

Non-rotating product introduction

难加工材料切削专家
THE EXPERT OF DIFFICULT MACHINING

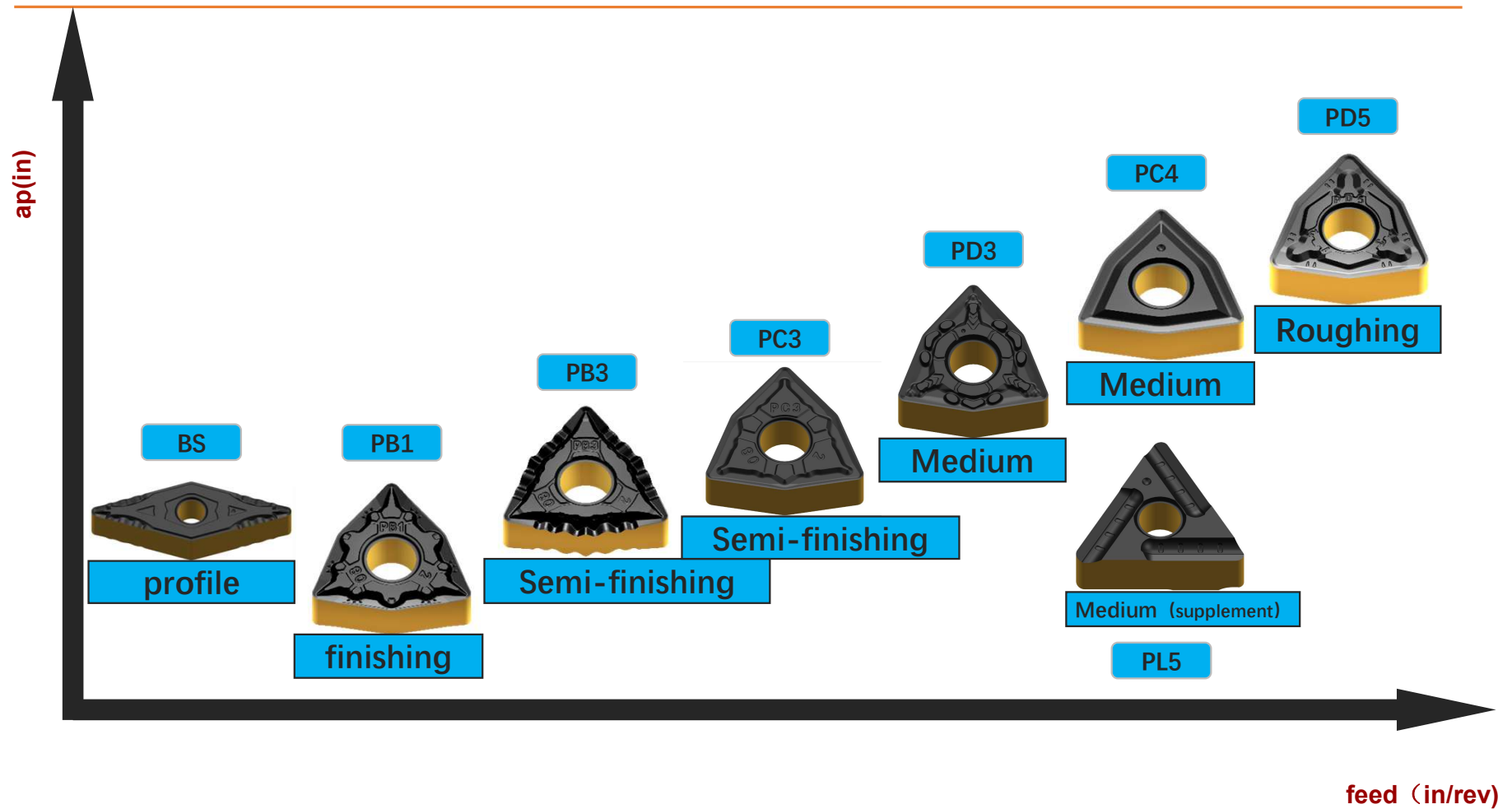
·ACHTECK·

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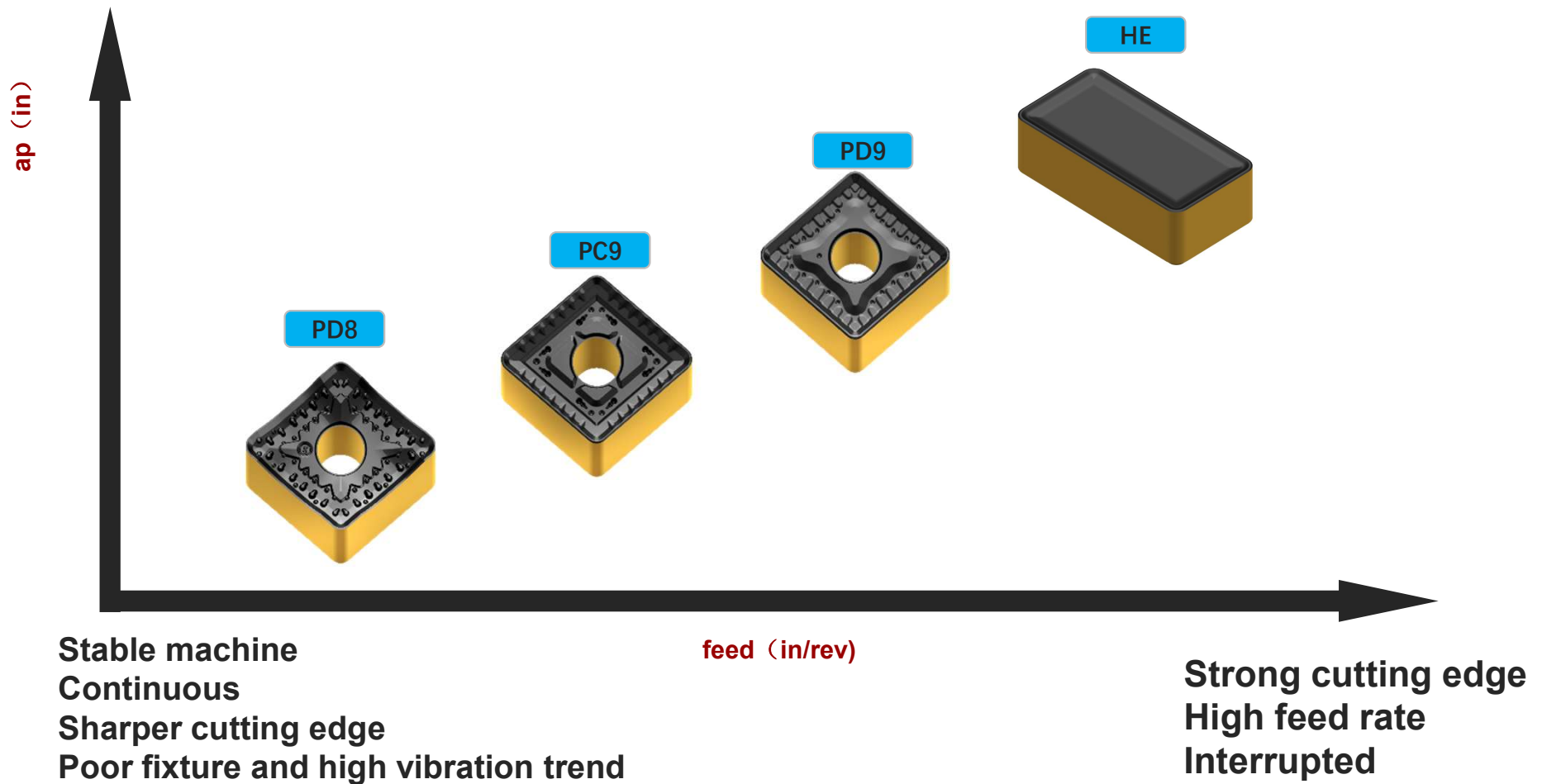
ISO Turning



