

ACHTECK•MILL

OD Series

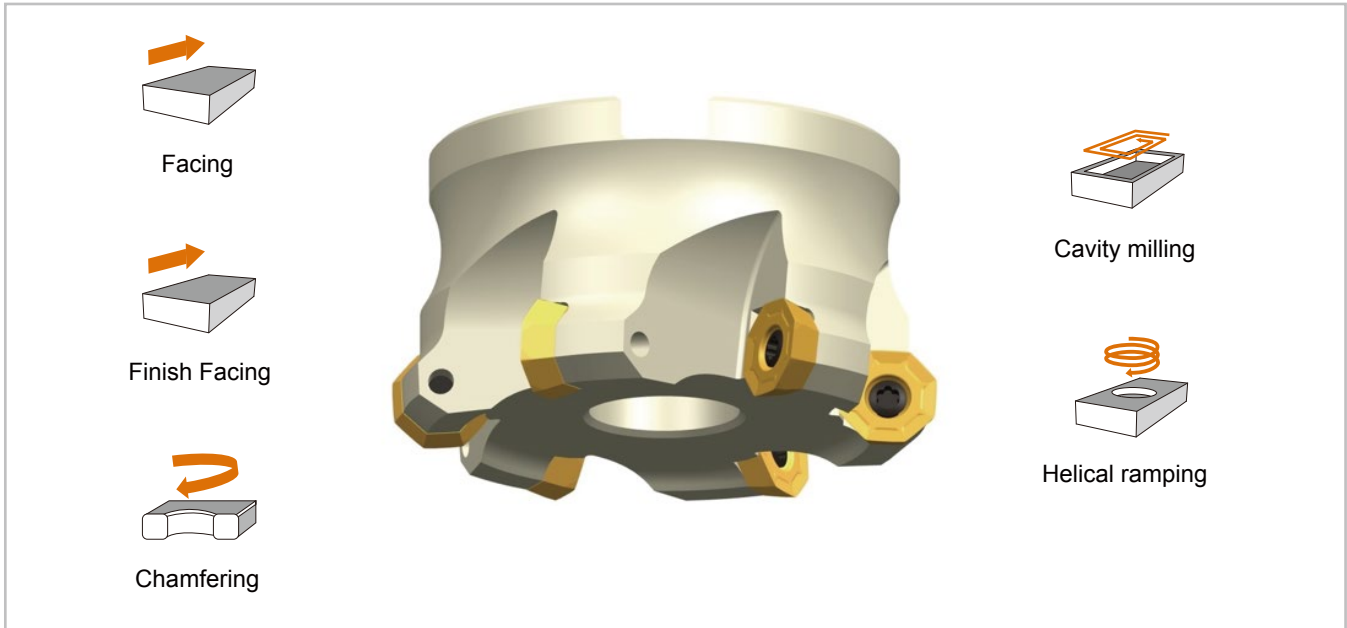
Multi Function Mill



www.achtecktool.com

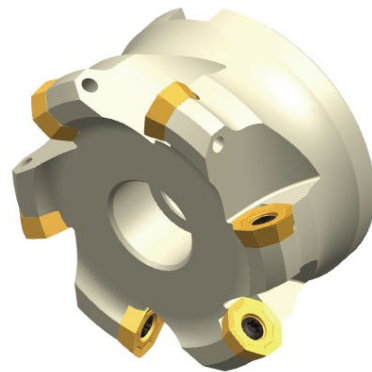
OD Cutter Introduction

AFM42-OD Face cutter — Light, economic, multi-function



◆ Cutter Structure Features

- Double rake angles make cutting gently and slightly
- High Economy: 8 cutting edges
- work piece material: P、K、M、S
- Shining Nickel-plated cutter has well corrosion resistance and wear resistance
- Cutter dia. Range from $\phi 40$ to $\phi 160$, under $\phi 125$ (include 125) are coolant type
- OD04/OD06 two size of insert available



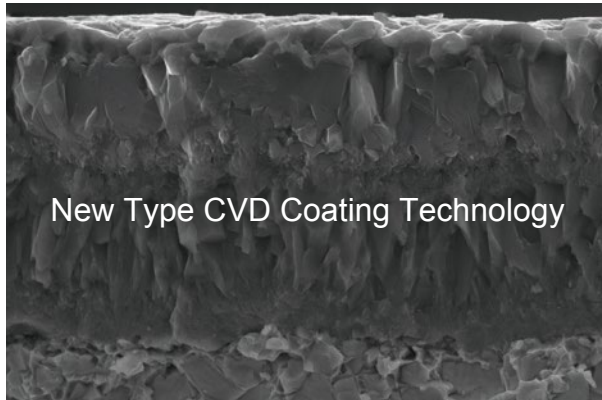
◆ Insert Features

Positive, economic one side insert with 8 cutting edges.

