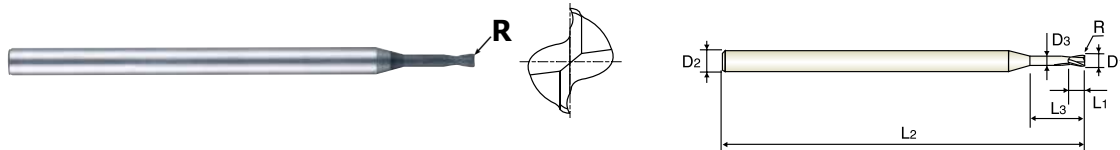


CARBIDE, 2 FLUTE MINIATURE CORNER RADIUS with NECK

GERMANY VOLLHARTMETALL, 2 SCHNEIDEN MINI ECKENRADIUS mit ABGESETZTEM SCHAFTTETTEL
FRANCE Fraise carbure, 2 dents, torique, détalonnée, micro-fraise
ITALY 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.



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
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

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P									M						K					
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					
ISO Material Description	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎												

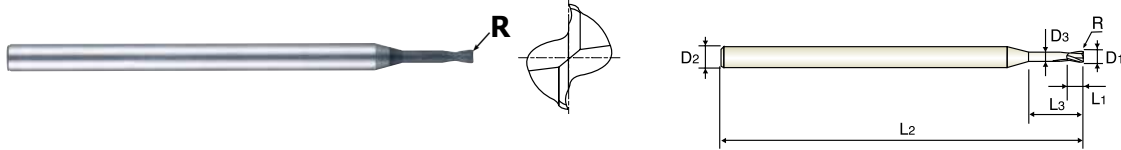


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Unit : mm

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
E199603020300	R0.2	3.0	4	3	30	75	2.9
E199604020200	R0.2	4.0	6	4	20	65	3.9
E199604020300	R0.2	4.0	6	4	30	75	3.9
E199604020400	R0.2	4.0	6	4	40	90	3.9
E199605030200	R0.3	5.0	6	5	20	75	4.9
E199605030300	R0.3	5.0	6	5	30	75	4.9
E199605030400	R0.3	5.0	6	5	40	90	4.9
E199605030500	R0.3	5.0	6	5	50	90	4.9
E199606030300	R0.3	6.0	6	6	30	75	5.9
E199606030400	R0.3	6.0	6	6	40	90	5.9
E199606030500	R0.3	6.0	6	6	50	90	5.9
E199606030600	R0.3	6.0	6	6	60	100	5.9

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ - 0.02	h5

◎ : Excellent ○ : Good

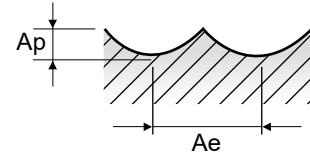
ISO Material Description	P										M				K								
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRC	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	25	21				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230			
Recommend																							

ISO Material Description	N					S					H															
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41					
HRC	60	100	75	90	130	110	90	100			15	30	25	38	34	200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○				◎																	

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

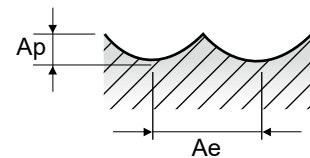
EI997, EIB93, EIB87 SERIES **2 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	0.2D	0.2D	Vc	50	75	100	125	150	190	250	255	250	265	
					fz	0.008	0.010	0.012	0.015	0.018	0.020	0.025	0.041	0.073	0.091	0.104
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
					FEED	637	796	955	1194	1432	1613	1989	2219	2905	2897	2924



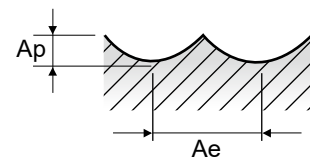
EI880, EI451, EI450 SERIES **2 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395
					fz	0.025	0.035	0.045	0.055	0.066	0.082	0.098	0.115	0.133	0.150
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478
					FEED	796	1114	1432	1751	2101	2558	2963	2974	3048	3143



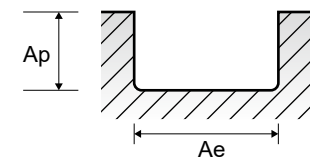
EI881 SERIES **3 FLUTE BALL NOSE**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0	10.0	12.0
N	29.2	Graphite	0.2D	0.2D	Vc	100	125	150	175	200	245	285	325	360	395
					fz	0.025	0.035	0.045	0.055	0.065	0.082	0.099	0.115	0.133	0.151
					RPM	15915	15915	15915	15915	15915	15597	15120	12931	11459	10478
					FEED	1194	1671	2149	2626	3104	3837	4491	4461	4572	4746



EI996, EIB86 SERIES **2 FLUTE CORNER RADIUS - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)										
						0.4	0.6	0.8	1.0	1.2	1.5	2.0	3.0	4.0	5.0	6.0
N	29.2	Graphite	1.0D	0.5D	Vc	50	75	100	125	150	190	250	255	250	265	
					fz	0.008	0.008	0.010	0.012	0.015	0.018	0.020	0.035	0.058	0.072	0.082
					RPM	39789	39789	39789	39789	39789	40319	39789	27056	19894	15915	14059
					FEED	637	637	796	955	1194	1451	1592	1894	2308	2292	2306



