100300501E	R0.05	0.3	4	0.5	1	40	-
★ SEME6100300502E	R0.05	0.3	4	0.5	2	40	-
SEME6100300503E	R0.05	0.3	4	0.5	3	40	-
★ SEME6100400501E	R0.05	0.4	4	0.6	1	40	-
★ SEME61004005015E	R0.05	0.4	4	0.6	1.5	40	-
★ SEME6100400502E	R0.05	0.4	4	0.6	2	40	-
★ SEME61004005025E	R0.05	0.4	4	0.6	2.5	40	-
SEME6100400503E	R0.05	0.4	4	0.6	3	40	-
SEME6100400504E	R0.05	0.4	4	0.6	4	40	-
★ SEME610040101E	R0.1	0.4	4	0.6	1	40	-
SEME6100401015E	R0.1	0.4	4	0.6	1.5	40	-
★ SEME610040102E	R0.1	0.4	4	0.6	2	40	-
SEME6100401025E	R0.1	0.4	4	0.6	2.5	40	-
SEME610040103E	R0.1	0.4	4	0.6	3	40	-
SEME610040104E	R0.1	0.4	4	0.6	4	40	-
★ SEME6100500501E	R0.05	0.5	4	0.7	1	45	-
★ SEME61005005015E	R0.05	0.5	4	0.7	1.5	45	-
★ SEME6100500502E	R0.05	0.5	4	0.7	2	45	-
SEME61005005025E	R0.05	0.5	4	0.7	2.5	45	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

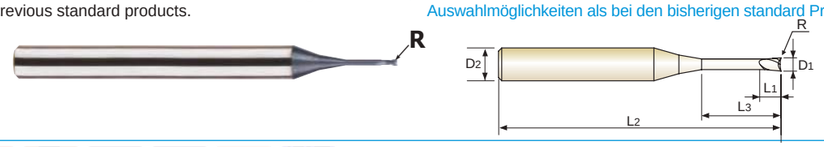
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 | R ±0.015 | PLAIN

P.918-923

Ø0.2~Ø6 Ø8~Ø20

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6100500503E	R0.05	0.5	4	0.7	3	45	-
★ SEME6100500504E	R0.05	0.5	4	0.7	4	45	-
SEME6100500505E	R0.05	0.5	4	0.7	5	45	-
SEME6100500506E	R0.05	0.5	4	0.7	6	45	-
SEME610050101E	R0.1	0.5	4	0.7	1	45	-
SEME6100501015E	R0.1	0.5	4	0.7	1.5	45	-
★ SEME610050102E	R0.1	0.5	4	0.7	2	45	-
SEME6100501025E	R0.1	0.5	4	0.7	2.5	45	-
★ SEME610050103E	R0.1	0.5	4	0.7	3	45	-
SEME610050104E	R0.1	0.5	4	0.7	4	45	-
★ SEME610050105E	R0.1	0.5	4	0.7	5	45	-
SEME610050106E	R0.1	0.5	4	0.7	6	45	-
SEME6100600502E	R0.05	0.6	4	0.9	2	45	-
★ SEME6100600503E	R0.05	0.6	4	0.9	3	45	-
SEME6100600504E	R0.05	0.6	4	0.9	4	45	-
★ SEME6100600506E	R0.05	0.6	4	0.9	6	45	-
SEME6100600508E	R0.05	0.6	4	0.9	8	45	-
SEME6100600510E	R0.05	0.6	4	0.9	10	45	-
★ SEME610060102E	R0.1	0.6	4	0.9	2	45	-
★ SEME610060103E	R0.1	0.6	4	0.9	3	45	-
★ SEME610060104E	R0.1	0.6	4	0.9	4	45	-
★ SEME610060106E	R0.1	0.6	4	0.9	6	45	-
SEME610060108E	R0.1	0.6	4	0.9	8	45	-
SEME6100601 10E	R0.1	0.6	4	0.9	10	45	-
★ SEME610060202E	R0.2	0.6	4	0.9	2	45	-
★ SEME610060203E	R0.2	0.6	4	0.9	3	45	-
★ SEME610060204E	R0.2	0.6	4	0.9	4	45	-
★ SEME610060206E	R0.2	0.6	4	0.9	6	45	-
SEME610060208E	R0.2	0.6	4	0.9	8	45	-
SEME610060210E	R0.2	0.6	4	0.9	10	45	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

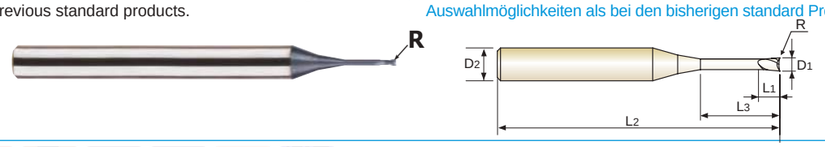
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6100700502E	R0.05	0.7	4	1.2	2	45	-
SEME6100700504E	R0.05	0.7	4	1.2	4	45	-
SEME6100700506E	R0.05	0.7	4	1.2	6	45	-
SEME6100700508E	R0.05	0.7	4	1.2	8	45	-
SEME6100700510E	R0.05	0.7	4	1.2	10	45	-
SEME6100070102E	R0.1	0.7	4	1.2	2	45	-
SEME6100070104E	R0.1	0.7	4	1.2	4	45	-
SEME6100070106E	R0.1	0.7	4	1.2	6	45	-
SEME6100070108E	R0.1	0.7	4	1.2	8	45	-
SEME6100070110E	R0.1	0.7	4	1.2	10	45	-
SEME6100070202E	R0.2	0.7	4	1.2	2	45	-
SEME6100070204E	R0.2	0.7	4	1.2	4	45	-
SEME6100070206E	R0.2	0.7	4	1.2	6	45	-
SEME6100070208E	R0.2	0.7	4	1.2	8	45	-
SEME6100070210E	R0.2	0.7	4	1.2	10	45	-
★ SEME6100800502E	R0.05	0.8	4	1.2	2	45	-
SEME6100800503E	R0.05	0.8	4	1.2	3	45	-
★ SEME6100800504E	R0.05	0.8	4	1.2	4	45	-
★ SEME6100800506E	R0.05	0.8	4	1.2	6	45	-
SEME6100800508E	R0.05	0.8	4	1.2	8	45	-
SEME6100800510E	R0.05	0.8	4	1.2	10	45	-
★ SEME6100080102E	R0.1	0.8	4	1.2	2	45	-
★ SEME6100080103E	R0.1	0.8	4	1.2	3	45	-
★ SEME6100080104E	R0.1	0.8	4	1.2	4	45	-
★ SEME6100080106E	R0.1	0.8	4	1.2	6	45	-
★ SEME6100080108E	R0.1	0.8	4	1.2	8	45	-
SEME6100080110E	R0.1	0.8	4	1.2	10	45	-
★ SEME6100080202E	R0.2	0.8	4	1.2	2	45	-
★ SEME6100080203E	R0.2	0.8	4	1.2	3	45	-
★ SEME6100080204E	R0.2	0.8	4	1.2	4	45	-

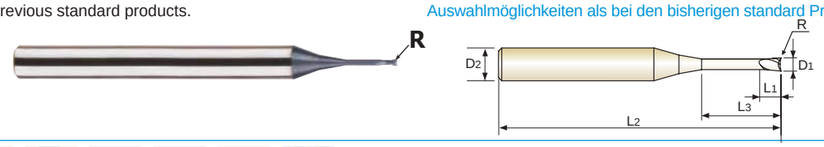
▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 2 dents, torique, détalonnée
MD, 2 TAGLIENTI, SCARICATA, TORICA
▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
▶ Available various products like regular length and long shank end mills etc.
▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
▶ Available more various effective length and overall length end mills than previous standard products.
▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME610080206E	R0.2	0.8	4	1.2	6	45	-
★ SEME610080208E	R0.2	0.8	4	1.2	8	45	-
★ SEME61008021OE	R0.2	0.8	4	1.2	10	45	-
★ SEME6101000503E	R0.05	1.0	4	1.5	3	50	-
★ SEME6101000504E	R0.05	1.0	4	1.5	4	50	-
★ SEME6101000506E	R0.05	1.0	4	1.5	6	50	-
SEME6101000508E	R0.05	1.0	4	1.5	8	50	-
SEME6101000510E	R0.05	1.0	4	1.5	10	50	-
SEME6101000512E	R0.05	1.0	4	1.5	12	50	-
SEME6101000514E	R0.05	1.0	4	1.5	14	50	-
SEME6101000516E	R0.05	1.0	4	1.5	16	50	-
SEME6101000520E	R0.05	1.0	4	1.5	20	50	-
★ SEME610100103E	R0.1	1.0	4	1.5	3	50	-
★ SEME610100104E	R0.1	1.0	4	1.5	4	50	-
★ SEME610100106E	R0.1	1.0	4	1.5	6	50	-
★ SEME610100108E	R0.1	1.0	4	1.5	8	50	-
★ SEME6101001l0E	R0.1	1.0	4	1.5	10	50	-
SEME610100112E	R0.1	1.0	4	1.5	12	50	-
SEME610100114E	R0.1	1.0	4	1.5	14	50	-
SEME610100116E	R0.1	1.0	4	1.5	16	50	-
SEME610100120E	R0.1	1.0	4	1.5	20	50	-
★ SEME610100203E	R0.2	1.0	4	1.5	3	50	-
★ SEME610100204E	R0.2	1.0	4	1.5	4	50	-
★ SEME610100206E	R0.2	1.0	4	1.5	6	50	-
★ SEME610100208E	R0.2	1.0	4	1.5	8	50	-
★ SEME610100210E	R0.2	1.0	4	1.5	10	50	-
★ SEME610100212E	R0.2	1.0	4	1.5	12	50	-
SEME610100214E	R0.2	1.0	4	1.5	14	50	-
SEME610100216E	R0.2	1.0	4	1.5	16	50	-
SEME610100220E	R0.2	1.0	4	1.5	20	50	-

▶ ★ Stock Item
◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

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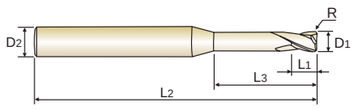
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610100303E	R0.3	1.0	4	1.5	3	50	-
★ SEME610100304E	R0.3	1.0	4	1.5	4	50	-
★ SEME610100306E	R0.3	1.0	4	1.5	6	50	-
★ SEME610100308E	R0.3	1.0	4	1.5	8	50	-
★ SEME610100310E	R0.3	1.0	4	1.5	10	50	-
★ SEME610100312E	R0.3	1.0	4	1.5	12	50	-
SEME610100314E	R0.3	1.0	4	1.5	14	50	-
SEME610100316E	R0.3	1.0	4	1.5	16	50	-
SEME610100320E	R0.3	1.0	4	1.5	20	50	-
SEME6101200503E	R0.05	1.2	4	1.8	3	50	-
SEME6101200504E	R0.05	1.2	4	1.8	4	50	-
★ SEME6101200506E	R0.05	1.2	4	1.8	6	50	-
★ SEME6101200508E	R0.05	1.2	4	1.8	8	50	-
★ SEME6101200510E	R0.05	1.2	4	1.8	10	50	-
SEME6101200512E	R0.05	1.2	4	1.8	12	50	-
SEME6101200516E	R0.05	1.2	4	1.8	16	50	-
SEME6101200520E	R0.05	1.2	4	1.8	20	50	-
SEME6101200103E	R0.1	1.2	4	1.8	3	50	-
★ SEME6101200104E	R0.1	1.2	4	1.8	4	50	-
★ SEME6101200106E	R0.1	1.2	4	1.8	6	50	-
★ SEME6101200108E	R0.1	1.2	4	1.8	8	50	-
SEME6101200110E	R0.1	1.2	4	1.8	10	50	-
SEME6101200112E	R0.1	1.2	4	1.8	12	50	-
SEME6101200116E	R0.1	1.2	4	1.8	16	50	-
SEME6101200120E	R0.1	1.2	4	1.8	20	50	-
SEME6101200203E	R0.2	1.2	4	1.8	3	50	-
★ SEME6101200204E	R0.2	1.2	4	1.8	4	50	-
★ SEME6101200206E	R0.2	1.2	4	1.8	6	50	-
★ SEME6101200208E	R0.2	1.2	4	1.8	8	50	-
★ SEME6101200210E	R0.2	1.2	4	1.8	10	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

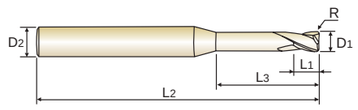
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME610120212E	R0.2	1.2	4	1.8	12	50	-
SEME610120216E	R0.2	1.2	4	1.8	16	50	-
SEME610120220E	R0.2	1.2	4	1.8	20	50	-
SEME610120303E	R0.3	1.2	4	1.8	3	50	-
★ SEME610120304E	R0.3	1.2	4	1.8	4	50	-
★ SEME610120306E	R0.3	1.2	4	1.8	6	50	-
★ SEME610120308E	R0.3	1.2	4	1.8	8	50	-
★ SEME610120310E	R0.3	1.2	4	1.8	10	50	-
SEME610120312E	R0.3	1.2	4	1.8	12	50	-
SEME610120316E	R0.3	1.2	4	1.8	16	50	-
SEME610120320E	R0.3	1.2	4	1.8	20	50	-
★ SEME6101500504E	R0.05	1.5	4	2.3	4	50	-
★ SEME6101500506E	R0.05	1.5	4	2.3	6	50	-
★ SEME6101500508E	R0.05	1.5	4	2.3	8	50	-
SEME6101500510E	R0.05	1.5	4	2.3	10	50	-
SEME6101500512E	R0.05	1.5	4	2.3	12	50	-
SEME6101500514E	R0.05	1.5	4	2.3	14	50	-
SEME6101500516E	R0.05	1.5	4	2.3	16	50	-
SEME6101500520E	R0.05	1.5	4	2.3	20	50	-
SEME6101500522E	R0.05	1.5	4	2.3	22	60	-
SEME6101500526E	R0.05	1.5	4	2.3	26	60	-
★ SEME610150104E	R0.1	1.5	4	2.3	4	50	-
★ SEME610150106E	R0.1	1.5	4	2.3	6	50	-
★ SEME610150108E	R0.1	1.5	4	2.3	8	50	-
★ SEME610150110E	R0.1	1.5	4	2.3	10	50	-
★ SEME610150112E	R0.1	1.5	4	2.3	12	50	-
SEME610150114E	R0.1	1.5	4	2.3	14	50	-
SEME610150116E	R0.1	1.5	4	2.3	16	50	-
SEME610150120E	R0.1	1.5	4	2.3	20	50	-
SEME610150122E	R0.1	1.5	4	2.3	22	60	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

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VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

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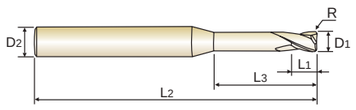

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610150126E	R0.1	1.5	4	2.3	26	60	-
★ SEME610150204E	R0.2	1.5	4	2.3	4	50	-
★ SEME610150206E	R0.2	1.5	4	2.3	6	50	-
★ SEME610150208E	R0.2	1.5	4	2.3	8	50	-
★ SEME610150210E	R0.2	1.5	4	2.3	10	50	-
★ SEME610150212E	R0.2	1.5	4	2.3	12	50	-
★ SEME610150214E	R0.2	1.5	4	2.3	14	50	-
★ SEME610150216E	R0.2	1.5	4	2.3	16	50	-
★ SEME610150220E	R0.2	1.5	4	2.3	20	50	-
SEME610150222E	R0.2	1.5	4	2.3	22	60	-
SEME610150226E	R0.2	1.5	4	2.3	26	60	-
★ SEME610150304E	R0.3	1.5	4	2.3	4	50	-
★ SEME610150306E	R0.3	1.5	4	2.3	6	50	-
★ SEME610150308E	R0.3	1.5	4	2.3	8	50	-
★ SEME610150310E	R0.3	1.5	4	2.3	10	50	-
★ SEME610150312E	R0.3	1.5	4	2.3	12	50	-
★ SEME610150314E	R0.3	1.5	4	2.3	14	50	-
★ SEME610150316E	R0.3	1.5	4	2.3	16	50	-
SEME610150320E	R0.3	1.5	4	2.3	20	50	-
SEME610150322E	R0.3	1.5	4	2.3	22	60	-
SEME610150326E	R0.3	1.5	4	2.3	26	60	-
★ SEME610150504E	R0.5	1.5	4	2.3	4	50	-
★ SEME610150506E	R0.5	1.5	4	2.3	6	50	-
★ SEME610150508E	R0.5	1.5	4	2.3	8	50	-
★ SEME610150510E	R0.5	1.5	4	2.3	10	50	-
★ SEME610150512E	R0.5	1.5	4	2.3	12	50	-
SEME610150514E	R0.5	1.5	4	2.3	14	50	-
★ SEME610150516E	R0.5	1.5	4	2.3	16	50	-
SEME610150520E	R0.5	1.5	4	2.3	20	50	-
SEME610150522E	R0.5	1.5	4	2.3	22	60	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

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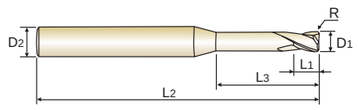

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610150526E	R0.5	1.5	4	2.3	26	60	-
★ SEME610200106E	R0.1	2.0	4	3	6	50	-
★ SEME610200108E	R0.1	2.0	4	3	8	50	-
★ SEME610200110E	R0.1	2.0	4	3	10	50	-
★ SEME610200112E	R0.1	2.0	4	3	12	50	-
SEME610200114E	R0.1	2.0	4	3	14	50	-
SEME610200116E	R0.1	2.0	4	3	16	50	-
SEME610200120E	R0.1	2.0	4	3	20	50	-
SEME610200122E	R0.1	2.0	4	3	22	60	-
SEME610200126E	R0.1	2.0	4	3	26	60	-
SEME610200130E	R0.1	2.0	4	3	30	70	-
★ SEME610200206E	R0.2	2.0	4	3	6	50	-
★ SEME610200208E	R0.2	2.0	4	3	8	50	-
★ SEME610200210E	R0.2	2.0	4	3	10	50	-
★ SEME610200212E	R0.2	2.0	4	3	12	50	-
★ SEME610200214E	R0.2	2.0	4	3	14	50	-
★ SEME610200216E	R0.2	2.0	4	3	16	50	-
★ SEME610200220E	R0.2	2.0	4	3	20	50	-
SEME610200222E	R0.2	2.0	4	3	22	60	-
SEME610200226E	R0.2	2.0	4	3	26	60	-
SEME610200230E	R0.2	2.0	4	3	30	70	-
★ SEME610200306E	R0.3	2.0	4	3	6	50	-
★ SEME610200308E	R0.3	2.0	4	3	8	50	-
★ SEME610200310E	R0.3	2.0	4	3	10	50	-
★ SEME610200312E	R0.3	2.0	4	3	12	50	-
SEME610200314E	R0.3	2.0	4	3	14	50	-
★ SEME610200316E	R0.3	2.0	4	3	16	50	-
★ SEME610200320E	R0.3	2.0	4	3	20	50	-
SEME610200322E	R0.3	2.0	4	3	22	60	-
SEME610200326E	R0.3	2.0	4	3	26	60	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

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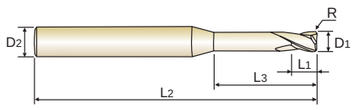

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610200330E	R0.3	2.0	4	3	30	70	-
★ SEME610200506E	R0.5	2.0	4	3	6	50	-
★ SEME610200508E	R0.5	2.0	4	3	8	50	-
★ SEME610200510E	R0.5	2.0	4	3	10	50	-
★ SEME610200512E	R0.5	2.0	4	3	12	50	-
★ SEME610200514E	R0.5	2.0	4	3	14	50	-
★ SEME610200516E	R0.5	2.0	4	3	16	50	-
★ SEME610200520E	R0.5	2.0	4	3	20	50	-
SEME610200522E	R0.5	2.0	4	3	22	60	-
★ SEME610200526E	R0.5	2.0	4	3	26	60	-
★ SEME610200530E	R0.5	2.0	4	3	30	70	-
SEME610250108E	R0.1	2.5	4	4	8	50	-
SEME610250110E	R0.1	2.5	4	4	10	50	-
SEME610250112E	R0.1	2.5	4	4	12	50	-
SEME610250114E	R0.1	2.5	4	4	14	50	-
SEME610250116E	R0.1	2.5	4	4	16	50	-
SEME610250120E	R0.1	2.5	4	4	20	50	-
SEME610250126E	R0.1	2.5	4	4	26	60	-
SEME610250130E	R0.1	2.5	4	4	30	70	-
SEME610250208E	R0.2	2.5	4	4	8	50	-
SEME610250210E	R0.2	2.5	4	4	10	50	-
SEME610250212E	R0.2	2.5	4	4	12	50	-
SEME610250214E	R0.2	2.5	4	4	14	50	-
SEME610250216E	R0.2	2.5	4	4	16	50	-
SEME610250220E	R0.2	2.5	4	4	20	50	-
SEME610250226E	R0.2	2.5	4	4	26	60	-
SEME610250230E	R0.2	2.5	4	4	30	70	-
SEME610250308E	R0.3	2.5	4	4	8	50	-
SEME610250310E	R0.3	2.5	4	4	10	50	-
SEME610250312E	R0.3	2.5	4	4	12	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
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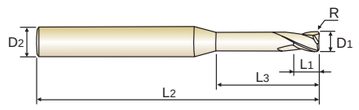

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610250314E	R0.3	2.5	4	4	14	50	-
SEME610250316E	R0.3	2.5	4	4	16	50	-
SEME610250320E	R0.3	2.5	4	4	20	50	-
SEME610250326E	R0.3	2.5	4	4	26	60	-
SEME610250330E	R0.3	2.5	4	4	30	70	-
★ SEME610250508E	R0.5	2.5	6	4	8	50	-
SEME610250510E	R0.5	2.5	6	4	10	50	-
SEME610250512E	R0.5	2.5	6	4	12	50	-
SEME610250514E	R0.5	2.5	6	4	14	50	-
SEME610250516E	R0.5	2.5	6	4	16	50	-
SEME610250520E	R0.5	2.5	6	4	20	50	-
SEME610250526E	R0.5	2.5	6	4	26	60	-
SEME610250530E	R0.5	2.5	6	4	30	70	-
SEME610300108E	R0.1	3.0	6	4.5	8	50	-
★ SEME610300110E	R0.1	3.0	6	4.5	10	50	-
★ SEME610300112E	R0.1	3.0	6	4.5	12	50	-
SEME610300114E	R0.1	3.0	6	4.5	14	60	-
★ SEME610300116E	R0.1	3.0	6	4.5	16	60	-
★ SEME610300120E	R0.1	3.0	6	4.5	20	60	-
SEME610300126E	R0.1	3.0	6	4.5	26	65	-
SEME610300130E	R0.1	3.0	6	4.5	30	70	-
SEME610300135E	R0.1	3.0	6	4.5	35	70	-
SEME610300140E	R0.1	3.0	6	4.5	40	80	-
★ SEME610300208E	R0.2	3.0	6	4.5	8	50	-
★ SEME610300210E	R0.2	3.0	6	4.5	10	50	-
★ SEME610300212E	R0.2	3.0	6	4.5	12	50	-
SEME610300214E	R0.2	3.0	6	4.5	14	60	-
★ SEME610300216E	R0.2	3.0	6	4.5	16	60	-
★ SEME610300220E	R0.2	3.0	6	4.5	20	60	-
★ SEME610300226E	R0.2	3.0	6	4.5	26	65	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

MD, 2 TAGLIENTI, SCARICATA, TORICA

- ▶ Due to new coating and new tool geometry, outstanding cutting ability and wear resistance.
- ▶ Excellent for cutting prehardened steels, carbon steels, alloy steels of molds and dies, up to HRc55 and machine parts.
- ▶ Available various products like regular length and long shank end mills etc.
- ▶ Available various corner radius end mills, from min. 0.02mm corner radius to max. 2.0mm corner radius.
- ▶ Available more various effective length and overall length end mills than previous standard products.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Ausgezeichnet geeignet für das Fräsen von vorvergütetem Stahl, kohlenstoff Stahl, legiertem Stahl für Formen, bis HRc55 und Maschinenbauteile.
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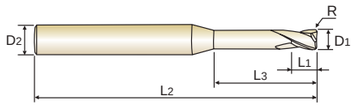
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610300230E	R0.2	3.0	6	4.5	30	70	-
SEME610300235E	R0.2	3.0	6	4.5	35	70	-
SEME610300240E	R0.2	3.0	6	4.5	40	80	-
★ SEME610300308E	R0.3	3.0	6	4.5	8	50	-
★ SEME610300310E	R0.3	3.0	6	4.5	10	50	-
★ SEME610300312E	R0.3	3.0	6	4.5	12	50	-
★ SEME610300314E	R0.3	3.0	6	4.5	14	60	-
★ SEME610300316E	R0.3	3.0	6	4.5	16	60	-
★ SEME610300320E	R0.3	3.0	6	4.5	20	60	-
★ SEME610300326E	R0.3	3.0	6	4.5	26	65	-
SEME610300330E	R0.3	3.0	6	4.5	30	70	-
SEME610300335E	R0.3	3.0	6	4.5	35	70	-
SEME610300340E	R0.3	3.0	6	4.5	40	80	-
★ SEME610300508E	R0.5	3.0	6	4.5	8	50	-
★ SEME610300510E	R0.5	3.0	6	4.5	10	50	-
★ SEME610300512E	R0.5	3.0	6	4.5	12	50	-
★ SEME610300514E	R0.5	3.0	6	4.5	14	60	-
★ SEME610300516E	R0.5	3.0	6	4.5	16	60	-
★ SEME610300520E	R0.5	3.0	6	4.5	20	60	-
★ SEME610300526E	R0.5	3.0	6	4.5	26	65	-
★ SEME610300530E	R0.5	3.0	6	4.5	30	70	-
★ SEME610300535E	R0.5	3.0	6	4.5	35	70	-
SEME610300540E	R0.5	3.0	6	4.5	40	80	-
★ SEME610301008E	R1.0	3.0	6	4.5	8	50	-
★ SEME610301010E	R1.0	3.0	6	4.5	10	50	-
★ SEME610301012E	R1.0	3.0	6	4.5	12	50	-
SEME610301014E	R1.0	3.0	6	4.5	14	60	-
★ SEME610301016E	R1.0	3.0	6	4.5	16	60	-
★ SEME610301020E	R1.0	3.0	6	4.5	20	60	-
★ SEME610301026E	R1.0	3.0	6	4.5	26	65	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK

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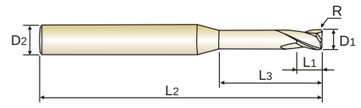

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME610301030E	R1.0	3.0	6	4.5	30	70	-
SEME610301035E	R1.0	3.0	6	4.5	35	70	-
SEME610301040E	R1.0	3.0	6	4.5	40	80	-
★ SEME610400110E	R0.1	4.0	6	6	10	50	-
★ SEME610400112E	R0.1	4.0	6	6	12	50	-
SEME610400114E	R0.1	4.0	6	6	14	60	-
★ SEME610400116E	R0.1	4.0	6	6	16	60	-
★ SEME610400120E	R0.1	4.0	6	6	20	60	-
SEME610400126E	R0.1	4.0	6	6	26	65	-
SEME610400130E	R0.1	4.0	6	6	30	70	-
SEME610400135E	R0.1	4.0	6	6	35	70	-
SEME610400140E	R0.1	4.0	6	6	40	80	-
SEME610400145E	R0.1	4.0	6	6	45	90	-
SEME610400150E	R0.1	4.0	6	6	50	100	-
★ SEME610400210E	R0.2	4.0	6	6	10	50	-
★ SEME610400212E	R0.2	4.0	6	6	12	50	-
SEME610400214E	R0.2	4.0	6	6	14	60	-
★ SEME610400216E	R0.2	4.0	6	6	16	60	-
★ SEME610400220E	R0.2	4.0	6	6	20	60	-
★ SEME610400226E	R0.2	4.0	6	6	26	65	-
SEME610400230E	R0.2	4.0	6	6	30	70	-
SEME610400235E	R0.2	4.0	6	6	35	70	-
SEME610400240E	R0.2	4.0	6	6	40	80	-
SEME610400245E	R0.2	4.0	6	6	45	90	-
SEME610400250E	R0.2	4.0	6	6	50	100	-
SEME610400310E	R0.3	4.0	6	6	10	50	-
★ SEME610400312E	R0.3	4.0	6	6	12	50	-
SEME610400314E	R0.3	4.0	6	6	14	50	-
★ SEME610400316E	R0.3	4.0	6	6	16	50	-
★ SEME610400320E	R0.3	4.0	6	6	20	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

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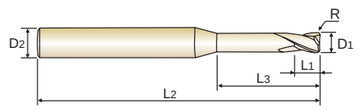

MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME610400326E	R0.3	4.0	6	6	26	65	-
SEME610400330E	R0.3	4.0	6	6	30	70	-
SEME610400335E	R0.3	4.0	6	6	35	70	-
SEME610400340E	R0.3	4.0	6	6	40	80	-
SEME610400345E	R0.3	4.0	6	6	45	90	-
SEME610400350E	R0.3	4.0	6	6	50	100	-
★ SEME610400510E	R0.5	4.0	6	6	10	50	-
★ SEME610400512E	R0.5	4.0	6	6	12	50	-
★ SEME610400514E	R0.5	4.0	6	6	14	60	-
★ SEME610400516E	R0.5	4.0	6	6	16	60	-
★ SEME610400520E	R0.5	4.0	6	6	20	60	-
★ SEME610400526E	R0.5	4.0	6	6	26	65	-
★ SEME610400530E	R0.5	4.0	6	6	30	70	-
★ SEME610400535E	R0.5	4.0	6	6	35	70	-
SEME610400540E	R0.5	4.0	6	6	40	80	-
SEME610400545E	R0.5	4.0	6	6	45	90	-
SEME610400550E	R0.5	4.0	6	6	50	100	-
★ SEME610401010E	R1.0	4.0	6	6	10	50	-
★ SEME610401012E	R1.0	4.0	6	6	12	50	-
SEME610401014E	R1.0	4.0	6	6	14	60	-
★ SEME610401016E	R1.0	4.0	6	6	16	60	-
★ SEME610401020E	R1.0	4.0	6	6	20	60	-
★ SEME610401026E	R1.0	4.0	6	6	26	65	-
★ SEME610401030E	R1.0	4.0	6	6	30	70	-
SEME610401035E	R1.0	4.0	6	6	35	70	-
★ SEME610401040E	R1.0	4.0	6	6	40	80	-
SEME610401045E	R1.0	4.0	6	6	45	90	-
SEME610401050E	R1.0	4.0	6	6	50	100	-
SEME6105001E	R0.1	5.0	6	8	15	60	-
SEME6105002E	R0.2	5.0	6	8	15	60	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME61 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

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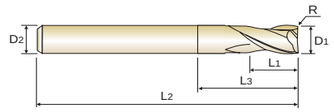
- ▶ Erhältlich in verschiedenen Eckradien-Ausführungen: von 0,02mm bis zu 2,0mm Eckradius.
- ▶ Erhältlich in verschiedenen gesamt Längen und effektiv Längen. Mehr Auswahlmöglichkeiten als bei den bisherigen standard Produkten.



MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6105003E	R0.3	5.0	6	8	15	60	-
SEME6105005E	R0.5	5.0	6	8	15	60	-
SEME6105010E	R1.0	5.0	6	8	15	60	-
SEME6105015E	R1.5	5.0	6	8	15	60	-
SEME6105020E	R2.0	5.0	6	8	15	60	-
SEME6106001E	R0.1	6.0	6	9	20	60	Regular
★ SEME6106002E	R0.2	6.0	6	9	20	60	Regular
★ SEME6106003E	R0.3	6.0	6	9	20	60	Regular
★ SEME6106005E	R0.5	6.0	6	9	20	60	Regular
★ SEME6106010E	R1.0	6.0	6	9	20	60	Regular
SEME6106015E	R1.5	6.0	6	9	20	60	Regular
SEME6106020E	R2.0	6.0	6	9	20	60	Regular
SEME6106003090E	R0.3	6.0	6	15	30	90	Long Shank
★ SEME6106005090E	R0.5	6.0	6	15	30	90	Long Shank
★ SEME6106010090E	R1.0	6.0	6	15	30	90	Long Shank
SEME6108001E	R0.1	8.0	8	12	25	70	Regular
★ SEME6108002E	R0.2	8.0	8	12	25	70	Regular
★ SEME6108003E	R0.3	8.0	8	12	25	70	Regular
★ SEME6108005E	R0.5	8.0	8	12	25	70	Regular
★ SEME6108010E	R1.0	8.0	8	12	25	70	Regular
SEME6108015E	R1.5	8.0	8	12	25	70	Regular
SEME6108020E	R2.0	8.0	8	12	25	70	Regular
SEME61080031O0E	R0.3	8.0	8	20	35	100	Long Shank
★ SEME61080051O0E	R0.5	8.0	8	20	35	100	Long Shank
★ SEME61080101O0E	R1.0	8.0	8	20	35	100	Long Shank
SEME6110001E	R0.1	10.0	10	15	30	75	Regular
SEME6110002E	R0.2	10.0	10	15	30	75	Regular
★ SEME6110003E	R0.3	10.0	10	15	30	75	Regular
★ SEME6110005E	R0.5	10.0	10	15	30	75	Regular
★ SEME6110010E	R1.0	10.0	10	15	30	75	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

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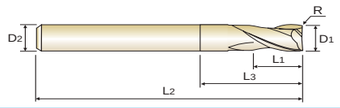


MG HM | 2 | 30° | R ±0.010 Ø0.2~Ø6 | R ±0.015 Ø8~Ø20 | PLAIN

P.918-923

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6110015E	R1.5	10.0	10	15	30	75	Regular
SEME6110020E	R2.0	10.0	10	15	30	75	Regular
SEME6110003100E	R0.3	10.0	10	25	40	100	Long Shank
★ SEME6110005100E	R0.5	10.0	10	25	40	100	Long Shank
★ SEME6110010100E	R1.0	10.0	10	25	40	100	Long Shank
SEME6112002E	R0.2	12.0	12	18	32	80	Regular
SEME6112003E	R0.3	12.0	12	18	32	80	Regular
★ SEME6112005E	R0.5	12.0	12	18	32	80	Regular
★ SEME6112010E	R1.0	12.0	12	18	32	80	Regular
★ SEME6112015E	R1.5	12.0	12	18	32	80	Regular
SEME6112020E	R2.0	12.0	12	18	32	80	Regular
SEME6112003110E	R0.3	12.0	12	30	50	110	Long Shank
SEME6112005110E	R0.5	12.0	12	30	50	110	Long Shank
★ SEME6112010110E	R1.0	12.0	12	30	50	110	Long Shank
★ SEME6116005E	R0.5	16.0	16	20	35	100	Regular
★ SEME6116010E	R1.0	16.0	16	20	35	100	Regular
SEME6116005150E	R0.5	16.0	16	35	50	150	Long Shank
SEME6116010150E	R1.0	16.0	16	35	50	150	Long Shank
★ SEME6120005E	R0.5	20.0	20	25	40	100	Regular
★ SEME6120010E	R1.0	20.0	20	25	40	100	Regular
SEME6120005150E	R0.5	20.0	20	40	55	150	Long Shank
SEME6120010150E	R1.0	20.0	20	40	55	150	Long Shank

▶ ★ Stock Item

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME01 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

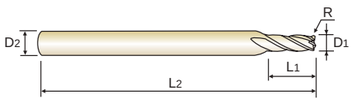
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS

Fraise carbure, 4 dents, torique, hélice multiple

MD, 4 TAGLIENTI, TORICA (Serie corta, media e lunga)

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



MG HM | 4 | 27°/30° D<3, 30° HELIX | R ±0.02 | PLAIN

P.924-925

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME01010005E	R0.05	1.0	6	2.5	50	-
★ SEME0101001E	R0.1	1.0	6	2.5	50	-
SEME0101002E	R0.2	1.0	6	2.5	50	-
SEME0101003E	R0.3	1.0	6	2.5	50	-
SEME01012005E	R0.05	1.2	6	3	50	-
SEME0101201E	R0.1	1.2	6	3	50	-
SEME0101202E	R0.2	1.2	6	3	50	-
SEME0101203E	R0.3	1.2	6	3	50	-
SEME01015005E	R0.05	1.5	6	4	50	-
SEME0101501E	R0.1	1.5	6	4	50	-
★ SEME0101502E	R0.2	1.5	6	4	50	-
SEME0101503E	R0.3	1.5	6	4	50	-
SEME0101505E	R0.5	1.5	6	4	50	-
★ SEME0102001E	R0.1	2.0	6	6	50	-
★ SEME0102002E	R0.2	2.0	6	6	50	-
SEME0102003E	R0.3	2.0	6	6	50	-
★ SEME0102005E	R0.5	2.0	6	6	50	-
SEME0102501E	R0.1	2.5	6	7	60	-
SEME0102502E	R0.2	2.5	6	7	60	-
SEME0102503E	R0.3	2.5	6	7	60	-
SEME0102505E	R0.5	2.5	6	7	60	-
SEME0103001E	R0.1	3.0	6	8	60	-
★ SEME0103002E	R0.2	3.0	6	8	60	-
★ SEME0103003E	R0.3	3.0	6	8	60	-
★ SEME0103005E	R0.5	3.0	6	8	60	-
★ SEME0103010E	R1.0	3.0	6	8	60	-
SEME0103501E	R0.1	3.5	6	10	70	-
SEME0103502E	R0.2	3.5	6	10	70	-
SEME0103503E	R0.3	3.5	6	10	70	-
★ SEME0103505E	R0.5	3.5	6	10	70	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME01 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS

Fraise carbure, 4 dents, torique, hélice multiple

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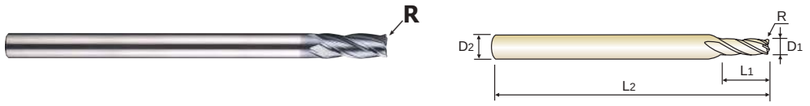
- ▶ Available in short, regular and long shank end mills.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.924-925

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME01040014SE	R0.1	4.0	4	10	70	4mm Shank
SEME01040024SE	R0.2	4.0	4	10	70	4mm Shank
SEME01040034SE	R0.3	4.0	4	10	70	4mm Shank
SEME01040054SE	R0.5	4.0	4	10	70	4mm Shank
SEME01040104SE	R1.0	4.0	4	10	70	4mm Shank
SEME01040011004SE	R0.1	4.0	4	10	100	4mm Shank
SEME01040021004SE	R0.2	4.0	4	10	100	4mm Shank
SEME01040031004SE	R0.3	4.0	4	10	100	4mm Shank
SEME01040051004SE	R0.5	4.0	4	10	100	4mm Shank
SEME01040101004SE	R1.0	4.0	4	10	100	4mm Shank
SEME0104001E	R0.1	4.0	6	10	70	Regular
★ SEME0104002E	R0.2	4.0	6	10	70	Regular
★ SEME0104003E	R0.3	4.0	6	10	70	Regular
★ SEME0104005E	R0.5	4.0	6	10	70	Regular
★ SEME0104010E	R1.0	4.0	6	10	70	Regular
SEME0104501E	R0.1	4.5	6	11	80	-
SEME0104502E	R0.2	4.5	6	11	80	-
SEME0104503E	R0.3	4.5	6	11	80	-
SEME0104505E	R0.5	4.5	6	11	80	-
SEME0105001E	R0.1	5.0	6	13	90	-
★ SEME0105002E	R0.2	5.0	6	13	90	-
★ SEME0105003E	R0.3	5.0	6	13	90	-
★ SEME0105005E	R0.5	5.0	6	13	90	-
★ SEME0105010E	R1.0	5.0	6	13	90	-
SEME0105501E	R0.1	5.5	6	13	90	-
SEME0105502E	R0.2	5.5	6	13	90	-
SEME0105503E	R0.3	5.5	6	13	90	-
SEME0105505E	R0.5	5.5	6	13	90	-
SEME0105510E	R1.0	5.5	6	13	90	-
SEME0106001060E	R0.1	6.0	6	15	60	Short

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME01 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS (Short, Regular, Long Shank)

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS

Fraise carbure, 4 dents, torique, hélice multiple

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- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.924-925

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
SEME0106002060E	R0.2	6.0	6	15	60	Short
★ SEME0106001E	R0.1	6.0	6	15	90	Regular
★ SEME0106002E	R0.2	6.0	6	15	90	Regular
★ SEME0106003E	R0.3	6.0	6	15	90	Regular
★ SEME0106005E	R0.5	6.0	6	15	90	Regular
★ SEME0106010E	R1.0	6.0	6	15	90	Regular
★ SEME0106015E	R1.5	6.0	6	15	90	Regular
★ SEME0106020E	R2.0	6.0	6	15	90	Regular
★ SEME0106005110E	R0.5	6.0	6	15	110	Long Shank
★ SEME0106010110E	R1.0	6.0	6	15	110	Long Shank
SEME0106005130E	R0.5	6.0	6	15	130	Long Shank
SEME0106010130E	R1.0	6.0	6	15	130	Long Shank
SEME0107001E	R0.1	7.0	8	16	90	-
SEME0107002E	R0.2	7.0	8	16	90	-
SEME0107003E	R0.3	7.0	8	16	90	-
SEME0107005E	R0.5	7.0	8	16	90	-
SEME0107010E	R1.0	7.0	8	16	90	-
SEME0107020E	R2.0	7.0	8	16	90	-
★ SEME0108003070E	R0.3	8.0	8	20	70	Short
★ SEME0108005070E	R0.5	8.0	8	20	70	Short
★ SEME0108010070E	R1.0	8.0	8	20	70	Short
SEME0108001E	R0.1	8.0	8	20	100	Regular
★ SEME0108002E	R0.2	8.0	8	20	100	Regular
★ SEME0108003E	R0.3	8.0	8	20	100	Regular
★ SEME0108005E	R0.5	8.0	8	20	100	Regular
★ SEME0108010E	R1.0	8.0	8	20	100	Regular
★ SEME0108015E	R1.5	8.0	8	20	100	Regular
★ SEME0108020E	R2.0	8.0	8	20	100	Regular
SEME0108025E	R2.5	8.0	8	20	100	Regular
★ SEME0108030E	R3.0	8.0	8	20	100	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME01 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

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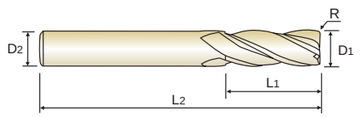
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
- ▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.924-925

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME0108005120E	R0.5	8.0	8	20	120	Long Shank
SEME0108010120E	R1.0	8.0	8	20	120	Long Shank
SEME0108005150E	R0.5	8.0	8	20	150	Long Shank
★ SEME0108010150E	R1.0	8.0	8	20	150	Long Shank
★ SEME0110003075E	R0.3	10.0	10	25	75	Short
★ SEME0110005075E	R0.5	10.0	10	25	75	Short
★ SEME0110010075E	R1.0	10.0	10	25	75	Short
SEME0110001E	R0.1	10.0	10	25	100	Regular
★ SEME0110002E	R0.2	10.0	10	25	100	Regular
★ SEME0110003E	R0.3	10.0	10	25	100	Regular
★ SEME0110005E	R0.5	10.0	10	25	100	Regular
★ SEME0110010E	R1.0	10.0	10	25	100	Regular
★ SEME0110015E	R1.5	10.0	10	25	100	Regular
★ SEME0110020E	R2.0	10.0	10	25	100	Regular
SEME0110025E	R2.5	10.0	10	25	100	Regular
★ SEME0110030E	R3.0	10.0	10	25	100	Regular
SEME0110040E	R4.0	10.0	10	25	100	Regular
★ SEME0110005130E	R0.5	10.0	10	22	130	Long Shank
★ SEME0110010130E	R1.0	10.0	10	22	130	Long Shank
★ SEME0110005150E	R0.5	10.0	10	22	150	Long Shank
★ SEME0110010150E	R1.0	10.0	10	22	150	Long Shank
SEME0111002E	R0.2	11.0	12	25	110	-
SEME0111003E	R0.3	11.0	12	25	110	-
SEME0111005E	R0.5	11.0	12	25	110	-
SEME0111010E	R1.0	11.0	12	25	110	-
SEME0111020E	R2.0	11.0	12	25	110	-
SEME0112003080E	R0.3	12.0	12	30	80	Short
★ SEME0112005080E	R0.5	12.0	12	30	80	Short
★ SEME0112010080E	R1.0	12.0	12	30	80	Short
SEME0112001E	R0.1	12.0	12	30	110	Regular

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
SEME01 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
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VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS
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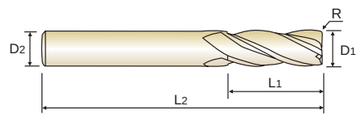
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.
▶ Erhältlich in den Schaft-Ausführungen: standard und lang.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.924-925

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Remark
★ SEME0112002E	R0.2	12.0	12	30	110	Regular
★ SEME0112003E	R0.3	12.0	12	30	110	Regular
★ SEME0112005E	R0.5	12.0	12	30	110	Regular
★ SEME0112010E	R1.0	12.0	12	30	110	Regular
★ SEME0112015E	R1.5	12.0	12	30	110	Regular
★ SEME0112020E	R2.0	12.0	12	30	110	Regular
★ SEME0112025E	R2.5	12.0	12	30	110	Regular
★ SEME0112030E	R3.0	12.0	12	30	110	Regular
SEME0112040E	R4.0	12.0	12	30	110	Regular
SEME0112050E	R5.0	12.0	12	30	110	Regular
★ SEME0112005130E	R0.5	12.0	12	30	130	Long Shank
★ SEME0112010130E	R1.0	12.0	12	30	130	Long Shank
★ SEME0112005150E	R0.5	12.0	12	30	150	Long Shank
★ SEME0112010150E	R1.0	12.0	12	30	150	Long Shank
SEME0114005E	R0.5	14.0	16	35	150	-
SEME0114010E	R1.0	14.0	16	35	150	-
SEME0114020E	R2.0	14.0	16	35	150	-
★ SEME0116005E	R0.5	16.0	16	32	150	-
★ SEME0116010E	R1.0	16.0	16	32	150	-
★ SEME0116015E	R1.5	16.0	16	32	150	-
★ SEME0116020E	R2.0	16.0	16	32	150	-
SEME0120005E	R0.5	20.0	20	38	150	-
★ SEME0120010E	R1.0	20.0	20	38	150	-
SEME0120015E	R1.5	20.0	20	38	150	-
★ SEME0120020E	R2.0	20.0	20	38	150	-

▶ ★ Stock Item

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0~-0.03	±0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES

PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

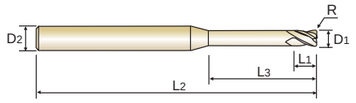
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, hélice multiple, détalonnée

MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6401000503E	R0.05	1.0	4	1.5	3	50	-
SEME6401000504E	R0.05	1.0	4	1.5	4	50	-
SEME6401000506E	R0.05	1.0	4	1.5	6	50	-
SEME6401000508E	R0.05	1.0	4	1.5	8	50	-
SEME6401000510E	R0.05	1.0	4	1.5	10	50	-
SEME6401000512E	R0.05	1.0	4	1.5	12	50	-
SEME6401000514E	R0.05	1.0	4	1.5	14	50	-
SEME6401000516E	R0.05	1.0	4	1.5	16	50	-
SEME6401000520E	R0.05	1.0	4	1.5	20	50	-
SEME6401000103E	R0.1	1.0	4	1.5	3	50	-
★ SEME6401000104E	R0.1	1.0	4	1.5	4	50	-
★ SEME6401000106E	R0.1	1.0	4	1.5	6	50	-
★ SEME6401000108E	R0.1	1.0	4	1.5	8	50	-
SEME6401000110E	R0.1	1.0	4	1.5	10	50	-
SEME6401000112E	R0.1	1.0	4	1.5	12	50	-
SEME6401000114E	R0.1	1.0	4	1.5	14	50	-
SEME6401000116E	R0.1	1.0	4	1.5	16	50	-
SEME6401000120E	R0.1	1.0	4	1.5	20	50	-
SEME6401000203E	R0.2	1.0	4	1.5	3	50	-
★ SEME6401000204E	R0.2	1.0	4	1.5	4	50	-
★ SEME6401000206E	R0.2	1.0	4	1.5	6	50	-
★ SEME6401000208E	R0.2	1.0	4	1.5	8	50	-
★ SEME6401000210E	R0.2	1.0	4	1.5	10	50	-
SEME6401000212E	R0.2	1.0	4	1.5	12	50	-
SEME6401000214E	R0.2	1.0	4	1.5	14	50	-
SEME6401000216E	R0.2	1.0	4	1.5	16	50	-
SEME6401000220E	R0.2	1.0	4	1.5	20	50	-
SEME6401000303E	R0.3	1.0	4	1.5	3	50	-
★ SEME6401000304E	R0.3	1.0	4	1.5	4	50	-
★ SEME6401000306E	R0.3	1.0	4	1.5	6	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS
SEME64 SERIES
PLAIN SHANK
GLATTER ZYLINDERSCHAFT
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
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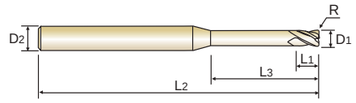
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640100308E	R0.3	1.0	4	1.5	8	50	-
SEME640100310E	R0.3	1.0	4	1.5	10	50	-
SEME640100312E	R0.3	1.0	4	1.5	12	50	-
SEME640100314E	R0.3	1.0	4	1.5	14	50	-
SEME640100316E	R0.3	1.0	4	1.5	16	50	-
SEME640100320E	R0.3	1.0	4	1.5	20	50	-
SEME6401200503E	R0.05	1.2	4	1.8	3	50	-
SEME6401200504E	R0.05	1.2	4	1.8	4	50	-
SEME6401200506E	R0.05	1.2	4	1.8	6	50	-
SEME6401200508E	R0.05	1.2	4	1.8	8	50	-
SEME6401200510E	R0.05	1.2	4	1.8	10	50	-
SEME6401200512E	R0.05	1.2	4	1.8	12	50	-
SEME6401200516E	R0.05	1.2	4	1.8	16	50	-
SEME6401200520E	R0.05	1.2	4	1.8	20	50	-
SEME640120103E	R0.1	1.2	4	1.8	3	50	-
★ SEME640120104E	R0.1	1.2	4	1.8	4	50	-
★ SEME640120106E	R0.1	1.2	4	1.8	6	50	-
★ SEME640120108E	R0.1	1.2	4	1.8	8	50	-
SEME640120110E	R0.1	1.2	4	1.8	10	50	-
SEME640120112E	R0.1	1.2	4	1.8	12	50	-
SEME640120116E	R0.1	1.2	4	1.8	16	50	-
SEME640120120E	R0.1	1.2	4	1.8	20	50	-
SEME640120203E	R0.2	1.2	4	1.8	3	50	-
★ SEME640120204E	R0.2	1.2	4	1.8	4	50	-
★ SEME640120206E	R0.2	1.2	4	1.8	6	50	-
★ SEME640120208E	R0.2	1.2	4	1.8	8	50	-
SEME640120210E	R0.2	1.2	4	1.8	10	50	-
SEME640120212E	R0.2	1.2	4	1.8	12	50	-
SEME640120216E	R0.2	1.2	4	1.8	16	50	-
SEME640120220E	R0.2	1.2	4	1.8	20	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

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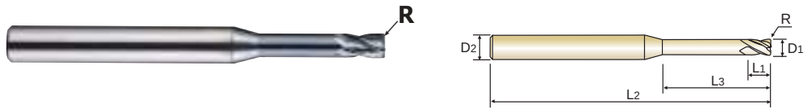

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME640120303E	R0.3	1.2	4	1.8	3	50	-
★ SEME640120304E	R0.3	1.2	4	1.8	4	50	-
★ SEME640120306E	R0.3	1.2	4	1.8	6	50	-
★ SEME640120308E	R0.3	1.2	4	1.8	8	50	-
SEME640120310E	R0.3	1.2	4	1.8	10	50	-
SEME640120312E	R0.3	1.2	4	1.8	12	50	-
SEME640120316E	R0.3	1.2	4	1.8	16	50	-
SEME640120320E	R0.3	1.2	4	1.8	20	50	-
SEME6401500504E	R0.05	1.5	4	2.3	4	50	-
SEME6401500506E	R0.05	1.5	4	2.3	6	50	-
SEME6401500508E	R0.05	1.5	4	2.3	8	50	-
SEME6401500510E	R0.05	1.5	4	2.3	10	50	-
SEME6401500512E	R0.05	1.5	4	2.3	12	50	-
SEME6401500514E	R0.05	1.5	4	2.3	14	50	-
SEME6401500516E	R0.05	1.5	4	2.3	16	50	-
SEME6401500520E	R0.05	1.5	4	2.3	20	50	-
SEME6401500522E	R0.05	1.5	4	2.3	22	60	-
SEME6401500526E	R0.05	1.5	4	2.3	26	60	-
SEME640150104E	R0.1	1.5	4	2.3	4	50	-
★ SEME640150106E	R0.1	1.5	4	2.3	6	50	-
★ SEME640150108E	R0.1	1.5	4	2.3	8	50	-
★ SEME640150110E	R0.1	1.5	4	2.3	10	50	-
★ SEME640150112E	R0.1	1.5	4	2.3	12	50	-
SEME640150114E	R0.1	1.5	4	2.3	14	50	-
SEME640150116E	R0.1	1.5	4	2.3	16	50	-
SEME640150120E	R0.1	1.5	4	2.3	20	50	-
SEME640150122E	R0.1	1.5	4	2.3	22	60	-
SEME640150126E	R0.1	1.5	4	2.3	26	60	-
SEME640150204E	R0.2	1.5	4	2.3	4	50	-
★ SEME640150206E	R0.2	1.5	4	2.3	6	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

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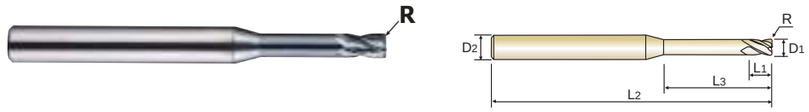

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640150208E	R0.2	1.5	4	2.3	8	50	-
★ SEME640150210E	R0.2	1.5	4	2.3	10	50	-
★ SEME640150212E	R0.2	1.5	4	2.3	12	50	-
SEME640150214E	R0.2	1.5	4	2.3	14	50	-
SEME640150216E	R0.2	1.5	4	2.3	16	50	-
SEME640150220E	R0.2	1.5	4	2.3	20	50	-
SEME640150222E	R0.2	1.5	4	2.3	22	60	-
SEME640150226E	R0.2	1.5	4	2.3	26	60	-
SEME640150304E	R0.3	1.5	4	2.3	4	50	-
★ SEME640150306E	R0.3	1.5	4	2.3	6	50	-
★ SEME640150308E	R0.3	1.5	4	2.3	8	50	-
★ SEME640150310E	R0.3	1.5	4	2.3	10	50	-
★ SEME640150312E	R0.3	1.5	4	2.3	12	50	-
SEME640150314E	R0.3	1.5	4	2.3	14	50	-
SEME640150316E	R0.3	1.5	4	2.3	16	50	-
SEME640150320E	R0.3	1.5	4	2.3	20	50	-
SEME640150322E	R0.3	1.5	4	2.3	22	60	-
SEME640150326E	R0.3	1.5	4	2.3	26	60	-
SEME640150504E	R0.5	1.5	4	2.3	4	50	-
★ SEME640150506E	R0.5	1.5	4	2.3	6	50	-
★ SEME640150508E	R0.5	1.5	4	2.3	8	50	-
★ SEME640150510E	R0.5	1.5	4	2.3	10	50	-
★ SEME640150512E	R0.5	1.5	4	2.3	12	50	-
SEME640150514E	R0.5	1.5	4	2.3	14	50	-
SEME640150516E	R0.5	1.5	4	2.3	16	50	-
SEME640150520E	R0.5	1.5	4	2.3	20	50	-
SEME640150522E	R0.5	1.5	4	2.3	22	60	-
SEME640150526E	R0.5	1.5	4	2.3	26	60	-
★ SEME640200106E	R0.1	2.0	4	3	6	50	-
★ SEME640200108E	R0.1	2.0	4	3	8	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

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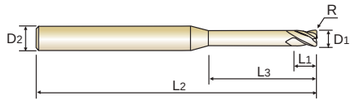


MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640200110E	R0.1	2.0	4	3	10	50	-
★ SEME640200112E	R0.1	2.0	4	3	12	50	-
SEME640200114E	R0.1	2.0	4	3	14	50	-
SEME640200116E	R0.1	2.0	4	3	16	50	-
SEME640200120E	R0.1	2.0	4	3	20	50	-
SEME640200122E	R0.1	2.0	4	3	22	60	-
SEME640200126E	R0.1	2.0	4	3	26	60	-
SEME640200130E	R0.1	2.0	4	3	30	70	-
★ SEME640200206E	R0.2	2.0	4	3	6	50	-
★ SEME640200208E	R0.2	2.0	4	3	8	50	-
★ SEME640200210E	R0.2	2.0	4	3	10	50	-
★ SEME640200212E	R0.2	2.0	4	3	12	50	-
SEME640200214E	R0.2	2.0	4	3	14	50	-
SEME640200216E	R0.2	2.0	4	3	16	50	-
SEME640200220E	R0.2	2.0	4	3	20	50	-
SEME640200222E	R0.2	2.0	4	3	22	60	-
SEME640200226E	R0.2	2.0	4	3	26	60	-
SEME640200230E	R0.2	2.0	4	3	30	70	-
★ SEME640200306E	R0.3	2.0	4	3	6	50	-
★ SEME640200308E	R0.3	2.0	4	3	8	50	-
★ SEME640200310E	R0.3	2.0	4	3	10	50	-
★ SEME640200312E	R0.3	2.0	4	3	12	50	-
SEME640200314E	R0.3	2.0	4	3	14	50	-
SEME640200316E	R0.3	2.0	4	3	16	50	-
SEME640200320E	R0.3	2.0	4	3	20	50	-
SEME640200322E	R0.3	2.0	4	3	22	60	-
SEME640200326E	R0.3	2.0	4	3	26	60	-
SEME640200330E	R0.3	2.0	4	3	30	70	-
★ SEME640200506E	R0.5	2.0	4	3	6	50	-
★ SEME640200508E	R0.5	2.0	4	3	8	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

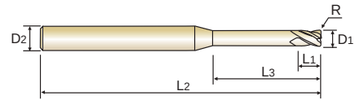
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, hélice multiple, détalonnée

MD, 4 TAGLIENTI, SCARICATA, TORICA

▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640200510E	R0.5	2.0	4	3	10	50	-
★ SEME640200512E	R0.5	2.0	4	3	12	50	-
★ SEME640200514E	R0.5	2.0	4	3	14	50	-
★ SEME640200516E	R0.5	2.0	4	3	16	50	-
★ SEME640200520E	R0.5	2.0	4	3	20	50	-
SEME640200522E	R0.5	2.0	4	3	22	60	-
SEME640200526E	R0.5	2.0	4	3	26	60	-
SEME640200530E	R0.5	2.0	4	3	30	70	-
SEME640250108E	R0.1	2.5	4	4	8	50	-
SEME640250110E	R0.1	2.5	4	4	10	50	-
SEME640250112E	R0.1	2.5	4	4	12	50	-
SEME640250114E	R0.1	2.5	4	4	14	50	-
SEME640250116E	R0.1	2.5	4	4	16	50	-
SEME640250120E	R0.1	2.5	4	4	20	50	-
SEME640250126E	R0.1	2.5	4	4	26	60	-
SEME640250130E	R0.1	2.5	4	4	30	70	-
SEME640250208E	R0.2	2.5	4	4	8	50	-
SEME640250210E	R0.2	2.5	4	4	10	50	-
SEME640250212E	R0.2	2.5	4	4	12	50	-
SEME640250214E	R0.2	2.5	4	4	14	50	-
SEME640250216E	R0.2	2.5	4	4	16	50	-
SEME640250220E	R0.2	2.5	4	4	20	50	-
SEME640250226E	R0.2	2.5	4	4	26	60	-
SEME640250230E	R0.2	2.5	4	4	30	70	-
SEME640250308E	R0.3	2.5	4	4	8	50	-
SEME640250310E	R0.3	2.5	4	4	10	50	-
SEME640250312E	R0.3	2.5	4	4	12	50	-
SEME640250314E	R0.3	2.5	4	4	14	50	-
SEME640250316E	R0.3	2.5	4	4	16	50	-
SEME640250320E	R0.3	2.5	4	4	20	50	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

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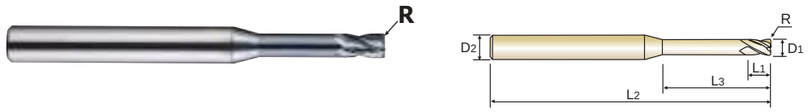

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME640250326E	R0.3	2.5	4	4	26	60	-
SEME640250330E	R0.3	2.5	4	4	30	70	-
SEME640250508E	R0.5	2.5	4	4	8	50	-
SEME640250510E	R0.5	2.5	4	4	10	50	-
SEME640250512E	R0.5	2.5	4	4	12	50	-
SEME640250514E	R0.5	2.5	4	4	14	50	-
SEME640250516E	R0.5	2.5	4	4	16	50	-
SEME640250520E	R0.5	2.5	4	4	20	50	-
SEME640250526E	R0.5	2.5	4	4	26	60	-
SEME640250530E	R0.5	2.5	4	4	30	70	-
★ SEME640300108E	R0.1	3.0	6	4.5	8	50	-
★ SEME640300110E	R0.1	3.0	6	4.5	10	50	-
★ SEME640300112E	R0.1	3.0	6	4.5	12	50	-
SEME640300114E	R0.1	3.0	6	4.5	14	60	-
★ SEME640300116E	R0.1	3.0	6	4.5	16	60	-
SEME640300120E	R0.1	3.0	6	4.5	20	60	-
SEME640300126E	R0.1	3.0	6	4.5	26	65	-
SEME640300130E	R0.1	3.0	6	4.5	30	70	-
SEME640300135E	R0.1	3.0	6	4.5	35	70	-
SEME640300140E	R0.1	3.0	6	4.5	40	80	-
SEME640300208E	R0.2	3.0	6	4.5	8	50	-
★ SEME640300210E	R0.2	3.0	6	4.5	10	50	-
★ SEME640300212E	R0.2	3.0	6	4.5	12	50	-
SEME640300214E	R0.2	3.0	6	4.5	14	60	-
★ SEME640300216E	R0.2	3.0	6	4.5	16	60	-
★ SEME640300220E	R0.2	3.0	6	4.5	20	60	-
SEME640300226E	R0.2	3.0	6	4.5	26	65	-
SEME640300230E	R0.2	3.0	6	4.5	30	70	-
SEME640300235E	R0.2	3.0	6	4.5	35	70	-
SEME640300240E	R0.2	3.0	6	4.5	40	80	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

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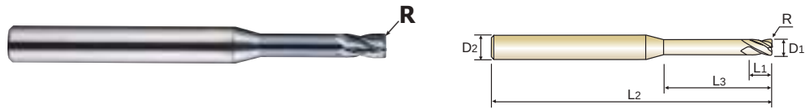

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN

D<3, 30° HELIX

P.926-929

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640300308E	R0.3	3.0	6	4.5	8	50	-
★ SEME640300310E	R0.3	3.0	6	4.5	10	50	-
★ SEME640300312E	R0.3	3.0	6	4.5	12	50	-
★ SEME640300314E	R0.3	3.0	6	4.5	14	60	-
★ SEME640300316E	R0.3	3.0	6	4.5	16	60	-
★ SEME640300320E	R0.3	3.0	6	4.5	20	60	-
SEME640300326E	R0.3	3.0	6	4.5	26	65	-
SEME640300330E	R0.3	3.0	6	4.5	30	70	-
SEME640300335E	R0.3	3.0	6	4.5	35	70	-
SEME640300340E	R0.3	3.0	6	4.5	40	80	-
★ SEME640300508E	R0.5	3.0	6	4.5	8	50	-
★ SEME640300510E	R0.5	3.0	6	4.5	10	50	-
★ SEME640300512E	R0.5	3.0	6	4.5	12	50	-
SEME640300514E	R0.5	3.0	6	4.5	14	60	-
★ SEME640300516E	R0.5	3.0	6	4.5	16	60	-
★ SEME640300520E	R0.5	3.0	6	4.5	20	60	-
★ SEME640300526E	R0.5	3.0	6	4.5	26	65	-
★ SEME640300530E	R0.5	3.0	6	4.5	30	70	-
SEME640300535E	R0.5	3.0	6	4.5	35	70	-
SEME640300540E	R0.5	3.0	6	4.5	40	80	-
★ SEME640301008E	R1.0	3.0	6	4.5	8	50	-
★ SEME640301010E	R1.0	3.0	6	4.5	10	50	-
★ SEME640301012E	R1.0	3.0	6	4.5	12	50	-
SEME640301014E	R1.0	3.0	6	4.5	14	60	-
★ SEME640301016E	R1.0	3.0	6	4.5	16	60	-
★ SEME640301020E	R1.0	3.0	6	4.5	20	60	-
SEME640301026E	R1.0	3.0	6	4.5	26	65	-
★ SEME640301030E	R1.0	3.0	6	4.5	30	70	-
SEME640301035E	R1.0	3.0	6	4.5	35	70	-
SEME640301040E	R1.0	3.0	6	4.5	40	80	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

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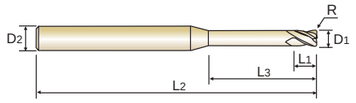

MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME640400110E	R0.1	4.0	6	6	10	50	-
★ SEME640400112E	R0.1	4.0	6	6	12	50	-
SEME640400114E	R0.1	4.0	6	6	14	60	-
★ SEME640400116E	R0.1	4.0	6	6	16	60	-
★ SEME640400120E	R0.1	4.0	6	6	20	60	-
SEME640400126E	R0.1	4.0	6	6	26	65	-
SEME640400130E	R0.1	4.0	6	6	30	70	-
SEME640400135E	R0.1	4.0	6	6	35	70	-
SEME640400140E	R0.1	4.0	6	6	40	80	-
SEME640400145E	R0.1	4.0	6	6	45	90	-
SEME640400150E	R0.1	4.0	6	6	50	100	-
★ SEME640400210E	R0.2	4.0	6	6	10	50	-
★ SEME640400212E	R0.2	4.0	6	6	12	50	-
SEME640400214E	R0.2	4.0	6	6	14	60	-
★ SEME640400216E	R0.2	4.0	6	6	16	60	-
★ SEME640400220E	R0.2	4.0	6	6	20	60	-
★ SEME640400226E	R0.2	4.0	6	6	26	65	-
SEME640400230E	R0.2	4.0	6	6	30	70	-
SEME640400235E	R0.2	4.0	6	6	35	70	-
SEME640400240E	R0.2	4.0	6	6	40	80	-
SEME640400245E	R0.2	4.0	6	6	45	90	-
SEME640400250E	R0.2	4.0	6	6	50	100	-
★ SEME640400310E	R0.3	4.0	6	6	10	50	-
★ SEME640400312E	R0.3	4.0	6	6	12	50	-
★ SEME640400314E	R0.3	4.0	6	6	14	60	-
★ SEME640400316E	R0.3	4.0	6	6	16	60	-
★ SEME640400320E	R0.3	4.0	6	6	20	60	-
★ SEME640400326E	R0.3	4.0	6	6	26	65	-
SEME640400330E	R0.3	4.0	6	6	30	70	-
SEME640400335E	R0.3	4.0	6	6	35	70	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

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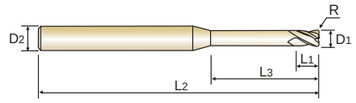


MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME640400340E	R0.3	4.0	6	6	40	80	-
SEME640400345E	R0.3	4.0	6	6	45	90	-
SEME640400350E	R0.3	4.0	6	6	50	100	-
★ SEME640400510E	R0.5	4.0	6	6	10	50	-
★ SEME640400512E	R0.5	4.0	6	6	12	50	-
★ SEME640400514E	R0.5	4.0	6	6	14	60	-
★ SEME640400516E	R0.5	4.0	6	6	16	60	-
★ SEME640400520E	R0.5	4.0	6	6	20	60	-
★ SEME640400526E	R0.5	4.0	6	6	26	65	-
★ SEME640400530E	R0.5	4.0	6	6	30	70	-
★ SEME640400535E	R0.5	4.0	6	6	35	70	-
★ SEME640400540E	R0.5	4.0	6	6	40	80	-
SEME640400545E	R0.5	4.0	6	6	45	90	-
SEME640400550E	R0.5	4.0	6	6	50	100	-
★ SEME640401010E	R1.0	4.0	6	6	10	50	-
★ SEME640401012E	R1.0	4.0	6	6	12	50	-
SEME640401014E	R1.0	4.0	6	6	14	60	-
★ SEME640401016E	R1.0	4.0	6	6	16	60	-
★ SEME640401020E	R1.0	4.0	6	6	20	60	-
★ SEME640401026E	R1.0	4.0	6	6	26	65	-
★ SEME640401030E	R1.0	4.0	6	6	30	70	-
SEME640401035E	R1.0	4.0	6	6	35	70	-
SEME640401040E	R1.0	4.0	6	6	40	80	-
SEME640401045E	R1.0	4.0	6	6	45	90	-
SEME640401050E	R1.0	4.0	6	6	50	100	-
SEME6405001E	R0.1	5.0	6	8	15	60	-
SEME6405002E	R0.2	5.0	6	8	15	60	-
SEME6405003E	R0.3	5.0	6	8	15	60	-
SEME6405005E	R0.5	5.0	6	8	15	60	-
SEME6405010E	R1.0	5.0	6	8	15	60	-

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

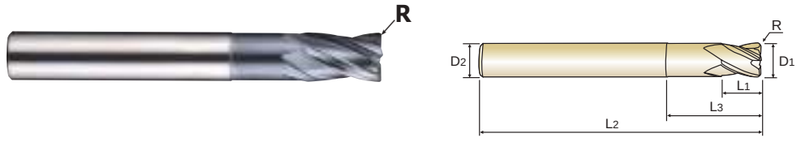
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, hélice multiple, détalonnée

MD, 4 TAGLIENTI, SCARICATA, TORICA

- ▶ New coating and tool geometry applied resulting outstanding cutting abilities and wear resistance.
- ▶ Excellent performance when cutting prehardened steels, up to HRc55 which are used for molds & dies.
- ▶ Multiple Helix for 3.0mm and over 3.0mm diameter endmills minimizing vibration and decreasing wear in cutting.

- ▶ Aufgrund einer neuartigen Beschichtung und neuer Werkzeuggeometrien hervorragende Schnittleistung und Verschleißfestigkeit
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
SEME6405015E	R1.5	5.0	6	8	15	60	-
SEME6405020E	R2.0	5.0	6	8	15	60	-
SEME6406001E	R0.1	6.0	6	9	20	60	Regular
★ SEME6406002E	R0.2	6.0	6	9	20	60	Regular
★ SEME6406003E	R0.3	6.0	6	9	20	60	Regular
★ SEME6406005E	R0.5	6.0	6	9	20	60	Regular
★ SEME6406010E	R1.0	6.0	6	9	20	60	Regular
SEME6406015E	R1.5	6.0	6	9	20	60	Regular
SEME6406020E	R2.0	6.0	6	9	20	60	Regular
★ SEME6406003090E	R0.3	6.0	6	15	30	90	Long Shank
★ SEME6406005090E	R0.5	6.0	6	15	30	90	Long Shank
★ SEME6406010090E	R1.0	6.0	6	15	30	90	Long Shank
SEME6408001E	R0.1	8.0	8	12	25	70	Regular
★ SEME6408002E	R0.2	8.0	8	12	25	70	Regular
★ SEME6408003E	R0.3	8.0	8	12	25	70	Regular
★ SEME6408005E	R0.5	8.0	8	12	25	70	Regular
★ SEME6408010E	R1.0	8.0	8	12	25	70	Regular
SEME6408015E	R1.5	8.0	8	12	25	70	Regular
SEME6408020E	R2.0	8.0	8	12	25	70	Regular
SEME6408003100E	R0.3	8.0	8	20	35	100	Long Shank
★ SEME6408005100E	R0.5	8.0	8	20	35	100	Long Shank
★ SEME6408010100E	R1.0	8.0	8	20	35	100	Long Shank
SEME6410001E	R0.1	10.0	10	15	30	75	Regular
SEME6410002E	R0.2	10.0	10	15	30	75	Regular
SEME6410003E	R0.3	10.0	10	15	30	75	Regular
★ SEME6410005E	R0.5	10.0	10	15	30	75	Regular
★ SEME6410010E	R1.0	10.0	10	15	30	75	Regular
★ SEME6410015E	R1.5	10.0	10	15	30	75	Regular
SEME6410020E	R2.0	10.0	10	15	30	75	Regular
SEME6410003100E	R0.3	10.0	10	25	40	100	Long Shank

▶ ★ Stock Item

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

4G MILL END MILLS

SEME64 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, hélice multiple, détalonnée

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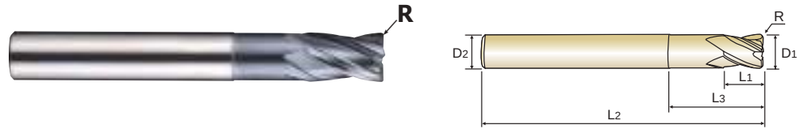
- ▶ Hervorragende Leistung bei der Zerspanung von vorvergüteten Stählen bis HRc55, welche im Werkzeug- und Formenbau Verwendung finden.
- ▶ Aufgrund der Multi-Helix (M-Helix) bei Schaftfräsern ≥ 3,0mm ø werden Vibrationen zuverlässig verhindert und gleichzeitig der Schneidkantenverschleiß verringert.



MG HM | 4 | 27°/30° | R ±0.02 | PLAIN | P.926-929

D<3, 30° HELIX

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Remark
★ SEME6410005100E	R0.5	10.0	10	25	40	100	Long Shank
★ SEME6410010100E	R1.0	10.0	10	25	40	100	Long Shank
SEME6412002E	R0.2	12.0	12	18	32	80	Regular
SEME6412003E	R0.3	12.0	12	18	32	80	Regular
★ SEME6412005E	R0.5	12.0	12	18	32	80	Regular
★ SEME6412010E	R1.0	12.0	12	18	32	80	Regular
★ SEME6412015E	R1.5	12.0	12	18	32	80	Regular
★ SEME6412020E	R2.0	12.0	12	18	32	80	Regular
SEME6412003110E	R0.3	12.0	12	30	50	110	Long Shank
★ SEME6412005110E	R0.5	12.0	12	30	50	110	Long Shank
★ SEME6412010110E	R1.0	12.0	12	30	50	110	Long Shank
★ SEME6416005E	R0.5	16.0	16	20	35	100	Regular
★ SEME6416010E	R1.0	16.0	16	20	35	100	Regular
SEME6416005150E	R0.5	16.0	16	35	50	150	Long Shank
SEME6416010150E	R1.0	16.0	16	35	50	150	Long Shank
★ SEME6420005E	R0.5	20.0	20	35	40	100	Regular
★ SEME6420010E	R1.0	20.0	20	35	40	100	Regular
SEME6420005150E	R0.5	20.0	20	35	55	150	Long Shank
SEME6420010150E	R1.0	20.0	20	35	55	150	Long Shank

▶ ★ Stock Item

Mill Dia. Tolerance (mm)	Corner Radius Tolerance (mm)	Shank Dia. Tolerance
0~-0.03	±0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	◎	○			○							

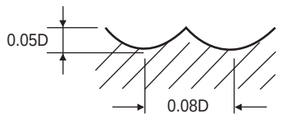
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

SEMD98 SERIES

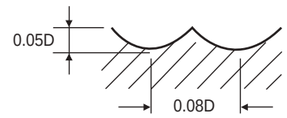
MATERIAL	P				P			
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.05 × 0.1	40000	550	13	0.007	40000	500	13	0.006
R0.1 × 0.2	30000	720	19	0.012	30000	630	19	0.011
R0.15 × 0.3	30000	900	28	0.015	30000	810	28	0.014
R0.2 × 0.4	30000	1140	38	0.019	30000	1020	38	0.017
R0.25 × 0.5	30000	1440	47	0.024	30000	1260	47	0.021
R0.3 × 0.6	30000	1740	57	0.029	30000	1500	57	0.025
R0.35 × 0.7	30000	2040	66	0.034	30000	1740	66	0.029
R0.4 × 0.8	30000	2340	75	0.039	30000	1980	75	0.033
R0.45 × 0.9	30000	2610	85	0.044	30000	2250	85	0.038
R0.5 × 1.0	30000	2880	94	0.048	30000	2520	94	0.042
R0.6 × 1.2	30000	3060	113	0.051	28800	2580	109	0.045
R0.75 × 1.5	30000	3240	141	0.054	28800	2700	136	0.047
R1.0 × 2.0	29820	3420	187	0.057	28680	2880	180	0.050
R1.25 × 2.5	23800	3510	187	0.074	22900	3030	180	0.066
R1.5 × 3.0	19860	3600	187	0.091	19080	3180	180	0.083
R1.75 × 3.5	17000	3600	187	0.106	16400	3180	180	0.097
R2.0 × 4.0	14900	3600	187	0.121	14340	3180	180	0.111
R2.25 × 4.5	13030	3540	184	0.136	12510	3060	177	0.122
R2.5 × 5.0	11160	3480	175	0.156	10680	2940	168	0.138
R2.75 × 5.5	9750	3195	168	0.164	9360	2700	162	0.144
R3.0 × 6.0	8340	2910	157	0.174	8040	2460	152	0.153
R3.25 × 6.5	7780	2780	159	0.179	7500	2340	153	0.156
R3.5 × 7.0	7220	2650	159	0.184	6960	2220	153	0.159
R4.0 × 8.0	6660	2520	167	0.189	6420	2100	161	0.164
R4.25 × 8.5	6300	2420	168	0.192	6060	2020	162	0.167
R4.5 × 9.0	5940	2320	168	0.195	5700	1940	161	0.170
R5.0 × 10.0	5580	2220	175	0.199	5340	1860	168	0.174
R5.5 × 11.0	4875	1995	168	0.205	4670	1680	161	0.180
R6.0 × 12.0	4170	1770	157	0.212	4000	1500	151	0.188
R6.5 × 13.0	3960	1725	162	0.218	3800	1500	155	0.197
R7.0 × 14.0	3750	1680	165	0.224	3600	1500	158	0.208
R7.5 × 15.0	3550	1635	167	0.230	3400	1500	160	0.221
R8.0 × 16.0	3340	1590	168	0.238	3210	1320	161	0.206
R9.0 × 18.0	3005	1500	170	0.250	2895	1245	164	0.215
R10.0 × 20.0	2670	1410	168	0.264	2580	1170	162	0.227
R12.5 × 25.0	2130	1150	167	0.270	2060	950	162	0.231



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS
SEMD98 SERIES

MATERIAL	P				K			
	HARDENED STEELS				CAST IRON			
HARDNESS	HRc 45 ~ HRc 55							
STRENGTH	1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.05 × 0.1	33000	400	10	0.006	40000	550	13	0.007
R0.1 × 0.2	27000	575	17	0.011	30000	720	19	0.012
R0.15 × 0.3	27000	720	25	0.013	30000	900	28	0.015
R0.2 × 0.4	27000	900	34	0.017	30000	1140	38	0.019
R0.25 × 0.5	27000	1140	42	0.021	30000	1440	47	0.024
R0.3 × 0.6	27000	1320	51	0.024	30000	1740	57	0.029
R0.35 × 0.7	27000	1560	59	0.029	30000	2040	66	0.034
R0.4 × 0.8	27000	1800	68	0.033	30000	2340	75	0.039
R0.45 × 0.9	27000	2040	76	0.038	30000	2610	85	0.044
R0.5 × 1.0	27000	2280	85	0.042	30000	2880	94	0.048
R0.6 × 1.2	25800	2310	97	0.045	30000	3060	113	0.051
R0.75 × 1.5	25800	2400	122	0.047	30000	3240	141	0.054
R1.0 × 2.0	24000	2400	151	0.050	29820	3420	187	0.057
R1.25 × 2.5	19200	2400	151	0.063	23800	3510	187	0.074
R1.5 × 3.0	16000	2400	151	0.075	19860	3600	187	0.091
R1.75 × 3.5	13700	2400	151	0.088	17000	3600	187	0.106
R2.0 × 4.0	12000	2400	151	0.100	14900	3600	187	0.121
R2.25 × 4.5	10500	2325	148	0.111	13030	3540	184	0.136
R2.5 × 5.0	9000	2250	141	0.125	11160	3480	175	0.156
R2.75 × 5.5	7800	2055	135	0.132	9750	3195	168	0.164
R3.0 × 6.0	6600	1860	124	0.141	8340	2910	157	0.174
R3.25 × 6.5	6200	1780	127	0.144	7780	2780	159	0.179
R3.5 × 7.0	5800	1700	128	0.147	7220	2650	159	0.184
R4.0 × 8.0	5400	1620	136	0.150	6660	2520	167	0.189
R4.25 × 8.5	5100	1560	136	0.153	6300	2420	168	0.192
R4.5 × 9.0	4800	1500	136	0.156	5940	2320	168	0.195
R5.0 × 10.0	4500	1440	141	0.160	5580	2220	175	0.199
R5.5 × 11.0	3930	1290	136	0.164	4875	1995	168	0.205
R6.0 × 12.0	3360	1140	127	0.170	4170	1770	157	0.212
R6.5 × 13.0	3200	1110	131	0.173	3960	1725	162	0.218
R7.0 × 14.0	3030	1080	133	0.178	3750	1680	165	0.224
R7.5 × 15.0	2870	1050	135	0.183	3550	1635	167	0.230
R8.0 × 16.0	2700	1020	136	0.189	3340	1590	168	0.238
R9.0 × 18.0	2430	960	137	0.198	3005	1500	170	0.250
R10.0 × 20.0	2160	900	136	0.208	2670	1410	168	0.264
R12.5 × 25.0	1730	730	136	0.211	2130	1150	167	0.270



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.1	0.2	50000	240	16	0.002	0.009	50000	215	16	0.002	0.007
0.1	0.3	50000	240	16	0.002	0.009	50000	215	16	0.002	0.007
0.1	0.5	50000	240	16	0.002	0.006	50000	215	16	0.002	0.005
0.1	1	45000	195	14	0.002	0.002	45000	175	14	0.002	0.002
0.2	0.5	50000	335	31	0.003	0.018	50000	310	31	0.003	0.014
0.2	1	50000	335	31	0.003	0.013	50000	310	31	0.003	0.010
0.2	1.5	45000	270	28	0.003	0.007	45000	250	28	0.003	0.006
0.2	2	45000	270	28	0.003	0.005	45000	250	28	0.003	0.004
0.2	3	45000	270	28	0.003	0.003	45000	250	28	0.003	0.003
0.3	1	50000	475	47	0.005	0.019	50000	430	47	0.004	0.015
0.3	1.5	50000	475	47	0.005	0.019	50000	430	47	0.004	0.015
0.3	2	45000	385	42	0.004	0.011	45000	350	42	0.004	0.008
0.3	2.5	45000	385	42	0.004	0.007	45000	350	42	0.004	0.005
0.3	3	45000	385	42	0.004	0.007	45000	350	42	0.004	0.005
0.3	4	40000	305	38	0.004	0.004	40000	275	38	0.003	0.003
0.3	5	30000	200	28	0.003	0.003	30000	180	28	0.003	0.002
0.4	1	41000	490	52	0.006	0.036	38800	425	49	0.005	0.028
0.4	1.5	41000	490	52	0.006	0.025	38800	425	49	0.005	0.020
0.4	2	41000	490	52	0.006	0.025	38800	425	49	0.005	0.020
0.4	2.5	36900	395	46	0.005	0.014	34920	345	44	0.005	0.011
0.4	3	36900	395	46	0.005	0.014	34920	345	44	0.005	0.011
0.4	4	36900	395	46	0.005	0.009	34920	345	44	0.005	0.007
0.4	5	32800	315	41	0.005	0.009	31040	270	39	0.004	0.007
0.4	6	32800	315	41	0.005	0.005	31040	270	39	0.004	0.004
0.4	8	24600	205	31	0.004	0.004	23280	180	29	0.004	0.003
0.4	10	12300	90	15	0.004	0.004	11640	75	15	0.003	0.003
0.5	1	34200	685	54	0.010	0.045	32300	580	51	0.009	0.035
0.5	1.5	34200	685	54	0.010	0.045	32300	580	51	0.009	0.035
0.5	2	34200	685	54	0.010	0.032	32300	580	51	0.009	0.025
0.5	2.5	34200	685	54	0.010	0.032	32300	580	51	0.009	0.025
0.5	3	30780	555	48	0.009	0.018	29070	470	46	0.008	0.014
0.5	4	30780	555	48	0.009	0.018	29070	470	46	0.008	0.014
0.5	5	30780	555	48	0.009	0.011	29070	470	46	0.008	0.009
0.5	6	27360	440	43	0.008	0.011	25840	370	41	0.007	0.009
0.5	8	20520	290	32	0.007	0.007	19380	245	30	0.006	0.005
0.5	10	20520	290	32	0.007	0.005	19380	245	30	0.006	0.004
0.5	12	10260	125	16	0.006	0.005	9690	105	15	0.005	0.004
0.5	14	10260	125	16	0.006	0.005	9690	105	15	0.005	0.004
0.5	16	3420	35	5	0.005	0.005	3230	30	5	0.005	0.004
0.6	1	34200	1025	64	0.015	0.038	32300	840	61	0.013	0.029
0.6	2	34200	1025	64	0.015	0.038	32300	840	61	0.013	0.029
0.6	3	34200	1025	64	0.015	0.038	32300	840	61	0.013	0.029
0.6	4	30780	830	58	0.013	0.022	29070	680	55	0.012	0.017
0.6	5	30780	830	58	0.013	0.014	29070	680	55	0.012	0.011
0.6	6	30780	830	58	0.013	0.014	29070	680	55	0.012	0.011
0.6	8	27360	655	52	0.012	0.008	25840	540	49	0.010	0.006
0.6	10	20520	430	39	0.010	0.005	19380	355	37	0.009	0.004
0.6	12	20520	430	39	0.010	0.005	19380	355	37	0.009	0.004
0.6	14	10260	185	19	0.009	0.005	9690	150	18	0.008	0.004
0.6	16	10260	185	19	0.009	0.005	9690	150	18	0.008	0.004
0.7	2	34200	1130	75	0.017	0.063	32300	930	71	0.014	0.049
0.7	4	30780	915	68	0.015	0.025	29070	755	64	0.013	0.020
0.7	6	30780	915	68	0.015	0.016	29070	755	64	0.013	0.012

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.1	0.2	50000	190	16	0.002	0.005	50000	240	16	0.002	0.009
0.1	0.3	50000	190	16	0.002	0.005	50000	240	16	0.002	0.009
0.1	0.5	50000	190	16	0.002	0.004	50000	240	16	0.002	0.006
0.1	1	45000	155	14	0.002	0.001	45000	195	14	0.002	0.002
0.2	0.5	43200	260	27	0.003	0.010	50000	335	31	0.003	0.018
0.2	1	43200	260	27	0.003	0.007	50000	335	31	0.003	0.013
0.2	1.5	38880	210	24	0.003	0.004	45000	270	28	0.003	0.007
0.2	2	38880	210	24	0.003	0.003	45000	270	28	0.003	0.005
0.2	3	38880	210	24	0.003	0.002	45000	270	28	0.003	0.003
0.3	1	42800	365	40	0.004	0.011	50000	475	47	0.005	0.019
0.3	1.5	42800	365	40	0.004	0.011	50000	475	47	0.005	0.019
0.3	2	38520	295	36	0.004	0.006	45000	385	42	0.004	0.011
0.3	2.5	38520	295	36	0.004	0.004	45000	385	42	0.004	0.007
0.3	3	38520	295	36	0.004	0.004	45000	385	42	0.004	0.007
0.3	4	34240	235	32	0.003	0.002	40000	305	38	0.004	0.004
0.3	5	25680	155	24	0.003	0.002	30000	200	28	0.003	0.003
0.4	1	34200	340	43	0.005	0.020	41000	490	52	0.006	0.036
0.4	1.5	34200	340	43	0.005	0.014	41000	490	52	0.006	0.025
0.4	2	34200	340	43	0.005	0.014	41000	490	52	0.006	0.025
0.4	2.5	30780	275	39	0.004	0.008	36900	395	46	0.005	0.014
0.4	3	30780	275	39	0.004	0.008	36900	395	46	0.005	0.014
0.4	4	30780	275	39	0.004	0.005	36900	395	46	0.005	0.009
0.4	5	27360	220	34	0.004	0.005	32800	315	41	0.005	0.009
0.4	6	27360	220	34	0.004	0.003	32800	315	41	0.005	0.005
0.4	8	20520	145	26	0.004	0.002	24600	205	31	0.004	0.004
0.4	10	10260	60	13	0.003	0.002	12300	90	15	0.004	0.004
0.5	1	28500	515	45	0.009	0.025	34200	685	54	0.010	0.045
0.5	1.5	28500	515	45	0.009	0.025	34200	685	54	0.010	0.045
0.5	2	28500	515	45	0.009	0.018	34200	685	54	0.010	0.032
0.5	2.5	28500	515	45	0.009	0.018	34200	685	54	0.010	0.032
0.5	3	25650	415	40	0.008	0.010	30780	555	48	0.009	0.018
0.5	4	25650	415	40	0.008	0.010	30780	555	48	0.009	0.018
0.5	5	25650	415	40	0.008	0.006	30780	555	48	0.009	0.011
0.5	6	22800	330	36	0.007	0.006	27360	440	43	0.008	0.011
0.5	8	17100	215	27	0.006	0.004	20520	290	32	0.007	0.007
0.5	10	17100	215	27	0.006	0.003	20520	290	32	0.007	0.005
0.5	12	8550	95	13	0.006	0.003	10260	125	16	0.006	0.005
0.5	14	8550	95	13	0.006	0.003	10260	125	16	0.006	0.005
0.5	16	2850	25	4	0.004	0.003	3420	35	5	0.005	0.005
0.6	1	28500	685	54	0.012	0.021	34200	1025	64	0.015	0.038
0.6	2	28500	685	54	0.012	0.021	34200	1025	64	0.015	0.038
0.6	3	28500	685	54	0.012	0.021	34200	1025	64	0.015	0.038
0.6	4	25650	555	48	0.011	0.012	30780	830	58	0.013	0.022
0.6	5	25650	555	48	0.011	0.008	30780	830	58	0.013	0.014
0.6	6	25650	555	48	0.011	0.008	30780	830	58	0.013	0.014
0.6	8	22800	440	43	0.010	0.005	27360	655	52	0.012	0.008
0.6	10	17100	290	32	0.008	0.003	20520	430	39	0.010	0.005
0.6	12	17100	290	32	0.008	0.003	20520	430	39	0.010	0.005
0.6	14	8550	125	16	0.007	0.003	10260	185	19	0.009	0.005
0.6	16	8550	125	16	0.007	0.003	10260	185	19	0.009	0.005
0.7	2	28500	765	63	0.013	0.035	34200	1130	75	0.017	0.063
0.7	4	25650	620	56	0.012	0.014	30780	915	68	0.015	0.025
0.7	6	25650	620	56	0.012	0.009	30780	915	68	0.015	0.016

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.7	8	27360	725	60	0.013	0.016	25840	595	57	0.012	0.012
0.7	10	27360	725	60	0.013	0.009	25840	595	57	0.012	0.007
0.7	12	20520	475	45	0.012	0.006	19380	390	43	0.010	0.005
0.8	2	34200	1230	86	0.018	0.072	32300	1035	81	0.016	0.056
0.8	3	34200	1230	86	0.018	0.050	32300	1035	81	0.016	0.039
0.8	4	34200	1230	86	0.018	0.050	32300	1035	81	0.016	0.039
0.8	5	30780	995	77	0.016	0.029	29070	840	73	0.014	0.022
0.8	6	30780	995	77	0.016	0.029	29070	840	73	0.014	0.022
0.8	8	30780	995	77	0.016	0.018	29070	840	73	0.014	0.014
0.8	10	27360	785	69	0.014	0.018	25840	660	65	0.013	0.014
0.8	12	27360	785	69	0.014	0.011	25840	660	65	0.013	0.008
0.8	14	20520	515	52	0.013	0.007	19380	435	49	0.011	0.006
0.8	16	20520	515	52	0.013	0.007	19380	435	49	0.011	0.006
0.8	20	10260	220	26	0.011	0.007	9690	185	24	0.010	0.006
0.9	4	29250	1120	83	0.019	0.032	27630	935	78	0.017	0.025
0.9	6	29250	1120	83	0.019	0.032	27630	935	78	0.017	0.025
0.9	8	29250	1120	83	0.019	0.020	27630	935	78	0.017	0.016
0.9	10	26000	885	74	0.017	0.020	24560	740	69	0.015	0.016
1.0	2	30800	1540	97	0.025	0.090	29100	1310	91	0.023	0.070
1.0	3	30800	1540	97	0.025	0.090	29100	1310	91	0.023	0.070
1.0	4	30800	1540	97	0.025	0.063	29100	1310	91	0.023	0.049
1.0	5	30800	1540	97	0.025	0.063	29100	1310	91	0.023	0.049
1.0	6	27720	1245	87	0.022	0.036	26190	1060	82	0.020	0.028
1.0	7	27720	1245	87	0.022	0.036	26190	1060	82	0.020	0.028
1.0	8	27720	1245	87	0.022	0.036	26190	1060	82	0.020	0.028
1.0	10	27720	1245	87	0.022	0.023	26190	1060	82	0.020	0.018
1.0	12	24640	985	77	0.020	0.023	23280	840	73	0.018	0.018
1.0	14	24640	985	77	0.020	0.014	23280	840	73	0.018	0.011
1.0	16	18480	645	58	0.017	0.014	17460	550	55	0.016	0.011
1.0	18	18480	645	58	0.017	0.009	17460	550	55	0.016	0.007
1.0	20	18480	645	58	0.017	0.009	17460	550	55	0.016	0.007
1.0	22	9240	275	29	0.015	0.009	8730	235	27	0.013	0.007
1.0	26	9240	275	29	0.015	0.009	8730	235	27	0.013	0.007
1.0	30	9240	275	29	0.015	0.009	8730	235	27	0.013	0.007
1.0	40	3080	75	10	0.012	0.009	2910	65	9	0.011	0.007
1.0	50	3080	75	10	0.012	0.006	2910	65	9	0.011	0.005
1.2	4	26300	1375	99	0.026	0.076	24800	1150	93	0.023	0.059
1.2	6	26300	1375	99	0.026	0.076	24800	1150	93	0.023	0.059
1.2	8	23670	1115	89	0.024	0.043	22320	930	84	0.021	0.034
1.2	10	23670	1115	89	0.024	0.027	22320	930	84	0.021	0.021
1.2	12	23670	1115	89	0.024	0.027	22320	930	84	0.021	0.021
1.2	16	21040	880	79	0.021	0.016	19840	735	75	0.019	0.013
1.2	20	15780	580	59	0.018	0.011	14880	485	56	0.016	0.008
1.2	26	7890	245	30	0.016	0.011	7440	205	28	0.014	0.008
1.4	6	21500	1295	95	0.030	0.088	20300	1100	89	0.027	0.069
1.4	8	19350	1050	85	0.027	0.050	18270	890	80	0.024	0.039
1.4	10	19350	1050	85	0.027	0.050	18270	890	80	0.024	0.039
1.4	16	17200	830	76	0.024	0.032	16240	705	71	0.022	0.025
1.5	4	23900	1580	113	0.033	0.135	22600	1355	106	0.030	0.105
1.5	5	23900	1580	113	0.033	0.095	22600	1355	106	0.030	0.074
1.5	6	23900	1580	113	0.033	0.095	22600	1355	106	0.030	0.074
1.5	7	23900	1580	113	0.033	0.095	22600	1355	106	0.030	0.074
1.5	8	21510	1280	101	0.030	0.054	20340	1100	96	0.027	0.042

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.7	8	22800	490	50	0.011	0.009	27360	725	60	0.013	0.016
0.7	10	22800	490	50	0.011	0.005	27360	725	60	0.013	0.009
0.7	12	17100	320	38	0.009	0.004	20520	475	45	0.012	0.006
0.8	2	28500	855	72	0.015	0.040	34200	1230	86	0.018	0.072
0.8	3	28500	855	72	0.015	0.028	34200	1230	86	0.018	0.050
0.8	4	28500	855	72	0.015	0.028	34200	1230	86	0.018	0.050
0.8	5	25650	695	64	0.014	0.016	30780	995	77	0.016	0.029
0.8	6	25650	695	64	0.014	0.016	30780	995	77	0.016	0.029
0.8	8	25650	695	64	0.014	0.010	30780	995	77	0.016	0.018
0.8	10	22800	545	57	0.012	0.010	27360	785	69	0.014	0.018
0.8	12	22800	545	57	0.012	0.006	27360	785	69	0.014	0.011
0.8	14	17100	360	43	0.011	0.004	20520	515	52	0.013	0.007
0.8	16	17100	360	43	0.011	0.004	20520	515	52	0.013	0.007
0.8	20	8550	155	21	0.009	0.004	10260	220	26	0.011	0.007
0.9	4	24390	775	69	0.016	0.018	29250	1120	83	0.019	0.032
0.9	6	24390	775	69	0.016	0.018	29250	1120	83	0.019	0.032
0.9	8	24390	775	69	0.016	0.011	29250	1120	83	0.019	0.020
0.9	10	21680	610	61	0.014	0.011	26000	885	74	0.017	0.020
1.0	2	25700	1075	81	0.021	0.050	30800	1540	97	0.025	0.090
1.0	3	25700	1075	81	0.021	0.050	30800	1540	97	0.025	0.090
1.0	4	25700	1075	81	0.021	0.035	30800	1540	97	0.025	0.063
1.0	5	25700	1075	81	0.021	0.035	30800	1540	97	0.025	0.063
1.0	6	23130	870	73	0.019	0.020	27720	1245	87	0.022	0.036
1.0	7	23130	870	73	0.019	0.020	27720	1245	87	0.022	0.036
1.0	8	23130	870	73	0.019	0.020	27720	1245	87	0.022	0.036
1.0	10	23130	870	73	0.019	0.013	27720	1245	87	0.022	0.023
1.0	12	20560	690	65	0.017	0.013	24640	985	77	0.020	0.023
1.0	14	20560	690	65	0.017	0.008	24640	985	77	0.020	0.014
1.0	16	15420	450	48	0.015	0.008	18480	645	58	0.017	0.014
1.0	18	15420	450	48	0.015	0.005	18480	645	58	0.017	0.009
1.0	20	15420	450	48	0.015	0.005	18480	645	58	0.017	0.009
1.0	22	7710	195	24	0.013	0.005	9240	275	29	0.015	0.009
1.0	26	7710	195	24	0.013	0.005	9240	275	29	0.015	0.009
1.0	30	7710	195	24	0.013	0.005	9240	275	29	0.015	0.009
1.0	40	2570	55	8	0.011	0.005	3080	75	10	0.012	0.009
1.0	50	2570	55	8	0.011	0.003	3080	75	10	0.012	0.006
1.2	4	21900	950	83	0.022	0.042	26300	1375	99	0.026	0.076
1.2	6	21900	950	83	0.022	0.042	26300	1375	99	0.026	0.076
1.2	8	19710	770	74	0.020	0.024	23670	1115	89	0.024	0.043
1.2	10	19710	770	74	0.020	0.015	23670	1115	89	0.024	0.027
1.2	12	19710	770	74	0.020	0.015	23670	1115	89	0.024	0.027
1.2	16	17520	610	66	0.017	0.009	21040	880	79	0.021	0.016
1.2	20	13140	400	50	0.015	0.006	15780	580	59	0.018	0.011
1.2	26	6570	170	25	0.013	0.006	7890	245	30	0.016	0.011
1.4	6	18000	935	79	0.026	0.049	21500	1295	95	0.030	0.088
1.4	8	16200	755	71	0.023	0.028	19350	1050	85	0.027	0.050
1.4	10	16200	755	71	0.023	0.028	19350	1050	85	0.027	0.050
1.4	16	14400	600	63	0.021	0.018	17200	830	76	0.024	0.032
1.5	4	20000	1075	94	0.027	0.075	23900	1580	113	0.033	0.135
1.5	5	20000	1075	94	0.027	0.053	23900	1580	113	0.033	0.095
1.5	6	20000	1075	94	0.027	0.053	23900	1580	113	0.033	0.095
1.5	7	20000	1075	94	0.027	0.053	23900	1580	113	0.033	0.095
1.5	8	18000	870	85	0.024	0.030	21510	1280	101	0.030	0.054

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.5	10	21510	1280	101	0.030	0.054	20340	1100	96	0.027	0.042
1.5	12	21510	1280	101	0.030	0.054	20340	1100	96	0.027	0.042
1.5	14	21510	1280	101	0.030	0.034	20340	1100	96	0.027	0.026
1.5	16	19120	1010	90	0.026	0.034	18080	865	85	0.024	0.026
1.5	18	19120	1010	90	0.026	0.034	18080	865	85	0.024	0.026
1.5	20	19120	1010	90	0.026	0.02	18080	865	85	0.024	0.016
1.5	22	19120	1010	90	0.026	0.02	18080	865	85	0.024	0.016
1.5	26	14340	665	68	0.023	0.014	13560	570	64	0.021	0.011
1.5	30	14340	665	68	0.023	0.014	13560	570	64	0.021	0.011
1.5	35	7170	285	34	0.020	0.010	6780	245	32	0.018	0.008
1.5	40	7170	285	34	0.020	0.010	6780	245	32	0.018	0.008
1.6	4	22200	1555	112	0.035	0.101	21000	1300	106	0.031	0.078
1.6	6	22200	1555	112	0.035	0.101	21000	1300	106	0.031	0.078
1.6	8	22200	1555	112	0.035	0.101	21000	1300	106	0.031	0.078
1.6	10	19980	1260	100	0.032	0.058	18900	1055	95	0.028	0.045
1.6	12	19980	1260	100	0.032	0.058	18900	1055	95	0.028	0.045
1.6	16	19980	1260	100	0.032	0.036	18900	1055	95	0.028	0.028
1.6	20	17760	995	89	0.028	0.036	16800	830	84	0.025	0.028
1.8	4	22200	1780	126	0.040	0.113	21000	1470	119	0.035	0.088
1.8	6	22200	1780	126	0.040	0.113	21000	1470	119	0.035	0.088
1.8	8	22200	1780	126	0.040	0.113	21000	1470	119	0.035	0.088
1.8	10	19980	1440	113	0.036	0.065	18900	1190	107	0.031	0.050
1.8	12	19980	1440	113	0.036	0.065	18900	1190	107	0.031	0.050
1.8	16	19980	1440	113	0.036	0.041	18900	1190	107	0.031	0.032
1.8	20	17760	1140	100	0.032	0.041	16800	940	95	0.028	0.032
2.0	6	18000	1795	113	0.050	0.180	17000	1525	107	0.045	0.140
2.0	8	18000	1795	113	0.050	0.126	17000	1525	107	0.045	0.098
2.0	10	18000	1795	113	0.050	0.126	17000	1525	107	0.045	0.098
2.0	12	16200	1455	102	0.045	0.072	15300	1235	96	0.040	0.056
2.0	14	16200	1455	102	0.045	0.072	15300	1235	96	0.040	0.056
2.0	16	16200	1455	102	0.045	0.072	15300	1235	96	0.040	0.056
2.0	18	16200	1455	102	0.045	0.045	15300	1235	96	0.040	0.035
2.0	20	16200	1455	102	0.045	0.045	15300	1235	96	0.040	0.035
2.0	22	14400	1150	90	0.040	0.045	13600	975	85	0.036	0.035
2.0	26	14400	1150	90	0.040	0.045	13600	975	85	0.036	0.035
2.0	30	14400	1150	90	0.040	0.027	13600	975	85	0.036	0.021
2.0	35	10800	755	68	0.035	0.018	10200	640	64	0.031	0.014
2.0	40	10800	755	68	0.035	0.018	10200	640	64	0.031	0.014
2.0	45	5400	325	34	0.030	0.018	5100	275	32	0.027	0.014
2.0	50	5400	325	34	0.030	0.018	5100	275	32	0.027	0.014
2.0	60	5400	325	34	0.030	0.018	5100	275	32	0.027	0.014
2.5	8	15800	1925	124	0.061	0.158	14900	1605	117	0.054	0.123
2.5	10	15800	1925	124	0.061	0.158	14900	1605	117	0.054	0.123
2.5	12	15800	1925	124	0.061	0.158	14900	1605	117	0.054	0.123
2.5	16	14220	1560	112	0.055	0.090	13410	1300	105	0.048	0.070
2.5	20	14220	1560	112	0.055	0.090	13410	1300	105	0.048	0.070
2.5	22	14220	1560	112	0.055	0.056	13410	1300	105	0.048	0.044
2.5	26	12640	1230	99	0.049	0.056	11920	1025	94	0.043	0.044
2.5	30	12640	1230	99	0.049	0.056	11920	1025	94	0.043	0.044
2.5	35	12640	1230	99	0.049	0.034	11920	1025	94	0.043	0.026
2.5	40	9480	810	74	0.043	0.034	8940	675	70	0.038	0.026
2.5	45	9480	810	74	0.043	0.023	8940	675	70	0.038	0.018
2.5	50	9480	810	74	0.043	0.023	8940	675	70	0.038	0.018

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.5	10	18000	870	85	0.024	0.030	21510	1280	101	0.030	0.054
1.5	12	18000	870	85	0.024	0.030	21510	1280	101	0.030	0.054
1.5	14	18000	870	85	0.024	0.019	21510	1280	101	0.030	0.034
1.5	16	16000	690	75	0.022	0.019	19120	1010	90	0.026	0.034
1.5	18	16000	690	75	0.022	0.019	19120	1010	90	0.026	0.034
1.5	20	16000	690	75	0.022	0.011	19120	1010	90	0.026	0.02
1.5	22	16000	690	75	0.022	0.011	19120	1010	90	0.026	0.02
1.5	26	12000	450	57	0.019	0.008	14340	665	68	0.023	0.014
1.5	30	12000	450	57	0.019	0.008	14340	665	68	0.023	0.014
1.5	35	6000	195	28	0.016	0.005	7170	285	34	0.020	0.010
1.5	40	6000	195	28	0.016	0.005	7170	285	34	0.020	0.010
1.6	4	18500	1110	93	0.030	0.056	22200	1555	112	0.035	0.101
1.6	6	18500	1110	93	0.030	0.056	22200	1555	112	0.035	0.101
1.6	8	18500	1110	93	0.030	0.056	22200	1555	112	0.035	0.101
1.6	10	16650	900	84	0.027	0.032	19980	1260	100	0.032	0.058
1.6	12	16650	900	84	0.027	0.032	19980	1260	100	0.032	0.058
1.6	16	16650	900	84	0.027	0.020	19980	1260	100	0.032	0.036
1.6	20	14800	710	74	0.024	0.020	17760	995	89	0.028	0.036
1.8	4	18500	1225	105	0.033	0.063	22200	1780	126	0.040	0.113
1.8	6	18500	1225	105	0.033	0.063	22200	1780	126	0.040	0.113
1.8	8	18500	1225	105	0.033	0.063	22200	1780	126	0.040	0.113
1.8	10	16650	990	94	0.030	0.036	19980	1440	113	0.036	0.065
1.8	12	16650	990	94	0.030	0.036	19980	1440	113	0.036	0.065
1.8	16	16650	990	94	0.030	0.023	19980	1440	113	0.036	0.041
1.8	20	14800	785	84	0.027	0.023	17760	1140	100	0.032	0.041
2.0	6	15000	1285	94	0.043	0.100	18000	1795	113	0.050	0.180
2.0	8	15000	1285	94	0.043	0.070	18000	1795	113	0.050	0.126
2.0	10	15000	1285	94	0.043	0.070	18000	1795	113	0.050	0.126
2.0	12	13500	1040	85	0.039	0.040	16200	1455	102	0.045	0.072
2.0	14	13500	1040	85	0.039	0.040	16200	1455	102	0.045	0.072
2.0	16	13500	1040	85	0.039	0.040	16200	1455	102	0.045	0.072
2.0	18	13500	1040	85	0.039	0.025	16200	1455	102	0.045	0.045
2.0	20	13500	1040	85	0.039	0.025	16200	1455	102	0.045	0.045
2.0	22	12000	820	75	0.034	0.025	14400	1150	90	0.040	0.045
2.0	26	12000	820	75	0.034	0.025	14400	1150	90	0.040	0.045
2.0	30	12000	820	75	0.034	0.015	14400	1150	90	0.040	0.027
2.0	35	9000	540	57	0.030	0.010	10800	755	68	0.035	0.018
2.0	40	9000	540	57	0.030	0.010	10800	755	68	0.035	0.018
2.0	45	4500	230	28	0.026	0.010	5400	325	34	0.030	0.018
2.0	50	4500	230	28	0.026	0.010	5400	325	34	0.030	0.018
2.0	60	4500	230	28	0.026	0.010	5400	325	34	0.030	0.018
2.5	8	13200	1305	104	0.049	0.088	15800	1925	124	0.061	0.158
2.5	10	13200	1305	104	0.049	0.088	15800	1925	124	0.061	0.158
2.5	12	13200	1305	104	0.049	0.088	15800	1925	124	0.061	0.158
2.5	16	11880	1055	93	0.044	0.050	14220	1560	112	0.055	0.090
2.5	20	11880	1055	93	0.044	0.050	14220	1560	112	0.055	0.090
2.5	22	11880	1055	93	0.044	0.031	14220	1560	112	0.055	0.056
2.5	26	10560	835	83	0.040	0.031	12640	1230	99	0.049	0.056
2.5	30	10560	835	83	0.040	0.031	12640	1230	99	0.049	0.056
2.5	35	10560	835	83	0.040	0.019	12640	1230	99	0.049	0.034
2.5	40	7920	550	62	0.035	0.019	9480	810	74	0.043	0.034
2.5	45	7920	550	62	0.035	0.013	9480	810	74	0.043	0.023
2.5	50	7920	550	62	0.035	0.013	9480	810	74	0.043	0.023

DIA. = Diameter LBS = Length Below Shank RPM = rev./min FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

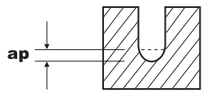
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	6	13700	2050	129	0.075	0.270	12900	1730	122	0.067	0.210
3.0	8	13700	2050	129	0.075	0.270	12900	1730	122	0.067	0.210
3.0	10	13700	2050	129	0.075	0.189	12900	1730	122	0.067	0.147
3.0	12	13700	2050	129	0.075	0.189	12900	1730	122	0.067	0.147
3.0	14	13700	2050	129	0.075	0.189	12900	1730	122	0.067	0.147
3.0	16	12330	1660	116	0.067	0.108	11610	1400	109	0.060	0.084
3.0	18	12330	1660	116	0.067	0.108	11610	1400	109	0.060	0.084
3.0	20	12330	1660	116	0.067	0.108	11610	1400	109	0.060	0.084
3.0	22	12330	1660	116	0.067	0.108	11610	1400	109	0.060	0.084
3.0	26	12330	1660	116	0.067	0.068	11610	1400	109	0.060	0.053
3.0	30	12330	1660	116	0.067	0.068	11610	1400	109	0.060	0.053
3.0	35	10960	1310	103	0.060	0.068	10320	1105	97	0.054	0.053
3.0	40	10960	1310	103	0.060	0.041	10320	1105	97	0.054	0.032
3.0	45	10960	1310	103	0.060	0.041	10320	1105	97	0.054	0.032
3.0	50	8220	860	77	0.052	0.027	7740	725	73	0.047	0.021
3.0	60	8220	860	77	0.052	0.027	7740	725	73	0.047	0.021
4.0	8	9800	1965	123	0.100	0.360	9300	1670	117	0.090	0.280
4.0	10	9800	1965	123	0.100	0.360	9300	1670	117	0.090	0.280
4.0	12	9800	1965	123	0.100	0.360	9300	1670	117	0.090	0.280
4.0	14	9800	1965	123	0.100	0.252	9300	1670	117	0.090	0.196
4.0	16	9800	1965	123	0.100	0.252	9300	1670	117	0.090	0.196
4.0	18	9800	1965	123	0.100	0.252	9300	1670	117	0.090	0.196
4.0	20	9800	1965	123	0.100	0.252	9300	1670	117	0.090	0.196
4.0	22	8820	1590	111	0.090	0.144	8370	1355	105	0.081	0.112
4.0	26	8820	1590	111	0.090	0.144	8370	1355	105	0.081	0.112
4.0	30	8820	1590	111	0.090	0.144	8370	1355	105	0.081	0.112
4.0	35	8820	1590	111	0.090	0.090	8370	1355	105	0.081	0.070
4.0	40	8820	1590	111	0.090	0.090	8370	1355	105	0.081	0.070
4.0	45	7840	1260	99	0.080	0.090	7440	1070	93	0.072	0.070
4.0	50	7840	1260	99	0.080	0.090	7440	1070	93	0.072	0.070
4.0	60	7840	1260	99	0.080	0.054	7440	1070	93	0.072	0.042
5.0	15	7700	1845	121	0.120	0.315	7300	1455	115	0.100	0.245
5.0	20	7700	1845	121	0.120	0.315	7300	1455	115	0.100	0.245
5.0	26	6930	1495	109	0.108	0.180	6570	1180	103	0.090	0.140
5.0	30	6930	1495	109	0.108	0.180	6570	1180	103	0.090	0.140
5.0	35	6930	1495	109	0.108	0.180	6570	1180	103	0.090	0.140
5.0	40	6930	1495	109	0.108	0.180	6570	1180	103	0.090	0.140
5.0	50	6930	1495	109	0.108	0.113	6570	1180	103	0.090	0.088
5.0	60	6160	1180	97	0.096	0.113	5840	930	92	0.080	0.088
6.0	20	6500	1900	123	0.146	0.378	6200	1600	117	0.129	0.294
6.0	30	6500	1900	123	0.146	0.378	6200	1600	117	0.129	0.294
8.0	25	4850	1800	122	0.186	0.504	4600	1500	116	0.163	0.392
8.0	30	4850	1800	122	0.186	0.504	4600	1500	116	0.163	0.392
10.0	30	3850	1650	121	0.214	0.900	3680	1400	116	0.190	0.700
10.0	40	3850	1650	121	0.214	0.630	3680	1400	116	0.190	0.490
12.0	32	3200	1520	121	0.238	1.080	3050	1300	115	0.213	0.840
12.0	45	3200	1520	121	0.238	0.756	3050	1300	115	0.213	0.588

(Depth of Cut per one pass)



DIA. = Diameter
LBS = Length Below Shank

RPM = rev./min.
FEED = mm/min.

Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

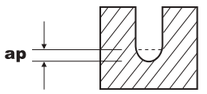
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

SEM846 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	6	11400	1435	107	0.063	0.150	13700	2050	129	0.075	0.270
3.0	8	11400	1435	107	0.063	0.150	13700	2050	129	0.075	0.270
3.0	10	11400	1435	107	0.063	0.105	13700	2050	129	0.075	0.189
3.0	12	11400	1435	107	0.063	0.105	13700	2050	129	0.075	0.189
3.0	14	11400	1435	107	0.063	0.105	13700	2050	129	0.075	0.189
3.0	16	10260	1160	97	0.057	0.060	12330	1660	116	0.067	0.108
3.0	18	10260	1160	97	0.057	0.060	12330	1660	116	0.067	0.108
3.0	20	10260	1160	97	0.057	0.060	12330	1660	116	0.067	0.108
3.0	22	10260	1160	97	0.057	0.060	12330	1660	116	0.067	0.108
3.0	26	10260	1160	97	0.057	0.038	12330	1660	116	0.067	0.068
3.0	30	10260	1160	97	0.057	0.038	12330	1660	116	0.067	0.068
3.0	35	9120	920	86	0.050	0.038	10960	1310	103	0.060	0.068
3.0	40	9120	920	86	0.050	0.023	10960	1310	103	0.060	0.041
3.0	45	9120	920	86	0.050	0.023	10960	1310	103	0.060	0.041
3.0	50	6840	605	64	0.044	0.015	8220	860	77	0.052	0.027
3.0	60	6840	605	64	0.044	0.015	8220	860	77	0.052	0.027
4.0	8	8200	1395	103	0.085	0.200	9800	1965	123	0.100	0.360
4.0	10	8200	1395	103	0.085	0.200	9800	1965	123	0.100	0.360
4.0	12	8200	1395	103	0.085	0.200	9800	1965	123	0.100	0.360
4.0	14	8200	1395	103	0.085	0.140	9800	1965	123	0.100	0.252
4.0	16	8200	1395	103	0.085	0.140	9800	1965	123	0.100	0.252
4.0	18	8200	1395	103	0.085	0.140	9800	1965	123	0.100	0.252
4.0	20	8200	1395	103	0.085	0.140	9800	1965	123	0.100	0.252
4.0	22	7380	1130	93	0.077	0.080	8820	1590	111	0.090	0.144
4.0	26	7380	1130	93	0.077	0.080	8820	1590	111	0.090	0.144
4.0	30	7380	1130	93	0.077	0.080	8820	1590	111	0.090	0.144
4.0	35	7380	1130	93	0.077	0.050	8820	1590	111	0.090	0.090
4.0	40	7380	1130	93	0.077	0.050	8820	1590	111	0.090	0.090
4.0	45	6560	895	82	0.068	0.050	7840	1260	99	0.080	0.090
4.0	50	6560	895	82	0.068	0.050	7840	1260	99	0.080	0.090
4.0	60	6560	895	82	0.068	0.030	7840	1260	99	0.080	0.054
5.0	15	6400	1285	101	0.100	0.175	7700	1845	121	0.120	0.315
5.0	20	6400	1285	101	0.100	0.175	7700	1845	121	0.120	0.315
5.0	26	5760	1040	90	0.090	0.100	6930	1495	109	0.108	0.180
5.0	30	5760	1040	90	0.090	0.100	6930	1495	109	0.108	0.180
5.0	35	5760	1040	90	0.090	0.100	6930	1495	109	0.108	0.180
5.0	40	5760	1040	90	0.090	0.100	6930	1495	109	0.108	0.180
5.0	50	5760	1040	90	0.090	0.063	6930	1495	109	0.108	0.113
5.0	60	5120	820	80	0.080	0.063	6160	1180	97	0.096	0.113
6.0	20	5500	1330	104	0.121	0.210	6500	1900	123	0.146	0.378
6.0	30	5500	1330	104	0.121	0.210	6500	1900	123	0.146	0.378
8.0	25	4000	1280	101	0.160	0.280	4850	1800	122	0.186	0.504
8.0	30	4000	1280	101	0.160	0.280	4850	1800	122	0.186	0.504
10.0	30	3200	1200	101	0.188	0.500	3850	1650	121	0.214	0.900
10.0	40	3200	1200	101	0.188	0.350	3850	1650	121	0.214	0.630
12.0	32	2650	1100	100	0.208	0.600	3200	1520	121	0.238	1.080
12.0	45	2650	1100	100	0.208	0.420	3200	1520	121	0.238	0.756

(Depth of Cut per one pass)



DIA. = Diameter
LBS = Length Below Shank

RPM = rev./min.
FEED = mm/min.

Vc = m/min.
fz = mm/tooth

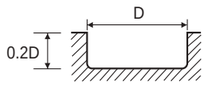
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS

SEMD99 SERIES

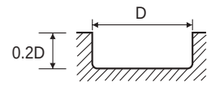
MATERIAL	P							
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.2	44000	145	28	0.002	28800	60	18	0.001
0.3	41000	170	39	0.002	27000	70	25	0.001
0.4	41000	170	52	0.002	27000	70	34	0.001
0.5	36000	190	57	0.003	23400	80	37	0.002
0.6	30000	210	57	0.004	19800	90	37	0.002
0.7	30000	210	66	0.004	19800	90	44	0.002
0.8	30000	210	75	0.004	19800	90	50	0.002
0.9	30000	225	85	0.004	18900	90	53	0.002
1.0	27600	240	87	0.004	18000	100	57	0.003
1.2	24800	245	93	0.005	15750	105	59	0.003
1.5	22000	250	104	0.006	13500	110	64	0.004
2.0	18000	260	113	0.007	11560	120	73	0.005
2.5	15000	270	118	0.009	9500	130	75	0.007
3.0	13240	280	125	0.011	8560	140	81	0.008
3.5	11980	310	132	0.013	7690	155	85	0.010
4.0	10720	340	135	0.016	6820	170	86	0.012
4.5	9940	380	141	0.019	6310	185	89	0.015
5.0	9160	420	144	0.023	5800	200	91	0.017
5.5	8530	460	147	0.027	5420	225	94	0.021
6.0	7900	500	149	0.032	5040	250	95	0.025
7.0	6950	520	153	0.037	4420	250	97	0.028
8.0	6000	540	151	0.045	3800	250	96	0.033
10.0	5040	540	158	0.054	3280	250	103	0.038
11.0	4580	480	158	0.052	3030	240	105	0.040
12.0	4120	420	155	0.051	2780	230	105	0.041
14.0	3610	390	159	0.054	2440	200	107	0.041
16.0	3100	360	156	0.058	2100	170	106	0.040
20.0	2520	280	158	0.056	1640	120	103	0.037



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 2 FLUTE CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS
SEMD99 SERIES

MATERIAL	P				K			
	HARDENED STEELS				CAST IRON			
HARDNESS	HRc 45 ~ HRc 55							
STRENGTH	1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.2	17600	40	11	0.001	44000	145	28	0.002
0.3	16500	45	16	0.001	41000	170	39	0.002
0.4	16500	45	21	0.001	41000	170	52	0.002
0.5	14300	50	22	0.002	36000	190	57	0.003
0.6	12100	55	23	0.002	30000	210	57	0.004
0.7	12100	55	27	0.002	30000	210	66	0.004
0.8	12100	55	30	0.002	30000	210	75	0.004
0.9	11550	55	33	0.002	30000	225	85	0.004
1.0	11000	60	35	0.003	27600	240	87	0.004
1.2	9750	60	37	0.003	24800	245	93	0.005
1.5	8500	60	40	0.004	22000	250	104	0.006
2.0	7200	70	45	0.005	18000	260	113	0.007
2.5	6100	70	48	0.006	15000	270	118	0.009
3.0	5280	70	50	0.007	13240	280	125	0.011
3.5	4790	75	53	0.008	11980	310	132	0.013
4.0	4300	80	54	0.009	10720	340	135	0.016
4.5	4300	90	61	0.010	9940	380	141	0.019
5.0	3800	100	60	0.013	9160	420	144	0.023
5.5	3540	110	61	0.016	8530	460	147	0.027
6.0	3280	120	62	0.018	7900	500	149	0.032
7.0	2900	120	64	0.021	6950	520	153	0.037
8.0	2520	120	63	0.024	6000	540	151	0.045
10.0	2020	120	63	0.030	5040	540	158	0.054
11.0	1850	110	64	0.030	4580	480	158	0.052
12.0	1680	100	63	0.030	4120	420	155	0.051
14.0	1480	90	65	0.030	3610	390	159	0.054
16.0	1280	80	64	0.031	3100	360	156	0.058
20.0	1000	60	63	0.030	2520	280	158	0.056



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME61 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.2	0.5	50000	170	31	0.002	0.040	34500	75	22	0.001	0.030
0.2	1	50000	170	31	0.002	0.028	34500	75	22	0.001	0.021
0.2	1.5	45000	140	28	0.002	0.016	31050	60	20	0.001	0.012
0.2	2	45000	140	28	0.002	0.010	31050	60	20	0.001	0.008
0.3	1	50000	200	47	0.002	0.042	32000	85	30	0.001	0.032
0.3	2	45000	160	42	0.002	0.024	28800	70	27	0.001	0.018
0.3	3	45000	160	42	0.002	0.015	28800	70	27	0.001	0.011
0.4	1	50000	200	63	0.002	0.080	32000	85	40	0.001	0.060
0.4	1.5	50000	200	63	0.002	0.056	32000	85	40	0.001	0.042
0.4	2	50000	200	63	0.002	0.056	32000	85	40	0.001	0.042
0.4	2.5	45000	160	57	0.002	0.032	28800	70	36	0.001	0.024
0.4	3	45000	160	57	0.002	0.032	28800	70	36	0.001	0.024
0.4	4	45000	160	57	0.002	0.020	28800	70	36	0.001	0.015
0.5	1	43000	220	68	0.003	0.100	28000	95	44	0.002	0.075
0.5	1.5	43000	220	68	0.003	0.100	28000	95	44	0.002	0.075
0.5	2	43000	220	68	0.003	0.070	28000	95	44	0.002	0.053
0.5	2.5	43000	220	68	0.003	0.070	28000	95	44	0.002	0.053
0.5	3	38700	180	61	0.002	0.040	25200	75	40	0.001	0.030
0.5	4	38700	180	61	0.002	0.040	25200	75	40	0.001	0.030
0.5	5	38700	180	61	0.002	0.025	25200	75	40	0.001	0.019
0.5	6	34400	140	54	0.002	0.025	22400	60	35	0.001	0.019
0.6	2	36400	250	69	0.003	0.084	24000	110	45	0.002	0.063
0.6	3	36400	250	69	0.003	0.084	24000	110	45	0.002	0.063
0.6	4	32760	205	62	0.003	0.048	21600	90	41	0.002	0.036
0.6	6	32760	205	62	0.003	0.030	21600	90	41	0.002	0.023
0.6	8	29120	160	55	0.003	0.018	19200	70	36	0.002	0.014
0.6	10	21840	105	41	0.002	0.012	14400	45	27	0.002	0.009
0.7	2	36400	250	80	0.003	0.140	24000	110	53	0.002	0.105
0.7	4	32760	205	72	0.003	0.056	21600	90	48	0.002	0.042
0.7	6	32760	205	72	0.003	0.035	21600	90	48	0.002	0.026
0.7	8	29120	160	64	0.003	0.035	19200	70	42	0.002	0.026
0.7	10	29120	160	64	0.003	0.021	19200	70	42	0.002	0.016
0.8	2	36400	250	91	0.003	0.160	24000	110	60	0.002	0.120
0.8	3	36400	250	91	0.003	0.112	24000	110	60	0.002	0.084
0.8	4	36400	250	91	0.003	0.112	24000	110	60	0.002	0.084
0.8	6	32760	205	82	0.003	0.064	21600	90	54	0.002	0.048
0.8	8	32760	205	82	0.003	0.040	21600	90	54	0.002	0.030
0.8	10	29120	160	73	0.003	0.040	19200	70	48	0.002	0.030
1.0	3	33100	280	104	0.004	0.200	21600	120	68	0.003	0.150
1.0	4	33100	280	104	0.004	0.140	21600	120	68	0.003	0.105
1.0	6	29790	225	94	0.004	0.080	19440	95	61	0.002	0.060
1.0	8	29790	225	94	0.004	0.080	19440	95	61	0.002	0.060
1.0	10	29790	225	94	0.004	0.050	19440	95	61	0.002	0.038
1.0	12	26480	180	83	0.003	0.050	17280	75	54	0.002	0.038
1.0	14	26480	180	83	0.003	0.030	17280	75	54	0.002	0.023
1.0	16	19860	120	62	0.003	0.030	12960	50	41	0.002	0.023
1.0	20	19860	120	62	0.003	0.020	12960	50	41	0.002	0.015

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME61 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.2	0.5	21150	45	13	0.001	0.024	50000	170	31	0.002	0.040
0.2	1	21150	45	13	0.001	0.017	50000	170	31	0.002	0.028
0.2	1.5	19040	35	12	0.001	0.010	45000	140	28	0.002	0.016
0.2	2	19040	35	12	0.001	0.006	45000	140	28	0.002	0.010
0.3	1	20000	50	19	0.001	0.025	50000	200	47	0.002	0.042
0.3	2	18000	40	17	0.001	0.014	45000	160	42	0.002	0.024
0.3	3	18000	40	17	0.001	0.009	45000	160	42	0.002	0.015
0.4	1	20000	50	25	0.001	0.048	50000	200	63	0.002	0.080
0.4	1.5	20000	50	25	0.001	0.034	50000	200	63	0.002	0.056
0.4	2	20000	50	25	0.001	0.034	50000	200	63	0.002	0.056
0.4	2.5	18000	40	23	0.001	0.019	45000	160	57	0.002	0.032
0.4	3	18000	40	23	0.001	0.019	45000	160	57	0.002	0.032
0.4	4	18000	40	23	0.001	0.012	45000	160	57	0.002	0.020
0.5	1	17100	60	27	0.002	0.060	43000	220	68	0.003	0.100
0.5	1.5	17100	60	27	0.002	0.060	43000	220	68	0.003	0.100
0.5	2	17100	60	27	0.002	0.042	43000	220	68	0.003	0.070
0.5	2.5	17100	60	27	0.002	0.042	43000	220	68	0.003	0.070
0.5	3	15390	50	24	0.002	0.024	38700	180	61	0.002	0.040
0.5	4	15390	50	24	0.002	0.024	38700	180	61	0.002	0.040
0.5	5	15390	50	24	0.002	0.015	38700	180	61	0.002	0.025
0.5	6	13680	40	21	0.001	0.015	34400	140	54	0.002	0.025
0.6	2	14500	65	27	0.002	0.050	36400	250	69	0.003	0.084
0.6	3	14500	65	27	0.002	0.050	36400	250	69	0.003	0.084
0.6	4	13050	55	25	0.002	0.029	32760	205	62	0.003	0.048
0.6	6	13050	55	25	0.002	0.018	32760	205	62	0.003	0.030
0.6	8	11600	40	22	0.002	0.011	29120	160	55	0.003	0.018
0.6	10	8700	25	16	0.001	0.007	21840	105	41	0.002	0.012
0.7	2	14500	65	32	0.002	0.084	36400	250	80	0.003	0.140
0.7	4	13050	55	29	0.002	0.034	32760	205	72	0.003	0.056
0.7	6	13050	55	29	0.002	0.021	32760	205	72	0.003	0.035
0.7	8	11600	40	26	0.002	0.021	29120	160	64	0.003	0.035
0.7	10	11600	40	26	0.002	0.013	29120	160	64	0.003	0.021
0.8	2	14500	65	36	0.002	0.096	36400	250	91	0.003	0.160
0.8	3	14500	65	36	0.002	0.067	36400	250	91	0.003	0.112
0.8	4	14500	65	36	0.002	0.067	36400	250	91	0.003	0.112
0.8	6	13050	55	33	0.002	0.038	32760	205	82	0.003	0.064
0.8	8	13050	55	33	0.002	0.024	32760	205	82	0.003	0.040
0.8	10	11600	40	29	0.002	0.024	29120	160	73	0.003	0.040
1.0	3	13200	70	41	0.003	0.120	33100	280	104	0.004	0.200
1.0	4	13200	70	41	0.003	0.084	33100	280	104	0.004	0.140
1.0	6	11880	55	37	0.002	0.048	29790	225	94	0.004	0.080
1.0	8	11880	55	37	0.002	0.048	29790	225	94	0.004	0.080
1.0	10	11880	55	37	0.002	0.030	29790	225	94	0.004	0.050
1.0	12	10560	45	33	0.002	0.030	26480	180	83	0.003	0.050
1.0	14	10560	45	33	0.002	0.018	26480	180	83	0.003	0.030
1.0	16	7920	30	25	0.002	0.018	19860	120	62	0.003	0.030
1.0	20	7920	30	25	0.002	0.012	19860	120	62	0.003	0.020

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME61 SERIES

MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.2	3	29750	290	112	0.005	0.240	18900	125	71	0.003	0.180
1.2	4	29750	290	112	0.005	0.168	18900	125	71	0.003	0.126
1.2	6	29750	290	112	0.005	0.168	18900	125	71	0.003	0.126
1.2	8	26780	235	101	0.004	0.096	17010	100	64	0.003	0.072
1.2	10	26780	235	101	0.004	0.060	17010	100	64	0.003	0.045
1.2	12	26780	235	101	0.004	0.060	17010	100	64	0.003	0.045
1.2	16	23800	185	90	0.004	0.036	15120	80	57	0.003	0.027
1.2	20	17850	120	67	0.003	0.024	11340	55	43	0.002	0.018
1.5	4	26400	300	124	0.006	0.300	16200	130	76	0.004	0.225
1.5	6	26400	300	124	0.006	0.210	16200	130	76	0.004	0.158
1.5	8	23760	245	112	0.005	0.120	14580	105	69	0.004	0.090
1.5	10	23760	245	112	0.005	0.120	14580	105	69	0.004	0.090
1.5	12	23760	245	112	0.005	0.120	14580	105	69	0.004	0.090
1.5	14	23760	245	112	0.005	0.075	14580	105	69	0.004	0.056
1.5	16	21120	190	100	0.004	0.075	12960	85	61	0.003	0.056
1.5	20	21120	190	100	0.004	0.045	12960	85	61	0.003	0.034
1.5	22	21120	190	100	0.004	0.045	12960	85	61	0.003	0.034
1.5	26	15840	125	75	0.004	0.030	9720	55	46	0.003	0.023
2.0	6	21600	310	136	0.007	0.400	13800	140	87	0.005	0.300
2.0	8	21600	310	136	0.007	0.280	13800	140	87	0.005	0.210
2.0	10	21600	310	136	0.007	0.280	13800	140	87	0.005	0.210
2.0	12	19440	250	122	0.006	0.160	12420	115	78	0.005	0.120
2.0	14	19440	250	122	0.006	0.160	12420	115	78	0.005	0.120
2.0	16	19440	250	122	0.006	0.160	12420	115	78	0.005	0.120
2.0	20	19440	250	122	0.006	0.100	12420	115	78	0.005	0.075
2.0	22	17280	200	109	0.006	0.100	11040	90	69	0.004	0.075
2.0	26	17280	200	109	0.006	0.100	11040	90	69	0.004	0.075
2.0	30	17280	200	109	0.006	0.060	11040	90	69	0.004	0.045
2.5	8	18000	320	141	0.009	0.350	11400	150	90	0.007	0.263
2.5	10	18000	320	141	0.009	0.350	11400	150	90	0.007	0.263
2.5	12	18000	320	141	0.009	0.350	11400	150	90	0.007	0.263
2.5	14	16200	260	127	0.008	0.200	10260	120	81	0.006	0.150
2.5	16	16200	260	127	0.008	0.200	10260	120	81	0.006	0.150
2.5	20	16200	260	127	0.008	0.200	10260	120	81	0.006	0.150
2.5	26	14400	205	113	0.007	0.125	9120	95	72	0.005	0.094
2.5	30	14400	205	113	0.007	0.125	9120	95	72	0.005	0.094
3.0	8	15900	330	150	0.010	0.600	10300	160	97	0.008	0.450
3.0	10	15900	330	150	0.010	0.420	10300	160	97	0.008	0.315
3.0	12	15900	330	150	0.010	0.420	10300	160	97	0.008	0.315
3.0	14	15900	330	150	0.010	0.420	10300	160	97	0.008	0.315
3.0	16	14310	265	135	0.009	0.240	9270	130	87	0.007	0.180
3.0	20	14310	265	135	0.009	0.240	9270	130	87	0.007	0.180
3.0	26	14310	265	135	0.009	0.150	9270	130	87	0.007	0.113
3.0	30	14310	265	135	0.009	0.150	9270	130	87	0.007	0.113
3.0	35	12720	210	120	0.008	0.150	8240	100	78	0.006	0.113
3.0	40	12720	210	120	0.008	0.090	8240	100	78	0.006	0.068
4.0	10	12800	400	161	0.016	0.800	8200	200	103	0.012	0.600

DIA. = Diameter
LBS = Length Below Shank

RPM = rev./min.
FEED = mm/min.

Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
SEME61 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.2	3	11700	70	44	0.003	0.144	29750	290	112	0.005	0.240
1.2	4	11700	70	44	0.003	0.101	29750	290	112	0.005	0.168
1.2	6	11700	70	44	0.003	0.101	29750	290	112	0.005	0.168
1.2	8	10530	55	40	0.003	0.058	26780	235	101	0.004	0.096
1.2	10	10530	55	40	0.003	0.036	26780	235	101	0.004	0.060
1.2	12	10530	55	40	0.003	0.036	26780	235	101	0.004	0.060
1.2	16	9360	45	35	0.002	0.022	23800	185	90	0.004	0.036
1.2	20	7020	30	26	0.002	0.014	17850	120	67	0.003	0.024
1.5	4	10200	70	48	0.003	0.180	26400	300	124	0.006	0.300
1.5	6	10200	70	48	0.003	0.126	26400	300	124	0.006	0.210
1.5	8	9180	55	43	0.003	0.072	23760	245	112	0.005	0.120
1.5	10	9180	55	43	0.003	0.072	23760	245	112	0.005	0.120
1.5	12	9180	55	43	0.003	0.072	23760	245	112	0.005	0.120
1.5	14	9180	55	43	0.003	0.045	23760	245	112	0.005	0.075
1.5	16	8160	45	38	0.003	0.045	21120	190	100	0.004	0.075
1.5	20	8160	45	38	0.003	0.027	21120	190	100	0.004	0.045
1.5	22	8160	45	38	0.003	0.027	21120	190	100	0.004	0.045
1.5	26	6120	30	29	0.002	0.018	15840	125	75	0.004	0.030
2.0	6	8640	80	54	0.005	0.240	21600	310	136	0.007	0.400
2.0	8	8640	80	54	0.005	0.168	21600	310	136	0.007	0.280
2.0	10	8640	80	54	0.005	0.168	21600	310	136	0.007	0.280
2.0	12	7780	65	49	0.004	0.096	19440	250	122	0.006	0.160
2.0	14	7780	65	49	0.004	0.096	19440	250	122	0.006	0.160
2.0	16	7780	65	49	0.004	0.096	19440	250	122	0.006	0.160
2.0	20	7780	65	49	0.004	0.060	19440	250	122	0.006	0.100
2.0	22	6910	50	43	0.004	0.060	17280	200	109	0.006	0.100
2.0	26	6910	50	43	0.004	0.060	17280	200	109	0.006	0.100
2.0	30	6910	50	43	0.004	0.036	17280	200	109	0.006	0.060
2.5	8	7320	80	57	0.005	0.210	18000	320	141	0.009	0.350
2.5	10	7320	80	57	0.005	0.210	18000	320	141	0.009	0.350
2.5	12	7320	80	57	0.005	0.210	18000	320	141	0.009	0.350
2.5	14	6590	65	52	0.005	0.120	16200	260	127	0.008	0.200
2.5	16	6590	65	52	0.005	0.120	16200	260	127	0.008	0.200
2.5	20	6590	65	52	0.005	0.120	16200	260	127	0.008	0.200
2.5	26	5860	50	46	0.004	0.075	14400	205	113	0.007	0.125
2.5	30	5860	50	46	0.004	0.075	14400	205	113	0.007	0.125
3.0	8	6300	80	59	0.006	0.360	15900	330	150	0.010	0.600
3.0	10	6300	80	59	0.006	0.252	15900	330	150	0.010	0.420
3.0	12	6300	80	59	0.006	0.252	15900	330	150	0.010	0.420
3.0	14	6300	80	59	0.006	0.252	15900	330	150	0.010	0.420
3.0	16	5670	65	53	0.006	0.144	14310	265	135	0.009	0.240
3.0	20	5670	65	53	0.006	0.144	14310	265	135	0.009	0.240
3.0	26	5670	65	53	0.006	0.090	14310	265	135	0.009	0.150
3.0	30	5670	65	53	0.006	0.090	14310	265	135	0.009	0.150
3.0	35	5040	50	48	0.005	0.090	12720	210	120	0.008	0.150
3.0	40	5040	50	48	0.005	0.054	12720	210	120	0.008	0.090
4.0	10	5150	95	65	0.009	0.480	12800	400	161	0.016	0.800

DIA. = Diameter
LBS = Length Below Shank

RPM = rev./min.
FEED = mm/min.

