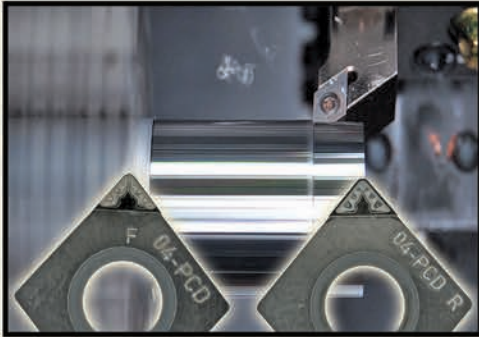


# Spring into Savings!

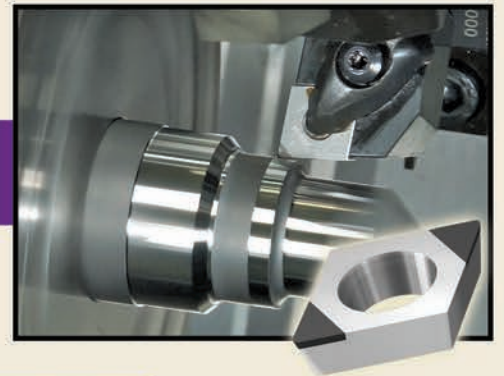
Expires 06/30/2024

## Innovative Solutions for High Productivity



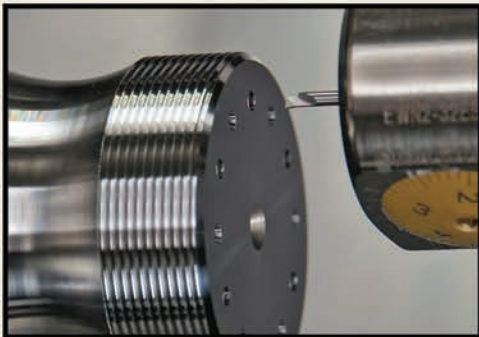
**PCD / CVD-D Inserts  
with Laser Chipbreakers**

Page 2



**Multi-Tipped CBN Inserts**

Page 6



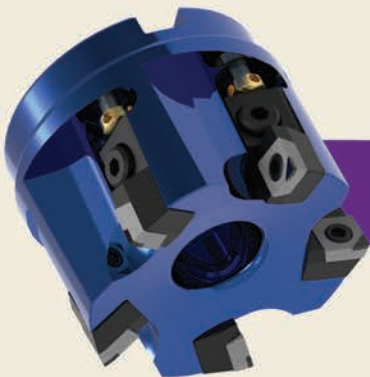
**PCD / CVD-D / CBN  
Tipped Boring Bars**

Page 10



**Micro-Line Grooving System**

Page 14



**High Speed Milling with PCD / CBN**

Page 18

**RTC** *Rani Tool Corp.*



**DTS GmbH**

Diamond Tooling Systems

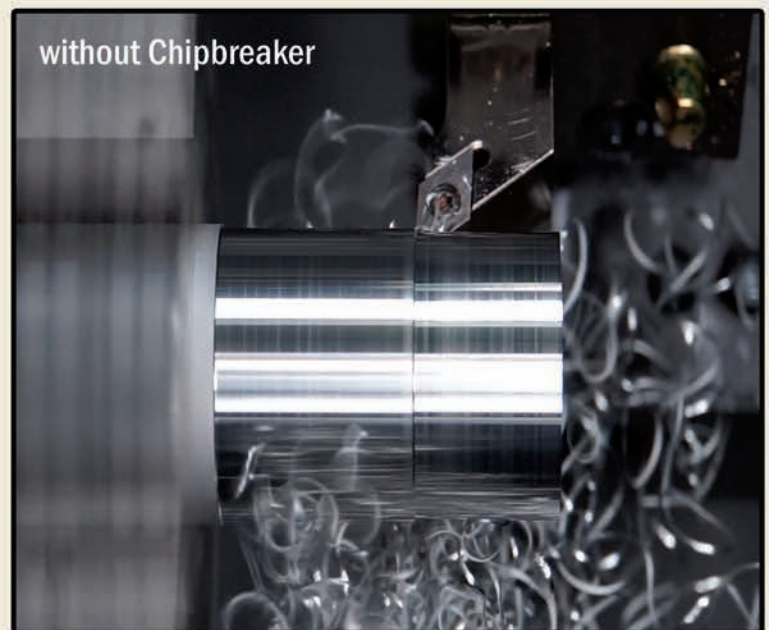
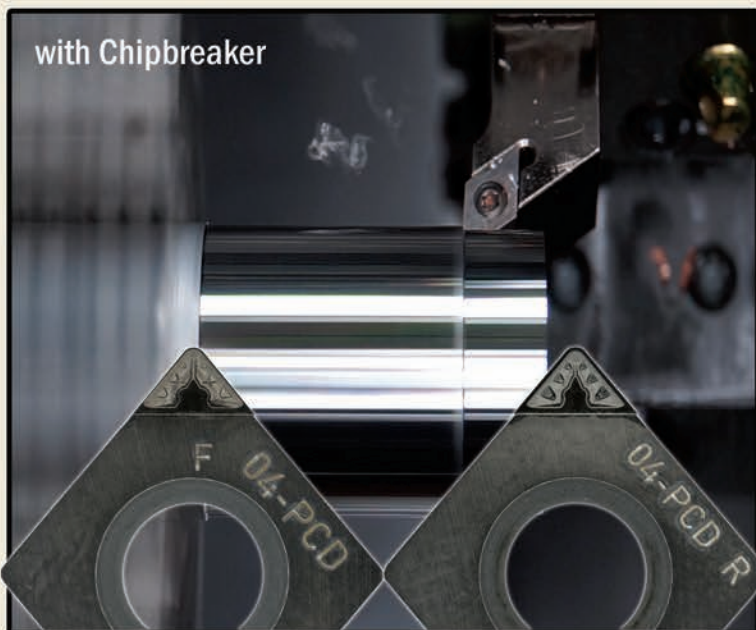


PASSION FOR DIAMOND

# CVD-D & PCD Chipbreaker Program

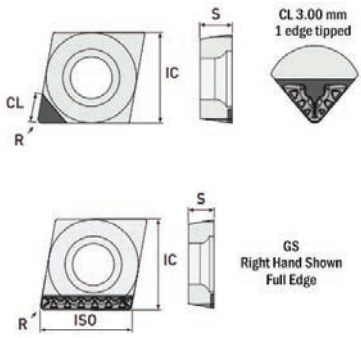
## Introducing 2 Brand New Lasered Chipbreakers

