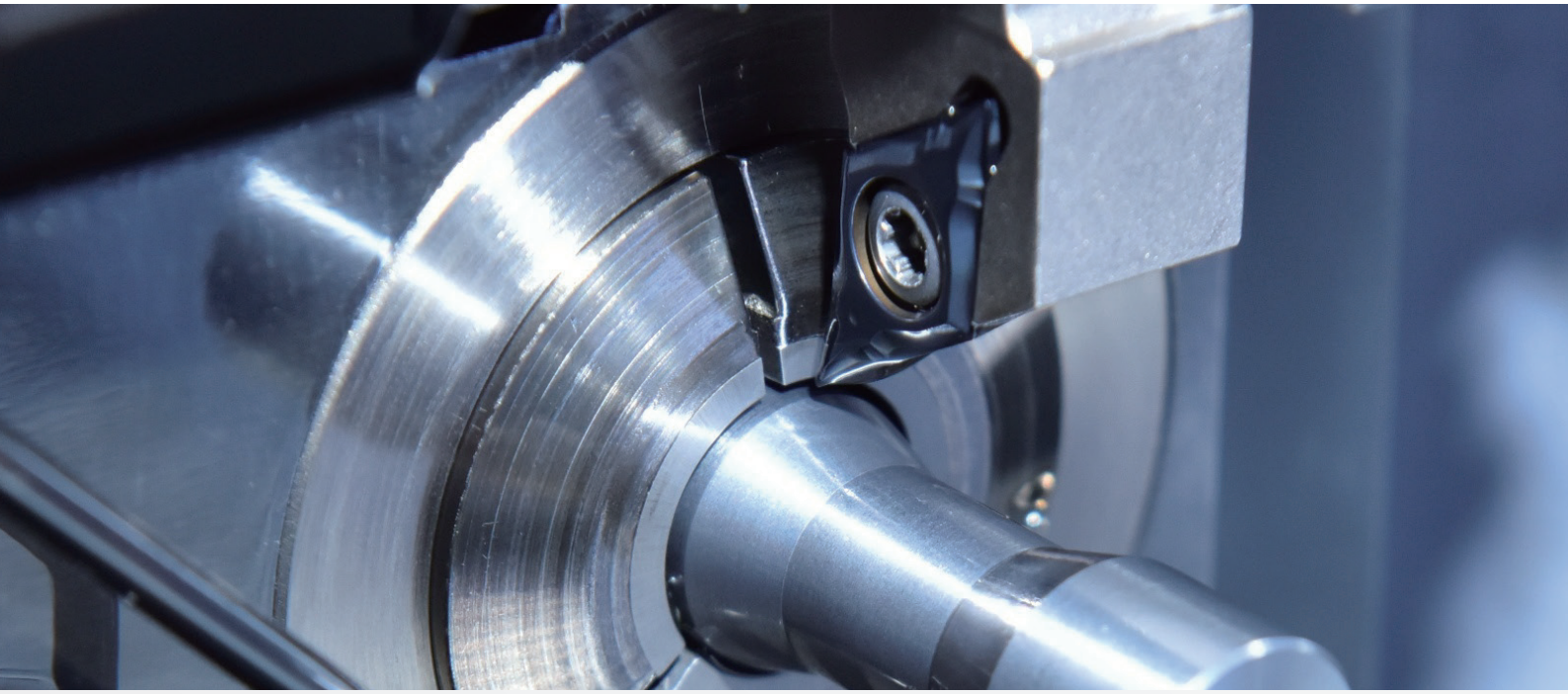
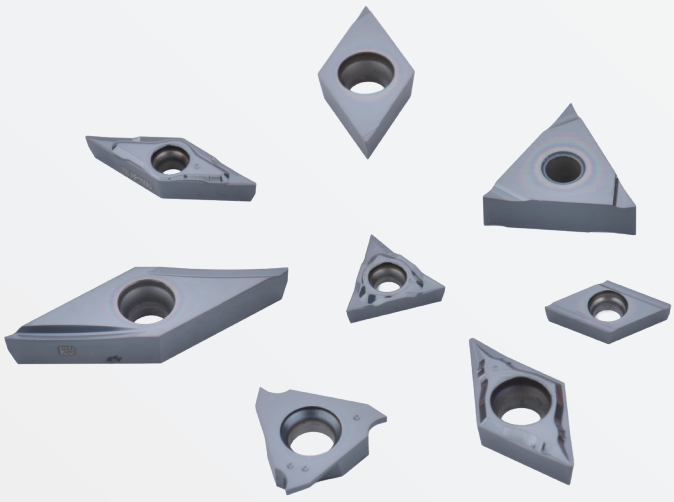
ACHTECK
澳克泰工具

