

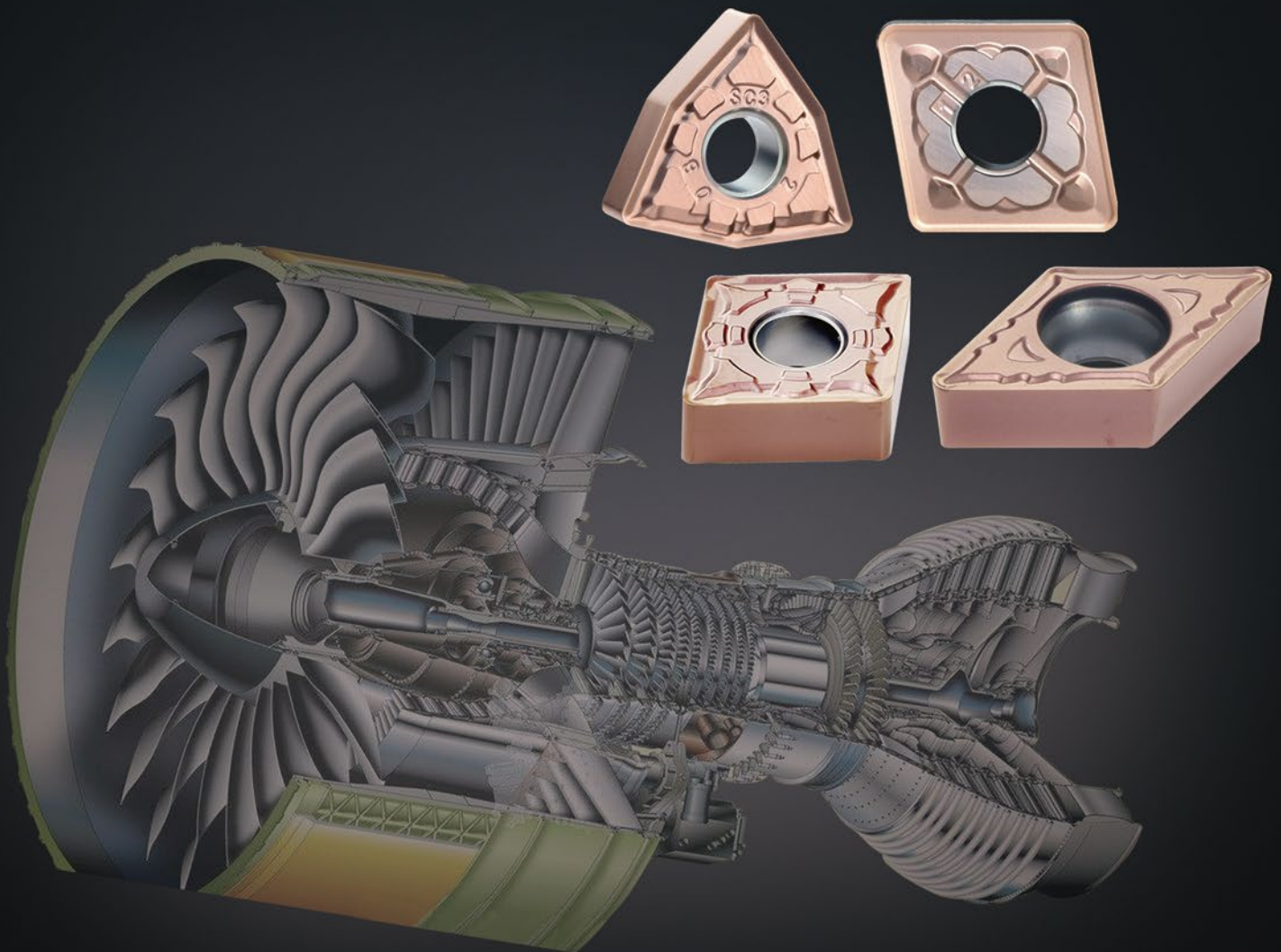
# ACHTECK



**NEW  
PRODUCT!**

## AP100S

# PVD coated grade for super alloys



Achteck is launching a new turning PVD coated grade-AP100S which provides excellent machining performance on super alloys and stainless steels. This grade has submicron carbide substrate combined with high hardness and Nano layered PVD coating enhanced hardness and oxidation resistance at higher cutting speed of machining. The new grade AP100S provides a better surface finish on work piece due to post surface treatment after coating.