SELECTION GUIDE



SERIES	EI997	EIB93	EI880
FLUTE	2	2	2
HELIX ANGLE	30°	30°	30°
CUTTING EDGE SHAPE	BALL NOSE	BALL NOSE	BALL NOSE
SIZE MIN	R0.1	R0.2	R1.0
SIZE MAX	R3.0	R2.0	R6.0
PAGE	502	504	505

SOLID CARBIDE
D-POWER
 for GRAPHITE
END MILLS

High performance on graphite



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

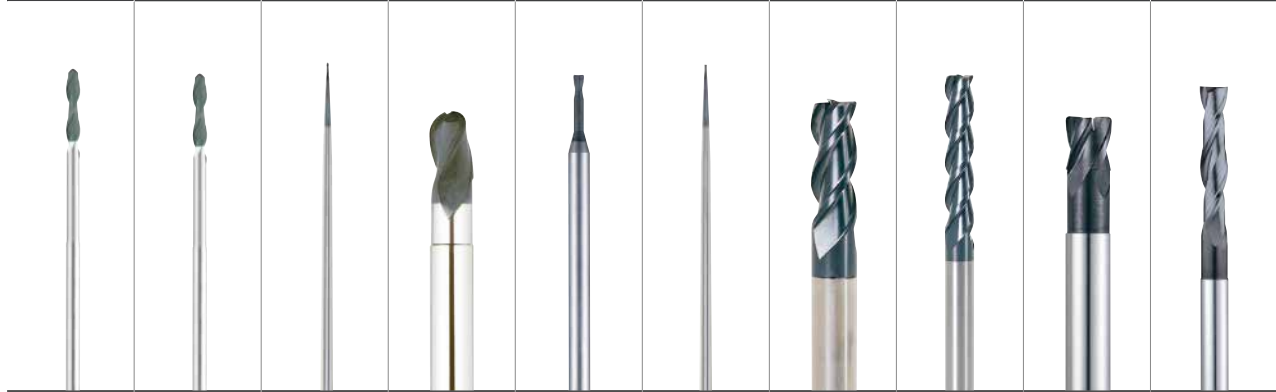
Recommended cutting conditions : P 517

MINIATURE NECK	MINIATURE NECK	SHORT LENGTH NECK
Diamond	Diamond	Diamond



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc
P	1	Non-alloy steel	About 0.15% C Annealed	125	
	2		About 0.45% C Annealed	190	13
	3		About 0.45% C Quenched & Tempered	250	25
	4		About 0.75% C Annealed	270	28
	5		About 0.75% C Quenched & Tempered	300	32
	6	Low alloy steel	Annealed	180	10
	7		Quenched & Tempered	275	29
	8		Quenched & Tempered	300	32
	9		Quenched & Tempered	350	38
	10		High alloyed steel, and tool steel	Annealed	200
	11	Quenched & Tempered		325	35
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15
	13		Martensitic Quenched & Tempered	240	23
	14		Austenitic	180	10
K	15	Grey cast iron	Pearlitic / ferritic	180	10
	16		Pearlitic (Martensitic)	260	26
	17	Nodular cast iron	Ferritic	160	3
	18		Pearlitic	250	25
	19	Malleable cast iron	Ferritic	130	
	20		Pearlitic	230	21
N	21	Aluminum-wrought alloy	Not Curable	60	
	22		Curable Hardened	100	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75	
	24		≤ 12% Si, Curable Hardened	90	
	25		> 12% Si, Not Curable	130	
	26		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90
	27	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper	100	
	28				
	29.1		Duroplastic, Fiber Reinforced Plastic		
	29.2	Non Metallic Materials	Graphite		
29.3	CFRP, GFRP				
30	Rubber, Wood, etc.				
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15
	32		Cured	280	30
	33		Annealed	250	25
	34		Ni or Co Based Cured	350	38
	35		Cast	320	34
	36	Titanium Alloys	Pure Titanium	400 Rm	
	37		Alpha + Beta Alloys Hardened	1050 Rm	
H	38	Hardened steel	Hardened	550	55
	39		Hardened	630	60
	40	Chilled Cast Iron	Cast	400	42
	41	Hardened Cast Iron	Hardened	550	55

EI451	EI450	EIB87	EI881	EI996	EIB86	EIA13	EIA14	EIB88	EIB04
2	2	2	3	2	2	3	3	4	2
30°	30°	30°	30°	30°	30°	40°	40°	30°	30°
BALL NOSE	BALL NOSE	BALL NOSE	BALL NOSE	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	CORNER RADIUS	SQUARE
R1.0	R1.0	R0.5	R1.0	D0.2	D1.0	D2.0	D2.0	D6.0	D0.5
R6.0	R6.0	R1.0	R6.0	D6.0	D2.0	D12.0	D12.0	D12.0	D12.0
506	507	508	509	510	512	513	514	515	516
LONG LENGTH NECK	LONG REACH NECK	TAPER NECK	SHORT LENGTH NECK	MINIATURE NECK	TAPER NECK	SHORT LENGTH	LONG LENGTH	NECK	LONG LENGTH NECK
Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond	Diamond



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HSS

CBN END MILLS

i-Xmill END MILLS

i-SMART MODULAR END MILLS

X5070 END MILLS

4G MILL END MILLS

X-POWER PRO END MILLS

TitaNox-POWER END MILLS

JET-POWER END MILLS

V7 PLUS END MILLS

ALU-POWER HPC 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

ONLY ONE COATED PM60 END MILLS

TANK-POWER END MILLS

GENERAL HSS END MILLS

MILLING CUTTERS

TECHNICAL DATA