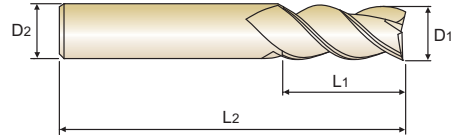


SOLID CARBIDE ALU-POWER END MILLS
CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

E5E49 SERIES

- ▶ Excellent results on aluminum and copper materials
- ▶ Optimized cutting edges for increased tool life
- ▶ Mirror surface flutes for excellent chip evacuation and surface finish



p.30

* NEW SIZE

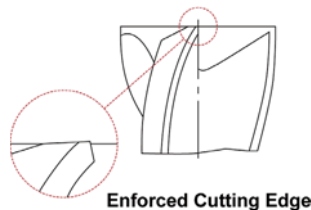
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49010	1.0	6	2	40
* E5E49901	1.0	6	3	50
* E5E49902	1.0	6	4	60
* E5E49903	1.0	6	5	60
* E5E49904	1.0	6	6	60
* E5E49015	1.5	6	3	40
* E5E49905	1.5	6	4	40
* E5E49906	1.5	6	5	50
* E5E49907	1.5	6	6	60
* E5E49908	1.5	6	8	60
* E5E49909	1.5	6	10	60
* E5E49020	2.0	6	3	40
* E5E49910	2.0	6	5	50
* E5E49911	2.0	6	6	50
* E5E49912	2.0	6	7	50
* E5E49913	2.0	6	8	60
* E5E49914	2.0	6	10	60

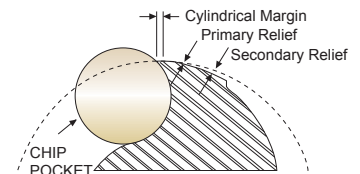
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

ISO	P											M			K							
Material Description	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	N										S						H					
Material Description	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	◎	◎	◎	◎	○																	

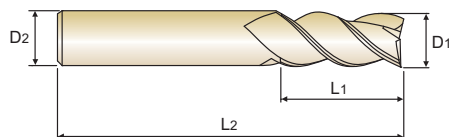
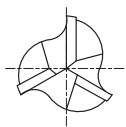
SOLID CARBIDE ALU-POWER END MILLS CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

NEW SIZES

E5E49 SERIES

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p.30

* NEW SIZE

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49915	2.0	6	12	60
* E5E49025	2.5	6	4	40
* E5E49916	2.5	6	8	40
* E5E49917	2.5	6	10	55
* E5E49918	2.5	6	12	60
* E5E49919	2.5	6	15	60
* E5E49920	3.0	6	4	45
* E5E49921	3.0	6	8	45
* E5E49922	3.0	6	11	55
E5E49030	3.0	6	12	57
* E5E49923	3.0	6	15	65
* E5E49924	3.0	6	20	70
* E5E49925	3.0	6	25	75
* E5E49926	3.0	6	30	80
* E5E49035	3.5	6	12	55
* E5E49927	4.0	6	5	45
* E5E49928	4.0	6	8	45

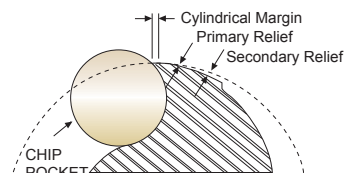
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

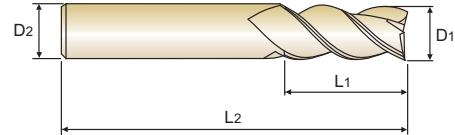
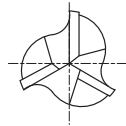
ISO	P											M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32		10	29	32	38	15	35	15	23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

SOLID CARBIDE ALU-POWER END MILLS
CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

