

YE-HPC23 METRIC

BEST VALUE IN THE WORLD OF CUTTING TOOLS

FOR ALUMINUM, ALUMINUM DIE CAST, NON-FERROUS ALLOYS AND PLASTICS



ALU-POWER HPC

3-FLUTE, HIGH-PERFORMANCE,
SOLID CARBIDE END MILLS

**Keep Your Edge:
SPEED, STRENGTH &
SHARPNESS.**

- 3 Flute
- Square End & Corner Radius
- Standard and Extended Length
- Coated and Uncoated
- Chip Breakers **NEW**

Through Special Chip Breaker Design,
the length of the chip is formed short to
improve chip evacuation performance.

Chip Breaker Profile Improved on
Weak-Point of the Cutting Edge



ALU-POWER HPC

Built to Handle High-Speed Cutting Without Buildup.

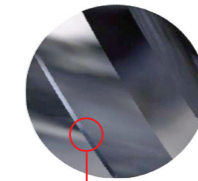
- ▶ Excels in Ultra High-Speed, High HP Applications Up to 35,000 RPM
- ▶ Rigid Design for Excellent Ramping
- ▶ Reduced Vibration in Heavy Cutting

ALU-POWER HPC 3-FLUTE END MILLS

▶▶▶ The Anatomy of Efficiency

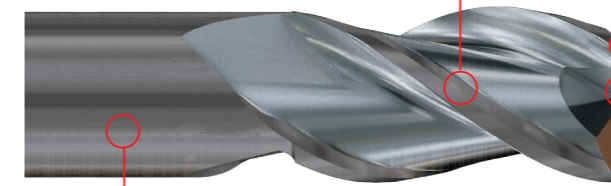
Specialized Design of Corner Gash

- ▶ Unique flute design and superior corner protection enhance both tool life and protection against catastrophic failure in high feed applications
- ▶ Polished flutes for excellent chip flow



Cylindrical Land

- ▶ Increased performance in a variety of cutting conditions
- ▶ Helps reduce vibration and chatter



Available in a Wide Variety of Sizes and Corner Radius

Ideal Symmetrical Shape

- ▶ 3-flute design "to the center" (all 3 flutes come to center)
- ▶ Designed with high spindle speeds in mind
- ▶ Highly effective in vertical ramping up to 20 degrees and step-over plunging applications

DLC Diamond-Like Carbon

- ▶ Excels in hard aluminum and high speeds
- ▶ Provides edge strength and unsurpassed tool life



Engineered Flute Design

- ▶ Effective chip evacuation at high feed rates with lower cutting forces than competitive products



While other 3-flute End mills can muster up the speed for rough cutting aluminum, few can make it through without melting down the aluminum that surrounds the work itself. That's where the ALU-POWER HPC has a distinct advantage – speed, strength and sharpness.

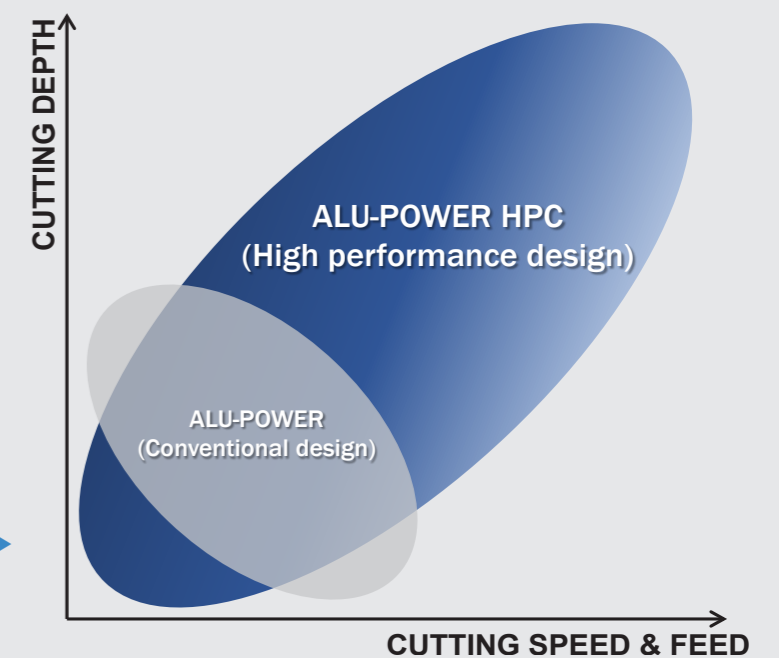
Why ALU-POWER HPC Keeps Its Edge Under Tough Conditions

