

THE NEW VALUE FRONTIER



# MEGACOAT Cermet

Featuring new PV7025 for General Machining of Steel

- Three PVD MEGACOAT Cermet Grades Providing Superior Tool Life and Stable Machining
- Two Uncoated Cermet Grades Providing Excellent Performance at an Economical Price

NEW

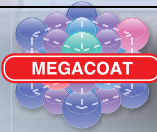
First Recommended PVD Cermet For General Machining of Steel

**PV7025**



MEGACOAT Cermet For Steel Machining

**PV7010**



MEGACOAT Cermet For Cast Iron Machining

**PV7005**



Uncoated Cermet For Steel Machining

**TN6010**

**TN6020**

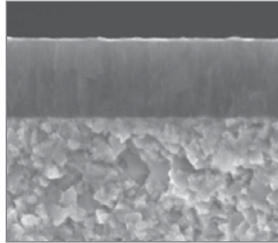


ADVANCING PRODUCTIVITY

# MEGACOAT Cermet

## New MEGACOAT PVD technology

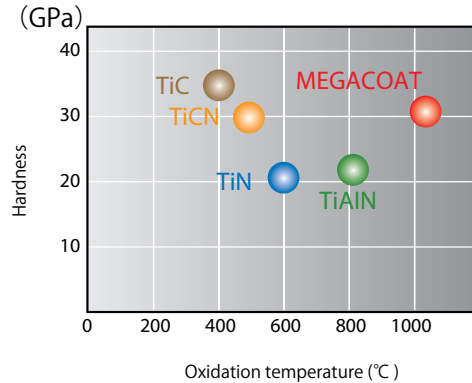
- MEGACOAT provides excellent wear resistance and heat resistance
- Combination of smooth surface finish with oxidation resistance at high temperatures



■ Wear resistant and heat resistant

### MEGACOAT

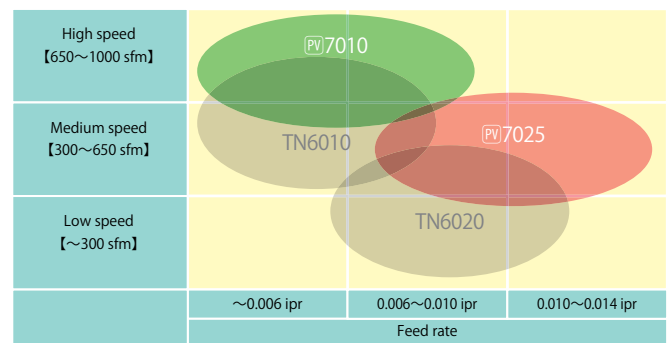
- Nitride solid solution of high melting point metal
- Physically hard and oxidation resistant
- Superior surface roughness
- Superior crater wear resistance



## The MEGACOAT Cermet Advantage

- MEGACOAT Cermets are less chemically reactive than Carbide, which reduces the tendency for built-up-edge and provides improved surface finishes
- Capable of running wet or dry, allowing reduced coolant costs and easier recycling of chips
- Cermet pricing is stable compared to the rapidly rising cost of carbides
- Featuring PV7025 with a Flexural Strength equivalent to P15 Carbide Grades

## Cermet Application Map



## MEGACOAT Cermet for Steel Machining

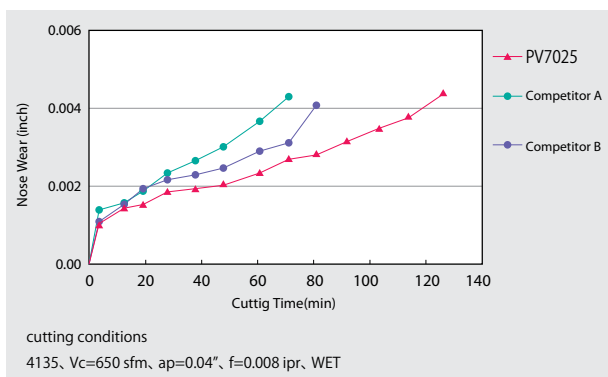
# PV7025

NEW

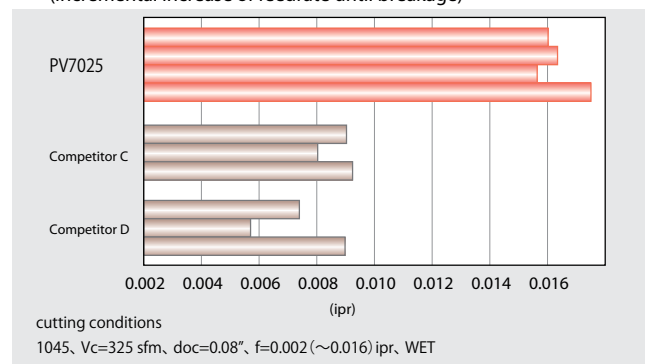
### Features

- Flexural strength equal to P15 Carbide grades due to increased Nitrogen levels and a super micro-grain substrate
- Long tool life is enhanced by MEGACOAT coating
- First recommended PVD cermet for general machining of steel