Vc = m/min.
fz = mm/tooth

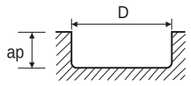
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME61 SERIES

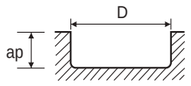
MATERIAL		P									
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
4.0	12	12800	400	161	0.016	0.800	8200	200	103	0.012	0.600
4.0	14	12800	400	161	0.016	0.560	8200	200	103	0.012	0.420
4.0	16	12800	400	161	0.016	0.560	8200	200	103	0.012	0.420
4.0	20	12800	400	161	0.016	0.560	8200	200	103	0.012	0.420
4.0	26	11520	325	145	0.014	0.320	7380	160	93	0.011	0.240
4.0	30	11520	325	145	0.014	0.320	7380	160	93	0.011	0.240
4.0	35	11520	325	145	0.014	0.200	7380	160	93	0.011	0.150
4.0	40	11520	325	145	0.014	0.200	7380	160	93	0.011	0.150
4.0	45	10240	255	129	0.012	0.200	6560	130	82	0.010	0.150
4.0	50	10240	255	129	0.012	0.200	6560	130	82	0.010	0.150
5.0	15	11000	500	173	0.023	1.000	7000	240	110	0.017	0.750
6.0	20	9500	600	179	0.032	0.840	6000	300	113	0.025	0.630
6.0	30	9500	600	179	0.032	0.840	6000	300	113	0.025	0.630
8.0	25	7200	640	181	0.044	1.120	4550	300	114	0.033	0.840
8.0	35	7200	640	181	0.044	1.120	4550	300	114	0.033	0.840
10.0	30	6000	640	188	0.053	2.000	4000	300	126	0.038	1.500
10.0	40	6000	640	188	0.053	1.400	4000	300	126	0.038	1.050
12.0	32	5000	500	188	0.050	2.400	3340	270	126	0.040	1.800
12.0	45	5000	500	188	0.050	1.680	3340	270	126	0.040	1.260
16.0	35	3720	450	187	0.060	3.200	2520	210	127	0.042	2.400
16.0	50	3720	450	187	0.060	2.240	2520	210	127	0.042	1.680
20.0	40	3000	330	188	0.055	4.000	1950	140	123	0.036	3.000
20.0	55	3000	330	188	0.055	4.000	1950	140	123	0.036	3.000



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 2 FLUTE CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
SEME61 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
4.0	12	5150	95	65	0.009	0.480	12800	400	161	0.016	0.800
4.0	14	5150	95	65	0.009	0.336	12800	400	161	0.016	0.560
4.0	16	5150	95	65	0.009	0.336	12800	400	161	0.016	0.560
4.0	20	5150	95	65	0.009	0.336	12800	400	161	0.016	0.560
4.0	26	4640	75	58	0.008	0.192	11520	325	145	0.014	0.320
4.0	30	4640	75	58	0.008	0.192	11520	325	145	0.014	0.320
4.0	35	4640	75	58	0.008	0.120	11520	325	145	0.014	0.200
4.0	40	4640	75	58	0.008	0.120	11520	325	145	0.014	0.200
4.0	45	4120	60	52	0.007	0.120	10240	255	129	0.012	0.200
4.0	50	4120	60	52	0.007	0.120	10240	255	129	0.012	0.200
5.0	15	4560	120	72	0.013	0.600	11000	500	173	0.023	1.000
6.0	20	3930	140	74	0.018	0.504	9500	600	179	0.032	0.840
6.0	30	3930	140	74	0.018	0.504	9500	600	179	0.032	0.840
8.0	25	3020	140	76	0.023	0.672	7200	640	181	0.044	1.120
8.0	35	3020	140	76	0.023	0.672	7200	640	181	0.044	1.120
10.0	30	2420	140	76	0.029	1.200	6000	640	188	0.053	2.000
10.0	40	2420	140	76	0.029	0.840	6000	640	188	0.053	1.400
12.0	32	2000	120	75	0.030	1.440	5000	500	188	0.050	2.400
12.0	45	2000	120	75	0.030	1.008	5000	500	188	0.050	1.680
16.0	35	1540	95	77	0.031	1.920	3720	450	187	0.060	3.200
16.0	50	1540	95	77	0.031	1.344	3720	450	187	0.060	2.240
20.0	40	1200	70	75	0.029	2.400	3000	330	188	0.055	4.000
20.0	55	1200	70	75	0.029	2.400	3000	330	188	0.055	4.000



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

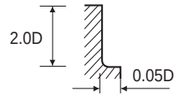
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS

SEME01 SERIES

MATERIAL	P							
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	27600	300	87	0.003	18000	220	57	0.003
1.2	24800	305	93	0.003	15750	225	59	0.004
1.5	22000	310	104	0.004	13500	230	64	0.004
2.0	18000	320	113	0.004	11560	240	73	0.005
2.5	15000	330	118	0.006	9500	250	75	0.007
3.0	13240	340	125	0.006	8560	260	81	0.008
3.5	11980	380	132	0.008	7690	280	85	0.009
4.0	10720	420	135	0.010	6820	300	86	0.011
4.5	9940	425	141	0.011	6310	330	89	0.013
5.0	9160	430	144	0.012	5800	360	91	0.016
5.5	8530	430	147	0.013	5420	360	94	0.017
6.0	7900	430	149	0.014	5040	360	95	0.018
7.0	6950	445	153	0.016	4420	360	97	0.020
8.0	6000	460	151	0.019	3800	360	96	0.024
10.0	5040	460	158	0.023	3280	360	103	0.027
11.0	4580	410	158	0.022	3030	340	105	0.028
12.0	4120	360	155	0.022	2780	320	105	0.029
14.0	3610	320	159	0.022	2440	275	107	0.028
16.0	3100	280	156	0.023	2100	230	106	0.027
20.0	2520	230	158	0.023	1640	180	103	0.027



* 1.5XD Axial cutting depth should be for diameter over 16mm

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

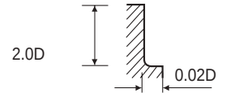
4G MILL END MILLS

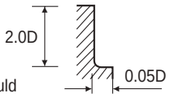
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS

SEME01 SERIES

MATERIAL	P				K			
	HARDENED STEELS				CAST IRON			
HARDNESS	HRc 45 ~ HRc 55							
STRENGTH	1500 ~ 2000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	11000	120	35	0.003	27600	300	87	0.003
1.2	9750	120	37	0.003	24800	305	93	0.003
1.5	8500	120	40	0.004	22000	310	104	0.004
2.0	7200	130	45	0.005	18000	320	113	0.004
2.5	6100	130	48	0.005	15000	330	118	0.006
3.0	5280	130	50	0.006	13240	340	125	0.006
3.5	4790	135	53	0.007	11980	380	132	0.008
4.0	4300	140	54	0.008	10720	420	135	0.010
4.5	4050	155	57	0.010	9940	425	141	0.011
5.0	3800	170	60	0.011	9160	430	144	0.012
5.5	3540	170	61	0.012	8530	430	147	0.013
6.0	3280	170	62	0.013	7900	430	149	0.014
7.0	2900	170	64	0.015	6950	445	153	0.016
8.0	2520	170	63	0.017	6000	460	151	0.019
10.0	2020	170	63	0.021	5040	460	158	0.023
11.0	1850	155	64	0.021	4580	410	158	0.022
12.0	1680	140	63	0.021	4120	360	155	0.022
14.0	1480	125	65	0.021	3610	320	159	0.022
16.0	1280	115	64	0.022	3100	280	156	0.023
20.0	1000	90	63	0.023	2520	230	158	0.023





* 1.5XD Axial cutting depth should be for diameter over 16mm

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME64 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.0	4	33100	360	104	0.003	0.021	21600	260	68	0.003	0.016
1.0	6	29790	290	94	0.002	0.012	19440	210	61	0.003	0.009
1.0	8	29790	290	94	0.002	0.012	19440	210	61	0.003	0.009
1.0	10	29790	290	94	0.002	0.008	19440	210	61	0.003	0.006
1.0	12	26480	230	83	0.002	0.008	17280	165	54	0.002	0.006
1.0	16	19860	150	62	0.002	0.005	12960	110	41	0.002	0.003
1.0	20	19860	150	62	0.002	0.003	12960	110	41	0.002	0.002
1.0	22	9930	65	31	0.002	0.003	6480	45	20	0.002	0.002
1.0	26	9930	65	31	0.002	0.003	6480	45	20	0.002	0.002
1.2	3	29750	365	112	0.003	0.036	18900	265	71	0.004	0.027
1.2	4	29750	365	112	0.003	0.025	18900	265	71	0.004	0.01 9
1.2	6	29750	365	112	0.003	0.025	18900	265	71	0.004	0.019
1.2	8	26780	295	101	0.003	0.014	17010	215	64	0.003	0.011
1.2	10	26780	295	101	0.003	0.009	17010	215	64	0.003	0.007
1.2	12	26780	295	101	0.003	0.009	17010	215	64	0.003	0.007
1.2	16	23800	235	90	0.002	0.005	15120	170	57	0.003	0.004
1.2	20	17850	155	67	0.002	0.004	11340	110	43	0.002	0.003
1.5	4	26400	370	124	0.004	0.045	16200	270	76	0.004	0.034
1.5	6	26400	370	124	0.004	0.032	16200	270	76	0.004	0.024
1.5	8	23760	300	112	0.003	0.018	14580	220	69	0.004	0.014
1.5	10	23760	300	112	0.003	0.018	14580	220	69	0.004	0.014
1.5	12	23760	300	112	0.003	0.018	14580	220	69	0.004	0.014
1.5	14	23760	300	112	0.003	0.011	14580	220	69	0.004	0.008
1.5	16	21120	235	100	0.003	0.011	12960	175	61	0.003	0.008
1.5	20	21120	235	100	0.003	0.007	12960	175	61	0.003	0.005
1.5	22	21120	235	100	0.003	0.007	12960	175	61	0.003	0.005
1.5	26	15840	155	75	0.002	0.005	9720	115	46	0.003	0.003
2.0	6	21600	380	136	0.004	0.060	13800	280	87	0.005	0.045
2.0	8	21600	380	136	0.004	0.042	13800	280	87	0.005	0.032
2.0	10	21600	380	136	0.004	0.042	13800	280	87	0.005	0.032
2.0	12	19440	310	122	0.004	0.024	12420	225	78	0.005	0.018
2.0	14	19440	310	122	0.004	0.024	12420	225	78	0.005	0.018
2.0	16	19440	310	122	0.004	0.024	12420	225	78	0.005	0.018
2.0	20	19440	310	122	0.004	0.015	12420	225	78	0.005	0.011
2.0	22	17280	245	109	0.004	0.015	11040	180	69	0.004	0.011
2.0	26	17280	245	109	0.004	0.015	11040	180	69	0.004	0.011
2.0	30	17280	245	109	0.004	0.009	11040	180	69	0.004	0.007
2.5	8	18000	390	141	0.005	0.053	11400	300	90	0.007	0.039
2.5	10	18000	390	141	0.005	0.053	11400	300	90	0.007	0.039
2.5	12	18000	390	141	0.005	0.053	11400	300	90	0.007	0.039
2.5	14	16200	315	127	0.005	0.030	10260	245	81	0.006	0.023
2.5	16	16200	315	127	0.005	0.030	10260	245	81	0.006	0.023
2.5	20	16200	315	127	0.005	0.030	10260	245	81	0.006	0.023
2.5	26	14400	250	113	0.004	0.019	9120	190	72	0.005	0.014
2.5	30	14400	250	113	0.004	0.019	9120	190	72	0.005	0.014

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME64 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.0	4	13200	140	41	0.003	0.013	33100	360	104	0.003	0.021
1.0	6	11880	115	37	0.002	0.007	29790	290	94	0.002	0.012
1.0	8	11880	115	37	0.002	0.007	29790	290	94	0.002	0.012
1.0	10	11880	115	37	0.002	0.005	29790	290	94	0.002	0.008
1.0	12	10560	90	33	0.002	0.005	26480	230	83	0.002	0.008
1.0	16	7920	60	25	0.002	0.003	19860	150	62	0.002	0.005
1.0	20	7920	60	25	0.002	0.002	19860	150	62	0.002	0.003
1.0	22	3960	25	12	0.002	0.002	9930	65	31	0.002	0.003
1.0	26	3960	25	12	0.002	0.002	9930	65	31	0.002	0.003
1.2	3	11700	140	44	0.003	0.022	29750	365	112	0.003	0.036
1.2	4	11700	140	44	0.003	0.015	29750	365	112	0.003	0.025
1.2	6	11700	140	44	0.003	0.015	29750	365	112	0.003	0.025
1.2	8	10530	115	40	0.003	0.009	26780	295	101	0.003	0.014
1.2	10	10530	115	40	0.003	0.005	26780	295	101	0.003	0.009
1.2	12	10530	115	40	0.003	0.005	26780	295	101	0.003	0.009
1.2	16	9360	90	35	0.002	0.003	23800	235	90	0.002	0.005
1.2	20	7020	60	26	0.002	0.002	17850	155	67	0.002	0.004
1.5	4	10200	140	48	0.003	0.027	26400	370	124	0.004	0.045
1.5	6	10200	140	48	0.003	0.019	26400	370	124	0.004	0.032
1.5	8	9180	115	43	0.003	0.011	23760	300	112	0.003	0.018
1.5	10	9180	115	43	0.003	0.011	23760	300	112	0.003	0.018
1.5	12	9180	115	43	0.003	0.011	23760	300	112	0.003	0.018
1.5	14	9180	115	43	0.003	0.007	23760	300	112	0.003	0.011
1.5	16	8160	90	38	0.003	0.007	21120	235	100	0.003	0.011
1.5	20	8160	90	38	0.003	0.004	21120	235	100	0.003	0.007
1.5	22	8160	90	38	0.003	0.004	21120	235	100	0.003	0.007
1.5	26	6120	60	29	0.002	0.003	15840	155	75	0.002	0.005
2.0	6	8640	150	54	0.004	0.036	21600	380	136	0.004	0.060
2.0	8	8640	150	54	0.004	0.025	21600	380	136	0.004	0.042
2.0	10	8640	150	54	0.004	0.025	21600	380	136	0.004	0.042
2.0	12	7780	120	49	0.004	0.014	19440	310	122	0.004	0.024
2.0	14	7780	120	49	0.004	0.014	19440	310	122	0.004	0.024
2.0	16	7780	120	49	0.004	0.014	19440	310	122	0.004	0.024
2.0	20	7780	120	49	0.004	0.009	19440	310	122	0.004	0.015
2.0	22	6910	95	43	0.003	0.009	17280	245	109	0.004	0.015
2.0	26	6910	95	43	0.003	0.009	17280	245	109	0.004	0.015
2.0	30	6910	95	43	0.003	0.005	17280	245	109	0.004	0.009
2.5	8	7320	150	57	0.005	0.032	18000	390	141	0.005	0.053
2.5	10	7320	150	57	0.005	0.032	18000	390	141	0.005	0.053
2.5	12	7320	150	57	0.005	0.032	18000	390	141	0.005	0.053
2.5	14	6590	120	52	0.005	0.018	16200	315	127	0.005	0.030
2.5	16	6590	120	52	0.005	0.018	16200	315	127	0.005	0.030
2.5	20	6590	120	52	0.005	0.018	16200	315	127	0.005	0.030
2.5	26	5860	95	46	0.004	0.011	14400	250	113	0.004	0.019
2.5	30	5860	95	46	0.004	0.011	14400	250	113	0.004	0.019

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

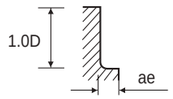
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

SEME64 SERIES

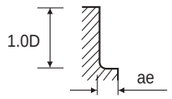
MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	8	15900	400	150	0.006	0.090	10300	310	97	0.008	0.068
3.0	10	15900	400	150	0.006	0.063	10300	310	97	0.008	0.047
3.0	12	15900	400	150	0.006	0.063	10300	310	97	0.008	0.047
3.0	14	15900	400	150	0.006	0.063	10300	310	97	0.008	0.047
3.0	16	14310	325	135	0.006	0.036	9270	250	87	0.007	0.027
3.0	20	14310	325	135	0.006	0.036	9270	250	87	0.007	0.027
3.0	26	14310	325	135	0.006	0.023	9270	250	87	0.007	0.017
3.0	30	14310	325	135	0.006	0.023	9270	250	87	0.007	0.017
3.0	35	12720	255	120	0.005	0.023	8240	200	78	0.006	0.017
3.0	40	12720	255	120	0.005	0.014	8240	200	78	0.006	0.010
4.0	10	12800	500	161	0.010	0.120	8200	360	103	0.011	0.090
4.0	12	12800	500	161	0.010	0.120	8200	360	103	0.011	0.090
4.0	14	12800	500	161	0.010	0.084	8200	360	103	0.011	0.063
4.0	16	12800	500	161	0.010	0.084	8200	360	103	0.011	0.063
4.0	20	12800	500	161	0.010	0.084	8200	360	103	0.011	0.063
4.0	26	11520	405	145	0.009	0.048	7380	290	93	0.010	0.036
4.0	30	11520	405	145	0.009	0.048	7380	290	93	0.010	0.036
4.0	35	11520	405	145	0.009	0.030	7380	290	93	0.010	0.023
4.0	40	11520	405	145	0.009	0.030	7380	290	93	0.010	0.023
4.0	45	10240	320	129	0.008	0.030	6560	230	82	0.009	0.023
4.0	50	10240	320	129	0.008	0.030	6560	230	82	0.009	0.023
5.0	15	11000	510	173	0.012	0.150	7000	430	110	0.015	0.113
6.0	20	9500	510	179	0.013	0.126	6000	430	113	0.018	0.095
6.0	30	9500	510	179	0.013	0.126	6000	430	113	0.018	0.095
8.0	25	7200	550	181	0.019	0.168	4550	430	114	0.024	0.126
8.0	35	7200	550	181	0.019	0.168	4550	430	114	0.024	0.126
10.0	30	6000	550	188	0.023	0.300	4000	430	126	0.027	0.225
10.0	40	6000	550	188	0.023	0.210	4000	430	126	0.027	0.158
12.0	32	5000	430	188	0.022	0.360	3340	380	126	0.028	0.270
12.0	45	5000	430	188	0.022	0.252	3340	380	126	0.028	0.189
16.0	35	3720	330	187	0.022	0.480	2520	280	127	0.028	0.360
16.0	50	3720	330	187	0.022	0.336	2520	280	127	0.028	0.252
20.0	40	3000	270	188	0.023	0.600	1950	210	123	0.027	0.450
20.0	55	3000	270	188	0.023	0.600	1950	210	123	0.027	0.450



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 4 FLUTE MULTIPLE HELIX CORNER RADIUS with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
SEME64 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	8	6300	150	59	0.006	0.054	15900	400	150	0.006	0.090
3.0	10	6300	150	59	0.006	0.038	15900	400	150	0.006	0.063
3.0	12	6300	150	59	0.006	0.038	15900	400	150	0.006	0.063
3.0	14	6300	150	59	0.006	0.038	15900	400	150	0.006	0.063
3.0	16	5670	120	53	0.005	0.022	14310	325	135	0.006	0.036
3.0	20	5670	120	53	0.005	0.022	14310	325	135	0.006	0.036
3.0	26	5670	120	53	0.005	0.014	14310	325	135	0.006	0.023
3.0	30	5670	120	53	0.005	0.014	14310	325	135	0.006	0.023
3.0	35	5040	95	48	0.005	0.014	12720	255	120	0.005	0.023
3.0	40	5040	95	48	0.005	0.008	12720	255	120	0.005	0.014
4.0	10	5150	160	65	0.008	0.072	12800	500	161	0.010	0.120
4.0	12	5150	160	65	0.008	0.072	12800	500	161	0.010	0.120
4.0	14	5150	160	65	0.008	0.050	12800	500	161	0.010	0.084
4.0	16	5150	160	65	0.008	0.050	12800	500	161	0.010	0.084
4.0	20	5150	160	65	0.008	0.050	12800	500	161	0.010	0.084
4.0	26	4640	130	58	0.007	0.029	11520	405	145	0.009	0.048
4.0	30	4640	130	58	0.007	0.029	11520	405	145	0.009	0.048
4.0	35	4640	130	58	0.007	0.018	11520	405	145	0.009	0.030
4.0	40	4640	130	58	0.007	0.018	11520	405	145	0.009	0.030
4.0	45	4120	100	52	0.006	0.018	10240	320	129	0.008	0.030
4.0	50	4120	100	52	0.006	0.018	10240	320	129	0.008	0.030
5.0	15	4560	200	72	0.011	0.090	11000	510	173	0.012	0.150
6.0	20	3930	200	74	0.013	0.076	9500	510	179	0.013	0.126
6.0	30	3930	200	74	0.013	0.076	9500	510	179	0.013	0.126
8.0	25	3020	200	76	0.017	0.101	7200	550	181	0.019	0.168
8.0	35	3020	200	76	0.017	0.101	7200	550	181	0.019	0.168
10.0	30	2420	200	76	0.021	0.180	6000	550	188	0.023	0.300
10.0	40	2420	200	76	0.021	0.126	6000	550	188	0.023	0.210
12.0	32	2000	160	75	0.020	0.216	5000	430	188	0.022	0.360
12.0	45	2000	160	75	0.020	0.151	5000	430	188	0.022	0.252
16.0	35	1540	135	77	0.022	0.288	3720	330	187	0.022	0.480
16.0	50	1540	135	77	0.022	0.202	3720	330	187	0.022	0.336
20.0	40	1200	100	75	0.021	0.360	3000	270	188	0.023	0.600
20.0	55	1200	100	75	0.021	0.360	3000	270	188	0.023	0.600



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

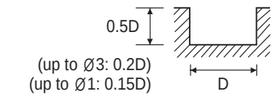
4G MILL END MILLS

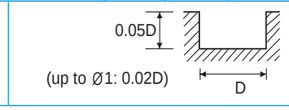
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE
VOLLHARTMETALL, 2 SCHNEIDEN

SEME35 SERIES

MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS					~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH					~ 1100N/mm²				1110 ~ 1500N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.1	42000	80	13	0.001	25200	47	8	0.001	16800	16	5	0.000
0.2	42000	85	26	0.001	25200	50	16	0.001	16800	17	11	0.001
0.3	39000	90	37	0.001	23400	54	22	0.001	15600	18	15	0.001
0.4	39000	95	49	0.001	23400	57	29	0.001	15600	19	20	0.001
0.5	36000	110	57	0.002	21600	66	34	0.002	14400	22	23	0.001
0.6	32000	125	60	0.002	19200	76	36	0.002	12800	25	24	0.001
0.7	28000	140	62	0.003	16800	85	37	0.003	11200	28	25	0.001
0.8	25000	155	63	0.003	15000	95	38	0.003	10000	32	25	0.002
0.9	23500	165	66	0.004	14100	98	40	0.003	9400	33	27	0.002
1.0	21500	170	68	0.004	12900	101	41	0.004	8600	34	27	0.002
1.2	18000	175	68	0.005	10800	104	41	0.005	7200	35	27	0.002
1.5	15000	180	71	0.006	9000	107	42	0.006	6000	36	28	0.003
2.0	11560	200	73	0.009	7560	125	48	0.008	5040	37	32	0.004
2.5	10240	210	80	0.010	6560	135	52	0.010	4200	39	33	0.005
3.0	8920	220	84	0.012	5560	145	52	0.013	3360	42	32	0.006
3.5	8240	270	91	0.016	5090	170	56	0.017	3150	42	35	0.007
4.0	7560	315	95	0.021	4620	190	58	0.021	2940	42	37	0.007
4.5	6930	325	98	0.023	4200	195	59	0.023	2630	47	37	0.009
5.0	6300	335	99	0.027	3780	200	59	0.026	2320	53	36	0.011
5.5	5930	350	102	0.030	3570	215	62	0.030	2160	55	37	0.013
6.0	5560	370	105	0.033	3360	230	63	0.034	2000	58	38	0.015
6.5	5220	375	107	0.036	3150	225	64	0.036	1920	63	39	0.016
7.0	4880	385	107	0.039	2940	220	65	0.037	1840	68	40	0.018
7.5	4540	390	107	0.043	2730	215	64	0.039	1760	74	41	0.021
8.0	4200	400	106	0.048	2520	210	63	0.042	1680	79	42	0.024
8.5	3965	385	106	0.049	2390	200	64	0.042	1600	74	43	0.023
9.0	3730	375	105	0.050	2260	190	64	0.042	1520	68	43	0.022
9.5	3495	355	104	0.051	2130	180	64	0.042	1440	63	43	0.022
10.0	3260	345	102	0.053	2000	170	63	0.043	1360	63	43	0.023
10.5	3130	330	103	0.053	1920	160	63	0.042	1310	61	43	0.023
11.0	3000	320	104	0.053	1840	150	64	0.041	1260	58	44	0.023
11.5	2870	305	104	0.053	1760	140	64	0.040	1210	58	44	0.024
12.0	2740	295	103	0.054	1680	135	63	0.040	1160	58	44	0.025
13.0	2605	280	106	0.054	1600	130	65	0.041	1095	55	45	0.025
14.0	2470	265	109	0.054	1520	125	67	0.041	1030	49	45	0.024
15.0	2335	245	110	0.052	1440	120	68	0.042	965	45	45	0.023
16.0	2200	230	111	0.052	1360	115	68	0.042	900	42	45	0.023
17.0	2070	215	111	0.052	1285	105	69	0.041	845	39	45	0.023
18.0	1940	205	110	0.053	1210	100	68	0.041	790	37	45	0.023
19.0	1810	190	108	0.052	1135	90	68	0.040	735	34	44	0.023
20.0	1680	180	106	0.054	1060	84	67	0.040	680	32	43	0.024
21.0	1615	170	107	0.053	1015	82	67	0.040	650	29	43	0.022
22.0	1550	165	107	0.053	970	80	67	0.041	620	27	43	0.022
23.0	1480	150	107	0.051	925	78	67	0.042	600	25	43	0.021
24.0	1425	140	107	0.049	885	76	67	0.043	570	23	43	0.020
25.0	1360	135	107	0.050	840	74	66	0.044	540	21	42	0.019

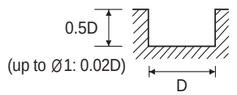


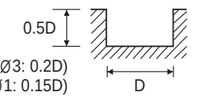


RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 2 FLUTE
VOLLHARTMETALL, 2 SCHNEIDEN
SEME35 SERIES

MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.1	21000	40	7	0.001	42000	80	13	0.001
0.2	21000	39	13	0.001	42000	85	26	0.001
0.3	19500	45	18	0.001	39000	90	37	0.001
0.4	19500	47	25	0.001	39000	95	49	0.001
0.5	18000	55	28	0.002	36000	110	57	0.002
0.6	16000	63	30	0.002	32000	125	60	0.002
0.7	14000	70	31	0.003	28000	140	62	0.003
0.8	12500	79	31	0.003	25000	155	63	0.003
0.9	11750	81	33	0.003	23500	165	66	0.004
1.0	10750	84	34	0.004	21500	170	68	0.004
1.2	9000	87	34	0.005	18000	175	68	0.005
1.5	7500	89	35	0.006	15000	180	71	0.006
2.0	6300	95	40	0.008	11560	200	73	0.009
2.5	5460	110	43	0.010	10240	210	80	0.010
3.0	4620	125	44	0.014	8920	220	84	0.012
3.5	4250	140	47	0.016	8240	270	91	0.016
4.0	3880	160	49	0.021	7560	315	95	0.021
4.5	3520	165	50	0.023	6930	325	98	0.023
5.0	3160	170	50	0.027	6300	335	99	0.027
5.5	3000	180	52	0.030	5930	350	102	0.030
6.0	2840	190	54	0.033	5560	370	105	0.033
6.5	2655	190	54	0.036	5220	375	107	0.036
7.0	2470	190	54	0.038	4880	385	107	0.039
7.5	2285	190	54	0.042	4540	390	107	0.043
8.0	2100	190	53	0.045	4200	400	106	0.048
8.5	1995	185	53	0.046	3965	385	106	0.049
9.0	1890	180	53	0.048	3730	375	105	0.050
9.5	1785	175	53	0.049	3495	355	104	0.051
10.0	1680	170	53	0.051	3260	345	102	0.053
10.5	1600	160	53	0.050	3130	330	103	0.053
11.0	1520	150	53	0.049	3000	320	104	0.053
11.5	1440	140	52	0.049	2870	305	104	0.053
12.0	1360	135	51	0.050	2740	295	103	0.054
13.0	1285	130	52	0.051	2605	280	106	0.054
14.0	1210	125	53	0.052	2470	265	109	0.054
15.0	1135	120	53	0.053	2335	245	110	0.052
16.0	1060	115	53	0.054	2200	230	111	0.052
17.0	1005	105	54	0.052	2070	215	111	0.052
18.0	950	100	54	0.053	1940	205	110	0.053
19.0	895	90	53	0.050	1810	190	108	0.052
20.0	840	84	53	0.050	1680	180	106	0.054
21.0	800	80	53	0.050	1615	170	107	0.053
22.0	775	76	54	0.049	1550	165	107	0.053
23.0	745	71	54	0.048	1480	150	107	0.051
24.0	715	67	54	0.047	1425	140	107	0.049
25.0	680	63	53	0.046	1360	135	107	0.050





RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN

SEME70 SERIES

MATERIAL		P							
		NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS		~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH		~ 1100N/mm²				1110 ~ 1500N/mm²			
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	3	16000	70	50	0.002	12800	60	40	0.002
1.0	4	16000	70	50	0.002	12800	60	40	0.002
1.0	5	16000	70	50	0.002	12800	60	40	0.002
1.0	6	14400	55	45	0.002	11520	50	36	0.002
1.0	7	14400	55	45	0.002	11520	50	36	0.002
1.0	8	14400	50	45	0.002	11520	45	36	0.002
1.0	10	14400	50	45	0.002	11520	45	36	0.002
1.0	12	12800	40	40	0.002	10240	35	32	0.002
1.2	4	13500	75	51	0.003	10800	65	41	0.003
1.2	6	13500	75	51	0.003	10800	65	41	0.003
1.2	8	12150	60	46	0.002	9720	50	37	0.003
1.2	10	12150	55	46	0.002	9720	45	37	0.002
1.2	12	12150	55	46	0.002	9720	45	37	0.002
1.5	6	11200	80	53	0.004	8960	70	42	0.004
1.5	8	10080	70	48	0.003	8060	60	38	0.004
1.5	10	10080	65	48	0.003	8060	55	38	0.003
1.5	12	10080	60	48	0.003	8060	50	38	0.003
1.5	14	10080	60	48	0.003	8060	50	38	0.003
1.5	16	8960	45	42	0.003	7170	40	34	0.003
2.0	8	9070	85	57	0.005	7260	70	46	0.005
2.0	10	9070	85	57	0.005	7260	70	46	0.005
2.0	12	8160	70	51	0.004	6530	60	41	0.005
2.0	14	8160	70	51	0.004	6530	60	41	0.005
2.0	16	8160	60	51	0.004	6530	50	41	0.004
2.5	10	7700	95	60	0.006	6200	80	49	0.006
2.5	12	7700	95	60	0.006	6200	80	49	0.006
2.5	16	6930	75	54	0.005	5580	65	44	0.006
2.5	20	6930	70	54	0.005	5580	55	44	0.005
2.5	26	6160	55	48	0.004	4960	45	39	0.005
3.0	10	6350	100	60	0.008	5150	85	49	0.008
3.0	12	6350	100	60	0.008	5150	85	49	0.008
3.0	14	6350	100	60	0.008	5150	85	49	0.008
3.0	16	5720	90	54	0.008	4640	75	44	0.008
3.0	20	5720	80	54	0.007	4640	70	44	0.008
3.0	26	5720	70	54	0.006	4640	60	44	0.006
3.0	30	5720	70	54	0.006	4640	60	44	0.006
4.0	12	5150	120	65	0.012	4100	100	52	0.012
4.0	16	5150	120	65	0.012	4100	100	52	0.012
4.0	20	5150	120	65	0.012	4100	100	52	0.012
4.0	26	4640	95	58	0.010	3690	85	46	0.012
4.0	30	4640	95	58	0.010	3690	85	46	0.012
5.0	20	4400	150	69	0.017	3480	125	55	0.018
5.0	25	4400	150	69	0.017	3480	125	55	0.018
5.0	30	3960	120	62	0.015	3130	100	49	0.016
5.0	35	3960	120	62	0.015	3130	100	49	0.016
5.0	40	3960	110	62	0.014	3130	90	49	0.014
6.0	15	3800	180	72	0.024	3050	150	57	0.025
6.0	20	3800	180	72	0.024	3050	150	57	0.025
6.0	25	3800	180	72	0.024	3050	150	57	0.025
6.0	30	3800	155	72	0.020	3050	130	57	0.021
6.0	35	3420	140	64	0.020	2750	115	52	0.021
6.0	40	3420	120	64	0.018	2750	100	52	0.018
6.0	45	3420	120	64	0.018	2750	100	52	0.018

DIA. = Diameter LOC = Length of Cut RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN

SEME70 SERIES

MATERIAL		P				K			
		HARDENED STEELS				CAST IRON			
HARDNESS		HRc 45 ~ HRc 55							
STRENGTH		1500 ~ 2000N/mm²							
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	3	8000	30	25	0.002	16000	70	50	0.002
1.0	4	8000	30	25	0.002	16000	70	50	0.002
1.0	5	8000	30	25	0.002	16000	70	50	0.002
1.0	6	7200	25	23	0.002	14400	55	45	0.002
1.0	7	7200	25	23	0.002	14400	55	45	0.002
1.0	8	7200	20	23	0.001	14400	50	45	0.002
1.0	10	7200	20	23	0.001	14400	50	45	0.002
1.0	12	6400	15	20	0.001	12800	40	40	0.002
1.2	4	6750	30	25	0.002	13500	75	51	0.003
1.2	6	6750	30	25	0.002	13500	75	51	0.003
1.2	8	6080	25	23	0.002	12150	60	46	0.002
1.2	10	6080	20	23	0.002	12150	55	46	0.002
1.2	12	6080	20	23	0.002	12150	55	46	0.002
1.5	6	5600	30	26	0.003	11200	80	53	0.004
1.5	8	5040	30	24	0.003	10080	70	48	0.003
1.5	10	5040	25	24	0.002	10080	65	48	0.003
1.5	12	5040	25	24	0.002	10080	60	48	0.003
1.5	14	5040	25	24	0.002	10080	60	48	0.003
1.5	16	4480	20	21	0.002	8960	45	42	0.003
2.0	8	4540	35	29	0.004	9070	85	57	0.005
2.0	10	4540	35	29	0.004	9070	85	57	0.005
2.0	12	4090	30	26	0.004	8160	70	51	0.004
2.0	14	4090	30	26	0.004	8160	70	51	0.004
2.0	16	4090	25	26	0.003	8160	60	51	0.004
2.5	10	3850	40	30	0.005	7700	95	60	0.006
2.5	12	3850	40	30	0.005	7700	95	60	0.006
2.5	16	3470	30	27	0.004	6930	75	54	0.005
2.5	20	3470	30	27	0.004	6930	70	54	0.005
2.5	26	3080	20	24	0.003	6160	55	48	0.004
3.0	10	3170	40	30	0.006	6350	100	60	0.008
3.0	12	3170	40	30	0.006	6350	100	60	0.008
3.0	14	3170	40	30	0.006	6350	100	60	0.008
3.0	16	2850	40	27	0.007	5720	90	54	0.008
3.0	20	2850	35	27	0.006	5720	80	54	0.007
3.0	26	2850	30	27	0.005	5720	70	54	0.006
3.0	30	2850	30	27	0.005	5720	70	54	0.006
4.0	12	2580	50	32	0.010	5150	120	65	0.012
4.0	16	2580	50	32	0.010	5150	120	65	0.012
4.0	20	2580	50	32	0.010	5150	120	65	0.012
4.0	26	2320	40	29	0.009	4640	95	58	0.010
4.0	30	2320	40	29	0.009	4640	95	58	0.010
5.0	20	2280	55	36	0.012	4400	150	69	0.017
5.0	25	2280	55	36	0.012	4400	150	69	0.017
5.0	30	2050	45	32	0.011	3960	120	62	0.015
5.0	35	2050	45	32	0.011	3960	120	62	0.015
5.0	40	2050	40	32	0.010	3960	110	62	0.014
6.0	15	1970	70	37	0.018	3800	180	72	0.024
6.0	20	1970	70	37	0.018	3800	180	72	0.024
6.0	25	1970	70	37	0.018	3800	180	72	0.024
6.0	30	1970	60	37	0.015	3800	155	72	0.020
6.0	35	1770	55	33	0.016	3420	140	64	0.020
6.0	40	1770	50	33	0.014	3420	120	64	0.018
6.0	45	1770	50	33	0.014	3420	120	64	0.018

DIA. = Diameter LOC = Length of Cut RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

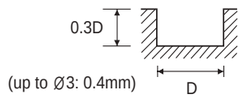
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN

SEME70 SERIES

MATERIAL		P							
		NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS		~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH		~ 1100N/mm²				1110 ~ 1500N/mm²			
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	25	2880	190	72	0.033	2280	150	57	0.033
8.0	30	2880	190	72	0.033	2280	150	57	0.033
8.0	35	2880	190	72	0.033	2280	150	57	0.033
8.0	40	2880	160	72	0.028	2280	125	57	0.027
8.0	45	2590	145	65	0.028	2050	115	52	0.028
8.0	50	2590	130	65	0.025	2050	100	52	0.024
10.0	30	2450	190	77	0.039	2000	150	63	0.038
10.0	35	2450	190	77	0.039	2000	150	63	0.038
10.0	40	2450	190	77	0.039	2000	150	63	0.038
10.0	45	2450	160	77	0.033	2000	125	63	0.031
10.0	50	2450	160	77	0.033	2000	125	63	0.031
10.0	55	2210	145	69	0.033	1800	115	57	0.032
10.0	60	2210	130	69	0.029	1800	100	57	0.028
12.0	35	2000	150	75	0.038	1670	135	63	0.040
12.0	40	2000	150	75	0.038	1670	135	63	0.040
12.0	45	2000	130	75	0.033	1670	115	63	0.034
12.0	50	2000	130	75	0.033	1670	115	63	0.034
12.0	55	2000	130	75	0.033	1670	115	63	0.034
12.0	60	2000	110	75	0.028	1670	100	63	0.030
12.0	65	1800	100	68	0.028	1500	90	57	0.030
12.0	70	1800	100	68	0.028	1500	90	57	0.030
14.0	50	1850	125	81	0.034	1480	100	65	0.034
14.0	60	1850	125	81	0.034	1480	100	65	0.034
16.0	40	1700	140	85	0.041	1280	105	64	0.041
16.0	50	1700	140	85	0.041	1280	105	64	0.041
16.0	60	1700	120	85	0.035	1280	90	64	0.035
16.0	70	1700	120	85	0.035	1280	90	64	0.035
16.0	80	1700	105	85	0.031	1280	80	64	0.031
16.0	90	1530	95	77	0.031	1150	70	58	0.030
16.0	110	1530	95	77	0.031	1150	70	58	0.030
16.0	120	1530	95	77	0.031	1150	70	58	0.030
18.0	50	1450	120	82	0.041	1120	90	63	0.040
18.0	70	1450	100	82	0.034	1120	75	63	0.033
18.0	100	1310	80	74	0.031	1000	60	57	0.030
20.0	50	1220	100	77	0.041	950	75	60	0.039
20.0	60	1220	100	77	0.041	950	75	60	0.039
20.0	70	1220	85	77	0.035	950	65	60	0.034
20.0	80	1220	85	77	0.035	950	65	60	0.034
20.0	90	1220	75	77	0.031	950	55	60	0.029
20.0	110	1100	70	69	0.032	860	50	54	0.029
20.0	120	1100	70	69	0.032	860	50	54	0.029
22.0	75	1100	75	76	0.034	840	55	58	0.033
22.0	110	1100	70	76	0.032	840	50	58	0.030
25.0	70	980	80	77	0.041	750	60	59	0.040
25.0	90	980	70	77	0.036	750	50	59	0.033
25.0	110	980	70	77	0.036	750	50	59	0.033
25.0	120	980	60	77	0.031	750	45	59	0.030



DIA. = Diameter
LOC = Length of Cut
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

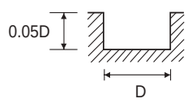
4G MILL END MILLS

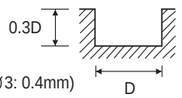
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN

SEME70 SERIES

MATERIAL		P				K			
		HARDENED STEELS				CAST IRON			
HARDNESS		HRc 45 ~ HRc 55							
STRENGTH		1500 ~ 2000N/mm²							
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	25	1510	70	38	0.023	2880	190	72	0.033
8.0	30	1510	70	38	0.023	2880	190	72	0.033
8.0	35	1510	70	38	0.023	2880	190	72	0.033
8.0	40	1510	60	38	0.020	2880	160	72	0.028
8.0	45	1360	55	34	0.020	2590	145	65	0.028
8.0	50	1360	50	34	0.018	2590	130	65	0.025
10.0	30	1210	70	38	0.029	2450	190	77	0.039
10.0	35	1210	70	38	0.029	2450	190	77	0.039
10.0	40	1210	70	38	0.029	2450	190	77	0.039
10.0	45	1210	60	38	0.025	2450	160	77	0.033
10.0	50	1210	60	38	0.025	2450	160	77	0.033
10.0	55	1090	55	34	0.025	2210	145	69	0.033
10.0	60	1090	50	34	0.023	2210	130	69	0.029
12.0	35	1010	55	38	0.027	2000	150	75	0.038
12.0	40	1010	55	38	0.027	2000	150	75	0.038
12.0	45	1010	45	38	0.022	2000	130	75	0.033
12.0	50	1010	45	38	0.022	2000	130	75	0.033
12.0	55	1010	45	38	0.022	2000	130	75	0.033
12.0	60	1010	40	38	0.020	2000	110	75	0.028
12.0	65	910	35	34	0.019	1800	100	68	0.028
12.0	70	910	35	34	0.019	1800	100	68	0.028
14.0	50	910	45	40	0.025	1850	125	81	0.034
14.0	60	910	45	40	0.025	1850	125	81	0.034
16.0	40	800	50	40	0.031	1700	140	85	0.041
16.0	50	800	50	40	0.031	1700	140	85	0.041
16.0	60	800	40	40	0.025	1700	120	85	0.035
16.0	70	800	40	40	0.025	1700	120	85	0.035
16.0	80	800	35	40	0.022	1700	105	85	0.031
16.0	90	720	30	36	0.021	1530	95	77	0.031
16.0	110	720	30	36	0.021	1530	95	77	0.031
16.0	120	720	30	36	0.021	1530	95	77	0.031
18.0	50	700	40	40	0.029	1450	120	82	0.041
18.0	70	700	35	40	0.025	1450	100	82	0.034
18.0	100	630	30	36	0.024	1310	80	74	0.031
20.0	50	600	35	38	0.029	1220	100	77	0.041
20.0	60	600	35	38	0.029	1220	100	77	0.041
20.0	70	600	30	38	0.025	1220	85	77	0.035
20.0	80	600	30	38	0.025	1220	85	77	0.035
20.0	90	600	25	38	0.021	1220	75	77	0.031
20.0	110	540	25	34	0.023	1100	70	69	0.032
20.0	120	540	25	34	0.023	1100	70	69	0.032
22.0	75	550	30	38	0.027	1100	75	76	0.034
22.0	110	550	25	38	0.023	1100	70	76	0.032
25.0	70	480	30	38	0.031	980	80	77	0.041
25.0	90	480	25	38	0.026	980	70	77	0.036
25.0	110	480	25	38	0.026	980	70	77	0.036
25.0	120	480	25	38	0.026	980	60	77	0.031





DIA. = Diameter
LOC = Length of Cut
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.1	0.3	50000	315	16	0.003	0.009	46200	230	15	0.002	0.007
0.1	0.5	50000	315	16	0.003	0.006	46200	230	15	0.002	0.005
0.1	1	45000	255	14	0.003	0.002	41580	185	13	0.002	0.002
0.2	0.5	38500	380	24	0.005	0.018	36300	270	23	0.004	0.014
0.2	1	38500	380	24	0.005	0.013	36300	270	23	0.004	0.010
0.2	1.5	34650	310	22	0.004	0.007	32670	220	21	0.003	0.006
0.2	2	34650	310	22	0.004	0.005	32670	220	21	0.003	0.004
0.3	1	34200	390	32	0.006	0.019	32300	270	30	0.004	0.015
0.3	1.5	34200	390	32	0.006	0.019	32300	270	30	0.004	0.015
0.3	2	30780	315	29	0.005	0.011	29070	220	27	0.004	0.008
0.3	2.5	30780	315	29	0.005	0.007	29070	220	27	0.004	0.005
0.3	3	30780	315	29	0.005	0.007	29070	220	27	0.004	0.005
0.3	4	27360	250	26	0.005	0.004	25840	175	24	0.003	0.003
0.3	5	20520	165	19	0.004	0.003	19380	115	18	0.003	0.002
0.4	1	27400	540	34	0.010	0.036	25800	380	32	0.007	0.028
0.4	1.5	27400	540	34	0.010	0.025	25800	380	32	0.007	0.020
0.4	2	27400	540	34	0.010	0.025	25800	380	32	0.007	0.020
0.4	2.5	24660	435	31	0.009	0.014	23220	310	29	0.007	0.011
0.4	3	24660	435	31	0.009	0.014	23220	310	29	0.007	0.011
0.4	4	24660	435	31	0.009	0.009	23220	310	29	0.007	0.007
0.4	5	21920	345	28	0.008	0.009	20640	245	26	0.006	0.007
0.4	6	21920	345	28	0.008	0.005	20640	245	26	0.006	0.004
0.4	8	16440	225	21	0.007	0.004	15480	160	19	0.005	0.003
0.4	10	8220	95	10	0.006	0.004	7740	70	10	0.005	0.003
0.5	1	27400	540	43	0.010	0.045	25800	425	41	0.008	0.035
0.5	1.5	27400	540	43	0.010	0.045	25800	425	41	0.008	0.035
0.5	2	27400	540	43	0.010	0.032	25800	425	41	0.008	0.025
0.5	2.5	27400	540	43	0.010	0.032	25800	425	41	0.008	0.025
0.5	3	24660	435	39	0.009	0.018	23220	345	36	0.007	0.014
0.5	4	24660	435	39	0.009	0.018	23220	345	36	0.007	0.014
0.5	5	24660	435	39	0.009	0.011	23220	345	36	0.007	0.009
0.5	6	21920	345	34	0.008	0.011	20640	270	32	0.007	0.009
0.5	8	16440	225	26	0.007	0.007	15480	180	24	0.006	0.005
0.5	10	16440	225	26	0.007	0.005	15480	180	24	0.006	0.004
0.5	12	8220	95	13	0.006	0.005	7740	75	12	0.005	0.004
0.5	14	8220	95	13	0.006	0.005	7740	75	12	0.005	0.004
0.5	16	2740	25	4	0.005	0.005	2580	20	4	0.004	0.004
0.6	2	27400	775	52	0.014	0.038	25800	545	49	0.011	0.029
0.6	3	27400	775	52	0.014	0.038	25800	545	49	0.011	0.029
0.6	4	24660	630	46	0.013	0.022	23220	440	44	0.009	0.017
0.6	5	24660	630	46	0.013	0.014	23220	440	44	0.009	0.011
0.6	6	24660	630	46	0.013	0.014	23220	440	44	0.009	0.011
0.6	8	21920	495	41	0.011	0.008	20640	350	39	0.008	0.006
0.6	10	16440	325	31	0.010	0.005	15480	230	29	0.007	0.004
0.6	12	16440	325	31	0.010	0.005	15480	230	29	0.007	0.004
0.6	14	8220	140	15	0.009	0.005	7740	100	15	0.006	0.004
0.6	16	8220	140	15	0.009	0.005	7740	100	15	0.006	0.004
0.7	2	27400	775	60	0.014	0.063	25800	545	57	0.011	0.049
0.7	4	24660	630	54	0.013	0.025	23220	440	51	0.009	0.020
0.7	6	24660	630	54	0.013	0.016	23220	440	51	0.009	0.012
0.7	8	21920	495	48	0.011	0.016	20640	350	45	0.008	0.012
0.7	10	21920	495	48	0.011	0.009	20640	350	45	0.008	0.007
0.7	12	16440	325	36	0.010	0.006	15480	230	34	0.007	0.005

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.1	0.3	40600	170	13	0.002	0.005	50000	315	16	0.003	0.009
0.1	0.5	40600	170	13	0.002	0.004	50000	315	16	0.003	0.006
0.1	1	36540	140	11	0.002	0.001	45000	255	14	0.003	0.002
0.2	0.5	32100	200	20	0.003	0.010	38500	380	24	0.005	0.018
0.2	1	32100	200	20	0.003	0.007	38500	380	24	0.005	0.013
0.2	1.5	28890	160	18	0.003	0.004	34650	310	22	0.004	0.007
0.2	2	28890	160	18	0.003	0.003	34650	310	22	0.004	0.005
0.3	1	28500	230	27	0.004	0.011	34200	390	32	0.006	0.019
0.3	1.5	28500	230	27	0.004	0.011	34200	390	32	0.006	0.019
0.3	2	25650	185	24	0.004	0.006	30780	315	29	0.005	0.011
0.3	2.5	25650	185	24	0.004	0.004	30780	315	29	0.005	0.007
0.3	3	25650	185	24	0.004	0.004	30780	315	29	0.005	0.007
0.3	4	22800	145	21	0.003	0.002	27360	250	26	0.005	0.004
0.3	5	17100	95	16	0.003	0.002	20520	165	19	0.004	0.003
0.4	1	22800	280	29	0.006	0.02	27400	540	34	0.010	0.036
0.4	1.5	22800	280	29	0.006	0.014	27400	540	34	0.010	0.025
0.4	2	22800	280	29	0.006	0.014	27400	540	34	0.010	0.025
0.4	2.5	20520	225	26	0.005	0.008	24660	435	31	0.009	0.014
0.4	3	20520	225	26	0.005	0.008	24660	435	31	0.009	0.014
0.4	4	20520	225	26	0.005	0.005	24660	435	31	0.009	0.009
0.4	5	18240	180	23	0.005	0.005	21920	345	28	0.008	0.009
0.4	6	18240	180	23	0.005	0.003	21920	345	28	0.008	0.005
0.4	8	13680	120	17	0.004	0.002	16440	225	21	0.007	0.004
0.4	10	6840	50	9	0.004	0.002	8220	95	10	0.006	0.004
0.5	1	22800	285	36	0.006	0.025	27400	540	43	0.010	0.045
0.5	1.5	22800	285	36	0.006	0.025	27400	540	43	0.010	0.045
0.5	2	22800	285	36	0.006	0.018	27400	540	43	0.010	0.032
0.5	2.5	22800	285	36	0.006	0.018	27400	540	43	0.010	0.032
0.5	3	20520	230	32	0.006	0.010	24660	435	39	0.009	0.018
0.5	4	20520	230	32	0.006	0.010	24660	435	39	0.009	0.018
0.5	5	20520	230	32	0.006	0.006	24660	435	39	0.009	0.011
0.5	6	18240	180	29	0.005	0.006	21920	345	34	0.008	0.011
0.5	8	13680	120	21	0.004	0.004	16440	225	26	0.007	0.007
0.5	10	13680	120	21	0.004	0.003	16440	225	26	0.007	0.005
0.5	12	6840	50	11	0.004	0.003	8220	95	13	0.006	0.005
0.5	14	6840	50	11	0.004	0.003	8220	95	13	0.006	0.005
0.5	16	2280	15	4	0.003	0.003	2740	25	4	0.005	0.005
0.6	2	22800	405	43	0.009	0.021	27400	775	52	0.014	0.038
0.6	3	22800	405	43	0.009	0.021	27400	775	52	0.014	0.038
0.6	4	20520	330	39	0.008	0.012	24660	630	46	0.013	0.022
0.6	5	20520	330	39	0.008	0.008	24660	630	46	0.013	0.014
0.6	6	20520	330	39	0.008	0.008	24660	630	46	0.013	0.014
0.6	8	18240	260	34	0.007	0.005	21920	495	41	0.011	0.008
0.6	10	13680	170	26	0.006	0.003	16440	325	31	0.010	0.005
0.6	12	13680	170	26	0.006	0.003	16440	325	31	0.010	0.005
0.6	14	6840	75	13	0.005	0.003	8220	140	15	0.009	0.005
0.6	16	6840	75	13	0.005	0.003	8220	140	15	0.009	0.005
0.7	2	22800	405	50	0.009	0.035	27400	775	60	0.014	0.063
0.7	4	20520	330	45	0.008	0.014	24660	630	54	0.013	0.025
0.7	6	20520	330	45	0.008	0.009	24660	630	54	0.013	0.016
0.7	8	18240	260	40	0.007	0.009	21920	495	48	0.011	0.016
0.7	10	18240	260	40	0.007	0.005	21920	495	48	0.011	0.009
0.7	12	13680	170	30	0.006	0.004	16440	325	36	0.010	0.006

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.8	2	27400	775	69	0.014	0.072	25800	605	65	0.012	0.056
0.8	3	27400	775	69	0.014	0.050	25800	605	65	0.012	0.039
0.8	4	27400	775	69	0.014	0.050	25800	605	65	0.012	0.039
0.8	5	24660	630	62	0.013	0.029	23220	490	58	0.011	0.022
0.8	6	24660	630	62	0.013	0.029	23220	490	58	0.011	0.022
0.8	8	24660	630	62	0.013	0.018	23220	490	58	0.011	0.014
0.8	10	21920	495	55	0.011	0.018	20640	385	52	0.009	0.014
0.8	12	21920	495	55	0.011	0.011	20640	385	52	0.009	0.008
0.8	14	16440	325	41	0.010	0.007	15480	255	39	0.008	0.006
0.8	16	16440	325	41	0.010	0.007	15480	255	39	0.008	0.006
0.8	20	8220	140	21	0.009	0.007	7740	110	19	0.007	0.006
0.9	6	22140	575	63	0.013	0.032	20970	440	59	0.010	0.025
0.9	8	22140	575	63	0.013	0.020	20970	440	59	0.010	0.016
0.9	10	19680	455	56	0.012	0.020	18640	350	53	0.009	0.016
1.0	2	24600	1045	77	0.021	0.090	23300	890	73	0.019	0.070
1.0	3	24600	1045	77	0.021	0.090	23300	890	73	0.019	0.070
1.0	4	24600	1045	77	0.021	0.063	23300	890	73	0.019	0.049
1.0	5	24600	1045	77	0.021	0.063	23300	890	73	0.019	0.049
1.0	6	22140	845	70	0.019	0.036	20970	720	66	0.017	0.028
1.0	7	22140	845	70	0.019	0.036	20970	720	66	0.017	0.028
1.0	8	22140	845	70	0.019	0.036	20970	720	66	0.017	0.028
1.0	10	22140	845	70	0.019	0.023	20970	720	66	0.017	0.018
1.0	12	19680	670	62	0.017	0.023	18640	570	59	0.015	0.018
1.0	14	19680	670	62	0.017	0.014	18640	570	59	0.015	0.011
1.0	16	14760	440	46	0.015	0.014	13980	375	44	0.013	0.011
1.0	18	14760	440	46	0.015	0.009	13980	375	44	0.013	0.007
1.0	20	14760	440	46	0.015	0.009	13980	375	44	0.013	0.007
1.0	22	7380	190	23	0.013	0.009	6990	160	22	0.011	0.007
1.0	26	7380	190	23	0.013	0.009	6990	160	22	0.011	0.007
1.0	30	7380	190	23	0.013	0.009	6990	160	22	0.011	0.007
1.0	40	2460	50	8	0.010	0.009	2330	45	7	0.010	0.007
1.0	50	2460	50	8	0.010	0.006	2330	45	7	0.010	0.005
1.2	4	21900	930	83	0.021	0.076	20700	720	78	0.017	0.059
1.2	6	21900	930	83	0.021	0.076	20700	720	78	0.017	0.059
1.2	8	19710	755	74	0.019	0.043	18630	585	70	0.016	0.034
1.2	10	19710	755	74	0.019	0.027	18630	585	70	0.016	0.021
1.2	12	19710	755	74	0.019	0.027	18630	585	70	0.016	0.021
1.2	14	17520	595	66	0.017	0.027	16560	460	62	0.014	0.021
1.2	16	17520	595	66	0.017	0.016	16560	460	62	0.014	0.013
1.2	20	13140	390	50	0.015	0.011	12420	300	47	0.012	0.008
1.2	26	6570	165	25	0.013	0.011	6210	130	23	0.010	0.008
1.2	30	6570	165	25	0.013	0.011	6210	130	23	0.010	0.008
1.4	6	19200	815	84	0.021	0.088	18100	570	80	0.016	0.069
1.4	8	17280	660	76	0.019	0.050	16290	460	72	0.014	0.039
1.4	10	17280	660	76	0.019	0.050	16290	460	72	0.014	0.039
1.4	14	17280	660	76	0.019	0.032	16290	460	72	0.014	0.025
1.4	16	15360	520	68	0.017	0.032	14480	365	64	0.013	0.025
1.4	20	15360	520	68	0.017	0.019	14480	365	64	0.013	0.015
1.5	4	19200	905	90	0.024	0.135	18100	635	85	0.018	0.105
1.5	5	19200	905	90	0.024	0.095	18100	635	85	0.018	0.074
1.5	6	19200	905	90	0.024	0.095	18100	635	85	0.018	0.074
1.5	7	19200	905	90	0.024	0.095	18100	635	85	0.018	0.074
1.5	8	17280	735	81	0.021	0.054	16290	515	77	0.016	0.042

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
0.8	2	22800	450	57	0.010	0.040	27400	775	69	0.014	0.072
0.8	3	22800	450	57	0.010	0.028	27400	775	69	0.014	0.050
0.8	4	22800	450	57	0.010	0.028	27400	775	69	0.014	0.050
0.8	5	20520	365	52	0.009	0.016	24660	630	62	0.013	0.029
0.8	6	20520	365	52	0.009	0.016	24660	630	62	0.013	0.029
0.8	8	20520	365	52	0.009	0.010	24660	630	62	0.013	0.018
0.8	10	18240	290	46	0.008	0.010	21920	495	55	0.011	0.018
0.8	12	18240	290	46	0.008	0.006	21920	495	55	0.011	0.011
0.8	14	13680	190	34	0.007	0.004	16440	325	41	0.010	0.007
0.8	16	13680	190	34	0.007	0.004	16440	325	41	0.010	0.007
0.8	20	6840	80	17	0.006	0.004	8220	140	21	0.009	0.007
0.9	6	18450	330	52	0.009	0.018	22140	575	63	0.013	0.032
0.9	8	18450	330	52	0.009	0.011	22140	575	63	0.013	0.020
0.9	10	16400	260	46	0.008	0.011	19680	455	56	0.012	0.020
1.0	2	20500	665	64	0.016	0.050	24600	1045	77	0.021	0.090
1.0	3	20500	665	64	0.016	0.050	24600	1045	77	0.021	0.090
1.0	4	20500	665	64	0.016	0.035	24600	1045	77	0.021	0.063
1.0	5	20500	665	64	0.016	0.035	24600	1045	77	0.021	0.063
1.0	6	18450	540	58	0.015	0.020	22140	845	70	0.019	0.036
1.0	7	18450	540	58	0.015	0.020	22140	845	70	0.019	0.036
1.0	8	18450	540	58	0.015	0.020	22140	845	70	0.019	0.036
1.0	10	18450	540	58	0.015	0.013	22140	845	70	0.019	0.023
1.0	12	16400	425	52	0.013	0.013	19680	670	62	0.017	0.023
1.0	14	16400	425	52	0.013	0.008	19680	670	62	0.017	0.014
1.0	16	12300	280	39	0.011	0.008	14760	440	46	0.015	0.014
1.0	18	12300	280	39	0.011	0.005	14760	440	46	0.015	0.009
1.0	20	12300	280	39	0.011	0.005	14760	440	46	0.015	0.009
1.0	22	6150	120	19	0.010	0.005	7380	190	23	0.013	0.009
1.0	26	6150	120	19	0.010	0.005	7380	190	23	0.013	0.009
1.0	30	6150	120	19	0.010	0.005	7380	190	23	0.013	0.009
1.0	40	2050	35	6	0.009	0.005	2460	50	8	0.010	0.009
1.0	50	2050	35	6	0.009	0.003	2460	50	8	0.010	0.006
1.2	4	18200	485	69	0.013	0.042	21900	930	83	0.021	0.076
1.2	6	18200	485	69	0.013	0.042	21900	930	83	0.021	0.076
1.2	8	16380	395	62	0.012	0.024	19710	755	74	0.019	0.043
1.2	10	16380	395	62	0.012	0.015	19710	755	74	0.019	0.027
1.2	12	16380	395	62	0.012	0.015	19710	755	74	0.019	0.027
1.2	14	14560	310	55	0.011	0.015	17520	595	66	0.017	0.027
1.2	16	14560	310	55	0.011	0.009	17520	595	66	0.017	0.016
1.2	20	10920	205	41	0.009	0.006	13140	390	50	0.015	0.011
1.2	26	5460	85	21	0.008	0.006	6570	165	25	0.013	0.011
1.2	30	5460	85	21	0.008	0.006	6570	165	25	0.013	0.011
1.4	6	16000	425	70	0.013	0.049	19200	815	84	0.021	0.088
1.4	8	14400	345	63	0.012	0.028	17280	660	76	0.019	0.050
1.4	10	14400	345	63	0.012	0.028	17280	660	76	0.019	0.050
1.4	14	14400	345	63	0.012	0.018	17280	660	76	0.019	0.032
1.4	16	12800	270	56	0.011	0.018	15360	520	68	0.017	0.032
1.4	20	12800	270	56	0.011	0.011	15360	520	68	0.017	0.019
1.5	4	16000	475	75	0.015	0.075	19200	905	90	0.024	0.135
1.5	5	16000	475	75	0.015	0.053	19200	905	90	0.024	0.095
1.5	6	16000	475	75	0.015	0.053	19200	905	90	0.024	0.095
1.5	7	16000	475	75	0.015	0.053	19200	905	90	0.024	0.095
1.5	8	14400	385	68	0.013	0.030	17280	735	81	0.021	0.054

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.5	10	17280	735	81	0.021	0.054	16290	515	77	0.016	0.042
1.5	12	17280	735	81	0.021	0.054	16290	515	77	0.016	0.042
1.5	14	17280	735	81	0.021	0.034	16290	515	77	0.016	0.026
1.5	16	15360	580	72	0.019	0.034	14480	405	68	0.014	0.026
1.5	18	15360	580	72	0.019	0.034	14480	405	68	0.014	0.026
1.5	20	15360	580	72	0.019	0.020	14480	405	68	0.014	0.016
1.5	22	15360	580	72	0.019	0.020	14480	405	68	0.014	0.016
1.5	26	11520	380	54	0.016	0.014	10860	265	51	0.012	0.011
1.5	30	11520	380	54	0.016	0.014	10860	265	51	0.012	0.011
1.6	8	17800	840	89	0.024	0.101	16800	655	84	0.019	0.078
1.6	10	16020	680	81	0.021	0.058	15120	530	76	0.018	0.045
1.6	12	16020	680	81	0.021	0.058	15120	530	76	0.018	0.045
1.6	16	16020	680	81	0.021	0.036	15120	530	76	0.018	0.028
1.6	20	14240	540	72	0.019	0.036	13440	420	68	0.016	0.028
1.8	8	17800	840	101	0.024	0.113	16800	655	95	0.019	0.088
1.8	10	16020	680	91	0.021	0.065	15120	530	86	0.018	0.050
1.8	12	16020	680	91	0.021	0.065	15120	530	86	0.018	0.050
1.8	16	16020	680	91	0.021	0.041	15120	530	86	0.018	0.032
1.8	20	14240	540	81	0.019	0.041	13440	420	76	0.016	0.032
2.0	6	14400	820	90	0.028	0.180	13600	620	85	0.023	0.140
2.0	8	14400	820	90	0.028	0.126	13600	620	85	0.023	0.098
2.0	10	14400	820	90	0.028	0.126	13600	620	85	0.023	0.098
2.0	12	12960	665	81	0.026	0.072	12240	500	77	0.020	0.056
2.0	14	12960	665	81	0.026	0.072	12240	500	77	0.020	0.056
2.0	16	12960	665	81	0.026	0.072	12240	500	77	0.020	0.056
2.0	18	12960	665	81	0.026	0.045	12240	500	77	0.020	0.035
2.0	20	12960	665	81	0.026	0.045	12240	500	77	0.020	0.035
2.0	22	11520	525	72	0.023	0.045	10880	395	68	0.018	0.035
2.0	26	11520	525	72	0.023	0.045	10880	395	68	0.018	0.035
2.0	30	11520	525	72	0.023	0.027	10880	395	68	0.018	0.021
2.0	35	8640	345	54	0.020	0.018	8160	260	51	0.016	0.014
2.0	40	8640	345	54	0.020	0.018	8160	260	51	0.016	0.014
2.0	45	4320	150	27	0.017	0.018	4080	110	26	0.013	0.014
2.0	50	4320	150	27	0.017	0.018	4080	110	26	0.013	0.014
2.0	60	4320	150	27	0.017	0.018	4080	110	26	0.013	0.014
2.5	8	12300	970	97	0.039	0.158	11600	680	91	0.029	0.123
2.5	10	12300	970	97	0.039	0.158	11600	680	91	0.029	0.123
2.5	12	12300	970	97	0.039	0.158	11600	680	91	0.029	0.123
2.5	14	11070	785	87	0.035	0.090	10440	550	82	0.026	0.070
2.5	16	11070	785	87	0.035	0.090	10440	550	82	0.026	0.070
2.5	18	11070	785	87	0.035	0.090	10440	550	82	0.026	0.070
2.5	20	11070	785	87	0.035	0.090	10440	550	82	0.026	0.070
2.5	22	11070	785	87	0.035	0.056	10440	550	82	0.026	0.044
2.5	26	9840	620	77	0.032	0.056	9280	435	73	0.023	0.044
2.5	30	9840	620	77	0.032	0.056	9280	435	73	0.023	0.044
2.5	35	9840	620	77	0.032	0.034	9280	435	73	0.023	0.026
2.5	40	7380	405	58	0.027	0.034	6960	285	55	0.020	0.026
2.5	45	7380	405	58	0.027	0.023	6960	285	55	0.020	0.018
2.5	50	7380	405	58	0.027	0.023	6960	285	55	0.020	0.018
3.0	6	10900	860	103	0.039	0.270	10300	605	97	0.029	0.210
3.0	8	10900	860	103	0.039	0.270	10300	605	97	0.029	0.210
3.0	10	10900	860	103	0.039	0.189	10300	605	97	0.029	0.147
3.0	12	10900	860	103	0.039	0.189	10300	605	97	0.029	0.147

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.5	10	14400	385	68	0.013	0.030	17280	735	81	0.021	0.054
1.5	12	14400	385	68	0.013	0.030	17280	735	81	0.021	0.054
1.5	14	14400	385	68	0.013	0.019	17280	735	81	0.021	0.034
1.5	16	12800	305	60	0.012	0.019	15360	580	72	0.019	0.034
1.5	18	12800	305	60	0.012	0.019	15360	580	72	0.019	0.034
1.5	20	12800	305	60	0.012	0.011	15360	580	72	0.019	0.020
1.5	22	12800	305	60	0.012	0.011	15360	580	72	0.019	0.020
1.5	26	9600	200	45	0.010	0.008	11520	380	54	0.016	0.014
1.5	30	9600	200	45	0.010	0.008	11520	380	54	0.016	0.014
1.6	8	14800	490	74	0.017	0.056	17800	840	89	0.024	0.101
1.6	10	13320	395	67	0.015	0.032	16020	680	81	0.021	0.058
1.6	12	13320	395	67	0.015	0.032	16020	680	81	0.021	0.058
1.6	16	13320	395	67	0.015	0.020	16020	680	81	0.021	0.036
1.6	20	11840	315	60	0.013	0.020	14240	540	72	0.019	0.036
1.8	8	14800	490	84	0.017	0.063	17800	840	101	0.024	0.113
1.8	10	13320	395	75	0.015	0.036	16020	680	91	0.021	0.065
1.8	12	13320	395	75	0.015	0.036	16020	680	91	0.021	0.065
1.8	16	13320	395	75	0.015	0.023	16020	680	91	0.021	0.041
1.8	20	11840	315	67	0.013	0.023	14240	540	81	0.019	0.041
2.0	6	12000	475	75	0.020	0.100	14400	820	90	0.028	0.180
2.0	8	12000	475	75	0.020	0.070	14400	820	90	0.028	0.126
2.0	10	12000	475	75	0.020	0.070	14400	820	90	0.028	0.126
2.0	12	10800	385	68	0.018	0.040	12960	665	81	0.026	0.072
2.0	14	10800	385	68	0.018	0.040	12960	665	81	0.026	0.072
2.0	16	10800	385	68	0.018	0.040	12960	665	81	0.026	0.072
2.0	18	10800	385	68	0.018	0.025	12960	665	81	0.026	0.045
2.0	20	10800	385	68	0.018	0.025	12960	665	81	0.026	0.045
2.0	22	9600	305	60	0.016	0.025	11520	525	72	0.023	0.045
2.0	26	9600	305	60	0.016	0.025	11520	525	72	0.023	0.045
2.0	30	9600	305	60	0.016	0.015	11520	525	72	0.023	0.027
2.0	35	7200	200	45	0.014	0.010	8640	345	54	0.020	0.018
2.0	40	7200	200	45	0.014	0.010	8640	345	54	0.020	0.018
2.0	45	3600	85	23	0.012	0.010	4320	150	27	0.017	0.018
2.0	50	3600	85	23	0.012	0.010	4320	150	27	0.017	0.018
2.0	60	3600	85	23	0.012	0.010	4320	150	27	0.017	0.018
2.5	8	10300	510	81	0.025	0.088	12300	970	97	0.039	0.158
2.5	10	10300	510	81	0.025	0.088	12300	970	97	0.039	0.158
2.5	12	10300	510	81	0.025	0.088	12300	970	97	0.039	0.158
2.5	14	9270	415	73	0.022	0.050	11070	785	87	0.035	0.090
2.5	16	9270	415	73	0.022	0.050	11070	785	87	0.035	0.090
2.5	18	9270	415	73	0.022	0.050	11070	785	87	0.035	0.090
2.5	20	9270	415	73	0.022	0.050	11070	785	87	0.035	0.090
2.5	22	9270	415	73	0.022	0.031	11070	785	87	0.035	0.056
2.5	26	8240	325	65	0.020	0.031	9840	620	77	0.032	0.056
2.5	30	8240	325	65	0.020	0.031	9840	620	77	0.032	0.056
2.5	35	8240	325	65	0.020	0.019	9840	620	77	0.032	0.034
2.5	40	6180	215	49	0.017	0.019	7380	405	58	0.027	0.034
2.5	45	6180	215	49	0.017	0.013	7380	405	58	0.027	0.023
2.5	50	6180	215	49	0.017	0.013	7380	405	58	0.027	0.023
3.0	6	6600	450	62	0.034	0.150	10900	860	103	0.039	0.270
3.0	8	6600	450	62	0.034	0.150	10900	860	103	0.039	0.270
3.0	10	6600	450	62	0.034	0.105	10900	860	103	0.039	0.189
3.0	12	6600	450	62	0.034	0.105	10900	860	103	0.039	0.189

DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

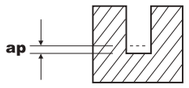
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	14	10900	860	103	0.039	0.189	10300	605	97	0.029	0.147
3.0	16	9810	695	92	0.035	0.108	9270	490	87	0.026	0.084
3.0	18	9810	695	92	0.035	0.108	9270	490	87	0.026	0.084
3.0	20	9810	695	92	0.035	0.108	9270	490	87	0.026	0.084
3.0	22	9810	695	92	0.035	0.108	9270	490	87	0.026	0.084
3.0	26	9810	695	92	0.035	0.068	9270	490	87	0.026	0.053
3.0	30	9810	695	92	0.035	0.068	9270	490	87	0.026	0.053
3.0	35	8720	550	82	0.032	0.068	8240	385	78	0.023	0.053
3.0	40	8720	550	82	0.032	0.041	8240	385	78	0.023	0.032
3.0	45	8720	550	82	0.032	0.041	8240	385	78	0.023	0.032
3.0	50	6540	360	62	0.028	0.027	6180	255	58	0.021	0.021
3.0	60	6540	360	62	0.028	0.027	6180	255	58	0.021	0.021
4.0	8	8000	1300	101	0.081	0.360	7600	1160	96	0.076	0.280
4.0	10	8000	1300	101	0.081	0.360	7600	1160	96	0.076	0.280
4.0	12	8000	1300	101	0.081	0.360	7600	1160	96	0.076	0.280
4.0	14	8000	1300	101	0.081	0.252	7600	1160	96	0.076	0.196
4.0	16	8000	1300	101	0.081	0.252	7600	1160	96	0.076	0.196
4.0	18	8000	1300	101	0.081	0.252	7600	1160	96	0.076	0.196
4.0	20	8000	1300	101	0.081	0.252	7600	1160	96	0.076	0.196
4.0	22	7200	1055	90	0.073	0.144	6840	940	86	0.069	0.112
4.0	26	7200	1055	90	0.073	0.144	6840	940	86	0.069	0.112
4.0	30	7200	1055	90	0.073	0.144	6840	940	86	0.069	0.112
4.0	35	7200	1055	90	0.073	0.090	6840	940	86	0.069	0.070
4.0	40	7200	1055	90	0.073	0.090	6840	940	86	0.069	0.070
4.0	45	6400	830	80	0.065	0.090	6080	740	76	0.061	0.070
4.0	50	6400	830	80	0.065	0.090	6080	740	76	0.061	0.070
4.0	60	6400	830	80	0.065	0.054	6080	740	76	0.061	0.042
5.0	16	6400	1155	101	0.090	0.315	6100	900	96	0.074	0.245
5.0	20	6400	1155	101	0.090	0.315	6100	900	96	0.074	0.245
5.0	26	5760	935	90	0.081	0.180	5490	730	86	0.066	0.140
5.0	30	5760	935	90	0.081	0.180	5490	730	86	0.066	0.140
5.0	35	5760	935	90	0.081	0.180	5490	730	86	0.066	0.140
5.0	40	5760	935	90	0.081	0.180	5490	730	86	0.066	0.140
5.0	50	5760	935	90	0.081	0.113	5490	730	86	0.066	0.088
5.0	60	5120	740	80	0.072	0.113	4880	575	77	0.059	0.088
6.0	15	5300	1055	100	0.100	0.540	5000	820	94	0.082	0.420
6.0	20	5300	1055	100	0.100	0.378	5000	820	94	0.082	0.294
6.0	30	5300	1055	100	0.100	0.378	5000	820	94	0.082	0.294
6.0	32	4770	855	90	0.090	0.216	4500	665	85	0.074	0.168
8.0	25	4000	950	101	0.119	0.504	3800	750	96	0.099	0.392
8.0	30	4000	950	101	0.119	0.504	3800	750	96	0.099	0.392
8.0	42	3600	770	90	0.107	0.288	3400	605	85	0.089	0.224
10.0	30	3200	900	101	0.141	0.900	3050	680	96	0.111	0.700
10.0	35	3200	900	101	0.141	0.630	3050	680	96	0.111	0.490
10.0	45	3200	900	101	0.141	0.630	3050	680	96	0.111	0.490
12.0	35	2650	800	100	0.151	1.080	2520	600	95	0.119	0.840
12.0	40	2650	800	100	0.151	0.756	2520	600	95	0.119	0.588
12.0	50	2650	800	100	0.151	0.756	2520	600	95	0.119	0.588

(Depth of Cut per one pass)



DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

4G MILL END MILLS

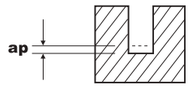
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEM845 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
3.0	14	6600	450	62	0.034	0.105	10900	860	103	0.039	0.189
3.0	16	5940	365	56	0.031	0.060	9810	695	92	0.035	0.108
3.0	18	5940	365	56	0.031	0.060	9810	695	92	0.035	0.108
3.0	20	5940	365	56	0.031	0.060	9810	695	92	0.035	0.108
3.0	22	5940	365	56	0.031	0.060	9810	695	92	0.035	0.108
3.0	26	5940	365	56	0.031	0.038	9810	695	92	0.035	0.068
3.0	30	5940	365	56	0.031	0.038	9810	695	92	0.035	0.068
3.0	35	5280	290	50	0.027	0.038	8720	550	82	0.032	0.068
3.0	40	5280	290	50	0.027	0.023	8720	550	82	0.032	0.041
3.0	45	5280	290	50	0.027	0.023	8720	550	82	0.032	0.041
3.0	50	3960	190	37	0.024	0.015	6540	360	62	0.028	0.027
3.0	60	3960	190	37	0.024	0.015	6540	360	62	0.028	0.027
4.0	8	6700	770	84	0.057	0.200	8000	1300	101	0.081	0.360
4.0	10	6700	770	84	0.057	0.200	8000	1300	101	0.081	0.360
4.0	12	6700	770	84	0.057	0.200	8000	1300	101	0.081	0.360
4.0	14	6700	770	84	0.057	0.140	8000	1300	101	0.081	0.252
4.0	16	6700	770	84	0.057	0.140	8000	1300	101	0.081	0.252
4.0	18	6700	770	84	0.057	0.140	8000	1300	101	0.081	0.252
4.0	20	6700	770	84	0.057	0.140	8000	1300	101	0.081	0.252
4.0	22	6030	625	76	0.052	0.080	7200	1055	90	0.073	0.144
4.0	26	6030	625	76	0.052	0.080	7200	1055	90	0.073	0.144
4.0	30	6030	625	76	0.052	0.080	7200	1055	90	0.073	0.144
4.0	35	6030	625	76	0.052	0.050	7200	1055	90	0.073	0.090
4.0	40	6030	625	76	0.052	0.050	7200	1055	90	0.073	0.090
4.0	45	5360	495	67	0.046	0.050	6400	830	80	0.065	0.090
4.0	50	5360	495	67	0.046	0.050	6400	830	80	0.065	0.090
4.0	60	5360	495	67	0.046	0.030	6400	830	80	0.065	0.054
5.0	16	5400	605	85	0.056	0.175	6400	1155	101	0.090	0.315
5.0	20	5400	605	85	0.056	0.175	6400	1155	101	0.090	0.315
5.0	26	4860	490	76	0.050	0.100	5760	935	90	0.081	0.180
5.0	30	4860	490	76	0.050	0.100	5760	935	90	0.081	0.180
5.0	35	4860	490	76	0.050	0.100	5760	935	90	0.081	0.180
5.0	40	4860	490	76	0.050	0.100	5760	935	90	0.081	0.180
5.0	50	4860	490	76	0.050	0.063	5760	935	90	0.081	0.113
5.0	60	4320	385	68	0.045	0.063	5120	740	80	0.072	0.113
6.0	15	4400	550	83	0.063	0.300	5300	1055	100	0.100	0.540
6.0	20	4400	550	83	0.063	0.210	5300	1055	100	0.100	0.378
6.0	30	4400	550	83	0.063	0.210	5300	1055	100	0.100	0.378
6.0	32	3960	445	75	0.056	0.120	4770	855	90	0.090	0.216
8.0	25	3300	500	83	0.076	0.280	4000	950	101	0.119	0.504
8.0	30	3300	500	83	0.076	0.280	4000	950	101	0.119	0.504
8.0	42	2950	405	74	0.069	0.160	3600	770	90	0.107	0.288
10.0	30	2630	400	83	0.076	0.500	3200	900	101	0.141	0.900
10.0	35	2630	400	83	0.076	0.350	3200	900	101	0.141	0.630
10.0	45	2630	400	83	0.076	0.350	3200	900	101	0.141	0.630
12.0	35	2180	350	82	0.080	0.600	2650	800	100	0.151	1.080
12.0	40	2180	350	82	0.080	0.420	2650	800	100	0.151	0.756
12.0	50	2180	350	82	0.080	0.420	2650	800	100	0.151	0.756

(Depth of Cut per one pass)



DIA. = Diameter LBS = Length Below Shank RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

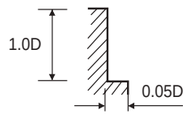
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE MULTIPLE HELIX
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL

SEME36, SEME71 SERIES

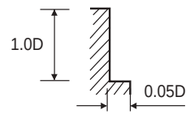
MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~ HRc 35				HRc 35 ~ HRc 45				HRc 45 ~ HRc 55			
STRENGTH	~ 1100N/mm²				1110 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.8	31250	235	79	0.002	18750	140	47	0.002	12500	42	31	0.001
0.9	29300	245	83	0.002	17580	145	50	0.002	11720	42	33	0.001
1.0	26800	250	84	0.002	16080	150	51	0.002	10720	47	34	0.001
1.2	22500	265	85	0.003	13500	160	51	0.003	9000	47	34	0.001
1.5	18750	270	88	0.004	11250	165	53	0.004	7500	47	35	0.002
2.0	14450	295	91	0.005	9450	180	59	0.005	6300	53	40	0.002
2.5	12800	315	101	0.006	8200	195	64	0.006	5250	58	41	0.003
3.0	11150	335	105	0.008	6950	210	66	0.008	4200	63	40	0.004
3.5	10300	465	113	0.011	6360	290	70	0.011	3940	63	43	0.004
4.0	9450	600	119	0.016	5780	370	73	0.016	3680	63	46	0.004
4.5	8660	615	122	0.018	5250	375	74	0.018	3290	70	47	0.005
5.0	7880	630	124	0.020	4730	380	74	0.020	2900	75	46	0.006
5.5	7410	660	128	0.022	4460	405	77	0.023	2700	80	47	0.007
6.0	6950	695	131	0.025	4200	430	79	0.026	2500	85	47	0.009
6.5	6530	710	133	0.027	3940	425	80	0.027	2400	95	49	0.010
7.0	6100	720	134	0.030	3680	415	81	0.028	2300	100	51	0.011
7.5	5680	735	134	0.032	3410	410	80	0.030	2200	110	52	0.013
8.0	5250	745	132	0.035	3150	400	79	0.032	2100	115	53	0.014
8.5	4960	720	132	0.036	2990	380	80	0.032	2000	110	53	0.014
9.0	4660	695	132	0.037	2830	355	80	0.031	1900	105	54	0.014
9.5	4370	665	130	0.038	2660	335	79	0.031	1800	100	54	0.014
10.0	4080	640	128	0.039	2500	315	79	0.032	1700	95	53	0.014
10.5	3910	620	129	0.040	2400	305	79	0.032	1640	95	54	0.014
11.0	3750	595	130	0.040	2300	290	79	0.032	1580	90	55	0.014
11.5	3590	570	130	0.040	2200	280	79	0.032	1510	90	55	0.015
12.0	3430	545	129	0.040	2100	265	79	0.032	1450	85	55	0.015
13.0	3260	520	133	0.040	2000	250	82	0.031	1370	80	56	0.015
14.0	3090	490	136	0.040	1900	235	84	0.031	1290	75	57	0.015
15.0	2920	460	138	0.039	1800	225	85	0.031	1210	70	57	0.014
16.0	2750	440	138	0.040	1700	215	85	0.032	1130	65	57	0.014
17.0	2590	410	138	0.040	1610	200	86	0.031	1060	60	57	0.014
18.0	2430	385	137	0.040	1510	190	85	0.031	990	55	56	0.014
19.0	2260	360	135	0.040	1420	180	85	0.032	920	47	55	0.013
20.0	2100	335	132	0.040	1330	170	84	0.032	850	42	53	0.012
21.0	2020	320	133	0.040	1270	165	84	0.032	820	42	54	0.013
22.0	1940	310	134	0.040	1220	160	84	0.033	780	39	54	0.013
23.0	1860	295	134	0.040	1160	145	84	0.031	750	37	54	0.012
24.0	1780	280	134	0.039	1110	140	84	0.032	710	32	54	0.011
25.0	1700	265	134	0.039	1050	135	82	0.032	680	32	53	0.012



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 4 FLUTE MULTIPLE HELIX
VOLLHARTMETALL, 4 SCHNEIDEN MEHRSPIRAL
SEME36, SEME71 SERIES

MATERIAL	M				K			
	STAINLESS STEELS				CAST IRON			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.8	15630	120	39	0.002	31250	235	79	0.002
0.9	14650	120	41	0.002	29300	245	83	0.002
1.0	13400	125	42	0.002	26800	250	84	0.002
1.2	11250	130	42	0.003	22500	265	85	0.003
1.5	9380	135	44	0.004	18750	270	88	0.004
2.0	7880	145	50	0.005	14450	295	91	0.005
2.5	6830	165	54	0.006	12800	315	101	0.006
3.0	5780	180	54	0.008	11150	335	105	0.008
3.5	5310	235	58	0.011	10300	465	113	0.011
4.0	4850	295	61	0.015	9450	600	119	0.016
4.5	4400	305	62	0.017	8660	615	122	0.018
5.0	3950	315	62	0.020	7880	630	124	0.020
5.5	3750	330	65	0.022	7410	660	128	0.022
6.0	3550	345	67	0.024	6950	695	131	0.025
6.5	3320	350	68	0.026	6530	710	133	0.027
7.0	3090	355	68	0.029	6100	720	134	0.030
7.5	2860	360	67	0.031	5680	735	134	0.032
8.0	2630	370	66	0.035	5250	745	132	0.035
8.5	2490	355	66	0.036	4960	720	132	0.036
9.0	2360	340	67	0.036	4660	695	132	0.037
9.5	2230	330	67	0.037	4370	665	130	0.038
10.0	2100	315	66	0.038	4080	640	128	0.039
10.5	2000	300	66	0.038	3910	620	129	0.040
11.0	1900	285	66	0.038	3750	595	130	0.040
11.5	1800	270	65	0.038	3590	570	130	0.040
12.0	1700	250	64	0.037	3430	545	129	0.040
13.0	1620	240	66	0.037	3260	520	133	0.040
14.0	1540	230	68	0.037	3090	490	136	0.040
15.0	1460	220	69	0.038	2920	460	138	0.039
16.0	1380	210	69	0.038	2750	440	138	0.040
17.0	1290	200	69	0.039	2590	410	138	0.040
18.0	1210	185	68	0.038	2430	385	137	0.040
19.0	1130	175	67	0.039	2260	360	135	0.040
20.0	1050	160	66	0.038	2100	335	132	0.040
21.0	1010	150	67	0.037	2020	320	133	0.040
22.0	970	145	67	0.037	1940	310	134	0.040
23.0	930	140	67	0.038	1860	295	134	0.040
24.0	890	130	67	0.037	1780	280	134	0.039
25.0	850	125	67	0.037	1700	265	134	0.039



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN

SEME72 SERIES

MATERIAL		P							
		NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS		~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH		~ 1100N/mm²				1110 ~ 1500N/mm²			
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	3	19200	180	60	0.002	10940	70	34	0.002
1.0	4	19200	180	60	0.002	10940	70	34	0.002
1.0	5	19200	180	60	0.002	10940	70	34	0.002
1.0	6	17280	145	54	0.002	9850	60	31	0.002
1.0	7	17280	145	54	0.002	9850	60	31	0.002
1.0	8	17280	130	54	0.002	9850	50	31	0.001
1.0	10	17280	130	54	0.002	9850	50	31	0.001
1.0	12	15360	100	48	0.002	8760	40	28	0.001
1.2	4	16200	205	61	0.003	9230	80	35	0.002
1.2	6	16200	205	61	0.003	9230	80	35	0.002
1.2	8	14580	165	55	0.003	8310	65	31	0.002
1.2	10	14580	145	55	0.002	8310	60	31	0.002
1.2	12	14580	145	55	0.002	8310	60	31	0.002
1.5	6	13800	215	65	0.004	7870	85	37	0.003
1.5	8	12420	195	59	0.004	7080	80	33	0.003
1.5	10	12420	175	59	0.004	7080	70	33	0.002
1.5	12	12420	155	59	0.003	7080	60	33	0.002
1.5	14	12420	155	59	0.003	7080	60	33	0.002
1.5	16	11040	120	52	0.003	6290	50	30	0.002
2.0	8	10580	240	66	0.006	6050	95	38	0.004
2.0	10	10580	240	66	0.006	6050	95	38	0.004
2.0	12	9530	195	60	0.005	5440	80	34	0.004
2.0	14	9530	195	60	0.005	5440	80	34	0.004
2.0	16	9530	175	60	0.005	5440	70	34	0.003
2.5	10	8990	260	71	0.007	5170	110	41	0.005
2.5	12	8990	260	71	0.007	5170	110	41	0.005
2.5	16	8090	210	64	0.006	4650	85	37	0.005
2.5	20	8090	185	64	0.006	4650	80	37	0.004
2.5	26	7200	145	57	0.005	4130	60	32	0.004
3.0	10	7400	275	70	0.009	4280	120	40	0.007
3.0	12	7400	275	70	0.009	4280	120	40	0.007
3.0	14	7400	275	70	0.009	4280	120	40	0.007
3.0	16	6660	250	63	0.009	3860	110	36	0.007
3.0	20	6660	225	63	0.008	3860	95	36	0.006
3.0	26	6660	200	63	0.008	3860	85	36	0.006
3.0	30	6660	200	63	0.008	3860	85	36	0.006
4.0	12	6000	335	75	0.014	3410	140	43	0.010
4.0	16	6000	335	75	0.014	3410	140	43	0.010
4.0	20	6000	335	75	0.014	3410	140	43	0.010
4.0	26	5400	270	68	0.013	3070	110	39	0.009
4.0	30	5400	270	68	0.013	3070	110	39	0.009
5.0	20	5120	430	80	0.021	2900	170	46	0.015
5.0	25	5120	430	80	0.021	2900	170	46	0.015
5.0	30	4610	350	72	0.019	2610	135	41	0.013
5.0	35	4610	350	72	0.019	2610	135	41	0.013
5.0	40	4610	310	72	0.017	2610	120	41	0.011
6.0	15	4420	515	83	0.029	2520	215	48	0.021
6.0	20	4420	515	83	0.029	2520	215	48	0.021
6.0	25	4420	515	83	0.029	2520	215	48	0.021
6.0	30	4420	440	83	0.025	2520	185	48	0.018
6.0	35	3970	395	75	0.025	2270	165	43	0.018
6.0	40	3970	350	75	0.022	2270	145	43	0.016
6.0	45	3970	350	75	0.022	2270	145	43	0.016

DIA. = Diameter LOC = Length of Cut RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN

SEME72 SERIES

MATERIAL		P				K			
		HARDENED STEELS				CAST IRON			
HARDNESS		HRc 45 ~ HRc 55							
STRENGTH		1500 ~ 2000N/mm²							
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	3	6720	35	21	0.001	19200	180	60	0.002
1.0	4	6720	35	21	0.001	19200	180	60	0.002
1.0	5	6720	35	21	0.001	19200	180	60	0.002
1.0	6	6050	30	19	0.001	17280	145	54	0.002
1.0	7	6050	30	19	0.001	17280	145	54	0.002
1.0	8	6050	25	19	0.001	17280	130	54	0.002
1.0	10	6050	25	19	0.001	17280	130	54	0.002
1.0	12	5380	20	17	0.001	15360	100	48	0.002
1.2	4	5670	40	21	0.002	16200	205	61	0.003
1.2	6	5670	40	21	0.002	16200	205	61	0.003
1.2	8	5100	35	19	0.002	14580	165	55	0.003
1.2	10	5100	30	19	0.001	14580	145	55	0.002
1.2	12	5100	30	19	0.001	14580	145	55	0.002
1.5	6	4830	45	23	0.002	13800	215	65	0.004
1.5	8	4350	40	20	0.002	12420	195	59	0.004
1.5	10	4350	35	20	0.002	12420	175	59	0.004
1.5	12	4350	30	20	0.002	12420	155	59	0.003
1.5	14	4350	30	20	0.002	12420	155	59	0.003
1.5	16	3860	25	18	0.002	11040	120	52	0.003
2.0	8	3780	55	24	0.004	10580	240	66	0.006
2.0	10	3780	55	24	0.004	10580	240	66	0.006
2.0	12	3400	45	21	0.003	9530	195	60	0.005
2.0	14	3400	45	21	0.003	9530	195	60	0.005
2.0	16	3400	40	21	0.003	9530	175	60	0.005
2.5	10	3210	60	25	0.005	8990	260	71	0.007
2.5	12	3210	60	25	0.005	8990	260	71	0.007
2.5	16	2890	50	23	0.004	8090	210	64	0.006
2.5	20	2890	45	23	0.004	8090	185	64	0.006
2.5	26	2570	35	20	0.003	7200	145	57	0.005
3.0	10	2640	65	25	0.006	7400	275	70	0.009
3.0	12	2640	65	25	0.006	7400	275	70	0.009
3.0	14	2640	65	25	0.006	7400	275	70	0.009
3.0	16	2380	60	22	0.006	6660	250	63	0.009
3.0	20	2380	55	22	0.006	6660	225	63	0.008
3.0	26	2380	50	22	0.005	6660	200	63	0.008
3.0	30	2380	50	22	0.005	6660	200	63	0.008
4.0	12	2150	70	27	0.008	6000	335	75	0.014
4.0	16	2150	70	27	0.008	6000	335	75	0.014
4.0	20	2150	70	27	0.008	6000	335	75	0.014
4.0	26	1930	60	24	0.008	5400	270	68	0.013
4.0	30	1930	60	24	0.008	5400	270	68	0.013
5.0	20	1900	85	30	0.011	5120	430	80	0.021
5.0	25	1900	85	30	0.011	5120	430	80	0.021
5.0	30	1710	70	27	0.010	4610	350	72	0.019
5.0	35	1710	70	27	0.010	4610	350	72	0.019
5.0	40	1710	60	27	0.009	4610	310	72	0.017
6.0	15	1640	110	31	0.017	4420	515	83	0.029
6.0	20	1640	110	31	0.017	4420	515	83	0.029
6.0	25	1640	110	31	0.017	4420	515	83	0.029
6.0	30	1640	90	31	0.014	4420	440	83	0.025
6.0	35	1480	85	28	0.014	3970	395	75	0.025
6.0	40	1480	75	28	0.013	3970	350	75	0.022
6.0	45	1480	75	28	0.013	3970	350	75	0.022

DIA. = Diameter LOC = Length of Cut RPM = rev./min. FEED = mm/min. Vc = m/min. fz = mm/tooth

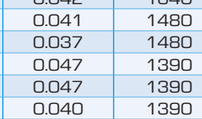
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN

SEME72 SERIES

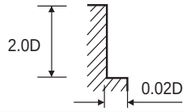
MATERIAL		P							
		NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS		~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH		~ 1100N/mm²				1110 ~ 1500N/mm²			
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	25	3360	550	84	0.041	1900	215	48	0.028
8.0	30	3360	550	84	0.041	1900	215	48	0.028
8.0	35	3360	550	84	0.041	1900	215	48	0.028
8.0	40	3360	470	84	0.035	1900	185	48	0.024
8.0	45	3020	420	76	0.035	1710	165	43	0.024
8.0	50	3020	375	76	0.031	1710	145	43	0.021
10.0	30	2820	550	89	0.049	1640	215	52	0.033
10.0	35	2820	550	89	0.049	1640	215	52	0.033
10.0	40	2820	550	89	0.049	1640	215	52	0.033
10.0	45	2820	470	89	0.042	1640	185	52	0.028
10.0	50	2820	470	89	0.042	1640	185	52	0.028
10.0	55	2540	420	80	0.041	1480	165	46	0.028
10.0	60	2540	375	80	0.037	1480	145	46	0.024
12.0	35	2300	430	87	0.047	1390	190	52	0.034
12.0	40	2300	430	87	0.047	1390	190	52	0.034
12.0	45	2300	365	87	0.040	1390	165	52	0.030
12.0	50	2300	365	87	0.040	1390	165	52	0.030
12.0	55	2300	365	87	0.040	1390	165	52	0.030
12.0	60	2300	325	87	0.035	1390	145	52	0.026
12.0	65	2070	290	78	0.035	1250	130	47	0.026
12.0	70	2070	290	78	0.035	1250	130	47	0.026
14.0	50	2120	345	93	0.041	1230	145	54	0.029
14.0	60	2120	345	93	0.041	1230	145	54	0.029
16.0	40	1940	385	98	0.050	1070	150	54	0.035
16.0	50	1940	385	98	0.050	1070	150	54	0.035
16.0	60	1940	325	98	0.042	1070	130	54	0.030
16.0	70	1940	325	98	0.042	1070	130	54	0.030
16.0	80	1940	290	98	0.037	1070	115	54	0.027
16.0	90	1750	260	88	0.037	960	100	48	0.026
16.0	110	1750	260	88	0.037	960	100	48	0.026
16.0	120	1750	260	88	0.037	960	100	48	0.026
18.0	50	1680	330	95	0.049	940	130	53	0.035
18.0	70	1680	280	95	0.042	940	110	53	0.029
18.0	100	1510	225	85	0.037	850	85	48	0.025
20.0	50	1420	275	89	0.048	820	110	52	0.034
20.0	60	1420	275	89	0.048	820	110	52	0.034
20.0	70	1420	235	89	0.041	820	90	52	0.027
20.0	80	1420	235	89	0.041	820	90	52	0.027
20.0	90	1420	205	89	0.036	820	80	52	0.024
20.0	110	1270	185	80	0.036	730	75	46	0.026
20.0	120	1270	185	80	0.036	730	75	46	0.026
22.0	75	1260	205	87	0.041	820	90	57	0.027
22.0	110	1260	180	87	0.036	820	80	57	0.024
25.0	70	1100	215	86	0.049	820	110	64	0.034
25.0	90	1100	185	86	0.042	820	90	64	0.027
25.0	110	1100	185	86	0.042	820	90	64	0.027
25.0	120	1100	160	86	0.036	820	80	64	0.024

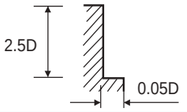


DIA. = Diameter LOC = Length of Cut
RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN
SEME72 SERIES

MATERIAL		P				K			
		HARDENED STEELS				CAST IRON			
HARDNESS		HRc 45 ~ HRc 55							
STRENGTH		1500 ~ 2000N/mm²							
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	25	1260	110	32	0.022	3360	550	84	0.041
8.0	30	1260	110	32	0.022	3360	550	84	0.041
8.0	35	1260	110	32	0.022	3360	550	84	0.041
8.0	40	1260	90	32	0.018	3360	470	84	0.035
8.0	45	1130	85	28	0.019	3020	420	76	0.035
8.0	50	1130	75	28	0.017	3020	375	76	0.031
10.0	30	1010	110	32	0.027	2820	550	89	0.049
10.0	35	1010	110	32	0.027	2820	550	89	0.049
10.0	40	1010	110	32	0.027	2820	550	89	0.049
10.0	45	1010	90	32	0.022	2820	470	89	0.042
10.0	50	1010	90	32	0.022	2820	470	89	0.042
10.0	55	910	85	29	0.023	2540	420	80	0.041
10.0	60	910	75	29	0.021	2540	375	80	0.037
12.0	35	840	85	32	0.025	2300	430	87	0.047
12.0	40	840	85	32	0.025	2300	430	87	0.047
12.0	45	840	70	32	0.021	2300	365	87	0.040
12.0	50	840	70	32	0.021	2300	365	87	0.040
12.0	55	840	70	32	0.021	2300	365	87	0.040
12.0	60	840	65	32	0.019	2300	325	87	0.035
12.0	65	760	55	29	0.018	2070	290	78	0.035
12.0	70	760	55	29	0.018	2070	290	78	0.035
14.0	50	760	65	33	0.021	2120	345	93	0.041
14.0	60	760	65	33	0.021	2120	345	93	0.041
16.0	40	670	70	34	0.026	1940	385	98	0.050
16.0	50	670	70	34	0.026	1940	385	98	0.050
16.0	60	670	60	34	0.022	1940	325	98	0.042
16.0	70	670	60	34	0.022	1940	325	98	0.042
16.0	80	670	55	34	0.021	1940	290	98	0.037
16.0	90	600	50	30	0.021	1750	260	88	0.037
16.0	110	600	50	30	0.021	1750	260	88	0.037
16.0	120	600	50	30	0.021	1750	260	88	0.037
18.0	50	590	65	33	0.028	1680	330	95	0.049
18.0	70	590	55	33	0.023	1680	280	95	0.042
18.0	100	530	45	30	0.021	1510	225	85	0.037
20.0	50	500	55	31	0.028	1420	275	89	0.048
20.0	60	500	55	31	0.028	1420	275	89	0.048
20.0	70	500	45	31	0.023	1420	235	89	0.041
20.0	80	500	45	31	0.023	1420	235	89	0.041
20.0	90	500	40	31	0.020	1420	205	89	0.036
20.0	110	450	35	28	0.019	1270	185	80	0.036
20.0	120	450	35	28	0.019	1270	185	80	0.036
22.0	75	500	45	35	0.023	1260	205	87	0.041
22.0	110	500	40	35	0.020	1260	180	87	0.036
25.0	70	500	55	39	0.028	1100	215	86	0.049
25.0	90	500	45	39	0.023	1100	185	86	0.042
25.0	110	500	45	39	0.023	1100	185	86	0.042
25.0	120	500	40	39	0.020	1100	160	86	0.036





DIA. = Diameter LOC = Length of Cut
RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEME73 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.0	2	22000	310	69	0.004	0.021	13500	180	42	0.003	0.016
1.0	3	22000	310	69	0.004	0.021	13500	180	42	0.003	0.016
1.0	4	22000	310	69	0.004	0.015	13500	180	42	0.003	0.011
1.0	5	22000	310	69	0.004	0.015	13500	180	42	0.003	0.011
1.0	6	19800	250	62	0.003	0.008	12150	145	38	0.003	0.006
1.0	7	19800	250	62	0.003	0.008	12150	145	38	0.003	0.006
1.0	8	19800	250	62	0.003	0.008	12150	145	38	0.003	0.006
1.0	10	19800	250	62	0.003	0.005	12150	145	38	0.003	0.004
1.0	12	17600	200	55	0.003	0.005	10800	115	34	0.003	0.004
1.0	14	17600	200	55	0.003	0.003	10800	115	34	0.003	0.002
1.0	16	13200	130	41	0.002	0.003	8100	75	25	0.002	0.002
1.0	18	13200	130	41	0.002	0.002	8100	75	25	0.002	0.002
1.0	20	13200	130	41	0.002	0.002	8100	75	25	0.002	0.002
1.0	22	6600	55	21	0.002	0.002	4050	30	13	0.002	0.002
1.0	26	6600	55	21	0.002	0.002	4050	30	13	0.002	0.002
1.0	30	6600	55	21	0.002	0.002	4050	30	13	0.002	0.002
1.0	40	2200	15	7	0.002	0.002	1350	10	4	0.002	0.002
1.0	50	2200	15	7	0.002	0.002	1350	10	4	0.002	0.002
1.2	4	19500	315	74	0.004	0.018	12100	185	46	0.004	0.013
1.2	6	19500	315	74	0.004	0.018	12100	185	46	0.004	0.013
1.2	8	17550	255	66	0.004	0.010	10890	150	41	0.003	0.008
1.2	10	17550	255	66	0.004	0.006	10890	150	41	0.003	0.005
1.2	12	17550	255	66	0.004	0.006	10890	150	41	0.003	0.005
1.2	14	15600	200	59	0.003	0.006	9680	120	36	0.003	0.005
1.2	16	15600	200	59	0.003	0.004	9680	120	36	0.003	0.003
1.2	20	11700	130	44	0.003	0.003	7260	80	27	0.003	0.002
1.2	26	5850	55	22	0.002	0.003	3630	35	14	0.002	0.002
1.2	30	5850	55	22	0.002	0.003	3630	35	14	0.002	0.002
1.5	4	17000	320	80	0.005	0.032	10700	190	50	0.004	0.024
1.5	5	17000	320	80	0.005	0.022	10700	190	50	0.004	0.017
1.5	6	17000	320	80	0.005	0.022	10700	190	50	0.004	0.017
1.5	7	17000	320	80	0.005	0.022	10700	190	50	0.004	0.017
1.5	8	15300	260	72	0.004	0.013	9630	155	45	0.004	0.009
1.5	10	15300	260	72	0.004	0.013	9630	155	45	0.004	0.009
1.5	12	15300	260	72	0.004	0.013	9630	155	45	0.004	0.009
1.5	14	15300	260	72	0.004	0.008	9630	155	45	0.004	0.006
1.5	16	13600	205	64	0.004	0.008	8560	120	40	0.004	0.006
1.5	18	13600	205	64	0.004	0.008	8560	120	40	0.004	0.006
1.5	20	13600	205	64	0.004	0.005	8560	120	40	0.004	0.004
1.5	22	13600	205	64	0.004	0.005	8560	120	40	0.004	0.004
1.5	26	10200	135	48	0.003	0.003	6420	80	30	0.003	0.002
1.5	30	10200	135	48	0.003	0.003	6420	80	30	0.003	0.002
2.0	6	13900	330	87	0.006	0.042	9070	200	57	0.006	0.032
2.0	8	13900	330	87	0.006	0.029	9070	200	57	0.006	0.022
2.0	10	13900	330	87	0.006	0.029	9070	200	57	0.006	0.022
2.0	12	12510	265	79	0.005	0.017	8160	160	51	0.005	0.013
2.0	16	12510	265	79	0.005	0.017	8160	160	51	0.005	0.013

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
SEME73 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
1.0	2	8500	50	27	0.001	0.013	22000	310	69	0.004	0.021
1.0	3	8500	50	27	0.001	0.013	22000	310	69	0.004	0.021
1.0	4	8500	50	27	0.001	0.009	22000	310	69	0.004	0.015
1.0	5	8500	50	27	0.001	0.009	22000	310	69	0.004	0.015
1.0	6	7650	40	24	0.001	0.005	19800	250	62	0.003	0.008
1.0	7	7650	40	24	0.001	0.005	19800	250	62	0.003	0.008
1.0	8	7650	40	24	0.001	0.005	19800	250	62	0.003	0.008
1.0	10	7650	40	24	0.001	0.003	19800	250	62	0.003	0.005
1.0	12	6800	30	21	0.001	0.003	17600	200	55	0.003	0.005
1.0	14	6800	30	21	0.001	0.002	17600	200	55	0.003	0.003
1.0	16	5100	20	16	0.001	0.002	13200	130	41	0.002	0.003
1.0	18	5100	20	16	0.001	0.001	13200	130	41	0.002	0.002
1.0	20	5100	20	16	0.001	0.001	13200	130	41	0.002	0.002
1.0	22	2550	10	8	0.001	0.001	6600	55	21	0.002	0.002
1.0	26	2550	10	8	0.001	0.001	6600	55	21	0.002	0.002
1.0	30	2550	10	8	0.001	0.001	6600	55	21	0.002	0.002
1.0	40	850	5	3	0.001	0.001	2200	15	7	0.002	0.002
1.0	50	850	5	3	0.001	0.001	2200	15	7	0.002	0.002
1.2	4	7500	50	28	0.002	0.011	19500	315	74	0.004	0.018
1.2	6	7500	50	28	0.002	0.011	19500	315	74	0.004	0.018
1.2	8	6750	40	25	0.001	0.006	17550	255	66	0.004	0.010
1.2	10	6750	40	25	0.001	0.004	17550	255	66	0.004	0.006
1.2	12	6750	40	25	0.001	0.004	17550	255	66	0.004	0.006
1.2	14	6000	30	23	0.001	0.004	15600	200	59	0.003	0.006
1.2	16	6000	30	23	0.001	0.002	15600	200	59	0.003	0.004
1.2	20	4500	20	17	0.001	0.002	11700	130	44	0.003	0.003
1.2	26	2250	10	8	0.001	0.002	5850	55	22	0.002	0.003
1.2	30	2250	10	8	0.001	0.002	5850	55	22	0.002	0.003
1.5	4	6500	50	31	0.002	0.019	17000	320	80	0.005	0.032
1.5	5	6500	50	31	0.002	0.013	17000	320	80	0.005	0.022
1.5	6	6500	50	31	0.002	0.013	17000	320	80	0.005	0.022
1.5	7	6500	50	31	0.002	0.013	17000	320	80	0.005	0.022
1.5	8	5850	40	28	0.002	0.008	15300	260	72	0.004	0.013
1.5	10	5850	40	28	0.002	0.008	15300	260	72	0.004	0.013
1.5	12	5850	40	28	0.002	0.008	15300	260	72	0.004	0.013
1.5	14	5850	40	28	0.002	0.005	15300	260	72	0.004	0.008
1.5	16	5200	30	25	0.001	0.005	13600	205	64	0.004	0.008
1.5	18	5200	30	25	0.001	0.005	13600	205	64	0.004	0.008
1.5	20	5200	30	25	0.001	0.003	13600	205	64	0.004	0.005
1.5	22	5200	30	25	0.001	0.003	13600	205	64	0.004	0.005
1.5	26	3900	20	18	0.001	0.002	10200	135	48	0.003	0.003
1.5	30	3900	20	18	0.001	0.002	10200	135	48	0.003	0.003
2.0	6	6000	60	38	0.003	0.025	13900	330	87	0.006	0.042
2.0	8	6000	60	38	0.003	0.018	13900	330	87	0.006	0.029
2.0	10	6000	60	38	0.003	0.018	13900	330	87	0.006	0.029
2.0	12	5400	50	34	0.002	0.010	12510	265	79	0.005	0.017
2.0	16	5400	50	34	0.002	0.010	12510	265	79	0.005	0.017

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEME73 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
2.0	18	12510	265	79	0.005	0.011	8160	160	51	0.005	0.008
2.0	20	12510	265	79	0.005	0.011	8160	160	51	0.005	0.008
2.0	22	11120	210	70	0.005	0.011	7260	130	46	0.004	0.008
2.0	26	11120	210	70	0.005	0.011	7260	130	46	0.004	0.008
2.0	30	11120	210	70	0.005	0.006	7260	130	46	0.004	0.005
2.0	35	8340	140	52	0.004	0.004	5440	85	34	0.004	0.003
2.0	40	8340	140	52	0.004	0.004	5440	85	34	0.004	0.003
2.0	45	4170	60	26	0.004	0.004	2720	35	17	0.003	0.003
2.0	50	4170	60	26	0.004	0.004	2720	35	17	0.003	0.003
2.0	60	4170	60	26	0.004	0.004	2720	35	17	0.003	0.003
2.5	8	12000	350	94	0.007	0.037	7600	220	60	0.007	0.028
2.5	10	12000	350	94	0.007	0.037	7600	220	60	0.007	0.028
2.5	12	12000	350	94	0.007	0.037	7600	220	60	0.007	0.028
2.5	14	10800	285	85	0.007	0.021	6840	180	54	0.007	0.016
2.5	16	10800	285	85	0.007	0.021	6840	180	54	0.007	0.016
2.5	18	10800	285	85	0.007	0.021	6840	180	54	0.007	0.016
2.5	20	10800	285	85	0.007	0.021	6840	180	54	0.007	0.016
2.5	22	10800	285	85	0.007	0.013	6840	180	54	0.007	0.010
2.5	26	9600	225	75	0.006	0.013	6080	140	48	0.006	0.010
2.5	30	9600	225	75	0.006	0.013	6080	140	48	0.006	0.010
2.5	35	9600	225	75	0.006	0.008	6080	140	48	0.006	0.006
2.5	40	7200	145	57	0.005	0.008	4560	90	36	0.005	0.006
2.5	45	7200	145	57	0.005	0.005	4560	90	36	0.005	0.004
2.5	50	7200	145	57	0.005	0.005	4560	90	36	0.005	0.004
3.0	6	10700	380	101	0.009	0.063	6670	240	63	0.009	0.047
3.0	8	10700	380	101	0.009	0.063	6670	240	63	0.009	0.047
3.0	10	10700	380	101	0.009	0.044	6670	240	63	0.009	0.033
3.0	12	10700	380	101	0.009	0.044	6670	240	63	0.009	0.033
3.0	14	10700	380	101	0.009	0.044	6670	240	63	0.009	0.033
3.0	16	9630	310	91	0.008	0.025	6000	195	57	0.008	0.019
3.0	18	9630	310	91	0.008	0.025	6000	195	57	0.008	0.019
3.0	20	9630	310	91	0.008	0.025	6000	195	57	0.008	0.019
3.0	22	9630	310	91	0.008	0.025	6000	195	57	0.008	0.019
3.0	26	9630	310	91	0.008	0.016	6000	195	57	0.008	0.012
3.0	30	9630	310	91	0.008	0.016	6000	195	57	0.008	0.012
3.0	35	8560	245	81	0.007	0.016	5340	155	50	0.007	0.012
3.0	40	8560	245	81	0.007	0.009	5340	155	50	0.007	0.007
3.0	45	8560	245	81	0.007	0.009	5340	155	50	0.007	0.007
3.0	50	6420	160	61	0.006	0.006	4000	100	38	0.006	0.005
3.0	60	6420	160	61	0.006	0.006	4000	100	38	0.006	0.005
4.0	8	9070	680	114	0.019	0.084	5540	420	70	0.019	0.063
4.0	10	9070	680	114	0.019	0.084	5540	420	70	0.019	0.063
4.0	12	9070	680	114	0.019	0.084	5540	420	70	0.019	0.063
4.0	14	9070	680	114	0.019	0.059	5540	420	70	0.019	0.044
4.0	16	9070	680	114	0.019	0.059	5540	420	70	0.019	0.044
4.0	18	9070	680	114	0.019	0.059	5540	420	70	0.019	0.044
4.0	20	9070	680	114	0.019	0.059	5540	420	70	0.019	0.044

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEME73 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
2.0	18	5400	50	34	0.002	0.006	12510	265	79	0.005	0.011
2.0	20	5400	50	34	0.002	0.006	12510	265	79	0.005	0.011
2.0	22	4800	40	30	0.002	0.006	11120	210	70	0.005	0.011
2.0	26	4800	40	30	0.002	0.006	11120	210	70	0.005	0.011
2.0	30	4800	40	30	0.002	0.004	11120	210	70	0.005	0.006
2.0	35	3600	25	23	0.002	0.003	8340	140	52	0.004	0.004
2.0	40	3600	25	23	0.002	0.003	8340	140	52	0.004	0.004
2.0	45	1800	10	11	0.001	0.003	4170	60	26	0.004	0.004
2.0	50	1800	10	11	0.001	0.003	4170	60	26	0.004	0.004
2.0	60	1800	10	11	0.001	0.003	4170	60	26	0.004	0.004
2.5	8	4500	60	35	0.003	0.022	12000	350	94	0.007	0.037
2.5	10	4500	60	35	0.003	0.022	12000	350	94	0.007	0.037
2.5	12	4500	60	35	0.003	0.022	12000	350	94	0.007	0.037
2.5	14	4050	50	32	0.003	0.013	10800	285	85	0.007	0.021
2.5	16	4050	50	32	0.003	0.013	10800	285	85	0.007	0.021
2.5	18	4050	50	32	0.003	0.013	10800	285	85	0.007	0.021
2.5	20	4050	50	32	0.003	0.013	10800	285	85	0.007	0.021
2.5	22	4050	50	32	0.003	0.008	10800	285	85	0.007	0.013
2.5	26	3600	40	28	0.003	0.008	9600	225	75	0.006	0.013
2.5	30	3600	40	28	0.003	0.008	9600	225	75	0.006	0.013
2.5	35	3600	40	28	0.003	0.005	9600	225	75	0.006	0.008
2.5	40	2700	25	21	0.002	0.005	7200	145	57	0.005	0.008
2.5	45	2700	25	21	0.002	0.003	7200	145	57	0.005	0.005
2.5	50	2700	25	21	0.002	0.003	7200	145	57	0.005	0.005
3.0	6	4030	70	38	0.004	0.038	10700	380	101	0.009	0.063
3.0	8	4030	70	38	0.004	0.038	10700	380	101	0.009	0.063
3.0	10	4030	70	38	0.004	0.026	10700	380	101	0.009	0.044
3.0	12	4030	70	38	0.004	0.026	10700	380	101	0.009	0.044
3.0	14	4030	70	38	0.004	0.026	10700	380	101	0.009	0.044
3.0	16	3630	55	34	0.004	0.015	9630	310	91	0.008	0.025
3.0	18	3630	55	34	0.004	0.015	9630	310	91	0.008	0.025
3.0	20	3630	55	34	0.004	0.015	9630	310	91	0.008	0.025
3.0	22	3630	55	34	0.004	0.015	9630	310	91	0.008	0.025
3.0	26	3630	55	34	0.004	0.009	9630	310	91	0.008	0.016
3.0	30	3630	55	34	0.004	0.009	9630	310	91	0.008	0.016
3.0	35	3220	45	30	0.003	0.009	8560	245	81	0.007	0.016
3.0	40	3220	45	30	0.003	0.006	8560	245	81	0.007	0.009
3.0	45	3220	45	30	0.003	0.006	8560	245	81	0.007	0.009
3.0	50	2420	30	23	0.003	0.004	6420	160	61	0.006	0.006
3.0	60	2420	30	23	0.003	0.004	6420	160	61	0.006	0.006
4.0	8	3530	70	44	0.005	0.050	9070	680	114	0.019	0.084
4.0	10	3530	70	44	0.005	0.050	9070	680	114	0.019	0.084
4.0	12	3530	70	44	0.005	0.050	9070	680	114	0.019	0.084
4.0	14	3530	70	44	0.005	0.035	9070	680	114	0.019	0.059
4.0	16	3530	70	44	0.005	0.035	9070	680	114	0.019	0.059
4.0	18	3530	70	44	0.005	0.035	9070	680	114	0.019	0.059
4.0	20	3530	70	44	0.005	0.035	9070	680	114	0.019	0.059

DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

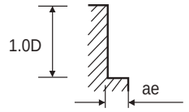
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEME73 SERIES

MATERIAL		P					P				
		NON-ALLOYED STEELS ALLOY STEELS					ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS		~ HRc 35					HRc 35 ~ HRc 45				
STRENGTH		~ 1100N/mm²					1110 ~ 1500N/mm²				
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
4.0	22	8160	550	103	0.017	0.034	4990	340	63	0.017	0.025
4.0	26	8160	550	103	0.017	0.034	4990	340	63	0.017	0.025
4.0	30	8160	550	103	0.017	0.034	4990	340	63	0.017	0.025
4.0	35	8160	550	103	0.017	0.021	4990	340	63	0.017	0.016
4.0	40	8160	550	103	0.017	0.021	4990	340	63	0.017	0.016
4.0	45	7260	435	91	0.015	0.021	4430	270	56	0.015	0.016
4.0	50	7260	435	91	0.015	0.021	4430	270	56	0.015	0.016
4.0	60	7260	435	91	0.015	0.013	4430	270	56	0.015	0.009
5.0	16	7560	720	119	0.024	0.074	4530	430	71	0.024	0.055
5.0	20	7560	720	119	0.024	0.074	4530	430	71	0.024	0.055
5.0	26	6800	585	107	0.022	0.042	4080	350	64	0.021	0.032
5.0	30	6800	585	107	0.022	0.042	4080	350	64	0.021	0.032
5.0	35	6800	585	107	0.022	0.042	4080	350	64	0.021	0.032
5.0	40	6800	585	107	0.022	0.042	4080	350	64	0.021	0.032
5.0	50	6800	585	107	0.022	0.026	4080	350	64	0.021	0.020
5.0	60	6050	460	95	0.019	0.026	3620	275	57	0.019	0.020
6.0	15	6670	790	126	0.030	0.126	4030	490	76	0.030	0.095
6.0	20	6670	790	126	0.030	0.088	4030	490	76	0.030	0.066
6.0	30	6670	790	126	0.030	0.088	4030	490	76	0.030	0.066
6.0	32	6000	640	113	0.027	0.050	3630	395	68	0.027	0.038
8.0	25	5040	850	127	0.042	0.118	3020	450	76	0.037	0.088
8.0	30	5040	850	127	0.042	0.118	3020	450	76	0.037	0.088
8.0	42	4540	690	114	0.038	0.067	2720	365	68	0.034	0.050
10.0	30	3910	730	123	0.047	0.210	2400	360	75	0.038	0.158
10.0	35	3910	730	123	0.047	0.147	2400	360	75	0.038	0.110
10.0	45	3910	730	123	0.047	0.147	2400	360	75	0.038	0.110
12.0	35	3300	620	124	0.047	0.252	2010	300	76	0.037	0.189
12.0	40	3300	620	124	0.047	0.176	2010	300	76	0.037	0.132
12.0	50	3300	620	124	0.047	0.176	2010	300	76	0.037	0.132



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

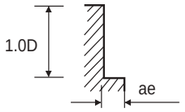
4G MILL END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE with EXTENDED NECK
VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL

SEME73 SERIES

MATERIAL		P					K				
		HARDENED STEELS					CAST IRON				
HARDNESS		HRc 45 ~ HRc 55									
STRENGTH		1500 ~ 2000N/mm²									
DIA.	LBS	RPM	FEED	Vc	fz	ap(mm)	RPM	FEED	Vc	fz	ap(mm)
4.0	22	3180	55	40	0.004	0.020	8160	550	103	0.017	0.034
4.0	26	3180	55	40	0.004	0.020	8160	550	103	0.017	0.034
4.0	30	3180	55	40	0.004	0.020	8160	550	103	0.017	0.034
4.0	35	3180	55	40	0.004	0.013	8160	550	103	0.017	0.021
4.0	40	3180	55	40	0.004	0.013	8160	550	103	0.017	0.021
4.0	45	2820	45	35	0.004	0.013	7260	435	91	0.015	0.021
4.0	50	2820	45	35	0.004	0.013	7260	435	91	0.015	0.021
4.0	60	2820	45	35	0.004	0.008	7260	435	91	0.015	0.013
5.0	16	2780	85	44	0.008	0.044	7560	720	119	0.024	0.074
5.0	20	2780	85	44	0.008	0.044	7560	720	119	0.024	0.074
5.0	26	2500	70	39	0.007	0.025	6800	585	107	0.022	0.042
5.0	30	2500	70	39	0.007	0.025	6800	585	107	0.022	0.042
5.0	35	2500	70	39	0.007	0.025	6800	585	107	0.022	0.042
5.0	40	2500	70	39	0.007	0.025	6800	585	107	0.022	0.042
5.0	50	2500	70	39	0.007	0.016	6800	585	107	0.022	0.026
5.0	60	2220	55	35	0.006	0.016	6050	460	95	0.019	0.026
6.0	15	2400	95	45	0.010	0.076	6670	790	126	0.030	0.126
6.0	20	2400	95	45	0.010	0.053	6670	790	126	0.030	0.088
6.0	30	2400	95	45	0.010	0.053	6670	790	126	0.030	0.088
6.0	32	2160	75	41	0.009	0.030	6000	640	113	0.027	0.050
8.0	25	2010	130	51	0.016	0.071	5040	850	127	0.042	0.118
8.0	30	2010	130	51	0.016	0.071	5040	850	127	0.042	0.118
8.0	42	1810	105	45	0.015	0.040	4540	690	114	0.038	0.067
10.0	30	1630	105	51	0.016	0.126	3910	730	123	0.047	0.210
10.0	35	1630	105	51	0.016	0.088	3910	730	123	0.047	0.147
10.0	45	1630	105	51	0.016	0.088	3910	730	123	0.047	0.147
12.0	35	1400	95	53	0.017	0.151	3300	620	124	0.047	0.252
12.0	40	1400	95	53	0.017	0.106	3300	620	124	0.047	0.176
12.0	50	1400	95	53	0.017	0.106	3300	620	124	0.047	0.176



DIA. = Diameter
LBS = Length Below Shank
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

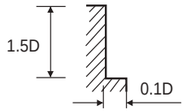
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

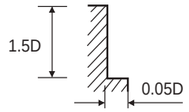
CARBIDE, 6 FLUTE 45° HELIX
VOLLHARTMETALL, 6 SCHNEIDEN

SEME75 SERIES

■ NORMAL SPEED

MATERIAL		P							
		NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS		~ HRc 35				HRc 35 ~ HRc 45			
STRENGTH		~ 1100N/mm²				1110 ~ 1500N/mm²			
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15	5840	2100	110	0.060	4075	1440	77	0.059
6.0	20	5840	2100	110	0.060	4075	1440	77	0.059
6.0	30	5840	1785	110	0.051	4075	1225	77	0.050
8.0	20	4410	2100	111	0.079	3085	1440	78	0.078
8.0	30	4410	2100	111	0.079	3085	1440	78	0.078
8.0	35	4410	2100	111	0.079	3085	1440	78	0.078
8.0	40	4410	1785	111	0.067	3085	1225	78	0.066
10.0	25	3530	2100	111	0.099	2435	1440	76	0.099
10.0	30	3530	2100	111	0.099	2435	1440	76	0.099
10.0	40	3530	2100	111	0.099	2435	1440	76	0.099
10.0	50	3530	1785	111	0.084	2435	1225	76	0.084
12.0	30	2980	1765	112	0.099	2100	1220	79	0.097
12.0	40	2980	1765	112	0.099	2100	1220	79	0.097
12.0	50	2980	1500	112	0.084	2100	1035	79	0.082
12.0	60	2980	1325	112	0.074	2100	915	79	0.073
16.0	40	2205	1325	111	0.100	1555	925	78	0.099
16.0	50	2205	1325	111	0.100	1555	925	78	0.099
16.0	60	2205	1125	111	0.085	1555	790	78	0.085
16.0	90	1985	895	100	0.075	1395	625	70	0.075
16.0	110	1985	895	100	0.075	1395	625	70	0.075
20.0	45	1765	1060	111	0.100	1220	725	77	0.099
20.0	60	1765	1060	111	0.100	1220	725	77	0.099
20.0	70	1765	905	111	0.085	1220	615	77	0.084
20.0	110	1585	715	100	0.075	1090	490	68	0.075

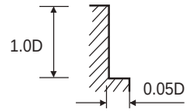


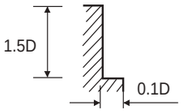


DIA. = Diameter RPM = rev./min. Vc = m/min.
LOC = Length of Cut FEED = mm/min. fz = mm/tooth

4G MILL END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
CARBIDE, 6 FLUTE 45° HELIX
VOLLHARTMETALL, 6 SCHNEIDEN
SEME75 SERIES
■ NORMAL SPEED

MATERIAL		P				K			
		HARDENED STEELS				CAST IRON			
HARDNESS		HRc 45 ~ HRc 55							
STRENGTH		1500 ~ 2000N/mm²							
DIA.	LOC	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15	1660	220	31	0.022	5840	2100	110	0.060
6.0	20	1660	220	31	0.022	5840	2100	110	0.060
6.0	30	1660	190	31	0.019	5840	1785	110	0.051
8.0	20	1220	220	31	0.030	4410	2100	111	0.079
8.0	30	1220	220	31	0.030	4410	2100	111	0.079
8.0	35	1220	220	31	0.030	4410	2100	111	0.079
8.0	40	1220	190	31	0.026	4410	1785	111	0.067
10.0	25	1050	220	33	0.035	3530	2100	111	0.099
10.0	30	1050	220	33	0.035	3530	2100	111	0.099
10.0	40	1050	220	33	0.035	3530	2100	111	0.099
10.0	50	1050	190	33	0.030	3530	1785	111	0.084
12.0	30	880	190	33	0.036	2980	1765	112	0.099
12.0	40	880	190	33	0.036	2980	1765	112	0.099
12.0	50	880	165	33	0.031	2980	1500	112	0.084
12.0	60	880	140	33	0.027	2980	1325	112	0.074
16.0	40	670	135	34	0.034	2205	1325	111	0.100
16.0	50	670	135	34	0.034	2205	1325	111	0.100
16.0	60	670	115	34	0.029	2205	1125	111	0.085
16.0	90	610	95	31	0.026	1985	895	100	0.075
16.0	110	610	95	31	0.026	1985	895	100	0.075
20.0	45	525	115	33	0.037	1765	1060	111	0.100
20.0	60	525	115	33	0.037	1765	1060	111	0.100
20.0	70	525	100	33	0.032	1765	905	111	0.085
20.0	110	475	80	30	0.028	1585	715	100	0.075





DIA. = Diameter RPM = rev./min. Vc = m/min.
LOC = Length of Cut FEED = mm/min. fz = mm/tooth

4G MILL END MILLS

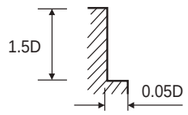
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

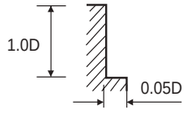
CARBIDE, 6 FLUTE 45° HELIX
VOLLHARTMETALL, 6 SCHNEIDEN

SEME75 SERIES

■ HIGH SPEED

MATERIAL		P							
		ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS		HRc 35 ~ HRc 45				HRc 45 ~ HRc 55			
STRENGTH		1110 ~ 1500N/mm²				1500 ~ 2000N/mm²			
DIAMETER	Length of Cut	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15	17640	6395	333	0.060	8820	3205	166	0.061
6.0	20	17640	6395	333	0.060	8820	3205	166	0.061
6.0	30	17640	5435	333	0.051	8820	2720	166	0.051
8.0	20	13230	6395	333	0.081	6615	3205	166	0.081
8.0	30	13230	6395	333	0.081	6615	3205	166	0.081
8.0	35	13230	6395	333	0.081	6615	3205	166	0.081
8.0	40	13230	5435	333	0.068	6615	2725	166	0.069
10.0	25	10480	6290	329	0.100	5290	3205	166	0.101
10.0	30	10480	6290	329	0.100	5290	3205	166	0.101
10.0	40	10480	6290	329	0.100	5290	3205	166	0.101
10.0	50	10480	5345	329	0.085	5290	2720	166	0.086
12.0	30	8820	5290	333	0.100	4410	2645	166	0.100
12.0	40	8820	5290	333	0.100	4410	2645	166	0.100
12.0	50	8820	4500	333	0.085	4410	2245	166	0.085
12.0	60	8820	3970	333	0.075	4410	1985	166	0.075
16.0	40	6615	3970	333	0.100	3320	1985	167	0.100
16.0	50	6615	3970	333	0.100	3320	1985	167	0.100
16.0	60	6615	3375	333	0.085	3320	1685	167	0.085
16.0	90	5955	2680	299	0.075	2980	1340	150	0.075
16.0	110	5955	2680	299	0.075	2980	1340	150	0.075
20.0	45	5290	3205	332	0.101	2645	1545	166	0.097
20.0	60	5290	3205	332	0.101	2645	1545	166	0.097
20.0	70	5290	2720	332	0.086	2645	1315	166	0.083
20.0	110	4765	2165	299	0.076	2385	1040	150	0.073





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

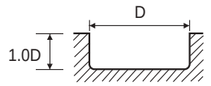
X-SPEED ROUGHER

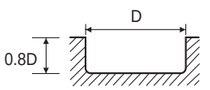
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - SLOTTING
VOLLHARTMETALL, 4&5 SCHNEIDEN MEHRSPIRAL FRÄSER ECKENRADIUS - NUTENFRÄSEN

G9D75, G9D67, G9D76, G9D68, G9D77, G9D69 SERIES

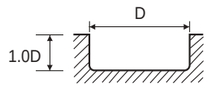
MATERIAL	P							
	ALLOYED STEELS CARBON STEELS, TOOL STEELS				ALLOYED STEELS, CARBON STEELS TOOL STEELS, PREHARDENED STEELS			
HARDNESS	~ HRc 25				HRc 45 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	12000	1550	225	0.032	10600	1100	200	0.026
8.0	9000	1650	225	0.046	8100	1180	205	0.036
10.0	7200	1650	225	0.057	6400	1180	200	0.046
12.0	6000	1540	225	0.064	5400	1140	205	0.053
16.0	4500	1500	225	0.067	4100	1050	205	0.051
20.0	3600	1330	225	0.074	3200	900	200	0.056

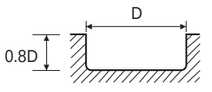




RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	K							
	CAST IRON							
HARDNESS	~ HRc 25				HRc 45 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	12000	1550	225	0.032	10600	1100	200	0.026
8.0	9000	1650	225	0.046	8100	1180	205	0.036
10.0	7200	1650	225	0.057	6400	1180	200	0.046
12.0	6000	1540	225	0.064	5400	1140	205	0.053
16.0	4500	1500	225	0.067	4100	1050	205	0.051
20.0	3600	1330	225	0.074	3200	900	200	0.056





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

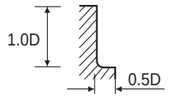
X-SPEED ROUGHER

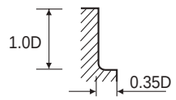
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4&5 FLUTE MULTIPLE HELIX CORNER RADIUS - SIDE CUTTING
VOLLHARTMETALL,4&5 SCHNEIDEN MEHRSPIRAL FRÄSER ECKENRADIUS- SEITENFRÄSEN

G9D75, G9D67, G9D76, G9D68, G9D77, G9D69 SERIES

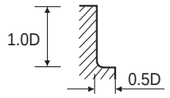
MATERIAL	P							
	ALLOYED STEELS CARBON STEELS, TOOL STEELS				ALLOYED STEELS, CARBON STEELS TOOL STEELS, PREHARDENED STEELS			
HARDNESS	~ HRc 25				HRc 45 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15800	2570	300	0.041	14300	1850	270	0.032
8.0	11900	2700	300	0.057	10700	1950	270	0.046
10.0	9500	2700	300	0.071	8500	1950	265	0.057
12.0	8000	2570	300	0.080	7100	1850	270	0.065
16.0	6000	2450	300	0.082	5400	1750	270	0.065
20.0	4800	2140	300	0.089	4300	1500	270	0.070

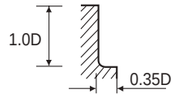




RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	K							
	CAST IRON							
HARDNESS	~ HRc 25				HRc 45 ~ HRc 55			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15800	2570	300	0.041	14300	1850	270	0.032
8.0	11900	2700	300	0.057	10700	1950	270	0.046
10.0	9500	2700	300	0.071	8500	1950	265	0.057
12.0	8000	2570	300	0.080	7100	1850	270	0.065
16.0	6000	2450	300	0.082	5400	1750	270	0.065
20.0	4800	2140	300	0.089	4300	1500	270	0.070





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

4G MILL END MILLS

X-SPEED ROUGHER

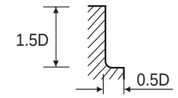
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-PM, 4&5 FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS
HSS-PM, 4&5 SCHNEIDEN MEHRSPIRAL FRÄSER KURZ ECKENRADIUS

GAE53 SERIES

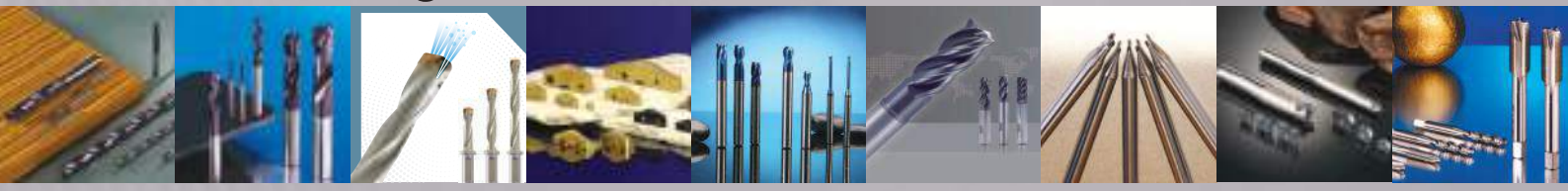
MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS, TOOL STEELS			
HARDNESS					~ HRc 20				HRc 20 ~ 30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3250	240	60	0.019	2500	185	48	0.018	1800	120	34	0.017
8.0	2750	300	70	0.027	2150	240	54	0.028	1550	170	38	0.027
10.0	2150	430	70	0.050	1700	330	54	0.049	1200	205	38	0.043
12.0	1800	430	70	0.060	1400	350	54	0.063	1000	240	38	0.059
14.0	1550	430	70	0.055	1200	350	54	0.073	850	240	38	0.069
16.0	1400	430	70	0.063	1100	350	54	0.081	750	240	38	0.080
18.0	1200	430	70	0.072	1000	350	54	0.085	700	240	38	0.086
20.0	1100	445	70	0.080	850	350	54	0.101	600	240	38	0.100

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS, TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc 30 ~ 40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1500	110	28	0.018	1750	130	33	0.019	2500	185	48	0.018
8.0	1200	130	32	0.028	1450	170	36	0.029	2150	240	54	0.028
10.0	1000	170	32	0.041	1150	200	36	0.045	1700	330	54	0.049
12.0	850	190	32	0.055	950	245	36	0.064	1400	350	54	0.063
14.0	700	190	32	0.065	850	245	36	0.074	1200	350	54	0.073
16.0	600	190	32	0.075	700	245	36	0.085	1100	350	54	0.081
18.0	550	190	32	0.082	650	245	36	0.093	1000	350	54	0.085
20.0	500	190	32	0.092	600	245	36	0.107	850	350	54	0.101



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

Global Cutting Tool Leader **YG-1**



CARBIDE

Leading Through Innovation

X-POWER END MILLS

X-POWER FRÄSER

- Medium Steels to High Hardened Steels up to HRc65
- Für mittlere und gehärtete Stähle bis HRc65

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
EM865		CARBIDE, 2 FLUTE MINIATURE BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS	R0.3	R1.5	968	○	◎	◎	◎	○			○							
EM876 EM877		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R12.5	969	○	◎	◎	◎	○	○		○							
EM813 EM823		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R0.5	R12.5	970	○	◎	◎	◎	○	○		○							
EM899 EM900		CARBIDE, 2 FLUTE MEDIUM, BALL NOSE with NECK VOLLHARTMETALL, 2 SCHNEIDEN MEDIUM STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL	R1.5	R12.5	971	○	◎	◎	◎	○	○		○							
EM886		CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN	R0.2	R3.0	972	○	◎	◎	◎	○			○							
EM838 EM848		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS	R1.0	R10.0	975	○	◎	◎	◎	○	○		○							
EM902 EM904		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	R0.5	R6.0	976	○	○	◎	◎	○										
EM878 EM879		CARBIDE, 2 FLUTE STUB LENGTH HIGH PRECISION BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA KURZ PRÄZISER STIRNRADIUS	R0.5	R12.5	977		○	◎	◎	○	○		○							
EM815 EM825		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS	R0.5	R12.5	978	○	◎	◎	◎	○	○		○							
EM890		CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN	R0.5	R1.0	979	○	◎	◎	◎	○			○							
EM669		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE - MMC VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-KOSTENGÜNSTIG	R1.5	R8.0	982	○	◎	◎	◎	○	○		○							
EM673		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE - MMC VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-KOSTENGÜNSTIG	R2.5	R8.0	983	○	◎	◎	◎	○	○		○							
EM863		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE - MMC VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-KUGELFORM	R1.5	R8.0	984	○	◎	◎	◎	○	○		○							
EM864		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE - MMC VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-KUGELFORM	R2.5	R8.0	985	○	◎	◎	◎	○	○		○							
EM818 EM828		CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS	D3.0	D20.0	986	○	◎	◎	◎	○										
EM8A1		CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN	D0.5	D6.0	987	○	◎	◎	◎	○			○							
EM839 EM849		CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS	D2.0	D16.0	991	○	◎	◎	◎	○			○							
EM905		CARBIDE, 4 FLUTE 45° HELIX SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE KURZ ECKENRADIUS	D10.0	D22.0	992	○	◎	◎	◎	○		○	○							
EM819 EM829		CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS	D3.0	D20.0	993	○	◎	◎	◎	○		○	○							

▶ NEXT PAGE

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
EM897 EM898		CARBIDE, 6 FLUTE 45° HELIX STUB LENGTH CORNER RADIUS VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA KURZ ECKENRADIUS	D6.0	D12.0	994	○	◎	◎	◎	○			○							
EM835 EM845		CARBIDE, 6 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS	D6.0	D20.0	995	○	◎	◎	◎	○			○							
EM810		CARBIDE, 2 FLUTE MINIATURE VOLLHARTMETALL, 2 SCHNEIDEN MINI	D0.4	D1.5	996	○	◎	◎	◎	○			○							
EM810 EM820		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D25.0	997	○	◎	◎	◎	○		○	○							
EM816 EM826		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D25.0	999	○	◎	◎	◎	○		○	○							
EM883		CARBIDE, 2 FLUTE for RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN	D0.4	D6.0	1000	○	◎	◎	◎	○			○							
EM837 EM847		CARBIDE, 2 FLUTE TAPER VOLLHARTMETALL, 2 SCHNEIDEN KONISCH	D2.0	D8.0	1004	○	◎	◎	◎	○			○							
EM836 EM846		CARBIDE, 3 FLUTE MINIATURE VOLLHARTMETALL, 3 SCHNEIDEN MINI	D1.0	D20.0	1005	○	◎	◎	◎	○		○	○							
EM895 EM896		CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ	D1.0	D20.0	1006	○	◎	◎	◎	○		○	○							
EM811 EM821		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D25.0	1007	○	◎	◎	◎	○		○	○							
EM817 EM827		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D25.0	1009	○	◎	◎	◎	○			○							
EM889		CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN	D1.0	D2.0	1010	○	◎	◎	◎	○			○							
EM812 EM822		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG	D6.0	D25.0	1012	○	◎	◎	◎	○			○							
EM834 EM844		CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG	D6.0	D25.0	1013	○	◎	◎	◎	○			○							
EM833 EM843		CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING BALL NOSE - FINE VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER STIRNRADIUS - FEIN	R3.0	R10.0	1014	○	◎	◎	◎	○		○	○							
EM832 EM842		CARBIDE, MULTI FLUTE 20° HELIX SHORT LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 20°RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN	D6.0	D25.0	1015	○	◎	◎	◎	○		○	○							
EM814 EM824		CARBIDE, MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN	D6.0	D25.0	1016	○	◎	◎	◎	○		○	○							
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1017															

X-POWER END MILLS

EM865 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, micro-fraise

2 TAGLIENTI, SEMISFERICA MINI

- ▶ High precision milling in medical, optical, electronics and aerospace industries.
- ▶ Excellent performance at dry cutting conditon.
- ▶ Excellent performance on hardened steel

- ▶ Hochpräzises Fräsen für Medizintechink, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der trockenen Schneidbedingung.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.