- Over 250 new line items
- Greatly expanded offering of full edge inserts with chipbreakers
- PCD and CVD-D binderless diamond
- Wipers available for 80° and 55° inserts for up to 2 to 4 times higher feed rates with good surface finishes
- Can be used in smooth and interrupted cutting
- CBF chipbreaker has sharp cutting edges and produces minimal cutting pressure on thin-walled parts
- CBR chipbreaker has a landed edge for strength and produces excellent part finishes

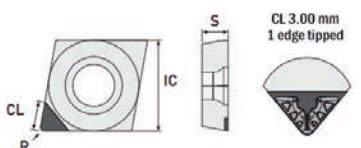


# CVD-D & PCD Chipbreaker Program

## CCGT Positive Rake Angle

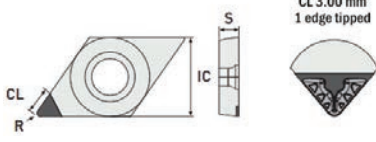
	Designation	IC	S	r	PCD		CVD-D		CL	PDC	PDC-S	PDC-CU-S
					CBF	CBR	CBF	CBR		CB1	CB2	CB3
	CCGT-21.50.5			.008	\$67	\$67	\$94	\$94				
	CCGT-21.50.5L-GS			.008	\$107	\$107	\$159	\$159				
	CCGT-21.50.5R-GS			.008	\$107	\$107	\$159	\$159				
	CCGT-21.50.5W			.008	\$67	\$67						
	CCGT-21.51			.016	\$67	\$67	\$94	\$94				
	CCGT-21.51L-GS	.250	.094	.016	\$107		\$159	\$159				
	CCGT-21.51R-GS			.016	\$107	\$107	\$159	\$159				
	CCGT-21.51W			.016	\$67	\$67						
	CCGT-21.52			.031	\$67	\$67	\$94	\$94				
	CCGT-21.52L-GS			.031	\$107	\$107	\$159	\$159				
	CCGT-21.52R-GS			.031	\$107	\$107	\$159	\$159				
	CCGT-32.50.5			.008	\$67	\$67	\$94	\$94	.177	\$80		
	CCGT-32.50.5W			.008	\$67	\$67			.177		\$80	
	CCGT-32.51			.016	\$67	\$67	\$94	\$94		\$80	\$80	\$80
	CCGT-32.51L-GS			.016	\$113	\$113	\$173	\$173				
	CCGT-32.51R-GS			.016	\$113	\$113	\$173	\$173				
	CCGT-32.51W	.375	.156	.016	\$67	\$67						
	CCGT-32.52			.031	\$67	\$67	\$94	\$94	.161		\$80	\$80
	CCGT-32.52L-GS			.031	\$113	\$113	\$173	\$173				
	CCGT-32.52R-GS			.031	\$113	\$113	\$173	\$173				
	CCGT-32.52W			.031	\$67	\$67						
	CCGT-430.5			.008	\$67	\$67	\$94	\$94				
	CCGT-430.5W			.008	\$67	\$67						
	CCGT-431			.016	\$67	\$67	\$94	\$94				
	CCGT-431L-GS			.016	\$127	\$127	\$186	\$186				
	CCGT-431R-GS			.016	\$127	\$127	\$186	\$186				
	CCGT-431W	.500	.187	.016	\$67	\$67						
	CCGT-432			.031	\$67	\$67	\$94	\$94	.161	\$80	\$80	
	CCGT-432L-GS			.031	\$127	\$127	\$186	\$186				
	CCGT-432R-GS			.031	\$127	\$127	\$186					
	CCGT-432W			.031	\$67	\$67						

## CPGT Positive Rake Angle • Edge Tipped

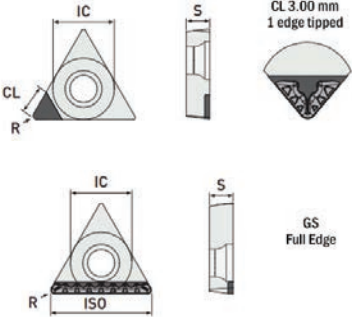
	Designation	IC	S	r	PCD		CVD-D		CL	PDC	PDC-S	PDC-CU-S
					CBF	CBR	CBF	CBR		CB1	CB2	CB3
	CPGT-21.50.5			.008	\$67	\$67	\$94	\$94				
	CPGT-21.51	.250	.094	.016	\$67	\$67	\$94	\$94				
	CPGT-21.52			.031	\$67	\$67	\$94	\$94				
	CPGT-32.50.5			.008	\$67	\$67	\$94	\$94				
	CPGT-32.51	.375	.156	.016	\$67	\$67	\$94	\$94				
	CPGT-32.52			.031	\$67	\$67	\$94	\$94				
	CPGT-431	.500	.187	.016	\$67	\$67	\$94	\$94				
	CPGT-432			.031	\$67	\$67	\$94	\$94				

# CVD-D & PCD Chipbreaker Program

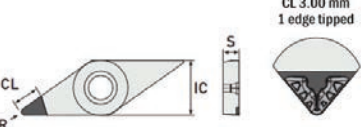
## DCGT Positive Rake Angle • Edge Tipped

	Designation	IC	S	r	PCD		CVD-D		CL	PDC	PDC-S	PDC-CU-S
					CBF	CBR	CBF	CBR		CB1	CB2	CB3
	DCGT-21.50.5	.250	.094	.008	\$67	\$67	\$94	\$94	.146	\$80		
	DCGT-21.50.5W			.008	\$67	\$67	\$94	\$94				
	DCGT-21.51			.016	\$67	\$67	\$94	\$94				
	DCGT-21.51W			.016	\$67	\$67	\$94	\$94				
	DCGT-21.52			.031	\$67	\$67	\$94	\$94				
	DCGT-21.52W			.031	\$67	\$67	\$94	\$94				
	DCGT-32.50.5	.375	.156	.008	\$67	\$67	\$94	\$94	.185	\$80	\$80	
	DCGT-32.50.5W			.008	\$67	\$67	\$94	\$94				
	DCGT-32.51			.016	\$67	\$67	\$94	\$94	.169	\$80	\$80	\$80
	DCGT-32.51W			.016	\$67	\$67	\$94	\$94				
	DCGT-32.52			.031	\$67	\$67	\$94	\$94				
	DCGT-32.52W			.031	\$67	\$67	\$94	\$94				