## Comparison of Wear Resistance



## Comparison of Fracture Resistance (Incremental increase of feedrate until breakage)



## MEGACOAT CERMET for Steel Machining

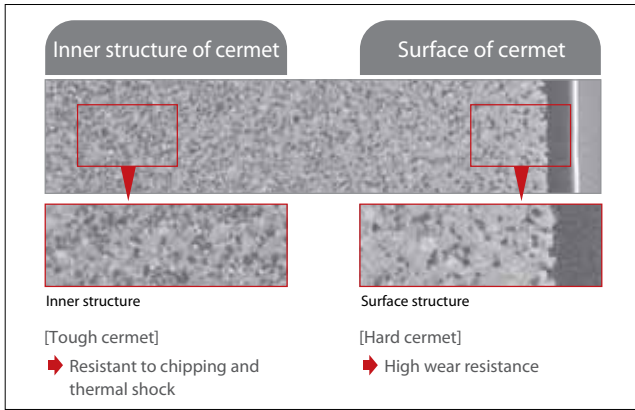
# PV7010

### Features

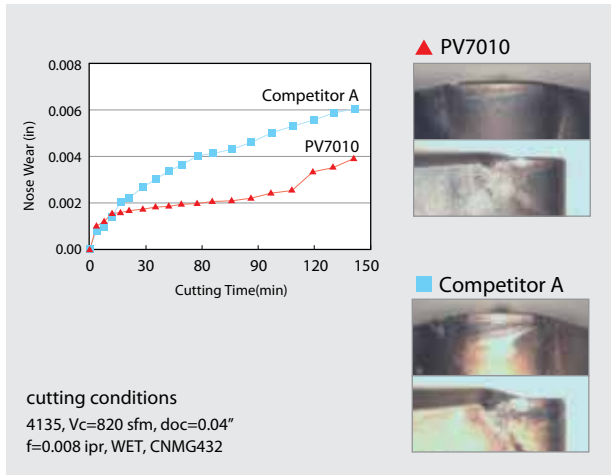
Achieves superior tool life and stable machining with two new technologies -- MEGACOAT coating and a special blended substrate composition

### Specially Structured Cermet

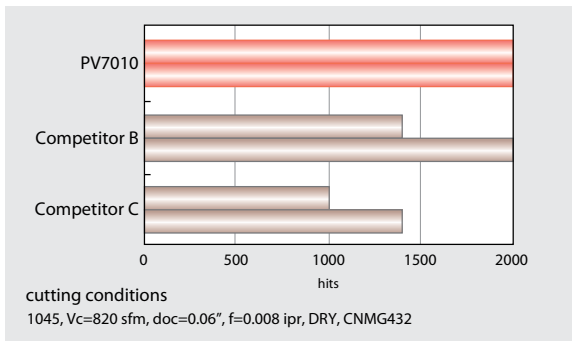
The specially blended substrate combines an increased wear resistant surface structure with an increased fracture resistant inner structure.



### Comparison of Wear Resistance



### Comparison of Fracture Resistance (Incremental increase of feedrate until breakage)



## Uncoated CERMET for Steel Machining

Cost effective performance in a non-coated cermet

# TN6010

### Features

- Specially blended substrate combining an increased wear resistant surface structure with an increased fracture resistant inner structure
- An uncoated cermet providing cost effective performance

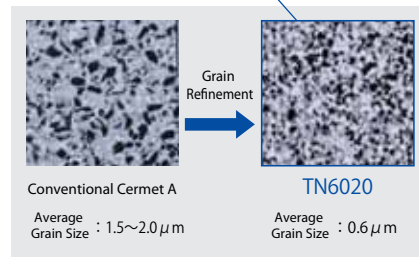
# TN6020

### Features

- Flexural strength equal to carbide grade, due to a high nitrogen content
- Super Micro-Grain Cermet (1.5 to 2 times of conventional Kyocera Cermet grade)
- Greatly improved reliability when cutting wet



### Super Micro-Grain Cermet



## Recommended Cutting Conditions

Workpiece material	Insert Grade (Vc: sfm)
	PV7025
Carbon Steel	600-800-1000
Alloy Steel	500-650-800

