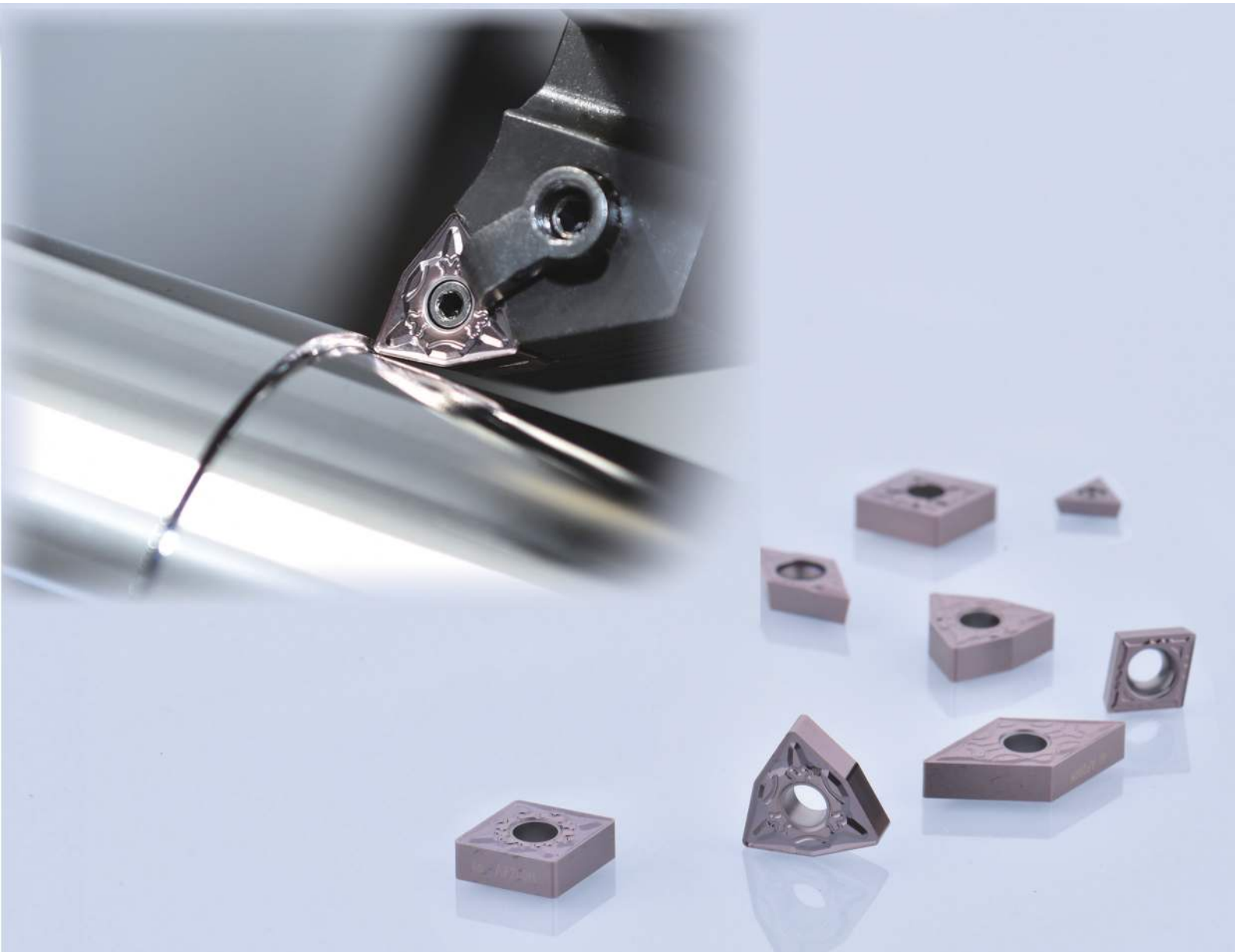
NEW
PRODUCT!