ALU-POWER HPC's highly polished 3-flute design provides more balanced cutting performance – without excessive heat buildup. In fact, while other End mills can gum up at surface speeds of 3,000 or less, ALU-POWER HPC keeps its cool by dissipating heat and providing outstanding chip evacuation. Adding it to its ultra-micrograin carbide design, the results are:

- ▶ 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

What do you get when you add 3-flute to the center, polished ultra-micrograin carbide, extra-large chip gullets and a razor-sharp cylindrical land design? In technical terms, it's called the ALU-POWER HPC. In a machinist's term, it's called an extremely sharp, highly durable milling monster that won't back down, cut after cut.

Compared to conventional aluminum-specific End mills, the ALU-POWER HPC provides more versatile performance. Its high-performance design allows you to cut deeper and run at faster cutting speeds.

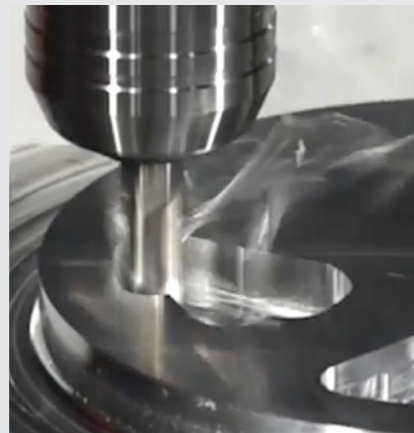


From Side Cuts to Rough Cuts to Aggressive Ramping, No One Withstands Extreme Radial Forces Better-or Longer.



▲ Rough Cutting

Ultra-micrograin carbide supplies the rigidity to keep the chips flying. Highly polished 3-flute design ensures they'll keep flying – cut after cut.



▲ Ramping

In steep, aggressive ramping conditions, the ALU-POWER HPC holds its own to resist the torsional stress from extreme helical output.



▲ Side cutting

No one offers a cooler-running super high-speed End mill. While others melt down the materials they're cutting, ALU-POWER HPC keeps machining cool in aluminum and soft alloys.

The Benefits of Balanced Cutting

When you lock an ALU-POWER HPC into your milling machine, you've unleashed the fastest-running, lowest-heat-producing End mill in the business. And that means you've got the speed and sharpness to take on not only the tough materials but also even more fragile mixed alloy castings with ease. Discover the ALU-POWER HPC and start pushing your productivity higher.



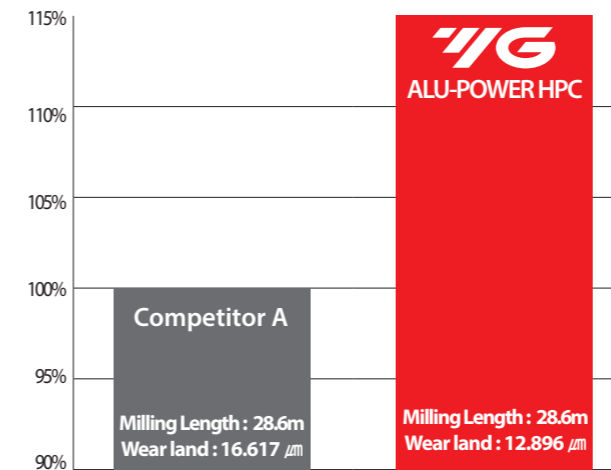
Another Advantage of YG-1's Perfect Geometry and Superior Coating

Whether you're running parts in today's most advanced 5-axis machining centers on the market today, or in machines built decades ago, ALU-POWER HPC makes the most of your manufacturing assets. That's because its unique 3-flute, 37-degree helix design can operate at lower speeds with higher efficiency.