## TCGT Positive Rake Angle

	Designation	IC	S	r	PCD		CVD-D		CL	PDC	PDC-S	PDC-CU-S
					CBF	CBR	CBF	CBR		CB1	CB2	CB3
	TCGT-1.81.50.5	.219	.094	.008	\$67	\$67						
	TCGT-1.81.50.5-GS			.008	\$113	\$113						
	TCGT-1.81.51			.016	\$67	\$67						
	TCGT-1.81.51-GS			.016	\$113	\$113						
	TCGT-1.81.52			.031	\$67	\$67						
	TCGT-1.81.52-GS			.031	\$113	\$113						
	TCGT-21.50.5	.250	.094	.008	\$67	\$67						
	TCGT-21.50.5-GS			.008	\$113	\$113						
	TCGT-21.51			.016	\$67	\$67						
	TCGT-21.51-GS			.016	\$113	\$113						
	TCGT-21.52			.031	\$67	\$67						
	TCGT-21.52-GS			.031	\$113	\$113						
	TCGT-32.50.5	.375	.156	.008	\$67	\$67						
	TCGT-32.50.5-GS			.008	\$146	\$146						
	TCGT-32.51			.016	\$67	\$67						
	TCGT-32.51-GS			.016	\$146	\$146						
	TCGT-32.52			.031	\$67	\$67						
	TCGT-32.52-GS			.031	\$146	\$146						

## VBGT\* / VCGT\*\* Positive Rake Angle

	Designation	IC	S	r	PCD		CVD-D		CL	PDC	PDC-S	PDC-CU-S
					CBF	CBR	CBF	CBR		CB1	CB2	CB3
	VBGT-330.5	.375	.187	.008					.232	\$102		
	VBGT-331			.016					.216	\$102		
	VCGT-1.21.50.5	.156	.094	.008	\$85	\$85	\$94	\$94				
	VCGT-1.21.51			.016	\$85	\$85	\$94	\$94				
	VCGT-1.21.52			.031	\$85	\$85	\$94	\$94				
	VCGT-220.5	.250	.125	.008	\$85	\$85	\$94	\$94				
	VCGT-221			.016	\$85	\$85	\$94	\$94				
	VCGT-222			.031	\$85	\$85	\$94	\$94				
	VCGT-330.5	.375	.187	.008	\$85	\$85	\$94	\$94				
	VCGT-331			.016	\$85	\$85	\$94	\$94				
	VCGT-332			.031	\$85	\$85	\$94	\$94	.216		\$102	

\* VBGT inserts have 5-degree side rake, \*\* VCGT inserts have 7-degree side rake

# Technical Information

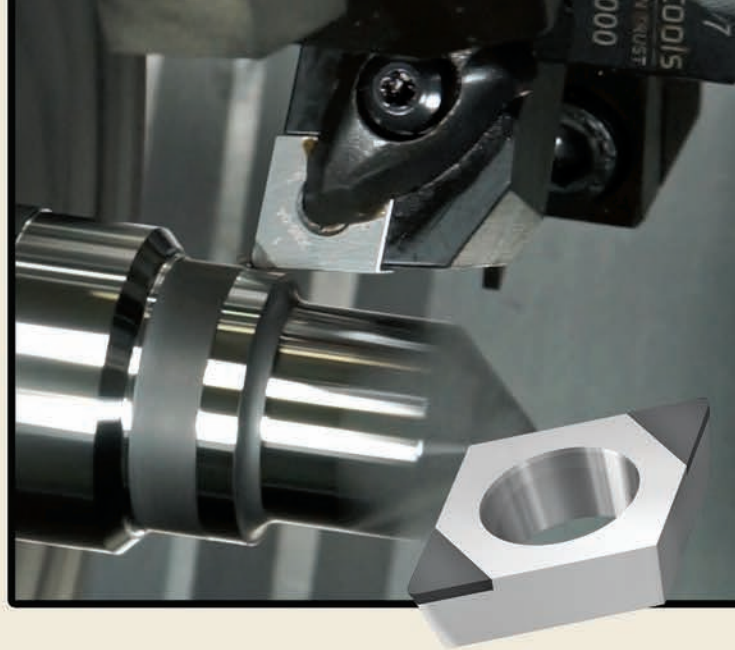
Grade	Description	Application
<b>PCD / PDC / PDC-S / PDC-CU-S</b>	Polycrystalline diamond is a synthetically produced product that is an extremely tough, intergrown mass of diamond particles with random orientation in a metal matrix. Polycrystalline grades have high thermal conductivity and provide good heat dissipation away from the cutting edge.	These grades are well suited for machining aluminum with Si content up to 10% and other abrasive fillers. Used in all non-ferrous applications.
<b>CVD-D</b>	CVD-D is one of the hardest man-made diamond cutting materials. Due to the lack of bonding matrix CVD-D has a much higher content than the polycrystalline diamond grades. Tool life can be up to 10 times that of other PCD style grades.	For the machining of hard brittle materials such as ceramics, glass, glass ceramics, tungsten carbide, MMC and fiber reinforced composites such as CFRP and GFRP.

## Chipbreaker Cutting Information

Chipbreaker Designation	Description	Nose Radius	D.O.C Min - Max	Feed per Rev. Min - Max
<b>CBF / CB1</b>	Finish to medium finish machining with low cutting forces due to the sharp cutting edge. Burr free machining is possible and produces exceptional surface finishes.	.008"	.0004" - .110"	.0008" - .004"
		.016"	.0004" - .110"	.0015" - .008"
		.031"	.0004" - .110"	.002" - .016"
		.047"	.0004" - .110"	.002" - .024"
<b>CBR / CB2</b>	General purpose machining. Strong cutting edge for higher depths of cut and feed rates while producing high surface quality.	.008"	.002" - .110"	.001" - .004"
		.016"	.0023" - .110"	.001" - .008"
		.031"	.003" - .110"	.0023" - .016"
		.047"	.004" - .110"	.003" - .023"
<b>CB3</b>	Wave design chipbreaker generates constant chip breaking during the roughing process. Only for thick walled workpieces under stable conditions.	.016"	.040" - .110"	.008" - .010"
		.031"	.040" - .110"	.008" - .015"