E5E49 SERIES

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* NEW SIZE

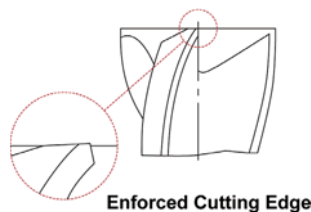
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49929	4.0	6	11	45
* E5E49930	4.0	6	13	55
E5E49040	4.0	6	15	57
* E5E49931	4.0	6	20	70
* E5E49932	4.0	6	26	75
* E5E49933	4.0	6	30	80
* E5E49045	4.5	6	15	55
* E5E49934	5.0	6	13	50
* E5E49935	5.0	6	17	55
E5E49050	5.0	6	20	57
* E5E49936	5.0	6	22	60
* E5E49937	5.0	6	25	70
* E5E49938	5.0	6	30	75
* E5E49939	5.0	6	35	80
* E5E49940	5.0	6	40	85
* E5E49941	5.0	6	45	90
* E5E49055	5.5	6	17	55

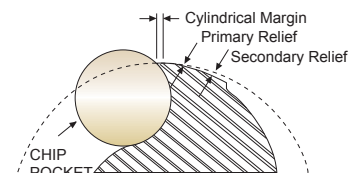
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	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	N										S						H						
Material Description	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	◎	◎	◎	◎	○																		

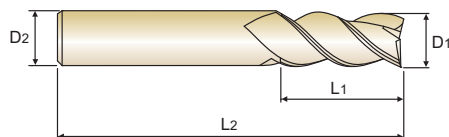
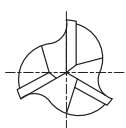
SOLID CARBIDE ALU-POWER END MILLS CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

NEW
SIZES

E5E49 SERIES

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p.30

* NEW SIZE

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49942	6.0	6	13	50
* E5E49943	6.0	6	17	60
E5E49060	6.0	6	20	65
* E5E49944	6.0	6	25	70
* E5E49945	6.0	6	30	75
* E5E49946	6.0	6	35	80
* E5E49947	6.0	6	42	90
* E5E49948	6.0	6	50	100
* E5E49070	7.0	8	22	65
* E5E49949	8.0	8	19	60
E5E49080	8.0	8	22	65
* E5E49950	8.0	8	28	80
* E5E49951	8.0	8	30	80
* E5E49952	8.0	8	35	85
* E5E49953	8.0	8	40	90
* E5E49954	8.0	8	45	95
* E5E49955	8.0	8	50	100

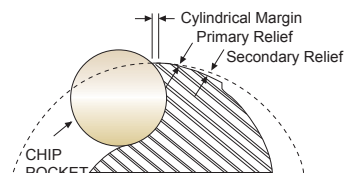
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

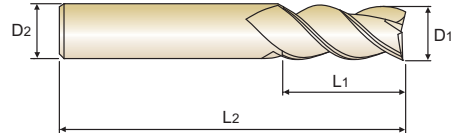
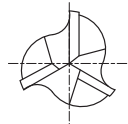
ISO	P											M			K								
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
HRc	13	25	28	32		10	29	32	38	15	35	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	N										S						H						
Material Description	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	◎	◎	◎	◎	○																		

SOLID CARBIDE ALU-POWER END MILLS
CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

E5E49 SERIES

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p.30

* NEW SIZE

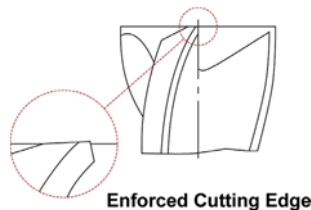
Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49956	8.0	8	55	105
* E5E49957	8.0	8	60	110
* E5E49958	8.0	8	65	110
* E5E49090	9.0	10	27	70
* E5E49959	10.0	10	22	65
E5E49100	10.0	10	25	70
* E5E49960	10.0	10	32	90
* E5E49961	10.0	10	35	90
* E5E49962	10.0	10	40	90
* E5E49963	10.0	10	45	100
* E5E49964	10.0	10	50	100
* E5E49965	10.0	10	55	110
* E5E49966	10.0	10	60	110
* E5E49967	10.0	10	65	120
E5E49120	12.0	12	25	75
* E5E49968	12.0	12	30	80
* E5E49969	12.0	12	35	80

