Leading Through Innovation

SOLID CARBIDE

ALU-POWER HPC END MILLS

Alu Power HPC VHM Fräser

- For Aluminum, Aluminum Die Cast, Non-ferrous Alloys and Plastics
- Für Aluminium, Aluminiumdruckguss, Nichteisenlegierungen und Kunststoffe

SELECTION GUIDE

MILLING TOOLS

SOLID CARBIDE
ALU-POWER HPC
END MILLS

3-Flute, High-Performance,
For Aluminum, Aluminum Die Cast,
Non-Ferrous Alloys And Plastics

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C500

SERIES	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23	E5I86 E5I87
FLUTE	3	3	3	3	3
HELIX ANGLE	37°	37°	37°	37°	37°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE	CORNER RADIUS
SIZE MIN	D6.0	D6.0	D3.0	D6.0	D6.0
SIZE MAX	D20.0	D20.0	D25.0	D20.0	D20.0
PAGE	C490	C493	C496	C497	C498
	-	EXTENDED NECK	-	EXTENDED NECK	-
	Uncoated	Uncoated	Uncoated	Uncoated	Uncoated
	DLC	DLC	DLC	DLC	CHIP BREAKER

	ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc					
P		1	Non-alloy steel	About 0.15% C	Annealed	125						1
		2		About 0.45% C	Annealed	190	13					2
		3		About 0.45% C	Quenched & Tempered	250	25					3
		4		About 0.75% C	Annealed	270	28					4
		5		About 0.75% C	Quenched & Tempered	300	32					5
		6	Low alloy steel		Annealed	180	10					6
		7			Quenched & Tempered	275	29					7
		8			Quenched & Tempered	300	32					8
		9			Quenched & Tempered	350	38					9
		10	High alloyed steel, and tool steel		Annealed	200	15					10
		11			Quenched & Tempered	325	35					11
M		12	Stainless steel	Ferritic / Martensitic	Annealed	200	15					12
		13		Martensitic	Quenched & Tempered	240	23					13
		14		Austenitic		180	10					14
K		15	Grey cast iron	Pearlitic / ferritic		180	10					15
		16		Pearlitic (Martensitic)		260	26					16
		17	Nodular cast iron	Ferritic		160	3					17
		18		Pearlitic		250	25					18
		19	Malleable cast iron	Ferritic		130						19
		20		Pearlitic		230	21					20
N		21	Aluminum-wrought alloy	Not Curable		60		◎	◎	◎	◎	21
		22		Curable	Hardened	100		◎	◎	◎	◎	22
		23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	◎	◎	◎	23
		24		≤ 12% Si, Curable	Hardened	90		◎	◎	◎	◎	24
		25		> 12% Si, Not Curable		130		○	○	○	○	25
		26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		○	○	○	○	26
		27		CuZn, CuSnZn (Brass)		90		○	○	○	○	27
		28		CuSn, lead-free copper and electrolytic copper		100		○	○	○	○	28
		29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				○	○	○	○	29
		30		Rubber, Wood, etc.								30
S		31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15					31
		32			Cured	280	30					32
		33		Ni or Co Based	Annealed	250	25					33
		34			Cured	350	38					34
		35			Cast	320	34					35
		36	Titanium Alloys	Pure Titanium		400 Rm						36
		37		Alpha + Beta Alloys	Hardened	1050 Rm						37
H		38	Hardened steel		Hardened	550	55					38
		39			Hardened	630	60					39
		40	Chilled Cast Iron		Cast	400	42					40
		41	Hardened Cast Iron		Hardened	550	55					41