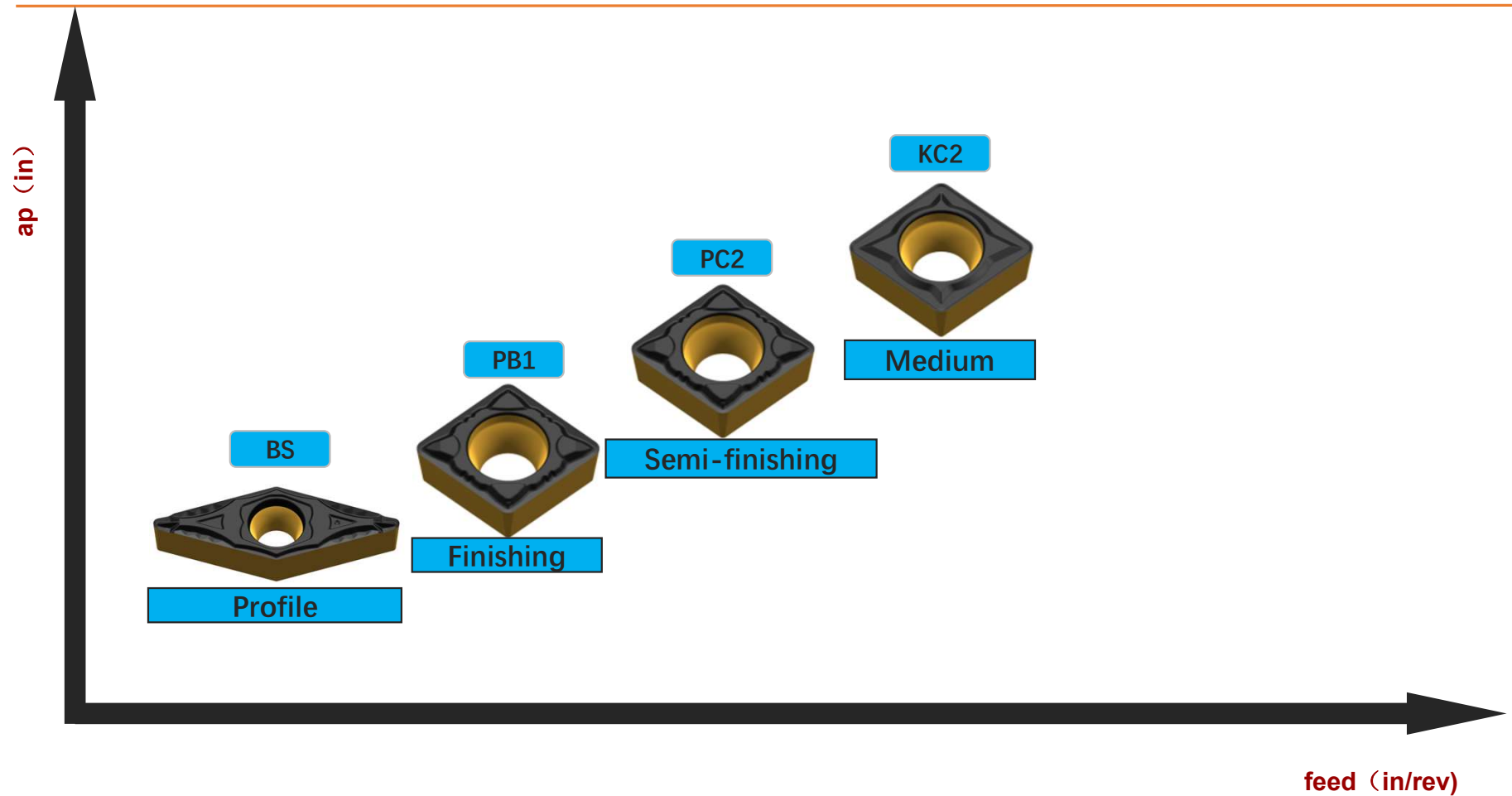
Negative geometries for steel turning



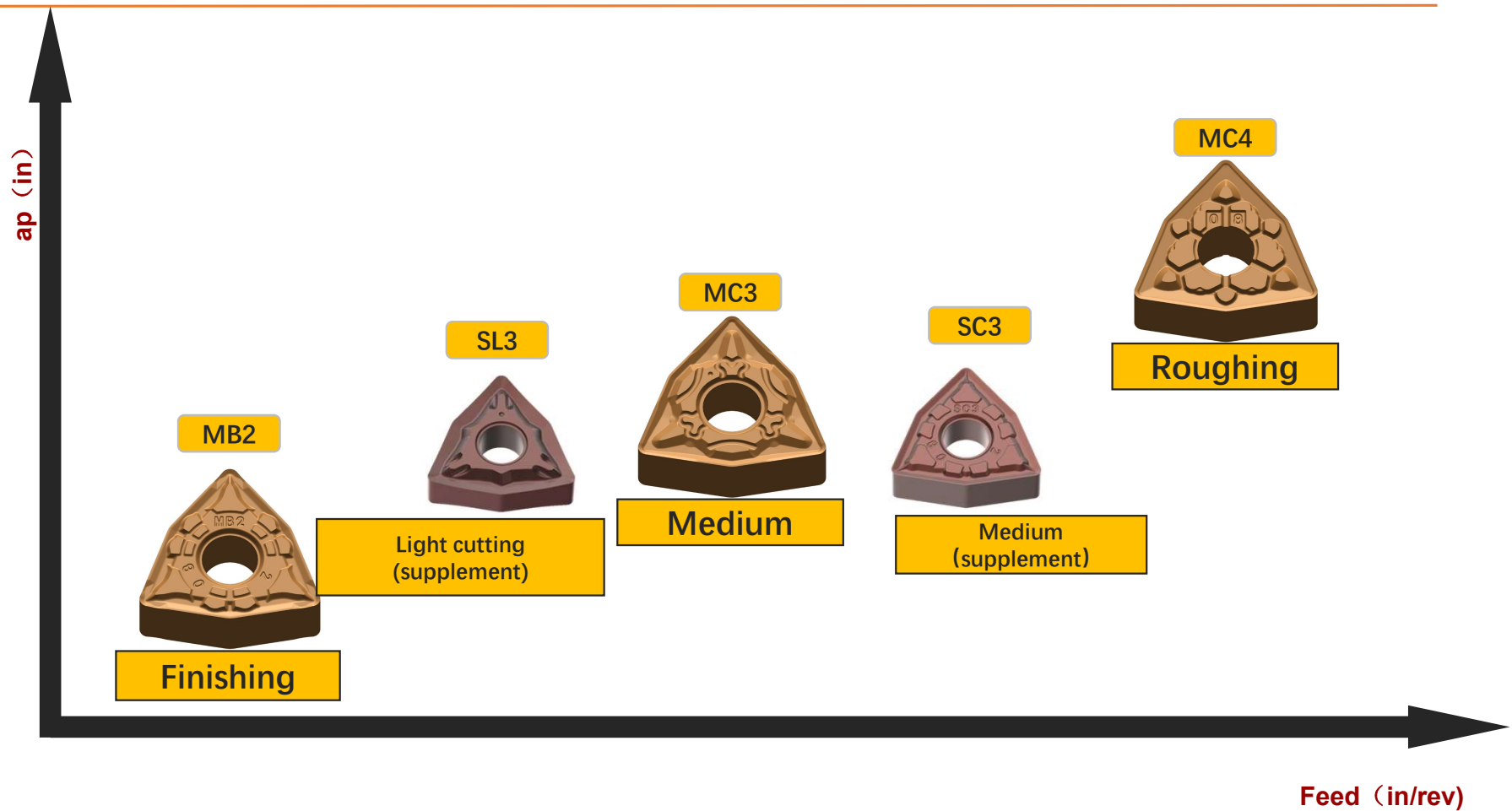
Negative heavy duty-geometries for steel turning



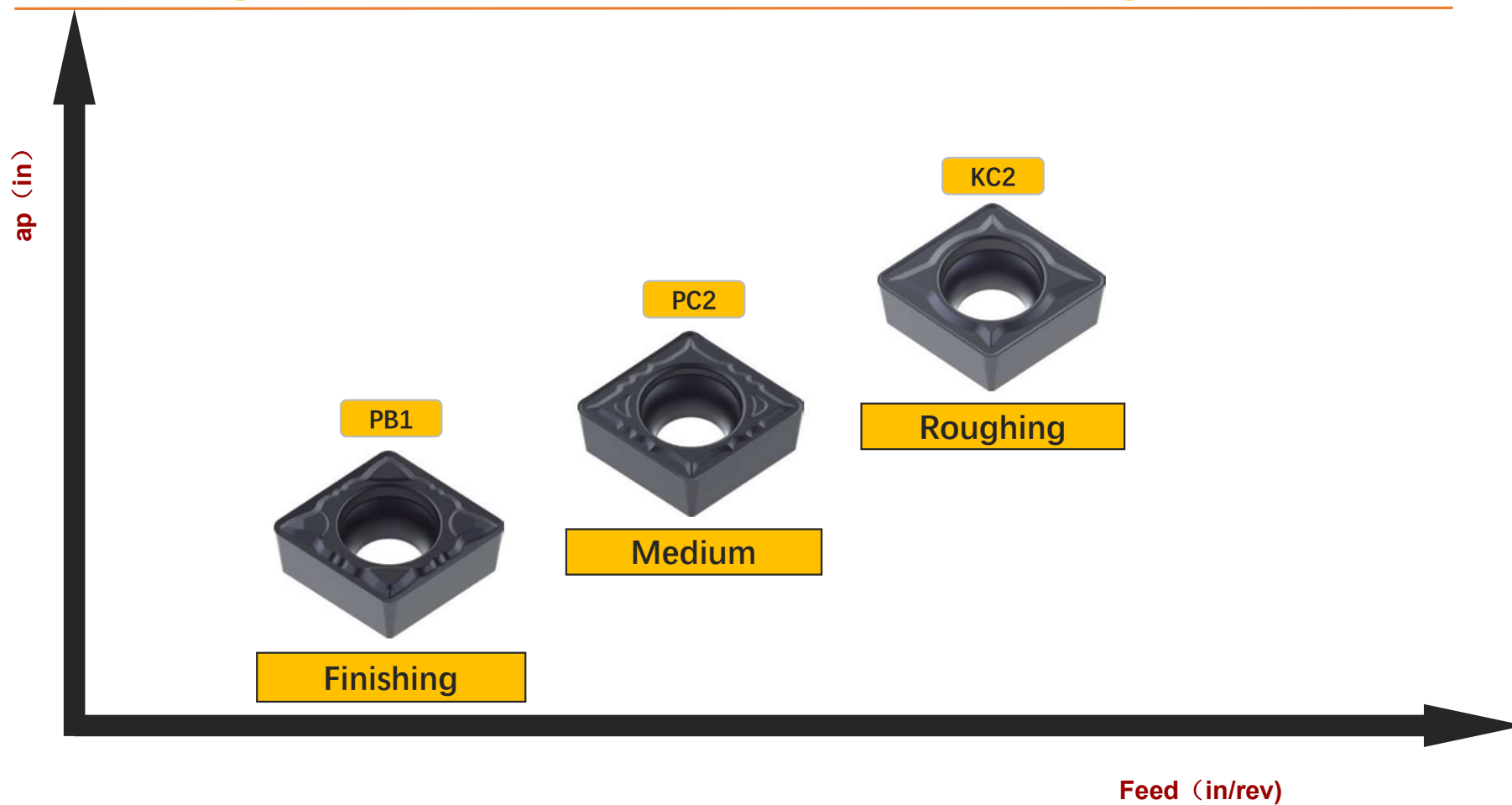
Positive geometries for steel turning



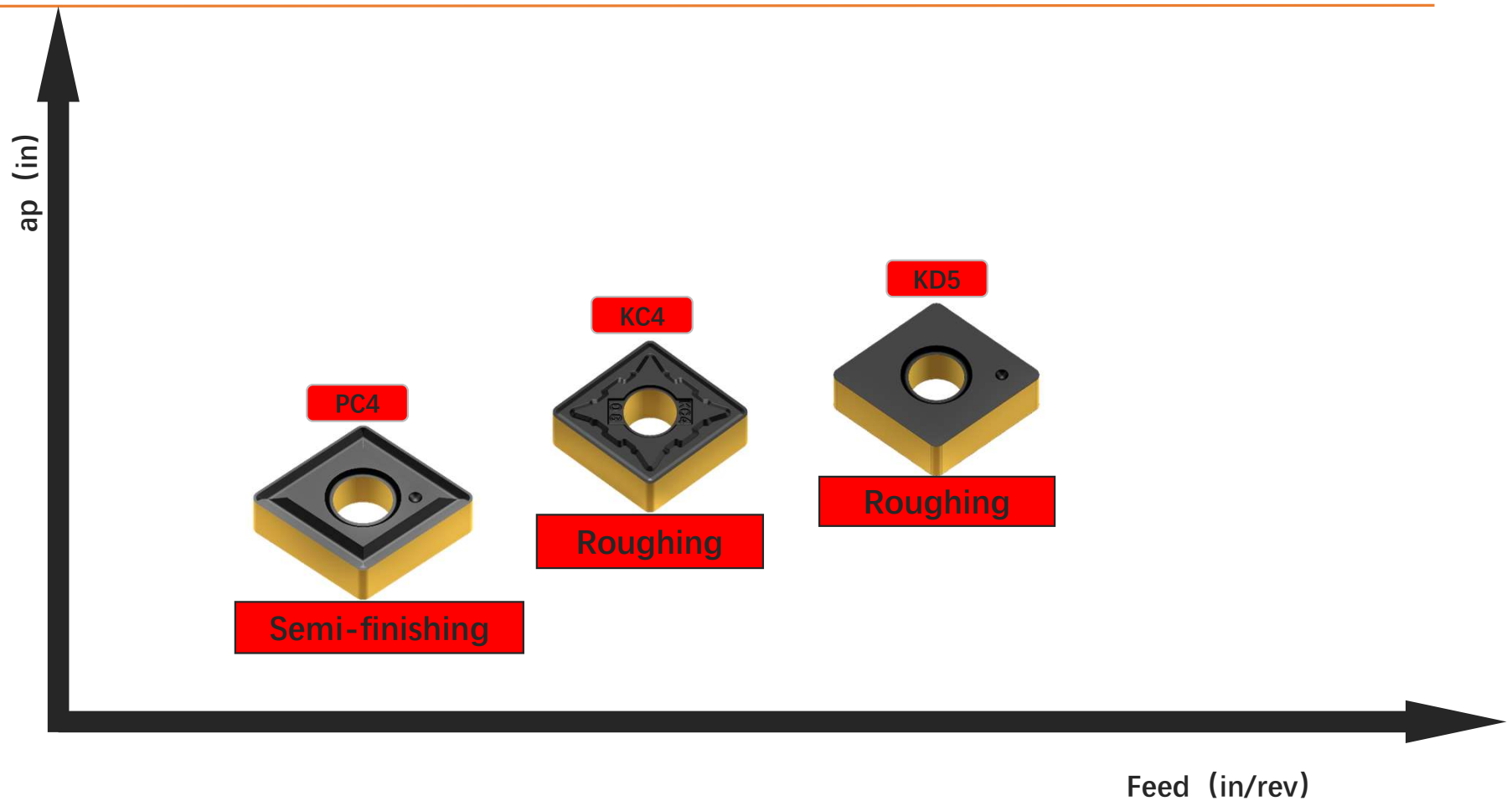
Negative geometries for stainless steel turning