2025.06

New PVD Coated Grade for Small Tool
——AP100U



Super micro-grain carbide with nano-alternative composite coating, Achieves High-efficient and Long-life machining



NO.106

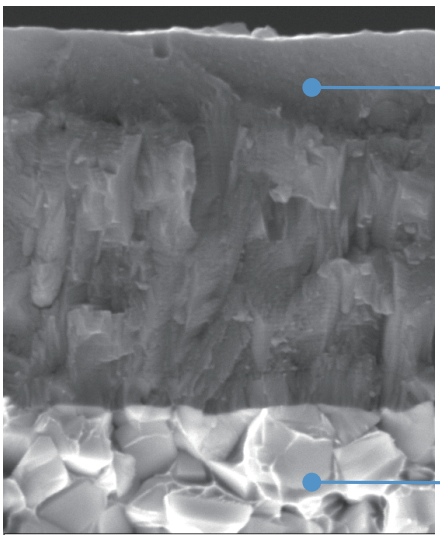
www.achtecktool.com

AP100U

General Turning grade for Small Tool

Features for AP100U

Super micro-grain carbide has high hardness and good toughness, combined with nano-alternative composite coating, especially suitable for fine ground inserts, achieve high-efficiency and long-life machining.



Nano-alternative layer

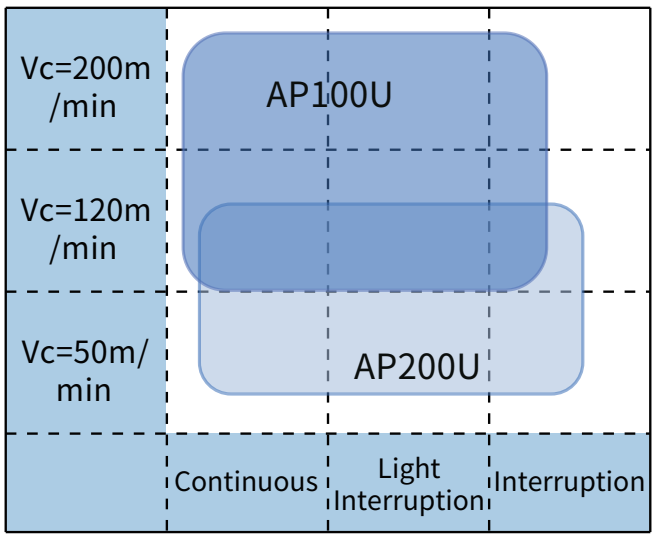
New developed PVD coating, Through multi-layer design and Introduce nano-interface regulation technology. Achieve the collaborative optimization of tool performance. The cutting tool demonstrates good red hardness and thermal stability, Meanwhile, keep the cutting edge sharp.

Super micro-grain

The adoption of WC-Co interface strengthening technology has enhanced the strength and thermal shock resistance of the substrate. Improve the edge strength of the cutting tool and the wear resistance of the rake face. Suitable for high-speed machining of steel and stainless steel.