Workpiece material	Insert Grade (Vc: sfm)
	PV7010
Carbon Steel	650-850-1050
Alloy Steel	525-750-975

Workpiece material	Insert Grade (Vc: sfm)
	TN6010
Carbon Steel	600-725-900
Alloy Steel	525-650-825

Workpiece material	Insert Grade (Vc: sfm)
	TN6020
Carbon Steel	500-650-800
Alloy Steel	425-600-750

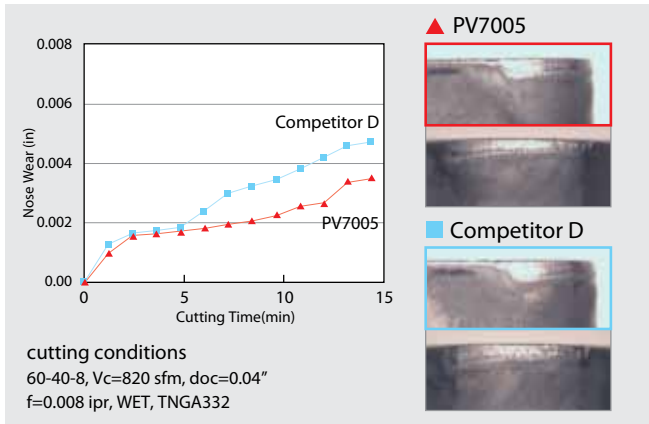
# PV7005

Features

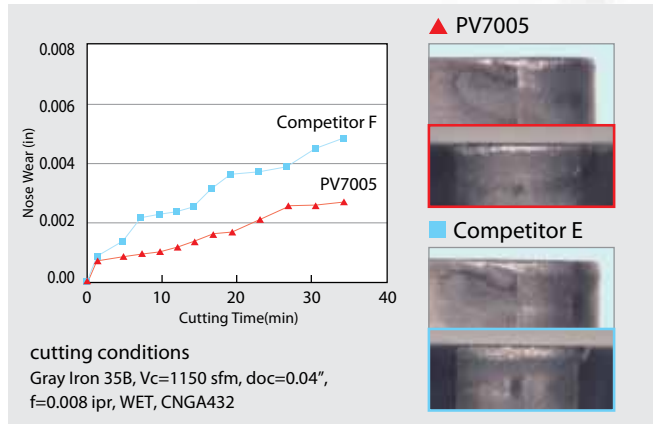
- Improved wear resistance for cast iron machining through the use of MEGACOAT coating technology
- Controls deterioration of the cutting edge due to progressive crater wear, enabling stable machining
- The substrate is a special TiC-TiN Cermet originally designed for cast iron machining



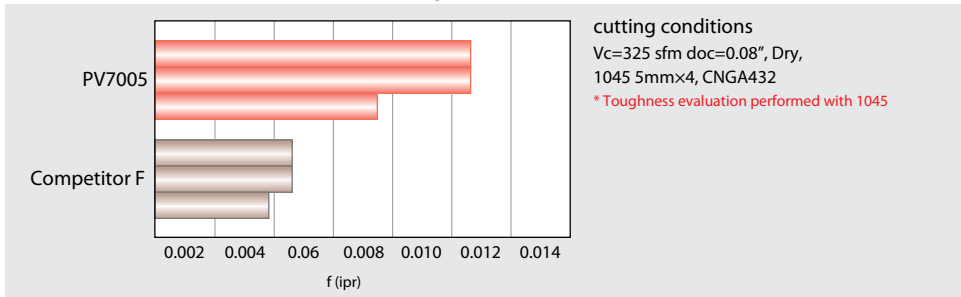
## Comparison of Wear Resistance (60-40-8)



## Comparison of Wear Resistance (Gray Iron, 35B)



## Comparison of Fracture Resistance (Incremental increase of feedrate until breakage)



## Recommended Cutting Conditions

Workpiece material	Insert Grade (Vc: sfm)
	PV7005
Gray Cast Iron	1000-1150-1300
Nodular Cast Iron	500-825-1000

## Case Studies

### Increased Tool Life

Sleeve  
AISI 4135  
doc=0.028" (external)  
doc=0.020" (facing)  
f=0.006 ipr (external)  
f=0.008 ipr (facing)  
Wet (internal coolant)  
• VNMG331VF (PV7010)

PV7010	70 pcs/edge
Competitor K(Cermet)	50 pcs/edge

PV7010 produced 1.4 times more workpieces compared with competitor K.