AP200M

New PVD Coating

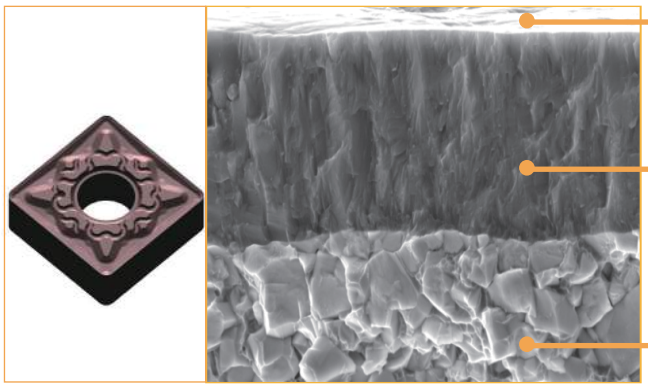
Stable Process of Stainless Steel Turning



Grade Introduction

Coating Type: PVD ISO Range: M15-M35 P15-P35

With new development of coating technology and advanced surface treatment technology, first choice for carbon steel to stainless steel general machining, and achieve stable tool life on stainless steel machining.



SEM graphic on the edge coating surface

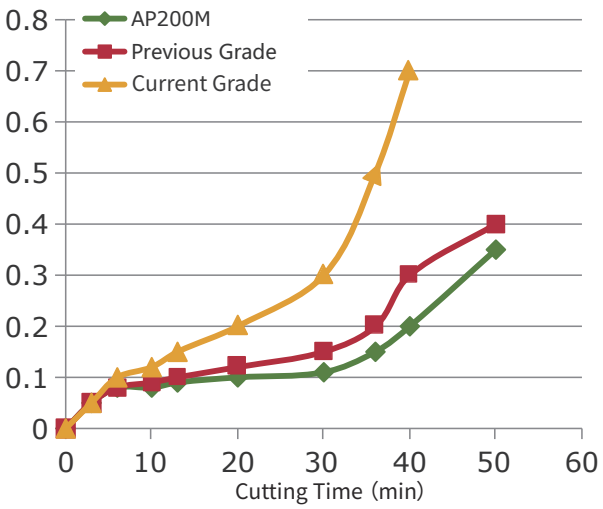
Special surface treatment, making the insert surface smoother, dramatically improve the built up edge resistance.

New nano structure PVD coating, provides superior wear resistance and adhesion resistance.

New sub-micro cemented carbide substrate, insert with good impact resistance under the tough machining conditions.

Comparison of wear resistance

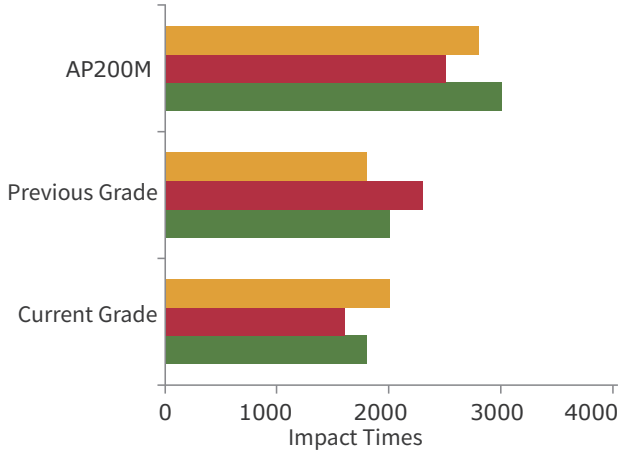
Continuous cutting, insert wear comparison.



AP200M 40min Previous Grade 40min Current Grade 40min

Material: 316L
Insert: CNMG 120408E-MC3 AP200M
Cutting speed: Vc=120m/min
Feed: f=0.25mm/rev
Cutting depth: ap=1.5mm

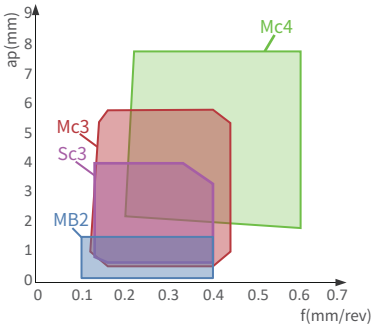
Super breakage resistance, interrupted cutting.

