ACHTECK
澳克泰工具

2025.6

PVD grade For HRSA Turning
——AP010S

Dedicated for HRSA and Titanium Alloy and other difficult-to-cut materials

High wear resistance, can achieve higher cutting speed
Super hard substrate can be suitable for variety of materials (S05/H05/M05)
Dedicated geometry for HRSA machining (SC1/SL3/SC3)

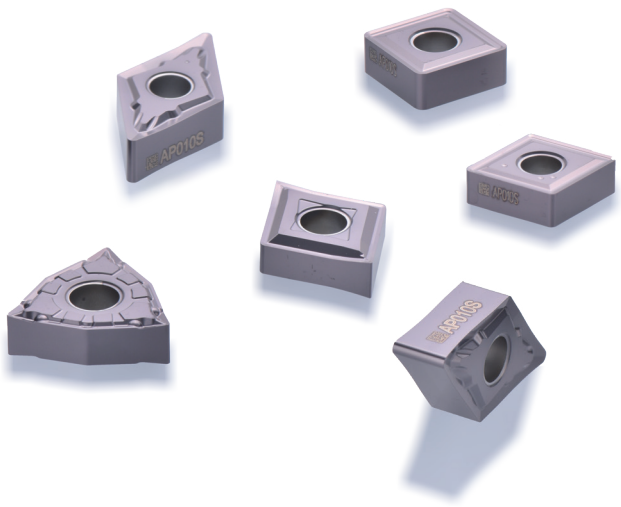
SC3 for
HRSA Medium machining

SL3 for
HRSA light machining

NEW

SC1 for
HRSA finishing

MB2 for
SS finishing



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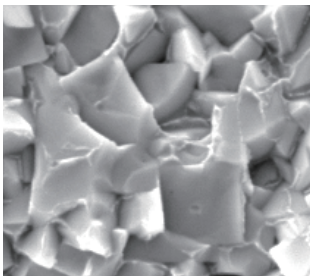
NO.093

AP010S Grade

Innovative nano-structured high aluminum coating,excellent heat resistance capabilty, can achieve good performance in HRSA machining.

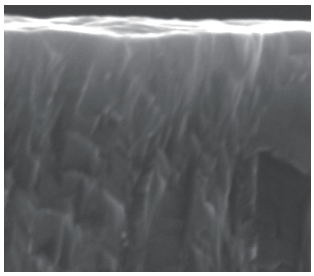
High wear resistance capability with new configurated substrate

※ Strengthened substrate with improved cobalt and tungsten carbide binding force and adhesion is suitable for high temperatures



Innovative nano-structured high aluminum coating

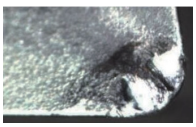
- Super smooth coating surface with special post treatment improve BUE resistance capability
- High hardness and structure/chemical stability are suitable for HRSA high speed finish machining.



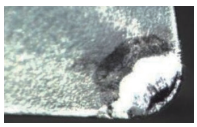
Stable machining with longer tool life

Wear resistance test in HRSA

S company

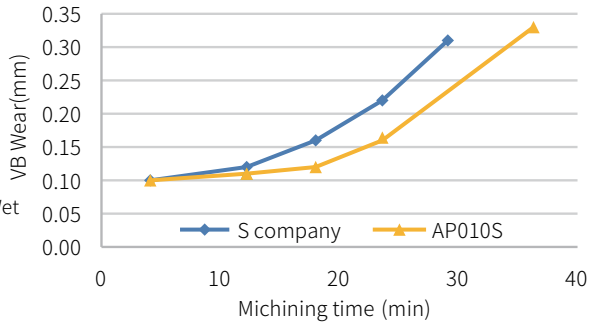


AP010S

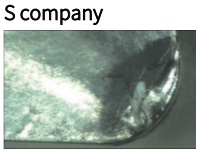


※ Michining time 23min

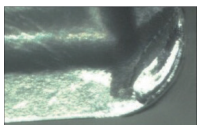
Cutting parameter: Vc=45m/min, f=0.15mm/rev, ap=0.4mm, Wet
Material: HRSA Inconel718 GH4169 HRC: 40-45
Insert: CNMG 120404