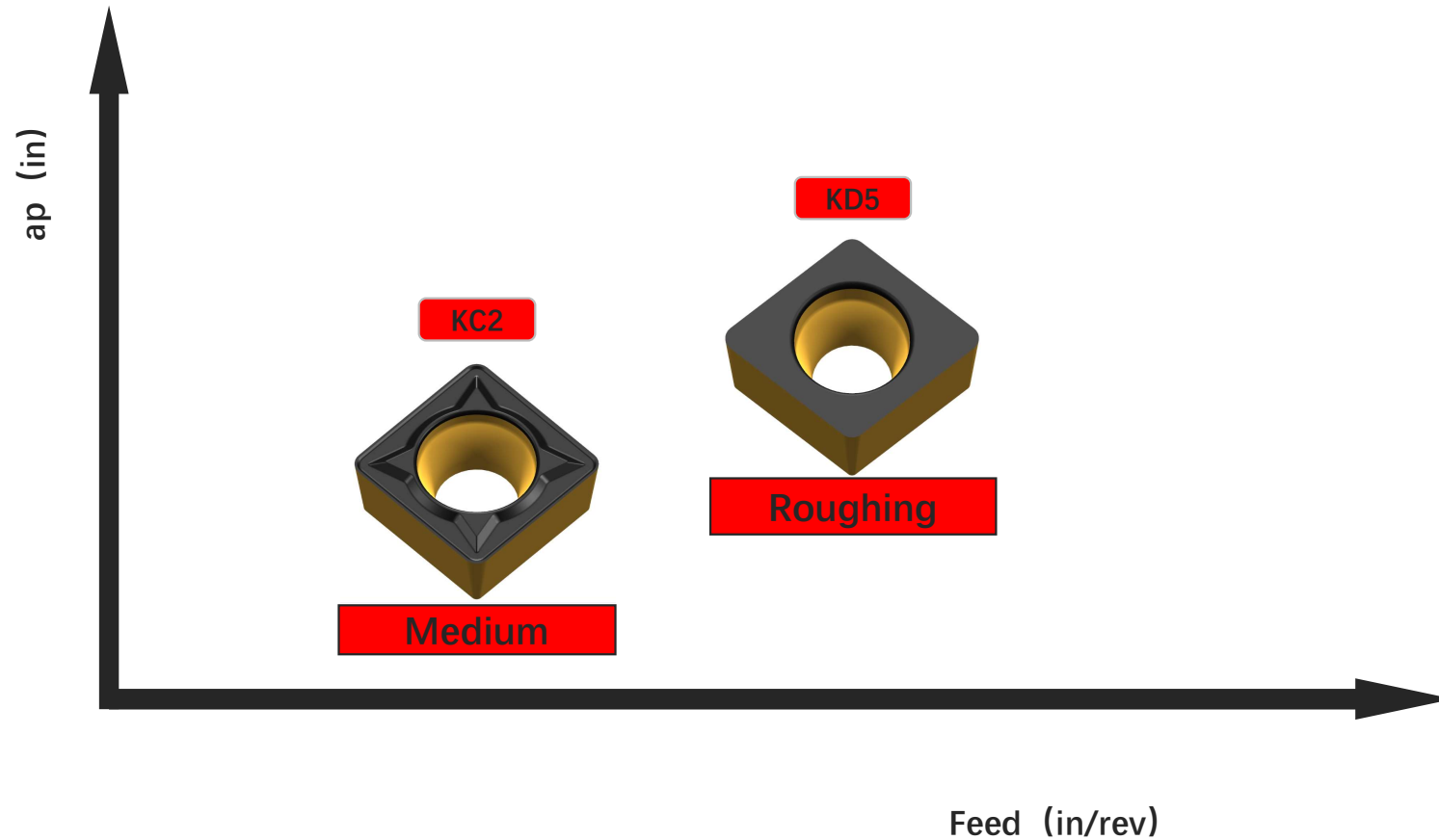
Positive geometries for stainless steel turning



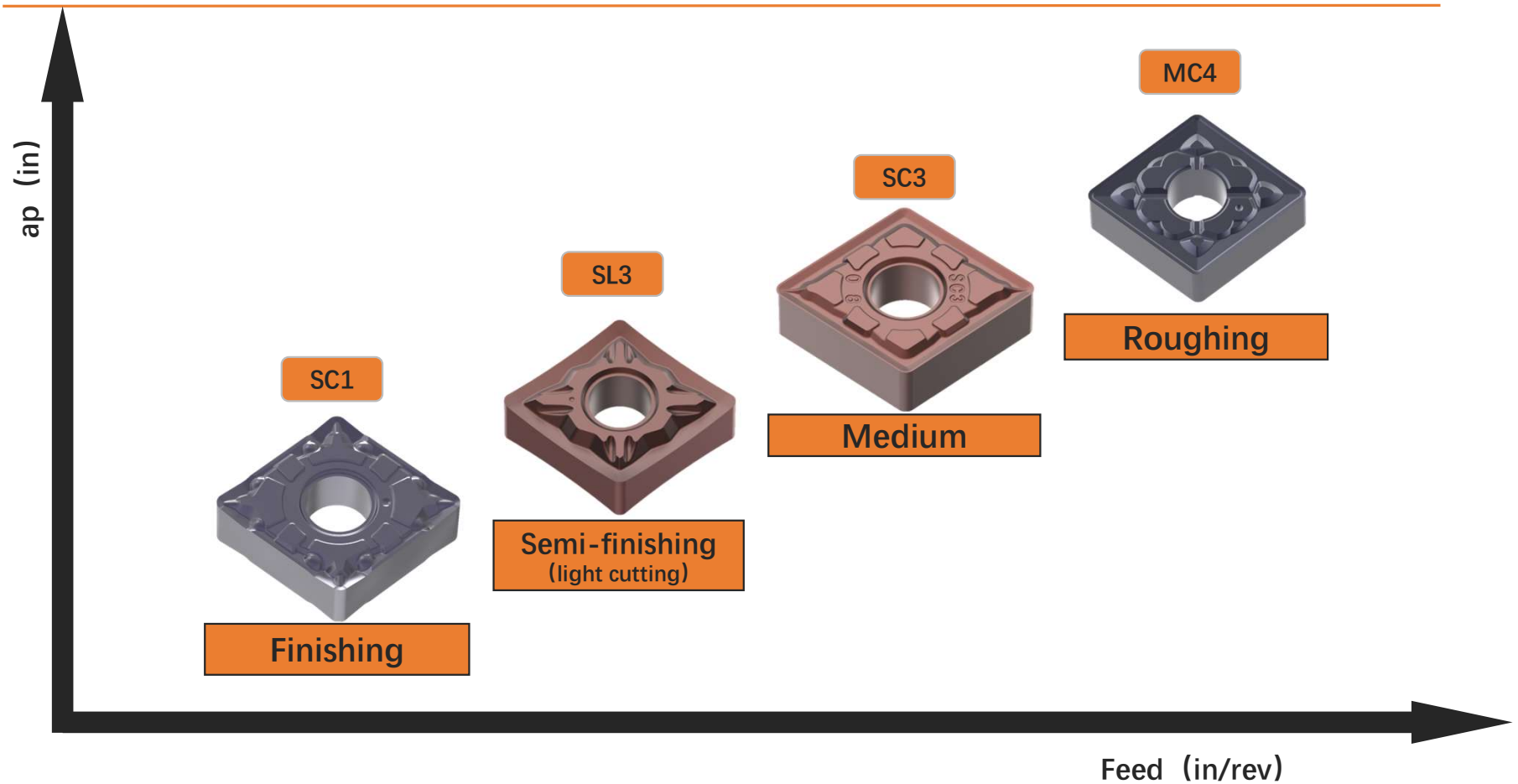
Negative geometries for cast iron turning



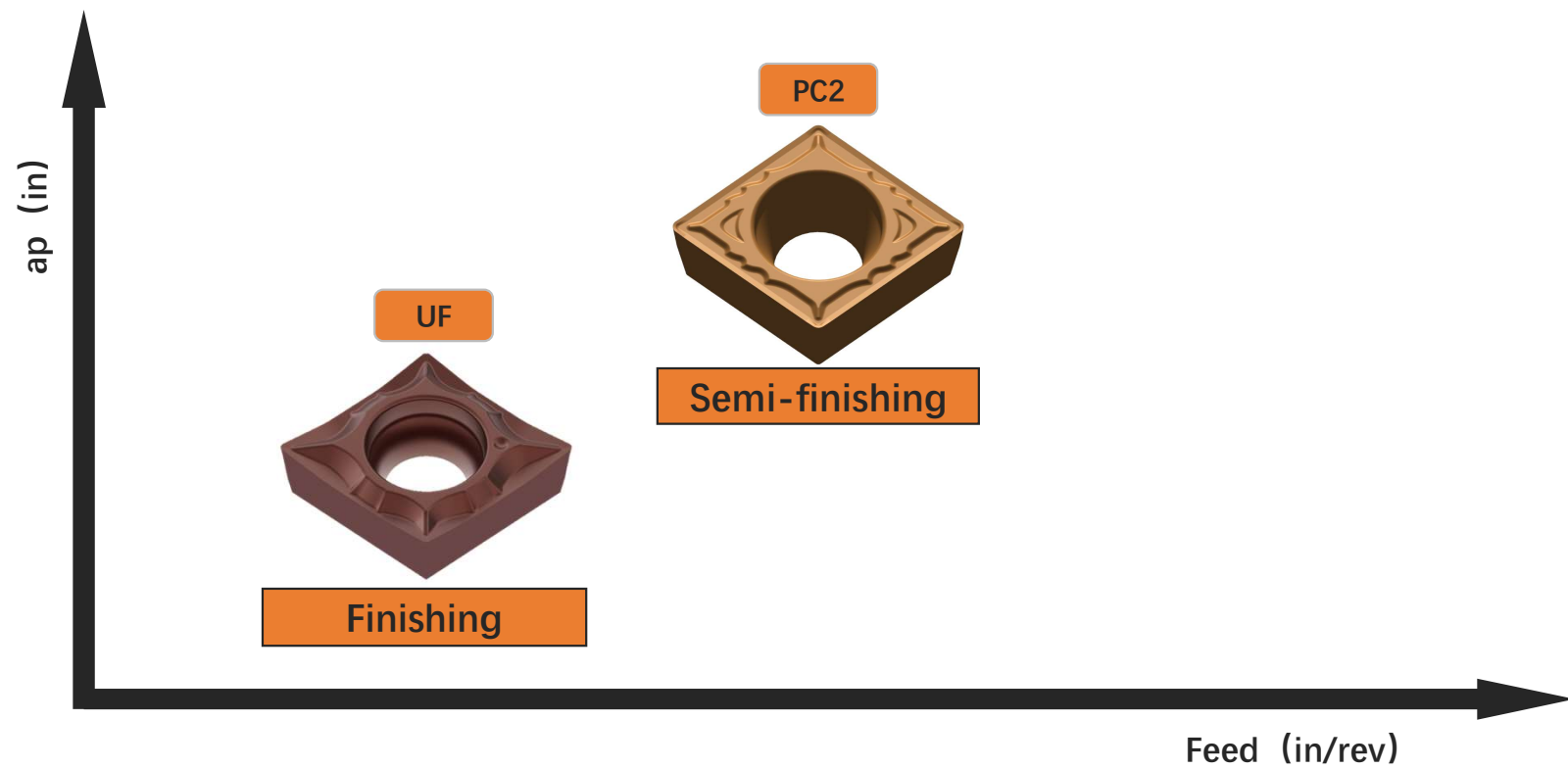
Positive geometries for cast iron turning



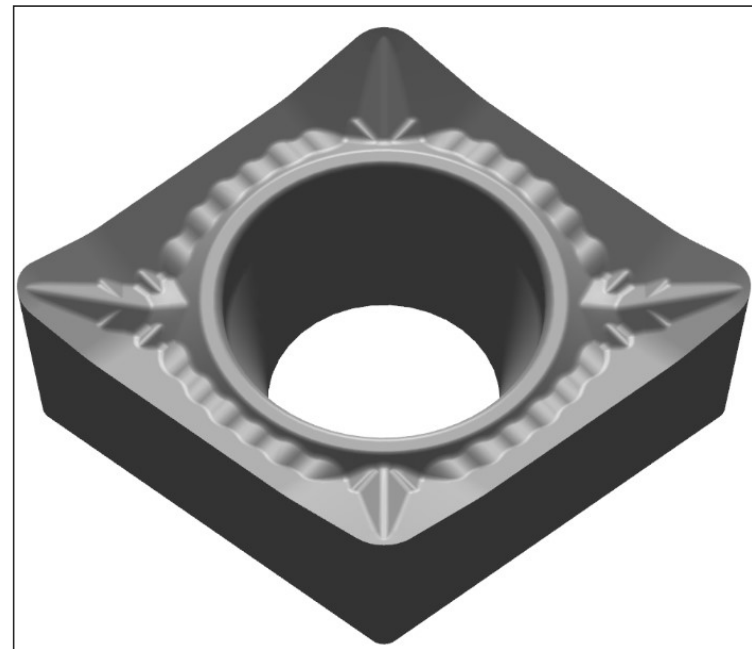
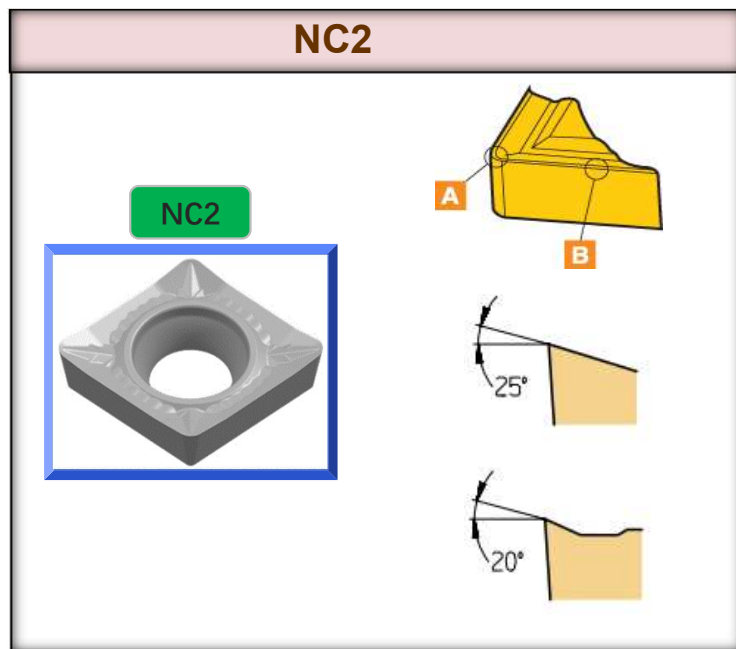
Negative geometries for super-alloy turning