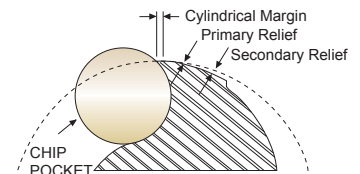
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

ISO	P											M			K								
Material Description	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	N										S						H						
Material Description	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	◎	◎	◎	◎	○																		

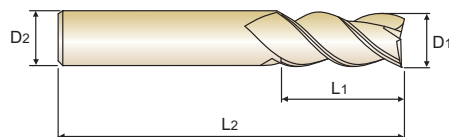
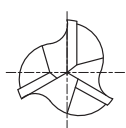
SOLID CARBIDE ALU-POWER END MILLS CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

NEW
SIZES

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* NEW SIZE

Unit : mm

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49970	12.0	12	40	95
* E5E49971	12.0	12	45	100
* E5E49972	12.0	12	50	100
* E5E49973	12.0	12	55	110
* E5E49974	12.0	12	60	110
* E5E49975	12.0	12	65	120
* E5E49976	12.0	12	70	120
* E5E49977	12.0	12	75	135
* E5E49978	12.0	12	80	140
* E5E49979	12.0	12	90	150
* E5E49140	14.0	14	37	90
* E5E49980	16.0	16	32	90
E5E49160	16.0	16	35	90
* E5E49981	16.0	16	45	100
* E5E49982	16.0	16	55	110
* E5E49983	16.0	16	65	130
* E5E49984	16.0	16	75	150

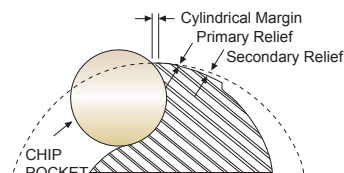
▶ DLC Coatings is available on your request.

▶ NEXT PAGE

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

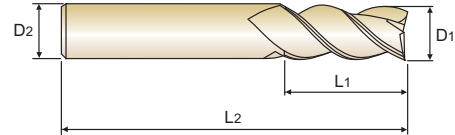
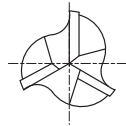
ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	12	23	10	10	26	3	25	42	21
HB	125	190	250	270	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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc											15	30	25	38	34			55	60	42
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400
Recommend	◎	◎	◎	◎	○															

SOLID CARBIDE ALU-POWER END MILLS
CARBIDE, 3 FLUTE 45° HELIX LONG LENGTH

PLAIN SHANK

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p.30

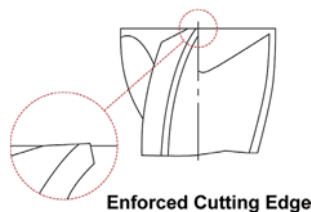
* NEW SIZE

Unit : mm

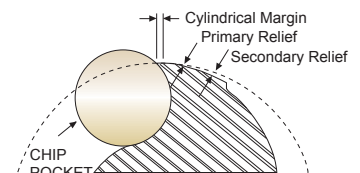
EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
	D1	D2	L1	L2
* E5E49985	16.0	16	85	160
* E5E49986	16.0	16	95	180
* E5E49987	16.0	16	105	190
* E5E49988	16.0	16	115	200
* E5E49180	18.0	18	48	100
E5E49200	20.0	20	40	100
* E5E49989	20.0	20	45	100
* E5E49990	20.0	20	55	110
* E5E49991	20.0	20	65	130
* E5E49992	20.0	20	75	150
* E5E49993	20.0	20	85	160
* E5E49994	20.0	20	95	180
* E5E49995	20.0	20	105	190
* E5E49996	20.0	20	115	200
* E5E49997	20.0	20	125	220

- ▶ DLC Coatings is available on your request.

Mill Dia. Tolerance (mm)	Shank Dia. Tolerance
0 ~ -0.015	h5



Enforced Cutting Edge



◎ : Excellent ○ : Good

ISO	P											M			K							
Material Description	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	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	N										S							H				
Material Description	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	◎	◎	◎	◎	○																	

E5E49 SERIES

3 FLUTE - SLOTTING

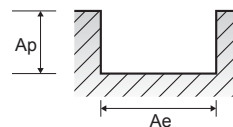
Vc = m/min. fz = mm/tooth
RPM = rev./min. FEED = mm/min.

