

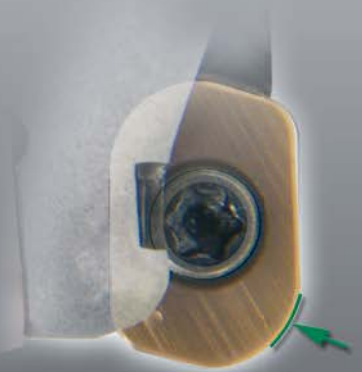
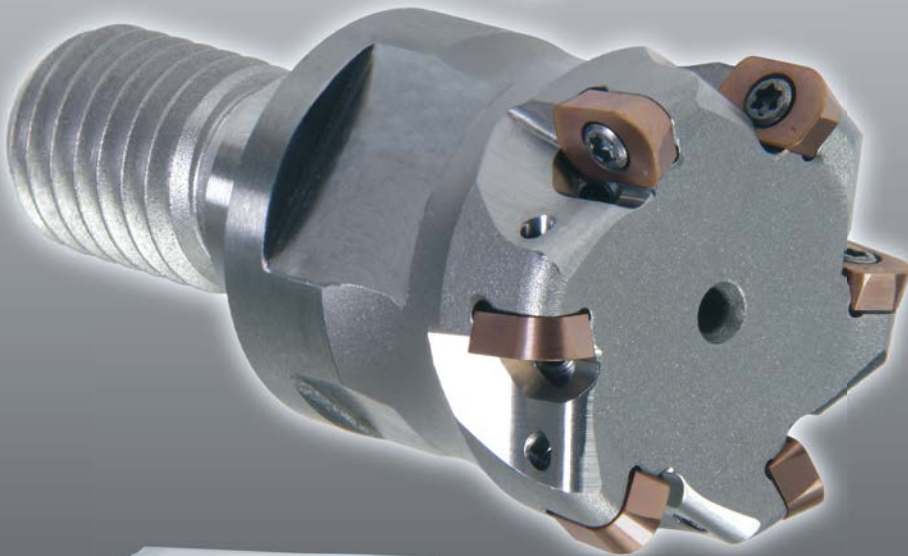
APHP *Advanced Pico Hard Precision* *High Hardness Cutting (HHC) & High Feed Cutting (HFC)*



D 8 mm ~ D 32 mm

- Modular Type
- True Radius: **R2**
- For Materials ≤ 62 HRC
- Available Grades:

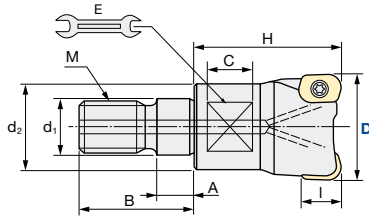
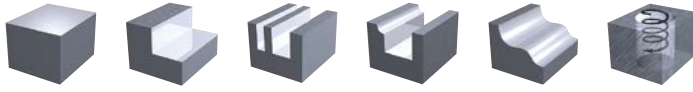
PJP Coating | Diamond Coating



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APHP | Advanced Pico Hard Precision – Modular Type

Q max High Efficient	Jet Air Hole	▽ Roughing	▽▽ Semi-Finishing	HRC 62	No. of Teeth 1-8
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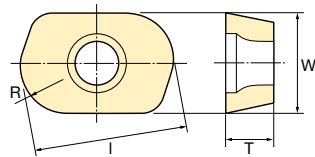


Diameter Holder only [mm]	Fastening Torque [Nm]
-0.046/-0.096 mm	0.5 Nm

Modular Type													
ID Code	Item Code	Flutes	D	H	d ₁	M	d ₂	A	B	C	E	I	Inserts
FH182	APHP-1008R-1-M6	1	8	19	6.5	M6	9.4	5.5	14.5	5	7	6.215	EPHW0402TN-2
FH183	APHP-1010R-2-M6	2	10	17	6.5		9.8						
FH184	APHP-1012R-3-M6	3	12	17	6.5								
FH185	APHP-1016R-4-M8	4	16	22	8.5	M8	12.8		17	8	10		
FH186	APHP-1020R-5-M10	5	20	25	10.5	M10	17.8		19	10	15		
FH187	APHP-1025R-6-M12	6	25	25	12.5	M12	20.8	22	17				
FH188	APHP-1032R-8-M16	8	32	27	17	M16	28.8	6	23	12	22		

Wrench Size

INSERTS APHP | Advanced Pico Hard Precision – Modular Type



Inserts	Tolerance Class	D Coated	PJP Coated		Size (mm)			
		D08M	PJP15M	PJP08M	R	I	T	W
Item Code		ID Code						
EPHW0402TN-2 PJP08M	H			WF210	2	6.215	2	4.2
EPHW0402TN-2 PJP15M			WF211					
EPHW0402TN-2 D08M		WF212						