Positive geometries for superalloy turning





Positive geometry for aluminium turning



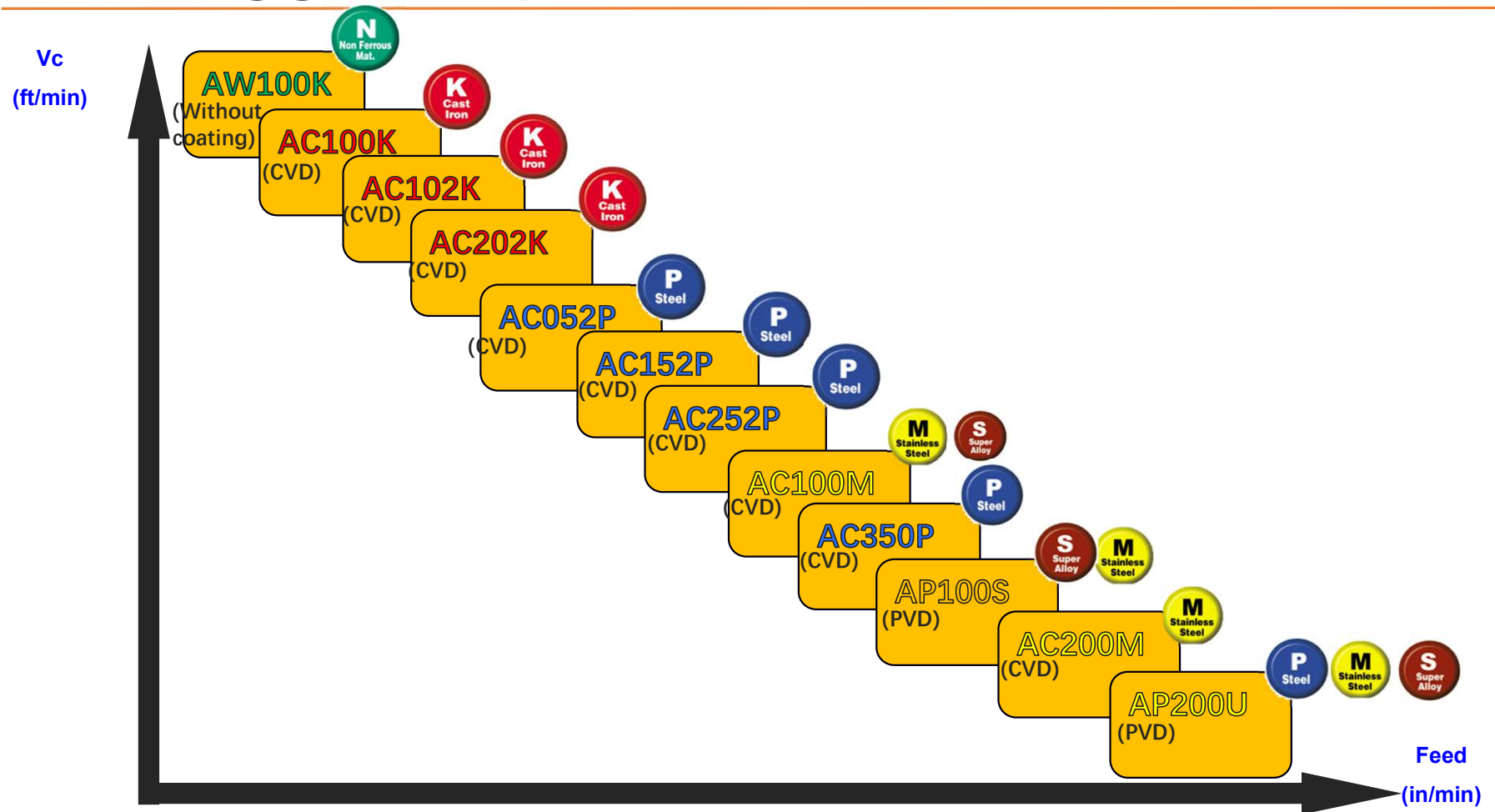
- Semi-finishing for aluminium
- Ground and polished inserts, first choice for aluminium machining

Turning Grade Denomination

A	C	15	0	P
Achteck	1	2	3	4

1	2	3	4
Coating	ISO	Generation	Application
C CVD	05 Wear resistant	0 1 st generation	P Steel
P PVD	10 		K Cast iron
W Without coating	15 		M Stainless steel
	20		N Non-ferrous metals
	25		S Heat resistant alloys
	30		H Hardened materials
	35		U Universal
	40 Toughness		

ISO turning grade map

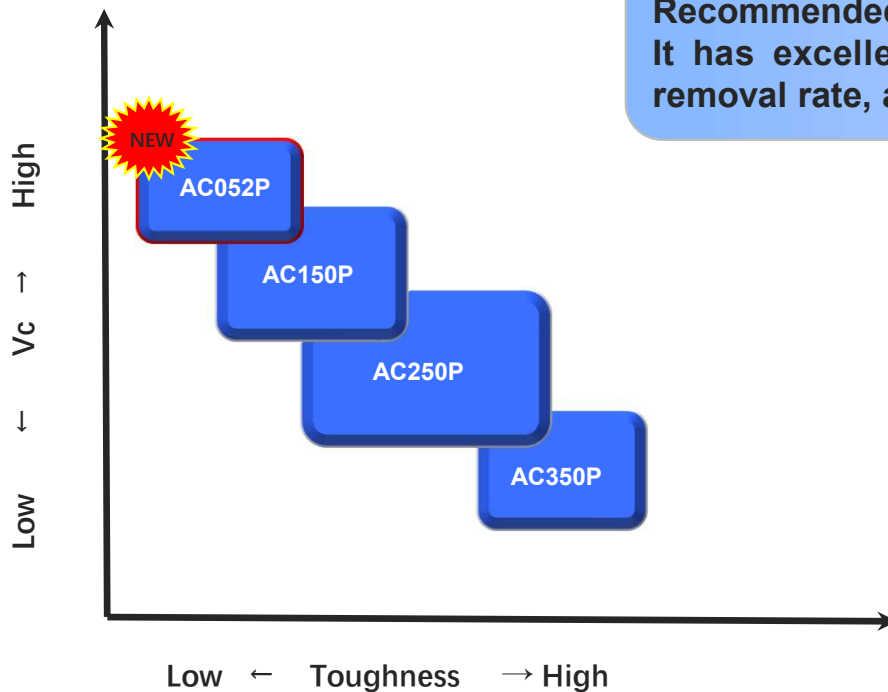


New Grade for Steel Turning-AC052P



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- AC052P Application



AC052P

Recommended for steel finish to semi-finish turning under stable conditions. It has excellent resistance to wear and plastic deformation, high metal removal rate, and can withstand high temperature.

AC150P

Recommended for steel finish to rough turning, it is used in continuous turning as well as light interrupted turning with high metal removal rate.

AC250P

Recommended for steel finish to rough turning, it is used in continuous turning as well as interrupted turning. First choice for steel part turning.

New Grade for Steel Turning-AC052P

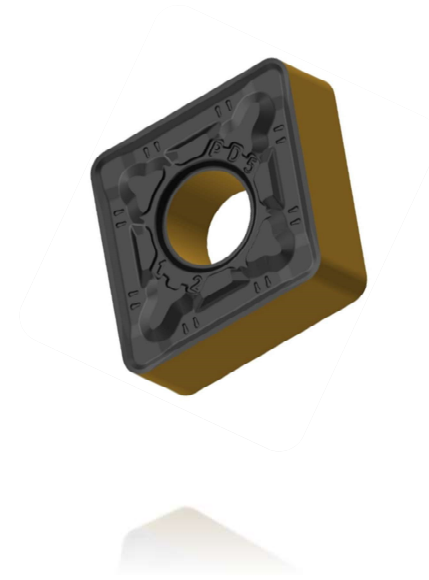
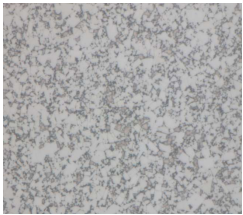


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- AC052P Technical Features

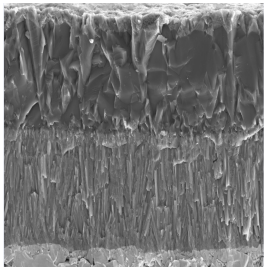
Substrate with excellent toughness and wear resistance

- Excellent resistance to plastic deformation and high temperature
- Excellent toughness and improved impact resistance
- Cobalt-enriched layer with gradient sintering technology enhanced reliability



Newly developed nano-coating

- Controlled growth direction of Al_2O_3 coating crystal get the hardest surface of alumina coating crystal which improved plastic deformation resistance and edge strength along the cutting direction.
- The wear is more uniform and the wear resistance has been significantly improved.
- Coating adhesion is greatly improved and coating peeling is reduced.



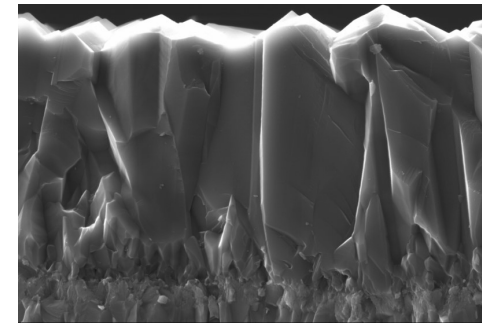
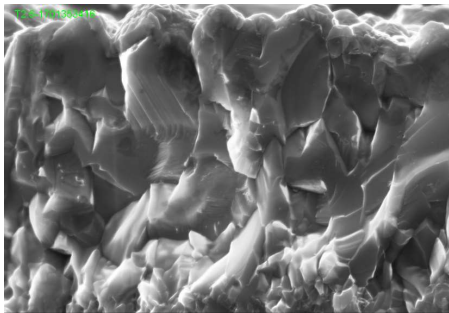
New Grade for Steel Turning-AC052P



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- **New coating technology**

Controlled growth direction of Al_2O_3 coating crystal improved wear resistance and got longer tool life.



Previous coating technology

The crystal growth direction is random for CVD alumina coating that is not uniform.

Newly developed coating

All the crystal in aluminum oxide coating is in the same direction, to get stronger cutting edge

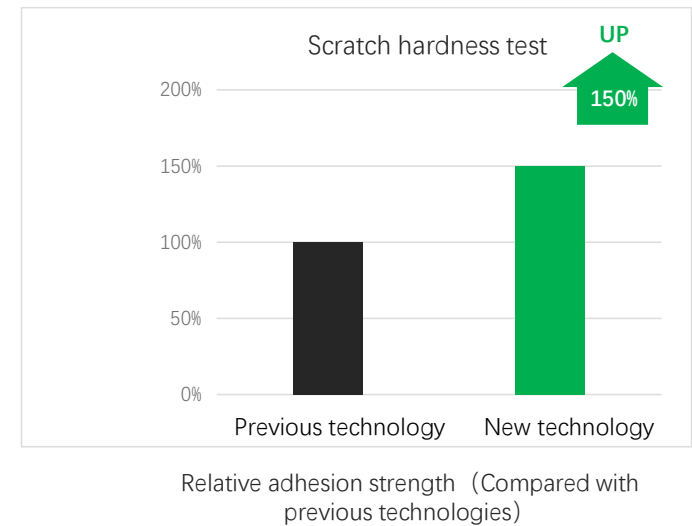
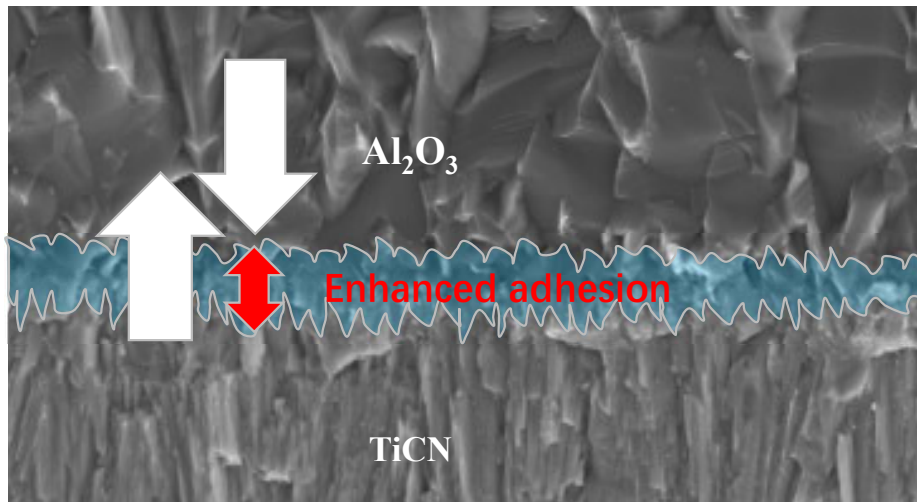
New Grade for Steel Turning-AC052P



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- **Enhanced adhesion technology**

A transition layer with a needle-like structure offered a refined adhesion structure compared with the previous technologies. This technology offered the coating good adhesion and avoided peeling, and greatly improved wear resistance.