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	53	61	63	63	65	75	90	100	110	120
					fz	0.023	0.027	0.027	0.033	0.035	0.035	0.045	0.050	0.050	0.060
					RPM	16870	12945	10027	8021	6897	6821	7162	7074	7003	6945
					FEED	1164	1049	812	794	724	716	967	1061	1050	1250
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	34	40	41	41	42	49	59	65	72	78
					fz	0.023	0.027	0.027	0.033	0.035	0.035	0.045	0.050	0.050	0.060
					RPM	10823	8488	6525	5220	4483	4456	4655	4598	4552	4514
					FEED	747	688	529	517	471	468	628	690	683	813

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	7.0	8.0	9.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	0.5D	Vc	130	130	140	160	175	210	185	210	160	175
					fz	0.060	0.081	0.088	0.097	0.106	0.131	0.150	0.158	0.173	0.200
					RPM	6897	5911	5570	5659	5570	4206	4178	2829	2785	
					FEED	1241	1436	1471	1647	1771	2189	1893	1980	1468	1671
	23~24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	85	85	91	104	114	137	120	137	104	114
					fz	0.060	0.081	0.088	0.097	0.106	0.131	0.150	0.158	0.173	0.200
					RPM	4483	3865	3621	3678	3621	3621	2728	2716	1839	1810
					FEED	807	939	956	1070	1151	1423	1228	1287	954	1086

※ For long flute tools, it is recommended to adjust the conditions according to the following ratios.

Length of Cut	RPM	FEED
Up to 3D	100%	100%
Up to 5D	70%	80%
Up to 7D	Not recommended	
Over 7D		



3 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
N	21~22	Aluminum-wrought alloy	0.15D	1.5D ~ 2.5D	Vc	53	61	63	63	65	75	90	100	110	120
					fz	0.038	0.046	0.044	0.046	0.045	0.054	0.055	0.060	0.065	0.069
					RPM	16870	12945	10027	8021	6897	6821	7162	7074	7003	6945
					FEED	1923	1786	1324	1107	931	1105	1182	1273	1366	1438
	23~24	Aluminum-cast, alloyed	0.15D	1.5D ~ 2.5D	Vc	34	40	41	41	42	49	59	65	72	78
					fz	0.038	0.046	0.044	0.046	0.045	0.054	0.055	0.060	0.065	0.069
					RPM	10823	8488	6525	5220	4483	4456	4655	4598	4552	4514
					FEED	1234	1171	861	720	605	722	768	828	888	934

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						6.0	7.0	8.0	9.0	10.0	12.0	14.0	16.0	18.0	20.0
N	21~22	Aluminum-wrought alloy	0.15D	1.5D ~ 2.5D	Vc	130	130	140	160	175	210	185	210	160	175
					fz	0.075	0.096	0.113	0.122	0.131	0.163	0.183	0.200	0.225	0.238
					RPM	6897	5911	5570	5659	5570	5570	4206	4178	2829	2785
					FEED	1552	1702	1888	2071	2189	2724	2309	2507	1910	1989
	23~24	Aluminum-cast, alloyed	0.15D	1.5D ~ 2.5D	Vc	85	85	91	104	114	137	120	137	104	114
					fz	0.075	0.096	0.113	0.122	0.131	0.163	0.183	0.200	0.225	0.238
					RPM	4483	3865	3621	3678	3621	3621	2728	2716	1839	1810
					FEED	1009	1113	1227	1346	1423	1771	1498	1629	1241	1293

※ For long flute tools, it is recommended to adjust the conditions according to the following ratios.

Length of Cut	RPM	FEED
Up to 3D	100%	100%
Up to 5D	70%	70%
Up to 7D	40%	70%
Over 7D	40%	50%