The new grade is defined a longer tool life at higher cutting speed on super alloys and stainless steels and less built-up edge effect, enhanced performance reliability and remarkable reduction in machining cost.

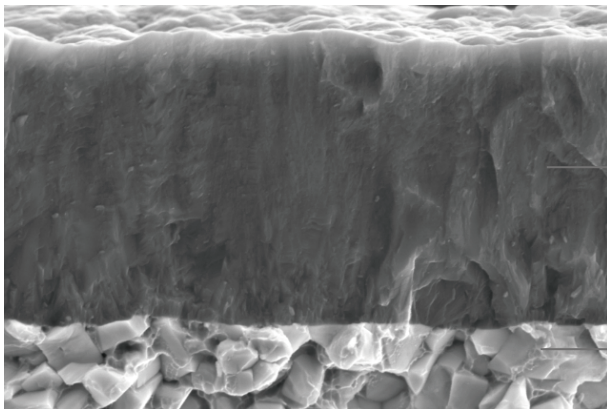
The AP100S grade can be used on high temperature super alloys and high cutting speed in finishing cut on stainless steels.

This grade and Achteck designed geometry as well production technology provide the best quality and the best solution.

## ◆ AP100S Grade Futures

Kind of coating:PVD

ISO range:S05-25 M05-25



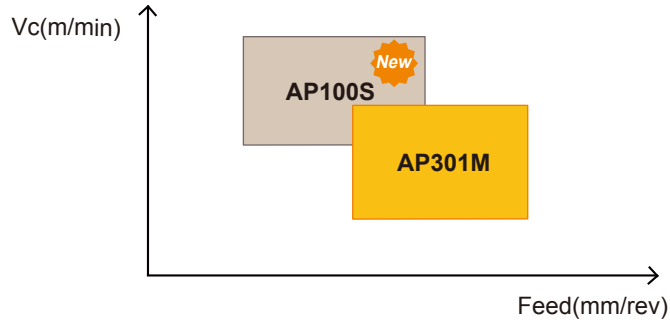
Nano layered PVD coating enhanced hardness and oxidation resistance

Submicron carbide substrate combined high hardness and toughness

<SEM micro structure>

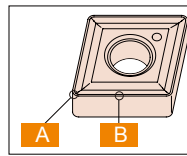
- Submicron carbide substrate based on Nano layered PVD coating
- Excellent wear resistance and good chipping resistance
- Very good smooth surface provides minimized built up edge and longer tool life at higher cutting speed
- Very good surface finish on work piece
- Enhanced machining performance reliability
- For turning on high temperature super alloys and high cutting speed in finishing cut on stainless steel


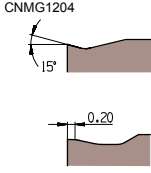

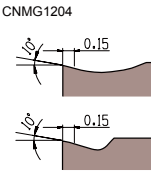

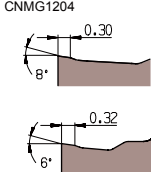
## • Comparison application range between AP100S and AP301M



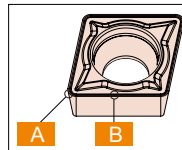
## • Chip breaker Features


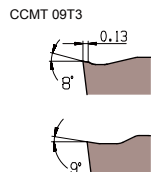
Negative insert



Chip breaker name	Edge preparation	Application
<b>MB2</b>	 CNMG1204 	<ul style="list-style-type: none"> <li>• For finishing</li> <li>• Good chip breaking at lower feed and small depth of cut</li> </ul>
<b>SC3</b> <span style="color: orange;">New</span>	 CNMG1204 	<ul style="list-style-type: none"> <li>• For medium and semi-finishing on high temperature alloys and stainless steel</li> <li>• High positive rake angle supplies very smooth cutting and low cutting force</li> </ul>
<b>MC4</b>	 CNMG1204 	<ul style="list-style-type: none"> <li>• For roughing</li> <li>• Low cutting force in roughing due to positive rake angle</li> <li>• Reliable performance in roughing</li> </ul>

Positive insert



Chip breaker name	Edge preparation	Application
<b>PC2</b>	 CCMT 09T3 	<ul style="list-style-type: none"> <li>• Wide range application</li> <li>• For semi finishing to medium turning</li> <li>• First choice chip breaker</li> </ul>