## Speed Information

Materials	CVD-D ( Vc: SFM )	PCD ( Vc:SFM )
Non-Ferrous metals, aluminum alloys without silicon	1600 - 15000	1300 - 8000
Non-Ferrous metals, aluminum alloys with less than 12% silicon	1300 - 11000	1300 - 6500
Non-Ferrous metals, aluminum alloys with more than 12% silicon	1300 - 6000	
Brass, bronze, copper, copper alloys, precious metals	1300 - 7000	975 - 5800
Non-metallics, pure plastics without reinforcements	1300 - 6000	975 - 3900
Non-metallics, plastics with reinforcements	650-4500	

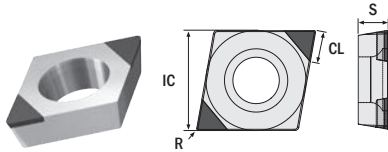


# 12 Brand New CBN Grades greatly expanding our already impressive product offering!

- Over 1,000 New line items
- Grades for hard steel, powdered metal, hi-temp alloys
- Grey & ductile cast iron
- Smooth and highly interrupted cut
- Multiple cutting edges on each insert

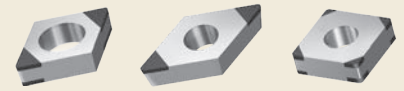
## CCGW Edge Tipped

Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
CCGW-21.50-2	.250	.094	.118	.004	■					■							\$53.50	
CCGW-21.50.5-2				.008	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-21.51-2				.016	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-21.52-2				.031	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-32.50-2	.375	.156	.118	.004	■					■								
CCGW-32.50.5-2				.008	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-32.50.5W-2				.008								■	■	■	■	■		■
CCGW-32.51-2				.016	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-32.51W-2				.016	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-32.52-2				.031	■	■	■	■	■	■	■	■	■	■	■	■		■
CCGW-32.52W-2	.031	■	■	■	.031	■	■	■	■	■	■	■	■	■	■			
CCGW-430.5-2	.500	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■		
CCGW-431-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
CCGW-431W-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
CCGW-432-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
CCGW-432W-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
CCGW-433-2				.047	■	■	■	■	■	■	■	■	■	■	■	■	■	
CCGW-433W-2				.047	■	■	■	■	■	■	■	■	■	■	■	■	■	

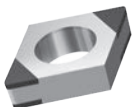
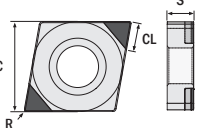


Insert with 2 CBN Tips

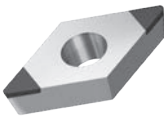
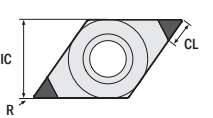
# CBN Program



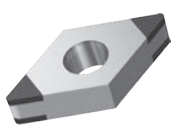
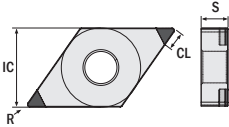
## CNGA Edge Tipped

  Insert with 4 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	CNGA-430.5-4	.500	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	\$79.50
	CNGA-430.5W-4	.500	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-431-4	.500	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-431W-4	.500	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-432-4	.500	.187	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-432W-4	.500	.187	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-433-4	.500	.187	.118	.047	■	■	■	■	■	■	■	■	■	■	■	■		
	CNGA-433W-4	.500	.187	.118	.047	■	■	■	■	■	■	■	■	■	■	■	■		

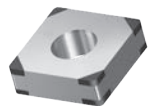
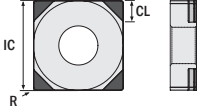
## DCGW Edge Tipped

  Insert with 2 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	DCGW-21.50-2	.250	.094	.118	.004	■	■	■	■	■	■	■	■	■	■	■	■	■	\$53.50
	DCGW-21.50.5-2	.250	.094	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-21.51-2	.250	.094	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-21.51W-2	.250	.094	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-21.52-2	.250	.094	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-21.52W	.250	.094	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.50-2	.375	.156	.118	.004	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.50.5-2	.375	.156	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.51-2	.375	.156	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.51W-2	.375	.156	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.52-2	.375	.156	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	DCGW-32.52W-2	.375	.156	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		

## DNGA Edge Tipped

  Insert with 4 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	DNGA-430.5-4	.500	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	\$79.50
	DNGA-431-4	.500	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DNGA-431W-4	.500	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■		
	DNGA-432-4	.500	.187	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	DNGA-432W-4	.500	.187	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
DNGA-433-4	.500	.187	.118	.047	■	■	■	■	■	■	■	■	■	■	■	■			

## SNGA Edge Tipped

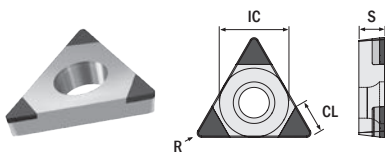
  Insert with 8 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	SNGA-431-8	.500	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■	■	\$122.25
	SNGA-432-8	.500	.187	.118	.031	■	■	■	■	■	■	■	■	■	■	■	■		
	SNGA-433-8	.500	.187	.118	.047	■	■	■	■	■	■	■	■	■	■	■			



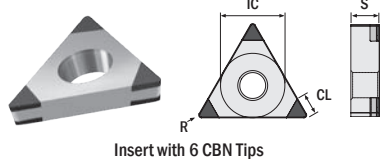
# CBN Program



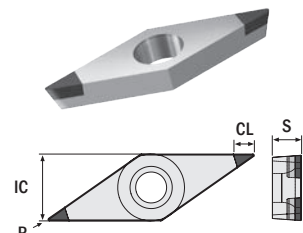
## TCGW Edge Tipped

	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
						■	■	■	■	■	■	■	■	■	■	■	■	■	■
	TCGW-1.81.50-3				.004	■					■	■	■	■	■	■	■	■	\$69.50
	TCGW-1.81.50.5-3	.219	.094	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-1.81.51-3				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-1.81.52-3				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-21.50-3				.004	■					■	■	■	■	■	■	■	■	
	TCGW-21.50.5-3	.250	.094	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-21.51-3				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-21.52-3				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-32.50.5-3				.008	■					■	■	■	■	■	■	■	■	
	TCGW-32.51-3	.375	.156	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TCGW-32.52-3				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	

