



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



SERIES	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
FLUTE	3	3	3	3
HELIX ANGLE	37°	37°	37°	37°
CUTTING EDGE SHAPE	CORNER RADIUS	CORNER RADIUS	SQUARE	SQUARE
SIZE MIN	D6.0	D6.0	D3.0	D6.0
SIZE MAX	D20.0	D20.0	D25.0	D20.0
PAGE	C490	C493	C496	C497

E5I86 E5I87	
FLUTE	3
HELIX ANGLE	37°
CORNER RADIUS	
SIZE	D6.0
SIZE MAX	D20.0
PAGE	C498

**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](http://globalyg1.com/mat)  
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p. C500

	E5H24 JAH24	E5H25 JAH25	E5H22 JAH22	E5H23 JAH23
	-	EXTENDED NECK	-	EXTENDED NECK
	Uncoated	Uncoated	Uncoated	Uncoated
	DLC	DLC	DLC	DLC



Uncoated

CHIP BREAKER



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	15			
	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		Ferritic	130					
20	Malleable cast iron	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)	Cutting Alloys, PB>1%	110		○	○	○	○
	27		CuZn, CuSnZn (Brass)	90		○	○	○	○
	28		CuSn, lead-free copper and electrolytic copper	100		○	○	○	○
	29		Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.			○	○	○
	30								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15			
	32			Cured	280	30			
	33		Ni or Co Based	Annealed	250	25			
	34			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				

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**AEROSPACE SOLUTIONS & COMPOSITE MATERIALS**

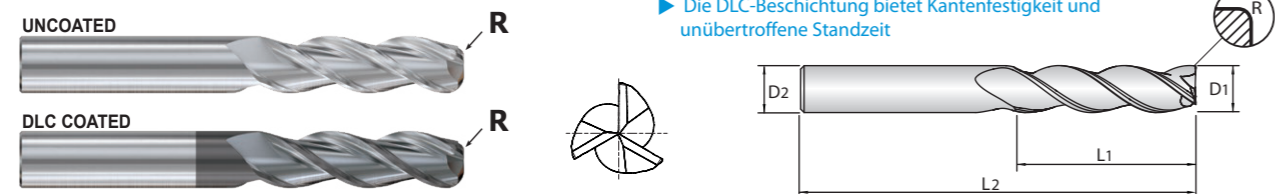


**CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS**

- 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



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

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	h5
Up to 3	+0/-0.006	
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	

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

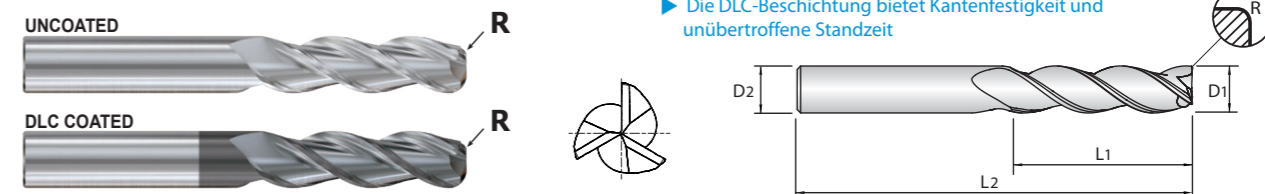
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	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	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

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	h5
Up to 3	+0/-0.006	
Over 3 ~ up to 6	+0/-0.008	
Over 6 ~ up to 10	+0/-0.009	
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▶ NEXT PAGE

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ISO	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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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											
	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							
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400 Rm	1050 Rm	550	630	400	550	
Recommend	◎	◎	◎	◎	○	○	○	○														

# YG ALU-POWER HPC END MILLS

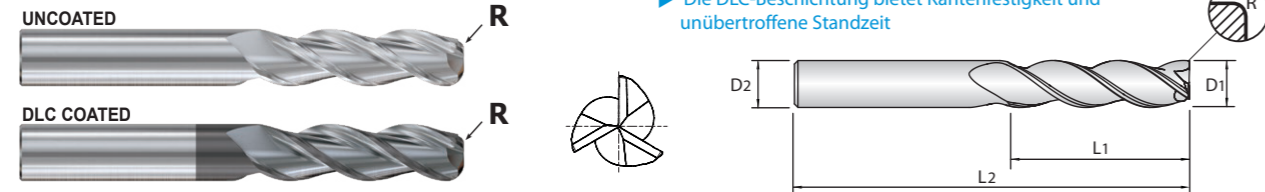
UNCOATED **E5H24** SERIES  
 DLC COATED **JAH24** SERIES  
 PLAIN SHANK

## CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS

● VOLLHARTMETALL, 3 SCHNEIDEN 37° ECKRADIUS  
 ○ FRAISE CARBURE, 3 DENTS, TORIQUE, HÉLICE 37°  
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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 Tolerances (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 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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

# YG ALU-POWER HPC END MILLS

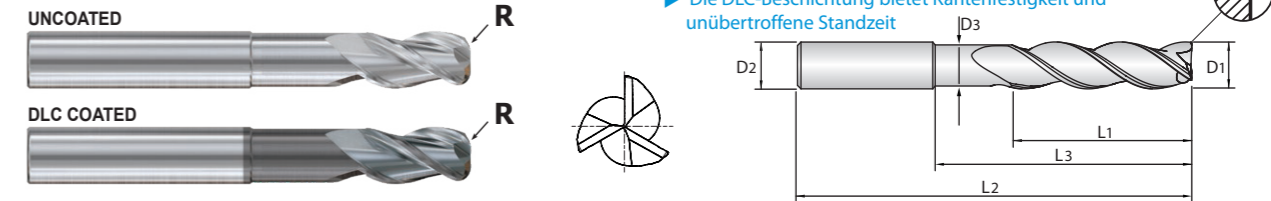
UNCOATED **E5H25** SERIES  
 DLC COATED **JAH25** SERIES  
 PLAIN SHANK

## 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

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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

Mill Diameter Tolerances (mm)		Shank Diameter Tolerance
Diameter	Tolerance	
Up to 3	+0/-0.006	h5
Over 3 ~ up to 6	+0/-0.008	
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▶ 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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommend																				

**YTG ALU-POWER HPC END MILLS**

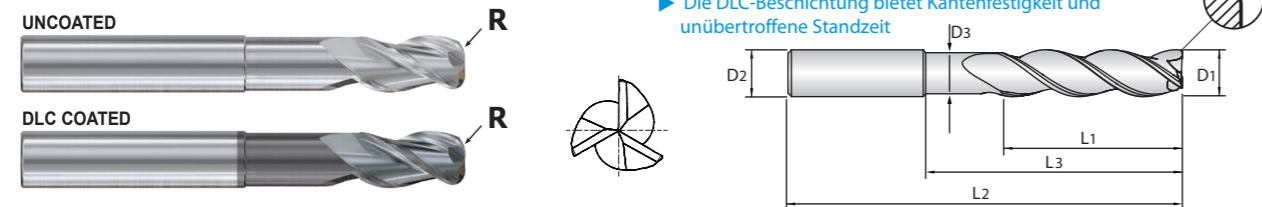
UNCOATED **E5H25** SERIES  
 DLC COATED **JAH25** SERIES  
 PLAIN SHANK

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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
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

Mill Diameter Tolerances (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	

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	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				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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											
	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	◎	◎	◎	◎	◎	○	○	○														

**YTG ALU-POWER HPC END MILLS**

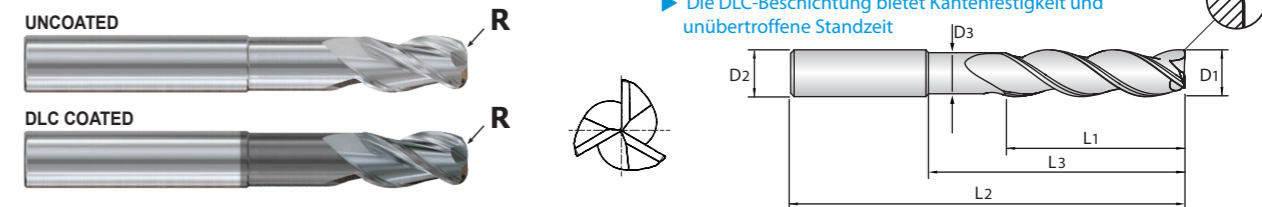
UNCOATED **E5H25** SERIES  
 DLC COATED **JAH25** SERIES  
 PLAIN SHANK

**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



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
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 Tolerances (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						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron	Malleable cast iron				
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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											
	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	◎	◎	◎	◎	◎	○	○	○														

**YG ALU-POWER HPC END MILLS**

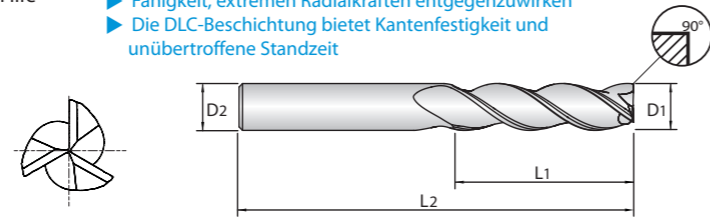
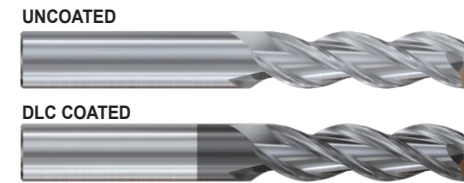
UNCOATED **E5H22** SERIES  
 DLC COATED **JAH22** SERIES  
 PLAIN SHANK