ALU-POWER HPC END MILLS

UNCOATED **E5H24** SERIES
DLC COATED **JAH24** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°
3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	DLC	R	D1	D2	L1	L2
E5H24060	**JAH24060**	R0.5	**6.0**	6	13	57
E5H24901	**JAH24901**	R1.0	**6.0**	6	13	57
E5H24902	**JAH24902**	R1.5	**6.0**	6	13	57
E5H24903	**JAH24903**	R0.8	**6.0**	6	13	72
-	**JAH24904**	R1.2	**6.0**	6	13	72
E5H24905	**JAH24905**	R0.5	**6.0**	6	24	75
E5H24906	**JAH24906**	R1.0	**6.0**	6	24	75
E5H24080	**JAH24080**	R0.3	**8.0**	8	19	63
E5H24907	**JAH24907**	R0.5	**8.0**	8	19	63
E5H24908	**JAH24908**	R1.0	**8.0**	8	19	63
E5H24909	**JAH24909**	R1.5	**8.0**	8	19	63
E5H24910	**JAH24910**	R0.5	**8.0**	8	32	75
E5H24911	**JAH24911**	R1.0	**8.0**	8	32	75
E5H24912	**JAH24912**	R1.5	**8.0**	8	32	75
E5H24913	**JAH24913**	R2.0	**8.0**	8	32	75
E5H24100	**JAH24100**	R0.3	**10.0**	10	22	72
E5H24914	**JAH24914**	R0.5	**10.0**	10	22	72
E5H24915	**JAH24915**	R1.0	**10.0**	10	22	72
E5H24916	**JAH24916**	R1.5	**10.0**	10	22	72
E5H24917	**JAH24917**	R0.5	**10.0**	10	40	100

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X1-EH 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
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS

ALU-POWER HPC END MILLS

UNCOATED **E5H24** SERIES
DLC COATED **JAH24** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°
3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	DLC	R	D1	D2	L1	L2
E5H24918	**JAH24918**	R1.0	**10.0**	10	40	100
E5H24919	**JAH24919**	R1.5	**10.0**	10	40	100
E5H24920	**JAH24920**	R2.0	**10.0**	10	40	100
E5H24120	**JAH24120**	R1.5	**12.0**	12	26	83
E5H24921	**JAH24921**	R2.0	**12.0**	12	26	83
E5H24922	**JAH24922**	R2.5	**12.0**	12	26	83
E5H24923	**JAH24923**	R3.0	**12.0**	12	26	83
-	**JAH24924**	R0.5	**12.0**	12	48	100
E5H24925	**JAH24925**	R1.0	**12.0**	12	48	100
E5H24926	**JAH24926**	R1.5	**12.0**	12	48	100
E5H24927	**JAH24927**	R2.0	**12.0**	12	48	100
E5H24928	**JAH24928**	R2.5	**12.0**	12	48	100
E5H24929	**JAH24929**	R3.0	**12.0**	12	48	100
E5H24140	**JAH24140**	R1.0	**14.0**	14	30	89
E5H24930	**JAH24930**	R2.0	**14.0**	14	30	89
E5H24931	**JAH24931**	R3.0	**14.0**	14	30	89
E5H24160	**JAH24160**	R1.5	**16.0**	16	32	92
E5H24932	**JAH24932**	R2.0	**16.0**	16	32	92
E5H24933	**JAH24933**	R2.5	**16.0**	16	32	92
E5H24934	**JAH24934**	R3.0	**16.0**	16	32	92

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

UNCOATED **E5H24** SERIES
DLC COATED **JAH24** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°
3 TAGLIENTI, ELICA 37°, SPIGOLO RAGGIATO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	DLC	R	D1	D2	L1	L2
E5H24935	**JAH24935**	R4.0	**16.0**	16	32	92
-	**JAH24936**	R0.5	**16.0**	16	64	125
E5H24937	**JAH24937**	R1.0	**16.0**	16	64	125
E5H24938	**JAH24938**	R1.5	**16.0**	16	64	125
E5H24939	**JAH24939**	R2.0	**16.0**	16	64	125
E5H24940	**JAH24940**	R2.5	**16.0**	16	64	125
E5H24941	**JAH24941**	R3.0	**16.0**	16	64	125
E5H24942	-	R4.0	**16.0**	16	64	125
E5H24200	**JAH24200**	R2.0	**20.0**	20	38	104
E5H24943	**JAH24943**	R2.5	**20.0**	20	38	104
E5H24944	**JAH24944**	R3.0	**20.0**	20	38	104
E5H24945	**JAH24945**	R4.0	**20.0**	20	38	104
E5H24946	**JAH24946**	R0.5	**20.0**	20	80	150
E5H24947	**JAH24947**	R1.0	**20.0**	20	80	150
E5H24948	**JAH24948**	R1.5	**20.0**	20	80	150
E5H24949	**JAH24949**	R2.0	**20.0**	20	80	150
E5H24950	**JAH24950**	R2.5	**20.0**	20	80	150
E5H24951	**JAH24951**	R3.0	**20.0**	20	80	150
E5H24952	**JAH24952**	R4.0	**20.0**	20	80	150