CASE STUDY

TEST I Slotting Application

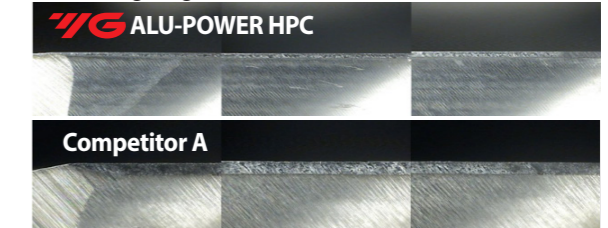
Ø12.7(R2.28) 3 Flute Corner radius



Cutting Condition (Slotting)

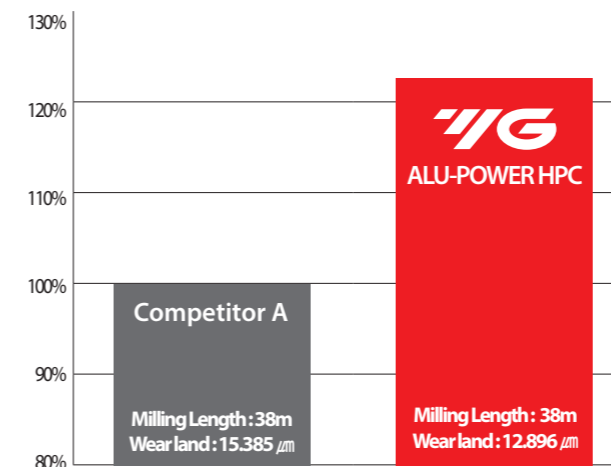
Tool	Ø12.7(R2.28) x Ø12.7 x 31.75 x 88.9
Work Material	AL7075
R.P.M (rev./min.)	12,224
IPM (mm/min.)	5,588
Cutting Depth (mm)	12.7 (Axial)
Coolant	Wet Cut (9% emulsion)
Overhang (mm)	48
Milling Method	Slotting
Machine	Machining Center

Total Milling Length : 38m



TEST II Pocketing Application

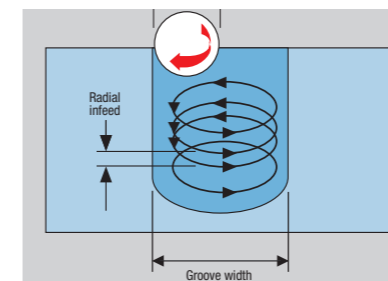
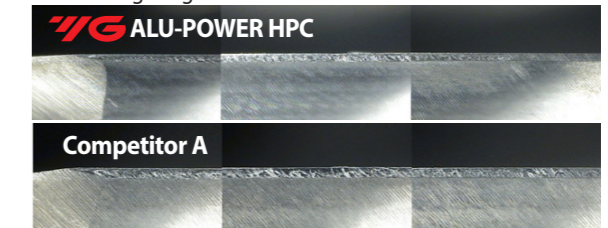
Ø12.7(R2.28) 3 Flute Corner radius



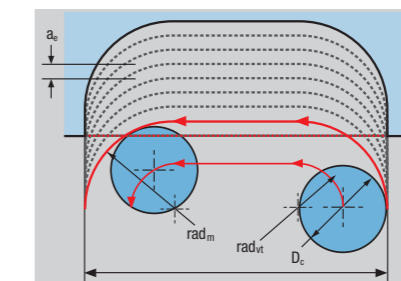
Cutting Condition (Pocketing)

Tool	Ø12.7(R2.28) x Ø12.7 x 31.75 x 88.9
Work Material	AL7075
R.P.M (rev./min.)	12,224
IPM (mm/min.)	5,588
Cutting Depth (mm)	12.7 (Axial) / 12.2 (Radial)
Coolant	Wet Cut (9% emulsion)
Overhang (mm)	48
Milling Method	Pocketing
Machine	Machining Center

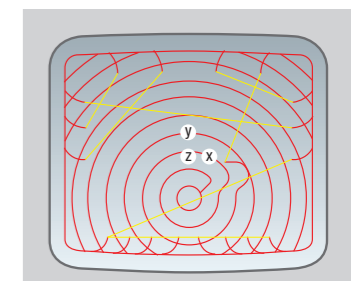
Total Milling Length : 38m



In trochoidal milling applications, the cutter follows a spiral path by moving radially as it rotates providing faster machining times, lower tooling costs and reduced loads on machine components.