## Recommended cutting speed by materials

Group	Material Type		Cutting speed(m/min)		
			Low feed	Medeium feed	High feed
High temperature alloys	Iron base alloy	-	180	110	40
	Cobalt base alloy	Waspalloy	100	65	30
	Nickel base alloy	Inconel	100	65	30
	Titanium alloy	Ti6Al4V	200	125	50
Stainless steel	Austenite+Ferrite	300 series	215	170	145
	Martensite	400 series	240	190	155
	Precipitated dispersion hardened stainless steel	P.H.	215	150	85

Note) The recommended cutting speed is for normal cutting conditions. The actual cutting speed could be adjusted based on real working condition by considering rigidity of the machine, fixation, and coolant.

## Case stories

Component description: Working disk

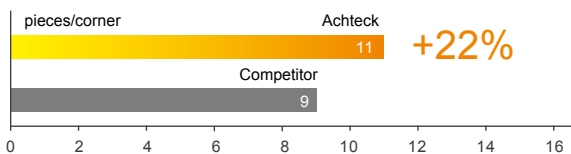
Material: Inconel X-750 (Ni > 75%)

**Insert: CNMG 120408E-SC3 AP100S**

Competitor: CNMG 120408, PVD coated grade

Cutting Parameters:  $V_c=20-40\text{m/min}$ ,  $f=0.15\text{mm/rev}$ ,  
 $a_p=2.5-3\text{mm}$ , wet cutting

External and face turning



Component description: Valve

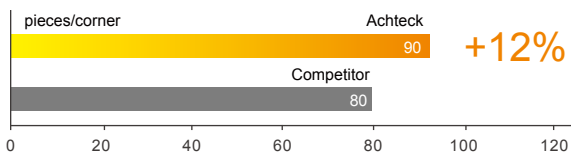
Material: Nickel-based alloys

**Insert: WNMG 080408E-SC3 AP100S**

Competitor: WNMG 080408, PVD coated grade


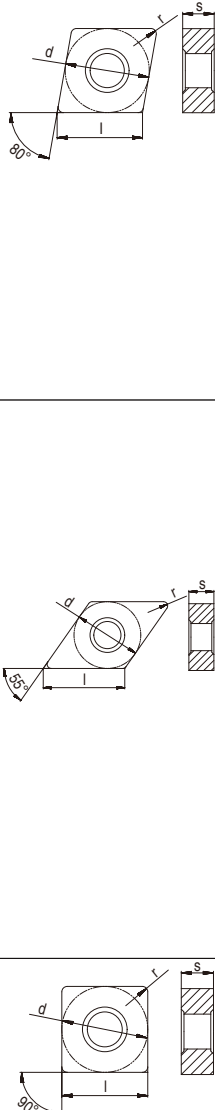


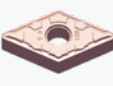
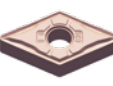


Cutting Parameters:  $V_c=70\text{m/min}$ ,  $f=0.2\text{mm/rev}$ ,  
 $a_p=0.5\text{mm}$ , wet cutting