### Stable Tool Life

Input Shaft  
AISI 1043  
• Vc=650 ~ 725 sfm  
• doc=0.01" ~ 0.04"  
• f = 0.002 ~ 0.012 ipr  
• Wet (oil base)  
• VNMG332VF (PV7025)

PV7025	450 pcs/edge
Competitor L(Cermet)	Unstable 50~300 pcs/edge

PV7025 produced 1.5 ~ 9 times more workpieces compared with competitor L.

**Stock Items (Negative)**

















Insert	Description	Dimension (Inch)				Grades				
						PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	PV7005	PV7010	PV7025	TN6010	TN6020
	CNMG 431WP 432WP	1/2	3/16	0.203	1/64	●	●		●	
					1/32	●	●		●	
	CNMG 431WQ 432WQ 433WQ	1/2	3/16	0.203	1/64	●	●		●	
					1/32	●	●		●	
	CNMG 4305GP 431GP 432GP	1/2	3/16	0.203	0.008	●	●		○	
					1/64	●	●	○	●	
	CNMG 431HQ 432HQ	1/2	3/16	0.203	1/64	●	●	○	●	
					1/32	●	●	○	●	
	CNMG 431CQ 432CQ	1/2	3/16	0.203	1/64	●	●	○	○	
					1/32	●	●	○	○	
	CNMG 431PS 432PS 433PS	1/2	3/16	0.203	1/64	●	●	○		
					1/32	●	●	○		
	CNMG 431HS 432HS 433HS	1/2	3/16	0.203	1/64				●	
					1/32				●	
	CNMG 431 432 433	1/2	3/16	0.203	1/64	○	●	●	●	
					1/32	○	●	●	●	
	CNMG 431XP 432XP	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	CNMG 431XQ 432XQ	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	CNMG 432XS	1/2	3/16	0.203	1/32				○	
						○				
	CNGA 431 432	1/2	3/16	0.203	1/64	○			○	
					1/32				○	
	CNGG 431% 432%	1/2	3/16	0.203	1/64				○	
					1/32	●	●	○	●	
	DNMG 4305GP 431GP 432GP	1/2	3/16	0.203	0.008	●	●	○	●	
					1/64	●	●		●	
	DNMG 4405GP 441GP 442GP	1/2	1/4	0.203	0.008	●		○		
					1/64	●		○	●	
	DNMG 431HQ 432HQ 433HQ	1/2	3/16	0.203	1/64	●	●	○	●	
					1/32		○		●	
	DNMG 441HQ 442HQ 443HQ	1/2	1/4	0.203	1/64	●		○		
					1/32	●		○		
	DNMG 431CQ 432CQ 433CQ	1/2	3/16	0.203	1/64	●		○	○	
					1/32		○		○	
	DNMG 441CQ	1/2	1/4	0.203	1/64	●				
						●				


















Insert	Description	Dimension (Inch)				Grades				
						PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	PV7005	PV7010	PV7025	TN6010	TN6020
	DNMG 431PS 432PS 433PS	1/2	3/16	0.203	1/64	●	●	○		
					1/32	●	●	○		
					3/64		○			
	DNMG 441PS 442PS 443PS	1/2	1/4	0.008	1/64	●		○		
					1/32	●		○		
					3/64	●		○		
	DNMG 431HS 432HS 433HS	1/2	3/16	0.008	1/64				●	
					1/32				●	
	DNMG 431 432	1/2	3/16	0.203	1/64				●	
					1/32	○			●	
	DNMG 431XP 432XP	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	DNMG 431XQ 432XQ	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	DNMG 432XS	1/2	3/16	0.203	1/32			●	○	
	DNGG 431% 432%	1/2	3/16	0.203	1/64	○			○	
					1/32	○			○	
	RNMG 32 RNMG 43	3/8	1/8	0.150	-	○				
						○				
	SNMG 431HQ 432HQ 433HQ	1/2	3/16	0.203	1/64	●	●	○	○	
					1/32	●	●	○	●	
	SNMG 432PS 433PS	1/2	3/16	0.203	1/32	●	●	○		
					3/64		○			
	SNMG 432HS 433HS 434HS	1/2	3/16	0.203	1/32				○	
					3/64				○	
	SNMG 431 432 433 434	1/2	3/16	0.203	1/64	○			●	
					1/32	○			●	
	SNMG 432XP 432XQ	1/2	3/16	0.203	1/32	●	●		○	
					1/32	●	●		○	
	SNMG 432XS	1/2	3/16	0.203	1/32			●	○	
	SNGA 432	1/2	3/16	0.203	1/32	○				
						○				
	SNGG 321%-B 431%-C 432%-C	3/8	1/8	0.150	1/64	○				
					1/32	○				