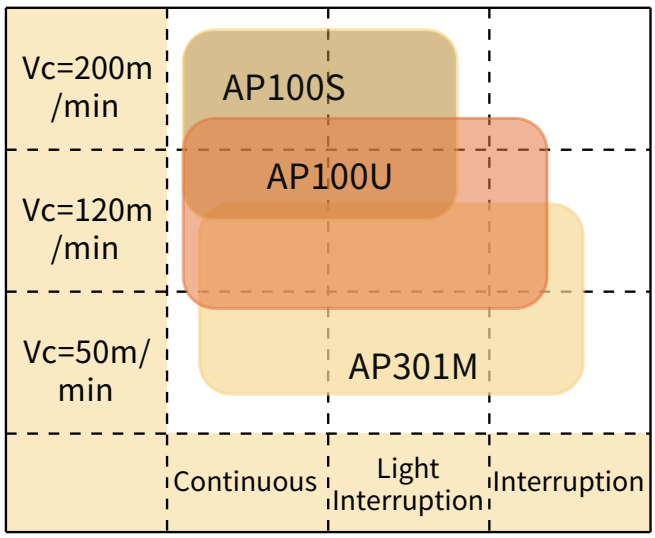
Material Application

Carbon Steel / Alloy Steel



ISO Classification: P10-P20
Recommended Vc: 100-200m/min

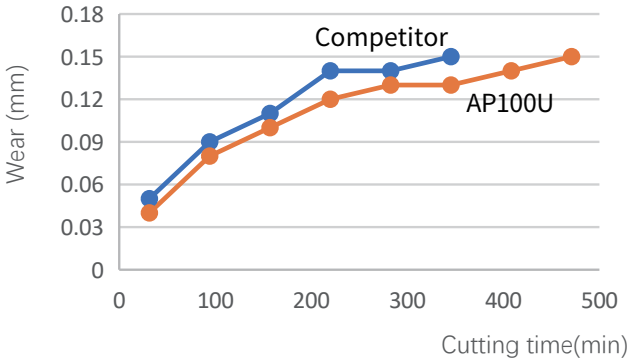
Stainless Steel



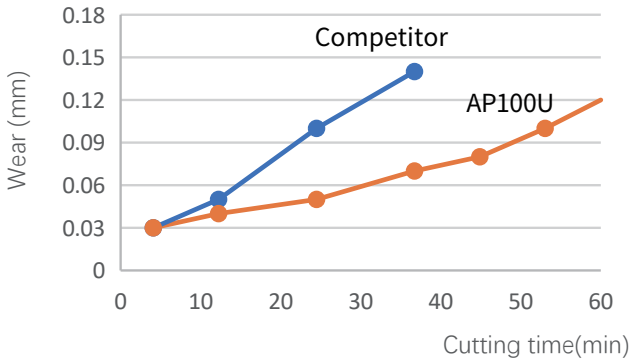
ISO Classification: M10-M20
Recommended Vc: 80-160m/min

Wear Resistance Comparison

DCET 11T302FR-F AP100U



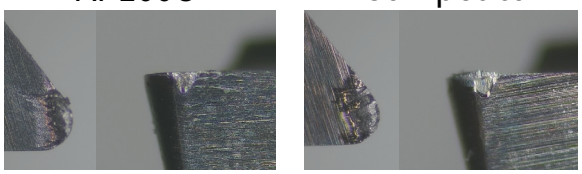
ASG 32R100T20-R010 AP100U



Cutting Edge after turning

Cutting time：157min

AP100U | Competitor

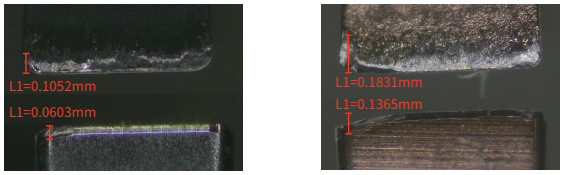


Cutting Data： Steel 4140#，Vc=120m/min，ap=0.3mm，f=0.05mm/r，wet

Cutting Edge after grooving

Cutting time：36min

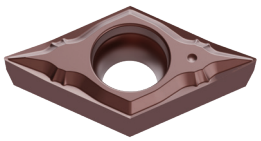
AP100U | Competitor



Cutting Data：Steel 4140#，Vc=120m/min，ap=1.5mm，f=0.03mm/r，wet

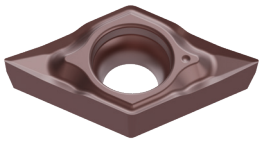
Geometry

UF — General



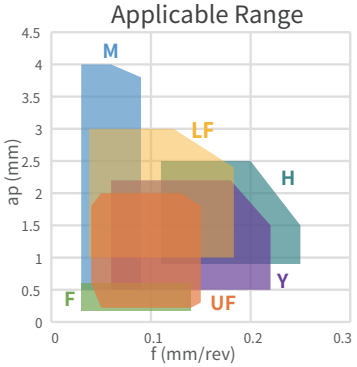
Convex point extends to nose, wide applicable range