External turning and profiling




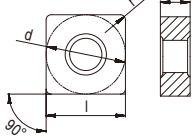



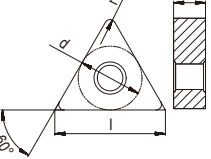



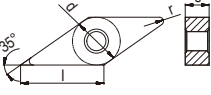


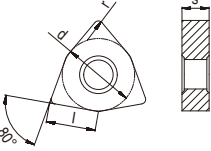

## • Stock items

### Negative insert

Insert	Item designation	Recommended cutting parameters		Dimension(mm)				Grade (PVD)	Geometry
		Feed (mm/rev)	ap (mm)	d	l	s	r	AP100S	
	CNMG 120404E-MB2	0.05-0.15	0.26-3.2	12.7	12.9	4.76	0.4	●	
	120408E-MB2	0.10-0.30	0.52-3.2	12.7	12.9	4.76	0.8	○	
	CNMG 120404E-SC3	0.08-0.22	0.40-4.3	12.7	12.9	4.76	0.4	●	
	120408E-SC3	0.15-0.44	0.80-4.3	12.7	12.9	4.76	0.8	●	
	120412E-SC3	0.23-0.66	1.20-4.3	12.7	12.9	4.76	1.2	○	
	160612E-SC3	0.23-0.66	1.20-5.3	15.875	16.11	6.35	1.2	○	
	160616E-SC3	0.30-0.88	1.60-5.3	15.875	16.11	6.35	1.6	○	
	190612E-SC3	0.23-0.66	1.20-6.4	19.05	19.3	6.35	1.2	○	
	190616E-SC3	0.30-0.88	1.60-6.4	19.05	19.3	6.35	1.6	○	
	CNMG 120408E-MC4	0.20-0.60	1.20-6.4	12.7	12.9	4.76	0.8	●	
	120412E-MC4	0.30-0.90	1.80-6.4	12.7	12.9	4.76	1.2	○	
	DNMG 150404E-MB2	0.05-0.15	0.26-2.9	12.7	15.5	4.76	0.4	●	
	150408E-MB2	0.10-0.30	0.52-2.9	12.7	15.5	4.76	0.8	○	
	150604E-MB2	0.05-0.15	0.26-2.9	12.7	15.5	6.35	0.4	●	
	150608E-MB2	0.10-0.30	0.52-2.9	12.7	15.5	6.35	0.8	●	
	DNMG 150404E-SC3	0.08-0.22	0.40-3.9	12.7	15.5	4.76	0.4	●	
	150408E-SC3	0.15-0.44	0.80-3.9	12.7	15.5	4.76	0.8	●	
	150412E-SC3	0.23-0.66	1.20-3.9	12.7	15.5	4.76	1.2	○	
	150604E-SC3	0.08-0.22	0.40-3.9	12.7	15.5	6.35	0.4	●	
	150608E-SC3	0.15-0.44	0.80-3.9	12.7	15.5	6.35	0.8	○	
	150612E-SC3	0.23-0.66	1.20-3.9	12.7	15.5	6.35	1.2	○	
	DNMG 150608E-MC4	0.20-0.60	1.20-5.4	12.7	15.5	6.35	0.8	○	
	150612E-MC4	0.30-0.90	1.80-5.4	12.7	15.5	6.35	1.2	○	
	SNMG 120404E-MB2	0.05-0.15	0.26-3.2	12.7	12.7	4.76	0.4	○	
	120408E-MB2	0.10-0.30	0.52-3.2	12.7	12.7	4.76	0.8	○	


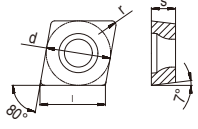

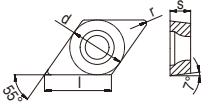

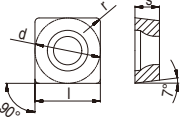

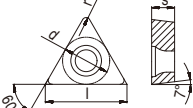

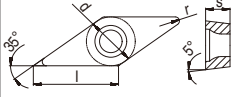
Remark: ● represent for standard stock  
○ represent for Make-To-Order