●: Stock Standard  
○: World Express



Stock Items (Negative)

Insert	Description	Dimension (Inch)				Grades				
						PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	PV7005	PV7010	PV7025	TN6010	TN6020
	TNMG 331DP 332DP	3/8	3/16	0.150	1/64		○		○	
					1/32		○		○	
	TNMG 3305GP 331GP 332GP	3/8	3/16	0.150	0.008	●	●	○	●	
					1/64	●	●	○	●	
	TNMG 331HQ 332HQ 333HQ	3/8	3/16	0.150	1/64	●	●	○	●	
					1/32	●	●	○	●	
	TNMG 331CQ 332CQ 333CQ	3/8	3/16	0.150	1/64	●	●	○	○	
					1/32	●	●	○	●	
	TNMG 331PS 332PS	3/8	3/16	0.150	1/64	●	●	○		
					1/32	●	●	○		
	TNMG 331HS 332HS 333HS	3/8	3/16	0.150	1/64				●	
					1/32				●	
	TNMG 331 332 333	3/8	3/16	0.150	1/64	○	●	●	●	
					1/32	○	●	●	●	
	TNMG 331XP 332XP	3/8	3/16	0.150	1/64	●	●	○		
					1/32	●	●	○		
	TNMG 331XQ 332XQ	3/8	3/16	0.150	1/64	●	●	○		
					1/32	●	●	○		
	TNMG 332XS	3/8	3/16	0.150	1/32		●	○		
	TNGA 331 332	3/8	3/16	0.150	1/64	○				
					1/32	○				
	TNGG 3302 <sup>PK</sup> -S 3305 <sup>PK</sup> -S 331 <sup>PK</sup> -S 332 <sup>PK</sup> -S	3/8	3/16	0.150	0.004					
					0.008	○	○	○	○	
					1/64	○	○	○	○	
					1/32	○	○	○	○	
	TNEG 3305 <sup>PK</sup> -SSF 331 <sup>PK</sup> -SSF	3/8	3/16	0.150	0.008				●	
					1/64				○	
	TNGG 3305 <sup>PK</sup> -B 331 <sup>PK</sup> -B	3/8	3/16	0.150	0.008	●	○	○	○	
					1/64	○	●	○	○	
	TNGG 3305 <sup>PK</sup> -C 331 <sup>PK</sup> -C 332 <sup>PK</sup> -C 333 <sup>PK</sup> -C 334 <sup>PK</sup> -C	3/8	3/16	0.150	0.008		○		○	
					1/64	○	●	○	○	
					1/32	○	●	○	○	
	TNGG 431 <sup>PK</sup> -C 432 <sup>PK</sup> -C	1/2	3/16	0.008	1/64	○			●	
1/32					○			○		
	TNMG 331 <sup>PK</sup> -C 332 <sup>PK</sup> -C	3/8	3/16	0.150	1/64	○	●	○	○	
					1/32	○	●	○	○	
	TNGG 331 <sup>PK</sup> -25R 332 <sup>PK</sup> -25R	3/8	3/16	0.150	1/64				○	
					1/32				○	

Insert	Description	Dimension (Inch)				Grades				
						PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	PV7005	PV7010	PV7025	TN6010	TN6020
	VNMG 3305GP 331GP 332GP	3/8	3/16	0.150	0.008	●	●	○	●	
					1/64	●	●	○	●	
	VNMG 331VF 332VF 333VF	3/8	3/16	0.150	1/64	●	●	○	●	
					1/32	●	●	○	●	
	VNMG 331HQ 332HQ 333HQ	3/8	3/16	0.150	1/64	●	●	○	●	
					1/32	●	●	○	●	
	VNMG 331 332	3/8	3/16	0.150	1/64		●		●	
					1/32	○	●		●	
	VNGG 3305 <sup>PK</sup> 331 <sup>PK</sup> 332 <sup>PK</sup>	3/8	3/16	0.150	0.008			○	○	
					1/64			○	○	
	VNGA 331 332	3/8	3/16	0.150	1/64	○				
					1/32	○				
	WNMG 431WP 432WP	1/2	3/16	0.203	1/64	●	●	○	●	
					1/32	●	●		●	
	WNMG 431WQ 432WQ 433WQ	1/2	3/16	0.203	1/64	●	●	○	●	
					1/32	●	●		●	
	WNMG 431GP 432GP	1/2	3/16	0.203	1/64	●	●	○	○	
					1/32	●	●	○	○	
	WNMG 431HQ 432HQ 433HQ	1/2	3/16	0.203	1/64	●	●	○	●	
					1/32	●	●	○	●	
	WNMG 431CQ 432CQ 433CQ	1/2	3/16	0.203	1/64	●	●	○	○	
					1/32	●	●	○	○	
	WNMG 431PS 432PS	1/2	3/16	0.203	1/64	●	●	○		
					1/32	●	●	○		
	WNMG 431HS 432HS 433HS	1/2	3/16	0.203	1/64				○	
					1/32				●	
	WNMG 432	1/2	3/16	0.203	1/32	○				
	WNMG 431XP 432XP	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	WNMG 431XQ 432XQ	1/2	3/16	0.203	1/64	●	●		○	
					1/32	●	●		○	
	WNMG 432XS	1/2	3/16	0.203	1/32		●		○	










