ดอกเอ็นมิลล์
EPOCH POWER MILL
EPP4

Regular

Planing | Side Cutting | Radius | Roughing | Semi Finishing | Finishing | P (Steel) | H (High hardened) | M (Stainless) | S (Titanium alloy) | N (Non ferrous) | CARBIDE | C COATED | Helix angle 43°

Dia. tolerance
Ø2 ～Ø6 : 0～ -0.015
Ø6.5～Ø25 : 0～ -0.02

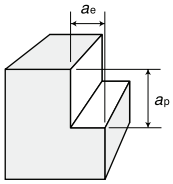
h6
Ds ≦6 : 0～ -0.008
6＜Ds ≦10 : 0～ -0.009
10＜Ds ≦18 : 0～ -0.011
18＜Ds : 0～ -0.013
(mm)

Excellent chip removal enables high efficiency.

Item Code	Stock	Size (mm)			
		Tool Dia.	Flute Length	Overall length	Shank Dia.
EPP4020	☐	2	6	60	6
EPP4025	☐	2.5	8	60	6
EPP4030	●	3	8	60	6
EPP4035	☐	3.5	10	60	6
EPP4040	●	4	11	60	6
EPP4045	☐	4.5	11	60	6
EPP4050	●	5	13	60	6
EPP4055	☐	5.5	13	60	6
EPP4060	●	6	13	60	6
EPP4065	☐	6.6	16	70	8
EPP4070	●	7	16	70	8
EPP4075	☐	7.5	16	70	8
EPP4080	●	8	19	75	8
EPP4085	☐	8.5	19	80	10
EPP4090	●	9	19	80	10
EPP4095	☐	9.5	19	80	10

Item Code	Stock	Size (mm)			
		Tool Dia.	Flute Length	Overall length	Shank Dia.
EPP4100	●	10	22	80	10
EPP4110	●	11	22	100	12
EPP4120	●	12	26	100	12
EPP4130	●	13	26	100	12
EPP4140	●	14	26	110	16
EPP4150	●	15	26	110	16
EPP4160	●	16	32	110	16
EPP4170	●	17	32	110	16
EPP4180	●	18	32	125	20
EPP4190	●	19	32	125	20
EPP4200	●	20	38	125	20
EPP4210	☐	21	38	125	20
EPP4220	☐	22	38	125	20
EPP4230	☐	23	45	140	25
EPP4240	☐	24	45	140	25
EPP4250	☐	25	63	140	25

● : Stocked Items. ☐ : Stocked by specified distributor. Contact with our sales department.



Recommended cutting conditions

EPP

Side Milling

Work material (Hardness)	Condition Range	Depth of cut (mm)	Cutting Conditions	Dc Tool Dia. (mm)								
				Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Cast Iron (150 ~ 200HB) FC250	High Speed	ap=1.5Dc	min^{-1}	12,700	9,550	7,640	6,370	4,770	3,820	3,180	2,390	1,910
		ae=0.1Dc	mm / min	1,020	1,150	1,220	1,270	1,340	1,220	1,140	960	920
	General	ap=1.5Dc	min^{-1}	10,600	7,960	6,370	5,310	3,980	3,180	2,650	1,990	1,590
		ae=0.15Dc	mm / min	850	960	1,020	1,060	1,110	1,020	950	800	760
Carbon Steels (180 ~ 220HB) SS400, S50C	High Speed	ap=1.5Dc	min^{-1}	12,700	9,550	7,640	6,370	4,770	3,820	3,180	2,390	1,910
		ae=0.1Dc	mm / min	1,020	1,150	1,220	1,270	1,340	1,220	1,140	960	920
	General	ap=1.5Dc	min^{-1}	10,600	7,690	6,370	5,310	3,980	3,180	2,650	1,990	1,590
		ae=0.1Dc	mm / min	850	960	1,020	1,060	1,110	1,020	950	800	760
Alloy Steels (200 ~ 250HB) SCM440, SNCM	High Speed	ap=1.5Dc	min^{-1}	10,600	7,960	6,370	5,310	3,980	3,180	2,650	1,990	1,590
		ae=0.1Dc	mm / min	850	960	1,020	1,060	1,110	1.020	950	800	760
	General	ap=1.5Dc	min^{-1}	8,490	6,370	5,090	4,240	3,180	2,550	2,120	1,590	1,270
		ae=0.1Dc	mm / min	680	790	810	850	890	820	760	640	610
Stainless Steels, Tool Steels (25 ~ 35HRC) SUS304, SKD	High Speed	ap=1.5Dc	min^{-1}	8,490	6,370	5,090	4,240	3,180	2,550	2,120	1,590	1,270
		ae=0.1Dc	mm / min	510	640	710	680	640	610	590	540	510
	General	ap=1.5Dc	min^{-1}	6,370	4,770	3,820	3,180	2,390	1,910	1,590	1,190	950
		ae=0.1Dc	mm / min	380	480	530	510	480	460	450	400	380
Pre-Hardened Steels (35 ~ 45HRC) HPM1, NAK55	High Speed	ap=1.5Dc	min^{-1}	8,490	6,370	5,090	4,240	3.180	2,550	2,120	1,590	1,270
		ae=0.1Dc	mm / min	510	640	710	680	640	610	590	540	510
	General	ap=1.5Dc	min^{-1}	6,370	4,770	3,820	3,180	2,390	1,910	1,590	1,190	950
		ae=0.1Dc	mm / min	380	480	530	510	480	460	450	400	380