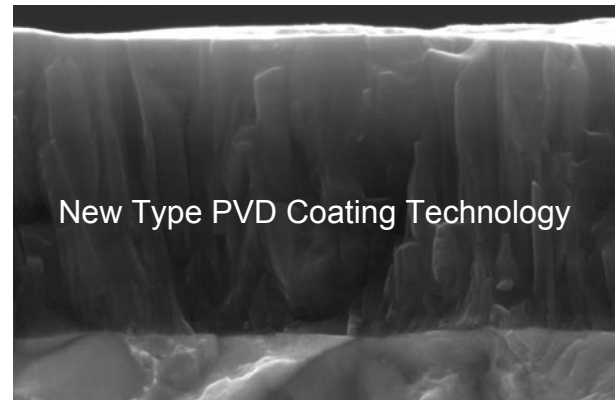
Sharp cutting makes cutting lightly.

It has extensive facing application range for steels and cast iron roughing, semi-finishing and finishing.

◆ Coating Introduction



Multi-layer coating structure with perfect toughness;
Good wear resistance and high temperature oxidation resistance
Smooth coating surface enhances work piece surface finish;
Well combination between coating layer and substrate extended tool life.



Alternate soft and hard nano-coating layer structure has high hardness and good toughness;
Good high temperature resistance and oxidation resistance
Smooth coating surface enhances work piece surface finish;
Well combination between coating layer and substrate extended tool life.

◆ Insert Chip Breaker Introduction

HR2 → Stability Type

Suitable for bad cutting condition with stable cutting edge. High feed rate.



MM3 → Free-cutting Type

Apply for semi-finishing and finishing under fine cutting conditions with low cutting force and medium feed.



FM2 → Sharp Type

Specialized geometry design for aluminum machining with low cutting force and sharp edge



◆ Machining Case

Work piece: Turbine housing

Material: Heat resistant steel

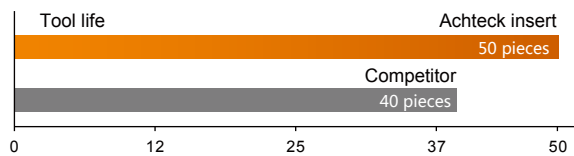
Hardness: HB180-220

Coolant type: Emulsion

Cutter designation: AFM42-063-Z05-A22R-OD06-C

Insert designation: ODMT 0404APEN-MM3 AP351U

Cutting Parameter: $V_c=90\text{m/min}$ $f_z=0.20\text{mm/z}$
 $a_p=1.5\text{mm}$



Comparison Result: Achteck tool life is 25% higher than competitor

Work piece: Exhaust manifold

Material: High Si-Mo cast iron

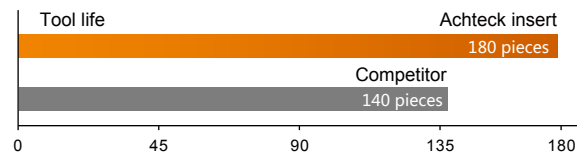
Hardness: HB220

Coolant type: Emulsion

Cutter designation: AFM42-100-Z07-A32R-OD04-C

Insert designation: ODMT 060508EN-MM3 AC301K

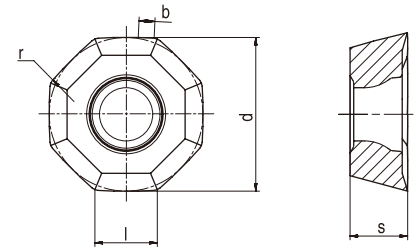
Cutting Parameter: $V_c=175\text{m/min}$ $f_z=0.25\text{mm/z}$
 $a_p=1.8\text{mm}$ $a_e=50\text{mm}$

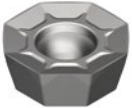
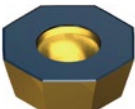