MG HM | 2 | 30° | R ±0.01 | PLAIN | P.1017

Unit : mm

EDP No. PLAIN	Radius of Ball Nose R (±0.01)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM865006	R0.3	0.6	3	1.1	40
EM865007	R0.35	0.7	3	1.5	40
EM865008	R0.4	0.8	3	2	40
EM865009	R0.45	0.9	3	2.2	40
EM865010	R0.5	1.0	3	2.5	40
EM865011	R0.55	1.1	3	3	40
EM865012	R0.6	1.2	3	3	40
EM865013	R0.65	1.3	3	3.5	40
EM865014	R0.7	1.4	3	3.5	40
EM865015	R0.75	1.5	3	4	40
EM865020	R1.0	2.0	3	5	40
EM865030	R1.5	3.0	3	8	40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM876 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM877 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, courte

2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Economic type with short overall length.
- ▶ Radius tolerance ±0.02mm & short length of cut.

- ▶ Günstige Variante, kurze Gesamlänge.
- ▶ Radius Toleranz ±0.02mm und kurze Schneidenlänge.

MG HM | 2 | 30° | R ±0.02 | PLAIN | FLAT | P.1018-1019

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM876010	-	R0.5	1.0	3	3	38
EM876012	-	R0.6	1.2	3	3	38
EM876015	-	R0.75	1.5	3	3	38
EM876020	EM877020	R1.0	2.0	6	3	50
EM876025	EM877025	R1.25	2.5	6	4	50
EM876030	EM877030	R1.5	3.0	6	4	50
EM876040	EM877040	R2.0	4.0	6	5	54
EM876050	EM877050	R2.5	5.0	6	6	54
EM876060	EM877060	R3.0	6.0	6	7	54
EM876070	EM877070	R3.5	7.0	8	8	58
EM876080	EM877080	R4.0	8.0	8	9	58
EM876090	EM877090	R4.5	9.0	10	10	66
EM876100	EM877100	R5.0	10.0	10	11	66
EM876120	EM877120	R6.0	12.0	12	12	73
EM876140	EM877140	R7.0	14.0	14	14	75
EM876160	EM877160	R8.0	16.0	16	16	82
EM876180	EM877180	R9.0	18.0	18	18	84
EM876200	EM877200	R10.0	20.0	20	20	92
EM876250	EM877250	R12.5	25.0	25	25	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM813 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EM823 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ▶ For copy - milling machines.
- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Kopierbearbeitungen.

MG HM | 2 | 30° | R ±0.02 | PLAIN | FLAT

P.1018-1019

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.02)				
EM813010	-	R0.5	1.0	4	2.5	50
EM813901	EM823901	R0.5	1.0	6	2.5	50
EM813012	-	R0.6	1.2	4	3	50
EM813015	-	R0.75	1.5	4	4	50
EM813902	EM823902	R0.75	1.5	6	4	50
EM813020	EM823020	R1.0	2.0	6	5	50
EM813025	EM823025	R1.25	2.5	6	6	60
EM813030	EM823030	R1.5	3.0	6	8	60
EM813035	EM823035	R1.75	3.5	6	8	70
EM813040	EM823040	R2.0	4.0	6	8	70
EM813050	EM823050	R2.5	5.0	6	10	80
EM813060	EM823060	R3.0	6.0	6	12	90
EM813070	EM823070	R3.5	7.0	8	14	90
EM813080	EM823080	R4.0	8.0	8	14	100
EM813090	EM823090	R4.5	9.0	10	18	100
EM813100	EM823100	R5.0	10.0	10	18	100
EM813120	EM823120	R6.0	12.0	12	22	110
EM813140	EM823140	R7.0	14.0	14	26	110
EM813903	EM823903	R7.0	14.0	16	26	110
EM813160	EM823160	R8.0	16.0	16	30	140
EM813180	EM823180	R9.0	18.0	18	34	140
EM813200	EM823200	R10.0	20.0	20	38	160
EM813250	EM823250	R12.5	25.0	25	50	180

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

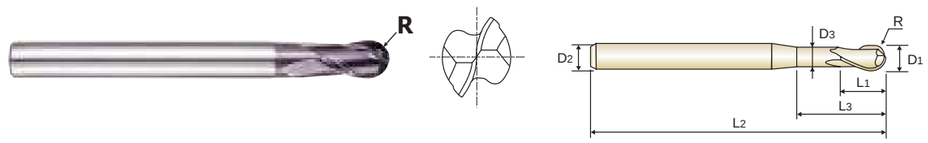
X-POWER END MILLS

EM899 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EM900 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE MEDIUM BALL NOSE with NECK

VOLLHARTMETALL, 2 SCHNEIDEN MEDIUM STIRNRADIUS mit ABGESETZTEM SCHAFTTEIL
Fraise carbure, 2 dents, hémisphérique, détalonnée, série normale
2 TAGLIENTI, SEMISFERICA, SCARICATA, SERIE MEDIA

- ▶ Deep slotting milling is possible by reduced neck.
- ▶ High efficiency milling is possible in deep slotting with projection of the end mill being long.
- ▶ Mit abgesetztem Schaftteil ist Tiefnutenfräsen möglich.
- ▶ Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



MG HM | 2 | 30° | R ±0.02 | PLAIN | FLAT

P.1020-1021

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R (±0.02)	D1	D2	L1	L3	L2	D3
EM899030	EM900030	R1.5	3.0	6	8	-	70	-
EM899040	EM900040	R2.0	4.0	6	8	-	70	-
EM899050	EM900050	R2.5	5.0	6	12	-	80	-
EM899060	EM900060	R3.0	6.0	6	12	22	80	5.8
EM899070	EM900070	R3.5	7.0	8	14	-	90	-
EM899080	EM900080	R4.0	8.0	8	14	27	90	7.8
EM899100	EM900100	R5.0	10.0	10	18	31	100	9.8
EM899120	EM900120	R6.0	12.0	12	22	35	110	11.8
EM899140	EM900140	R7.0	14.0	12	26	-	120	-
EM899160	EM900160	R8.0	16.0	16	30	50	140	15.8
EM899180	EM900180	R9.0	18.0	16	34	-	140	-
EM899200	EM900200	R10.0	20.0	20	38	58	160	19.8
EM899250	EM900250	R12.5	25.0	25	55	75	180	24.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

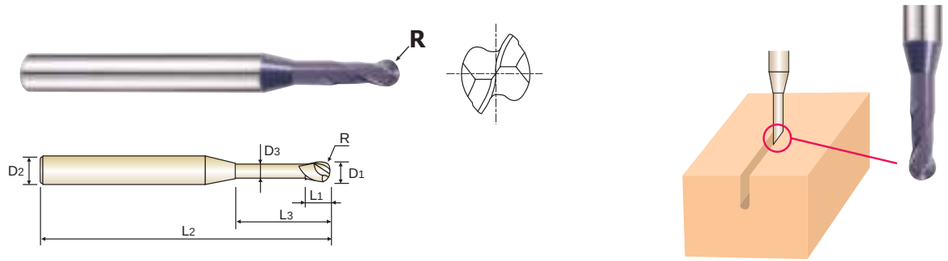
EM886 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA PER NERVATURE



MG HM | 2 | 30° | R ±0.01 | PLAIN

P.1022

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM886004	R0.2	0.4	4	0.6	1	45	0.37
EM886960	R0.2	0.4	4	0.6	2	45	0.37
EM886961	R0.2	0.4	4	0.6	3	45	0.37
EM886005	R0.25	0.5	4	0.7	2	45	0.45
EM886962	R0.25	0.5	4	0.7	4	45	0.45
EM886963	R0.25	0.5	4	0.7	6	45	0.45
EM886964	R0.25	0.5	4	0.7	8	45	0.45
EM886957	R0.3	0.6	4	0.9	2	45	0.55
EM886915	R0.3	0.6	4	0.9	4	45	0.55
EM886006	R0.3	0.6	3	0.9	6	35	0.55
EM886916	R0.3	0.6	4	0.9	6	45	0.55
EM886917	R0.3	0.6	4	0.9	8	45	0.55
EM886918	R0.4	0.8	4	1.2	2	45	0.75
EM886919	R0.4	0.8	4	1.2	4	45	0.75
EM886008	R0.4	0.8	4	1.2	6	45	0.75
EM886901	R0.4	0.8	4	1.2	8	45	0.75
EM886965	R0.4	0.8	4	1.2	10	45	0.75
EM886920	R0.5	1.0	4	1.5	3	45	0.95
EM886921	R0.5	1.0	4	1.5	4	45	0.95
EM886923	R0.5	1.0	4	1.5	5	45	0.95
EM886010	R0.5	1.0	4	1.5	6	45	0.95
EM886924	R0.5	1.0	4	1.5	7	45	0.95
EM886902	R0.5	1.0	4	1.5	8	45	0.95
EM886925	R0.5	1.0	4	1.5	9	45	0.95
EM886903	R0.5	1.0	4	1.5	10	45	0.95
EM886904	R0.5	1.0	4	1.5	12	45	0.95
EM886926	R0.5	1.0	4	1.5	14	50	0.95
EM886927	R0.5	1.0	4	1.5	16	50	0.95
EM886966	R0.5	1.0	4	1.5	20	55	0.95
EM886012	R0.6	1.2	4	1.8	8	45	1.15
EM886905	R0.6	1.2	4	1.8	12	45	1.15
EM886928	R0.7	1.4	4	2.1	8	45	1.35

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

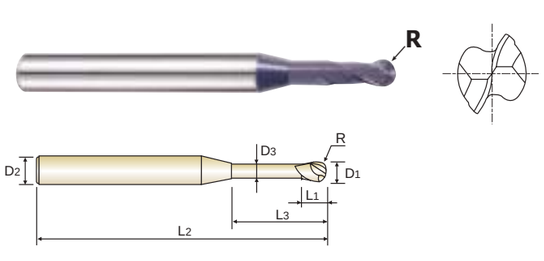
EM886 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

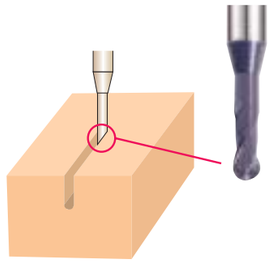
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA PER NERVATURE





MG HM | 2 | 30° | R ±0.01 | PLAIN

P.1022

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM886014	R0.7	1.4	4	2.1	12	45	1.35
EM886929	R0.7	1.4	4	2.1	16	50	1.35
EM886930	R0.75	1.5	4	2.3	6	45	1.45
EM886015	R0.75	1.5	4	2.3	8	45	1.45
EM886931	R0.75	1.5	4	2.3	10	45	1.45
EM886906	R0.75	1.5	4	2.3	12	45	1.45
EM886907	R0.75	1.5	4	2.3	16	50	1.45
EM886932	R0.75	1.5	4	2.3	20	55	1.45
EM886933	R0.8	1.6	4	2.4	8	45	1.55
EM886934	R0.8	1.6	4	2.4	12	45	1.55
EM886016	R0.8	1.6	4	2.4	16	50	1.55
EM886935	R0.8	1.6	4	2.4	20	55	1.55
EM886936	R0.9	1.8	4	2.7	8	45	1.75
EM886937	R0.9	1.8	4	2.7	12	45	1.75
EM886018	R0.9	1.8	4	2.7	16	50	1.75
EM886938	R0.9	1.8	4	2.7	20	55	1.75
EM886939	R1.0	2.0	4	3	4	45	1.95
EM886940	R1.0	2.0	4	3	6	45	1.95
EM886020	R1.0	2.0	4	3	8	45	1.95
EM886941	R1.0	2.0	4	3	10	45	1.95
EM886942	R1.0	2.0	4	3	12	50	1.95
EM886943	R1.0	2.0	4	3	14	50	1.95
EM886909	R1.0	2.0	4	3	16	50	1.95
EM886910	R1.0	2.0	4	3	20	55	1.95
EM886944	R1.0	2.0	4	3	22	60	1.95
EM886945	R1.0	2.0	4	3	25	60	1.95
EM886967	R1.0	2.0	4	3	30	70	1.95
EM886946	R1.5	3.0	6	4.5	8	50	2.85
EM886947	R1.5	3.0	6	4.5	10	50	2.85
EM886948	R1.5	3.0	6	4.5	12	50	2.85
EM886030	R1.5	3.0	6	4.5	16	55	2.85
EM886911	R1.5	3.0	6	4.5	20	60	2.85

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

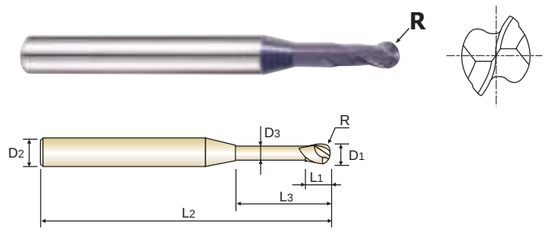
EM886 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

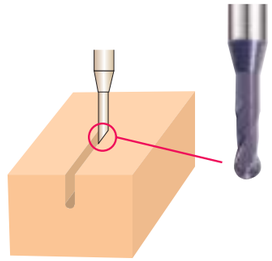
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA PER NERVATURE





MG HM | 2 | 30° | R ±0.01 | PLAIN P.1022

Unit : mm

EDP No. PLAIN	Radius of Ball Nose R (±0.01)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM886968	R1.5	3.0	6	4.5	25	65	2.85
EM886969	R1.5	3.0	6	4.5	30	70	2.85
EM886970	R1.5	3.0	6	4.5	35	80	2.85
EM886949	R2.0	4.0	6	6	10	60	3.85
EM886950	R2.0	4.0	6	6	12	60	3.85
EM886040	R2.0	4.0	6	6	16	60	3.85
EM886912	R2.0	4.0	6	6	20	65	3.85
EM886913	R2.0	4.0	6	6	25	70	3.85
EM886971	R2.0	4.0	6	6	30	70	3.85
EM886972	R2.0	4.0	6	6	35	80	3.85
EM886973	R2.0	4.0	6	6	40	90	3.85
EM886974	R2.0	4.0	6	6	45	90	3.85
EM886975	R2.0	4.0	6	6	50	100	3.85
EM886050	R2.5	5.0	6	7.5	16	60	4.85
EM886951	R2.5	5.0	6	7.5	20	60	4.85
EM886952	R2.5	5.0	6	7.5	25	70	4.85
EM886953	R2.5	5.0	6	7.5	30	80	4.85
EM886976	R2.5	5.0	6	7.5	35	80	4.85
EM886060	R3.0	6.0	6	9	20	80	5.85
EM886954	R3.0	6.0	6	9	30	90	5.85
EM886955	R3.0	6.0	6	9	40	100	5.85
EM886956	R3.0	6.0	6	9	50	110	5.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM838 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

EM848 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique longue portée

2 TAGLIENTI, SEMISFERICA PER CAVITA' PROFONDE

▶ Longer overall length than EM813, EM823 types and suitable for machining deeply located area.

▶Längere Gesamtlänge als bei EM813, EM823 typen und geeignet für extrem tiefliegende Bohrungen.

MG HM | 2 | 30° | R ±0.02 | PLAIN | FLAT P.1023-1024

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM838020	-	R1.0	2.0	3	6	80
EM838030	-	R1.5	3.0	3	8	100
EM838040	-	R2.0	4.0	4	8	100
EM838050	EM848050	R2.5	5.0	6	10	120
EM838060	EM848060	R3.0	6.0	6	10	120
EM838080	EM848080	R4.0	8.0	8	14	140
EM838100	EM848100	R5.0	10.0	10	18	180
EM838120	EM848120	R6.0	12.0	12	22	200
EM838160	EM848160	R8.0	16.0	16	30	250
EM838200	EM848200	R10.0	20.0	20	38	250

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM902 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM904 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK

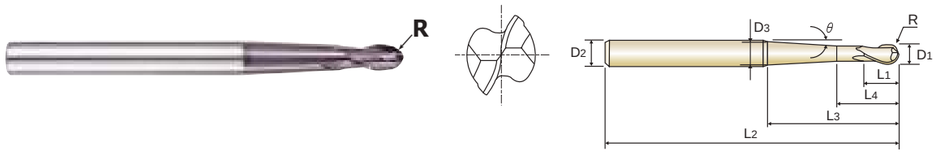
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, hémisphérique avec entrée conique

2 TAGLIENTI, SEMISFERICA, SCARICO CONICO

▶ High efficiency milling in deep slotting due to long projection of the end mills.

▶Effizientes Tiefnutenfräsen von tiefliegenden Bereichen möglich.



MG HM | 2 | 30° | R ±0.01 | PLAIN | FLAT

P.1025-1026

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Under Neck Parallel Length	Length Below Shank	Overall Length	Neck Diameter	Neck Taper Angle
PLAIN	FLAT	R (±0.01)	D1	D2	L1	L4	L3	L2	D3	θ
EM902010	EM904010	R0.5	1.0	6	2	4	23	60	2	1° 30´
EM902901	EM904901	R0.5	1.0	6	2	4	23	60	4.3	5°
EM902902	EM904902	R0.5	1.0	6	2	4	42	80	5	3°
EM902020	EM904020	R1.0	2.0	6	4	6	23	60	2.9	1° 30´
EM902903	EM904903	R1.0	2.0	6	4	6	23	60	5	5°
EM902904	EM904904	R1.0	2.0	6	4	6	41	80	5.7	3°
EM902030	EM904030	R1.5	3.0	6	6	8	32	70	5.6	3°
EM902905	EM904905	R1.5	3.0	6	6	8	52	90	5.3	1° 30´
EM902040	EM904040	R2.0	4.0	6	8	10	28	70	5.9	3°
EM902906	EM904906	R2.0	4.0	6	8	10	49	90	6	1° 30´
EM902050	EM904050	R2.5	5.0	8	10	12	41	90	8	3°
EM902907	EM904907	R2.5	5.0	8	10	12	61	110	7.6	1° 30´
EM902060	EM904060	R3.0	6.0	8	12	15	34	90	8	3°
EM902908	EM904908	R3.0	6.0	8	12	15	53	110	8	1° 30´
EM902080	EM904080	R4.0	8.0	10	14	17	36	100	10	3°
EM902909	EM904909	R4.0	8.0	10	14	17	55	120	10	1° 30´
EM902100	EM904100	R5.0	10.0	12	18	21	40	110	12	3°
EM902910	EM904910	R5.0	10.0	12	18	21	59	130	12	1° 30´
EM902120	EM904120	R6.0	12.0	16	22	25	63	140	16	3°
EM902911	EM904911	R6.0	12.0	16	22	25	83	160	15	1° 30´

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	◎	◎	○										

X-POWER END MILLS

EM878 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM879 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE STUB LENGTH HIGH PRECISION BALL NOSE

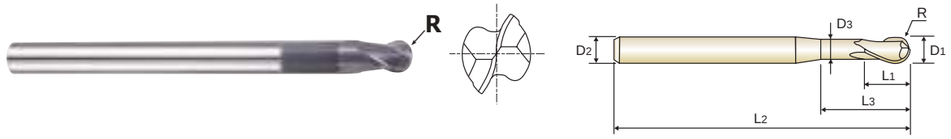
VOLLHARTMETALL, 2 SCHNEIDEN EXRTA KURZ PRÄZISER STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, de haute précision, extra-courte

2 TAGLIENTI, SEMISFERICA DI ALTA PRECISIONE, TAGLIENTE CORTO

▶ Designed for high precision milling operation.
▶ Radius toleracne ±0.01mm and improved surface roughness.

▶ Geeignet zum Hochpräzisem Fräsen
▶ Radius Toleranz ±0.01mm und höhere Oberflächengüte.



MG HM | 2 | 30° | R ±0.01 | PLAIN | FLAT

P.1018-1019

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R (±0.01)	D1	D2	L1	L3	L2	D3
EM878010	-	R0.5	1.0	4	1	2.2	50	0.95
EM878901	-	R0.5	1.0	6	1	2.2	50	0.95
EM878012	-	R0.6	1.2	4	1.2	2.6	50	1.1
EM878015	-	R0.75	1.5	4	1.5	3	50	1.4
EM878020	EM879020	R1.0	2.0	6	2	4	50	1.9
EM878025	EM879025	R1.25	2.5	6	2.5	5	60	2.4
EM878030	EM879030	R1.5	3.0	6	3	6	60	2.9
EM878040	EM879040	R2.0	4.0	6	4	8	70	3.9
EM878050	EM879050	R2.5	5.0	6	5	10	80	4.9
EM878060	EM879060	R3.0	6.0	6	6	12	90	5.9
EM878070	EM879070	R3.5	7.0	8	7	14	90	6.9
EM878080	EM879080	R4.0	8.0	8	8	16	100	7.9
EM878090	EM879090	R4.5	9.0	10	9	18	100	8.9
EM878100	EM879100	R5.0	10.0	10	10	20	100	9.9
EM878120	EM879120	R6.0	12.0	12	12	24	110	11.9
EM878140	EM879140	R7.0	14.0	14	14	28	110	13.8
EM878160	EM879160	R8.0	16.0	16	16	32	140	15.8
EM878180	EM879180	R9.0	18.0	18	18	36	140	17.8
EM878200	EM879200	R10.0	20.0	20	20	40	160	19.8
EM878250	EM879250	R12.5	25.0	25	25	50	180	24.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
	○	◎	◎	○	○		○							

X-POWER END MILLS

EM815 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM825 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS
Fraise carbure, 4 dents, hémisphérique, longue
4 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other high hardened materials.
- ▶ For copy - milling machines.
- ▶ 4 Flute design - higher feed than EM813, EM823 series

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Kopierbearbeitungen.
- ▶ 4 Schneiden - Höherer Vorschub als bei EM 813, EM 823 serien.

MG HM | 4 | 30° | R ±0.02 | PLAIN | FLAT

P.1027-1028

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM815010	-	R0.5	1.0	4	2.5	50
EM815901	EM825901	R0.5	1.0	6	2.5	50
EM815015	-	R0.75	1.5	4	4	50
EM815902	EM825902	R0.75	1.5	6	4	50
EM815020	EM825020	R1.0	2.0	6	5	50
EM815030	EM825030	R1.5	3.0	6	8	60
EM815040	EM825040	R2.0	4.0	6	8	70
EM815050	EM825050	R2.5	5.0	6	10	80
EM815060	EM825060	R3.0	6.0	6	12	90
EM815070	EM825070	R3.5	7.0	8	14	90
EM815080	EM825080	R4.0	8.0	8	14	100
EM815090	EM825090	R4.5	9.0	10	18	100
EM815100	EM825100	R5.0	10.0	10	18	100
EM815120	EM825120	R6.0	12.0	12	22	110
EM815140	EM825140	R7.0	14.0	14	26	110
EM815903	EM825903	R7.0	14.0	16	26	110
EM815160	EM825160	R8.0	16.0	16	30	140
EM815180	EM825180	R9.0	18.0	18	34	140
EM815200	EM825200	R10.0	20.0	20	38	160
EM815250	EM825250	R12.5	25.0	25	50	180

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

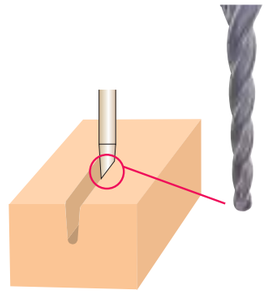
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM890 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN
Fraise carbure, 4 dents, hémisphérique conique, hélice 25°, pour usinage de rainure
4 TAGLIENTI, CONICA A TESTA RAGGIATA per NERVATURE



MG HM | 4 | 25° | R ±0.01 | PLAIN

P.1029

Unit : mm

EDP No. PLAIN	Radius of Ball Nose R (±0.01)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM890909	R0.5	1.0	4	8	45	30´
EM890911	R0.5	1.0	4	12	45	30´
EM890010	R0.5	1.0	4	8	45	1°
EM890916	R0.5	1.0	4	12	45	1°
EM890917	R0.5	1.0	4	8	45	1° 30´
EM890919	R0.5	1.0	4	12	45	1° 30´
EM890920	R0.5	1.0	4	8	45	2°
EM890922	R0.5	1.0	4	12	45	2°
EM890923	R0.6	1.2	4	8	45	30´
EM890925	R0.6	1.2	4	12	45	30´
EM890012	R0.6	1.2	4	8	45	1°
EM890932	R0.6	1.2	4	12	45	1°
EM890934	R0.6	1.2	4	8	45	1° 30´
EM890936	R0.6	1.2	4	12	45	1° 30´
EM890938	R0.6	1.2	4	8	45	2°
EM890940	R0.6	1.2	4	12	45	2°
EM890942	R0.75	1.5	4	8	45	30´
EM890944	R0.75	1.5	4	12	45	30´
EM890945	R0.75	1.5	4	16	50	30´
EM890015	R0.75	1.5	4	8	45	1°
EM890953	R0.75	1.5	4	12	45	1°
EM890954	R0.75	1.5	4	16	50	1°
EM890956	R0.75	1.5	4	8	45	1° 30´
EM890958	R0.75	1.5	4	12	45	1° 30´
EM890959	R0.75	1.5	4	16	50	1° 30´
EM890961	R0.75	1.5	4	8	45	2°
EM890963	R0.75	1.5	4	12	45	2°
EM890964	R0.75	1.5	4	16	50	2°

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

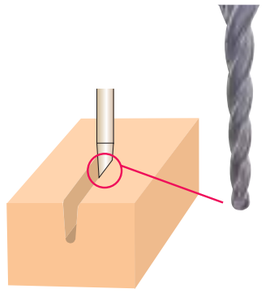
EM890 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 25° HELIX TAPER BALL NOSE for RIB PROCESSING

VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 4 dents, hémisphérique conique, hélice 25°, pour usinage de rainure

4 TAGLIENTI, CONICA A TESTA RAGGIATA per NERVATURE



MG HM | 4 | 25° | R ±0.01 | PLAIN | P.1029

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
PLAIN	R (±0.01)					
EM890816	R1.0	2.0	4	12	45	30´
EM890817	R1.0	2.0	4	16	50	30´
EM890825	R1.0	2.0	4	12	45	1°
EM890826	R1.0	2.0	4	16	50	1°
EM890830	R1.0	2.0	4	12	45	1° 30´
EM890831	R1.0	2.0	4	16	50	1° 30´
EM890835	R1.0	2.0	4	12	45	2°
EM890836	R1.0	2.0	4	16	50	2°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.015	0~-0.008	±5´

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

X-POWER BALL NOSE END MILLS-MMC

X-POWER STIRNRADIUS FRÄSER-MMC

FRAISES X-POWER HEMISPHERIQUES-MMC

X-POWER - FRESA SFERICA-MMC

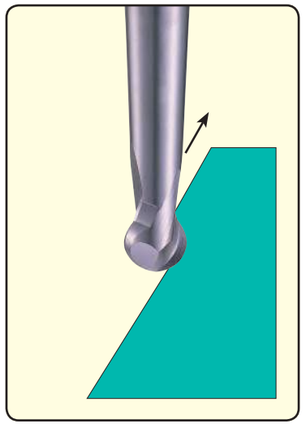
Useful Field Area / Geeignete Anwendungsgebiete

- Die & Mold making, Turbine manufacturing and Aircraft Industry, etc.
  Vorrichtungsbau, Turbinenherstellung, Luftfahrtindustrie, etc.
- Difficult 3-D Forms.
  Schwierige 3-D Formen.
- Profiling of up to HRc 60 high hardened steels and Alloy steels, Nickelbase alloys, Titanium alloys.
  Profilfräsen von bis zu HRc 60 gehätetem Stahl und Stahllegierungen Nickellegierungen, Titanlegierungen.

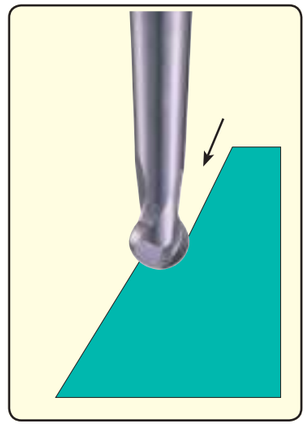
Characteristic / Eigenschaften

- Ultra micro grain carbide which increase both toughness and hardness.
  Ultra micro grain Vollhartmetall, erhöht sowohl Zähigkeit wie auch Härte.
- YG-1's unique X-POWER coating suitable for dry cutting and high speed cutting.
  YG-1's einzigartige X-POWER-Beschichtung, geeignet zum Trockenfräsen und HSC-Fräsen.
- Oustanding tool geometry and sphere shape ball enables more increased tool life and higher speed and feed operation.
  Aussergewöhnliche Werkzeug-Geometrie und Kugelform ergeben eine langere Standzeit sowie eine höhere Geschwindigkeit und Vorschubbewegung.

Surpassing Milling Operation / Fräsvorgang

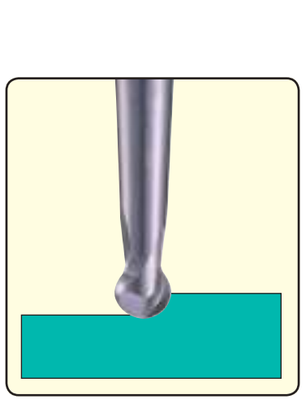


Favorable Back Milling
Vorteilhaftes Rückwärtsfräsen

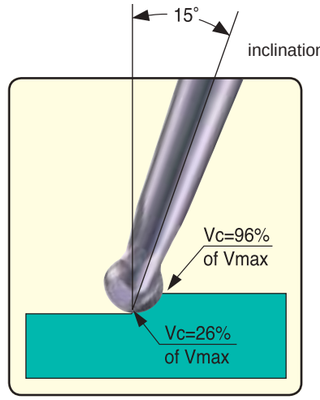


Unfavorable Drilling
Unvorteilhaftes Fräsen

- Operating angle 14° ~ 16°, higher speed and feed are possible by decreased cutting resistance at the cutting edges contacting the workpiece.
  Bearbeitungswinkel 14° ~ 16°, höhere Geschwindigkeit und Vorschub sind möglich durch geringeren Fräswiderstand an der Schneidkante des Werkstückes.
- Excellent surface finish and faster milling process.
  Ausgezeichnete Oberflächengüte und Schnellere Bearbeitung.
- Enable to mill with higher speed and feed when Back Milling.
  Ermöglicht Fräsen mit grösserer Geschwindigkeit und höherem Vorschub beim Rückwärtsfräsen.



Unfavorable Profiling
Unvorteihaftes Profilfräsen



Favorable Profiling
Vovorteilhaftes Profilfräsen

- On 15° inclination milling operation, more productivity and higher speed and feed are possible.
  Beim Fräsvorgang mit 15˚Neigung ergibt sich eine höhere Produktivität, sowie eine grössere Geschwindigkeit und ein höherer Vorschub sind möglich.
- Decreased cutting force.
  Reduzierte Fräskraft.
- Excellent surface roughness and brightness.
  Ausgezeichnete Oberflächengüte und Glanz.

X-POWER END MILLS

EM669 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-MMC

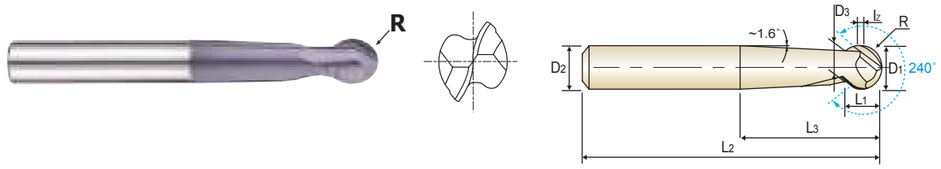
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS-MMC

Fraise carbure, 2 dents, hémisphérique, longue - La version économique

2 TAGLIENTI, SFERICA, SERIE LUNGA-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15˚inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15˚Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01mm.



MG HM | 2 | 30˚ | R ±0.01 | PLAIN

P.1030-1031

■ 2 FLUTE LONG LENGTH- ECONOMIC VERSION

■ 2 SCHNEIDEN LANG-KOSTENGÜNSTIG

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	lz
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3	
EM669030	R1.5	3.0	6	4	30	80	2.5	1.5
EM669040	R2.0	4.0	6	5	30	80	3.3	1.5
EM669050	R2.5	5.0	6	6	43	80	4.1	2
EM669060	R3.0	6.0	6	7	30	100	4.7	2
EM669080	R4.0	8.0	8	9	36	100	6.5	3
EM669100	R5.0	10.0	10	11	43	100	8.2	3
EM669120	R6.0	12.0	12	13	52	100	9.8	3
EM669160	R8.0	16.0	16	15	61	150	13.4	3

※ The economic type has more advantages in re-sharpening than the Sphere type.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM673 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-MMC

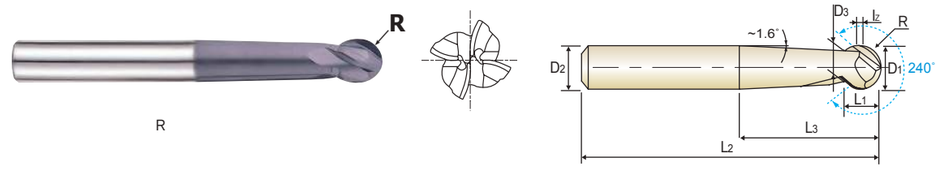
VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-MMC

Fraise carbure, 4 dents, hémisphérique, longue - La version économique

4 TAGLIENTI, SFERICA, SERIE LUNGA-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15˚inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15˚Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01mm.



MG HM | 4 | 30˚ | R ±0.01 | PLAIN

P.1032-1033

■ 4 FLUTE LONG LENGTH- ECONOMIC VERSION

■ 4 SCHNEIDEN LANG-KOSTENGÜNSTIG

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	lz
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3	
EM673050	R2.5	5.0	6	6	43	80	4.1	2
EM673060	R3.0	6.0	6	7	30	100	4.7	2
EM673080	R4.0	8.0	8	9	36	100	6.5	3
EM673100	R5.0	10.0	10	11	43	100	8.2	3
EM673120	R6.0	12.0	12	13	52	100	9.8	3
EM673160	R8.0	16.0	16	15	61	150	13.4	3

※ The economic type has more advantages in re-sharpening than the Sphere type.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM863 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE-MMC

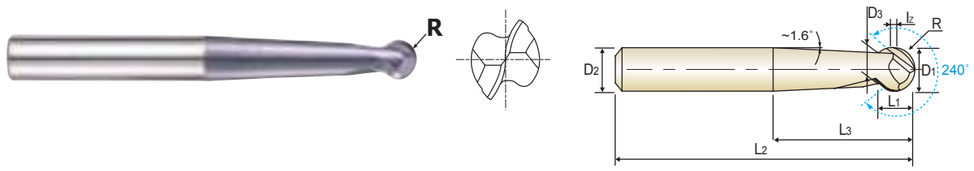
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRANRADIUS-MMC

Fraise carbure, 2 dents, hémisphérique, longue - MMC

2 TAGLIENTI, SFERICA SERIE LUNGA-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15° inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15° Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01mm.



MG HM | 2 | 30° | R ±0.01 | PLAIN

P.1030-1031

■ 2 FLUTE LONG LENGTH- SPHERE VERSION

■ 2 SCHNEIDEN LANG-KUGELFORM

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM863030	R1.5	3.0	6	2.3	30	80	2.5
EM863040	R2.0	4.0	6	3.1	30	80	3.3
EM863050	R2.5	5.0	6	3.9	38	80	4.1
EM863060	R3.0	6.0	6	4.9	28	100	4.7
EM863080	R4.0	8.0	8	6.3	33	100	6.5
EM863100	R5.0	10.0	10	7.9	40	100	8.2
EM863120	R6.0	12.0	12	9.5	49	100	9.8
EM863160	R8.0	16.0	16	12.4	59	150	13.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM864 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE-MMC

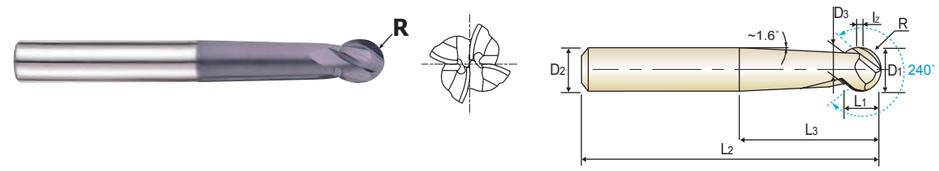
VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS-MMC

Fraise carbure, 4 dents, hémisphérique, longue - MMC

4 TAGLIENTI, SFERICA, SERIE LUNGA-MMC

- ▶ Designed for copy milling.
- ▶ Increased feed rates.
- ▶ 15˚inclination.
- ▶ Easy to regrind.
- ▶ Radius Tolerance ±0.01mm.

- ▶ Geeignet zum Kopierfräsen.
- ▶ Höhere Vorschub möglich.
- ▶ 15˚Neigung.
- ▶ Leicht nachschleifbar.
- ▶ Radius Toleranz ±0.01mm.



MG HM | 4 | 30° | R ±0.01 | PLAIN

P.1032-1033

■ 4 FLUTE LONG LENGTH- SPHERE VERSION

■ 4 SCHNEIDEN LANG-KUGELFORM

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R (±0.01)	D1	D2	L1	L3	L2	D3
EM864050	R2.5	5.0	6	3.9	38	80	4.1
EM864060	R3.0	6.0	6	4.9	28	100	4.7
EM864080	R4.0	8.0	8	6.3	33	100	6.5
EM864100	R5.0	10.0	10	7.9	40	100	8.2
EM864120	R6.0	12.0	12	9.5	49	100	9.8
EM864160	R8.0	16.0	16	12.4	59	150	13.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○	○		○							

X-POWER END MILLS

EM818 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM828 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN LANG ECKENRADIUS
Fraise carbure, 2 dents, torique, longue
2 TAGLIENTI, TORICA, SERIE LUNGA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- Superior workpiece finishes.
- Increased feed rates.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Bessere Werkstückoberflächen.
- Gesteigerte Vorschubrate.

MG HM | 2 | 30° | PLAIN | FLAT P.1034

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM818030	EM828030	R0.3	3.0	6	12	50
EM818040	EM828040	R0.3	4.0	6	15	50
EM818911	EM828911	R0.5	4.0	6	15	50
EM818050	EM828050	R0.3	5.0	6	20	60
EM818912	EM828912	R0.5	5.0	6	20	60
EM818913	EM828913	R0.3	6.0	6	20	60
EM818060	EM828060	R0.5	6.0	6	20	60
EM818901	EM828901	R1.0	6.0	6	20	60
EM818914	EM828914	R0.3	8.0	8	25	70
EM818080	EM828080	R0.5	8.0	8	25	70
EM818902	EM828902	R1.0	8.0	8	25	70
EM818903	EM828903	R1.5	8.0	8	25	70
EM818904	EM828904	R2.0	8.0	8	25	70
EM818915	EM828915	R0.3	10.0	10	30	90
EM818100	EM828100	R0.5	10.0	10	30	90
EM818905	EM828905	R1.0	10.0	10	30	90
EM818906	EM828906	R1.5	10.0	10	30	90
EM818907	EM828907	R2.0	10.0	10	30	90
EM818120	EM828120	R0.5	12.0	12	30	90
EM818908	EM828908	R1.0	12.0	12	30	90
EM818909	EM828909	R1.5	12.0	12	30	90
EM818910	EM828910	R2.0	12.0	12	30	90
EM818160	EM828160	R0.5	16.0	16	50	110
EM818916	EM828916	R1.0	16.0	16	50	110
EM818917	EM828917	R1.5	16.0	16	50	110
EM818918	EM828918	R2.0	16.0	16	50	110
EM818200	EM828200	R0.5	20.0	20	55	110
EM818919	EM828919	R1.0	20.0	20	55	110
EM818920	EM828920	R1.5	20.0	20	55	110
EM818921	EM828921	R2.0	20.0	20	55	110

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

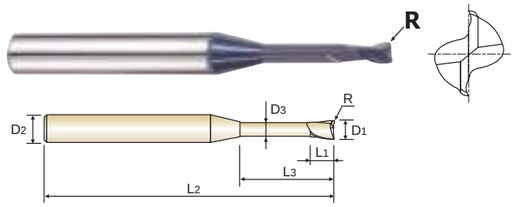
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○										

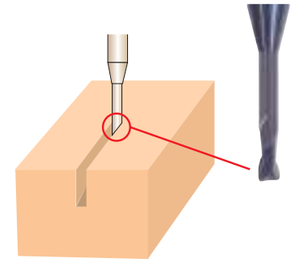
X-POWER END MILLS

EM8A1 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA PER NERVATURE





MG HM | 2 | 30° | PLAIN P.1035

Unit : mm

EDP No. PLAIN	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM8A1005	R0.05	0.5	4	0.7	2	45	0.45
EM8A1901	R0.05	0.5	4	0.7	4	45	0.45
EM8A1902	R0.05	0.5	4	0.7	6	45	0.45
EM8A1903	R0.05	0.5	4	0.7	8	45	0.45
EM8A1006	R0.05	0.6	4	0.9	2	45	0.55
EM8A1905	R0.05	0.6	4	0.9	4	45	0.55
EM8A1906	R0.05	0.6	4	0.9	6	45	0.55
EM8A1907	R0.05	0.6	4	0.9	8	45	0.55
EM8A1904	R0.05	0.6	4	0.9	10	45	0.55
EM8A1007	R0.1	0.7	4	1	2	45	0.65
EM8A1908	R0.1	0.7	4	1	3	45	0.65
EM8A1911	R0.1	0.7	4	1	4	45	0.65
EM8A1912	R0.1	0.7	4	1	6	45	0.65
EM8A1909	R0.1	0.7	4	1	8	45	0.65
EM8A1910	R0.1	0.7	4	1	10	45	0.65
EM8A1008	R0.1	0.8	4	1.2	4	45	0.75
EM8A1913	R0.1	0.8	4	1.2	6	45	0.75
EM8A1914	R0.1	0.8	4	1.2	8	45	0.75
EM8A1915	R0.1	0.8	4	1.2	10	45	0.75
EM8A1916	R0.1	0.8	4	1.2	12	45	0.75
EM8A1009	R0.1	0.9	4	1.35	6	45	0.85
EM8A1918	R0.1	0.9	4	1.35	8	45	0.85
EM8A1919	R0.1	0.9	4	1.35	10	45	0.85
EM8A1917	R0.1	0.9	4	1.35	15	50	0.85
EM8A1923	R0.1	1.0	4	1.5	4	45	0.95
EM8A1010	R0.1	1.0	4	1.5	6	45	0.95
EM8A1920	R0.1	1.0	4	1.5	8	45	0.95
EM8A1921	R0.1	1.0	4	1.5	10	45	0.95
EM8A1922	R0.1	1.0	4	1.5	12	45	0.95
EM8A1924	R0.1	1.0	4	1.5	16	50	0.95
EM8A1925	R0.1	1.0	4	1.5	20	55	0.95
EM8A1012	R0.2	1.2	4	1.8	6	45	1.15

▶ NEXT PAGE

◎ : Excellent ○ : Good

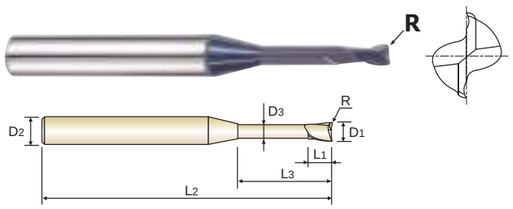
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

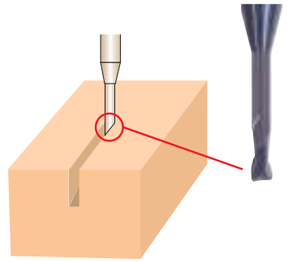
X-POWER END MILLS

EM8A1 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D1	D2	L1	L3	L2	D3
EM8A1926	R0.2	1.2	4	1.8	8	45	1.15
EM8A1927	R0.2	1.2	4	1.8	10	45	1.15
EM8A1928	R0.2	1.2	4	1.8	12	45	1.15
EM8A1929	R0.2	1.2	4	1.8	16	50	1.15
EM8A1014	R0.2	1.4	4	2.1	6	45	1.35
EM8A1931	R0.2	1.4	4	2.1	8	45	1.35
EM8A1932	R0.2	1.4	4	2.1	10	45	1.35
EM8A1933	R0.2	1.4	4	2.1	12	45	1.35
EM8A1934	R0.2	1.4	4	2.1	14	50	1.35
EM8A1935	R0.2	1.4	4	2.1	16	50	1.35
EM8A1930	R0.2	1.4	4	2.1	22	55	1.35
EM8A1015	R0.2	1.5	4	2.3	6	45	1.45
EM8A1937	R0.2	1.5	4	2.3	8	45	1.45
EM8A1938	R0.2	1.5	4	2.3	10	45	1.45
EM8A1939	R0.2	1.5	4	2.3	12	45	1.45
EM8A1940	R0.2	1.5	4	2.3	14	50	1.45
EM8A1941	R0.2	1.5	4	2.3	16	50	1.45
EM8A1942	R0.2	1.5	4	2.3	18	55	1.45
EM8A1936	R0.2	1.5	4	2.3	20	55	1.45
EM8A1948	R0.2	1.6	4	2.4	6	45	1.55
EM8A1016	R0.2	1.6	4	2.4	8	45	1.55
EM8A1949	R0.2	1.6	4	2.4	10	45	1.55
EM8A1950	R0.2	1.6	4	2.4	12	45	1.55
EM8A1943	R0.2	1.6	4	2.4	14	50	1.55
EM8A1944	R0.2	1.6	4	2.4	16	50	1.55
EM8A1945	R0.2	1.6	4	2.4	18	55	1.55
EM8A1946	R0.2	1.6	4	2.4	20	55	1.55
EM8A1947	R0.2	1.6	4	2.4	26	60	1.55
EM8A1018	R0.2	1.8	4	2.7	6	45	1.75
EM8A1952	R0.2	1.8	4	2.7	8	45	1.75
EM8A1953	R0.2	1.8	4	2.7	10	45	1.75
EM8A1954	R0.2	1.8	4	2.7	12	45	1.75

▶ NEXT PAGE

◎ : Excellent ○ : Good

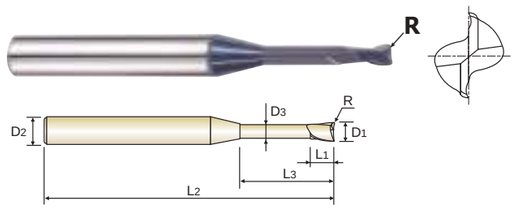
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

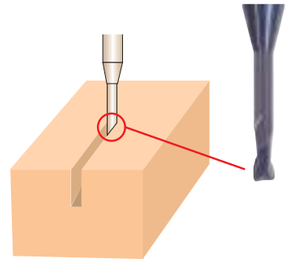
X-POWER END MILLS

EM8A1 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN
Fraise carbure, 2 dents, torique pour usinage de rainure
2 TAGLIENTI, TORICA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D1	D2	L1	L3	L2	D3
EM8A1955	R0.2	1.8	4	2.7	14	50	1.75
EM8A1956	R0.2	1.8	4	2.7	16	50	1.75
EM8A1957	R0.2	1.8	4	2.7	18	55	1.75
EM8A1958	R0.2	1.8	4	2.7	20	55	1.75
EM8A1951	R0.2	1.8	4	2.7	25	60	1.75
EM8A1960	R0.2	2.0	4	3	6	45	1.95
EM8A1020	R0.2	2.0	4	3	8	45	1.95
EM8A1961	R0.2	2.0	4	3	10	45	1.95
EM8A1962	R0.2	2.0	4	3	12	45	1.95
EM8A1963	R0.2	2.0	4	3	14	50	1.95
EM8A1964	R0.2	2.0	4	3	16	50	1.95
EM8A1965	R0.2	2.0	4	3	18	55	1.95
EM8A1966	R0.2	2.0	4	3	20	55	1.95
EM8A1967	R0.2	2.0	4	3	25	60	1.95
EM8A1959	R0.2	2.0	4	3	30	70	1.95
EM8A1968	R0.2	2.5	4	3.7	8	45	2.40
EM8A1025	R0.2	2.5	4	3.7	10	45	2.40
EM8A1969	R0.2	2.5	4	3.7	12	45	2.40
EM8A1970	R0.2	2.5	4	3.7	14	50	2.40
EM8A1971	R0.2	2.5	4	3.7	16	55	2.40
EM8A1972	R0.2	2.5	4	3.7	18	55	2.40
EM8A1973	R0.2	2.5	4	3.7	20	60	2.40
EM8A1974	R0.2	2.5	4	3.7	25	70	2.40
EM8A1975	R0.2	2.5	4	3.7	30	80	2.40
EM8A1030	R0.3	3.0	6	4.5	8	45	2.85
EM8A1978	R0.3	3.0	6	4.5	10	45	2.85
EM8A1979	R0.3	3.0	6	4.5	12	45	2.85
EM8A1980	R0.3	3.0	6	4.5	14	50	2.85
EM8A1981	R0.3	3.0	6	4.5	16	55	2.85
EM8A1982	R0.3	3.0	6	4.5	18	55	2.85
EM8A1983	R0.3	3.0	6	4.5	20	60	2.85
EM8A1984	R0.3	3.0	6	4.5	25	65	2.85

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

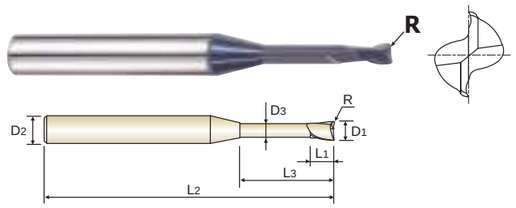
EM8A1 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

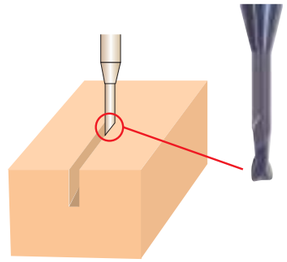
CARBIDE, 2 FLUTE CORNER RADIUS for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, torique pour usinage de rainure

2 TAGLIENTI, TORICA PER NERVATURE





MG HM | 2 | 30° | PLAIN | P.1035

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D_1	D_2	L_1	L_3	L_2	D_3
EM8A1976	R0.3	3.0	6	4.5	30	70	2.85
EM8A1977	R0.3	3.0	6	4.5	35	80	2.85
EM8A1985	R0.3	3.0	6	4.5	40	90	2.85
EM8A1040	R0.3	4.0	6	6	12	50	3.85
EM8A1986	R0.3	4.0	6	6	16	60	3.85
EM8A1987	R0.3	4.0	6	6	20	60	3.85
EM8A1988	R0.3	4.0	6	6	25	70	3.85
EM8A1989	R0.3	4.0	6	6	30	70	3.85
EM8A1990	R0.3	4.0	6	6	35	80	3.85
EM8A1991	R0.3	4.0	6	6	40	90	3.85
EM8A1992	R0.3	4.0	6	6	45	90	3.85
EM8A1993	R0.3	4.0	6	6	50	100	3.85
EM8A1050	R0.5	5.0	6	7.5	16	60	4.85
EM8A1994	R0.5	5.0	6	7.5	20	60	4.85
EM8A1995	R0.5	5.0	6	7.5	25	70	4.85
EM8A1996	R0.5	5.0	6	7.5	30	80	4.85
EM8A1997	R0.5	5.0	6	7.5	35	80	4.85
EM8A1998	R0.5	5.0	6	7.5	40	80	4.85
EM8A1999	R0.5	5.0	6	7.5	50	110	4.85
EM8A1060	R0.5	6.0	6	9	20	80	5.85
EM8A1801	R0.5	6.0	6	9	30	90	5.85
EM8A1802	R0.5	6.0	6	9	40	100	5.85
EM8A1803	R0.5	6.0	6	9	50	110	5.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM839 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

EM849 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE STUB LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA KURZ ECKENRADIUS

Fraise carbure, 4 dents, torique, extra-courte

4 TAGLIENTI, TORICA, TAGLIENTE CORTO, SCARICATA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Gesteigerte Vorschubrate.

MG HM | 4 | 30° | PLAIN | FLAT | P.1036

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2	D_3
EM839020	EM849020	R0.2	2.0	6	2.5	5	50	1.9
EM839025	EM849025	R0.25	2.5	6	3	6	50	2.4
EM839030	EM849030	R0.3	3.0	6	4	7	50	2.8
EM839035	EM849035	R0.35	3.5	6	4.5	8	50	3.2
EM839040	EM849040	R0.4	4.0	6	5	9	50	3.7
EM839050	EM849050	R0.5	5.0	6	6	12	50	4.6
EM839060	EM849060	R0.6	6.0	6	7	14	55	5.6
EM839080	EM849080	R0.8	8.0	8	10	18	60	7.4
EM839100	EM849100	R1.0	10.0	10	12	25	70	9.4
EM839120	EM849120	R1.2	12.0	12	15	30	80	11.4
EM839160	EM849160	R1.6	16.0	16	18	35	90	15.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM905 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 45° HELIX SHORT LENGTH CORNER RADIUS

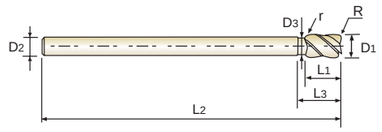
VOLLHARTMETALL, 4 SCHNEIDEN 45° RECHTSSPIRALE KURZ ECKENRADIUS

Fraise carbure, 4 dents, torique, hélice 45°, courte

4 TAGLIENTI, ELICA 45°, TORICA, TAGLIENTE CORTO

- ▶ No line is marked on the boundary section during step milling from the radius of the tool on end faces of the shank
- ▶ High speed cutting in wide deep wall with step milling
- ▶ Suitable for deep side milling, helical milling, contour milling

- ▶ Hohe Oberflächengüte, auch an den Übergangsflächen, durch Radien am Auslauf der Schneidkanten.
- ▶ Hochgeschwindigkeitsfräsen auch bei grosser Auskraglänge.
- ▶ Geeignet für tiefes Seitenfräsen, Spiralfräsen und Konturfräsen.



MG HM | 4 | 45° | PLAIN

P.1037-1038

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	R	D_1	D_2	L_1	L_3	L_2	D_3
EM905100	R0.5	10.0	8	15	19.2	130	7.5
EM905901	R1.0	10.0	8	15	19.2	130	7.5
EM905120	R0.5	12.0	10	18	22.2	150	9.5
EM905902	R1.0	12.0	10	18	22.2	150	9.5
EM905140	R0.5	14.0	12	21	25.2	160	11.5
EM905903	R1.0	14.0	12	21	25.2	160	11.5
EM905180	R0.5	18.0	16	27	31.2	180	15.5
EM905904	R1.0	18.0	16	27	31.2	180	15.5
EM905220	R0.5	22.0	20	33	37.2	200	19.5
EM905905	R1.0	22.0	20	33	37.2	200	19.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM819 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

EM829 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN LANG ECKENRADIUS

Fraise carbure, 4 dents, torique, longue

4 TAGLIENTI, TORICA, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erlauben bessere Oberflächengüte des Werkstücks.
- ▶ Gesteigerte Productivität.

MG HM | 4 | 30° | PLAIN | FLAT

P.1039

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R				
EM819030	EM829030	R0.3	3.0	6	12	50
EM819040	EM829040	R0.3	4.0	6	15	50
EM819911	EM829911	R0.5	4.0	6	15	50
EM819050	EM829050	R0.3	5.0	6	20	60
EM819912	EM829912	R0.5	5.0	6	20	60
EM819913	EM829913	R0.3	6.0	6	20	60
EM819060	EM829060	R0.5	6.0	6	20	60
EM819901	EM829901	R1.0	6.0	6	20	60
EM819914	EM829914	R0.3	8.0	8	25	70
EM819080	EM829080	R0.5	8.0	8	25	70
EM819902	EM829902	R1.0	8.0	8	25	70
EM819903	EM829903	R1.5	8.0	8	25	70
EM819904	EM829904	R2.0	8.0	8	25	70
EM819915	EM829915	R0.3	10.0	10	30	90
EM819100	EM829100	R0.5	10.0	10	30	90
EM819905	EM829905	R1.0	10.0	10	30	90
EM819906	EM829906	R1.5	10.0	10	30	90
EM819907	EM829907	R2.0	10.0	10	30	90
EM819120	EM829120	R0.5	12.0	12	30	90
EM819908	EM829908	R1.0	12.0	12	30	90
EM819909	EM829909	R1.5	12.0	12	30	90
EM819910	EM829910	R2.0	12.0	12	30	90
EM819160	EM829160	R0.5	16.0	16	50	110
EM819916	EM829916	R1.0	16.0	16	50	110
EM819917	EM829917	R1.5	16.0	16	50	110
EM819918	EM829918	R2.0	16.0	16	50	110
EM819200	EM829200	R0.5	20.0	20	55	110
EM819919	EM829919	R1.0	20.0	20	55	110
EM819920	EM829920	R1.5	20.0	20	55	110
EM819921	EM829921	R2.0	20.0	20	55	110

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM897 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM898 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6 FLUTE 45° HELIX STUB LENGTH CORNER RADIUS

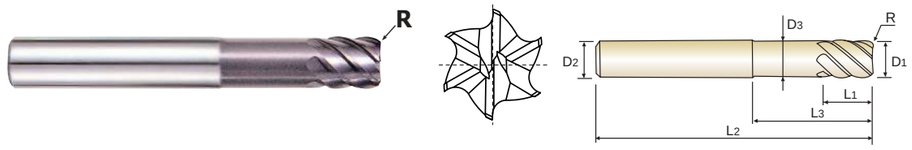
VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA KURZ ECKENRADIUS

Fraise carbure, 6 dents, torique, hélice 45°, extra-courte

6 TAGLIENTI, ELICA 45°, TORICA, SCARICATA, TAGLIENTE CORTO

- ▶ High speed cutting
- ▶ Excellent performance in dry cutting
- ▶ Cutting up to three times length of the cutting diameter due to reduced neck.

- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Ausgezeichnete Leistung bei Trocken - Zerspanung.
- ▶ Fräst bis Zur dreifachen Größe des Durchmessers des abgesetzten Schaftteils.



MG HM | 6 | 45° | PLAIN | FLAT P.1040

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2	D_3
EM897060	EM898060	R0.5	6.0	6	6	14	50	5.7
EM897080	EM898080	R0.5	8.0	8	8	24	60	7.65
EM897100	EM898100	R1.0	10.0	10	10	30	70	9.65
EM897120	EM898120	R1.0	12.0	12	12	30	75	11.6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM835 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM845 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS

Fraise carbure, 6 dents, torique, hélice 45°, longue

6 TAGLIENTI, ELICA 45°, TORICA, SERIE LUNGA

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von Hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.

MG HM | 6 | 45° | PLAIN | FLAT P.1041

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R				
EM835060	EM845060	R0.5	6.0	6	13	70
EM835080	EM845080	R0.5	8.0	8	19	90
EM835100	EM845100	R0.5	10.0	10	22	100
EM835901	EM845901	R1.0	10.0	10	22	100
EM835120	EM845120	R0.5	12.0	12	26	110
EM835902	EM845902	R1.0	12.0	12	26	110
EM835160	EM845160	R1.0	16.0	16	32	130
EM835903	EM845903	R1.5	16.0	16	32	130
EM835200	EM845200	R1.0	20.0	20	38	140
EM835904	EM845904	R1.5	20.0	20	38	140
EM835905	EM845905	R2.0	20.0	20	38	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM810 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE

VOLLHARTMETALL, 2 SCHNEIDEN MINI
Fraise carbure, 2 dents, micro-fraise
2 TAGLIENTI, MINI

- ▶ High precision milling in medical, optical, electronics and aerospace industries.
- ▶ Excellent performance on hardened steel
- ▶ Hochpräzises Fräsen für Medizintechnik, Optik, Elektronik und Raumfahrt.
- ▶ Ausgezeichnete Leistung bei der Bearbeitung von gehärtetem Stahl.

MG HM | 2 | 30° | PLAIN

P.1041

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN				
EM810004	0.4	3	0.8	40
EM810005	0.5	3	1	40
EM810006	0.6	3	1.2	40
EM810007	0.7	3	1.4	40
EM810008	0.8	3	1.6	40
EM810009	0.9	3	2	40
EM810010	1.0	4	2.5	40
EM810011	1.1	4	2.5	40
EM810012	1.2	4	4	40
EM810013	1.3	4	4	40
EM810014	1.4	4	4	40
EM810015	1.5	4	4	40

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

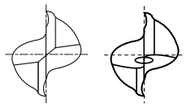
X-POWER END MILLS

EM810 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT
EM820 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.
- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm

MG HM | 2 | 30° | PLAIN | FLAT

P.1042

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
EM810901	EM820901	1.0	6	2.5	40
EM810902	EM820902	1.5	6	4	40
EM810020	-	2.0	4	6	40
EM810903	EM820020	2.0	6	6	40
EM810025	-	2.5	4	8	40
EM810904	EM820903	2.5	6	8	40
EM810030	EM820030	3.0	6	8	45
EM810035	EM820035	3.5	6	10	45
EM810040	EM820040	4.0	6	11	45
EM810045	EM820045	4.5	6	11	45
EM810050	EM820050	5.0	6	13	50
EM810055	EM820055	5.5	6	13	50
EM810060	EM820060	6.0	6	13	50
EM810065	EM820065	6.5	8	16	60
EM810070	EM820070	7.0	8	16	60
EM810075	EM820075	7.5	8	16	60
EM810080	EM820080	8.0	8	19	60
EM810085	EM820085	8.5	10	19	70
EM810090	EM820090	9.0	10	19	70
EM810095	EM820095	9.5	10	19	70
EM810100	EM820100	10.0	10	22	70
EM810105	EM820105	10.5	12	22	75
EM810110	EM820110	11.0	12	22	75
EM810115	EM820115	11.5	12	22	75

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

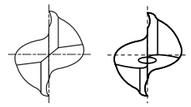
EM810 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EM820 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm

MG HM | 2 | 30° | PLAIN | FLAT P.1042

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM810120	EM820120	12.0	12	26	75
EM810906	EM820906	13.0	12	26	85
EM810140	EM820140	14.0	14	26	85
EM810905	EM820905	14.0	16	26	85
EM810908	EM820908	15.0	16	26	90
EM810160	EM820160	16.0	16	32	100
EM810909	EM820909	17.0	16	32	100
EM810180	EM820180	18.0	18	32	100
EM810911	EM820911	19.0	20	32	100
EM810200	EM820200	20.0	20	38	105
EM810220	EM820220	22.0	20	38	105
EM810240	EM820240	24.0	25	45	120
EM810250	EM820250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

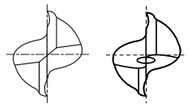
EM816 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EM826 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ Superior workpiece finishes.
- ▶ Increased feed rates.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Vorschübe.



up to Ø3mm over Ø3mm

MG HM | 2 | 30° | PLAIN | FLAT P.1043

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM816020	-	2.0	4	8	40
EM816030	EM826030	3.0	6	12	50
EM816040	EM826040	4.0	6	15	50
EM816050	EM826050	5.0	6	20	60
EM816060	EM826060	6.0	6	20	60
EM816080	EM826080	8.0	8	25	70
EM816100	EM826100	10.0	10	30	90
EM816120	EM826120	12.0	12	30	90
EM816140	EM826140	14.0	16	40	110
EM816160	EM826160	16.0	16	50	110
EM816180	EM826180	18.0	20	50	110
EM816200	EM826200	20.0	20	55	110
EM816250	EM826250	25.0	25	75	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

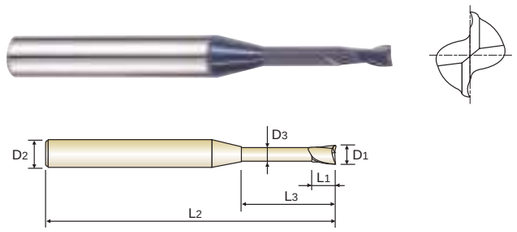
EM883 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

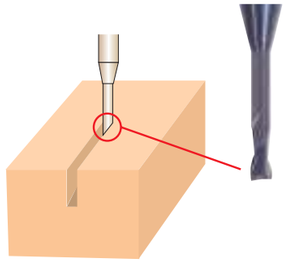
CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI, SCARICATA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883004	0.4	4	0.6	2	45	0.37
EM883984	0.4	4	0.6	3	45	0.37
EM883985	0.4	4	0.6	4	45	0.37
EM883986	0.4	4	0.6	5	45	0.37
EM883005	0.5	4	0.7	2	45	0.45
EM883988	0.5	4	0.7	4	45	0.45
EM883989	0.5	4	0.7	6	45	0.45
EM883990	0.5	4	0.7	8	45	0.45
EM883006	0.6	4	0.9	2	45	0.55
EM883991	0.6	4	0.9	4	45	0.55
EM883992	0.6	4	0.9	6	45	0.55
EM883993	0.6	4	0.9	8	45	0.55
EM883819	0.6	4	0.9	10	45	0.55
EM883007	0.7	4	1.0	2	45	0.65
EM883820	0.7	4	1.0	3	45	0.65
EM883906	0.7	4	1.0	4	45	0.65
EM883907	0.7	4	1.0	6	45	0.65
EM883821	0.7	4	1.0	8	45	0.65
EM883822	0.7	4	1.0	10	45	0.65
EM883008	0.8	4	1.2	4	45	0.75
EM883908	0.8	4	1.2	6	45	0.75
EM883909	0.8	4	1.2	8	45	0.75
EM883994	0.8	4	1.2	10	45	0.75
EM883995	0.8	4	1.2	12	45	0.75
EM883009	0.9	4	1.35	6	45	0.85
EM883910	0.9	4	1.35	8	45	0.85
EM883911	0.9	4	1.35	10	45	0.85
EM883823	0.9	4	1.35	15	50	0.85
EM883996	1.0	4	1.5	4	45	0.95
EM883010	1.0	4	1.5	6	45	0.95
EM883912	1.0	4	1.5	8	45	0.95
EM883913	1.0	4	1.5	10	45	0.95

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

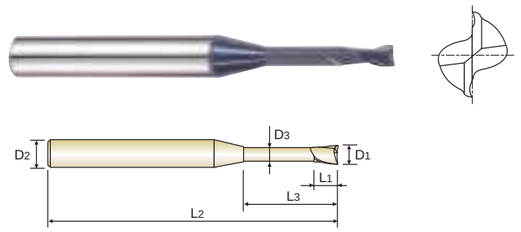
EM883 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

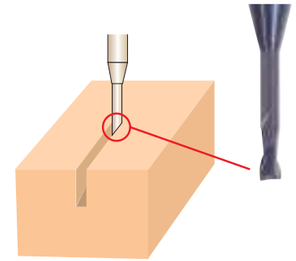
CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI, SCARICATA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883914	1.0	4	1.5	12	45	0.95
EM883997	1.0	4	1.5	16	50	0.95
EM883998	1.0	4	1.5	20	55	0.95
EM883012	1.2	4	1.8	6	45	1.15
EM883915	1.2	4	1.8	8	45	1.15
EM883916	1.2	4	1.8	10	45	1.15
EM883917	1.2	4	1.8	12	45	1.15
EM883999	1.2	4	1.8	16	50	1.15
EM883824	1.4	4	2.1	6	45	1.35
EM883918	1.4	4	2.1	8	45	1.35
EM883919	1.4	4	2.1	10	45	1.35
EM883920	1.4	4	2.1	12	45	1.35
EM883921	1.4	4	2.1	14	50	1.35
EM883922	1.4	4	2.1	16	50	1.35
EM883825	1.4	4	2.1	22	55	1.35
EM883015	1.5	4	2.3	6	45	1.45
EM883923	1.5	4	2.3	8	45	1.45
EM883924	1.5	4	2.3	10	45	1.45
EM883925	1.5	4	2.3	12	45	1.45
EM883926	1.5	4	2.3	14	50	1.45
EM883927	1.5	4	2.3	16	50	1.45
EM883928	1.5	4	2.3	18	55	1.45
EM883810	1.5	4	2.3	20	55	1.45
EM883930	1.6	4	2.4	6	45	1.55
EM883016	1.6	4	2.4	8	45	1.55
EM883931	1.6	4	2.4	10	45	1.55
EM883932	1.6	4	2.4	12	45	1.55
EM883826	1.6	4	2.4	14	50	1.55
EM883827	1.6	4	2.4	16	50	1.55
EM883828	1.6	4	2.4	18	55	1.55
EM883829	1.6	4	2.4	20	55	1.55
EM883830	1.6	4	2.4	26	60	1.55

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

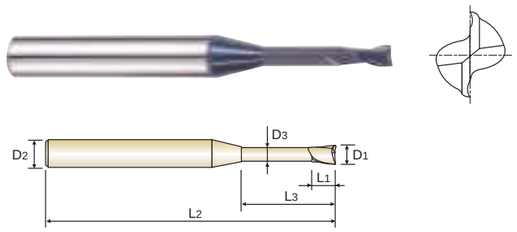
EM883 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

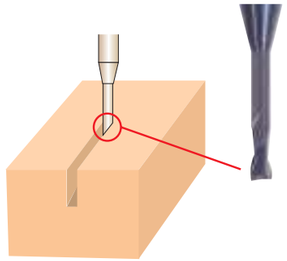
CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI, SCARICATA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883018	1.8	4	2.7	6	45	1.75
EM883944	1.8	4	2.7	8	45	1.75
EM883945	1.8	4	2.7	10	45	1.75
EM883946	1.8	4	2.7	12	45	1.75
EM883947	1.8	4	2.7	14	50	1.75
EM883948	1.8	4	2.7	16	50	1.75
EM883949	1.8	4	2.7	18	55	1.75
EM883950	1.8	4	2.7	20	55	1.75
EM883831	1.8	4	2.7	25	60	1.75
EM883958	2.0	4	3.0	6	45	1.95
EM883020	2.0	4	3.0	8	45	1.95
EM883959	2.0	4	3.0	10	45	1.95
EM883960	2.0	4	3.0	12	45	1.95
EM883961	2.0	4	3.0	14	50	1.95
EM883962	2.0	4	3.0	16	50	1.95
EM883963	2.0	4	3.0	18	55	1.95
EM883964	2.0	4	3.0	20	55	1.95
EM883966	2.0	4	3.0	25	60	1.95
EM883814	2.0	4	3.0	30	70	1.95
EM883967	2.5	4	3.7	8	45	2.40
EM883025	2.5	4	3.7	10	45	2.40
EM883968	2.5	4	3.7	12	45	2.40
EM883969	2.5	4	3.7	14	50	2.40
EM883970	2.5	4	3.7	16	55	2.40
EM883971	2.5	4	3.7	18	55	2.40
EM883972	2.5	4	3.7	20	60	2.40
EM883973	2.5	4	3.7	25	70	2.40
EM883974	2.5	4	3.7	30	80	2.40
EM883030	3.0	6	4.5	8	45	2.85
EM883975	3.0	6	4.5	10	45	2.85
EM883976	3.0	6	4.5	12	45	2.85
EM883977	3.0	6	4.5	14	50	2.85

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

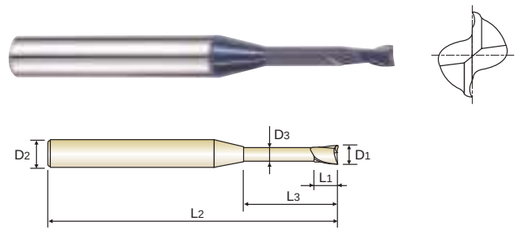
EM883 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

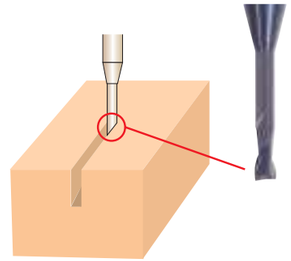
CARBIDE, 2 FLUTE for RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI, SCARICATA PER NERVATURE





MG HM | 2 | 30° | PLAIN

P.1035

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EM883978	3.0	6	4.5	16	55	2.85
EM883979	3.0	6	4.5	18	55	2.85
EM883980	3.0	6	4.5	20	60	2.85
EM883981	3.0	6	4.5	25	65	2.85
EM883832	3.0	6	4.5	30	70	2.85
EM883833	3.0	6	4.5	35	80	2.85
EM883983	3.0	6	4.5	40	90	2.85
EM883040	4.0	6	6	12	50	3.85
EM883801	4.0	6	6	16	60	3.85
EM883802	4.0	6	6	20	60	3.85
EM883803	4.0	6	6	25	70	3.85
EM883834	4.0	6	6	30	70	3.85
EM883835	4.0	6	6	35	80	3.85
EM883836	4.0	6	6	40	90	3.85
EM883837	4.0	6	6	45	90	3.85
EM883838	4.0	6	6	50	100	3.85
EM883050	5.0	6	7.5	16	60	4.85
EM883804	5.0	6	7.5	20	60	4.85
EM883805	5.0	6	7.5	25	70	4.85
EM883806	5.0	6	7.5	30	80	4.85
EM883839	5.0	6	7.5	35	80	4.85
EM883840	5.0	6	7.5	40	80	4.85
EM883841	5.0	6	7.5	50	110	4.85
EM883060	6.0	6	9	20	80	5.85
EM883807	6.0	6	9	30	90	5.85
EM883808	6.0	6	9	40	100	5.85
EM883809	6.0	6	9	50	110	5.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

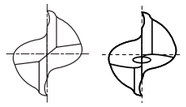
EM837 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM847 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE TAPER

VOLLHARTMETALL, 2 SCHNEIDEN KONISCH
Fraise carbure, 2 dents, conique
2 TAGLIENTI, CONICA

- Designed for milling die cavity.
- Suitable for machining tool steels, alloy steels, mold steels and other hardened materials.

- Entworfen zur Gußformbearbeitung.
- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.



up to Ø3mm over Ø3mm

MG HM | 2 | 30° | PLAIN | FLAT P.1044

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM837913	-	2.0	4	6	45	30′
EM837020	-	2.0	4	6	45	1°
EM837901	-	2.0	4	6	45	2°
EM837902	-	2.0	4	6	45	3°
EM837914	EM847914	3.0	6	10	55	30′
EM837030	EM847030	3.0	6	10	55	1°
EM837903	EM847903	3.0	6	10	55	2°
EM837904	EM847904	3.0	6	10	55	3°
EM837915	EM847915	4.0	6	15	55	30′
EM837040	EM847040	4.0	6	15	55	1°
EM837905	EM847905	4.0	6	15	55	2°
EM837906	EM847906	4.0	6	15	55	3°
EM837916	EM847916	5.0	6	15	60	30′
EM837050	EM847050	5.0	6	15	60	1°
EM837907	EM847907	5.0	6	15	60	2°
EM837908	EM847908	5.0	6	15	60	3°
EM837917	EM847917	6.0	6	20	60	30′
EM837060	EM847060	6.0	6	20	60	1°
EM837909	EM847909	6.0	6	20	60	2°
EM837910	EM847910	6.0	8	20	65	3°
EM837918	EM847918	8.0	8	25	70	30′
EM837080	EM847080	8.0	8	25	70	1°
EM837911	EM847911	8.0	8	25	70	2°
EM837912	EM847912	8.0	10	25	75	3°

▶We can supply various sizes and taper angles.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.03	h6	±5′

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

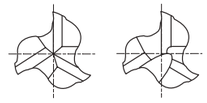
EM836 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM846 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE MINIATURE

VOLLHARTMETALL, 3 SCHNEIDEN MINI
Fraise carbure, 3 dents, micro-fraise
3 TAGLIENTI, MINI

- Miniature Endmills developed by YG-1 are well known as the most cost effective system for small milling cutters and also possesses the advantages of 2 flute and 4 flute Endmills.

- Der von YG-1 entwickelte Miniature-Fräser gilt als eins der wirtschaftlichsten Frässysteme und besitzt die Vorteile von 2 und 4 Schneiden Fräsern.



under Ø3mm from Ø3mm

MG HM | 3 | 30° | PLAIN | FLAT P.1045-1046

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM836010	-	1.0	4	2	35
EM836020	-	2.0	4	4	35
EM836030	EM846030	3.0	6	5	36
EM836040	EM846040	4.0	6	7	38
EM836050	EM846050	5.0	6	8	39
EM836060	EM846060	6.0	6	8	39
EM836080	EM846080	8.0	8	11	43
EM836100	EM846100	10.0	10	13	50
EM836120	EM846120	12.0	12	15	55
EM836140	EM846140	14.0	14	15	58
EM836160	EM846160	16.0	16	18	62
EM836180	EM846180	18.0	18	20	70
EM836200	EM846200	20.0	20	22	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

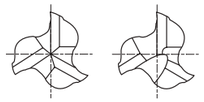
EM895 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM896 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 38° HELIX SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 38° RECHTSSPIRALE KURZ
Fraise carbure, 3 dents, hélice 38°, courte
3 TAGLIENTI, ELICA 38°, SERIE CORTA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- Possesses the advantage of 2 flute and 4 flute end mill.
- Superior workpiece finishes.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Besitzt die Vorteile von 2 und 4 Schneiden Fräsern
- Bessere Werkstückoberflächen



under Ø3mm from Ø3mm

MG HM | 3 | 38° | PLAIN | FLAT P.1045-1046

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM895010	-	1.0	3	2.5	38
EM895015	-	1.5	4	5	50
EM895025	-	2.5	3	7	38
EM895030	-	3.0	3	10	38
EM895901	EM896901	3.0	6	10	50
EM895035	-	3.5	4	12	50
EM895902	EM896902	3.5	6	12	50
EM895040	-	4.0	4	12	50
EM895903	EM896040	4.0	6	12	50
EM895045	EM896045	4.5	6	14	57
EM895050	-	5.0	5	14	50
EM895904	EM896903	5.0	6	14	57
EM895060	EM896060	6.0	6	16	57
EM895080	EM896080	8.0	8	20	63
EM895100	EM896100	10.0	10	22	72
EM895120	EM896120	12.0	12	25	73
EM895140	EM896140	14.0	14	25	75
EM895160	EM896160	16.0	16	32	82
EM895180	EM896180	18.0	18	32	92
EM895200	EM896200	20.0	20	38	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM811 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM821 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- 4 flute allows for better workpiece finishes.
- Increased production.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- Höhere Produktivität.

MG HM | 4 | 30° | PLAIN | FLAT P.1047

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM811020	-	2.0	4	6	40
EM811901	EM821901	2.0	6	6	40
EM811025	-	2.5	4	8	40
EM811902	EM821902	2.5	6	8	40
EM811030	EM821030	3.0	6	8	45
EM811035	EM821035	3.5	6	10	45
EM811040	EM821040	4.0	6	11	45
EM811045	EM821045	4.5	6	11	45
EM811050	EM821050	5.0	6	13	50
EM811055	EM821055	5.5	6	13	50
EM811060	EM821060	6.0	6	13	50
EM811065	EM821065	6.5	8	16	60
EM811070	EM821070	7.0	8	16	60
EM811075	EM821075	7.5	8	16	60
EM811080	EM821080	8.0	8	19	60
EM811085	EM821085	8.5	10	19	70
EM811090	EM821090	9.0	10	19	70
EM811095	EM821095	9.5	10	19	70
EM811100	EM821100	10.0	10	22	70
EM811105	EM821105	10.5	12	22	75
EM811110	EM821110	11.0	12	22	75
EM811115	EM821115	11.5	12	22	75
EM811120	EM821120	12.0	12	26	75
EM811904	EM821904	13.0	12	26	85

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM811 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT
EM821 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.

MG HM | 4 | 30° | PLAIN | FLAT P.1047

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM811140	EM821140	14.0	14	26	85
EM811905	EM821905	14.0	12	26	85
EM811903	EM821903	14.0	16	26	85
EM811906	EM821906	15.0	16	26	90
EM811160	EM821160	16.0	16	32	100
EM811907	EM821907	17.0	16	32	100
EM811180	EM821180	18.0	18	32	100
EM811908	EM821908	18.0	16	32	100
EM811909	EM821909	19.0	20	32	100
EM811200	EM821200	20.0	20	38	105
EM811220	EM821220	22.0	20	38	105
EM811240	EM821240	24.0	25	45	120
EM811250	EM821250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM817 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT
EM827 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- ▶ 4 flute allows for better workpiece finishes.
- ▶ Increased production.

- ▶ Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- ▶ 4 Schneiden erzeugen eine bessere Oberfläche des Werkstücks.
- ▶ Höhere Produktivität.

MG HM | 4 | 30° | PLAIN | FLAT P.1048

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM817020	-	2.0	4	8	40
EM817030	EM827030	3.0	6	12	50
EM817040	EM827040	4.0	6	15	50
EM817050	EM827050	5.0	6	20	60
EM817060	EM827060	6.0	6	20	60
EM817080	EM827080	8.0	8	25	70
EM817100	EM827100	10.0	10	30	90
EM817120	EM827120	12.0	12	30	90
EM817140	EM827140	14.0	16	40	110
EM817160	EM827160	16.0	16	50	110
EM817180	EM827180	18.0	20	50	110
EM817200	EM827200	20.0	20	55	110
EM817250	EM827250	25.0	25	75	140

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

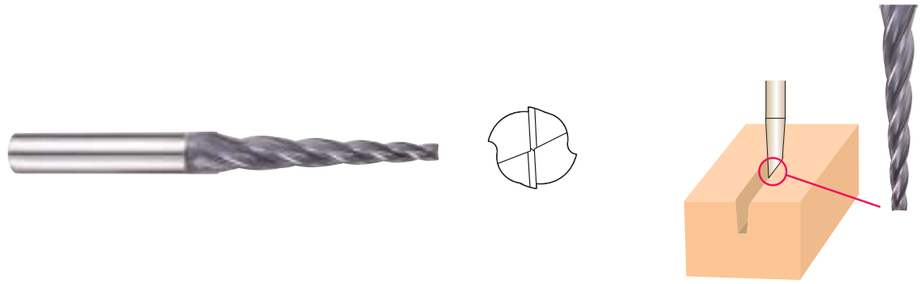
EM889 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING

VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN

Fraise carbure, 4 dents, hélice 25° avec entrée conique pour usinage de rainure

4 TAGLIENTI, CONICA PER NERVATURE



MG HM | 4 | 25° | PLAIN P.1049

Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM889952	1.0	4	8	45	30´
EM889954	1.0	4	12	45	30´
EM889010	1.0	4	8	45	1°
EM889959	1.0	4	12	45	1°
EM889960	1.0	4	8	45	1° 30´
EM889962	1.0	4	12	45	1° 30´
EM889963	1.0	4	8	45	2°
EM889965	1.0	4	12	45	2°
EM889968	1.2	4	8	45	30´
EM889970	1.2	4	12	45	30´
EM889012	1.2	4	8	45	1°
EM889977	1.2	4	12	45	1°
EM889979	1.2	4	8	45	1° 30´
EM889981	1.2	4	12	45	1° 30´
EM889983	1.2	4	8	45	2°
EM889985	1.2	4	12	45	2°
EM889987	1.5	4	8	45	30´
EM889991	1.5	4	12	45	30´
EM889992	1.5	4	16	50	30´
EM889015	1.5	4	8	45	1°
EM889801	1.5	4	12	45	1°
EM889802	1.5	4	16	50	1°
EM889804	1.5	4	8	45	1° 30´
EM889806	1.5	4	12	45	1° 30´
EM889807	1.5	4	16	50	1° 30´
EM889809	1.5	4	8	45	2°
EM889811	1.5	4	12	45	2°
EM889812	1.5	4	16	50	2°

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

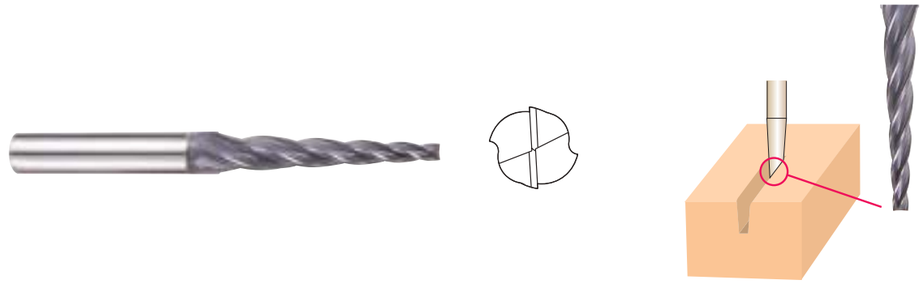
EM889 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE 25° HELIX TAPER for RIB PROCESSING

VOLLHARTMETALL, 4 SCHNEIDEN 25° RECHTSSPIRALE KONISCH für SCHMALE RIPPEN

Fraise carbure, 4 dents, hélice 25° avec entrée conique pour usinage de rainure

4 TAGLIENTI, CONICA PER NERVATURE



MG HM | 4 | 25° | PLAIN P.1049

Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Taper Angle
EM889869	2.0	4	12	45	30´
EM889870	2.0	4	16	50	30´
EM889878	2.0	4	12	45	1°
EM889879	2.0	4	16	50	1°
EM889883	2.0	4	12	45	1° 30´
EM889884	2.0	4	16	50	1° 30´
EM889888	2.0	4	12	45	2°
EM889889	2.0	4	16	50	2°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance	Taper Angle Tolerance
0~-0.015	0~-0.008	±5´

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

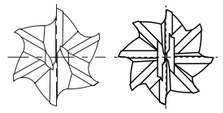
EM812 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM822 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 6&8 dents, hélice 45°, longue
6&8 TAGLIENTI, ELICA 45°, SERIE

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.

- ▶ Geeignet zum Fräsen von hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.

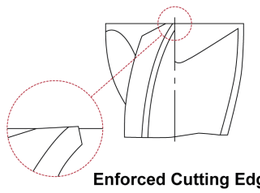


MG HM | 6&8 | 45° | PLAIN | FLAT P.1050

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
EM812060	EM822060	6.0	6	13	57	6
EM812070	EM822070	7.0	8	16	63	6
EM812080	EM822080	8.0	8	19	63	6
EM812090	EM822090	9.0	10	19	72	6
EM812100	EM822100	10.0	10	22	72	6
EM812120	EM822120	12.0	12	26	83	6
EM812140	EM822140	14.0	14	26	83	6
EM812901	EM822901	14.0	16	26	83	6
EM812160	EM822160	16.0	16	32	92	6
EM812180	EM822180	18.0	18	32	92	8
EM812200	EM822200	20.0	20	38	104	8
EM812250	EM822250	25.0	25	44	104	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM834 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM844 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6 FLUTE 45° HELIX EXTRA LONG LENGTH

VOLLHARTMETALL, 6 SCHNEIDEN 45° RECHTSSPIRALE EXTRA LANG
Fraise carbure, 6 dents, hélice 45°, extra-longue
6 TAGLIENTI, ELICA 45°, SERIE EXTRA LUNGA

- ▶ Designed to machine hardened materials.
- ▶ High speed cutting and finish milling with high feed rates.
- ▶ Superior workpiece finishes.
- ▶ Superior wear resistant.
- ▶ Suitable for dry milling.

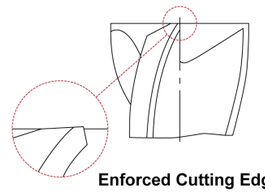
- ▶ Geeignet zum Fräsen von hochgehärteten Stählen.
- ▶ Hochgeschwindigkeitsfräsen und Finishing mit erhöhtem Vorschub.
- ▶ Bessere Werkstückoberflächen
- ▶ Höhere Verschleißfestigkeit.
- ▶ Geeignet zum Trocken-Fräsen.

MG HM | 6 | 45° | PLAIN | FLAT P.1051

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EM834060	EM844060	6.0	6	26	70
EM834080	EM844080	8.0	8	36	90
EM834100	EM844100	10.0	10	46	100
EM834120	EM844120	12.0	12	56	110
EM834160	EM844160	16.0	16	66	130
EM834200	EM844200	20.0	20	76	140
EM834250	EM844250	25.0	25	92	180

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○			○							

X-POWER END MILLS

EM833 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM843 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3&4 FLUTE 20° HELIX LONG LENGTH ROUGHING BALL NOSE - FINE

VOLLHARTMETALL, 3&4 SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER STIRNRADIUS - FEIN

Fraise carbure, 3&4 dents, ébauche, hémisphérique, hélice 20°, pas fin, longue

3 - 4 TAGLIENTI, BOMBATO FINE PER SGROSSATURA, ELICA 20° SERIE LUNGA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- High velocity milling of hardened steels.
- For dry and wet milling.
- Fast chip ejection.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- Für Trocken und Naßfräsen.
- Schnelle Spanausfuhr.

MG HM | FINE | 3&4 | 20° | R ±0.02 | PLAIN | FLAT

P.1052

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R (±0.02)	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute
EM833060	EM843060	R3.0	6.0	6	16	57	3
EM833080	EM843080	R4.0	8.0	8	16	63	3
EM833100	EM843100	R5.0	10.0	10	22	72	4
EM833120	EM843120	R6.0	12.0	12	26	83	4
EM833140	EM843140	R7.0	14.0	14	26	83	4
EM833160	EM843160	R8.0	16.0	16	32	92	4
EM833180	EM843180	R9.0	18.0	18	32	92	4
EM833200	EM843200	R10.0	20.0	20	38	104	4

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

X-POWER END MILLS

EM832 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM842 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 20° HELIX SHORT LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN

Fraise carbure, multi-dents ébauche, hélice 20°, pas fin, courte

3 - 4 - 5 TAGLIENTI, BOMBATO FINE PER SGROSSATURA, ELICA 20° SERIE CORTA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- High velocity milling of hardened steels.
- For dry and wet milling.
- Fast chip ejection.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- Für Trocken - und Naßfräsen.
- Schnelle Spanausfuhr.

MG HM | FINE | 3-5 | 20° | PLAIN | FLAT | C x 45°

P.1053

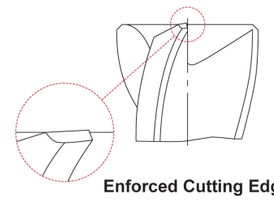
Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
EM832060	EM842060	6.0	6	7	54	3	0.38
EM832070	EM842070	7.0	8	8	58	3	0.38
EM832080	EM842080	8.0	8	9	58	3	0.38
EM832090	EM842090	9.0	10	13	66	4	0.38
EM832100	EM842100	10.0	10	14	66	4	0.60
EM832120	EM842120	12.0	12	16	73	4	0.60
EM832140	EM842140	14.0	14	18	75	4	0.60
EM832160	EM842160	16.0	16	22	82	4	0.60
EM832180	EM842180	18.0	18	24	84	4	0.60
EM832200	EM842200	20.0	20	26	92	4	0.60
EM832250	EM842250	25.0	25	25	110	5	0.60

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

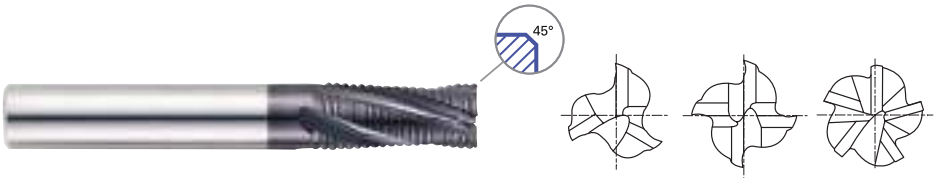
X-POWER END MILLS

EM814 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EM824 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 20° HELIX LONG LENGTH ROUGHING - FINE
VOLLHARTMETALL, MULTI SCHNEIDEN 20° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche, hélice 20°, pas fin, longue
3 - 4 - 5 TAGLIENTI, BOMBATO FINE PER SGROSSATURA, ELICA 20° SERIE LUNGA

- Designed to machine tool steels, alloy steels, mold steels and other hardened materials.
- High velocity milling of hardened steels.
- For dry and wet milling.
- Fast chip ejection.
- Longer flute length than EM832, EM842 series.

- Zur Bearbeitung: Werkzeugstählen, Legierten Stählen, Stahlguß und gehärteten Stählen.
- Hochgeschwindigkeitsfräsen von gehärteten Stählen.
- Für Trocken - und Nabfräsen.
- Schnelle Spanausfuhr.
- Längere Schneiden als bei EM832 und EM842 Serien.



MG HM | FINE | 3-5 | 20° | PLAIN | FLAT | C x 45°

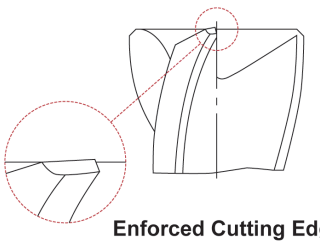
P.1053

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
EM814060	EM824060	6.0	6	16	57	3	0.38
EM814070	EM824070	7.0	8	16	63	3	0.38
EM814080	EM824080	8.0	8	16	63	3	0.38
EM814090	EM824090	9.0	10	19	72	4	0.38
EM814100	EM824100	10.0	10	22	72	4	0.60
EM814120	EM824120	12.0	12	26	83	4	0.60
EM814140	EM824140	14.0	14	26	83	4	0.60
EM814901	EM824901	14.0	16	26	83	4	0.60
EM814160	EM824160	16.0	16	32	92	4	0.60
EM814180	EM824180	18.0	18	32	92	4	0.60
EM814200	EM824200	20.0	20	38	104	4	0.60
EM814250	EM824250	25.0	25	45	121	5	0.60

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛					
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	◎	○		○	○							

CARBIDE

Leading Through Innovation

TitaNox-POWER END MILLS

TitaNox-Power Schaftfräser

- **High Speed Machining for Exotic Materials: Titanium, Inconel and Stainless Steels**
- **High-Speed-Bearbeitung für exotische Materialien: Titan, Nickellegierungen und rostfreie Stähle**

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
GMG40 GMG41		CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN	D6.0	D25.0	1058
GMG28 GMG29		CARBIDE, 5 FLUTE CORNER RADIUS SHORT LENGTH VOLLHARTMETALL, 5 SCHNEIDEN KURZ mit ECKRADIUS	D6.0	D25.0	1060
GMG30 GMG31		CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS	D6.0	D25.0	1061
GMG24 GMG25		CARBIDE, 5 FLUTE SHORT LENGTH VOLLHARTMETALL, 5 SCHNEIDEN KURZ	D6.0	D25.0	1063
GMG26 GMG27		CARBIDE, 5 FLUTE LONG LENGTH VOLLHARTMETALL, 5 SCHNEIDEN LANG	D6.0	D25.0	1064
EHE54 EHE55		CARBIDE, 5 FLUTE 40˚ HELIX CORNER RADIUS ROUGHING - FINE VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS	D6.0	D25.0	1065
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1066

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○
○	○	○				◎							◎	○
○	○	○				◎							◎	○
○	○	○				◎							◎	○
○	○	○				◎							◎	○
						○							◎	○

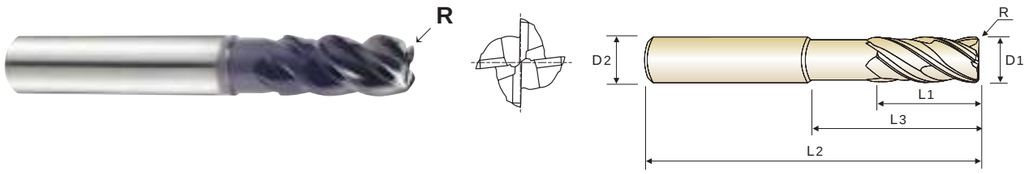
TitaNox-POWER END MILLS

GMG40 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
GMG41 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE
VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
CARBURE, 4 DENTS, TORIQUE AVEC ÂME DOUBLE
FRESA IN MD, 4 TAGLIENTI, TORICA, DOUBLE CORE

▶Double core end mill has a unique flute design for excellent chip evacuation and higher rigidity.
▶The double core adds stability and aids chip flow, reducing tool deflection, improving dimensional stability and workpiece accuracy.

▶Der Doppelkern hat ein einzigartiges Schneiden Design für eine exzellente Spanabfuhr und bessere Zähigkeit.
▶Der Doppelkern erhöht die Stabilität und unterstützt den Spänefluss, reduziert die Werkzeugabdrängung, verbessert die Formstabilität und die Werkstückgenauigkeit.



MG HM | 4 | 43°/45° | PLAIN | FLAT | P.1066-1067

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2
GMG40060	GMG41060	R0.5	6.0	6	13	20	57
GMG40901	GMG41901	R1.0	6.0	6	13	20	57
GMG40080	GMG41080	R0.5	8.0	8	19	25	63
GMG40902	GMG41902	R1.0	8.0	8	19	25	63
GMG40903	GMG41903	R1.5	8.0	8	19	25	63
GMG40904	GMG41904	R2.0	8.0	8	19	25	63
GMG40100	GMG41100	R0.5	10.0	10	22	30	72
GMG40905	GMG41905	R1.0	10.0	10	22	30	72
GMG40906	GMG41906	R1.5	10.0	10	22	30	72
GMG40907	GMG41907	R2.0	10.0	10	22	30	72
GMG40120	GMG41120	R0.5	12.0	12	26	35	83
GMG40908	GMG41908	R1.0	12.0	12	26	35	83
GMG40909	GMG41909	R1.5	12.0	12	26	35	83
GMG40910	GMG41910	R2.0	12.0	12	26	35	83
GMG40911	GMG41911	R3.0	12.0	12	26	35	83
GMG40140	GMG41140	R1.0	14.0	14	26	35	83
GMG40912	GMG41912	R2.0	14.0	14	26	35	83
GMG40160	GMG41160	R1.0	16.0	16	35	43	92
GMG40913	GMG41913	R1.5	16.0	16	35	43	92
GMG40914	GMG41914	R2.0	16.0	16	35	43	92
GMG40915	GMG41915	R3.0	16.0	16	35	43	92
GMG40916	GMG41916	R4.0	16.0	16	35	43	92

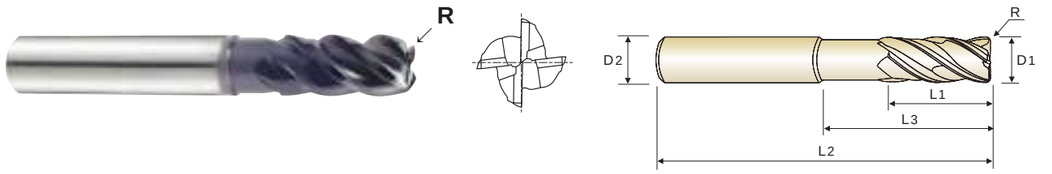
Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

▶ NEXT PAGE

◎ : Excellent ○ : Good

P				H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels	High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70								
○	○	○			◎							◎	○

TitaNox-POWER END MILLS
GMG40 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
GMG41 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE
VOLLHARTMETALL, 4 SCHNEIDEN ECKRADIUS mit DOPPELKERN
CARBURE, 4 DENTS, TORIQUE AVEC ÂME DOUBLE
FRESA IN MD, 4 TAGLIENTI, TORICA, DOUBLE CORE
▶Double core end mill has a unique flute design for excellent chip evacuation and higher rigidity.
▶The double core adds stability and aids chip flow, reducing tool deflection, improving dimensional stability and workpiece accuracy.
▶Der Doppelkern hat ein einzigartiges Schneiden Design für eine exzellente Spanabfuhr und bessere Zähigkeit.
▶Der Doppelkern erhöht die Stabilität und unterstützt den Spänefluss, reduziert die Werkzeugabdrängung, verbessert die Formstabilität und die Werkstückgenauigkeit.



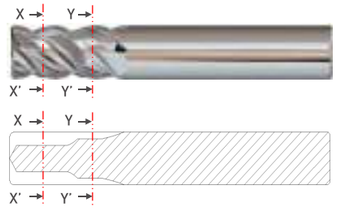
MG HM | 4 | 43°/45° | PLAIN | FLAT | P.1066-1067

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_3	L_2
GMG40200	GMG41200	R1.0	20.0	20	44	56	110
GMG40917	GMG41917	R1.5	20.0	20	44	56	110
GMG40918	GMG41918	R2.0	20.0	20	44	56	110
GMG40919	GMG41919	R3.0	20.0	20	44	56	110
GMG40920	GMG41920	R3.5	20.0	20	44	56	110
GMG40921	GMG41921	R4.0	20.0	20	44	56	110
GMG40250	GMG41250	R1.0	25.0	25	55	70	130
GMG40922	GMG41922	R1.5	25.0	25	55	70	130
GMG40923	GMG41923	R2.0	25.0	25	55	70	130
GMG40924	GMG41924	R3.0	25.0	25	55	70	130
GMG40925	GMG41925	R4.0	25.0	25	55	70	130

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◆ 2 STEP CORE



<SECTION X-X'>
Excellent chip evacuation

<SECTION Y-Y'>
Higher rigidity

◎ : Excellent ○ : Good

P				H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels	High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70								
○	○	○			◎							◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TitaNox-POWER END MILLS

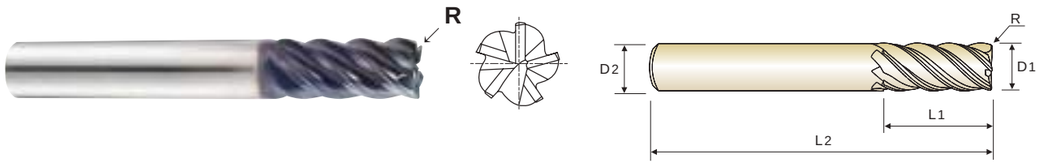
GMG28 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
GMG29 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE CORNER RADIUS SHORT LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN KURZ mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE COURTE
FRESA IN MD, 5 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



MG HM | 5 | 43°/44°/45° | PLAIN | FLAT

P.1068-1069

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG28060	GMG29060	R0.5	6.0	6	10	54
GMG28080	GMG29080	R0.5	8.0	8	12	58
GMG28100	GMG29100	R0.5	10.0	10	14	66
GMG28120	GMG29120	R0.5	12.0	12	16	73
GMG28160	GMG29160	R1.0	16.0	16	22	82
GMG28200	GMG29200	R1.0	20.0	20	26	92
GMG28250	GMG29250	R1.0	25.0	25	29	100

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○

TitaNox-POWER END MILLS

GMG30 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
GMG31 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
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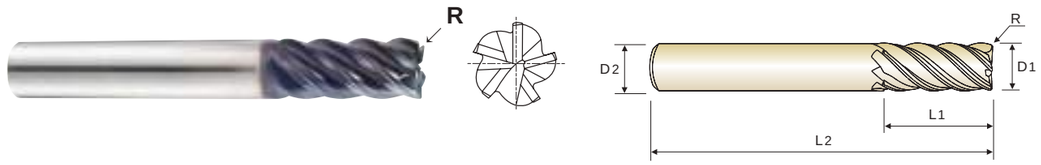
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



MG HM | 5 | 43°/44°/45° | PLAIN | FLAT

P.1068-1069

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG30060	GMG31060	R0.3	6.0	6	13	57
GMG30901	GMG31901	R0.5	6.0	6	13	57
GMG30902	GMG31902	R1.0	6.0	6	13	57
GMG30080	GMG31080	R0.5	8.0	8	19	63
GMG30903	GMG31903	R1.0	8.0	8	19	63
GMG30904	GMG31904	R1.5	8.0	8	19	63
GMG30905	GMG31905	R2.0	8.0	8	19	63
GMG30100	GMG31100	R0.5	10.0	10	22	72
GMG30906	GMG31906	R1.0	10.0	10	22	72
GMG30907	GMG31907	R1.5	10.0	10	22	72
GMG30908	GMG31908	R2.0	10.0	10	22	72
GMG30120	GMG31120	R0.5	12.0	12	26	83
GMG30909	GMG31909	R1.0	12.0	12	26	83
GMG30910	GMG31910	R1.5	12.0	12	26	83
GMG30911	GMG31911	R2.0	12.0	12	26	83
GMG30912	GMG31912	R2.5	12.0	12	26	83
GMG30913	GMG31913	R3.0	12.0	12	26	83
GMG30160	GMG31160	R1.0	16.0	16	36	92
GMG30914	GMG31914	R1.5	16.0	16	36	92
GMG30915	GMG31915	R2.0	16.0	16	36	92
GMG30916	GMG31916	R2.5	16.0	16	36	92
GMG30917	GMG31917	R3.0	16.0	16	36	92
GMG30918	GMG31918	R4.0	16.0	16	36	92

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○

TitaNox-POWER END MILLS

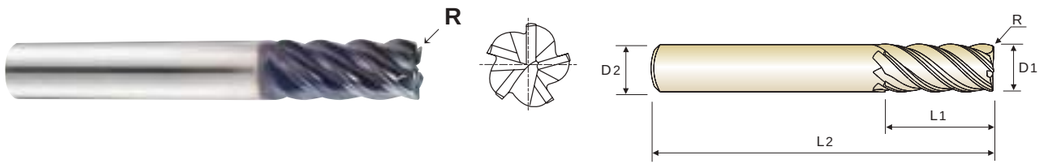
GMG30 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
GMG31 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS
CARBURE, 5 DENTS, TORIQUE, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.



MG HM | 5 | 43°/44°/45° | PLAIN | FLAT | P.1068-1069

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1	D_2	L_1	L_2
GMG30200	GMG31200	R1.0	20.0	20	44	104
GMG30919	GMG31919	R1.5	20.0	20	44	104
GMG30920	GMG31920	R2.0	20.0	20	44	104
GMG30921	GMG31921	R2.5	20.0	20	44	104
GMG30922	GMG31922	R3.0	20.0	20	44	104
GMG30923	GMG31923	R4.0	20.0	20	44	104
GMG30924	GMG31924	R5.0	20.0	20	44	104
GMG30250	GMG31250	R1.0	25.0	25	54	121
GMG30925	GMG31925	R1.5	25.0	25	54	121
GMG30926	GMG31926	R2.0	25.0	25	54	121
GMG30927	GMG31927	R2.5	25.0	25	54	121
GMG30928	GMG31928	R3.0	25.0	25	54	121
GMG30929	GMG31929	R4.0	25.0	25	54	121
GMG30930	GMG31930	R5.0	25.0	25	54	121

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○

TitaNox-POWER END MILLS

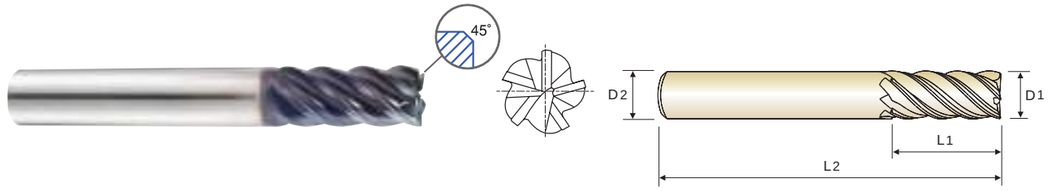
GMG24 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
GMG25 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE SHORT LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN KURZ
CARBURE, 5 DENTS, SÉRIE COURTE
FRESA IN MD, 5 TAGLIENTI, SERIE CORTA

- ▶ Excellent performance results and long tool life when machining Titanium and other tough materials.
- ▶ This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- ▶ For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- ▶Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- ▶Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- ▶Durch die Fase und den Eckradius werden Ausbrüche verhindert.

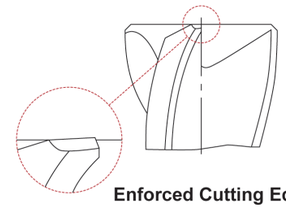


MG HM | 5 | 43°/44°/45° | PLAIN | FLAT | C x 45° | P.1068-1069

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMG24060	GMG25060	6.0	6	10	54	0.20
GMG24080	GMG25080	8.0	8	12	58	0.20
GMG24100	GMG25100	10.0	10	14	66	0.30
GMG24120	GMG25120	12.0	12	16	73	0.35
GMG24160	GMG25160	16.0	16	22	82	0.40
GMG24200	GMG25200	20.0	20	26	92	0.50
GMG24250	GMG25250	25.0	25	29	100	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

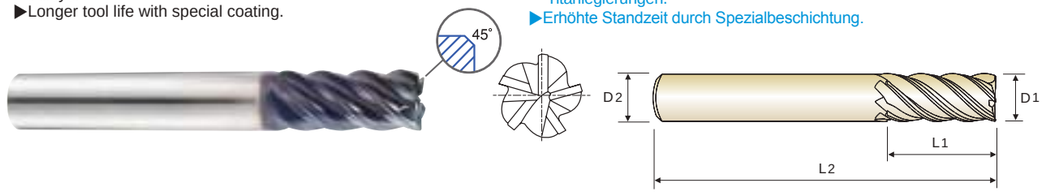
TitaNox-POWER END MILLS

GMG26 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
GMG27 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE LONG LENGTH
VOLLHARTMETALL, 5 SCHNEIDEN LANG
CARBURE, 5 DENTS, SÉRIE LONGUE
FRESA IN MD, 5 TAGLIENTI, SERIE LUNGA

- Suitable for Titanium, Titanium Alloys, Inconel and Stainless Steels.
- Optimized flute design for chip evacuation and rigidity when machining difficult-to-cut materials.
- Special roughing profile for machining Titanium and Titanium Alloys.
- Longer tool life with special coating.

- Einsetzbar für Titan, Titanlegierungen, Nickellegierungen und rostfreie Stähle.
- Verbessertes Schneidendesign für eine optimale Spanabfuhr und Stabilität beim Bearbeiten von schwer zerspanbaren Materialien.
- Spezielles Schrupprofil zum Bearbeiten von Titan und Titanlegierungen.
- Erhöhte Standzeit durch Spezialbeschichtung.

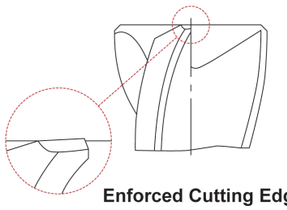


MG HM | 5 | 43°/44°/45° | PLAIN | FLAT | C x 45° | P.1068-1069

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_2	
GMG26060	GMG27060	6.0	6	13	57	0.20
GMG26080	GMG27080	8.0	8	19	63	0.20
GMG26100	GMG27100	10.0	10	22	72	0.30
GMG26120	GMG27120	12.0	12	26	83	0.35
GMG26160	GMG27160	16.0	16	36	92	0.40
GMG26200	GMG27200	20.0	20	44	104	0.50
GMG26250	GMG27250	25.0	25	54	121	0.50

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○	○				◎							◎	○

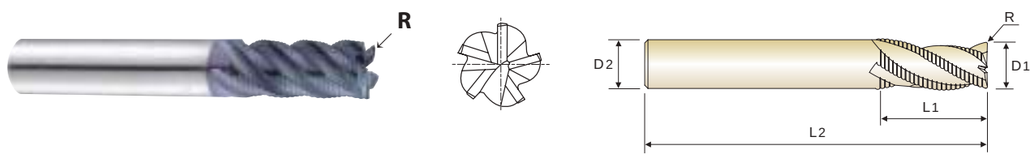
TitaNox-POWER END MILLS

EHE54 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EHE55 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE 40˚ HELIX CORNER RADIUS ROUGHING - FINE
VOLLHARTMETALL, 5 SCHNEIDEN 40° HELIX mit ECKRADIUS FÜR FEINSCHRUPPEN
CARBURE, 5 DENTS, HÉLICE 40°, TORIQUE, ÉBAUCHE PAS FINS
FRESA IN MD, 5 TAGLIENTI, ELICA 40°, TORICA, BOMBATO FINE

- Excellent performance results and long tool life when machining Titanium and other tough materials.
- This tool has high rigidity of flute so that is possible to use for heavy profile and high speed milling.
- For protecting Corner chipping of end teeth, Corner Radius & Chamfer are adopted.

- Exzellente Leistungsergebnisse und hohe Standzeiten beim Bearbeiten von Titan oder anderen robusten Materialien.
- Die Schneiden des Werkzeugs haben eine besondere Festigkeit, so dass es für schwere Profile und zum High-Speed-Fräsen geeignet ist.
- Durch die Fase und den Eckradius werden Ausbrüche verhindert.



MG HM | 5 | 40° | FINE | PLAIN | FLAT | P.1070

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R	D_1 (h10)	D_2 (h6)	L_1	L_2
EHE54060	EHE55060	R0.2	6.0	6	16	57
EHE54080	EHE55080	R0.2	8.0	8	16	63
EHE54100	EHE55100	R0.3	10.0	10	22	72
EHE54120	EHE55120	R0.3	12.0	12	26	83
EHE54140	EHE55140	R0.3	14.0	14	26	83
EHE54160	EHE55160	R0.3	16.0	16	32	92
EHE54200	EHE55200	R0.3	20.0	20	38	104
EHE54250	EHE55250	R0.3	25.0	25	45	121

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / - 40	0 / - 48	0 / - 58	0 / - 70	0 / - 84
h6	0 / - 6	0 / - 8	0 / - 9	0 / - 11	0 / - 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
						○							◎	○

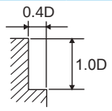
TitaNox-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE - SIDE CUTTING
Vollhartmetall, 4 Schneiden Eckradius mit Doppelkern

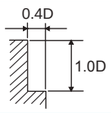
GMG40, GMG41 SERIES

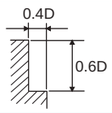
MATERIAL	P											
	CARBON STEELS				ALLOY STEELS				TOOL STEELS			
HARDNESS	~ HB 300				HB 300 ~ HB 380				~ HB 380			
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²				~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	8488	917	160	0.027	7958	796	150	0.025	7958	859	150	0.027
8.0	6366	891	160	0.035	5968	836	150	0.035	5968	836	150	0.035
10.0	5093	856	160	0.042	4775	802	150	0.042	4775	879	150	0.046
12.0	4244	900	160	0.053	3979	780	150	0.049	3979	844	150	0.053
14.0	3638	844	160	0.058	3410	764	150	0.056	3410	819	150	0.060
16.0	3183	802	160	0.063	2984	752	150	0.063	2984	800	150	0.067
20.0	2546	784	160	0.077	2387	668	150	0.070	2387	735	150	0.077
25.0	2037	684	160	0.084	1910	642	150	0.084	1910	642	150	0.084



RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

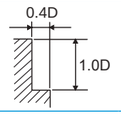
MATERIAL	M											
	STAINLESS STEELS 300				STAINLESS STEELS 400				STAINLESS STEELS (PH)			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5570	550	105	0.025	8223	1125	155	0.034	2334	151	44	0.016
8.0	4178	572	105	0.034	6167	1125	155	0.046	1751	146	44	0.021
10.0	3342	559	105	0.042	4934	1125	155	0.057	1401	149	44	0.027
12.0	2785	529	105	0.048	4112	1094	155	0.067	1167	151	44	0.032
14.0	2387	525	105	0.055	3524	1071	155	0.076	1000	144	44	0.036
16.0	2089	516	105	0.062	3084	1055	155	0.086	875	140	44	0.040
20.0	1671	476	105	0.071	2467	937	155	0.095	700	128	44	0.046
25.0	1337	432	105	0.081	1974	900	155	0.114	560	117	44	0.052

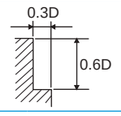




RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS	~ HB 260											
STRENGTH	~ 900N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	9284	780	175	0.021	3714	508	70	0.034	1698	136	32	0.020
8.0	6963	780	175	0.028	2785	529	70	0.048	1273	132	32	0.026
10.0	5570	780	175	0.035	2228	508	70	0.057	1019	130	32	0.032
12.0	4642	780	175	0.042	1857	494	70	0.067	849	129	32	0.038
14.0	3979	764	175	0.048	1592	484	70	0.076	728	128	32	0.044
16.0	3482	738	175	0.053	1393	476	70	0.086	637	122	32	0.048
20.0	2785	668	175	0.060	1114	423	70	0.095	509	112	32	0.055
25.0	2228	624	175	0.070	891	406	70	0.114	407	106	32	0.065





RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

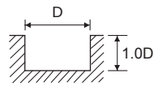
* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.

TitaNox-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE CORNER RADIUS with DOUBLE CORE - SLOTTING
Vollhartmetall, 4 Schneiden Eckradius mit Doppelkern

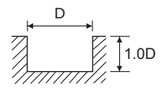
GMG40, GMG41 SERIES

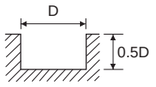
MATERIAL	P											
	CARBON STEELS				ALLOY STEELS				TOOL STEELS			
HARDNESS	~ HB 300				HB 300 ~ HB 380				~ HB 380			
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²				~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	6631	663	125	0.025	6366	637	120	0.025	6366	688	120	0.027
8.0	4974	676	125	0.034	4775	649	120	0.034	4775	668	120	0.035
10.0	3979	668	125	0.042	3820	642	120	0.042	3820	642	120	0.042
12.0	3316	650	125	0.049	3183	624	120	0.049	3183	675	120	0.053
14.0	2842	637	125	0.056	2728	611	120	0.056	2728	633	120	0.058
16.0	2487	627	125	0.063	2387	602	120	0.063	2387	602	120	0.063
20.0	1989	557	125	0.070	1910	535	120	0.070	1910	588	120	0.077
25.0	1592	535	125	0.084	1528	471	120	0.077	1528	513	120	0.084



RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

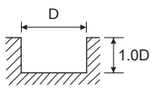
MATERIAL	M											
	STAINLESS STEELS 300				STAINLESS STEELS 400				STAINLESS STEELS (PH)			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	4509	446	85	0.025	6631	907	125	0.034	1910	123	36	0.016
8.0	3382	463	85	0.034	4974	907	125	0.046	1432	120	36	0.021
10.0	2706	452	85	0.042	3979	907	125	0.057	1146	122	36	0.027
12.0	2255	428	85	0.048	3316	882	125	0.067	955	123	36	0.032
14.0	1933	425	85	0.055	2842	841	125	0.074	819	118	36	0.036
16.0	1691	418	85	0.062	2487	803	125	0.081	716	114	36	0.040
20.0	1353	386	85	0.071	1989	756	125	0.095	573	105	36	0.046
25.0	1082	350	85	0.081	1592	665	125	0.105	458	96	36	0.052

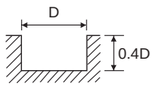




RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS	~ HB 260											
STRENGTH	~ 900N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7427	624	140	0.021	2918	399	55	0.034	1326	95	25	0.018
8.0	5570	624	140	0.028	2188	399	55	0.046	995	95	25	0.024
10.0	4456	624	140	0.035	1751	399	55	0.057	796	95	25	0.030
12.0	3714	624	140	0.042	1459	388	55	0.067	663	95	25	0.036
14.0	3183	611	140	0.048	1251	380	55	0.076	568	91	25	0.040
16.0	2785	590	140	0.053	1094	374	55	0.086	497	88	25	0.044
20.0	2228	535	140	0.060	875	333	55	0.095	398	80	25	0.050
25.0	1783	478	140	0.067	700	293	55	0.105	318	70	25	0.055





RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

TitaNox-POWER END MILLS

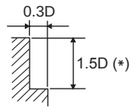
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 5 FLUTE
Vollhartmetall, 5 Schneiden

GMG24, GMG25, GMG26, GMG27, GMG28, GMG29, GMG30, GMG31 SERIES

MATERIAL	P											
	CARBON STEELS				ALLOY STEELS				TOOL STEELS			
HARDNESS	~ HB 300				HB 300 ~ HB 380				~ HB 380			
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²				~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7639	1299	144	0.034	5358	911	101	0.034	3183	382	60	0.024
8.0	5730	1089	144	0.038	4019	764	101	0.038	2387	322	60	0.027
10.0	4584	1146	144	0.050	3215	804	101	0.050	1910	334	60	0.035
12.0	3820	1203	144	0.063	2679	844	101	0.063	1592	350	60	0.044
14.0	3274	1130	144	0.069	2296	792	101	0.069	1364	334	60	0.049
16.0	2865	1089	144	0.076	2009	764	101	0.076	1194	322	60	0.054
18.0	2546	1057	144	0.083	1786	741	101	0.083	1061	308	60	0.058
20.0	2292	1020	144	0.089	1607	715	101	0.089	955	296	60	0.062
25.0	1833	926	144	0.101	1286	649	101	0.101	764	271	60	0.071

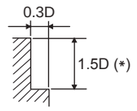
(*): Apply below than 90% of Length of Cut, when it is less than 1.5D.



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	M											
	STAINLESS STEELS 300				STAINLESS STEELS 400				STAINLESS STEELS (PH)			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	4350	653	82	0.030	6207	745	117	0.024	3130	470	59	0.030
8.0	3263	522	82	0.032	4655	582	117	0.025	2348	376	59	0.032
10.0	2610	496	82	0.038	3724	559	117	0.030	1878	357	59	0.038
12.0	2175	685	82	0.063	3104	714	117	0.046	1565	493	59	0.063
14.0	1864	606	82	0.065	2660	678	117	0.051	1341	436	59	0.065
16.0	1631	563	82	0.069	2328	628	117	0.054	1174	405	59	0.069
18.0	1450	508	82	0.070	2069	590	117	0.057	1043	365	59	0.070
20.0	1305	496	82	0.076	1862	568	117	0.061	939	357	59	0.076
25.0	1044	459	82	0.088	1490	529	117	0.071	751	331	59	0.088

(*): Apply below than 90% of Length of Cut, when it is less than 1.5D.



* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TitaNox-POWER END MILLS

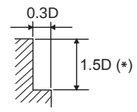
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

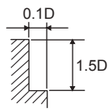
CARBIDE, 5 FLUTE
Vollhartmetall, 5 Schneiden

GMG24, GMG25, GMG26, GMG27, GMG28, GMG29, GMG30, GMG31 SERIES

MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS	~ HB 260											
STRENGTH	~ 900N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5623	1209	106	0.043	3661	494	69	0.027	1645	173	31	0.021
8.0	4218	1012	106	0.048	2745	398	69	0.029	1233	136	31	0.022
10.0	3374	1063	106	0.063	2196	373	69	0.034	987	133	31	0.027
12.0	2812	1111	106	0.079	1830	522	69	0.057	822	181	31	0.044
14.0	2410	1048	106	0.087	1569	463	69	0.059	705	162	31	0.046
16.0	2109	1012	106	0.096	1373	426	69	0.062	617	148	31	0.048
18.0	1874	965	106	0.103	1220	384	69	0.063	548	134	31	0.049
20.0	1687	936	106	0.111	1098	379	69	0.069	493	131	31	0.053
25.0	1350	850	106	0.126	879	347	69	0.079	395	122	31	0.062

(*): Apply below than 90% of Length of Cut, when it is less than 1.5D.





* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TitaNox-POWER END MILLS

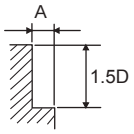
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

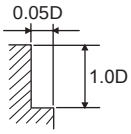
CARBIDE, 5 FLUTE 40° HELIX CORNER RADIUS ROUGHING - FINE
VOLLHARTMETALL, 5 SCHNEIDEN LANG mit ECKRADIUS

EHE54, EHE55 SERIES

MATERIAL	M				S							
	STAINLESS STEELS 400				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	4244	531	80	0.025	3448	379	65	0.022	2122	212	40	0.020
8.0	3183	541	80	0.034	2586	401	65	0.031	1592	199	40	0.025
10.0	2546	522	80	0.041	2069	393	65	0.038	1273	236	40	0.037
12.0	2122	541	80	0.051	1724	397	65	0.046	1061	212	40	0.040
14.0	1819	518	80	0.057	1478	384	65	0.052	909	209	40	0.046
16.0	1592	501	80	0.063	1293	375	65	0.058	796	207	40	0.052
20.0	1273	516	80	0.081	1035	383	65	0.074	637	194	40	0.061
25.0	1019	463	80	0.091	828	348	65	0.084	509	173	40	0.068

A: Ø6-Ø10: 0.15×D
Ø12-Ø16: 0.10×D
Ø20-Ø25: 0.05×D





* Maximum recommended depth shown.
* Finish cuts typically require reduced feed rates and/or higher spindle speed, with radial width of 2% x D1 or less.
* Reduce speed and feed recommendations for materials harder than listed.
* Above recommendations are based on ideal conditions.
  Adjust parameters accordingly for smaller taper machining centers or less rigid conditions.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

Leading Through Innovation

JET-POWER END MILLS

JET-POWER FRÄSER

- Exotic materials like Stainless Steels, Nickel alloys and Titanium
- Für zähe Werkstoffe, wie rostfreier Stahl, Titan und Nickellegierungen

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
EH911 EH912		CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ	D1.0	D25.0	1074
EH913 EH914		CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ	D2.0	D25.0	1075
EH830 EH840		CARBIDE, 3&4 FLUTE 50° HELIX LONG LENGTH VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG	D6.0	D25.0	1076
EH915 EH916		CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle) VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG	D6.0	D25.0	1077
EE515		PREMIUM HSS-PM, 4&6 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ	D3.0	D25.0	1078
EH852 EH862		CARBIDE, MULTI FLUTE SHORT LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN	D6.0	D25.0	1079
EH831 EH841		CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN	D6.0	D25.0	1080
EH917 EH918		CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN	D6.0	D20.0	1081
EH919 EH920		CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN	D4.0	D25.0	1082
EH921 EH942		CARBIDE, MULTI FLUTE 45° HELIX LONG REACH ROUGHING - FINE VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE GROßE REICHWEITE SCHRUPPFRÄSER - FEIN	D6.0	D20.0	1083
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1084

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	
○	◎	◎	○			◎							◎	
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

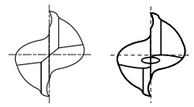
EH911 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH912 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE 35° HELIX SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 2 dents, hélice 35°, courte
2 TAGLIENTI, ELICA 35°, CORTA

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall.
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



up to Ø3mm over Ø3mm

MG HM | 2 | 35° | PLAIN | FLAT P.1084

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EH911010	-	1.0	4	2.5	40
EH911901	EH912901	1.0	6	2.5	40
EH911015	-	1.5	4	4	40
EH911902	EH912902	1.5	6	4	40
EH911020	-	2.0	4	6	40
EH911903	EH912903	2.0	6	6	40
EH911025	-	2.5	4	8	40
EH911904	EH912904	2.5	6	8	40
EH911030	EH912030	3.0	6	8	45
EH911035	EH912035	3.5	6	10	45
EH911040	EH912040	4.0	6	11	45
EH911045	EH912045	4.5	6	11	45
EH911050	EH912050	5.0	6	13	50
EH911055	EH912055	5.5	6	13	50
EH911060	EH912060	6.0	6	13	50
EH911065	EH912065	6.5	8	16	60
EH911070	EH912070	7.0	8	16	60
EH911075	EH912075	7.5	8	16	60
EH911080	EH912080	8.0	8	19	60
EH911085	EH912085	8.5	10	19	70
EH911090	EH912090	9.0	10	19	70
EH911095	EH912095	9.5	10	19	70
EH911100	EH912100	10.0	10	22	70
EH911110	EH912110	11.0	12	22	75
EH911120	EH912120	12.0	12	26	75
EH911140	EH912140	14.0	16	26	85
EH911160	EH912160	16.0	16	32	100
EH911180	EH912180	18.0	16	32	100
EH911200	EH912200	20.0	20	38	105
EH911220	EH912220	22.0	20	38	105
EH911250	EH912250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	

JET-POWER END MILLS

EH913 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH914 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE 35° HELIX SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN 35° RECHTSSPIRALE KURZ
Fraise carbure, 4 dents, hélice 35°, courte
4 TAGLIENTI, ELICA 35°, CORTA

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ Für die Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

MG HM | 4 | 35° | PLAIN | FLAT P.1084

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
EH913020	-	2.0	4	6	40
EH913901	EH914901	2.0	6	6	40
EH913025	-	2.5	4	8	40
EH913902	EH914902	2.5	6	8	40
EH913030	EH914030	3.0	6	8	45
EH913035	EH914035	3.5	6	10	45
EH913040	EH914040	4.0	6	11	45
EH913045	EH914045	4.5	6	11	45
EH913050	EH914050	5.0	6	13	50
EH913055	EH914055	5.5	6	13	50
EH913060	EH914060	6.0	6	13	50
EH913065	EH914065	6.5	8	16	60
EH913070	EH914070	7.0	8	16	60
EH913075	EH914075	7.5	8	16	60
EH913080	EH914080	8.0	8	19	60
EH913085	EH914085	8.5	10	19	70
EH913090	EH914090	9.0	10	19	70
EH913095	EH914095	9.5	10	19	70
EH913100	EH914100	10.0	10	22	70
EH913110	EH914110	11.0	12	22	75
EH913120	EH914120	12.0	12	26	75
EH913140	EH914140	14.0	16	26	85
EH913160	EH914160	16.0	16	32	100
EH913180	EH914180	18.0	16	32	100
EH913200	EH914200	20.0	20	38	105
EH913220	EH914220	22.0	20	38	105
EH913250	EH914250	25.0	25	45	120

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	

JET-POWER END MILLS

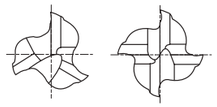
EH830 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH840 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3&4 FLUTE 50° HELIX LONG LENGTH

VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG
Fraise carbure, 3&4 dents, hélice 50°, longue
3&4 TAGLIENTI, ELICA 50°, LUNGA

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

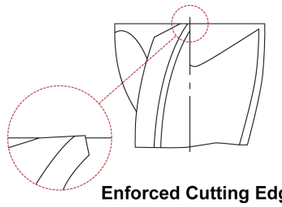


MG HM | 3&4 | 50° | PLAIN | FLAT P.1085-1086

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
EH830060	EH840060	6.0	6	13	50	3
EH830080	EH840080	8.0	8	19	60	3
EH830100	EH840100	10.0	10	22	70	3
EH830120	EH840120	12.0	12	25	75	3
EH830160	EH840160	16.0	16	32	90	3
EH830180	EH840180	18.0	18	32	90	3
EH830200	EH840200	20.0	20	38	100	4
EH830250	EH840250	25.0	25	45	120	4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

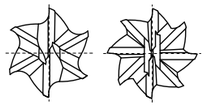
EH915 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH916 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 6&8 FLUTE 45° HELIX LONG LENGTH (Positive Rake Angle)

VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 6&8 dents, hélice 45°, longue (Angle de coupe positif)
6&8 TAGLIENTI, ELICA 45°, LUNGA (Tagliente positivizzato)

- ▶ Ultra micro grain carbide
- ▶ Reduces chipping of corner edges
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Verstärkte Schneidkante.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.

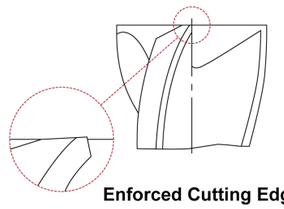


MG HM | 6&8 | 45° | PLAIN | FLAT P.1087-1088

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
EH915060	EH916060	6.0	6	13	57	6
EH915070	EH916070	7.0	8	16	63	6
EH915080	EH916080	8.0	8	19	63	6
EH915090	EH916090	9.0	10	19	72	6
EH915100	EH916100	10.0	10	22	72	6
EH915120	EH916120	12.0	12	26	83	6
EH915140	EH916140	14.0	14	26	83	6
EH915160	EH916160	16.0	16	32	92	6
EH915180	EH916180	18.0	18	32	92	8
EH915200	EH916200	20.0	20	38	104	8
EH915250	EH916250	25.0	25	44	104	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

EE515 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 4&6 FLUTE SHORT LENGTH

PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ

Fraise HSS-PM Premium, 4&6 dents, courte

4&6 TAGLIENTI, CORTA (HSS-PM)

- ▶ Excellent performance on Low handness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, Stainless Steel, Titanium, Inconel.
- ▶ High chemical stability prevents built-up edge, micro cracks and crater wear.
- ▶ Superior workpiece finish.

- ▶ Ausgezeichnete Eignung zur Bearbeitung von weichen Materialien (bis HRc45), Legierten Stählen, kraterbildung, vorgehärtetem Stahl, rostfreiem Stahl, Titanium und Inconel.
- ▶ Hohe chemische Stabilität verhindert Kantenbildung, Mikrorisse und Krateraufzug.
- ▶ Höhere Oberflächengüte.

YPM | 4&6 | 30° | FLAT

P.1089

Unit : mm

EDP No. FLAT	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
EE515030	3.0	6	8	52	4
EE515040	4.0	6	11	55	4
EE515050	5.0	6	13	57	4
EE515060	6.0	6	13	57	4
EE515080	8.0	10	19	69	4
EE515100	10.0	10	22	72	4
EE515120	12.0	12	26	83	4
EE515140	14.0	12	26	83	4
EE515160	16.0	16	32	92	6
EE515180	18.0	16	32	92	6
EE515200	20.0	20	38	104	6
EE515250	25.0	25	45	121	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							○	○

JET-POWER END MILLS

EH852 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

EH862 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

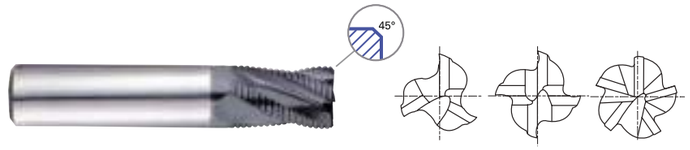
VOLLHARTMETALL, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN

Fraise carbure, multi-dents ébauche, pas fin, courte

3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, CORTA - Bombato fine

- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc
- ▶ High velocity milling operation.
- ▶ Fast chip ejection.

- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..
- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Schnelle Spanausfuhr.



MG HM | FINE | 3-5 | 30° | PLAIN | FLAT | C x 45°

P.1090-1091

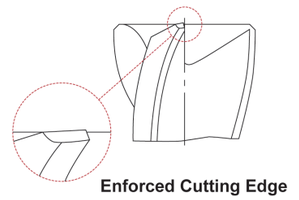
Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
EH852060	EH862060	6.0	6	7	54	3	0.38
EH852070	EH862070	7.0	8	8	58	3	0.38
EH852080	EH862080	8.0	8	9	58	3	0.38
EH852090	EH862090	9.0	10	13	66	4	0.38
EH852100	EH862100	10.0	10	14	66	4	0.38
EH852120	EH862120	12.0	12	16	73	4	0.55
EH852140	EH862140	14.0	14	18	75	4	0.55
EH852160	EH862160	16.0	16	22	82	4	0.55
EH852180	EH862180	18.0	18	24	84	4	0.55
EH852200	EH862200	20.0	20	26	92	4	0.55
EH852250	EH862250	25.0	25	25	110	5	0.55

Tolerances according to DIN 7160 & 7161

Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							○	○

JET-POWER END MILLS

EH831 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH841 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - FINE

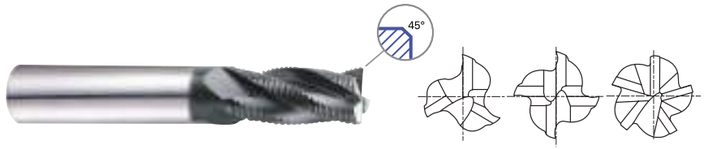
VOLLHARTMETALL, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN

Fraise carbure, multi-dents ébauche, pas fin, longue

3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Longer flute length than EH852, EH862.
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc.
- ▶ High velocity milling operation.
- ▶ Fast chip ejection.

- ▶ Längere Schneiden als bei EH852 und EH862.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen..
- ▶ Hochgeschwindigkeitsfräsen.
- ▶ Schnelle Spanausfuhr.