LF — Low force

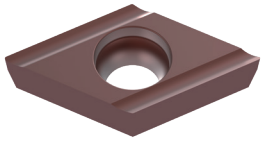


Large rake angle, Big chip space, Low cutting force

Applicable Range

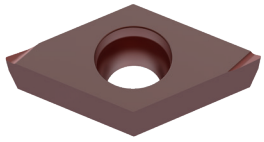


M — Finishing



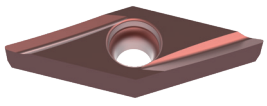
High-precision, Sharp edge, Smooth chip evacuation.

F — Low feed



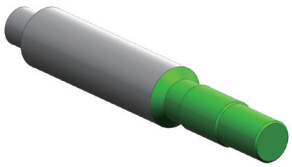
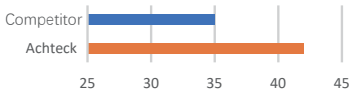
Excellent chip control at low feed rate. Reliable machining.

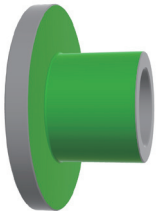
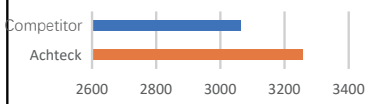
Y — Sem-finishing

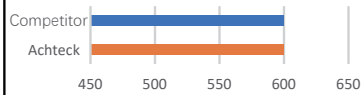


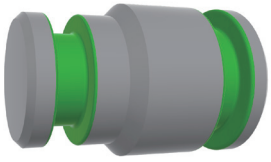
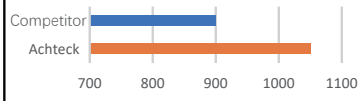
The strong edge can be used inrough turning.

Case Studies

Insert	VBET 160402FR-Y AP100U
Workpiece	
Material	304
Cutting Speed	107m/min
Cutting Depth	1.5mm
Feed	0.2mm/rev
Result	 Tool life increased by 20%

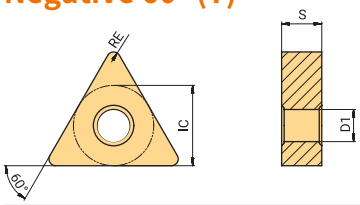
Insert	DCGT 11T302E-UF AP100U
Workpiece	
Material	1215MS
Cutting Speed	208m/min
Cutting Depth	0.2mm
Feed	0.1mm/rev
Result	 Tool life increased by 6%

Insert	TNGG 160402FR-F AP100U
Workpiece	
Material	304
Cutting Speed	203m/min
Cutting Depth	0.5mm
Feed	0.03mm/rev
Result	 Under the same condition, cost per part decreased

Insert	ASG 32R200T25-R010 AP100U
Workpiece	
Material	45#
Cutting Speed	72m/min
Cutting Depth	1.5mm
Feed	0.03mm/rev
Result	 Tool life increased by 22%

Stock List

Negative 60° (T)



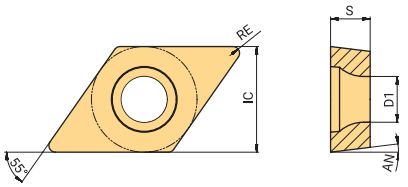
(mm)

Product code	IC	S	D1
TN_1604_	9.525	4.76	3.81

Inserts Right-Hand Shown where Applicable		Product code	RE (mm)	Recommanded parameters		Grade
				f (mm/rev)	ap (mm)	AP100U
Finishing		**TNGG 160401FR-F**	0.10	0.08-0.20	0.50-2.30	●
		160402FR-F	0.20	0.08-0.20	0.50-2.30	●

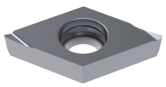
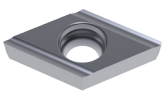
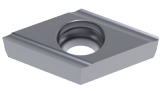
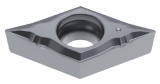
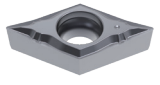
●: Stock available ○: Made to order

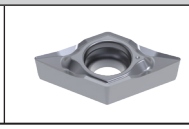
Positive 55° (D)



(mm)