AC052P Stories-1



·ACHTECK·

Brand	Competitor	ACHTECK
Machine	Horizontal CNC Machine	
Material	Alloyed steel	
Tool Holder	2525	2525
Insert	WNMG 080412-DR	WNMG 080412E-PD5 AC052P
Geometry	DR	PD5
Application	Rough external turning	Rough external turning
Vc(ft/min)	1280	1280
f(in/rev)	0.02	0.02
ap(in)	0.12	0.12
Coolant	Emulsion	Emulsion
Tool life (pieces)	3	5
Result	The tool life increased by 65%, higher than the customer's current tool.	



AC052P Stories-2

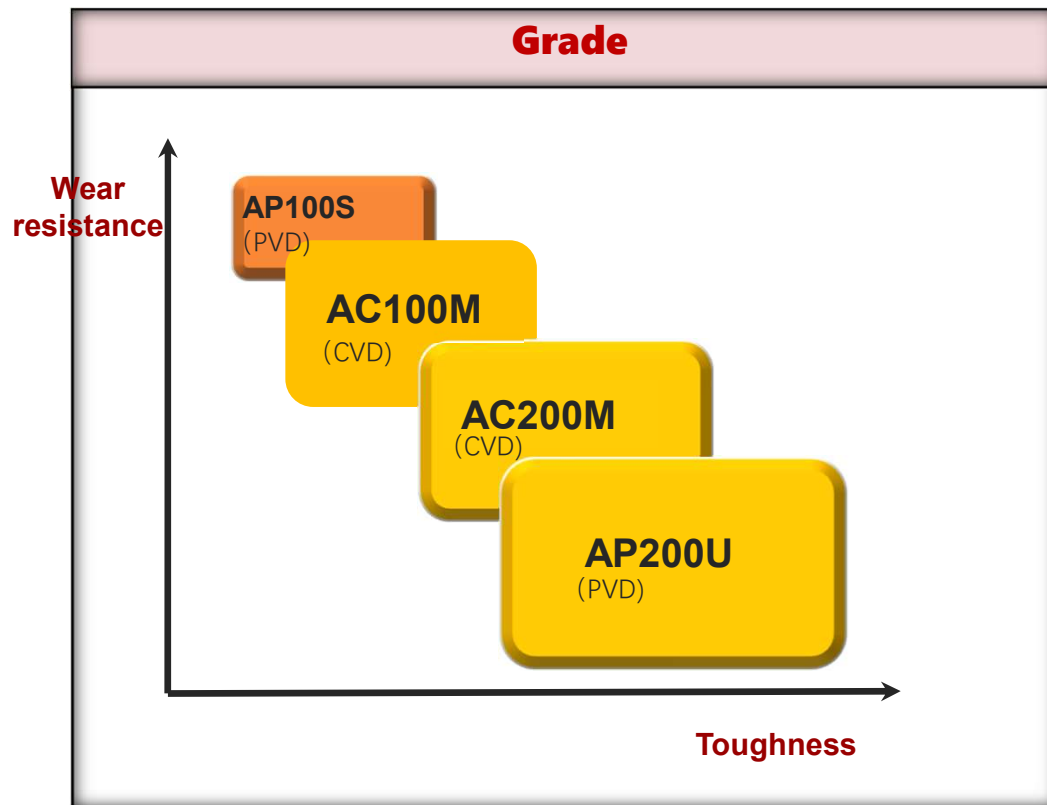


·ACHTECK·

Brand	Competitor	ACHTECK
Machine	Horizontal CNC Machine	
Material	40MnB	
Tool Holder	2525	2525
Insert	WNMG 080408-TM T9115	WNMG 080408E-PD3 AC052P
Geometry	TM	PD3
Application	Rough external turning	Rough external turning
Vc(ft/min)	1050	1050
f(in/rev)	0.01	0.01
ap(in)	0.06	0.06
Coolant	Emulsion	Emulsion
Tool life (pieces)	15	25
Result	Under the same cutting conditions, the tool life is 66% higher than the customer's current tool; the customer has reduced the tool change time.	



ISO M turning grades



AP100S(PVD): M05-M25

Is suitable for finish turning due to its high hardness and plastic deformation resistance.

AC100M(CVD): M10-M20

Is suitable for finish turning and light rough turning, at medium to high cutting speed due to its heat resistance feature of wear resistant coating.

AC200M(CVD): M15-M30

Is suitable for semi-finish to rough turning, with interrupted turning with good edge reliability due to good thermal shock resistance and mechanical shock resistance.

AP200U(PVD): M15-35

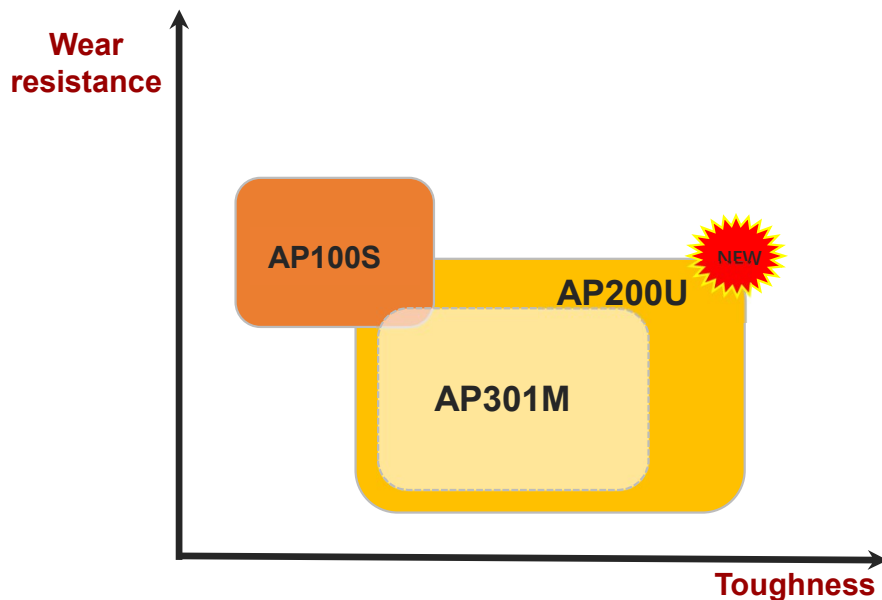
Is suitable for finish turning at low to medium speed with interrupted turning. It has excellent thermal stability, outstanding performance in machining when sharp edge and edge toughness or good surface quality are requested.

New universal grade AP200U



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- AP200U Applications



AP100S: S05-25/M05-M25

High wear resistance, used in heat resistant alloy semi-finishing, and stainless steel finishing. First choice for heat resistant alloys.

AP200U: M15-35/S15-35/P15-P35

Universal grade, used in stainless steel and high temperature alloy semi-finishing and rough machining, and steel turning at low cutting speeds ($<150\text{m/min}$). First choice for stainless steel machining. It's a replacement of AP301M

AP301M: M15-35/S15-35

Universal grade for stainless steel and high-temperature alloy semi-finishing and roughing

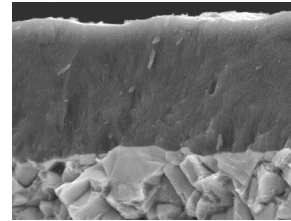
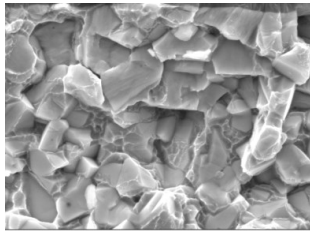
New universal grade AP200U



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- AP200U Technical features

New PVD coating and a new ultra-fine grain substrate combination, is suitable for stable machining and has excellent performance in stainless steel, steel, and high-temperature alloy turning.



- New ultra-fine grain substrate with uniform grain organization, offered high strength and strong crack extension resistance
- Excellent wear and chipping resistance
- Can be used for continuous and interrupted cutting

- New PVD coating with high oxidation resistance, high wear resistance and high red-hardness for stable tool life.
- Suitable for stainless steel, steel, high temperature alloy turning

AP200U Stories-1



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Brand	Current Cutting Tool I	ACHTECK
Machine	Horizontal CNC Machine	
Material	17-4	
Tool Holder	2525	2525
Insert	CNMG 120404-MA VP15TF	CNMG 120404E-MB2 AP200U
Geometry	MA	MB2
Application	Finishing end face	Finishing end face
Vc(ft/min)	131-721	131-721
f(in/rev)	0.003	0.003
ap(in)	0.012	0.012
Coolant	Emulsion	Emulsion
Tool life (pieces)	25	35
Result	40% longer tool life than the customer's current product.	



AP200U Stories-2



·ACHTECK·

Brand	Current Cutting Tool I	ACHTECK
Machine	Horizontal CNC Machine	
Material	316L	
Tool Holder	2525	2525
Insert	CNMG 120408-EM TT9080	CNMG 120412E-SC3 AP200U
Geometry	EM	SC3
Application	Rough external turning	Rough external turning
Vc(ft/min)	393	393
f(in/rev)	0.012	0.012
ap(in)	0.059	0.059
Coolant	Emulsion	Emulsion
Tool life (pieces)	3	4
Result	Reduced tool change time, reduced tool cost and increased tool life by 33%.	



AP200U Stories-3



·ACHTECK·

Brand	Current Cutting Tool I	ACHTECK
Machine	Horizontal CNC Machine	
Material	12Cr13	
Tool Holder	2525	2525
Insert	SCMT 120408 VP15TF	SCMT 120408E-PC2 AP200U
Geometry	–	SC3
Application	End face finish turning	End face finish turning
Vc(ft/min)	476	492
f(in/rev)	0.004	0.005
ap(in)	0.012	0.03
Coolant	Emulsion	Emulsion
Tool life (pieces)	600	700
Result	Increased tool life by 16% over the customer's current tool.	



AP200U Stories-4

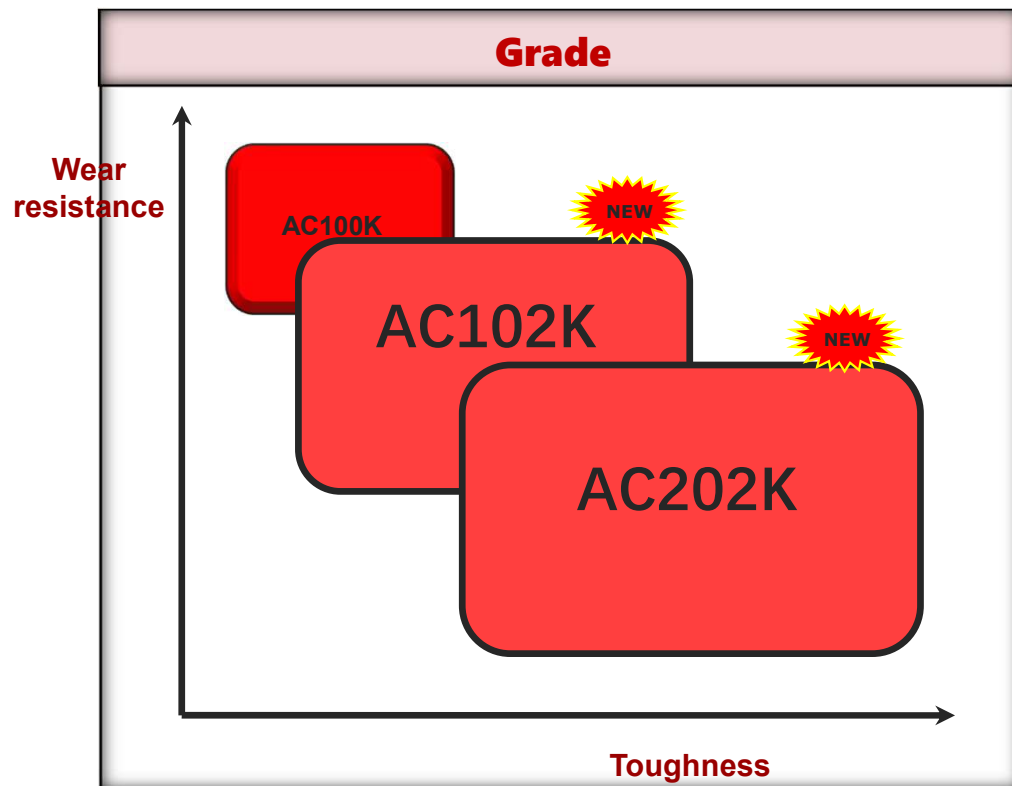


·ACHTECK·

Brand	Current Cutting Tool I	ACHTECK
Machine	Horizontal CNC Machine	
Material	Flange 304	
Tool Holder	2525	2525
Insert	CCMT 120408 VP15	CCMT 120408E-PC2 AP200U
Geometry	–	SC3
Application	Finish external turning	Finish external turning
Vc(ft/min)	492	492
f(in/rev)	0.005	0.005
ap(in)	0.03	0.03
Coolant	Emulsion	Emulsion
Tool life (pieces)	15	25
Result	Reduced tool change time; reduced tool cost and improved tool life by 66%.	