**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



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	DLC	D1	D2	L1	L2
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 Tolerances (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 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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	3	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	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	◎	◎	◎	◎	○	○	○	○	○	○											

**YG ALU-POWER HPC END MILLS**

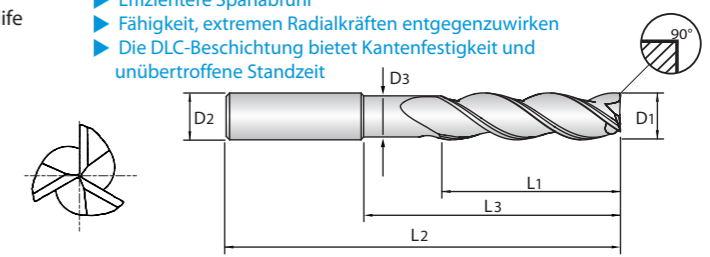
UNCOATED **E5H23** SERIES  
 DLC COATED **JAH23** SERIES  
 PLAIN SHANK

**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



Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Length Below Shank	Overall Length	Neck Diameter
UNCOATED	DLC	D1	D2	L1	L3	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 Tolerances (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

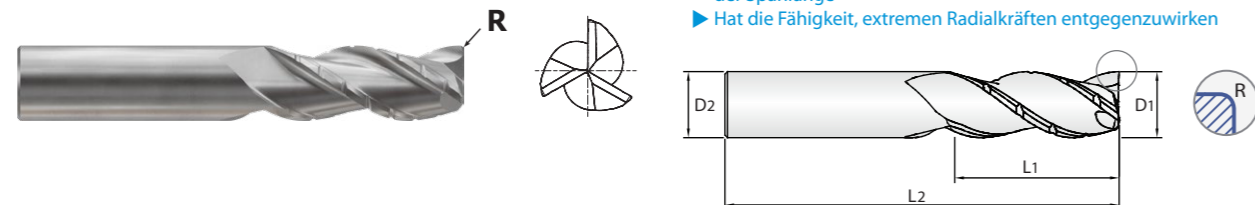
ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron			
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	32	10	29	32	38	15	35	15	23	10	10	26	3	25	3	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	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, 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 ROMPIRUCIOLO

- ▶ 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

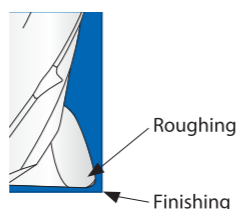


	Flat Shank	Plain Shank
Recommended ToolHolder	END MILL HOLDER	POWER MILLING CHUCK
		HYDRAULIC CHUCK SHRINK FIT HOLDER
		ER COLLET CHUCK

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut		Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2	
E5186060	E5187060	R0.25	6.0	6	13	57	
E5186902	E5187902	R0.25	6.0	6	24	75	
E5186080	E5187080	R0.25	8.0	8	19	63	
E5186905	E5187905	R0.25	8.0	8	32	75	
E5186100	E5187100	R0.5	10.0	10	22	72	
E5186908	E5187908	R0.5	10.0	10	40	100	
E5186120	E5187120	R0.5	12.0	12	26	83	
E5186911	E5187911	R0.5	12.0	12	48	100	
E5186160	E5187160	R1.0	16.0	16	32	92	
E5186914	E5187914	R1.0	16.0	16	64	125	
E5186200	E5187200	R1.0	20.0	20	38	104	
E5186917	E5187917	R1.0	20.0	20	80	150	

Mill Diameter Tolerances (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	



▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	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			
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

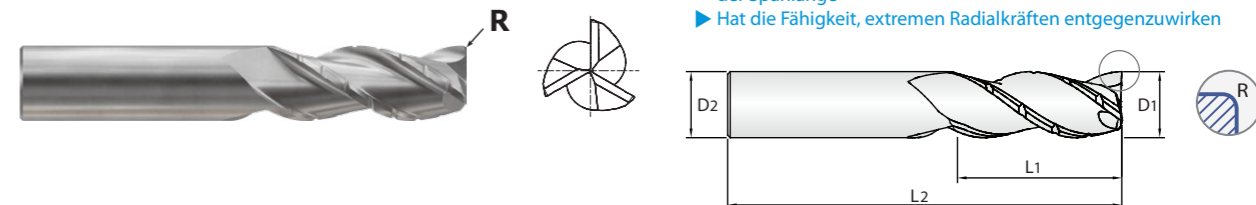
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron										
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38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