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

UNCOATED **E5H25** SERIES
DLC COATED **JAH25** SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS MIT VERLÄNGERTEM HALS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°, DÉTALONNÉE, EXTRA-COURTE
3 TAGLIENTI , ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit

CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	DLC	R	D1	D2	L1	L3	L2	D3
E5H25060	**JAH25060**	R0.5	**6.0**	6	10	20	63	5.7
E5H25901	**JAH25901**	R1.0	**6.0**	6	10	20	63	5.7
E5H25902	**JAH25902**	R0.5	**6.0**	6	13	30	72	5.7
E5H25903	**JAH25903**	R1.0	**6.0**	6	13	30	72	5.7
E5H25080	**JAH25080**	R0.3	**8.0**	8	12	25	75	7.4
E5H25904	**JAH25904**	R0.5	**8.0**	8	12	25	75	7.4
E5H25905	**JAH25905**	R0.8	**8.0**	8	12	25	75	7.4
E5H25906	**JAH25906**	R1.0	**8.0**	8	12	25	75	7.4
-	**JAH25907**	R1.2	**8.0**	8	12	25	75	7.4
E5H25908	**JAH25908**	R1.5	**8.0**	8	12	25	75	7.4
E5H25909	**JAH25909**	R1.6	**8.0**	8	12	25	75	7.4
E5H25100	**JAH25100**	R0.3	**10.0**	10	14	35	100	9.2
E5H25910	**JAH25910**	R0.5	**10.0**	10	14	35	100	9.2
E5H25911	**JAH25911**	R0.8	**10.0**	10	14	35	100	9.2
E5H25912	**JAH25912**	R1.0	**10.0**	10	14	35	100	9.2
E5H25913	**JAH25913**	R1.2	**10.0**	10	14	35	100	9.2
-	**JAH25914**	R1.5	**10.0**	10	14	35	100	9.2
E5H25915	**JAH25915**	R1.6	**10.0**	10	14	35	100	9.2

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

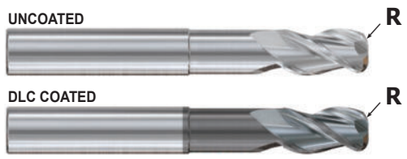
UNCOATED **E5H25** SERIES
DLC COATED **JAH25** SERIES
PLAIN SHANK

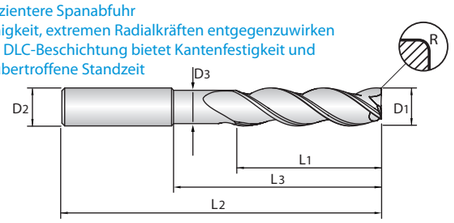
CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS MIT VERLÄNGERTEM HALS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°, DÉTALONNÉE, EXTRA-COURTE
3 TAGLIENTI , ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit





CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	DLC	R	D_1	D_2	L_1	L_3	L2	D3
E5H25916	**JAH25916**	R2.4	**10.0**	10	14	35	100	9.2
E5H25120	**JAH25120**	R0.5	**12.0**	12	16	40	100	11.0
E5H25917	**JAH25917**	R0.8	**12.0**	12	16	40	100	11.0
E5H25918	-	R1.0	**12.0**	12	16	40	100	11.0
E5H25919	**JAH25919**	R1.2	**12.0**	12	16	40	100	11.0
E5H25920	**JAH25920**	R1.5	**12.0**	12	16	40	100	11.0
E5H25921	**JAH25921**	R1.6	**12.0**	12	16	40	100	11.0
E5H25922	**JAH25922**	R2.0	**12.0**	12	16	40	100	11.0
E5H25923	**JAH25923**	R2.4	**12.0**	12	16	40	100	11.0
E5H25924	**JAH25924**	R2.5	**12.0**	12	16	40	100	11.0
E5H25925	**JAH25925**	R3.0	**12.0**	12	16	40	100	11.0
E5H25926	-	R4.0	**12.0**	12	16	40	100	11.0
E5H25140	**JAH25140**	R1.0	**14.0**	14	18	45	125	13.0
E5H25927	**JAH25927**	R2.0	**14.0**	14	18	45	125	13.0
E5H25928	**JAH25928**	R3.0	**14.0**	14	18	45	125	13.0
E5H25929	**JAH25929**	R4.0	**14.0**	14	18	45	125	13.0
E5H25160	**JAH25160**	R0.8	**16.0**	16	20	50	125	15.0
E5H25930	-	R1.2	**16.0**	16	20	50	125	15.0

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

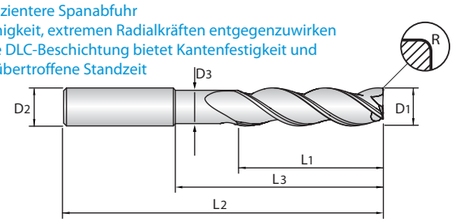
UNCOATED E5H25 SERIES
DLC COATED JAH25 SERIES
PLAIN SHANK

CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS MIT VERLÄNGERTEM HALS
FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°, DÉTALONNÉE, EXTRA-COURTE
3 TAGLIENTI , ELICA 37°, SPIGOLO RAGGIATO SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit



CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C500

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	DLC	R	D_1	D_2	L_1	L_3	L2	D3
E5H25931	**JAH25931**	R1.6	**16.0**	16	20	50	125	15.0
E5H25932	-	R2.0	**16.0**	16	20	50	125	15.0
E5H25933	**JAH25933**	R2.4	**16.0**	16	20	50	125	15.0
E5H25934	**JAH25934**	R2.5	**16.0**	16	20	50	125	15.0
E5H25935	**JAH25935**	R3.0	**16.0**	16	20	50	125	15.0
E5H25936	**JAH25936**	R3.2	**16.0**	16	20	50	125	15.0
E5H25937	**JAH25937**	R4.0	**16.0**	16	20	50	125	15.0
E5H25200	**JAH25200**	R0.8	**20.0**	20	25	65	150	19.0
E5H25938	**JAH25938**	R1.2	**20.0**	20	25	65	150	19.0
E5H25939	**JAH25939**	R1.6	**20.0**	20	25	65	150	19.0
E5H25940	**JAH25940**	R2.0	**20.0**	20	25	65	150	19.0
E5H25941	**JAH25941**	R2.4	**20.0**	20	25	65	150	19.0
E5H25942	**JAH25942**	R2.5	**20.0**	20	25	65	150	19.0
E5H25943	**JAH25943**	R3.0	**20.0**	20	25	65	150	19.0
E5H25944	**JAH25944**	R3.2	**20.0**	20	25	65	150	19.0
E5H25945	**JAH25945**	R4.0	**20.0**	20	25	65	150	19.0

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

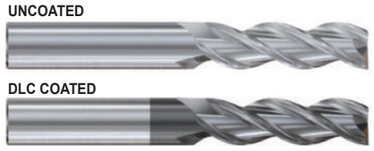
UNCOATED **E5H22** SERIES
DLC COATED **JAH22** SERIES
PLAIN SHANK

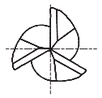
CARBIDE, 3 FLUTE 37° HELIX

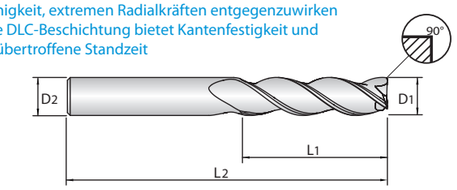
VOLLHARTMETALL, 3 SCHNEIDEN 37°
FRAISE CARBURE, TORIQUE, HÉLICE 37°
3 TAGLIENTI, ELICA 37°