Peel milling applications benefit from ALU-POWER HPC's super sharp high-speed milling ability.



Outstanding chip evacuation through deep gullet design coupled with high speed milling leaves a well-defined clean cutter path.



ALU-POWER HPC NEW CHIP BREAKER 3-FLUTE END MILLS

- Unique Geometry provides the Balance cutting with less vibration during the High Speed Machining.
- Provides long tool life and high productivity on aluminum by Chip breaker releasing stresses on the tool and prevents acceleration rate of wear on the cutting edge.
- Chip Breaker Improves chip evacuation by shortening the chip length during the High Speed Machining.

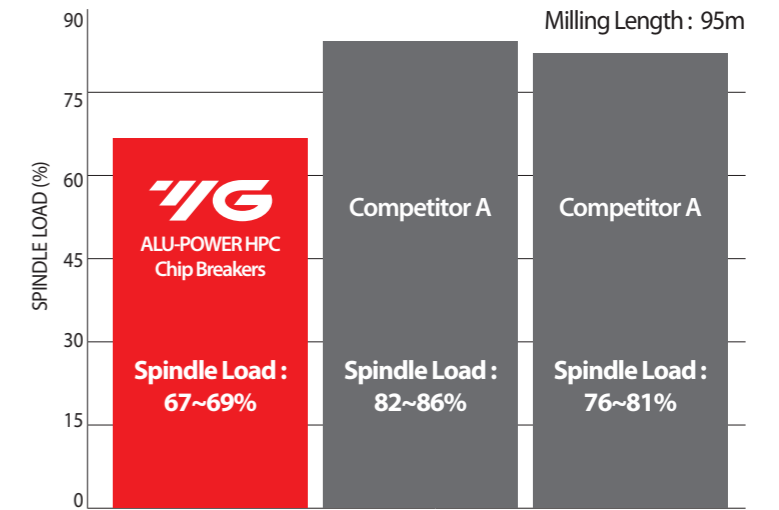
CASE STUDY

TEST Chip Breakers - Side Cutting Application

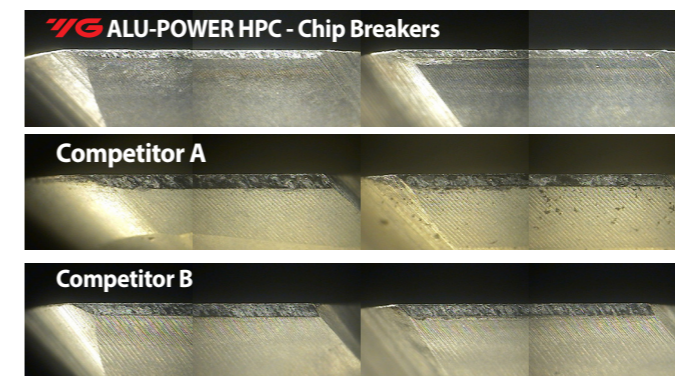
Ø12.7(R0.76) 3 Flute Chip Breakers

Cutting Conditions	
Tool	Ø12.7(R0.76) x Ø12.7 x 31.75 x 76.2
Work Material	Al7075
R.P.M (rev./min.)	16,800
FEED(mm/min.)	3,835
Cutting Depth (mm)	19.05 (Axial=1.5D) 4,445 (Radial=0.35D)
Coolant	Wet Cut
Holder	BT40 - High Feed Milling Chuck
Milling Method	Profiling
Machine	Machining Center

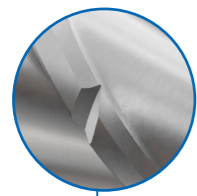
Cutting Resistance



Cutting Edge (Total Milling Length : 95m)

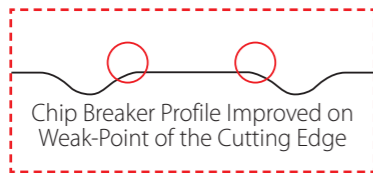


Surface Roughness



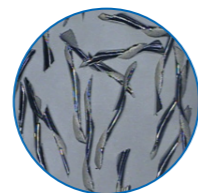
Chip Breakers

- ▶ Through Special Chip Breaker Design, the length of the chip is formed short to improve chip evacuation performance.