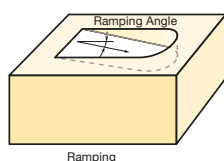
D08M	Diamond Coating for Graphite
PJP15M	Micro Grain PVD Coating – Tough
PJP08M	Micro Grain PVD Coating – Hard

Type	Cutter body	Parts Shape		Clamp Screw		Wrench	
Modular	APHP-10...	ET052		240-140		ET056	
						104-T6	

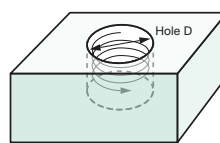
APHP | Recommended Cutting Conditions

Workpiece material	Insert Grade	Tool D / Flutes Parameter	D8 (Z1)	D10 (Z2)	D12 (Z3)	D16 (Z4)	D20 (Z5)	D25 (Z6)	D32 (Z8)
Hardened steel 45-55 HRC	PJP08M PJP15M	V_c m/min	110	110	110	110	110	110	110
		n min ⁻¹	4,380	3,500	2,920	2,190	1,750	1,400	1,090
		f_z mm/t	0.4	0.5	0.5	0.5	0.5	0.5	0.5
		V_f mm/min	1,750	3,500	4,380	4,380	4,370	4,200	4,360
		a_p mm	0.2	0.3	0.3	0.3	0.3	0.3	0.3
		a_e mm	4.5	6	7	9.5	12	15	19
		Q cm ³ /min	1.6	6.3	9.2	12.5	15.7	18.9	24.9
Hardened steel 55-60 HRC	PJP08M	V_c m/min	75	75	75	75	75	75	75
		n min ⁻¹	2,990	2,390	1,990	1,490	1,190	960	750
		f_z mm/t	0.3	0.4	0.4	0.4	0.4	0.4	0.4
		V_f mm/min	890	1,910	2,380	2,380	2,380	2,300	2,400
		a_p mm	0.15	0.2	0.2	0.2	0.2	0.2	0.2
		a_e mm	3	4	5	6.5	8	10	13
		Q cm ³ /min	0.4	1.5	2.4	3.1	3.8	4.6	6.2
Hardened steel 60-62 HRC	PJP08M	V_c m/min	65	65	65	65	65	65	65
		n min ⁻¹	2,590	2,070	1,730	1,290	1,040	830	650
		f_z mm/t	0.25	0.3	0.3	0.3	0.3	0.3	0.3
		V_f mm/min	640	1,240	1,550	1,540	1,560	1,490	1,560
		a_p mm	0.15	0.15	0.15	0.15	0.15	0.15	0.15
		a_e mm	3	4	5	6.5	8	10	13
		Q cm ³ /min	0.3	0.7	1.2	1.5	1.9	2.2	3.0
Graphite	D08M	V_c m/min	up to 1,000	up to 1,000	up to 1,000	up to 1,000	up to 1,000	up to 1,000	up to 1,000
		n min ⁻¹	up to 39,800	up to 31,800	up to 26,500	up to 19,900	up to 15,900	up to 12,700	up to 9,900
		f_z mm/t	up to 0.4	up to 0.4	up to 0.4	up to 0.4	up to 0.4	up to 0.4	up to 0.4
		V_f mm/min	up to 15,900	up to 25,400	up to 31,800	up to 31,800	up to 31,800	up to 30,000	up to 31,600
		a_p mm	up to 1.0	up to 1.0	up to 1.0	up to 1.0	up to 1.0	up to 1.0	up to 1.0
		a_e mm	up to 4	up to 5	up to 7	up to 11	up to 15	up to 20	up to 25
		Q cm ³ /min	up to 31.8	up to 63.5	up to 111.3	up to 174.9	up to 238.5	up to 300	up to 395

Ramping / Helical Milling



Ramping



Helical Milling

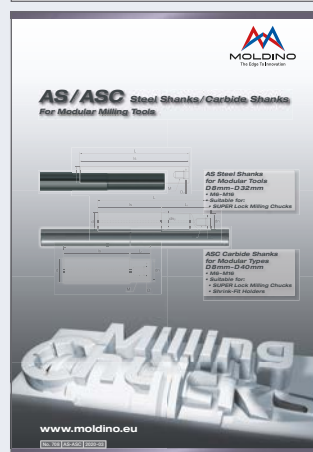
Tool diameter D mm	D 8	D 10	D 12	D 16	D 20	D 25	D 32
Max. ramp angle °	less than 0.5° (max. 1.0°)						
Helical Milling / Hole Dia. (mm)	10–15	13–19	17–23	25–31	33–39	43–49	57–63

➔ For more information about Modular Tools and available Shanks please check our brochures:

Indexable Modular No. 328.x



AS/ASC Shanks No. 708



Always up to date: Please check our P50 QuickFinder



Attentions on Safety

1. Cautions regarding handling

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
- (3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.
- (5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

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