MG HM | FINE | 3-5 | 30° | PLAIN | FLAT | C x 45°

P.1090-1091

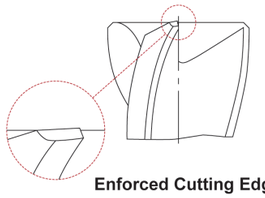
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
PLAIN	FLAT	h10	h6				
EH831060	EH841060	6.0	6	16	57	3	0.38
EH831070	EH841070	7.0	8	16	63	3	0.38
EH831080	EH841080	8.0	8	16	63	3	0.38
EH831090	EH841090	9.0	10	19	72	4	0.38
EH831100	EH841100	10.0	10	22	72	4	0.38
EH831120	EH841120	12.0	12	26	83	4	0.55
EH831140	EH841140	14.0	14	26	83	4	0.55
EH831160	EH841160	16.0	16	32	92	4	0.55
EH831180	EH841180	18.0	18	32	92	4	0.55
EH831200	EH841200	20.0	20	38	104	4	0.55
EH831250	EH841250	25.0	25	45	121	5	0.55

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

EH917 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH918 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE

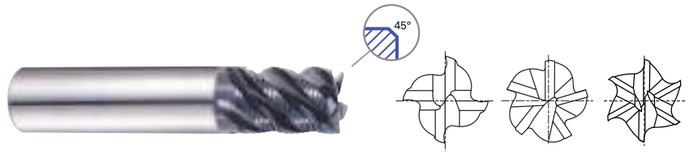
VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPPFRÄSER - FEIN

Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, courte

4 - 5 - 6 TAGLIENTI, ELICA 45°, PER SGROSSATURA, CORTA - Bombato fine

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



MG HM | FINE | 4-6 | 45° | PLAIN | FLAT | C x 45°

P.1092-1093

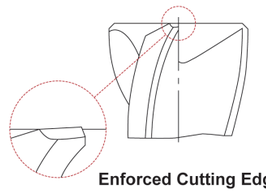
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
PLAIN	FLAT	h10	h6				
EH917060	EH918060	6.0	6	7	54	4	0.15
EH917080	EH918080	8.0	8	9	58	4	0.18
EH917100	EH918100	10.0	10	14	66	4	0.20
EH917120	EH918120	12.0	12	16	73	4	0.20
EH917160	EH918160	16.0	16	22	82	5	0.20
EH917200	EH918200	20.0	20	26	92	6	0.20

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

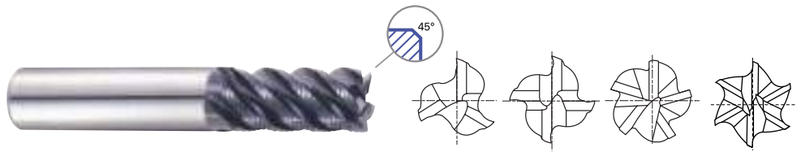
EH919 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH920 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE LANG SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche, hélice 45°, pas fin, longue
MULTITAGLIENTI, ELICA 45°, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



MG HM | FINE | 3-6 | 45° | PLAIN | FLAT | C x 45° P.1094-1095

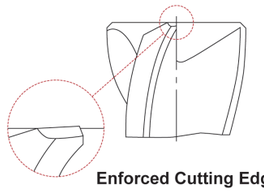
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
PLAIN	FLAT	h10	h6				
EH919040	EH920040	4.0	6	11	57	3	0.10
EH919050	EH920050	5.0	6	13	57	4	0.13
EH919060	EH920060	6.0	6	16	57	4	0.15
EH919070	EH920070	7.0	8	16	63	4	0.15
EH919080	EH920080	8.0	8	16	63	4	0.18
EH919090	EH920090	9.0	10	19	72	4	0.18
EH919100	EH920100	10.0	10	22	72	4	0.20
EH919120	EH920120	12.0	12	26	83	4	0.20
EH919140	EH920140	14.0	14	26	83	5	0.20
EH919160	EH920160	16.0	16	32	92	5	0.20
EH919200	EH920200	20.0	20	38	104	6	0.20
EH919250	EH920250	25.0	25	45	121	6	0.20

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

JET-POWER END MILLS

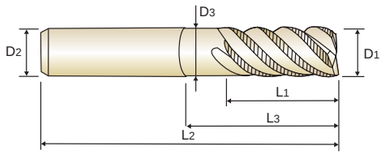
EH921 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EH942 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE 45° HELIX LONG REACH ROUGHING - FINE

VOLLHARTMETALL, MULTI SCHNEIDEN 45° RECHTSSPIRALE GROßE REICHWEITE SCHRUPPFRÄSER - FEIN
Fraise carbure, multi-dents ébauche longue portée, hélice 45°, pas fin
MULTITAGLIENTI, ELICA 45° SCARICATA, PER SGROSSATURA, LUNGA - Bombato fine

- ▶ Ultra micro grain carbide
- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Suitable for low hardness materials(under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steels, etc

- ▶ Ultra Feinstkorn - Vollhartmetall
- ▶ Schnelle Spanausfuhr und Minimierung von Abbrechen von Schneidkanten.
- ▶ zur Bearbeitung von: Werkstoffen bis 45 HRc, rostfreien Stählen, Titan und Nickellegierungen.



MG HM | FINE | 4-6 | 45° | PLAIN | FLAT | C x 45° P.1092-1093

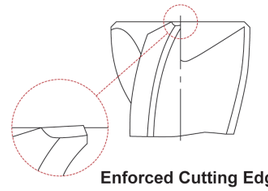
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer
PLAIN	FLAT	D1(h10)	D2(h6)	L1	L3	L2	D3		
EH921060	EH942060	6.0	6	16	20	57	5.5	4	0.15
EH921080	EH942080	8.0	8	16	26	63	7.5	4	0.18
EH921100	EH942100	10.0	10	22	31	72	9.5	4	0.20
EH921120	EH942120	12.0	12	26	37	83	11.5	4	0.20
EH921160	EH942160	16.0	16	32	51	100	15.5	5	0.20
EH921200	EH942200	20.0	20	38	59	110	19.2	6	0.20

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

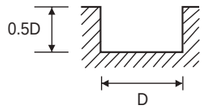
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE SHORT - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN KURZ - NUTENFRÄSEN

EH911, EH912 SERIES

MATERIAL	P								M				S			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				TITANIUM ALLOYS			
HARDNESS	~ HRc30				HRc30 ~ HRc45											
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	11560	190	75	0.008	7560	120	50	0.008	6300	90	40	0.007	6300	90	40	0.007
3.0	8920	210	85	0.012	5560	140	50	0.013	4620	120	45	0.013	4620	120	45	0.013
4.0	7560	300	95	0.020	4620	180	60	0.019	3880	150	50	0.019	3880	150	50	0.019
5.0	6300	320	100	0.025	3780	190	60	0.025	3160	160	50	0.025	3160	160	50	0.025
6.0	5560	350	105	0.031	3360	220	65	0.033	2840	180	55	0.032	2840	180	55	0.032
8.0	4200	380	105	0.045	2520	200	65	0.040	2100	180	55	0.043	2100	180	55	0.043
10.0	3260	330	100	0.051	2000	160	65	0.040	1680	160	55	0.048	1680	160	55	0.048
12.0	2740	280	105	0.051	1680	130	65	0.039	1360	130	50	0.048	1360	130	50	0.048
16.0	2200	220	110	0.050	1360	110	70	0.040	1060	110	55	0.052	1060	110	55	0.052
20.0	1680	170	105	0.051	1060	80	65	0.038	840	80	55	0.048	840	80	55	0.048
25.0	1360	130	105	0.048	840	70	65	0.042	680	60	55	0.044	680	60	55	0.044



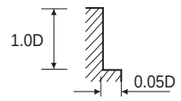
(up to Ø3:0.2D)

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

CARBIDE, 4 FLUTE SHORT - SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN KURZ - SEITENFRÄSEN

EH913, EH914 SERIES

MATERIAL	P								M				S			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				TITANIUM ALLOYS			
HARDNESS	~ HRc30				HRc30 ~ HRc45											
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	11560	280	75	0.006	7560	170	50	0.006	6300	140	40	0.006	6300	140	40	0.006
3.0	8920	320	85	0.009	5560	200	50	0.009	4620	170	45	0.009	4620	170	45	0.009
4.0	7560	570	95	0.019	4620	350	60	0.019	3880	280	50	0.018	3880	280	50	0.018
5.0	6300	600	100	0.024	3780	360	60	0.024	3160	300	50	0.024	3160	300	50	0.024
6.0	5560	660	105	0.030	3360	410	65	0.031	2840	330	55	0.029	2840	330	55	0.029
8.0	4200	710	105	0.042	2520	380	65	0.038	2100	350	55	0.042	2100	350	55	0.042
10.0	3260	610	100	0.047	2000	300	65	0.038	1680	300	55	0.045	1680	300	55	0.045
12.0	2740	520	105	0.047	1680	250	65	0.037	1360	240	50	0.044	1360	240	50	0.044
16.0	2200	410	110	0.047	1360	200	70	0.037	1060	200	55	0.047	1060	200	55	0.047
20.0	1680	320	105	0.048	1060	160	65	0.038	840	150	55	0.045	840	150	55	0.045
25.0	1360	250	105	0.046	840	130	65	0.039	680	120	55	0.044	680	120	55	0.044



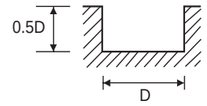
RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

JET-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3&4 FLUTE 50° HELIX LONG - SLOTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE LANG - NUTENFRÄSEN

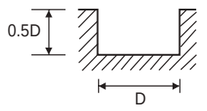
EH830, EH840 SERIES

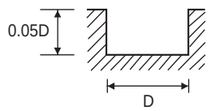
MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5560	310	105	0.019	3360	200	65	0.020	2840	160	55	0.019
8.0	4200	340	105	0.027	2520	180	65	0.024	2100	160	55	0.025
10.0	3260	300	100	0.031	2000	140	65	0.023	1680	140	55	0.028
12.0	2740	250	105	0.030	1680	120	65	0.024	1370	120	50	0.029
16.0	2200	200	110	0.030	1360	100	70	0.025	1050	100	55	0.032
18.0	1940	175	110	0.030	1210	85	70	0.023	950	85	55	0.030
20.0	1680	150	105	0.022	1060	70	65	0.017	840	70	55	0.021
25.0	1360	115	105	0.021	840	60	65	0.018	670	60	55	0.022



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2840	160	55	0.019	1160	40	20	0.011
8.0	2100	160	55	0.025	840	40	20	0.016
10.0	1680	140	55	0.028	670	40	20	0.020
12.0	1370	120	50	0.029	560	30	20	0.018
16.0	1050	100	55	0.032	420	25	20	0.020
18.0	950	85	55	0.030	370	20	20	0.018
20.0	840	70	55	0.021	320	20	20	0.016
25.0	670	60	55	0.022	270	15	20	0.014





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

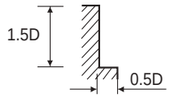
JET-POWER END MILLS

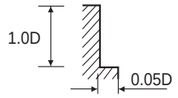
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3&4 FLUTE 50° HELIX - SIDE CUTTING
VOLLHARTMETALL, 3&4 SCHNEIDEN 50° RECHTSSPIRALE - SEITENFRÄSEN

EH830, EH840 SERIES

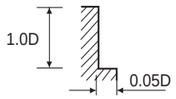
MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5560	400	105	0.024	3360	250	65	0.025	2840	250	55	0.029
8.0	4200	420	105	0.033	2520	230	65	0.030	2100	265	55	0.042
10.0	3260	370	100	0.038	2000	180	65	0.030	1680	230	55	0.046
12.0	2740	310	105	0.038	1680	150	65	0.030	1370	180	50	0.044
16.0	2200	250	110	0.038	1360	120	70	0.029	1050	150	55	0.048
18.0	1940	220	110	0.038	1210	110	70	0.030	950	130	55	0.046
20.0	1680	190	105	0.028	1060	95	65	0.022	840	115	55	0.034
25.0	1360	150	105	0.028	840	75	65	0.022	670	90	55	0.034





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2840	250	55	0.029	1050	55	20	0.017
8.0	2100	265	55	0.042	840	50	20	0.020
10.0	1680	230	55	0.046	680	50	20	0.025
12.0	1370	180	50	0.044	560	45	20	0.027
16.0	1050	150	55	0.048	420	35	20	0.028
18.0	950	130	55	0.046	370	30	20	0.027
20.0	840	115	55	0.034	340	30	20	0.022
25.0	670	90	55	0.034	270	25	20	0.023



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

JET-POWER END MILLS

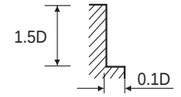
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

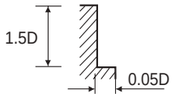
CARBIDE, 6&8 FLUTE 45° HELIX LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG - SEITENFRÄSEN

EH915, EH916 SERIES

■ NORMAL SPEED

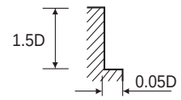
MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5560	2000	105	0.060	3880	1370	75	0.059	3370	1100	65	0.054
8.0	4200	2000	105	0.079	2940	1370	75	0.078	2490	1100	65	0.074
10.0	3360	2000	105	0.099	2320	1370	75	0.098	1920	1100	60	0.095
16.0	2840	1680	105	0.099	2000	1160	75	0.097	1610	1000	60	0.104
18.0	2100	1260	105	0.100	1480	880	75	0.099	1160	770	60	0.111
20.0	1680	1010	105	0.075	1160	690	75	0.074	900	620	55	0.086
25.0	1500	900	120	0.075	1100	600	85	0.068	850	540	65	0.079

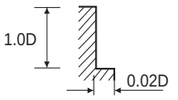




RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3370	1100	65	0.054	1350	280	25	0.035
8.0	2490	1100	65	0.074	1000	280	25	0.047
10.0	1920	1100	60	0.095	440	280	15	0.106
16.0	1610	1000	60	0.104	400	250	15	0.104
18.0	1160	770	60	0.111	310	190	15	0.102
20.0	900	620	55	0.086	250	155	15	0.078
25.0	850	540	65	0.079	220	135	15	0.077





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

JET-POWER END MILLS

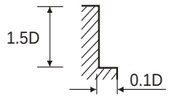
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

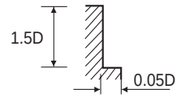
CARBIDE, 6&8 FLUTE 45° HELIX LONG - SIDE CUTTING
VOLLHARTMETALL, 6&8 SCHNEIDEN 45° RECHTSSPIRALE LANG - SEITENFRÄSEN

EH915, EH916 SERIES

■ HIGH SPEED

MATERIAL	P							
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45			
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	22200	8000	420	0.060	16800	6090	315	0.060
8.0	16800	8000	420	0.079	12600	6090	315	0.081
10.0	13400	8000	420	0.100	9980	5990	315	0.100
12.0	11350	6720	430	0.099	8400	5040	315	0.100
16.0	8400	5040	420	0.100	6300	3780	315	0.100
20.0	6700	4040	420	0.075	5040	3050	315	0.076
25.0	6000	3600	470	0.075	4500	2700	355	0.075





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

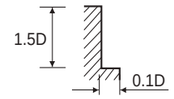
JET-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 4&6 FLUTE SHORT- SIDE CUTTING
PREMIUM HSS-PM, 4&6 SCHNEIDEN KURZ - SEITENFRÄSEN

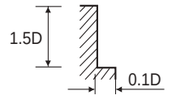
EE515 SERIES

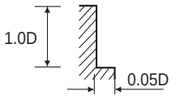
MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	4400	185	40	0.011	1100	23	10	0.005	2200	110	20	0.013
4.0	3600	210	45	0.015	900	31	10	0.009	1800	125	25	0.017
5.0	3000	225	45	0.019	750	30	10	0.010	1500	135	25	0.023
6.0	2600	235	50	0.023	600	29	10	0.012	1300	140	25	0.027
8.0	2000	250	50	0.031	500	28	15	0.014	1000	150	25	0.038
10.0	1600	285	50	0.045	410	30	15	0.018	800	170	25	0.053
12.0	1320	250	50	0.047	340	29	15	0.021	660	150	25	0.057
14.0	1160	235	50	0.051	290	27	15	0.023	580	140	25	0.060
16.0	1000	225	50	0.038	250	26	15	0.017	500	135	25	0.045
18.0	900	210	50	0.039	225	23	15	0.017	450	125	25	0.046
20.0	800	200	50	0.042	200	17	15	0.014	400	120	25	0.050
25.0	640	165	50	0.043	165	15	15	0.015	320	100	25	0.052



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	2200	110	20	0.013	880	28	10	0.008
4.0	1800	125	25	0.017	720	37	10	0.013
5.0	1500	135	25	0.023	600	36	10	0.015
6.0	1300	140	25	0.027	480	35	10	0.018
8.0	1000	150	25	0.038	400	34	10	0.021
10.0	800	170	25	0.053	330	36	10	0.027
12.0	660	150	25	0.057	270	35	10	0.032
14.0	580	140	25	0.060	230	32	10	0.035
16.0	500	135	25	0.045	200	31	10	0.026
18.0	450	125	25	0.046	180	28	10	0.026
20.0	400	120	25	0.050	160	21	10	0.022
25.0	320	100	25	0.052	130	18	10	0.023





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

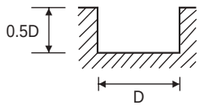
JET-POWER END MILLS

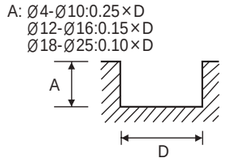
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SLOTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH852, EH862, EH831, EH841 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15600	1390	294	0.030	12400	500	234	0.013	8400	340	158	0.013
8.0	11600	1390	292	0.040	9200	500	231	0.018	6300	340	158	0.018
10.0	9200	1390	289	0.038	7600	500	239	0.016	5100	340	160	0.017
12.0	8000	1440	302	0.045	6000	480	226	0.020	4200	340	158	0.020
14.0	6800	1440	299	0.053	5200	500	229	0.024	3600	340	158	0.024
16.0	6000	1440	302	0.060	4800	460	241	0.024	3300	310	166	0.023
18.0	5200	1390	294	0.067	4400	430	249	0.024	2700	250	153	0.023
20.0	4800	1300	302	0.068	3600	340	226	0.024	2400	220	151	0.023
25.0	4300	1290	338	0.060	3200	370	251	0.023	2160	250	170	0.023

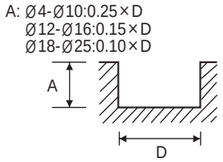


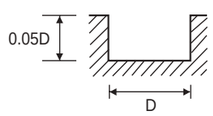


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	8400	340	158	0.013	2400	115	45	0.016
8.0	6300	340	158	0.018	1800	110	45	0.020
10.0	5100	340	160	0.017	1300	115	41	0.022
12.0	4200	340	158	0.020	1200	115	45	0.024
14.0	3600	340	158	0.024	900	80	40	0.022
16.0	3300	310	166	0.023	800	65	40	0.020
18.0	2700	250	153	0.023	700	60	40	0.021
20.0	2400	220	151	0.023	660	60	41	0.023
25.0	2160	250	170	0.023	600	65	47	0.022





RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

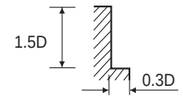
JET-POWER END MILLS

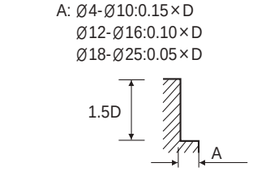
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH852, EH862, EH831, EH841 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15600	2320	294	0.050	12400	840	234	0.023	8400	570	158	0.023
8.0	11600	2320	292	0.067	9200	840	231	0.030	6300	570	158	0.030
10.0	9200	2320	289	0.063	7600	840	239	0.028	5100	570	160	0.028
12.0	8000	2400	302	0.075	6000	800	226	0.033	4200	570	158	0.034
14.0	6800	2400	299	0.088	5200	840	229	0.040	3600	570	158	0.040
16.0	6000	2400	302	0.100	4800	760	241	0.040	3300	510	166	0.039
18.0	5200	2320	294	0.112	4400	720	249	0.041	2700	420	153	0.039
20.0	4800	2160	302	0.113	3600	560	226	0.039	2400	360	151	0.038
25.0	4300	2150	338	0.100	3200	620	251	0.039	2160	410	170	0.038

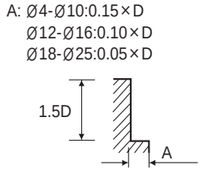


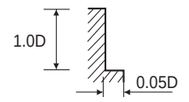


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	8400	570	158	0.023	2400	190	45	0.026
8.0	6300	570	158	0.030	1800	180	45	0.033
10.0	5100	570	160	0.028	1300	190	41	0.037
12.0	4200	570	158	0.034	1200	190	45	0.040
14.0	3600	570	158	0.040	900	130	40	0.036
16.0	3300	510	166	0.039	800	110	40	0.034
18.0	2700	420	153	0.039	700	100	40	0.036
20.0	2400	360	151	0.038	660	100	41	0.038
25.0	2160	410	170	0.038	600	110	47	0.037





RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

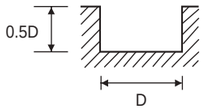
JET-POWER END MILLS

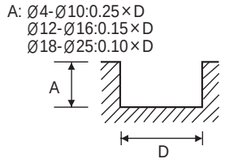
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SLOTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH917, EH918, EH921, EH942 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15600	1390	294	0.022	12400	500	234	0.010	8400	340	158	0.010
8.0	11600	1390	292	0.030	9200	500	231	0.014	6300	340	158	0.013
10.0	9200	1390	289	0.038	7600	500	239	0.016	5100	340	160	0.017
12.0	8000	1440	302	0.045	6000	480	226	0.020	4200	340	158	0.020
16.0	6000	1440	302	0.048	4800	460	241	0.019	3300	310	166	0.019
20.0	4800	1300	302	0.045	3600	340	226	0.016	2400	220	151	0.015

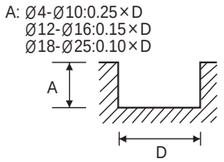


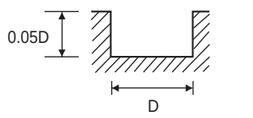


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	8400	340	158	0.010	2400	115	45	0.012
14.0	6300	340	158	0.013	1800	110	45	0.015
16.0	5100	340	160	0.017	1300	115	41	0.022
18.0	4200	340	158	0.020	1200	115	45	0.024
20.0	3300	310	166	0.019	800	65	40	0.016
25.0	2400	220	151	0.015	660	60	41	0.015





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

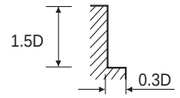
JET-POWER END MILLS

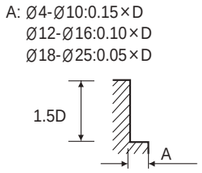
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH917, EH918, EH921, EH942 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	15600	2320	294	0.037	12400	840	234	0.017	8400	570	158	0.017
8.0	11600	2320	292	0.050	9200	840	231	0.023	6300	570	158	0.023
16.0	9200	2320	289	0.063	7600	840	239	0.028	5100	570	160	0.028
18.0	8000	2400	302	0.075	6000	800	226	0.033	4200	570	158	0.034
20.0	6000	2400	302	0.080	4800	760	241	0.032	3300	510	166	0.031
25.0	4800	2160	302	0.075	3600	560	226	0.026	2400	360	151	0.025

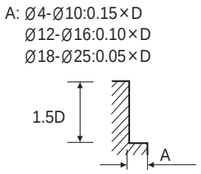


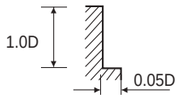


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	8400	570	158	0.017	2400	190	45	0.020
8.0	6300	570	158	0.023	1800	180	45	0.025
16.0	5100	570	160	0.028	1300	190	41	0.037
18.0	4200	570	158	0.034	1200	190	45	0.040
20.0	3300	510	166	0.031	800	110	40	0.028
25.0	2400	360	151	0.025	660	100	41	0.025





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

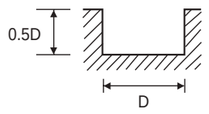
JET-POWER END MILLS

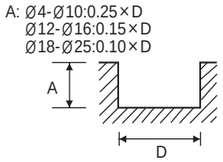
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SLOTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH919, EH920 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	23400	1390	294	0.020	18600	500	234	0.009	12600	340	158	0.009
6.0	15600	1390	294	0.022	12400	500	234	0.010	8400	340	158	0.010
8.0	11600	1390	292	0.030	9200	500	231	0.014	6300	340	158	0.013
10.0	9200	1390	289	0.038	7600	500	239	0.016	5100	340	160	0.017
12.0	8000	1440	302	0.045	6000	480	226	0.020	4200	340	158	0.020
14.0	6800	1440	299	0.042	5200	500	229	0.019	3600	340	158	0.019
16.0	6000	1440	302	0.048	4800	460	241	0.019	3300	310	166	0.019
20.0	4800	1300	302	0.045	3600	340	226	0.016	2400	220	151	0.015
25.0	4300	1290	338	0.050	3200	370	251	0.019	2160	250	170	0.019

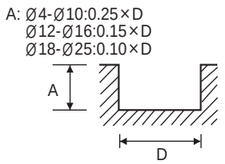


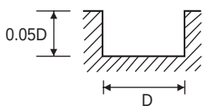


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	12600	340	158	0.009	3600	115	45	0.011
6.0	8400	340	158	0.010	2400	115	45	0.012
8.0	6300	340	158	0.013	1800	110	45	0.015
10.0	5100	340	160	0.017	1300	115	41	0.022
12.0	4200	340	158	0.020	1200	115	45	0.024
14.0	3600	340	158	0.019	900	80	40	0.018
16.0	3300	310	166	0.019	800	65	40	0.016
20.0	2400	220	151	0.015	660	60	41	0.015
25.0	2160	250	170	0.019	600	65	47	0.018





RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

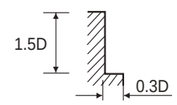
JET-POWER END MILLS

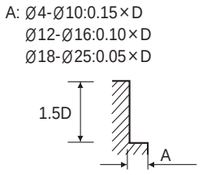
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING - SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER

EH919, EH920 SERIES

MATERIAL	P								M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc45							
STRENGTH	1000N/mm²				1000 ~ 1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	23400	2320	294	0.033	18600	840	234	0.015	12600	570	158	0.015
6.0	15600	2320	294	0.037	12400	840	234	0.017	8400	570	158	0.017
8.0	11600	2320	292	0.050	9200	840	231	0.023	6300	570	158	0.023
10.0	9200	2320	289	0.063	7600	840	239	0.028	5100	570	160	0.028
12.0	8000	2400	302	0.075	6000	800	226	0.033	4200	570	158	0.034
14.0	6800	2400	299	0.071	5200	840	229	0.032	3600	570	158	0.032
16.0	6000	2400	302	0.080	4800	760	241	0.032	3300	510	166	0.031
20.0	4800	2160	302	0.075	3600	560	226	0.026	2400	360	151	0.025
25.0	4300	2150	338	0.083	3200	620	251	0.032	2160	410	170	0.032

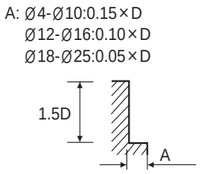


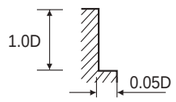


※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

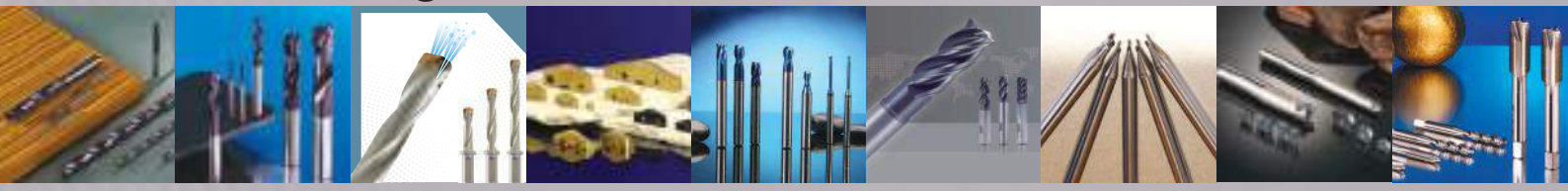
MATERIAL	S							
	TITANIUM ALLOYS				INCONEL			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	12600	570	158	0.015	3600	190	45	0.018
6.0	8400	570	158	0.017	2400	190	45	0.020
8.0	6300	570	158	0.023	1800	180	45	0.025
10.0	5100	570	160	0.028	1300	190	41	0.037
12.0	4200	570	158	0.034	1200	190	45	0.040
14.0	3600	570	158	0.032	900	130	40	0.029
16.0	3300	510	166	0.031	800	110	40	0.028
20.0	2400	360	151	0.025	660	100	41	0.025
25.0	2160	410	170	0.032	600	110	47	0.031





RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

Global Cutting Tool Leader **YG-1**



CARBIDE

YG

Leading Through Innovation

V7 Mill INOX END MILLS

V7 MILL INOX FRÄSER

- The unique design for high-speed and heavy duty cutting

- Einzigartiges Design für High-Speed (HSC) und Schwerzerspanung

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
EMB74 EMB75		CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS LANG	R1.5	R12.5	1122
EMB43 EMB44		CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS KURZ	D3.0	D20.0	1123
EMB15 EMB40		CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS LANG	D3.0	D25.0	1124
EME31 EME32		CARBIDE, 4 FLUTE with EXTENDED NECK CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D3.0	D20.0	1125
EMB41 EMB42		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D3.0	D20.0	1126
EMB14 EMB39		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.0	D25.0	1127
EMC84 EMC85		CARBIDE, 4 FLUTE with EXTENDED NECK VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL	D3.0	D20.0	1128
EMB72 EMB73		CARBIDE, 5 FLUTE LONG LENGTH VOLLHARTMETALL, 5 SCHNEIDEN LANG	D6.0	D25.0	1129
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1130

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○
◎	○	○				◎							◎	○
◎	○	○				◎							◎	○
◎	○	○				◎							◎	○
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V7 MILL INOX END MILLS

EMB74 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EMB75 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN LANG STIRNRADIUS
Fraise carbure, 4 dents, hémisphérique, longue
4 TAGLIENTI, SEMISFERICA, SERIE LUNGA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | R ±0.02 | PLAIN | FLAT

P.1130

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
EMB74030	EMB75030	R1.5	3.0	6	8	57
EMB74040	EMB75040	R2.0	4.0	6	11	57
EMB74050	EMB75050	R2.5	5.0	6	13	57
EMB74060	EMB75060	R3.0	6.0	6	13	57
EMB74080	EMB75080	R4.0	8.0	8	19	63
EMB74100	EMB75100	R5.0	10.0	10	22	72
EMB74120	EMB75120	R6.0	12.0	12	26	83
EMB74160	EMB75160	R8.0	16.0	16	32	92
EMB74200	EMB75200	R10.0	20.0	20	38	104
EMB74250	EMB75250	R12.5	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMB43 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EMB44 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS KURZ
Fraise carbure, 4 dents, torique, courte
4 TAGLIENTI, SERIE CORTA, TORICA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT

P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
EMB43030	EMB44030	R0.3	3.0	6	7	54
EMB43040	EMB44040	R0.3	4.0	6	8	54
EMB43050	EMB44050	R0.3	5.0	6	10	54
EMB43060	EMB44060	R0.5	6.0	6	10	54
EMB43080	EMB44080	R0.5	8.0	8	12	58
EMB43100	EMB44100	R0.5	10.0	10	14	66
EMB43120	EMB44120	R0.7	12.0	12	16	73
EMB43140	EMB44140	R0.7	14.0	14	18	75
EMB43160	EMB44160	R1.0	16.0	16	22	82
EMB43180	EMB44180	R1.0	18.0	18	24	84
EMB43200	EMB44200	R1.0	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMB15 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EMB40 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS LANG
Fraise carbure, 4 dents, torique, longue
4 TAGLIENTI, SERIE LUNGA, TORICA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT

P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
EMB15030	EMB40030	R0.3	3.0	6	8	57
EMB15040	EMB40040	R0.3	4.0	6	11	57
EMB15050	EMB40050	R0.3	5.0	6	13	57
EMB15060	EMB40060	R0.5	6.0	6	13	57
EMB15080	EMB40080	R0.5	8.0	8	19	63
EMB15100	EMB40100	R0.5	10.0	10	22	72
EMB15120	EMB40120	R0.7	12.0	12	26	83
EMB15140	EMB40140	R0.7	14.0	14	26	83
EMB15160	EMB40160	R1.0	16.0	16	32	92
EMB15180	EMB40180	R1.0	18.0	18	32	92
EMB15200	EMB40200	R1.0	20.0	20	38	104
EMB15250	EMB40250	R1.0	25.0	25	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EME31 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EME32 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE with EXTENDED NECK CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, torique, détalonnée
4 TAGLIENTI, CON SCARICO, TORICA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT

P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Corner Radius R	Mill Diameter	Shank Diameter h6	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
EME31030	EME32030	R0.3	3.0	6	7	12	54	2.7
EME31901	EME32901	R0.3	3.0	6	7	17	57	2.7
EME31040	EME32040	R0.3	4.0	6	8	15	57	3.7
EME31902	EME32902	R0.3	4.0	6	8	22	63	3.7
EME31050	EME32050	R0.3	5.0	6	10	17	57	4.7
EME31903	EME32903	R0.3	5.0	6	10	27	67	4.7
EME31060	EME32060	R0.5	6.0	6	10	15	57	5.5
EME31904	EME32904	R0.5	6.0	6	10	20	62	5.5
EME31905	EME32905	R0.5	6.0	6	10	32	74	5.5
EME31080	EME32080	R0.5	8.0	8	12	20	63	7.5
EME31906	EME32906	R0.5	8.0	8	12	30	73	7.5
EME31907	EME32907	R0.5	8.0	8	12	46	90	7.5
EME31100	EME32100	R0.5	10.0	10	14	25	72	9.2
EME31908	EME32908	R0.5	10.0	10	14	35	82	9.2
EME31909	EME32909	R0.5	10.0	10	14	55	102	9.2
EME31120	EME32120	R0.7	12.0	12	16	30	83	11
EME31910	EME32910	R0.7	12.0	12	16	40	93	11
EME31911	EME32911	R0.7	12.0	12	16	64	117	11
EME31160	EME32160	R1.0	16.0	16	22	38	92	15
EME31912	EME32912	R1.0	16.0	16	22	55	109	15
EME31913	EME32913	R1.0	16.0	16	22	87	141	15
EME31200	EME32200	R1.0	20.0	20	26	50	104	19
EME31914	EME32914	R1.0	20.0	20	26	70	124	19
EME31915	EME32915	R1.0	20.0	20	26	110	164	19

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMB41 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EMB42 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA ,EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

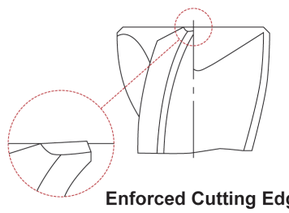
- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT | C x 45° | P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
EMB41030	EMB42030	3.0	6	7	54	0.1
EMB41040	EMB42040	4.0	6	8	54	0.1
EMB41050	EMB42050	5.0	6	10	54	0.1
EMB41060	EMB42060	6.0	6	10	54	0.1
EMB41080	EMB42080	8.0	8	12	58	0.1
EMB41100	EMB42100	10.0	10	14	66	0.1
EMB41120	EMB42120	12.0	12	16	73	0.1
EMB41140	EMB42140	14.0	14	18	75	0.2
EMB41160	EMB42160	16.0	16	22	82	0.2
EMB41180	EMB42180	18.0	18	24	84	0.2
EMB41200	EMB42200	20.0	20	26	92	0.2

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMB14 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
EMB39 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

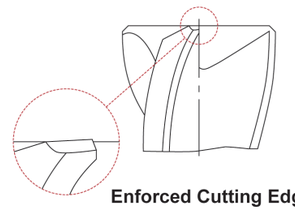
- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT | C x 45° | P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
EMB14030	EMB39030	3.0	6	8	57	0.1
EMB14040	EMB39040	4.0	6	11	57	0.1
EMB14050	EMB39050	5.0	6	13	57	0.1
EMB14060	EMB39060	6.0	6	13	57	0.1
EMB14080	EMB39080	8.0	8	19	63	0.1
EMB14100	EMB39100	10.0	10	22	72	0.1
EMB14120	EMB39120	12.0	12	26	83	0.1
EMB14140	EMB39140	14.0	14	26	83	0.2
EMB14160	EMB39160	16.0	16	32	92	0.2
EMB14180	EMB39180	18.0	18	32	92	0.2
EMB14200	EMB39200	20.0	20	38	104	0.2
EMB14250	EMB39250	25.0	25	38	104	0.2

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMC84 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EMC85 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE with EXTENDED NECK

VOLLHARTMETALL, 4 SCHNEIDEN mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 4 dents, détalonnée
4 TAGLIENTI, CON SCARICO, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

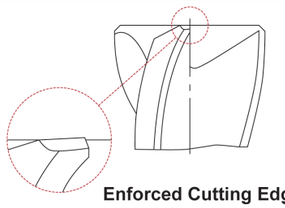
- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 4 | 36°~39.75° | PLAIN | FLAT | C x 45° | P.1131

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter h6	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
EMC84030	EMC85030	3.0	6	7	12	54	2.7	0.1
EMC84913	EMC85913	3.0	6	7	17	57	2.7	0.1
EMC84040	EMC85040	4.0	6	8	15	57	3.7	0.1
EMC84914	EMC85914	4.0	6	8	22	63	3.7	0.1
EMC84050	EMC85050	5.0	6	10	17	57	4.7	0.1
EMC84915	EMC85915	5.0	6	10	27	67	4.7	0.1
EMC84060	EMC85060	6.0	6	10	15	57	5.5	0.1
EMC84901	EMC85901	6.0	6	10	20	62	5.5	0.1
EMC84902	EMC85902	6.0	6	10	32	74	5.5	0.1
EMC84080	EMC85080	8.0	8	12	20	63	7.5	0.1
EMC84903	EMC85903	8.0	8	12	30	73	7.5	0.1
EMC84904	EMC85904	8.0	8	12	46	90	7.5	0.1
EMC84100	EMC85100	10.0	10	14	25	72	9.2	0.1
EMC84905	EMC85905	10.0	10	14	35	82	9.2	0.1
EMC84906	EMC85906	10.0	10	14	55	102	9.2	0.1
EMC84120	EMC85120	12.0	12	16	30	83	11	0.1
EMC84907	EMC85907	12.0	12	16	40	93	11	0.1
EMC84908	EMC85908	12.0	12	16	64	117	11	0.1
EMC84160	EMC85160	16.0	16	22	38	92	15	0.2
EMC84909	EMC85909	16.0	16	22	55	109	15	0.2
EMC84910	EMC85910	16.0	16	22	87	141	15	0.2
EMC84200	EMC85200	20.0	20	26	50	104	19	0.2
EMC84911	EMC85911	20.0	20	26	70	124	19	0.2
EMC84912	EMC85912	20.0	20	26	110	164	19	0.2

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

V7 MILL INOX END MILLS

EMB72 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
EMB73 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 5 FLUTE LONG LENGTH

VOLLHARTMETALL, 5 SCHNEIDEN LANG
Fraise carbure, 5 dents, longue
5 TAGLIENTI, SERIE LUNGA, EVOLVENTE VARIABILE

- ▶Special flute geometry eliminates vibrations
- ▶Designed for mild steels, stainless steels, cast iron, tool steels, titanium alloys, prehardened steels and low hardness materials under HRc40
- ▶Excellent finished work piece
- ▶Higher speeds, deeper cuts and excellent metal removal rates

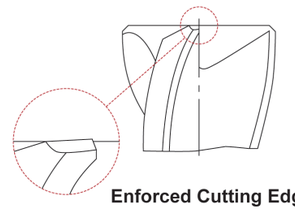
- ▶ Spezielle Schneidengeometrie verhindert Vibrationen
- ▶ Geeignet für Baustähle, Rostfreie Stähle, Grauguss, Werkzeugstähle, Titanlegierungen, hochfeste Stähle und Werkstoffe unter 40 HRc
- ▶ Bessere Werkstückoberflächen.
- ▶ Höhere Schnittgeschwindigkeiten, größere Profiltiefe und größeres Zerspanungsvolumen

MG HM | 5 | 41°~44.75° | PLAIN | FLAT | C x 45° | P.1132

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
EMB72060	EMB73060	6.0	6	13	57	0.1
EMB72080	EMB73080	8.0	8	19	63	0.1
EMB72100	EMB73100	10.0	10	22	72	0.1
EMB72120	EMB73120	12.0	12	26	83	0.1
EMB72140	EMB73140	14.0	14	26	83	0.2
EMB72160	EMB73160	16.0	16	32	92	0.2
EMB72180	EMB73180	18.0	18	32	92	0.2
EMB72200	EMB73200	20.0	20	38	104	0.2
EMB72250	EMB73250	25.0	25	38	104	0.2

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○	○				◎							◎	○

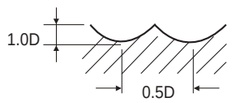
V7 MILL INOX END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

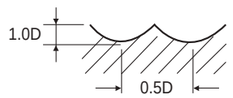
CARBIDE, 4 FLUTE BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS

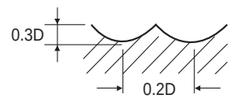
EMB74, EMB75 SERIES

MATERIAL	P				M							
	ALLOY STEELS				STAINLESS STEELS 300				STAINLESS STEELS 400			
HARDNESS	~HB230											
STRENGTH	~1000N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	14324	1430	135	0.025	8220	650	75	0.020	7420	440	70	0.015
R2.0 × 4.0	10740	1070	135	0.025	6160	490	75	0.020	5570	330	70	0.015
R2.5 × 5.0	8590	1030	135	0.030	4930	490	75	0.025	4450	440	70	0.025
R3.0 × 6.0	7460	1140	140	0.038	4110	670	75	0.041	3710	440	70	0.030
R4.0 × 8.0	5370	1280	135	0.060	3080	550	75	0.045	2780	440	70	0.040
R5.0 × 10.0	4290	1030	135	0.060	2460	490	75	0.050	2220	400	70	0.045
R6.0 × 12.0	3580	1000	135	0.070	2050	450	75	0.055	1850	370	70	0.050
R8.0 × 16.0	2680	800	135	0.075	1540	370	75	0.060	1390	300	70	0.054
R9.0 × 18.0	2380	760	135	0.080	1370	350	75	0.064	1230	290	70	0.059
R10.0 × 20.0	2140	770	135	0.090	1230	320	75	0.065	1110	260	70	0.059
R12.5 × 25.0	1710	680	135	0.099	980	270	75	0.069	890	210	70	0.059



MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	14324	1430	135	0.025	5830	280	55	0.012	3180	140	30	0.011
R2.0 × 4.0	10740	1070	135	0.025	4370	210	55	0.012	2380	100	30	0.011
R2.5 × 5.0	8590	1030	135	0.030	3500	210	55	0.015	1910	80	30	0.010
R3.0 × 6.0	7460	1140	140	0.038	2910	230	55	0.020	1590	100	30	0.016
R4.0 × 8.0	5370	1280	135	0.060	2180	260	55	0.030	1190	120	30	0.025
R5.0 × 10.0	4290	1030	135	0.060	1750	210	55	0.030	950	100	30	0.026
R6.0 × 12.0	3580	1000	135	0.070	1450	230	55	0.040	790	120	30	0.038
R8.0 × 16.0	2680	800	135	0.075	1090	190	55	0.044	590	110	30	0.047
R9.0 × 18.0	2380	760	135	0.080	970	190	55	0.049	530	110	30	0.052
R10.0 × 20.0	2140	770	135	0.090	870	210	55	0.060	470	100	30	0.053
R12.5 × 25.0	1710	680	135	0.099	700	190	55	0.068	380	80	30	0.053





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

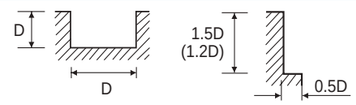
V7 MILL INOX END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN

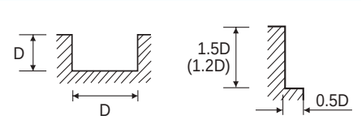
EMB41, EMB42, EMB43, EMB44, EMB14, EMB39, EMB15, EMB40, EMC84, EMC85, EME31, EME32 SERIES

MATERIAL	P				M							
	ALLOY STEELS				STAINLESS STEELS 300				STAINLESS STEELS 400			
HARDNESS	~HB230											
STRENGTH	~1000N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	13475	275	125	0.005	10185	195	95	0.005	14260	205	135	0.004
4.0	10105	330	125	0.008	7600	250	95	0.008	14260	255	180	0.004
5.0	8085	370	125	0.011	6110	310	95	0.013	8655	310	135	0.009
6.0	6735	435	125	0.016	5095	360	95	0.018	7130	360	135	0.013
8.0	5050	555	125	0.027	3820	435	95	0.028	5345	465	135	0.022
10.0	4455	690	140	0.039	3055	590	95	0.048	4275	585	135	0.034
12.0	3710	695	140	0.047	2545	565	95	0.056	3565	565	135	0.040
14.0	3180	620	140	0.049	2180	520	95	0.060	3055	520	135	0.043
16.0	2785	590	140	0.053	1910	480	95	0.063	2670	480	135	0.045
18.0	2475	585	140	0.059	1695	475	95	0.070	2375	475	135	0.050
20.0	2225	580	140	0.065	1525	470	95	0.077	2140	470	135	0.055
25.0	1780	450	140	0.063	1215	380	95	0.078	1710	380	135	0.056

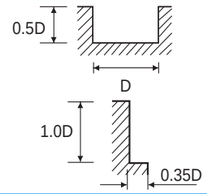


*( ): short length type
1.2 x D Axial cutting depth should be applied for Short length series diameter over 8mm

MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	13475	275	125	0.005	10185	205	95	0.005	2715	55	25	0.005
4.0	10105	330	125	0.008	7600	255	95	0.008	2005	55	25	0.007
5.0	8085	370	125	0.011	6110	310	95	0.013	1630	80	25	0.012
6.0	6735	435	125	0.016	5095	360	95	0.018	1355	95	25	0.018
8.0	5050	555	125	0.027	3280	465	80	0.035	1015	125	25	0.031
10.0	4455	690	140	0.039	3055	585	95	0.048	815	155	25	0.048
12.0	3710	695	140	0.047	2545	565	95	0.056	675	150	25	0.056
14.0	3180	620	140	0.049	2180	520	95	0.060	580	140	25	0.060
16.0	2785	590	140	0.053	1910	480	95	0.063	505	130	25	0.064
18.0	2475	585	140	0.059	1695	475	95	0.070	450	125	25	0.069
20.0	2225	580	140	0.065	1525	470	95	0.077	405	125	25	0.077
25.0	1780	450	140	0.063	1215	380	95	0.078	320	110	25	0.086



1.2 x D Axial cutting depth should be applied for Short length series diameter over 8mm



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

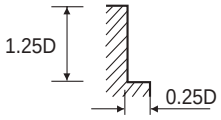
V7 MILL INOX END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

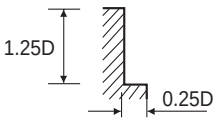
CARBIDE, 5 FLUTE
VOLLHARTMETALL, 5 SCHNEIDEN

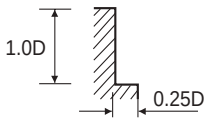
EMB72, EMB73 SERIES

MATERIAL	P				M							
	ALLOY STEELS				STAINLESS STEELS 300				STAINLESS STEELS 400			
HARDNESS	~HB230											
STRENGTH	~1000N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7270	1240	135	0.034	6060	920	115	0.030	5660	860	105	0.030
8.0	5450	1040	135	0.038	4540	720	115	0.032	4240	670	105	0.032
10.0	4360	1100	135	0.050	3630	690	115	0.038	3390	640	105	0.038
12.0	3630	1150	135	0.063	3030	960	115	0.063	3830	820	145	0.043
14.0	3110	1080	135	0.069	2600	850	115	0.065	2420	770	105	0.064
16.0	2720	1040	135	0.076	2270	780	115	0.069	2120	720	105	0.068
20.0	2180	970	135	0.089	1810	690	115	0.076	1690	640	105	0.076



MATERIAL	K				S							
	CAST IRON				TITANIUM				HIGH TEMPERATURE ALLOYS			
HARDNESS	~HB230											
STRENGTH	~1000N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7270	1240	135	0.034	4440	670	85	0.030	1450	120	25	0.017
8.0	5450	1040	135	0.038	3330	520	85	0.031	1090	110	25	0.020
10.0	4360	1100	135	0.050	2660	500	85	0.038	870	110	25	0.025
12.0	3630	1150	135	0.063	2220	560	85	0.050	720	130	25	0.036
14.0	3110	1080	135	0.069	1900	540	85	0.057	620	140	25	0.045
16.0	2720	1040	135	0.076	1660	520	85	0.063	540	130	25	0.048
20.0	2180	970	135	0.089	1330	500	85	0.075	430	130	25	0.060





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

YG

Leading Through Innovation

ALU-POWER END MILLS

ALU-POWER FRÄSER

- Aluminium Alloys and Silent Cutting
- Für Aluminiumlegierungen in schwerem und ruhigem Schnitt

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
E5910		CARBIDE, 2 FLUTE 50° HELIX BALL NOSE with NECK VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R3.0	R10.0	1136									○		◎				
E5908		CARBIDE, 3 FLUTE 40° HELIX BALL NOSE with NECK VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R1.0	R8.0	1137									○		◎				
E5909		CARBIDE, 2 FLUTE CORNER RADIUS with NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D4.0	D20.0	1138									○		◎				
E5930		CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS with NECK VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D2.0	D20.0	1139											◎				
E5E51		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS	D3.0	D20.0	1140											◎				
E5E47		CARBIDE, 1 FLUTE VOLLHARTMETALL, 1 SCHNEIDEN	D2.0	D12.0	1141											◎	◎			
E5E48		CARBIDE, 2 FLUTE 45° HELIX SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE KURZ	D3.0	D20.0	1142											◎				
E5522 E5521		CARBIDE, 2 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	1143											◎				
E5E49		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	1144											◎				
E5E50		CARBIDE, 3 FLUTE 45° HELIX with NECK VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE mit ABGESETZTEM SCHAFTTETL	D3.0	D20.0	1145											◎				
E5742 E5711		CARBIDE, 3 FLUTE LONG LENGTH ROUGHING VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFRÄSER	D6.0	D25.0	1146	○	○						○			◎				
E5E39 E5E40		CARBIDE, 3 FLUTE ROUGHING with NECK VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFRÄSER mit ABGESETZTEM SCHAFTTETL	D6.0	D20.0	1147	○	○						○			◎				
EP922 EP923		YPM, 3 FLUTE 42° HELIX SHORT LENGTH ROUGHING TiAlN COATED PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE KURZ SCHRUPPFRÄSER TiAlN-BESCHICHTET	D12.0	D32.0	1148								○			◎				
EP924 EP925		YPM, 3 FLUTE 42° HELIX LONG LENGTH ROUGHING TiAlN COATED PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE LANG SCHRUPPFRÄSER TiAlN-BESCHICHTET	D12.0	D32.0	1149								○			◎				
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1150															

ALU-POWER END MILLS

E5910 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE with NECK

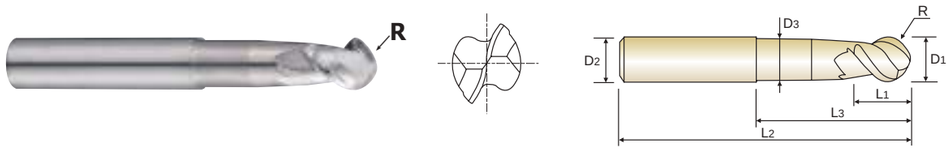
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, hélice 50°, détalonnée

2 TAGLIENTI, ELICA 50°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



MG HM | 2 | 50° | R ±0.01 | PLAIN P.1150

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
E5910060	R3.0	6.0	6	5.5	25	55	5.4
E5910080	R4.0	8.0	8	7	30	65	7.2
E5910100	R5.0	10.0	10	8.5	35	75	9
E5910120	R6.0	12.0	12	10.5	40	75	11
E5910160	R8.0	16.0	16	14	50	90	14.5
E5910200	R10.0	20.0	20	17	50	100	18

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
± 0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								○		◎				

ALU-POWER END MILLS

E5908 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE with NECK

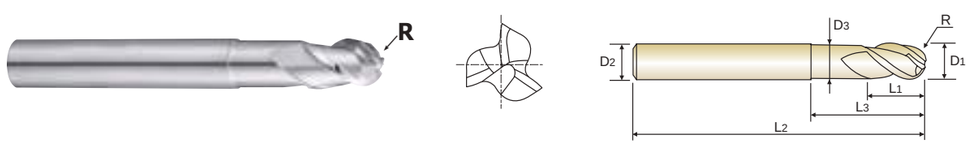
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 3 dents, hémisphérique, hélice 40°, détalonnée

3 TAGLIENTI, ELICA 40°, SEMISFERICA, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish

- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



MG HM | 3 | 40° | R ±0.01 | PLAIN P.1150

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R(±0.01)	D1	D2	L1	L3	L2	D3
E5908020	R1.0	2.0	6	3	5	60	1.9
E5908025	R1.25	2.5	6	4	6	60	2.4
E5908030	R1.5	3.0	6	4.5	6.5	60	2.8
E5908035	R1.75	3.5	6	5	7	65	3.2
E5908040	R2.0	4.0	6	6	8	65	3.7
E5908050	R2.5	5.0	6	7.5	10	65	4.6
E5908060	R3.0	6.0	6	9	12	75	5.6
E5908080	R4.0	8.0	8	12	25	75	7.4
E5908100	R5.0	10.0	10	15	30	80	9.4
E5908120	R6.0	12.0	12	18	36	90	11.4
E5908160	R8.0	16.0	16	24	40	100	15.4

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								○		◎				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

ALU-POWER END MILLS

E5909 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with NECK

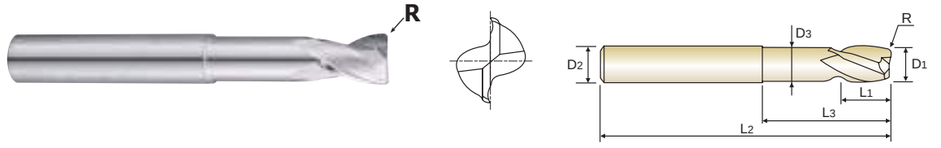
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée

2 TAGLIENTI, TORICA, SCARICATA

- Excellent cutting qualities on aluminum and copper
- Increased tool life and higher cutting accuracy
- Mirror surface - Excellent surface finish
- Superior chip evacuation
- Reduces chipping of corner edges

- Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- Überlegene Spanabfuhr
- Reduzierung von Schneideckenausbrüchen.



MG HM | 2 | 30° | PLAIN P.1151

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
E5909040	R0.3	4.0	6	5	10	50	3.6
E5909060	R0.5	6.0	6	8	20	60	5.4
E5909080	R0.6	8.0	8	10	30	70	7.2
E5909100	R0.8	10.0	10	12	36	80	9
E5909120	R1.0	12.0	12	14	40	90	11
E5909160	R1.3	16.0	16	18	45	100	14.5
E5909200	R1.6	20.0	20	24	45	100	18

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								○		◎				

ALU-POWER END MILLS

E5930 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE 25° HELIX CORNER RADIUS with NECK

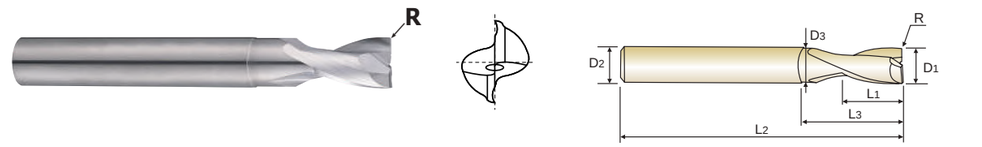
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, hélice 25°, détalonnée

2 TAGLIENTI, ELICA 25°, TORICA, SCARICATA

- Designed for machining aluminum, aluminum alloys and non-ferrous material
- Mirror surface - Excellent surface finish
- IIncreased tool life and higher cutting accuracy
- Maximum-metal removal rate
- Superior chip evacuation
- Corner Radius to avoide chipping problems

- Entwickelt für die Bearbeitung von Aluminium, Aluminiumlegierungen, NE-Metalle
- Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- Maximale Zerspanungsleistung.
- Überlegene Spanabfuhr
- Eckradien verhindern Schneidkantenausbrüche



MG HM | 2 | 25° | PLAIN P.1152

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D1	D2	L1	L3	L2	D3
E5930020	R0.2	2.0	3	3	6	40	1.9
E5930030	R0.2	3.0	3	4	8	40	2.9
E5930040	R0.2	4.0	4	5	12	50	3.8
E5930050	R0.2	5.0	5	8	14	50	4.8
E5930060	R0.2	6.0	6	8	18	65	5.7
E5930080	R0.2	8.0	8	10	22	70	7.7
E5930100	R0.2	10.0	10	14	28	80	9.7
E5930120	R0.2	12.0	12	16	35	90	11.5
E5930160	R0.2	16.0	16	20	40	90	15.5
E5930200	R0.2	20.0	20	25	50	100	19.5

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

E5E51 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS

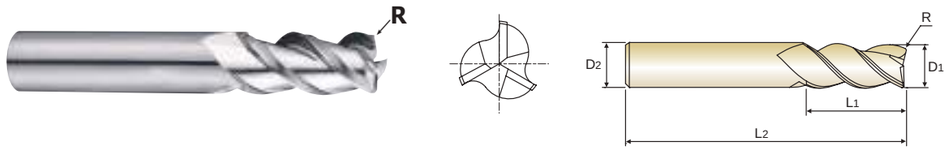
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS

Fraise carbure, 3 dents, torique, hélice 45°, longue

3 TAGLIENTI, ELICA 45°, TORICA, SERIE LUNGA

- Excellent cutting qualities on aluminum and copper
- Increased tool life and higher cutting accuracy
- Mirror surface - Excellent surface finish
- Superior chip evacuation
- Reduces chipping of corner edges

- Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- Überlegene Spanabfuhr
- Reduzierung von Schneideckenausbrüchen.



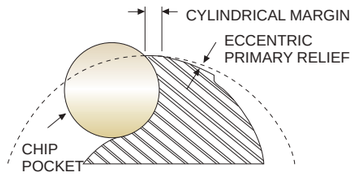
MG HM | 3 | 45° | PLAIN P.1152

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
E5E51030	R0.5	3.0	6	12	57
E5E51901	R1.0	3.0	6	12	57
E5E51040	R0.5	4.0	6	15	57
E5E51902	R1.0	4.0	6	15	57
E5E51050	R0.5	5.0	6	20	57
E5E51903	R1.0	5.0	6	20	57
E5E51060	R0.5	6.0	6	20	65
E5E51904	R1.0	6.0	6	20	65
E5E51080	R0.5	8.0	8	22	65
E5E51905	R1.0	8.0	8	22	65
E5E51100	R0.5	10.0	10	25	70
E5E51906	R1.0	10.0	10	25	70
E5E51907	R2.0	10.0	10	25	70
E5E51120	R0.5	12.0	12	25	75
E5E51908	R1.0	12.0	12	25	75
E5E51909	R2.0	12.0	12	25	75
E5E51160	R0.5	16.0	16	35	90
E5E51910	R1.0	16.0	16	35	90
E5E51911	R2.0	16.0	16	35	90
E5E51200	R0.5	20.0	20	40	100
E5E51912	R1.0	20.0	20	40	100
E5E51913	R2.0	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6



◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

E5E47 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 1 FLUTE

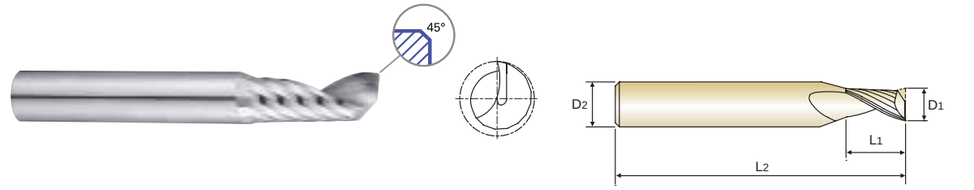
VOLLHARTMETALL, 1 SCHNEIDEN

Fraise carbure, 1 dent

1 TAGLIENTE, ELICA 30°

- Designed for non-ferrous material, non-metal like aluminum and acrylic
- 1 Flute allows excellent finished workpiece and chip evacuation

- Entwickelt für NE-Metalle und nichtmetallische Werkstoffe wie Aluminium und Acryl
- 1 Spannute ermöglicht hervorragende Werkstückoberflächen und Spanabfuhr



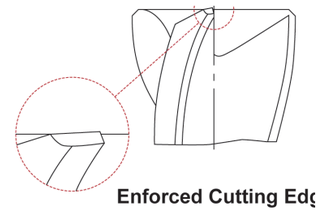
MG HM | 1 | 30° | PLAIN | C x 45° P.1153

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2	Chamfer
E5E47020	2.0	3	8	50	0.04
E5E47030	3.0	3	12	50	0.05
E5E47040	4.0	4	15	60	0.07
E5E47050	5.0	5	17	60	0.09
E5E47060	6.0	6	20	65	0.10
E5E47080	8.0	8	22	65	0.14
E5E47100	10.0	10	25	75	0.14
E5E47120	12.0	12	30	80	0.14

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edg

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎	◎			

ALU-POWER END MILLS

E5E48 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

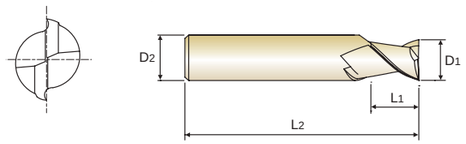
CARBIDE, 2 FLUTE 45° HELIX SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE KURZ

Fraise carbure, 2 dents, hélice 45°, courte

2 TAGLIENTI, ELICA 45°, SERIE CORTA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



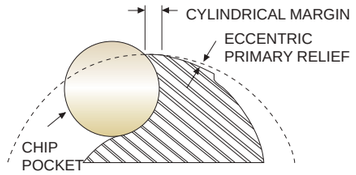
MG HM | 2 | 45° | PLAIN — P.1153

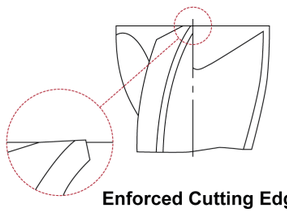
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
E5E48030	3.0	6	5	50
E5E48040	4.0	6	8	54
E5E48050	5.0	6	9	54
E5E48060	6.0	6	10	54
E5E48080	8.0	8	12	58
E5E48100	10.0	10	14	66
E5E48120	12.0	12	16	73
E5E48140	14.0	14	18	75
E5E48160	16.0	16	22	82
E5E48180	18.0	18	24	84
E5E48200	20.0	20	26	92

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6





Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

E5522 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

E5521 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

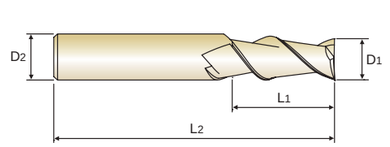
CARBIDE, 2 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE LANG

Fraise carbure, 2 dents, hélice 45°, longue

2 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for high speed machining in aluminum and other non-ferrous materials
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Reduces chipping of corner edges
- ▶ Zur HSC- Bearbeitung von Aluminium und anderen Nichteisenmetallen.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr
- ▶ Reduzierung von Schneideckenausbrüchen.



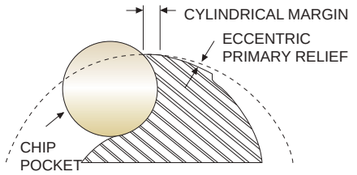
MG HM | 2 | 45° | PLAIN | FLAT | C x 45° — P.1153

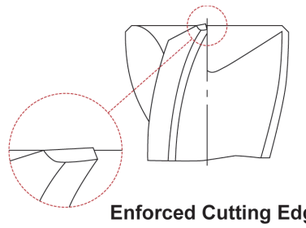
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1	D2	L1	L2	
E5522030	E5521030	3.0	6	8	57	0.05
E5522040	E5521040	4.0	6	11	57	0.05
E5522050	E5521050	5.0	6	13	57	0.05
E5522060	E5521060	6.0	6	13	57	0.05
E5522080	E5521080	8.0	8	19	63	0.05
E5522100	E5521100	10.0	10	22	72	0.10
E5522120	E5521120	12.0	12	26	83	0.10
E5522140	E5521140	14.0	14	26	83	0.10
E5522160	E5521160	16.0	16	32	92	0.10
E5522180	E5521180	18.0	18	32	92	0.10
E5522200	E5521200	20.0	20	38	104	0.10

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6





Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

E5E49 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

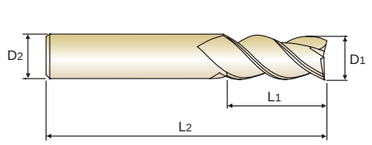
CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG

Fraise carbure, 3 dents, hélice 45°, longue

3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



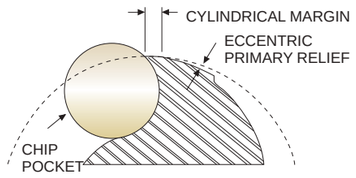
MG HM | 3 | 45° | PLAIN P.1154

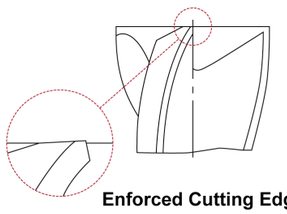
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Overall Length L2
E5E49030	3.0	6	12	57
E5E49040	4.0	6	15	57
E5E49050	5.0	6	20	57
E5E49060	6.0	6	20	65
E5E49080	8.0	8	22	65
E5E49100	10.0	10	25	70
E5E49120	12.0	12	25	75
E5E49160	16.0	16	35	90
E5E49200	20.0	20	40	100

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6





Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

E5E50 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

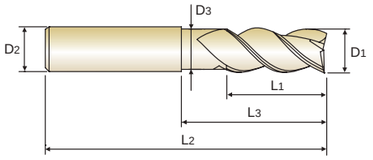
CARBIDE, 3 FLUTE 45° HELIX with NECK

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 3 dents, hélice 45°, détalonnée

3 TAGLIENTI, ELICA 45°, SCARICATA

- ▶ Excellent cutting qualities on aluminum and copper
- ▶ Increased tool life and higher cutting accuracy
- ▶ Mirror surface - Excellent surface finish
- ▶ Superior chip evacuation
- ▶ Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- ▶ Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- ▶ Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.
- ▶ Überlegene Spanabfuhr



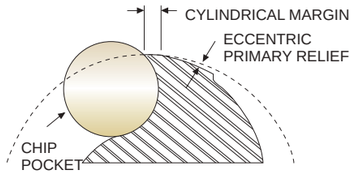
MG HM | 3 | 45° | PLAIN P.1154

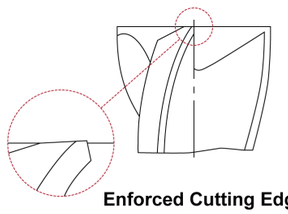
Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
E5E50030	3.0	6	8	12	57	2.7
E5E50040	4.0	6	11	18	57	3.7
E5E50050	5.0	6	13	18	57	4.7
E5E50060	6.0	6	13	18	57	5.7
E5E50080	8.0	8	21	25	63	7.4
E5E50100	10.0	10	22	30	72	9.2
E5E50120	12.0	12	26	36	83	11
E5E50160	16.0	16	36	42	92	15
E5E50200	20.0	20	41	52	104	19

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.015	h6





Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
										◎				

ALU-POWER END MILLS

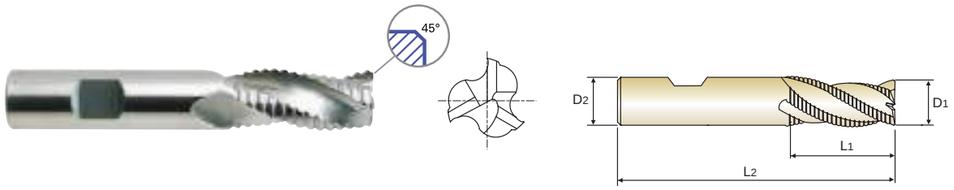
E5742 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5711 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE LONG LENGTH ROUGHING

VOLLHARTMETALL, 3 SCHNEIDEN LANG SCHRUPPFRÄSER
Fraise carbure, 3 dents, ébauche, longue
3 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA

- Excellent cutting qualities on aluminum and copper
- Increased tool life and higher cutting accuracy
- Mirror surface - Excellent surface finish

- Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



MG HM | YG STD | WR | 3 | 30° | DIN 6535HA | DIN 6535HB | C x 45° — P.1154

Unit : mm

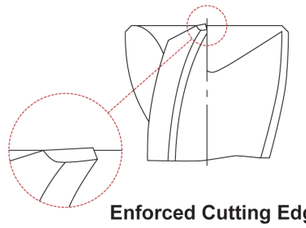
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D_1(h10)	D_2(h6)	L_1	L_2	
E5742060	E5711060	6.0	6	16	57	0.60
E5742070	E5711070	7.0	8	16	63	0.60
E5742080	E5711080	8.0	8	16	63	0.60
E5742090	E5711090	9.0	10	19	72	0.60
E5742100	E5711100	10.0	10	22	72	0.60
E5742120	E5711120	12.0	12	26	83	0.60
E5742140	E5711140	14.0	14	26	83	0.91
E5742160	E5711160	16.0	16	32	92	0.91
E5742180	E5711180	18.0	18	32	92	0.91
E5742200	E5711200	20.0	20	38	104	0.91
E5742250	E5711250	25.0	25	45	121	0.91

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○						○			◎				

ALU-POWER END MILLS

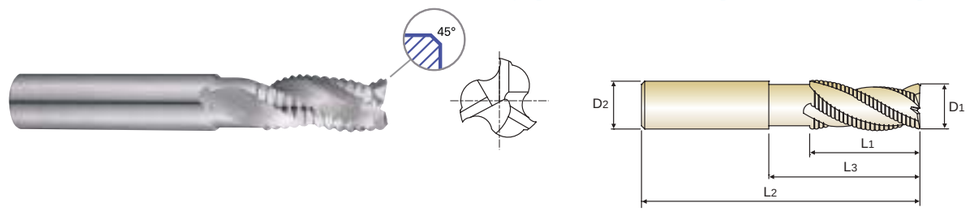
E5E39 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5E40 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE ROUGHING with NECK

VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFRÄSER mit ABGESETZTEM SCHAFTTETL
Fraise carbure, 3 dents, ébauche détalonnée
3 TAGLIENTI, PER SGROSSATURA, SCARICATA

- Excellent cutting qualities on aluminum and copper
- Increased tool life and higher cutting accuracy
- Mirror surface - Excellent surface finish

- Ausgezeichnete Schneideigenschaften in Aluminium, Kupfer
- Verbesserte Standzeiten und höhere Fräsgenauigkeit.
- Spiegel-Oberfläche - Hervorragendes Oberflächenfinishing.



MG HM | YG STD | WR | 3 | 30° | DIN 6535HA | DIN 6535HB | C x 45° — P.1154

Unit : mm

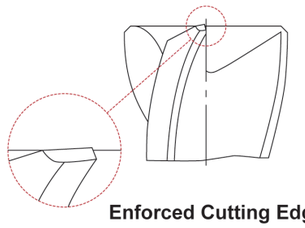
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	Chamfer
PLAIN	FLAT	D_1	D_2	L_1	L_3	L_2	D_3	
E5E39060	E5E40060	6.0	6	16	20	57	5	0.60
E5E39080	E5E40080	8.0	8	16	25	63	7	0.60
E5E39100	E5E40100	10.0	10	22	30	72	9	0.60
E5E39120	E5E40120	12.0	12	26	36	83	10.5	0.60
E5E39160	E5E40160	16.0	16	32	42	92	14.5	0.91
E5E39200	E5E40200	20.0	20	38	52	104	18.5	0.91

▶ TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○						○			◎				

ALU-POWER END MILLS

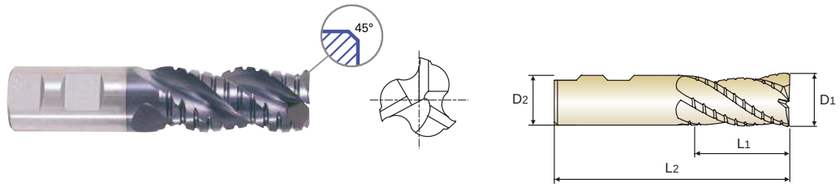
EP922 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EP923 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

YPM, 3 FLUTE 42° HELIX SHORT LENGTH ROUGHING TiAlN COATED

PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE KURZ SCHRUPPFRÄSER TiAlN-BESCHICHTET
Fraise YPM, 3 dents, ébauche, hélice 42°, revêtue TiAlN, courte
3 TAGLIENTI, CORTA, ELICA 42°, RIVESTITA TiAlN PER SGROSSATURA - HSS PM

- ▶ Maximum metal removal rate at High Speed Condition
- ▶ Reduces vibrations and improves surface roughness
- ▶ Reduces chipping of corner edges

- ▶ Maximale Zerspanungsleistung bei der High-Speed-Bearbeitung (HSC)
- ▶ Reduziert Vibrationen und verbessert die Oberflächenrauhigkeit
- ▶ Reduzierung von Schneideckenausbrüchen.



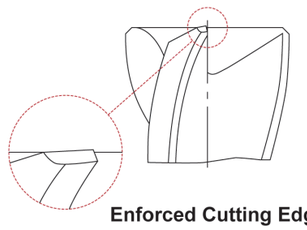
YPM | WR | 3 | 42° | PLAIN | FLAT | C x 45° P.1155

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1(js12)	D2(h6)	L1	L2	
EP922120	EP923120	12.0	12	26	83	1.10
EP922140	EP923140	14.0	12	26	83	1.10
EP922160	EP923160	16.0	16	32	92	1.10
EP922180	EP923180	18.0	16	32	92	1.10
EP922200	EP923200	20.0	20	38	104	1.10
EP922220	EP923220	22.0	20	38	104	1.10
EP922250	EP923250	25.0	25	45	121	1.10
EP922280	EP923280	28.0	25	45	121	1.22
EP922320	EP923320	32.0	32	53	133	1.22

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13	0 − 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
							○			◎				

ALU-POWER END MILLS

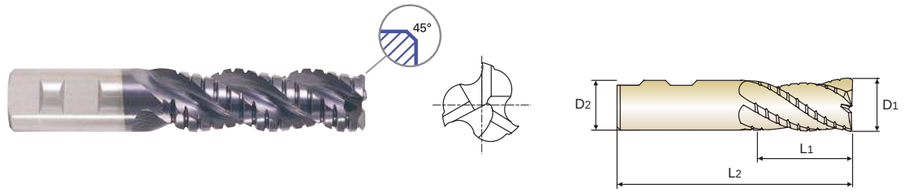
EP924 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
EP925 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

YPM, 3 FLUTE 42° HELIX LONG LENGTH ROUGHING TiAlN COATED

PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE LANG SCHRUPPFRÄSER TiAlN-BESCHICHTET
Fraise YPM, 3 dents, ébauche, hélice 42°, revêtue TiAlN, longue
3 TAGLIENTI, CORTA, ELICA 42°, RIVESTITA TiAlN PER SGROSSATURA - HSS PM

- ▶ Maximum metal removal rate at High Speed Condition
- ▶ Reduces vibrations and improves surface roughness
- ▶ Reduces chipping of corner edges

- ▶ Maximale Zerspanungsleistung bei der High-Speed-Bearbeitung (HSC)
- ▶ Reduziert Vibrationen und verbessert die Oberflächenrauhigkeit
- ▶ Reduzierung von Schneideckenausbrüchen.



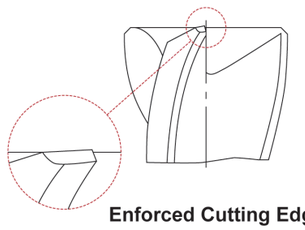
YPM | WR | 3 | 42° | PLAIN | FLAT | C x 45° P.1155

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
PLAIN	FLAT	D1(js12)	D2(h6)	L1	L2	
EP924120	EP925120	12.0	12	53	110	1.10
EP924140	EP925140	14.0	12	53	110	1.10
EP924160	EP925160	16.0	16	63	123	1.10
EP924180	EP925180	18.0	16	63	123	1.10
EP924200	EP925200	20.0	20	75	141	1.10
EP924220	EP925220	22.0	20	75	141	1.10
EP924250	EP925250	25.0	25	90	166	1.10
EP924280	EP925280	28.0	25	90	166	1.22
EP924320	EP925320	32.0	32	106	186	1.22

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13	0 − 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
							○			◎				

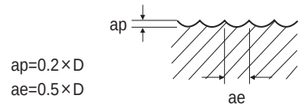
ALU-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE 50° HELIX BALL NOSE with NECK
VOLLHARTMETALL, 2 SCHNEIDEN 50° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

E5910 SERIES

MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS				COPPER ALLOYS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R3.0 × 6.0	14400	1400	270	0.049	4400	350	85	0.040
R4.0 × 8.0	11200	1600	280	0.071	3360	400	85	0.060
R5.0 × 10.0	11200	1880	350	0.084	3360	465	105	0.069
R6.0 × 12.0	11200	2400	420	0.107	3360	600	125	0.089
R8.0 × 16.0	8800	2160	440	0.123	2640	535	135	0.101
R10.0 × 20.0	5600	1760	350	0.157	1680	440	105	0.131

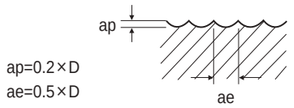


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 3 FLUTE 40° HELIX BALL NOSE with NECK
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

E5908 SERIES

MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS				COPPER ALLOYS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	21600	760	135	0.018	6400	190	40	0.015
R1.25 × 2.5	17600	760	140	0.022	5200	190	40	0.018
R1.5 × 3.0	14400	760	135	0.026	4400	190	40	0.022
R1.75 × 3.5	14400	800	160	0.028	4400	190	50	0.022
R2.0 × 4.0	14400	1000	180	0.035	4400	250	55	0.028
R2.5 × 5.0	14400	1080	225	0.038	4400	270	70	0.031
R3.0 × 6.0	14400	1400	270	0.049	4400	350	85	0.040
R4.0 × 8.0	11200	1600	280	0.071	3360	400	85	0.060
R5.0 × 10.0	11200	1880	350	0.084	3360	465	105	0.069
R6.0 × 12.0	11200	2400	420	0.107	3360	600	125	0.089
R8.0 × 16.0	8800	2160	440	0.123	2640	535	135	0.101



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

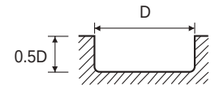
ALU-POWER END MILLS

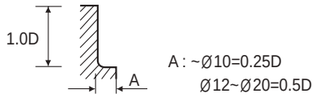
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS with NECK
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

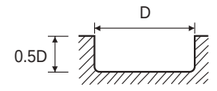
E5909 SERIES

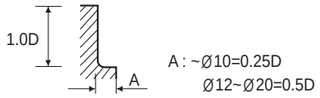
MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	10400	960	130	0.046	10400	1120	130	0.054
6.0	10400	1200	195	0.058	10400	1600	195	0.077
8.0	8000	1440	200	0.090	8000	1840	200	0.115
10.0	8000	1760	250	0.110	8000	2160	250	0.135
12.0	8000	2160	300	0.135	8000	2720	300	0.170
16.0	6400	2000	320	0.156	6400	2480	320	0.194
20.0	4000	1600	250	0.200	4000	2000	250	0.250





MATERIAL	N							
	COPPER ALLOYS							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
4.0	3120	240	40	0.038	3120	280	40	0.045
6.0	3120	305	60	0.049	3120	400	60	0.064
8.0	2400	360	60	0.075	2400	465	60	0.097
10.0	2400	440	75	0.092	2400	545	75	0.114
12.0	2400	545	90	0.114	2400	680	90	0.142
16.0	1920	505	95	0.132	1920	625	95	0.163
20.0	1200	400	75	0.167	1200	505	75	0.210





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

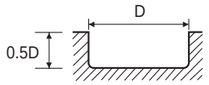
ALU-POWER END MILLS

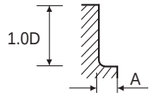
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2FLUTE 25° HELIX CORNER RADIUS with NECK
VOLLHARTMETALL, 2 SCHNEIDEN 25° RECHTSSPIRALE ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

E5930 SERIES

MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	10400	460	65	0.022	10400	810	65	0.039
3.0	10400	720	100	0.035	10400	960	100	0.046
4.0	10400	960	130	0.046	10400	1120	130	0.054
5.0	10400	1040	165	0.050	10400	1360	165	0.065
6.0	10400	1200	195	0.058	10400	1600	195	0.077
8.0	8000	1440	200	0.090	8000	1840	200	0.115
10.0	8000	1760	250	0.110	8000	2160	250	0.135
12.0	8000	2160	300	0.135	8000	2720	300	0.170
16.0	6400	2000	320	0.156	6400	2480	320	0.194
20.0	4000	1600	250	0.200	4000	2000	250	0.250





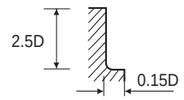
A : Ø2 ~Ø10 = 0.25×D
Ø12 ~ Ø20 = 0.5×D

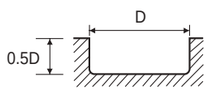
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH CORNER RADIUS
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG ECKENRADIUS

E5E51 SERIES

MATERIAL	N							
	ALUMINUM LOW SILICON ALUMINUM							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	10000	1490	95	0.050	10000	1160	95	0.039
4.0	10000	1820	125	0.061	10000	1490	125	0.050
5.0	10000	2150	155	0.072	10000	1650	155	0.055
6.0	10000	2480	190	0.083	10000	1980	190	0.066
8.0	8000	3000	200	0.125	8000	2310	200	0.096
10.0	8000	3470	250	0.145	8000	2810	250	0.117
12.0	8000	4290	300	0.179	8000	3470	300	0.145
16.0	6000	3960	300	0.220	6000	3140	300	0.174
20.0	4000	3140	250	0.262	4000	2640	250	0.220





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

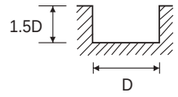
ALU-POWER END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 1 FLUTE
VOLLHARTMETALL, 1 SCHNEIDEN

E5E47 SERIES

MATERIAL	N							
	ACRYLIC				ALUMINUM ALUMINUM ALLOYS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	32000	2200	200	0.069	23000	1500	145	0.065
3.0	25000	2400	235	0.096	18000	1700	170	0.094
4.0	20000	2400	250	0.120	15000	1800	190	0.120
5.0	15000	2200	235	0.147	12000	1800	190	0.150
6.0	13500	2300	255	0.170	10000	1800	190	0.180
8.0	10000	2400	250	0.240	7800	1900	195	0.244
10.0	8000	2400	250	0.300	6000	2000	190	0.333
12.0	6700	2300	255	0.343	5000	2200	190	0.440

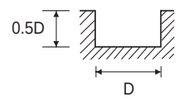


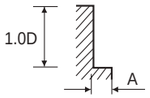
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE 45° HELIX
VOLLHARTMETALL, 2 SCHNEIDEN 45° RECHTSSPIRALE

E5E48, E5522, E5521 SERIES

MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	10000	700	95	0.035	10000	900	95	0.045
4.0	10000	900	125	0.045	10000	1100	125	0.055
5.0	10000	1000	155	0.050	10000	1300	155	0.065
6.0	10000	1200	190	0.060	10000	1500	190	0.075
8.0	8000	1400	200	0.088	8000	1800	200	0.113
10.0	8000	1700	250	0.106	8000	2100	250	0.131
12.0	8000	2100	300	0.131	8000	2600	300	0.163
14.0	6000	1800	265	0.150	6000	2200	265	0.183
16.0	6000	1900	300	0.158	6000	2400	300	0.200
18.0	4000	1400	225	0.175	4000	1800	225	0.225
20.0	4000	1600	250	0.200	4000	1900	250	0.238





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Ø12 ~ Ø20 = 0.5×D

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

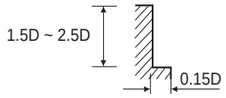
ALU-POWER END MILLS

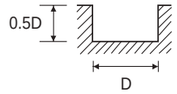
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE

E5E49, E5E50 SERIES

MATERIAL	N							
	ALUMINUM LOW SILICON ALUMINUM							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	7000	940	65	0.045	7000	730	65	0.035
4.0	7000	1150	90	0.055	7000	940	90	0.045
5.0	7000	1360	110	0.065	7000	1050	110	0.050
6.0	7000	1580	130	0.075	7000	1250	130	0.060
8.0	5600	1900	140	0.113	5600	1470	140	0.088
9.0	5600	2050	160	0.122	5600	1630	160	0.097
10.0	5600	2200	175	0.131	5600	1780	175	0.106
12.0	5600	2740	210	0.163	5600	2200	210	0.131
16.0	4200	2520	210	0.200	4200	1990	210	0.158
20.0	2800	2000	175	0.238	2800	1680	175	0.200



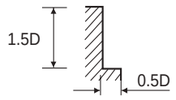


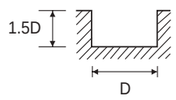
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 3 FLUTE ROUGHING
VOLLHARTMETALL, 3 SCHNEIDEN SCHRUPPFRÄSER

E5E39, E5E40, E5742, E5711 SERIES

MATERIAL	N							
	ALUMINUM							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	13500	6800	254	0.168	10500	5300	198	0.168
8.0	10500	5300	264	0.168	8000	4000	201	0.167
10.0	8500	4300	267	0.169	6500	3500	204	0.179
12.0	8500	4200	320	0.165	6400	3200	241	0.167
16.0	6400	3200	322	0.167	4800	2400	241	0.167
20.0	5100	2500	320	0.163	3850	1900	242	0.165





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

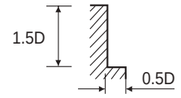
ALU-POWER END MILLS

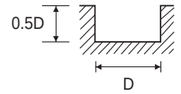
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

YPM, 3 FLUTE 42° HELIX ROUGHING TiAlN COATED
PREMIUM HSS-PM, 3 SCHNEIDEN 42° RECHTSSPIRALE SCHRUPPFRÄSER TiAlN-BESCHICHTET

EP922, EP923, EP924, EP925 SERIES

MATERIAL	N							
	ALUMINUM ALUMINUM ALLOYS							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
12.0	2800	550	105	0.065	2800	410	105	0.049
14.0	2500	600	110	0.080	2500	450	110	0.060
16.0	2200	625	110	0.095	2200	465	110	0.070
18.0	1950	680	110	0.116	1950	510	110	0.087
20.0	1700	700	105	0.137	1700	525	105	0.103
22.0	1600	685	110	0.143	1600	515	110	0.107
25.0	1400	625	110	0.149	1400	465	110	0.111
28.0	1250	675	110	0.180	1250	505	110	0.135
32.0	1100	700	110	0.212	1100	525	110	0.159





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
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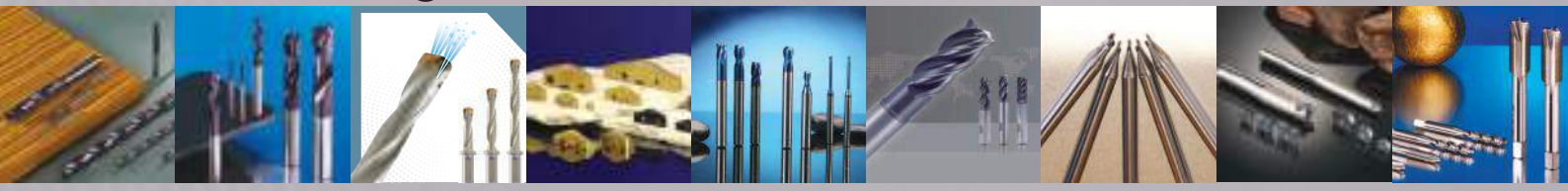
Global Cutting Tool Leader **YG-1**



CARBIDE

Leading Through Innovation

D-POWER GRAPHITE END MILLS

D-POWER GRAPHIT FRÄSER

- High performance on graphite
- Leistungsstark bei Graphit

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
EI997		CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R0.1	R3.0	1160
EIB93		CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL	R0.2	R2.0	1162
EI880		CARBIDE, 2 FLUTE BALL NOSE SHORT LENGTH with NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL	R1.0	R6.0	1163
EI451		CARBIDE, 2 FLUTE BALL NOSE LONG LENGTH with NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS LANG mit ABGESETZTEM SCHAFTTETL	R1.0	R6.0	1164
EI450		CARBIDE, 2 FLUTE BALL NOSE LONG REACH with NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS GROßE REICHWEITE mit ABGESETZTEM SCHAFTTETL	R1.0	R6.0	1165
EIB87		CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	R0.5	R1.0	1166
EI881		CARBIDE, 3 FLUTE BALL NOSE SHORT LENGTH with NECK VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL	R1.0	R6.0	1167
EI996		CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D0.2	D6.0	1168
EIB86		CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL	D1.0	D2.0	1170
EIA13		CARBIDE, 3 FLUTE 40˚ HELIX CORNER RADIUS SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 40˚ RECHTSSPIRALE ECKENRADIUS KURZ	D2.0	D12.0	1171
EIA14		CARBIDE, 3 FLUTE 40˚ HELIX CORNER RADIUS LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 40˚ RECHTSSPIRALE ECKENRADIUS LANG	D2.0	D12.0	1172
EIB88		CARBIDE, 4 FLUTE CORNER RADIUS with NECK VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL	D6.0	D12.0	1173
EIB04		CARBIDE, 2 FLUTE LONG LENGTH with NECK VOLLHARTMETALL, 2 SCHNEIDEN LANG mit ABGESETZTEM SCHAFTTETL	D0.5	D12.0	1174
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1175

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI997 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK

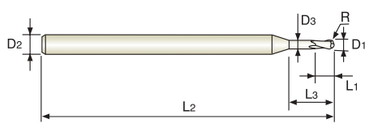
VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise

2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

- Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI997002000040	R0.1	0.2	3	0.2	-	40	-
EI997003000040	R0.15	0.3	3	0.3	-	40	-
EI997004000040	R0.2	0.4	3	0.4	-	40	-
EI997005025040	R0.25	0.5	3	0.5	2.5	40	0.45
EI997006	R0.3	0.6	3	0.6	3	40	0.55
EI997006050040	R0.3	0.6	3	0.6	5	40	0.55
EI997008	R0.4	0.8	3	0.8	4	40	0.75
EI997008070040	R0.4	0.8	3	0.8	7	40	0.75
EI997010	R0.5	1.0	3	1	5	40	0.95
EI997903	R0.5	1.0	3	1	8.5	40	0.95
EI997010120040	R0.5	1.0	3	1	12	40	0.95
EI997012	R0.6	1.2	3	1.2	6	50	1.15
EI997012100050	R0.6	1.2	3	1.2	10	50	1.15
EI997015	R0.75	1.5	3	1.5	7.5	50	1.4
EI997906	R0.75	1.5	3	1.5	12	50	1.4
EI997015180050	R0.75	1.5	3	1.5	18	50	1.4
EI997020	R1.0	2.0	3	2.2	10	60	1.9
EI997908	R1.0	2.0	3	2.2	16	60	1.9
EI997020250060	R1.0	2.0	3	2.2	25	60	1.9
EI997030100065	R1.5	3.0	4	3	10	65	2.9
EI997030150065	R1.5	3.0	4	3	15	65	2.9
EI997030200065	R1.5	3.0	4	3	20	65	2.9
EI997030250075	R1.5	3.0	4	3	25	75	2.9
EI997030300075	R1.5	3.0	4	3	30	75	2.9
EI997040200065	R2.0	4.0	6	4	20	65	3.9
EI997040300075	R2.0	4.0	6	4	30	75	3.9
EI997040400090	R2.0	4.0	6	4	40	90	3.9

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI997 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

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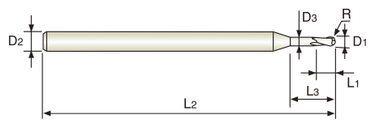
- Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI997050200065	R2.5	5.0	6	5	20	65	4.9
EI997050300075	R2.5	5.0	6	5	30	75	4.9
EI997050400090	R2.5	5.0	6	5	40	90	4.9
EI997050500090	R2.5	5.0	6	5	50	90	4.9
EI997060300075	R3.0	6.0	6	6	30	75	5.9
EI997060400090	R3.0	6.0	6	6	40	90	5.9
EI997060500090	R3.0	6.0	6	6	50	90	5.9
EI997060600100	R3.0	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIB93 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE BALL NOSE with NECK

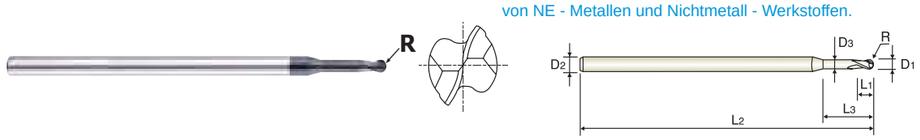
VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, micro-fraise

2 TAGLIENTI, SEMISFERICA, SERIE MINI, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EIB93004040	R0.2	0.4	4	0.6	4	45	0.36
EIB93004060	R0.2	0.4	4	0.6	6	45	0.36
EIB93006040	R0.3	0.6	4	1	4	45	0.56
EIB93006060	R0.3	0.6	4	1	6	45	0.56
EIB93006080	R0.3	0.6	4	1	8	45	0.56
EIB93010060	R0.5	1.0	4	1.5	6	45	0.95
EIB93010080	R0.5	1.0	4	1.5	8	45	0.95
EIB93010120	R0.5	1.0	4	1.5	12	45	0.95
EIB93015120	R0.75	1.5	4	1.75	12	45	1.45
EIB93020080	R1.0	2.0	4	3	8	60	1.95
EIB93020120	R1.0	2.0	4	3	12	60	1.95
EIB93020160	R1.0	2.0	4	3	16	60	1.95
EIB93040160	R2.0	4.0	4	6	16	60	3.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI880 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE SHORT LENGTH with NECK

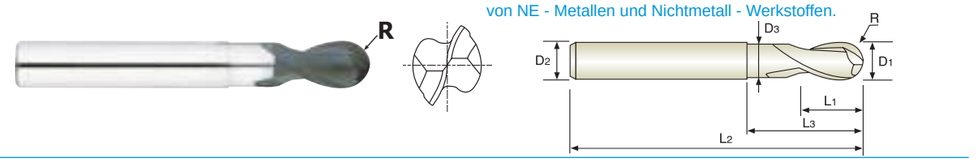
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, courte

2 TAGLIENTI, SEMISFERICA, SERIE CORTA, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.'
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI880020	R1.0	2.0	6	3	5	60	1.9
EI880025	R1.25	2.5	6	4	6	60	2.4
EI880030	R1.5	3.0	6	4.5	6.5	60	2.8
EI880035	R1.75	3.5	6	5	7	65	3.2
EI880040	R2.0	4.0	6	6	8	65	3.7
EI880050	R2.5	5.0	6	7.5	10	65	4.6
EI880060	R3.0	6.0	6	9	12	75	5.6
EI880080	R4.0	8.0	8	12	25	75	7.4
EI880100	R5.0	10.0	10	15	30	80	9.4
EI880120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI451 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE LONG LENGTH with NECK

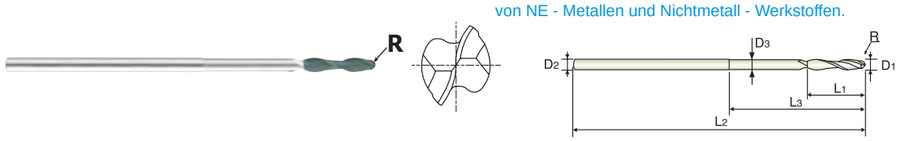
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS LANG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, longue

2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI451020	R1.0	2.0	4	10	20	80	1.95
EI451030	R1.5	3.0	4	15	25	80	2.9
EI451040	R2.0	4.0	4	20	30	80	3.9
EI451050	R2.5	5.0	6	30	50	100	4.9
EI451060	R3.0	6.0	6	30	50	100	5.5
EI451070	R3.5	7.0	6	30	-	100	-
EI451080	R4.0	8.0	8	40	60	110	7.5
EI451090	R4.5	9.0	8	40	-	110	-
EI451100	R5.0	10.0	10	50	70	120	9.5
EI451120	R6.0	12.0	12	55	75	130	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI450 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE LONG REACH with NECK

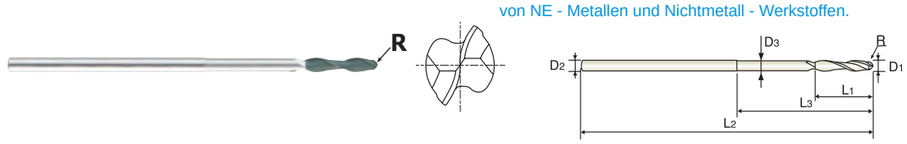
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS GROßE REICHWEITE mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique longue portée, détalonnée

2 TAGLIENTI, SEMISFERICA PER CAVITA' PROFONDE

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (±0.01)	D1	D2	L1	L3	L2	D3
EI450020	R1.0	2.0	4	10	20	100	1.95
EI450030	R1.5	3.0	4	15	25	100	2.9
EI450040	R2.0	4.0	4	20	30	100	3.9
EI450050	R2.5	5.0	6	30	50	120	4.9
EI450060	R3.0	6.0	6	30	50	150	5.5
EI450070	R3.5	7.0	6	30	-	150	-
EI450080	R4.0	8.0	8	40	60	150	7.5
EI450090	R4.5	9.0	8	40	-	150	-
EI450100	R5.0	10.0	10	50	70	180	9.5
EI450120	R6.0	12.0	12	55	75	200	11.5

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIB87 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE with TAPER NECK

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, hémisphérique avec entrée conique

2 TAGLIENTI, SEMISFERICA CON SCARICO CONICO

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.

MG HM | 2 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R (±0.01)	D_1	D_2	L_1	L_3	L_2	θ°
EIB87010	R0.5	1.0	3	2	-	40	8° 30´
EIB87901	R0.5	1.0	3	2	30	60	2°
EIB87902	R0.5	1.0	3	2	70	100	1°
EIB87015	R0.75	1.5	3	3	-	40	6° 15´
EIB87903	R0.75	1.5	3	3	30	60	1° 30´
EIB87904	R0.75	1.5	3	3	58	100	45´
EIB87020	R1.0	2.0	3	4	-	40	4° 15´
EIB87905	R1.0	2.0	3	4	30	60	1°
EIB87906	R1.0	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI881 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE BALL NOSE SHORT LENGTH with NECK

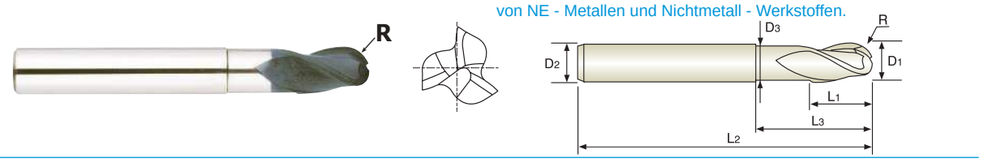
VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS KURZ mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 3 dents, hémisphérique, détalonnée, courte

3 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 3 | 30° | R ±0.01 | PLAIN P.1175

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R (0.01)	D_1	D_2	L_1	L_3	L_2	D_3
EI881020	R1.0	2.0	6	3	5	60	1.9
EI881025	R1.25	2.5	6	4	6	60	2.4
EI881030	R1.5	3.0	6	4.5	6.5	60	2.8
EI881035	R1.75	3.5	6	5	7	65	3.2
EI881040	R2.0	4.0	6	6	8	65	3.7
EI881050	R2.5	5.0	6	7.5	10	65	4.6
EI881060	R3.0	6.0	6	9	12	75	5.6
EI881080	R4.0	8.0	8	12	25	75	7.4
EI881100	R5.0	10.0	10	15	30	80	9.4
EI881120	R6.0	12.0	12	18	36	90	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI996 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK

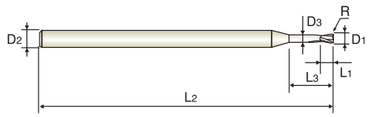
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée, micro-fraise

2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EI99600200000	-	0.2	3	0.3	-	40	-
EI99600300000	-	0.3	3	0.5	-	40	-
EI99600400000	-	0.4	3	0.6	-	40	-
EI99600505025	R0.05	0.5	3	0.7	2.5	40	0.45
EI99600505040	R0.05	0.5	3	0.7	4	40	0.45
EI996006	R0.05	0.6	3	0.9	3	40	0.55
EI99600605050	R0.05	0.6	3	0.9	5	40	0.55
EI996008	R0.05	0.8	3	1.2	4	40	0.75
EI99600805070	R0.05	0.8	3	1.2	7	40	0.75
EI996010	R0.1	1.0	3	1.5	5	40	0.95
EI996904	R0.1	1.0	3	1.5	8.5	40	0.95
EI99601010120	R0.1	1.0	3	1.5	12	40	0.95
EI996012	R0.1	1.2	3	1.8	6	50	1.15
EI99601210100	R0.1	1.2	3	1.8	10	50	1.15
EI996015	R0.15	1.5	3	2.2	7.5	50	1.4
EI996907	R0.15	1.5	3	2.2	12	50	1.4
EI99601515180	R0.15	1.5	3	2.2	18	50	1.4
EI996020	R0.15	2.0	3	2.2	10	60	1.9
EI996909	R0.15	2.0	3	2.2	16	60	1.9
EI99602015250	R0.15	2.0	3	2.2	25	60	1.9
EI99603020100	R0.2	3.0	4	3	10	65	2.9
EI99603020150	R0.2	3.0	4	3	15	65	2.9
EI99603020200	R0.2	3.0	4	3	20	65	2.9
EI99603020250	R0.2	3.0	4	3	25	75	2.9
EI99603020300	R0.2	3.0	4	3	30	75	2.9
EI99604020200	R0.2	4.0	6	4	20	65	3.9
EI99604020300	R0.2	4.0	6	4	30	75	3.9
EI99604020400	R0.2	4.0	6	4	40	90	3.9

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EI996 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK

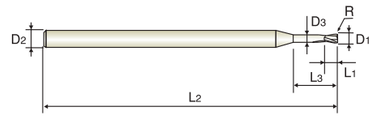
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée, micro-fraise

2 TAGLIENTI, TORICA, SERIE MINI, SCARICATA

▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EI99605030200	R0.3	5.0	6	5	20	75	4.9
EI99605030300	R0.3	5.0	6	5	30	75	4.9
EI99605030400	R0.3	5.0	6	5	40	90	4.9
EI99605030500	R0.3	5.0	6	5	50	90	4.9
EI99606030300	R0.3	6.0	6	6	30	75	5.9
EI99606030400	R0.3	6.0	6	6	40	90	5.9
EI99606030500	R0.3	6.0	6	6	50	90	5.9
EI99606030600	R0.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIB86 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS with TAPER NECK

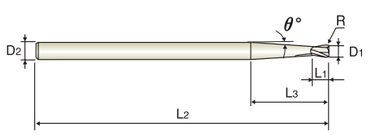
VOLLHARTMETALL, 2 SCHEIDEN ECKENRADIUS mit KONISCH ABGESETZTEM SCHAFTTEIL

Fraise carbure, 2 dents, torique avec entrée conique

2 TAGLIENTI, TORICA CON SCARICO CONICO

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Taper Angle
	R	D_1	D_2	L_1	L_3	L_2	θ°
EIB86010	R0.1	1.0	3	2	30	60	2°
EIB86901	R0.1	1.0	3	2	70	100	1°
EIB86015	R0.15	1.5	3	3	30	60	1° 30´
EIB86902	R0.15	1.5	3	3	50	100	1°
EIB86020	R0.15	2.0	3	4	30	60	1°
EIB86903	R0.15	2.0	4	4	70	100	1°

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.02	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIA13 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 40˚ HELIX CORNER RADIUS SHORT LENGTH

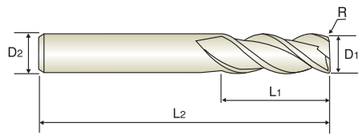
VOLLHARTMETALL, 3 SCHNEIDEN 40˚ RECHTSSPIRALE ECKENRADIUS KURZ

Fraise carbure, 3 dents, torique, hélice 40°, courte

3 TAGLIENTI, ELICA 40°, TORICA, SERIE CORTA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 3 | 40° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
EIA13020	R0.15	2.0	3	6	40
EIA13030	R0.15	3.0	3	12	40
EIA13040	R0.2	4.0	4	14	50
EIA13050	R0.3	5.0	5	16	50
EIA13060	R0.3	6.0	6	20	65
EIA13080	R0.5	8.0	8	20	65
EIA13100	R0.5	10.0	10	25	75
EIA13120	R0.5	12.0	12	25	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIA14 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 40˚ HELIX CORNER RADIUS LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDN 40˚ RECHTSSPIRALE ECKENRADIUS LANG

Fraise carbure, 3 dents, torique, hélice 40°, longue

3 TAGLIENTI, ELICA 40°, TORICA, SERIE LUNGA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.

MG HM | 3 | 40° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
EIA14020	R0.15	2.0	3	9	60
EIA14030	R0.15	3.0	3	30	60
EIA14040	R0.2	4.0	4	30	60
EIA14050	R0.3	5.0	5	35	70
EIA14060	R0.3	6.0	6	40	100
EIA14080	R0.5	8.0	8	40	100
EIA14100	R0.5	10.0	10	40	100
EIA14120	R0.5	12.0	12	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIB88 SERIES PLAIN SHANK / GLATTER Z YLINDERSCHAFT

CARBIDE, 4 FLUTE CORNER RADIUS with NECK

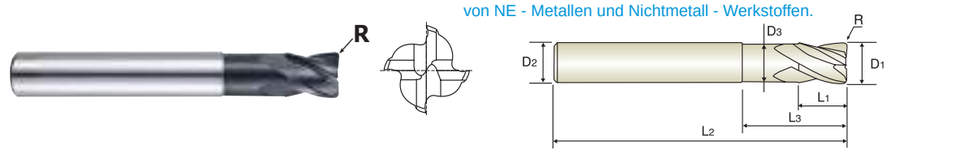
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 4 dents, torique, détalonnée

4 TAGLIENTI, TORICA, SCARICATA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 4 | 30° | PLAIN P.1176

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	R	D_1	D_2	L_1	L_3	L_2	D_3
EIB88060	R0.5	6.0	6	10	40	80	5.9
EIB88080	R0.5	8.0	8	10	40	80	7.8
EIB88901	R1.0	8.0	8	10	60	100	7.8
EIB88100	R0.5	10.0	10	25	-	75	-
EIB88902	R0.5	10.0	10	12	40	80	9.8
EIB88903	R1.0	10.0	10	12	40	80	9.8
EIB88904	R0.5	10.0	10	12	80	125	9.8
EIB88120	R0.5	12.0	12	25	-	80	-
EIB88905	R0.5	12.0	12	15	40	80	11.8
EIB88906	R1.0	12.0	12	15	40	80	11.8
EIB88907	R1.0	12.0	12	15	80	125	11.8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

EIB04 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH with NECK

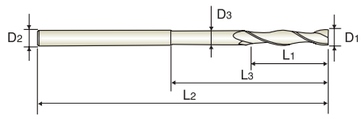
VOLLHARTMETALL, 2 SCHNEIDEN LANG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, détalonnée, longue

2 TAGLIENTI, SERIE LUNGA

- ▶ Higher hardness of film and excellent wear-resistance increase the tool life surprisingly.
- ▶ Ultra fine film of YG-1's diamond coated carbide ball end mills ensure the smooth and excellent surface on work materials.
- ▶ High performance on graphite, wrought aluminum, bakelite, plastics, wood, brass etc. YG-1's diamond coated carbide ball end mills have good result for the machining of non-ferrous metals and non-metallic materials.

- ▶ Höhere Härte der Beschichtung und ausgezeichnete Verschleißfestigkeit verlängern die Standzeit beachtlich.
- ▶ Ultrafeiner Film auf YG-1 Diamant - beschichteten Hartmetall Schaftfräser gewährleisten eine glatte und ausgezeichnete Oberflächengüte.
- ▶ Hohe Leistungsfähigkeit bei Graphit, Aluminium ohne Silicon, Bakelit, Plastik, Holz, Messing, etc. YG-1 Diamant - beschichtete Hartmetall Schaftfräser zeigen gute Ergebnisse beim Bearbeiten von NE - Metallen und Nichtmetall - Werkstoffen.



MG HM | 2 | 30° | PLAIN

P.1176

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
EIB0400502040	0.5	3	1	2	40	0.45
EIB0400603040	0.6	3	2	3	40	0.55
EIB0400704040	0.7	3	2	4	40	0.65
EIB0400805040	0.8	3	2	5	40	0.75
EIB0400906040	0.9	3	2	6	40	0.85
EIB0401008075	1.0	4	3	8	75	0.95
EIB0401510075	1.5	4	4	10	75	1.45
EIB0402016100	2.0	4	6	16	100	1.9
EIB0402520100	2.5	4	8	20	100	2.4
EIB0403030100	3.0	6	8	30	100	2.8
EIB0403535100	3.5	6	10	35	100	3.2
EIB0404040100	4.0	6	20	40	100	3.7
EIB0405050125	5.0	6	25	50	125	4.6
EIB0406060140	6.0	6	30	60	140	5.6
EIB0407000140	7.0	6	35	-	140	-
EIB0408080150	8.0	8	40	80	150	7.4
EIB0409000150	9.0	8	45	-	150	-
EIB0410080150	10.0	10	50	80	150	9.4
EIB0411000150	11.0	10	50	-	150	-
EIB0412080150	12.0	12	55	80	150	11.4

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									◎	○		○		

D-POWER GRAPHITE END MILLS

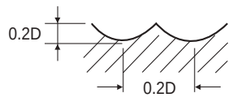
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE MINIATURE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN MINI STIRNRADIUS

EI997, EIB93, EIB87 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
R0.2 × 0.4	40000	600	50	0.008
R0.3 × 0.6	40000	800	75	0.010
R0.4 × 0.8	40000	960	100	0.012
R0.5 × 1.0	40000	1200	125	0.015
R0.6 × 1.2	40000	1440	150	0.018
R0.75 × 1.5	40000	1600	190	0.020
R1.0 × 2.0	40000	2000	250	0.025
R1.5 × 3.0	27000	2200	255	0.041
R2.0 × 4.0	20000	2900	250	0.073
R2.5 × 5.0	16000	2900	250	0.091
R3.0 × 6.0	14000	2900	265	0.104



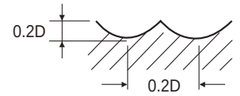
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

EI880, EI451, EI450 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
R1.0 × 2.0	16000	800	100	0.025
R1.25 × 2.5	16000	1120	125	0.035
R1.5 × 3.0	16000	1450	150	0.045
R1.75 × 3.5	16000	1750	175	0.055
R2.0 × 4.0	16000	2100	200	0.066
R2.5 × 5.0	15500	2550	245	0.082
R3.0 × 6.0	15000	2950	285	0.098
R4.0 × 8.0	13000	3000	325	0.115
R5.0 × 10.0	11500	3050	360	0.133
R6.0 × 12.0	10500	3150	395	0.150



※ The FEED, in long & long reach types, should be reduced by around 50%

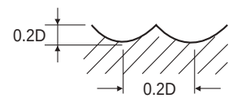
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 3 FLUTE BALL NOSE

VOLLHARTMETALL, 3 SCHNEIDEN STIRNRADIUS

EI881 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
R1.0 × 2.0	16000	1200	100	0.025
R1.25 × 2.5	16000	1700	125	0.035
R1.5 × 3.0	16000	2150	150	0.045
R1.75 × 3.5	16000	2650	175	0.055
R2.0 × 4.0	16000	3100	200	0.065
R2.5 × 5.0	15500	3800	245	0.082
R3.0 × 6.0	15000	4450	285	0.099
R4.0 × 8.0	13000	4500	325	0.115
R5.0 × 10.0	11500	4600	360	0.133
R6.0 × 12.0	10500	4750	395	0.151



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

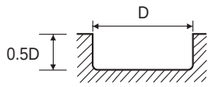
D-POWER GRAPHITE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS
VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS

EI996, EIB86 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
0.4	40000	640	50	0.008
0.6	40000	640	75	0.008
0.8	40000	800	100	0.010
1.0	40000	960	125	0.012
1.2	40000	1200	150	0.015
1.5	40000	1440	190	0.018
2.0	40000	1600	250	0.020
3.0	27000	1900	255	0.035
4.0	20000	2300	250	0.058
5.0	16000	2300	250	0.072
6.0	14000	2300	265	0.082

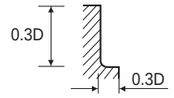


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 4 FLUTE CORNER RADIUS
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS

EIB88 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
6.0	40000	5600	755	0.035
8.0	32000	5600	805	0.044
10.0	26000	5700	815	0.055
12.0	21000	5450	790	0.065

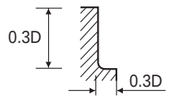


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 3 FLUTE 40° HELIX CORNER RADIUS
VOLLHARTMETALL, 3 SCHNEIDEN 40° RECHTSSPIRALE ECKENRADIUS

EIA13, EIA14 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
2.0	40000	3000	250	0.025
3.0	40000	4200	375	0.035
4.0	40000	6000	505	0.050
5.0	40000	7200	630	0.060
6.0	40000	8400	755	0.070
8.0	32000	8400	805	0.088
10.0	26000	8600	815	0.110
12.0	21000	8200	790	0.130



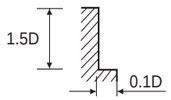
※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG

EIB04 SERIES

MATERIAL	N			
	GRAPHITE			
DIAMETER	RPM	FEED	Vc	fz
0.4	40000	200	50	0.003
0.6	40000	350	75	0.004
0.8	40000	550	100	0.007
1.0	40000	700	125	0.009
1.5	40000	800	190	0.010
2.0	25000	800	155	0.016
3.0	20000	800	190	0.020
4.0	18000	950	225	0.026
5.0	14000	1200	220	0.043
6.0	11000	1400	205	0.064
8.0	8000	1300	200	0.081
10.0	6500	1200	205	0.092
12.0	5500	1200	205	0.109



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

Leading Through Innovation

D-POWER CFRP END MILLS
D-POWER CFK FRÄSER

- For composite materials including CFRP, GFRP
- Für Verbund Materialien einschl. CFK und GFK

SELECTION GUIDE

SOLID CARBIDE D-POWER CFRP END MILLS

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
GUF40		CARBIDE, MULTI FLUTE DUAL HELIX VOLLHARTMETALL, MULTI SCHNEIDEN DOPPEL HELIX	D6.0	D12.0	1180
GUF39		CARBIDE, 4 FLUTE VOLLHARTMETALL, 4 SCHNEIDEN	D6.0	D12.0	1181
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1182

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									○			◎		
									○			◎		

D-POWER CFRP END MILLS

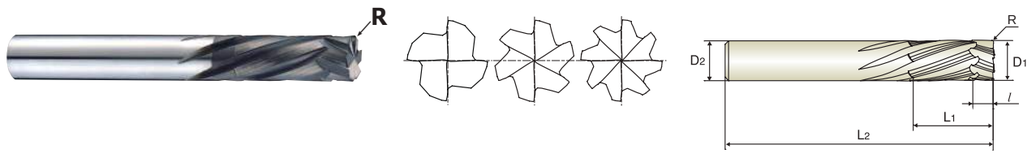
GUF40 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, MULTI FLUTE DUAL HELIX

VOLLHARTMETALL, MULTI SCHNEIDEN DOPPEL HELIX
Fraise carbure, multi-dents, double hélice
MD, MULTI ELICA CONTRAPPOSTA

- ▶ For composite materials - CFRP, GFRP.
- ▶ Reduce delamination and burrs.
- ▶ Diamond coating with excellent abrasion resistance

- ▶ Für verbund materialien - CFK und GFK
- ▶Verringert Ablösungen (Delamination) und Gratbildung
- ▶Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit.



MG HM | 4-8 | 20°/20° | PLAIN

P.1182

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
	R	D_1	D_2	$L_1(l)$	L_2	
GUF40060	R0.5	6.0	6	12(3)	65	4
GUF40080	R0.5	8.0	8	16(4)	70	6
GUF40100	R0.5	10.0	10	20(5)	80	6
GUF40120	R0.5	12.0	12	24(6)	90	8

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									○			◎		

D-POWER CFRP END MILLS

GUF39 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE

VOLLHARTMETALL, 4 SCHNEIDEN
Fraise carbure, 4 dents
MD, 4 TAGLIENTI

- ▶ For composite materials - CFRP, GFRP.
- ▶ Reduce delamination and burrs.
- ▶ Diamond coating with excellent abrasion resistance

- ▶ Für verbund materialien - CFK und GFK
- ▶Verringert Ablösungen (Delamination) und Gratbildung
- ▶Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit.

MG HM | 4 | 15° | PLAIN

P.1182

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	R	D_1	D_2	L_1	L_2
GUF39060	R0.2	6.0	6	18	65
GUF39080	R0.2	8.0	8	24	70
GUF39100	R0.3	10.0	10	30	80
GUF39120	R0.3	12.0	12	36	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
									○			◎		

D-POWER CFRP END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE DUAL HELIX
VOLLHARTMETALL, MULTI SCHNEIDEN DOPPEL HELIX

GUF40 SERIES

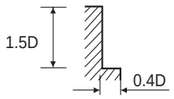
MATERIAL	N															
	CFRP				GFRP				CFRP				GFRP			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7950	1115	150	0.035	4240	425	80	0.025	10610	1995	200	0.047	5300	740	100	0.035
8.0	5960	1610	150	0.045	3180	590	80	0.031	7950	2955	200	0.062	3970	955	100	0.040
10.0	4770	1575	150	0.055	2540	565	80	0.037	6360	2940	200	0.077	3180	860	100	0.045
12.0	3970	2065	150	0.065	2120	730	80	0.043	5300	3900	200	0.092	2650	1060	100	0.050

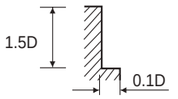
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 4 FLUTE
VOLLHARTMETALL, 4 SCHNEIDEN

GUF39 SERIES

MATERIAL	N															
	CFRP				GFRP				CFRP				GFRP			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	10610	1485	200	0.035	5300	530	100	0.025	10610	1190	200	0.028	5300	530	100	0.025
8.0	7950	1430	200	0.045	3970	490	100	0.031	7950	1145	200	0.036	3970	445	100	0.028
10.0	6360	1400	200	0.055	3180	470	100	0.037	6360	1120	200	0.044	3180	405	100	0.032
12.0	5300	1380	200	0.065	2650	455	100	0.043	5300	1100	200	0.052	2650	370	100	0.035





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

Leading Through Innovation

ROUTERS
MIKROVERZAHNTER

- For composite materials including CFRP, GFRP
- Für Verbund Materialien einschl. CFK und GFK

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
RTI104		CARBIDE, ROUTER END MILL TYPE MIKROVERZAHNTER VHM FRÄSER	D3.0	D12.0	1186
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1187

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
												◎		

ROUTERS

RTI104 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT

CARBIDE, ROUTER END MILL TYPE

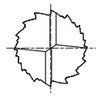
MIKROVERZAHNTER VHM FRÄSER

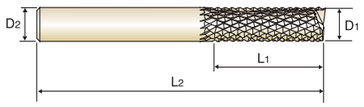
FRAISE CARBURE À DÉTOURER

ROUTERS DI SGROS. - CFRP & GFRP (Per lavorazioni di materiali compositi)

- ▶ For composite materials - CFRP, GFRP.
- ▶ Reduce delamination and burrs.
- ▶ Diamond coating with excellent abrasion resistance

- ▶ Für verbund materialien - CFK und GFK
- ▶ Verringert Ablösungen (Delamination) und Gratbildung
- ▶ Diamant-Beschichtung mit ausgezeichneter Abriebfestigkeit.



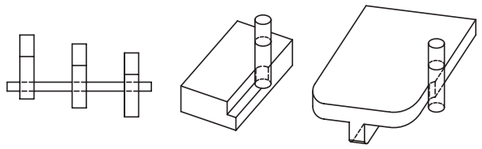


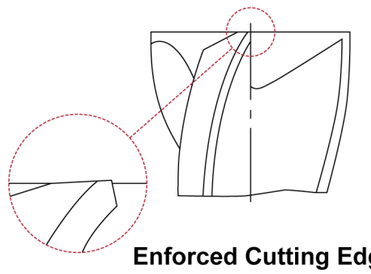
MG HM | PLAIN P.1187

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D_1	D_2	L_1	L_2
RTI104030	3.0	3	9	50
RTI104040	4.0	4	12	50
RTI104050	5.0	5	15	50
RTI104060	6.0	6	18	65
RTI104080	8.0	8	24	75
RTI104100	10.0	10	30	85
RTI104120	12.0	12	36	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
-0.02~-0.08	h6





Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
												◎		

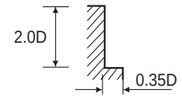
ROUTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, ROUTER
VOLLHARTMETALL, MIKROVERZAHNTER

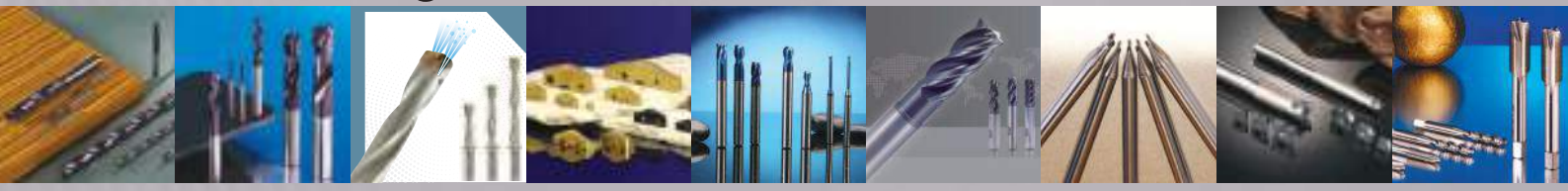
RTI104 SERIES

MATERIAL	N					
	CFRP			GFRP		
DIAMETER	RPM	FEED	Vc	RPM	FEED	Vc
3.0	21220	1270	200	10610	635	100
4.0	15910	1430	200	7950	715	100
5.0	12730	1910	200	6360	950	100
6.0	10610	2225	200	5300	1110	100
8.0	7950	2620	200	3970	1310	100
10.0	6360	3050	200	3180	1525	100
12.0	5300	3390	200	2650	1695	100



RPM = rev./min.
FEED = mm/min.
Vc = m/min.

Global Cutting Tool Leader **YG-1**



CARBIDE

Leading Through Innovation

CRX S END MILLS

CRX S FRÄSER

- DLC Coated Carbide End Mills for Copper
- DLC beschichtete VHM Fräser für die Kuper - und Kupferlegierungen zu bearbeiten

ITEM	MODEL	DESCRIPTION	SIZE		PAGE
			MIN	MAX	
SGED28		CARBIDE, 2 FLUTE BALL NOSE DLC COATING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG	R0.5	R6.0	1192
SGED27		CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL	R0.25	R6.0	1193
SGED29		CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL	D1.0	D12.0	1195
SGED31		CARBIDE, 2 FLUTE DLC COATING VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG	D1.0	D12.0	1197
SGED30		CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL	D0.5	D12.0	1198
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1200

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				
								◎		○				
								◎		○				
								◎		○				
								◎		○				

CRX S END MILLS

SGED28 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE DLC COATING

VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG

Fraise carbure, 2 dents, hémisphérique, revêtue DLC

2 TAGLIENTI, SEMISFERICA, RIVESTIMENTO DLC

- Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- Tight radius tolerance is applied (±0.005mm tolerance under R3).
- Excellent surface roughness from Mirror Face of cutting edges

- Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- Hochgenaue Raduistoleranz (±0.005mm Toleranz unter R3mm)
- Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht

NG HM | 2 | 30° | R ±0.005 | PLAIN

P.1200

Unit : mm

EDP No.	Radius of Ball Nose R(±0.005)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED28010	R0.5	1.0	6	2.5	50
SGED28015	R0.75	1.5	6	4	50
SGED28020	R1.0	2.0	6	5	50
SGED28030	R1.5	3.0	6	8	60
SGED28040	R2.0	4.0	6	8	70
SGED28050	R2.5	5.0	6	12	90
SGED28060	R3.0	6.0	6	12	90
SGED28080	R4.0	8.0	8	16	100
SGED28100	R5.0	10.0	10	20	100
SGED28120	R6.0	12.0	12	25	110

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	±0.005	0~-0.012	h6
over R3		0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED27 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK

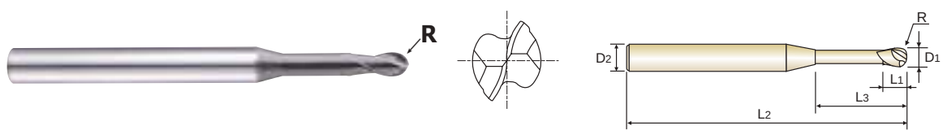
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC

2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC

- Designed for copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
- Tight radius tolerance is applied (±0.005mm tolerance under R3).
- Excellent surface roughness thanks to Mirror Face of cutting edges
- High strength and minimized vibration are available due to two step taper neck(under R0.5).

- Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- Hochgenaue Raduistoleranz (±0.005mm Toleranz unter R3mm)
- Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
- Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)



NG HM | 2 | 30° | R ±0.005 (R0.25~R3) | R ±0.010 (R4~R6) | PLAIN

P.1200

Unit : mm

EDP No.	Radius of Ball Nose R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SGED2700502	R0.25	0.5	4	0.5	2	45
SGED2700504	R0.25	0.5	4	0.5	4	45
SGED2700506	R0.25	0.5	4	0.5	6	45
SGED2700508	R0.25	0.5	4	0.5	8	45
SGED2700510	R0.25	0.5	4	0.5	10	45
SGED2700602	R0.3	0.6	4	0.6	2	45
SGED2700604	R0.3	0.6	4	0.6	4	45
SGED2700606	R0.3	0.6	4	0.6	6	45
SGED2700608	R0.3	0.6	4	0.6	8	45
SGED2700610	R0.3	0.6	4	0.6	10	45
SGED2700804	R0.4	0.8	4	0.8	4	45
SGED2700806	R0.4	0.8	4	0.8	6	45
SGED2700808	R0.4	0.8	4	0.8	8	45
SGED2700810	R0.4	0.8	4	0.8	10	45
SGED2700812	R0.4	0.8	4	0.8	12	45
SGED2701004	R0.5	1.0	4	1	4	45
SGED2701006	R0.5	1.0	4	1	6	45
SGED2701008	R0.5	1.0	4	1	8	45
SGED2701010	R0.5	1.0	4	1	10	45
SGED2701012	R0.5	1.0	4	1	12	45
SGED2701506	R0.75	1.5	4	1.5	6	45
SGED2701508	R0.75	1.5	4	1.5	8	45
SGED2701510	R0.75	1.5	4	1.5	10	45
SGED2701512	R0.75	1.5	4	1.5	12	45
SGED2701516	R0.75	1.5	4	1.5	16	50

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CRX S END MILLS

SGED27 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK

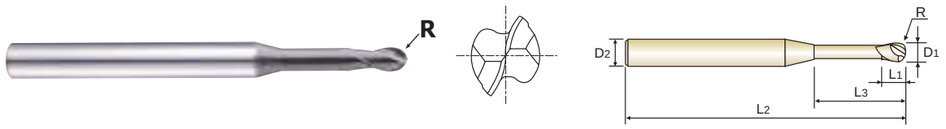
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, hémisphérique, détalonnée, revêtue DLC

2 TAGLIENTI, SEMISFERICA CON SCARICO ESTESO, RIV. DLC

- ▶ Designed to copper, copper alloys soft graphite, reinforced plastics and the materials affiliated with non-ferrous metals.
- ▶ Tight radius tolerance is applied (± 0.005mm tolerance under R3).
- ▶ Excellent surface roughness thanks to Mirror Face of cutting edges
- ▶ High strength and minimized vibration are available due to two step taper neck(under R0.5).