S company

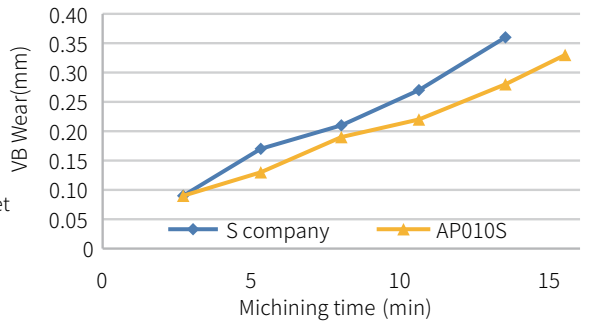


AP010S



※ Michining time 13min

Cutting parameter: Vc=75m/min, f=0.1mm/rev, ap=0.5mm, Wet
Material: HRSA Inconel718 GH4169 HRC: 40-45
Insert: WNMG 080404



Cutting parameter

Material group	Material clasification		Cutting speed Vc
S	Iron -Based	-	40-**80**-120
	Cobalt-Based	Stellite	30-**60**-90
	Nickel-Based	Inconel	30-**60**-90
	Titanium Alloy	Ti6Al4V	30-**60**-90
M	Austenite+Ferrite SS	300Series	155-**190**-240
	Martensite SS	400Series	145-**170**-215
	PH. Duplex SS	PH.2205	85-**150**-215

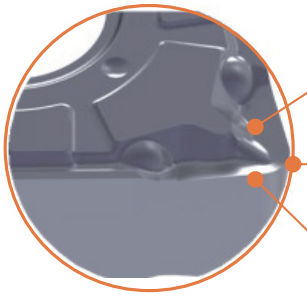
ISORange	01	10	20	30	40
M	01-15				
S	01-15				
H	01-10				

※ First choice in S Cat. Alternative choice in M&H Cat. The recommended cutting conditions always refer to general conditions. These cutting conditions should be adjusted according to the practical machine rigidity, tools, workpiece clamping and coolant.

SC1 Chip-breaker

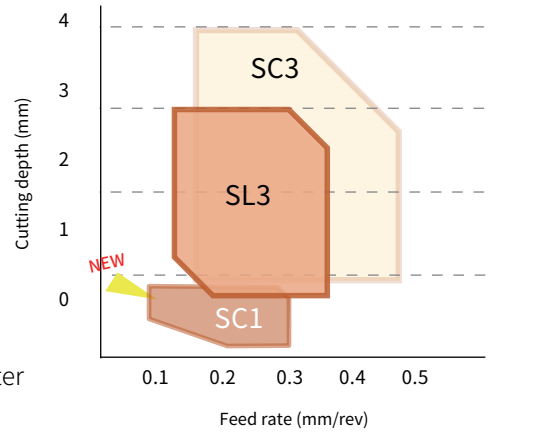
First choice for HRSA finishing application

Geometry feature



- **Special chip-breaker**
  Excellent chip control
- **Sharp nose design**
  Reduced cutting force
- **Inclination angle in CE**
  Improved chip flow for better surface quality

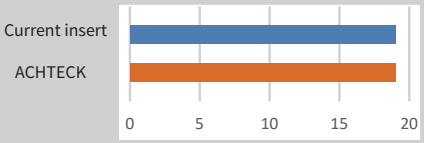
(CN12style)

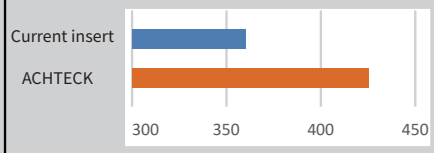


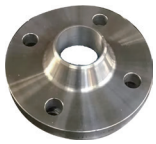
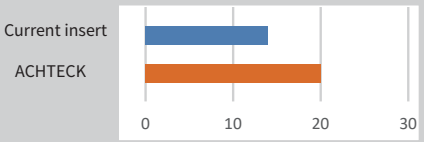
Geometry feature and application recommendation