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit







CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C501

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	DLC	D_1	D_2	L_1	L_2
E5H22030	**JAH22030**	**3.0**	6	8	52
E5H22040	**JAH22040**	**4.0**	6	11	55
E5H22050	**JAH22050**	**5.0**	6	13	57
E5H22060	**JAH22060**	**6.0**	6	13	57
E5H22901	**JAH22901**	**6.0**	6	13	72
E5H22902	-	**6.0**	6	24	75
E5H22080	**JAH22080**	**8.0**	8	19	63
E5H22903	**JAH22903**	**8.0**	8	32	75
E5H22100	**JAH22100**	**10.0**	10	22	72
E5H22904	**JAH22904**	**10.0**	10	40	100
E5H22120	**JAH22120**	**12.0**	12	26	83
E5H22905	**JAH22905**	**12.0**	12	48	100
E5H22140	**JAH22140**	**14.0**	14	30	89
E5H22160	**JAH22160**	**16.0**	16	32	92
E5H22906	**JAH22906**	**16.0**	16	64	125
E5H22200	**JAH22200**	**20.0**	20	38	104
E5H22907	**JAH22907**	**20.0**	20	80	150
E5H22250	**JAH22250**	**25.0**	25	50	125

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : Excellent ○ : Good

ISO	P																			
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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

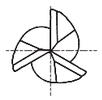
UNCOATED **E5H23** SERIES
DLC COATED **JAH23** SERIES
PLAIN SHANK

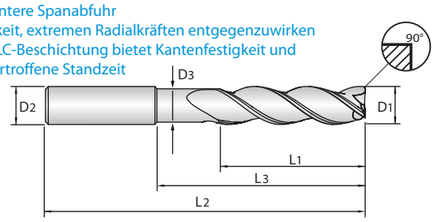
CARBIDE, 3 FLUTE 37° HELIX with EXTENDED NECK

VOLLHARTMETALL, 3 SCHNEIDEN 37°
FRAISE CARBURE, 3 DENTS, HÉLICE 37°, DÉTALONNÉE, EXTRA-COURTE
3 TAGLIENTI, ELICA 37°, SCARICATA

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- More efficient chip evacuation
- Ability to counteract extreme radial forces
- DLC Coating provides edge strength and unsurpassed tool life

- Ausgewogenes Fräsen, mit weniger Vibrationen
- Höhere Schnittgeschwindigkeiten möglich bei weniger Wärmeeinbringung in den Werkstoff Aluminium
- Effizientere Spanabfuhr
- Fähigkeit, extremen Radialkräften entgegenzuwirken
- Die DLC-Beschichtung bietet Kantenfestigkeit und unübertroffene Standzeit





CARBIDE | 3 | 37° | PLAIN | UNCOATED | DLC

p.C501

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	DLC	D_1	D_2	L_1	L_3	L2	D3
E5H23060	**JAH23060**	**6.0**	6	10	20	75	5.7
E5H23080	**JAH23080**	**8.0**	8	12	25	75	7.4
E5H23100	**JAH23100**	**10.0**	10	14	35	100	9.2
E5H23120	**JAH23120**	**12.0**	12	16	40	100	11.0
E5H23140	**JAH23140**	**14.0**	14	18	45	125	13.0
E5H23160	**JAH23160**	**16.0**	16	20	50	125	15.0
E5H23200	**JAH23200**	**20.0**	20	25	65	150	19.0

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
Over 10 ~ up to 18	+0/-0.011	
Over 18 ~ up to 25	+0/-0.013	

◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

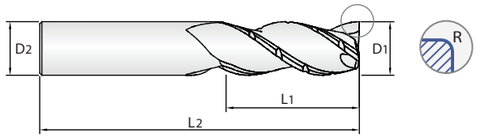
PLAIN SHANK **E5I86** SERIES
FLAT SHANK **E5I87** SERIES