ISO K turning grades



AC100K : K01-K15

CVD coated grade, has thick and smooth wear resistant coating and hard substrate, recommended for grey cast iron high speed turning.

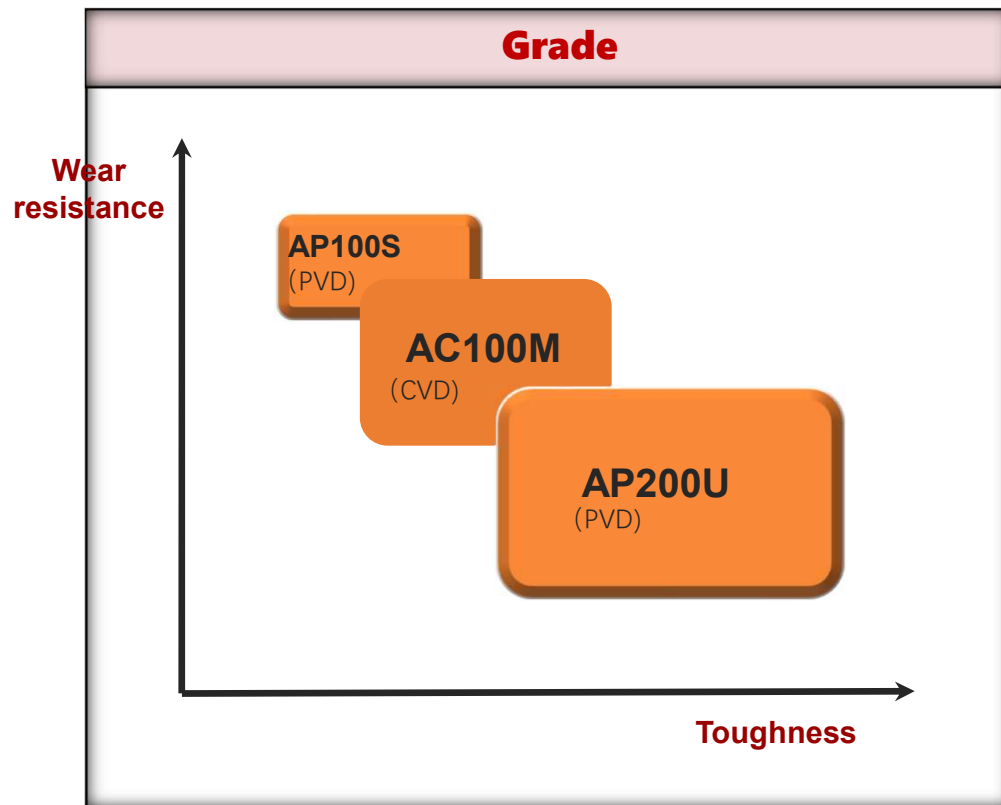
AC102K : K05-K15

CVD coated grade, has thick and smooth wear resistant coating and hard substrate, recommended for nodular cast iron high speed turning

AC202K : K10-30

1st choice for cast iron turning. It can deal with interrupted cutting due to its high wear-resistant CVD coating. It is used in finish to rough turning on cast iron at low to medium cutting speed.

ISO S turning grades



AP100S : S05-S25

1st choice for heat resistant alloy turning. PVD coated grade has high hardness and plastic deformation resistance, can get high performance and good wear resistance.

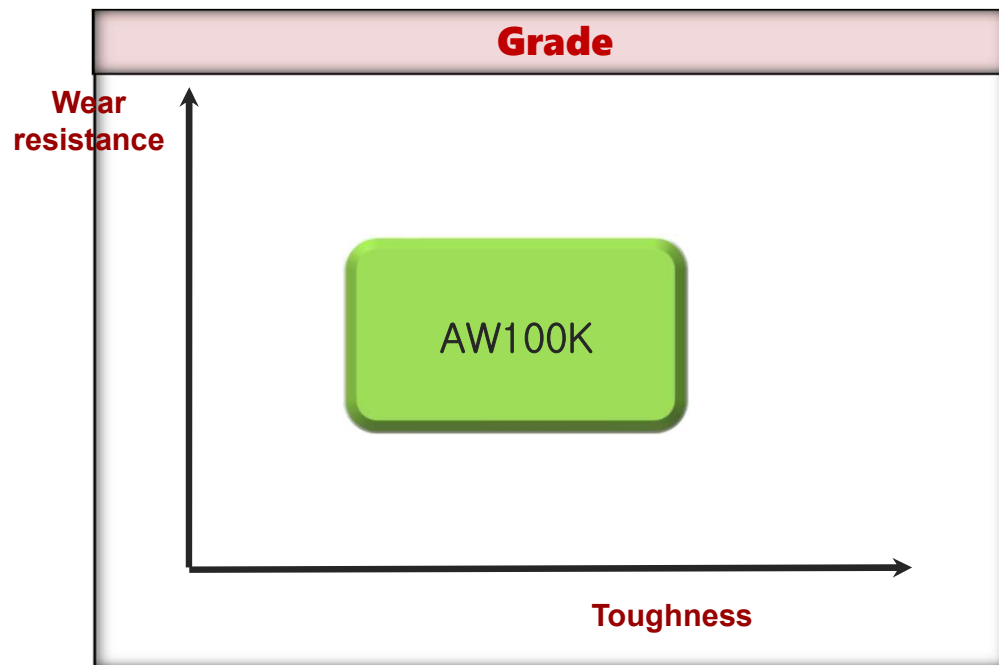
AC100M : S10-S25

CVD coated grade, suitable for heat resistant alloy continuous high speed turning

AP200U : S15-S35

PVD coated grade. Used in low cutting speed or light interrupted cutting. Suitable for semi-roughing or continuous turning for a short time due to its good notch wear resistance and anti-heat shock capability

ISO N turning grade

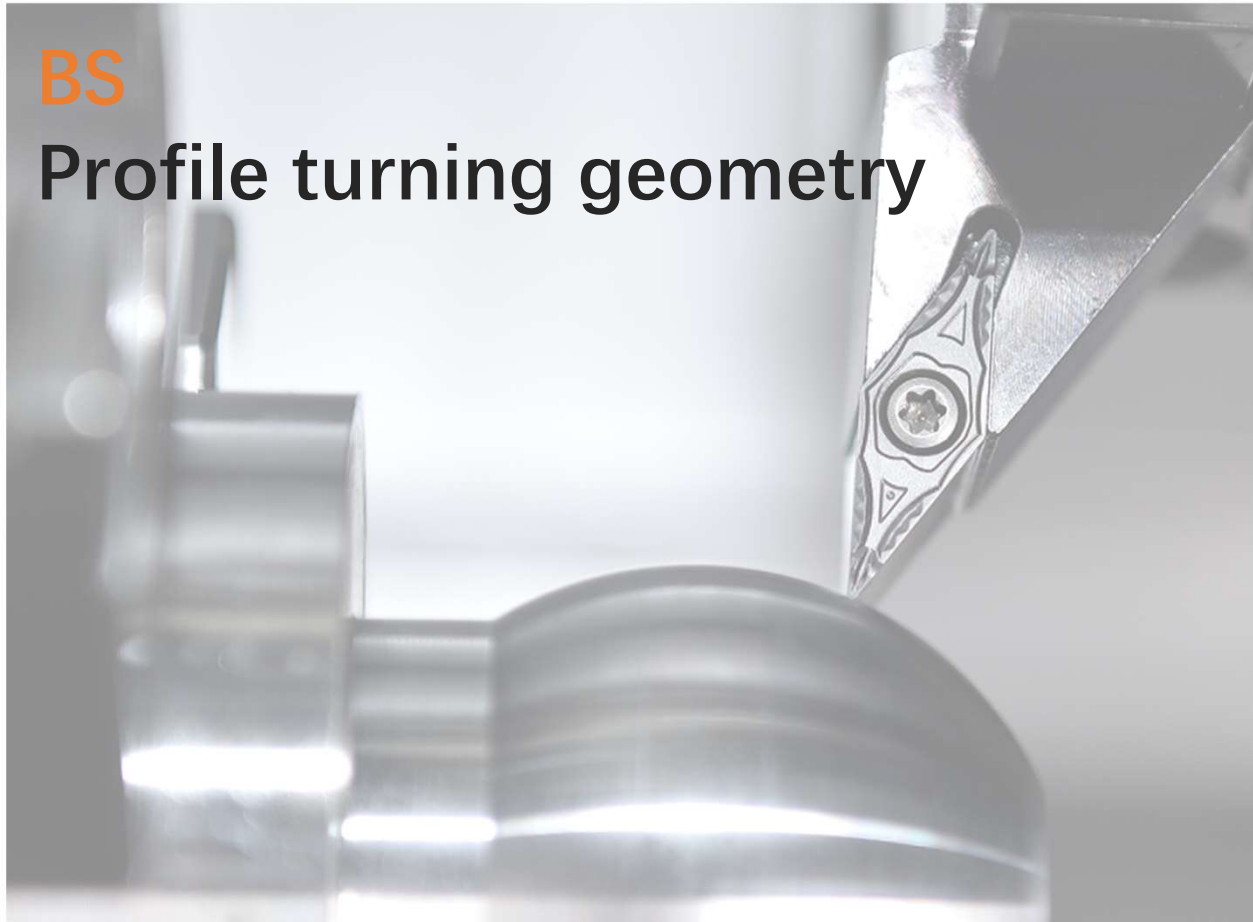


AW100K : N05-N25

uncoated cemented carbide grade. It has excellent resistance to abrasive wear, and sharp cutting edges. Used in aluminum alloy rough to finish turning.