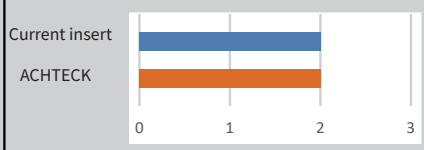
Application		Chip breaker		Features	Cross section geometry
Negative Inserts	Finishing	SC1		1st choice for heat resistant alloy finish turning Excellent performance at low depth of cut.	
		MB2		1st choice for stainless steel finish turning High positive rake angle reduced cutting force and built-up edge, can obtain much better surface quality. Very good chip breaking at low feed and cutting depth.	
	Semi-finishing	SC3		1st choice for heat resistant alloy semi-finish turning Used in heat resistant alloy and titanium alloy medium turning. Large rake angle + small land width design, easy cutting, is also suitable for soft steel turning.	
	Light cutting	SL3		Recommended for profile turning Suitable for profiling with changing depth of cut. Smooth chip evacuation.	
Positive Inserts	Semi-finishing	PC2		1st choice for steel and stainless steel semi-finish turning Sharp geometry design ensures low cutting force, less built-up edge and excellent chip control.	

Case Studies

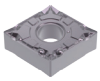
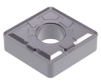
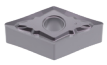
Product Code	DNMG 150408E-SC3 AP010S
Workpiece	Transmission shaft 
Material	High Temp Alloy HRC35
Application	Face and external semi-finish turning
Vc	35m/min
f	0.23mm/rev
ap	2.2mm
Coolant	Emulsion
Result	 Under the same condition, tool life is the same, the CPU is decreased by 30%

Product Code	TNMG 160408E-SC1 AP010S
Workpiece	Valve tappet 
Material	Heat resistance alloy
Application	External finish turning
Vc	158m/min
f	0.25mm/rev
ap	0.5mm
Coolant	Emulsion
Result	 Under the same condition, the tool life is increased by 15.2%/edge

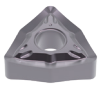
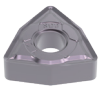
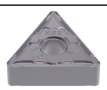
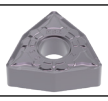
Product Code	WNMG 080408E-SC3 AP010S
Workpiece	Flange 
Material	1.4828
Application	Internal semi-finish turning + face turning
Vc	60-70m/min
f	0.2mm/rev
ap	1.3mm
Coolant	Emulsion
Result	 Under the same condition, the tool life is increased by 42%/edge

Product Code	WNMG 080408E-SC1 AP010S
Workpiece	High pressure turbine nozzle ring 
Material	High Temp Alloy
Application	Internal finish turning + face turning
Vc	32m/min
f	0.1mm/rev
ap	0.5mm
Coolant	Emulsion
Result	 Under the same condition, the tool life is the same, and CPU is decreased by 30%