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶Hochgenaue Raduistoleranz (± 0.005mm Toleranz unter R3mm)
- ▶Sehr gute Oberflächenrauhigkeit wird durch die besonders behandelte Schneide erreicht
- ▶Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter R 0,5mm)



NG HM | 2 | 30° | R ±0.005 (R0.25~R3) | R ±0.010 (R4~R6) | PLAIN

P.1200

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R(+-0.005)	D1	D2	L1	L3	L2
SGED2702006	R1.0	2.0	4	3	6	45
SGED2702008	R1.0	2.0	4	3	8	45
SGED2702010	R1.0	2.0	4	3	10	45
SGED2702012	R1.0	2.0	4	3	12	45
SGED2702016	R1.0	2.0	4	3	16	50
SGED2703010	R1.5	3.0	6	4	10	50
SGED2703012	R1.5	3.0	6	4	12	50
SGED2703016	R1.5	3.0	6	4	16	60
SGED2703020	R1.5	3.0	6	4	20	60
SGED2704010	R2.0	4.0	6	5	10	50
SGED2704012	R2.0	4.0	6	5	12	50
SGED2704016	R2.0	4.0	6	5	16	60
SGED2704020	R2.0	4.0	6	5	20	60
SGED2704025	R2.0	4.0	6	5	25	60
SGED2706020	R3.0	6.0	6	8	20	60
SGED2706030	R3.0	6.0	6	8	30	90
SGED2708020	R4.0	8.0	8	10	20	70
SGED2710025	R5.0	10.0	10	12	25	80
SGED2712025	R6.0	12.0	12	14	25	80

Size	Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to R3	± 0.005	0~-0.012	h6
over R3	± 0.010	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED29 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK

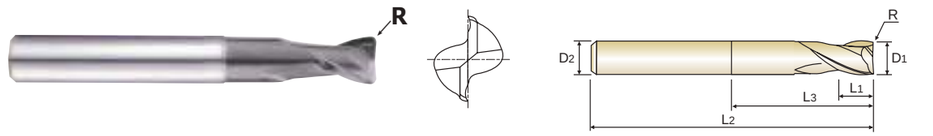
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC

2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from Mirror Face of cutting edges

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶Ausgelegt für verschiedene Anwendungen, z.B. schruppen, schruppschlichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie



NG HM | 2 | 30° | R ±0.010 (Ø1~Ø6) | R ±0.015 (Ø8~Ø12) | PLAIN

P.1201

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length
	R	D1	D2	L1	L3	L2
SGED290100104	R0.1	1.0	4	1.5	4	45
SGED290100106	R0.1	1.0	4	1.5	6	45
SGED290100108	R0.1	1.0	4	1.5	8	45
SGED290100204	R0.2	1.0	4	1.5	4	45
SGED290100206	R0.2	1.0	4	1.5	6	45
SGED290100208	R0.2	1.0	4	1.5	8	45
SGED290150106	R0.1	1.5	4	2.3	6	45
SGED290150108	R0.1	1.5	4	2.3	8	45
SGED290150110	R0.1	1.5	4	2.3	10	45
SGED290150206	R0.2	1.5	4	2.3	6	45
SGED290150208	R0.2	1.5	4	2.3	8	45
SGED290150210	R0.2	1.5	4	2.3	10	45
SGED290200208	R0.2	2.0	4	3	8	45
SGED290200210	R0.2	2.0	4	3	10	45
SGED290200212	R0.2	2.0	4	3	12	45
SGED290200508	R0.5	2.0	4	3	8	45
SGED290200510	R0.5	2.0	4	3	10	45
SGED290200512	R0.5	2.0	4	3	12	45
SGED290300210	R0.2	3.0	6	4.5	10	50
SGED290300212	R0.2	3.0	6	4.5	12	50
SGED290300216	R0.2	3.0	6	4.5	16	60
SGED290300310	R0.3	3.0	6	4.5	10	50
SGED290300312	R0.3	3.0	6	4.5	12	50
SGED290300316	R0.3	3.0	6	4.5	16	60

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED29 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

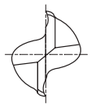
CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK

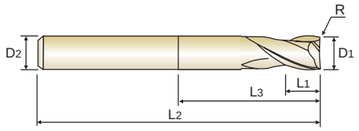
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, torique, détalonnée, revêtue DLC

2 TAGLIENTI, TORICA CON SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from Mirror Face of cutting edges
- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Ausgelegt für verschiedene Anwendungen, z.B. schruppen, schruppschlichten und zur schlicht Bearbeitung, aufgrund der neuartigen Geometrie





NG HM | 2 | 30° | R ±0.010 Ø1~Ø6 | R ±0.015 Ø8~Ø12 | PLAIN

P.1201

Unit : mm

EDP No.	Corner Radius R	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SGED290400212	R0.2	4.0	6	6	12	50
SGED290400216	R0.2	4.0	6	6	16	60
SGED290400220	R0.2	4.0	6	6	20	60
SGED290400512	R0.5	4.0	6	6	12	50
SGED290400516	R0.5	4.0	6	6	16	60
SGED290400520	R0.5	4.0	6	6	20	60
SGED290600320	R0.3	6.0	6	9	20	60
SGED290600520	R0.5	6.0	6	9	20	60
SGED290601020	R1.0	6.0	6	9	20	60
SGED290800325	R0.3	8.0	8	12	25	65
SGED290800525	R0.5	8.0	8	12	25	65
SGED290801025	R1.0	8.0	8	12	25	65
SGED291000530	R0.5	10.0	10	15	30	70
SGED291001030	R1.0	10.0	10	15	30	70
SGED291200532	R0.5	12.0	12	18	32	80
SGED291201032	R1.0	12.0	12	18	32	80

Size	Corner Radius Tolerance (mm)	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	±0.010	0~-0.012	h6
over Ø6	±0.015	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED31 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

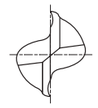
CARBIDE, 2 FLUTE DLC COATING

VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG

Fraise carbure, 2 dents, revêtue DLC

2 TAGLIENTI, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ Excellent surface roughness from special flute geometry for removing burrs
- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie was zur verminderten Gratbildung führt



NG HM | 2 | 30° | PLAIN

P.1202

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
SGED31010	1.0	6	2.5	50
SGED31015	1.5	6	4	50
SGED31020	2.0	6	6	50
SGED31025	2.5	6	8	50
SGED31030	3.0	6	10	50
SGED31040	4.0	6	12	50
SGED31050	5.0	6	15	60
SGED31060	6.0	6	15	60
SGED31080	8.0	8	20	65
SGED31100	10.0	10	25	70
SGED31120	12.0	12	30	80

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED30 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK

VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, détalonnée, revêtue DLC

2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie

NG HM | 2 | 30° | PLAIN P.1202

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SGED3000502	0.5	4	0.7	2	45
SGED3000504	0.5	4	0.7	4	45
SGED3000506	0.5	4	0.7	6	45
SGED3000508	0.5	4	0.7	8	45
SGED3000510	0.5	4	0.7	10	45
SGED3000602	0.6	4	0.9	2	45
SGED3000604	0.6	4	0.9	4	45
SGED3000606	0.6	4	0.9	6	45
SGED3000608	0.6	4	0.9	8	45
SGED3000610	0.6	4	0.9	10	45
SGED3000804	0.8	4	1.2	4	45
SGED3000806	0.8	4	1.2	6	45
SGED3000808	0.8	4	1.2	8	45
SGED3000810	0.8	4	1.2	10	45
SGED3000812	0.8	4	1.2	12	45
SGED3001004	1.0	4	1.5	4	45
SGED3001006	1.0	4	1.5	6	45
SGED3001008	1.0	4	1.5	8	45
SGED3001010	1.0	4	1.5	10	45
SGED3001012	1.0	4	1.5	12	45
SGED3001506	1.5	4	2.3	6	45
SGED3001508	1.5	4	2.3	8	45
SGED3001510	1.5	4	2.3	10	45
SGED3001512	1.5	4	2.3	12	45
SGED3001516	1.5	4	2.3	16	50

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

CRX S END MILLS

SGED30 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE DLC COATING with EXTENDED NECK

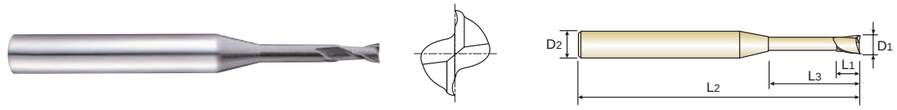
VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

Fraise carbure, 2 dents, détalonnée, revêtue DLC

2 TAGLIENTI, SCARICO ESTESO, RIVESTIMENTO DLC

- ▶ Designed for copper, copper alloys, soft graphite, reinforced plastics and materials affiliated with non-ferrous metals.
- ▶ High toughness and minimized vibration applied from two step taper neck (under dia. 1.0mm)
- ▶ Excellent surface roughness from special flute geometry for removing burrs

- ▶ Entwickelt für die Bearbeitung von Kupfer, Kupferlegierungen, sowie faserverstärkten Kunststoffen, NE- Metallen
- ▶ Hohe Zähigkeit und verminderte Vibrationen werden durch den besonderen kegelförmigen Hals erreicht, (unter Ø 1mm)
- ▶ Hervorragende Oberflächenrauheit durch speziell behandelte Nutengeometrie



NG HM | 2 | 30° | PLAIN P.1202

Unit : mm

EDP No.	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2
SGED3002008	2.0	4	3	8	45
SGED3002010	2.0	4	3	10	45
SGED3002012	2.0	4	3	12	45
SGED3002016	2.0	4	3	16	50
SGED3003008	3.0	6	4.5	8	50
SGED3003010	3.0	6	4.5	10	50
SGED3003012	3.0	6	4.5	12	50
SGED3003016	3.0	6	4.5	16	60
SGED3003020	3.0	6	4.5	20	60
SGED3004010	4.0	6	6	10	50
SGED3004012	4.0	6	6	12	50
SGED3004016	4.0	6	6	16	60
SGED3004020	4.0	6	6	20	60
SGED3004025	4.0	6	6	25	60
SGED3006020	6.0	6	8	20	60
SGED3006030	6.0	6	8	30	90
SGED3008020	8.0	8	12	20	70
SGED3010025	10.0	10	15	25	80
SGED3012025	12.0	12	18	25	80

Size	Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
up to Ø6	0~-0.012	h6
over Ø6	0~-0.015	

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
								◎		○				

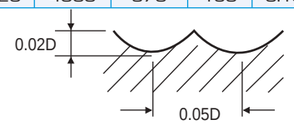
CRX S END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE DLC COATING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG

SGED28 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.5 × 1.0	50000	1000	155	0.010	42000	930	130	0.011	50000	750	155	0.008
R1.0 × 2.0	47520	2068	300	0.022	24000	940	150	0.020	50000	1500	315	0.015
R1.5 × 3.0	31200	1914	295	0.031	15800	870	150	0.028	47400	1800	445	0.019
R2.0 × 4.0	22800	1936	285	0.042	11500	880	145	0.038	34500	1825	435	0.026
R2.5 × 5.0	18500	1936	290	0.052	9300	880	145	0.047	28000	1825	440	0.033
R3.0 × 6.0	15600	1892	295	0.061	7800	860	145	0.055	23500	1800	445	0.038
R4.0 × 8.0	12000	1892	300	0.079	6000	860	150	0.072	18000	1800	450	0.050
R5.0 × 10.0	9600	1936	300	0.101	4800	880	150	0.092	14500	1825	455	0.063
R6.0 × 12.0	8000	1914	300	0.120	4000	870	150	0.109	12000	1825	450	0.076

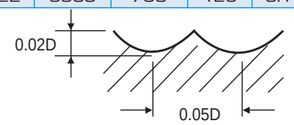


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE BALL NOSE DLC COATING with EXTENDED NECK
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL

SGED27 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R0.25 × 0.5	50000	500	80	0.005	50000	500	80	0.005	50000	380	80	0.004
R0.3 × 0.6	50000	700	95	0.007	50000	650	95	0.007	50000	450	95	0.005
R0.4 × 0.8	50000	850	125	0.009	44000	770	110	0.009	50000	600	125	0.006
R0.5 × 1.0	50000	1000	155	0.010	35000	770	110	0.011	50000	630	155	0.006
R1.0 × 2.0	39600	1716	250	0.022	19800	780	125	0.020	50000	1250	315	0.013
R1.5 × 3.0	26000	1584	245	0.030	13000	720	125	0.028	39000	1512	370	0.019
R2.0 × 4.0	19000	1606	240	0.042	9500	730	120	0.038	28500	1533	360	0.027
R2.5 × 5.0	15400	1606	240	0.052	7700	730	120	0.047	23100	1533	365	0.033
R3.0 × 6.0	13000	1584	245	0.061	6500	720	125	0.055	19500	1512	370	0.039
R4.0 × 8.0	10000	1584	250	0.079	5000	720	125	0.072	15000	1512	375	0.050
R5.0 × 10.0	8000	1606	250	0.100	4000	730	125	0.091	12000	1533	375	0.064
R6.0 × 12.0	6600	1606	250	0.122	3300	730	125	0.111	9900	1533	375	0.077



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

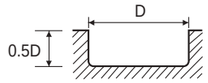
CRX S END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL- NUTENFRÄSEN

SGED29 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	50000	1000	155	0.010	50000	1000	155	0.010	50000	700	155	0.007
2.0	50000	1800	315	0.018	50000	1700	315	0.017	50000	1400	315	0.014
3.0	50000	2600	470	0.026	44500	2350	420	0.026	50000	2100	470	0.021
4.0	50000	3680	630	0.037	33400	2100	420	0.031	50000	2600	630	0.026
5.0	50000	4300	785	0.043	27000	2100	425	0.039	50000	3400	785	0.034
6.0	44500	4670	840	0.052	22300	2100	420	0.047	50000	4200	940	0.042
8.0	33400	4560	840	0.068	16700	2100	420	0.063	50000	5700	1255	0.057
10.0	26700	4770	840	0.089	13370	2100	420	0.079	40000	5500	1255	0.069
12.0	22200	4660	835	0.105	11100	2100	420	0.095	33500	5600	1265	0.084

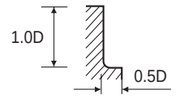


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE CORNER RADIUS DLC COATING with EXTENDED NECK - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS DLC BESCHICHTUNG mit ABGESETZTEM SCHAFTTETL- SEITENFRÄSEN

SGED29 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	50000	1400	155	0.014	50000	1200	155	0.012	50000	1200	155	0.012
2.0	50000	2800	315	0.028	50000	2500	315	0.025	50000	2500	315	0.025
3.0	50000	4200	470	0.042	50000	3700	470	0.037	50000	3700	470	0.037
4.0	50000	5300	630	0.053	50000	4700	630	0.047	50000	5000	630	0.050
5.0	50000	6500	785	0.065	40000	4800	630	0.060	50000	6500	785	0.065
6.0	50000	7850	940	0.079	33400	4900	630	0.073	50000	7500	940	0.075
8.0	37500	7850	940	0.105	25000	4700	630	0.094	50000	8400	1255	0.084
10.0	30000	7850	940	0.131	20000	4800	630	0.120	40000	8400	1255	0.105
12.0	25000	7850	940	0.157	16700	4700	630	0.141	33500	8400	1265	0.125



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

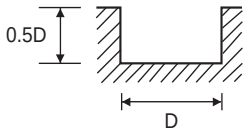
CRX S END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE DLC COATING - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG-NUTENFRÄSEN

SGED30, SGED31 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	50000	480	80	0.005	50000	480	80	0.005	50000	140	80	0.001
0.6	50000	600	95	0.006	50000	570	95	0.006	50000	170	95	0.002
0.8	50000	780	125	0.008	43000	675	105	0.008	50000	220	125	0.002
1.0	50000	990	155	0.010	35000	690	110	0.010	50000	280	155	0.003
2.0	50000	990	315	0.010	25400	495	160	0.010	50000	429	315	0.004
3.0	35200	1590	330	0.023	17400	795	165	0.023	50000	689	470	0.007
4.0	26000	1680	325	0.032	13000	840	160	0.032	39000	728	490	0.009
6.0	17400	1680	325	0.048	8700	840	165	0.048	26100	728	490	0.014
8.0	13200	1680	330	0.064	6600	840	165	0.064	19800	728	500	0.018
10.0	10400	1680	325	0.081	5200	840	160	0.081	15600	728	490	0.023
12.0	8800	1710	330	0.097	4400	855	165	0.097	13200	741	495	0.028

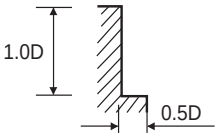


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE, 2 FLUTE DLC COATING - SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN DLC BESCHICHTUNG-SEITENFRÄSEN

SGED30, SGED31 SERIES

MATERIAL	N											
	WROUGHT ALUMINIUM				UNALLOYED COPPER				THERMOPLASTICS			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
0.5	50000	510	80	0.005	50000	480	80	0.005	50000	390	80	0.004
0.6	50000	630	95	0.006	45000	525	85	0.006	50000	480	95	0.005
0.8	50000	840	125	0.008	34000	510	85	0.008	50000	630	125	0.006
1.0	41250	864	130	0.010	27500	540	85	0.010	50000	789	155	0.008
2.0	41100	864	260	0.011	27400	540	170	0.010	50000	864	315	0.009
3.0	27900	1368	260	0.025	18600	855	175	0.023	37200	1368	350	0.018
4.0	21000	1440	265	0.034	14000	900	175	0.032	28000	1440	350	0.026
6.0	14400	1536	270	0.053	9600	960	180	0.050	19200	1536	360	0.040
8.0	10500	1440	265	0.069	7000	900	175	0.064	14000	1440	350	0.051
10.0	8400	1440	265	0.086	5600	900	175	0.080	11200	1440	350	0.064
12.0	7200	1536	270	0.107	4800	960	180	0.100	9600	1536	360	0.080



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

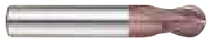
Leading Through Innovation

K-2 END MILLS

K-2 FRÄSER

- General Purpose with Coating
  Conventional or High Speed Milling, Wet or Dry Cutting
- Beschichtet für allgemeinen Einsatz
  Konventionelles oder HSC-Fräsen, Nass- oder Trockenfräsen

◎ : Excellent ○ : Good

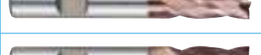
ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
G9624		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1208	◎	◎	◎	○			○	○	○		○			○	○
G9A70		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R10.0	1209	◎	◎	◎	○			○	○	○		○			○	○
G9437		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1210	◎	◎	◎	○			○	○	○		○			○	○
G9438		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R10.0	1211	◎	◎	◎	○			○	○	○		○			○	○
G9454		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS	R1.5	R10.0	1212	◎	◎	◎	○			○	○	○		○			○	○
G9455		CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS	R1.5	R10.0	1213	◎	◎	◎	○			○	○	○		○			○	○
G9B81		CARBIDE, 2 FLUTE BALL NOSE RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS SCHMALE RIPPEN	R0.2	R2.0	1214	◎	◎	◎				○	○	○		○				
G9634		CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1216	◎	◎	◎	○			○	○	○		○			○	○
G9B82		CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS	D2.0	D12.0	1217	◎	◎	◎				○	○	○		○				
G9B83		CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS	D3.0	D12.0	1219	◎	◎	◎				○	○	○		○				
G9B84		CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS	D2.0	D12.0	1220	◎	◎	◎				○	○	○		○				
G9B85		CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS VOLLHARTMETALL, 4 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS	D3.0	D12.0	1222	◎	◎	◎				○	○	○		○				
G9424		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D20.0	1223	◎	◎	◎				○	○	○		○			○	○
G9G44		CARBIDE, 2 FLUTE SHORT LENGTH WITH CHAMFER VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D3.0	D20.0	1224	◎	◎	◎				○	○	○		○			○	○
G9A68		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0	D20.0	1225	◎	◎	◎				○	○	○		○			○	○
G9444		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D2.0	D20.0	1226	◎	◎	◎				○	○	○		○			○	○
G9527		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D3.5	D20.0	1227	◎	◎	◎				○	○	○		○			○	○
G9445		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D20.0	1228	◎	◎	◎				○	○	○		○			○	○
G9G45		CARBIDE, 2 FLUTE LONG LENGTH WITH CHAMFER VOLLHARTMETALL, 2 SCHNEIDEN LANG	D3.0	D20.0	1229	◎	◎	◎				○	○	○		○			○	○
G9452		CARBIDE, 2 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG	D3.0	D20.0	1230	◎	◎	◎				○	○	○		○			○	○
G9B80		CARBIDE, 2 FLUTE RIB PROCESSING VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN	D0.4	D4.0	1231	◎	◎	◎				○	○	○		○				

▶ NEXT PAGE

SELECTION GUIDE

SOLID CARBIDE K-2 END MILLS

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P: Carbon Steels ~HB225	P: Alloy Steels HB225~325	P: Prehardened Steels HRc30~40	P: Hardened Steels HRc40~45	P: Hardened Steels HRc45~55	H: High Hardened Steels HRc55~70	M: Stainless Steels	K: Cast Iron	N: Copper	N: Graphite	N: Aluminum	N: Acrylic	N: CFRP	S: Titanium	S: High Temperature Alloy
G9553 G9410		CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D0.5	D20.0	1233	◎	◎	◎				○	○	○		○			○	○
G9G46		CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY WITH CHAMFER VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D3.0	D20.0	1234	◎	◎	◎				○	○	○		○			○	○
G9425		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D1.0	D20.0	1235	◎	◎	◎				○	○	○		○			○	○
G9G47		CARBIDE, 3 FLUTE SHORT LENGTH WITH CHAMFER VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D3.0	D20.0	1236	◎	◎	◎				○	○	○		○			○	○
G9439		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0	D20.0	1237	◎	◎	◎				○	○	○		○			○	○
G9528		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.5	D20.0	1238	◎	◎	◎				○	○	○		○			○	○
G9433		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.0	D20.0	1239	◎	◎	◎				○	○	○		○			○	○
G9G48		CARBIDE, 3 FLUTE LONG LENGTH WITH CHAMFER VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.0	D20.0	1240	◎	◎	◎				○	○	○		○			○	○
G9447		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	1241	◎	◎	◎				○	○	◎		◎			○	○
G9G49		CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH WITH CHAMFER VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG	D3.0	D20.0	1242	◎	◎	◎				○	○	◎		◎			○	○
G9432		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D1.0	D20.0	1243	◎	◎	◎				○	○	○		○			○	○
G9G50		CARBIDE, 4 FLUTE SHORT LENGTH WITH CHAMFER VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D3.0	D20.0	1244	◎	◎	◎				○	○	○		○			○	○
G9A69		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D1.0	D20.0	1245	◎	◎	◎				○	○	○		○			○	○
G9448		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D20.0	1246	◎	◎	◎				○	○	○		○			○	○
G9540		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.5	D20.0	1247	◎	◎	◎				○	○	○		○			○	○
G9449		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D20.0	1248	◎	◎	◎				○	○	○		○			○	○
G9G51		CARBIDE, 4 FLUTE LONG LENGTH WITH CHAMFER VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.0	D20.0	1249	◎	◎	◎				○	○	○		○			○	○
G9453		CARBIDE, 4 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG	D3.0	D20.0	1250	◎	◎	◎				○	○	○		○			○	○
G9F45 G9F46		CARBIDE, 4&6 FLUTE 45° HELIX SHORT / LONG LENGTH VOLLHARTMETALL, 4&6 SCHNEIDEN 45° RECHTSSPIRALE KURZ / LANG	D3.0	D20.0	1251		○	◎	◎				○							
G9A42		CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE VOLLHARTMETALL, MEHRSCHNEIDEN LANG SCHRUPPFRÄSER - GROB	D6.0	D25.0	1252	◎	◎	◎				○	○	○		○			○	○
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1253															

K-2 END MILLS

G9624 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, courte

2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 2 | 30° | R ±0.02 | DIN 6535HA

P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9624020	R1.0	2.0	6	4	48
G9624025	R1.25	2.5	6	4	48
G9624030	R1.5	3.0	6	4	48
G9624040	R2.0	4.0	6	6	50
G9624901	R2.0	4.0	4	12	40
G9624050	R2.5	5.0	6	7	51
G9624902	R2.5	5.0	5	14	50
G9624060	R3.0	6.0	6	7	51
G9624080	R4.0	8.0	8	9	59
G9624100	R5.0	10.0	10	10	60
G9624120	R6.0	12.0	12	14	71
G9624140	R7.0	14.0	14	14	71
G9624160	R8.0	16.0	16	16	76
G9624180	R9.0	18.0	18	18	76
G9624200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9A70 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, courte

2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 2 | 30° | R ±0.02 | DIN 6535HA

P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A70010	R0.5	1.0	3	3	39
G9A70015	R0.75	1.5	3	5	39
G9A70020	R1.0	2.0	3	7	39
G9A70025	R1.25	2.5	3	8	39
G9A70030	R1.5	3.0	3	9	39
G9A70040	R2.0	4.0	4	14	51
G9A70050	R2.5	5.0	5	16	51
G9A70060	R3.0	6.0	6	19	64
G9A70080	R4.0	8.0	8	21	64
G9A70100	R5.0	10.0	10	22	70
G9A70110	R5.5	11.0	11	25	70
G9A70120	R6.0	12.0	12	25	76
G9A70160	R8.0	16.0	16	32	89
G9A70200	R10.0	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9437 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, courte

2 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | DIN 6527 | 2 | 30° | R ±0.02 | DIN 6535HB

P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9437020	R1.0	2.0	6	3	50
G9437030	R1.5	3.0	6	4	50
G9437040	R2.0	4.0	6	5	54
G9437050	R2.5	5.0	6	6	54
G9437060	R3.0	6.0	6	7	54
G9437080	R4.0	8.0	8	9	58
G9437100	R5.0	10.0	10	11	66
G9437120	R6.0	12.0	12	12	73
G9437140	R7.0	14.0	14	14	75
G9437180	R9.0	18.0	18	18	84
G9437200	R10.0	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9438 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE

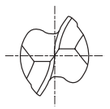
VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, longue

2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM | DIN 6527 | 2 | 30° | R ±0.02 | DIN 6535HA | DIN 6535HB

P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9438020	R1.0	2.0	● 3	6	38
G9438030	R1.5	3.0	6	7	57
G9438040	R2.0	4.0	6	8	57
G9438050	R2.5	5.0	6	10	57
G9438060	R3.0	6.0	6	10	57
G9438080	R4.0	8.0	8	16	63
G9438100	R5.0	10.0	10	19	72
G9438120	R6.0	12.0	12	22	83
G9438140	R7.0	14.0	14	22	83
G9438160	R8.0	16.0	16	26	92
G9438180	R9.0	18.0	18	26	92
G9438200	R10.0	20.0	20	32	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9454 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique longue portée

2 TAGLIENTI, SEMISFERICA, GAMBO LUNGO

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 2 | 30° | R ±0.02 | DIN 6535HA P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9454030	R1.5	3.0	3	5	75
G9454040	R2.0	4.0	4	8	75
G9454050	R2.5	5.0	5	9	75
G9454060	R3.0	6.0	6	10	100
G9454080	R4.0	8.0	8	12	100
G9454100	R5.0	10.0	10	14	100
G9454120	R6.0	12.0	12	16	100
G9454140	R7.0	14.0	14	18	100
G9454160	R8.0	16.0	16	22	150
G9454200	R10.0	20.0	20	26	150

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9455 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS

Fraise carbure, 2 dents, hémisphérique, extra-longue

2 TAGLIENTI, SEMISFERICA, SERIE EXTRA LUNGA

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 2 | 30° | R ±0.02 | DIN 6535HA P.1253

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9455903	R1.5	3.0	3	20	60
G9455904	R2.0	4.0	4	20	60
G9455905	R2.5	5.0	5	25	75
G9455906	R3.0	6.0	6	30	75
G9455908	R4.0	8.0	8	30	75
G9455910	R5.0	10.0	10	40	100
G9455912	R6.0	12.0	12	45	100
G9455914	R7.0	14.0	14	45	100
G9455916	R8.0	16.0	16	45	100
G9455918	R9.0	18.0	18	45	100
G9455920	R10.0	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9B81 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

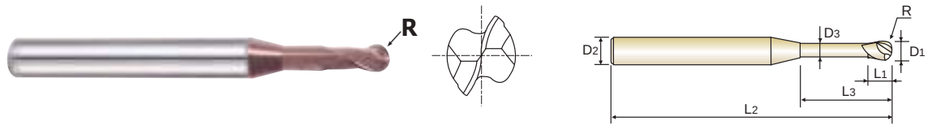
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM | 2 | 30° | R ±0.02 | DIN 6535HA

P.1254

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G9B81004	R0.2	0.4	4	0.7	2	50	0.37
G9B81005	R0.25	0.5	4	0.75	2	50	0.45
G9B81901	R0.25	0.5	4	0.75	4	50	0.45
G9B81902	R0.25	0.5	4	0.75	6	50	0.45
G9B81006	R0.3	0.6	4	0.9	2	50	0.55
G9B81903	R0.3	0.6	4	0.9	4	50	0.55
G9B81904	R0.3	0.6	4	0.9	6	50	0.55
G9B81008	R0.4	0.8	4	1.2	4	50	0.75
G9B81905	R0.4	0.8	4	1.2	6	50	0.75
G9B81906	R0.4	0.8	4	1.2	8	50	0.75
G9B81010	R0.5	1.0	4	1.5	6	50	0.95
G9B81907	R0.5	1.0	4	1.5	8	50	0.95
G9B81908	R0.5	1.0	4	1.5	10	50	0.95
G9B81909	R0.5	1.0	4	1.5	12	50	0.95
G9B81012	R0.6	1.2	4	1.8	8	50	1.15
G9B81910	R0.6	1.2	4	1.8	12	50	1.15
G9B81014	R0.7	1.4	4	2.1	16	50	1.35
G9B81015	R0.75	1.5	4	2.3	6	50	1.45
G9B81911	R0.75	1.5	4	2.3	8	50	1.45
G9B81912	R0.75	1.5	4	2.3	10	50	1.45
G9B81913	R0.75	1.5	4	2.3	12	50	1.45
G9B81914	R0.75	1.5	4	2.3	16	50	1.45
G9B81915	R0.75	1.5	4	2.3	20	50	1.45
G9B81016	R0.8	1.6	4	2.4	8	50	1.55
G9B81916	R0.8	1.6	4	2.4	12	50	1.55
G9B81917	R0.8	1.6	4	2.4	16	50	1.55

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B81 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING

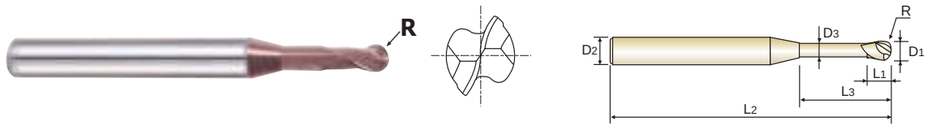
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

Fraise carbure, 2 dents, hémisphérique pour usinage de rainure

2 TAGLIENTI, SEMISFERICA, SCARICATA PER NERVATURE

- Suitable for dry milling applications at high temperatures.
- Excellent high-performance end mills.
- Designed for milling of radius bottom slots, fillets and special contours.

- Für die Trockenbearbeitung.
- Hervorragendes Preis - Leistungsverhältnis.
- Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM | 2 | 30° | R ±0.02 | DIN 6535HA

P.1254

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter D1	Shank Diameter D2	Length of Cut L1	Length Below Shank L3	Overall Length L2	Neck Diameter D3
G9B81918	R0.8	1.6	4	2.4	20	50	1.55
G9B81020	R1.0	2.0	4	3	8	50	1.95
G9B81919	R1.0	2.0	4	3	10	50	1.95
G9B81920	R1.0	2.0	4	3	12	50	1.95
G9B81921	R1.0	2.0	4	3	14	50	1.95
G9B81922	R1.0	2.0	4	3	16	50	1.95
G9B81923	R1.0	2.0	4	3	20	50	1.95
G9B81030	R1.5	3.0	6	4.5	10	50	2.85
G9B81924	R1.5	3.0	6	4.5	12	50	2.85
G9B81925	R1.5	3.0	6	4.5	16	60	2.85
G9B81926	R1.5	3.0	6	4.5	20	60	2.85
G9B81927	R1.5	3.0	6	4.5	25	75	2.85
G9B81040	R2.0	4.0	6	6	12	50	3.85
G9B81928	R2.0	4.0	6	6	16	60	3.85
G9B81929	R2.0	4.0	6	6	20	75	3.85
G9B81930	R2.0	4.0	6	6	25	75	3.85
G9B81931	R2.0	4.0	6	6	30	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

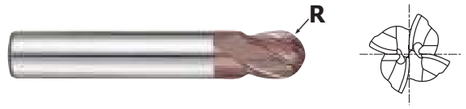
G9634 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 4 dents, hémisphérique, courte
4 TAGLIENTI, SEMISFERICA, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.



MG HM | 4 | 30° | R ±0.02 | DIN 6535HA P.1255

Unit : mm

EDP No.	Radius of Ball Nose R (±0.02)	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9634020	R1.0	2.0	6	4	48
G9634030	R1.5	3.0	6	4	48
G9634040	R2.0	4.0	6	6	50
G9634050	R2.5	5.0	6	7	51
G9634060	R3.0	6.0	6	7	51
G9634080	R4.0	8.0	8	9	59
G9634100	R5.0	10.0	10	10	60
G9634120	R6.0	12.0	12	14	71
G9634140	R7.0	14.0	14	14	71
G9634160	R8.0	16.0	16	16	76
G9634180	R9.0	18.0	18	18	76
G9634200	R10.0	20.0	20	20	82

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○			○	○	○		○			○	○

K-2 END MILLS

G9B82 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS
Fraise carbure, 2 dents, torique, courte
2 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

MG HM | 2 | 30° | DIN 6535HA P.1256

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82020	R0.2	2.0	4	4	50
G9B82901	R0.3	2.0	4	4	50
G9B82902	R0.5	2.0	4	4	50
G9B82025	R0.2	2.5	4	5	50
G9B82903	R0.3	2.5	4	5	50
G9B82904	R0.5	2.5	4	5	50
G9B82030	R0.2	3.0	4	6	50
G9B82905	R0.3	3.0	4	6	50
G9B82906	R0.5	3.0	4	6	50
G9B82907	R1.0	3.0	4	6	50
G9B82040	R0.2	4.0	4	8	50
G9B82908	R0.3	4.0	4	8	50
G9B82909	R0.5	4.0	4	8	50
G9B82910	R1.0	4.0	4	8	50
G9B82050	R0.2	5.0	6	10	50
G9B82911	R0.3	5.0	6	10	50
G9B82912	R0.5	5.0	6	10	50
G9B82913	R1.0	5.0	6	10	50
G9B82060	R0.2	6.0	6	12	50
G9B82914	R0.3	6.0	6	12	50
G9B82915	R0.5	6.0	6	12	50
G9B82916	R1.0	6.0	6	12	50

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B82 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN KURZ ECKENRADIUS

Fraise carbure, 2 dents, torique, courte

2 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

MG HM | 2 | 30° | DIN 6535HA P.1256

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B82080	R0.5	8.0	8	16	60
G9B82917	R1.0	8.0	8	16	60
G9B82918	R1.5	8.0	8	16	60
G9B82919	R2.0	8.0	8	16	60
G9B82920	R2.5	8.0	8	16	60
G9B82100	R0.5	10.0	10	20	75
G9B82921	R1.0	10.0	10	20	75
G9B82922	R1.5	10.0	10	20	75
G9B82923	R2.0	10.0	10	20	75
G9B82924	R2.5	10.0	10	20	75
G9B82120	R0.5	12.0	12	24	75
G9B82925	R1.0	12.0	12	24	75
G9B82926	R1.5	12.0	12	24	75
G9B82927	R2.0	12.0	12	24	75
G9B82928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B83 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG REACH CORNER RADIUS

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS

Fraise carbure, 2 dents, torique longue portée

2 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

MG HM | 2 | 30° | DIN 6535HA P.1256

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B83030	R0.5	3.0	4	6	75
G9B83901	R1.0	3.0	4	6	75
G9B83040	R0.5	4.0	4	8	75
G9B83902	R1.0	4.0	4	8	75
G9B83050	R0.5	5.0	6	10	75
G9B83903	R1.0	5.0	6	10	75
G9B83060	R0.5	6.0	6	12	75
G9B83904	R1.0	6.0	6	12	75
G9B83080	R0.5	8.0	8	16	100
G9B83905	R1.0	8.0	8	16	100
G9B83906	R1.5	8.0	8	16	100
G9B83907	R2.0	8.0	8	16	100
G9B83908	R2.5	8.0	8	16	100
G9B83100	R0.5	10.0	10	20	100
G9B83909	R1.0	10.0	10	20	100
G9B83910	R1.5	10.0	10	20	100
G9B83911	R2.0	10.0	10	20	100
G9B83912	R2.5	10.0	10	20	100
G9B83120	R0.5	12.0	12	24	100
G9B83913	R1.0	12.0	12	24	100
G9B83914	R1.5	12.0	12	24	100
G9B83915	R2.0	12.0	12	24	100
G9B83916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B84 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

Fraise carbure, 4 dents, torique, courte

4 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 4 | 30° | DIN 6535HA P.1257

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84020	R0.2	2.0	4	4	50
G9B84901	R0.3	2.0	4	4	50
G9B84902	R0.5	2.0	4	4	50
G9B84025	R0.2	2.5	4	5	50
G9B84903	R0.3	2.5	4	5	50
G9B84904	R0.5	2.5	4	5	50
G9B84030	R0.2	3.0	4	6	50
G9B84905	R0.3	3.0	4	6	50
G9B84906	R0.5	3.0	4	6	50
G9B84907	R1.0	3.0	4	6	50
G9B84040	R0.2	4.0	4	8	50
G9B84908	R0.3	4.0	4	8	50
G9B84909	R0.5	4.0	4	8	50
G9B84910	R1.0	4.0	4	8	50
G9B84050	R0.2	5.0	6	10	50
G9B84911	R0.3	5.0	6	10	50
G9B84912	R0.5	5.0	6	10	50
G9B84913	R1.0	5.0	6	10	50
G9B84060	R0.2	6.0	6	12	50
G9B84914	R0.3	6.0	6	12	50
G9B84915	R0.5	6.0	6	12	50
G9B84916	R1.0	6.0	6	12	50

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B84 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN KURZ ECKENRADIUS

Fraise carbure, 4 dents, torique, courte

4 TAGLIENTI, SERIE CORTA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 4 | 30° | DIN 6535HA P.1257

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B84080	R0.5	8.0	8	16	60
G9B84917	R1.0	8.0	8	16	60
G9B84918	R1.5	8.0	8	16	60
G9B84919	R2.0	8.0	8	16	60
G9B84920	R2.5	8.0	8	16	60
G9B84100	R0.5	10.0	10	20	75
G9B84921	R1.0	10.0	10	20	75
G9B84922	R1.5	10.0	10	20	75
G9B84923	R2.0	10.0	10	20	75
G9B84924	R2.5	10.0	10	20	75
G9B84120	R0.5	12.0	12	24	75
G9B84925	R1.0	12.0	12	24	75
G9B84926	R1.5	12.0	12	24	75
G9B84927	R2.0	12.0	12	24	75
G9B84928	R2.5	12.0	12	24	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B85 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG REACH CORNER RADIUS

VOLLHARTMETALL, 4 SCHNEIDEN GROßE REICHWEITE ECKENRADIUS

Fraise carbure, 4 dents, torique longue portée

4 TAGLIENTI, SERIE LUNGA, TORICA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Designed for milling of radius bottom slots, fillets and special contours.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Bestimmt für das Fräsen von Nuten mit konvexem Grund, Sonderprofilen und zum Kopieren.

MG HM | 4 | 30° | DIN 6535HA P.1257

Unit : mm

EDP No.	Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9B85030	R0.5	3.0	4	6	75
G9B85901	R1.0	3.0	4	6	75
G9B85040	R0.5	4.0	4	8	75
G9B85902	R1.0	4.0	4	8	75
G9B85050	R0.5	5.0	6	10	75
G9B85903	R1.0	5.0	6	10	75
G9B85060	R0.5	6.0	6	12	75
G9B85904	R1.0	6.0	6	12	75
G9B85080	R0.5	8.0	8	16	100
G9B85905	R1.0	8.0	8	16	100
G9B85906	R1.5	8.0	8	16	100
G9B85907	R2.0	8.0	8	16	100
G9B85908	R2.5	8.0	8	16	100
G9B85100	R0.5	10.0	10	20	100
G9B85909	R1.0	10.0	10	20	100
G9B85910	R1.5	10.0	10	20	100
G9B85911	R2.0	10.0	10	20	100
G9B85912	R2.5	10.0	10	20	100
G9B85120	R0.5	12.0	12	24	100
G9B85913	R1.0	12.0	12	24	100
G9B85914	R1.5	12.0	12	24	100
G9B85915	R2.0	12.0	12	24	100
G9B85916	R2.5	12.0	12	24	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9424 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH

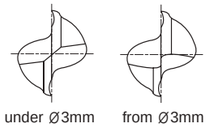
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

Fraise carbure, 2 dents, courte

2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



under Ø3mm from Ø3mm

MG HM | 2 | 30° | DIN 6535HA P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9424010	1.0	4	3	40
G9424015	1.5	4	4.5	40
G9424020	2.0	2	8	32
G9424025	2.5	2.5	8	32
G9424030	3.0	3	12	32
G9424035	3.5	3.5	12	32
G9424040	4.0	4	12	40
G9424045	4.5	4.5	14	50
G9424050	5.0	5	14	50
G9424055	5.5	5.5	16	50
G9424060	6.0	6	16	50
G9424070	7.0	7	20	60
G9424080	8.0	8	20	60
G9424090	9.0	9	20	60
G9424100	10.0	10	22	70
G9424120	12.0	12	22	70
G9424140	14.0	14	25	75
G9424160	16.0	16	25	75
G9424200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9G44 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH WITH CHAMFER

VOLLHARTMETALL, 2 SCHNEIDEN KURZ

Fraise carbure, 2 dents, courte

2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

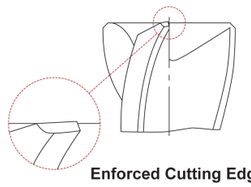
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

MG HM | 2 | 30° | DIN 6535HA | C x 45° P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G44030	3.0	3	12	32	0.10
G9G44040	4.0	4	12	40	0.10
G9G44050	5.0	5	14	50	0.10
G9G44060	6.0	6	16	50	0.10
G9G44080	8.0	8	20	60	0.13
G9G44100	10.0	10	22	70	0.13
G9G44120	12.0	12	22	70	0.18
G9G44140	14.0	14	25	75	0.18
G9G44160	16.0	16	25	75	0.18
G9G44200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9A68 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE SHORT LENGTH

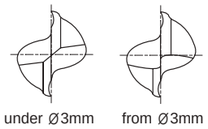
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

Fraise carbure, 2 dents, courte

2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



MG HM | 2 | 30° | DIN 6535HA P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A68010	1.0	3	3	39
G9A68015	1.5	3	5	39
G9A68020	2.0	3	7	39
G9A68025	2.5	3	7	39
G9A68030	3.0	3	9	39
G9A68040	4.0	4	14	51
G9A68050	5.0	5	16	51
G9A68060	6.0	6	19	64
G9A68080	8.0	8	21	64
G9A68100	10.0	10	22	70
G9A68120	12.0	12	25	76
G9A68160	16.0	16	32	89
G9A68200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9444 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH

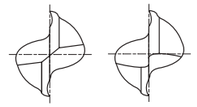
VOLLHARTMETALL, 2 SCHNEIDEN KURZ

Fraise carbure, 2 dents, courte

2 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



under Ø3mm from Ø3mm

MG HM | DIN 6527 | 2 | ≈ 30° | DIN 6535HB P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9444020	2.0	6	3	50
G9444030	3.0	6	4	50
G9444035	3.5	6	4	50
G9444040	4.0	6	5	54
G9444045	4.5	6	5	54
G9444050	5.0	6	6	54
G9444060	6.0	6	7	54
G9444070	7.0	8	8	58
G9444080	8.0	8	9	58
G9444090	9.0	10	10	66
G9444100	10.0	10	11	66
G9444120	12.0	12	12	73
G9444140	14.0	14	14	75
G9444160	16.0	16	16	82
G9444180	18.0	18	18	84
G9444200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9527 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH

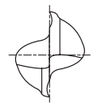
VOLLHARTMETALL, 2 SCHNEIDEN LANG

Fraise carbure, 2 dents, longue

2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



MG HM | DIN 6528 | 2 | ≈ 30° | DIN 6535HA P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9527035	3.5	3.5	7	50
G9527040	4.0	4	8	50
G9527045	4.5	4.5	8	50
G9527050	5.0	5	10	50
G9527055	5.5	5.5	10	57
G9527060	6.0	6	10	57
G9527065	6.5	6.5	13	60
G9527070	7.0	7	13	60
G9527075	7.5	7.5	16	63
G9527080	8.0	8	16	63
G9527085	8.5	8.5	16	67
G9527090	9.0	9	16	67
G9527095	9.5	9.5	19	72
G9527100	10.0	10	19	72
G9527110	11.0	11	22	83
G9527120	12.0	12	22	83
G9527130	13.0	13	22	83
G9527140	14.0	14	22	83
G9527150	15.0	15	26	92
G9527160	16.0	16	26	92
G9527180	18.0	18	26	92
G9527200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

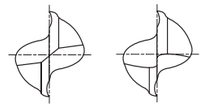
G9445 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



up to Ø2mm over Ø2mm

MG HM | DIN 6527 | 2 | ≈30° | DIN 6535HA | DIN 6535HB

P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9445901	2.0	●3	6	38
G9445028	2.8	6	7	57
G9445030	3.0	6	7	57
G9445035	3.5	6	7	57
G9445038	3.8	6	8	57
G9445040	4.0	6	8	57
G9445045	4.5	6	8	57
G9445048	4.8	6	10	57
G9445050	5.0	6	10	57
G9445957	5.75	6	10	57
G9445060	6.0	6	10	57
G9445967	6.75	8	13	63
G9445070	7.0	8	13	63
G9445977	7.75	8	16	63
G9445080	8.0	8	16	63
G9445087	8.7	10	16	72
G9445090	9.0	10	16	72
G9445097	9.7	10	19	72
G9445100	10.0	10	19	72
G9445117	11.7	12	22	83
G9445120	12.0	12	22	83
G9445137	13.7	14	22	83
G9445140	14.0	14	22	83
G9445157	15.7	16	26	92
G9445160	16.0	16	26	92
G9445177	17.7	18	26	92
G9445180	18.0	18	26	92
G9445197	19.7	20	32	104
G9445200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

● with plain shank

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

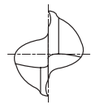
G9G45 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



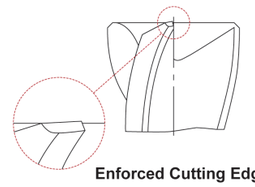
MG HM | DIN 6527 | 2 | ≈30° | DIN 6535HB | C x 45°

P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G45030	3.0	6	7	57	0.10
G9G45040	4.0	6	8	57	0.10
G9G45050	5.0	6	10	57	0.10
G9G45060	6.0	6	10	57	0.10
G9G45080	8.0	8	16	63	0.13
G9G45100	10.0	10	19	72	0.13
G9G45120	12.0	12	22	83	0.18
G9G45140	14.0	14	22	83	0.18
G9G45160	16.0	16	26	92	0.18
G9G45200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

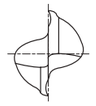
G9452 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG
Fraise carbure, 2 dents, extra-longue
2 TAGLIENTI, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



MG HM | 2 | 30° | DIN 6535HA

P.1258

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9452903	3.0	3	20	60
G9452904	4.0	4	20	60
G9452905	5.0	5	25	75
G9452906	6.0	6	30	75
G9452908	8.0	8	30	75
G9452910	10.0	10	40	100
G9452912	12.0	12	45	100
G9452914	14.0	14	45	100
G9452916	16.0	16	45	100
G9452918	18.0	18	45	100
G9452920	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

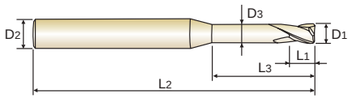
G9B80 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN
Fraise carbure, 2 dents pour usinage de rainure
2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.



MG HM | 2 | 30° | DIN 6535HA

P.1259

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D1	D2	L1	L3	L2	D3
G9B80004	0.4	4	0.7	2	50	0.37
G9B80901	0.4	4	0.7	4	50	0.37
G9B80005	0.5	4	0.75	2	50	0.45
G9B80902	0.5	4	0.75	4	50	0.45
G9B80903	0.5	4	0.75	6	50	0.45
G9B80006	0.6	4	0.9	2	50	0.55
G9B80904	0.6	4	0.9	4	50	0.55
G9B80905	0.6	4	0.9	6	50	0.55
G9B80007	0.7	4	1.1	4	50	0.65
G9B80906	0.7	4	1.1	6	50	0.65
G9B80008	0.8	4	1.2	4	50	0.75
G9B80907	0.8	4	1.2	6	50	0.75
G9B80908	0.8	4	1.2	8	50	0.75
G9B80009	0.9	4	1.4	6	50	0.85
G9B80909	0.9	4	1.4	8	50	0.85
G9B80910	0.9	4	1.4	10	50	0.85
G9B80010	1.0	4	1.5	6	50	0.95
G9B80911	1.0	4	1.5	8	50	0.95
G9B80912	1.0	4	1.5	10	50	0.95
G9B80913	1.0	4	1.5	12	50	0.95
G9B80012	1.2	4	1.8	6	50	1.15
G9B80914	1.2	4	1.8	8	50	1.15
G9B80915	1.2	4	1.8	10	50	1.15
G9B80916	1.2	4	1.8	12	50	1.15
G9B80015	1.5	4	2.3	6	50	1.45
G9B80917	1.5	4	2.3	8	50	1.45
G9B80918	1.5	4	2.3	10	50	1.45
G9B80919	1.5	4	2.3	12	50	1.45
G9B80920	1.5	4	2.3	14	50	1.45
G9B80921	1.5	4	2.3	16	50	1.45

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9B80 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE RIB PROCESSING

VOLLHARTMETALL, 2 SCHNEIDEN SCHMALE RIPPEN

Fraise carbure, 2 dents pour usinage de rainure

2 TAGLIENTI, SCARICATA PER NERVATURE

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 2 flute design for slotting.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 2 Schneiden zum Nutenfräsen.

MG HM | 2 | 30° | DIN 6535HA P.1259

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
	D_1	D_2	L_1	L_3	L_2	D_3
G9B80922	1.5	4	2.3	18	50	1.45
G9B80923	1.5	4	2.3	20	50	1.45
G9B80020	2.0	4	3	6	50	1.95
G9B80924	2.0	4	3	8	50	1.95
G9B80925	2.0	4	3	10	50	1.95
G9B80926	2.0	4	3	12	50	1.95
G9B80927	2.0	4	3	14	50	1.95
G9B80928	2.0	4	3	16	50	1.95
G9B80929	2.0	4	3	18	50	1.95
G9B80930	2.0	4	3	20	50	1.95
G9B80025	2.5	4	3.7	8	50	2.40
G9B80931	2.5	4	3.7	12	50	2.40
G9B80932	2.5	4	3.7	16	50	2.40
G9B80933	2.5	4	3.7	20	50	2.40
G9B80030	3.0	6	4.5	8	50	2.85
G9B80934	3.0	6	4.5	12	50	2.85
G9B80935	3.0	6	4.5	16	60	2.85
G9B80936	3.0	6	4.5	20	60	2.85
G9B80937	3.0	6	4.5	25	75	2.85
G9B80040	4.0	6	6	12	50	3.85
G9B80938	4.0	6	6	16	60	3.85
G9B80939	4.0	6	6	20	75	3.85
G9B80940	4.0	6	6	25	75	3.85
G9B80941	4.0	6	6	30	75	3.85
G9B80942	4.0	6	6	35	75	3.85

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9553 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

G9410 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY

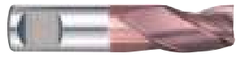
VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER

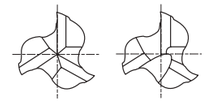
Fraise carbure, 3 dents, à jeter, courte

3 TAGLIENTI, SERIE EXTRA CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.





MG HM | 3 | 30° | PLAIN | FLAT P.1260-1261

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT				
G9553005	-	0.5	3	1.5	38
G9553006	-	0.6	3	1.5	38
G9553008	-	0.8	3	2	38
G9553010	-	1.0	3	2	38
G9553012	-	1.2	3	2	38
G9553015	-	1.5	3	2	38
G9553018	-	1.8	3	2	38
-	G9410020	2.0	6	4	35
-	G9410025	2.5	6	5	36
-	G9410030	3.0	6	5	36
-	G9410035	3.5	6	6	37
-	G9410040	4.0	6	7	38
-	G9410045	4.5	6	8	38
-	G9410050	5.0	6	8	39
-	G9410055	5.5	6	8	39
-	G9410957	5.75	6	8	39
-	G9410060	6.0	6	8	39
-	G9410967	6.75	8	10	42
-	G9410070	7.0	8	10	42
-	G9410977	7.75	8	10	42
-	G9410080	8.0	8	11	43
-	G9410087	8.7	10	11	48
-	G9410090	9.0	10	11	48
-	G9410097	9.7	10	11	48
-	G9410100	10.0	10	13	50
-	G9410120	12.0	12	15	55
-	G9410140	14.0	14	15	58
-	G9410160	16.0	16	18	62
-	G9410180	18.0	18	20	70
-	G9410200	20.0	20	22	75

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

K-2 END MILLS

G9G46 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY WITH CHAMFER

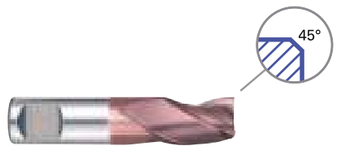
VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEGFRÄSER

Fraise carbure, 3 dents, à jeter, courte

3 TAGLIENTI, SERIE EXTRA CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

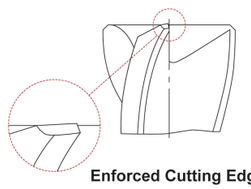


MG HM | 3 | 30° | FLAT | C x 45° — P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G46030	3.0	6	5	36	0.10
G9G46040	4.0	6	7	38	0.10
G9G46050	5.0	6	8	39	0.10
G9G46060	6.0	6	8	39	0.10
G9G46080	8.0	8	11	43	0.13
G9G46100	10.0	10	13	50	0.13
G9G46120	12.0	12	15	55	0.18
G9G46140	14.0	14	15	58	0.18
G9G46160	16.0	16	18	62	0.18
G9G46200	20.0	20	22	75	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9425 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE SHORT LENGTH

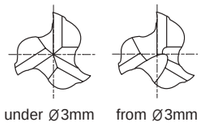
VOLLHARTMETALL, 3 SCHNEIDEN KURZ

Fraise carbure, 3 dents, courte

3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



MG HM | 3 | 30° | DIN 6535HA — P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9425010	1.0	4	3	40
G9425015	1.5	4	4.5	40
G9425020	2.0	2	8	32
G9425025	2.5	2.5	8	32
G9425030	3.0	3	12	32
G9425035	3.5	3.5	12	32
G9425040	4.0	4	12	40
G9425045	4.5	4.5	14	50
G9425050	5.0	5	14	50
G9425055	5.5	5.5	16	50
G9425060	6.0	6	16	50
G9425070	7.0	7	20	60
G9425080	8.0	8	20	60
G9425090	9.0	9	20	60
G9425100	10.0	10	22	70
G9425120	12.0	12	22	70
G9425140	14.0	14	25	75
G9425160	16.0	16	25	75
G9425200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9G47 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE SHORT LENGTH WITH CHAMFER

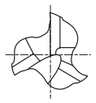
VOLLHARTMETALL, 3 SCHNEIDEN KURZ

Fraise carbure, 3 dents, courte

3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

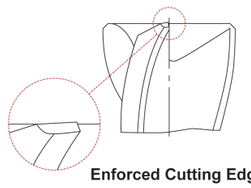


MG HM | 3 | 30° | DIN 6535HA | C x 45° — P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G47030	3.0	3	12	32	0.10
G9G47040	4.0	4	12	40	0.10
G9G47050	5.0	5	14	50	0.10
G9G47060	6.0	6	16	50	0.10
G9G47080	8.0	8	20	60	0.13
G9G47100	10.0	10	22	70	0.13
G9G47120	12.0	12	22	70	0.18
G9G47140	14.0	14	25	75	0.18
G9G47160	16.0	16	25	75	0.18
G9G47200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9439 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH

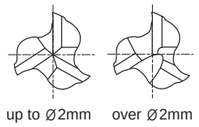
VOLLHARTMETALL, 3 SCHNEIDEN KURZ

Fraise carbure, 3 dents, courte

3 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.



MG HM | DIN 6527 | 3 | 30° | DIN 6535HB — P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9439020	2.0	6	3	50
G9439030	3.0	6	4	50
G9439035	3.5	6	4	50
G9439040	4.0	6	5	54
G9439045	4.5	6	5	54
G9439050	5.0	6	6	54
G9439060	6.0	6	7	54
G9439070	7.0	8	8	58
G9439080	8.0	8	9	58
G9439090	9.0	10	10	66
G9439100	10.0	10	11	66
G9439120	12.0	12	12	73
G9439140	14.0	14	14	75
G9439160	16.0	16	16	82
G9439180	18.0	18	18	84
G9439200	20.0	20	20	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9528 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN LANG

Fraise carbure, 3 dents, longue

3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

MG HM | DIN 6528 | 3 | ≈ 30° | DIN 6535HA

P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9528035	3.5	3.5	7	50
G9528040	4.0	4	8	50
G9528045	4.5	4.5	8	50
G9528050	5.0	5	10	50
G9528055	5.5	5.5	10	57
G9528060	6.0	6	10	57
G9528065	6.5	6.5	13	60
G9528070	7.0	7	13	60
G9528075	7.5	7.5	16	63
G9528080	8.0	8	16	63
G9528085	8.5	8.5	16	67
G9528090	9.0	9	16	67
G9528095	9.5	9.5	19	72
G9528100	10.0	10	19	72
G9528110	11.0	11	22	83
G9528120	12.0	12	22	83
G9528130	13.0	13	22	83
G9528140	14.0	14	22	83
G9528150	15.0	15	26	92
G9528160	16.0	16	26	92
G9528180	18.0	18	26	92
G9528200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9433 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN LANG

Fraise carbure, 3 dents, longue

3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

MG HM | DIN 6527 | 3 | ≈ 30° | DIN 6535HB

P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9433030	3.0	6	7	57
G9433040	4.0	6	8	57
G9433050	5.0	6	10	57
G9433060	6.0	6	10	57
G9433080	8.0	8	16	63
G9433090	9.0	10	16	72
G9433100	10.0	10	19	72
G9433120	12.0	12	22	83
G9433140	14.0	14	22	83
G9433160	16.0	16	26	92
G9433180	18.0	18	26	92
G9433200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9G48 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN LANG

Fraise carbure, 3 dents, longue

3 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 3 flute design possess the advantage of 2 flute and 4 flute end mill.

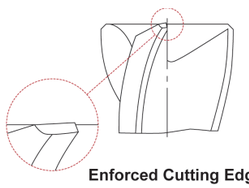
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 3 Schneiden verbinden die Vorteile von 2 - und 4 - schneidigen Schaftfräsern.

MG HM | DIN 6527 | 3 | ≈ 30° | DIN 6535HB | C x 45° P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G48030	3.0	6	7	57	0.10
G9G48040	4.0	6	8	57	0.10
G9G48050	5.0	6	10	57	0.10
G9G48060	6.0	6	10	57	0.10
G9G48080	8.0	8	16	63	0.13
G9G48100	10.0	10	19	72	0.13
G9G48120	12.0	12	22	83	0.18
G9G48140	14.0	14	22	83	0.18
G9G48160	16.0	16	26	92	0.18
G9G48200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9447 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG

Fraise carbure, 3 dents, hélice 45°, longue

3 TAGLIENTI, ELICA 45°, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.

MG HM | DIN 6527 | 3 | 45° | DIN 6535HB P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9447030	3.0	6	7	57
G9447035	3.5	6	7	57
G9447040	4.0	6	8	57
G9447045	4.5	6	8	57
G9447050	5.0	6	10	57
G9447060	6.0	6	10	57
G9447070	7.0	8	13	63
G9447080	8.0	8	16	63
G9447090	9.0	10	16	72
G9447100	10.0	10	19	72
G9447120	12.0	12	22	83
G9447140	14.0	14	22	83
G9447160	16.0	16	26	92
G9447180	18.0	18	26	92
G9447200	20.0	20	32	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	◎		◎			○	○

K-2 END MILLS

G9G49 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX, LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 3 dents, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, SERIE LUNGA

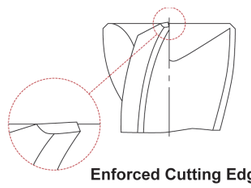
- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.

MG HM | DIN 6527 | 3 | 45° | DIN 6535HB | C x 45° P.1260-1261

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G49030	3.0	6	7	57	0.10
G9G49040	4.0	6	8	57	0.10
G9G49050	5.0	6	10	57	0.10
G9G49060	6.0	6	10	57	0.10
G9G49080	8.0	8	16	63	0.13
G9G49100	10.0	10	19	72	0.13
G9G49120	12.0	12	22	83	0.18
G9G49140	14.0	14	22	83	0.18
G9G49160	16.0	16	26	92	0.18
G9G49200	20.0	20	32	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	◎		◎			○	○

K-2 END MILLS

G9432 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | 4 | 30° | DIN 6535HA P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9432010	1.0	4	3	40
G9432015	1.5	4	4.5	40
G9432020	2.0	2	8	32
G9432025	2.5	2.5	8	32
G9432030	3.0	3	12	32
G9432035	3.5	3.5	12	32
G9432040	4.0	4	12	40
G9432045	4.5	4.5	14	50
G9432050	5.0	5	14	50
G9432055	5.5	5.5	16	50
G9432060	6.0	6	16	50
G9432070	7.0	7	20	60
G9432080	8.0	8	20	60
G9432090	9.0	9	20	60
G9432100	10.0	10	22	70
G9432120	12.0	12	22	70
G9432140	14.0	14	25	75
G9432160	16.0	16	25	75
G9432200	20.0	20	32	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9G50 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH WITH CHAMFER

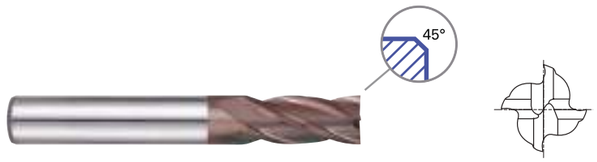
VOLLHARTMETALL, 4 SCHNEIDEN KURZ

Fraise carbure, 4 dents, courte

4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

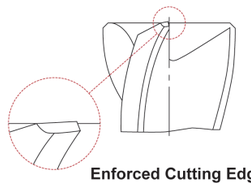


MG HM | 4 | 30° | DIN 6535HA | C x 45° P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G50030	3.0	3	12	32	0.10
G9G50040	4.0	4	12	40	0.10
G9G50050	5.0	5	14	50	0.10
G9G50060	6.0	6	16	50	0.10
G9G50080	8.0	8	20	60	0.13
G9G50100	10.0	10	22	70	0.13
G9G50120	12.0	12	22	70	0.18
G9G50140	14.0	14	25	75	0.18
G9G50160	16.0	16	25	75	0.18
G9G50200	20.0	20	32	100	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9A69 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ

Fraise carbure, 4 dents, courte

4 TAGLIENTI, CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | 4 | 30° | DIN 6535HA P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9A69010	1.0	3	3	39
G9A69015	1.5	3	5	39
G9A69020	2.0	3	7	39
G9A69025	2.5	3	7	39
G9A69030	3.0	3	10	39
G9A69040	4.0	4	14	51
G9A69050	5.0	5	16	51
G9A69060	6.0	6	19	64
G9A69080	8.0	8	21	64
G9A69100	10.0	10	22	70
G9A69120	12.0	12	25	76
G9A69160	16.0	16	32	89
G9A69200	20.0	20	38	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9448 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ

Fraise carbure, 4 dents, courte

4 TAGLIENTI, SERIE CORTA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | DIN 6527 | 4 | 30° | DIN 6535HB | P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9448020	2.0	6	4	50
G9448025	2.5	6	4	50
G9448030	3.0	6	5	50
G9448035	3.5	6	6	50
G9448040	4.0	6	8	54
G9448045	4.5	6	8	54
G9448050	5.0	6	9	54
G9448060	6.0	6	10	54
G9448070	7.0	8	11	58
G9448080	8.0	8	12	58
G9448090	9.0	10	13	66
G9448100	10.0	10	14	66
G9448120	12.0	12	16	73
G9448140	14.0	14	18	75
G9448160	16.0	16	22	82
G9448180	18.0	18	24	84
G9448200	20.0	20	26	92

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9540 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG

Fraise carbure, 4 dents, longue

4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | DIN 6528 | 4 | 30° | DIN 6535HA | P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9540035	3.5	3.5	10	50
G9540040	4.0	4	11	50
G9540045	4.5	4.5	11	50
G9540050	5.0	5	13	50
G9540055	5.5	5.5	13	57
G9540060	6.0	6	13	57
G9540065	6.5	6.5	16	60
G9540070	7.0	7	16	60
G9540075	7.5	7.5	19	63
G9540080	8.0	8	19	63
G9540085	8.5	8.5	19	67
G9540090	9.0	9	19	67
G9540095	9.5	9.5	22	72
G9540100	10.0	10	22	72
G9540110	11.0	11	26	83
G9540120	12.0	12	26	83
G9540130	13.0	13	26	83
G9540140	14.0	14	26	83
G9540150	15.0	15	32	92
G9540160	16.0	16	32	92
G9540180	18.0	18	32	92
G9540200	20.0	20	38	104

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9449 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | DIN 6527 | 4 | ≈ 30° | DIN 6535HB | DIN 6535HA

P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9449901	2.0	●3	7	38
G9449030	3.0	6	8	57
G9449035	3.5	6	10	57
G9449040	4.0	6	11	57
G9449045	4.5	6	11	57
G9449050	5.0	6	13	57
G9449060	6.0	6	13	57
G9449070	7.0	8	16	63
G9449080	8.0	8	19	63
G9449090	9.0	10	19	72
G9449100	10.0	10	22	72
G9449120	12.0	12	26	83
G9449140	14.0	14	26	83
G9449160	16.0	16	32	92
G9449180	18.0	18	32	92
G9449200	20.0	20	38	104

● with plain shank

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9G51 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH WITH CHAMFER

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

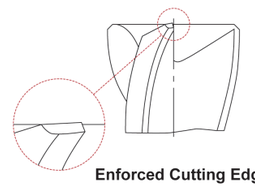
MG HM | DIN 6527 | 4 | ≈ 30° | DIN 6535HB | C x 45°

P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
G9G51030	3.0	6	8	57	0.10
G9G51040	4.0	6	11	57	0.10
G9G51050	5.0	6	13	57	0.10
G9G51060	6.0	6	13	57	0.10
G9G51080	8.0	8	19	63	0.13
G9G51100	10.0	10	22	72	0.13
G9G51120	12.0	12	26	83	0.18
G9G51140	14.0	14	26	83	0.18
G9G51160	16.0	16	32	92	0.18
G9G51200	20.0	20	38	104	0.23

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9453 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG

Fraise carbure, 4 dents, extra-longue

4 TAGLIENTI, SERIE EXTRA LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ 4 flute allows for better work piece finishes.
- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ 4 Schneiden erzeugen eine bessere Oberflächengüte des Werkstücks.

MG HM | 4 | 30° | DIN 6535HA P.1262

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
G9453903	3.0	3	20	60
G9453904	4.0	4	20	60
G9453905	5.0	5	25	75
G9453906	6.0	6	30	75
G9453908	8.0	8	30	75
G9453910	10.0	10	40	100
G9453912	12.0	12	45	100
G9453914	14.0	14	45	100
G9453916	16.0	16	45	100
G9453918	18.0	18	45	100
G9453920	20.0	20	45	100

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

K-2 END MILLS

G9F45 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

G9F46 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

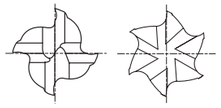
CARBIDE, 4&6 FLUTE 45° HELIX SHORT / LONG LENGTH

VOLLHARTMETALL, 4&6 SCHNEIDEN 45° RECHTSSPIRALE KURZ / LANG

Fraise carbure, 4&6 dents, hélice 45°, courte / longue

4&6 TAGLIENTI, ELICA 45°, SERIE CORTA / LUNGA

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Für die Trockenbearbeitung geeignet.
- ▶ Exzellente Hochleistungs Mühlen.



MG HM | 4&6 | 45° | DIN 6535HA P.1263

■ SHORT

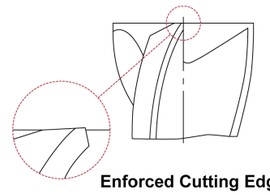
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F45030	3.0	4	6	50	4
G9F45040	4.0	4	11	50	4
G9F45050	5.0	6	13	50	6
G9F45060	6.0	6	16	50	6
G9F45080	8.0	8	19	60	6
G9F45100	10.0	10	22	75	6
G9F45120	12.0	12	26	75	6
G9F45140	14.0	14	30	90	6
G9F45160	16.0	16	32	100	6
G9F45180	18.0	18	38	100	6
G9F45000	20.0	20	38	100	6

■ LONG

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
G9F46120	12.0	12	50	100	6
G9F46160	16.0	16	65	150	6
G9F46200	20.0	20	75	150	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
	○	◎	◎				○							

K-2 END MILLS

G9A42 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

VOLLHARTMETALL, MEHRSCHNEIDEN LANG SCHRUPPFRÄSER - GROB

Fraise carbure, multi-dents, ébauche, pas grossier, longue

3 - 4 - 5 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA - Bombato grosso

- ▶ Suitable for dry milling applications at high temperatures.
- ▶ Excellent high-performance end mills.
- ▶ Fast chip ejection.

- ▶ Für die Trockenbearbeitung.
- ▶ Hervorragendes Preis - Leistungsverhältnis.
- ▶ Guter Spanauswurf.

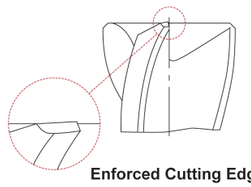
MG HM | COARSE | 3-5 | 30° | DIN 6535HB | C x 45° P.1264

Unit : mm

EDP No.	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length	No. of Flute	Chamfer
G9A42060	6.0	6	16	57	3	0.60
G9A42080	8.0	8	16	63	3	0.60
G9A42100	10.0	10	22	72	4	0.60
G9A42120	12.0	12	26	83	4	0.74
G9A42140	14.0	14	26	83	4	0.94
G9A42160	16.0	16	32	92	4	0.94
G9A42180	18.0	18	32	92	4	0.94
G9A42200	20.0	20	38	104	4	0.94
G9A42250	25.0	25	45	121	5	0.94

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 — 40	0 — 48	0 — 58	0 — 70	0 — 84
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○			○	○

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

K-2 END MILLS

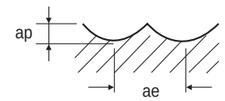
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

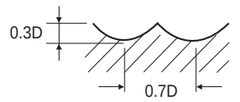
G9624, G9A70, G9437, G9438, G9454, G9455 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				HARDENED STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45				HRc 45 ~ HRc 50			
STRENGTH	~1000N/mm²				1000~1500N/mm²				1500N/mm² ~			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	12350	640	80	0.026	9150	415	55	0.023	4000	125	25	0.016
R1.5 × 3.0	11400	575	105	0.025	8550	390	80	0.023	3800	125	35	0.016
R2.0 × 4.0	8950	630	110	0.035	7150	450	90	0.031	3600	150	45	0.021
R2.5 × 5.0	7800	700	125	0.045	6200	490	95	0.040	3100	150	50	0.024
R3.0 × 6.0	7250	870	135	0.060	5900	705	110	0.060	2700	160	50	0.030
R4.0 × 8.0	6100	1090	155	0.089	4900	785	125	0.080	2050	190	50	0.046
R5.0 × 10.0	5450	1330	170	0.122	4350	870	135	0.100	1750	190	55	0.054
R6.0 × 12.0	4990	1500	190	0.150	3950	950	150	0.120	1500	210	55	0.070
R7.0 × 14.0	4530	1495	200	0.165	3600	925	160	0.128	1300	210	55	0.081
R8.0 × 16.0	4085	1470	205	0.180	3200	905	160	0.141	1150	210	60	0.091
R9.0 × 18.0	3800	1425	215	0.188	3000	890	170	0.148	1050	210	60	0.100
R10.0 × 20.0	3550	1425	225	0.201	2800	885	175	0.158	950	210	60	0.111

ap : D1~D6=0.2mm
D8~D20=0.3mm
ae : 0.2D



MATERIAL	K				N			
	CAST IRON				ALUMINUM ALLOYS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	10500	220	65	0.010	30800	395	195	0.006
R1.5 × 3.0	7050	230	65	0.016	20500	395	195	0.010
R2.0 × 4.0	5150	285	65	0.028	15400	395	195	0.013
R2.5 × 5.0	4150	330	65	0.040	12100	470	190	0.019
R3.0 × 6.0	3400	360	65	0.053	10300	470	195	0.023
R4.0 × 8.0	2500	460	65	0.092	7900	540	200	0.034
R5.0 × 10.0	2050	460	65	0.112	6150	540	195	0.044
R6.0 × 12.0	1750	460	65	0.131	5150	630	195	0.061
R7.0 × 14.0	1400	460	60	0.164	4300	630	190	0.073
R8.0 × 16.0	1300	460	65	0.177	3850	540	195	0.070
R9.0 × 18.0	1100	460	60	0.209	3400	540	190	0.079
R10.0 × 20.0	1050	420	65	0.200	2950	540	185	0.092



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

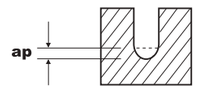
CARBIDE, 2 FLUTE BALL NOSE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS für SCHMALE RIPPEN

G9B81 SERIES

MATERIAL	P				
	NON-ALLOYED STEELS ALLOY STEELS				
HARDNESS	~ HRc30				
STRENGTH	~ 1000N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	fz
0.4	26350~34000	150~415	0.018~0.036	33~43	0.003~0.006
0.5	26350~34000	150~415	0.023~0.045	41~53	0.003~0.006
0.6	26350~34000	190~535	0.027~0.054	50~64	0.004~0.008
0.8	26350~34000	190~535	0.036~0.072	66~85	0.004~0.008
1.0	24650~31000	210~595	0.045~0.090	77~97	0.004~0.010
1.2	20500~26000	210~665	0.055~0.100	77~98	0.005~0.013
1.4	18000~22000	210~665	0.062~0.125	79~97	0.006~0.015
1.5	16000~20500	210~665	0.070~0.135	75~97	0.007~0.016
1.6	15500~20000	210~665	0.075~0.145	78~101	0.007~0.017
1.8	14500~18200	210~665	0.080~0.160	82~103	0.007~0.018
2.0	13000~16000	210~665	0.090~0.180	82~101	0.008~0.021
3.0	9000~11000	210~665	0.135~0.270	85~104	0.012~0.030
4.0	7200~9350	210~665	0.180~0.360	90~117	0.015~0.036

MATERIAL	P				
	ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS	HRc30 ~ HRc45				
STRENGTH	1000 ~ 1500N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	fz
0.4	19100~24200	75~230	0.018~0.036	24~30	0.002~0.005
0.5	19100~24200	75~230	0.023~0.045	30~38	0.002~0.005
0.6	19100~24200	95~300	0.027~0.054	36~46	0.002~0.006
0.8	19100~24200	95~300	0.036~0.072	48~61	0.002~0.006
1.0	17400~22100	105~330	0.045~0.090	55~69	0.003~0.007
1.2	14500~18300	105~330	0.055~0.100	55~69	0.004~0.009
1.4	12800~15300	105~330	0.062~0.125	56~67	0.004~0.011
1.5	11500~14900	105~330	0.070~0.135	54~70	0.005~0.011
1.6	11200~14000	105~330	0.075~0.145	56~70	0.005~0.012
1.8	10200~12800	105~330	0.080~0.160	58~72	0.005~0.013
2.0	9400~11500	105~330	0.090~0.180	59~72	0.006~0.014
3.0	6000~11500	105~330	0.135~0.270	57~108	0.009~0.014
4.0	5000~6600	105~330	0.180~0.360	63~83	0.011~0.025

(Depth of Cut per one pass)



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

K-2 END MILLS

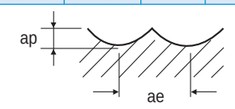
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS

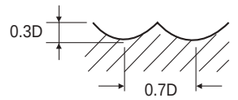
G9634 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				HARDENED STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45				HRc 45 ~ HRc 50			
STRENGTH	~1000N/mm²				1000~1500N/mm²				1500N/mm² ~			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	13300	680	85	0.013	10000	405	65	0.010	4100	135	25	0.008
R1.5 × 3.0	11500	870	110	0.019	8550	585	80	0.017	3850	190	35	0.012
R2.0 × 4.0	8950	950	110	0.027	7150	680	90	0.024	3600	230	45	0.016
R2.5 × 5.0	7800	1045	125	0.033	6200	745	95	0.030	3100	230	50	0.019
R3.0 × 6.0	7250	1330	135	0.046	5900	1090	110	0.046	2700	235	50	0.022
R4.0 × 8.0	6100	1660	155	0.068	4900	1185	125	0.060	2100	285	55	0.034
R5.0 × 10.0	5450	1950	170	0.089	4350	1330	135	0.076	1750	290	55	0.041
R6.0 × 12.0	4985	2230	190	0.112	4000	1425	150	0.089	1500	320	55	0.053
R7.0 × 14.0	4500	2230	200	0.124	3600	1425	160	0.099	1300	320	55	0.062
R8.0 × 16.0	4085	2230	205	0.136	3200	1380	160	0.108	1100	320	55	0.073
R9.0 × 18.0	3800	2135	215	0.140	3000	1330	170	0.111	1050	320	60	0.076
R10.0 × 20.0	3550	2135	225	0.150	2800	1330	175	0.119	950	320	60	0.084

ap : D1~D6=0.2mm
D8~D20=0.3mm
ae : 0.2D



MATERIAL	K				N			
	CAST IRON				ALUMINUM ALLOYS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	10500	330	65	0.008	30800	605	195	0.005
R1.5 × 3.0	7050	340	65	0.012	20500	605	195	0.007
R2.0 × 4.0	5150	430	65	0.021	15400	605	195	0.010
R2.5 × 5.0	4150	495	65	0.030	12100	715	190	0.015
R3.0 × 6.0	3400	540	65	0.040	10300	715	195	0.017
R4.0 × 8.0	2500	680	65	0.068	7900	820	200	0.026
R5.0 × 10.0	2050	680	65	0.083	6150	820	195	0.033
R6.0 × 12.0	1750	680	65	0.097	5150	945	195	0.046
R7.0 × 14.0	1400	700	60	0.125	4300	945	190	0.055
R8.0 × 16.0	1300	700	65	0.135	3850	820	195	0.053
R9.0 × 18.0	1100	700	60	0.159	3400	820	190	0.060
R10.0 × 20.0	1050	630	65	0.150	2950	820	185	0.069



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

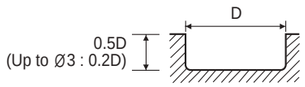
K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

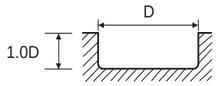
CARBIDE, 2 FLUTE CORNER RADIUS FINISH SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN ECKENRADIUS SCHLICHTEN NUTENFRÄSEN

G9B82, G9B83 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7850	160	50	0.010	5150	100	30	0.010	4300	80	25	0.009
3.0	6100	180	55	0.015	3800	120	35	0.016	3150	100	30	0.016
4.0	5150	255	65	0.025	3150	155	40	0.025	2650	130	35	0.025
5.0	4300	270	70	0.031	2550	160	40	0.031	2150	135	35	0.031
6.0	3800	300	70	0.039	2300	190	45	0.041	1950	155	35	0.040
8.0	2850	325	70	0.057	1700	170	45	0.050	1450	155	35	0.053
10.0	2200	280	70	0.064	1350	135	40	0.050	1150	135	35	0.059
12.0	1850	240	70	0.065	1150	110	45	0.048	950	110	35	0.058



MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9350	220	60	0.012	22000	460	140	0.010	16500	340	105	0.010
3.0	6050	220	55	0.018	15400	460	145	0.015	11000	340	105	0.015
4.0	4600	220	60	0.024	11000	460	140	0.021	8800	340	110	0.019
5.0	3650	220	55	0.030	9150	460	145	0.025	6800	340	105	0.025
6.0	2950	255	55	0.043	7600	485	145	0.032	5700	375	105	0.033
8.0	2200	275	55	0.063	5700	485	145	0.043	4400	375	110	0.043
10.0	1850	285	60	0.077	4600	485	145	0.053	3400	375	105	0.055
12.0	1450	295	55	0.102	3750	485	140	0.065	2850	375	105	0.066



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

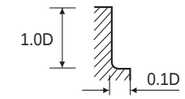
K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

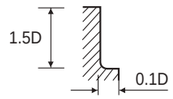
CARBIDE, 4 FLUTE CORNER RADIUS FINISH SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN ECKENRADIUS SCHLICHTEN SEITENFRÄSEN

G9B84, G9B85 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	17600	150	55	0.002	10250	85	30	0.002	8650	75	25	0.002
1.5	11800	215	55	0.005	7050	115	35	0.004	7050	120	35	0.004
2.0	9850	240	60	0.006	6450	145	40	0.006	5350	120	35	0.006
3.0	7600	270	70	0.009	4750	170	45	0.009	3950	145	35	0.009
4.0	6450	485	80	0.019	3950	300	50	0.019	3300	240	40	0.018
5.0	5350	510	85	0.024	3200	305	50	0.024	2700	255	40	0.024
6.0	4750	560	90	0.029	2850	350	55	0.031	2400	280	45	0.029
8.0	3550	605	90	0.043	2150	325	55	0.038	1800	300	45	0.042
10.0	2750	520	85	0.047	1700	255	55	0.038	1450	255	45	0.044
12.0	2350	440	90	0.047	1450	215	55	0.037	1150	205	45	0.045



MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	18700	620	60	0.008	44000	1050	140	0.006	24700	605	80	0.006
1.5	12100	620	55	0.013	27500	1160	130	0.011	20300	910	95	0.011
2.0	9350	640	60	0.017	22000	1320	140	0.015	16500	1035	105	0.016
3.0	6050	640	55	0.026	15400	1320	145	0.021	11000	1035	105	0.024
4.0	4600	640	60	0.035	11000	1320	140	0.030	8800	1035	110	0.029
5.0	3650	640	55	0.044	9150	1320	145	0.036	6800	1035	105	0.038
6.0	2950	770	55	0.065	7600	1430	145	0.047	5700	1100	105	0.048
8.0	2200	815	55	0.093	5700	1430	145	0.063	4400	1100	110	0.063
10.0	1850	860	60	0.116	4600	1430	145	0.078	3400	1100	105	0.081
12.0	1450	900	55	0.155	3750	1430	140	0.095	2850	1100	105	0.096



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

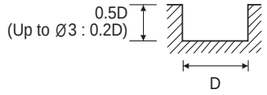
K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

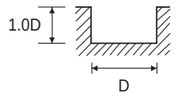
CARBIDE, 2 FLUTE
VOLLHARTMETALL, 2 SCHNEIDEN

G9424, G9G44, G9A68, G9444, G9527, G9445, G9G45, G9452 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	14300	105	45	0.004	8500	65	25	0.004	7150	50	20	0.003
1.5	9350	150	45	0.008	5550	85	25	0.008	5600	80	25	0.007
2.0	7850	160	50	0.010	5150	100	30	0.010	4300	80	25	0.009
3.0	6100	180	55	0.015	3800	120	35	0.016	3150	100	30	0.016
4.0	5150	255	65	0.025	3150	155	40	0.025	2650	130	35	0.025
5.0	4300	270	70	0.031	2550	160	40	0.031	2150	135	35	0.031
6.0	3800	300	70	0.039	2300	190	45	0.041	1950	155	35	0.040
8.0	2850	325	70	0.057	1700	170	45	0.050	1450	155	35	0.053
10.0	2200	280	70	0.064	1350	135	40	0.050	1150	135	35	0.059
12.0	1850	240	70	0.065	1150	110	45	0.048	950	110	35	0.058
14.0	1700	215	75	0.063	1050	100	45	0.048	850	100	35	0.059
16.0	1500	185	75	0.062	950	95	50	0.050	700	95	35	0.068
20.0	1150	145	70	0.063	700	70	45	0.050	550	70	35	0.064



MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	18700	205	60	0.005	44000	330	140	0.004	24700	200	80	0.004
1.5	12100	205	55	0.008	27500	385	130	0.007	20300	300	95	0.007
2.0	9350	220	60	0.012	22000	460	140	0.010	16500	340	105	0.010
3.0	6050	220	55	0.018	15400	460	145	0.015	11000	340	105	0.015
4.0	4600	220	60	0.024	11000	460	140	0.021	8800	340	110	0.019
5.0	3650	220	55	0.030	9150	460	145	0.025	6800	340	105	0.025
6.0	2950	255	55	0.043	7600	485	145	0.032	5700	375	105	0.033
8.0	2200	275	55	0.063	5700	485	145	0.043	4400	375	110	0.043
10.0	1850	285	60	0.077	4600	485	145	0.053	3400	375	105	0.055
12.0	1450	295	55	0.102	3750	485	140	0.065	2850	375	105	0.066
14.0	1300	310	55	0.119	3300	485	145	0.073	2400	375	105	0.078
16.0	1100	320	55	0.145	2850	485	145	0.085	2200	375	110	0.085
20.0	900	340	55	0.189	2200	485	140	0.110	1700	375	105	0.110



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

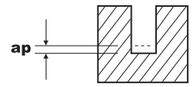
CARBIDE, 2 FLUTE for RIB PROCESSING
VOLLHARTMETALL, 2 SCHNEIDEN für SCHMALE RIPPEN

G9B80 SERIES

MATERIAL	P				
	NON-ALLOYED STEELS ALLOY STEELS				
HARDNESS	~ HRc30				
STRENGTH	~ 1000N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	fz
0.4	26500~34000	170~370	0.007~0.018	33~43	0.003~0.005
0.5	26500~34000	170~370	0.009~0.022	42~53	0.003~0.005
0.6	26500~34000	210~485	0.011~0.026	50~64	0.004~0.007
0.7	26500~34000	210~485	0.012~0.031	58~75	0.004~0.007
0.8	23000~30000	240~535	0.014~0.035	58~75	0.005~0.009
0.9	21500~27000	240~610	0.030~0.060	61~76	0.006~0.011
1.0	19000~24000	240~690	0.045~0.090	60~75	0.006~0.014
1.2	15500~19000	240~765	0.055~0.100	58~72	0.008~0.020
1.4	13600~17000	240~765	0.062~0.125	60~75	0.009~0.023
1.5	12500~15500	240~765	0.070~0.135	59~73	0.010~0.025
1.6	12000~15000	240~765	0.075~0.145	60~75	0.010~0.026
1.8	11000~14000	240~765	0.080~0.160	62~79	0.011~0.027
2.0	10000~12500	240~765	0.090~0.180	63~79	0.012~0.031
2.5	8000~10000	240~765	0.112~0.235	63~79	0.015~0.038
3.0	6800~8500	240~765	0.135~0.270	64~80	0.018~0.045
4.0	5100~6500	240~765	0.180~0.360	64~82	0.024~0.059

MATERIAL	P				
	ALLOY STEELS HEAT RESISTANT STEELS				
HARDNESS	HRc30 ~ HRc45				
STRENGTH	1000 ~ 1500N/mm²				
DIAMETER	RPM	FEED	ap (mm)	Vc	fz
0.4	19000~24000	72~290	0.007~0.018	24~30	0.002~0.006
0.5	19000~24000	72~290	0.009~0.022	30~38	0.002~0.006
0.6	19000~24000	95~365	0.011~0.026	36~45	0.003~0.008
0.7	19000~24000	95~365	0.012~0.031	42~53	0.003~0.008
0.8	16500~21000	100~410	0.014~0.035	41~53	0.003~0.010
0.9	15000~19000	135~460	0.030~0.060	42~54	0.005~0.012
1.0	13500~17000	160~510	0.045~0.090	42~53	0.006~0.015
1.2	11000~14000	160~510	0.055~0.100	41~53	0.007~0.018
1.4	9800~12000	160~510	0.062~0.125	43~53	0.008~0.021
1.5	8950~11500	160~510	0.070~0.135	42~54	0.009~0.022
1.6	8700~10900	160~510	0.075~0.145	44~55	0.009~0.023
1.8	7800~9800	160~510	0.080~0.160	44~55	0.010~0.026
2.0	7000~8950	160~510	0.090~0.180	44~56	0.011~0.028
2.5	5700~7200	160~510	0.112~0.235	45~57	0.014~0.035
3.0	4700~6000	160~510	0.135~0.270	44~57	0.017~0.043
4.0	3500~4500	160~510	0.180~0.360	44~57	0.023~0.057

(Depth of Cut per one pass)



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

K-2 END MILLS

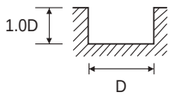
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE FINISH SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN SCHLICHTEN NUTENFRÄSEN

G9553, G9G46, G9410, G9425, G9G47, G9439, G9528, G9433, G9G48, G9447, G9G49 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	14300	75	45	0.002	8500	45	25	0.002	7150	35	20	0.002
1.5	12750	105	60	0.003	5550	60	25	0.004	5600	55	25	0.003
2.0	7850	110	50	0.005	5150	70	30	0.005	4300	55	25	0.004
3.0	6100	125	55	0.007	3800	85	35	0.007	3150	70	30	0.007
4.0	5150	180	65	0.012	3150	110	40	0.012	2650	90	35	0.011
5.0	4300	190	70	0.015	2550	110	40	0.014	2150	95	35	0.015
6.0	3800	210	70	0.018	2300	135	45	0.020	1950	110	35	0.019
8.0	2850	230	70	0.027	1700	120	45	0.024	1450	110	35	0.025
10.0	2200	195	70	0.030	1350	95	40	0.023	1150	95	35	0.028
12.0	1850	170	70	0.031	1150	75	45	0.022	950	75	35	0.026
14.0	1700	150	75	0.029	1050	70	45	0.022	850	70	35	0.027
16.0	1500	130	75	0.029	950	65	50	0.023	700	65	35	0.031
20.0	1150	100	70	0.029	700	50	45	0.024	550	50	35	0.030

MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	18700	185	60	0.003	44000	300	140	0.002	24700	180	80	0.002
1.5	12100	185	55	0.005	27500	345	130	0.004	20300	270	95	0.004
2.0	9350	200	60	0.007	22000	420	140	0.006	16500	310	105	0.006
3.0	6050	200	55	0.011	15400	430	145	0.009	11000	310	105	0.009
4.0	4600	185	60	0.013	11000	420	140	0.013	8800	310	110	0.012
5.0	3650	200	55	0.018	9150	420	145	0.015	6800	310	105	0.015
6.0	2950	230	55	0.026	7600	440	145	0.019	5700	340	105	0.020
8.0	2200	240	55	0.036	5700	440	145	0.026	4400	330	110	0.025
10.0	1850	255	60	0.046	4600	440	145	0.032	3400	330	105	0.032
12.0	1450	275	55	0.063	3750	430	140	0.038	2850	330	105	0.039
14.0	1300	285	55	0.073	3300	430	145	0.043	2400	330	105	0.046
16.0	1100	285	55	0.086	2850	430	145	0.050	2200	330	110	0.050
20.0	900	310	55	0.115	2200	430	140	0.065	1700	330	105	0.065



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

K-2 END MILLS

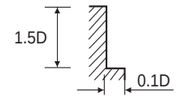
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE FINISH SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN SCHLICHTEN SEITENFRÄSEN

G9553, G9G46, G9410, G9425, G9G47, G9439, G9528, G9433, G9G48, G9447, G9G49 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	17600	110	55	0.002	10250	65	30	0.002	8650	55	25	0.002
1.5	11800	160	55	0.005	7050	85	35	0.004	7050	90	35	0.004
2.0	9850	180	60	0.006	6450	120	40	0.006	5350	100	35	0.006
3.0	7600	205	70	0.009	4750	130	45	0.009	3950	105	35	0.009
4.0	6450	365	80	0.019	3950	220	50	0.019	3300	180	40	0.018
5.0	5350	385	85	0.024	3200	230	50	0.024	2700	195	40	0.024
6.0	4750	425	90	0.030	2850	265	55	0.031	2400	215	45	0.030
8.0	3550	450	90	0.042	2150	245	55	0.038	1800	225	45	0.042
10.0	2750	390	85	0.047	1700	195	55	0.038	1450	195	45	0.045
12.0	2350	330	90	0.047	1450	160	55	0.037	1150	155	45	0.045
14.0	2100	465	90	0.074	1300	145	55	0.037	1050	140	45	0.044
16.0	1850	265	95	0.048	1150	130	60	0.038	900	130	45	0.048
20.0	1450	205	90	0.047	900	100	55	0.037	700	100	45	0.048

MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	18700	460	60	0.008	44000	750	140	0.006	24700	450	80	0.006
1.5	12100	460	55	0.013	27500	860	130	0.010	20300	675	95	0.011
2.0	9350	475	60	0.017	22000	1035	140	0.016	16500	770	105	0.016
3.0	6050	475	55	0.026	15400	990	145	0.021	11000	760	105	0.023
4.0	4600	485	60	0.035	11000	1035	140	0.031	8800	770	110	0.029
5.0	3650	485	55	0.044	9150	1010	145	0.037	6800	760	105	0.037
6.0	2950	570	55	0.064	7600	1100	145	0.048	5700	825	105	0.048
8.0	2200	615	55	0.093	5700	1100	145	0.064	4400	825	110	0.063
10.0	1850	640	60	0.115	4600	1100	145	0.080	3400	825	105	0.081
12.0	1450	670	55	0.154	3750	1100	140	0.098	2850	825	105	0.096
14.0	1300	705	55	0.181	3300	1100	145	0.111	2400	825	105	0.115
16.0	1100	725	55	0.220	2850	1100	145	0.129	2200	825	110	0.125
20.0	900	770	55	0.285	2200	1100	140	0.167	1700	825	105	0.162



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

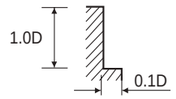
K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

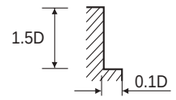
CARBIDE, 4 FLUTE FINISH SIDE CUTTING
VOLLHARTMETALL, 4 SCHNEIDEN SCHLICHTEN SEITENFRÄSEN

G9432, G9G50, G9A69, G9448, G9540, G9449, G9G51, G9453 SERIES

MATERIAL	P								M			
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 45							
STRENGTH	~1000N/mm²				1000~1500N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	17600	150	55	0.002	10250	85	30	0.002	8650	75	25	0.002
1.5	11800	215	55	0.005	7050	115	35	0.004	7050	120	35	0.004
2.0	9850	240	60	0.006	6450	145	40	0.006	5350	120	35	0.006
3.0	7600	270	70	0.009	4750	170	45	0.009	3950	145	35	0.009
4.0	6450	485	80	0.019	3950	300	50	0.019	3300	240	40	0.018
5.0	5350	510	85	0.024	3200	305	50	0.024	2700	255	40	0.024
6.0	4750	560	90	0.029	2850	350	55	0.031	2400	280	45	0.029
8.0	3550	605	90	0.043	2150	325	55	0.038	1800	300	45	0.042
10.0	2750	520	85	0.047	1700	255	55	0.038	1450	255	45	0.044
12.0	2350	440	90	0.047	1450	215	55	0.037	1150	205	45	0.045
14.0	2100	395	90	0.047	1300	195	55	0.038	1050	190	45	0.045
16.0	1850	350	95	0.047	1150	170	60	0.037	950	170	50	0.045
20.0	1450	270	90	0.047	900	135	55	0.038	700	130	45	0.046



MATERIAL	K				N							
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
1.0	18700	620	60	0.008	44000	1050	140	0.006	24700	605	80	0.006
1.5	12100	620	55	0.013	27500	1160	130	0.011	20300	910	95	0.011
2.0	9350	640	60	0.017	22000	1320	140	0.015	16500	1035	105	0.016
3.0	6050	640	55	0.026	15400	1320	145	0.021	11000	1035	105	0.024
4.0	4600	640	60	0.035	11000	1320	140	0.030	8800	1035	110	0.029
5.0	3650	640	55	0.044	9150	1320	145	0.036	6800	1035	105	0.038
6.0	2950	770	55	0.065	7600	1430	145	0.047	5700	1100	105	0.048
8.0	2200	815	55	0.093	5700	1430	145	0.063	4400	1100	110	0.063
10.0	1850	860	60	0.116	4600	1430	145	0.078	3400	1100	105	0.081
12.0	1450	900	55	0.155	3750	1430	140	0.095	2850	1100	105	0.096
14.0	1300	945	55	0.182	3300	1430	145	0.108	2400	1100	105	0.115
16.0	1100	970	55	0.220	2850	1430	145	0.125	2200	1100	110	0.125
20.0	900	1035	55	0.288	2200	1430	140	0.163	1700	1100	105	0.162



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

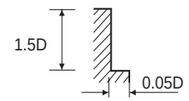
K-2 END MILLS

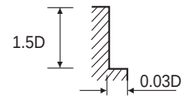
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4&6 FLUTE 45° HELIX SIDE CUTTING
VOLLHARTMETALL, 4&6 SCHNEIDEN 45° RECHTSSPIRALE SEITENFRAS

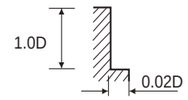
G9F45, G9F46 SERIES

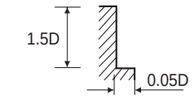
MATERIAL	P											
	NON-ALLOYED STEELS ALLOY STEELS				ALLOY STEELS HEAT RESISTANT STEELS				HARDENED STEELS			
HARDNESS	~ HRc 30				HRc 30 ~ HRc 50				HRc 50 ~ HRc 60			
STRENGTH	~1000N/mm²				1000~1750N/mm²				1750~2080N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	8650	825	82	0.024	5750	555	54	0.024	4750	344	45	0.018
4.0	6600	858	83	0.033	4400	581	55	0.033	3600	357	45	0.025
5.0	6250	990	98	0.025	4150	660	65	0.027	3200	383	50	0.020
6.0	5175	924	98	0.030	3450	627	65	0.030	2650	369	50	0.023
8.0	3900	891	97	0.045	2600	594	65	0.038	2000	344	50	0.029
10.0	3075	831	97	0.045	2050	555	64	0.045	1600	317	50	0.033
12.0	2625	831	99	0.053	1750	555	66	0.053	1325	317	50	0.029
14.0	2230	770	98	0.058	1500	515	66	0.057	1130	280	50	0.041
16.0	1950	726	98	0.062	1300	482	65	0.062	1000	278	50	0.046
18.0	1720	670	97	0.065	1150	455	65	0.066	880	265	50	0.050
20.0	1550	641	97	0.069	1025	429	64	0.070	800	251	50	0.052





MATERIAL	H				K			
	HIGH HARDENED STEELS				CAST IRON			
HARDNESS	HRc 60 ~ HRc 65							
STRENGTH	~2080N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	3750	212	35	0.014	8650	825	82	0.024
4.0	2800	221	35	0.020	6600	858	83	0.033
5.0	2550	245	40	0.016	6250	990	98	0.025
6.0	2100	231	40	0.018	5175	924	98	0.030
8.0	1600	218	40	0.023	3900	891	97	0.045
10.0	1275	204	40	0.027	3075	831	97	0.045
12.0	1050	198	40	0.031	2625	831	99	0.053
14.0	900	185	40	0.034	2230	770	98	0.058
16.0	800	179	40	0.037	1950	726	98	0.062
18.0	700	165	40	0.039	1720	670	97	0.065
20.0	650	165	41	0.042	1550	641	97	0.069





※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

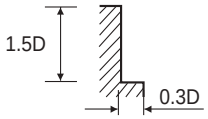
K-2 END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, MULTI FLUTE ROUGHING SIDE CUTTING
VOLLHARTMETALL, MULTI SCHNEIDEN SCHRUPPFRÄSER SEITENFRÄSEN

G9A42 SERIES

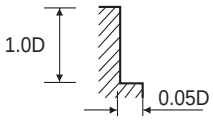
MATERIAL	P							
	NON-ALLOYED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	~ HRc30				HRc30 ~ HRc38			
STRENGTH	1000N/mm²				1000 ~ 1200N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	13250	1970	250	0.050	10550	710	200	0.022
8.0	9850	1970	250	0.067	7800	710	195	0.023
10.0	7800	1970	245	0.063	6450	710	205	0.028
12.0	6800	2040	255	0.075	5100	680	190	0.033
14.0	5800	2040	255	0.088	4400	710	195	0.040
16.0	5100	2040	255	0.100	4100	650	205	0.040
18.0	4400	1970	250	0.112	3750	610	210	0.041
20.0	4100	1840	260	0.112	3050	480	190	0.039
25.0	3650	1830	285	0.100	2700	530	210	0.039



※ The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	M				S			
	STAINLESS STEELS				INCONEL			
HARDNESS	HRc38 ~ HRc45							
STRENGTH	1200 ~ 1400N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7150	480	135	0.022	2050	160	40	0.026
8.0	5350	480	135	0.022	1550	150	40	0.024
10.0	4350	480	135	0.028	1100	160	35	0.036
12.0	3550	480	135	0.034	1000	160	40	0.040
14.0	3050	480	135	0.039	750	110	35	0.037
16.0	2800	430	140	0.038	700	90	35	0.032
18.0	2300	360	130	0.039	600	90	35	0.038
20.0	2050	310	130	0.038	550	90	35	0.041
25.0	1850	350	145	0.038	500	90	40	0.060



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE

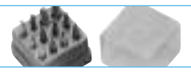
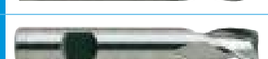
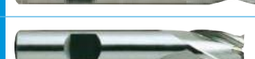
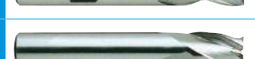
Leading Through Innovation

GENERAL CARBIDE END MILLS

ALLGEMEINEN VOLLHARTMETALL FRÄSER

- General Purpose, Non-coated, Any Coating Available
- Unbeschichtet für allgemeinen Einsatz. Jegliche Beschichtung möglich

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N						S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
E5624 E5650		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1270	◎	◎	◎	○				○			○				
E5437		CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1271	◎	◎	◎	○				○			○				
E5438		CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R10.0	1272	◎	◎	◎	○				○			○				
E5454		CARBIDE, 2 FLUTE LONG REACH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS	R1.5	R10.0	1273	◎	◎	◎	○				○			○				
E5455		CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS	R1.5	R10.0	1274	◎	◎	◎	○				○			○				
E5634 E5524		CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R10.0	1275	◎	◎	◎	○				○			○				
E5882		CARBIDE, 3 FLUTE 35º HELIX CORNER RADIUS VOLLHARTMETALL, 3 SCHNEIDEN 35º RECHTSSPIRALE ECKENRADIUS	D3.0	D20.0	1276	◎	◎	◎				◎	○	○		○				
E5424 E5416		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D1.0 D6.0	D20.0	1277	◎	◎	◎				○	○	○		○				
E5444		CARBIDE, 2 FLUTE SHORT LENGTH VOLLHARTMETALL, 2 SCHNEIDEN KURZ	D2.0	D20.0	1278	◎	◎	◎				○	○	○		○				
E5445		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D2.0	D20.0	1279	◎	◎	◎				○	○	○		○				
E5527		CARBIDE, 2 FLUTE LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN LANG	D3.5	D20.0	1280	◎	◎	◎				○	○	○		○				
E5452		CARBIDE, 2 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG	D3.0	D20.0	1281	◎	◎	◎				○	○	○		○				
E5553 E5410		CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG FRÄSER	D0.5	D20.0	1282	◎	◎	◎				○	○	○		○				
E5SET410		CARBIDE, THROW AWAY SET (NON-COATED) VOLLHARTMETALL, EINWEG-SCHAFTFRÄSER SET (NICHT-BESCHICHTET)	D2.0	D10.0	1283																
E5425 E5417		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0 D6.0	D20.0	1284	◎	◎	◎				○	○	○		○				
E5439		CARBIDE, 3 FLUTE SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN KURZ	D2.0	D20.0	1285	◎	◎	◎				○	○	○		○				
E5433		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.0	D20.0	1286	◎	◎	◎				○	○	○		○				
E5528		CARBIDE, 3 FLUTE LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN LANG	D3.5	D20.0	1287	◎	◎	◎				○	○	○		○				
E5423 E5415		CARBIDE, 3 FLUTE 45º HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45º RECHTSSPIRALE KURZ	D3.0	D20.0	1288	◎	◎	◎					○	◎		◎				

▶ NEXT PAGE

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
E5446		CARBIDE, 3 FLUTE 45º HELIX SHORT LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45º RECHTSSPIRALE KURZ	D1.5	D20.0	1289
E5447		CARBIDE, 3 FLUTE 45º HELIX LONG LENGTH VOLLHARTMETALL, 3 SCHNEIDEN 45º RECHTSSPIRALE LANG	D3.0	D20.0	1290
E5432 E5595		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0 D6.0	D20.0	1291
E5448		CARBIDE, 4 FLUTE SHORT LENGTH VOLLHARTMETALL, 4 SCHNEIDEN KURZ	D2.0	D20.0	1292
E5449		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D2.0	D20.0	1293
E5540		CARBIDE, 4 FLUTE LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN LANG	D3.5	D20.0	1294
E5453		CARBIDE, 4 FLUTE EXTRA LONG LENGTH VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG	D3.0	D20.0	1295
E5400		CARBIDE, 2 FLUTE DRILL MILLS VOLLHARTMETALL, 2 SCHNEIDEN BOHRNUTEN FRÄSER	D3.0	D20.0	1296
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1297

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎					○	◎		◎				
◎	◎	◎					○	◎		◎				
◎	◎	◎				○	○	○		○				
◎	◎	◎				○	○	○		○				
◎	◎	◎				○	○	○		○				
◎	◎	◎				○	○	○		○				
◎	◎	◎				○	○			○				

CARBIDE END MILLS

E5624 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5650 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, CORTA

MG HM | YG STD | N | 2 | 30° | R ±0.02 | DIN 6535HA | DIN 6535HB — P.1297

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.02)	h10	h6		
E5624020	E5650020	R1.0	2.0	6	4	48
E5624025	E5650025	R1.25	2.5	6	4	48
E5624030	E5650030	R1.5	3.0	6	4	48
E5624040	E5650040	R2.0	4.0	6	6	50
E5624901	-	R2.0	4.0	4	12	40
E5624050	E5650050	R2.5	5.0	6	7	51
E5624902	-	R2.5	5.0	5	14	50
E5624060	E5650060	R3.0	6.0	6	7	51
E5624080	E5650080	R4.0	8.0	8	9	59
E5624100	E5650100	R5.0	10.0	10	10	60
E5624120	E5650120	R6.0	12.0	12	14	71
E5624140	E5650140	R7.0	14.0	14	14	71
E5624160	E5650160	R8.0	16.0	16	16	76
E5624180	E5650180	R9.0	18.0	18	18	76
E5624200	E5650200	R10.0	20.0	20	20	82

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE END MILLS

E5437 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA

MG HM | DIN 6527 | N | 2 | 30° | R ±0.02 | DIN 6535HB — P.1297

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	R (±0.02)	h10	h6		
E5437020	R1.0	2.0	6	3	50
E5437030	R1.5	3.0	6	4	50
E5437040	R2.0	4.0	6	5	54
E5437050	R2.5	5.0	6	6	54
E5437060	R3.0	6.0	6	7	54
E5437080	R4.0	8.0	8	9	58
E5437100	R5.0	10.0	10	11	66
E5437120	R6.0	12.0	12	12	73
E5437140	R7.0	14.0	14	14	75
E5437180	R9.0	18.0	18	18	84
E5437200	R10.0	20.0	20	20	92

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE END MILLS

E5438 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN LANG STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA

MG HM | DIN 6527 | N | 2 | 30° | R ±0.02 | DIN 6535HB P.1297

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	R (±0.02)	h10	h6		
E5438020	R1.0	2.0	● 3	6	38
E5438030	R1.5	3.0	6	7	57
E5438040	R2.0	4.0	6	8	57
E5438050	R2.5	5.0	6	10	57
E5438060	R3.0	6.0	6	10	57
E5438080	R4.0	8.0	8	16	63
E5438100	R5.0	10.0	10	19	72
E5438120	R6.0	12.0	12	22	83
E5438140	R7.0	14.0	14	22	83
E5438160	R8.0	16.0	16	26	92
E5438180	R9.0	18.0	18	26	92
E5438200	R10.0	20.0	20	32	104

● with plain shank
▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE END MILLS

E5454 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG REACH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN GROßE REICHWEITE STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique longue portée
2 TAGLIENTI, SEMISFERICA, LUNGA

MG HM | YG STD | N | 2 | 30° | R ±0.02 | DIN 6535HA P.1297

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R (±0.02)	h10	h6		
E5454030	R1.5	3.0	3	5	75
E5454040	R2.0	4.0	4	8	75
E5454050	R2.5	5.0	5	9	75
E5454060	R3.0	6.0	6	10	100
E5454080	R4.0	8.0	8	12	100
E5454100	R5.0	10.0	10	14	100
E5454120	R6.0	12.0	12	16	100
E5454140	R7.0	14.0	14	18	100
E5454160	R8.0	16.0	16	22	150
E5454200	R10.0	20.0	20	26	150

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

E5455 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH BALL NOSE

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG STIRNRADIUS
Fraise carbure, 2 dents, hémisphérique, extra-longue
2 TAGLIENTI, SEMISFERICA, EXTRA LUNGA

MG HM | YG STD | N | 2 | 30° | R ±0.02 | DIN 6535HA

P.1297

Unit : mm

EDP No.	Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R (±0.02)	h10	h6		
E5455030	R1.5	3.0	3	30	75
E5455040	R2.0	4.0	4	30	75
E5455050	R2.5	5.0	5	40	100
E5455060	R3.0	6.0	6	50	150
E5455080	R4.0	8.0	8	50	150
E5455100	R5.0	10.0	10	60	150
E5455120	R6.0	12.0	12	75	150
E5455140	R7.0	14.0	14	75	150
E5455160	R8.0	16.0	16	75	150
E5455180	R9.0	18.0	18	75	150
E5455200	R10.0	20.0	20	75	150

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE END MILLS

E5634 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5524 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH BALL NOSE

VOLLHARTMETALL, 4 SCHNEIDEN KURZ STIRNRADIUS
Fraise carbure, 4 dents, hémisphérique, courte
4 TAGLIENTI, SEMISFERICA, CORTA

MG HM | YG STD | N | 4 | 30° | R ±0.02 | DIN 6535HA | DIN 6535HB

P.1298

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R (±0.02)	h10	h6		
E5634020	E5524020	R1.0	2.0	6	4	48
E5634030	E5524030	R1.5	3.0	6	4	48
E5634040	E5524040	R2.0	4.0	6	6	50
E5634050	E5524050	R2.5	5.0	6	7	51
E5634060	E5524060	R3.0	6.0	6	7	51
E5634080	E5524080	R4.0	8.0	8	9	59
E5634100	E5524100	R5.0	10.0	10	10	60
E5634120	E5524120	R6.0	12.0	12	14	71
E5634140	E5524140	R7.0	14.0	14	14	71
E5634160	E5524160	R8.0	16.0	16	16	76
E5634180	E5524180	R9.0	18.0	18	18	76
E5634200	E5524200	R10.0	20.0	20	20	82

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎	○				○			○				

CARBIDE END MILLS

E5882 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE 35° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 35° RECHTSSPIRALE ECKENRADIUS
Fraise carbure, 3 dents, torique, hélice 35°
3 TAGLIENTI, ELICA 35°, TORICA

for STAINLESS STEELS
für EDELSTÄHLE

MG HM | DIN 6527 | N | 3 | 35° | DIN 6535HA

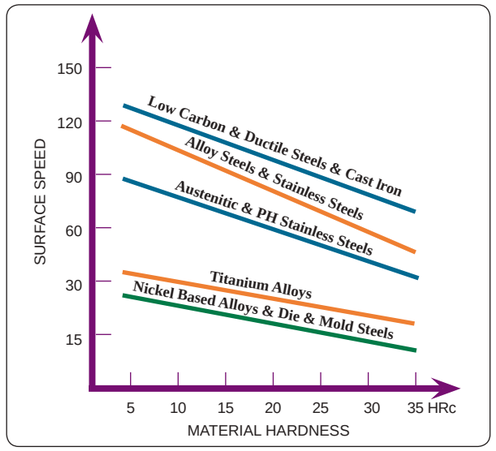
Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	R	h10	h6		
E5882030	0.20~0.25	3.0	3	4	38
E5882040	0.20~0.25	4.0	6	5	54
E5882050	0.20~0.25	5.0	6	6	54
E5882060	0.40~0.50	6.0	6	7	54
E5882080	0.40~0.50	8.0	8	9	58
E5882100	0.40~0.50	10.0	10	11	66
E5882120	0.75~0.85	12.0	12	12	73
E5882160	0.75~0.85	16.0	16	16	82
E5882200	0.75~0.85	20.0	20	20	92

▶TiN, TiCN and TiAlN Coatings are available on your request.

FEED CHART

MILL DIAMETER(mm)	3	5	6	8	10	12	16	20
FEED(mm)/TOOTH	0.008 ~ 0.015	0.010 ~ 0.050	0.025 ~ 0.065	0.040 ~ 0.075	0.040 ~ 0.090	0.050 ~ 0.100	0.065 ~ 0.130	0.075 ~ 0.150



Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				◎	○	○		○				

CARBIDE END MILLS

E5424 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5416 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, CORTA

MG HM | YG STD | N | 2 | 30° | DIN 6535HA | DIN 6535HB P.1299-1300

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	h10	h6		
E5424010	-	1.0	4	3	40
E5424015	-	1.5	4	4.5	40
E5424020	-	2.0	2	8	32
E5424025	-	2.5	2.5	8	32
E5424030	-	3.0	3	12	32
E5424035	-	3.5	3.5	12	32
E5424040	-	4.0	4	12	40
E5424045	-	4.5	4.5	14	50
E5424050	-	5.0	5	14	50
E5424055	-	5.5	5.5	16	50
E5424060	E5416060	6.0	6	16	50
E5424070	-	7.0	7	20	60
E5424080	E5416080	8.0	8	20	60
E5424090	-	9.0	9	20	60
E5424100	E5416100	10.0	10	22	70
E5424120	E5416120	12.0	12	22	70
E5424140	E5416140	14.0	14	25	75
E5424160	E5416160	16.0	16	25	75
E5424200	E5416200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm					
Nominal-Diameter in mm / Nennmaßbereich in mm					
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

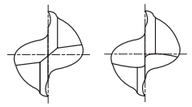
◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5444 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE SHORT LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN KURZ
Fraise carbure, 2 dents, courte
2 TAGLIENTI, SERIE CORTA



MG HM | DIN 6527 | N | 2 | ≈30° | DIN 6535HB

P.1299-1300

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5444020	2.0	6	3	50
E5444030	3.0	6	4	50
E5444035	3.5	6	4	50
E5444040	4.0	6	5	54
E5444045	4.5	6	5	54
E5444050	5.0	6	6	54
E5444060	6.0	6	7	54
E5444070	7.0	8	8	58
E5444080	8.0	8	9	58
E5444090	9.0	10	10	66
E5444100	10.0	10	11	66
E5444120	12.0	12	12	73
E5444140	14.0	14	14	75
E5444160	16.0	16	16	82
E5444180	18.0	18	18	84
E5444200	20.0	20	20	92

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13

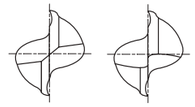
◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5445 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 2 FLUTE LONG LENGTH
VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA



MG HM | DIN 6527 | N | 2 | ≈30° | DIN 6535HB

P.1299-1300

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5445901	2.0	● 3	6	38
E5445028	2.8	6	7	57
E5445030	3.0	6	7	57
E5445035	3.5	6	7	57
E5445038	3.8	6	8	57
E5445040	4.0	6	8	57
E5445045	4.5	6	8	57
E5445048	4.8	6	10	57
E5445050	5.0	6	10	57
E5445957	5.75	6	10	57
E5445060	6.0	6	10	57
E5445967	6.75	8	13	63
E5445070	7.0	8	13	63
E5445977	7.75	8	16	63
E5445080	8.0	8	16	63
E5445087	8.7	10	16	72
E5445090	9.0	10	16	72
E5445097	9.7	10	19	72
E5445100	10.0	10	19	72
E5445117	11.7	12	22	83
E5445120	12.0	12	22	83
E5445137	13.7	14	22	83
E5445140	14.0	14	22	83
E5445157	15.7	16	26	92
E5445160	16.0	16	26	92
E5445177	17.7	18	26	92
E5445180	18.0	18	26	92
E5445197	19.7	20	32	104
E5445200	20.0	20	32	104

● with plain shank
▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / − 40	0 / − 48	0 / − 58	0 / − 70	0 / − 84
h6	0 / − 6	0 / − 8	0 / − 9	0 / − 11	0 / − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5527 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN LANG
Fraise carbure, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA

MG HM | DIN 6528 | N | 2 | ≈30° | DIN 6535HA

P.1299-1300

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5527035	3.5	3.5	7	50
E5527040	4.0	4	8	50
E5527045	4.5	4.5	8	50
E5527050	5.0	5	10	50
E5527055	5.5	5.5	10	57
E5527060	6.0	6	10	57
E5527065	6.5	6.5	13	60
E5527070	7.0	7	13	60
E5527075	7.5	7.5	16	63
E5527080	8.0	8	16	63
E5527085	8.5	8.5	16	67
E5527090	9.0	9	16	67
E5527095	9.5	9.5	19	72
E5527100	10.0	10	19	72
E5527110	11.0	11	22	83
E5527120	12.0	12	22	83
E5527130	13.0	13	22	83
E5527140	14.0	14	22	83
E5527150	15.0	15	26	92
E5527160	16.0	16	26	92
E5527180	18.0	18	26	92
E5527200	20.0	20	32	104

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

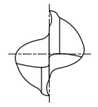
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5452 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 2 SCHNEIDEN EXTRA LANG
Fraise carbure, 2 dents, extra-longue
2 TAGLIENTI, SERIE EXTRA LUNGA



MG HM | YG STD | N | 2 | 30° | DIN 6535HA

P.1299-1300

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5452030	3.0	3	30	75
E5452040	4.0	4	30	75
E5452050	5.0	5	40	100
E5452060	6.0	6	50	150
E5452080	8.0	8	50	150
E5452100	10.0	10	60	150
E5452120	12.0	12	75	150
E5452140	14.0	14	65	150
E5452160	16.0	16	65	150
E5452180	18.0	18	65	150
E5452200	20.0	20	65	150

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

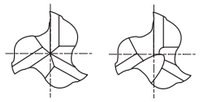
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5553 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT
E5410 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY

VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG
Fraise carbure, 3 dents, à jeter, courte
3 TAGLIENTI, CORTA A GETTARE



up to Ø2mm over Ø2mm

MG HM | YG STD | N | 3 | 30° | PLAIN | FLAT | P.1301-1304

Unit : mm

EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length
E5553005	-	0.5	3	1.5	38
E5553006	-	0.6	3	1.5	38
E5553008	-	0.8	3	2	38
E5553010	-	1.0	3	2	38
E5553012	-	1.2	3	2	38
E5553015	-	1.5	3	2	38
E5553018	-	1.8	3	2	38
-	E5410020	2.0	6	4	35
-	E5410025	2.5	6	5	36
-	E5410030	3.0	6	5	36
-	E5410035	3.5	6	6	37
-	E5410040	4.0	6	7	38
-	E5410045	4.5	6	8	38
-	E5410050	5.0	6	8	39
-	E5410055	5.5	6	8	39
-	E5410957	5.75	6	8	39
-	E5410060	6.0	6	8	39
-	E5410967	6.75	8	10	42
-	E5410070	7.0	8	10	42
-	E5410977	7.75	8	10	42
-	E5410080	8.0	8	11	43

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

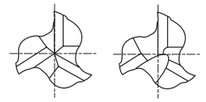
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

E5410 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH THROW AWAY

VOLLHARTMETALL, 3 SCHNEIDEN KURZ EINWEG
Coffret de fraises carbure à jeter (non revêtu)
3 TAGLIENTI, CORTA A GETTARE



under Ø2mm from Ø2mm

MG HM | YG STD | N | 3 | 30° | DIN 6535HB | P.1301-1304

Unit : mm

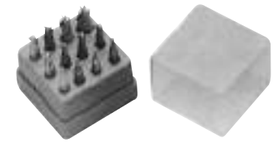
EDP No. PLAIN	EDP No. FLAT	Mill Diameter h10	Shank Diameter h6	Length of Cut	Overall Length
-	E5410087	8.7	10	11	48
-	E5410090	9.0	10	11	48
-	E5410097	9.7	10	11	48
-	E5410100	10.0	10	13	50
-	E5410120	12.0	12	15	55
-	E5410140	14.0	14	15	58
-	E5410160	16.0	16	18	62
-	E5410180	18.0	18	20	70
-	E5410200	20.0	20	22	75

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

μm/μm
mm/mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / -40	0 / -48	0 / -58	0 / -70	0 / -84
h6	0 / -6	0 / -8	0 / -9	0 / -11	0 / -13



SET ORDERING No.: E5SET410
* 12PCS. SET
- 2PCS. OF EACH SIZE 2, 3, 4, 5, 6mm (T3FSC)
- 1PC. OF EACH SIZE 8, 10mm (T3FSC)
* 1 Tooth Over Center

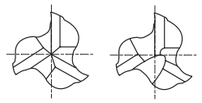
◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5425 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
E5417 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN KURZ
Fraise carbure, 3 dents, courte
3 TAGLIENTI, SERIE CORTA



under Ø3mm from Ø3mm

MG HM | YG STD | N | 3 | 30° | DIN 6535HA | DIN 6535HB — P.1301-1304

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	h10	h6		
E5425020	-	2.0	2	8	32
E5425025	-	2.5	2.5	8	32
E5425030	-	3.0	3	12	32
E5425035	-	3.5	3.5	12	32
E5425040	-	4.0	4	12	40
E5425045	-	4.5	4.5	14	50
E5425050	-	5.0	5	14	50
E5425055	-	5.5	5.5	16	50
E5425060	E5417060	6.0	6	16	50
E5425070	-	7.0	7	20	60
E5425080	E5417080	8.0	8	20	60
E5425090	-	9.0	9	20	60
E5425100	E5417100	10.0	10	22	70
E5425120	E5417120	12.0	12	22	70
E5425140	E5417140	14.0	14	25	75
E5425160	E5417160	16.0	16	25	75
E5425200	E5417200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

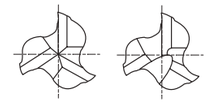
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

E5439 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE SHORT LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN KURZ
Fraise carbure, 3 dents, courte
3 TAGLIENTI, SERIE CORTA



up to Ø2mm over Ø2mm

MG HM | DIN 6527 | N | 3 | ≈30° | DIN 6535HB — P.1301-1304

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5439020	2.0	6	3	50
E5439030	3.0	6	4	50
E5439035	3.5	6	4	50
E5439040	4.0	6	5	54
E5439045	4.5	6	5	54
E5439050	5.0	6	6	54
E5439060	6.0	6	7	54
E5439070	7.0	8	8	58
E5439080	8.0	8	9	58
E5439090	9.0	10	10	66
E5439100	10.0	10	11	66
E5439120	12.0	12	12	73
E5439140	14.0	14	14	75
E5439160	16.0	16	16	82
E5439180	18.0	18	18	84
E5439200	20.0	20	20	92

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5433 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG
Fraise carbure, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA

MG HM | DIN 6527 | N | 3 | ≈30° | DIN 6535HB | P.1301-1304

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5433030	3.0	6	7	57
E5433040	4.0	6	8	57
E5433050	5.0	6	10	57
E5433060	6.0	6	10	57
E5433080	8.0	8	16	63
E5433100	10.0	10	19	72
E5433120	12.0	12	22	83
E5433140	14.0	14	22	83
E5433160	16.0	16	26	92
E5433180	18.0	18	26	92
E5433200	20.0	20	32	104

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5528 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 3 FLUTE LONG LENGTH
VOLLHARTMETALL, 3 SCHNEIDEN LANG
Fraise carbure, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA

MG HM | DIN 6528 | N | 3 | ≈30° | DIN 6535HA | P.1301-1304

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5528035	3.5	3.5	7	50
E5528040	4.0	4	8	50
E5528045	4.5	4.5	8	50
E5528050	5.0	5	10	50
E5528055	5.5	5.5	10	57
E5528060	6.0	6	10	57
E5528065	6.5	6.5	13	60
E5528070	7.0	7	13	60
E5528075	7.5	7.5	16	63
E5528080	8.0	8	16	63
E5528085	8.5	8.5	16	67
E5528090	9.0	9	16	67
E5528095	9.5	9.5	19	72
E5528100	10.0	10	19	72
E5528110	11.0	11	22	83
E5528120	12.0	12	22	83
E5528130	13.0	13	22	83
E5528140	14.0	14	22	83
E5528150	15.0	15	26	92
E5528160	16.0	16	26	92
E5528180	18.0	18	26	92
E5528200	20.0	20	32	104

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5423 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
E5415 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ
Fraise carbure, 3 dents, hélice 45°, courte
3 TAGLIENTI, ELICA 45°, CORTA

MG HM | YG STD | N | 3 | 45° | DIN 6535HA | DIN 6535HB

P.1305-1308

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	h10	h6		
E5423030	E5415030	3.0	6	8	45
E5423040	E5415040	4.0	6	11	45
E5423050	E5415050	5.0	6	13	50
E5423060	E5415060	6.0	6	13	50
E5423080	E5415080	8.0	8	19	60
E5423100	E5415100	10.0	10	22	70
E5423120	E5415120	12.0	12	26	75
E5423140	E5415140	14.0	14	26	75
E5423160	E5415160	16.0	16	25	75
E5423200	E5415200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎					○	◎		◎				

CARBIDE END MILLS

E5446 SERIES — **FLAT SHANK** SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX SHORT LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE KURZ
Fraise carbure, 3 dents, hélice 45°, courte
3 TAGLIENTI, ELICA 45°, SERIE CORTA

MG HM | DIN 6527 | N | 3 | 45° | DIN 6535HB

P.1305-1308

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5446015	1.5	● 3	3	38
E5446020	2.0	6	3	50
E5446030	3.0	6	4	50
E5446035	3.5	6	4	50
E5446040	4.0	6	5	54
E5446045	4.5	6	5	54
E5446050	5.0	6	6	54
E5446060	6.0	6	7	54
E5446070	7.0	8	8	58
E5446080	8.0	8	9	58
E5446090	9.0	10	10	66
E5446100	10.0	10	11	66
E5446120	12.0	12	12	73
E5446140	14.0	14	14	75
E5446160	16.0	16	16	82
E5446180	18.0	18	18	84
E5446200	20.0	20	20	92

● with plain shank
▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎					○	◎		◎				

CARBIDE END MILLS

E5447 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE LANG
Fraise carbure, 3 dents, hélice 45°, longue
3 TAGLIENTI, ELICA 45°, SERIE LUNGA

MG HM | DIN 6527 | N | 3 | 45° | DIN 6535HB

P.1305-1308

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5447030	3.0	6	7	57
E5447035	3.5	6	7	57
E5447040	4.0	6	8	57
E5447045	4.5	6	8	57
E5447050	5.0	6	10	57
E5447060	6.0	6	10	57
E5447070	7.0	8	13	63
E5447080	8.0	8	16	63
E5447090	9.0	10	16	72
E5447100	10.0	10	19	72
E5447120	12.0	12	22	83
E5447140	14.0	14	22	83
E5447160	16.0	16	26	92
E5447180	18.0	18	26	92
E5447200	20.0	20	32	104

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / -40	0 / -48	0 / -58	0 / -70	0 / -84
h6	0 / -6	0 / -8	0 / -9	0 / -11	0 / -13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎					○	◎		◎				

CARBIDE END MILLS

E5432 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
E5595 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, CORTA

MG HM | YG STD | N | 4 | 30° | DIN 6535HA | DIN 6535HB

P.1309-1310

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	h10	h6		
E5432020	-	2.0	2	8	32
E5432025	-	2.5	2.5	8	32
E5432030	-	3.0	3	12	32
E5432035	-	3.5	3.5	12	32
E5432040	-	4.0	4	12	40
E5432045	-	4.5	4.5	14	50
E5432050	-	5.0	5	14	50
E5432055	-	5.5	5.5	16	50
E5432060	E5595060	6.0	6	16	50
E5432070	-	7.0	7	20	60
E5432080	E5595080	8.0	8	20	60
E5432090	-	9.0	9	20	60
E5432100	E5595100	10.0	10	22	70
E5432120	E5595120	12.0	12	22	70
E5432140	E5595140	14.0	14	25	75
E5432160	E5595160	16.0	16	25	75
E5432200	E5595200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 / -40	0 / -48	0 / -58	0 / -70	0 / -84
h6	0 / -6	0 / -8	0 / -9	0 / -11	0 / -13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5448 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE SHORT LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN KURZ
Fraise carbure, 4 dents, courte
4 TAGLIENTI, SERIE CORTA

MG HM | DIN 6527 | N | 4 | ≈30° | DIN 6535HB

P.1309-1310

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5448020	2.0	6	4	50
E5448025	2.5	6	4	50
E5448030	3.0	6	5	50
E5448035	3.5	6	6	50
E5448040	4.0	6	8	54
E5448045	4.5	6	8	54
E5448050	5.0	6	9	54
E5448060	6.0	6	10	54
E5448070	7.0	8	11	58
E5448080	8.0	8	12	58
E5448090	9.0	10	13	66
E5448100	10.0	10	14	66
E5448120	12.0	12	16	73
E5448140	14.0	14	18	75
E5448160	16.0	16	22	82
E5448180	18.0	18	24	84
E5448200	20.0	20	26	92

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5449 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

CARBIDE, 4 FLUTE LONG LENGTH
VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

MG HM | DIN 6527 | N | 4 | ≈30° | DIN 6535HB

P.1309-1310

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
FLAT	h10	h6		
E5449901	2.0	● 3	7	38
E5449030	3.0	6	8	57
E5449035	3.5	6	10	57
E5449040	4.0	6	11	57
E5449045	4.5	6	11	57
E5449050	5.0	6	13	57
E5449060	6.0	6	13	57
E5449070	7.0	8	16	63
E5449080	8.0	8	19	63
E5449090	9.0	10	19	72
E5449100	10.0	10	22	72
E5449120	12.0	12	26	83
E5449140	14.0	14	26	83
E5449160	16.0	16	32	92
E5449180	18.0	18	32	92
E5449200	20.0	20	38	104

● with plain shank
▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5540 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN LANG
Fraise carbure, 4 dents, longue
4 TAGLIENTI, SERIE LUNGA

MG HM | DIN 6528 | N | 4 | 30° | DIN 6535HA

P.1309-1310

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5540035	3.5	3.5	10	50
E5540040	4.0	4	11	50
E5540045	4.5	4.5	11	50
E5540050	5.0	5	13	50
E5540055	5.5	5.5	13	57
E5540060	6.0	6	13	57
E5540065	6.5	6.5	16	60
E5540070	7.0	7	16	60
E5540075	7.5	7.5	19	63
E5540080	8.0	8	19	63
E5540085	8.5	8.5	19	67
E5540090	9.0	9	19	67
E5540095	9.5	9.5	22	72
E5540100	10.0	10	22	72
E5540110	11.0	11	26	83
E5540120	12.0	12	26	83
E5540130	13.0	13	26	83
E5540140	14.0	14	26	83
E5540150	15.0	15	32	92
E5540160	16.0	16	32	92
E5540180	18.0	18	32	92
E5540200	20.0	20	38	104

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5453 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 4 FLUTE EXTRA LONG LENGTH

VOLLHARTMETALL, 4 SCHNEIDEN EXTRA LANG
Fraise carbure, 4 dents, extra-longue
4 TAGLIENTI, SERIE LUNGA

MG HM | YG STD | N | 4 | 30° | DIN 6535HA

P.1309-1310

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	h10	h6		
E5453030	3.0	3	30	75
E5453040	4.0	4	30	75
E5453050	5.0	5	40	100
E5453060	6.0	6	50	150
E5453080	8.0	8	50	150
E5453100	10.0	10	60	150
E5453120	12.0	12	75	150
E5453140	14.0	14	65	150
E5453160	16.0	16	65	150
E5453180	18.0	18	65	150
E5453200	20.0	20	65	150

▶TiN, TiCN and TiAlN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
h10	0 − 40	0 − 48	0 − 58	0 − 70	0 − 84
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○	○		○				

CARBIDE END MILLS

E5400 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT

CARBIDE, 2 FLUTE DRILL MILLS
VOLLHARTMETALL, 2 SCHNEIDEN BOHRNUTEN FRÄSER
Fraise foret carbure, 2 dents, multi-fonctions
2 TAGLIENTI, FRESA IN MD A 90°

MG HM | YG STD | N | 2 | 30° | DIN 6535HA

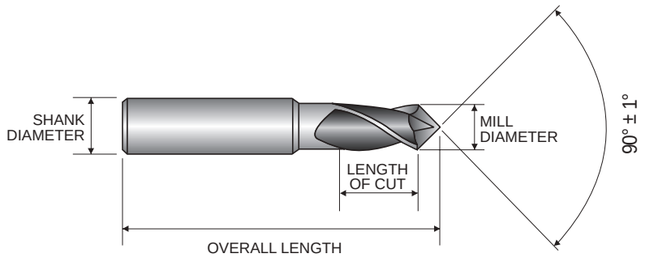
P.1311-1316

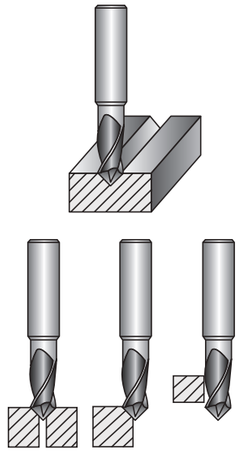
Unit : mm

EDP No. PLAIN	Mill Diameter	Shank Diameter h6	Length of Cut	Overall Length
E5400030	3.0	4	6	50
E5400040	4.0	5	8	50
E5400050	5.0	6	10	50
E5400060	6.0	8	12	60
E5400080	8.0	10	16	70
E5400100	10.0	12	18	70
E5400120	12.0	12	20	70
E5400140	14.0	14	24	80
E5400160	16.0	16	26	80
E5400200	20.0	20	32	100

▶TiN, TiCN and TiAlN Coatings are available on your request.

- Performs many drilling and milling operations that are not presently done with the standard end mill.
- Among the many vertical milling machine operations, applications for the Drill Mill are: Drilling, Slotting, NC Milling, Drilling & Slotting, Profile Milling and Chamfering.





Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
Ø3 ~ Ø10=h9 Ø12 ~ Ø20=d9	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	◎				○	○			○				

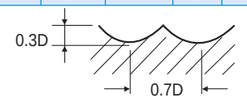
CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE BALL NOSE
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS

E5624, E5650, E5437, E5438, E5454, E5455 SERIES

MATERIAL		P				P				K				N			
		CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON				ALUMINUM ALLOYS			
HARDNESS		~ HRc30				HRc30 ~ HRc40											
STRENGTH		~ 1000N/mm²				1000 ~ 1300N/mm²											
DIAMETER		RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0	× 2.0	5200	90	35	0.009	4400	45	30	0.005	7300	150	45	0.010	21500	280	135	0.007
R1.5	× 3.0	3500	100	35	0.014	2900	45	25	0.008	4900	160	45	0.016	14300	280	135	0.010
R2.0	× 4.0	2600	100	35	0.019	2100	45	25	0.011	3600	200	45	0.028	10900	280	135	0.013
R2.5	× 5.0	2100	105	35	0.025	1700	45	25	0.013	2900	230	45	0.040	8800	330	140	0.019
R3.0	× 6.0	1700	100	30	0.029	1430	45	25	0.016	2400	250	45	0.052	7260	330	135	0.023
R4.0	× 8.0	1270	95	30	0.037	1100	45	30	0.020	1800	320	45	0.089	5500	380	140	0.035
R5.0	× 10.0	1000	95	30	0.048	870	45	25	0.026	1430	320	45	0.112	4300	380	135	0.044
R6.0	× 12.0	870	85	35	0.049	730	45	30	0.031	1200	320	45	0.133	3600	440	135	0.061
R7.0	× 14.0	750	85	35	0.057	620	45	25	0.036	1000	325	45	0.163	3000	440	130	0.073
R8.0	× 16.0	650	85	35	0.065	540	45	25	0.042	920	325	45	0.177	2700	380	135	0.070
R9.0	× 18.0	580	85	35	0.073	480	45	25	0.047	810	325	45	0.201	2400	380	135	0.079
R10.0	× 20.0	500	85	30	0.085	430	45	25	0.052	730	290	45	0.199	2100	380	130	0.090



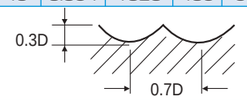
※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

CARBIDE, 2 FLUTE BALL NOSE TiAlN-COATED
VOLLHARTMETALL, 2 SCHNEIDEN STIRNRADIUS TiAlN-BESCHICHTET

E5624, E5650, E5437, E5438, E5454, E5455 SERIES

MATERIAL		P				P				K				N			
		CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON				ALUMINUM ALLOYS			
HARDNESS		~ HRc30				HRc30 ~ HRc40											
STRENGTH		~ 1000N/mm²				1000 ~ 1300N/mm²											
DIAMETER		RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0	× 2.0	7280	125	45	0.009	6160	65	40	0.005	10220	210	65	0.010	30100	390	190	0.006
R1.5	× 3.0	4900	140	45	0.014	4060	65	40	0.008	6860	225	65	0.016	20020	390	190	0.010
R2.0	× 4.0	3640	140	45	0.019	2940	65	35	0.011	5040	280	65	0.028	15260	390	190	0.013
R2.5	× 5.0	2940	145	45	0.025	2380	65	35	0.014	4060	320	65	0.039	12320	460	195	0.019
R3.0	× 6.0	2380	140	45	0.029	2000	65	40	0.016	3360	350	65	0.052	10165	460	190	0.023
R4.0	× 8.0	1780	135	45	0.038	1540	65	40	0.021	2520	450	65	0.089	7700	530	195	0.034
R5.0	× 10.0	1400	135	45	0.048	1220	65	40	0.027	2000	450	65	0.113	6020	530	190	0.044
R6.0	× 12.0	1220	120	45	0.049	1020	65	40	0.032	1680	450	65	0.134	5040	615	190	0.061
R7.0	× 14.0	1050	120	45	0.057	870	65	40	0.037	1400	455	60	0.163	4200	615	185	0.073
R8.0	× 16.0	910	120	45	0.066	755	65	40	0.043	1290	455	65	0.176	3780	530	190	0.070
R9.0	× 18.0	810	120	45	0.074	670	65	40	0.049	1135	455	65	0.200	3360	530	190	0.079
R10.0	× 20.0	700	120	45	0.086	600	65	40	0.054	1020	405	65	0.199	2940	530	185	0.090



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

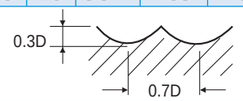
CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE BALL NOSE
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS

E5634, E5524 SERIES

MATERIAL	P								K				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON				ALUMINUM ALLOYS			
HARDNESS	~ HRc30				HRc30 ~ HRc40											
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	5200	140	35	0.007	4400	70	30	0.004	7300	230	45	0.008	21500	420	135	0.005
R1.5 × 3.0	3500	150	35	0.011	2900	70	25	0.006	4900	240	45	0.012	14300	420	135	0.007
R2.0 × 4.0	2600	150	35	0.014	2100	70	25	0.008	3600	300	45	0.021	10900	420	135	0.010
R2.5 × 5.0	2100	160	35	0.019	1700	70	25	0.010	2900	350	45	0.030	8800	500	140	0.014
R3.0 × 6.0	1700	150	30	0.022	1430	70	25	0.012	2400	380	45	0.040	7260	500	135	0.017
R4.0 × 8.0	1270	140	30	0.028	1100	70	30	0.016	1800	480	45	0.067	5500	570	140	0.026
R5.0 × 10.0	1000	140	30	0.035	870	70	25	0.020	1430	480	45	0.084	4300	570	135	0.033
R6.0 × 12.0	870	130	35	0.037	730	70	30	0.024	1200	480	45	0.100	3600	660	135	0.046
R7.0 × 14.0	750	130	35	0.043	620	70	25	0.028	1000	490	45	0.123	3000	660	130	0.055
R8.0 × 16.0	650	130	35	0.050	540	70	25	0.032	920	490	45	0.133	2700	570	135	0.053
R9.0 × 18.0	580	130	35	0.056	480	70	25	0.036	810	490	45	0.151	2400	570	135	0.059
R10.0 × 20.0	500	130	30	0.065	430	70	25	0.041	730	440	45	0.151	2100	570	130	0.068



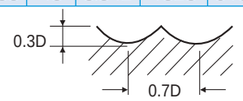
※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

CARBIDE, 4 FLUTE BALL NOSE TiAlN-COATED
VOLLHARTMETALL, 4 SCHNEIDEN STIRNRADIUS TiAlN-BESCHICHTET

E5634, E5524 SERIES

MATERIAL	P								K				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON				ALUMINUM ALLOYS			
HARDNESS	~ HRc30				HRc30 ~ HRc40											
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.0 × 2.0	7280	195	45	0.007	6160	100	40	0.004	10220	320	65	0.008	30100	590	190	0.005
R1.5 × 3.0	4900	210	45	0.011	4060	100	40	0.006	6860	335	65	0.012	20020	590	190	0.007
R2.0 × 4.0	3640	210	45	0.014	2940	100	35	0.009	5040	420	65	0.021	15260	590	190	0.010
R2.5 × 5.0	2940	225	45	0.019	2380	100	35	0.011	4060	490	65	0.030	12320	700	195	0.014
R3.0 × 6.0	2380	210	45	0.022	2000	100	40	0.013	3360	530	65	0.039	10165	700	190	0.017
R4.0 × 8.0	1780	195	45	0.027	1540	100	40	0.016	2520	670	65	0.066	7700	800	195	0.026
R5.0 × 10.0	1400	195	45	0.035	1220	100	40	0.020	2000	670	65	0.084	6020	800	190	0.033
R6.0 × 12.0	1220	180	45	0.037	1020	100	40	0.025	1680	670	65	0.100	5040	925	190	0.046
R7.0 × 14.0	1050	180	45	0.043	870	100	40	0.029	1400	685	60	0.122	4200	925	185	0.055
R8.0 × 16.0	910	180	45	0.049	755	100	40	0.033	1290	685	65	0.133	3780	800	190	0.053
R9.0 × 18.0	810	180	45	0.056	670	100	40	0.037	1135	685	65	0.151	3360	800	190	0.060
R10.0 × 20.0	700	180	45	0.064	600	100	40	0.042	1020	615	65	0.151	2940	800	185	0.068



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

CARBIDE END MILLS

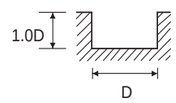
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN - NUTENFRÄSEN

E5424, E5416, E5444, E5527, E5445, E5452 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5500	80	35	0.007	4800	70	30	0.007	4000	55	25	0.007	8000	65	50	0.004
3.0	3700	90	35	0.012	3200	80	30	0.013	2600	60	25	0.012	5300	65	50	0.006
4.0	2800	90	35	0.016	2400	80	30	0.017	2000	60	25	0.015	4000	65	50	0.008
5.0	2200	90	35	0.020	1900	80	30	0.021	1600	60	25	0.019	3200	65	50	0.010
6.0	1800	90	35	0.025	1600	80	30	0.025	1300	60	25	0.023	2600	65	50	0.013
8.0	1400	90	35	0.032	1200	80	30	0.033	1000	60	25	0.030	2000	65	50	0.016
10.0	1100	90	35	0.041	950	80	30	0.042	800	60	25	0.038	1600	65	50	0.020
12.0	900	90	35	0.050	800	80	30	0.050	660	60	25	0.045	1300	65	50	0.025
14.0	800	90	35	0.056	700	80	30	0.057	570	60	25	0.053	1100	65	50	0.030
16.0	700	100	35	0.071	600	85	30	0.071	500	75	25	0.075	1000	75	50	0.038
20.0	550	100	35	0.091	480	85	30	0.089	400	75	25	0.094	800	80	50	0.050

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6500	150	40	0.012	16000	320	100	0.010	12000	240	75	0.010	8000	65	50	0.004
3.0	4200	150	40	0.018	11000	320	105	0.015	8000	240	75	0.015	5300	65	50	0.006
4.0	3200	150	40	0.023	8000	320	100	0.020	6000	240	75	0.020	4000	65	50	0.008
5.0	2500	150	40	0.030	6400	320	100	0.025	4800	240	75	0.025	3200	65	50	0.010
6.0	2100	180	40	0.043	5300	340	100	0.032	4000	260	75	0.033	2600	65	50	0.013
8.0	1600	190	40	0.059	4000	340	100	0.043	3000	260	75	0.043	2000	65	50	0.016
10.0	1300	200	40	0.077	3200	340	100	0.053	2400	260	75	0.054	1600	65	50	0.020
12.0	1000	210	40	0.105	2600	340	100	0.065	2000	260	75	0.065	1300	65	50	0.025
14.0	900	220	40	0.122	2300	340	100	0.074	1700	260	75	0.076	1100	65	50	0.030
16.0	800	225	40	0.141	2000	340	100	0.085	1500	260	75	0.087	1000	75	50	0.038
20.0	640	240	40	0.188	1600	340	100	0.106	1200	260	75	0.108	800	80	50	0.050



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

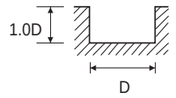
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE TiAlN-COATED - SLOTTING
VOLLHARTMETALL, 2 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E5424, E5416, E5444, E5527, E5445, E5452 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7700	110	50	0.007	6720	100	40	0.007	5600	75	35	0.007	11200	90	70	0.004
3.0	5180	125	50	0.012	4480	110	40	0.012	3640	85	35	0.012	7420	90	70	0.006
4.0	3920	125	50	0.016	3360	110	40	0.016	2800	85	35	0.015	5600	90	70	0.008
5.0	3080	125	50	0.020	2660	110	40	0.021	2240	85	35	0.019	4480	90	70	0.010
6.0	2520	125	50	0.025	2240	110	40	0.025	1820	85	35	0.023	3640	90	70	0.012
8.0	1960	125	50	0.032	1680	110	40	0.033	1400	85	35	0.030	2800	90	70	0.016
10.0	1540	125	50	0.041	1330	110	40	0.041	1120	85	35	0.038	2240	90	70	0.020
12.0	1260	125	50	0.050	1120	110	40	0.049	924	85	35	0.046	1820	90	70	0.025
14.0	1120	125	50	0.056	980	110	40	0.056	798	85	35	0.053	1540	90	70	0.029
16.0	980	140	50	0.071	840	120	40	0.071	700	105	35	0.075	1400	105	70	0.038
20.0	770	140	50	0.091	672	120	40	0.089	560	105	35	0.094	1120	110	70	0.049

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9100	210	55	0.012	22400	450	140	0.010	16800	335	105	0.010	11200	90	70	0.004
3.0	5880	210	55	0.018	15400	450	145	0.015	11200	335	105	0.015	7420	90	70	0.006
4.0	4480	210	55	0.023	11200	450	140	0.020	8400	335	105	0.020	5600	90	70	0.008
5.0	3500	210	55	0.030	8960	450	140	0.025	6720	335	105	0.025	4480	90	70	0.010
6.0	2940	250	55	0.043	7420	475	140	0.032	5600	365	105	0.033	3640	90	70	0.012
8.0	2240	265	55	0.059	5600	475	140	0.042	4200	365	105	0.043	2800	90	70	0.016
10.0	1820	280	55	0.077	4480	475	140	0.053	3360	365	105	0.054	2240	90	70	0.020
12.0	1400	295	55	0.105	3640	475	135	0.065	2800	365	105	0.065	1820	90	70	0.025
14.0	1260	310	55	0.123	3220	475	140	0.074	2380	365	105	0.077	1540	90	70	0.029
16.0	1120	315	55	0.141	2800	475	140	0.085	2100	365	105	0.087	1400	105	70	0.038
20.0	900	335	55	0.186	2240	475	140	0.106	1680	365	105	0.109	1120	110	70	0.049



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

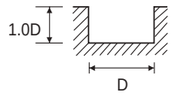
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN - NUTENFRÄSEN

E5553, E5410, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5500	70	35	0.004	4800	60	30	0.004	4000	50	25	0.004	8000	55	50	0.002
3.0	3700	80	35	0.007	3200	75	30	0.008	2600	55	25	0.007	5300	55	50	0.003
4.0	2800	80	35	0.010	2400	75	30	0.010	2000	55	25	0.009	4000	55	50	0.005
5.0	2200	80	35	0.012	1900	70	30	0.012	1600	55	25	0.011	3200	55	50	0.006
6.0	1800	80	35	0.015	1600	70	30	0.015	1300	55	25	0.014	2600	60	50	0.008
8.0	1400	80	35	0.019	1200	70	30	0.019	1000	55	25	0.018	2000	60	50	0.010
10.0	1100	80	35	0.024	950	70	30	0.025	800	55	25	0.023	1600	60	50	0.013
12.0	900	80	35	0.030	800	70	30	0.029	660	55	25	0.028	1300	60	50	0.015
14.0	800	80	35	0.033	700	70	30	0.033	570	55	25	0.032	1100	60	50	0.018
16.0	700	90	35	0.043	600	75	30	0.042	500	65	25	0.043	1000	70	50	0.023
20.0	550	90	35	0.055	480	75	30	0.052	400	65	25	0.054	800	70	50	0.029

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6500	140	40	0.007	16000	290	100	0.006	12000	220	75	0.006	8000	55	50	0.002
3.0	4200	140	40	0.011	11000	300	105	0.009	8000	220	75	0.009	5300	55	50	0.003
4.0	3200	130	40	0.014	8000	290	100	0.012	6000	220	75	0.012	4000	55	50	0.005
5.0	2500	135	40	0.018	6400	290	100	0.015	4800	220	75	0.015	3200	55	50	0.006
6.0	2100	160	40	0.025	5300	305	100	0.019	4000	240	75	0.020	2600	60	50	0.008
8.0	1600	170	40	0.035	4000	310	100	0.026	3000	230	75	0.026	2000	60	50	0.010
10.0	1300	180	40	0.046	3200	305	100	0.032	2400	230	75	0.032	1600	60	50	0.013
12.0	1000	190	40	0.063	2600	300	100	0.038	2000	230	75	0.038	1300	60	50	0.015
14.0	900	200	40	0.074	2300	300	100	0.043	1700	230	75	0.045	1100	60	50	0.018
16.0	800	200	40	0.083	2000	300	100	0.050	1500	230	75	0.051	1000	70	50	0.023
20.0	640	215	40	0.112	1600	300	100	0.063	1200	230	75	0.064	800	70	50	0.029



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

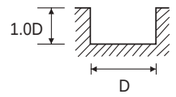
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE TiAlN-COATED - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E5553, E5410, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7700	100	50	0.004	6720	85	40	0.004	5600	70	35	0.004	11200	75	70	0.002
3.0	5180	110	50	0.007	4480	105	40	0.008	3640	75	35	0.007	7420	75	70	0.003
4.0	3920	110	50	0.009	3360	105	40	0.010	2800	75	35	0.009	5600	75	70	0.004
5.0	3080	110	50	0.012	2660	100	40	0.013	2240	75	35	0.011	4480	75	70	0.006
6.0	2520	110	50	0.015	2240	100	40	0.015	1820	75	35	0.014	3640	85	70	0.008
8.0	1960	110	50	0.019	1680	100	40	0.020	1400	75	35	0.018	2800	85	70	0.010
10.0	1540	110	50	0.024	1330	100	40	0.025	1120	75	35	0.022	2240	85	70	0.013
12.0	1260	110	50	0.029	1120	100	40	0.030	920	75	35	0.027	1820	85	70	0.016
14.0	1120	110	50	0.033	980	100	45	0.034	800	75	35	0.031	1540	85	70	0.018
16.0	980	125	50	0.043	840	105	40	0.042	700	90	35	0.043	1400	100	70	0.024
20.0	770	125	50	0.054	670	105	40	0.052	560	90	35	0.054	1120	100	70	0.030

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9100	195	55	0.007	22400	405	140	0.006	16800	310	105	0.006	11200	75	70	0.002
3.0	5880	195	55	0.011	15400	420	145	0.009	11200	310	105	0.009	7420	75	70	0.003
4.0	4480	180	55	0.013	11200	405	140	0.012	8400	310	105	0.012	5600	75	70	0.004
5.0	3500	190	55	0.018	8960	405	140	0.015	6720	310	105	0.015	4480	75	70	0.006
6.0	2940	225	55	0.026	7420	425	140	0.019	5600	335	105	0.020	3640	85	70	0.008
8.0	2240	240	55	0.036	5600	435	140	0.026	4200	320	105	0.025	2800	85	70	0.010
10.0	1820	250	55	0.046	4480	425	140	0.032	3360	320	105	0.032	2240	85	70	0.013
12.0	1400	265	55	0.063	3640	420	135	0.038	2800	320	105	0.038	1820	85	70	0.016
14.0	1260	280	55	0.074	3220	420	140	0.043	2380	320	105	0.045	1540	85	70	0.018
16.0	1120	280	55	0.083	2800	420	140	0.050	2100	320	105	0.051	1400	100	70	0.024
20.0	900	300	55	0.111	2240	420	140	0.063	1680	320	105	0.063	1120	100	70	0.030



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

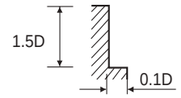
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN - SEITENFRÄSEN

E5553, E5410, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5500	180	35	0.011	4800	160	30	0.011	4000	120	25	0.010	8000	140	50	0.006
3.0	3700	200	35	0.018	3200	170	30	0.018	2600	130	25	0.017	5300	140	50	0.009
4.0	2800	200	35	0.024	2400	180	30	0.025	2000	130	25	0.022	4000	140	50	0.012
5.0	2200	200	35	0.030	1900	180	30	0.032	1600	130	25	0.027	3200	140	50	0.015
6.0	1800	200	35	0.037	1600	180	30	0.038	1300	130	25	0.033	2600	150	50	0.019
8.0	1400	200	35	0.048	1200	180	30	0.050	1000	130	25	0.043	2000	150	50	0.025
10.0	1100	200	35	0.061	950	180	30	0.063	800	130	25	0.054	1600	150	50	0.031
12.0	900	200	35	0.074	800	180	30	0.075	660	130	25	0.066	1300	150	50	0.038
14.0	800	200	35	0.083	700	180	30	0.086	570	130	25	0.076	1100	150	50	0.045
16.0	700	220	35	0.105	600	190	30	0.106	500	160	25	0.107	1000	170	50	0.057
20.0	550	220	35	0.133	480	190	30	0.132	400	160	25	0.133	800	180	50	0.075

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6500	330	40	0.017	16000	720	100	0.015	12000	540	75	0.015	8000	140	50	0.006
3.0	4200	330	40	0.026	11000	690	105	0.021	8000	530	75	0.022	5300	140	50	0.009
4.0	3200	340	40	0.035	8000	720	100	0.030	6000	540	75	0.030	4000	140	50	0.012
5.0	2500	340	40	0.045	6400	710	100	0.037	4800	530	75	0.037	3200	140	50	0.015
6.0	2100	400	40	0.063	5300	760	100	0.048	4000	580	75	0.048	2600	150	50	0.019
8.0	1600	430	40	0.090	4000	760	100	0.063	3000	580	75	0.064	2000	150	50	0.025
10.0	1300	450	40	0.115	3200	760	100	0.079	2400	580	75	0.081	1600	150	50	0.031
12.0	1000	470	40	0.157	2600	760	100	0.097	2000	580	75	0.097	1300	150	50	0.038
14.0	900	490	40	0.181	2300	760	100	0.110	1700	580	75	0.114	1100	150	50	0.045
16.0	800	510	40	0.213	2000	760	100	0.127	1500	580	75	0.129	1000	170	50	0.057
20.0	640	540	40	0.281	1600	760	100	0.158	1200	580	75	0.161	800	180	50	0.075



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

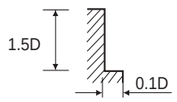
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE TiAlN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E5553, E5410, E5425, E5417, E5439, E5433, E5528 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7700	250	50	0.016	6720	225	40	0.011	5600	170	35	0.010	11200	195	70	0.006
3.0	5180	280	50	0.027	4480	240	40	0.018	3640	180	35	0.016	7420	195	70	0.009
4.0	3920	280	50	0.036	3360	250	40	0.025	2800	180	35	0.021	5600	195	70	0.012
5.0	3080	280	50	0.045	2660	250	40	0.031	2240	180	35	0.027	4480	195	70	0.015
6.0	2520	280	50	0.056	2240	250	40	0.037	1820	180	35	0.033	3640	210	70	0.019
8.0	1960	280	50	0.071	1680	250	40	0.050	1400	180	35	0.043	2800	210	70	0.025
10.0	1540	280	50	0.091	1330	250	40	0.063	1120	180	35	0.054	2240	210	70	0.031
12.0	1260	280	50	0.111	1120	250	40	0.074	920	180	35	0.065	1820	210	70	0.038
14.0	1120	280	50	0.125	980	250	45	0.085	800	180	35	0.075	1540	210	70	0.045
16.0	980	310	50	0.158	840	265	40	0.105	700	225	35	0.107	1400	240	70	0.057
20.0	770	310	50	0.201	670	265	40	0.132	560	225	35	0.134	1120	250	70	0.074

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz
2.0	9100	460	55	0.017	22400	1010	140	0.015	16800	755	105	0.015	11200	195	70	0.006
3.0	5880	460	55	0.026	15400	965	145	0.021	11200	740	105	0.022	7420	195	70	0.009
4.0	4480	475	55	0.035	11200	1010	140	0.030	8400	755	105	0.030	5600	195	70	0.012
5.0	3500	475	55	0.045	8960	995	140	0.037	6720	740	105	0.037	4480	195	70	0.015
6.0	2940	560	55	0.063	7420	1065	140	0.048	5600	810	105	0.048	3640	210	70	0.019
8.0	2240	600	55	0.089	5600	1065	140	0.063	4200	810	105	0.064	2800	210	70	0.025
10.0	1820	630	55	0.115	4480	1065	140	0.079	3360	810	105	0.080	2240	210	70	0.031
12.0	1400	660	55	0.157	3640	1065	135	0.098	2800	810	105	0.096	1820	210	70	0.038
14.0	1260	685	55	0.181	3220	1065	140	0.110	2380	810	105	0.113	1540	210	70	0.045
16.0	1120	715	55	0.213	2800	1065	140	0.127	2100	810	105	0.129	1400	240	70	0.057
20.0	900	755	55	0.280	2240	1065	140	0.158	1680	810	105	0.161	1120	250	70	0.074



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

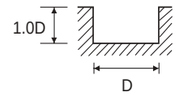
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE - NUTENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	P								K			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON			
HARDNESS	~ HRc30				HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1600	95	30	0.020	1300	65	25	0.017	2100	220	40	0.035
8.0	1200	95	30	0.026	1000	65	25	0.022	1600	230	40	0.048
10.0	950	95	30	0.033	800	65	25	0.027	1300	240	40	0.062
12.0	800	95	30	0.040	660	65	25	0.033	1000	250	40	0.083
14.0	700	95	30	0.045	570	65	25	0.038	900	260	40	0.096
16.0	600	100	30	0.056	500	80	25	0.053	800	270	40	0.113
20.0	480	100	30	0.069	400	80	25	0.067	640	290	40	0.151

MATERIAL	N							
	ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5300	410	100	0.026	4000	310	75	0.026
8.0	4000	410	100	0.034	3000	310	75	0.034
10.0	3200	410	100	0.043	2400	310	75	0.043
12.0	2600	410	100	0.053	2000	310	75	0.052
14.0	2300	410	100	0.059	1700	310	75	0.061
16.0	2000	410	100	0.068	1500	310	75	0.069
20.0	1600	410	100	0.085	1200	310	75	0.086



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Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

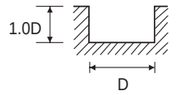
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX TiAlN-COATED - SLOTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE TiAlN-BESCHICHTET - NUTENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	P								K			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON			
HARDNESS	~ HRc30				HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2240	135	40	0.020	1820	90	35	0.016	2940	310	55	0.035
8.0	1680	135	40	0.027	1400	90	35	0.021	2240	320	55	0.048
10.0	1330	135	40	0.034	1120	90	35	0.027	1820	335	55	0.061
12.0	1120	135	40	0.040	925	90	35	0.032	1400	350	55	0.083
14.0	980	135	45	0.046	800	90	35	0.038	1260	365	55	0.097
16.0	840	140	40	0.056	700	110	35	0.052	1120	380	55	0.113
20.0	670	140	40	0.070	560	110	35	0.065	895	405	55	0.151

MATERIAL	N							
	ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7420	575	140	0.026	5600	435	105	0.026
8.0	5600	575	140	0.034	4200	435	105	0.035
10.0	4480	575	140	0.043	3360	435	105	0.043
12.0	3640	575	135	0.053	2800	435	105	0.052
14.0	3220	575	140	0.060	2380	435	105	0.061
16.0	2800	575	140	0.068	2100	435	105	0.069
20.0	2240	575	140	0.086	1680	435	105	0.086



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FEED = mm/min.
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CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

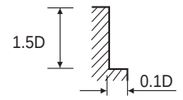
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE - SEITENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	P								K			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON			
HARDNESS	~ HRc30				HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1600	190	30	0.040	1300	130	25	0.033	2100	440	40	0.070
8.0	1200	190	30	0.053	1000	130	25	0.043	1600	460	40	0.096
10.0	950	190	30	0.067	800	130	25	0.054	1300	480	40	0.123
12.0	800	190	30	0.079	660	130	25	0.066	1000	500	40	0.167
14.0	700	190	30	0.090	570	130	25	0.076	900	520	40	0.193
16.0	600	200	30	0.111	500	160	25	0.107	800	540	40	0.225
20.0	480	200	30	0.139	400	160	25	0.133	640	580	40	0.302

MATERIAL	N							
	ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	5300	820	100	0.052	4000	620	75	0.052
8.0	4000	820	100	0.068	3000	620	75	0.069
10.0	3200	820	100	0.085	2400	620	75	0.086
12.0	2600	820	100	0.105	2000	620	75	0.103
14.0	2300	820	100	0.119	1700	620	75	0.122
16.0	2000	820	100	0.137	1500	620	75	0.138
20.0	1600	820	100	0.171	1200	620	75	0.172



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FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

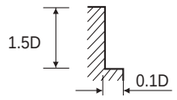
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 3 FLUTE 45° HELIX TiAlN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN 45° RECHTSSPIRALE TiAlN-BESCHICHTET - SEITENFRÄSEN

E5423, E5415, E5446, E5447 SERIES

MATERIAL	P								K			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CAST IRON			
HARDNESS	~ HRc30				HRc30 ~ HRc40							
STRENGTH	~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2240	265	40	0.039	1820	180	35	0.033	2940	615	55	0.070
8.0	1680	265	40	0.053	1400	180	35	0.043	2240	645	55	0.096
10.0	1330	265	40	0.066	1120	180	35	0.054	1820	670	55	0.123
12.0	1120	265	40	0.079	925	180	35	0.065	1400	700	55	0.167
14.0	980	265	45	0.090	800	180	35	0.075	1260	730	55	0.193
16.0	840	280	40	0.111	700	225	35	0.107	1120	755	55	0.225
20.0	670	280	40	0.139	560	225	35	0.134	895	810	55	0.302

MATERIAL	N							
	ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	7420	1150	140	0.052	5600	870	105	0.052
8.0	5600	1150	140	0.068	4200	870	105	0.069
10.0	4480	1150	140	0.086	3360	870	105	0.086
12.0	3640	1150	135	0.105	2800	870	105	0.104
14.0	3220	1150	140	0.119	2380	870	105	0.122
16.0	2800	1150	140	0.137	2100	870	105	0.138
20.0	2240	1150	140	0.171	1680	870	105	0.173



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

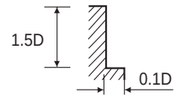
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN - SEITENFRÄSEN

E5432, E5595, E5448, E5449, E5540, E5453 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5500	240	35	0.011	4800	210	30	0.011	4000	160	25	0.010	8000	200	50	0.006
3.0	3700	270	35	0.018	3200	240	30	0.019	2600	180	25	0.017	5300	200	50	0.009
4.0	2800	270	35	0.024	2400	240	30	0.025	2000	180	25	0.023	4000	200	50	0.013
5.0	2200	270	35	0.031	1900	240	30	0.032	1600	180	25	0.028	3200	200	50	0.016
6.0	1800	270	35	0.038	1600	240	30	0.038	1300	180	25	0.035	2600	200	50	0.019
8.0	1400	270	35	0.048	1200	240	30	0.050	1000	180	25	0.045	2000	200	50	0.025
10.0	1100	270	35	0.061	950	240	30	0.063	800	180	25	0.056	1600	200	50	0.031
12.0	900	270	35	0.075	800	240	30	0.075	660	180	25	0.068	1300	200	50	0.038
14.0	800	270	35	0.084	700	240	30	0.086	570	180	25	0.079	1100	200	50	0.045
16.0	700	300	35	0.107	600	260	30	0.108	500	220	25	0.110	1000	225	50	0.056
20.0	550	300	35	0.136	480	260	30	0.135	400	220	25	0.138	800	240	50	0.075

MATERIAL	K				N								S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz
2.0	6500	450	40	0.017	16000	960	100	0.015	12000	720	75	0.015	8000	200	50	0.006
3.0	4200	450	40	0.027	11000	960	105	0.022	8000	720	75	0.023	5300	200	50	0.009
4.0	3200	450	40	0.035	8000	960	100	0.030	6000	720	75	0.030	4000	200	50	0.013
5.0	2500	450	40	0.045	6400	960	100	0.038	4800	720	75	0.038	3200	200	50	0.016
6.0	2100	540	40	0.064	5300	1020	100	0.048	4000	780	75	0.049	2600	200	50	0.019
8.0	1600	570	40	0.089	4000	1020	100	0.064	3000	780	75	0.065	2000	200	50	0.025
10.0	1300	600	40	0.115	3200	1020	100	0.080	2400	780	75	0.081	1600	200	50	0.031
12.0	1000	630	40	0.158	2600	1020	100	0.098	2000	780	75	0.098	1300	200	50	0.038
14.0	900	660	40	0.183	2300	1020	100	0.111	1700	780	75	0.115	1100	200	50	0.045
16.0	800	680	40	0.213	2000	1020	100	0.128	1500	780	75	0.130	1000	225	50	0.056
20.0	640	720	40	0.281	1600	1020	100	0.159	1200	780	75	0.163	800	240	50	0.075



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

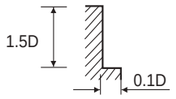
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 4 FLUTE TiAlN-COATED - SIDE CUTTING
VOLLHARTMETALL, 3 SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E5432, E5595, E5448, E5449, E5540, E5453 SERIES

MATERIAL	P												M			
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS			
HARDNESS	~ HRc 20				HRc 20 ~ HRc 30				HRc 30 ~ HRc 40							
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7700	335	50	0.011	6720	295	40	0.011	5600	225	35	0.010	11200	280	70	0.006
3.0	5180	380	50	0.018	4480	335	40	0.019	3640	250	35	0.017	7420	280	70	0.009
4.0	3920	380	50	0.024	3360	335	40	0.025	2800	250	35	0.022	5600	280	70	0.013
5.0	3080	380	50	0.031	2660	335	40	0.031	2240	250	35	0.028	4480	280	70	0.016
6.0	2520	380	50	0.038	2240	335	40	0.037	1820	250	35	0.034	3640	280	70	0.019
8.0	1960	380	50	0.048	1680	335	40	0.050	1400	250	35	0.045	2800	280	70	0.025
10.0	1540	380	50	0.062	1330	335	40	0.063	1120	250	35	0.056	2240	280	70	0.031
12.0	1260	380	50	0.075	1120	335	40	0.075	920	250	35	0.068	1820	280	70	0.038
14.0	1120	380	50	0.085	980	335	45	0.085	800	250	35	0.078	1540	280	70	0.045
16.0	980	420	50	0.107	840	365	45	0.109	700	310	35	0.111	1400	315	70	0.056
20.0	770	420	50	0.136	670	365	45	0.136	560	310	35	0.138	1120	335	70	0.075

MATERIAL	K				N				N				S			
	CAST IRON				ALUMINUM ALLOYS				COPPER, BRASS NON-FERROUS METALS				TITANIUM ALLOYS			
HARDNESS																
STRENGTH																
DIAMETER	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz	RPM	FEED	VC	fz
2.0	9100	630	55	0.017	22400	1345	140	0.015	16800	1010	105	0.015	11200	280	70	0.006
3.0	5880	630	55	0.027	15400	1345	145	0.022	11200	1010	105	0.023	7420	280	70	0.009
4.0	4480	630	55	0.035	11200	1345	140	0.030	8400	1010	105	0.030	5600	280	70	0.013
5.0	3500	630	55	0.045	8960	1345	140	0.038	6720	1010	105	0.038	4480	280	70	0.016
6.0	2940	755	55	0.064	7420	1430	140	0.048	5600	1090	105	0.049	3640	280	70	0.019
8.0	2240	800	55	0.089	5600	1430	140	0.064	4200	1090	105	0.065	2800	280	70	0.025
10.0	1820	840	55	0.115	4480	1430	140	0.080	3360	1090	105	0.081	2240	280	70	0.031
12.0	1400	880	55	0.157	3640	1430	135	0.098	2800	1090	105	0.097	1820	280	70	0.038
14.0	1260	925	55	0.184	3220	1430	140	0.111	2380	1090	105	0.114	1540	280	70	0.045
16.0	1120	950	55	0.212	2800	1430	140	0.128	2100	1090	105	0.130	1400	315	70	0.056
20.0	900	1010	55	0.281	2240	1430	140	0.160	1680	1090	105	0.162	1120	335	70	0.075



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

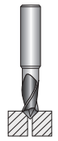
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - CHAMFERING
VOLLHARTMETALL, 2 SCHNEIDEN - SENKEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	4400	220	40	0.025	3500	160	35	0.023	3000	140	30	0.023
4.0	3600	220	45	0.031	3000	160	40	0.027	2500	140	30	0.028
5.0	2860	230	45	0.040	2400	170	40	0.035	2000	140	30	0.035
6.0	2300	240	45	0.052	2000	170	40	0.043	1600	140	30	0.044
8.0	1760	250	45	0.071	1540	180	40	0.058	1200	145	30	0.060
10.0	1500	250	45	0.083	1300	190	40	0.073	1100	145	35	0.066
12.0	1300	260	50	0.100	1100	200	40	0.091	900	150	35	0.083
10.0	1000	250	30	0.125	950	200	30	0.105	700	160	20	0.114
20.0	950	260	60	0.137	750	210	45	0.140	600	160	40	0.133

MATERIAL	M				N			
	STAINLESS STEELS				ALUMINUM ALLOYS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	2400	100	25	0.021	11000	550	105	0.025
4.0	2000	100	25	0.025	9000	580	115	0.032
5.0	1760	105	30	0.030	6900	620	110	0.045
6.0	1400	105	25	0.038	5600	640	105	0.057
8.0	1000	110	25	0.055	4400	660	110	0.075
10.0	870	110	25	0.063	4000	680	125	0.085
12.0	730	115	30	0.079	3500	700	130	0.100
10.0	550	120	15	0.109	2750	740	85	0.135
20.0	530	130	35	0.123	2200	770	140	0.175



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE TiAlN-COATED - CHAMFERING
VOLLHARTMETALL, 2 SCHNEIDEN TiAlN-BESCHICHTET - SENKEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	6160	310	60	0.025	4900	225	45	0.023	4200	195	40	0.023
4.0	5040	310	65	0.031	4200	225	55	0.027	3500	195	45	0.028
5.0	4005	320	65	0.040	3360	240	55	0.036	2800	195	45	0.035
6.0	3220	335	60	0.052	2800	240	55	0.043	2240	195	40	0.044
8.0	2465	350	60	0.071	2155	250	55	0.058	1680	2030	40	0.604
10.0	2100	350	65	0.083	1820	265	55	0.073	1540	2030	50	0.659
12.0	1820	365	70	0.100	1540	280	60	0.091	1260	210	50	0.083
16.0	1400	350	70	0.125	1330	280	65	0.105	980	225	50	0.115
20.0	1330	365	85	0.137	1050	295	65	0.140	840	225	55	0.134

MATERIAL	M				N			
	STAINLESS STEELS				ALUMINUM ALLOYS			
HARDNESS								
STRENGTH								
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	3360	140	30	0.021	15400	770	145	0.025
4.0	2800	140	35	0.025	12600	810	160	0.032
5.0	2465	145	40	0.029	9660	870	150	0.045
6.0	1960	145	35	0.037	7840	895	150	0.057
8.0	1400	155	35	0.055	6160	925	155	0.075
10.0	1220	155	40	0.064	5600	950	175	0.085
12.0	1020	160	40	0.078	4900	980	185	0.100
16.0	770	170	40	0.110	3850	1035	195	0.134
20.0	740	180	45	0.122	3080	1080	195	0.175

※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - CHAMFERING & SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN - SENKEN & SEITENFRÄSEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	5900	95	55	0.008	3900	65	35	0.008	3300	50	30	0.008
4.0	4800	95	60	0.010	3200	65	40	0.010	2800	50	35	0.009
5.0	3800	100	60	0.013	2500	65	40	0.013	2200	55	35	0.013
6.0	3000	110	55	0.018	2000	70	40	0.018	1800	60	35	0.017
8.0	2300	115	60	0.025	1540	75	40	0.024	1300	65	35	0.025
10.0	2000	120	65	0.030	1300	80	40	0.031	1200	65	40	0.027
12.0	1760	130	65	0.037	1100	90	40	0.041	1000	70	40	0.035
16.0	1300	140	65	0.054	900	90	45	0.050	770	70	40	0.045
20.0	1100	140	70	0.064	700	90	45	0.064	600	70	40	0.058

MATERIAL	M				N				S			
	STAINLESS STEELS				ALUMINUM ALLOYS				TITANIUM ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	2400	40	25	0.008	14000	230	130	0.008	2400	40	25	0.008
4.0	2000	40	25	0.010	12000	240	150	0.010	2000	40	25	0.010
5.0	1760	45	30	0.013	9500	250	150	0.013	1760	45	30	0.013
6.0	1400	50	25	0.018	7700	300	145	0.019	1400	50	25	0.018
8.0	1100	55	30	0.025	5800	350	145	0.030	1100	55	30	0.025
10.0	1000	55	30	0.028	5100	380	160	0.037	1000	55	30	0.028
12.0	840	60	30	0.036	4400	400	165	0.045	840	60	30	0.036
16.0	660	60	35	0.045	3300	330	165	0.050	660	60	35	0.045
20.0	440	60	30	0.068	2640	340	165	0.064	440	60	30	0.068

※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE TiAlN-COATED - CHAMFERING & SIDE CUTTING
VOLLHARTMETALL, 2 SCHNEIDEN TiAlN-BESCHICHTET - SENKEN & SEITENFRÄSEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	8260	135	80	0.008	5460	90	50	0.008	4620	70	45	0.008
4.0	6720	135	85	0.010	4480	90	55	0.010	3920	70	50	0.009
5.0	5320	140	85	0.013	3500	90	55	0.013	3080	75	50	0.012
6.0	4200	155	80	0.018	2800	100	55	0.018	2520	85	50	0.017
8.0	3220	160	80	0.025	2155	105	55	0.024	1820	90	45	0.025
10.0	2800	170	90	0.030	1820	110	55	0.030	1680	90	55	0.027
12.0	2465	180	95	0.037	1540	125	60	0.041	1400	100	55	0.036
16.0	1820	195	90	0.054	1260	125	65	0.050	1080	100	55	0.046
20.0	1540	195	95	0.063	980	125	60	0.064	840	100	55	0.060

MATERIAL	M				N				S			
	STAINLESS STEELS				ALUMINUM ALLOYS				TITANIUM ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	3360	55	30	0.008	19600	320	185	0.008	3360	55	30	0.008
4.0	2800	55	35	0.010	16800	335	210	0.010	2800	55	35	0.010
5.0	2465	65	40	0.013	13300	350	210	0.013	2465	65	40	0.013
6.0	1960	70	35	0.018	10780	420	205	0.019	1960	70	35	0.018
8.0	1540	75	40	0.024	8120	490	205	0.030	1540	75	40	0.024
10.0	1400	75	45	0.027	7140	530	225	0.037	1400	75	45	0.027
12.0	1175	85	45	0.036	6160	560	230	0.045	1175	85	45	0.036
16.0	925	85	45	0.046	4620	460	230	0.050	925	85	45	0.046
20.0	615	85	40	0.069	3695	475	230	0.064	615	85	40	0.069

※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

CARBIDE END MILLS

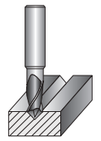
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE - V-GROOVING
VOLLHARTMETALL, 2 SCHNEIDEN - ENTGRATEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	5900	60	55	0.005	4000	30	40	0.004	3300	25	30	0.004
4.0	4800	60	60	0.006	3300	30	40	0.005	2800	25	35	0.004
5.0	3800	60	60	0.008	2500	30	40	0.006	2200	25	35	0.006
6.0	3000	60	55	0.010	2000	30	40	0.008	1800	30	35	0.008
8.0	2300	65	60	0.014	1540	35	40	0.011	1300	35	35	0.013
10.0	2000	65	65	0.016	1300	35	40	0.013	1200	35	40	0.015
12.0	1760	65	65	0.018	1000	40	40	0.020	1000	35	40	0.018
16.0	1400	65	70	0.023	900	40	45	0.022	770	35	40	0.023
20.0	1100	65	70	0.030	700	40	45	0.029	600	35	40	0.029

MATERIAL	M				N				S			
	STAINLESS STEELS				ALUMINUM ALLOYS				TITANIUM ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	2400	20	25	0.004	14000	220	130	0.008	2400	20	25	0.004
4.0	2000	20	25	0.005	11800	230	150	0.010	2000	20	25	0.005
5.0	1760	20	30	0.006	9500	240	150	0.013	1760	20	30	0.006
6.0	1400	20	25	0.007	7700	250	145	0.016	1400	20	25	0.007
8.0	1100	20	30	0.009	5800	260	145	0.022	1100	20	30	0.009
10.0	1000	20	30	0.010	5000	260	155	0.026	1000	20	30	0.010
12.0	840	20	30	0.012	4400	260	165	0.030	840	20	30	0.012
16.0	660	25	35	0.019	3300	270	165	0.041	660	25	35	0.019
20.0	440	25	30	0.028	2600	270	165	0.052	440	25	30	0.028



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE END MILLS

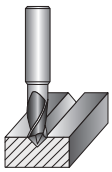
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

CARBIDE, 2 FLUTE TiAlN-COATED - V-GROOVING
VOLLHARTMETALL, 2 SCHNEIDEN TiAlN-BESCHICHTET - ENTGRATEN

E5400 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	8260	85	80	0.005	5600	40	55	0.004	4620	35	45	0.004
4.0	6720	85	85	0.006	4620	40	60	0.004	3920	35	50	0.004
5.0	5320	85	85	0.008	3500	40	55	0.006	3080	35	50	0.006
6.0	4200	85	80	0.010	2800	40	55	0.007	2520	40	50	0.008
8.0	3220	90	80	0.014	2155	50	55	0.012	1820	50	45	0.014
10.0	2800	90	90	0.016	1820	50	55	0.014	1680	50	55	0.015
12.0	2465	90	95	0.018	1400	55	55	0.020	1400	50	55	0.018
16.0	1960	90	100	0.023	1260	55	65	0.022	1080	50	55	0.023
20.0	1540	90	95	0.029	980	55	60	0.028	840	50	55	0.030

MATERIAL	M				N				S			
	STAINLESS STEELS				ALUMINUM ALLOYS				TITANIUM ALLOYS			
HARDNESS												
STRENGTH												
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	3360	30	30	0.004	19600	310	185	0.008	3360	30	30	0.004
4.0	2800	30	35	0.005	16520	320	210	0.010	2800	30	35	0.005
5.0	2465	30	40	0.006	13300	335	210	0.013	2465	30	40	0.006
6.0	1960	30	35	0.008	10780	350	205	0.016	1960	30	35	0.008
8.0	1540	30	40	0.010	8120	365	205	0.022	1540	30	40	0.010
10.0	1400	30	45	0.011	7000	365	220	0.026	1400	30	45	0.011
12.0	1175	30	45	0.013	6160	365	230	0.030	1175	30	45	0.013
16.0	925	35	45	0.019	4620	380	230	0.041	925	35	45	0.019
20.0	615	35	40	0.028	3640	380	230	0.052	615	35	40	0.028



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS PM60

Leading Through Innovation

ONLY ONE COATED PM60 END MILLS

ONLY ONE BESCHICHTET PM60 FRÄSER

- **Perfect solution to protect Carbide chipping problems under vibrations**
- **Die erste Wahl für instabile Beabrbeitungsverhältnisse. Mit ausgezeichneter Zähigkeit.**

SELECTION GUIDE

ONLY ONE COATED PM60 END MILLS

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE
GYG77 GYF97		PM60, 2 FLUTE BALL NOSE SHORT LENGTH PM60, 2 SCHNEIDEN, STIRNRADIUS, KURZ	R0.5	R12.5	1320
GYG72 GYF99		PM60, 2 FLUTE SHORT LENGTH PM60, 2 SCHNEIDEN, KURZ, ZENTRUMSCHNITT	D1.0	D25.0	1321
GYG01		PM60, 3 FLUTE SHORT LENGTH (Center Cut) PM60, 3 SCHNEIDEN, KURZ, ZENTRUMSCHNITT	D1.0	D25.0	1322
GYG74 GYF96		PM60, 4 FLUTE SHORT LENGTH (Center Cut) PM60, 4 SCHNEIDEN, KURZ, ZENTRUMSCHNITT	D1.0	D25.0	1323
GYG52		PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut) PM60, 4 SCHNEIDEN, MIT UNGLEICHEM DRALL, KURZ, ZENTRUMSCHNITT	D3.0	D25.0	1324
GYG76 GYG02		PM60, 4 FLUTE LONG LENGTH (Center Cut) PM60, 4 SCHNEIDEN, LANG, ZENTRUMSCHNITT	D2.0	D25.0	1325
GYF95		PM60, MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut) PM60, MEHRSCHNEIDEN, MIT UNGLEICHEM DRALL, KURZ, ECKENRADIUS, FEINKORDEL-SCHUPPFR SER, ZENTRUMSCHNITT	D6.0	D25.0	1326
GYF94		PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut) PM60, MEHRSCHNEIDEN, KURZ, FEINKORDEL-SCHUPPFRÄSER, ZENTRUMSCHNITT	D6.0	D25.0	1327
GYF98		PM60, MULTI FLUTE LONG LENGTH ROUGHING - FINE (Center Cut) PM60, MEHRSCHNEIDEN, LANG, FEINKORDEL-SCHUPPFRÄSER, ZENTRUMSCHNITT	D6.0	D2	1328
GYG03		PM60, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE (Center Cut) PM60, MEHRSCHNEIDEN, KURZ, SCHUPPFRÄSER, ZENTRUMSCHNITT	D6.0	5.0	1329
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN		D25.0	1330

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
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YG ONLY ONE END MILLS

GYG77 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT

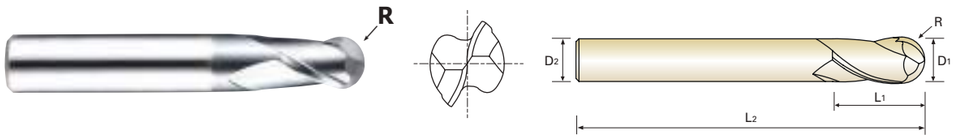
GYF97 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

PM60, 2 FLUTE BALL NOSE SHORT LENGTH

PM60, 2 Schneiden, Stirnradius kurz

Revêtue YG-AlCrN - PM60, 2 dents, série courte, hémisphérique

Rivestita PM60, 2 TAGLIENTE SERIE CORTA SEMISFERICA



PM60 | 2 | 30° | R ±0.02 | PLAIN | FLAT P. 1330

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	R(±0.02)	D1	D2	L1	L2
GYG77010	GYF97010	R0.5	1.0	6	2.5	47
GYG77020	GYF97020	R1.0	2.0	6	4	48
GYG77030	GYF97030	R1.5	3.0	6	5	49
GYG77040	GYF97040	R2.0	4.0	6	7	51
GYG77050	GYF97050	R2.5	5.0	6	8	52
GYG77060	GYF97060	R3.0	6.0	6	8	52
GYG77070	GYF97070	R3.5	7.0	8	10	60
GYG77080	GYF97080	R4.0	8.0	8	11	61
GYG77090	GYF97090	R4.5	9.0	10	11	61
GYG77100	GYF97100	R5.0	10.0	10	13	63
GYG77120	GYF97120	R6.0	12.0	12	16	73
GYG77140	GYF97140	R7.0	14.0	12	16	73
GYG77160	GYF97160	R8.0	16.0	16	19	79
GYG77180	GYF97180	R9.0	18.0	16	19	79
GYG77200	GYF97200	R10.0	20.0	20	22	88
GYG77250	GYF97250	R12.5	25.0	25	26	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

YG ONLY ONE END MILLS

GYG72 SERIES PLAIN SHANK GLATTER ZYLINDERSCHAFT

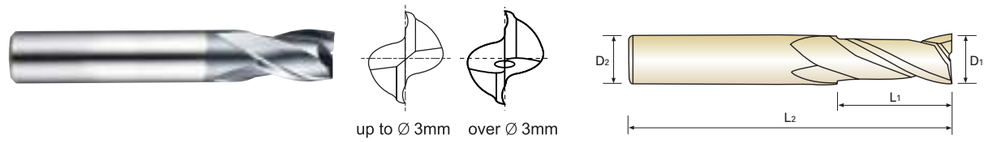
GYF99 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

PM60, 2 FLUTE SHORT LENGTH

PM60, 2 Schneiden, kurz, Zentrumschnitt

Revêtue YG-AlCrN - PM60, 2 dents, série courte (Coupe au centre)

Rivestita PM60, 2 TAGLIENTI SERIE CORTA (Tagliente al centro)



PM60 | 2 | 30° | PLAIN | FLAT P. 1331

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GYG72010	GYF99010	1.0	6	2.5	47
GYG72020	GYF99020	2.0	6	4	48
GYG72030	GYF99030	3.0	6	5	49
GYG72040	GYF99040	4.0	6	7	51
GYG72050	GYF99050	5.0	6	8	52
GYG72060	GYF99060	6.0	6	8	52
GYG72070	GYF99070	7.0	8	10	60
GYG72080	GYF99080	8.0	8	11	61
GYG72090	GYF99090	9.0	10	11	61
GYG72100	GYF99100	10.0	10	13	63
GYG72120	GYF99120	12.0	12	16	73
GYG72140	GYF99140	14.0	12	16	73
GYG72160	GYF99160	16.0	16	19	79
GYG72180	GYF99180	18.0	16	19	79
GYG72200	GYF99200	20.0	20	22	88
GYG72220	GYF99220	22.0	20	22	88
GYG72250	GYF99250	25.0	25	26	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

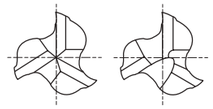
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

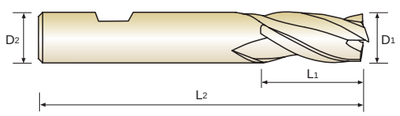
ONLY ONE END MILLS

GYG01 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PM60, 3 FLUTE SHORT LENGTH (Center Cut)

PM60, 3 Schneiden, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 3 dents, série courte (Coupe au centre)
Rivestita PM60, 3 TAGLIENTI SERIE CORTA (Tagliente al centro)





PM60 | 3 | 30° | FLAT P. 1332-1333

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
GYG01010	1.0	6	3	47
GYG01020	2.0	6	7	51
GYG01030	3.0	6	8	52
GYG01040	4.0	6	11	55
GYG01050	5.0	6	13	57
GYG01060	6.0	6	13	57
GYG01070	7.0	8	16	66
GYG01080	8.0	8	19	69
GYG01090	9.0	10	19	69
GYG01100	10.0	10	22	72
GYG01120	12.0	12	26	83
GYG01140	14.0	12	26	83
GYG01160	16.0	16	32	92
GYG01180	18.0	16	32	92
GYG01200	20.0	20	38	104
GYG01220	22.0	20	38	104
GYG01250	25.0	25	45	121

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
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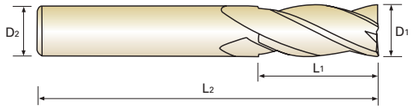
ONLY ONE END MILLS

GYG74 SERIES PLAIN SHANK
GLATTER ZYLINDERSCHAFT
GYF96 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PM60, 4 FLUTE SHORT LENGTH (Center Cut)

PM60, 4 Schneiden, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 4 dents, série courte (Coupe au centre)
Rivestita PM60, 4 TAGLIENTI SERIE CORTA (Tagliente al centro)



PM60 | 4 | 30° | PLAIN | FLAT P. 1334

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GYG74010	GYF96010	1.0	6	3	49
GYG74020	GYF96020	2.0	6	7	51
GYG74030	GYF96030	3.0	6	8	52
GYG74040	GYF96040	4.0	6	11	55
GYG74050	GYF96050	5.0	6	13	57
GYG74060	GYF96060	6.0	6	13	57
GYG74070	GYF96070	7.0	8	16	66
GYG74080	GYF96080	8.0	8	19	69
GYG74090	GYF96090	9.0	10	19	69
GYG74100	GYF96100	10.0	10	22	72
GYG74120	GYF96120	12.0	12	26	83
GYG74140	GYF96140	14.0	12	26	83
GYG74160	GYF96160	16.0	16	32	92
GYG74180	GYF96180	18.0	16	32	92
GYG74200	GYF96200	20.0	20	38	104
GYG74220	GYF96220	22.0	20	38	104
GYG74250	GYF96250	25.0	25	45	121

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

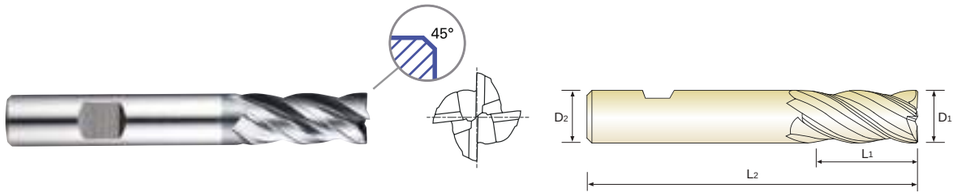
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

ONLY ONE END MILLS

GYG52 SERIES — **FLAT SHANK** / SEITLICHE MITNAHMEFLÄCHEN

PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut)

PM60, 4 Schneiden, mit ungleichem Drall, kurz, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 4 dents, hélice multiple, série courte (Coupe au centre)
Rivestita PM60, 4 TAGLIENTI elica variabile SERIE CORTA (Tagliente al centro)

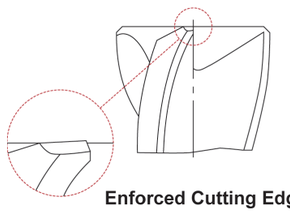


PM60 | 4 | 35°/37° | FLAT | C x 45° | P. 1335

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
	D1	D2	L1	L2	
GYG52030	3.0	6	8	52	0.10
GYG52040	4.0	6	11	55	0.10
GYG52050	5.0	6	13	57	0.10
GYG52060	6.0	6	13	57	0.10
GYG52070	7.0	8	16	66	0.10
GYG52080	8.0	8	19	69	0.10
GYG52090	9.0	10	19	69	0.10
GYG52100	10.0	10	22	72	0.10
GYG52120	12.0	12	26	83	0.10
GYG52140	14.0	12	26	83	0.20
GYG52160	16.0	16	32	92	0.20
GYG52180	18.0	16	32	92	0.20
GYG52200	20.0	20	38	104	0.20
GYG52220	22.0	20	38	104	0.20
GYG52250	25.0	25	45	121	0.20

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
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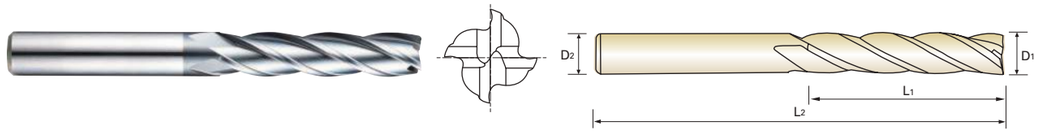
ONLY ONE END MILLS

GYG76 SERIES — **PLAIN SHANK** / GLATTER ZYLINDERSCHAFT
GYG02 SERIES — **FLAT SHANK** / SEITLICHE MITNAHMEFLÄCHEN

PM60, 4 FLUTE LONG LENGTH (Center Cut)

PM60, 4 Schneiden, lang, Zentrumschnitt
Revêtue YG-AlCrN - PM60, 4 dents, série longue (Coupe au centre)
Rivestita PM60, 4 TAGLIENTI SERIE LUNGA (Tagliente al centro)



PM60 | 4 | 30° | PLAIN | FLAT | P. 1334

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
PLAIN	FLAT	D1	D2	L1	L2
GYG76020	GYG02020	2.0	6	10	54
GYG76030	GYG02030	3.0	6	12	56
GYG76040	GYG02040	4.0	6	19	63
GYG76050	GYG02050	5.0	6	24	68
GYG76060	GYG02060	6.0	6	24	68
GYG76070	GYG02070	7.0	8	30	80
GYG76080	GYG02080	8.0	8	38	88
GYG76090	GYG02090	9.0	10	38	88
GYG76100	GYG02100	10.0	10	45	95
GYG76120	GYG02120	12.0	12	53	110
GYG76140	GYG02140	14.0	12	53	110
GYG76160	GYG02160	16.0	16	63	123
GYG76180	GYG02180	18.0	16	63	123
GYG76200	GYG02200	20.0	20	75	141
GYG76220	GYG02220	22.0	20	75	141
GYG76250	GYG02250	25.0	25	90	166

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0 ~ - 0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
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ONLY ONE END MILLS

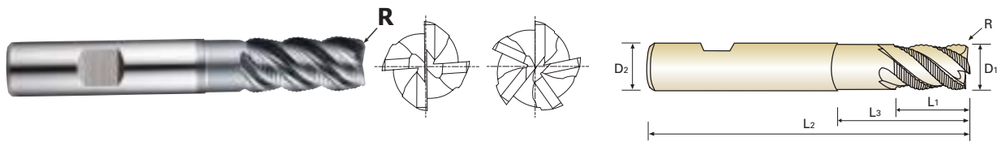
GYF95 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PM60, MULTI FLUTE MULTIPLE HELIX SHORT LENGTH CORNER RADIUS ROUGHING - FINE (Center Cut)

PM60, Mehrschneiden, mit ungleichem Drall, kurz, Eckenradius, Feinkordel-Schruppfräser, Zentrumschnitt

Revêtue YG-AlCrN - PM60, multi-dents, hélice multiple, série courte, rayonnée, ravageuse, pas fins (Coupe au centre)

Rivestita PM60, MULTI TAGLIENTE ELICA VARIABILE SERIE CORTA TORICA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



PM60 | 4-5 | 44.25°/44.75°/45° | FINE | FLAT

P. 1336

Unit : mm

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	No. of Flute
	R	D1(js12)	D2(h6)	L1	L3	L2	
GYF95060	R0.5	6.0	6	13	-	57	4
GYF95070	R0.5	7.0	10	16	-	66	4
GYF95080	R0.5	8.0	10	19	-	69	4
GYF95090	R0.5	9.0	10	19	-	69	4
GYF95100	R0.5	10.0	10	22	31	72	4
GYF95120	R0.5	12.0	12	26	37	83	4
GYF95140	R1.0	14.0	12	26	-	83	5
GYF95160	R1.0	16.0	16	32	44	92	5
GYF95180	R1.0	18.0	16	32	-	92	5
GYF95200	R1.0	20.0	20	38	54	104	5
GYF95250	R1.0	25.0	25	45	63	121	5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm			
Nominal-Diameter in µm / Nennmaßbereich in mm			
	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
js12	±75	±90	±105
h6	0 –9	0 –11	0 –13

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

ONLY ONE END MILLS

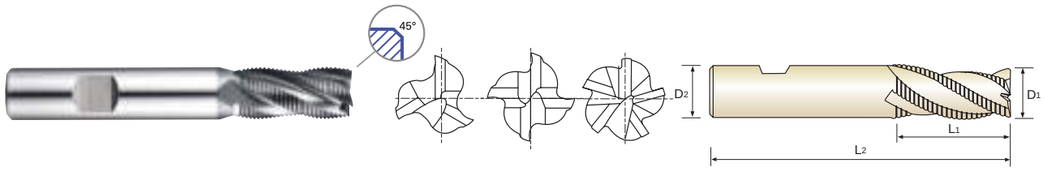
GYF94 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PM60, MULTI FLUTE SHORT LENGTH ROUGHING - FINE (Center Cut)

PM60, Mehrschneiden, kurz, Feinkordel-Schuppfräser, Zentrumschnitt

Revêtue YG-AlCrN - PM60, multi-dents, série courte, ravageuse, pas fins (Coupe au centre)

Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



PM60 | 3-5 | 30° | FINE | FLAT | C x 45°

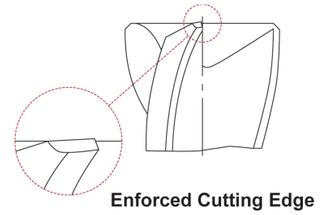
P. 1337

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
	D1(js12)	D2(h6)	L1	L2		
GYF94060	6.0	6	13	57	3	0.18
GYF94070	7.0	10	16	66	3	0.18
GYF94080	8.0	10	19	69	3	0.18
GYF94090	9.0	10	19	69	3	0.18
GYF94100	10.0	10	22	72	4	0.18
GYF94120	12.0	12	26	83	4	0.18
GYF94140	14.0	12	26	83	4	0.25
GYF94160	16.0	16	32	92	4	0.25
GYF94180	18.0	16	32	92	4	0.25
GYF94200	20.0	20	38	104	4	0.25
GYF94250	25.0	25	45	121	5	0.36

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm			
Nominal-Diameter in µm / Nennmaßbereich in mm			
	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
js12	±75	±90	±105
h6	0 –9	0 –11	0 –13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

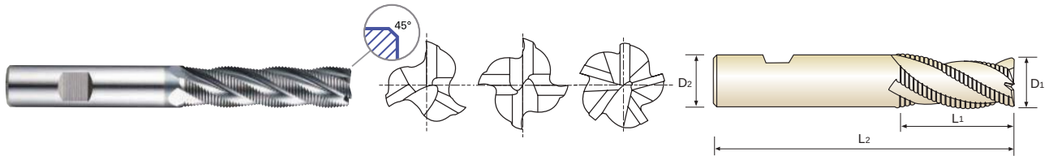
ONLY ONE END MILLS

GYF98 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PM60, MULTI FLUTE LONG LENGTH ROUGHING - FINE (Center Cut)

PM60, Mehrschneiden, lang, Feinkordel-Schruppfräser, Zentrumschnitt
Revêtue YG-AlCrN - PM60, multi-dents, série longue, ravageuse, pas fins (Coupe au centre)
Rivestita PM60, MULTI TAGLIENTE SERIE LUNGA PER SGROSSATURA - BOMBATO FINE (Tagliente al centro)



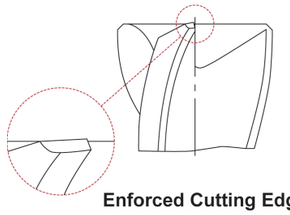
PM60 | 3-5 | 30° | FINE | FLAT | C x 45° | P. 1337

Unit : mm

EDP No.	Mill Diameter D1(js12)	Shank Diameter D2(h6)	Length of Cut L1	Overall Length L2	No. of Flute	Chamfer
GYF98060	6.0	6	24	68	3	0.18
GYF98070	7.0	10	30	80	3	0.18
GYF98080	8.0	10	38	88	3	0.18
GYF98090	9.0	10	38	88	3	0.18
GYF98100	10.0	10	45	95	4	0.18
GYF98120	12.0	12	53	110	4	0.18
GYF98140	14.0	12	53	110	4	0.25
GYF98160	16.0	16	63	123	4	0.25
GYF98180	18.0	16	63	123	4	0.25
GYF98200	20.0	20	75	141	4	0.25
GYF98250	25.0	25	90	166	5	0.36

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm			
Nominal-Diameter in µm / Nennmaßbereich in mm			
	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
js12	±75	±90	±105
h6	0 –9	0 –11	0 –13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

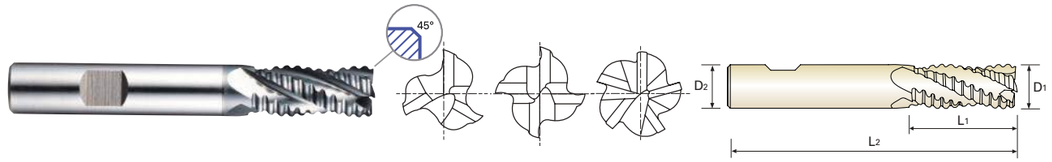
ONLY ONE END MILLS

GYG03 SERIES

FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

PM60, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE(Center Cut)

PM60, Mehrschneiden, kurz, Schruppfräser, Zentrumschnitt
Revêtue YG-AlCrN - PM60, multi-dents, série courte, ravageuse, pas grossiers (Coupe au centre)
Rivestita PM60, MULTI TAGLIENTE SERIE CORTA PER SGROSSATURA - BOMBATO GROSSO (Tagliente al centro)



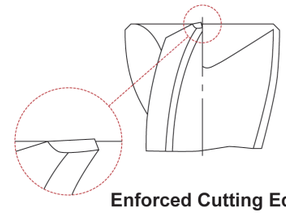
PM60 | 3-5 | 30° | COARSE | FLAT | C x 45° | P. 1337

Unit : mm

EDP No.	Mill Diameter D1(js12)	Shank Diameter D2(h6)	Length of Cut L1	Overall Length L2	No. of Flute	Chamfer
GYG03060	6.0	6	13	57	3	0.25
GYG03070	7.0	10	16	66	3	0.25
GYG03080	8.0	10	19	69	3	0.25
GYG03090	9.0	10	19	69	3	0.36
GYG03100	10.0	10	22	72	4	0.36
GYG03120	12.0	12	26	83	4	0.56
GYG03140	14.0	12	26	83	4	0.60
GYG03160	16.0	16	32	92	4	0.60
GYG03180	18.0	16	32	92	4	0.60
GYG03200	20.0	20	38	104	4	0.60
GYG03250	25.0	25	45	121	5	0.60

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm			
Nominal-Diameter in µm / Nennmaßbereich in mm			
	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
js12	±75	±90	±105
h6	0 –9	0 –11	0 –13



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

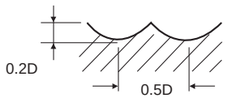
ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, 2 FLUTE SHORT BALL NOSE
PM60, 2 Schneiden, kurz, Stirnradius

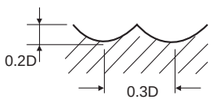
GYG77, GYF97 SERIES

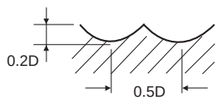
MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5×3.0	8760	410	83	0.023	6960	275	66	0.020	4680	150	44	0.016	2400	65	23	0.014
R2.0×4.0	7200	515	90	0.036	5540	350	70	0.032	3600	190	45	0.026	1920	90	24	0.023
R3.0×6.0	5280	575	100	0.054	4200	385	79	0.046	2760	215	52	0.039	1440	100	27	0.035
R4.0×8.0	4020	635	101	0.079	3120	420	78	0.067	2160	240	54	0.056	1070	100	27	0.047
R5.0×10.0	3300	720	104	0.109	2520	480	79	0.095	1680	275	53	0.082	820	120	26	0.073
R6.0×12.0	2760	635	104	0.115	2160	420	81	0.097	1440	240	54	0.083	700	100	26	0.071
R8.0×16.0	2040	575	103	0.141	1560	385	78	0.123	1070	215	54	0.100	530	95	27	0.090
R10.0×20.0	1620	505	102	0.156	1200	335	75	0.140	820	180	52	0.110	430	85	27	0.099
R12.5×25.0	1140	370	90	0.162	890	250	70	0.140	560	140	44	0.125	300	60	24	0.100



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	P								M				K			
	ALLOY STEELS TOOL STEELS								STAINLESS STEELS				CAST IRON			
HARDNESS	HRc40 ~ HRc45															
STRENGTH	1300 ~ 1400N/mm²															
DIAMETER	RPM	FEED	Vc	fz					RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5×3.0	1680	45	16	0.013					2640	70	25	0.013	6960	275	66	0.020
R2.0×4.0	1340	65	17	0.024					2110	95	27	0.023	5540	350	70	0.032
R3.0×6.0	1010	70	19	0.035					1580	115	30	0.036	4200	385	79	0.046
R4.0×8.0	750	70	19	0.047					1180	115	30	0.049	3120	420	78	0.067
R5.0×10.0	570	85	18	0.075					900	130	28	0.072	2520	480	79	0.095
R6.0×12.0	490	70	18	0.071					770	115	29	0.075	2160	420	81	0.097
R8.0×16.0	370	65	19	0.088					590	110	30	0.093	1560	385	78	0.123
R10.0×20.0	300	60	19	0.100					480	95	30	0.099	1200	335	75	0.140
R12.5×25.0	210	40	16	0.095					330	65	26	0.098	890	250	70	0.140





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

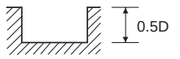
ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, 2 FLUTE SHORT (Center Cut)
PM60, 2 Schneiden, kurz, Zentrumschnitt

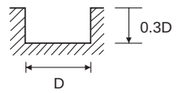
GYG72, GYF99 SERIES

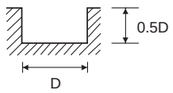
MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc35			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1100N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	8400	140	53	0.008	7080	110	44	0.008	5880	95	37	0.008	3780	80	24	0.011
3.0	6000	190	57	0.016	4920	160	46	0.016	4020	140	38	0.017	2760	95	26	0.017
4.0	5160	275	65	0.027	4320	210	54	0.024	3780	190	48	0.025	2400	110	30	0.023
5.0	4680	305	74	0.033	3900	240	61	0.031	3120	220	49	0.035	2040	120	32	0.029
6.0	4200	320	79	0.038	3480	250	66	0.036	2760	230	52	0.042	1740	130	33	0.037
8.0	3120	330	78	0.053	2640	290	66	0.055	2160	240	54	0.056	1380	140	35	0.051
10.0	2520	360	79	0.071	2160	320	68	0.074	1740	275	55	0.079	1080	150	34	0.069
12.0	2160	330	81	0.076	1740	290	66	0.083	1380	250	52	0.091	890	140	34	0.079
14.0	1920	320	84	0.083	1500	250	66	0.083	1200	235	53	0.098	760	130	33	0.086
16.0	1620	320	81	0.099	1380	235	69	0.085	1070	215	54	0.100	670	120	34	0.090
18.0	1380	290	78	0.105	1140	235	64	0.103	950	190	54	0.100	600	120	34	0.100
20.0	1140	265	72	0.116	940	200	59	0.106	840	180	53	0.107	530	110	33	0.104
22.0	1010	220	70	0.109	850	180	59	0.106	720	150	50	0.104	480	95	33	0.099
25.0	900	185	71	0.103	760	170	60	0.112	590	140	46	0.119	430	90	34	0.105



RPM = rev./min.
Vc = m/min.
FEED = mm/min.
fz = mm/tooth

MATERIAL	P								M				K			
	ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc35 ~ HRc40				HRc40 ~ HRc45											
STRENGTH	1100 ~ 1300N/mm²				1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2400	50	15	0.010	1680	35	11	0.010	2640	55	17	0.010	7080	110	44	0.008
3.0	2160	75	20	0.017	1510	55	14	0.018	2380	85	22	0.018	4920	160	46	0.016
4.0	1920	90	24	0.023	1340	65	17	0.024	2110	100	27	0.024	4320	210	54	0.024
5.0	1620	90	25	0.028	1130	65	18	0.029	1780	100	28	0.028	3900	240	61	0.031
6.0	1380	100	26	0.036	970	70	18	0.036	1520	110	29	0.036	3480	250	66	0.036
8.0	1070	100	27	0.047	750	70	19	0.047	1180	110	30	0.047	2640	290	66	0.055
10.0	840	120	26	0.071	590	85	19	0.072	920	130	29	0.071	2160	320	68	0.074
12.0	700	100	26	0.071	490	70	18	0.071	770	110	29	0.071	1740	290	66	0.083
14.0	600	95	26	0.079	420	65	18	0.077	660	105	29	0.080	1500	250	66	0.083
16.0	530	95	27	0.090	370	65	19	0.088	580	105	29	0.091	1380	235	69	0.085
18.0	480	90	27	0.094	340	65	19	0.096	530	100	30	0.094	1140	235	64	0.103
20.0	430	85	27	0.099	300	60	19	0.100	470	95	30	0.101	940	200	59	0.106
22.0	380	65	26	0.086	270	45	19	0.083	420	70	29	0.083	850	180	59	0.106
25.0	300	60	24	0.100	210	40	16	0.095	330	65	26	0.098	760	170	60	0.112





RPM = rev./min.
Vc = m/min.
FEED = mm/min.
fz = mm/tooth

ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

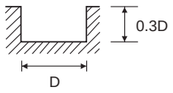
PM60, 3 FLUTE SHORT (Center Cut) - SLOTTING
PM60, 3 Schneiden, kurz, Zentrumschnitt

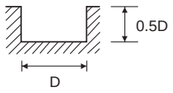
GYG01 SERIES

MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc35			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1100N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7800	85	49	0.004	6600	65	41	0.003	5760	55	36	0.003	3600	40	23	0.004
3.0	5520	120	52	0.007	4680	100	44	0.007	4020	60	38	0.005	2640	55	25	0.007
4.0	5160	170	65	0.011	4320	140	54	0.011	3600	95	45	0.009	2280	60	29	0.009
5.0	4560	190	72	0.014	3840	155	60	0.013	3120	110	49	0.012	2040	75	32	0.012
6.0	4020	275	76	0.023	3360	230	63	0.023	2760	170	52	0.021	1740	110	33	0.021
8.0	3120	290	78	0.031	2640	250	66	0.032	2160	180	54	0.028	1380	120	35	0.029
10.0	2520	300	79	0.040	2160	250	68	0.039	1680	190	53	0.038	1070	140	34	0.044
12.0	2160	330	81	0.051	1740	275	66	0.053	1440	205	54	0.047	890	140	34	0.052
14.0	1920	300	84	0.052	1620	265	71	0.055	1200	190	53	0.053	790	130	35	0.055
16.0	1620	290	81	0.060	1380	250	69	0.060	1070	180	54	0.056	670	120	34	0.060
18.0	1380	290	78	0.070	1070	230	61	0.072	950	180	54	0.063	600	115	34	0.064
20.0	1140	275	72	0.080	950	230	60	0.081	840	170	53	0.067	530	110	33	0.069
22.0	1010	275	70	0.091	880	235	61	0.089	720	180	50	0.083	480	115	33	0.080
25.0	900	290	71	0.107	760	250	60	0.110	590	190	46	0.107	430	120	34	0.093

RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

MATERIAL	P								M				K			
	ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc35 ~ HRc40				HRc40 ~ HRc45											
STRENGTH	1100 ~ 1300N/mm²				1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2280	35	14	0.005	1600	25	10	0.005	6600	65	41	0.003	6600	65	41	0.003
3.0	2160	55	20	0.008	1510	40	14	0.009	4680	100	44	0.007	4680	100	44	0.007
4.0	1800	65	23	0.012	1260	45	16	0.012	4320	140	54	0.011	4320	140	54	0.011
5.0	1560	65	25	0.014	1090	45	17	0.014	3840	155	60	0.013	3840	155	60	0.013
6.0	1320	90	25	0.023	920	65	17	0.024	3360	230	63	0.023	3360	230	63	0.023
8.0	1070	100	27	0.031	750	70	19	0.031	2640	250	66	0.032	2640	250	66	0.032
10.0	820	110	26	0.045	570	75	18	0.044	2160	250	68	0.039	2160	250	68	0.039
12.0	700	110	26	0.052	490	75	18	0.051	1740	275	66	0.053	1740	275	66	0.053
14.0	600	100	26	0.056	420	70	18	0.056	1620	265	71	0.055	1620	265	71	0.055
16.0	530	100	27	0.063	370	70	19	0.063	1380	250	69	0.060	1380	250	69	0.060
18.0	480	95	27	0.066	340	65	19	0.064	1070	230	61	0.072	1070	230	61	0.072
20.0	430	95	27	0.074	300	65	19	0.072	950	230	60	0.081	950	230	60	0.081
22.0	380	100	26	0.088	270	70	19	0.086	880	235	61	0.089	880	235	61	0.089
25.0	300	100	24	0.111	210	70	16	0.111	760	250	60	0.110	760	250	60	0.110





RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

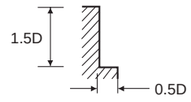
PM60, 3 FLUTE SHORT (Center Cut) - SIDE CUTTING
PM60, 3 Schneiden, kurz, Zentrumschnitt

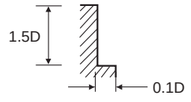
GYG01 SERIES

MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc35			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1100N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9840	120	62	0.004	8160	95	51	0.004	6600	80	41	0.004	4560	60	29	0.004
3.0	6960	175	66	0.008	5760	145	54	0.008	4560	90	43	0.007	3240	80	31	0.008
4.0	6240	220	78	0.012	5280	185	66	0.012	4200	130	53	0.010	2760	90	35	0.011
5.0	5640	250	89	0.015	4800	210	75	0.015	3480	150	55	0.014	2400	100	38	0.014
6.0	5040	360	95	0.024	4320	300	81	0.023	3120	230	59	0.025	2160	150	41	0.023
8.0	3840	395	97	0.034	3120	325	78	0.035	2400	240	60	0.033	1560	170	39	0.036
10.0	3000	420	94	0.047	2520	350	79	0.046	1920	250	60	0.043	1200	180	38	0.050
12.0	2520	420	95	0.056	2160	360	81	0.056	1680	275	63	0.055	1080	180	41	0.056
14.0	2160	420	95	0.065	1800	340	79	0.063	1380	250	61	0.060	940	170	41	0.060
16.0	1920	395	97	0.069	1560	330	78	0.071	1200	240	60	0.067	790	170	40	0.072
18.0	1620	370	92	0.076	1380	320	78	0.077	1070	235	61	0.073	700	155	40	0.074
20.0	1500	360	94	0.080	1260	305	79	0.081	940	230	59	0.082	620	150	39	0.081
22.0	1380	370	95	0.089	1140	320	79	0.094	890	235	62	0.088	560	155	39	0.092
25.0	1200	395	94	0.110	1010	330	79	0.109	760	250	60	0.110	500	160	39	0.107

RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

MATERIAL	P								M				K			
	ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc35 ~ HRc40				HRc40 ~ HRc45											
STRENGTH	1100 ~ 1300N/mm²				1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2880	50	18	0.006	2020	35	13	0.006	3170	55	20	0.006	8160	95	51	0.004
3.0	2640	80	25	0.010	1850	55	17	0.010	2900	90	27	0.010	5760	145	54	0.008
4.0	2280	90	29	0.013	1600	65	20	0.014	2510	100	32	0.013	5280	185	66	0.012
5.0	2040	90	32	0.015	1430	65	22	0.015	2240	100	35	0.015	4800	210	75	0.015
6.0	1800	120	34	0.022	1260	85	24	0.022	1980	130	37	0.022	4320	300	81	0.023
8.0	1320	140	33	0.035	920	100	23	0.036	1450	155	36	0.036	3120	325	78	0.035
10.0	1070	150	34	0.047	750	105	24	0.047	1180	165	37	0.047	2520	350	79	0.046
12.0	890	150	34	0.056	620	105	23	0.056	980	165	37	0.056	2160	360	81	0.056
14.0	760	145	33	0.064	530	100	23	0.063	840	160	37	0.063	1800	340	79	0.063
16.0	660	140	33	0.071	460	100	23	0.072	730	155	37	0.071	1560	330	78	0.071
18.0	600	130	34	0.072	420	90	24	0.071	660	145	37	0.073	1380	320	78	0.077
20.0	530	130	33	0.082	370	90	23	0.081	580	145	36	0.083	1260	305	79	0.081
22.0	480	130	33	0.090	340	90	23	0.088	530	145	37	0.091	1140	320	79	0.094
25.0	430	145	34	0.112	300	100	24	0.111	470	160	37	0.113	1010	330	79	0.109





RPM = rev./min. FEED = mm/min.
Vc = m/min. fz = mm/tooth

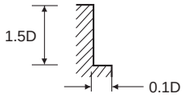
ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, 4 FLUTE (Center Cut)
PM60, 4 Schneiden, kurz, Zentrumschnitt

GYG74, GYF96, GYG76, GYG02 SERIES

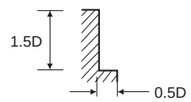
MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc35			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1100N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	11040	350	69	0.008	10080	290	63	0.007	7320	205	46	0.007	4920	150	31	0.008
3.0	7920	490	75	0.015	7200	420	68	0.015	5280	300	50	0.014	3240	215	31	0.017
4.0	6360	575	80	0.023	5640	480	71	0.021	4320	360	54	0.021	2760	240	35	0.022
5.0	5280	610	83	0.029	4800	505	75	0.026	3480	385	55	0.028	2400	265	38	0.028
6.0	4680	650	88	0.035	4320	540	81	0.031	3120	395	59	0.032	2160	275	41	0.032
8.0	3720	685	93	0.046	3120	575	78	0.046	2400	445	60	0.046	1680	290	42	0.043
10.0	2760	755	87	0.068	2520	635	79	0.063	1920	455	60	0.059	1200	320	38	0.067
12.0	2400	685	90	0.071	2160	575	81	0.067	1680	445	63	0.066	1070	290	40	0.068
14.0	2160	660	95	0.076	1920	550	84	0.072	1320	420	58	0.080	950	275	42	0.072
16.0	1920	610	97	0.079	1680	515	84	0.077	1200	410	60	0.085	820	265	41	0.081
18.0	1800	550	102	0.076	1500	480	85	0.080	1070	370	61	0.086	760	235	43	0.077
20.0	1500	530	94	0.088	1260	445	79	0.088	940	330	59	0.088	640	210	40	0.082
22.0	1260	490	87	0.097	1140	385	79	0.084	820	305	57	0.093	560	190	39	0.085
25.0	1200	445	94	0.093	1010	365	79	0.090	760	275	60	0.090	500	180	39	0.090

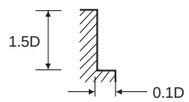


The FEED, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	P								M				K			
	ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc35 ~ HRc40				HRc40 ~ HRc45											
STRENGTH	1100 ~ 1300N/mm²				1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3960	100	25	0.006	2770	70	17	0.006	4360	110	27	0.006	10080	290	63	0.007
3.0	2880	150	27	0.013	2020	105	19	0.013	3170	165	30	0.013	7200	420	68	0.015
4.0	2400	180	30	0.019	1680	125	21	0.019	2640	200	33	0.019	5640	480	71	0.021
5.0	2040	190	32	0.023	1430	135	22	0.024	2240	210	35	0.023	4800	505	75	0.026
6.0	1740	215	33	0.031	1220	150	23	0.031	1910	235	36	0.031	4320	540	81	0.031
8.0	1380	220	35	0.040	970	155	24	0.040	1520	240	38	0.039	3120	575	78	0.046
10.0	1070	240	34	0.056	750	170	24	0.057	1180	265	37	0.056	2520	635	79	0.063
12.0	860	220	32	0.064	600	155	23	0.065	950	240	36	0.063	2160	575	81	0.067
14.0	760	205	33	0.067	530	145	23	0.068	840	225	37	0.067	1920	550	84	0.072
16.0	660	200	33	0.076	460	140	23	0.076	730	220	37	0.075	1680	515	84	0.077
18.0	600	180	34	0.075	420	125	24	0.074	660	200	37	0.076	1500	480	85	0.080
20.0	530	170	33	0.080	370	120	23	0.081	580	185	36	0.080	1260	445	79	0.088
22.0	480	155	33	0.081	340	110	23	0.081	530	170	37	0.080	1140	385	79	0.084
25.0	430	150	34	0.087	300	105	24	0.088	470	165	37	0.088	1010	365	79	0.090





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

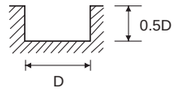
ONLY ONE END MILLS

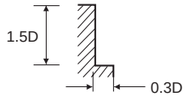
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, 4 FLUTE MULTIPLE HELIX SHORT LENGTH (Center Cut)
PM60, 4 Schneiden, mit ungleichem Drall, kurz, Zentrumschnitt

GYG52 SERIES

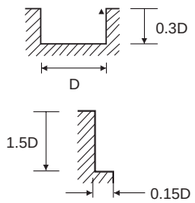
MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc35			
STRENGTH	800N/mm²				800 ~ 1000N/mm²				1000 ~ 1100N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	7410	155	70	0.005	6740	140	64	0.005	4720	95	44	0.005
4.0	5560	180	70	0.008	5050	165	63	0.008	3540	115	44	0.008
5.0	4440	205	70	0.012	4040	185	63	0.011	2830	130	44	0.011
6.0	3710	240	70	0.016	3370	220	64	0.016	2360	155	44	0.016
8.0	2780	310	70	0.028	2530	280	64	0.028	1770	195	44	0.028
10.0	2450	380	77	0.039	2230	345	70	0.039	1560	240	49	0.038
12.0	2050	385	77	0.047	1860	350	70	0.047	1300	245	49	0.047
14.0	1750	340	77	0.049	1590	310	70	0.049	1110	220	49	0.050
16.0	1530	325	77	0.053	1390	295	70	0.053	980	205	49	0.052
18.0	1360	320	77	0.059	1240	295	70	0.059	870	205	49	0.059
20.0	1220	320	77	0.065	1110	290	70	0.065	780	205	49	0.066
25.0	980	245	77	0.063	890	225	70	0.063	620	160	49	0.065

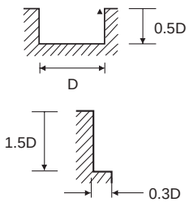




RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	P				M				K			
	ALLOY STEELS TOOL STEELS				STAINLESS STEELS 300SERIES				CAST IRON			
HARDNESS	HRc35 ~ HRc45											
STRENGTH	1100 ~ 1400N/mm2											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
3.0	2830	50	27	0.004	5090	100	48	0.005	7410	155	70	0.005
4.0	2120	60	27	0.007	3800	125	48	0.008	5560	180	70	0.008
5.0	1700	65	27	0.010	3060	155	48	0.013	4440	205	70	0.012
6.0	1420	80	27	0.014	2550	180	48	0.018	3710	240	70	0.016
8.0	1060	100	27	0.024	1910	220	48	0.029	2780	310	70	0.028
10.0	940	120	30	0.032	1530	295	48	0.048	2450	380	77	0.039
12.0	780	125	29	0.040	1270	285	48	0.056	2050	385	77	0.047
14.0	670	110	29	0.041	1090	260	48	0.060	1750	340	77	0.049
16.0	590	105	30	0.044	960	240	48	0.063	1530	325	77	0.053
18.0	520	105	29	0.050	850	240	48	0.071	1360	320	77	0.059
20.0	470	105	30	0.056	760	235	48	0.077	1220	320	77	0.065
25.0	370	80	29	0.054	610	190	48	0.078	980	245	77	0.063





RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

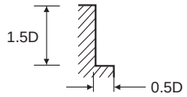
ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, 4 MULTI FLUTE MULTIPLE HELIX SHORT ROUGHING (Center Cut)
PM60, Mehrschneiden, mit ungleichem Drall, kurz, Eckenradius, Feinkordel-Schruppfräser, Zentrumschnitt

GYF95 SERIES

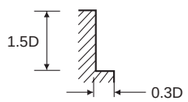
MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	4030	330	76	0.020	3170	260	60	0.021	2300	170	43	0.018	1870	150	35	0.020
8.0	3460	420	87	0.030	2740	330	69	0.030	2020	230	51	0.028	1510	180	38	0.030
10.0	2740	600	86	0.055	2160	455	68	0.053	1510	280	47	0.046	1280	230	40	0.045
12.0	2300	600	87	0.065	1730	475	65	0.069	1300	330	49	0.063	1070	260	40	0.061
14.0	2020	600	89	0.059	1510	475	66	0.063	1090	330	48	0.061	910	260	40	0.057
16.0	1730	600	87	0.069	1370	475	69	0.069	950	330	48	0.069	790	260	40	0.066
18.0	1510	600	85	0.079	1280	475	72	0.074	880	330	50	0.075	710	260	40	0.073
20.0	1380	610	87	0.088	1090	475	68	0.087	770	330	48	0.086	640	260	40	0.081
25.0	1140	600	90	0.105	860	455	68	0.106	600	320	47	0.107	520	260	41	0.100

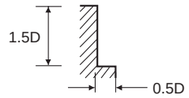


The FEED, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	P				M				K			
	ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc40 ~ HRc45											
STRENGTH	1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1310	105	25	0.020	2090	155	39	0.019	3170	260	60	0.021
8.0	1060	125	27	0.029	1730	205	43	0.030	2740	330	69	0.030
10.0	900	160	28	0.044	1370	245	43	0.045	2160	455	68	0.053
12.0	750	180	28	0.060	1150	295	43	0.064	1730	475	65	0.069
14.0	640	180	28	0.056	1000	295	44	0.059	1510	475	66	0.063
16.0	550	180	28	0.065	860	295	43	0.069	1370	475	69	0.069
18.0	500	180	28	0.072	790	295	45	0.075	1280	475	72	0.074
20.0	450	180	28	0.080	700	295	44	0.084	1090	475	68	0.087
25.0	360	180	28	0.100	560	290	44	0.104	860	455	68	0.106





The FEED, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

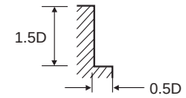
ONLY ONE END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PM60, MULTI FLUTE ROUGHING (Center Cut)
PM60, Mehrschneiden, Schuppfräser, Zentrumschnitt

GYF94, GYF98, GYG03 SERIES

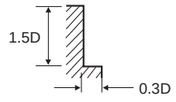
MATERIAL	P															
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				PREHARDENED STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3360	275	63	0.027	2640	215	50	0.027	1920	140	36	0.024	1560	125	29	0.027
8.0	2880	350	72	0.041	2280	275	57	0.040	1680	190	42	0.038	1260	150	32	0.040
10.0	2280	500	72	0.055	1800	380	57	0.053	1260	235	40	0.047	1070	190	34	0.044
12.0	1920	500	72	0.065	1440	395	54	0.069	1080	275	41	0.064	890	215	34	0.060
14.0	1680	500	74	0.074	1260	395	55	0.078	910	275	40	0.076	760	215	33	0.071
16.0	1440	500	72	0.087	1140	395	57	0.087	790	2 75	40	0.087	660	215	33	0.081
18.0	1260	500	71	0.099	1070	395	61	0.092	730	275	41	0.094	590	215	33	0.091
20.0	1150	510	72	0.111	910	395	57	0.109	640	275	40	0.107	530	215	33	0.101
25.0	950	500	75	0.105	720	380	57	0.106	500	265	39	0.106	430	215	34	0.100

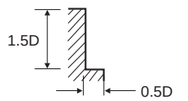


The FEED, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MATERIAL	P				M				K			
	ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc40 ~ HRc45											
STRENGTH	1300 ~ 1400N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1090	90	21	0.028	1740	130	33	0.025	2640	215	50	0.027
8.0	880	105	22	0.040	1440	170	36	0.039	2280	275	57	0.040
10.0	750	135	24	0.045	1140	205	36	0.045	1800	380	57	0.053
12.0	620	150	23	0.060	960	245	36	0.064	1440	395	54	0.069
14.0	530	150	23	0.071	830	245	37	0.074	1260	395	55	0.078
16.0	460	150	23	0.082	720	245	36	0.085	1140	395	57	0.087
18.0	410	150	23	0.091	660	245	37	0.093	1070	395	61	0.092
20.0	370	150	23	0.101	580	245	36	0.106	910	395	57	0.109
25.0	300	150	24	0.100	470	240	37	0.102	720	380	57	0.106





The FEED, in long & extra long types, should be reduced by around 50%.

RPM = rev./min.
FEED = mm/min.
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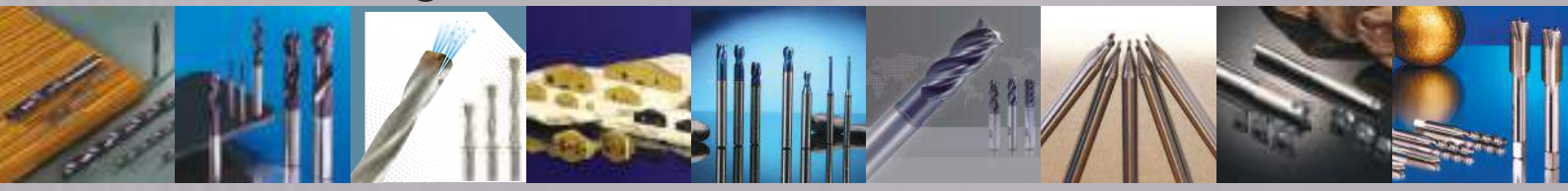
Global Cutting Tool Leader **YG-1**



YPM

Leading Through Innovation

TANK-POWER END MILLS

TANK-POWER FRÄSER

- High Toughness, for Stainless Steels, Carbon steels, Alloy Steels For General Application, Rough & Finish
- Sehr gute Zähigkeit. Für rostfreie Stähle, Fräsen von Stahl, legiertem Stahl Allgemeinen Einsatz, Schruppen und schlichten

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N					S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
E9940 GA940		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS	R0.5	R12.5	1342	◎	◎	○				◎	◎	○						
E9A32 GAA32		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE PREMIUM HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R12.5	1343	◎	◎	○				◎	◎	○						
E9936 GA936		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ	D1.0	D25.0	1344	◎	◎	○				◎	◎	○						
E9A29 GAA29		PREMIUM HSS-PM, 2 FLUTE LONG LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN LANG	D1.0	D25.0	1345	◎	◎	○				◎	◎	○						
E9942 GA942		PREMIUM HSS-PM, 3 FLUTE STUB LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ	D1.0	D25.0	1346	◎	◎	○				◎	◎	○						
E9A30 GAA30		PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH PREMIUM HSS-PM, 3 SCHNEIDEN KURZ	D1.0	D25.0	1347	◎	◎	○				◎	◎	○						
E9938 GA938		PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN KURZ	D1.0	D25.0	1348	◎	◎	○				◎	◎	○						
E9A31 GAA31		PREMIUM HSS-PM, 4 FLUTE LONG LENGTH PREMIUM HSS-PM, 4 SCHNEIDEN LANG	D2.0	D25.0	1349	◎	◎	○				◎	◎	○						
E9941 GA941		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - FEIN	D6.0	D25.0	1350	◎	◎	○				◎	◎	○						
E9A35 GAA35		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - FEIN	D6.0	D25.0	1351	◎	◎	○				◎	◎	○						
E9A26 GAA26		PREMIUM HSS-PM, MULTI FLUTE 45° HELIX SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN 45° RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN	D4.0	D25.0	1352	◎	◎	○				◎	◎	○						
E9A33 GAA33		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB	D6.0	D25.0	1353	◎	◎	○				◎	◎	○						
E9A34 GAA34		PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB	D6.0	D25.0	1354	◎	◎	○				◎	◎	○						
E9E43 GAE43		PREMIUM HSS-PM, MULTI FLUTE ROUGHING WITH NECK - COARSE PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - GROB	D10.0	D25.0	1355	◎	◎	○				◎	◎	○						
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1356															

TANK-POWER END MILLS

E9940 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GA940 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH BALL NOSE

PREMIUM HSS-PM, 2 SCHNEIDEN KURZ STIRNRADIUS
FRAISES HSS-PM PREMIUM, 2 DENTS À BOUT HÉMISPHÉRIQUE, SÉRIE COURTE
2 TAGLIENTI, SERIE CORTA, HSS-PM, SEMISFERICA

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶Designed for milling of radius bottom slots, fillets and special contours.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

YPM | DIN 327 | 2 | 30° | R ±0.02 | DIN 1835B

P.1356-1357

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	R (±0.02)				
E9940010	GA940010	R0.5	1.0	6	2.5	47
E9940020	GA940020	R1.0	2.0	6	4	48
E9940030	GA940030	R1.5	3.0	6	5	49
E9940040	GA940040	R2.0	4.0	6	7	51
E9940050	GA940050	R2.5	5.0	6	8	52
E9940060	GA940060	R3.0	6.0	6	8	52
E9940070	GA940070	R3.5	7.0	10	10	60
E9940080	GA940080	R4.0	8.0	10	11	61
E9940090	GA940090	R4.5	9.0	10	11	61
E9940100	GA940100	R5.0	10.0	10	13	63
E9940120	GA940120	R6.0	12.0	12	16	73
E9940140	GA940140	R7.0	14.0	12	16	73
E9940160	GA940160	R8.0	16.0	16	19	79
E9940180	GA940180	R9.0	18.0	16	19	79
E9940200	GA940200	R10.0	20.0	20	22	88
E9940220	GA940220	R11.0	22.0	20	22	88
E9940250	GA940250	R12.5	25.0	25	26	102

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

E9A32 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA32 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH BALL NOSE

PREMIUM HSS-PM, 2 SCHNEIDEN LANG STIRNRADIUS
FRAISES HSS-PM PREMIUM, 2 DENTS À BOUT HÉMISPHÉRIQUE, SÉRIE LONGUE
2 TAGLIENTI, SERIE LUNGA, HSS-PM, SEMISFERICA

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶Designed for milling of radius bottom slots, fillets and special contours.
- ▶YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Entworfen zum Fräsen von Nuten mit Radien, Rippen und speziellen Konturen.
- ▶Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

YPM | DIN 1889 | 2 | 30° | R ±0.02 | DIN 1835B

P.1356-1357

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	R (±0.02)				
E9A32020	GAA32020	R1.0	2.0	6	7	54
E9A32030	GAA32030	R1.5	3.0	6	8	56
E9A32040	GAA32040	R2.0	4.0	6	11	63
E9A32050	GAA32050	R2.5	5.0	6	13	68
E9A32060	GAA32060	R3.0	6.0	6	13	68
E9A32070	GAA32070	R3.5	7.0	10	16	80
E9A32080	GAA32080	R4.0	8.0	10	19	88
E9A32090	GAA32090	R4.5	9.0	10	19	88
E9A32100	GAA32100	R5.0	10.0	10	22	95
E9A32120	GAA32120	R6.0	12.0	12	26	110
E9A32140	GAA32140	R7.0	14.0	12	26	110
E9A32160	GAA32160	R8.0	16.0	16	32	123
E9A32180	GAA32180	R9.0	18.0	16	32	123
E9A32200	GAA32200	R10.0	20.0	20	38	141
E9A32220	GAA32220	R11.0	22.0	20	38	141
E9A32250	GAA32250	R12.5	25.0	25	45	166

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

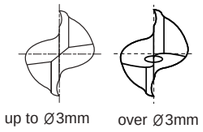
E9936 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GA936 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH

PREMIUM HSS-PM, 2 SCHNEIDEN KURZ
FRAISES HSS-PM PREMIUM, 2 DENTS, SÉRIE COURTE
2 TAGLIENTI, SERIE CORTA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM | DIN 327 | 2 | 30° | DIN 1835B — P.1358-1359

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9936010	GA936010	1.0	6	2.5	47
E9936020	GA936020	2.0	6	4	48
E9936030	GA936030	3.0	6	5	49
E9936040	GA936040	4.0	6	7	51
E9936050	GA936050	5.0	6	8	52
E9936060	GA936060	6.0	6	8	52
E9936070	GA936070	7.0	10	10	60
E9936080	GA936080	8.0	10	11	61
E9936090	GA936090	9.0	10	11	61
E9936100	GA936100	10.0	10	13	63
E9936120	GA936120	12.0	12	16	73
E9936140	GA936140	14.0	12	16	73
E9936160	GA936160	16.0	16	19	79
E9936180	GA936180	18.0	16	19	79
E9936200	GA936200	20.0	20	22	88
E9936220	GA936220	22.0	20	22	88
E9936250	GA936250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

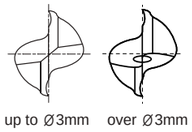
E9A29 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA29 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE LONG LENGTH

PREMIUM HSS-PM, 2 SCHNEIDEN LANG
FRAISES HSS-PM PREMIUM, 2 DENTS, SÉRIE LONGUE
2 TAGLIENTI, SERIE LUNGA, HSS-PM

- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ 2 Flute design for slotting.
- ▶ Suitable for high speed cutting of difficult - to - cut materials.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- ▶Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ 2 Schneiden, Geeignet für Nutenfräsen.
- ▶ Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM | DIN 844 | 2 | 30° | DIN 1835B — P.1358-1359

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9A29010	GAA29010	1.0	6	3	47
E9A29020	GAA29020	2.0	6	7	51
E9A29030	GAA29030	3.0	6	8	52
E9A29040	GAA29040	4.0	6	11	55
E9A29050	GAA29050	5.0	6	13	57
E9A29060	GAA29060	6.0	6	13	57
E9A29070	GAA29070	7.0	10	16	66
E9A29080	GAA29080	8.0	10	19	69
E9A29090	GAA29090	9.0	10	19	69
E9A29100	GAA29100	10.0	10	22	72
E9A29120	GAA29120	12.0	12	26	83
E9A29140	GAA29140	14.0	12	26	83
E9A29160	GAA29160	16.0	16	32	92
E9A29180	GAA29180	18.0	16	32	92
E9A29200	GAA29200	20.0	20	38	104
E9A29220	GAA29220	22.0	20	38	104
E9A29250	GAA29250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TANK-POWER END MILLS

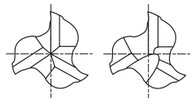
E9942 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GA942 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE STUB LENGTH

PREMIUM HSS-PM, 3 SCHNEIDEN EXTRA KURZ
FRAISES HSS-PM PREMIUM, 3 DENTS, SÉRIE EXTRA-COURTE
3 TAGLIENTI, SERIE EXTRA CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Well balanced web design to minimize deflection and chattering.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Verstärkter Kern zur Erhöhung der Stabilität.
- 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

YPM | DIN 327 | 3 | 30° | DIN 1835B — P.1360-1363

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9942010	GA942010	1.0	6	2.5	47
E9942020	GA942020	2.0	6	4	48
E9942030	GA942030	3.0	6	5	49
E9942040	GA942040	4.0	6	7	51
E9942050	GA942050	5.0	6	8	52
E9942060	GA942060	6.0	6	8	52
E9942070	GA942070	7.0	10	10	60
E9942080	GA942080	8.0	10	11	61
E9942090	GA942090	9.0	10	11	61
E9942100	GA942100	10.0	10	13	63
E9942120	GA942120	12.0	12	16	73
E9942140	GA942140	14.0	12	16	73
E9942160	GA942160	16.0	16	19	79
E9942180	GA942180	18.0	16	19	79
E9942200	GA942200	20.0	20	22	88
E9942220	GA942220	22.0	20	22	88
E9942250	GA942250	25.0	25	26	102

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

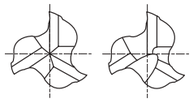
E9A30 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA30 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 3 FLUTE SHORT LENGTH

PREMIUM HSS-PM, 3 SCHNEIDEN KURZ
FRAISES HSS-PM PREMIUM, 3 DENTS, SÉRIE COURTE
3 TAGLIENTI, SERIE CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Well balanced web design to minimize deflection and chattering.
- 3 flute design possess the advantage of 2 flute and 4 flute end mill.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Verstärkter Kern zur Erhöhung der Stabilität.
- 3 Schneiden Design besitzt die Vorteile von 2-bzw 4 Schneiden Fräsern.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



up to Ø1mm over Ø1mm

YPM | DIN 844 | 3 | 30° | DIN 1835B — P.1360-1363

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TANK-POWER COATED	e8	h6		
E9A30010	GAA30010	1.0	6	3	47
E9A30020	GAA30020	2.0	6	7	51
E9A30030	GAA30030	3.0	6	8	52
E9A30040	GAA30040	4.0	6	11	55
E9A30050	GAA30050	5.0	6	13	57
E9A30060	GAA30060	6.0	6	13	57
E9A30070	GAA30070	7.0	10	16	66
E9A30080	GAA30080	8.0	10	19	69
E9A30090	GAA30090	9.0	10	19	69
E9A30100	GAA30100	10.0	10	22	72
E9A30120	GAA30120	12.0	12	26	83
E9A30140	GAA30140	14.0	12	26	83
E9A30160	GAA30160	16.0	16	32	92
E9A30180	GAA30180	18.0	16	32	92
E9A30200	GAA30200	20.0	20	38	104
E9A30220	GAA30220	22.0	20	38	104
E9A30250	GAA30250	25.0	25	45	121

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

E9938 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GA938 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 4 FLUTE SHORT LENGTH

PREMIUM HSS-PM, 4 SCHNEIDEN KURZ
FRAISES HSS-PM PREMIUM, 4 DENTS, SÉRIE COURTE
4 TAGLIENTI, SERIE CORTA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Recommended for pocketing, cam milling, die sinking and slotting..
- Designed for high speed cutting of difficult - to - cut materials.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

YPM | DIN 844 | 4 | 30° | DIN 1835B

P.1364-1365

Unit : mm

EDP No. UNCOATED	EDP No. TANK-POWER COATED	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9938010	GA938010	1.0	6	3	49
E9938020	GA938020	2.0	6	7	51
E9938030	GA938030	3.0	6	8	52
E9938040	GA938040	4.0	6	11	55
E9938050	GA938050	5.0	6	13	57
E9938060	GA938060	6.0	6	13	57
E9938070	GA938070	7.0	10	16	66
E9938080	GA938080	8.0	10	19	69
E9938090	GA938090	9.0	10	19	69
E9938100	GA938100	10.0	10	22	72
E9938120	GA938120	12.0	12	26	83
E9938140	GA938140	14.0	12	26	83
E9938160	GA938160	16.0	16	32	92
E9938180	GA938180	18.0	16	32	92
E9938200	GA938200	20.0	20	38	104
E9938220	GA938220	22.0	20	38	104
E9938250	GA938250	25.0	25	45	121

▶Mill Diameter 1mm: Center match end teeth

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

E9A31 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA31 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 4 FLUTE LONG LENGTH

PREMIUM HSS-PM, 4 SCHNEIDEN LANG
FRAISES HSS-PM PREMIUM, 4 DENTS, SÉRIE LONGUE
4 TAGLIENTI, SERIE LUNGA, HSS-PM

- Designed to machine carbon steels, alloyed steels, stainless steels.
- Recommended for pocketing, cam milling, die sinking and slotting.
- Designed for high speed cutting of difficult - to - cut materials.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Empfohlen für Taschenfräsen, Nockenfräsen, Gussformen und Nutenfräsen.
- Geeignet für Hochgeschwindigkeitsfräsen von schwer zu zerspanenden Materialien.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.

YPM | DIN 844 | 4 | 30° | DIN 1835B

P.1364-1365

Unit : mm

EDP No. UNCOATED	EDP No. TANK-POWER COATED	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
E9A31020	GAA31020	2.0	6	10	54
E9A31030	GAA31030	3.0	6	12	56
E9A31040	GAA31040	4.0	6	19	63
E9A31050	GAA31050	5.0	6	24	68
E9A31060	GAA31060	6.0	6	24	68
E9A31070	GAA31070	7.0	10	30	80
E9A31080	GAA31080	8.0	10	38	88
E9A31090	GAA31090	9.0	10	38	88
E9A31100	GAA31100	10.0	10	45	95
E9A31120	GAA31120	12.0	12	53	110
E9A31140	GAA31140	14.0	12	53	110
E9A31160	GAA31160	16.0	16	63	123
E9A31180	GAA31180	18.0	16	63	123
E9A31200	GAA31200	20.0	20	75	141
E9A31220	GAA31220	22.0	20	75	141
E9A31250	GAA31250	25.0	25	90	166

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

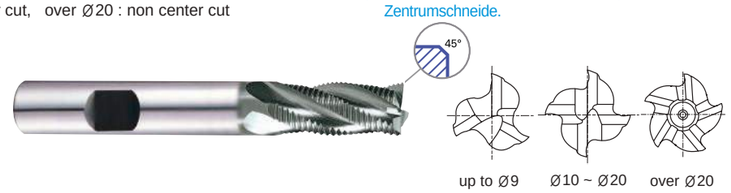
E9941 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GA941 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE COURTE
MULTI TAGL., PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to Ø20 : center cut, over Ø20 : non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fällen exzellent bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



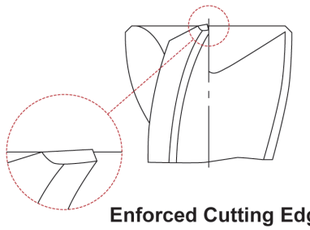
YPM | DIN 844 | FINE | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° — P.1366-1367

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	js12	h6				
E9941060	GA941060	6.0	6	13	57	3	0.18
E9941070	GA941070	7.0	10	16	66	3	0.18
E9941080	GA941080	8.0	10	19	69	3	0.18
E9941090	GA941090	9.0	10	19	69	3	0.18
E9941100	GA941100	10.0	10	22	72	4	0.18
E9941120	GA941120	12.0	12	26	83	4	0.18
E9941140	GA941140	14.0	12	26	83	4	0.25
E9941160	GA941160	16.0	16	32	92	4	0.25
E9941180	GA941180	18.0	16	32	92	4	0.25
E9941200	GA941200	20.0	20	38	104	4	0.25
E9941220	GA941220	22.0	20	38	104	5	0.36
E9941250	GA941250	25.0	25	45	121	5	0.36

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

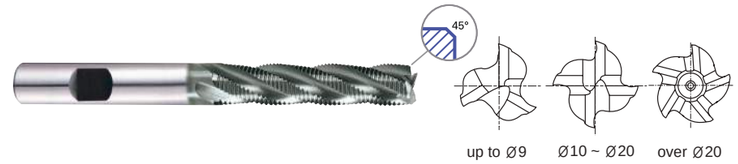
E9A35 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA35 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - FINE

PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE - PAS FINS, SÉRIE LONGUE
MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels..
- ▶ Providing excellent finished surfaces in many cases.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to Ø20 : center cut, over Ø20 : non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Liefert in vielen Fllen exzellent bearbeitete Oberflächen.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶ Bis D=20mm : Mit Zentrumschneide, über D=20mm : Ohne Zentrumschneide.



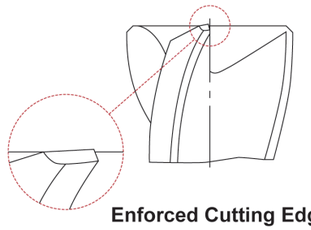
YPM | DIN 844 | FINE | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° — P.1366-1367

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	js12	h6				
E9A35060	GAA35060	6.0	6	24	68	3	0.18
E9A35070	GAA35070	7.0	10	30	80	3	0.18
E9A35080	GAA35080	8.0	10	38	88	3	0.18
E9A35090	GAA35090	9.0	10	38	88	3	0.18
E9A35100	GAA35100	10.0	10	45	95	4	0.18
E9A35120	GAA35120	12.0	12	53	110	4	0.18
E9A35140	GAA35140	14.0	12	53	110	4	0.25
E9A35160	GAA35160	16.0	16	63	123	4	0.25
E9A35180	GAA35180	18.0	16	63	123	4	0.25
E9A35200	GAA35200	20.0	20	75	141	4	0.25
E9A35220	GAA35220	22.0	20	75	141	5	0.36
E9A35250	GAA35250	25.0	25	90	166	5	0.36

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TANK-POWER END MILLS

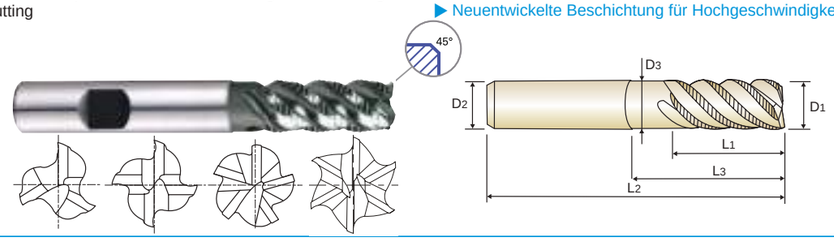
E9A26 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA26 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE 45°HELIX SHORT LENGTH ROUGHING - FINE

PREMIUM HSS-PM, MULTI SCHNEIDEN 45°RECHTSSPIRALE KURZ SCHRUPFRÄSER - FEIN
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE HÉLICE À 45° - PAS FINS, SÉRIE COURTE
MULTI TAGL., ELICA 45°, PER SGROS., SERIE CORTA, BOMBATO FINE - HSS PM

- ▶ High chip removal and minimizing breakages of cutting edges.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting

- ▶ Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- ▶ Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



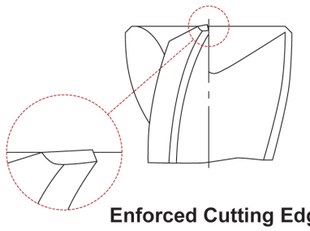
YPM | DIN 844 | FINE | 3-6 | 45° | DIN 1835B | C x 45° — P.1368-1369

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	D1(js12)	D2(h6)	L1	L3	L2	D3		
E9A26040	GAA26040	4.0	6	11	-	57	-	3	0.10
E9A26050	GAA26050	5.0	6	13	-	57	-	4	0.13
E9A26060	GAA26060	6.0	6	13	-	57	-	4	0.15
E9A26070	GAA26070	7.0	10	16	-	66	-	4	0.15
E9A26080	GAA26080	8.0	10	19	-	69	-	4	0.18
E9A26090	GAA26090	9.0	10	19	-	69	-	4	0.18
E9A26100	GAA26100	10.0	10	22	31	72	9.5	4	0.20
E9A26120	GAA26120	12.0	12	26	37	83	11.5	4	0.20
E9A26140	GAA26140	14.0	12	26	-	83	-	5	0.20
E9A26160	GAA26160	16.0	16	32	44	92	15	5	0.20
E9A26180	GAA26180	18.0	16	32	-	92	-	6	0.20
E9A26200	GAA26200	20.0	20	38	54	104	19	6	0.20
E9A26250	GAA26250	25.0	25	45	63	121	24	6	0.20

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 / — 6	0 / — 8	0 / — 9	0 / — 11	0 / — 13	0 / — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

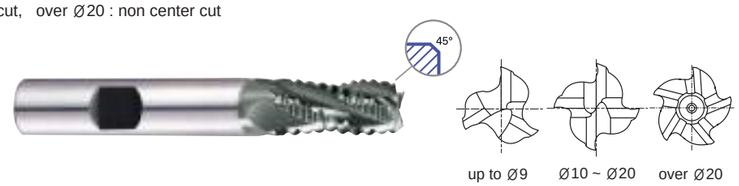
E9A33 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA33 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPFRÄSER - GROB
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE COURTE
MULTI TAGL., PER SGROS., SERIE CORTA, BOMBATO GROSSO - HSS PM

- ▶ Suitable for high-feed roughing milling.
- ▶ Designed to machine carbon steels, alloyed steels, stainless steels.
- ▶ YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- ▶ up to Ø20 : center cut, over Ø20 : non center cut

- ▶ Geeignet zum HSC - Schrupp - Fräsen.
- ▶Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- ▶ Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- ▶Bis D<=20mm : mit Zentrumschnitt, über D<=20mm : Ohne Zentrumschnitt.



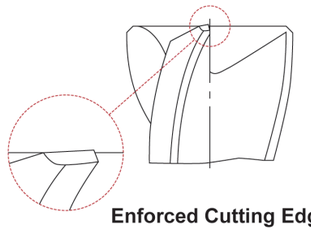
YPM | DIN 844 | COARSE | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° — P.1366-1367

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	js12	h6				
E9A33060	GAA33060	6.0	6	13	57	3	0.25
E9A33070	GAA33070	7.0	10	16	66	3	0.25
E9A33080	GAA33080	8.0	10	19	69	3	0.25
E9A33090	GAA33090	9.0	10	19	69	3	0.36
E9A33100	GAA33100	10.0	10	22	72	4	0.36
E9A33120	GAA33120	12.0	12	26	83	4	0.50
E9A33140	GAA33140	14.0	12	26	83	4	0.55
E9A33160	GAA33160	16.0	16	32	92	4	0.55
E9A33180	GAA33180	18.0	16	32	92	4	0.55
E9A33200	GAA33200	20.0	20	38	104	4	0.55
E9A33220	GAA33220	22.0	20	38	104	5	0.55
E9A33250	GAA33250	25.0	25	45	121	5	0.55

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 / — 6	0 / — 8	0 / — 9	0 / — 11	0 / — 13	0 / — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

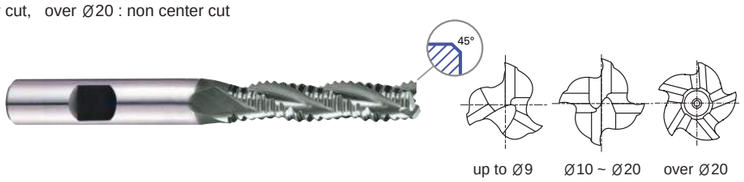
E9A34 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAA34 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

PREMIUM HSS-PM, MULTI SCHNEIDEN LANG SCHRUPFRÄSER - GROB
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE - PAS GROSSIERS, SÉRIE LONGUE
MULTI TAGL., PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSS PM

- Suitable for high-feed roughing milling.
- Designed to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.
- up to Ø20 : center cut, over Ø20 : non center cut

- Geeignet zum HSC - Schrupp - Fräsen.
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.
- Bis D<=20mm : mit Zentrumschnitt, über D<=20mm : Ohne Zentrumschnitt.



YPM | DIN 844 | COARSE | 3-5 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° — P.1366-1367

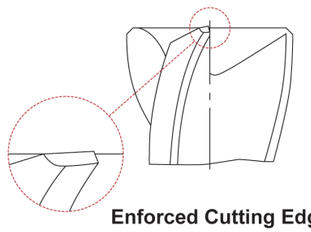
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	js12	h6				
E9A34060	GAA34060	6.0	6	24	68	3	0.25
E9A34070	GAA34070	7.0	10	30	80	3	0.25
E9A34080	GAA34080	8.0	10	38	88	3	0.25
E9A34090	GAA34090	9.0	10	38	88	3	0.36
E9A34100	GAA34100	10.0	10	45	95	4	0.36
E9A34120	GAA34120	12.0	12	53	110	4	0.50
E9A34140	GAA34140	14.0	12	53	110	4	0.55
E9A34160	GAA34160	16.0	16	63	123	4	0.55
E9A34180	GAA34180	18.0	16	63	123	4	0.55
E9A34200	GAA34200	20.0	20	75	141	4	0.55
E9A34220	GAA34220	22.0	20	75	141	5	0.55
E9A34250	GAA34250	25.0	25	90	166	5	0.55

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16


Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

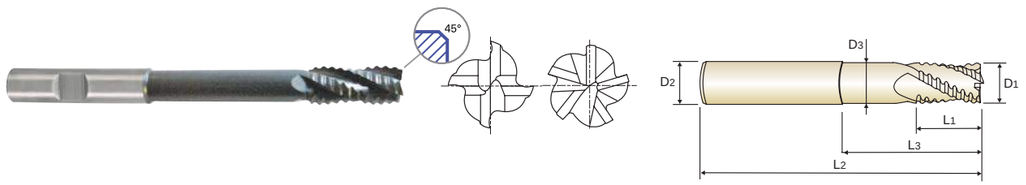
E9E43 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN
GAE43 SERIES — FLAT SHANK, SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING WITH NECK - COARSE

PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - GROB
FRAISES HSS-PM PREMIUM, MULTI-DENTS RAVAGEUSE AVEC DÉGAGEMENT - PAS GROSSIERS
MULTI TAGL., PER SGROSSATURA, SCARICATA - HSS PM

- High chip removal and minimizing breakages of cutting edges.
- Design to machine carbon steels, alloyed steels, stainless steels.
- YG-1's new developed TANK-POWER Coating suitable for high speed cutting.

- Schnelle Spanabfuhr und Minimierung von Schneidkantenausbrüchen
- Geeignet zum Fräsen von Stahl, legiertem Stahl und rostfreier Stahl.
- Neuentwickelte Beschichtung für Hochgeschwindigkeitsfräsen.



YPM | COARSE | 4&5 | 30° | DIN 1835B | C x 45° — P.1370-1371

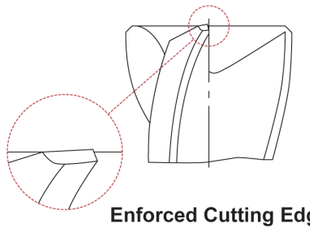
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter	No. of Flute	Chamfer
UNCOATED	TANK-POWER COATED	D1(js12)	D2(h6)	L1	L3	L2	D3		
E9E43100	GAE43100	10.0	10	22	69	110	8.5	3	0.34
E9E43120	GAE43120	12.0	12	26	78	125	10.5	4	0.50
E9E43160	GAE43160	16.0	16	32	87	138	14	4	0.55
E9E43200	GAE43200	20.0	20	38	108	160	18	5	0.55
E9E43250	GAE43250	25.0	25	45	155	216	23	5	0.55

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16


Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○				◎	◎	○						

TANK-POWER END MILLS

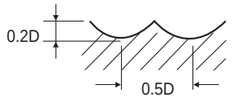
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

GA940, GAA32 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	7300	340	70	0.023	5800	230	55	0.020	3900	125	35	0.016
R2.0 × 4.0	6000	430	75	0.036	4620	290	60	0.031	3000	160	40	0.027
R3.0 × 6.0	4400	480	85	0.055	3500	320	65	0.046	2300	180	45	0.039
R4.0 × 8.0	3350	530	85	0.079	2600	350	65	0.067	1800	200	45	0.056
R5.0 × 10.0	2750	600	85	0.109	2100	400	65	0.095	1400	230	45	0.082
R6.0 × 12.0	2300	530	85	0.115	1800	350	70	0.097	1200	200	45	0.083
R8.0 × 16.0	1700	480	85	0.141	1300	320	65	0.123	890	180	45	0.101
R10.0 × 20.0	1350	420	85	0.156	1000	280	65	0.140	680	150	45	0.110
R12.5 × 25.0	950	310	75	0.163	740	210	60	0.142	470	115	35	0.122

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	2000	55	20	0.014	2200	60	20	0.014	5800	230	55	0.020
R2.0 × 4.0	1600	75	20	0.023	1760	80	20	0.023	4620	290	60	0.031
R3.0 × 6.0	1200	85	25	0.035	1320	95	25	0.036	3500	320	65	0.046
R4.0 × 8.0	890	85	20	0.048	980	95	25	0.048	2600	350	65	0.067
R5.0 × 10.0	680	102	20	0.075	750	110	25	0.073	2100	400	65	0.095
R6.0 × 12.0	580	85	20	0.073	640	95	25	0.074	1800	350	70	0.097
R8.0 × 16.0	440	80	20	0.091	490	90	25	0.092	1300	320	65	0.123
R10.0 × 20.0	360	70	25	0.097	400	80	25	0.100	1000	280	65	0.140
R12.5 × 25.0	250	52	20	0.104	275	55	20	0.100	740	210	60	0.142



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

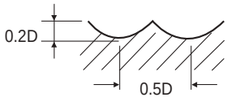
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 2 FLUTE BALL NOSE - PROFILING
PREMIUM HSS-PM, 2 SCHNEIDEN STIRNRADIUS - PROFILFRÄSEN

E9940, E9A32 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	5000	210	45	0.021	3900	140	35	0.018	2600	80	25	0.015
R2.0 × 4.0	4000	260	50	0.033	3100	180	40	0.029	2100	100	25	0.024
R3.0 × 6.0	3000	300	55	0.050	2300	200	45	0.043	1600	110	30	0.034
R4.0 × 8.0	2300	330	60	0.072	1800	220	45	0.061	1200	125	30	0.052
R5.0 × 10.0	1800	370	55	0.103	1400	250	45	0.089	1000	140	30	0.070
R6.0 × 12.0	1500	330	55	0.110	1200	220	45	0.092	820	125	30	0.076
R8.0 × 16.0	1100	300	55	0.136	900	200	45	0.111	600	110	30	0.092
R10.0 × 20.0	930	260	60	0.140	710	170	45	0.120	480	95	30	0.099
R12.5 × 25.0	640	190	50	0.148	500	130	40	0.130	340	70	25	0.103

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	1300	35	10	0.013	1430	40	15	0.014	3900	140	35	0.018
R2.0 × 4.0	1000	45	15	0.023	1100	55	15	0.025	3100	180	40	0.029
R3.0 × 6.0	820	55	15	0.034	900	65	15	0.036	2300	200	45	0.043
R4.0 × 8.0	600	55	15	0.046	660	65	15	0.049	1800	220	45	0.061
R5.0 × 10.0	480	65	15	0.068	530	80	15	0.075	1400	250	45	0.089
R6.0 × 12.0	400	55	15	0.069	440	65	15	0.074	1200	220	45	0.092
R8.0 × 16.0	300	50	15	0.083	330	60	15	0.091	900	200	45	0.111
R10.0 × 20.0	240	45	15	0.094	265	55	15	0.104	710	170	45	0.120
R12.5 × 25.0	175	30	15	0.086	195	35	15	0.090	500	130	40	0.130



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

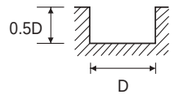
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

GA936, GAA29 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7000	15	45	0.008	5900	90	35	0.008	4900	80	30	0.008
3.0	5000	160	45	0.016	4100	135	40	0.016	3350	115	30	0.017
4.0	4300	230	55	0.027	3600	175	45	0.024	3150	160	40	0.025
5.0	3900	255	60	0.033	3250	200	50	0.031	2600	185	40	0.036
6.0	3500	265	65	0.038	2900	210	55	0.036	2300	190	45	0.041
8.0	2600	275	65	0.053	2200	240	55	0.055	1800	200	45	0.056
10.0	2100	300	65	0.071	1800	265	55	0.074	1450	230	45	0.079
12.0	1800	275	70	0.076	1450	240	55	0.083	1150	210	45	0.091
14.0	1600	265	70	0.083	1250	210	55	0.084	1000	195	45	0.098
16.0	1350	265	70	0.098	1150	195	60	0.085	890	180	45	0.101
18.0	1150	240	65	0.104	950	195	55	0.103	790	160	45	0.101
20.0	950	220	60	0.116	780	165	50	0.106	700	150	45	0.107
22.0	840	185	60	0.110	710	150	50	0.106	600	125	40	0.104
25.0	750	155	60	0.103	630	140	50	0.111	490	115	40	0.117

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7000	15	45	0.008	5900	90	35	0.008	5900	90	35	0.008
3.0	5000	160	45	0.016	4100	135	40	0.016	4100	135	40	0.016
4.0	4300	230	55	0.027	3600	175	45	0.024	3600	175	45	0.024
5.0	3900	255	60	0.033	3250	200	50	0.031	3250	200	50	0.031
6.0	3500	265	65	0.038	2900	210	55	0.036	2900	210	55	0.036
8.0	2600	275	65	0.053	2200	240	55	0.055	2200	240	55	0.055
10.0	2100	300	65	0.071	1800	265	55	0.074	1800	265	55	0.074
12.0	1800	275	70	0.076	1450	240	55	0.083	1450	240	55	0.083
14.0	1600	265	70	0.083	1250	210	55	0.084	1250	210	55	0.084
16.0	1350	265	70	0.098	1150	195	60	0.085	1150	195	60	0.085
18.0	1150	240	65	0.104	950	195	55	0.103	950	195	55	0.103
20.0	950	220	60	0.116	780	165	50	0.106	780	165	50	0.106
22.0	840	185	60	0.110	710	150	50	0.106	710	150	50	0.106
25.0	750	155	60	0.103	630	140	50	0.111	630	140	50	0.111



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

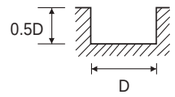
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

E9936, E9A29 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4800	70	30	0.007	4000	55	25	0.007	3300	50	20	0.008
3.0	3300	100	30	0.015	2800	85	25	0.015	2200	75	20	0.017
4.0	2900	140	35	0.024	2400	110	30	0.023	2100	100	25	0.024
5.0	2600	160	40	0.031	2200	125	35	0.028	1800	115	30	0.032
6.0	2300	160	45	0.035	2000	135	40	0.034	1600	120	30	0.038
8.0	1800	170	45	0.047	1500	150	40	0.050	1200	125	30	0.052
10.0	1400	180	45	0.064	1200	165	40	0.069	1000	140	30	0.070
12.0	1200	170	45	0.071	1000	150	40	0.075	800	130	30	0.081
14.0	1100	160	50	0.073	850	140	35	0.082	680	120	30	0.088
16.0	900	160	45	0.089	750	135	40	0.090	600	110	30	0.092
18.0	800	150	45	0.094	640	120	35	0.094	530	100	30	0.094
20.0	640	130	40	0.102	540	100	35	0.093	480	95	30	0.099
22.0	570	110	40	0.096	480	90	35	0.094	400	75	30	0.094
25.0	510	95	40	0.093	430	85	35	0.099	340	70	25	0.103

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2100	40	15	0.010	1300	25	10	0.010	4000	55	25	0.007
3.0	1600	50	15	0.016	1200	40	10	0.017	2800	85	25	0.015
4.0	1300	60	15	0.023	1050	45	15	0.021	2400	110	30	0.023
5.0	1100	65	15	0.030	900	45	15	0.025	2200	125	35	0.028
6.0	1000	65	20	0.033	750	55	15	0.037	2000	135	40	0.034
8.0	750	70	20	0.047	600	55	15	0.046	1500	150	40	0.050
10.0	600	80	20	0.067	480	65	15	0.068	1200	165	40	0.069
12.0	500	70	20	0.070	400	55	15	0.069	1000	150	40	0.075
14.0	430	65	20	0.076	340	50	15	0.074	850	140	35	0.082
16.0	380	65	20	0.086	300	50	15	0.083	750	135	40	0.090
18.0	340	55	20	0.081	270	45	15	0.083	640	120	35	0.094
20.0	300	55	20	0.092	240	40	15	0.083	540	100	35	0.093
22.0	270	50	20	0.093	210	35	15	0.083	480	90	35	0.094
25.0	240	45	20	0.094	175	30	15	0.086	430	85	35	0.099



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

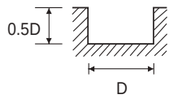
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄS EN

GA942, GAA30 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6500	70	40	0.004	5500	55	35	0.003	4800	45	30	0.003
3.0	4600	102	45	0.007	3900	85	35	0.007	3350	52	30	0.005
4.0	4300	140	55	0.011	3600	115	45	0.011	3000	80	40	0.009
5.0	3800	160	60	0.014	3200	130	50	0.014	2600	92	40	0.012
6.0	3350	230	65	0.023	2800	190	55	0.023	2300	140	45	0.020
8.0	2600	240	65	0.031	2200	210	55	0.032	1800	150	45	0.028
10.0	100	250	5	0.833	1800	210	55	0.039	1400	160	45	0.038
12.0	1800	275	70	0.051	1450	230	55	0.053	1200	170	45	0.047
14.0	1600	250	70	0.052	1350	220	60	0.054	1000	160	45	0.053
16.0	1350	240	70	0.059	1150	210	60	0.061	890	150	45	0.056
18.0	1150	240	65	0.070	890	190	50	0.071	790	150	45	0.063
20.0	950	230	60	0.081	790	190	50	0.080	700	140	45	0.067
22.0	840	230	60	0.091	730	195	50	0.089	600	150	40	0.083
25.0	750	240	60	0.107	630	210	50	0.111	490	160	40	0.109

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3000	35	20	0.004	1900	28	10	0.005	5500	55	35	0.003
3.0	2200	45	20	0.007	1800	45	15	0.008	3900	85	35	0.007
4.0	1900	52	25	0.009	1500	55	20	0.012	3600	115	45	0.011
5.0	1700	62	25	0.012	1300	55	20	0.014	3200	130	50	0.014
6.0	1450	92	25	0.021	1100	75	20	0.023	2800	190	55	0.023
8.0	1150	102	30	0.030	890	85	20	0.032	2200	210	55	0.032
10.0	890	115	30	0.043	680	92	20	0.045	1800	210	55	0.039
12.0	740	115	30	0.052	580	92	20	0.053	1450	230	55	0.053
14.0	660	110	30	0.056	500	85	20	0.057	1350	220	60	0.054
16.0	560	102	30	0.061	440	85	20	0.064	1150	210	60	0.061
18.0	500	95	30	0.063	400	80	25	0.067	890	190	50	0.071
20.0	440	92	30	0.070	360	80	25	0.074	790	190	50	0.080
22.0	400	95	30	0.079	315	85	20	0.090	730	195	50	0.089
25.0	360	102	30	0.094	250	85	20	0.113	630	210	50	0.111



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

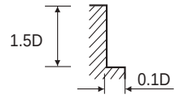
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN

GA942, GAA30 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	8200	100	50	0.004	6800	80	45	0.004	5500	65	35	0.004
3.0	5800	145	55	0.008	4800	120	45	0.008	3800	75	35	0.007
4.0	5200	185	65	0.012	4400	155	55	0.012	3500	110	45	0.010
5.0	4700	210	75	0.015	4000	175	65	0.015	2900	125	45	0.014
6.0	4200	300	80	0.024	3600	250	70	0.023	2600	190	50	0.024
8.0	3200	330	80	0.034	2600	270	65	0.035	2000	200	50	0.033
10.0	2500	350	80	0.047	2100	290	65	0.046	1600	210	50	0.044
12.0	2100	350	80	0.056	1800	300	70	0.056	1400	230	55	0.055
14.0	1800	350	80	0.065	1500	285	65	0.063	1150	210	50	0.061
16.0	1600	330	80	0.069	1300	275	65	0.071	1000	200	50	0.067
18.0	1350	310	75	0.077	1150	265	65	0.077	890	195	50	0.073
20.0	1250	300	80	0.080	1050	255	65	0.081	780	190	50	0.081
22.0	1150	310	80	0.090	950	265	65	0.093	740	195	50	0.088
25.0	1000	330	80	0.110	840	275	65	0.109	630	210	50	0.111

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3800	50	25	0.004	2400	40	15	0.006	6800	80	45	0.004
3.0	2700	65	25	0.008	2200	65	20	0.010	4800	120	45	0.008
4.0	2300	75	30	0.011	1900	75	25	0.013	4400	155	55	0.012
5.0	2000	85	30	0.014	1700	75	25	0.015	4000	175	65	0.015
6.0	1800	125	35	0.023	1500	100	30	0.022	3600	250	70	0.023
8.0	1300	140	35	0.036	1100	115	30	0.035	2600	270	65	0.035
10.0	1000	150	30	0.050	890	125	30	0.047	2100	290	65	0.046
12.0	900	150	35	0.056	740	125	30	0.056	1800	300	70	0.056
14.0	780	140	35	0.060	630	120	30	0.063	1500	285	65	0.063
16.0	660	140	35	0.071	550	115	30	0.070	1300	275	65	0.071
18.0	580	130	35	0.075	500	110	30	0.073	1150	265	65	0.077
20.0	520	125	35	0.080	440	110	30	0.083	1050	255	65	0.081
22.0	470	130	30	0.092	400	110	30	0.092	950	265	65	0.093
25.0	420	135	35	0.107	360	120	30	0.111	840	275	65	0.109



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

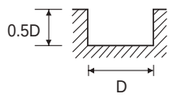
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SLOTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - NUTENFRÄSEN

E9942, E9A30 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4400	45	30	0.003	3700	35	25	0.003	3300	30	20	0.003
3.0	3150	65	30	0.007	2650	55	25	0.007	3200	30	30	0.003
4.0	2900	85	35	0.010	2400	70	30	0.010	2100	50	25	0.008
5.0	2600	100	40	0.013	2150	80	35	0.012	1800	55	30	0.010
6.0	2300	145	45	0.021	1900	120	35	0.021	1600	85	30	0.018
8.0	1800	150	45	0.028	1500	130	40	0.029	1200	95	30	0.026
10.0	1400	155	45	0.037	1200	130	40	0.036	960	100	30	0.035
12.0	1200	170	45	0.047	1000	145	40	0.048	820	105	30	0.043
14.0	1070	155	45	0.048	930	135	40	0.048	680	100	30	0.049
16.0	930	150	45	0.054	780	130	40	0.056	610	95	30	0.052
18.0	780	150	45	0.064	610	120	35	0.066	530	95	30	0.060
20.0	640	145	40	0.076	530	120	35	0.075	480	85	30	0.059
22.0	570	145	40	0.085	500	120	35	0.080	410	95	30	0.077
25.0	520	150	40	0.096	430	130	35	0.101	340	100	25	0.098

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2100	20	15	0.003	1300	18	10	0.005	3700	35	25	0.003
3.0	1500	30	15	0.007	1200	28	10	0.008	2650	55	25	0.007
4.0	1300	35	15	0.009	1000	35	15	0.012	2400	70	30	0.010
5.0	1100	40	15	0.012	890	35	15	0.013	2150	80	35	0.012
6.0	1000	55	20	0.018	750	45	15	0.020	1900	120	35	0.021
8.0	780	65	20	0.028	610	55	15	0.030	1500	130	40	0.029
10.0	610	70	20	0.038	460	58	15	0.042	1200	130	40	0.036
12.0	500	70	20	0.047	395	58	15	0.049	1000	145	40	0.048
14.0	450	65	20	0.048	345	55	15	0.053	930	135	40	0.048
16.0	380	65	20	0.057	300	55	15	0.061	780	130	40	0.056
18.0	350	60	20	0.057	270	50	15	0.062	610	120	35	0.066
20.0	300	55	20	0.061	245	50	15	0.068	530	120	35	0.075
22.0	270	60	20	0.074	215	55	15	0.085	500	120	35	0.080
25.0	240	65	20	0.090	170	55	15	0.108	430	130	35	0.101



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

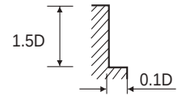
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 3 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 3 SCHNEIDEN - SEITENFRÄSEN

E9942, E9A30 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	8200	100	50	0.004	6800	80	45	0.004	5500	65	35	0.004
3.0	5800	145	55	0.008	4800	120	45	0.008	3800	75	35	0.007
4.0	5200	185	65	0.012	4400	155	55	0.012	3500	110	45	0.010
5.0	4700	210	75	0.015	4000	175	65	0.015	2900	125	45	0.014
6.0	4200	300	80	0.024	3600	250	70	0.023	2600	190	50	0.024
8.0	3200	330	80	0.034	2600	270	65	0.035	2000	200	50	0.033
10.0	2500	350	80	0.047	2100	290	65	0.046	1600	210	50	0.044
12.0	2100	350	80	0.056	1800	300	70	0.056	1400	230	55	0.055
14.0	1800	350	80	0.065	1500	285	65	0.063	1150	210	50	0.061
16.0	1600	330	80	0.069	1300	275	65	0.071	1000	200	50	0.067
18.0	1350	310	75	0.077	1150	265	65	0.077	890	195	50	0.073
20.0	1250	300	80	0.080	1050	255	65	0.081	780	190	50	0.081
22.0	1150	310	80	0.090	950	265	65	0.093	740	195	50	0.088
25.0	1000	330	80	0.110	840	275	65	0.109	630	210	50	0.111

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3800	50	25	0.004	2400	40	15	0.006	6800	80	45	0.004
3.0	2700	65	25	0.008	2200	65	20	0.010	4800	120	45	0.008
4.0	2300	75	30	0.011	1900	75	25	0.013	4400	155	55	0.012
5.0	2000	85	30	0.014	1700	75	25	0.015	4000	175	65	0.015
6.0	1800	125	35	0.023	1500	100	30	0.022	3600	250	70	0.023
8.0	1300	140	35	0.036	1100	115	30	0.035	2600	270	65	0.035
10.0	1000	150	30	0.050	890	125	30	0.047	2100	290	65	0.046
12.0	900	150	35	0.056	740	125	30	0.056	1800	300	70	0.056
14.0	780	140	35	0.060	630	120	30	0.063	1500	285	65	0.063
16.0	660	140	35	0.071	550	115	30	0.070	1300	275	65	0.071
18.0	580	130	35	0.075	500	110	30	0.073	1150	265	65	0.077
20.0	520	125	35	0.080	440	110	30	0.083	1050	255	65	0.081
22.0	470	130	30	0.092	400	110	30	0.092	950	265	65	0.093
25.0	420	135	35	0.107	360	120	30	0.111	840	275	65	0.109



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

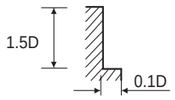
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN

GA938, GAA31 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	9200	290	60	0.008	8400	240	55	0.007	6100	170	40	0.007
3.0	6600	410	60	0.016	6000	350	55	0.015	4400	250	40	0.014
4.0	5300	480	65	0.023	4700	400	60	0.021	3600	300	45	0.021
5.0	4400	510	70	0.029	4000	420	65	0.026	2900	320	45	0.028
6.0	3900	540	75	0.035	3600	450	70	0.031	2600	330	50	0.032
8.0	3100	570	80	0.046	2600	480	65	0.046	2000	370	50	0.046
10.0	2300	630	70	0.068	2100	530	65	0.063	1600	380	50	0.059
12.0	2000	570	75	0.071	1800	480	70	0.067	1400	370	55	0.066
14.0	1800	550	80	0.076	1600	460	70	0.072	1100	350	50	0.080
16.0	1600	510	80	0.080	1400	430	70	0.077	1000	340	50	0.085
18.0	1500	460	85	0.077	1250	400	70	0.080	890	310	50	0.087
20.0	1250	440	80	0.088	1050	370	65	0.088	780	275	50	0.088
22.0	1050	410	75	0.098	950	320	65	0.084	680	255	45	0.094
25.0	1000	370	80	0.093	840	305	65	0.091	630	230	50	0.091

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	4100	125	25	0.008	3300	85	20	0.006	8400	240	55	0.007
3.0	2700	180	25	0.017	2400	125	25	0.013	6000	350	55	0.015
4.0	2300	200	30	0.022	2000	150	25	0.019	4700	400	60	0.021
5.0	2000	220	30	0.028	1700	160	25	0.024	4000	420	65	0.026
6.0	1800	230	35	0.032	1450	180	25	0.031	3600	450	70	0.031
8.0	1400	240	35	0.043	1150	185	30	0.040	2600	480	65	0.046
10.0	1000	265	30	0.066	890	200	30	0.056	2100	530	65	0.063
12.0	890	240	35	0.067	720	185	25	0.064	1800	480	70	0.067
14.0	790	230	35	0.073	630	170	30	0.067	1600	460	70	0.072
16.0	680	220	35	0.081	550	165	30	0.075	1400	430	70	0.077
18.0	630	195	35	0.077	500	150	30	0.075	1250	400	70	0.080
20.0	530	175	35	0.083	440	140	30	0.080	1050	370	65	0.088
22.0	470	160	30	0.085	400	130	30	0.081	950	320	65	0.084
25.0	420	150	35	0.089	360	125	30	0.087	840	305	65	0.091



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

TANK-POWER END MILLS

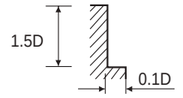
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, 4 FLUTE - SIDE CUTTING
PREMIUM HSS-PM, 4 SCHNEIDEN - SEITENFRÄSEN

E9938, E9A31 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	6300	180	40	0.007	5700	150	35	0.007	4000	110	25	0.007
3.0	4500	260	40	0.014	4000	210	40	0.013	3000	155	30	0.013
4.0	3600	300	45	0.021	3200	250	40	0.020	2400	190	30	0.020
5.0	3000	310	45	0.026	2700	265	40	0.025	2000	195	30	0.024
6.0	2600	330	50	0.032	2400	275	45	0.029	1800	205	35	0.028
8.0	2100	360	55	0.043	1800	300	45	0.042	1400	230	35	0.041
10.0	1600	390	50	0.061	1400	330	45	0.059	1100	235	35	0.053
12.0	1300	360	50	0.069	1200	300	45	0.063	900	230	35	0.064
14.0	1200	340	55	0.071	1100	285	50	0.065	780	215	35	0.069
16.0	1100	310	55	0.070	900	265	45	0.074	680	205	35	0.075
18.0	1000	280	55	0.070	850	250	50	0.074	600	190	35	0.079
20.0	850	270	55	0.079	710	230	45	0.081	540	175	35	0.081
22.0	710	260	50	0.092	640	200	45	0.078	460	160	30	0.087
25.0	680	230	55	0.085	570	190	45	0.083	430	140	35	0.081

MATERIAL	P								K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				ALLOY STEELS TOOL STEELS AUSTENITIC STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc35				HRc35 ~ HRc40							
STRENGTH	1000 ~ 1100N/mm²				1100 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2800	75	20	0.007	2300	55	15	0.006	5700	150	35	0.007
3.0	2000	110	20	0.014	1650	80	15	0.012	4000	210	40	0.013
4.0	1600	125	20	0.020	1350	95	15	0.018	3200	250	40	0.020
5.0	1400	135	20	0.024	1125	100	20	0.022	2700	265	40	0.025
6.0	1200	140	25	0.029	975	110	20	0.028	2400	275	45	0.029
8.0	900	150	25	0.042	750	115	20	0.038	1800	300	45	0.042
10.0	710	165	20	0.058	600	125	20	0.052	1400	330	45	0.059
12.0	600	150	25	0.063	495	115	20	0.058	1200	300	45	0.063
14.0	530	140	25	0.066	430	105	20	0.061	1100	285	50	0.065
16.0	450	135	25	0.075	375	100	20	0.067	900	265	45	0.074
18.0	430	120	25	0.070	340	95	20	0.070	850	250	50	0.074
20.0	360	110	25	0.076	300	85	20	0.071	710	230	45	0.081
22.0	320	100	20	0.078	270	80	20	0.074	640	200	45	0.078
25.0	280	95	20	0.085	240	80	20	0.083	570	190	45	0.083



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

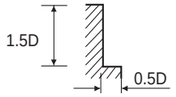
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN

GA941, GAA35, GAA33, GAA34 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2800	230	55	0.027	2200	180	40	0.027	1600	115	30	0.024
8.0	2400	290	60	0.040	1900	230	50	0.040	1400	160	35	0.038
10.0	1900	415	60	0.055	1500	315	45	0.053	1050	195	35	0.046
12.0	1600	415	60	0.065	1200	330	45	0.069	900	230	35	0.064
14.0	1400	415	60	0.074	1050	330	45	0.079	760	230	35	0.076
16.0	1200	415	60	0.086	950	330	50	0.087	660	230	35	0.087
18.0	1050	415	60	0.099	890	330	50	0.093	610	230	35	0.094
20.0	960	425	60	0.111	760	330	50	0.109	530	230	35	0.108
22.0	890	425	60	0.096	650	330	45	0.102	470	230	30	0.098
25.0	790	415	60	0.105	600	315	45	0.105	420	220	35	0.105

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1300	105	25	0.027	1450	110	25	0.025	2200	180	40	0.027
8.0	1050	125	25	0.040	1200	140	30	0.039	1900	230	50	0.040
10.0	890	160	30	0.045	950	170	30	0.045	1500	315	45	0.053
12.0	740	180	30	0.061	800	205	30	0.064	1200	330	45	0.069
14.0	630	180	30	0.071	690	205	30	0.074	1050	330	45	0.079
16.0	550	180	30	0.082	600	205	30	0.085	950	330	50	0.087
18.0	490	180	30	0.092	550	205	30	0.093	890	330	50	0.093
20.0	440	180	30	0.102	480	205	30	0.107	760	330	50	0.109
22.0	400	180	30	0.090	430	205	30	0.095	650	330	45	0.102
25.0	360	180	30	0.100	390	200	30	0.103	600	315	45	0.105



※ The FEED, in long & long reach types, should be reduced by around 50%

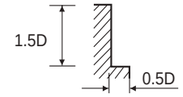
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN

E9941, E9A35, E9A33, E9A34 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1900	140	35	0.018	1500	110	30	0.018	1050	70	20	0.017
8.0	1600	180	40	0.028	1300	140	35	0.027	900	100	25	0.028
10.0	1300	260	40	0.050	1000	195	30	0.049	710	125	20	0.044
12.0	1100	260	40	0.059	820	205	30	0.063	600	140	25	0.058
14.0	930	260	40	0.056	710	205	30	0.058	510	140	20	0.055
16.0	820	260	40	0.063	640	205	30	0.064	450	140	25	0.062
18.0	710	260	40	0.061	610	205	35	0.056	410	140	25	0.057
20.0	660	265	40	0.067	510	205	30	0.067	360	140	25	0.065
22.0	610	265	40	0.072	440	205	30	0.078	320	140	20	0.073
25.0	540	260	40	0.080	400	195	30	0.081	280	135	20	0.080

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	900	65	15	0.018	1020	80	20	0.020	1500	110	30	0.018
8.0	740	80	20	0.027	840	100	20	0.030	1300	140	35	0.027
10.0	600	100	20	0.042	660	120	20	0.045	1000	195	30	0.049
12.0	500	110	20	0.055	560	145	20	0.065	820	205	30	0.063
14.0	430	110	20	0.051	480	145	20	0.060	710	205	30	0.058
16.0	370	110	20	0.059	420	145	20	0.069	640	205	30	0.064
18.0	330	110	20	0.056	380	145	20	0.064	610	205	35	0.056
20.0	300	110	20	0.061	330	145	20	0.073	510	205	30	0.067
22.0	270	110	20	0.068	300	145	20	0.081	440	205	30	0.078
25.0	240	110	20	0.076	270	140	20	0.086	400	195	30	0.081



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

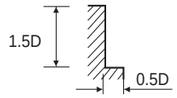
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN

GAA26 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2800	230	55	0.021	2200	180	40	0.020	1600	115	30	0.018
8.0	2400	290	60	0.030	1900	230	50	0.030	1400	160	35	0.029
10.0	1900	415	60	0.055	1500	315	45	0.053	1050	195	35	0.046
12.0	1600	415	60	0.065	1200	330	45	0.069	900	230	35	0.064
14.0	1400	415	60	0.059	1050	330	45	0.063	760	230	35	0.061
16.0	1200	415	60	0.069	950	330	50	0.069	660	230	35	0.070
18.0	1050	415	60	0.066	890	330	50	0.062	610	230	35	0.063
20.0	960	425	60	0.074	760	330	50	0.072	530	230	35	0.072
22.0	890	425	60	0.080	650	330	45	0.085	470	230	30	0.082
25.0	790	415	60	0.088	600	315	45	0.088	420	220	35	0.087

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1300	105	25	0.020	1450	110	25	0.019	2200	180	40	0.020
8.0	1050	125	25	0.030	1200	140	30	0.029	1900	230	50	0.030
10.0	890	160	30	0.045	950	170	30	0.045	1500	315	45	0.053
12.0	740	180	30	0.061	800	205	30	0.064	1200	330	45	0.069
14.0	630	180	30	0.057	690	205	30	0.059	1050	330	45	0.063
16.0	550	180	30	0.065	600	205	30	0.068	950	330	50	0.069
18.0	490	180	30	0.061	550	205	30	0.062	890	330	50	0.062
20.0	440	180	30	0.068	480	205	30	0.071	760	330	50	0.072
22.0	400	180	30	0.075	430	205	30	0.079	650	330	45	0.085
25.0	360	180	30	0.083	390	200	30	0.085	600	315	45	0.088



※ The FEED, in long & long reach types, should be reduced by around 50%

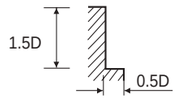
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN
PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER - SEITENFRÄSEN

E9A26 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1900	140	35	0.018	1500	110	30	0.018	1050	70	20	0.017
8.0	1600	180	40	0.028	1300	140	35	0.027	900	100	25	0.028
10.0	1300	260	40	0.050	1000	195	30	0.049	710	125	20	0.044
12.0	1100	260	40	0.059	820	205	30	0.063	600	140	25	0.058
14.0	930	260	40	0.056	710	205	30	0.058	510	140	20	0.055
16.0	820	260	40	0.063	640	205	30	0.064	450	140	25	0.062
18.0	710	260	40	0.061	610	205	35	0.056	410	140	25	0.057
20.0	660	265	40	0.067	510	205	30	0.067	360	140	25	0.065
22.0	610	265	40	0.072	440	205	30	0.078	320	140	20	0.073
25.0	540	260	40	0.080	400	195	30	0.081	280	135	20	0.080

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	900	65	15	0.018	1020	80	20	0.020	1500	110	30	0.018
8.0	740	80	20	0.027	840	100	20	0.030	1300	140	35	0.027
10.0	600	100	20	0.042	660	120	20	0.045	1000	195	30	0.049
12.0	500	110	20	0.055	560	145	20	0.065	820	205	30	0.063
14.0	430	110	20	0.051	480	145	20	0.060	710	205	30	0.058
16.0	370	110	20	0.059	420	145	20	0.069	640	205	30	0.064
18.0	330	110	20	0.056	380	145	20	0.064	610	205	35	0.056
20.0	300	110	20	0.061	330	145	20	0.073	510	205	30	0.067
22.0	270	110	20	0.068	300	145	20	0.081	440	205	30	0.078
25.0	240	110	20	0.076	270	140	20	0.086	400	195	30	0.081



※ The FEED, in long & long reach types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