CARBIDE, 3 FLUTE EXTENDED LENGTH - CHIP BREAKER

HARTMETALL, 3 SCHNEIDEN EXTRA LANG MIT SPANBRECHER
FRAISE CARBURE, 3 DENTS, LONGUEUR ÉTENDUE - BRISE-COPEAUX
FRESA MD, 3 TAGLIENTI, SERIE EXTRA LUNGA CON ROMPITRUCIOLO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- Chip Breaker Improves chip evacuation by shortening the chip length
- Ability to counteract extreme radial forces

- Geschmeidiger Schnitt mit wenig Vibrationen
- Höhere Geschwindigkeiten bei geringerer Wärmeentwicklung in der Aluminiumbearbeitung
- Die Spanbrecher verbessern die Spanabfuhr durch Verkürzung der Spanlänge
- Hat die Fähigkeit, extremen Radialkräften entgegenzuwirken



CARBIDE | 3 | 37° | PLAIN | FLAT | UNCOATED

p.C502

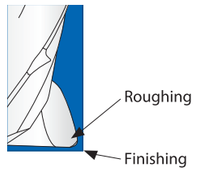
Recommended ToolHolder	Flat Shank	Plain Shank
	END MILL HOLDER	POWER MILLING CHUCK
	-	HYDRAULIC CHUCK SHRINK FIT HOLDER
	-	ER COLLET CHUCK

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
E5I86060	**E5I87060**	R0.25	6.0	6	13	57
E5I86902	**E5I87902**	R0.25	6.0	6	24	75
E5I86080	**E5I87080**	R0.25	8.0	8	19	63
E5I86905	**E5I87905**	R0.25	8.0	8	32	75
E5I86100	**E5I87100**	R0.5	10.0	10	22	72
E5I86908	**E5I87908**	R0.5	10.0	10	40	100
E5I86120	**E5I87120**	R0.5	12.0	12	26	83
E5I86911	**E5I87911**	R0.5	12.0	12	48	100
E5I86160	**E5I87160**	R1.0	16.0	16	32	92
E5I86914	**E5I87914**	R1.0	16.0	16	64	125
E5I86200	**E5I87200**	R1.0	20.0	20	38	104
E5I86917	**E5I87917**	R1.0	20.0	20	80	150

▶ NEXT PAGE

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
ø6	+0/-0.008	h5
Over ø6 ~ up to ø10	+0/-0.009	
Over ø10 ~ up to ø16	+0/-0.011	
ø20	+0/-0.013	



◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X1-EH 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
D-POWER GRAPHITE END MILLS
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS

ALU-POWER HPC END MILLS

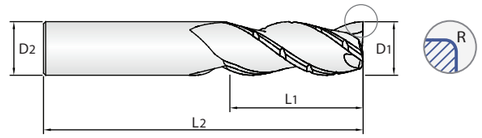
PLAIN SHANK E5I86 SERIES
FLAT SHANK E5I87 SERIES

CARBIDE, 3 FLUTE EXTENDED LENGTH - CHIP BREAKER

HARTMETALL, 3 SCHNEIDEN EXTRA LANG MIT SPANBRECHER
FRAISE CARBURE, 3 DENTS, LONGUEUR ÉTENDUE - BRISE-COPEAUX
FRESA MD, 3 TAGLIENTI, SERIE EXTRA LUNGA CON ROMPITRUCIOLO

- Balanced cutting with less vibration
- Ability to run at higher speeds with less heat in aluminum
- Chip Breaker Improves chip evacuation by shortening the chip length
- Ability to counteract extreme radial forces

- Geschmeidiger Schnitt mit wenig Vibrationen
- Höhere Geschwindigkeiten bei geringerer Wärmeentwicklung in der Aluminiumbearbeitung
- Die Spanbrecher verbessern die Spanabfuhr durch Verkürzung der Spanlänge
- Hat die Fähigkeit, extremen Radialkräften entgegenzuwirken