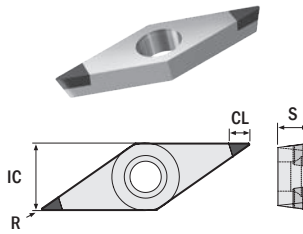
## TNGA Edge Tipped

	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
						■	■	■	■	■	■	■	■	■	■	■	■	■	■
	TNGA-330.5-6				.008	■					■	■	■	■	■	■	■	■	\$99.50
	TNGA-331-6	.375	.187	.118	.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TNGA-332-6				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	TNGA-333-6				.047	■	■	■	■	■	■	■	■	■	■	■	■	■	

## VBGW Edge Tipped

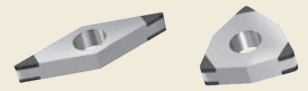
	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
						■	■	■	■	■	■	■	■	■	■	■	■	■	■
	VBGW-1.21.50-2				.004	■					■	■	■	■	■	■	■	■	\$53.50
	VBGW-1.21.50.5-2	.146	.094	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-1.21.51-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-21.50-2				.004	■					■	■	■	■	■	■	■	■	
	VBGW-21.50.5-2	.250	.125	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-21.51-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-21.52-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-330-2				.004	■					■	■	■	■	■	■	■	■	
	VBGW-330.5-2	.375	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-331-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VBGW-332-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	

## VCGW Edge Tipped

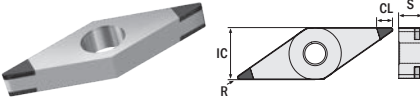
	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
						■	■	■	■	■	■	■	■	■	■	■	■	■	■
	VCGW-1.21.50-2				.004	■					■	■	■	■	■	■	■	■	\$53.50
	VCGW-1.21.50.5-2	.146	.094	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-1.21.51-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-220.-2				.004	■					■	■	■	■	■	■	■	■	
	VCGW-220.5-2	.250	.125	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-221-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-222-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-330-2				.004	■					■	■	■	■	■	■	■	■	
	VCGW-330.5-2	.375	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-331-2				.016	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-332-2				.031	■	■	■	■	■	■	■	■	■	■	■	■	■	
	VCGW-333-3				.047	■	■	■	■	■	■	■	■	■	■	■	■	■	



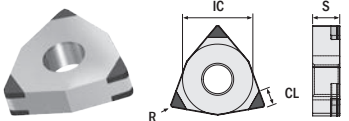
# CBN Program






## VNGA Edge Tipped

 Insert with 4 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	VNGA-330.5-4	.375	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	■
VNGA-331-4				.016	■	■	■	■	■	■	■	■	■	■	■	■	■		
VNGA-332-4				.031	■	■	■	■	■	■	■	■	■	■	■	■	■		
VNGA-333-4				.047	■	■	■	■	■	■	■	■	■	■	■	■	■		

## WNGA Edge Tipped

 Insert with 6 CBN Tips	Designation	IC	S	CL	r	H25BL	H35BL	H45BL	H65BL	H85BL	K65BH	K85BH	P25BH	P45BH	S85BH	X90BH	X95BH	PROMO	
	WNGA-430.5-6	.500	.187	.118	.008	■	■	■	■	■	■	■	■	■	■	■	■	■	\$99.50
WNGA-431-6				.016	■	■	■	■	■	■	■	■	■	■	■	■	■		
WNGA-431W-6				.016	■	■	■	■	■	■	■	■	■	■	■	■	■		
WNGA-432-6				.031	■	■	■	■	■	■	■	■	■	■	■	■	■		
WNGA-432W				.031	■	■	■	■	■	■	■	■	■	■	■	■	■		
WNGA-433-6				.047	■	■	■	■	■	■	■	■	■	■	■	■	■		
WNGA-433W-6				.047	■	■	■	■	■	■	■	■	■	■	■	■	■		

### Cut Type













	Continuous Cut
	Light Interrupted Cut
	Heavy Interrupted Cut

### Cooling Recommendations

Cut Type	Dry	Air	Emulsion	Oil
		3	<b>BEST</b>	2
	2	<b>BEST</b>	3	
	2	<b>BEST</b>		

All cut types for grade S85BH require cooling by emulsion

### Technical Information

Grade	Cut Type	Materials	SFM	FPR	DOC
H25BL		Steel, Tool Steel, Bearing Steel, Hardened Sintered Steel, up to 72Rc	325 - 980	.0004" - .019"	.0004" - .059"
H35BL			325 - 850	.0004" - .019"	.0004" - .059"
H45BL			325 - 850	.0004" - .016"	.0004" - .039"
H65BL			325 - 780	.0004" - .016"	.0004" - .039"
H85BL			260 - 725	.0004" - .016"	.0004" - .039"
K65BH		Grey Cast Iron (GCI), Ductile Cast Iron (DCI)	955 - 7650	.0004" - .014"	.0004" - .100"
K85BH			760 - 5300	.0004" - .014"	.0004" - .100"
P25BH		Sintered Steel	650 - 1300	.0004" - .012"	.0004" - .100"
P45BH			590 - 985	.0004" - .012"	.0004" - .080"
S85BH		Hi-Temp Alloys, Ni, Co, Fe, Cr, based	300 - 1300	.0004" - .012"	.0004" - .020"
X90BH		Tool Steel up to 72Rc, Powdered Metal Steel hardened up to 72Rc, Stainless Steel hardened, Stellite	195 - 720	.0004" - .016"	.0004" - .080"
X95BH			130 - 590	.0004" - .012"	.0004" - .020"



# Rani Tool Corp.



**DTS GmbH**

Diamond Tooling Systems



PASSION FOR DIAMOND

- Solid brazed style PCD/CVD-D/CBN tipped boring bars
- Over 250 line items
- Sizes start at 1mm minimum bore up through 9mm
- Nice range of 4 "reaches" to better match your applications
- Three different radii are standard

- Excellent cutting geometry to produce fine finishes and tight tolerances
- Bars have locating flats for easy alignment
- Two styles—BS and BE for a broader application range
- 5/8" diameter adapters are available

**BS**

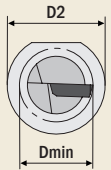
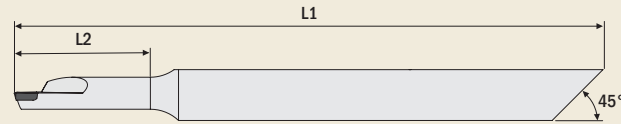
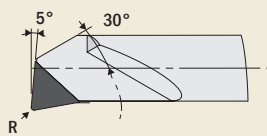