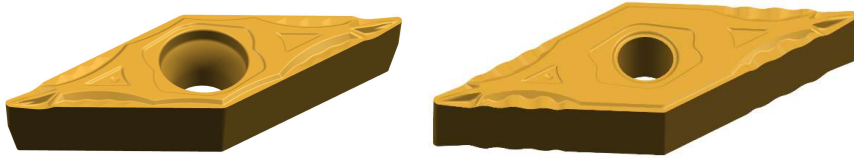
BS

Profile turning geometry



Profile turning geometry-BS

·ACHTECK·



Positive
insert

Negative
insert

Applications:

- Low cutting force, reduced vibration
- Suitable for long shaft and unstable machining conditions
- Profile turning with difference cutting depth
-



Profile turning geometry-BS

- Improvement on spherical surface turning



Holder : PVLNL2525M-16Q

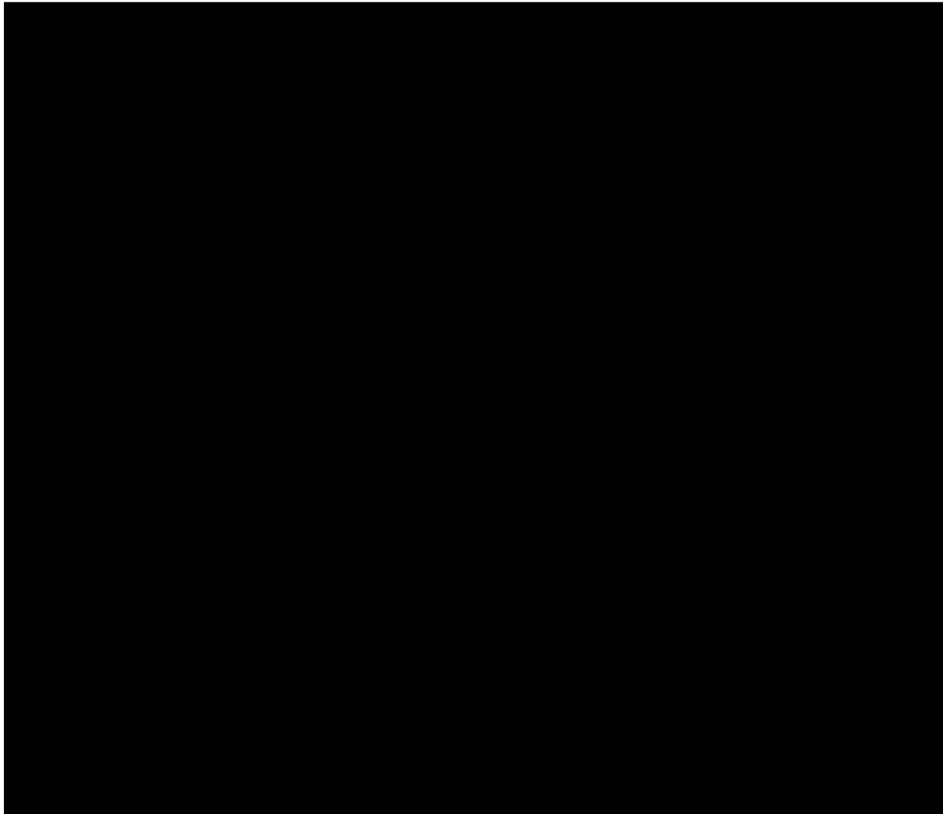
Insert : VNMG160408PB1/BS (AC052P)

Material : 4340

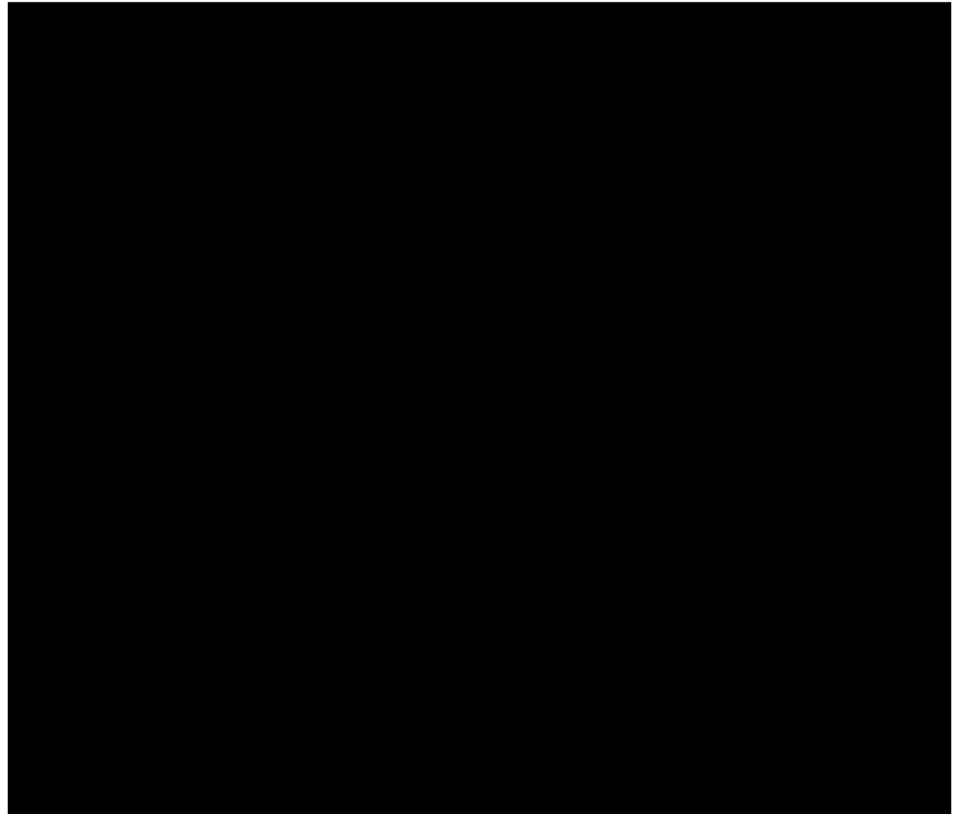
Cutting data : $v_c=656$ ft/min, $a_p=0.02\sim0.059$ in, $f=0.006$ in/rev, DRY

Profile turning geometry-BS

PB1 finish turning geometry

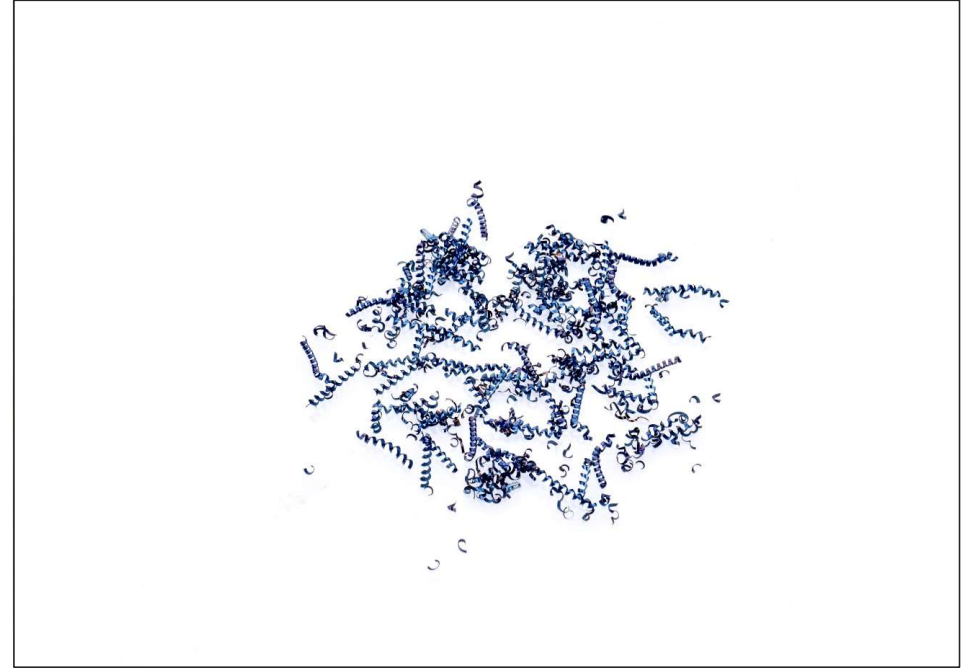


BS profile turning geometry



Profile turning geometry-BS

- V shaped slot machining improvement



Holder : PVVNL2525M-16Q

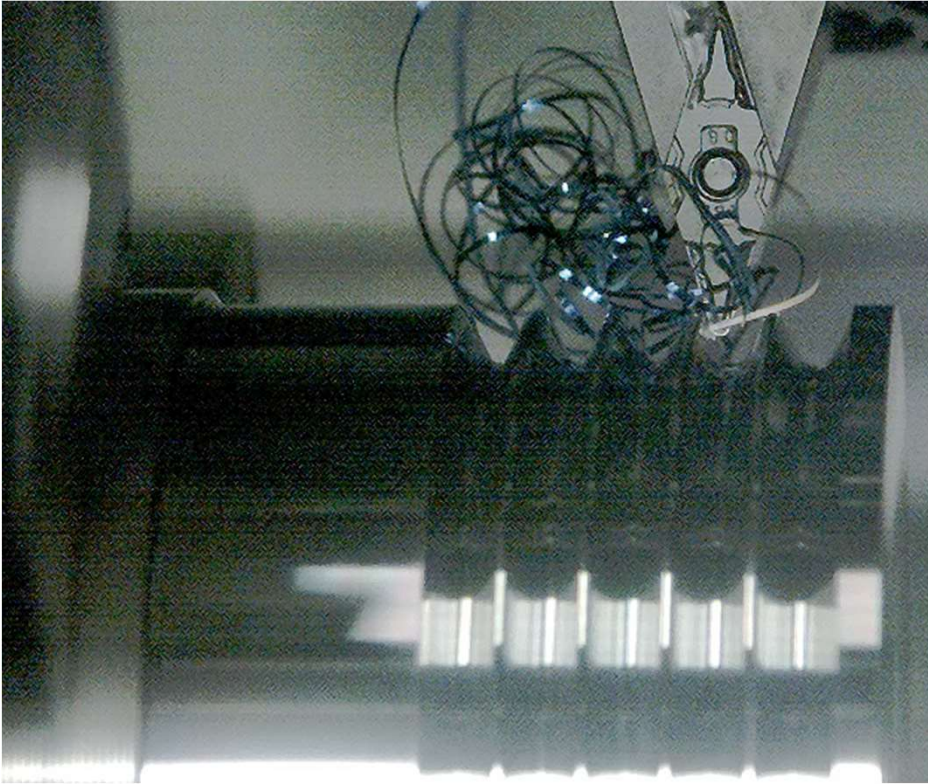
Insert : VNMG160408PB1/BS (AC052P)

Material : 4340

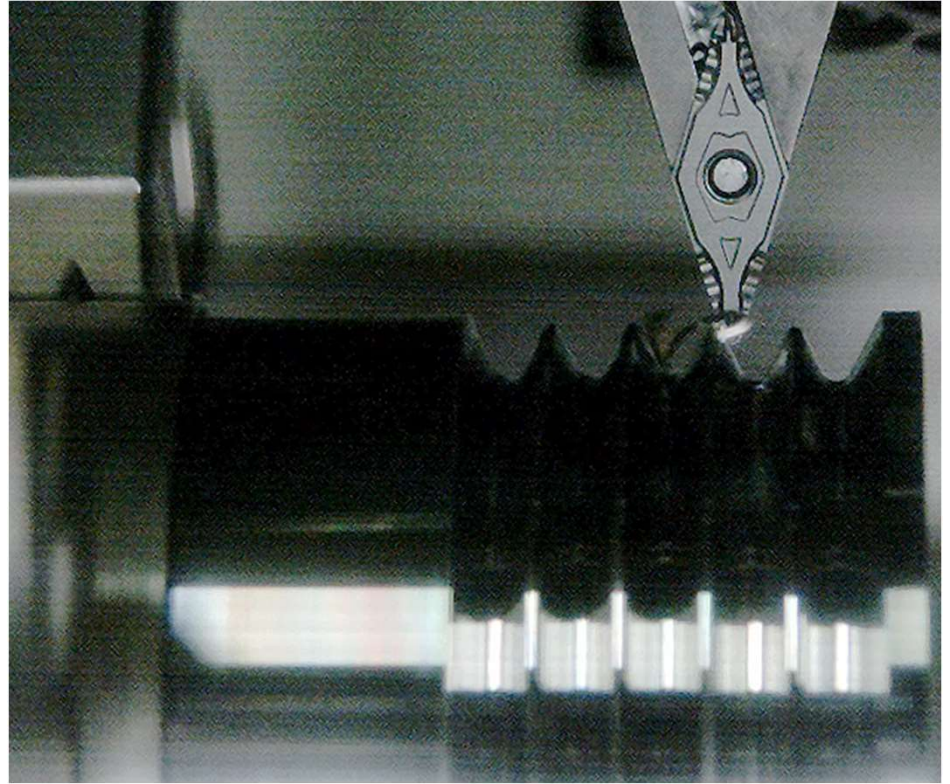
Cutting data : $v_c=1312$ ft/min, $a_p=0.008$ in, $f=0.008$ in/rev, DRY