Comparison Result: Achteck tool life is 29% higher than competitor

Insert stock

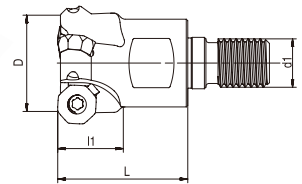
OD..04/06



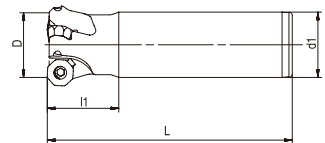
Insert	Designation	Dimensions (mm)					Grades						
		l	d	s	r	b	CVD coated		PVD coated			Uncoated	
							AC301P	AC301K	AP301U	AP351U	AP401U	AP351K	AW100K
	ODET 0404APFN-FM2	4	12.7	4.76	-	1.2							•
	ODET 0605APFN-FM2	6	16	5.56	-	1.6							•
	ODHT 0404APEN-MM3	4	12.7	4.76	-	1.2		•	•	•	•		
	ODMT 040408EN-MM3	4	12.7	4.76	0.8	-		•		•	•		
	ODMT 060508EN-MM3	6	16	5.56	0.8	-	•	•	•	•	•	•	
	ODMT 060512EN-MM3	6	16	5.56	1.2	-			•				
	ODHT 0605APEN-MM3	6	16	5.56	-	1.6		•	•	•	•		
	ODEW 0404APSR-HR2	4	12.7	4.76	-	1.2		•	•			•	
	ODEW 0605APSR-HR2	6	16	5.56	-	1.6		•				•	
	ODEW 0605APSRN-HR2	6	16	5.56	-	1.6		•				•	
	ODMW 040408EN-HR2	4	12.7	4.76	0.8	-		•				•	
	ODMW 060512EN-HR2	6	16	5.56	1.2	-		•				•	

Remark: • represent for standard stock

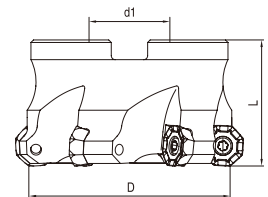
AFM42-OD04



Designation	D	d1	L	apmax	Coolant	Z	Insert
AFM42-032-Z03-M16R-OD04-C	32	M16	43	3.5		3	OD..0404



Designation	D	d1	L	apmax	Coolant	Z	Insert
AFM42-032-Z03-W32R-OD04-C	32	32	120	3.5		3	OD..0404



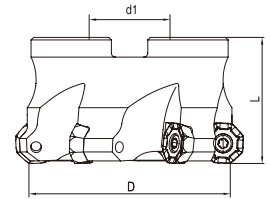
Designation	D	d1	L	apmax	Coolant	Z	Insert
AFM42-040-Z04-A16R-OD04-C	40	16	40	3.5		4	OD..0404
AFM42-050-Z05-A16R-OD04-C	50	16	40	3.5		5	
AFM42-063-Z05-A22R-OD04-C	63	22	40	3.5		5	
AFM42-063-Z06-A22R-OD04-C	63	22	40	3.5		6	
AFM42-080-Z06-A27R-OD04-C	80	27	50	3.5		6	
AFM42-080-Z08-A27R-OD04-C	80	27	50	3.5		8	
AFM42-100-Z07-A32R-OD04-C	100	32	50	3.5		7	
AFM42-100-Z08-A32R-OD04-C	100	32	50	3.5		8	
AFM42-125-Z08-A40R-OD04-C	125	40	63	3.5		8	
AFM42-125-Z10-A40R-OD04-C	125	40	63	3.5		10	

Remark: represent for coolant
 represent for no coolant

Dimensions	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ35-125			
	AST4112-60	ADT-T15	3.5Nm

Machining method					
Facing	Finish Facing	Chamfering	Ramping	Cavity milling	Helical ramping

AFM42-OD06



Designation	D	d1	L	apmax	Coolant	Z	Insert
AFM42-050-Z04-A16R-OD06-C	50	16	40	4.5		4	OD..0605
AFM42-063-Z05-A22R-OD06-C	63	22	40	4.5		5	
AFM42-080-Z05-A27R-OD06-C	80	27	50	4.5		5	
AFM42-080-Z06-A27R-OD06-C	80	27	50	4.5		6	
AFM42-100-Z06-A32R-OD06-C	100	32	50	4.5		6	
AFM42-100-Z07-A32R-OD06-C	100	32	50	4.5		7	
AFM42-125-Z07-A40R-OD06-C	125	40	63	4.5		7	
AFM42-125-Z08-A40R-OD06-C	125	40	63	4.5		8	
AFM42-160-Z10-A40R-OD06	160	40	63	4.5		10	