●: Stock Standard  
○: World Express












Stock Items (Positive)

Insert	Description	Dimension (Inch)					Grades				
							PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	Relief Angle	PV7005	PV7010	PV7025	TN6010	TN6020
	CCMT 21505GK 2151GK	1/4	3/32	0.110	0.008 1/64	7°	●	●	○	○	
	CCMT 32505GK 3251GK	3/8	5/32	0.173	0.008 1/64	7°	●	●	○	○	
	CCMT 431GK 432GK	1/2	3/16	0.217	1/64 1/32	7°	●	●	○	○	
	Finishing-Medium										
	CCMT 21505HQ 2151HQ	1/4	3/32	0.110	0.008 1/64	7°	●	●	○	●	
	CCMT 32505HQ 3251HQ 3252HQ	3/8	5/32	0.173	0.008 1/64 1/32	7°	●	●	○	●	
	Finishing-Medium										
	CCGT 21502 21505 2151	1/4	3/32	0.110	0.004 0.008 1/64	7°		●	○	●	
	CCGT 32502 32505 3251	3/8	5/32	0.173	0.004 0.008 1/64	7°		●	○	●	
	Medium cutting										
	CCGT 110902% 110905% 11091%	0.138	0.055	0.075	0.004 0.008 1/64	7°			○		
	CCGT 141102% 141105% 14111%	0.169	0.071	0.091	0.004 0.008 1/64	7°			○		
	Finishing										
	CCGT 21502F% 21505F% 32502F% 32505F%	1/4	3/32	0.110	0.004 0.008 0.004 0.008	7°				○	
	Low Feed/Sharp Edge										
	CCGT 21505E% 2151E% 32505E% 3251E%	1/4	3/32	0.110	0.008 1/64 0.008 1/64	7°				○	
	Low Feed/With Honing										
	CPMT 25151GP 321GP 322GP	5/16	3/32	0.130	1/64 1/64 1/32	11°	●	●	○	○	
	Finishing										
	CPMH 25151HQ 25152HQ	5/16	3/32	0.138	1/64 1/32	11°	●	●	○	●	
	Finishing-Medium										
	CPMH 25151 25152	5/16	3/32	0.138	1/64 1/32	11°	○	●	○	●	
	Medium cutting										
	CPMT 25151XP 321XP 322XP	5/16	3/32	0.130	1/64 1/64 1/32	11°	●	●	○	○	
	Low Carbon Steel Finishing										
	CPMT 321XQ 322XQ	3/8	1/8	0.173	1/64 1/32	11°	●	●	○	○	
	Low Carbon Steel Medium Finishing										
	CPMH 25151%-Y 321%-Y	5/16	3/32	0.138	1/64	11°				L	
	Finishing-Medium										
	DCMT 21505GP 2151GP	1/4	3/32	0.110	0.008 1/64	7°	●	●	○	○	
	DCMT 3251GP 3252GP	3/8	5/32	0.173	1/64 1/32	7°	●	○	○	●	
	Finishing										
	DCMT 21505GK 2151GK 2152GK	1/4	3/32	0.110	0.008 1/64 1/32	7°	●	●	○	○	
	DCMT 32504GK 3251GK 3252GK	3/8	5/32	0.173	0.008 1/64 1/32	7°	●	●	○	○	
	Finishing-Medium										