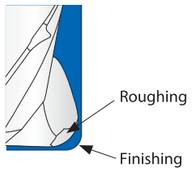
CARBIDE | 3 | 37° | PLAIN | FLAT | UNCOATED

p.C502

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
E5I86901	**E5I87901**	R1.5	6.0	6	13	57
E5I86903	**E5I87903**	R1.5	6.0	6	24	75
E5I86904	**E5I87904**	R2.0	8.0	8	19	63
E5I86906	**E5I87906**	R2.0	8.0	8	32	75
E5I86907	**E5I87907**	R2.0	10.0	10	22	72
E5I86909	**E5I87909**	R2.0	10.0	10	40	100
E5I86910	**E5I87910**	R3.0	12.0	12	26	83
E5I86912	**E5I87912**	R3.0	12.0	12	48	100
E5I86913	**E5I87913**	R4.0	16.0	16	32	92
E5I86915	**E5I87915**	R4.0	16.0	16	64	125
E5I86916	**E5I87916**	R4.0	20.0	20	38	104
E5I86918	**E5I87918**	R4.0	20.0	20	80	150

Mill Diameter Tolerences (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
ø6	+0/-0.008	h5
Over ø6 ~ up to ø10	+0/-0.009	
Over ø10 ~ up to ø16	+0/-0.011	
ø20	+0/-0.013	



◎ : 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	◎	◎	◎	◎	○	○	○	○	○												

ALU-POWER HPC END MILLS

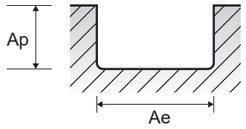
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5H24, JAH24, E5H25, JAH25 SERIES

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

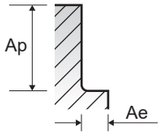
3 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	25889	15533	12945	9708	7767
					FEED	5918	5326	5918	4883	4439
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	9708	5825	4854	3641	2913
					FEED	2219	1997	2219	1831	1665
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	14218	8531	7109	5332	4265
					FEED	2167	2600	2708	2235	1950
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	26685	16011	13342	10007	8005
					FEED	8134	9150	10167	8388	7320



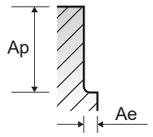
3 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	32361	19417	16181	12136	9708
					FEED	7398	6658	7398	6103	5548
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	12945	7767	6472	4854	3883
					FEED	2959	2663	2959	2441	2219
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351
					fz	0.051	0.102	0.127	0.140	0.152
					RPM	18621	11173	9311	6983	5586
					FEED	2838	3405	3547	2927	2554
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	33157	19894	16579	12434	9947
					FEED	10106	11370	12633	10422	9096



3 FLUTE CORNER RADIUS - SIDE CUTTING HSM (Light)

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	53370	32022	26685	20014	16011
					FEED	22367	25621	28467	22876	20131
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366
					fz	0.140	0.267	0.356	0.381	0.419
					RPM	19417	11650	9708	7281	5825
					FEED	8138	9321	10357	8323	7324
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564
					fz	0.114	0.216	0.292	0.330	0.356
					RPM	29921	17953	14961	11220	8976
					FEED	10260	11628	13110	11115	9576
	29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021
					fz	0.229	0.432	0.584	0.635	0.699
					RPM	54166	32499	27083	20312	16250
					FEED	37147	42100	47465	38695	34051



CARBIDE
HSS
CBN END MILLS
i-Xmill END MILLS
i-SMART MODULAR END MILLS
X1-EH 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
CRX S END MILLS
K-2 END MILLS
ONLY ONE COATED PM60 END MILLS
TANK POWER END MILLS
GENERAL HSS END MILLS
MILLING CUTTERS

ALU-POWER HPC END MILLS

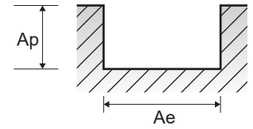
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5H22, JAH22, E5H23, JAH23 SERIES