END MILL
ดอกเอ็นมิลล์

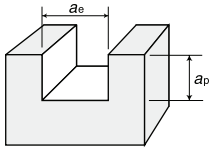
MOLDINO
The Edge To Innovation

Work material (Hardness)	Condition Range	Depth of cut (mm)	Cutting Conditions	Dc Tool Dia. (mm) Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Hardened Steels (45 ~ 55HRC) SKD61, SKT4	High Speed	ap=1.5Dc	min^{-1}	6,370	4,770	3,820	3,180	2,390	1,910	1,590	1,190	950
		ae=0.05Dc	mm / min	250	380	460	450	430	420	380	330	300
	General	ap=1.5Dc	min^{-1}	4,240	3,180	2,550	2,120	1,590	1,270	1,060	800	640
		ae=0.05Dc	mm / min	170	250	310	300	290	280	250	220	200
Titanium Alloy Ti-6Al-4V	High Speed	ap=1.5Dc	min^{-1}	6,370	4,770	3,820	3,180	2,390	1,190	1,590	1,190	950
		ae=0.05Dc	mm / min	250	380	460	450	430	420	380	330	300
	General	ap=1.5Dc	min^{-1}	4,240	3,180	2,550	2,120	1,590	1,270	1,060	800	640
		ae=0.05Dc	mm / min	170	250	310	300	290	280	250	220	200
Super Heat-resistant Steels Inconel Hasteloy	High Speed	ap=1.5Dc	min^{-1}	2,650	1,990	1,590	1,330	990	800	660	500	400
		ae=0.05Dc	mm / min	110	160	190	190	180	180	160	140	130
	General	ap=1.5Dc	min^{-1}	2,120	1,590	1,270	1,060	800	640	530	400	320
		ae=0.05Dc	mm / min	85	130	150	150	140	140	130	110	110

【Note】
① Down-cutting is recommended.
② Use generally dry (air-blow) or oil-mist coolant, especially at the high-speed machining.
③ Oil base coolant is recommended for machining stainless steels and heat-resistant steels.
④ Use a machine tool with rigidity and rigid set-up, to machine stably.
⑤ When the revolution speed is not enough, reduce the revolution speed and table speed at the same ratio.
⑥ Adjust the revolution speed and table speed, according to cutting conditions such as machining shape, rigidity of machine tool, over-hang and so on.