Figure Shown Right Hand Version

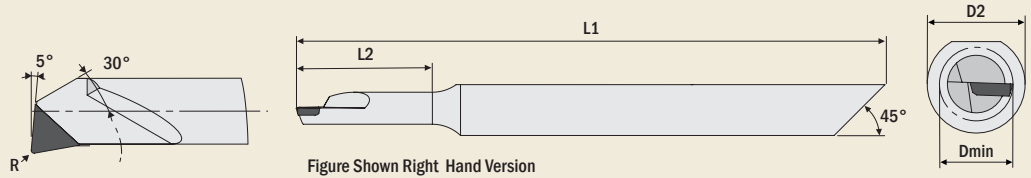
PASSION FOR DIAMOND

						PCD		CVD-D		CBN	
Dmin	L2	L1	R	D2	Version	ITEM CODE	PROMO	ITEM CODE	PROMO	ITEM CODE	PROMO
<b>1</b>	3	72	0.1	4 <sup>H6</sup>	RH			BS2050-1002	\$157.00	BS3550-1002	\$129.00
					LH		BS2050-1003	\$157.00	BS3550-1003	\$129.00	
	10	80	0.1	4 <sup>H6</sup>	RH	BS1050-0000	\$118.00	BS2050-0000	\$157.00	BS3550-0000	\$129.00
					LH	BS1050-0001	\$118.00	BS2050-0001	\$157.00	BS3550-0001	\$129.00
<b>1.5</b>	3	71	0.1	4 <sup>H6</sup>	RH			BS2050-1007	\$157.00	BS3550-1007	\$129.00
					LH		BS2050-1008	\$157.00	BS3550-1008	\$129.00	
	6	74	0.1	4 <sup>H6</sup>	RH			BS2050-1005	\$157.00	BS3550-1005	\$129.00
					LH		BS2050-1006	\$157.00	BS3550-1006	\$129.00	
	15	80	0.1	4 <sup>H6</sup>	RH	BS1050-0005	\$118.00	BS2050-0005	\$157.00	BS3550-0005	\$129.00
					LH	BS1050-0006	\$118.00	BS2050-0006	\$157.00	BS3550-0006	\$129.00
<b>2</b>	6	74	0.1	4 <sup>H6</sup>	RH			BS2050-1012	\$157.00	BS3550-1012	\$129.00
					LH		BS2050-1013	\$157.00	BS3550-1013	\$129.00	
	6	74	0.2	4 <sup>H6</sup>	RH			BS2050-2012	\$157.00	BS3550-2012	\$129.00
					LH		BS2050-2013	\$157.00	BS3550-2013	\$129.00	
	10	80	0.1	4 <sup>H6</sup>	RH	BS1050-0010	\$118.00	BS2050-0010	\$157.00	BS3550-0010	\$129.00
					LH	BS1050-0011	\$118.00	BS2050-0011	\$157.00	BS3550-0011	\$129.00
<b>2.5</b>	6	74	0.1	4 <sup>H6</sup>	RH			BS2050-1022	\$157.00	BS3550-1022	\$129.00
					LH		BS2050-1023	\$157.00	BS3550-1023	\$129.00	
	6	74	0.2	4 <sup>H6</sup>	RH			BS2050-2022	\$157.00	BS3550-2022	\$129.00
					LH		BS2050-2023	\$157.00	BS3550-2023	\$129.00	
	10	80	0.1	4 <sup>H6</sup>	RH	BS1050-0020	\$118.00	BS2050-0020	\$157.00	BS3550-0020	\$129.00
					LH	BS1050-0021	\$118.00	BS2050-0021	\$157.00	BS3550-0021	\$129.00
<b>3</b>	6	74	0.1	4 <sup>H6</sup>	RH			BS2050-1028	\$157.00	BS3550-1028	\$129.00
					LH		BS2050-1029	\$157.00	BS3550-1029	\$129.00	
	6	74	0.2	4 <sup>H6</sup>	RH			BS2050-2028	\$157.00	BS3550-2028	\$129.00
					LH		BS2050-2029	\$157.00	BS3550-2029	\$129.00	
	10	78	0.1	4 <sup>H6</sup>	RH	BS1050-1026	\$118.00	BS2050-1026	\$157.00	BS3550-1026	\$129.00
					LH	BS1050-1027	\$118.00	BS2050-1027	\$157.00	BS3550-1027	\$129.00
	10	78	0.2	4 <sup>H6</sup>	RH	BS1050-2026	\$118.00	BS2050-2026	\$157.00	BS3550-2026	\$129.00
					LH	BS1050-2027	\$118.00	BS2050-2027	\$157.00	BS3550-2027	\$129.00
	15	83	0.1	4 <sup>H6</sup>	RH	BS1050-1024	\$118.00	BS2050-1024	\$157.00	BS3550-1024	\$129.00
					LH	BS1050-1025	\$118.00	BS2050-1025	\$157.00	BS3550-1025	\$129.00
15	83	0.2	4 <sup>H6</sup>	RH	BS1050-2024	\$118.00	BS2050-2024	\$157.00	BS3550-2024	\$129.00	
				LH	BS1050-2025	\$118.00	BS2050-2025	\$157.00	BS3550-2025	\$129.00	



- Precision machine a wide range of workpiece materials. PCD and CVD-D are used in low and high silicon aluminum alloys, all non-ferrous materials such as brass, carbide, ceramics, CFRP/GFRP, copper, graphite, MMC, PEEK, precious metals, Tungston alloys
- The CBN grade is used in hardened steel up to 68Rc, special alloys such as ASP, CPM, HARDOX, high temperature alloys, and hardened tool steels