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

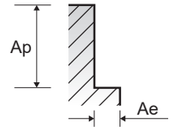
3 FLUTE - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488	488	488
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	51778	25889	15533	12945	9708	7767	6213
					FEED	3946	5918	5326	5918	4883	4439	4735
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183	183	183
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	19417	9708	5825	4854	3641	2913	2330
					FEED	1480	2219	1997	2219	1831	1665	1775
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268	268	268
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	28436	14218	8531	7109	5332	4265	3412
					FEED	1733	2167	2600	2708	2235	1950	1820
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503	503	503
					fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356
					RPM	53370	26685	16011	13342	10007	8005	6404
					FEED	6100	8134	9150	10167	8388	7320	6832



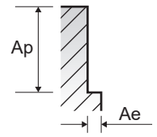
3 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610	610	610
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	64723	32361	19417	16181	12136	9708	7767
					FEED	4932	7398	6658	7398	6103	5548	5918
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244	244	244
					fz	0.025	0.076	0.114	0.152	0.168	0.191	0.254
					RPM	25889	12945	7767	6472	4854	3883	3107
					FEED	1973	2959	2663	2959	2441	2219	2367
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351	351	351
					fz	0.020	0.051	0.102	0.127	0.140	0.152	0.178
					RPM	37242	18621	11173	9311	6983	5586	4469
					FEED	2270	2838	3405	3547	2927	2554	2384
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625	625	625
					fz	0.038	0.102	0.191	0.254	0.279	0.305	0.356
					RPM	66314	33157	19894	16579	12434	9947	7958
					FEED	7580	10106	11370	12633	10422	9096	8489



3 FLUTE - SIDE CUTTING HSM (Light)

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 3.0	6.0	10.0	12.0	16.0	20.0	25.0
N	21~22	Aluminum-wrought alloy	0.05D	2.0D	Vc	1006	1006	1006	1006	1006	1006	1006
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	106740	53370	32022	26685	20014	16011	12809
					FEED	17080	22367	25621	28467	22876	20131	19033
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	366	366	366	366	366	366	366
					fz	0.053	0.140	0.267	0.356	0.381	0.419	0.495
					RPM	38834	19417	11650	9708	7281	5825	4660
					FEED	6214	8138	9321	10357	8323	7324	6924
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	564	564	564	564	564	564	564
					fz	0.043	0.114	0.216	0.292	0.330	0.356	0.406
					RPM	59842	29921	17953	14961	11220	8976	7181
					FEED	7752	10260	11628	13110	11115	9576	8755
	29.1	Non Metallic Materials	0.05D	2.0D	Vc	1021	1021	1021	1021	1021	1021	1021
					fz	0.086	0.229	0.432	0.584	0.635	0.699	0.813
					RPM	108331	54166	32499	27083	20312	16250	13000
					FEED	28066	37147	42100	47465	38695	34051	31699



ALU-POWER HPC END MILLS

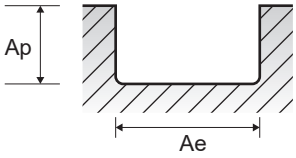
RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDPARAMETER

E5186, E5187 SERIES

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

3 FLUTE CORNER RADIUS - SLOTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	25889	15533	12945	9708	7767
					FEED	5918	5326	5918	4883	4439
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	9708	5825	4854	3641	2913
					FEED	2219	1997	2219	1831	1665
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	268	268	268	268	268
					fz	0.051	0.102	0.127	0.14	0.152
					RPM	14218	8531	7109	5332	4265
					FEED	2167	2600	2708	2235	1950
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	503	503	503	503	503
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	26685	16011	13342	10007	8005
					FEED	8134	9150	10167	8388	7320



3 FLUTE CORNER RADIUS - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø) 6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	0.5D	1.5D	Vc	610	610	610	610	610
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	32361	19417	16181	12136	9708
					FEED	7398	6658	7398	6103	5548
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	244	244	244	244	244
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	12945	7767	6472	4854	3883
					FEED	2959	2663	2959	2441	2219
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	351	351	351	351	351
					fz	0.051	0.102	0.127	0.14	0.152
					RPM	18621	11173	9311	6983	5586
					FEED	2838	3405	3547	2927	2554
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	625	625	625	625	625
					fz	0.102	0.191	0.254	0.279	0.305
					RPM	33157	19894	16579	12434	9947
					FEED	10106	11370	12633	10422	9096