# ACHTECK TURNING

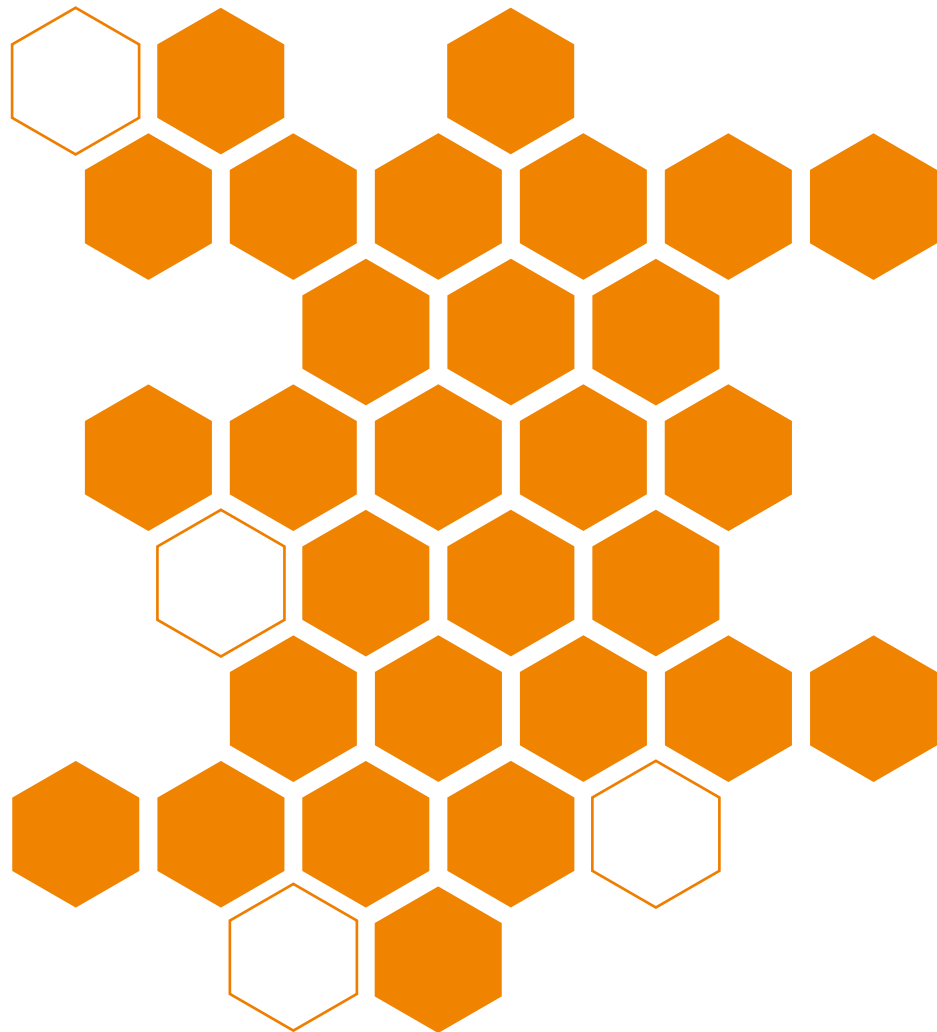
Insert	Item designation	Recommended cutting parameters		Dimension(mm)				Grade (PVD)	Geometry
		Feed (mm/rev)	ap (mm)	d	l	s	r	AP100S	
	SNMG 120408E-SC3	0.15-0.44	0.80-4.2	12.7	12.7	4.76	0.8	●	
	120412E-SC3	0.23-0.66	1.20-4.2	12.7	12.7	4.76	1.2	○	
	150612E-SC3	0.23-0.66	1.20-5.2	15.875	15.875	6.35	1.2	○	
	150616E-SC3	0.30-0.88	1.60-5.2	15.875	15.875	6.35	1.6	○	
	190612E-SC3	0.23-0.66	1.20-6.3	19.05	19.05	6.35	1.2	○	
	SNMG 120408E-MC4	0.20-0.60	1.20-6.4	12.7	12.7	4.76	0.8	●	
	120412E-MC4	0.30-0.90	1.80-6.4	12.7	12.7	4.76	1.2	○	
	TNMG 160404E-MB2	0.05-0.15	0.26-3.1	9.525	16.5	4.76	0.4	●	
	160408E-MB2	0.10-0.30	0.52-3.1	9.525	16.5	4.76	0.8	○	
	TNMG 160408E-SC3	0.15-0.44	0.80-4.1	9.525	16.5	4.76	0.8	●	
	160412E-SC3	0.23-0.66	1.20-4.1	9.525	16.5	4.76	1.2	○	
	TNMG 160408E-MC4	0.20-0.60	1.20-5.8	9.525	16.5	4.76	0.8	●	
	160412E-MC4	0.30-0.90	1.80-5.8	9.525	16.5	4.76	1.2	○	
	VNMG 160404E-MB2	0.05-0.15	0.26-2.1	9.525	16.5	4.76	0.4	●	
	160408E-MB2	0.10-0.30	0.52-2.1	9.525	16.5	4.76	0.8	○	
	VNMG 160404E-SC3	0.08-0.22	0.40-3.3	9.525	16.5	4.76	0.4	●	
	160408E-SC3	0.15-0.44	0.80-3.3	9.525	16.5	4.76	0.8	●	
	160412E-SC3	0.23-0.66	1.20-3.3	9.525	16.5	4.76	1.2	○	
	WNMG 080404E-MB2	0.05-0.15	0.26-2.2	12.7	8.7	4.76	0.4	○	
	080408E-MB2	0.10-0.30	0.52-2.2	12.7	8.7	4.76	0.8	○	
	WNMG 080404E-SC3	0.08-0.22	0.40-2.9	12.7	8.7	4.76	0.4	●	
	080408E-SC3	0.15-0.44	0.80-2.9	12.7	8.7	4.76	0.8	●	
	080412E-SC3	0.23-0.66	1.20-2.9	12.7	8.7	4.76	1.2	○	
	WNMG 080408E-MC4	0.20-0.60	1.20-4.3	12.7	8.7	4.76	0.8	●	
	080412E-MC4	0.30-0.90	1.80-4.3	12.7	8.7	4.76	1.2	○	