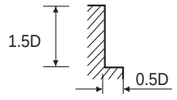
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING WITH NECK - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - SEITENFRÄSEN

E9E43 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	1300	220	41	0.042	1000	165	32	0.041	710	105	23	0.037
12.0	1100	220	41	0.050	820	175	32	0.053	600	120	23	0.050
16.0	820	220	41	0.067	640	175	32	0.068	450	120	23	0.067
20.0	660	225	41	0.085	510	175	32	0.086	360	120	23	0.083
25.0	540	220	41	0.081	400	165	32	0.083	280	115	23	0.082

MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	600	85	19	0.035	660	100	21	0.038	1000	165	32	0.041
12.0	500	95	19	0.048	560	125	21	0.058	820	175	32	0.053
16.0	370	95	19	0.064	420	125	21	0.074	640	175	32	0.068
20.0	300	95	19	0.079	330	125	21	0.095	510	175	32	0.086
25.0	240	95	19	0.079	270	120	21	0.089	400	165	32	0.083



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

TANK-POWER END MILLS

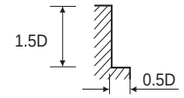
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING WITH NECK - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPFRÄSER mit ABGESETZTEM SCHAFTTETL - SEITENFRÄSEN

GAE43 SERIES

MATERIAL	P											
	STRUCTURAL STEELS CARBON STEELS				STRUCTURAL STEELS CARBON STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	1900	355	60	0.047	1500	270	47	0.045	1050	165	33	0.039
12.0	1600	355	60	0.055	1200	280	47	0.058	900	195	33	0.054
16.0	1200	355	60	0.074	950	280	47	0.074	660	195	33	0.074
20.0	960	360	60	0.094	760	280	47	0.092	530	195	33	0.092
25.0	790	355	60	0.090	600	270	47	0.090	420	185	33	0.088

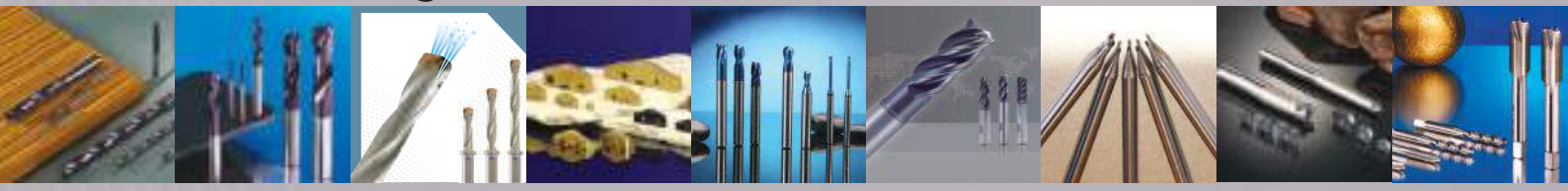
MATERIAL	P				M				K			
	PREHARDENED STEELS ALLOY STEELS TOOL STEELS				STAINLESS STEELS				CAST IRON			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.0	890	135	28	0.038	950	145	30	0.038	1500	270	47	0.045
12.0	740	155	28	0.052	800	175	30	0.055	1200	280	47	0.058
16.0	550	155	28	0.070	600	175	30	0.073	950	280	47	0.074
20.0	440	155	28	0.088	480	175	30	0.091	760	280	47	0.092
25.0	360	155	28	0.086	390	170	30	0.087	600	270	47	0.090



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

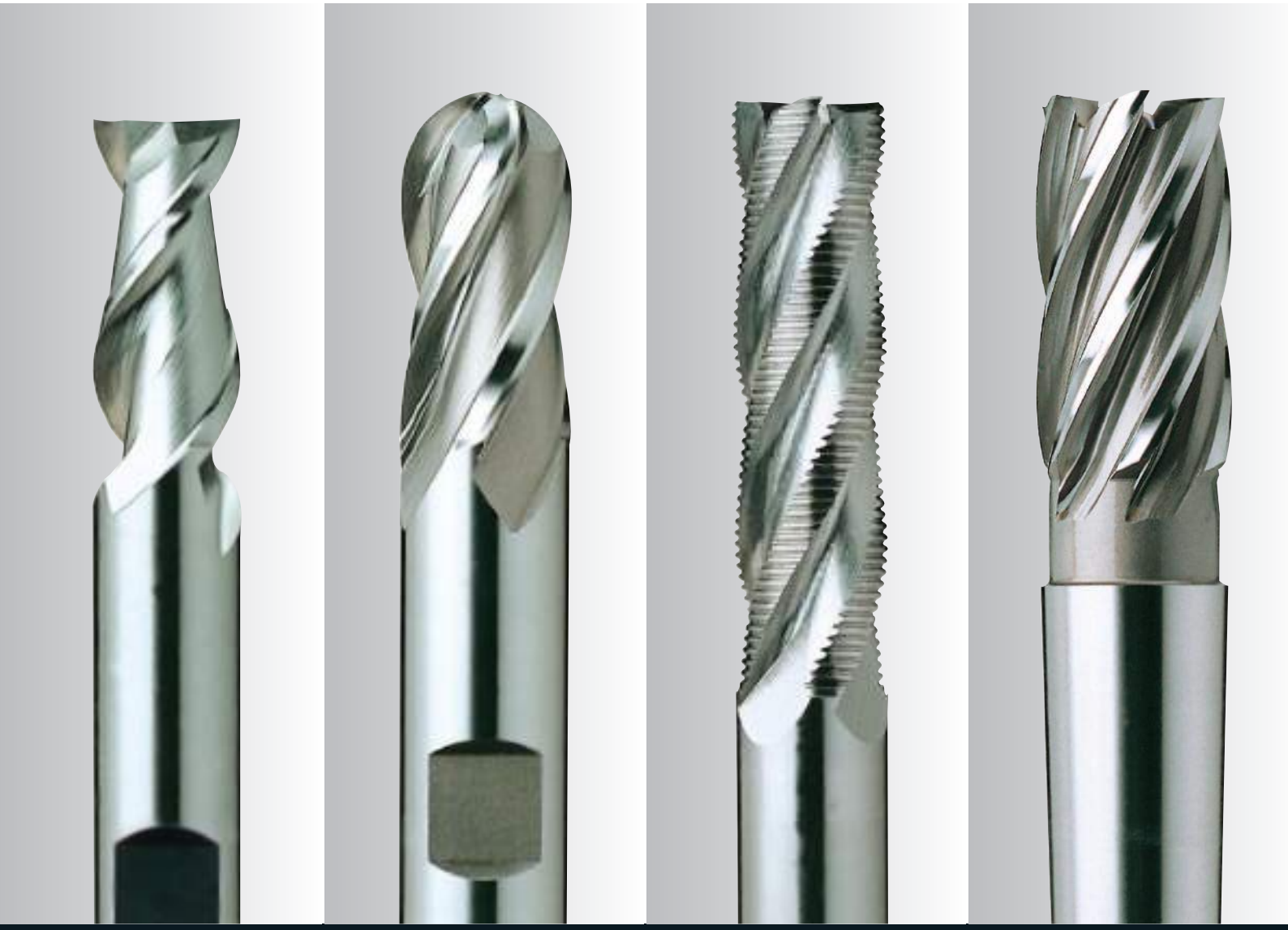
Global Cutting Tool Leader **YG-1**



HSS

YG

Leading Through Innovation

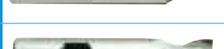


GENERAL HSS END MILLS

ALLGEMEINEN HSS FRÄSER

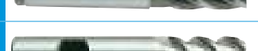
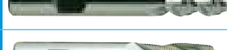
- General Purpose, Non-coated, Any Coating Available
- Unbeschichtet für allgemeinen Einsatz. Jegliche Beschichtung möglich

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N						S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
E9410		PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH PREMIUM HSS-PM, 2 SCHNEIDEN KURZ	D2.0	D25.0	1380	◎	◎	○								○					
E9720		PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPPFRÄSER KURZ - FEIN	D6.0	D30.0	1381	◎	◎	○								○					
E3570		HSS-PM, 2 FLUTE SHORT LENGTH HSS-PM, 2 SCHNEIDEN KURZ	D2.0	D30.0	1382	◎	◎	○								○					
E3574 E3575		HSS-PM, 4&6 FLUTE SHORT LENGTH HSS-PM, 4&6 SCHNEIDEN KURZ	D2.0 D22.0	D20.0 D30.0	1383	◎	◎	○								○					
E3462 E3463		HSS-PM, 3&4 FLUTE 60˚HELIX SHORT LENGTH HSS-PM, 3&4 SCHNEIDEN 60˚RECHTSSPIRALE KURZ	D6.0 D25.0	D20.0 D30.0	1384	◎	◎	○								○					
E2535		HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS	R1.0	R16.0	1385	◎	◎	○								○					
E2492		HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS	R1.0	R15.0	1386	◎	◎	○								○					
E2512		HSSCo8, 3 FLUTE SHORT LENGTH BALL NOSE THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ STIRNRADIUS EINWEGFRÄSER	R1.0	R3.0	1387	◎	◎	○								○					
E2410		HSSCo8, 4&6 FLUTE SHORT LENGTH BALL NOSE HSSCo8, 4&6 SCHNEIDEN KURZ STIRNRADIUS	R3.0	R12.5	1388	◎	◎	○								○					
E2429		HSSCo8, 4&6 FLUTE LONG LENGTH BALL NOSE HSSCo8, 4&6 SCHNEIDEN LANG STIRNRADIUS	R5.0	R12.5	1389	◎	◎	○								○					
EL623		HSS-E, 1 FLUTE HSS-E, 1 SCHNEIDEN	D3.0	D10.0	1390	◎	◎									○					
EL612		HSS-E, 1 FLUTE for ALUMINUM HSS-E, 1 SCHNEIDEN für ALUMINIUM	D3.0	D10.0	1391	○										◎					
E2570		HSSCo8, 2 FLUTE SHORT LENGTH HSSCo8, 2 SCHNEIDEN KURZ	D1.0	D40.0	1392	◎	◎	○								○					
E2571		HSSCo8, 2 FLUTE LONG LENGTH HSSCo8, 2 SCHNEIDEN LANG	D1.5	D40.0	1395	◎	◎	○								○					
E2510		HSSCo8, 2 FLUTE EXTRA LONG LENGTH HSSCo8, 2 SCHNEIDEN EXTRA LANG	D2.5	D40.0	1397	◎	◎	○								○					
E2464		HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH for ALUMINUM HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM	D1.0	D32.0	1398	○										◎					
E2509		HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH for ALUMINUM HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE LANG für ALUMINIUM	D2.0	D20.0	1400	○										◎					
E2572		HSSCo8, 3 FLUTE STUB LENGTH HSSCo8, 3 SCHNEIDEN EXTRA KURZ	D1.5	D32.0	1401	◎	◎	○								○					

▶ NEXT PAGE

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N					S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
E2573		HSSCo8, 3 FLUTE SHORT LENGTH HSSCo8, 3 SCHNEIDEN KURZ	D1.0	D40.0	1402	◎	◎	○								○				
E2516		HSSCo8, 3 FLUTE LONG LENGTH HSSCo8, 3 SCHNEIDEN LANG	D2.0	D40.0	1404	◎	◎	○								○				
E2553		HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D1.0	D20.0	1406	◎	◎	○								○				
E2SET553		HSSCo8, THROW AWAY SET (NON-COATED) HSSCo8, EINWEG-SCHAFTFRÄSER SET (NICHT-BESCHICHTET)	D2.0	D10.0	1407															
E2554		HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER	D1.5	D10.0	1408	◎	◎	○								○				
E2551		HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER	D1.0	D10.0	1409	◎	◎	○								○				
E2552		HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER	D1.5	D10.0	1410	◎	◎	○								○				
E2574 E2575		HSSCo8, 4&6 FLUTE SHORT LENGTH HSSCo8, 4&6 SCHNEIDEN KURZ	D2.0 D21.0	D20.0 D40.0	1411	◎	◎	○								○				
E2595 E2596		HSSCo8, 4&6 FLUTE SHORT LENGTH - CENTER CUTTING HSSCo8, 4&6 SCHNEIDEN KURZ	D2.0 D22.0	D25.0 D40.0	1412	◎	◎	○								○				
E2576 E2577		HSSCo8, 4&6 FLUTE LONG LENGTH HSSCo8, 4&6 SCHNEIDEN LANG	D2.0 D22.0	D20.0 D40.0	1413	◎	◎	○								○				
E2597 E2598		HSSCo8, 4&6 FLUTE LONG LENGTH - CENTER CUTTING HSSCo8, 4&6 SCHNEIDEN LANG	D2.0 D22.0	D20.0 D40.0	1414	◎	◎	○								○				
E2776		HSSCo8, MULTI FLUTE SHORT LENGTH HSSCo8, MULTI SCHNEIDEN KURZ	D14.0	D50.0	1415	◎	◎	○								○				
E2461 E2462 E2463		HSSCo8, MULTI FLUTE 50° HELIX SHORT LENGTH HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE KURZ	D2.0 D6.0 D22.0	D5.0 D23.0 D30.0	1416	◎	◎	○												
E2761		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - EXTRA FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - EXTRA FEIN	D6.0	D25.0	1417	◎	◎	○								○				
E2606		HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - FINE HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - FEIN	R3.0	R20.0	1418	◎	◎	○								○				
E2524		HSSCo8, 3&4 FLUTE STUB LENGTH ROUGHING - FINE HSSCo8, 3&4 SCHNEIDEN EXTRA KURZ SCHRUPPFRÄSER - FEIN	D6.0	D20.0	1419	◎	◎	○								○				
E2753		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN	D6.0	D40.0	1420	◎	◎	○								○				
E2762		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN	D6.0	D40.0	1421	◎	◎	○								○				

▶ NEXT PAGE

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N					S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
E2757		HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - COARSE HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - GROB	R3.0	R20.0	1422	◎	◎	○								○				
E2751 E2764		HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB	D6.0 D10.0	D8.0 D40.0	1423	◎	◎	○								○				
E2752 E2765		HSSCo8, 3 FLUTE LONG LENGTH ROUGHING - COARSE HSSCo8, 3 SCHNEIDEN LANG SCHRUPPFRÄSER - GROB	D6.0 D10.0	D8.0 D40.0	1424	◎	◎	○								○				
E2755		HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING for ALUMINUM HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFRÄSER für ALUMINIUM	D6.0	D30.0	1425	◎	○									◎				
E2756		HSSCo8, 3 FLUTE 37° HELIX LONG LENGTH ROUGHING for ALUMINUM HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE LANG SCHRUPPFRÄSER für ALUMINIUM	D10.0	D30.0	1426	◎	○									◎				
E2751		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB	D6.0	D50.0	1427	◎	◎	○								○				
E2752		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB	D6.0	D40.0	1429	◎	◎	○								○				
E2778		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN	D16.0	D50.0	1430	◎	◎	○								○				
E2777		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB	D14.0	D50.0	1431	◎	◎	○								○				
E2779		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D16.0	D50.0	1432	◎	◎	○								○				
E2766		HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	1433	◎	◎	○								○				
E2767		HSSCo8, 3 FLUTE LONG LENGTH ROUGHING & FINISHING HSSCo8, 3 SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	1434	◎	◎	○								○				
E2754		HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER	D6.0	D40.0	1435	◎	◎	○								○				
E2768		HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING & FINISHING HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER	D6.0	D45.0	1436	◎	◎	○								○				
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1437															

HSS END MILLS

E9410 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EP410 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, 2 FLUTE SHORT LENGTH

PREMIUM HSS-PM, 2 SCHNEIDEN KURZ
Fraise HSS-PM Premium, 2 dents, courte
HSS-PM, 2 TAGLIENTI, SERIE CORTA

YPM | DIN 327 | N | 2 | ≈30° | DIN 1835B

P.1437

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E9410020	EP410020	2.0	6	4	48
E9410030	EP410030	3.0	6	5	49
E9410040	EP410040	4.0	6	7	51
E9410050	EP410050	5.0	6	8	52
E9410060	EP410060	6.0	6	8	52
E9410080	EP410080	8.0	10	11	61
E9410100	EP410100	10.0	10	13	63
E9410120	EP410120	12.0	12	16	73
E9410140	EP410140	14.0	12	16	73
E9410160	EP410160	16.0	16	19	79
E9410180	EP410180	18.0	16	19	79
E9410200	EP410200	20.0	20	22	88
E9410220	EP410220	22.0	20	22	88
E9410250	EP410250	25.0	25	26	102

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 / von 1 bis 3	over 3 to 6 / über 3 bis 6	over 6 to 10 / über 6 bis 10	over 10 to 18 / über 10 bis 18	over 18 to 30 / über 18 bis 30	over 30 to 50 / über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

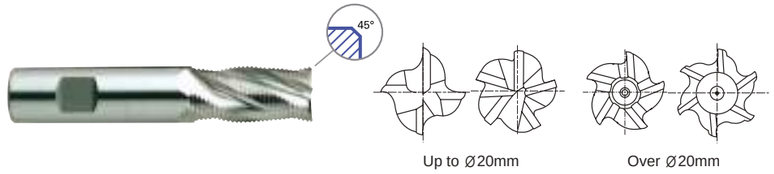
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E9720 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EP720 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

PREMIUM HSS-PM, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

PREMIUM HSS-PM, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
Fraise HSS-PM Premium, multi-dents ébauche, pas fin, courte
HSS-PM, MULTITAGLIENTE, SERIE CORTA, PER SGROSSAATURA, BOMBATO FINE



YPM | DIN 844 | HR | 4-6 | 30° | DIN 1835B | ~Ø8 | Ø9~Ø20 | Ø22~ | C x 45°

P.1438

Unit : mm

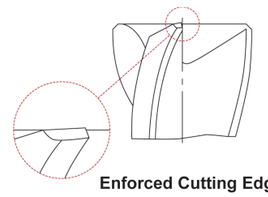
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E9720060	EP720060	6.0	6	13	57	4	0.18
E9720070	EP720070	7.0	10	16	66	4	0.18
E9720080	EP720080	8.0	10	19	69	4	0.18
E9720090	EP720090	9.0	10	19	69	5	0.18
E9720100	EP720100	10.0	10	22	72	5	0.18
E9720110	EP720110	11.0	12	22	79	5	0.18
E9720120	EP720120	12.0	12	26	83	5	0.18
E9720130	EP720130	13.0	12	26	83	5	0.18
E9720140	EP720140	14.0	12	26	83	5	0.25
E9720150	EP720150	15.0	12	26	83	5	0.25
E9720160	EP720160	16.0	16	32	92	5	0.25
E9720180	EP720180	18.0	16	32	92	5	0.25
E9720200	EP720200	20.0	20	38	104	5	0.25
E9720220	EP720220	22.0	20	38	104	5	0.30
E9720250	EP720250	25.0	25	45	121	6	0.36
E9720300	EP720300	30.0	25	45	121	6	0.33

▶ Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 / von 1 bis 3	over 3 to 6 / über 3 bis 6	over 6 to 10 / über 6 bis 10	over 10 to 18 / über 10 bis 18	over 18 to 30 / über 18 bis 30	over 30 to 50 / über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E3570 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
ER570 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSS-PM, 2 FLUTE SHORT LENGTH
HSS-PM, 2 SCHNEIDEN KURZ
Fraise HSS-PM, 2 dents, courte
HSS-PM, 2 TAGLIENTI, SERIE CORTA

HSS PM | DIN 327 | N | 2 | ≈30° | DIN 1835B P.1439

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E3570020	ER570020	2.0	6	4	48
E3570025	ER570025	2.5	6	5	49
E3570030	ER570030	3.0	6	5	49
E3570040	ER570040	4.0	6	7	51
E3570050	ER570050	5.0	6	8	52
E3570060	ER570060	6.0	6	8	52
E3570070	ER570070	7.0	10	10	60
E3570080	ER570080	8.0	10	11	61
E3570090	ER570090	9.0	10	11	61
E3570100	ER570100	10.0	10	13	63
E3570110	ER570110	11.0	12	13	70
E3570120	ER570120	12.0	12	16	73
E3570130	ER570130	13.0	12	16	73
E3570140	ER570140	14.0	12	16	73
E3570150	ER570150	15.0	12	16	73
E3570160	ER570160	16.0	16	19	79
E3570170	ER570170	17.0	16	19	79
E3570180	ER570180	18.0	16	19	79
E3570190	ER570190	19.0	16	19	79
E3570200	ER570200	20.0	20	22	88
E3570220	ER570220	22.0	20	22	88
E3570240	ER570240	24.0	25	26	102
E3570250	ER570250	25.0	25	26	102
E3570280	ER570280	28.0	25	26	102
E3570300	ER570300	30.0	25	26	102

▶ Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E3574, ER574 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E3575, ER575 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSS-PM, 4&6 FLUTE SHORT LENGTH
HSS-PM, 4&6 SCHNEIDEN KURZ
Fraise HSS-PM, 4&6 dents, courte
HSS-PM, 4&6 TAGLIENTI, SERIE CORTA

HSS PM | DIN 844 | N | 4&6 | ≈30° | DIN 1835B P.1440

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
E3574020	ER574020	2.0	6	7	51	4
E3574030	ER574030	3.0	6	8	52	4
E3574040	ER574040	4.0	6	11	55	4
E3574050	ER574050	5.0	6	13	57	4
E3574060	ER574060	6.0	6	13	57	4
E3574070	ER574070	7.0	10	16	66	4
E3574080	ER574080	8.0	10	19	69	4
E3574090	ER574090	9.0	10	19	69	4
E3574100	ER574100	10.0	10	22	72	4
E3574120	ER574120	12.0	12	26	83	4
E3574140	ER574140	14.0	12	26	83	4
E3574160	ER574160	16.0	16	32	92	4
E3574180	ER574180	18.0	16	32	92	4
E3574200	ER574200	20.0	20	38	104	4
E3575220	ER575220	22.0	20	38	104	6
E3575240	ER575240	24.0	25	45	121	6
E3575250	ER575250	25.0	25	45	121	6
E3575280	ER575280	28.0	25	45	121	6
E3575300	ER575300	30.0	25	45	121	6

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
+ 0.04 — 0	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E3462, ER462 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

E3463, ER463 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSS-PM, 3&4 FLUTE 60° HELIX SHORT LENGTH

HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE KURZ
Fraise HSS-PM, 3&4 dents, hélice 60°, courte
HSS-PM, 3&4 TAGLIENTI, ELICA 60°, SERIE CORTA

HSS PM | DIN 844 | N | 3&4 | 60° | DIN 1835B

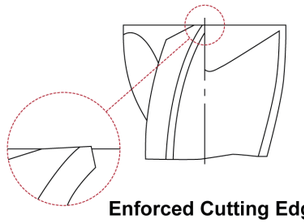
P.1441

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN					
E3462060	ER462060	6.0	6	13	57	3
E3462070	ER462070	7.0	10	16	66	3
E3462080	ER462080	8.0	10	19	69	3
E3462090	ER462090	9.0	10	19	69	3
E3462100	ER462100	10.0	10	22	72	3
E3462120	ER462120	12.0	12	26	83	3
E3462140	ER462140	14.0	12	26	83	3
E3462150	ER462150	15.0	12	26	83	3
E3462160	ER462160	16.0	16	32	92	3
E3462180	ER462180	18.0	16	32	92	3
E3462200	ER462200	20.0	20	38	104	3
E3463250	ER463250	25.0	25	45	121	4
E3463300	ER463300	30.0	25	45	121	4

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6.5	+ 0.048 — 0	h6
Ø7.0 ~ Ø10.0	+ 0.058 — 0	
Ø10.5 ~ Ø18.0	+ 0.070 — 0	
over Ø18.0	+ 0.084 — 0	



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2535 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

EQ535 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH BALL NOSE

HSSCo8, 2 SCHNEIDEN KURZ STIRNRADIUS
Fraise HSSCo8, 2 dents, hémisphérique, courte
2 TAGLIENTI, SEMISFERICA, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | N | 2 | 30° | R ±0.02 | DIN 1835B

P.1442-1443

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	R (±0.02)	e8	h6		
E2535020	EQ535020	R1.0	2.0	6	4	48
E2535025	EQ535025	R1.25	2.5	6	5	49
E2535030	EQ535030	R1.5	3.0	6	5	49
E2535035	EQ535035	R1.75	3.5	6	6	50
E2535040	EQ535040	R2.0	4.0	6	7	51
E2535045	EQ535045	R2.25	4.5	6	7	51
E2535050	EQ535050	R2.5	5.0	6	8	52
E2535055	EQ535055	R2.75	5.5	6	8	52
E2535060	EQ535060	R3.0	6.0	6	8	52
E2535070	EQ535070	R3.5	7.0	10	10	60
E2535080	EQ535080	R4.0	8.0	10	11	61
E2535090	EQ535090	R4.5	9.0	10	11	61
E2535100	EQ535100	R5.0	10.0	10	13	63
E2535110	EQ535110	R5.5	11.0	12	13	70
E2535120	EQ535120	R6.0	12.0	12	16	73
E2535130	EQ535130	R6.5	13.0	12	16	73
E2535140	EQ535140	R7.0	14.0	12	16	73
E2535150	EQ535150	R7.5	15.0	12	16	73
E2535160	EQ535160	R8.0	16.0	16	19	79
E2535170	EQ535170	R8.5	17.0	16	19	79
E2535180	EQ535180	R9.0	18.0	16	19	79
E2535190	EQ535190	R9.5	19.0	16	19	79
E2535923	EQ535923	R10.0	20.0	16	22	82
E2535200	EQ535200	R10.0	20.0	20	22	88
E2535220	EQ535220	R11.0	22.0	20	22	88
E2535922	EQ535922	R11.0	22.0	25	22	98
E2535240	EQ535240	R12.0	24.0	25	26	102
E2535250	EQ535250	R12.5	25.0	25	26	102
E2535260	EQ535260	R13.0	26.0	25	26	102
E2535280	EQ535280	R14.0	28.0	25	26	102
E2535300	EQ535300	R15.0	30.0	25	26	102
E2535320	EQ535320	R16.0	32.0	32	32	112

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2492 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ492 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE LONG LENGTH BALL NOSE

HSSCo8, 2 SCHNEIDEN LANG STIRNRADIUS
Fraise HSSCo8, 2 dents, hémisphérique, longue
2 TAGLIENTI, SEMISFERICA, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 1889 | N | 2 | 30° | R ±0.02 | DIN 1835B

P.1442-1443

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	R (±0.02)	e8	h6		
E2492020	EQ492020	R1.0	2.0	6	7	54
E2492030	EQ492030	R1.5	3.0	6	8	56
E2492040	EQ492040	R2.0	4.0	6	11	63
E2492050	EQ492050	R2.5	5.0	6	13	68
E2492060	EQ492060	R3.0	6.0	6	13	68
E2492070	EQ492070	R3.5	7.0	10	16	80
E2492080	EQ492080	R4.0	8.0	10	19	88
E2492090	EQ492090	R4.5	9.0	10	19	88
E2492100	EQ492100	R5.0	10.0	10	22	95
E2492110	EQ492110	R5.5	11.0	12	22	102
E2492120	EQ492120	R6.0	12.0	12	26	110
E2492130	EQ492130	R6.5	13.0	12	26	110
E2492140	EQ492140	R7.0	14.0	12	26	110
E2492150	EQ492150	R7.5	15.0	12	26	110
E2492160	EQ492160	R8.0	16.0	16	32	123
E2492170	EQ492170	R8.5	17.0	16	32	123
E2492180	EQ492180	R9.0	18.0	16	32	123
E2492190	EQ492190	R9.5	19.0	16	32	123
E2492200	EQ492200	R10.0	20.0	20	38	141
E2492220	EQ492220	R11.0	22.0	20	38	141
E2492240	EQ492240	R12.0	24.0	25	45	166
E2492250	EQ492250	R12.5	25.0	25	45	166
E2492260	EQ492260	R13.0	26.0	25	45	166
E2492280	EQ492280	R14.0	28.0	25	45	166
E2492300	EQ492300	R15.0	30.0	25	45	166

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2512 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ512 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH BALL NOSE THROW AWAY

HSSCo8, 3 SCHNEIDEN KURZ STIRNRADIUS EINWEGFRÄSER
Fraise HSSCo8, 3 dents, hémisphérique à jeter, courte
3 TAGLIENTI, SEMISFERICA, SERIE CORTA, NON RIAFFILABILE - HSSCo8

HSS Co8 | YG STD | N | 3 | 30° | R ±0.02 | FLAT

P.1444-1445

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	R (±0.02)	e8	h6		
E2512020	EQ512020	R1.0	2.0	6	4	35
E2512025	EQ512025	R1.25	2.5	6	5	36
E2512030	EQ512030	R1.5	3.0	6	5	36
E2512040	EQ512040	R2.0	4.0	6	7	38
E2512050	EQ512050	R2.5	5.0	6	8	39
E2512060	EQ512060	R3.0	6.0	6	8	39

▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

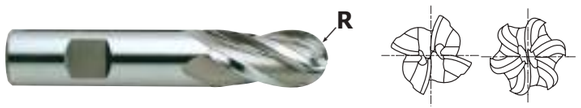
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2410 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ410 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE SHORT LENGTH BALL NOSE

HSSCo8, 4&6 SCHNEIDEN KURZ STIRNRADIUS
Fraise HSSCo8, 4&6 dents, hémisphérique, courte
4&6 TAGLIENTI, SEMISFERICA, SERIE CORTA - HSSCo8



HSS Co8 | DIN 1889 | N | 4&6 | 30° | R ±0.02 | DIN 1835B

P.1444-1445

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	R (±0.02)	e8	h6			
E2410060	EQ410060	R3.0	6.0	6	13	57	4
E2410080	EQ410080	R4.0	8.0	10	19	69	4
E2410100	EQ410100	R5.0	10.0	10	22	72	4
E2410120	EQ410120	R6.0	12.0	12	26	83	4
E2410160	EQ410160	R8.0	16.0	16	32	92	4
E2410200	EQ410200	R10.0	20.0	20	38	104	4
E2410250	EQ410250	R12.5	25.0	25	45	121	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2429 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ429 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE LONG LENGTH BALL NOSE

HSSCo8, 4&6 SCHNEIDEN LANG STIRNRADIUS
Fraise HSSCo8, 4&6 dents, hémisphérique, longue
4&6 TAGLIENTI, SEMISFERICA, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 1889 | N | 4&6 | 30° | R ±0.02 | DIN 1835B

P.1444-1445

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	R (±0.02)	e8	h6			
E2429100	EQ429100	R5.0	10.0	10	45	95	4
E2429120	EQ429120	R6.0	12.0	12	53	110	4
E2429160	EQ429160	R8.0	16.0	16	63	123	4
E2429200	EQ429200	R10.0	20.0	20	75	141	4
E2429250	EQ429250	R12.5	25.0	25	90	166	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~-0.03	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

EL623 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

HSS-E, 1 FLUTE
HSS-E, 1 SCHNEIDEN
Fraise HSS-E, 1 dent
1 TAGLIENTE - HSS-E

HSS-E | YG STD | N | 1 | ≈30° | DIN 1835A | P.1446

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	e8	h6		
EL623030	3.0	8	12	60
EL623040	4.0	8	12	60
EL623050	5.0	8	12	60
EL623060	6.0	8	14	60
EL623070	7.0	8	14	60
EL623080	8.0	8	14	80
EL623090	9.0	8	14	80
EL623100	10.0	8	14	80

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	0 / — 6	0 / — 8	0 / — 9	0 / — 11	0 / — 13	0 / — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎									○				

HSS END MILLS

EL612 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT

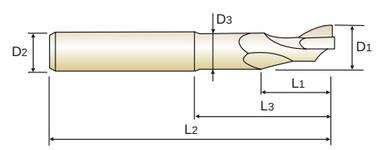
HSS-E, 1 FLUTE for ALUMINUM
HSS-E, 1 SCHNEIDEN für ALUMINIUM
Fraise HSS-E, 1 dent pour aluminium
1 TAGLIENTE - HSS-E

for ALUMINUM
für ALUMINIUM

HSS-E | YG STD | W | 1 | ≈30° | DIN 1835A | P.1446

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	js14	h6		
EL612030	3.0	8	12	60
EL612040	4.0	8	12	60
EL612050	5.0	8	12	60
EL612060	6.0	8	14	60
EL612070	7.0	8	14	60
EL612080	8.0	8	14	80
EL612090	9.0	8	14	80
EL612100	10.0	8	14	80



Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Length of Cut	Overall Length	Neck Diameter
UNCOATED	D1(js14)	D2(h6)	L1	L3	L2	D3
EL612904	5.0	8	18	35	80	4.8
EL612909	5.0	8	40	-	100	-
EL612932	8.0	8	14	68	120	7.5

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js14	± 125	± 150	± 180	± 215	± 260	± 310
h6	0 / — 6	0 / — 8	0 / — 9	0 / — 11	0 / — 13	0 / — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○										◎				

HSS END MILLS

E2570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

EQ570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH

HSSCo8, 2 SCHNEIDEN KURZ
Fraise HSSCo8, 2 dents, courte
2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | N | 2 | ≈30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2570010	EQ570010	1.0	6	2.5	47
E2570015	EQ570015	1.5	6	3	47
E2570020	EQ570020	2.0	6	4	48
E2570025	EQ570025	2.5	6	5	49
E2570028	EQ570028	2.8	6	5	49
E2570030	EQ570030	3.0	6	5	49
E2570035	EQ570035	3.5	6	6	50
E2570038	EQ570038	3.8	6	7	51
E2570040	EQ570040	4.0	6	7	51
E2570045	EQ570045	4.5	6	7	51
E2570048	EQ570048	4.8	6	8	52
E2570050	EQ570050	5.0	6	8	52
E2570055	EQ570055	5.5	6	8	52
E2570957	EQ570957	5.75	6	8	52
E2570060	EQ570060	6.0	6	8	52
E2570065	EQ570065	6.5	10	10	60
E2570967	EQ570967	6.75	10	10	60
E2570070	EQ570070	7.0	10	10	60
E2570075	EQ570075	7.5	10	10	60
E2570977	EQ570977	7.75	10	11	61
E2570080	EQ570080	8.0	10	11	61
E2570085	EQ570085	8.5	10	11	61
E2570087	EQ570087	8.7	10	11	61
E2570090	EQ570090	9.0	10	11	61
E2570095	EQ570095	9.5	10	11	61
E2570097	EQ570097	9.7	10	13	63
E2570100	EQ570100	10.0	10	13	63

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

EQ570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH

HSSCo8, 2 SCHNEIDEN KURZ
Fraise HSSCo8, 2 dents, courte
2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | N | 2 | ≈30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2570105	EQ570105	10.5	12	13	70
E2570107	EQ570107	10.7	12	13	70
E2570110	EQ570110	11.0	12	13	70
E2570115	EQ570115	11.5	12	13	70
E2570117	EQ570117	11.7	12	16	73
E2570120	EQ570120	12.0	12	16	73
E2570125	EQ570125	12.5	12	16	73
E2570127	EQ570127	12.7	12	16	73
E2570130	EQ570130	13.0	12	16	73
E2570135	EQ570135	13.5	12	16	73
E2570137	EQ570137	13.7	12	16	73
E2570140	EQ570140	14.0	12	16	73
E2570147	EQ570147	14.7	12	16	73
E2570150	EQ570150	15.0	12	16	73
E2570157	EQ570157	15.7	16	19	79
E2570160	EQ570160	16.0	16	19	79
E2570167	EQ570167	16.7	16	19	79
E2570170	EQ570170	17.0	16	19	79
E2570177	EQ570177	17.7	16	19	79
E2570180	EQ570180	18.0	16	19	79
E2570190	EQ570190	19.0	16	19	79
E2570197	EQ570197	19.7	20	22	88
E2570920	EQ570920	20.0	16	22	82
E2570200	EQ570200	20.0	20	22	88
E2570210	EQ570210	21.0	20	22	88
E2570220	EQ570220	22.0	20	22	88
E2570922	EQ570922	22.0	25	22	98

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◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
EQ570 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE SHORT LENGTH

HSSCo8, 2 SCHNEIDEN KURZ
Fraise HSSCo8, 2 dents, courte
2 TAGLIENTI, SERIE CORTA - HSSCo8

HSS Co8 | DIN 327 | N | 2 | 30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2570240	EQ570240	24.0	25	26	102
E2570250	EQ570250	25.0	25	26	102
E2570260	EQ570260	26.0	25	26	102
E2570270	EQ570270	27.0	25	26	102
E2570280	EQ570280	28.0	25	26	102
E2570290	EQ570290	29.0	25	26	102
E2570300	EQ570300	30.0	25	26	102
E2570320	EQ570320	32.0	32	32	112
E2570340	EQ570340	34.0	32	32	112
E2570350	EQ570350	35.0	32	32	112
E2570360	EQ570360	36.0	32	32	112
E2570380	EQ570380	38.0	32	38	118
E2570938	EQ570938	38.0	40	38	130
E2570400	EQ570400	40.0	32	38	118
E2570903	EQ570903	40.0	40	38	130

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛

Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2571 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
EQ571 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE LONG LENGTH

HSSCo8, 2 SCHNEIDEN LANG
Fraise HSSCo8, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 844 | N | 2 | 30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2571015	EQ571015	1.5	6	7	51
E2571020	EQ571020	2.0	6	7	51
E2571025	EQ571025	2.5	6	8	52
E2571030	EQ571030	3.0	6	8	52
E2571035	EQ571035	3.5	6	10	54
E2571040	EQ571040	4.0	6	11	55
E2571045	EQ571045	4.5	6	11	55
E2571050	EQ571050	5.0	6	13	57
E2571055	EQ571055	5.5	6	13	57
E2571060	EQ571060	6.0	6	13	57
E2571065	EQ571065	6.5	10	16	66
E2571070	EQ571070	7.0	10	16	66
E2571075	EQ571075	7.5	10	16	66
E2571080	EQ571080	8.0	10	19	69
E2571085	EQ571085	8.5	10	19	69
E2571090	EQ571090	9.0	10	19	69
E2571095	EQ571095	9.5	10	19	69
E2571100	EQ571100	10.0	10	22	72
E2571110	EQ571110	11.0	12	22	79
E2571120	EQ571120	12.0	12	26	83
E2571130	EQ571130	13.0	12	26	83
E2571140	EQ571140	14.0	12	26	83
E2571150	EQ571150	15.0	12	26	83
E2571160	EQ571160	16.0	16	32	92
E2571180	EQ571180	18.0	16	32	92

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2571 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
EQ571 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE LONG LENGTH

HSSCo8, 2 SCHNEIDEN LANG
Fraise HSSCo8, 2 dents, longue
2 TAGLIENTI, SERIE LUNGA - HSSCo8

HSS Co8 | DIN 844 | N | 2 | 30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2571200	EQ571200	20.0	20	38	104
E2571220	EQ571220	22.0	20	38	104
E2571240	EQ571240	24.0	25	45	121
E2571250	EQ571250	25.0	25	45	121
E2571260	EQ571260	26.0	25	45	121
E2571270	EQ571270	27.0	25	45	121
E2571280	EQ571280	28.0	25	45	121
E2571300	EQ571300	30.0	25	45	121
E2571320	EQ571320	32.0	32	53	133
E2571400	EQ571400	40.0	40	63	155

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2510 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
EQ510 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE EXTRA LONG LENGTH

HSSCo8, 2 SCHNEIDEN EXTRA LANG
Fraise HSSCo8, 2 dents, extra-longue
2 TAGLIENTI, SERIE EXTRA LUNGA - HSSCo8

HSS Co8 | DIN 844 | N | 2 | 30° | DIN 1835B

P.1447-1448

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2510025	EQ510025	2.5	6	8	56
E2510030	EQ510030	3.0	6	8	56
E2510035	EQ510035	3.5	6	10	59
E2510040	EQ510040	4.0	6	11	63
E2510045	EQ510045	4.5	6	11	63
E2510050	EQ510050	5.0	6	13	68
E2510055	EQ510055	5.5	6	13	68
E2510060	EQ510060	6.0	6	13	68
E2510065	EQ510065	6.5	10	16	80
E2510070	EQ510070	7.0	10	16	80
E2510080	EQ510080	8.0	10	19	88
E2510085	EQ510085	8.5	10	19	88
E2510090	EQ510090	9.0	10	19	88
E2510100	EQ510100	10.0	10	22	95
E2510120	EQ510120	12.0	12	26	110
E2510140	EQ510140	14.0	12	26	110
E2510160	EQ510160	16.0	16	32	123
E2510180	EQ510180	18.0	16	32	123
E2510200	EQ510200	20.0	20	38	141
E2510220	EQ510220	22.0	20	38	141
E2510240	EQ510240	24.0	25	45	166
E2510250	EQ510250	25.0	25	45	166
E2510260	EQ510260	26.0	25	45	166
E2510280	EQ510280	28.0	25	45	166
E2510300	EQ510300	30.0	25	45	166
E2510320	EQ510320	32.0	32	53	186
E2510360	EQ510360	36.0	32	53	186
E2510400	EQ510400	40.0	32	63	207
E2510940	EQ510940	40.0	40	63	217

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

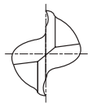
HSS END MILLS

E2464 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH for ALUMINUM

HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, courte
2 TAGLIENTI, ELICA 42°, SERIE CORTA - HSSCo8

for ALUMINUM
für ALUMINIUM



HSS Co8 | DIN 844 | W | 2 | 42° | DIN 1835B

P.1449

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	e8	h6		
E2464010	1.0	6	3	49
E2464015	1.5	6	5	49
E2464020	2.0	6	7	51
E2464025	2.5	6	8	52
E2464030	3.0	6	8	52
E2464035	3.5	6	10	54
E2464040	4.0	6	11	55
E2464045	4.5	6	11	55
E2464050	5.0	6	13	57
E2464055	5.5	6	13	57
E2464060	6.0	6	13	57
E2464065	6.5	10	16	66
E2464070	7.0	10	16	66
E2464075	7.5	10	16	66
E2464080	8.0	10	19	69
E2464085	8.5	10	19	69
E2464090	9.0	10	19	69
E2464100	10.0	10	22	72
E2464110	11.0	12	22	79
E2464120	12.0	12	26	83
E2464130	13.0	12	26	83
E2464140	14.0	12	26	83
E2464150	15.0	12	26	83
E2464160	16.0	16	32	92
E2464170	17.0	16	32	92
E2464180	18.0	16	32	92
E2464190	19.0	16	32	92

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○										◎				

HSS END MILLS

E2464 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE 42° HELIX SHORT LENGTH for ALUMINUM

HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, courte
2 TAGLIENTI, ELICA 42°, SERIE CORTA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | W | 2 | 42° | DIN 1835B

P.1449

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	e8	h6		
E2464200	20.0	20	38	104
E2464210	21.0	20	38	104
E2464220	22.0	20	38	104
E2464230	23.0	20	38	104
E2464240	24.0	25	45	121
E2464250	25.0	25	45	121
E2464260	26.0	25	45	121
E2464280	28.0	25	45	121
E2464300	30.0	25	45	121
E2464320	32.0	32	53	133

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○										◎				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2509 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 2 FLUTE 42° HELIX LONG LENGTH for ALUMINUM

HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE KURZ für ALUMINIUM
Fraise HSSCo8, 2 dents, hélice 42°, pour aluminium, longue
2 TAGLIENTI, ELICA 42°, SERIE LUNGA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | W | 2 | 42° | DIN 1835B

P.1449

Unit : mm

EDP No. UNCOATED	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2509020	2.0	6	10	54
E2509030	3.0	6	12	56
E2509040	4.0	6	19	63
E2509050	5.0	6	24	68
E2509060	6.0	6	24	68
E2509070	7.0	10	30	80
E2509080	8.0	10	38	88
E2509090	9.0	10	38	88
E2509100	10.0	10	45	95
E2509110	11.0	12	45	102
E2509120	12.0	12	53	110
E2509130	13.0	12	53	110
E2509140	14.0	12	53	110
E2509150	15.0	12	53	110
E2509160	16.0	16	63	123
E2509180	18.0	16	63	123
E2509200	20.0	20	75	141

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○										◎				

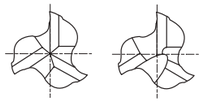
HSS END MILLS

E2572 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

EQ572 SERIES FLAT SHANK
SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE STUB LENGTH

HSSCo8, 3 SCHNEIDEN EXTRA KURZ
Fraise HSSCo8, 3 dents, extra-courte
3 TAGLIENTI. SERIE EXTRA CORTA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 327 | N | 3 | ≈30° | DIN 1835B

P.1450-1453

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter e8	Shank Diameter h6	Length of Cut	Overall Length
E2572015	EQ572015	1.5	6	3	47
E2572020	EQ572020	2.0	6	4	48
E2572025	EQ572025	2.5	6	5	49
E2572030	EQ572030	3.0	6	5	49
E2572035	EQ572035	3.5	6	6	50
E2572040	EQ572040	4.0	6	7	51
E2572045	EQ572045	4.5	6	7	51
E2572050	EQ572050	5.0	6	8	52
E2572055	EQ572055	5.5	6	8	52
E2572060	EQ572060	6.0	6	8	52
E2572065	EQ572065	6.5	10	10	60
E2572070	EQ572070	7.0	10	10	60
E2572075	EQ572075	7.5	10	10	60
E2572080	EQ572080	8.0	10	11	61
E2572085	EQ572085	8.5	10	11	61
E2572100	EQ572100	10.0	10	13	63
E2572120	EQ572120	12.0	12	16	73
E2572140	EQ572140	14.0	12	16	73
E2572150	EQ572150	15.0	12	16	73
E2572160	EQ572160	16.0	16	19	79
E2572180	EQ572180	18.0	16	19	79
E2572200	EQ572200	20.0	20	22	88
E2572220	EQ572220	22.0	20	22	88
E2572240	EQ572240	24.0	25	26	102
E2572250	EQ572250	25.0	25	26	102
E2572260	EQ572260	26.0	25	26	102
E2572280	EQ572280	28.0	25	26	102
E2572300	EQ572300	30.0	25	26	102
E2572320	EQ572320	32.0	32	32	112

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

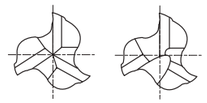
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2573 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ573 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH

HSSCo8, 3 SCHNEIDEN KURZ
Fraise HSSCo8, 3 dents, courte
3 TAGLIENTI, SERIE CORTA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | N | 3 | ≈30° | DIN 1835B

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2573010	EQ573010	1.0	6	3	47
E2573015	EQ573015	1.5	6	7	51
E2573020	EQ573020	2.0	6	7	51
E2573025	EQ573025	2.5	6	8	52
E2573030	EQ573030	3.0	6	8	52
E2573035	EQ573035	3.5	6	10	54
E2573040	EQ573040	4.0	6	11	55
E2573045	EQ573045	4.5	6	11	55
E2573050	EQ573050	5.0	6	13	57
E2573055	EQ573055	5.5	6	13	57
E2573060	EQ573060	6.0	6	13	57
E2573065	EQ573065	6.5	10	16	66
E2573070	EQ573070	7.0	10	16	66
E2573075	EQ573075	7.5	10	16	66
E2573080	EQ573080	8.0	10	19	69
E2573085	EQ573085	8.5	10	19	69
E2573090	EQ573090	9.0	10	19	69
E2573095	EQ573095	9.5	10	19	69
E2573100	EQ573100	10.0	10	22	72
E2573120	EQ573120	12.0	12	26	83
E2573140	EQ573140	14.0	12	26	83
E2573150	EQ573150	15.0	12	26	83
E2573160	EQ573160	16.0	16	32	92
E2573180	EQ573180	18.0	16	32	92

▶ NEXT PAGE

◎ : Excellent ○ : Good

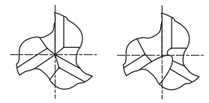
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2573 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ573 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH

HSSCo8, 3 SCHNEIDEN KURZ
Fraise HSSCo8, 3 dents, courte
3 TAGLIENTI, SERIE CORTA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | N | 3 | ≈30° | DIN 1835B

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2573200	EQ573200	20.0	20	38	104
E2573220	EQ573220	22.0	20	38	104
E2573240	EQ573240	24.0	25	45	121
E2573250	EQ573250	25.0	25	45	121
E2573260	EQ573260	26.0	25	45	121
E2573280	EQ573280	28.0	25	45	121
E2573300	EQ573300	30.0	25	45	121
E2573320	EQ573320	32.0	32	53	133
E2573400	EQ573400	40.0	40	63	155

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

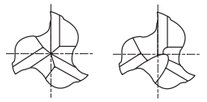
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2516 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ516 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH

HSSCo8, 3 SCHNEIDEN LANG
Fraise HSSCo8, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | N | 3 | 30° | DIN 1835B P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2516020	EQ516020	2.0	6	10	54
E2516025	EQ516025	2.5	6	12	56
E2516030	EQ516030	3.0	6	12	56
E2516035	EQ516035	3.5	6	15	59
E2516040	EQ516040	4.0	6	19	63
E2516045	EQ516045	4.5	6	19	63
E2516050	EQ516050	5.0	6	24	68
E2516055	EQ516055	5.5	6	24	68
E2516060	EQ516060	6.0	6	24	68
E2516070	EQ516070	7.0	10	30	80
E2516075	EQ516075	7.5	10	30	80
E2516080	EQ516080	8.0	10	38	88
E2516090	EQ516090	9.0	10	38	88
E2516100	EQ516100	10.0	10	45	95
E2516110	EQ516110	11.0	12	45	102
E2516120	EQ516120	12.0	12	53	110
E2516130	EQ516130	13.0	12	53	110
E2516140	EQ516140	14.0	12	53	110
E2516150	EQ516150	15.0	12	53	110
E2516160	EQ516160	16.0	16	63	123
E2516170	EQ516170	17.0	16	63	123
E2516180	EQ516180	18.0	16	63	123
E2516190	EQ516190	19.0	16	63	123
E2516901	EQ516901	20.0	16	75	135
E2516200	EQ516200	20.0	20	75	141
E2516220	EQ516220	22.0	20	75	141

▶ NEXT PAGE

◎ : Excellent ○ : Good

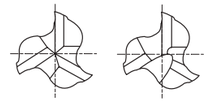
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2516 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ516 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH

HSSCo8, 3 SCHNEIDEN LANG
Fraise HSSCo8, 3 dents, longue
3 TAGLIENTI, SERIE LUNGA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8 | DIN 844 | N | 3 | 30° | FLAT P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2516240	EQ516240	24.0	25	90	166
E2516250	EQ516250	25.0	25	90	166
E2516260	EQ516260	26.0	25	90	166
E2516280	EQ516280	28.0	25	90	166
E2516300	EQ516300	30.0	25	90	166
E2516320	EQ516320	32.0	32	106	186
E2516350	EQ516350	35.0	32	106	186
E2516360	EQ516360	36.0	32	106	186
E2516400	EQ516400	40.0	40	125	217

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

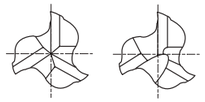
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2553 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ553 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, courte
3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8



Up to Ø10mm Over Ø10mm

HSS Co8 | YG STD | N | 3 | 30° | FLAT

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2553010	EQ553010	1.0	6	2	34
E2553013	EQ553013	1.3	6	3	34
E2553015	EQ553015	1.5	6	3	34
E2553018	EQ553018	1.8	6	3	34
E2553020	EQ553020	2.0	6	4	35
E2553023	EQ553023	2.3	6	4	35
E2553025	EQ553025	2.5	6	5	36
E2553028	EQ553028	2.8	6	5	36
E2553030	EQ553030	3.0	6	5	36
E2553033	EQ553033	3.3	6	6	37
E2553035	EQ553035	3.5	6	6	37
E2553038	EQ553038	3.8	6	7	38
E2553040	EQ553040	4.0	6	7	38
E2553043	EQ553043	4.3	6	7	38
E2553045	EQ553045	4.5	6	7	38
E2553048	EQ553048	4.8	6	8	39
E2553050	EQ553050	5.0	6	8	39
E2553053	EQ553053	5.3	6	8	39
E2553055	EQ553055	5.5	6	8	39
E2553957	EQ553957	5.75	6	8	39
E2553060	EQ553060	6.0	6	8	39

▶ NEXT PAGE

◎ : Excellent ○ : Good

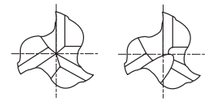
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2553 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ553 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, courte
3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8



Up to Ø10mm Over Ø10mm

HSS Co8 | YG STD | N | 3 | 30° | FLAT

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2553065	EQ553065	6.5	8	10	42
E2553070	EQ553070	7.0	8	10	42
E2553075	EQ553075	7.5	8	10	42
E2553080	EQ553080	8.0	8	11	43
E2553085	EQ553085	8.5	10	11	48
E2553090	EQ553090	9.0	10	11	48
E2553095	EQ553095	9.5	10	11	48
E2553100	EQ553100	10.0	10	13	50
E2553120	EQ553120	12.0	12	16	58
E2553160	EQ553160	16.0	16	19	64
E2553200	EQ553200	20.0	20	22	78

▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

SET ORDERING No.: E2SET553
* 12PCS. SET
SHORT LENGTH
- 2PCS. OF EACH SIZE
2, 3, 4, 5, 6mm (C3FSC)
- 1PC. OF EACH SIZE
8, 10mm (C3FSC)

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2554 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

EQ554 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER

Fraise HSSCo8, 3 dents à jeter, longue

3 TAGLIENTI, SERIE LUNGA, NON RIAFFILABILE - HSSCo8

HSS Co8 | YG STD | N | 3 | 30° | FLAT

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2554015	EQ554015	1.5	6	4	35
E2554020	EQ554020	2.0	6	7	38
E2554025	EQ554025	2.5	6	8	39
E2554030	EQ554030	3.0	6	8	39
E2554035	EQ554035	3.5	6	10	41
E2554040	EQ554040	4.0	6	11	42
E2554045	EQ554045	4.5	6	11	42
E2554050	EQ554050	5.0	6	13	44
E2554055	EQ554055	5.5	6	13	44
E2554060	EQ554060	6.0	6	13	44
E2554065	EQ554065	6.5	8	16	48
E2554070	EQ554070	7.0	8	16	48
E2554075	EQ554075	7.5	8	16	48
E2554080	EQ554080	8.0	8	19	51
E2554085	EQ554085	8.5	10	19	56
E2554090	EQ554090	9.0	10	19	56
E2554095	EQ554095	9.5	10	19	56
E2554100	EQ554100	10.0	10	22	59

▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm

Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2551 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

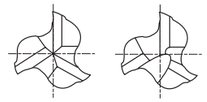
EQ551 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN KURZ EINWEGFRÄSER

Fraise HSSCo8, 3 dent à jeter, courte

3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8



Up to Ø6mm Over Ø6mm

HSS Co8 | YG STD | N | 3 | 30° | FLAT

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8			
E2551010	EQ551010	1.0	6	2	24.5
E2551015	EQ551015	1.5	6	2.5	24.5
E2551020	EQ551020	2.0	6	3	25.5
E2551025	EQ551025	2.5	6	4	26
E2551028	EQ551028	2.8	6	4.5	28
E2551030	EQ551030	3.0	6	4.5	28
E2551035	EQ551035	3.5	6	5.5	30
E2551038	EQ551038	3.8	6	6.5	32.5
E2551040	EQ551040	4.0	6	6.5	32.5
E2551045	EQ551045	4.5	6	7	34.5
E2551048	EQ551048	4.8	6	7.5	36
E2551050	EQ551050	5.0	6	7.5	36
E2551055	EQ551055	5.5	6	8.5	36
E2551957	EQ551957	5.75	6	9.5	36
E2551060	EQ551060	6.0	6	9.5	36
E2551075	EQ551075	7.5	10	11	47.5
E2551080	EQ551080	8.0	10	11	47.5
E2551095	EQ551095	9.5	10	13	51.5
E2551100	EQ551100	10.0	10	13	51.5

▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm

Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

Shank Dia. Tolerance	
up to Ø6	— 0.018 — 0.025
over Ø6	h6

◎ : Excellent ○ : Good

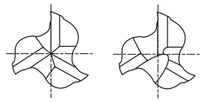
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2552 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
EQ552 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH THROW AWAY

HSSCo8, 3 SCHNEIDEN LANG EINWEGFRÄSER
Fraise HSSCo8, 3 dents à jeter, longue
3 TAGLIENTI, SERIE CORTA NON RIAFFILABILE - HSSCo8



Up to Ø6mm Over Ø6mm

HSS Co8 | YG STD | N | 3 | 30° | FLAT

P.1450-1453

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8			
E2552015	EQ552015	1.5	6	4	28
E2552020	EQ552020	2.0	6	4.5	29
E2552025	EQ552025	2.5	6	6.5	32
E2552030	EQ552030	3.0	6	7.5	34
E2552035	EQ552035	3.5	6	8.5	36.5
E2552040	EQ552040	4.0	6	9.5	39
E2552045	EQ552045	4.5	6	11	42
E2552050	EQ552050	5.0	6	12.5	44.5
E2552055	EQ552055	5.5	6	14.5	46
E2552060	EQ552060	6.0	6	16	44.5
E2552080	EQ552080	8.0	10	19	55.5
E2552090	EQ552090	9.0	10	22.5	61
E2552100	EQ552100	10.0	10	22.5	61

▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
e8	— 14 — 28	— 20 — 38	— 25 — 47	— 32 — 59	— 40 — 73	— 50 — 89
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

Shank Dia. Tolerance	
up to Ø6	— 0.018 — 0.025
over Ø6	h6

◎ : Excellent ○ : Good

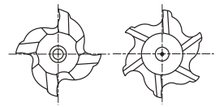
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2574 , EQ574 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN
E2575 , EQ575 SERIES FLAT SHANK SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE SHORT LENGTH

HSSCo8, 4&6 SCHNEIDEN KURZ
Fraise HSSCo8, 4&6 dents, courte
HSSCo8, 4&6 TAGLIENTI, SERIE CORTA



HSS Co8 | DIN 844 | N | 4&6 | ≈30° | DIN 1835B

P.1454-1455

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN					
E2574020	EQ574020	2.0	6	7	51	4
E2574025	EQ574025	2.5	6	8	52	4
E2574030	EQ574030	3.0	6	8	52	4
E2574035	EQ574035	3.5	6	10	54	4
E2574040	EQ574040	4.0	6	11	55	4
E2574050	EQ574050	5.0	6	13	57	4
E2574060	EQ574060	6.0	6	13	57	4
E2574070	EQ574070	7.0	10	16	66	4
E2574080	EQ574080	8.0	10	19	69	4
E2574090	EQ574090	9.0	10	19	69	4
E2574100	EQ574100	10.0	10	22	72	4
E2574110	EQ574110	11.0	12	22	79	4
E2574120	EQ574120	12.0	12	26	83	4
E2574130	EQ574130	13.0	12	26	83	4
E2574140	EQ574140	14.0	12	26	83	4
E2574150	EQ574150	15.0	12	26	83	4
E2574160	EQ574160	16.0	16	32	92	4
E2574170	EQ574170	17.0	16	32	92	4
E2574180	EQ574180	18.0	16	32	92	4
E2574190	EQ574190	19.0	16	32	92	4
E2574200	EQ574200	20.0	20	38	104	4
E2575210	EQ575210	21.0	20	38	104	6
E2575220	EQ575220	22.0	20	38	104	6
E2575230	EQ575230	23.0	20	38	104	6
E2575240	EQ575240	24.0	25	45	121	6
E2575250	EQ575250	25.0	25	45	121	6
E2575260	EQ575260	26.0	25	45	121	6
E2575280	EQ575280	28.0	25	45	121	6
E2575300	EQ575300	30.0	25	45	121	6
E2575320	EQ575320	32.0	32	53	133	6
E2575340	EQ575340	34.0	32	53	133	6
E2575350	EQ575350	35.0	32	53	133	6
E2575360	EQ575360	36.0	32	53	133	6
E2575400	EQ575400	40.0	32	63	143	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.04	h6

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2595 , EQ595 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E2596 , EQ596 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE SHORT LENGTH - CENTER CUTTING

HSSCo8, 4&6 SCHNEIDEN KURZ
Fraise HSSCo8, 4&6 dents, coupe au centre, courte
4 - 6 TAGLIENTI, SERIE CORTA, TAGLIENTE AL CENTRO - HSSCo8

HSS Co8 | DIN 844 | N | 4&6 | ≈30° | DIN 1835B

P.1464-1465

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
E2595020	EQ595020	2.0	6	7	51	4
E2595030	EQ595030	3.0	6	8	52	4
E2595040	EQ595040	4.0	6	11	55	4
E2595050	EQ595050	5.0	6	13	57	4
E2595060	EQ595060	6.0	6	13	57	4
E2595070	EQ595070	7.0	10	16	66	4
E2595080	EQ595080	8.0	10	19	69	4
E2595090	EQ595090	9.0	10	19	69	4
E2595100	EQ595100	10.0	10	22	72	4
E2595110	EQ595110	11.0	12	22	79	4
E2595120	EQ595120	12.0	12	26	83	4
E2595130	EQ595130	13.0	12	26	83	4
E2595140	EQ595140	14.0	12	26	83	4
E2595150	EQ595150	15.0	12	26	83	4
E2595160	EQ595160	16.0	16	32	92	4
E2595170	EQ595170	17.0	16	32	92	4
E2595180	EQ595180	18.0	16	32	92	4
E2595190	EQ595190	19.0	16	32	92	4
E2595920	EQ595920	20.0	16	38	98	4
E2595200	EQ595200	20.0	20	38	104	4
E2595220	EQ595220	22.0	20	38	104	4
E2595250	EQ595250	25.0	25	45	121	4
E2596220	EQ596220	22.0	20	38	104	6
E2596240	EQ596240	24.0	25	45	121	6
E2596250	EQ596250	25.0	25	45	121	6
E2596260	EQ596260	26.0	25	45	121	6
E2596280	EQ596280	28.0	25	45	121	6
E2596300	EQ596300	30.0	25	45	121	6
E2596320	EQ596320	32.0	32	53	133	6
E2596340	EQ596340	34.0	32	53	133	6
E2596350	EQ596350	35.0	32	53	133	6
E2596360	EQ596360	36.0	32	53	133	6
E2596380	EQ596380	38.0	32	63	143	6
E2596901	EQ596901	40.0	32	63	143	6
E2596400	EQ596400	40.0	40	63	155	6

Mill Dia. Tolerance(mm)	Shank Dia. Tolerance
0~+0.04	h6

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2576 , EQ576 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E2577 , EQ577 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE LONG LENGTH

HSSCo8, 4&6 SCHNEIDEN LANG
Fraise HSSCo8, 4&6 dents, longue
HSSCo8, 4&6 TAGLIENTI, SERIE LUNGA

HSS Co8 | DIN 844 | N | 4&6 | ≈30° | DIN 1835B

P.1454-1455

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
E2576020	EQ576020	2.0	6	10	54	4
E2576025	EQ576025	2.5	6	12	56	4
E2576030	EQ576030	3.0	6	12	56	4
E2576035	EQ576035	3.5	6	15	59	4
E2576040	EQ576040	4.0	6	19	63	4
E2576045	EQ576045	4.5	6	19	63	4
E2576050	EQ576050	5.0	6	24	68	4
E2576060	EQ576060	6.0	6	24	68	4
E2576070	EQ576070	7.0	10	30	80	4
E2576080	EQ576080	8.0	10	38	88	4
E2576090	EQ576090	9.0	10	38	88	4
E2576100	EQ576100	10.0	10	45	95	4
E2576110	EQ576110	11.0	12	45	102	4
E2576120	EQ576120	12.0	12	53	110	4
E2576130	EQ576130	13.0	12	53	110	4
E2576140	EQ576140	14.0	12	53	110	4
E2576150	EQ576150	15.0	12	53	110	4
E2576160	EQ576160	16.0	16	63	123	4
E2576170	EQ576170	17.0	16	63	123	4
E2576180	EQ576180	18.0	16	63	123	4
E2576190	EQ576190	19.0	16	63	123	4
E2576902	EQ576902	20.0	16	75	135	4
E2576200	EQ576200	20.0	20	75	141	4
E2577220	EQ577220	22.0	20	75	141	6
E2577240	EQ577240	24.0	25	90	166	6
E2577250	EQ577250	25.0	25	90	166	6
E2577260	EQ577260	26.0	25	90	166	6
E2577280	EQ577280	28.0	25	90	166	6
E2577300	EQ577300	30.0	25	90	166	6
E2577320	EQ577320	32.0	32	106	186	6
E2577360	EQ577360	36.0	32	106	186	6
E2577400	EQ577400	40.0	40	125	217	6

Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6	0~+0.04	h6
over Ø6	0~+0.05	

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

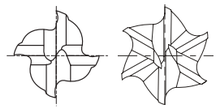
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2597 , EQ597 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E2598 , EQ598 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 4&6 FLUTE LONG LENGTH - CENTER CUTTING

HSSCo8, 4&6 SCHNEIDEN LANG
Fraise HSSCo8, 4&6 dents, coupe au centre, longue
4&6 TAGLIENTI, SERIE LUNGA, TAGLIENTE AL CENTRO - HSSCo8



HSS Co8 | DIN 844 | N | 4&6 | 30° | DIN 1835B

P.1454-1455

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
E2597020	EQ597020	2.0	6	10	54	4
E2597025	EQ597025	2.5	6	12	56	4
E2597030	EQ597030	3.0	6	12	56	4
E2597035	EQ597035	3.5	6	15	59	4
E2597040	EQ597040	4.0	6	19	63	4
E2597045	EQ597045	4.5	6	19	63	4
E2597050	EQ597050	5.0	6	24	68	4
E2597055	EQ597055	5.5	6	24	68	4
E2597060	EQ597060	6.0	6	24	68	4
E2597070	EQ597070	7.0	10	30	80	4
E2597080	EQ597080	8.0	10	38	88	4
E2597090	EQ597090	9.0	10	38	88	4
E2597100	EQ597100	10.0	10	45	95	4
E2597110	EQ597110	11.0	12	45	102	4
E2597120	EQ597120	12.0	12	53	110	4
E2597130	EQ597130	13.0	12	53	110	4
E2597140	EQ597140	14.0	12	53	110	4
E2597150	EQ597150	15.0	12	53	110	4
E2597160	EQ597160	16.0	16	63	123	4
E2597170	EQ597170	17.0	16	63	123	4
E2597180	EQ597180	18.0	16	63	123	4
E2597190	EQ597190	19.0	16	63	123	4
E2597200	EQ597200	20.0	20	75	141	4
E2598220	EQ598220	22.0	20	75	141	6
E2598240	EQ598240	24.0	25	90	166	6
E2598250	EQ598250	25.0	25	90	166	6
E2598260	EQ598260	26.0	25	90	166	6
E2598280	EQ598280	28.0	25	90	166	6
E2598300	EQ598300	30.0	25	90	166	6
E2598320	EQ598320	32.0	32	106	186	6
E2598360	EQ598360	36.0	32	106	186	6
E2598400	EQ598400	40.0	40	125	217	6

Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø6	0~+0.04	h6
over Ø6	0~+0.05	

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

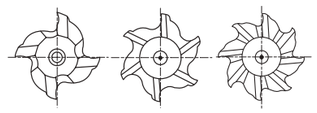
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2776 SERIES — MORSE TAPER SHANK / MORSE KEGELSCHAFT
EQ776 SERIES — MORSE TAPER SHANK / MORSE KEGELSCHAFT

HSSCo8, MULTI FLUTE SHORT LENGTH

HSSCo8, MULTI SCHNEIDEN KURZ
Fraise HSSCo8, multi-dents, courte
MULTI TAGLIENTE, SERIE CORTA - HSSCo8



HSS Co8 | DIN 845 | N | 4-8 | 30° | DIN 228A

P.1454-1455

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Length of Cut	Overall Length	Morse Taper No.	No.of Flute
E2776140	EQ776140	14.0	26	111	2	4
E2776150	EQ776150	15.0	26	111	2	4
E2776160	EQ776160	16.0	32	117	2	4
E2776180	EQ776180	18.0	32	117	2	4
E2776200	EQ776200	20.0	38	123	2	4
E2776220	EQ776220	22.0	38	123	2	6
E2776240	EQ776240	24.0	45	147	3	6
E2776250	EQ776250	25.0	45	147	3	6
E2776260	EQ776260	26.0	45	147	3	6
E2776280	EQ776280	28.0	45	147	3	6
E2776300	EQ776300	30.0	45	147	3	6
E2776320	EQ776320	32.0	53	178	4	6
E2776350	EQ776350	35.0	53	178	4	6
E2776360	EQ776360	36.0	53	178	4	6
E2776380	EQ776380	38.0	63	188	4	6
E2776400	EQ776400	40.0	63	188	4	6
E2776420	EQ776420	42.0	63	188	4	6
E2776440	EQ776440	44.0	63	188	4	6
E2776450	EQ776450	45.0	63	188	4	8
E2776500	EQ776500	50.0	75	233	5	8

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)
±0.120

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2461, E2462, E2463 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

EQ461, EQ462, EQ463 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE 50° HELIX SHORT LENGTH

HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE KURZ
Fraise HSSCo8, multi-dents, hélice 50°, courte
MULTI TAGLIENTE, ELICA 50°, SERIE CORTA - HSSCo8

HSS Co8 | DIN 844 | N | 2-4 | 50° | DIN 1835B

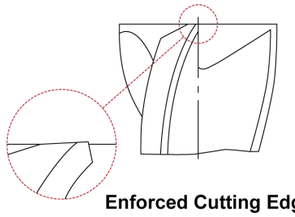
P.1456-1457

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN					
E2461020	EQ461020	2.0	6	7	51	2
E2461030	EQ461030	3.0	6	8	52	2
E2461040	EQ461040	4.0	6	11	55	2
E2461050	EQ461050	5.0	6	13	57	2
E2462060	EQ462060	6.0	6	13	57	3
E2462070	EQ462070	7.0	10	16	66	3
E2462080	EQ462080	8.0	10	19	69	3
E2462090	EQ462090	9.0	10	19	69	3
E2462100	EQ462100	10.0	10	22	72	3
E2462110	EQ462110	11.0	12	22	79	3
E2462120	EQ462120	12.0	12	26	83	3
E2462130	EQ462130	13.0	12	26	83	3
E2462140	EQ462140	14.0	12	26	83	3
E2462150	EQ462150	15.0	12	26	83	3
E2462160	EQ462160	16.0	16	32	92	3
E2462180	EQ462180	18.0	16	32	92	3
E2462200	EQ462200	20.0	20	38	104	3
E2462230	EQ462230	23.0	20	38	104	3
E2463220	EQ463220	22.0	25	45	121	4
E2463250	EQ463250	25.0	25	45	121	4
E2463300	EQ463300	30.0	25	45	121	4

▶Other shank design on your reguest.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)		Shank Dia. Tolerance
up to Ø3	0~+0.04	h6
Ø4.0 ~ Ø6.0	0~+0.048	
Ø7.0 ~ Ø10.0	0~+0.058	
Ø10.5 ~ Ø18.0	0~+0.07	
over Ø18	0~+0.084	



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○												

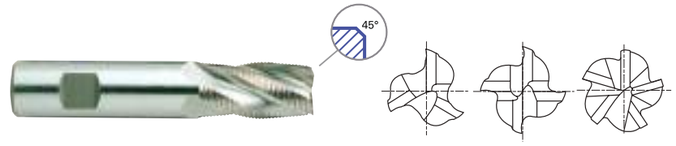
HSS END MILLS

E2761 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

EQ761 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - EXTRA FINE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - EXTRA FEIN
Fraise HSSCo8, multi-dents ébauche, pas extra-fin, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 844 | HR | EXTRA FINE | 3-5 | 30° | DIN 1835B | C x 45°

P.1458-1459

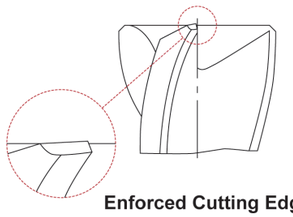
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2761060	EQ761060	6.0	6	13	57	3	0.30
E2761070	EQ761070	7.0	10	16	66	3	0.30
E2761080	EQ761080	8.0	10	19	69	3	0.30
E2761090	EQ761090	9.0	10	19	69	3	0.30
E2761100	EQ761100	10.0	10	22	72	4	0.30
E2761120	EQ761120	12.0	12	26	83	4	0.34
E2761140	EQ761140	14.0	12	26	83	4	0.34
E2761160	EQ761160	16.0	16	32	92	4	0.34
E2761180	EQ761180	18.0	16	32	92	4	0.44
E2761200	EQ761200	20.0	20	38	104	4	0.44
E2761220	EQ761220	22.0	20	38	104	5	0.44
E2761250	EQ761250	25.0	25	45	121	5	0.44

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm						
Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	± 50	± 60	± 75	± 90	± 105	± 125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

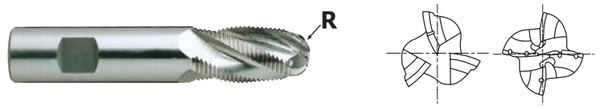
CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2606 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ606 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - FINE

HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - FEIN
Fraise HSSCo8, 3&4 dents, ébauche, hémisphérique, pas fin, courte
3&4 TAGLIENTI, SEMISFERICA, PER SGROSSATURA, SERIE CORTA, B. F. - HSSCo8



HSS Co8 | DIN 1889 | HR | FINE | 3&4 | 30° | R ±0.02 | DIN 1835B

P.1460-1461

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	R (±0.02)	js12	h6			
E2606060	EQ606060	R3.0	6.0	6	13	57	3
E2606080	EQ606080	R4.0	8.0	10	19	69	3
E2606100	EQ606100	R5.0	10.0	10	22	72	3
E2606120	EQ606120	R6.0	12.0	12	26	83	4
E2606160	EQ606160	R8.0	16.0	16	32	92	4
E2606200	EQ606200	R10.0	20.0	20	38	104	4
E2606250	EQ606250	R12.5	25.0	25	45	121	4
E2606320	EQ606320	R16.0	32.0	32	53	133	4
E2606400	EQ606400	R20.0	40.0	32	63	155	4

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

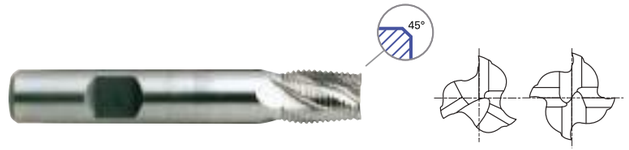
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2524 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ524 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3&4 FLUTE STUB LENGTH ROUGHING - FINE

HSSCo8, 3&4 SCHNEIDEN EXTRA KURZ SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, 3&4 dents, ébauche, pas fin, extra-courte
3&4 TAGLIENTI, PER SGROSSATURA, EXTRA CORTA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 327 | HR | FINE | 3&4 | 30° | DIN 1835B | C x 45°

P.1462-1463

Unit : mm

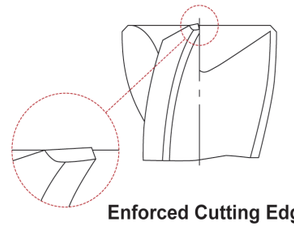
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	k12	h6				
E2524060	EQ524060	6.0	6	8	52	3	0.18
E2524080	EQ524080	8.0	10	11	61	4	0.18
E2524100	EQ524100	10.0	10	13	63	4	0.18
E2524120	EQ524120	12.0	12	16	73	4	0.18
E2524140	EQ524140	14.0	12	16	73	4	0.25
E2524160	EQ524160	16.0	16	19	79	4	0.25
E2524180	EQ524180	18.0	16	19	79	4	0.25
E2524200	EQ524200	20.0	20	22	88	4	0.25

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in μm / Toleranzwerte in μm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k12	+90 0	+120 0	+150 0	+180 0	+210 0	+250 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

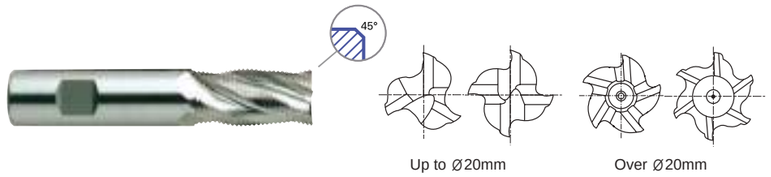
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2753 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ753 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, multi-dents ébauche, pas fin, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 844 | HR | FINE | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° P.1458-1459

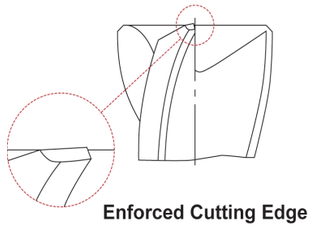
Unit : mm

EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2753060	EQ753060	6.0	6	13	57	3	0.18
E2753070	EQ753070	7.0	10	16	66	3	0.18
E2753080	EQ753080	8.0	10	19	69	3	0.18
E2753090	EQ753090	9.0	10	19	69	3	0.18
E2753100	EQ753100	10.0	10	22	72	4	0.18
E2753110	EQ753110	11.0	12	22	79	4	0.18
E2753120	EQ753120	12.0	12	26	83	4	0.18
E2753130	EQ753130	13.0	12	26	83	4	0.18
E2753140	EQ753140	14.0	12	26	83	4	0.25
E2753150	EQ753150	15.0	12	26	83	4	0.25
E2753160	EQ753160	16.0	16	32	92	4	0.25
E2753180	EQ753180	18.0	16	32	92	4	0.25
E2753200	EQ753200	20.0	20	38	104	4	0.25
E2753250	EQ753250	25.0	25	45	121	5	0.36
E2753280	EQ753280	28.0	25	45	121	6	0.36
E2753300	EQ753300	30.0	25	45	121	6	0.36
E2753320	EQ753320	32.0	32	53	133	6	0.51
E2753350	EQ753350	35.0	32	53	133	6	0.51
E2753400	EQ753400	40.0	32	63	155	6	0.56

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
	from 1 to 3 / von 1 bis 3	over 3 to 6 / über 3 bis 6	over 6 to 10 / über 6 bis 10	over 10 to 18 / über 10 bis 18	over 18 to 30 / über 18 bis 30	over 30 to 50 / über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



◎ : Excellent ○ : Good

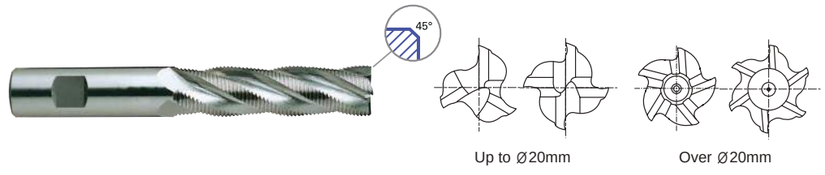
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2762 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ762 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - FINE

HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, multi-dents ébauche, pas fin, longue
MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO FINE - HSSCo8



HSS Co8 | DIN 844 | HR | FINE | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° P.1458-1459

Unit : mm

EDP No.	EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2762060	EQ762060	6.0	6	24	68	3	0.18
E2762070	EQ762070	7.0	10	30	80	3	0.18
E2762080	EQ762080	8.0	10	38	88	3	0.18
E2762090	EQ762090	9.0	10	38	88	3	0.18
E2762100	EQ762100	10.0	10	45	95	4	0.18
E2762110	EQ762110	11.0	12	45	102	4	0.18
E2762120	EQ762120	12.0	12	53	110	4	0.18
E2762130	EQ762130	13.0	12	53	110	4	0.18
E2762140	EQ762140	14.0	12	53	110	4	0.25
E2762150	EQ762150	15.0	12	53	110	4	0.25
E2762160	EQ762160	16.0	16	63	123	4	0.25
E2762170	EQ762170	17.0	16	63	123	4	0.25
E2762180	EQ762180	18.0	16	63	123	4	0.25
E2762190	EQ762190	19.0	16	63	123	4	0.25
E2762200	EQ762200	20.0	20	75	141	4	0.25
E2762220	EQ762220	22.0	20	75	141	5	0.36
E2762240	EQ762240	24.0	25	90	166	5	0.36
E2762250	EQ762250	25.0	25	90	166	5	0.36
E2762260	EQ762260	26.0	25	90	166	6	0.36
E2762280	EQ762280	28.0	25	90	166	6	0.36
E2762300	EQ762300	30.0	25	90	166	6	0.36
E2762320	EQ762320	32.0	32	106	186	6	0.51
E2762350	EQ762350	35.0	32	106	186	6	0.51
E2762360	EQ762360	36.0	32	106	186	6	0.56
E2762380	EQ762380	38.0	32	125	217	6	0.56
E2762400	EQ762400	40.0	32	125	217	6	0.56
E2762940	EQ762940	40.0	40	125	217	6	0.56

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
	from 1 to 3 / von 1 bis 3	over 3 to 6 / über 3 bis 6	over 6 to 10 / über 6 bis 10	over 10 to 18 / über 10 bis 18	over 18 to 30 / über 18 bis 30	over 30 to 50 / über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

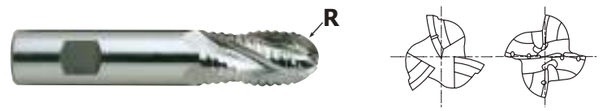
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2757 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ757 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3&4 FLUTE SHORT LENGTH ROUGHING BALL NOSE - COARSE

HSSCo8, 3&4 SCHNEIDEN KURZ SCHRUPPFRÄSER STIRNRADIUS - GROB
Fraise HSSCo8, 3&4 dents, ébauche, hémisphérique, pas grossier, courte
3&4 TAGLIENTI, SEMISFERICA, PER SGROSSATURA, SERIE CORTA, B. F. - HSSCo8



HSS Co8 | DIN 1889 | NR | COARSE | 3&4 | 30° | R ±0.02 | DIN 1835B

P.1460-1461

Unit : mm

EDP No.		Radius of Ball Nose	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	R (±0.02)	js12	h6			
E2757060	EQ757060	R3.0	6.0	6	13	57	3
E2757080	EQ757080	R4.0	8.0	10	19	69	3
E2757100	EQ757100	R5.0	10.0	10	22	72	3
E2757120	EQ757120	R6.0	12.0	12	26	83	4
E2757160	EQ757160	R8.0	16.0	16	32	92	4
E2757200	EQ757200	R10.0	20.0	20	38	104	4
E2757250	EQ757250	R12.5	25.0	25	45	121	4
E2757320	EQ757320	R16.0	32.0	32	53	133	4
E2757400	EQ757400	R20.0	40.0	32	63	155	4

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2751, EQ751 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E2764, EQ764 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING - COARSE

HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
Fraise HSSCo8, 3 dents, ébauche, pas grossier, courte
3 TAGLIENTI, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8

HSS Co8 | DIN 844 | NR | COARSE | 3 | 30° | DIN 1835B | C x 45°

P.1458-1459

Unit : mm

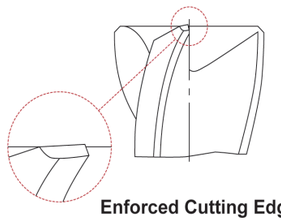
EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	Chamfer
UNCOATED	TiAlN	js12	h6			
E2751060	EQ751060	6.0	6	13	57	0.25
E2751080	EQ751080	8.0	10	19	69	0.25
E2764100	EQ764100	10.0	10	22	72	0.34
E2764120	EQ764120	12.0	12	26	83	0.50
E2764140	EQ764140	14.0	12	26	83	0.55
E2764160	EQ764160	16.0	16	32	92	0.55
E2764180	EQ764180	18.0	16	32	92	0.55
E2764200	EQ764200	20.0	20	38	104	0.55
E2764220	EQ764220	22.0	20	38	104	0.55
E2764250	EQ764250	25.0	25	45	121	0.55
E2764280	EQ764280	28.0	25	45	121	0.70
E2764300	EQ764300	30.0	25	45	121	0.70
E2764320	EQ764320	32.0	32	53	133	0.70
E2764360	EQ764360	36.0	32	53	133	0.70
E2764400	EQ764400	40.0	32	63	155	0.88

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2752, EQ752 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
E2765, EQ765 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH ROUGHING - COARSE

HSSCo8, 3 SCHNEIDEN LANG SCHRUPPFRÄSER - GROB
Fraise HSSCo8, 3 dents, ébauche, pas grossier, longue
3 TAGLIENTI, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8

HSS Co8 | DIN 844 | NR | COARSE | 3 | 30° | DIN 1835B | C x 45° P.1458-1459

Unit : mm

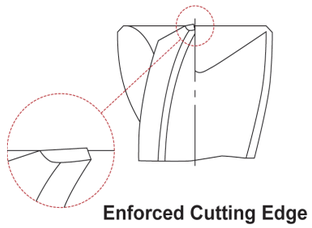
EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
E2752060	EQ752060	6.0	6	24	68	0.25
E2752080	EQ752080	8.0	10	38	88	0.25
E2765100	EQ765100	10.0	10	45	95	0.34
E2765120	EQ765120	12.0	12	53	110	0.50
E2765140	EQ765140	14.0	12	53	110	0.55
E2765160	EQ765160	16.0	16	63	123	0.55
E2765180	EQ765180	18.0	16	63	123	0.55
E2765200	EQ765200	20.0	20	75	141	0.55
E2765220	EQ765220	22.0	20	75	141	0.55
E2765250	EQ765250	25.0	25	90	166	0.55
E2765280	EQ765280	28.0	25	90	166	0.70
E2765300	EQ765300	30.0	25	90	166	0.70
E2765360	EQ765360	36.0	32	106	186	0.70
E2765400	EQ765400	40.0	32	125	217	0.88

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2755 SERIESS — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE 37° HELIX SHORT LENGTH ROUGHING for ALUMINUM

HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE KURZ SCHRUPPFRÄSER für ALUMINIUM
Fraise HSSCo8, 3 dents, ébauche pour aluminium, hélice 37°, courte
3 TAGLIENTI, ELICA 37°, PER SGROSSATURA, SERIE CORTA - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | WR | ALU | 3 | 37° | DIN 1835B | C x 45° P.1466-1467

Unit : mm

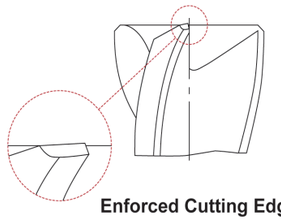
EDP No. UNCOATED	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
E2755060	6.0	6	13	57	0.51
E2755080	8.0	10	19	69	0.51
E2755100	10.0	10	22	72	0.60
E2755120	12.0	12	26	83	0.74
E2755140	14.0	12	26	83	0.94
E2755160	16.0	16	32	92	0.94
E2755180	18.0	16	32	92	0.94
E2755200	20.0	20	38	104	0.94
E2755220	22.0	20	38	104	0.94
E2755250	25.0	25	45	121	0.94
E2755300	30.0	25	45	121	1.23

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○									◎				

HSS END MILLS

E2756 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE 37° HELIX LONG LENGTH ROUGHING for ALUMINUM

HSSCo8, 3 SCHNEIDEN 37° RECHTSSPIRALE LANG SCHRUPPFRÄSER für ALUMINIUM
Fraise HSSCo8, 3 dents, ébauche pour aluminium, hélice 37°, longue
3 TAGLIENTI, ELICA 37°, PER SGROSSATURA, SERIE LUNGA, B.G. - HSSCo8

for ALUMINUM
für ALUMINIUM

HSS Co8 | DIN 844 | WR | ALU | 3 | 37° | DIN 1835B | C x 45° P.1466-1467

Unit : mm

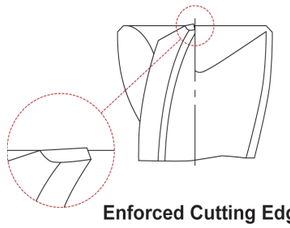
EDP No. UNCOATED	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	Chamfer
E2756100	10.0	10	45	95	0.60
E2756120	12.0	12	53	110	0.74
E2756140	14.0	12	53	110	0.76
E2756160	16.0	16	63	123	0.94
E2756180	18.0	16	63	123	0.76
E2756200	20.0	20	75	141	0.94
E2756220	22.0	20	75	141	0.94
E2756250	25.0	25	90	166	0.94
E2756300	30.0	25	90	166	1.23

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛

Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

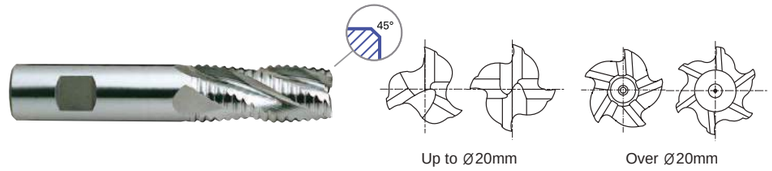
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	○									◎				

HSS END MILLS

E2751 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ751 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8

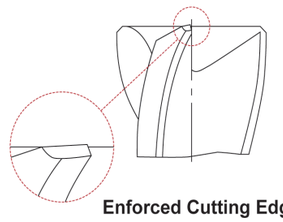


HSS Co8 | DIN 844 | NR | COARSE | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45° P.1458-1459

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter js12	Shank Diameter h6	Length of Cut	Overall Length	No.of Flute	Chamfer
E2751060	EQ751060	6.0	6	13	57	3	0.25
E2751070	EQ751070	7.0	10	16	66	3	0.25
E2751080	EQ751080	8.0	10	19	69	3	0.25
E2751090	EQ751090	9.0	10	19	69	3	0.34
E2751095	EQ751095	9.5	10	19	69	3	0.34
E2751100	EQ751100	10.0	10	22	72	4	0.34
E2751110	EQ751110	11.0	12	22	79	4	0.50
E2751120	EQ751120	12.0	12	26	83	4	0.50
E2751125	EQ751125	12.5	12	26	83	4	0.50
E2751130	EQ751130	13.0	12	26	83	4	0.50
E2751140	EQ751140	14.0	12	26	83	4	0.55
E2751145	EQ751145	14.5	12	26	83	4	0.55
E2751150	EQ751150	15.0	12	26	83	4	0.55
E2751160	EQ751160	16.0	16	32	92	4	0.55
E2751170	EQ751170	17.0	16	32	92	4	0.55
E2751180	EQ751180	18.0	16	32	92	4	0.55
E2751190	EQ751190	19.0	16	32	92	4	0.55
E2751200	EQ751200	20.0	20	38	104	4	0.55
E2751901	EQ751901	20.0	16	38	98	4	0.55
E2751220	EQ751220	22.0	20	38	104	5	0.55
E2751240	EQ751240	24.0	25	45	121	5	0.55
E2751250	EQ751250	25.0	25	45	121	5	0.55
E2751260	EQ751260	26.0	25	45	121	6	0.55
E2751280	EQ751280	28.0	25	45	121	6	0.70
E2751300	EQ751300	30.0	25	45	121	6	0.70

▶ NEXT PAGE



Enforced Cutting Edge

◎ : Excellent ○ : Good

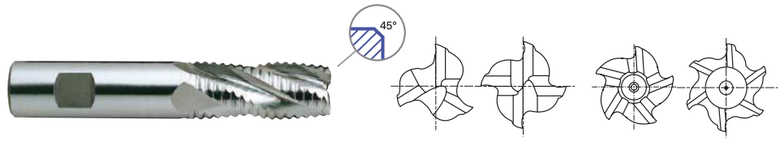
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2751 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ751 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
MULTI TAGLIENTE, PER SGROSSATURA, SERIE CORTA, BOMBATO GROSSO - HSSCo8



HSS Co8 | DIN 844 | NR | COARSE | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45°

P.1458-1459

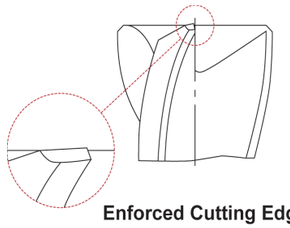
Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2751320	EQ751320	32.0	32	53	133	6	0.70
E2751340	EQ751340	34.0	32	53	133	6	0.70
E2751350	EQ751350	35.0	32	53	133	6	0.70
E2751360	EQ751360	36.0	32	53	133	6	0.70
E2751380	EQ751380	38.0	32	63	155	6	0.70
E2751938	EQ751938	38.0	40	63	155	6	0.70
E2751400	EQ751400	40.0	32	63	155	6	0.88
E2751940	EQ751940	40.0	40	63	155	6	0.88
E2751450	EQ751450	45.0	32	63	143	6	0.88
E2751500	EQ751500	50.0	50	75	177	6	0.88

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16



Enforced Cutting Edge

◎ : Excellent ○ : Good

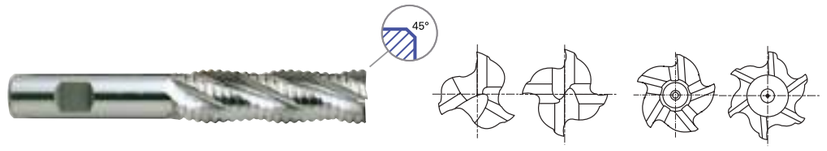
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2752 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ752 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING - COARSE

HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPFRÄSER - GROB
Fraise HSSCo8, multi-dents ébauche, pas grossier, longue
MULTI TAGLIENTE, PER SGROSSATURA, SERIE LUNGA, BOMBATO GROSSO - HSSCo8



HSS Co8 | DIN 844 | NR | COARSE | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~ | C x 45°

P.1458-1459

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute	Chamfer
UNCOATED	TiAlN	js12	h6				
E2752060	EQ752060	6.0	6	24	68	3	0.25
E2752070	EQ752070	7.0	10	30	80	3	0.25
E2752080	EQ752080	8.0	10	38	88	3	0.25
E2752090	EQ752090	9.0	10	38	88	3	0.34
E2752100	EQ752100	10.0	10	45	95	4	0.34
E2752110	EQ752110	11.0	12	45	102	4	0.50
E2752120	EQ752120	12.0	12	53	110	4	0.50
E2752130	EQ752130	13.0	12	53	110	4	0.50
E2752140	EQ752140	14.0	12	53	110	4	0.55
E2752150	EQ752150	15.0	12	53	110	4	0.55
E2752160	EQ752160	16.0	16	63	123	4	0.55
E2752170	EQ752170	17.0	16	63	123	4	0.55
E2752180	EQ752180	18.0	16	63	123	4	0.55
E2752190	EQ752190	19.0	16	63	123	4	0.55
E2752200	EQ752200	20.0	20	75	141	4	0.55
E2752901	EQ752901	20.0	16	75	135	4	0.55
E2752220	EQ752220	22.0	20	75	141	5	0.55
E2752902	EQ752902	22.0	25	75	151	5	0.55
E2752240	EQ752240	24.0	25	90	166	5	0.55
E2752250	EQ752250	25.0	25	90	166	5	0.55
E2752260	EQ752260	26.0	25	90	166	6	0.55
E2752280	EQ752280	28.0	25	90	166	6	0.70
E2752300	EQ752300	30.0	25	90	166	6	0.70
E2752320	EQ752320	32.0	32	106	186	6	0.70
E2752350	EQ752350	35.0	32	106	186	6	0.70
E2752360	EQ752360	36.0	32	106	186	6	0.70
E2752380	EQ752380	38.0	32	125	217	6	0.70
E2752938	EQ752938	38.0	40	125	217	6	0.70
E2752400	EQ752400	40.0	32	125	217	6	0.88
E2752940	EQ752940	40.0	40	125	217	6	0.88

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛						
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
js12	±50	±60	±75	±90	±105	±125
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

Enforced Cutting Edge

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

◎ : Excellent ○ : Good

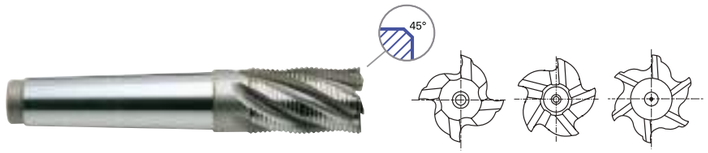
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2778 SERIES MORSE TAPER SHANK / MORSE KEGELSCHAFT
EQ778 SERIES MORSE TAPER SHANK / MORSE KEGELSCHAFT

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - FINE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - FEIN
Fraise HSSCo8, multi-dents ébauche, pas fin, courte
MULTI TAGLIENTE, SERIE CORTA, PER SGROSSATURA, BOMBATO FINE - HSSCo8



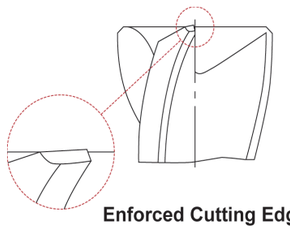
HSS Co8 | DIN 845 | HR | FINE | 4-6 | 30° | DIN 228A | C x 45° P.1458-1459

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Length of Cut	Overall Length	Morse Taper No.	No.of Flute	Chamfer
E2778160	EQ778160	16.0	32	117	2	4	0.25
E2778180	EQ778180	18.0	32	117	2	4	0.25
E2778200	EQ778200	20.0	38	123	2	4	0.25
E2778220	EQ778220	22.0	38	123	2	5	0.30
E2778240	EQ778240	24.0	45	147	3	5	0.30
E2778250	EQ778250	25.0	45	147	3	5	0.43
E2778260	EQ778260	26.0	45	147	3	5	0.30
E2778280	EQ778280	28.0	45	147	3	6	0.30
E2778300	EQ778300	30.0	45	147	3	6	0.70
E2778320	EQ778320	32.0	53	178	4	6	0.51
E2778350	EQ778350	35.0	53	178	4	6	0.51
E2778360	EQ778360	36.0	53	178	4	6	0.51
E2778380	EQ778380	38.0	63	188	4	6	0.56
E2778400	EQ778400	40.0	63	188	4	6	0.56
E2778450	EQ778450	45.0	63	188	4	6	0.56
E2778500	EQ778500	50.0	75	233	5	6	0.56

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)
±0.120



Enforced Cutting Edge

◎ : Excellent ○ : Good

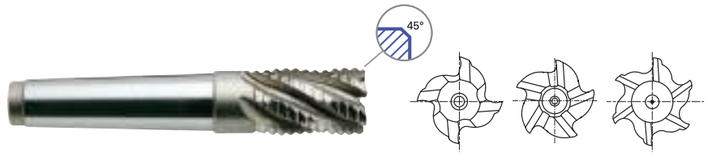
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2777 SERIES MORSE TAPER SHANK / MORSE KEGELSCHAFT
EQ777 SERIES MORSE TAPER SHANK / MORSE KEGELSCHAFT

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING - COARSE

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPFRÄSER - GROB
Fraise HSSCo8, multi-dents ébauche, pas grossier, courte
MULTI TAGLIENTE, SERIE CORTA, PER SGROSSATURA, B.G. - HSSCo8



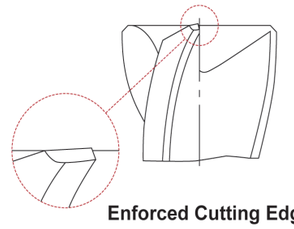
HSS Co8 | DIN 845 | NR | COARSE | 4-6 | 30° | DIN 228A | C x 45° P.1458-1459

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Length of Cut	Overall Length	Morse Taper No.	No.of Flute	Chamfer
E2777140	EQ777140	14.0	26	111	2	4	0.56
E2777160	EQ777160	16.0	32	117	2	4	0.56
E2777180	EQ777180	18.0	32	117	2	4	0.56
E2777200	EQ777200	20.0	38	123	2	4	0.56
E2777220	EQ777220	22.0	38	123	2	5	0.56
E2777240	EQ777240	24.0	45	147	3	5	0.56
E2777250	EQ777250	25.0	45	147	3	5	0.56
E2777260	EQ777260	26.0	45	147	3	5	0.56
E2777270	EQ777270	27.0	45	147	3	6	0.70
E2777280	EQ777280	28.0	45	147	3	6	0.70
E2777300	EQ777300	30.0	45	147	3	6	0.70
E2777320	EQ777320	32.0	53	178	4	6	0.70
E2777350	EQ777350	35.0	53	178	4	6	0.70
E2777360	EQ777360	36.0	53	178	4	6	0.70
E2777380	EQ777380	38.0	63	188	4	6	0.70
E2777400	EQ777400	40.0	63	188	4	6	0.88
E2777450	EQ777450	45.0	63	188	4	6	0.88
E2777500	EQ777500	50.0	75	233	5	6	0.88

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)
±0.120



Enforced Cutting Edge

◎ : Excellent ○ : Good

P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2779 SERIES — MORSE TAPER SHANK / MORSE KEGELSCHAFT
EQ779 SERIES — MORSE TAPER SHANK / MORSE KEGELSCHAFT

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, multi-dents ébauche et finition, courte
MULTI TAGLIENTE, SERIE CORTA, PER SEMIFINITURA - HSSCo8

HSS Co8 | DIN 845 | NF | ROUGHING & FINISHING | 4-6 | 30° | DIN 228A

P.1468-1469

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter	Length of Cut	Overall Length	Morse Taper No.	No.of Flute
E2779160	EQ779160	16.0	32	117	2	4
E2779180	EQ779180	18.0	32	117	2	4
E2779200	EQ779200	20.0	38	123	2	4
E2779220	EQ779220	22.0	38	123	2	5
E2779240	EQ779240	24.0	45	147	3	5
E2779250	EQ779250	25.0	45	147	3	5
E2779260	EQ779260	26.0	45	147	3	5
E2779280	EQ779280	28.0	45	147	3	6
E2779300	EQ779300	30.0	45	147	3	6
E2779320	EQ779320	32.0	53	178	4	6
E2779350	EQ779350	35.0	53	178	4	6
E2779360	EQ779360	36.0	53	178	4	6
E2779380	EQ779380	38.0	63	188	4	6
E2779400	EQ779400	40.0	63	188	4	6
E2779450	EQ779450	45.0	63	188	4	6
E2779500	EQ779500	50.0	75	233	5	6

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Mill Dia. Tolerance(mm)
±0.120

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2766 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ766 SERIES — FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE SHORT LENGTH ROUGHING & FINISHING

HSSCo8, 3 SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, 3 dents ébauche et finition, courte
HSSCo8, 3 TAGLIENTI, SERIE CORTA, PER SGROSSATURA & FINITURA

HSS Co8 | DIN 844 | NF | ROUGHING & FINISHING | 3 | 30° | DIN 1835B

P.1470-1471

Unit : mm

EDP No. UNCOATED	EDP No. TiAlN	Mill Diameter k10	Shank Diameter h6	Length of Cut	Overall Length
E2766060	EQ766060	6.0	6	13	57
E2766080	EQ766080	8.0	10	19	69
E2766100	EQ766100	10.0	10	22	72
E2766120	EQ766120	12.0	12	26	83
E2766130	EQ766130	13.0	12	26	83
E2766140	EQ766140	14.0	12	26	83
E2766160	EQ766160	16.0	16	32	92
E2766180	EQ766180	18.0	16	32	92
E2766200	EQ766200	20.0	20	38	104
E2766220	EQ766220	22.0	20	38	104
E2766250	EQ766250	25.0	25	45	121
E2766280	EQ766280	28.0	25	45	121
E2766300	EQ766300	30.0	25	45	121
E2766320	EQ766320	32.0	32	53	133
E2766360	EQ766360	36.0	32	53	133
E2766400	EQ766400	40.0	32	63	155

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in µm / Toleranzwerte in µm
Nominal-Diameter in mm / Nennmaßbereich in mm

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2767 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ767 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, 3 FLUTE LONG LENGTH ROUGHING & FINISHING

HSSCo8, 3 SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, 3 dents, ébauche et finition, longue
HSSCo8, 3 TAGLIENTI, SERIE CORTA, PER SGROSSATURA & FINITURA

HSS Co8 | DIN 844 | NF | ROUGHING & FINISHING | 3 | 30° | DIN 1835B

P.1470-1471

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	k10	h6		
E2767060	EQ767060	6.0	6	24	68
E2767080	EQ767080	8.0	10	38	88
E2767100	EQ767100	10.0	10	45	95
E2767120	EQ767120	12.0	12	53	110
E2767140	EQ767140	14.0	12	53	110
E2767160	EQ767160	16.0	16	63	123
E2767180	EQ767180	18.0	16	63	123
E2767200	EQ767200	20.0	20	75	141
E2767220	EQ767220	22.0	20	75	141
E2767250	EQ767250	25.0	25	90	166
E2767280	EQ767280	28.0	25	90	166
E2767300	EQ767300	30.0	25	90	166
E2767360	EQ767360	36.0	32	106	186
E2767400	EQ767400	40.0	32	125	217

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

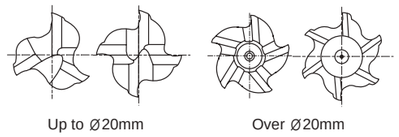
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

HSS END MILLS

E2754 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN
EQ754 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE SHORT LENGTH ROUGHING & FINISHING

HSSCo8, MULTI SCHNEIDEN KURZ SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, multi-dents, ébauche et finition, courte
MULTI TAGLIENTE, SERIE CORTA PER SEMIFINITURA - HSSCo8



Up to Ø20mm Over Ø20mm

HSS Co8 | DIN 844 | NF | ROUGHING & FINISHING | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~

P.1472-1473

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	k10	h6			
E2754060	EQ754060	6.0	6	13	57	3
E2754070	EQ754070	7.0	10	16	66	3
E2754080	EQ754080	8.0	10	19	69	4
E2754090	EQ754090	9.0	10	19	69	4
E2754100	EQ754100	10.0	10	22	72	4
E2754110	EQ754110	11.0	12	22	79	4
E2754120	EQ754120	12.0	12	26	83	4
E2754130	EQ754130	13.0	12	26	83	4
E2754140	EQ754140	14.0	12	26	83	4
E2754150	EQ754150	15.0	12	26	83	4
E2754160	EQ754160	16.0	16	32	92	4
E2754180	EQ754180	18.0	16	32	92	4
E2754200	EQ754200	20.0	20	38	104	4
E2754220	EQ754220	22.0	20	38	104	5
E2754250	EQ754250	25.0	25	45	121	5
E2754280	EQ754280	28.0	25	45	121	5
E2754300	EQ754300	30.0	25	45	121	5
E2754320	EQ754320	32.0	32	53	133	5
E2754360	EQ754360	36.0	32	53	133	6
E2754400	EQ754400	40.0	32	63	155	6

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛
Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

E2768 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

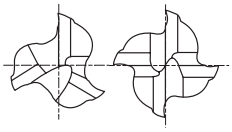
EQ768 SERIES FLAT SHANK / SEITLICHE MITNAHMEFLÄCHEN

HSSCo8, MULTI FLUTE LONG LENGTH ROUGHING & FINISHING

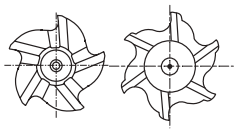
HSSCo8, MULTI SCHNEIDEN LANG SCHRUPPSCHLICHTFRÄSER

Fraise HSSCo8, multi-dents, ébauche et finition, longue

MULTI TAGLIENTE, SERIE LUNGA PER SEMIFINITURA - HSSCo8



Up to Ø20mm



Over Ø20mm

HSS Co8 | DIN 844 | NF | ROUGHING & FINISHING | 3-6 | 30° | DIN 1835B | ~Ø20 | Ø22~

P.1472-1473

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No.of Flute
UNCOATED	TiAlN	k10	h6			
E2768060	EQ768060	6.0	6	24	68	3
E2768080	EQ768080	8.0	10	38	88	4
E2768100	EQ768100	10.0	10	45	95	4
E2768120	EQ768120	12.0	12	53	110	4
E2768140	EQ768140	14.0	12	53	110	4
E2768160	EQ768160	16.0	16	63	123	4
E2768180	EQ768180	18.0	16	63	123	4
E2768200	EQ768200	20.0	20	75	141	4
E2768220	EQ768220	22.0	20	75	141	5
E2768250	EQ768250	25.0	25	90	166	5
E2768300	EQ768300	30.0	25	90	166	5
E2768320	EQ768320	32.0	32	106	186	5
E2768450	EQ768450	45.0	40	125	217	6

▶Other shank design on your request.
▶TiN and TiCN Coatings are available on your request.

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Tolerance range in ㎛ / Toleranzwerte in ㎛

Nominal-Diameter in ㎜ / Nennmaßbereich in ㎜

	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
k10	+40 0	+48 0	+58 0	+70 0	+84 0	+100 0
h6	0 — 6	0 — 8	0 — 9	0 — 11	0 — 13	0 — 16

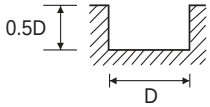
◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

PREMIUM HSS-PM, 2 FLUTE - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

E9410 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	35	35	0.003	5000	35	30	0.004	2800	20	20	0.004
3.0	4000	55	40	0.007	3000	50	30	0.008	2000	25	20	0.006
4.0	2800	70	35	0.013	2200	55	30	0.013	1400	35	20	0.013
5.0	2200	85	35	0.019	2000	75	30	0.019	1100	45	15	0.020
6.0	2000	100	40	0.025	1500	75	30	0.025	1000	50	20	0.025
8.0	1400	110	35	0.039	1100	85	30	0.039	700	55	20	0.039
10.0	1100	110	35	0.050	1000	100	30	0.050	560	55	20	0.049
12.0	1000	125	40	0.063	800	100	30	0.063	500	60	20	0.060
14.0	900	110	40	0.061	700	100	30	0.071	450	60	20	0.067
16.0	700	110	35	0.079	560	85	30	0.076	350	55	20	0.079
18.0	600	110	35	0.092	500	85	30	0.085	300	55	15	0.092
20.0	560	110	35	0.098	500	85	30	0.085	280	55	20	0.098
22.0	560	110	40	0.098	450	85	30	0.094	280	55	20	0.098
25.0	500	100	40	0.100	400	75	30	0.094	230	45	20	0.098

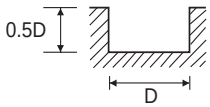


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

PREMIUM HSS-PM, 2 FLUTE TiAlN COATED - SLOTTING
PREMIUM HSS-PM, 2 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E9410 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7840	50	50	0.003	7000	50	45	0.004	3900	30	25	0.004
3.0	5600	80	55	0.007	4200	70	40	0.008	2800	35	25	0.006
4.0	3900	100	50	0.013	3100	75	40	0.012	1950	50	25	0.013
5.0	3100	120	50	0.019	2800	105	45	0.019	1540	60	25	0.019
6.0	2800	140	55	0.025	2100	105	40	0.025	1400	70	25	0.025
8.0	1950	155	50	0.040	1540	120	40	0.039	1000	75	25	0.038
10.0	1550	155	50	0.050	1400	150	45	0.054	800	75	25	0.047
12.0	1400	175	55	0.063	1100	150	40	0.068	700	85	25	0.061
14.0	1250	155	55	0.062	1000	150	45	0.075	600	85	25	0.071
16.0	1000	155	50	0.078	800	120	40	0.075	500	75	25	0.075
18.0	840	155	50	0.092	700	120	40	0.086	390	75	20	0.096
20.0	780	155	50	0.099	700	120	45	0.086	390	75	25	0.096
22.0	780	155	55	0.099	600	120	40	0.100	390	75	25	0.096
25.0	700	140	55	0.100	550	105	45	0.095	320	65	25	0.102



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

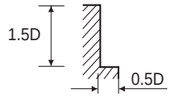
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

PREMIUM HSS-PM, MULTI FLUTE ROUGHING - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPPFRÄSER- SEITENFRÄSEN

E9720 SERIES

MATERIAL	P															
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 9000N/mm²				900~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2300	100	45	0.011	2000	75	40	0.009	1500	70	30	0.012	1000	35	20	0.009
8.0	1800	130	45	0.018	1400	95	35	0.017	1100	80	30	0.018	700	45	20	0.016
10.0	1400	190	45	0.027	1100	150	35	0.027	1000	140	30	0.028	560	75	20	0.027
12.0	1100	230	40	0.042	1000	180	40	0.036	800	140	30	0.035	500	85	20	0.034
14.0	1000	230	45	0.046	900	180	40	0.040	700	140	30	0.040	450	85	20	0.038
16.0	900	230	45	0.051	700	180	35	0.051	560	140	30	0.050	350	85	20	0.121
18.0	800	230	45	0.058	600	180	35	0.060	500	140	30	0.056	300	85	15	0.057
20.0	700	230	45	0.066	560	180	35	0.064	500	140	30	0.056	300	85	20	0.057
22.0	600	280	40	0.093	560	210	40	0.075	450	180	30	0.080	300	105	20	0.070
25.0	560	280	45	0.083	500	210	40	0.070	400	180	30	0.075	230	105	20	0.076
28.0	500	260	45	0.087	450	200	40	0.074	350	160	30	0.076	200	105	20	0.088
30.0	450	260	40	0.096	400	200	40	0.083	300	160	30	0.089	200	105	20	0.088



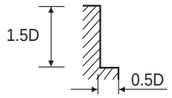
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

※The FEED, in long & extra long types, should be reduced by around 50%

PREMIUM HSS-PM, MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING
PREMIUM HSS-PM, MULTI SCHNEIDEN SCHRUPPFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E9720 SERIES

MATERIAL	P															
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 9000N/mm²				900~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	3220	140	60	0.011	2800	105	55	0.009	2100	95	40	0.011	1400	50	25	0.009
8.0	2520	180	65	0.018	1960	135	50	0.017	1540	110	40	0.018	980	60	25	0.015
10.0	1960	265	60	0.027	1540	210	50	0.027	1400	195	45	0.028	780	105	25	0.027
12.0	1540	320	60	0.042	1400	250	55	0.036	1120	195	40	0.035	700	120	25	0.034
14.0	1400	320	60	0.046	1260	250	55	0.040	980	195	45	0.040	630	120	30	0.038
16.0	1260	320	65	0.051	980	250	50	0.051	780	195	40	0.050	490	120	25	0.049
18.0	1120	320	65	0.057	840	250	50	0.060	700	195	40	0.056	420	120	25	0.057
20.0	980	320	60	0.065	780	250	50	0.064	700	195	45	0.056	420	120	25	0.057
22.0	840	390	60	0.093	780	295	55	0.076	630	250	45	0.079	420	145	30	0.069
25.0	780	390	60	0.083	700	295	55	0.070	560	250	45	0.074	320	145	25	0.076
28.0	700	365	60	0.087	630	280	55	0.074	490	225	45	0.077	280	145	25	0.086
30.0	630	365	60	0.097	560	280	55	0.083	420	225	40	0.089	280	145	25	0.086



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

※The FEED, in long & extra long types, should be reduced by around 50%

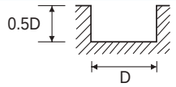
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-PM, 2 FLUTE - SLOTTING
HSS-PM, 2 SCHNEIDEN - NUTENFRÄSEN

E3570 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5000	35	30	0.004	4500	35	30	0.004	2400	15	15	0.003
3.0	3500	50	35	0.007	2800	45	25	0.008	1800	20	15	0.006
4.0	2500	60	30	0.012	2000	50	25	0.013	1200	35	15	0.015
5.0	2000	75	30	0.019	1800	65	30	0.018	1000	40	15	0.020
6.0	1800	90	35	0.025	1300	65	25	0.025	900	45	15	0.025
8.0	1200	100	30	0.042	1000	75	25	0.038	600	50	15	0.042
10.0	1000	100	30	0.050	900	90	30	0.050	500	50	15	0.050
12.0	900	110	35	0.061	700	90	25	0.064	450	55	15	0.061
14.0	800	100	35	0.063	600	90	25	0.075	400	55	20	0.069
16.0	600	100	30	0.083	500	75	25	0.075	300	50	15	0.083
18.0	550	100	30	0.091	450	75	25	0.083	280	50	15	0.089
20.0	500	100	30	0.100	450	75	30	0.083	250	50	15	0.100
22.0	500	100	35	0.100	400	75	30	0.094	250	50	15	0.100
25.0	450	90	35	0.100	350	65	25	0.093	200	40	15	0.100

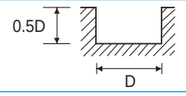


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS-PM, 2 FLUTE TiAlN COATED - SLOTTING
HSS-PM, 2 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E3570 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7000	50	45	0.004	6300	50	40	0.004	3350	20	20	0.003
3.0	4900	70	45	0.007	3900	65	35	0.008	2500	30	25	0.006
4.0	3500	85	45	0.012	2800	70	35	0.013	1700	50	20	0.015
5.0	2800	105	45	0.019	2500	90	40	0.018	1400	55	20	0.020
6.0	2500	125	45	0.025	1800	90	35	0.025	1250	60	25	0.024
8.0	1700	140	45	0.041	1400	105	35	0.038	250	70	5	0.140
10.0	1400	140	45	0.050	1260	125	40	0.050	700	70	20	0.050
12.0	1250	155	45	0.062	980	125	35	0.064	600	75	25	0.063
14.0	1100	140	50	0.064	840	125	35	0.074	550	75	25	0.068
16.0	850	140	45	0.082	700	105	35	0.075	400	70	20	0.088
18.0	750	140	40	0.093	630	105	35	0.083	390	70	20	0.090
20.0	700	140	45	0.100	630	105	40	0.083	350	70	20	0.100
22.0	700	140	50	0.100	560	105	40	0.094	350	70	25	0.100
25.0	630	125	50	0.099	490	90	40	0.092	280	55	20	0.098



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

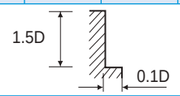
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-PM, MULTI FLUTE - SIDE CUTTING
HSS-PM, MULTI SCHNEIDEN - SEITENFRÄSEN

E3574, E3575 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5000	60	30	0.003	4500	50	30	0.003	2400	20	15	0.002
3.0	3500	90	35	0.006	2800	65	25	0.006	1800	35	15	0.005
4.0	2500	110	30	0.011	2000	70	25	0.009	1200	50	15	0.010
5.0	2000	140	30	0.018	1800	100	30	0.014	1000	55	15	0.014
6.0	1800	160	35	0.022	1300	100	25	0.019	900	65	15	0.018
8.0	1200	180	30	0.038	1000	115	25	0.029	600	70	15	0.029
10.0	1000	180	30	0.045	900	130	30	0.036	500	70	15	0.035
12.0	900	200	35	0.056	700	130	25	0.046	450	80	15	0.044
14.0	800	180	35	0.056	600	130	25	0.054	400	80	20	0.050
16.0	600	180	30	0.075	500	115	25	0.058	300	70	15	0.058
18.0	550	180	30	0.082	450	115	25	0.064	280	70	15	0.063
20.0	500	180	30	0.090	450	115	30	0.064	250	70	15	0.070
22.0	500	180	35	0.060	400	115	30	0.048	250	70	15	0.047
25.0	450	160	35	0.059	350	100	25	0.048	200	55	15	0.046

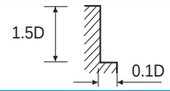


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS-PM, MULTI FLUTE TiAlN COATED - SIDE CUTTING
HSS-PM, MULTI SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E3574, E3575 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7000	85	45	0.003	6300	70	40	0.003	3350	30	20	0.002
3.0	4900	125	45	0.006	3900	90	35	0.006	2500	50	25	0.005
4.0	3500	155	45	0.011	2800	100	35	0.009	1700	70	20	0.010
5.0	2800	195	45	0.017	2500	140	40	0.014	1400	75	20	0.013
6.0	2500	225	45	0.023	1800	140	35	0.019	1250	90	25	0.018
8.0	1700	250	45	0.037	1400	160	35	0.029	250	100	5	0.100
10.0	1400	250	45	0.045	1260	180	40	0.036	700	100	20	0.036
12.0	1250	280	45	0.056	980	180	35	0.046	600	110	25	0.046
14.0	1100	250	50	0.057	840	180	35	0.054	550	110	25	0.050
16.0	850	250	45	0.074	700	160	35	0.057	400	95	20	0.059
18.0	750	250	40	0.083	630	160	35	0.063	390	95	20	0.061
20.0	700	250	45	0.089	630	160	40	0.063	350	95	20	0.068
22.0	700	250	50	0.060	560	160	40	0.048	350	95	25	0.045
25.0	630	225	50	0.060	490	140	40	0.048	280	75	20	0.045



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

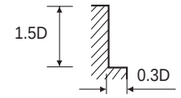
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-PM, 3&4 FLUTE 60° HELIX - SIDE CUTTING
HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE - SEITENFRÄSEN

E3462, E3463 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2000	100	40	0.017	1600	65	30	0.014	1200	45	25	0.013
8.0	1500	100	40	0.022	1300	80	35	0.021	1000	45	25	0.015
10.0	1300	110	40	0.028	1000	80	30	0.027	800	50	25	0.021
12.0	1000	120	40	0.040	800	80	30	0.033	600	50	25	0.028
14.0	800	130	35	0.054	650	80	30	0.041	500	55	20	0.037
16.0	660	140	35	0.071	520	110	25	0.071	400	70	20	0.058
18.0	500	180	30	0.120	400	140	25	0.117	310	100	20	0.108
20.0	400	190	25	0.158	330	160	20	0.162	250	100	15	0.133

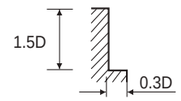


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS-PM, 3&4 FLUTE 60° HELIX TiAlN COATED - SIDE CUTTING
HSS-PM, 3&4 SCHNEIDEN 60° RECHTSSPIRALE TiAlN-BESCHICHTET - SEITENFRÄSEN

E3462, E3463 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2800	140	55	0.017	2240	90	40	0.013	1680	60	30	0.012
8.0	2100	140	55	0.022	1820	110	45	0.020	1400	60	35	0.014
10.0	1800	155	55	0.029	1400	110	45	0.026	1120	70	35	0.021
12.0	1400	170	55	0.040	1120	110	40	0.033	840	70	30	0.028
14.0	1100	180	50	0.055	910	110	40	0.040	700	75	30	0.036
16.0	920	195	45	0.071	730	155	35	0.071	560	100	30	0.060
18.0	700	250	40	0.119	560	195	30	0.116	430	140	25	0.109
20.0	560	265	35	0.158	460	225	30	0.163	350	140	20	0.133



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

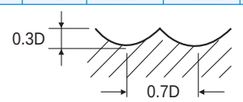
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 2 FLUTE BALL NOSE
HSSCo8, 2 SCHNEIDEN STIRNRADIUS

E2535, E2492 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	4500	95	40	0.011	3400	70	30	0.010	2000	30	20	0.008
R2.0 × 4.0	3200	115	40	0.018	2400	80	30	0.017	1400	35	20	0.013
R3.0 × 6.0	2200	135	40	0.031	1700	90	30	0.026	1000	45	20	0.023
R4.0 × 8.0	1600	160	40	0.050	1200	105	30	0.044	700	50	20	0.036
R5.0 × 10.0	1300	180	40	0.069	1000	120	30	0.060	560	60	20	0.054
R6.0 × 12.0	1000	170	40	0.085	800	105	30	0.066	450	55	15	0.061
R8.0 × 16.0	800	150	40	0.094	600	100	30	0.083	350	55	20	0.079
R10.0 × 20.0	600	140	40	0.117	500	85	30	0.085	300	50	20	0.083
R12.5 × 25.0	500	130	40	0.130	400	70	30	0.088	220	40	15	0.091

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	1400	20	15	0.007	11000	230	105	0.010
R2.0 × 4.0	1000	25	15	0.013	8000	260	100	0.016
R3.0 × 6.0	700	25	15	0.018	5600	280	105	0.025
R4.0 × 8.0	500	30	15	0.030	4000	350	100	0.044
R5.0 × 10.0	400	35	15	0.044	3200	360	100	0.056
R6.0 × 12.0	320	35	10	0.055	2500	340	95	0.068
R8.0 × 16.0	250	35	15	0.070	2000	300	100	0.075
R10.0 × 20.0	200	35	15	0.088	1600	280	100	0.088
R12.5 × 25.0	160	30	15	0.094	1300	250	100	0.096



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

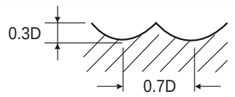
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 2 FLUTE BALL NOSE TiAlN COATED
HSSCo8, 2 SCHNEIDEN STIRNRADIUS TiAlN-BESCHICHTET

E2535, E2492 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	6300	135	60	0.011	4750	100	45	0.011	2800	40	25	0.007
R2.0 × 4.0	4500	160	55	0.018	3350	110	40	0.016	1950	50	25	0.013
R3.0 × 6.0	3100	190	60	0.031	2400	125	45	0.026	1400	65	25	0.023
R4.0 × 8.0	2250	225	55	0.050	1700	145	45	0.043	1000	70	25	0.035
R5.0 × 10.0	1800	250	55	0.069	1400	170	45	0.061	800	85	25	0.053
R6.0 × 12.0	1400	240	55	0.086	1100	145	40	0.066	650	75	25	0.058
R8.0 × 16.0	1100	210	55	0.095	850	140	45	0.082	500	75	25	0.075
R10.0 × 20.0	850	195	55	0.115	700	120	45	0.086	400	70	25	0.088
R12.5 × 25.0	700	180	55	0.129	550	100	45	0.091	300	55	25	0.092

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R1.5 × 3.0	1950	30	20	0.008	15400	320	145	0.010
R2.0 × 4.0	1400	35	20	0.013	11200	365	140	0.016
R3.0 × 6.0	1000	35	20	0.018	7850	390	150	0.025
R4.0 × 8.0	700	40	20	0.029	5600	490	140	0.044
R5.0 × 10.0	550	50	15	0.045	4500	505	140	0.056
R6.0 × 12.0	450	50	15	0.056	3500	475	130	0.068
R8.0 × 16.0	350	50	20	0.071	2800	420	140	0.075
R10.0 × 20.0	300	50	20	0.083	2250	390	140	0.087
R12.5 × 25.0	200	40	15	0.100	1800	350	140	0.097



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

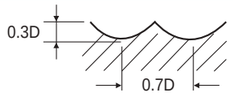
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE BALL NOSE
HSSCo8, MULTI SCHNEIDEN STIRNRADIUS

E2410, E2429, E2512 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R3.0 × 6.0	2200	200	40	0.030	1700	135	30	0.026	1000	70	20	0.023
R4.0 × 8.0	1600	240	40	0.050	1200	160	30	0.044	700	75	20	0.036
R5.0 × 10.0	1300	270	40	0.069	1000	180	30	0.060	560	90	20	0.054
R6.0 × 12.0	1000	260	40	0.087	800	160	30	0.067	450	80	15	0.059
R8.0 × 16.0	800	230	40	0.096	600	150	30	0.083	350	80	20	0.076
R10.0 × 20.0	600	210	40	0.117	500	130	30	0.087	300	75	20	0.083
R12.5 × 25.0	500	200	40	0.133	400	105	30	0.088	220	60	15	0.091

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R3.0 × 6.0	700	40	15	0.019	5600	420	105	0.025
R4.0 × 8.0	500	45	15	0.030	4000	530	100	0.044
R5.0 × 10.0	400	50	15	0.042	3200	540	100	0.056
R6.0 × 12.0	320	50	15	0.052	2500	510	95	0.068
R8.0 × 16.0	250	50	15	0.067	2000	450	100	0.075
R10.0 × 20.0	200	50	15	0.083	1600	420	100	0.088
R12.5 × 25.0	160	45	15	0.094	1300	380	100	0.097



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

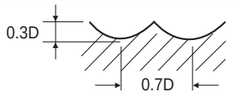
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE BALL NOSE TiAlN COATED
HSSCo8, MULTI SCHNEIDEN STIRNRADIUS TiAlN-BESCHICHTET

E2410, E2429, E2512 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R3.0 × 6.0	3100	280	58	0.030	2400	190	45	0.026	1400	100	26	0.024
R4.0 × 8.0	2250	335	57	0.050	1700	225	43	0.044	1000	105	25	0.035
R5.0 × 10.0	1800	380	57	0.070	1400	250	44	0.060	800	125	25	0.052
R6.0 × 12.0	1400	365	53	0.087	1100	225	41	0.068	650	110	25	0.056
R8.0 × 16.0	1100	320	55	0.097	850	210	43	0.082	500	110	25	0.073
R10.0 × 20.0	850	295	53	0.116	700	180	44	0.086	400	105	25	0.088
R12.5 × 25.0	700	280	55	0.133	550	145	43	0.088	300	85	24	0.094

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R3.0 × 6.0	1000	55	19	0.018	7850	590	148	0.025
R4.0 × 8.0	700	65	18	0.031	5600	740	141	0.044
R5.0 × 10.0	550	70	17	0.042	4500	755	141	0.056
R6.0 × 12.0	450	70	17	0.052	3500	715	132	0.068
R8.0 × 16.0	350	70	18	0.067	2800	630	141	0.075
R10.0 × 20.0	300	70	19	0.078	2250	590	141	0.087
R12.5 × 25.0	200	65	16	0.108	1800	530	141	0.098



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

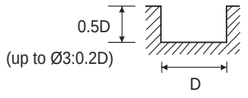
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-E, 1 FLUTE
HSS-E, 1 SCHNEIDEN

EL612, EL623 SERIES

MATERIAL	N			
	ALUMINUM ALUMINUM ALLOYS			
DIAMETER	RPM	FEED	Vc	fz
3.0	20000	1100	188	0.055
4.0	18000	950	226	0.053
5.0	14000	750	220	0.054
6.0	11000	600	207	0.055
7.0	10000	550	220	0.055
8.0	8500	450	214	0.053
10.0	7000	380	220	0.054



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

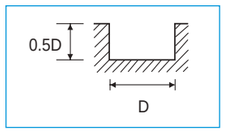
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 2 FLUTE - SLOTTING
HSSCo8, 2 SCHNEIDEN - NUTENFRÄSEN

E2570, E2571, E2510 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	40	35	0.004	4500	30	30	0.003	4000	30	25	0.004
3.0	3500	55	35	0.008	3200	45	30	0.007	2500	40	25	0.008
4.0	2800	70	35	0.013	2200	55	30	0.013	1800	45	25	0.013
5.0	2200	90	35	0.020	1800	70	30	0.019	1600	60	25	0.019
6.0	1800	90	35	0.025	1600	80	30	0.025	1200	60	25	0.025
8.0	1400	100	35	0.036	1100	90	30	0.041	900	70	25	0.039
10.0	1100	100	35	0.045	900	90	30	0.050	800	80	25	0.050
12.0	900	110	35	0.061	800	100	30	0.063	630	80	25	0.063
14.0	800	110	35	0.069	700	90	30	0.064	560	80	25	0.071
16.0	700	110	35	0.079	560	90	30	0.080	450	70	25	0.078
18.0	630	100	35	0.079	500	90	30	0.090	400	70	25	0.088
20.0	560	100	35	0.089	450	90	30	0.100	400	70	25	0.088
22.0	500	100	35	0.100	450	90	30	0.100	350	70	25	0.100
25.0	450	90	35	0.100	400	80	30	0.100	310	60	25	0.097
28.0	400	80	35	0.100	350	70	30	0.100	280	55	25	0.098
30.0	350	70	35	0.100	310	60	30	0.097	250	50	25	0.100
32.0	350	70	35	0.100	280	55	30	0.098	220	45	20	0.102
36.0	310	60	35	0.097	250	50	30	0.100	200	40	25	0.100
40.0	280	60	35	0.107	220	50	30	0.114	180	40	25	0.111

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2200	15	15	0.003	12000	160	75	0.007
3.0	1600	20	15	0.006	11000	250	105	0.011
4.0	1100	30	15	0.014	8000	290	100	0.018
5.0	900	35	15	0.019	6300	310	100	0.025
6.0	800	40	15	0.025	5600	310	105	0.028
8.0	560	45	15	0.040	4000	390	100	0.049
10.0	450	45	15	0.050	3100	400	95	0.065
12.0	400	50	15	0.063	2500	380	95	0.076
14.0	350	50	15	0.071	2200	350	95	0.080
16.0	280	45	15	0.080	2000	350	100	0.088
18.0	250	45	15	0.090	1800	350	100	0.097
20.0	220	45	15	0.102	1600	320	100	0.100
22.0	220	45	15	0.102	1400	300	95	0.107
25.0	180	35	15	0.097	1200	280	95	0.117
28.0	160	30	15	0.094	1100	270	95	0.123
30.0	160	30	15	0.094	1100	270	105	0.123
32.0	140	30	15	0.107	1000	240	100	0.120
36.0	120	25	15	0.104	900	220	100	0.122
40.0	110	25	15	0.114	800	200	100	0.125



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
Vc = m/min.