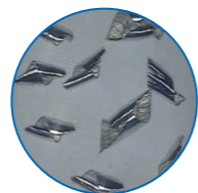


Optimized Chip Breaker Profile Design

- ▶ Optimized Chip Breaker Profile design boasts the best performance in Aluminum high-speed processing.



General End mill Chip Geometry

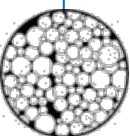


Chip Breaker End mill Chip Geometry



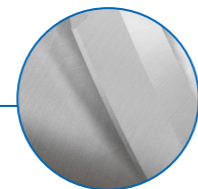
Unique Geometries

- ▶ Applied suitable Flute Design for Aluminum high speed machining to have an effective chip evacuation effect.
- ▶ Excellent Corner Protect Design improves tool life.



Premium Tungsten Carbide

- ▶ Excellent wear resistance by using Premium Carbide material.



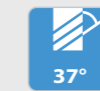
Cylindrical Land

- ▶ Improves tool performance by reducing vibration and chattering in high-speed processing.

GUIDE TO ICONS



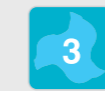
The tool is made of micrograin carbide



Helix Angle



Tool Ends: Square / Corner Radius



No. of Flutes



Type of Shank



Cutting Conditions

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	10	13	16	17

SOLID CARBIDE
ALU-POWER HPC
END MILLS

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

	-	EXTENDED NECK	-	EXTENDED NECK
	Uncoated	Uncoated	Uncoated	Uncoated
	DLC	DLC	DLC	DLC



SERIES	E5I86 E5I87
FLUTE	3
HELIX ANGLE	37°
CORNER RADIUS	
SIZE MIN	D6.0
SIZE MAX	D20.0
PAGE	18

	-
	Uncoated

CHIP BREAKER



NEW

Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.19-21

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	E5H24	E5H25	E5H22	E5H23
P	1	Non-alloy steel	About 0.15% C	Annealed	125	◎	◎	◎	◎
	2		About 0.45% C	Annealed	190	◎	◎	◎	◎
	3		About 0.45% C	Quenched & Tempered	250	◎	◎	◎	◎
	4		About 0.75% C	Annealed	270	◎	◎	◎	◎
	5		About 0.75% C	Quenched & Tempered	300	◎	◎	◎	◎
	6	Low alloy steel		Annealed	180	◎	◎	◎	◎
	7		Quenched & Tempered	275	◎	◎	◎	◎	
	8		Quenched & Tempered	300	◎	◎	◎	◎	
	9		Quenched & Tempered	350	◎	◎	◎	◎	
	10		High alloyed steel, and tool steel	Annealed	200	◎	◎	◎	◎
	11	Quenched & Tempered	325	◎	◎	◎	◎		
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	◎	◎	◎	◎
	13		Martensitic	Quenched & Tempered	240	◎	◎	◎	◎
	14		Austenitic	180	◎	◎	◎	◎	
K	15	Grey cast iron	Pearlitic / ferritic	180	◎	◎	◎	◎	
	16		Pearlitic (Martensitic)	260	◎	◎	◎	◎	
	17	Nodular cast iron	Ferritic	160	◎	◎	◎	◎	
	18		Pearlitic	250	◎	◎	◎	◎	
	19		Ferritic	130	◎	◎	◎	◎	
20	Malleable cast iron	Pearlitic	230	◎	◎	◎	◎		
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			○	○	○	○
	30		Rubber, Wood, etc.						
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	◎	◎	◎	◎
	32		Cured	280	◎	◎	◎	◎	
	33		Annealed	250	◎	◎	◎	◎	
	34		Ni or Co Based	Cured	350	◎	◎	◎	◎
	35		Cast	320	◎	◎	◎	◎	
	36	Titanium Alloys	Pure Titanium	400 Rm	◎	◎	◎	◎	
37	Alpha + Beta Alloys		Hardened	1050 Rm	◎	◎	◎	◎	
H	38	Hardened steel		Hardened	550	◎	◎	◎	◎
	39		Hardened	630	◎	◎	◎	◎	
	40		Chilled Cast Iron	Cast	400	◎	◎	◎	◎
	41		Hardened Cast Iron	Hardened	550	◎	◎	◎	◎