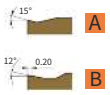
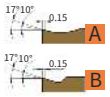
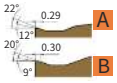
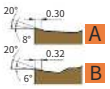


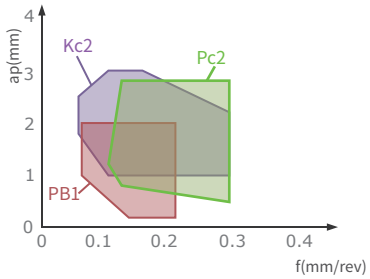
AP200M 40min Previous Grade 40min Current Grade 40min

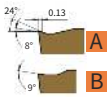
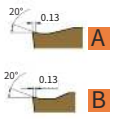
Material: 316L
Insert: CNMG 120408E-MC3 AP200M
Cutting speed: Vc=200m/min
Feed: f=0.2mm/rev
Cutting depth: ap=1.0mm

Chip breaker Selection

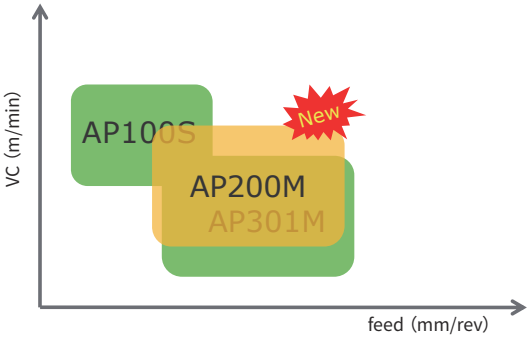


	Application	Chip Breaker		Feature	Section
Negative	Finishing	MB2		First choice for stainless steel finish turning. High positive rake angle reduced cutting force and built-up edge, can obtain much better surface quality. Very good chip breaking at low feed and small cutting depth.	
	Medium	MC3		First choice for stainless steel medium turning. Sharp cutting edge, low cutting force, wide chip breaking range and chip removal ability.	
		SC3		Supplement gerometry for stainless steel medium turning. Large rake angle + small land width design, easy cutting, also suitable for interrupted turning.	
	Roughing	MC4		Roughing chip breaker. Large chip breaker design, smooth chip evacuation, good chip breaking, with high metal removal rate.	



	Application	Chip Breaker		Feature	Section
Positive	Finishing	PB1		First choice for finish turning. Positive rake angle reduces cutting force and built-up edge, and obtains better surface finish and longer tool life, can be used in stainless steel and steel turning.	
	Semi-Finishing	PC2		First choice for stainless steel semi-finish turning. Sharp geometry design ensures low cutting force, less built-up edge and excellent chip control.	
	Roughing	KC2		First choice for rough turning. Simple and durable chip breaker design, very good versatility and wide application range.	

Application Range

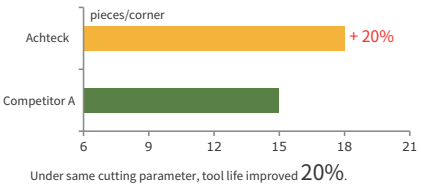


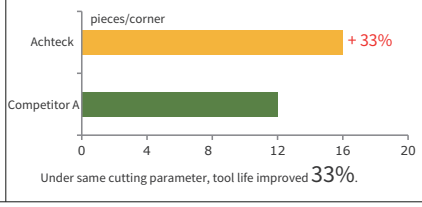
Material	Stainless Steel				
Application Range	Finishing ⟷ Roughing				
ISO Classification	M01	M10	M20	M30	M40
Grade	AP100S				
	AP200M (New)				
	AP301M				

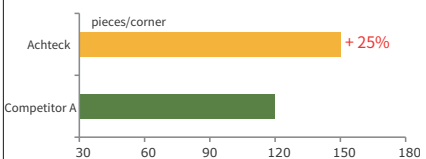
Recommended cutting speed for different materials