Profile turning geometry-BS

PB1 finish turning geometry

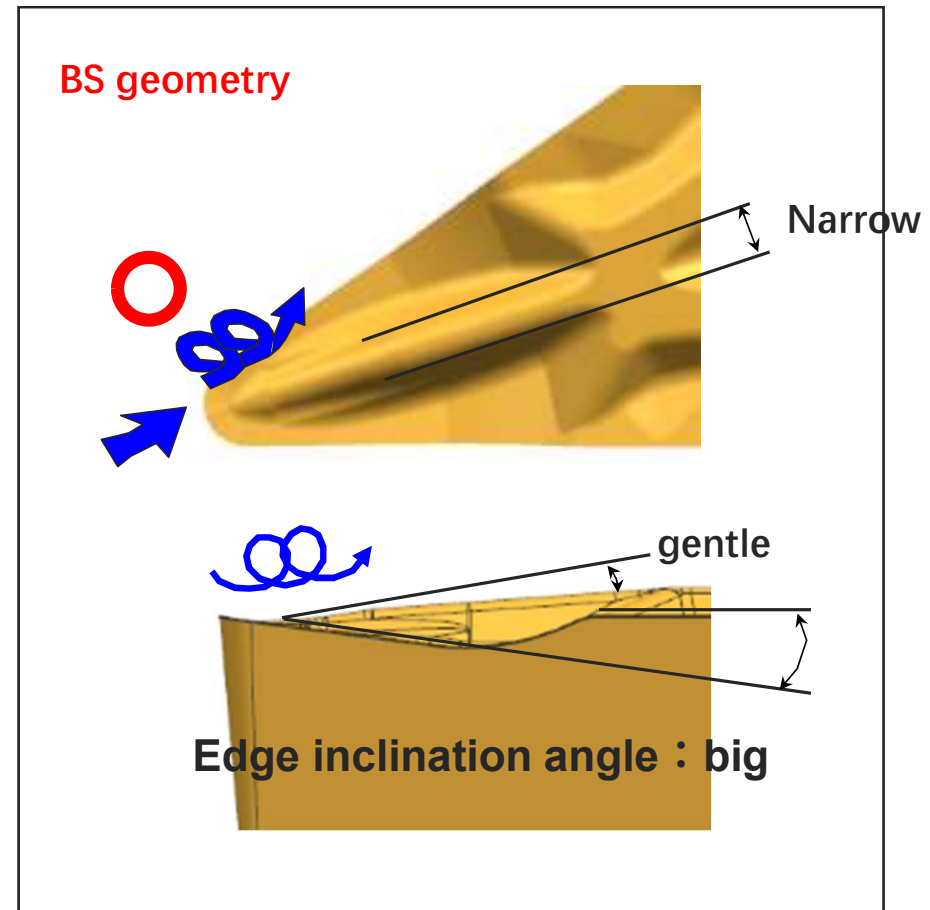
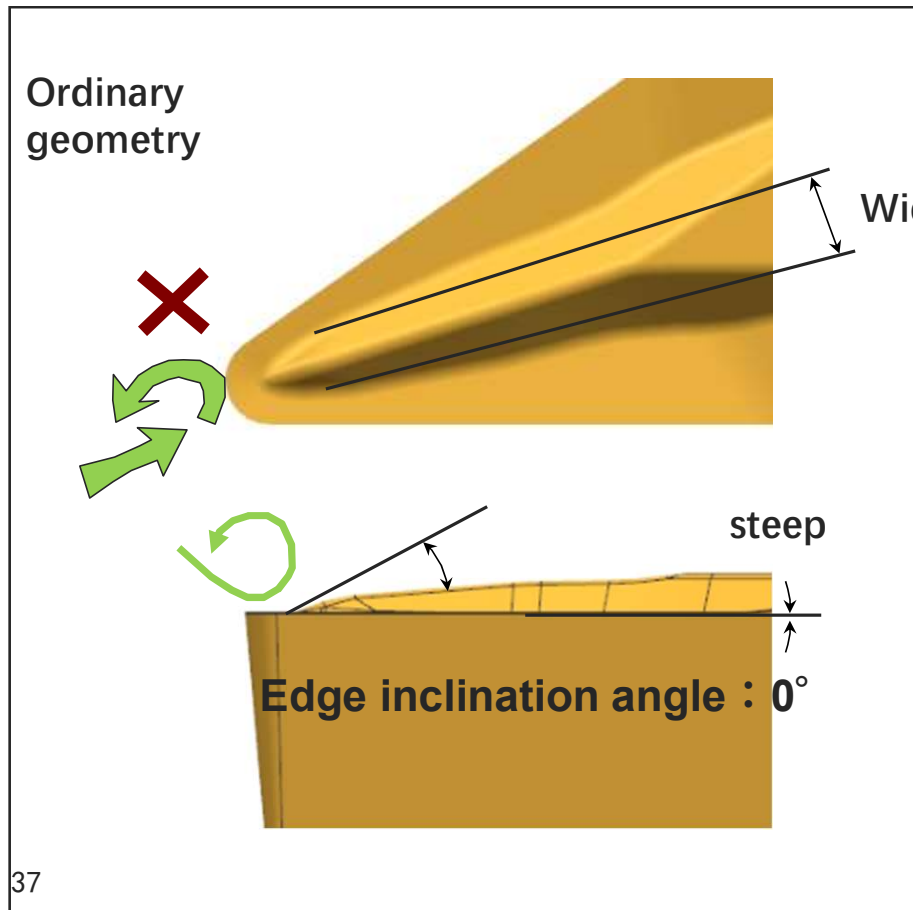


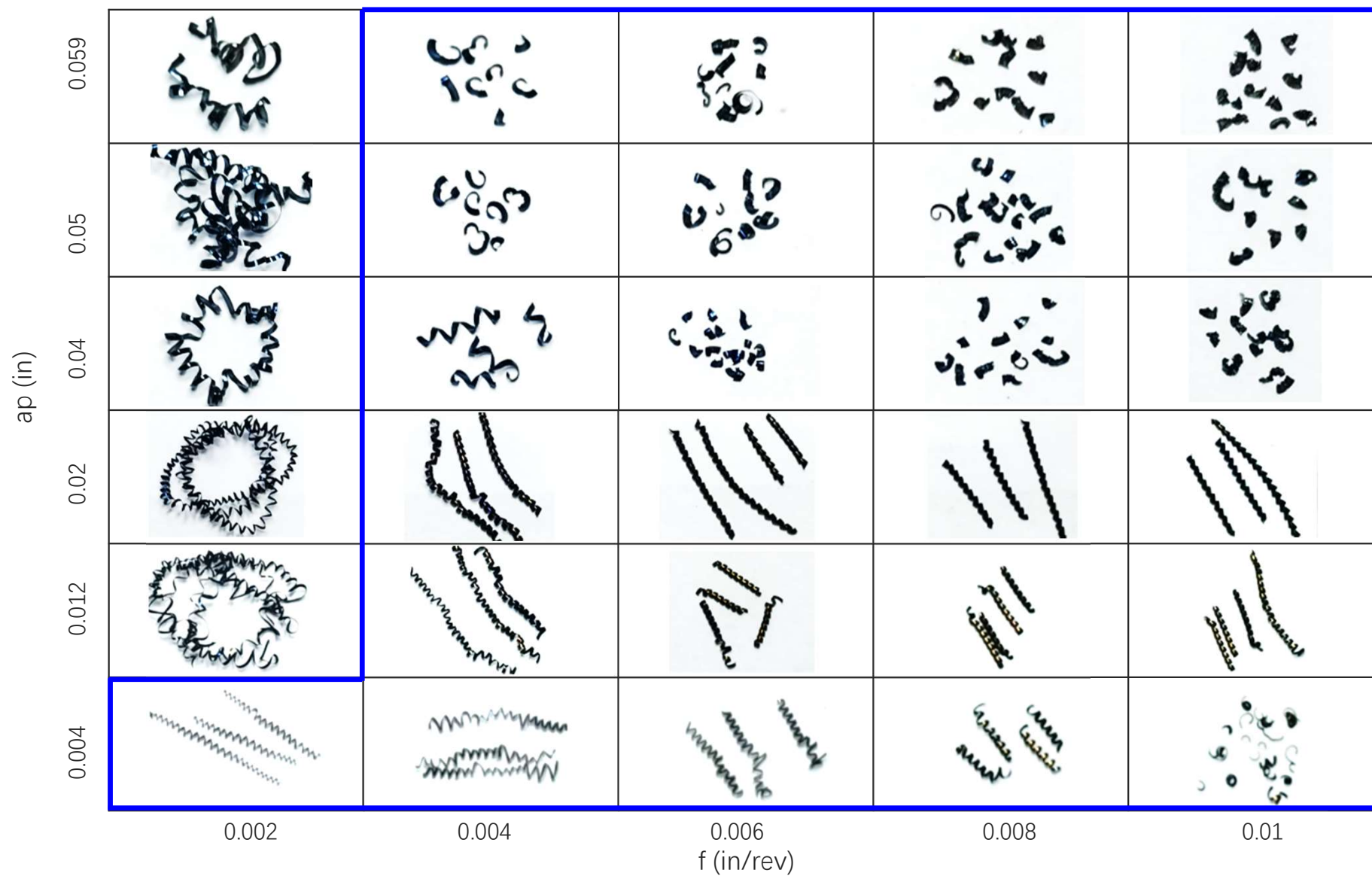
BS profile turning geometry



BS geometry features

“Smooth chip breaking and evacuation is a MUST”





Profile turning geometry-BS

VBMT 160404E-BS AC052P

CHIP FORMER TEST SHEET		TEST NO.	L2023021695	MATERIAL	4340#
		澳克泰		VBMT 160404E-BS AC052P	
1.20					
1.00					
0.75					
0.50					
0.25					
0.10					
AP(mm) Feed(mm/rev)	0.05	0.10	0.15	0.20	0.25

Material: 4340

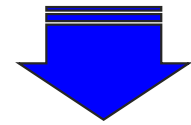
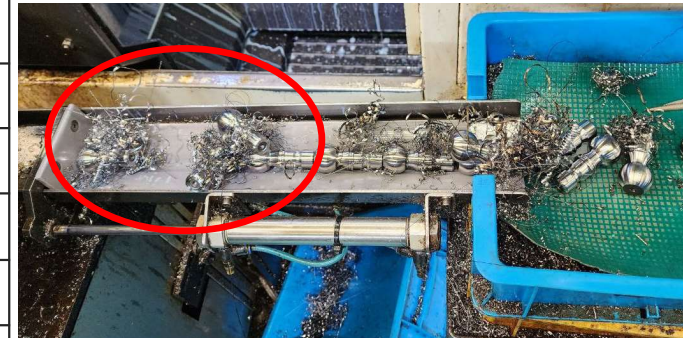
CHIP FORMER TEST SHEET		TEST NO.	L2023021695	MATERIAL	45#
		澳克泰		VBMT 160404E-BS AC052P	
1.20					
1.00					
0.75					
0.50					
0.25					
0.10					
AP(mm) Feed(mm/rev)	0.05	0.10	0.15	0.20	0.25

Material: C45

BS Geometry case-1


ACHTECK

Brand	Competitor	ACHTECK
Machine Tool	Automatic CNC Lathe	
Workpiece	Ball shaft	
Holder		
Insert	VNMG160404-FX TT8115	VBMT 160408E-BS AC052P
Geometry	FX	BS
Application	Finish turning ($\phi 0.787'' - \phi 1.22''$)	Finish turning ($\phi 0.787'' - \phi 1.22''$)
Vc(ft/min)	958	958
f(in/rev)	0.006	0.006
ap(in)	0.008	0.008
Coolant	Emulsion	Emulsion
Tool life (pcs)	200 pcs/edge	200 pcs/edge
40 Result	<p>The current tool faced long chip problem. The operator had to remove the chips manually which is very time consuming and affects the productivity. BS geometry dramatically improved chip breaking and productivity. The insert had normal wear.</p>	



BS Geometry case 2

·ACHTECK·

Brand	Competitor	ACHTECK
Machine Tool	Verticle lathe	
Workpiece	Inner bearing ring (100CrMnSi6-4 / GCr15SiMn)	
Holder		
Insert	VBMT 160408-FP GPT6110	VBMT 160408E-BS AC052P
Geometry	FP	BS
Application	Semi-finish turning($\phi 28$)	Semi-finish turning($\phi 28$)
Vc(ft/min)	393	393
f(in/rev)	0.013 – 0.014	0.013 – 0.014
ap(in)	0.012 – 0.02	0.012 – 0.02
Coolant	Emulsion	Emulsion
Tool life (pcs/edge)	6~7 pcs/edge	6~7 pcs/edge 
Result	Under the same cutting data, the tool life is the same. At Vc=1115 ft/min, BS's tool life is 20% higher than the competitor's insert. High productivity.	



BS Geometry insert list

·ACHTECK·

Item	Product Name	AT202	AT210A	AC052P	AC152P	AC252P
1	VNMG 160404E-BS	●	●	●	●	●
2	VNMG 160408E-BS	●	●	●	●	●
3	VNMG 160412E-BS	●	●	●	●	●
4	VBMT 110302E-BS	●	●	●	●	●
5	VBMT 110304E-BS	●	●	●	●	●
6	VBMT 110308E-BS	●	●	●	●	●
7	VBMT 160402E-BS	●	●	●	●	●
8	VBMT 160404E-BS	●	●	●	●	●
9	VBMT 160408E-BS	●	●	●	●	●
10	VBMT 160412E-BS	●	●	●	●	●

·ACHTECK·



THANKS