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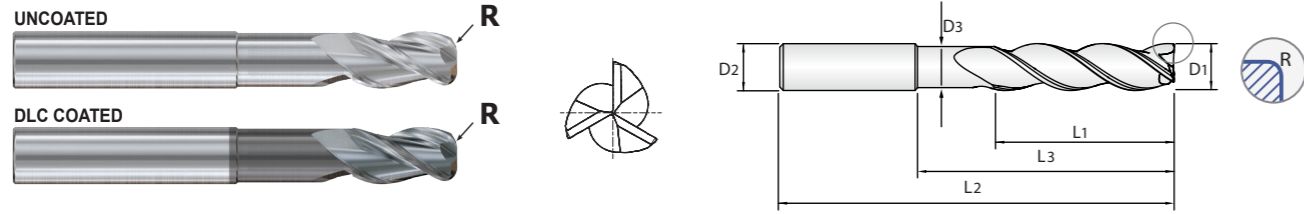
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AEROSPACE SOLUTIONS & COMPOSITE MATERIALS



HIGH-PERFORMANCE SOLID CARBIDE END MILLS
CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

SERIES
 UNCOATED **E5H25**
 DLC COATED **JAH25**

- ▶ 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



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	L ₂	D ₃
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	JAH25918	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	JAH25926	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	JAH25930	R1.2	16.0	16	20	50	125	15.0

NEXT PAGE ▶

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

◎ : Excellent ○ : Good

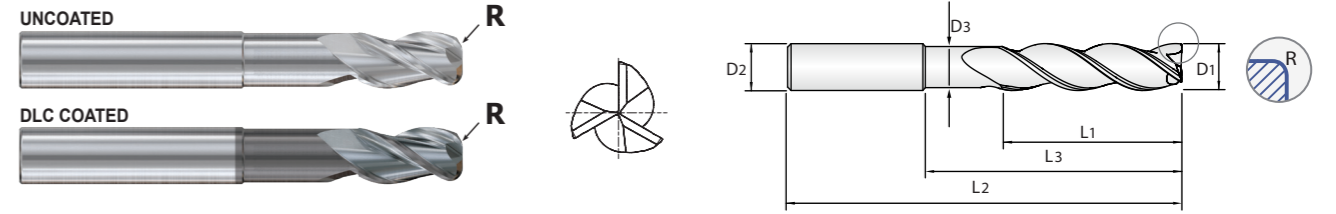
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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	60	100	75	90	130	110	90	100			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	◎	◎	◎	◎	◎	○	○	○														

HIGH-PERFORMANCE SOLID CARBIDE END MILLS
CARBIDE, 3 FLUTE 37° HELIX CORNER RADIUS with EXTENDED NECK

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 DLC COATED **JAH25**

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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	D ₁	D ₂	L ₁	L ₃	L ₂	D ₃
E5H25931	JAH25931	R1.6	16.0	16	20	50	125	15.0
E5H25932	JAH25932	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	
ø6	+/-0.008	
Over ø6 ~ up to ø10	+/-0.009	
Over ø10 ~ up to ø16	+/-0.011	
ø20	+/-0.013	h5

◎ : 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	19	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommend																					

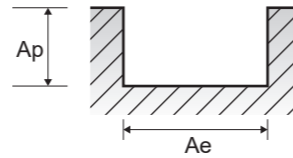
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
Material Description	21	22	23	24	25	26	27	28	29	30	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	60	100	75	90	130	110	90	100			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	◎	◎	◎	◎	◎	○	○	○														

E5H22, JAH22, E5H23, JAH23 SERIES

3 FLUTE - SLOTTING

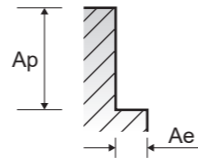
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Vc = m/min. fz = mm/tooth

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill 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
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	3946	5918	5326	5918	4883	4439	4735
					fz	183	183	183	183	183	183	183
					RPM	19417	9708	5825	4854	3641	2913	2330
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	1480	2219	1997	2219	1831	1665	1775
					fz	268	268	268	268	268	268	268
					RPM	28436	14218	8531	7109	5332	4265	3412
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	1733	2167	2600	2708	2235	1950	1820
					fz	503	503	503	503	503	503	503
					RPM	53370	26685	16011	13342	10007	8005	6404
FEED	6100	8134	9150	10167	8388	7320	6832					