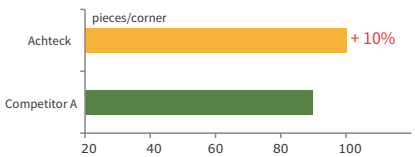
Materials						AP200M		
ISO	Workpiece material			Brinell hardness (HB)	Tensile strength	f (mm/rev)		
						0.1	0.3	0.5
P	Unalloyed steel	C≤0.25%	Annealed	125	428	220	210	
		0.25<C≤0.55%	Annealed	190	639	170	150	
		0.25<C≤0.55%	Heat-treated	210	708	140	120	
		C>0.55%	Annealed	190	639	130	120	
		C>0.55%	Heat-treated	300	1013			
		Free cutting steel (short-chip)	Annealed	220	745	190	170	
	Low-alloyed steel	Annealed		175	591	130	110	
		Heat-treated		300	1013			
		Heat-treated		380	1282			
		Heat-treated		430	1477			
	High-alloyed steel and high-alloyed tool steel	Annealed		200	675	120	80	
		Hardened and tempered		300	1013			
		Hardened and tempered		400	1361			
	Stainless steel	Ferritic/martensitic, annealed		200	675	145	130	105
		Martensitic, heat-treated		330	1114	105	85	75
M	Stainless steel	Austenitic, quench hardened		200	675	180	130	85
		Austenitic, precipitation hardened (PH)		300	1013	105	90	
		Austenitic/ferritic, duplex		230	778	115	100	60

Case stories

Insert	CCMT 120408E-PC2 AP200M
Workpiece	
Material	1.4837
Vc	122 m/min
f	0.1 mm/rev
ap	1.5-2.5 mm
Coolant	Emulsion
Result	 Under same cutting parameter, tool life improved 20%.

Insert	WNMG 080408E-MC3 AP200M
Workpiece	
Material	304
Vc	28 m/min
f	0.12 mm/rev
ap	0.2 mm
Coolant	Emulsion
Result	 Under same cutting parameter, tool life improved 33%.

Insert	WNMG 080408E-MC3 AP200M
Workpiece	
Material	304
Vc	80 m/min
f	0.15-0.2 mm/rev
ap	1.5 mm
Coolant	Emulsion
Result	 Under same cutting parameter, tool life improved 25%, Cost per part decreased 30%.

Insert	CCMT 060204E-PC2 AP200M
Workpiece	
Material	316
Vc	30 m/min
f	0.15 mm/rev
ap	0.5 mm
Coolant	Emulsion
Result	 Under same cutting parameter, tool life improved 10%, Cost per part decreased 50%.

Negative insert

Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	CNMG 120404E-MB2	12.7	12.9	4.76	0.4	●
	120408E-MB2	12.7	12.9	4.76	0.8	●
	CNMG 120404E-SC3	12.7	12.9	4.76	0.4	○
	120408E-SC3	12.7	12.9	4.76	0.8	●
	120412E-SC3	12.7	12.9	4.76	1.2	○
	160612E-SC3	15.875	16.11	6.35	1.2	○
	160616E-SC3	15.875	16.11	6.35	1.6	○
	190612E-SC3	19.05	19.3	6.35	1.2	○
	190616E-SC3	19.05	19.3	6.35	1.6	○
	CNMG 120404E-MC3	12.7	12.9	4.76	0.4	●
	120408E-MC3	12.7	12.9	4.76	0.8	●
	120412E-MC3	12.7	12.9	4.76	1.2	●
	120416E-MC3	12.7	12.9	4.76	1.6	○
	160608E-MC3	15.875	16.1	6.35	0.8	○
	160612E-MC3	15.875	16.1	6.35	1.2	○
	190608E-MC3	19.05	19.3	6.35	0.8	○
	190612E-MC3	19.05	19.3	6.35	1.2	○
	CNMG 120408E-MC4	12.7	12.9	4.76	0.8	●
	120412E-MC4	12.7	12.9	4.76	1.2	●
	160612E-MC4	15.875	16.1	6.35	1.2	○
	160616E-MC4	15.875	16.1	6.35	1.6	○
	190612E-MC4	19.05	19.3	6.35	1.2	○
	190616E-MC4	19.05	19.3	6.35	1.6	○
	DNMG 150404E-MB2	12.7	15.5	4.76	0.4	○
	150408E-MB2	12.7	15.5	4.76	0.8	●
	150604E-MB2	12.7	15.5	6.35	0.4	○
	150608E-MB2	12.7	15.5	6.35	0.8	●

Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	DNMG 150404E-SC3	12.7	15.5	4.76	0.4	●
	150408E-SC3	12.7	15.5	4.76	0.8	●
	150412E-SC3	12.7	15.5	4.76	1.2	○
	150604E-SC3	12.7	15.5	6.35	0.4	●
	150608E-SC3	12.7	15.5	6.35	0.8	●
	150612E-SC3	12.7	15.5	6.35	1.2	○
	DNMG 110404E-MC3	9.525	11.62	4.76	0.4	○
	110408E-MC3	9.525	11.62	4.76	0.8	○
	150404E-MC3	12.7	15.5	4.76	0.4	●
	150408E-MC3	12.7	15.5	4.76	0.8	●
	150412E-MC3	12.7	15.5	4.76	1.2	○
	150604E-MC3	12.7	15.5	4.76	0.4	○
	150608E-MC3	12.7	15.5	6.35	0.8	●
	150612E-MC3	12.7	15.5	6.35	1.2	○
	DNMG 150408E-MC4	12.7	15.5	4.76	0.8	○
	150412E-MC4	12.7	15.5	4.76	1.2	○
	150608E-MC4	12.7	15.5	6.35	0.8	○
	150612E-MC4	12.7	15.5	6.35	1.2	○
	SNMG 120404E-MB2	12.7	12.7	4.76	0.4	○
	120408E-MB2	12.7	12.7	4.76	0.8	○
	SNMG 120408E-SC3	12.7	12.7	4.76	0.8	●
	120412E-SC3	12.7	12.7	4.76	1.2	●
	150612E-SC3	15.875	15.875	6.35	1.2	○
	150616E-SC3	15.875	15.875	6.35	1.6	○
	190612E-SC3	19.05	19.05	6.35	1.2	○

Marked: ● Stocked
○ Non-stocked

Negative insert

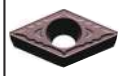
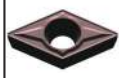
Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	SNMG 120404E-MC3	12.7	12.7	4.76	0.4	○
	120408E-MC3	12.7	12.7	4.76	0.8	●
	120412E-MC3	12.7	12.7	4.76	1.2	●
	150612E-MC3	15.875	15.875	6.35	1.2	○
	150616E-MC3	15.875	15.875	6.35	1.6	○
	190612E-MC3	19.05	19.05	6.35	1.2	○
	190616E-MC3	19.05	19.05	6.35	1.6	○
	SNMG 120408E-MC4	12.7	12.7	4.76	0.8	○
	120412E-MC4	12.7	12.7	4.76	1.2	○
	150612E-MC4	15.875	15.875	6.35	1.2	○
	150616E-MC4	15.875	15.875	6.35	1.6	●
	190612E-MC4	19.05	19.05	6.35	1.2	○
	190616E-MC4	19.05	19.05	6.35	1.6	○
	TNMG 160404E-MB2	9.525	16.5	4.76	0.4	○
	160408E-MB2	9.525	16.5	4.76	0.8	●
	TNMG 160404E-SC3	9.525	16.5	4.76	0.4	●
	160408E-SC3	9.525	16.5	4.76	0.8	●
	160412E-SC3	9.525	16.5	4.76	1.2	○
	TNMG 160404E-MC3	9.525	16.5	4.76	0.4	●
	160408E-MC3	9.525	16.5	4.76	0.8	●
	160412E-MC3	9.525	16.5	4.76	1.2	●
	220408E-MC3	15.875	22.0	4.76	0.8	○
	220412E-MC3	15.875	22.0	4.76	1.2	○
	TNMG 160408E-MC4	9.525	16.5	4.76	0.8	●
	160412E-MC4	9.525	16.5	4.76	1.2	○
	220408E-MC4	12.7	22.0	4.76	0.8	○
	220412E-MC4	12.7	22.0	4.76	1.2	○

Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	VNMG 160404E-MB2	9.525	16.5	4.76	0.4	●
	160408E-MB2	9.525	16.5	4.76	0.8	●
	VNMG 160404E-SC3	9.525	16.5	4.76	0.4	●
	160408E-SC3	9.525	16.5	4.76	0.8	○
	160412E-SC3	9.525	16.5	4.76	1.2	○
	VNMG 160404E-MC3	9.525	16.5	4.76	0.4	●
	160408E-MC3	9.525	16.5	4.76	0.8	●
	WNMG 080404E-MB2	12.7	8.7	4.76	0.4	●
	080408E-MB2	12.7	8.7	4.76	0.8	●
	WNMG 080404E-SC3	12.7	8.7	4.76	0.4	●
	080408E-SC3	12.7	8.7	4.76	0.8	●
	080412E-SC3	12.7	8.7	4.76	1.2	●
	WNMG 060408E-MC3	9.525	6.52	4.76	0.8	○
	060412E-MC3	9.525	6.52	4.76	1.2	●
	080404E-MC3	12.7	8.7	4.76	0.4	○
	080408E-MC3	12.7	8.7	4.76	0.8	●
	080412E-MC3	12.7	8.7	4.76	1.2	●
	WNMG 060408E-MC4	9.525	6.52	4.76	0.8	○
	060412E-MC4	9.525	6.52	4.76	1.2	○
	080408E-MC4	12.7	8.7	4.76	0.8	●
	080412E-MC4	12.7	8.7	4.76	1.2	●

Marked: ● Stocked
○ Non-stocked

Positive insert

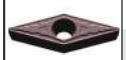
Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	CCMT 060202E-PB1	6.45	6.45	2.38	0.2	●
	060204E-PB1	6.45	6.45	2.38	0.4	●
	060208E-PB1	6.45	6.45	2.38	0.8	●
	09T302E-PB1	9.67	9.67	3.97	0.2	●
	09T304E-PB1	9.67	9.67	3.97	0.4	○
	09T308E-PB1	9.67	9.67	3.97	0.8	○
	CCMT 060204E-PC2	6.45	6.45	2.38	0.4	●
	060208E-PC2	6.45	6.45	2.38	0.8	●
	09T304E-PC2	9.67	9.67	3.97	0.4	●
	09T308E-PC2	9.67	9.67	3.97	0.8	●
	09T312E-PC2	9.67	9.67	3.97	1.2	○
	120404E-PC2	12.9	12.9	4.76	0.4	●
	120408E-PC2	12.9	12.9	4.76	0.8	●
	120412E-PC2	12.89	12.89	4.76	1.2	○
	CCMT 060204E-KC2	6.45	6.45	2.38	0.4	○
	060208E-KC2	6.45	6.45	2.38	0.8	○
	09T304E-KC2	9.67	9.67	3.97	0.4	○
	09T308E-KC2	9.67	9.67	3.97	0.8	●
	120404E-KC2	12.9	12.9	4.76	0.4	○
	120408E-KC2	12.9	12.9	4.76	0.8	○
	120412E-KC2	12.9	12.9	4.76	1.2	○
	DCMT 070202E-PB1	7.75	7.75	2.38	0.2	○
	070204E-PB1	7.75	7.75	2.38	0.4	○
	11T302E-PB1	11.62	11.62	3.97	0.2	○
	11T304E-PB1	11.62	11.62	3.97	0.4	●
	11T308E-PB1	11.62	11.62	3.97	0.8	○

Insert	Product code	Dimmension(mm)				Grade
		s	d	l	r	AP200M
	DCMT 070204E-PC2	2.38	6.35	7.75	0.4	●
	070208E-PC2	2.38	6.35	7.75	0.8	●
	11T304E-PC2	3.97	9.525	11.62	0.4	●
	11T308E-PC2	3.97	9.525	11.62	0.8	●
	11T312E-PC2	3.97	9.525	11.62	1.2	○
	DCMT 070204E-KC2	2.38	6.35	7.75	0.4	○
	070208E-KC2	2.38	6.35	7.75	0.8	○
	11T304E-KC2	3.97	9.525	11.62	0.4	○
	11T308E-KC2	3.97	9.525	11.62	0.8	○
	11T312E-KC2	3.97	9.525	11.62	1.2	○
	SCMT 09T304E-PB1	3.97	9.525	9.525	0.4	○
	09T308E-PB1	3.97	9.525	9.525	0.8	●
	120404E-PB1	4.76	12.7	12.7	0.4	○
	SCMT 09T304E-PC2	3.97	9.525	9.525	0.4	○
	09T308E-PC2	3.97	9.525	9.525	0.8	○
	120404E-PC2	4.76	12.7	12.7	0.4	○
	120408E-PC2	4.76	12.7	12.7	0.8	●
	120412E-PC2	4.76	12.7	12.7	1.2	○
	SCMT 09T304E-KC2	3.97	9.525	9.525	0.4	○
	09T308E-KC2	3.97	9.525	9.525	0.8	●
	120404E-KC2	4.76	12.7	12.7	0.4	○
	120408E-KC2	4.76	12.7	12.7	0.8	○
	120412E-KC2	4.76	12.7	12.7	1.2	○