FEED = mm/min.
fz = mm/tooth

HSS END MILLS

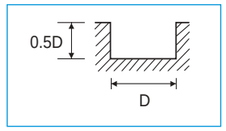
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 2 FLUTE TiAlN COATED - SLOTTING
HSSCo8, 2 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E2570, E2571, E2510 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7850	55	50	0.004	6300	40	40	0.003	5600	40	35	0.004
3.0	4900	75	45	0.008	4500	65	40	0.007	3500	55	35	0.008
4.0	3900	100	50	0.013	3100	75	40	0.012	2500	65	30	0.013
5.0	3100	125	50	0.020	2500	100	40	0.020	2250	85	35	0.019
6.0	2500	125	45	0.025	2250	110	40	0.024	1700	85	30	0.025
8.0	1950	140	50	0.036	1550	125	40	0.040	1250	100	30	0.040
10.0	1550	140	50	0.045	1250	125	40	0.050	1100	110	35	0.050
12.0	1250	155	45	0.062	1100	140	40	0.064	900	110	35	0.061
14.0	1100	155	50	0.070	1000	125	45	0.063	800	110	35	0.069
16.0	1000	155	50	0.078	800	125	40	0.078	650	100	35	0.077
18.0	900	140	50	0.078	700	125	40	0.089	550	100	30	0.091
20.0	800	140	50	0.088	650	125	40	0.096	550	100	35	0.091
22.0	700	140	50	0.100	650	125	45	0.096	500	100	35	0.100
25.0	650	125	50	0.096	550	110	45	0.100	450	85	35	0.094
28.0	550	110	50	0.100	500	100	45	0.100	400	75	35	0.094
30.0	500	100	45	0.100	450	85	40	0.094	350	70	35	0.100
32.0	500	100	50	0.100	400	75	40	0.094	300	65	30	0.108
36.0	450	85	50	0.094	350	70	40	0.100	300	55	35	0.092
40.0	400	85	50	0.106	300	70	40	0.117	250	55	30	0.110

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3100	20	20	0.003	16800	225	105	0.007
3.0	2250	30	20	0.007	15400	350	145	0.011
4.0	1550	40	20	0.013	11200	405	140	0.018
5.0	1250	50	20	0.020	8800	435	140	0.025
6.0	1100	55	20	0.025	7850	435	150	0.028
8.0	800	65	20	0.041	5600	545	140	0.049
10.0	650	65	20	0.050	4350	560	135	0.064
12.0	550	70	20	0.064	3500	530	130	0.076
14.0	500	70	20	0.070	3100	490	135	0.079
16.0	400	65	20	0.081	2800	490	140	0.088
18.0	350	65	20	0.093	2500	490	140	0.098
20.0	300	65	20	0.108	2250	450	140	0.100
22.0	300	65	20	0.108	1950	420	135	0.108
25.0	250	50	20	0.100	1700	390	135	0.115
28.0	200	40	20	0.100	1550	380	135	0.123
30.0	200	40	20	0.100	1550	380	145	0.123
32.0	200	40	20	0.100	1400	335	140	0.120
36.0	150	35	15	0.117	1250	310	140	0.124
40.0	150	35	20	0.117	1100	280	140	0.127



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RPM = rev./min.
Vc = m/min.
FEED = mm/min.
fz = mm/tooth

HSS END MILLS

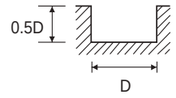
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 2 FLUTE 42° HELIX
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE

E2464, E2509 SERIES

SLOTTING

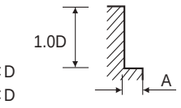
MATERIAL	N			
	ALUMINUM NON-FERROUS METALS			
DIAMETER	RPM	FEED	Vc	fz
3.0	8000	560	75	0.035
6.0	7000	700	130	0.050
8.0	6000	850	150	0.071
10.0	5000	1200	155	0.120
12.0	5000	1200	190	0.120
14.0	3500	1240	155	0.177
16.0	3500	1240	175	0.177
18.0	2300	1300	130	0.283
20.0	2300	1300	145	0.283



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

SIDE CUTTING

MATERIAL	N			
	ALUMINUM NON-FERROUS METALS			
DIAMETER	RPM	FEED	Vc	fz
3.0	8000	730	75	0.046
6.0	7000	900	130	0.064
8.0	6000	1100	150	0.092
10.0	5000	1500	155	0.150
12.0	5000	1500	190	0.150
14.0	3500	1600	155	0.229
16.0	3500	1600	175	0.229
18.0	2300	1700	130	0.370
20.0	2300	1700	145	0.370



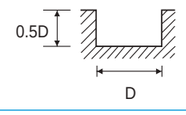
RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSSCo8, 2 FLUTE 42° HELIX TiCN COATED
HSSCo8, 2 SCHNEIDEN 42° RECHTSSPIRALE TiCN-BESCHICHTET

E2464, E2509 SERIES

SLOTTING

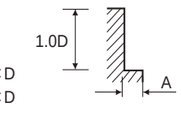
MATERIAL	N			
	ALUMINUM NON-FERROUS METALS			
DIAMETER	RPM	FEED	Vc	fz
3.0	10400	730	100	0.035
6.0	9100	910	170	0.050
8.0	7800	1100	195	0.071
10.0	6500	1560	205	0.120
12.0	6500	1560	245	0.120
14.0	4500	1610	200	0.179
16.0	4500	1610	225	0.179
18.0	3000	1700	170	0.283
20.0	3000	1700	190	0.283



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

SIDE CUTTING

MATERIAL	N			
	ALUMINUM NON-FERROUS METALS			
DIAMETER	RPM	FEED	Vc	fz
3.0	10400	950	100	0.046
6.0	9100	1150	170	0.063
8.0	7800	1400	195	0.090
10.0	6500	1950	205	0.150
12.0	6500	1950	245	0.150
14.0	4500	2080	200	0.231
16.0	4500	2080	225	0.231
18.0	3000	2210	170	0.368
20.0	3000	2210	190	0.368



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

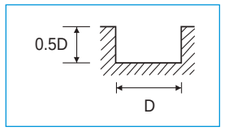
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 3 FLUTE - SLOTTING
HSSCo8, 3 SCHNEIDEN - NUTENFRÄSEN

E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	35	35	0.002	4500	25	30	0.002	4000	20	25	0.002
3.0	3500	50	35	0.005	3200	35	30	0.004	2500	25	25	0.003
4.0	2800	60	35	0.007	2200	45	30	0.007	1800	30	25	0.006
5.0	2200	80	35	0.012	1800	55	30	0.010	1600	40	25	0.008
6.0	1800	80	35	0.015	1600	65	30	0.014	1200	40	25	0.011
8.0	1400	90	35	0.021	1100	70	30	0.021	900	50	25	0.019
10.0	1100	90	35	0.027	900	70	30	0.026	800	55	25	0.023
12.0	900	100	35	0.037	800	80	30	0.033	630	55	25	0.029
14.0	800	100	35	0.042	700	70	30	0.033	560	55	25	0.033
16.0	700	100	35	0.048	560	70	30	0.042	450	50	25	0.037
18.0	630	90	35	0.048	500	70	30	0.047	400	50	25	0.042
20.0	560	90	35	0.054	450	70	30	0.052	400	50	25	0.042
22.0	500	90	35	0.060	450	70	30	0.052	350	50	25	0.048
25.0	450	80	35	0.059	400	65	30	0.054	310	40	25	0.043
28.0	400	70	35	0.058	350	55	30	0.052	280	35	25	0.042
30.0	350	60	35	0.057	310	50	30	0.054	250	30	25	0.040
32.0	350	60	35	0.057	280	45	30	0.054	220	30	20	0.045
35.0	320	55	35	0.057	260	40	30	0.051	210	25	25	0.040
36.0	310	55	35	0.059	250	40	30	0.053	200	25	25	0.042
40.0	280	55	35	0.065	220	40	30	0.061	180	25	25	0.046

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2200	10	15	0.002	12000	110	75	0.003
3.0	1600	15	15	0.003	11000	170	105	0.005
4.0	1100	20	15	0.006	8000	200	100	0.008
5.0	900	20	15	0.007	6300	210	100	0.011
6.0	800	25	15	0.010	5600	210	105	0.013
8.0	560	30	15	0.018	4000	260	100	0.022
10.0	450	30	15	0.022	3100	270	95	0.029
12.0	400	35	15	0.029	2500	260	95	0.035
14.0	350	35	15	0.033	2200	240	95	0.036
16.0	280	30	15	0.036	2000	240	100	0.040
18.0	250	30	15	0.040	1800	240	100	0.044
20.0	220	30	15	0.045	1600	220	100	0.046
22.0	220	30	15	0.045	1400	200	95	0.048
25.0	180	20	15	0.037	1200	190	95	0.053
28.0	160	20	15	0.042	1100	180	95	0.055
30.0	160	20	15	0.042	1100	180	105	0.055
32.0	140	20	15	0.048	1000	160	100	0.053
35.0	130	15	15	0.038	950	150	105	0.053
36.0	120	15	15	0.042	900	150	100	0.056
40.0	110	15	15	0.045	800	130	100	0.054



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

※The FEED, in long & extra long types, should be reduced by around 50%

HSS END MILLS

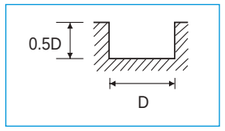
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 3 FLUTE TiAlN COATED - SLOTTING
HSSCo8, 3 SCHNEIDEN TiAlN-BESCHICHTET - NUTENFRÄSEN

E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7900	50	50	0.002	6300	35	40	0.002	5600	30	35	0.002
3.0	4900	70	45	0.005	4500	50	40	0.004	3500	35	35	0.003
4.0	3900	85	50	0.007	3100	60	40	0.006	2500	40	30	0.005
5.0	3100	110	50	0.012	2500	75	40	0.010	2200	55	35	0.008
6.0	2500	110	45	0.015	2200	90	40	0.014	1700	55	30	0.011
8.0	2000	125	50	0.021	1500	100	40	0.022	1300	70	35	0.018
10.0	1500	125	45	0.028	1300	110	40	0.028	1100	75	35	0.023
12.0	1300	140	50	0.036	1100	110	40	0.033	880	75	35	0.028
14.0	1100	140	50	0.042	980	100	45	0.034	780	75	35	0.032
16.0	980	140	50	0.048	780	100	40	0.043	630	70	30	0.037
18.0	880	125	50	0.047	700	100	40	0.048	560	70	30	0.042
20.0	780	125	50	0.053	630	100	40	0.053	560	70	35	0.042
22.0	700	125	50	0.060	630	100	45	0.053	490	70	35	0.048
25.0	630	110	50	0.058	560	90	45	0.054	430	55	35	0.043
28.0	560	100	50	0.060	490	75	45	0.051	390	50	35	0.043
30.0	490	85	45	0.058	430	70	40	0.054	350	40	35	0.038
32.0	490	85	50	0.058	390	65	40	0.056	310	40	30	0.043
35.0	450	80	50	0.059	360	60	40	0.056	290	35	30	0.040
36.0	430	75	50	0.058	350	55	40	0.052	280	35	30	0.042
40.0	390	75	50	0.064	310	55	40	0.059	250	35	30	0.047

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3100	15	20	0.002	16800	150	105	0.003
3.0	2200	20	20	0.003	15400	240	145	0.005
4.0	1500	30	20	0.007	11200	280	140	0.008
5.0	1300	30	20	0.008	8800	290	140	0.011
6.0	1100	35	20	0.011	7800	290	145	0.012
8.0	780	40	20	0.017	5600	360	140	0.021
10.0	630	40	20	0.021	4300	380	135	0.029
12.0	560	50	20	0.030	3500	360	130	0.034
14.0	490	50	20	0.034	3100	340	135	0.037
16.0	390	40	20	0.034	2800	340	140	0.040
18.0	350	40	20	0.038	2500	340	140	0.045
20.0	310	40	20	0.043	2200	310	140	0.047
22.0	310	40	20	0.043	1950	280	135	0.048
25.0	250	30	20	0.040	1700	270	135	0.053
28.0	220	30	20	0.045	1500	250	130	0.056
30.0	220	30	20	0.045	1500	250	140	0.056
32.0	200	30	20	0.050	1400	225	140	0.054
35.0	180	25	20	0.046	1300	215	145	0.055
36.0	170	20	20	0.039	1250	210	140	0.056
40.0	150	20	20	0.044	1100	180	140	0.055



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

※The FEED, in long & extra long types, should be reduced by around 50%

HSS END MILLS

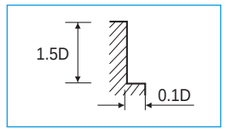
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 3 FLUTE - SIDE CUTTING
HSSCo8, 3 SCHNEIDEN - SEITENFRÄSEN

E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	60	35	0.004	4500	40	30	0.003	4000	35	25	0.003
3.0	3500	80	35	0.008	3200	60	30	0.006	2500	45	25	0.006
4.0	2800	105	35	0.013	2200	75	30	0.011	1800	50	25	0.009
5.0	2200	135	35	0.020	1800	95	30	0.018	1600	65	25	0.014
6.0	1800	135	35	0.025	1600	110	30	0.023	1200	65	25	0.018
8.0	1400	150	35	0.036	1100	120	30	0.036	900	80	25	0.030
10.0	1100	150	35	0.045	900	120	30	0.044	800	90	25	0.038
12.0	900	165	35	0.061	800	135	30	0.056	630	90	25	0.048
14.0	800	165	35	0.069	700	120	30	0.057	560	90	25	0.054
16.0	700	165	35	0.079	560	120	30	0.071	450	80	25	0.059
18.0	630	150	35	0.079	500	120	30	0.080	400	80	25	0.067
20.0	560	150	35	0.089	450	120	30	0.089	400	80	25	0.067
22.0	500	150	35	0.100	450	120	30	0.089	350	80	25	0.076
25.0	450	135	35	0.100	400	110	30	0.092	310	65	25	0.070
28.0	400	120	35	0.100	350	95	30	0.090	280	60	25	0.071
30.0	350	105	35	0.100	310	80	30	0.086	250	55	25	0.073
32.0	350	105	35	0.100	280	75	30	0.089	220	50	20	0.076
35.0	320	95	35	0.099	260	65	30	0.083	210	45	25	0.071
36.0	310	90	35	0.097	250	65	30	0.087	200	45	25	0.075
40.0	280	90	35	0.107	220	65	30	0.098	180	45	25	0.083

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2200	15	15	0.002	12000	180	75	0.005
3.0	1600	20	15	0.004	11000	280	105	0.008
4.0	1100	30	15	0.009	8000	330	100	0.014
5.0	900	35	15	0.013	6300	350	100	0.019
6.0	800	45	15	0.019	5600	350	105	0.021
8.0	560	50	15	0.030	4000	440	100	0.037
10.0	450	50	15	0.037	3100	450	95	0.048
12.0	400	55	15	0.046	2500	430	95	0.057
14.0	350	55	15	0.052	2200	400	95	0.061
16.0	280	50	15	0.060	2000	400	100	0.067
18.0	250	50	15	0.067	1800	400	100	0.074
20.0	220	50	15	0.076	1600	360	100	0.075
22.0	220	50	15	0.076	1400	340	95	0.081
25.0	180	35	15	0.065	1200	320	95	0.089
28.0	160	30	15	0.063	1100	300	95	0.091
30.0	160	30	15	0.063	1100	300	105	0.091
32.0	140	30	15	0.071	1000	270	100	0.090
35.0	130	25	15	0.064	950	260	105	0.091
36.0	120	25	15	0.069	900	250	100	0.093
40.0	110	25	15	0.076	800	220	100	0.092



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.

FEED = mm/min. fz = mm/tooth

HSS END MILLS

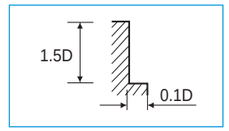
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 3 FLUTE TiAlN COATED - SIDE CUTTING
HSSCo8, 3 SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7900	85	50	0.004	6300	55	40	0.003	5600	50	35	0.003
3.0	4900	110	45	0.007	4500	85	40	0.006	3500	60	35	0.006
4.0	3900	145	50	0.012	3100	105	40	0.011	2500	70	30	0.009
5.0	3100	190	50	0.020	2500	130	40	0.017	2200	90	35	0.014
6.0	2500	190	45	0.025	2200	155	40	0.023	1700	90	30	0.018
8.0	2000	210	50	0.035	1500	170	40	0.038	1300	110	35	0.028
10.0	1500	210	45	0.047	1300	170	40	0.044	1100	125	35	0.038
12.0	1300	230	50	0.059	1100	190	40	0.058	880	125	35	0.047
14.0	1100	230	50	0.070	980	170	45	0.058	780	125	35	0.053
16.0	980	230	50	0.078	780	170	40	0.073	630	110	30	0.058
18.0	880	210	50	0.080	700	170	40	0.081	560	110	30	0.065
20.0	780	210	50	0.090	630	170	40	0.090	560	110	35	0.065
22.0	700	210	50	0.100	630	170	45	0.090	490	110	35	0.075
25.0	630	190	50	0.101	560	155	45	0.092	430	90	35	0.070
28.0	560	170	50	0.101	490	130	45	0.088	390	85	35	0.073
30.0	490	145	45	0.099	430	110	40	0.085	350	75	35	0.071
32.0	490	145	50	0.099	390	105	40	0.090	310	70	30	0.075
35.0	450	130	50	0.096	360	95	40	0.088	290	65	30	0.075
36.0	430	125	50	0.097	350	90	40	0.086	280	65	30	0.077
40.0	390	125	50	0.107	310	90	40	0.097	250	65	30	0.087

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3100	20	20	0.002	16800	250	105	0.005
3.0	2200	30	20	0.005	15400	390	145	0.008
4.0	1500	40	20	0.009	11200	460	140	0.014
5.0	1300	50	20	0.013	8800	490	140	0.019
6.0	1100	60	20	0.018	7800	490	145	0.021
8.0	780	70	20	0.030	5600	620	140	0.037
10.0	630	70	20	0.037	4300	630	135	0.049
12.0	560	75	20	0.045	3500	600	130	0.057
14.0	490	75	20	0.051	3100	560	135	0.060
16.0	390	70	20	0.060	2800	560	140	0.067
18.0	350	70	20	0.067	2500	560	140	0.075
20.0	310	70	20	0.075	2200	500	140	0.076
22.0	310	70	20	0.075	1950	480	135	0.082
25.0	250	50	20	0.067	1700	450	135	0.088
28.0	220	40	20	0.061	1500	420	130	0.093
30.0	220	40	20	0.061	1500	420	140	0.093
32.0	200	40	20	0.067	1400	380	140	0.090
35.0	180	35	20	0.065	1300	360	145	0.092
36.0	170	35	20	0.069	1250	350	140	0.093
40.0	150	35	20	0.078	1100	310	140	0.094



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min. Vc = m/min.

FEED = mm/min. fz = mm/tooth

HSS END MILLS

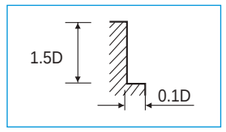
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN - SEITENFRÄSEN

E2574, E2575, E2576, E2577, E2597, E2598, E2776 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	80	35	0.004	4500	55	30	0.003	4000	45	25	0.003
3.0	3500	110	35	0.008	3200	80	30	0.006	2500	60	25	0.006
4.0	2800	140	35	0.013	2200	100	30	0.011	1800	65	25	0.009
5.0	2200	180	35	0.020	1800	125	30	0.017	1600	90	25	0.014
6.0	1800	180	35	0.025	1600	145	30	0.023	1200	90	25	0.019
8.0	1400	200	35	0.036	1100	160	30	0.036	900	105	25	0.029
10.0	1100	200	35	0.045	900	160	30	0.044	800	120	25	0.038
12.0	900	220	35	0.061	800	180	30	0.056	630	120	25	0.048
14.0	800	220	35	0.069	700	160	30	0.057	560	120	25	0.054
16.0	700	220	35	0.079	560	160	30	0.071	450	105	25	0.058
18.0	630	200	35	0.079	500	160	30	0.080	400	105	25	0.066
20.0	560	200	35	0.089	450	160	30	0.089	400	105	25	0.066
22.0	500	200	35	0.067	450	160	30	0.059	350	105	25	0.050
25.0	450	180	35	0.067	400	145	30	0.060	310	90	25	0.048
28.0	400	160	35	0.067	350	125	30	0.060	280	80	25	0.048
30.0	350	140	35	0.067	310	110	30	0.059	250	75	25	0.050
32.0	350	140	35	0.067	280	100	30	0.060	220	65	20	0.049
36.0	310	120	35	0.065	250	90	30	0.060	200	60	25	0.050
40.0	280	120	35	0.071	220	90	30	0.068	180	60	25	0.056

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2200	20	15	0.002	12000	240	75	0.005
3.0	1600	30	15	0.005	11000	380	105	0.009
4.0	1100	45	15	0.010	8000	440	100	0.014
5.0	900	50	15	0.014	6300	470	100	0.019
6.0	800	60	15	0.019	5600	470	105	0.021
8.0	560	65	15	0.029	4000	580	100	0.036
10.0	450	65	15	0.036	3100	600	95	0.048
12.0	400	75	15	0.047	2500	570	95	0.057
14.0	350	75	15	0.054	2200	530	95	0.060
16.0	280	65	15	0.058	2000	530	100	0.066
18.0	250	65	15	0.065	1800	530	100	0.074
20.0	220	65	15	0.074	1600	480	100	0.075
22.0	220	65	15	0.049	1400	450	95	0.054
25.0	180	50	15	0.046	1200	420	95	0.058
28.0	160	45	15	0.047	1100	400	95	0.061
30.0	160	45	15	0.047	1100	400	105	0.061
32.0	140	45	15	0.054	1000	360	100	0.060
36.0	120	35	15	0.049	900	330	100	0.061
40.0	110	35	15	0.053	800	300	100	0.063



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

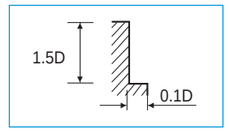
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E2574, E2575, E2576, E2577, E2597, E2598, E2776 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7850	110	50	0.004	6300	75	40	0.003	5600	65	35	0.003
3.0	4900	155	45	0.008	4500	110	40	0.006	3500	85	35	0.006
4.0	3900	195	50	0.013	3100	140	40	0.011	2500	90	30	0.009
5.0	3100	250	50	0.020	2500	175	40	0.018	2250	125	35	0.014
6.0	2500	250	45	0.025	2250	205	40	0.023	1700	125	30	0.018
8.0	1950	280	50	0.036	1550	225	40	0.036	1250	145	30	0.029
10.0	1550	280	50	0.045	1250	225	40	0.045	1100	170	35	0.039
12.0	1250	310	45	0.062	1100	250	40	0.057	900	170	35	0.047
14.0	1100	310	50	0.070	1000	225	45	0.056	800	170	35	0.053
16.0	1000	310	50	0.078	800	225	40	0.070	650	145	35	0.056
18.0	900	280	50	0.078	700	225	40	0.080	550	145	30	0.066
20.0	800	280	50	0.088	650	225	40	0.087	550	145	35	0.066
22.0	700	280	50	0.067	650	225	45	0.058	500	145	35	0.048
25.0	650	250	50	0.064	550	205	45	0.062	450	125	35	0.046
28.0	550	225	50	0.068	500	175	45	0.058	400	110	35	0.046
30.0	500	195	45	0.065	450	155	40	0.057	350	105	35	0.050
32.0	500	195	50	0.065	400	140	40	0.058	300	90	30	0.050
36.0	450	170	50	0.063	350	125	40	0.060	300	85	35	0.047
40.0	400	170	50	0.071	300	125	40	0.069	250	85	30	0.057

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3100	30	20	0.002	16800	335	105	0.005
3.0	2250	40	20	0.004	15400	530	145	0.009
4.0	1550	65	20	0.010	11200	615	140	0.014
5.0	1250	70	20	0.014	8800	660	140	0.019
6.0	1100	85	20	0.019	7850	660	150	0.021
8.0	800	90	20	0.028	5600	810	140	0.036
10.0	650	90	20	0.035	4350	840	135	0.048
12.0	550	105	20	0.048	3500	800	130	0.057
14.0	500	105	20	0.053	3100	740	135	0.060
16.0	400	90	20	0.056	2800	740	140	0.066
18.0	350	90	20	0.064	2500	740	140	0.074
20.0	300	90	20	0.075	2250	670	140	0.074
22.0	300	90	20	0.050	1950	630	135	0.054
25.0	250	70	20	0.047	1700	590	135	0.058
28.0	200	65	20	0.054	1550	560	135	0.060
30.0	200	65	20	0.054	1550	560	145	0.060
32.0	200	65	20	0.054	1400	505	140	0.060
36.0	150	50	15	0.056	1250	460	140	0.061
40.0	150	50	20	0.056	1100	420	140	0.064



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

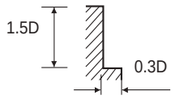
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE 50° HELIX - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE - SEITENFRÄSEN

E2461, E2462, E2463 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5000	35	30	0.004	4500	25	30	0.003	2500	10	15	0.002
3.0	3500	50	35	0.007	2800	35	30	0.006	1800	20	15	0.006
4.0	2500	60	30	0.012	2000	40	25	0.010	1200	25	15	0.010
5.0	2000	75	30	0.019	1800	55	30	0.015	1000	30	15	0.015
6.0	1800	85	35	0.016	1300	55	25	0.014	900	35	15	0.013
8.0	1200	95	30	0.026	1000	65	25	0.022	600	40	15	0.022
10.0	1000	95	30	0.032	900	70	30	0.026	500	40	15	0.027
12.0	900	110	35	0.041	700	70	25	0.033	450	45	15	0.033
14.0	800	95	35	0.040	600	70	25	0.039	400	45	20	0.038
16.0	600	95	30	0.053	500	65	25	0.043	300	40	15	0.044
18.0	550	95	30	0.058	450	65	25	0.048	280	40	15	0.048
20.0	500	95	30	0.063	450	65	30	0.048	250	40	15	0.053
22.0	500	95	35	0.048	400	65	30	0.041	250	40	15	0.040
25.0	450	85	35	0.047	350	55	25	0.039	200	30	15	0.038
28.0	400	75	35	0.047	300	50	25	0.042	180	25	15	0.035
30.0	350	65	35	0.046	280	45	25	0.040	180	25	15	0.035



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

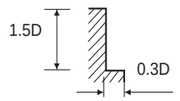
HSS END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE 50° HELIX TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN 50° RECHTSSPIRALE TiAlN-BESCHICHTET - SEITENFRÄSEN

E2461, E2462, E2463 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc30				HRc30 ~ HRc40			
STRENGTH	500 ~ 800N/mm²				800 ~ 1000N/mm²				1000 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7000	50	45	0.004	6300	35	40	0.003	3500	15	20	0.002
3.0	4900	70	45	0.007	3920	50	35	0.006	2520	30	25	0.006
4.0	3500	85	45	0.012	2800	55	35	0.010	1680	35	20	0.010
5.0	2800	105	45	0.019	2520	75	40	0.015	1400	40	20	0.014
6.0	2520	120	50	0.016	1820	75	35	0.014	1260	50	25	0.013
8.0	1680	135	40	0.027	1400	90	35	0.021	840	55	20	0.022
10.0	1400	135	45	0.032	1260	100	40	0.026	700	55	20	0.026
12.0	1260	155	50	0.041	980	100	35	0.034	630	65	25	0.034
14.0	1120	135	50	0.040	840	100	35	0.040	560	65	25	0.039
16.0	840	135	40	0.054	700	90	35	0.043	420	55	20	0.044
18.0	770	135	45	0.058	630	90	35	0.048	390	55	20	0.047
20.0	700	135	45	0.064	630	90	40	0.048	350	55	20	0.052
22.0	700	135	50	0.048	560	90	40	0.040	350	55	25	0.039
25.0	630	120	50	0.048	490	75	40	0.038	280	40	20	0.036
28.0	560	105	50	0.047	420	70	35	0.042	250	35	20	0.035
30.0	490	90	45	0.046	390	65	35	0.042	250	35	25	0.035



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

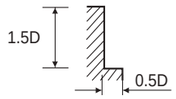
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER - SEITENFRÄSEN

E2751, E2752, E2764, E2765, E2761, E2753, E2762, E2777, E2778 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1800	80	35	0.015	1600	60	30	0.013	1200	55	25	0.015
8.0	1400	105	35	0.025	1100	75	30	0.023	900	65	25	0.024
10.0	1100	150	35	0.034	900	120	30	0.033	800	110	25	0.034
12.0	900	180	35	0.050	800	140	30	0.044	630	110	25	0.044
14.0	800	180	35	0.056	700	140	30	0.050	560	110	25	0.049
16.0	700	180	35	0.064	560	140	30	0.063	450	110	25	0.061
18.0	630	180	35	0.071	500	140	30	0.070	400	110	25	0.069
20.0	560	180	35	0.080	450	140	30	0.078	400	110	25	0.069
22.0	500	220	35	0.088	450	170	30	0.076	350	140	25	0.080
25.0	450	220	35	0.098	400	170	30	0.085	310	140	25	0.090
28.0	400	210	35	0.088	350	160	30	0.076	280	130	25	0.077
30.0	350	210	35	0.100	310	160	30	0.086	250	130	25	0.087
32.0	350	210	35	0.100	280	160	30	0.095	220	130	20	0.098
36.0	310	210	35	0.113	250	160	30	0.107	200	130	25	0.108
40.0	280	200	35	0.119	220	150	30	0.114	180	120	25	0.111
50.0	220	200	35	0.152	180	170	30	0.157	160	140	25	0.146

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	800	30	15	0.013	4500	200	85	0.015
8.0	560	35	15	0.021	3100	230	80	0.025
10.0	450	60	15	0.033	2500	350	80	0.035
12.0	400	70	15	0.044	2000	400	75	0.050
14.0	350	70	15	0.050	1800	420	80	0.058
16.0	280	70	15	0.063	1600	450	80	0.070
18.0	250	70	15	0.070	1400	470	80	0.084
20.0	220	70	15	0.080	1200	500	75	0.104
22.0	220	85	15	0.077	1100	470	75	0.085
25.0	180	85	15	0.094	1000	450	80	0.090
28.0	160	85	15	0.089	900	510	80	0.094
30.0	160	85	15	0.089	900	530	85	0.098
32.0	140	85	15	0.101	800	500	80	0.104
36.0	120	85	15	0.118	700	470	80	0.112
40.0	110	80	15	0.121	630	450	80	0.119
50.0	90	80	15	0.148	500	370	80	0.123



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

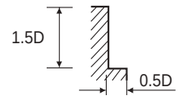
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2751, E2752, E2764, E2765, E2761, E2753, E2762, E2777, E2778 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2500	110	45	0.015	2250	85	40	0.013	1700	75	30	0.015
8.0	1950	145	50	0.025	1550	105	40	0.023	1250	90	30	0.024
10.0	1550	210	50	0.034	1250	170	40	0.034	1100	155	35	0.035
12.0	1250	250	45	0.050	1100	195	40	0.044	900	155	35	0.043
14.0	1100	250	50	0.057	1000	195	45	0.049	800	155	35	0.048
16.0	1000	250	50	0.063	800	195	40	0.061	650	155	35	0.060
18.0	900	250	50	0.069	700	195	40	0.070	550	155	30	0.070
20.0	800	250	50	0.078	650	195	40	0.075	550	155	35	0.070
22.0	700	310	50	0.089	650	240	45	0.074	500	195	35	0.078
25.0	650	310	50	0.095	550	240	45	0.087	450	195	35	0.087
28.0	550	295	50	0.089	500	225	45	0.075	400	180	35	0.075
30.0	500	295	45	0.098	450	225	40	0.083	350	180	35	0.086
32.0	500	295	50	0.098	400	225	40	0.094	300	180	30	0.100
36.0	450	295	50	0.109	350	225	40	0.107	300	180	35	0.100
40.0	400	280	50	0.117	300	210	40	0.117	250	170	30	0.113
50.0	300	280	45	0.156	250	240	40	0.160	220	195	35	0.148

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1100	40	20	0.012	6300	280	120	0.015
8.0	800	50	20	0.021	4350	320	110	0.025
10.0	650	85	20	0.033	3500	490	110	0.035
12.0	550	100	20	0.045	2800	560	105	0.050
14.0	500	100	20	0.050	2500	590	110	0.059
16.0	400	100	20	0.063	2250	630	115	0.070
18.0	350	100	20	0.071	1950	660	110	0.085
20.0	300	100	20	0.083	1700	700	105	0.103
22.0	300	120	20	0.080	1550	660	105	0.085
25.0	250	120	20	0.096	1400	630	110	0.090
28.0	220	120	20	0.091	1250	715	110	0.095
30.0	220	120	20	0.091	1250	740	120	0.099
32.0	200	120	20	0.100	1100	700	110	0.106
36.0	170	120	20	0.118	1000	660	115	0.110
40.0	130	110	15	0.141	900	630	115	0.117
50.0	120	110	20	0.153	700	520	110	0.124



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

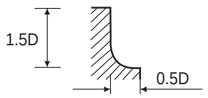
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING BALL NOSE TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER STIRNRADIUS TiAlN-BESCHICHTET - SEITENFRÄSEN

E2757, E2606 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R4.0 × 8.0	1960	150	50	0.026	1540	105	40	0.023	1260	90	30	0.024
R5.0 × 10.0	1540	210	50	0.045	1260	170	40	0.045	1120	155	35	0.046
R6.0 × 12.0	1260	250	50	0.050	1120	195	40	0.044	880	155	35	0.044
R8.0 × 16.0	980	250	50	0.064	790	195	40	0.062	630	155	30	0.062
R10.0 × 20.0	790	250	50	0.079	630	195	40	0.077	560	155	35	0.069
R12.5 × 25.0	630	310	50	0.123	560	240	45	0.107	440	195	35	0.111
R16.0 × 32.0	490	295	50	0.151	390	225	40	0.144	310	180	30	0.145
R20.0 × 40.0	390	280	50	0.179	310	210	40	0.169	250	170	30	0.170

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R4.0 × 8.0	790	50	20	0.021	4340	320	110	0.025
R5.0 × 10.0	630	85	20	0.045	3500	350	110	0.033
R6.0 × 12.0	560	100	20	0.045	2800	560	105	0.050
R8.0 × 16.0	390	100	20	0.064	2240	630	115	0.070
R10.0 × 20.0	310	100	20	0.081	1680	700	105	0.104
R12.5 × 25.0	250	120	20	0.120	1400	630	110	0.113
R16.0 × 32.0	200	120	20	0.150	1120	700	115	0.156
R20.0 × 40.0	160	110	20	0.172	880	630	110	0.179



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

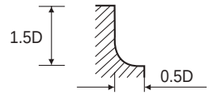
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING BALL NOSE - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER STIRNRADIUS - SEITENFRÄSEN

E2757, E2606 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R4.0 × 8.0	1400	105	35	0.025	1100	75	30	0.023	900	65	25	0.024
R5.0 × 10.0	1100	150	35	0.045	900	120	30	0.044	800	110	25	0.046
R6.0 × 12.0	900	180	35	0.050	800	140	30	0.044	630	110	25	0.044
R8.0 × 16.0	700	180	35	0.064	560	140	30	0.063	450	110	25	0.061
R10.0 × 20.0	560	180	35	0.080	450	140	30	0.078	400	110	25	0.069
R12.5 × 25.0	450	220	35	0.122	400	170	30	0.106	310	140	25	0.113
R16.0 × 32.0	350	210	35	0.150	280	160	30	0.143	220	130	20	0.148
R20.0 × 40.0	280	200	35	0.179	220	150	30	0.170	180	120	25	0.167

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
R4.0 × 8.0	560	35	15	0.021	3100	230	80	0.025
R5.0 × 10.0	450	60	15	0.044	2500	250	80	0.033
R6.0 × 12.0	400	70	15	0.044	2000	400	75	0.050
R8.0 × 16.0	280	70	15	0.063	1600	450	80	0.070
R10.0 × 20.0	220	70	15	0.080	1200	500	75	0.104
R12.5 × 25.0	180	85	15	0.118	1000	450	80	0.113
R16.0 × 32.0	140	85	15	0.152	800	500	80	0.156
R20.0 × 40.0	110	80	15	0.182	630	450	80	0.179



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

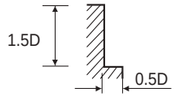
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER - SEITENFRÄSEN

E2524 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1800	80	35	0.015	1600	60	30	0.013	1200	55	25	0.015
8.0	1400	105	35	0.019	1100	75	30	0.017	900	65	25	0.018
10.0	1100	150	35	0.034	900	120	30	0.033	800	110	25	0.034
12.0	900	180	35	0.050	800	140	30	0.044	630	110	25	0.044
14.0	800	180	35	0.056	700	140	30	0.050	560	110	25	0.049
16.0	700	180	35	0.064	560	140	30	0.063	450	110	25	0.061
18.0	630	180	35	0.071	500	140	30	0.070	400	110	25	0.069
20.0	560	180	35	0.080	450	140	30	0.078	400	110	25	0.069

MATERIAL	P								N			
	CARBON STEELS ALLOY STEELS TOOL STEELS								ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	800	30	15	0.013	4500	200	85	0.015				
8.0	560	35	15	0.016	3100	230	80	0.019				
10.0	450	60	15	0.033	2500	350	80	0.035				
12.0	400	70	15	0.044	2000	400	75	0.050				
14.0	350	70	15	0.050	1800	420	80	0.058				
16.0	280	70	15	0.063	1600	450	80	0.070				
18.0	250	70	15	0.070	1400	470	80	0.084				
20.0	220	70	15	0.080	1200	500	75	0.104				



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

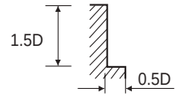
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2524 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2500	110	45	0.015	2250	85	40	0.013	1700	75	30	0.015
8.0	1950	145	50	0.019	1550	105	40	0.017	1250	90	30	0.018
10.0	1550	210	50	0.034	1250	170	40	0.034	1100	155	35	0.035
12.0	1250	250	45	0.050	1100	195	40	0.044	900	155	35	0.043
14.0	1100	250	50	0.057	1000	195	45	0.049	800	155	35	0.048
16.0	1000	250	50	0.063	800	195	40	0.061	650	155	35	0.060
18.0	900	250	50	0.069	700	195	40	0.070	550	155	30	0.070
20.0	800	250	50	0.078	650	195	40	0.075	550	155	35	0.070

MATERIAL	P								N			
	CARBON STEELS ALLOY STEELS TOOL STEELS								ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40											
STRENGTH	1000 ~ 1300N/mm²											
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1100	40	20	0.012	6300	280	120	0.015				
8.0	800	50	20	0.016	4350	320	110	0.018				
10.0	650	85	20	0.033	3500	490	110	0.035				
12.0	550	100	20	0.045	2800	560	105	0.050				
14.0	500	100	20	0.050	2500	590	110	0.059				
16.0	400	100	20	0.063	2250	630	115	0.070				
18.0	350	100	20	0.071	1950	660	110	0.085				
20.0	300	100	20	0.083	1700	700	105	0.103				



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

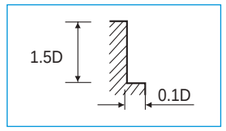
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN - SEITENFRÄSEN

E2595, E2596 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	5600	80	35	0.004	4500	55	30	0.003	4000	45	25	0.003
3.0	3500	110	35	0.008	3200	80	30	0.006	2500	60	25	0.006
4.0	2800	140	35	0.013	2200	100	30	0.011	1800	65	25	0.009
5.0	2200	180	35	0.020	1800	125	30	0.017	1600	90	25	0.014
6.0	1800	180	35	0.025	1600	145	30	0.023	1200	90	25	0.019
8.0	1400	200	35	0.036	1100	160	30	0.036	900	105	25	0.029
10.0	1100	200	35	0.045	900	160	30	0.044	800	120	25	0.038
12.0	900	220	35	0.061	800	180	30	0.056	630	120	25	0.048
14.0	800	220	35	0.069	700	160	30	0.057	560	120	25	0.054
16.0	700	220	35	0.079	560	160	30	0.071	450	105	25	0.058
18.0	630	200	35	0.079	500	160	30	0.080	400	105	25	0.066
20.0	560	200	35	0.089	450	160	30	0.089	400	105	25	0.066
22.0	500	200	35	0.100	450	160	30	0.089	350	105	25	0.075
25.0	450	180	35	0.100	400	145	30	0.091	310	90	25	0.073
28.0	400	160	35	0.067	350	125	30	0.060	280	80	25	0.048
30.0	350	140	35	0.067	310	110	30	0.059	250	75	25	0.050
32.0	350	140	35	0.067	280	100	30	0.060	220	65	20	0.049
36.0	310	120	35	0.065	250	90	30	0.060	200	60	25	0.050
40.0	280	120	35	0.071	220	90	30	0.068	180	60	25	0.056

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	2200	20	15	0.002	12000	240	75	0.005
3.0	1600	30	15	0.005	11000	380	105	0.009
4.0	1100	45	15	0.010	8000	440	100	0.014
5.0	900	50	15	0.014	6300	470	100	0.019
6.0	800	60	15	0.019	5600	470	105	0.021
8.0	560	65	15	0.029	4000	580	100	0.036
10.0	450	65	15	0.036	3100	600	95	0.048
12.0	400	75	15	0.047	2500	570	95	0.057
14.0	350	75	15	0.054	2200	530	95	0.060
16.0	280	65	15	0.058	2000	530	100	0.066
18.0	250	65	15	0.065	1800	530	100	0.074
20.0	220	65	15	0.074	1600	480	100	0.075
22.0	220	65	15	0.074	1400	450	95	0.080
25.0	180	50	15	0.069	1200	420	95	0.088
28.0	160	45	15	0.047	1100	400	95	0.061
30.0	160	45	15	0.047	1100	400	105	0.061
32.0	140	45	15	0.054	1000	360	100	0.060
36.0	120	35	15	0.049	900	330	100	0.061
40.0	110	35	15	0.053	800	300	100	0.063



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

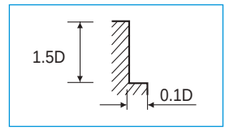
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN TiAlN-BESCHICHTET - SEITENFRÄSEN

E2595, E2596 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	7850	110	50	0.004	6300	75	40	0.003	5600	65	35	0.003
3.0	4900	155	45	0.008	4500	110	40	0.006	3500	85	35	0.006
4.0	3900	195	50	0.013	3100	140	40	0.011	2500	90	30	0.009
5.0	3100	250	50	0.020	2500	175	40	0.018	2250	125	35	0.014
6.0	2500	250	45	0.025	2250	205	40	0.023	1700	125	30	0.018
8.0	1950	280	50	0.036	1550	225	40	0.036	1250	145	30	0.029
10.0	1550	280	50	0.045	1250	225	40	0.045	1100	170	35	0.039
12.0	1250	310	45	0.062	1100	250	40	0.057	900	170	35	0.047
14.0	1100	310	50	0.070	1000	225	45	0.056	800	170	35	0.053
16.0	1000	310	50	0.078	800	225	40	0.070	650	145	35	0.056
18.0	900	280	50	0.078	700	225	40	0.080	550	145	30	0.066
20.0	800	280	50	0.088	650	225	40	0.087	550	145	35	0.066
22.0	700	280	50	0.100	650	225	45	0.087	500	145	35	0.073
25.0	650	250	50	0.096	550	205	45	0.093	450	125	35	0.069
28.0	550	225	50	0.068	500	175	45	0.058	400	110	35	0.046
30.0	500	195	45	0.065	450	155	40	0.057	350	105	35	0.050
32.0	500	195	50	0.065	400	140	40	0.058	300	90	30	0.050
36.0	450	170	50	0.063	350	125	40	0.060	300	85	35	0.047
40.0	400	170	50	0.071	300	125	40	0.069	250	85	30	0.057

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
2.0	3100	30	20	0.002	16800	335	105	0.005
3.0	2250	40	20	0.004	15400	530	145	0.009
4.0	1550	65	20	0.010	11200	615	140	0.014
5.0	1250	70	20	0.014	8800	660	140	0.019
6.0	1100	85	20	0.019	7850	660	150	0.021
8.0	800	90	20	0.028	5600	810	140	0.036
10.0	650	90	20	0.035	4350	840	135	0.048
12.0	550	105	20	0.048	3500	800	130	0.057
14.0	500	105	20	0.053	3100	740	135	0.060
16.0	400	90	20	0.056	2800	740	140	0.066
18.0	350	90	20	0.064	2500	740	140	0.074
20.0	300	90	20	0.075	2250	670	140	0.074
22.0	300	90	20	0.075	1950	630	135	0.081
25.0	250	70	20	0.070	1700	590	135	0.087
28.0	200	65	20	0.054	1550	560	135	0.060
30.0	200	65	20	0.054	1550	560	145	0.060
32.0	200	65	20	0.054	1400	505	140	0.060
36.0	150	50	15	0.056	1250	460	140	0.061
40.0	150	50	20	0.056	1100	420	140	0.064



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

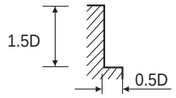
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER - SEITENFRÄSEN

E2755, E2756 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1800	80	35	0.015	1600	60	30	0.013	1200	55	25	0.015
8.0	1400	105	35	0.025	1100	75	30	0.023	900	65	25	0.024
10.0	1100	150	35	0.045	900	120	30	0.044	800	110	25	0.046
12.0	900	180	35	0.067	800	140	30	0.058	630	110	25	0.058
14.0	800	180	35	0.075	700	140	30	0.067	560	110	25	0.065
16.0	700	180	35	0.086	560	140	30	0.083	450	110	25	0.081
18.0	630	180	35	0.095	500	140	30	0.093	400	110	25	0.092
20.0	560	180	35	0.107	450	140	30	0.104	400	110	25	0.092
22.0	500	220	35	0.147	450	170	30	0.126	350	140	25	0.133
25.0	450	220	35	0.163	400	170	30	0.142	310	140	25	0.151
30.0	350	210	35	0.200	310	160	30	0.172	250	130	25	0.173

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	800	30	15	0.013	4500	200	85	0.015
8.0	560	35	15	0.021	3100	230	80	0.025
10.0	450	60	15	0.044	2500	350	80	0.047
12.0	400	70	15	0.058	2000	400	75	0.067
14.0	350	70	15	0.067	1800	420	80	0.078
16.0	280	70	15	0.083	1600	450	80	0.094
18.0	250	70	15	0.093	1400	470	80	0.112
20.0	220	70	15	0.106	1200	500	75	0.139
22.0	220	85	15	0.129	1100	470	75	0.142
25.0	180	85	15	0.157	1000	450	80	0.150
30.0	160	85	15	0.177	900	530	85	0.196



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

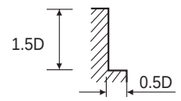
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2755, E2756 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2500	110	45	0.015	2250	85	40	0.013	1700	75	30	0.015
8.0	1950	145	50	0.025	1550	105	40	0.023	1250	90	30	0.024
10.0	1550	210	50	0.045	1250	170	40	0.045	1100	155	35	0.047
12.0	1250	250	45	0.067	1100	195	40	0.059	900	155	35	0.057
14.0	1100	250	50	0.076	1000	195	45	0.065	800	155	35	0.065
16.0	1000	250	50	0.083	800	195	40	0.081	650	155	35	0.079
18.0	900	250	50	0.093	700	195	40	0.093	550	155	30	0.094
20.0	800	250	50	0.104	650	195	40	0.100	550	155	35	0.094
22.0	700	310	50	0.148	650	240	45	0.123	500	195	35	0.130
25.0	650	310	50	0.159	550	240	45	0.145	450	195	35	0.144
30.0	500	295	45	0.197	450	225	40	0.167	350	180	35	0.171

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1100	40	20	0.012	6300	280	120	0.015
8.0	800	50	20	0.021	4350	320	110	0.025
10.0	650	85	20	0.044	3500	490	110	0.047
12.0	550	100	20	0.061	2800	560	105	0.067
14.0	500	100	20	0.067	2500	590	110	0.079
16.0	400	100	20	0.083	2250	630	115	0.093
18.0	350	100	20	0.095	1950	660	110	0.113
20.0	300	100	20	0.111	1700	700	105	0.137
22.0	300	120	20	0.133	1550	660	105	0.142
25.0	250	120	20	0.160	1400	630	110	0.150
30.0	220	120	20	0.182	1250	740	120	0.197



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

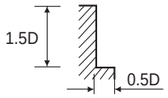
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER - SEITENFRÄSEN

E2779 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	700	145	35	0.052	560	110	30	0.049	450	90	25	0.050
18.0	630	145	35	0.058	500	110	30	0.055	400	90	25	0.056
20.0	560	145	35	0.065	450	110	30	0.061	400	90	25	0.056
22.0	500	175	35	0.070	450	135	30	0.060	350	110	25	0.063
25.0	450	175	35	0.078	400	135	30	0.068	310	110	25	0.071
28.0	400	170	35	0.071	350	130	30	0.062	280	105	25	0.063
30.0	350	170	35	0.081	310	130	30	0.070	250	105	25	0.070
32.0	350	170	35	0.081	280	130	30	0.077	220	105	25	0.080
36.0	310	170	35	0.091	250	130	30	0.087	200	105	25	0.088
40.0	280	160	35	0.095	220	120	30	0.091	180	95	25	0.088
45.0	250	150	35	0.099	210	125	30	0.099	180	95	25	0.088
50.0	220	145	35	0.110	190	120	30	0.106	160	90	25	0.094

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	280	55	15	0.049	1600	360	80	0.056
18.0	250	55	15	0.055	1400	380	80	0.068
20.0	220	55	15	0.063	1200	400	80	0.083
22.0	220	70	15	0.064	1100	380	80	0.069
25.0	180	70	15	0.078	1000	360	80	0.072
28.0	160	70	15	0.073	900	410	80	0.076
30.0	160	70	15	0.073	900	420	85	0.078
32.0	140	70	15	0.083	800	400	80	0.083
36.0	120	70	15	0.097	700	380	80	0.090
40.0	110	65	15	0.098	630	360	80	0.095
45.0	100	60	15	0.099	560	330	80	0.100
50.0	90	55	15	0.100	500	330	80	0.110



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RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

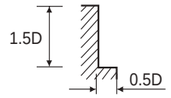
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2779 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	1000	205	50	0.051	800	155	40	0.048	650	125	35	0.048
18.0	900	205	50	0.057	700	155	40	0.055	550	125	30	0.057
20.0	800	205	50	0.064	650	155	40	0.060	550	125	35	0.057
22.0	700	245	50	0.070	650	190	45	0.058	500	155	35	0.062
25.0	650	245	50	0.075	550	190	45	0.069	450	155	35	0.069
28.0	550	240	50	0.073	500	180	45	0.060	400	145	35	0.060
30.0	500	240	50	0.080	450	180	40	0.067	350	145	35	0.069
32.0	500	240	50	0.080	400	180	40	0.075	300	145	30	0.081
36.0	450	240	50	0.089	350	180	40	0.086	280	145	30	0.086
40.0	400	225	50	0.094	300	170	40	0.094	250	135	30	0.090
45.0	350	205	50	0.099	280	170	40	0.102	210	115	30	0.094
50.0	310	190	50	0.104	250	165	40	0.110	190	110	30	0.099

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	400	75	20	0.047	2250	505	115	0.056
18.0	350	75	20	0.054	1950	530	110	0.068
20.0	300	75	20	0.063	1700	560	105	0.082
22.0	300	100	20	0.067	1550	530	105	0.068
25.0	250	100	20	0.080	1400	505	110	0.072
28.0	200	100	20	0.083	1250	575	110	0.077
30.0	200	100	20	0.083	1250	590	120	0.079
32.0	170	100	15	0.098	1100	560	110	0.085
36.0	150	100	15	0.111	1000	530	115	0.088
40.0	150	90	20	0.100	900	505	115	0.094
45.0	140	85	20	0.103	810	485	115	0.100
50.0	120	75	20	0.106	730	460	115	0.106



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

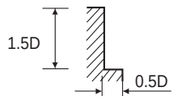
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER - SEITENFRÄSEN

E2766, E2767 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1800	65	35	0.012	1600	50	30	0.010	1200	45	25	0.013
8.0	1400	85	35	0.020	1100	60	30	0.018	900	50	25	0.019
10.0	1100	120	35	0.036	900	95	30	0.035	800	90	25	0.038
12.0	900	145	35	0.054	800	110	30	0.046	630	90	25	0.048
14.0	800	145	35	0.060	700	110	30	0.052	560	90	25	0.054
16.0	700	145	35	0.069	560	110	30	0.065	450	90	25	0.067
18.0	630	145	35	0.077	500	110	30	0.073	400	90	25	0.075
20.0	560	145	35	0.086	450	110	30	0.081	400	90	25	0.075
22.0	500	175	35	0.117	450	135	30	0.100	350	110	25	0.105
25.0	450	175	35	0.130	400	135	30	0.113	310	110	25	0.118
28.0	400	170	35	0.142	350	130	30	0.124	280	105	25	0.125
30.0	350	170	35	0.162	310	130	30	0.140	250	105	25	0.140
32.0	350	170	35	0.162	280	130	30	0.155	220	105	25	0.159
36.0	310	170	35	0.183	250	130	30	0.173	200	105	25	0.175
40.0	280	160	35	0.190	220	120	30	0.182	180	95	25	0.176

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	800	25	15	0.010	4500	160	85	0.012
8.0	560	30	15	0.018	3100	185	80	0.020
10.0	450	50	15	0.037	2500	280	80	0.037
12.0	400	55	15	0.046	2000	320	80	0.053
14.0	350	55	15	0.052	1800	340	80	0.063
16.0	280	55	15	0.065	1600	360	80	0.075
18.0	250	55	15	0.073	1400	380	80	0.090
20.0	220	55	15	0.083	1200	400	80	0.111
22.0	220	70	15	0.106	1100	380	80	0.115
25.0	180	70	15	0.130	1000	360	80	0.120
28.0	160	70	15	0.146	900	410	80	0.152
30.0	160	70	15	0.146	900	420	85	0.156
32.0	140	70	15	0.167	800	400	80	0.167
36.0	120	70	15	0.194	700	380	80	0.181
40.0	110	65	15	0.197	630	360	80	0.190



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

HSS END MILLS

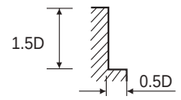
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2766, E2767 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2500	90	50	0.012	2250	70	40	0.010	1700	65	30	0.013
8.0	1950	120	50	0.021	1550	85	40	0.018	1250	70	30	0.019
10.0	1550	170	50	0.037	1250	135	40	0.036	1100	125	35	0.038
12.0	1250	205	50	0.055	1100	155	40	0.047	900	125	35	0.046
14.0	1100	205	50	0.062	1000	155	45	0.052	800	125	35	0.052
16.0	1000	205	50	0.068	800	155	40	0.065	650	125	35	0.064
18.0	900	205	50	0.076	700	155	40	0.074	550	125	30	0.076
20.0	800	205	50	0.085	650	155	40	0.079	550	125	35	0.076
22.0	700	245	50	0.117	650	190	45	0.097	500	155	35	0.103
25.0	650	245	50	0.126	550	190	45	0.115	450	155	35	0.115
28.0	550	240	50	0.145	500	180	45	0.120	400	145	35	0.121
30.0	500	240	50	0.160	450	180	40	0.133	350	145	35	0.138
32.0	500	240	50	0.160	400	180	40	0.150	300	145	30	0.161
36.0	450	240	50	0.178	350	180	40	0.171	280	145	30	0.173
40.0	400	225	50	0.188	300	170	40	0.189	250	135	30	0.180

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1100	35	20	0.011	6300	225	120	0.012
8.0	800	40	20	0.017	4350	260	110	0.020
10.0	650	70	20	0.036	3500	390	110	0.037
12.0	550	75	20	0.045	2800	450	105	0.054
14.0	500	75	20	0.050	2500	475	110	0.063
16.0	400	75	20	0.063	2250	505	115	0.075
18.0	350	75	20	0.071	1950	530	110	0.091
20.0	300	75	20	0.083	1700	560	105	0.110
22.0	300	100	20	0.111	1550	530	105	0.114
25.0	250	100	20	0.133	1400	505	110	0.120
28.0	200	100	20	0.167	1250	575	110	0.153
30.0	200	100	20	0.167	1250	590	120	0.157
32.0	170	100	15	0.196	1100	560	110	0.170
36.0	150	100	15	0.222	1000	530	115	0.177
40.0	150	90	20	0.200	900	505	115	0.187



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

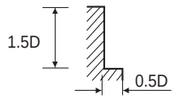
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER - SEITENFRÄSEN

E2754, E2768 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1800	65	35	0.012	1600	50	30	0.010	1200	45	25	0.013
8.0	1400	85	35	0.015	1100	60	30	0.014	900	50	25	0.014
10.0	1100	120	35	0.027	900	95	30	0.026	800	90	25	0.028
12.0	900	145	35	0.040	800	110	30	0.034	630	90	25	0.036
14.0	800	145	35	0.045	700	110	30	0.039	560	90	25	0.040
16.0	700	145	35	0.052	560	110	30	0.049	450	90	25	0.050
18.0	630	145	35	0.058	500	110	30	0.055	400	90	25	0.056
20.0	560	145	35	0.065	450	110	30	0.061	400	90	25	0.056
22.0	500	175	35	0.070	450	135	30	0.060	350	110	25	0.063
25.0	450	175	35	0.078	400	135	30	0.068	310	110	25	0.071
28.0	400	170	35	0.085	350	130	30	0.074	280	105	25	0.075
30.0	350	170	35	0.097	310	130	30	0.084	250	105	25	0.084
32.0	350	170	35	0.097	280	130	30	0.093	220	105	25	0.095
36.0	310	170	35	0.091	250	130	30	0.087	200	105	25	0.088
40.0	280	160	35	0.095	220	120	30	0.091	180	95	25	0.088

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	800	25	15	0.010	4500	160	85	0.012
8.0	560	30	15	0.013	3100	185	80	0.015
10.0	450	50	15	0.028	2500	280	80	0.028
12.0	400	55	15	0.034	2000	320	80	0.040
14.0	350	55	15	0.039	1800	340	80	0.047
16.0	280	55	15	0.049	1600	360	80	0.056
18.0	250	55	15	0.055	1400	380	80	0.068
20.0	220	55	15	0.063	1200	400	80	0.083
22.0	220	70	15	0.064	1100	380	80	0.069
25.0	180	70	15	0.078	1000	360	80	0.072
28.0	160	70	15	0.088	900	410	80	0.091
30.0	160	70	15	0.088	900	420	85	0.093
32.0	140	70	15	0.100	800	400	80	0.100
36.0	120	70	15	0.097	700	380	80	0.090
40.0	110	65	15	0.098	630	360	80	0.095



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS END MILLS

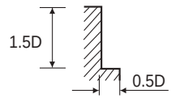
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING & FINISHING TiAlN COATED - SIDE CUTTING
HSSCo8, MULTI SCHNEIDEN SCHRUPPSCHLICHTFRÄSER TiAlN-BESCHICHTET - SEITENFRÄSEN

E2754, E2768 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	2500	90	50	0.012	2250	70	40	0.010	1700	65	30	0.013
8.0	1950	120	50	0.015	1550	85	40	0.014	1250	70	30	0.014
10.0	1550	170	50	0.027	1250	135	40	0.027	1100	125	35	0.028
12.0	1250	205	50	0.041	1100	155	40	0.035	900	125	35	0.035
14.0	1100	205	50	0.047	1000	155	45	0.039	800	125	35	0.039
16.0	1000	205	50	0.051	800	155	40	0.048	650	125	35	0.048
18.0	900	205	50	0.057	700	155	40	0.055	550	125	30	0.057
20.0	800	205	50	0.064	650	155	40	0.060	550	125	35	0.057
22.0	700	245	50	0.070	650	190	45	0.058	500	155	35	0.062
25.0	650	245	50	0.075	550	190	45	0.069	450	155	35	0.069
28.0	550	240	50	0.087	500	180	45	0.072	400	145	35	0.073
30.0	500	240	50	0.096	450	180	40	0.080	350	145	35	0.083
32.0	500	240	50	0.096	400	180	40	0.090	300	145	30	0.097
36.0	450	240	50	0.089	350	180	40	0.086	280	145	30	0.086
40.0	400	225	50	0.094	300	170	40	0.094	250	135	30	0.090

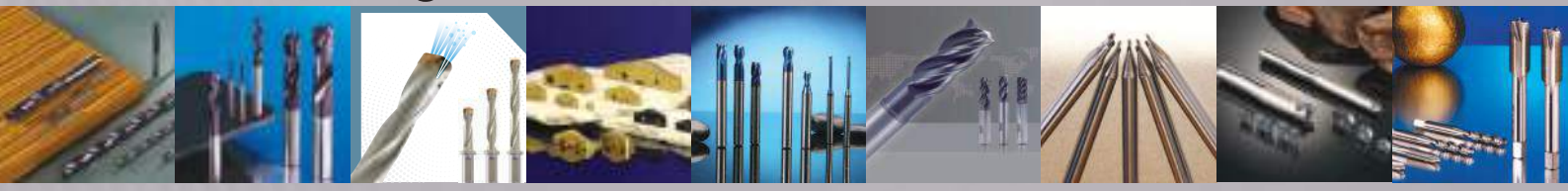
MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
6.0	1100	35	20	0.011	6300	225	120	0.012
8.0	800	40	20	0.013	4350	260	110	0.015
10.0	650	70	20	0.027	3500	390	110	0.028
12.0	550	75	20	0.034	2800	450	105	0.040
14.0	500	75	20	0.038	2500	475	110	0.048
16.0	400	75	20	0.047	2250	505	115	0.056
18.0	350	75	20	0.054	1950	530	110	0.068
20.0	300	75	20	0.063	1700	560	105	0.082
22.0	300	100	20	0.067	1550	530	105	0.068
25.0	250	100	20	0.080	1400	505	110	0.072
28.0	200	100	20	0.100	1250	575	110	0.092
30.0	200	100	20	0.100	1250	590	120	0.094
32.0	170	100	15	0.118	1100	560	110	0.102
36.0	150	100	15	0.111	1000	530	115	0.088
40.0	150	90	20	0.100	900	505	115	0.094



※The FEED, in long & extra long types, should be reduced by around 50%

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

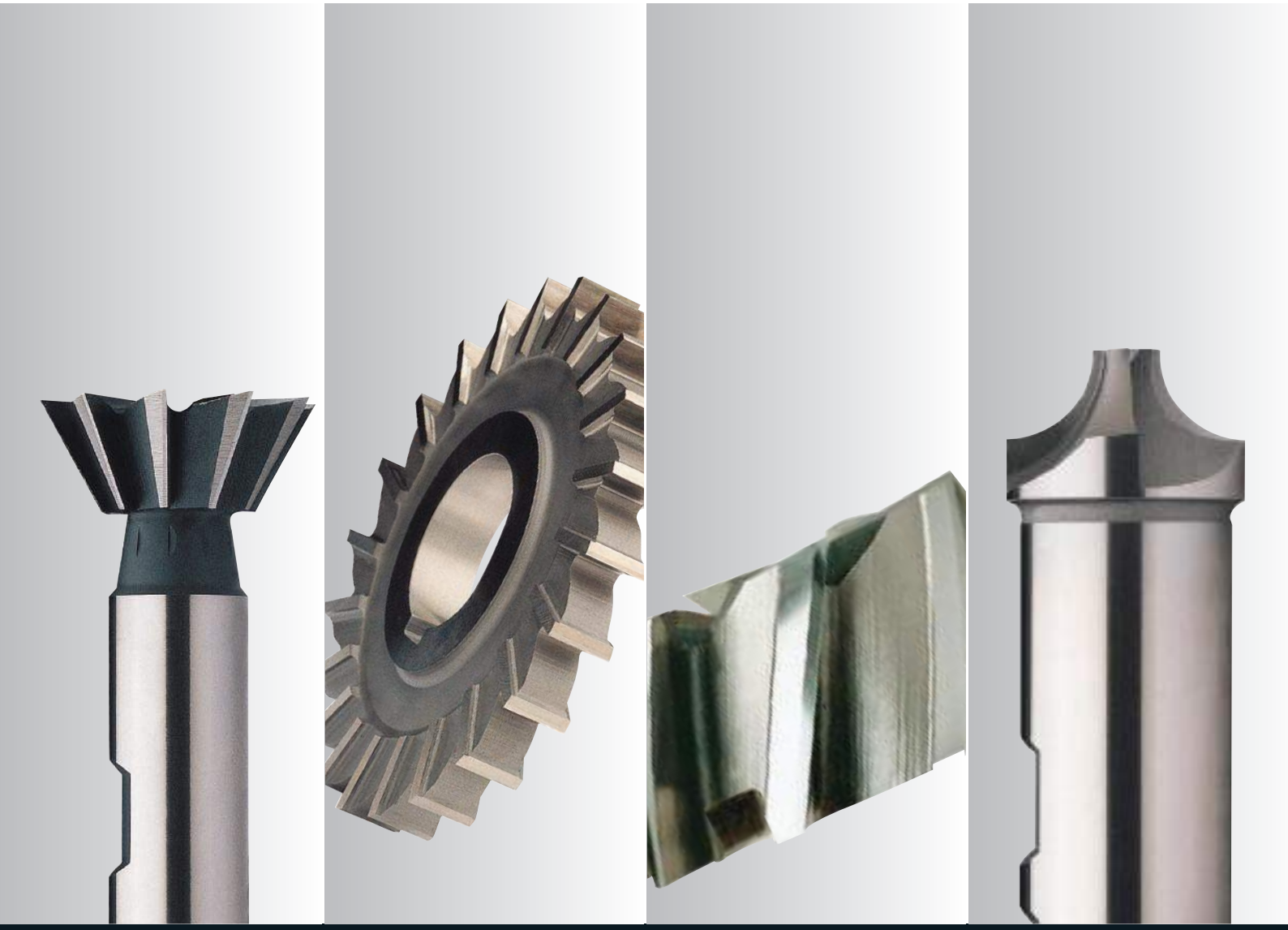
Global Cutting Tool Leader **YG-1**



HSS

YG

Leading Through Innovation



MILLING CUTTERS
FRÄSER

- General Works. Available Dovetail, Woodruff Keyseat, T-slot, Side Milling Cutters and HSS (8% cobalt) Corner Rounding, Shell End Mills

- Für allgemeinen Einsatz. Winkelschaftfräser, Schlitzfräser, T-Nutenfräser, Konkavfräser, Scheibenfräser und HSSE-Co8 Walzenstirnfräser

◎ : Excellent ○ : Good

ITEM	MODEL	DESCRIPTION	SIZE MIN	SIZE MAX	PAGE	P					H	M	K	N						S	
						Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
						~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
ML012, ML022 ML112, ML122 ML212, ML222		HSS-E, DOVETAIL CUTTERS TYPE “A”, “C”, “E” HSS-E, WINKELFRÄSER FORM “A”, “C”, “E”	D16.0	D50.0	1478	◎	◎	○								○				
ML032, ML042 ML132, ML142 ML232, ML242		HSS-E, DOVETAIL CUTTERS TYPE “B”, “D”, “F” HSS-E, WINKELFRÄSER FORM “B”, “D”, “F”	D16.0	D38.0	1479	◎	◎	○								○				
ML062 ML162 ML262		HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F” HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”	D10.5	D45.5	1480	◎	◎	○								○				
ML072 ML172 ML272		HSS-E, T-SLOT CUTTERS TYPE “AA”, “AB”, “AD” HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM “AA”, “AB”, “AD”	D12.5	D40.0	1482	◎	◎									○				
ML092		HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT	D50.0	D125.0	1483	◎	◎	○								○				
ML102		HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT	D50.0	D200.0	1484	◎	◎	○								○				
E2675		HSSCo8, MULTI FLUTE SHELL END MILL HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER	D30.0	D160.0	1488	◎	◎	○												
E2676		HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM	D30.0	D100.0	1489	○	○									◎				
E2677		HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - GROBES	D40.0	D160.0	1490	◎	◎	○								○				
E2678		HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - FEINES	D40.0	D160.0	1491	◎	◎	○								○				
E2679		HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER	D40.0	D160.0	1492	◎	◎	○								○				
E2498		HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER	D8.0	D56.0	1493	◎	◎	○								○				
		RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN			1494															

MILLING CUTTERS

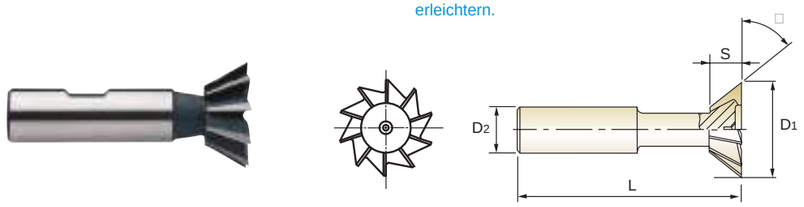
ML012, ML022 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
ML112, ML122 SERIES FLAT SHANK / SEITLICHEN MITNAHMEFLÄCHEN
ML212, ML222 SERIES THREAD SHANK / ANZUGSGEWINDE

HSS-E, DOVETAIL CUTTERS TYPE “A”, “C”, “E”

HSS-E, WINKELFRÄSER FORM “A”, “C”, “E”
Fraise HSS-E pour queue d'aronde Type "A", "C", "E"
FRESE AD ANGOLO DIVERGENTE TIPO “A”, “C”, “E”

▶ Recommanded for use in place of arbor and threaded hole type cutters to reduce set time and facilitate handling.

▶ Empfohlen zur Nutzung anstelle von Arbor und threaded hole type Cutters um Montierzeit zu verkürzen und Handhabung zu erleichtern.



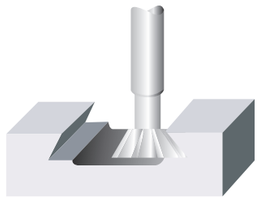
HSS-E | DIN 1833 | N | 0° | DIN 1835A | DIN 1835B | DIN 1835D P.1494

Unit : mm

EDP No.			Cutter Diameter	Width of Face	Divergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(js16)	S(js14)	α(±15´)	D2(h6)	L(js18)	Z
ML01201601	ML11201601	ML21201601	16.0	4	45°	12	60	6
ML01202001	ML11202001	ML21202001	20.0	5	45°	12	63	6
ML01202201	ML11202201	ML21202201	22.0	6	45°	12	67	6
ML01202501	ML11202501	ML21202501	25.0	6.3	45°	16	67	8
ML01202801	ML11202801	ML21202801	28.0	7.5	45°	16	67	8
ML01203201	ML11203201	ML21203201	32.0	8	45°	16	71	10
ML01203801	ML11203801	ML21203801	38.0	10	45°	16	80	12
ML02201601	ML12201601	ML22201601	16.0	6.3	60°	12	60	6
ML02202001	ML12202001	ML22202001	20.0	8	60°	12	63	6
ML02202201	ML12202201	ML22202201	22.0	9	60°	12	67	6
ML02202501	ML12202501	ML22202501	25.0	10	60°	16	67	8
ML02202801	ML12202801	ML22202801	28.0	11	60°	16	67	8
ML02203201	ML12203201	ML22203201	32.0	12.5	60°	16	71	10
ML02203801	ML12203801	ML22203801	38.0	16	60°	16	80	12
ML02204001	ML12204001	ML22204001	40.0	13	60°	25	85	12
ML02205001	ML12205001	ML22205001	50.0	16	60°	25	100	16

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120
Tolerance range in mm / Toleranzwerte in mm							
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95	± 1.10
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in µm / Toleranzwerte in µm							
h6	0 / − 8	0 / − 9	0 / − 11	0 / − 13	0 / − 16	0 / − 19	0 / − 22



◎ : Excellent ○ : Good

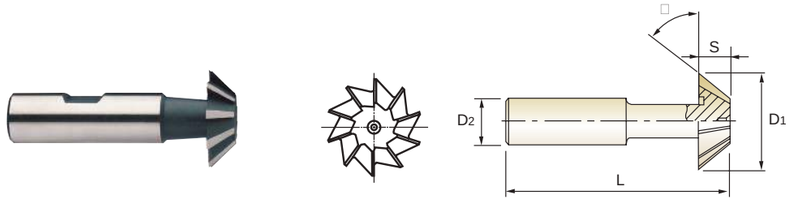
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

ML032, ML042 SERIES PLAIN SHANK / GLATTER ZYLINDERSCHAFT
ML132, ML142 SERIES FLAT SHANK / SEITLICHEN MITNAHMEFLÄCHEN
ML232, ML242 SERIES THREAD SHANK / ANZUGSGEWINDE

HSS-E, DOVETAIL CUTTERS TYPE “B”, “D”, “F”

HSS-E, WINKELFRÄSER FORM “B”, “D”, “F”
Fraise HSS-E pour queue d'arronde Type "B", "D", "F"
FRESE AD ANGOLO CONVERGENTE TIPO “B”, “D”, “F”



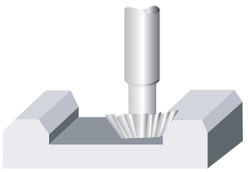
HSS-E | DIN 1833 | N | 0° | DIN 1835A | DIN 1835B | DIN 1835D P.1494

Unit : mm

EDP No.			Cutter Diameter	Width of Face	Convergent Taper Angle	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(js16)	S(js14)	α(±15´)	D2(h6)	L(js18)	Z
ML03201601	ML13201601	ML23201601	16.0	4	45°	12	60	6
ML03202001	ML13202001	ML23202001	20.0	5	45°	12	63	6
ML03202201	ML13202201	ML23202201	22.0	6	45°	12	67	6
ML03202501	ML13202501	ML23202501	25.0	6.3	45°	16	67	8
ML03202801	ML13202801	ML23202801	28.0	7.5	45°	16	67	8
ML03203201	ML13203201	ML23203201	32.0	8	45°	16	71	10
ML03203801	ML13203801	ML23203801	38.0	10	45°	16	80	12
ML04201601	ML14201601	ML24201601	16.0	6.3	60°	12	60	6
ML04202001	ML14202001	ML24202001	20.0	8	60°	12	63	6
ML04202201	ML14202201	ML24202201	22.0	9	60°	12	67	6
ML04202501	ML14202501	ML24202501	25.0	10	60°	16	67	8
ML04202801	ML14202801	ML24202801	28.0	11	60°	16	67	8
ML04203201	ML14203201	ML24203201	32.0	12.5	60°	16	71	10
ML04203801	ML14203801	ML24203801	38.0	16	60°	16	80	12

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80
Tolerance range in mm / Toleranzwerte in mm						
js16	± 0.375	± 0.45	± 0.55	± 0.65	± 0.80	± 0.95
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30
Tolerance range in µm / Toleranzwerte in µm						
h6	0 / − 8	0 / − 9	0 / − 11	0 / − 13	0 / − 16	0 / − 19



◎ : Excellent ○ : Good

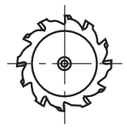
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

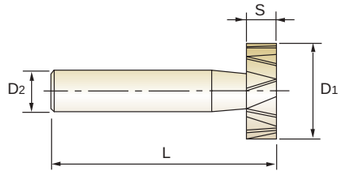
MILLING CUTTERS

ML062 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
ML162 SERIES — FLAT SHANK / SEITLICHEN MITNAHMEFLÄCHEN
ML262 SERIES — THREAD SHANK / ANZUGSGEWINDE

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F”

HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”
Fraise HSS-E WOODRUFF Type "B", "D", "F"
FRESE PER CHIAVETTE WOODRUFF TIPO “B”, “D”, “F”





HSS-E | DIN 850 | N | 10~12° | DIN 1835A | DIN 1835B | DIN 1835D — P.1495

Unit : mm

EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(h11)	S(e8)	D2(h6)	L(js18)	Z
ML06210E01	ML16210E01	ML26210E01	10.5	2	6	50	8
ML06210E02	ML16210E02	ML26210E02	10.5	2.5	6	50	8
ML06210E03	ML16210E03	ML26210E03	10.5	3	6	50	8
ML06213E01	ML16213E01	ML26213E01	13.5	2	10	56	8
ML06213E02	ML16213E02	ML26213E02	13.5	2.5	10	56	8
ML06213E03	ML16213E03	ML26213E03	13.5	3	10	56	8
ML06213E04	ML16213E04	ML26213E04	13.5	4	10	56	8
ML06216E01	ML16216E01	ML26216E01	16.5	2.5	10	56	8
ML06216E02	ML16216E02	ML26216E02	16.5	3	10	56	8
ML06216E03	ML16216E03	ML26216E03	16.5	4	10	56	8
ML06216E04	ML16216E04	ML26216E04	16.5	5	10	56	8
ML06219E01	ML16219E01	ML26219E01	19.5	3	10	56	8
ML06219E02	ML16219E02	ML26219E02	19.5	4	10	63	8
ML06219E03	ML16219E03	ML26219E03	19.5	5	10	63	8
ML06219E04	ML16219E04	ML26219E04	19.5	6	10	63	8
ML06222E01	ML16222E01	ML26222E01	22.5	4	10	63	10
ML06222E02	ML16222E02	ML26222E02	22.5	5	10	63	10
ML06222E03	ML16222E03	ML26222E03	22.5	6	10	63	10
ML06222E04	ML16222E04	ML26222E04	22.5	8	10	63	10
ML06225E01	ML16225E01	ML26225E01	25.5	5	10	63	10
ML06225E02	ML16225E02	ML26225E02	25.5	6	10	63	10
ML06225E03	ML16225E03	ML26225E03	25.5	7	10	63	10
ML06225E04	ML16225E04	ML26225E04	25.5	8	10	63	10
ML06228E01	ML16228E01	ML26228E01	28.5	5	10	63	10
ML06228E02	ML16228E02	ML26228E02	28.5	6	10	63	10
ML06228E03	ML16228E03	ML26228E03	28.5	7	10	63	10
ML06228E04	ML16228E04	ML26228E04	28.5	8	10	63	10
ML06228E05	ML16228E05	ML26228E05	28.5	10	12	71	10

▶ NEXT PAGE

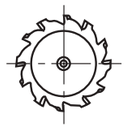
◎ : Excellent ○ : Good

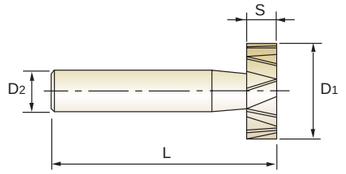
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

ML062 SERIES — PLAIN SHANK / GLATTER ZYLINDERSCHAFT
ML162 SERIES — FLAT SHANK / SEITLICHEN MITNAHMEFLÄCHEN
ML262 SERIES — THREAD SHANK / ANZUGSGEWINDE

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F”
HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”
Fraise HSS-E WOODRUFF Type "B", "D", "F"
FRESE PER CHIAVETTE WOODRUFF TIPO “B”, “D”, “F”





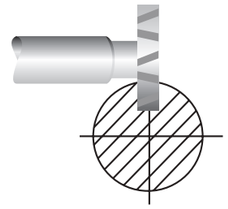
HSS-E | DIN 850 | N | 10~12° | DIN 1835A | DIN 1835B | DIN 1835D — P.1495

Unit : mm

EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(h11)	S(e8)	D2(h6)	L(js18)	Z
ML06232E01	ML16232E01	ML26232E01	32.5	5	12	71	12
ML06232E02	ML16232E02	ML26232E02	32.5	6	12	71	12
ML06232E03	ML16232E03	ML26232E03	32.5	7	12	71	12
ML06232E04	ML16232E04	ML26232E04	32.5	8	12	71	12
ML06232E05	ML16232E05	ML26232E05	32.5	10	12	71	12
ML06238E01	ML16238E01	ML26238E01	38.5	7	12	71	12
ML06238E02	ML16238E02	ML26238E02	38.5	8	12	71	12
ML06238E03	ML16238E03	ML26238E03	38.5	9	12	71	12
ML06238E04	ML16238E04	ML26238E04	38.5	10	12	71	12
ML06245E01	ML16245E01	ML26245E01	45.5	10	12	71	14

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

	Nominal-Diameter in / Nennmaßbereich in						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80
	Tolerance range in mm / Toleranzwerte in mm						
js18	-	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30
	Tolerance range in µm / Toleranzwerte in µm						
h11	0 - 60	0 - 75	0 - 90	0 - 110	0 - 130	0 - 160	0 - 190
e8	- 14 - 28	- 20 - 38	- 25 - 47	- 32 - 59	- 40 - 73	- 50 - 89	- 60 - 106
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13	0 - 16	0 - 19



◎ : Excellent ○ : Good

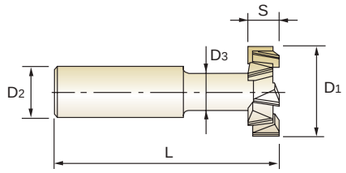
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

ML072 SERIES — **PLAIN SHANK** GLATTER ZYLINDERSCHAFT
ML172 SERIES — **FLAT SHANK** SEITLICHEN MITNAHMEFLÄCHEN
ML272 SERIES — **THREAD SHANK** ANZUGSGEWINDE

HSS-E, T-SLOT CUTTERS TYPE “AA”, “AB”, “AD”

HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM “AA”, “AB”, “AD”
Fraise HSS-E pour rainure en "T" Type "AA", "AB", "AD"
FRESE PER SCANALATURE A T - DENTI ALTERNATI



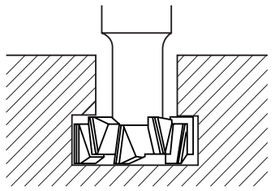
HSS-E | DIN 851 | N | 10° | DIN 1835A | DIN 1835B | DIN 1835D — P.1495

Unit : mm

EDP No.			Cutter Diameter	Width of Face	Shank Diameter	Neck Diameter	Overall Length	No. of Teeth
PLAIN	FLAT	THREAD	D1(d11)	S(d11)	D2(h6)	D3(h12)	L(js18)	Z
ML07212E01	ML17212E01	ML27212E01	12.5	6	10	5	57	6
ML07201601	ML17201601	ML27201601	16.0	8	10	6.5	62	6
ML07201801	ML17201801	ML27201801	18.0	8	12	8	70	6
ML07201901	ML17201901	ML27201901	19.0	9	12	8	71	6
ML07202101	ML17202101	ML27202101	21.0	9	12	10	74	6
ML07202201	ML17202201	ML27202201	22.0	10	12	10	75	6
ML07202501	ML17202501	ML27202501	25.0	11	16	12	82	6
ML07202801	ML17202801	ML27202801	28.0	12	16	13	83	6
ML07203201	ML17203201	ML27203201	32.0	14	16	15	90	8
ML07203601	ML17203601	ML27203601	36.0	16	25	17	103	8
ML07204001	ML17204001	ML27204001	40.0	18	25	19	108	8

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120
Tolerance range in mm / Toleranzwerte in mm							
h12	0 / − 0.12	0 / − 0.15	0 / − 0.18	0 / − 0.21	0 / − 0.25	0 / − 0.30	0 / − 0.35
js18	± 0.90	± 1.10	± 1.35	± 1.65	± 1.95	± 2.30	± 2.70
Tolerance range in µm / Toleranzwerte in µm							
d11	− 30 / − 105	− 40 / − 130	− 50 / − 160	− 65 / − 195	− 80 / − 240	− 100 / − 290	− 120 / − 340
h6	0 / − 8	0 / − 9	0 / − 11	0 / − 13	0 / − 16	0 / − 19	0 / − 22



◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎									○				

MILLING CUTTERS

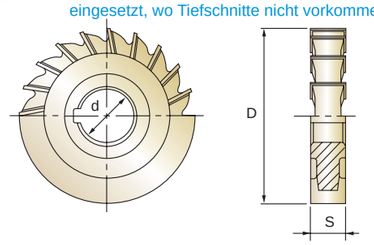
ML092 SERIES — **STRAIGHT TEETH** GERADEVERZAHNT

HSS-E, SIDE AND FACE MILLING CUTTERS with STRAIGHT TEETH

HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT
Fraise HSS-E 3 Tailles, denture droite
FRESE A DISCO A TRE TAGLI - DENTI DRITTI

▶ The tools are used for general purpose side and straddle milling where deep cut is not required.

▶ Diese Werkzeuge werden bei allgemeinen Seiten-und Breitfräsen eingesetzt, wo Tiefschnitte nicht vorkommen.



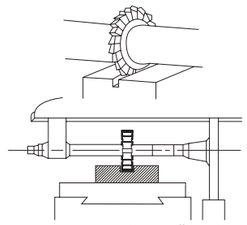
HSS-E | DIN 885-B | H — P.1496

Unit : mm

EDP No.	Cutter Diameter	Width of Face	Internal Diameter	No. of Teeth
	D(js14)	S(k11)	d(H7)	Z
ML09205001	50.0	4	16	18
ML09205002	50.0	5	16	18
ML09205003	50.0	6	16	18
ML09205004	50.0	8	16	16
ML09205005	50.0	10	16	16
ML09206301	63.0	5	22	22
ML09206302	63.0	6	22	22
ML09206303	63.0	8	22	20
ML09206304	63.0	10	22	20
ML09206305	63.0	12	22	20
ML09208001	80.0	6	22	24
ML09208002	80.0	8	22	24
ML09208003	80.0	10	22	24
ML09208004	80.0	12	22	20
ML09208005	80.0	6	27	24
ML09208006	80.0	8	27	24
ML09208007	80.0	10	27	24
ML09208008	80.0	12	27	20
ML09210001	100.0	6	27	26
ML09210002	100.0	8	27	26
ML09210003	100.0	10	27	22
ML09210004	100.0	6	32	26
ML09210005	100.0	8	32	26
ML09210006	100.0	10	32	22
ML09210007	100.0	12	32	22
ML09212501	125.0	8	32	30
ML09212502	125.0	10	32	30
ML09212503	125.0	12	32	24

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120	over 120 to 180 über 120 bis 180
Tolerance range in mm / Toleranzwerte mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50
Tolerance range in / Toleranzwerte in								
k11	+ 75 / 0	+ 90 / 0	+ 110 / 0	+ 130 / 0	+ 160 / 0	+ 190 / 0	+ 220 / 0	+ 250 / 0
H7	+ 12 / 0	+ 15 / 0	+ 18 / 0	+ 21 / 0	+ 25 / 0	+ 30 / 0	+ 35 / 0	+ 40 / 0



◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

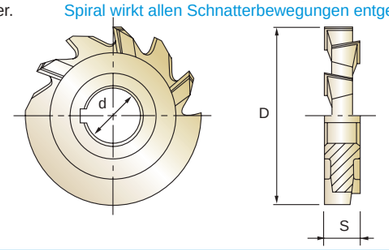
ML102 SERIES STAGGERED TEETH KREUZVERZAHNT

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



HSS-E | DIN 885-A | H P.1497

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10205001	50.0	3	16	14
ML10205002	50.0	4	16	14
ML10205003	50.0	5	16	14
ML10205004	50.0	6	16	14
ML10205005	50.0	7	16	14
ML10205006	50.0	8	16	14
ML10205007	50.0	9	16	14
ML10205008	50.0	10	16	14
ML10206301	63.0	3	22	16
ML10206302	63.0	4	22	16
ML10206303	63.0	5	22	16
ML10206304	63.0	6	22	16
ML10206305	63.0	7	22	16
ML10206306	63.0	8	22	16
ML10206307	63.0	9	22	16
ML10206308	63.0	10	22	16
ML10206309	63.0	12	22	16
ML10206310	63.0	14	22	16
ML10206311	63.0	16	22	16
ML10206312	63.0	18	22	16
ML10208001	80.0	3	22	18
ML10208002	80.0	4	22	18
ML10208003	80.0	5	22	18
ML10208004	80.0	6	22	18
ML10208005	80.0	7	22	18
ML10208006	80.0	8	22	18
ML10208007	80.0	9	22	18
ML10208008	80.0	10	22	18

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◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

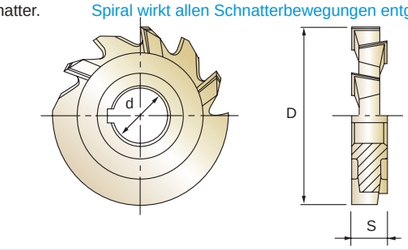
ML102 SERIES STAGGERED TEETH KREUZVERZAHNT

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT
Fraise HSS-E 3 Tailles, denture alternée
FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



HSS-E | DIN 885-A | H P.1497

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10208009	80.0	12	22	18
ML10208010	80.0	14	22	18
ML10208011	80.0	16	22	18
ML10208012	80.0	18	22	18
ML10208013	80.0	20	22	18
ML10208014	80.0	4	27	18
ML10208015	80.0	5	27	18
ML10208016	80.0	6	27	18
ML10208017	80.0	7	27	18
ML10208018	80.0	8	27	18
ML10208019	80.0	9	27	18
ML10208020	80.0	10	27	18
ML10208021	80.0	12	27	18
ML10208022	80.0	14	27	18
ML10208023	80.0	16	27	18
ML10208024	80.0	18	27	18
ML10208025	80.0	20	27	18
ML10210001	100.0	3	27	20
ML10210002	100.0	4	27	20
ML10210003	100.0	5	27	20
ML10210004	100.0	6	27	20
ML10210005	100.0	7	27	20
ML10210006	100.0	8	27	20
ML10210007	100.0	9	27	20
ML10210008	100.0	10	27	20
ML10210009	100.0	12	27	20
ML10210010	100.0	14	27	20
ML10210011	100.0	15	27	20

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

MILLING CUTTERS

ML102 SERIES STAGGERED TEETH KREUZVERZAHNT

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

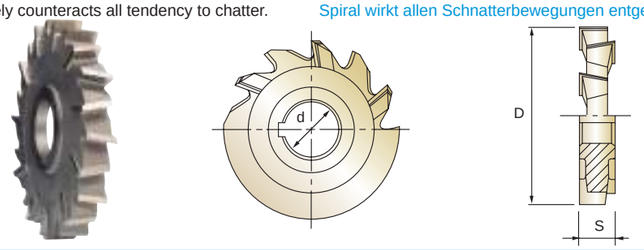
HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

Fraise HSS-E 3 Tailles, denture alternée

FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



HSS-E DIN 885-A H

P.1497

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10210012	100.0	16	27	20
ML10210013	100.0	18	27	20
ML10210014	100.0	20	27	20
ML10210015	100.0	4	32	20
ML10210016	100.0	5	32	20
ML10210017	100.0	6	32	20
ML10210018	100.0	7	32	20
ML10210019	100.0	8	32	20
ML10210020	100.0	9	32	20
ML10210021	100.0	10	32	20
ML10210022	100.0	12	32	20
ML10210023	100.0	14	32	20
ML10210024	100.0	15	32	20
ML10210025	100.0	16	32	20
ML10210026	100.0	18	32	20
ML10210027	100.0	20	32	20
ML10212501	125.0	5	32	22
ML10212502	125.0	6	32	22
ML10212503	125.0	8	32	22
ML10212504	125.0	10	32	22
ML10212505	125.0	12	32	22
ML10212506	125.0	14	32	22
ML10212507	125.0	16	32	22
ML10212508	125.0	18	32	22
ML10212509	125.0	20	32	22
ML10216001	160.0	6	32	26
ML10216002	160.0	8	32	26
ML10216003	160.0	10	32	26

▶ NEXT PAGE

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

ML102 SERIES STAGGERED TEETH KREUZVERZAHNT

HSS-E, SIDE AND FACE MILLING CUTTERS with STAGGERED TEETH

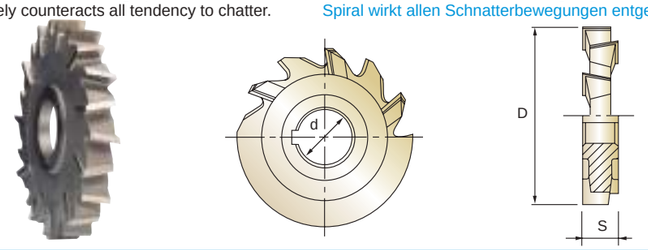
HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

Fraise HSS-E 3 Tailles, denture alternée

FRESE A DISCO A TRE TAGLI - DENTI ALTERNATI

▶ The type of cutter is recommended for slotting operations.
The alternate spiral effectively counteracts all tendency to chatter.

▶ Dieser Typ ist zum Schlitzfräsen geeignet. Das alternierende Spiral wirkt allen Schnatterbewegungen entgegen.



HSS-E DIN 885-A H

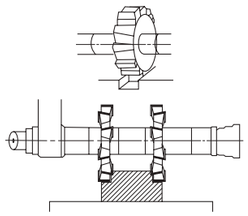
P.1497

Unit : mm

EDP No.	Cutter Diameter D(js14)	Width of Face S(k11)	Internal Diameter d(H7)	No. of Teeth Z
ML10216004	160.0	12	32	26
ML10216005	160.0	14	32	26
ML10216006	160.0	16	32	26
ML10216007	160.0	18	32	26
ML10216008	160.0	20	32	26
ML10216009	160.0	6	40	26
ML10216010	160.0	8	40	26
ML10216011	160.0	10	40	26
ML10216012	160.0	12	40	26
ML10216013	160.0	14	40	26
ML10216014	160.0	16	40	26
ML10216015	160.0	18	40	26
ML10216016	160.0	20	40	26
ML10220001	200.0	10	40	30
ML10220002	200.0	12	40	30
ML10220003	200.0	14	40	30
ML10220004	200.0	16	40	30
ML10220005	200.0	18	40	30
ML10220006	200.0	20	40	30
ML10220007	200.0	22	40	30
ML10220008	200.0	25	40	30

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

	Nominal-Diameter in mm / Nennmaßbereich in mm								
	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50	over 50 to 80 über 50 bis 80	over 80 to 120 über 80 bis 120	over 120 to 180 über 120 bis 180	over 180 to 250 über 180 bis 250
	Tolerance range in mm / Toleranzwerte in mm								
js14	± 0.15	± 0.18	± 0.215	± 0.26	± 0.31	± 0.37	± 0.435	± 0.50	± 0.575
	Tolerance range in µm / Toleranzwerte in µm								
k11	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0	+ 190 0	+ 220 0	+ 250 0	+ 290 0
H7	+ 12 0	+ 15 0	+ 18 0	+ 21 0	+ 25 0	+ 30 0	+ 35 0	+ 40 0	+ 46 0



◎ : Excellent ○ : Good

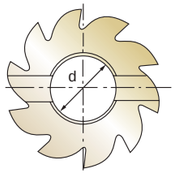
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

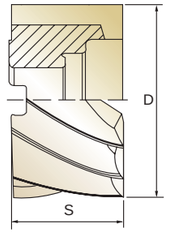
MILLING CUTTERS

E2675 SERIES

HSSCo8, MULTI FLUTE SHELL END MILL

HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER
Fraise HSSCo8, multi-dents trou lisse
FRESA CILINDRICA FRONTALE, MULTI TAGLIENTE





HSS Co8 | DIN 841 | N | 6-10 | 30° P.1498

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2675300	30.0	30	● 13	6
E2675350	35.0	35	● 16	6
E2675400	40.0	20	● 16	8
E2675402	40.0	40	● 16	8
E2675500	50.0	25	22	8
E2675502	50.0	50	22	8
E2675600	60.0	30	27	8
E2675601	60.0	60	27	8
E2675750	75.0	35	27	10
E2675751	75.0	75	27	10
E2675900	90.0	35	27	10
E2675902	110.0	35	32	10

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | N | 8-14 | 30° P.1498

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2675401	40.0	32	● 16	8
E2675501	50.0	36	22	8
E2675630	63.0	40	27	8
E2675800	80.0	45	27	10
E2675901	100.0	50	32	10
E2675903	125.0	56	40	12
E2675904	160.0	63	50	14

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 − 0.15	+ 0.5 − 0	+ 0.02 − 0

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

◎ : Excellent ○ : Good

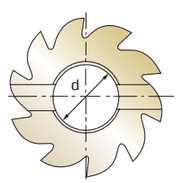
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○												

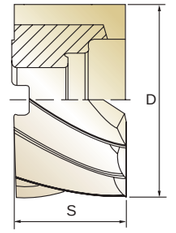
MILLING CUTTERS

E2676 SERIES

HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM

HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM
Fraise HSSCo8, multi-dents trou lisse pour aluminium
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER ALLUMINIO





HSS Co8 | DIN 841 | W | 4&6 | 42° P.1498

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676300	30.0	30	● 13	4
E2676400	40.0	20	● 16	4
E2676402	40.0	40	● 16	4
E2676500	50.0	25	22	6
E2676502	50.0	50	22	6
E2676600	60.0	30	27	6
E2676601	60.0	60	27	6
E2676750	75.0	75	27	6

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | W | 4&6 | 42° P.1498

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2676401	40.0	32	● 16	4
E2676501	50.0	36	22	6
E2676630	63.0	40	27	6
E2676800	80.0	45	27	6
E2676901	100.0	50	32	6

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 − 0.15	+ 0.5 − 0	+ 0.02 − 0

◎ : Excellent ○ : Good

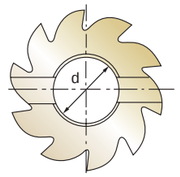
P					H	M	K	N						S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	○									◎				

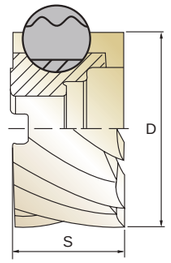
MILLING CUTTERS

E2677 SERIES

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - COARSE

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - GROBES
Fraise HSSCo8, multi-dents trou lisse, ébauche, pas grossier
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA





HSS Co8 | DIN 841 | NR | COARSE | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677401	40.0	40	● 16	6
E2677501	50.0	50	22	8
E2677600	60.0	30	27	8
E2677601	60.0	60	27	8
E2677750	75.0	35	27	10
E2677751	75.0	75	27	10
E2677900	90.0	35	27	10
E2677902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | NR | COARSE | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2677400	40.0	32	● 16	6
E2677500	50.0	36	22	8
E2677630	63.0	40	27	8
E2677800	80.0	45	27	10
E2677901	100.0	50	32	10
E2677903	125.0	56	40	12
E2677904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 − 0.15	+ 0.5 − 0	+ 0.02 − 0

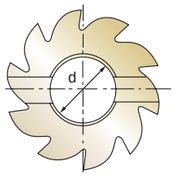
◎ : Excellent ○ : Good

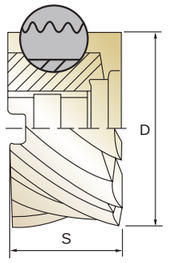
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

E2678 SERIES

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL - FINE

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER - FEINES
Fraise HSSCo8, multi-dents trou lisse, ébauche, pas fin
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, PER SGROSSATURA





HSS Co8 | DIN 841 | HR | FINE | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2678401	40.0	40	● 16	6
E2678501	50.0	50	22	8
E2678600	60.0	30	27	8
E2678601	60.0	60	27	8
E2678750	75.0	35	27	10
E2678751	75.0	75	27	10
E2678900	90.0	35	27	10
E2678902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | HR | FINE | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2678400	40.0	32	● 16	6
E2678500	50.0	36	22	8
E2678630	63.0	40	27	8
E2678800	80.0	45	27	10
E2678901	100.0	50	32	10
E2678903	125.0	56	40	12
E2678904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 − 0.15	+ 0.5 − 0	+ 0.02 − 0

◎ : Excellent ○ : Good

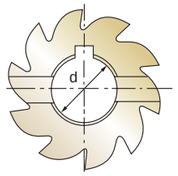
P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

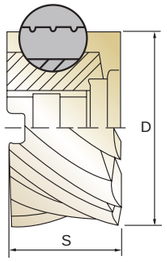
MILLING CUTTERS

E2679 SERIES

HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL

HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER
Fraise HSSCo8, multi-dents trou lisse, ébauche et finition
FRESA CILINDRICA FRONTALE MULTI TAGLIENTE, SEMI FINITURA





HSS Co8 | DIN 841 | NF | ROUGHING & FINISHING | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679401	40.0	40	● 16	6
E2679501	50.0	50	22	8
E2679600	60.0	30	27	8
E2679601	60.0	60	27	8
E2679750	75.0	35	27	10
E2679751	75.0	75	27	10
E2679900	90.0	35	27	10
E2679902	110.0	35	32	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

HSS Co8 | DIN 1880 | NF | ROUGHING & FINISHING | 6-12 | 30° P.1499

Unit : mm

EDP No.	Mill Diameter D	Width of Face S	Internal Diameter d	No. of Teeth Z
E2679400	40.0	32	● 16	6
E2679500	50.0	36	22	8
E2679630	63.0	40	27	8
E2679800	80.0	45	27	10
E2679901	100.0	50	32	10
E2679903	125.0	56	40	12
E2679904	160.0	63	50	12

● Tolerance of Internal Diameter = +0.018 ~ 0
▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

Mill Dia. Tolerance(mm)	Width of Face Tolerance(mm)	Internal Dia. Tolerance(mm)
+ 0.25 − 0.15	+ 0.5 − 0	+ 0.02 − 0

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

E2498 SERIES

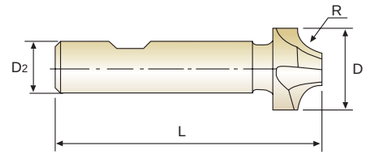
FLAT SHANK
SEITLICHEN MITNAHMEFLÄCHEN

HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS

HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER
Fraise HSSCo8, 1/4 de cercle, 4 dents
4 TAGLIENTI PER RAGGIATURA DI SPIGOLI

▶ These tools can be adapted for many screw machine applications as end formming tools to form a specific radius.

▶ Dieses Werkzeug kann an vielen Scrow maschine als Finishingtool für spezielle Radien montiert werden.



HSS Co8 | DIN 6518 | N | 4 | 0° | DIN 1835B P.1500

Unit : mm

EDP No.	Radius	Outside Diameter	Shank Diameter	Overall Length
FLAT	R(H11)	D	D2(h6)	L
E2498010	R1.0	8.0	10	60
E2498015	R1.5	9.0	10	60
E2498020	R2.0	10.0	10	60
E2498025	R2.5	11.0	10	60
E2498030	R3.0	12.0	12	60
E2498035	R3.5	13.0	12	60
E2498040	R4.0	14.0	12	60
E2498045	R4.5	15.0	12	60
E2498050	R5.0	16.0	12	60
E2498055	R5.5	19.0	16	67
E2498060	R6.0	20.0	16	67
E2498065	R6.5	21.0	16	71
E2498070	R7.0	22.0	16	71
E2498075	R7.5	23.0	16	71
E2498080	R8.0	24.0	16	71
E2498085	R8.5	25.0	25	85
E2498090	R9.0	26.0	25	85
E2498095	R9.5	27.0	25	85
E2498100	R10.0	28.0	25	85
E2498105	R10.5	31.0	25	90
E2498110	R11.0	32.0	25	90
E2498120	R12.0	34.0	25	90
E2498125	R12.5	41.0	25	100
E2498130	R13.0	42.0	25	100
E2498140	R14.0	44.0	25	100
E2498150	R15.0	46.0	25	100
E2498160	R16.0	48.0	25	100
E2498180	R18.0	52.0	32	112
E2498200	R20.0	56.0	32	112

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Nominal-Diameter in mm / Nennmaßbereich in mm						
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	over 18 to 30 über 18 bis 30	over 30 to 50 über 30 bis 50
Tolerance range in / Toleranzwerte in						
H11	+ 60 0	+ 75 0	+ 90 0	+ 110 0	+ 130 0	+ 160 0
h6	0 − 6	0 − 8	0 − 9	0 − 11	0 − 13	0 − 16

▶ TiN-COATING, TiCN-COATING & TiAlN-COATING is available on your request.

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HB225	HB225~325	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○								○				

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-E, DOVETAIL CUTTERS TYPE “A”, “C”, “E”
HSS-E, WINKELFRÄSER FORM “A”, “C”, “E”

ML012, ML112, ML022, ML122, ML212, ML222 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	615	110	30	0.030	305	57	15	0.031	215	40	10	0.031
20.0	500	110	30	0.037	255	55	15	0.036	180	38	10	0.035
25.0	380	80	30	0.026	190	47	15	0.031	135	30	10	0.028
32.0	300	125	30	0.042	155	64	15	0.041	100	40	10	0.040
40.0	250	130	30	0.043	125	64	15	0.043	90	45	10	0.042
50.0	190	90	30	0.030	100	42	15	0.026	75	36	10	0.030
63.0	150	75	30	0.031	80	40	15	0.031	60	32	10	0.033

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	160	20	10	0.021	1850	336	95	0.030
20.0	125	15	10	0.020	1350	324	85	0.040
25.0	100	16	10	0.020	1150	270	90	0.029
32.0	80	16	10	0.020	920	375	90	0.041
40.0	60	16	10	0.022	765	387	95	0.042
50.0	50	16	10	0.020	550	265	85	0.030
63.0	40	15	10	0.023	450	240	90	0.033

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS-E, DOVETAIL CUTTERS TYPE “B”, “D”, “F”
HSS-E, WINKELFRÄSER FORM “B”, “D”, “F”

ML032, ML132, ML042, ML142, ML232, ML242 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	615	110	30	0.030	305	57	15	0.031	215	40	10	0.031
20.0	500	110	30	0.037	255	55	15	0.036	180	38	10	0.035
25.0	380	80	30	0.026	190	47	15	0.031	135	30	10	0.028
32.0	300	125	30	0.042	155	64	15	0.041	100	40	10	0.040

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
16.0	160	20	10	0.021	1850	336	95	0.030
20.0	125	15	10	0.020	1350	324	85	0.040
25.0	100	16	10	0.020	1150	270	90	0.029
32.0	80	16	10	0.020	920	375	90	0.041

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSS-E, WOODRUFF KEYSEAT CUTTERS TYPE “B”, “D”, “F”
HSS-E, SCHLITZFRÄSER FORM “B”, “D”, “F”

ML062, ML162, ML262 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.5	900	72	30	0.010	600	48	20	0.010	480	38	15	0.010
13.5	700	56	30	0.010	470	38	20	0.010	370	30	15	0.010
16.5	570	114	30	0.025	380	76	20	0.025	300	60	15	0.025
19.5	480	134	30	0.035	320	90	20	0.035	260	73	15	0.035
22.5	420	168	30	0.040	280	112	20	0.040	220	88	15	0.040
28.5	330	165	30	0.050	220	110	20	0.050	180	90	15	0.050
32.5	290	209	30	0.060	190	137	20	0.060	155	112	15	0.060
45.5	210	206	30	0.070	130	127	20	0.070	110	108	15	0.070

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
10.5	300	24	10	0.010	3000	240	100	0.010
13.5	230	18	10	0.010	2300	184	100	0.010
16.5	190	38	10	0.025	1900	380	100	0.025
19.5	160	45	10	0.035	1600	448	100	0.035
22.5	140	56	10	0.040	1400	560	100	0.040
28.5	110	55	10	0.050	1100	550	100	0.050
32.5	90	65	10	0.060	900	648	90	0.060
45.5	70	69	10	0.070	700	686	100	0.070

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSS-E, T-SLOT CUTTERS TYPE “AA”, “AB”, “AD”
HSS-E, SCHAFTERFRÄSER FÜR T-NUTEN FORM “AA”, “AB”, “AD”

ML072, ML172, ML272 SERIES

MATERIAL	P												N			
	CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS					~ HRc20				HRc20 ~ HRc30							
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
12.5	770	38	30	0.008	380	16	15	0.007	270	8	10	0.005	2350	110	90	0.008
16.0	600	45	30	0.013	300	19	15	0.011	210	9	10	0.007	1830	140	90	0.013
18.0	550	47	30	0.014	270	20	15	0.012	195	12	10	0.010	1680	150	95	0.015
19.0	500	50	30	0.017	250	20	15	0.013	180	15	10	0.014	1540	160	90	0.017
21.0	470	52	30	0.018	230	22	15	0.016	160	16	10	0.017	1430	165	95	0.019
22.0	440	55	30	0.021	220	25	15	0.019	150	17	10	0.019	1330	170	90	0.021
25.0	390	65	30	0.028	190	30	15	0.026	135	18	10	0.022	1170	180	90	0.026
28.0	345	75	30	0.036	170	38	15	0.037	120	20	10	0.028	1040	210	90	0.034
32.0	310	90	30	0.036	150	42	15	0.035	100	20	10	0.025	910	250	90	0.034
50.0	270	80	40	0.037	135	40	20	0.037	90	20	15	0.028	800	230	125	0.036
63.0	240	70	50	0.036	120	38	25	0.040	85	20	15	0.029	730	210	145	0.036

RPM = rev./min. Vc = m/min.
FEED = mm/min. fz = mm/tooth

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

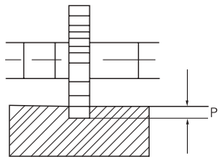
HSS-E, SIDE AND FACE MILLING CUTTERS WITH STRAIGHT TEETH
HSS-E, SCHEIBENFRÄSER mit GERADEVERZAHNT

ML092 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
50.0	160	130	25	0.045	115	82	20	0.040	95	58	15	0.034
63.0	125	160	25	0.058	90	72	20	0.036	75	51	15	0.031
80.0	100	145	25	0.060	70	69	20	0.041	60	48	15	0.033
100.0	80	130	25	0.063	60	60	20	0.038	47	41	15	0.034
125.0	63	100	25	0.066	45	54	20	0.050	38	38	15	0.042

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
50.0	76	42	10	0.031	630	200	100	0.018
63.0	60	38	10	0.029	500	250	100	0.023
80.0	47	34	10	0.030	400	250	100	0.026
100.0	38	30	10	0.030	320	200	100	0.024
125.0	30	26	10	0.036	250	200	100	0.033

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth



MILLING DEPTH P = WIDTH OF FACES

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

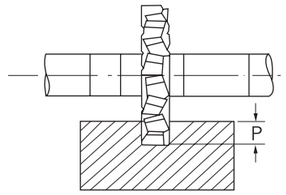
HSS-E, SIDE AND FACE MILLING CUTTERS WITH STAGGERED TEETH
HSS-E, SCHEIBENFRÄSER mit KREUZVERZAHNT

ML102 SERIES

MATERIAL	P											
	CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS					~ HRc20				HRc20 ~ HRc30			
STRENGTH	~ 500N/mm²				500 ~ 800N/mm²				800 ~ 1000N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
50.0	160	130	25	0.058	115	85	20	0.053	95	58	15	0.044
63.0	125	160	25	0.080	90	75	20	0.052	75	51	15	0.043
80.0	100	145	25	0.081	70	69	20	0.055	60	48	15	0.044
100.0	80	130	25	0.081	60	60	20	0.050	47	41	15	0.044
125.0	63	100	25	0.072	45	54	20	0.055	38	38	15	0.045
160.0	50	105	25	0.081	37	48	20	0.050	30	34	15	0.044
200.0	40	95	25	0.079	31	45	20	0.048	25	31	15	0.041

MATERIAL	P				N			
	CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS	HRc30 ~ HRc40							
STRENGTH	1000 ~ 1300N/mm²							
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
50.0	76	42	10	0.039	630	200	100	0.023
63.0	60	38	10	0.040	500	250	100	0.031
80.0	47	34	10	0.040	400	250	100	0.035
100.0	38	30	10	0.039	320	200	100	0.031
125.0	30	26	10	0.039	250	200	100	0.036
160.0	23	24	10	0.040	200	150	100	0.029
200.0	19	22	10	0.039	160	150	100	0.031

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth



MILLING DEPTH P = WIDTH OF FACES

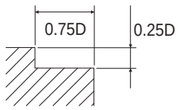
MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER

E2675 SERIES

MATERIAL	P															
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc28				HRc28 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	~ 800N/mm²				800 ~ 900N/mm²				900 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
40.0	240	135	30	0.070	200	120	25	0.075	140	80	20	0.071	80	50	10	0.078
50.0	200	125	30	0.078	170	105	25	0.077	120	75	20	0.078	70	45	10	0.080
63.0	150	110	30	0.092	130	95	25	0.091	90	65	20	0.090	50	40	10	0.100
80.0	120	120	30	0.100	100	100	25	0.100	80	75	20	0.094	40	40	10	0.100
100.0	100	115	30	0.115	80	95	25	0.119	60	70	20	0.117	30	35	10	0.117
125.0	80	115	30	0.120	70	95	25	0.113	50	65	20	0.108	20	35	10	0.146
160.0	60	110	30	0.131	60	100	30	0.119	40	65	20	0.116	20	35	10	0.125

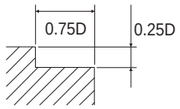


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSSCo8, MULTI FLUTE SHELL END MILL for ALUMINUM
HSSCo8, MULTI SCHNEIDEN WALZENSTIRNFRÄSER für ALUMINIUM

E2676 SERIES

MATERIAL	N			
	ALUMINUM NON-FERROUS METALS			
DIAMETER	RPM	FEED	Vc	fz
30.0	1050	210	100	0.050
40.0	840	200	105	0.060
50.0	600	250	95	0.069
60.0	500	300	95	0.100
63.0	480	330	95	0.115
75.0	450	350	105	0.130
80.0	390	300	100	0.128
100.0	320	290	100	0.151



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

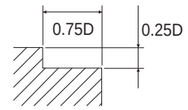
MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, MULTI FLUTE ROUGHING SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPFRÄSER

E2677, E2678 SERIES

MATERIAL	P															
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc28				HRc28 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	~ 800N/mm²				800 ~ 900N/mm²				900 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
40.0	240	100	30	0.069	200	85	25	0.071	140	60	20	0.071	80	35	10	0.073
50.0	200	125	30	0.078	170	105	25	0.077	120	75	20	0.078	70	45	10	0.080
63.0	150	110	30	0.092	130	95	25	0.091	90	65	20	0.090	50	40	10	0.100
80.0	120	120	30	0.100	100	100	25	0.100	80	75	20	0.094	40	40	10	0.100
100.0	100	115	30	0.115	80	95	25	0.119	60	70	20	0.117	30	35	10	0.117
125.0	80	115	30	0.120	70	95	25	0.113	50	65	20	0.108	20	35	10	0.146
160.0	60	110	30	0.153	60	100	30	0.139	40	65	20	0.135	20	35	10	0.146

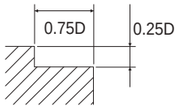


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

HSSCo8, MULTI FLUTE ROUGHING & FINISHING SHELL END MILL
HSSCo8, MULTI SCHNEIDEN WALZENSTIRN-SCHRUPPSCHLICHTFRÄSER

E2679 SERIES

MATERIAL	P															
	CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS	~ HRc20				HRc20 ~ HRc28				HRc28 ~ HRc35				HRc35 ~ HRc40			
STRENGTH	~ 800N/mm²				800 ~ 900N/mm²				900 ~ 1100N/mm²				1100 ~ 1300N/mm²			
DIAMETER	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
40.0	240	100	30	0.069	200	85	25	0.071	140	60	20	0.071	80	35	10	0.073
50.0	200	125	30	0.078	170	105	25	0.077	120	75	20	0.078	70	45	10	0.080
63.0	150	110	30	0.092	130	95	25	0.091	90	65	20	0.090	50	40	10	0.100
80.0	120	120	30	0.100	100	100	25	0.100	80	75	20	0.094	40	40	10	0.100
100.0	100	115	30	0.115	80	95	25	0.119	60	70	20	0.117	30	35	10	0.117
125.0	80	115	30	0.120	70	95	25	0.113	50	65	20	0.108	20	35	10	0.146
160.0	60	110	30	0.153	60	100	30	0.139	40	65	20	0.135	20	35	10	0.146



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

MILLING CUTTERS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

HSSCo8, 4 FLUTE CORNER ROUNDING CUTTERS
HSSCo8, 4 SCHNEIDEN VIERTELKREISFRÄSER

E2498 SERIES

MATERIAL		P				P			
		CARBON STEELS ALLOY STEELS				CARBON STEELS ALLOY STEELS TOOL STEELS			
HARDNESS						~ HRc20			
STRENGTH		~ 500N/mm²				500 ~ 800N/mm²			
OUTSIDE DIAMETER	CORNER RADIUS	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	R1	800	55	20	0.017	600	35	15	0.015
9.0	R1.5	630	55	20	0.022	470	30	15	0.016
10.0	R2	630	50	20	0.020	470	30	15	0.016
11.0	R2.5	530	45	20	0.021	390	30	15	0.019
12.0	R3	530	45	20	0.021	390	30	15	0.019
14.0	R4	450	45	20	0.025	330	30	15	0.023
16.0	R5	350	40	20	0.029	260	30	15	0.029
20.0	R6	310	40	20	0.032	230	30	15	0.033
24.0	R8	260	40	20	0.038	190	30	15	0.039
28.0	R10	210	35	20	0.042	155	25	15	0.040
34.0	R12	180	35	20	0.049	130	25	15	0.048
48.0	R16	130	30	20	0.058	95	20	15	0.053

MATERIAL		P				N			
		CARBON STEELS ALLOY STEELS TOOL STEELS				ALUMINUM & ALUMINUM ALLOYS			
HARDNESS		HRc20 ~ HRc35							
STRENGTH		800 ~ 1100N/mm²							
OUTSIDE DIAMETER	CORNER RADIUS	RPM	FEED	Vc	fz	RPM	FEED	Vc	fz
8.0	R1	480	35	10	0.018	3500	245	90	0.018
9.0	R1.5	380	35	10	0.023	2800	230	80	0.021
10.0	R2	380	30	10	0.020	2800	220	90	0.020
11.0	R2.5	315	30	10	0.024	2400	220	85	0.023
12.0	R3	315	30	10	0.024	2400	210	90	0.022
14.0	R4	270	25	10	0.023	2000	200	90	0.025
16.0	R5	210	25	10	0.030	1600	200	80	0.031
20.0	R6	185	25	10	0.034	1400	190	90	0.034
24.0	R8	155	25	10	0.040	1200	180	90	0.038
28.0	R10	125	25	10	0.050	950	170	85	0.045
34.0	R12	105	20	10	0.048	800	160	85	0.050
48.0	R16	75	15	10	0.050	600	140	90	0.058

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/tooth

END MILLS

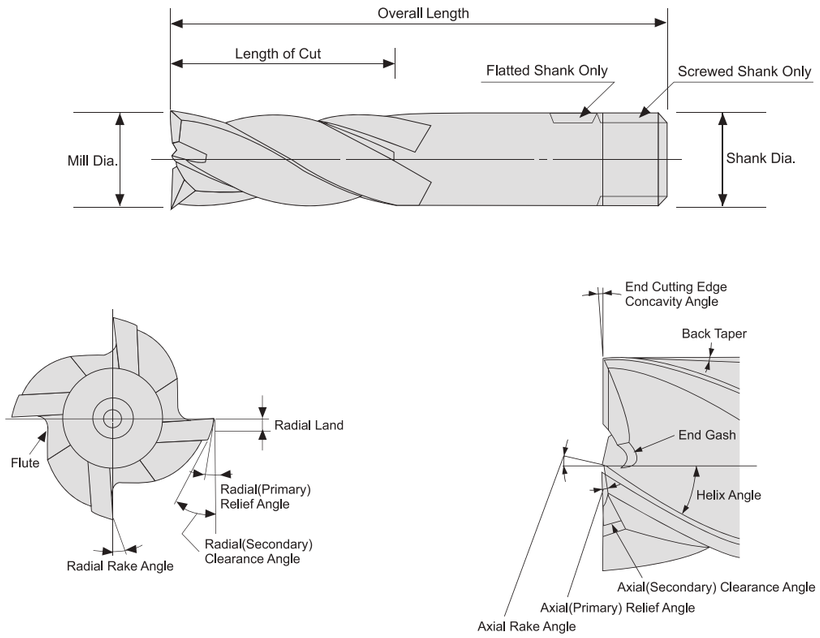
Leading Through Innovation

TECHNICAL DATA

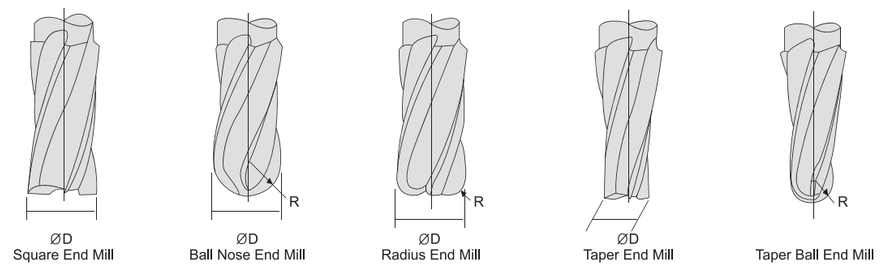
TECHNISCHE DATEN

TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

1 NAMES OF END MILL PARTS
ERLÄUTERUNG DER FRÄSERTEILE



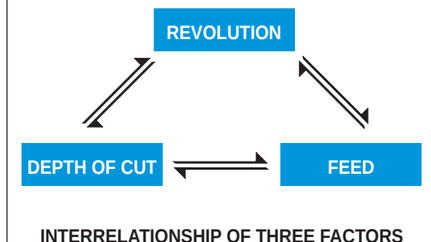
2 TYPES OF END MILL
FRÄSERTYPEN



TECHNICAL DATA
SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

Speed, feed and depth of cut are the most important factors to consider for best results in milling. Improper feeds and speeds often cause low production, poor work quality and unnecessary damage to the cutter.
This section covers the basic principles of speed and feed selection for milling cutters and end mills. It will serve as a guide in setting-up new milling jobs.

Geschwindigkeit, Vorschub und Schnitttiefe sind die wichtigsten Faktoren, um das beste Fräsergebnis zu erzielen. Ungeeignete Vorschübe und Geschwindigkeiten verursachen oft niedriege Produktivität, schlechte Bearbeitungsqualität und unnötige Beschädigung des Fräsers.
Dieser Abschnitt beinhaltet die Basisprinzipien von Geschwindigkeit- und Vorschubauswahl für Fräser und Scheibenfräser. Dieser Abschnitt sollte als ein Setting up-Führer neuer Fräsaufgaben dienen.



INTERRELATIONSHIP OF THREE FACTORS

3 SPEEDS
GESCHWINDIGKEIT

In milling, SPEED is measured in peripheral feet per minute.(revolution per minute times cutter circumference in feet) This is frequently referred to as “peripheral speed” “cutting speed” or “surface speed”.
Beim Fräsen, Geschwindigkeit ist gemessen in Bogenlänge pro Minute. Dies wird oft als ‘peripheral speed’, ‘cutting speed’ oder ‘surface speed’ bezeichnet.

Revolutions per Minute
Umdrehung pro Minute

$$N = \frac{1000V}{\pi D}$$

V : Cutting Speed(m/min) / Schneidgeschwindigkeit
D : Diameter of Tool(mm) / Werkzeugdurchmesser
N : Revolution per minute(rev/min) / Umdrehung pro Minute
π 3.1416

They will have to be tempered to suit the conditons ON THE JOB. For example:
Dies muß der jeweiligen Aufgabe angepaßt werden. Zum Beispiel:

Use Lower Speed Ranges for Niedrig Geschwindigkeitsbereiche für	Use Higher Speed Ranges for Hohe Geschwindigkeitsbereiche für
Hard materials / Hartes Material	Softer materials / Weiches Material
Tough materials / Rauhes Material	Better finishes / Bessere Oberflächengüte
Abrasive materials / Abrasives Material	Smaller diameter cutters / Kleinere Fräserdurchmesser
Heavy cuts / Heavy cut	Light cuts / Light cut
Minimum tool wear / Minimale Werkzeugabnutzung	Frail work pieces or set-ups / Zerbrechliche Stücke oder Set-up
Maximum cutter life / Maximale Standzeit	Hand feed operations / Handarbeit
	Maximum production rates / Maximale Produktivität
	Non-metallics / Nichtmetallische Werkstoffe

4 FEEDS
VORSCHUB

Feed is usually measured in milimeters per minute. It is the product of feed per tooth times revolution per minute times the number of teeth in the cutter. Due to variations in cutter sizes, numbers of teeth and revolutions per minute, all feed rates should be calculated from feed per tooth. Feed per tooth is the basis of all feed rates per minute, whether the cutters are large or small, fine or coarse tooth, and are run at high or low peripheral speed. Because feed per tooth affects chip thickness. It is a very important factor in cutter life.
Highest possible feed per tooth will usually give longer cutter life between grinds and greater production per grind. Excessive feeds may over load the cutter teeth and cause breakage or chipping of the cutting edges. The following factors should be kept in mind when using the recommended starting feed per tooth.

Vorschub wird meist in Milimeter pro Minute gemessen. Er ist das Produkt von Vorschub pro Zahn, Umdrehung pro Minute oder der Anzahl der Zähne am Werkzeug. Aufgrund der Variationen in Fräsergrößen, Anzahl der Zähne und Umdrehungen pro Minute, Vorschübe sollten mit Vorschub pro Zahn gerechnet werden. Vorschub pro Zahn ist die Basis für alle Vorschubraten pro Minute unabhängig davon, ob die Fräser groß, klein, mit Fein- oder Grobgewinde und mit hoher- oder niedriger Bogengeschwindigkeit arbeiten. Vorschub pro Zahn beeinflußt Spandicke, was für ein Werkzeug ein sehr wichtiger Faktor ist. Höchstmöglicher Vorschub pro Zahn verursacht meist längeres Werkzeugleben zwischen Abnutzung und Produktivität pro Abnutzung. Exzessiver Vorschub dagegen wird den Werkzeugzahn überbelasten und Beschädigungen oder Abbrökelungen von Schneidkanten verursachen.
Bei der Nutzung von empfohlenen Vorschüben pro Zahn sollten folgende Faktoren berücksichtigt werden.

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR TYPE END MILLS
X5070 END MILLS
4G MILL END MILLS
X-POWER END MILLS
TitaNox-POWER END MILLS
JET-POWER END MILLS
V7 PLUS END MILLS
V7 MILL INOX END MILLS
ALU-POWER END MILLS
D-POWER GRAPHITE END MILLS
D-POWER CFRP END MILLS
ROUTERS
CRX S END MILLS
K-2 END MILLS
GENERAL CARBIDE END MILLS
ONLY ONE COATED PM60 END MILLS
TANK-POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS
TECHNICAL DATA

Feed in milimeters per Minute / Vorschub in Milimeter pro Minute

F.M = F.R. × R.P.M

F.R. : Feed per Revolutions in milimeters / Vorschub pro Umdrehungen pro Minute

R.P.M .: Revolutions per Minutes / Umdrehungen pro Minute

The following factors should be kept in mind when using the recommended stating feed per tooth.

Die folgenden Faktoren sind beim Einsatz der Vorschübe pro Zahn zu berücksichtigen.

Use Higher Feeds For Höherer Vorschub für
Heavy, roughing cuts / Heavy cut, Schruppfräsen
Rigid set-ups / Robustes Werkstück
Easy-to-machine work materials / Leicht fräsbares Material
Rugged cutters / Robuster Fräser
Slab milling cuts / Scheibenfräsen
Low tensile strength materials / Material von niedriger Zugfestigkeit
Coarse tooth cutters / Grobgewinde-Fräser
Abrasive materials / Abrasives Material

Use Lower Feeds For Niedrigerer Vorschub für
Light, and finishing cuts / Light cut, Finishing cut
Frail set-ups / Zerbrechliches Material
Hard to machine work materials / Schwer fräsbares Material
Frail and small cutters / Dünne, kleine Fräser
Deep slots / Tiefnuten
High tensile strength materials / Material von hoher Zugfestigkeit
Fine tooth cutters / Feingewinde-Fräser

SPEED AND FEED CALCULATIONS FOR MILLING CUTTERS AND OTHER ROTATING TOOLS

TO FIND	HAVING		FORMULA
Surface(or Periphery) Speed in meter Per Minute=S.P.M.	Diameter of Tool in milimeters Revolutions per Minute	=D =R.P.M.	$V=\frac{D\times3.1416\times R.P.M.}{1000}$
Revolutions Per Minute=R.P.M.	Surface Speed in meter per Minute Diameter of Tool in milimeters	=S.P.M =D	$R.P.M.=\frac{V\times1000}{D\times3.1416}$
Feed per Revolution in milimeters-F.R.	Feed in milimeters per Minute Revolution per Minute	=F.M. =R.P.M.	$F.R.=\frac{F.M.}{R.P.M.}$
Feed in milimeters Per Minute-F.M.	Feed per Revolution in milimeters Revolution per Minute	=F.R. =R.P.M.	F.M.= F.R. × R.P.M.
Number of Cutting Teeth per Minute=T.M.	Number of Teeth in Tool Revolution per Minute	=T =R.P.M.	T.M=T × R.P.M.
Feed per tooth=F.T.	Number of Teeth in Tool Feed per Revolution in milimeters	=T =R.P.M.	$F.T.=\frac{F.R.}{T}$
Feed per Tooth=F.T.	Number of Teeth in Tool Feed in milimeters per Minute Speed in Revolution per Minute	=T =F.M. =R.P.M.	$F.T.=\frac{F.M.}{T\times R.P.M.}$

5 CASE OF RESHARPENING
NACHSCHLEIFFÄLLE

When the product finish become worse, the cutting edge must get dulled, chips become smaller and the cutting sound gets louder. In such cases, a end mill must be resharpened. The following are the damages of end mills when the resharpening is required.

Wenn die Schneidkante abstumpft, verschlechtert sich die Bearbeitungsqualität, Span wird kürzer und das Fräsgeräusch wird lauter. In solchen Fällen muß der Fräser nachgeschliffen werden. Folgend sind Beschädigungen an Fräser, die das Nachschleifen nötig machen.

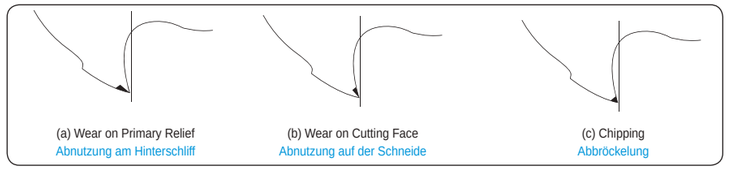


Fig. 1. Damages of Cutting Edge

6 SHARPEN AT PREDETERMINED WEAR LAND
SCHLEIFEN BEI VORBESTIMMTEN ABNUTZUNGSFLÄCHEN

Cutters should be sharpened as soons as the wear land(Fig. 2.) reaches a predetermined width. This width should permit sharpening without excessive loss of tool life. it may vary from a few hunderts to some tenth of a millimeter, depending on the type of cutter and the finish required on the product. This method is used on production runs where uneven amounts of stock is removed or where the material varies in machinability. It is also used on small quantity product lots.

Fräser sollten nachgeschliffen werden, so bald die Abnutzungsfläche die vorbestimmte Breite erreicht. Diese Breite sollte ein Schleifen ohne exzessive Verlust der Werkzeuglebensdauer ermöglichen. Sie variiert, in Abhängigkeit von Werkzeugtypen und benötigtem Finish, von Hunderstel bis einigen Zehntel Millimeter. Diese Methode wird in Prozeßen angewandt, in denen variierende Mengen von Werkstoffen abgefräst oder Materialien verschiedener Fräsbarkeiten bearbeitet werden. Ebenso in Produktionen kleiner Losgrößen.

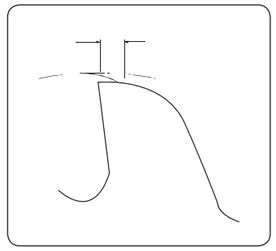


Fig. 2. Wear Land

7 RESHARPENING PERIPHERAL CUTTING EDGE
NACHSCHLEIFEN VON PERIPHER-SCHNEIDKANTEN

1 RESHARPENING PERIPHERAL CUTTING EDGE
Nachschleifen von Primärschneide

The geometry of relief angle in an end mill consist of three methods as shown in Fig.3 concave, flat, and eccentric. Recently, most end mills have the eccentric relief(eccenrtic sharpening). In this method, since the relief is formed an eccentric are surface in cylindrical grinding method, the roughness of the finished surface of the relief improves and the strength of cutting edge increase at the same time.(Fig.4) As a result, the tool life is improved.

Die Geometrie von Hinterschliffwinkel in einem Fräser hat, wie in Fig. 3 gezeigt, 3 verschiedene Variationen : Konkav, Flach und Exzentrisch. In letzter Zeit, die meisten Fräser haben die exzentrische Form. In dieser Methode verbessern sich Oberflächengüte der bearbeiteten Fläche und die Stärke der Schneidkanten gleichzeitig, was eine Verlängerung der Werkzeuglebensdauer zur Folge hat.

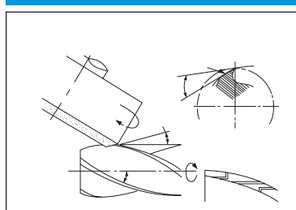
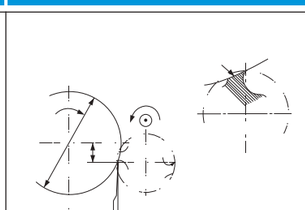
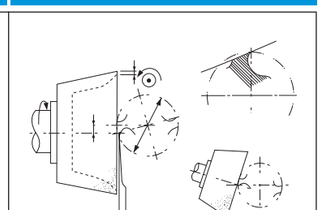
Eccentric	Concave	Flat
		

Fig. 3. Three Types of Primary Relief

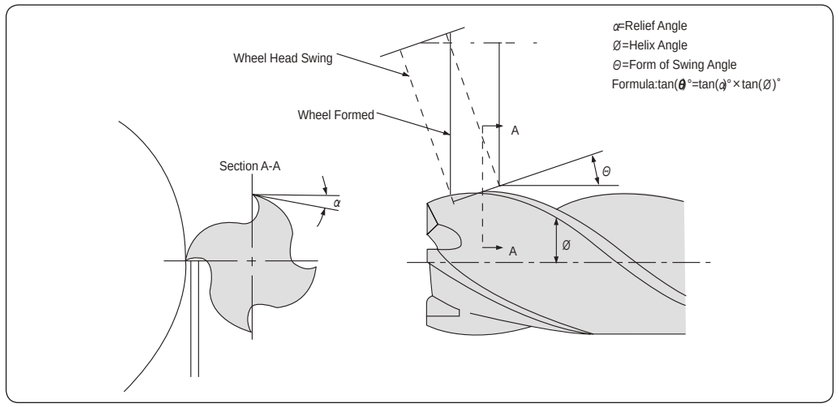


Fig. 4. Toothing of Eccentric Relief Angle

2 ANGLE OF WHEEL INCLINATION
Winkel der Radneigung.

Eccentric relief is produced with a plain wheel positioned with its axis parallel or at a slight angle with the cutter axis. The degree of relief is varied by changing the angle of wheel inclination.

Exzentrischer Hinterschliff wird mit einer, mit der eigenen Achse zur Fräsachse parallelen oder nur geringfügig geneigten Schleifscheibe produziert. Das Grad des Hinterschliffs variiert mit dem Einstellwinkel der Schleifscheiben Einstellung.

Table 1. RECOMMENDED RELIEF ON END MILLS

Mill Diameter (mm)	Eccentric relief indicator drop for relief Angles shown		Checking Distance	Wheel Angles(Deg.)θ			Radial Relief Angles(α1)	Clearance Angles(α2)
				15° Helix	30° Helix	60° Helix		
-	Min	Max.	-	*Angle	*Angle	*Angle	*Angle	*Angle
3.0	0.100	0.130	0.40	4° 24´	9° 25´	26° 28´	16° 02´	25°
6.0	0.090	0.125	0.50	3° 18´	7° 05´	20° 25´	12° 08´	25°
12.0	0.100	0.135	0.65	2° 46´	5° 46´	17° 23´	10° 15´	25°
25.0	0.095	0.140	0.80	2° 15´	4° 15´	14° 16´	8° 21´	25°
40.0	0.085	0.125	0.80	2° 01´	4° 33´	12° 48´	7° 29´	25°
50.0	0.085	0.125	0.80	2° 01´	4° 33´	12° 48´	7° 29´	25°

The actual at the radial relief angle is normally kept within the range shown but may be varied to suit the cutter material, the work material and the operating conditions.
Die Freiwinkel sind normalerweise in den angegebenen Maßen, sie schwanken je nach Werkzeug, Werkstück†und den Einsatzbedingungen

* Angle is calculated from the basic mean at the radical angle.
Der Winkel wird von der Hauptschneide zum Radialwinkel gemessen.

8 RESHARPENING END TEETH
NACHSCHLEIFEN DES ENDZAHNS

The three necessary operations and one option feature, along with setup suggestions are shown in Fig.5 A to D in each drawing, the shaded area indicates the surface being ground.

Die drei nötigen Operationen und eine Option werden, zusammen mit einem Rüstvorschlag, in Bild 5 A bis D gezeigt. Die dunklen Flächen zeigen Bereiche an, die nachgeschliffen werden.

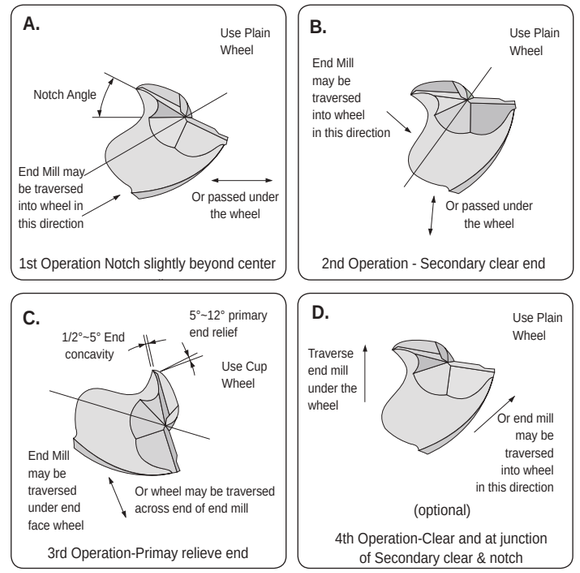


Fig 5. PROCEDURE FOR SHARPENING END OF 2 FLUTE SQUARE END MILLS

9 INSPECTION
INSPEKTION

The inspection is caculated by using the formula shown in Table1.
Procedure To Check
Radial Relief Angles
With Indicators.

1. Mount the cutter to rotate freely with no end movement.
2. Adjust the sharp pointed indicator to bear at the very tip of the cutting edge, pointing in a radial line, shown in Fig.6
3. Roll the outter the tabuleted amount gives under “checking distance” using the second indicator as control.
4. Consult chart for amount of drop for the particular diameter and relief angle.

Die Inspektion wird aufgrund der Formel aus der Tabelle 1 durchgeführt.
Prozedur, um mit Indikator radialen Hinterschliffwinkel zu messen.

1. Fräser so montieren, daß er frei rotiert ohne sich seitlich zu bewegen.
2. Indikator so justieren, daß der Stab, in radiale Richting zeigend, am äußersten Rand der Schneidkante angelegt ist (Bild 6).
3. Den Fräser um tabellierte ‘Checking distance’ rollen. Einen zweiten Indikator zur Kontrolle einsetzen.
4. Um den ‘Drop’ für den gemessenen Durchmesser und Hinterschliffwinkel zu erhalten, Chart konsultieren.

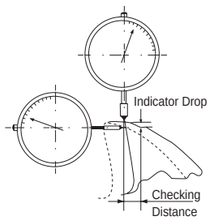
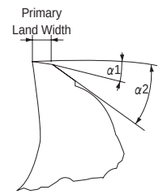
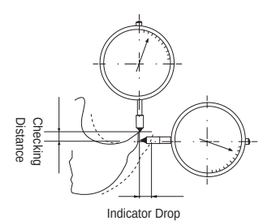
Radial Relief	Peripheral Cutting Edge	Cutting Angle
		

Fig. 6. Indicator Set-Up for Checking

TROUBLE SHOOTING IN MILLING
PROBLEMLÖSUNG BEI FRÄSEN

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Breaking of tool Werkzeugbruch	·At time of engaging with work material Beim Eintritt in das Werkstück ·When ending cut Beim Austritt aus dem Werkstück	1. Decrease feed rate. / Vermindern von Vorschub 2. Decrease projection amount / Schnitttiefe verringern 3. Shorten cutting edge length to required minimum limit Eingriffslänge reduzieren
	·During normal cutting Während des Fräsens	1. Decrease feed rate / Vorschub mindern 2. Control wear → replace tool early Abnutzung kontrollieren - Werkzeug frühzeitig ersetzen 3. Replace chuck or collet / Chuck oder Collet ersetzen 4. Decrease projection amount / Schnitttiefe verringer 5. Carry out honing / Nachschleifen 6. If 4 flute, reduce to 2 flute(clogging of chipping) Wenn 4 Schneiden, zu 2 Schneiden verkleinern 7. If dry cutting change to wet cutting utilize cutting fluid. In case of wet cutting flow oil supplied from the front, change to from rear angle of side top. Use ample with rate. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reichlich gestalten
	·When changing direction of feed Wenn Vorschubrichtung geändert wird	1. Utilize circular interpolation(in case of NC machine) or temporarily stop feed(Dowelling) Circular interpolation benutzen(bei NC-Maschinen) oder Vorschub vorübergehend stoppen. 2. Reduce feed rate before and after change of directions Vor und nach dem Richtungswechsel den Vorschub mindern 3. Replace chuck or collect / Chuck oder Collet ersetzen,
Fracture of cutting edge Beschädigung der Schneidkante	·Fracture of corners Eckenbruch	1. Carry out chamfering or nose with hand lapper. Mit Handlapper eine Abschrägung durchführen. 2. Down cut → Up cut / Down cut → Up cut
	·Fracture at boundary of depth of cut Beschädigung an der Schneidtiefengrenze	1. Down cut → Up cut / Down cut → Up cut 2. Reduce cutting speed / Schneidgeschwindigkeit mindern
	·Chipping at center part or overall Abbröckelung an der Hauptschneide oder überall	1. Carry out honing. Or enlarge. / Nachschleifen oder erweitern 2. Change number of rotation(in case machine vibrates) Drehzahl ändern(wenn Maschine vibriert). 3. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 4. In ease of squeaking noise during cutting, increase feed. Wenn quitschendes Fräsgeräusch zu vernehmen, Vorschub erhöhen. 5. It dry cutting use cutting fluid or blow air. Wenn Trockenfräsen, Kühlflüssigkeit oder Luft zuführen 6. Replace chuck or collet / Chuck oder Collet auswechseln. 7. Reduce cutting speed / Fräsgeschwindigkeit reduzieren.
	·Large fracturing of cutting edge Größere Beschädigung an Schneidkanten	1. Decrease feed rate / Vorschub mindern. 2. If 4 flute reduce to 2 flute Wenn 4 Schneiden, zu 2 Schneiden wechseln. 3. Carry out honing. Or enlarge / Nachschleifen oder erweitern. 4. Replace chuck or collet / Chuck oder Collet auswechseln. 5. Reduce cutting speed / Fräsgeschwindigkeit mindern. 6. If dry cutting, change to wet cutting. In case oil supply in wet cutting is from the front, change to rear at an angle or from side top. Use ample supply. Wenn Trockenfräsen, zu Naßfräsen wechseln. Wenn Naßfräsen mit Kühlflüssigkeitsversorgung von Vorne, zu einer Ölversorgung aus hinterem oder seitlich-oberem Winkel ändern. Ölversorgung reihlich gestalten.

Trouble Problem	Occurrences of trouble Auftreten des Problems	Countermeasures Gegenmaßnahmen
Rapid tool wear Zu schnelle Werkzeugabnutzung		1. Reduce cutting speed / Fräsgeschwindigkeit mindern 2. Up cut → Down cut / Up cut - Down cut 3. Increase feed / Vorschub erhöhen 4. Utilize wet cutting or air / Naßfräsen oder Kühlluft zuführen. 5. If reground tool, improve surface roughness of flank. Beim Nachschleifen, die Oberflächenrauhheit der Hauptfreiflächen verbessern.
Inferior finished surface Ungenügende Bearbeitungsoberfläche	·Surface is good but rough Oberfläche ist gut aber rauh	1. Decrease feed / Vorschub mindern 2. In case using 2 flute, increse to 4 flute Wenn 2 Schneiden, zu 4 Schneiden wechseln
	·Small chip welding Kleine Partikelverschweißung	1. Increase cutting speed / Fräsgeschwindigkeit erhöhen 2. Utilize wet cutting air blow(ample supply) Naßfräsen und Luftzufuhr (reichlich) 3. Carry out fine honing / Feinschliff durchführen 4. Up cut → Down cut / Up cut → Down cut 5. Increase feed or enlarge finish allowance Vorschub erhöhen oder Bearbeitungstoleranz erhöhen
	·With transverse streaks Mit Querstreifen	1. Carry out fine honing / Feinschliff durchführen 2. Use water insoluble cutting fluid Wasserunlösliche Kühlflüssigkeit benutzen. 3. Down cut → Up cut / Down cut → Up cut
	·Signs of excessive cutting Zeichen exzessiven Fräsens	1. Reduce finishing depth of cut / Frästiefe reduzieren. 2. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 3. Reduce feed / Vorschub mindern
Poor machining accuracy Geringe Genauigkeit der Maschine	·Finish dimensions are on minus side Bearbeitungsmaße auf der Minusseite	1. Up cut → Down cut / Up cut→ Down cut 2. Reduce finishing depth of cut / Schlichttiefe verringern reduzieren. 3. Replace chuck or collet / Chuck oder Collet auswechseln. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Increase cutting speed / Fräsgeschwindigkeit reduzieren.
	·Poor perpendicufarity Ungenauer Winkel	1. Reduce finishing depth of cut / Finishing-tiefe reduzieren. 2. Replace chuck or collet / Chuck oder Collet auswechseln. 3. Reduce projection amont / ProjektionsgröBe mindern 4. Increase cutting speed / Fräsgeschwindigkeit erhöhen. 5. 2Flute → 4 Flute / 2 Schneiden → 4 Schneiden 6. Reduce feed / Vorschub mindern. 7. Check wear rate → Replace tool Verschleiß überprüfen → Werkzeug austauschen.
Chattering Rattern		1. Increase feed rate(in case over 0.05 mm/Zahn, try reducing) Vorschub erhöhen(wenn über 0.05mm/Tooth Vorschub reduzieren). 2. Change cutting speed / Fräsgeschwindigkeit ändern. 3. Replace chuck or collet / Chuck oder Collet auswechseln. 4. Reduce projection amount / Projektionsgröße reduzieren. 5. Use 2 flute cutter for rough cutting and 4 flute for finishing 2 Schneiden Fräser zum Schruppen und 4 für Finishing einsetzen. 6. Down cut → Up cut / Down cut → Up cut

TECHNICAL DATA

SUPER CUTTING END MILLS
HOCHLEISTUNGS FRÄSER

COMPARISON CHART SCALE FOR HARDNESS
VERGLEICHSTABELLE FÜR HÄRTESKALEN

Rockwell Hardness C Scale 150kg Brale (HRc)	Diamond Pyramid Hardness Number. Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm^2
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520