Product list-Negative Inserts

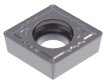
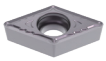
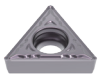
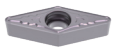
Illustration	Product code	Parameter recommendation		Dimension (mm)				Grade	
		f	ap	IC	S	D1	r		
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	AP010S	AP200U
	CNMG 120404E-SC1	0.07-0.18	0.20-0.8	12.70	4.76	5.16	4	●	●
	CNMG 120408E-SC1	0.10-0.25	0.20-0.8	12.70	4.76	5.16	8	●	○
	CNMG 120404E-SL3	0.12-0.25	0.60-3.0	12.70	4.76	5.16	4	●	●
	CNMG 120408E-SL3	0.15-0.30	0.80-3.0	12.70	4.76	5.16	8	●	●
	CNMG 120404E-SC3	0.08-0.22	0.40-4.3	12.70	4.76	5.16	4	●	●
	CNMG 120408E-SC3	0.15-0.44	0.80-4.3	12.70	4.76	5.16	8	●	●
	CNMG 120412E-SC3	0.23-0.66	1.20-4.3	12.70	4.76	5.16	12	●	●
	CNMG 160612E-SC3	0.23-0.66	1.20-5.3	15.88	6.35	6.35	12	●	●
	CNMG 160616E-SC3	0.30-0.88	1.60-5.3	15.88	6.35	6.35	16	●	●
	CNMG 190612E-SC3	0.23-0.66	1.20-6.4	19.05	6.35	7.94	12	●	●
	CNMG 190616E-SC3	0.30-0.88	1.60-6.4	19.05	6.35	7.94	16	N	●
	DNMG 110408E-SL3	0.12-0.30	0.80-2.5	9.53	4.76	3.81	8	●	●
	DNMG 150404E-SL3	0.12-0.25	0.60-2.5	12.70	4.76	5.16	4	●	●
	DNMG 150408E-SL3	0.15-0.30	0.80-2.5	12.70	4.76	5.16	8	●	●
	DNMG 150604E-SL3	0.12-0.25	0.60-2.5	12.70	6.35	5.16	4	●	●
	DNMG 150608E-SL3	0.15-0.30	0.80-2.5	12.70	6.35	5.16	8	●	●
	DNMG 150404E-SC3	0.08-0.22	0.40-3.9	12.70	4.76	5.16	4	●	●
	DNMG 150408E-SC3	0.15-0.44	0.80-3.9	12.70	4.76	5.16	8	●	●
	DNMG 150412E-SC3	0.23-0.66	1.20-3.9	12.70	4.76	5.16	12	●	●
	DNMG 150604E-SC3	0.08-0.22	0.40-3.9	12.70	6.35	5.16	4	●	●
	DNMG 150608E-SC3	0.15-0.44	0.80-3.9	12.70	6.35	5.16	8	●	●
	DNMG 150612E-SC3	0.23-0.66	1.20-3.9	12.70	6.35	5.16	12	●	●
	SNMG 120404E-SL3	0.12-0.25	0.60-3.0	12.70	4.76	5.16	4	●	○
	SNMG 120408E-SL3	0.15-0.30	0.80-3.0	12.70	4.76	5.16	8	●	●
	SNMG 120412E-SL3	0.18-0.35	1.00-3.0	12.70	4.76	5.16	12	●	●
	SNMG 120408E-SC3	0.15-0.44	0.80-4.2	12.70	4.76	5.16	8	●	●
	SNMG 120412E-SC3	0.23-0.66	1.20-4.2	12.70	4.76	5.16	12	●	●
	SNMG 150612E-SC3	0.23-0.66	1.20-5.2	15.88	6.35	6.35	12	●	●
	SNMG 150616E-SC3	0.30-0.88	1.60-5.2	15.88	6.35	6.35	16	●	○
	SNMG 190612E-SC3	0.23-0.66	1.20-6.3	19.05	6.35	7.94	12	N	●
	TNMG 160404E-SL3	0.12-0.25	0.60-3.0	9.53	4.76	3.81	4	●	●
	TNMG 160408E-SL3	0.15-0.30	0.80-3.0	9.53	4.76	3.81	8	●	●
	TNMG 160412E-SL3	0.18-0.30	1.00-3.0	9.53	4.76	3.81	12	●	●
	TNMG 160404E-SC3	0.08-0.22	0.40-4.1	9.53	4.76	3.81	4	●	●
	TNMG 160408E-SC3	0.15-0.44	0.80-4.1	9.53	4.76	3.81	8	●	●
	TNMG 160412E-SC3	0.23-0.66	1.20-4.1	9.53	4.76	3.81	12	●	●