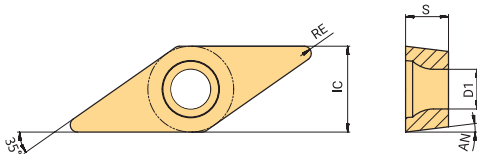
Product code	IC	S	D1	AN
DC_0702_	6.35	2.38	2.80	7°
DC_11T3_	9.525	3.97	4.40	7°

Inserts Right-Hand Shown where Applicable		Product code	RE (mm)	Recommanded parameters		Grade
				f (mm/rev)	ap (mm)	AP100U
Finishing		**DCET 070201FR-F**	<0.1	0.02-0.18	0.1-0.4	○
		070202FR-F	<0.2	0.02-0.18	0.1-0.4	●
		11T301FR-F	<0.1	0.02-0.20	0.1-0.4	○
		11T302FR-F	<0.2	0.02-0.20	0.1-0.4	●
Low feed		**DCET 070201ER-M**	<0.1	0.01-0.08	0.5-2.8	○
		070202ER-M	<0.2	0.01-0.08	0.5-2.8	●
		11T301ER-M	<0.1	0.01-0.10	0.5-4.0	●
		11T302ER-M	<0.2	0.01-0.10	0.5-4.0	●
		11T304ER-M	<0.4	0.01-0.10	0.5-4.0	●
		**DCET 070201FR-M**	<0.1	0.01-0.08	0.5-2.8	●
		070202FR-M	<0.2	0.01-0.08	0.5-2.8	●
		11T301FR-M	<0.1	0.01-0.10	0.5-4.0	○
		11T302FR-M	<0.2	0.01-0.10	0.5-4.0	●
		11T304FR-M	<0.4	0.01-0.10	0.5-4.0	●
Finishing		**DCGT 11T301E-UF**	0.1	0.02-0.15	0.1-2.4	○
		11T302E-UF	0.2	0.02-0.15	0.1-2.4	●
		11T304E-UF	0.4	0.03-0.20	0.1-2.4	●
		**DCGT 11T301FP-UF**	0.1	0.02-0.15	0.1-2.4	○
		11T302FP-UF	0.2	0.02-0.15	0.1-2.4	●
		11T304FP-UF	0.4	0.03-0.20	0.1-2.4	●

Inserts Right-Hand Shown where Applicable		Product code	RE (mm)	Recommanded parameters		Grade
				f (mm/rev)	ap (mm)	AP100U
Finishing		**DCGT 11T301FP-LF**	<0.1	0.05-0.20	0.35-3.0	○
		11T302FP-LF	0.2	0.05-0.20	0.35-3.0	●
		11T304FP-LF	0.4	0.05-0.20	0.35-3.0	●

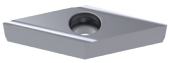
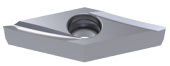
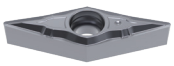
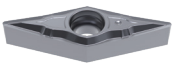
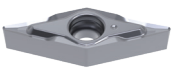
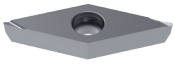
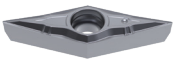
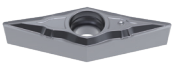
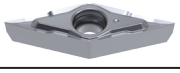
●: Stock available ○: Made to order

Positive 35°（V）



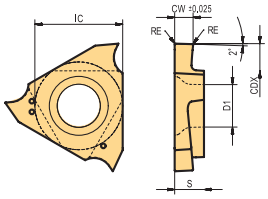
(mm)

Product code	IC	S	D1	AN
VB_1103_	6.35	3.18	2.8	5°
VB_1604_	9.52	4.76	4.4	5°
VC_1103_	6.35	3.18	2.8	7°
VP_1103_	6.35	3.18	2.8	11°