**BS**



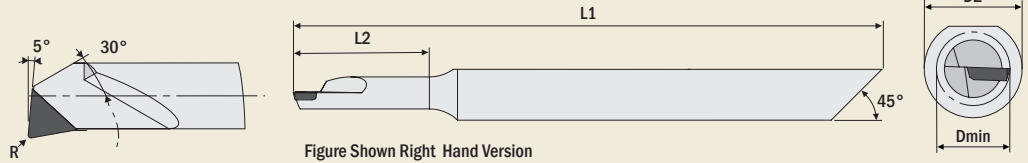
**PASSION FOR DIAMOND**

Dmin	L2	L1	R	D2	Version	PCD		CVD-D		CBN	
						ITEM CODE	PROMO	ITEM CODE	PROMO	ITEM CODE	PROMO
3.5	6	74	0.1	4 <sup>H6</sup>	RH			BS2050-1032	\$157.00	BS3550-1032	\$129.00
					LH			BS2050-1033	\$157.00	BS3550-1033	\$129.00
	6	74	0.2	4 <sup>H6</sup>	RH			BS2050-2032	\$157.00	BS3550-2032	\$129.00
					LH			BS2050-2033	\$157.00	BS3550-2033	\$129.00
	10	78	0.1	4 <sup>H6</sup>	RH			BS2050-1034	\$157.00	BS3550-1034	\$129.00
					LH			BS2050-1035	\$157.00	BS3550-1035	\$129.00
	10	78	0.2	4 <sup>H6</sup>	RH			BS2050-2034	\$157.00	BS3550-2034	\$129.00
					LH			BS2050-2035	\$157.00	BS3550-2035	\$129.00
	15	80	0.1	4 <sup>H6</sup>	RH	BS1050-0030	\$118.00	BS2050-0030	\$157.00	BS3550-0030	\$129.00
					LH	BS1050-0031	\$118.00	BS2050-0031	\$157.00	BS3550-0031	\$129.00
	15	83	0.2	4 <sup>H6</sup>	RH	BS1050-2030	\$118.00	BS2050-2030	\$157.00	BS3550-2030	\$129.00
					LH	BS1050-2031	\$118.00	BS2050-2031	\$157.00	BS3550-2031	\$129.00
21	89	0.1	4 <sup>H6</sup>	RH	BS1050-1036	\$118.00	BS2050-1036	\$157.00	BS3550-1036	\$129.00	
				LH	BS1050-1037	\$118.00	BS2050-1037	\$157.00	BS3550-1037	\$129.00	
21	89	0.2	4 <sup>H6</sup>	RH	BS1050-2036	\$118.00	BS2050-2036	\$157.00	BS3550-2036	\$129.00	
				LH	BS1050-2037	\$118.00	BS2050-2037	\$157.00	BS3550-2037	\$129.00	
4	10	78	0.1	4 <sup>H6</sup>	RH			BS2050-1132	\$157.00	BS3550-1132	\$129.00
					LH			BS2050-1133	\$157.00	BS3550-1133	\$129.00
	10	78	0.2	4 <sup>H6</sup>	RH			BS2050-2132	\$157.00	BS3550-2132	\$129.00
					LH			BS2050-2133	\$157.00	BS3550-2133	\$129.00
	15	80	0.1	4 <sup>H6</sup>	RH	BS1050-1140	\$118.00	BS2050-1140	\$157.00	BS3550-1140	\$129.00
					LH	BS1050-1141	\$118.00	BS2050-1141	\$157.00	BS3550-1141	\$129.00
	15	83	0.2	4 <sup>H6</sup>	RH	BS1050-2130	\$118.00	BS2050-2130	\$157.00	BS3550-2130	\$129.00
					LH	BS1050-2131	\$118.00	BS2050-2131	\$157.00	BS3550-2131	\$129.00
	21	89	0.1	4 <sup>H6</sup>	RH	BS1050-1134	\$118.00	BS2050-1134	\$157.00	BS3550-1038	\$129.00
					LH	BS1050-1135	\$118.00	BS2050-1135	\$157.00	BS3550-1039	\$129.00
	21	89	0.2	4 <sup>H6</sup>	RH	BS1050-2134	\$118.00	BS2050-2134	\$157.00	BS3550-2038	\$129.00
					LH	BS1050-2135	\$118.00	BS2050-2135	\$157.00	BS3550-2039	\$129.00
4.5		78	0.1	4 <sup>H6</sup>	RH			BS2050-1230	\$157.00	BS3550-1240	\$129.00
					LH			BS2050-1231	\$157.00	BS3550-1241	\$129.00
		78	0.2	4 <sup>H6</sup>	RH			BS2050-2230	\$157.00	BS3550-2240	\$129.00
					LH			BS2050-2231	\$157.00	BS3550-2241	\$129.00
		83	0.1	4 <sup>H6</sup>	RH	BS1050-1232	\$118.00	BS2050-1232	\$157.00	BS3550-1242	\$129.00
					LH	BS1050-1233	\$118.00	BS2050-1233	\$157.00	BS3550-1243	\$129.00
		83	0.2	4 <sup>H6</sup>	RH	BS1050-2232	\$118.00	BS2050-2232	\$157.00	BS3550-2242	\$129.00
					LH	BS1050-2233	\$118.00	BS2050-2233	\$157.00	BS3550-2243	\$129.00
		89	0.1	4 <sup>H6</sup>	RH			BS2050-1234	\$157.00	BS3550-1244	\$129.00
					LH			BS2050-1235	\$157.00	BS3550-1245	\$129.00
		89	0.2	4 <sup>H6</sup>	RH			BS2050-2234	\$157.00	BS3550-2244	\$129.00
					LH			BS2050-2235	\$157.00	BS3550-2245	\$129.00
5		80	0.1	4 <sup>H6</sup>	RH			BS2050-1240	\$157.00	BS3550-1040	\$143.00
					LH			BS2050-1241	\$157.00	BS3550-1041	\$143.00
		80	0.2	4 <sup>H6</sup>	RH	BS1050-2040	\$132.00	BS2050-2040	\$157.00	BS3550-2040	\$143.00
					LH	BS1050-2041	\$132.00	BS2050-2041	\$157.00	BS3550-2041	\$143.00
		80	0.4	4 <sup>H6</sup>	RH	BS1050-4040	\$132.00	BS2050-4040	\$157.00	BS3550-4040	\$143.00
					LH	BS1050-4041	\$132.00	BS2050-4041	\$157.00	BS3550-4041	\$143.00