Product list-Negative Inserts

Illustration	Product code	Parameter recommendation		Dimension (mm)				Grade	
		f	ap	IC	S	D1	r		
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	AP010S	AP200U
	VNMG 160404E-SL3	0.10-0.20	0.60-2.5	9.53	4.76	3.81	4	●	○
	VNMG 160408E-SL3	0.12-0.25	0.80-2.5	9.53	4.76	3.81	8	●	●
	VNMG 160404E-SC3	0.08-0.22	0.40-3.3	9.53	4.76	3.81	4	●	●
	VNMG 160408E-SC3	0.15-0.44	0.80-3.3	9.53	4.76	3.81	8	●	●
	VNMG 160412E-SC3	0.23-0.66	1.20-3.3	9.53	4.76	3.81	12	●	●
	WNMG 060404E-SL3	0.10-0.20	0.60-2.5	9.53	4.76	3.81	4	●	●
	WNMG 060408E-SL3	0.15-0.30	0.80-2.5	9.53	4.76	3.81	8	●	●
	WNMG 080404E-SL3	0.12-0.25	0.60-3.0	12.70	4.76	5.16	4	●	●
	WNMG 080408E-SL3	0.15-0.30	0.80-3.0	12.70	4.76	5.16	8	●	●
	WNMG 080412E-SL3	0.18-0.30	1.00-3.0	12.70	4.76	5.16	12	●	●
	WNMG 080404E-SC3	0.08-0.22	0.40-2.9	12.70	4.76	5.16	4	●	●
	WNMG 080408E-SC3	0.15-0.44	0.80-2.9	12.70	4.76	5.16	8	●	●
	WNMG 080412E-SC3	0.23-0.66	1.20-2.9	12.70	4.76	5.16	12	●	●
	SNMG 120412E-MB2	0.15-0.45	0.78-3.2	12.70	4.76	5.16	12	○	●
	TNMG 160408E-MB2	0.10-0.30	0.52-3.1	9.53	4.76	3.81	8	●	●
	WNMG 080404E-MB2	0.05-0.15	0.26-2.2	12.70	4.76	5.16	4	●	●
	WNMG 080408E-MB2	0.10-0.30	0.52-2.2	12.70	4.76	5.16	8	●	●

●-Stocked ○-Non-stocked N—Not in the plan

Product list-Positive Inserts

Illustration	Product code	Parameter recommendation		Dimension (mm)				Grade	
		f	ap	IC	S	D1	r		
		(mm/rev)	(mm)	(mm)	(mm)	(mm)	(mm)	AP010S	AP200U
	CCMT 060208E-PC2	0.10-0.32	0.70-1.9	6.38	2.38	2.80	8	●	●
	CCMT 09T304E-PC2	0.05-0.16	0.35-2.9	9.53	3.97	4.40	4	●	●
	CCMT 09T308E-PC2	0.10-0.32	0.70-2.9	9.53	3.97	4.40	8	●	●
	CCMT 120408E-PC2	0.10-0.32	0.70-3.9	12.69	4.76	5.50	8	●	●
	DCMT 070204E-PC2	0.05-0.16	0.35-2.1	6.35	2.38	2.80	4	●	●
	DCMT 11T304E-PC2	0.05-0.16	0.35-3.1	9.53	3.97	4.40	4	●	●
	DCMT 11T308E-PC2	0.10-0.32	0.70-3.1	9.53	3.97	4.40	8	●	●
	SCMT 09T308E-PC2	0.10-0.32	0.70-2.9	9.53	3.97	4.40	8	●	●
	TCMT 090204E-PC2	0.05-0.16	0.35-2.6	5.56	2.38	2.30	4	●	●
	TCMT 110204E-PC2	0.05-0.16	0.35-3.0	6.35	2.38	2.80	4	●	●
	VBMT 160404E-PC2	0.05-0.16	0.35-3.1	9.52	4.76	4.40	4	●	●
	VBMT 160408E-PC2	0.10-0.32	0.70-3.1	9.52	4.76	4.40	8	●	●
	VBMT 160412E-PC2	0.16-0.48	1.05-3.1	9.52	4.76	4.40	12	●	●

●-Stocked ○-Non-stocked N—Not in the plan