Remark: represent for coolant
 represent for no coolant

Dimensions	Spare parts		
Cutter diameter	Screw	Wrench	Torque
φ50-160			
	AST4512-43	ADT-T20	5.0Nm

Machining method					
Facing	Finish Facing	Chamfering	Ramping	Cavity milling	Helical ramping

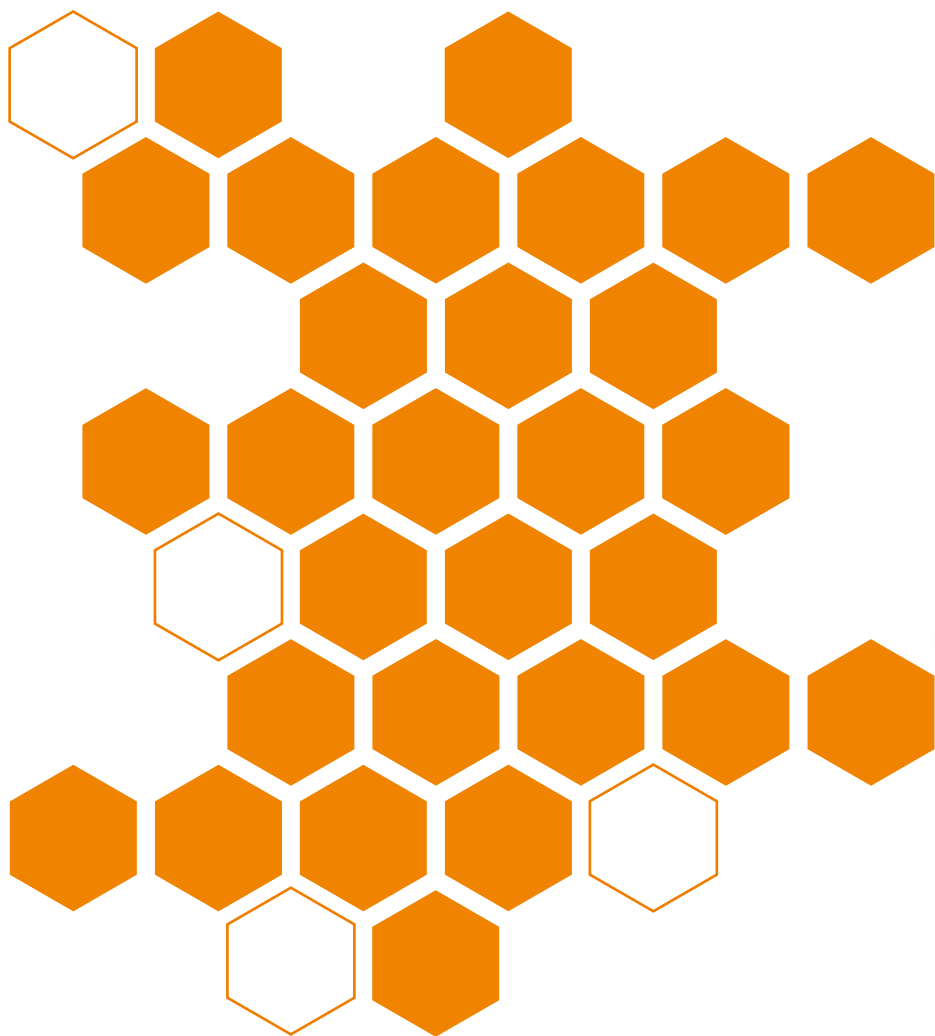
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The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants. Average chip thickness= $hm=fz \times \sin \text{KappaR}$

AFM42-OD06 Recommended Cutting Conditions

Machined Materials		Achteck Milling Grades Application Ranges												Cutting depth and feed rate							
		AP301U	AP351U	AP401U	AC301P	AC301K	AP351K	AW100K	OD..0605												
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	Feed rate(mm/z)																	
				Cutting speed(m/min)																	
				Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Med	Max	Min	Max	
				ap(mm)																	
				Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max	Min	-	Max
				Geometry																	
				HR2																	

The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, work piece clamping and coolants. Average chip thickness=hm(hm=fzxsIn KappaR)



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