Insert	Description	Dimension (Inch)					Grades				
							PVD Cermet			Cermet	
		I.C.	T	Hole	Corner - R	Relief Angle	PV7005	PV7010	PV7025	TN6010	TN6020
	DCMT 21505HQ 2151HQ 2152HQ	1/4	3/32	0.110	0.008 1/64 1/32	7°	●	●	○	●	
	DCMT 32505HQ 3251HQ 3252HQ	3/8	5/32	0.173	0.008 1/64 1/32	7°	●	●	○	●	
	Finishing-Medium										
	DCGT 21502 21505 2151	1/4	3/32	0.110	0.004 0.008 1/64	7°				●	
	DCGT 32505 3251	3/8	5/32	0.173	0.008 1/64	7°				●	
	DCMT 3252	3/8	5/32	0.173	1/32	7°				○	
	Medium cutting										
	DCMT 2151XP 32505XP 3251XP 3252XP	1/4	3/32	0.110	0.008 1/64 1/32	7°	●	●	○	○	
	Low Carbon Steel Finishing										
	DCMT 3251XQ 3252XQ	3/8	5/32	0.173	1/64 1/32	7°	●	●		●	
	Low Carbon Steel Medium Finishing										
	DCGT 21502F%-U 21505F%-U	1/4	3/32	0.110	0.004 0.008	7°				●	
	DCGT 32505F%-U	3/8	5/32	0.173	0.008	7°				●	
	Low Feed/Sharp Edge										
	DCGT 21505E%-U 2151E%-U 32505E%-U 3251E%-U	1/4	3/32	0.110	0.008 1/64 0.008 1/64	7°				○	
	Low Feed/With Honing										
	DCGT 3251E%-J	3/8	5/32	0.173	1/64	7°				○	
	Low Feed/With Honing										
	RCMX 1003M0 RCMX 43M0	0.394	1/8	0.142	-	7°				●	
	Medium cutting										
	SCMT 3251HQ 3252HQ	3/8	5/32	0.173	1/64 1/32	7°	●		○		
	Finishing-Medium										
	SPGR 321% 322%	3/8	1/8	-	1/64	11°	○				
	Finishing										
	SPG 321 322 421 422	3/8	1/8	-	1/64 1/32	11°	○				
	Without Chipbreaker										
	TBMT 12105DP 1211DP	5/32	1/16	0.091	0.008 1/64	5°		○	○	○	
	Finishing										
	TBGT 12105% 1211%	5/32	1/16	0.091	0.008 1/64	5°		L	L	L	
	Finishing										
	TCMT 181505HQ 18151HQ	7/32	3/32	0.094	0.008 1/64	7°	●	●	○		
	TCMT 21505HQ 2151HQ 2152HQ	1/4	3/32	0.110	0.008 1/64 1/32	7°	●	●	○		
	TCMT 3251HQ 3252HQ	3/8	5/32	0.173	1/64 1/32	7°		○			
	Finishing-Medium										
	TCGT 151505F%-U 2205F%-U	3/16	3/32	0.091	0.008	7°				R	
	Low Feed/Sharp Edge										
	TCGT 2202E%-U 2205E%-U 221E%-U	1/4	1/8	0.110	0.004 0.008 1/64	7°				○	
	Low Feed/With Honing										

**Stock Items (Positive)**

Insert	Description	Dimension (Inch)					Grades				
							PVD Cermet			Cermet	
		I.C.	T	Hole	Cor- ner - R	Relief Angle	PV7005	PV7010	PV7025	TN6010	TN6020
	TPMT 181505GP 18151GP	7/32	3/32	0.118	0.008 1/64	11°	●	●	○	○	
	TPMT 221GP 222GP	1/4	1/8	0.138	1/64 1/32	11°	●	●	○	●	
	TPMT 321GP	3/8	1/8	0.173	1/64	11°	●	●	○	○	
	TPMT 181505HQ 18151HQ	7/32	3/32	0.118	0.008 1/64	11°	●	●	○	○	
	TPMT 2205HQ 221HQ	1/4	1/8	0.138	0.008 1/64	11°	●	●	○	○	
	TPMT 222HQ				1/32		●	○	○	●	
	TPMT 321HQ 322HQ	3/8	1/8	0.173	1/64 1/32	11°	●	●	○	○	
	TPMT 18151XP	7/32	3/32	0.118	1/64	11°	●	●		○	
	TPMT 221XP 222XP	1/4	1/8	0.138	1/64 1/32	11°	●	●	○	○	
	TPMT 321XP 322XP	3/8	1/8	0.173	1/64 1/32	11°	●	●		○	
	TPMT 221XQ 222XQ	1/4	1/8	0.138	1/64 1/32	11°	●	●		○	
	TPMT 321XQ 322XQ	3/8	1/8	0.173	1/64 1/32	11°	●	●		○	
	TPGH 151505%L 15151%L	3/16	3/32	0.095	0.008 1/64	11°	○	●	○	○	
	TPGH 181505%L 18151%L	7/32	3/32	0.118	0.008 1/64	11°	○	○	○	○	
	TPGH 21505%L 2151%L	1/4	3/32	0.138	0.008 1/64	11°	○		○		
	TPGH 2205%L 221%L	1/4	1/8	0.138	0.008 1/64	11°	○	○	○	○	
	TPGH 222%L				1/32		○		○	○	
	TPGH 3205%L 321%L 322%L	3/8	1/8	0.173	1/64 1/32	11°	○	○	○	○	
	TPGH 2205%L-H 221%L-H 222%L-H	1/4	1/8	0.138	0.008 1/64 1/32	11°			○	○	
	TPGH 321%L-H	3/8	1/8	0.173	1/64	11°			○	○	
	TPGB 151505 15151	3/16	3/32	0.095	0.008 1/64	11°		●		○	
	TPGB 18151	7/32	3/32	0.118	1/64	11°	○	●		○	
	TPGB 2205 221	1/4	1/8	0.138	0.008 1/64	11°	○	●		○	
	TPGB 222				1/32		○	●		○	
TPGB 321	3/8	1/8	0.173	1/64	11°	○			○		
	TPMR 221GP	1/4	1/8	-	1/64	11°				○	
	TPMR 321GP	3/8	1/8	-	1/64	11°				○	
	TPMR 321HQ 322HQ	3/8	1/8	-	1/64 1/32	11°	●		○		
	TPMR 321 322	3/8	1/8	-	1/64 1/32	11°	○	●		○	