Remark: ● represent for standard stock  
○ represent for Make-To-Order

## Positive insert

Insert	Item designation	Recommended cutting parameters		Dimension(mm)				Grade (PVD)	Geometry
		Feed (mm/rev)	ap (mm)	d	l	s	r	AP100S	
	CCMT 060204E-PC2	0.05-0.16	0.35-1.9	6.35	6.45	2.38	0.4	●	
	060208E-PC2	0.10-0.32	0.70-1.9	6.35	6.45	2.38	0.8	○	
	09T304E-PC2	0.05-0.16	0.35-2.9	9.525	9.67	3.97	0.4	●	
	09T308E-PC2	0.10-0.32	0.70-2.9	9.525	9.67	3.97	0.8	●	
	120404E-PC2	0.05-0.16	0.35-3.9	12.7	12.9	4.76	0.4	●	
	120408E-PC2	0.10-0.32	0.70-3.9	12.7	12.9	4.76	0.8	●	
	120412E-PC2	0.16-0.48	1.05-3.9	12.7	12.89	4.76	1.2	○	
	DCMT 070204E-PC2	0.05-0.16	0.35-2.1	6.35	7.75	2.38	0.4	●	
	070208E-PC2	0.10-0.32	0.70-2.1	6.35	7.75	2.38	0.8	○	
	11T304E-PC2	0.05-0.16	0.35-3.1	9.525	11.62	3.97	0.4	●	
	11T308E-PC2	0.10-0.32	0.70-3.1	9.525	11.62	3.97	0.8	○	
	11T312E-PC2	0.16-0.48	1.05-3.1	9.525	11.62	3.97	1.2	○	
	SCMT 09T304E-PC2	0.05-0.16	0.35-2.9	9.525	9.525	3.97	0.4	●	
	09T308E-PC2	0.10-0.32	0.70-2.9	9.525	9.525	3.97	0.8	○	
	120404E-PC2	0.05-0.16	0.35-3.8	12.7	12.7	4.76	0.4	○	
	120408E-PC2	0.10-0.32	0.70-3.8	12.7	12.7	4.76	0.8	○	
	120412E-PC2	0.16-0.48	1.05-3.8	12.7	12.7	4.76	1.2	○	
	TCMT 090204E-PC2	0.05-0.16	0.35-2.6	5.56	9.63	2.38	0.4	○	
	090208E-PC2	0.10-0.32	0.70-2.6	5.56	9.63	2.38	0.8	○	
	110204E-PC2	0.05-0.16	0.35-3.0	6.35	11.0	2.38	0.4	●	
	110208E-PC2	0.10-0.32	0.70-3.0	6.35	11.0	2.38	0.8	○	
	16T304E-PC2	0.05-0.16	0.35-4.5	9.525	16.5	3.97	0.4	●	
	16T308E-PC2	0.10-0.32	0.70-4.5	9.525	16.5	3.97	0.8	○	
	16T312E-PC2	0.16-0.48	1.05-4.5	9.525	16.5	3.97	1.2	○	
	VBMT 110304E-PC2	0.05-0.16	0.35-2.1	6.35	11.07	3.18	0.4	○	
	110308E-PC2	0.10-0.32	0.70-2.1	6.35	11.07	3.18	0.8	○	
	160404E-PC2	0.05-0.16	0.35-3.1	9.525	16.6	4.76	0.4	●	
	160408E-PC2	0.10-0.32	0.70-3.1	9.525	16.6	4.76	0.8	●	
	160412E-PC2	0.16-0.48	1.05-3.1	9.525	16.6	4.76	1.2	○	

Remark: ● represent for standard stock  
○ represent for Make-To-Order



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