Marked: ● Stocked
○ Non-stocked

Positive insert

Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	TCMT 090204E-PB1	5.56	9.63	2.38	0.4	○
	110202E-PB1	6.35	11.0	2.38	0.2	○
	110204E-PB1	6.35	11.0	2.38	0.4	○
	110208E-PB1	6.35	11.0	2.38	0.8	○
	16T304E-PB1	9.525	16.5	3.97	0.4	○
	16T308E-PB1	9.525	16.5	3.97	0.8	○
	TCMT 090204E-PC2	5.56	9.63	2.38	0.4	○
	090208E-PC2	5.56	9.63	2.38	0.8	○
	110204E-PC2	6.35	11.0	2.38	0.4	○
	110208E-PC2	6.35	11.0	2.38	0.8	●
	16T304E-PC2	9.525	16.5	3.97	0.4	○
	16T308E-PC2	9.525	16.5	3.97	0.8	●
	16T312E-PC2	9.525	16.5	3.97	1.2	○
	TPMT 090204E-PC2	5.56	9.63	2.38	0.4	●
	090208E-PC2	5.56	9.63	2.38	0.8	○
	110304E-PC2	6.35	11.0	3.97	0.4	●
	110308E-PC2	6.35	11.0	3.97	0.8	○
	TCMT 090204E-KC2	5.56	9.63	2.38	0.4	○
	090208E-KC2	5.56	9.63	2.38	0.8	○
	110204E-KC2	6.35	11.0	2.38	0.4	○
	110208E-KC2	6.35	11.0	2.38	0.8	○
	16T304E-KC2	9.525	16.5	3.97	0.4	○
	16T308E-KC2	9.525	16.5	3.97	0.8	○
	16T312E-KC2	9.525	16.5	3.97	1.2	○

Insert	Product code	Dimmension(mm)				Grade
		d	l	s	r	AP200M
	VBMT 110304E-PB1	6.35	11.07	3.18	0.4	●
	110308E-PB1	6.35	11.07	3.18	0.8	●
	160402E-PB1	9.525	16.61	4.76	0.2	○
	160404E-PB1	9.525	16.61	4.76	0.4	○
	160408E-PB1	9.525	16.61	4.76	0.8	○
	VCMT 160404E-PB1	9.525	16.61	4.76	0.4	○
	160408E-PB1	9.525	16.61	4.76	0.8	○
	VBMT 110304E-PC2	6.35	11.07	3.18	0.4	○
	110308E-PC2	6.35	11.07	3.18	0.8	○
	160404E-PC2	9.525	16.61	4.76	0.4	●
	160408E-PC2	9.525	16.61	4.76	0.8	●
	160412E-PC2	9.525	16.61	4.76	1.2	○
	VCMT 110304E-PC2	6.35	11.07	3.18	0.4	○
	110308E-PC2	6.35	11.07	3.18	0.8	○
	160404E-PC2	9.525	16.61	4.76	0.4	●
	160408E-PC2	9.525	16.61	4.76	0.8	●
	VBMT 160404E-KC2	9.525	16.6068	4.76	0.4	○
	160408E-KC2	9.525	16.6068	4.76	0.8	○
	160412E-KC2	9.525	16.6068	4.76	1.2	○

Marked: ● Stocked
○ Non-stocked