Insert	Description	Dimension (Inch)					Grades				
							PVD Cermet			Cermet	
		I.C.	T	Hole	Cor- ner - R	Relief Angle	PV7005	PV7010	PV7025	TN6010	TN6020
	TPGR 2205%L-A 221%L-A	1/4	1/8	-	0.008 1/64	11°	○			○	
	TPGR 221%L-B	1/4	1/8	-	1/64	11°				●	
	TPGR 3205%L-B 321%L-B 322%L-B	3/8	1/8	-	0.008 1/64 1/32	11°	○	●		○	
	TPGR 321%L-C 322%L-C	3/8	1/8	-	1/64 1/32	11°	○	○	○	○	
	TPGN 221 222	1/4	1/8	-	1/64 1/32	11°	○				
	TPGN 321 322	3/8	1/8	-	1/64 1/32	11°	○				
	VBMT 221GP	1/4	1/8	0.118	1/64	5°		●	●	○	
	VBMT 331GP 332GP	3/8	3/16	0.173	1/64 1/32	5°		●	●	○	
	VBMT 2205VF 221VF 222VF	1/4	1/8	0.118	0.008 1/64 1/32	5°		●	●	○	
	VBMT 3305VF 331VF 332VF	3/8	3/16	0.173	1/64 1/32	5°		●	●	○	
	VBMT 333VF				3/64			●	●	○	
	VBMT 221HQ 222HQ	1/4	1/8	0.118	1/64 1/32	5°		●	●	○	
	VBMT 331HQ 332HQ 333HQ	3/8	3/16	0.173	1/64 1/32 3/64	5°		●	●	○	
	VBGT 2205%L-F	1/4	1/8	0.118	0.008	5°			○	○	
	VBGT 2205%L-Y 221%L-Y	1/4	1/8	0.118	0.008 1/64	5°			○	○	
	VBGT 3305%L-Y 331%L-Y	3/8	3/16	0.173	0.008 1/64	5°			○	○	
	VCMT 151505VF 15151VF	3/16	3/32	0.095	0.008 1/64	7°		●	●	○	
	VCMT 151505HQ 15151HQ	3/16	3/32	0.095	0.008 1/64	7°		●	●	○	
	WBMT 12105%L-DP 1211%L-DP	5/32	1/16	0.095	0.008 1/64	5°		●	○	○	
	WBMT 151505%L-DP 15151%L-DP	3/16	3/32	0.095	0.008 1/64	5°		●	●	○	
	WBGT 12105%L-F 1211%L-F	5/32	1/16	0.095	0.008 1/64	5°			○	○	
	WBGT 151505%L-F 15151%L-F	3/16	3/32	0.095	0.008 1/64	5°		●	○	○	
	WPMT 2151HQ	1/4	3/32	0.118	1/64	11°		●	●	○	
	WPMT 321HQ 322HQ	3/8	1/8	0.173	1/64 1/32	11°		●	●	○	
	WPGT 2151%L-Y	1/4	3/32	0.118	1/64	11°				○	
	WPGT 321%L-Y	3/8	1/8	0.173	1/64	11°				○	

●: Stock Standard  
○: World Express

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