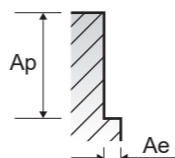
3 FLUTE - SIDE CUTTING

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill 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
	23~25	Aluminum-cast, alloyed	0.5D	1.5D	Vc	4932	7398	6658	7398	6103	5548	5918
					fz	244	244	244	244	244	244	244
					RPM	25889	12945	8531	7109	5332	4265	3412
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	1973	2959	2663	2959	2441	2219	2367
					fz	351	351	351	351	351	351	351
					RPM	37242	18621	11173	9311	6983	5586	4469
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	2270	2838	3405	3547	2927	2554	2384
					fz	625	625	625	625	625	625	625
					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	Mill 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
	23~25	Aluminum-cast, alloyed	0.05D	2.0D	Vc	17080	22367	25621	28467	22876	20131	19033
					fz	366	366	366	366	366	366	366
					RPM	38834	19417	11650	9708	7281	5825	4660
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.05D	2.0D	Vc	6214	8138	9321	10357	8323	7324	6924
					fz	564	564	564	564	564	564	564
					RPM	59842	29921	17953	14961	11220	8976	7181
	29.1	Non Metallic Materials	0.05D	2.0D	Vc	7752	10260	11628	13110	11115	9576	8755
					fz	1021	1021	1021	1021	1021	1021	1021
					RPM	108331	54166	32499	27083	20312	16250	13000
FEED	28066	37147	42100	47465	38695	34051	31699					

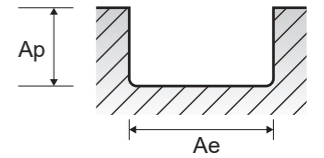


E5I86, E5I87 SERIES

3 FLUTE CORNER RADIUS - SLOTTING

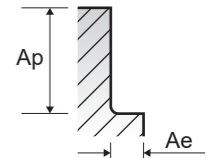
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Vc = m/min. fz = mm/tooth

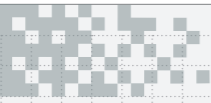
ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Mill Diameter (Ø)				
						6.0	10.0	12.0	16.0	20.0
N	21~22	Aluminum-wrought alloy	1.0D	1.0D	Vc	488	488	488	488	488
					fz	0.076	0.114	0.152	0.168	0.191
					RPM	25889	15533	12945	9708	7767
	23~25	Aluminum-cast, alloyed	1.0D	1.0D	Vc	5918	5326	5918	4883	4439
					fz	183	183	183	183	183
					RPM	9708	5825	4854	3641	2913
	26-28	Copper and Copper Alloys (Bronze / Brass)	1.0D	1.0D	Vc	2219	1997	2219	1831	1665
					fz	268	268	268	268	268
					RPM	14218	8531	7109	5332	4265
	29.1	Non Metallic Materials	1.0D	1.0D	Vc	2167	2600	2708	2235	1950
					fz	503	503	503	503	503
					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	Mill 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	7398	6658	7398	6103	5548
					fz	244	244	244	244	244
					RPM	12945	8531	7109	5332	4265
	26-28	Copper and Copper Alloys (Bronze / Brass)	0.5D	1.5D	Vc	1973	2959	2663	2959	2441
					fz	351	351	351	351	351
					RPM	37242	18621	11173	9311	6983
	29.1	Non Metallic Materials	0.5D	1.5D	Vc	2270	2838	3405	3547	2927
					fz	625	625	625	625	625
					RPM	66314	33157	19894	16579	12434
FEED	7580	10106	11370	12633	10422					





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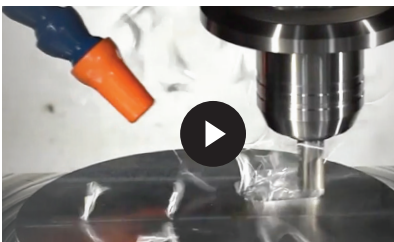
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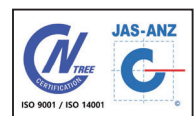
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