**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 ROMPIRUCIOLO

- ▶ 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

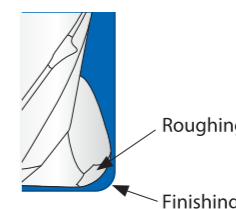


	Flat Shank	Plain Shank
Recommended ToolHolder	END MILL HOLDER	POWER MILLING CHUCK
		HYDRAULIC CHUCK SHRINK FIT HOLDER
		ER COLLET CHUCK

Unit : mm

EDP No.		Corner Radius	Mill Diameter	Shank Diameter	Length of Cut		Overall Length
PLAIN	FLAT	R	D1	D2	L1	L2	
E5186901	E5187901	R1.5	6.0	6	13	57	
E5186903	E5187903	R1.5	6.0	6	24	75	
E5186904	E5187904	R2.0	8.0	8	19	63	
E5186906	E5187906	R2.0	8.0	8	32	75	
E5186907	E5187907	R2.0	10.0	10	22	72	
E5186909	E5187909	R2.0	10.0	10	40	100	
E5186910	E5187910	R3.0	12.0	12	26	83	
E5186912	E5187912	R3.0	12.0	12	48	100	
E5186913	E5187913	R4.0	16.0	16	32	92	
E5186915	E5187915	R4.0	16.0	16	64	125	
E5186916	E5187916	R4.0	20.0	20	38	104	
E5186918	E5187918	R4.0	20.0	20	80	150	

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

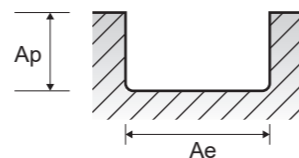
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys		Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron										
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38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

**E5H24, JAH24, E5H25, JAH25 SERIES**

**3 FLUTE CORNER RADIUS - SLOTTING**

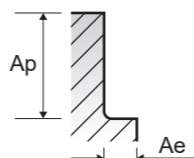
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						6.0	10.0	12.0	16.0	20.0			
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488			
					fz	0.076	0.114	0.152	0.168	0.191			
					RPM	25889	15533	12945	9708	7767			
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	183	183	183	183	183			
					fz	0.076	0.114	0.152	0.168	0.191			
					RPM	9708	5825	4854	3641	2913			
	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			
	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		

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



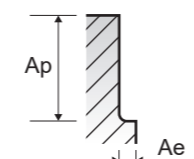
**3 FLUTE CORNER RADIUS - SIDE CUTTING**

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			
	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			
	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			
	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			
	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			
	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			
	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		

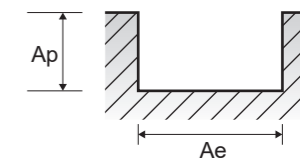


**E5H22, JAH22, E5H23, JAH23 SERIES**

**3 FLUTE - SLOTTING**

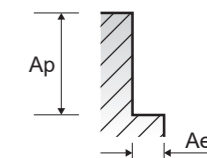
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)									
						3.0	6.0	10.0	12.0	16.0	20.0	25.0			
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488	488	488			
					fz	0.025	0.076	0.114	0.152	0.168	0.191				
					RPM	51778	25889	15533	12945	9708	7767				
	23~25	Aluminum-cast, 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				
					RPM	19417	9708	5825	4854	3641	2913				
	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				
					RPM	28436	14218	8531	7109	5332	4265				
	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				
					RPM	53370	26685	16011	13342	10007	8005				
						FEED	6100	8134	9150	10167	8388	7320	6832		

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



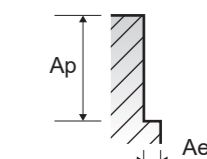
**3 FLUTE - SIDE CUTTING**

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				
					RPM	64723	32361	19417	16181	12136	9708				
	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				
					RPM	25889	12945	7767	6472	4854	3883				
	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				
					RPM	37242	18621	11173	9311	6983	5586				
	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				
					RPM	66314	33157	19894	16579	12434	9947				
						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				
					RPM	106740	53370	32022	26685	20014	16011				
	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				
					RPM	38834	19417	11650	9708	7281	5825				
	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				
					RPM	59842	29921	17953	14961	11220	8976				
	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				
					RPM	108331	54166	32499	27083	20312	16250				
						FEED	28066	37147	42100	47465	38695	34051	31699		



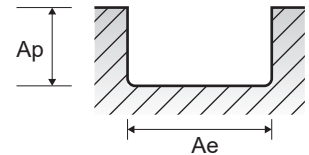


**E5186, E5187 SERIES**

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	