Inserts Right-Hand Shown where Applicable		Product code	RE (mm)	Recommanded parameters		Grade
				f (mm/rev)	ap (mm)	AP100U
Finishing		**VBET 110301FR-F**	<0.1	0.01-0.18	0.1-0.3	○
		110302FR-F	<0.2	0.01-0.18	0.1-0.3	●
Low feed		**VBET 110301FR-M**	<0.1	0.01-0.06	0.2-2.0	○
		110302FR-M	<0.2	0.01-0.06	0.2-2.0	○
		**VBET 110301FR-Y**	<0.1	0.08-0.22	0.5-1.8	○
		110302FR-Y	<0.2	0.08-0.22	0.5-1.8	●
		160402FR-Y	<0.2	0.10-0.25	0.8-2.0	●
Semi-finishing		**VBGT 110301E-UF**	0.1	0.02-0.15	0.1-1.4	●
		110302E-UF	0.2	0.02-0.15	0.2-1.4	●
		110304E-UF	0.4	0.03-0.20	0.2-1.4	●
Finishing		**VBGT 110301FP-UF**	0.1	0.02-0.15	0.1-1.4	○
		110302FP-UF	0.2	0.02-0.15	0.2-1.4	○
		110304FP-UF	0.4	0.03-0.20	0.2-1.4	●
		**VBGT 110301FP-LF**	<0.1	0.05-0.20	0.35-3.0	○
		110302FP-LF	0.2	0.05-0.20	0.35-3.0	○
		110304FP-LF	0.4	0.05-0.20	0.35-3.0	●
		**VCET 110301FR-F**	<0.1	0.01-0.18	0.1-0.3	○
		110302FR-F	<0.2	0.01-0.18	0.1-0.3	○
Semi-finishing		**VCGT 110301E-UF**	0.1	0.02-0.15	0.1-1.4	○
		110302E-UF	0.2	0.02-0.15	0.2-1.4	○
Finishing		**VCGT 110301FP-UF**	0.1	0.02-0.15	0.1-1.4	●
		110302FP-UF	0.2	0.02-0.15	0.2-1.4	○
		110304FP-UF	0.4	0.02-0.15	0.2-1.4	○
		**VCGT 110301FP-LF**	<0.1	0.05-0.20	0.35-3.0	○
		110302FP-LF	0.2	0.05-0.20	0.35-3.0	●

●: Stock available ○: Made to order

Shallow Grooving- ASG series



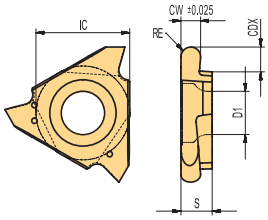
(mm)

Product code	IC	S	D1
ASG 32-	9.525	3.18	4.6

Inserts Right-Hand Shown where Applicable	Product code	Cutting parameter		Dimensions		Grade
		Grooving f (mm/rev)	CDX (mm)	CW (mm)	RE (mm)	AP100U
	**ASG 32R075T20-R010**	0.02-0.07	2.0	0.75	0.10	○
	ASG 32R100T20-R010	0.03-0.08	2.0	1.00	0.10	○
	ASG 32R125T20-R010	0.03-0.08	2.0	1.25	0.10	○
	ASG 32R150T20-R010	0.03-0.08	2.0	1.50	0.10	○
	ASG 32R200T25-R010	0.03-0.08	2.5	2.00	0.10	●

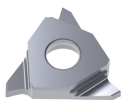
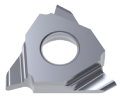
●: Stock available ○: Made to order

Shallow Grooving- ATG series



(mm)

Product code	IC	S	D1
ATG 32-	9.525	3.18	4.6
ATG 43-	12.7	4.76	5.5

Inserts Right-Hand Shown where Applicable	Product code	Cutting parameter		Dimensions		Grade
		Grooving f (mm/rev)	CDX (mm)	CW (mm)	RE (mm)	AP100U
	**ATG 32R200T20-R020**	0.04-0.09	2.5	2.00	0.20	○
	ATG 43R100T20-R010	0.03-0.08	2.0	1.00	0.10	●
	ATG 43R150T35-R020	0.04-0.09	3.5	1.50	0.20	○
	ATG 43R175T35-R020	0.04-0.09	3.5	1.75	0.20	○
	ATG 43R200T35-R020	0.04-0.09	3.5	2.00	0.20	●
	ATG 43L200T35-R020	0.04-0.09	3.5	2.00	0.20	○
	**ATG 32R100T20-R050**	0.03-0.08	2.0	1.00	0.50	○
	ATG 43R100T20-R050	0.03-0.08	2.0	1.00	0.50	○

●: Stock available ○: Made to order