DEEP SERIES
เอ็นมิลล์ตระกูลดีฟ
CBN END MILL
CBN เอ็นมิลล์
Carbide Endmill
เอ็นมิลล์คาร์ไบด์
HSS Endmill
เอ็นมิลล์ไฮสปีด
Ball
หัวบอล
Radius
หัวกัดมุม R
Square
หัวตัด
Taper Ball
หัวเตเปอร์บอล
Roughing

Recommended cutting conditions



EPP

Slotting

Work material (Hardness)	Condition Range	Depth of cut (mm)	Cutting Conditions	Dc Tool Dia. (mm) Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
Cast Iron (150 ~ 200HB) FC250	High Speed	ap≦0.5Dc	min^{-1}	5,310	3,980	3,180	2,650	1,990	1,590	1,330	990	800
		ae=1Dc	mm / min	420	480	510	530	560	510	480	400	380
	General	ap≦1Dc	min^{-1}	3,180	2,390	1,910	1,590	1,190	950	800	600	480
		ae=1Dc	mm / min	250	290	310	320	330	300	290	240	230
Carbon Steels (180 ~ 220HB) SS400, S50C	High Speed	ap≦0.5Dc	min^{-1}	8,490	6,370	5,090	4,240	3,180	2,550	2,120	1,590	1,270
		ae=1Dc	mm / min	680	760	810	850	890	820	760	640	610
	General	ap≦1Dc	min^{-1}	7,430	5,570	4,460	3,710	2,790	2,230	1,860	1,390	1,110
		ae=1Dc	mm / min	590	670	710	740	780	710	670	560	530
Alloy Steels (200 ~ 250HB) SCM440, SNCM	High Speed	ap≦0.5Dc	min^{-1}	7,430	5,570	4,460	3,710	2,790	2,230	1,860	1,390	1,110
		ae=1Dc	mm / min	590	670	710	740	780	710	670	560	530
	General	ap≦1Dc	min^{-1}	5,310	3,980	3,180	2,650	1,990	1,590	1,330	990	800
		ae=1Dc	mm / min	420	480	510	530	560	510	480	400	380
Stainless Steels, Tool Steels (25 ~ 35HRC) SUS304, SKD	High Speed	ap≦0.2Dc	min^{-1}	5,310	3,980	3,180	2,650	1,990	1,590	1,330	990	800
		ae=1Dc	mm / min	320	400	450	420	400	380	370	340	320
	General	ap≦0.5Dc	min^{-1}	4,240	3,180	2,550	2,120	1,590	1,270	1,060	800	640
		ae=1Dc	mm / min	250	320	360	340	320	300	300	270	260
Pre-Hardened Steels (35 ~ 45HRC) HPM1, NAK55	High Speed	ap≦0.2Dc	min^{-1}	5,310	3,980	3,180	2,650	1,990	1,590	1,330	990	800
		ae=1Dc	mm / min	320	400	450	420	400	380	370	340	320
	General	ap≦0.5Dc	min^{-1}	4,240	3,180	2,550	2,120	1,590	1,270	1,060	800	640
		ae=1Dc	mm / min	250	320	360	340	320	300	300	270	260
Hardened Steels (45 ~ 55HRC) SKD61, SKT4	High Speed	ap=	min^{-1}									
		ae=	mm / min									
	General	ap≦0.2Dc	min^{-1}	2,120	1,590	1,270	1,060	800	640	530	400	320
		ae=1Dc	mm / min	85	130	150	150	140	140	130	110	100
Titanium Alloy Ti-6Al-4V	High Speed	ap=	min^{-1}									
		ae=	mm / min									
	General	ap≦0.2Dc	min^{-1}	3,180	2,390	1,910	1,590	1,190	950	800	600	480
		ae=1Dc	mm / min	130	190	230	220	210	210	190	170	150
Super Heat-resistant Steels Inconel Hasteloy	High Speed	ap=	min^{-1}									
		ae=	mm / min									
	General	ap≦0.2Dc	min^{-1}	1,590	1,190	950	800	600	480	400	300	240
		ae=1Dc	mm / min	65	95	110	110	110	110	95	85	75

【Note】
① Use generally dry (air-blow) or oil-mist coolant, especially at the high-speed machining.
② Oil base coolant is recommended for machining stainless steels and heat-resistant steels.
③ Use a machine tool with rigidity and rigid set-up, to machine stably.
④ When the revolution speed is not enough, reduce the revolution speed and table speed at the same ratio.
⑤ Adjust the revolution speed and table speed, according to cutting conditions such as machining shape, rigidity of machine tool, over-hang and so on.