# PCD / CVD-D / CBN Tipped Bars

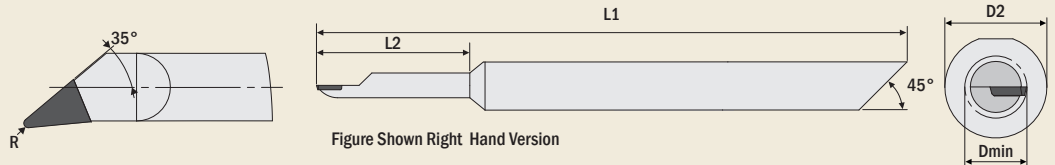
BS



PASSION FOR DIAMOND

Dmin	L2	L1	R	D2	Version	PCD		CVD-D		CBN	
						ITEM CODE	PROMO	ITEM CODE	PROMO	ITEM CODE	PROMO
6		100	0.1	5 <sup>H6</sup>	RH			BS2050-1050	\$157.00	BS3550-1050	\$143.00
					LH			BS2050-1051	\$157.00	BS3550-1051	\$143.00
		100	0.2	5 <sup>H6</sup>	RH	BS1050-2050	\$132.00	BS2050-2050	\$157.00	BS3550-2050	\$143.00
					LH	BS1050-2051	\$132.00	BS2050-2051	\$157.00	BS3550-2051	\$143.00
		100	0.4	5 <sup>H6</sup>	RH	BS1050-4050	\$132.00	BS2050-4050	\$157.00	BS3550-4050	\$143.00
					LH	BS1050-4051	\$132.00	BS2050-4051	\$157.00	BS3550-4051	\$143.00
7		100	0.2	6 <sup>H6</sup>	RH	BS1050-2060	\$132.00	BS2050-2060	\$172.00	BS3550-2060	\$143.00
					LH	BS1050-2061	\$132.00	BS2050-2061	\$172.00	BS3550-2061	\$143.00
		100	0.4	6 <sup>H6</sup>	RH	BS1050-4060	\$132.00	BS2050-4060	\$172.00	BS3550-4060	\$143.00
					LH	BS1050-4061	\$132.00	BS2050-4061	\$172.00	BS3550-4061	\$143.00
9		100	0.2	8 <sup>H6</sup>	RH	BS1050-2080	\$147.00	BS2050-2080	\$186.00	BS3550-2080	\$157.00
					LH	BS1050-2081	\$147.00	BS2050-2081	\$186.00	BS3550-2081	\$157.00
		100	0.4	8 <sup>H6</sup>	RH	BS1050-4080	\$147.00	BS2050-4080	\$186.00	BS3550-4080	\$157.00
					LH	BS1050-4081	\$147.00	BS2050-4081	\$186.00	BS3550-4081	\$157.00

BE



PASSION FOR DIAMOND

Dmin	L2	L1	R	D2	Version	PCD		CVD-D		CBN	
						ITEM CODE	PROMO	ITEM CODE	PROMO	ITEM CODE	PROMO
3.6	10	100	0.2	6 <sup>H6</sup>	RH			BE2050-2130	\$172.00	BE3550-2130	\$157.00
					LH			BE2050-2131	\$172.00	BE3550-2131	\$157.00
	18	100	0.2	6 <sup>H6</sup>	RH			BE2050-2030	\$172.00	BE3550-2030	\$157.00
					LH			BE2050-2031	\$172.00	BE3550-2031	\$157.00
7		100	0.2	6 <sup>H6</sup>	RH			BE2050-2060	\$172.00	BE3550-2060	\$157.00
					LH			BE2050-2061	\$172.00	BE3550-2061	\$157.00
		100	0.4	6 <sup>H6</sup>	RH			BE2050-4060	\$172.00	BE3550-4060	\$157.00
					LH			BE2050-4061	\$172.00	BE3550-4061	\$157.00

ADAPTERS



ITEM CODE	D	d	dH7	dH7mm	H	I	PROMO
ADAP-0.625-40	0.625	0.197	0.157	4	0.551	3.94	\$120.00
ADAP-0.625-50	0.625	0.236	0.197	5	0.551	3.94	\$120.00
ADAP-0.625-60	0.625	0.315	0.236	6	0.551	3.94	\$120.00
ADAP-0.625-80	0.625	0.394	0.315	8	0.551	3.94	\$120.00

# Technical Information

<b>PCD</b>	Is ideally suited for the machining of: Aluminium <10% Si   Graphite   Copper   Copper Alloy   Magnesium   Brass   PEEK   Tungsten alloy
<b>CVD-D</b>	Is ideally suited for the machining of: Acrylic (PMMA)   Aluminum >10% Si   Glass, Fiberglass   Carbide   Ceramics   Synthetics   Copper, Copper Alloys   Magnesium   Silver, Gold, Platinum   Titanium   Composites (CFK, GFK)   Zirconium
<b>CBN-H</b>	For the machining of: Steels up to Rc Hardened Sintered Steels

**Type BS**  
Starting from Dmin 1,00mm

All coloured surfaces can be machined

Robust system for turning contours in bores

**Type BE**  
Starting from Dmin 3,60mm

All coloured surfaces can be machined

For contouring turning on the plane surface

## Machining Carbide or Sintered Ceramics?

*We can help!*

We offer a full line of inserts and milling tools for machining these difficult materials. *Call us to discuss our innovative solutions!*



**MICRO-Line—Precision Grooving and Profiling  
PCD, CVD-D, ULT-D, and CBN Tipped inserts**

**MICRO-Line System | Tool Holder**

**Benefits:**

- Designed for grooving with diamond and CBN cutting materials
- Right side and left side tool holders in different dimensions in stock
- Grooving depth up to 3.80 mm
- For continuous and interrupted cuts
- Stable and precise guiding of the grooving insert
- Easy and quick change of the grooving insert



**MICRO-Line EST and RST System | Corner and Full Radius Grooving Inserts**

**Benefits:**

- Corner grooving insert, width 1.00 mm to 2.00 mm, tolerance +/- 0.01 mm in stock
- Radii from 0.05 mm to 0.20 mm, tolerance +/- 0.01 mm in stock
- Tipped with 2 cutting edges (on request also with chip breakers)
- Full radius grooving insert, width 2.00 mm to 6.00 mm, tolerance +/- 0.01 mm in stock
- Full radius from 0.50 mm to 1.00 mm, tolerance +/- 0.01 mm in stock
- Tipped with 2 cutting edges (on request also with chip breakers)
- Cutting edge length 3.00 mm

Micro-EST

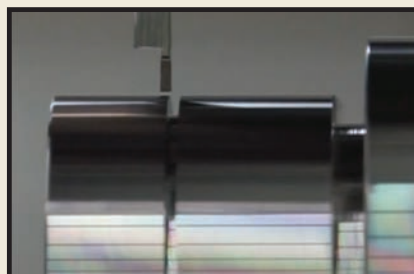
Micro-RST



Micro-Line 1mm rad.  
Cutting Zirconium Oxide



Scan for Video!

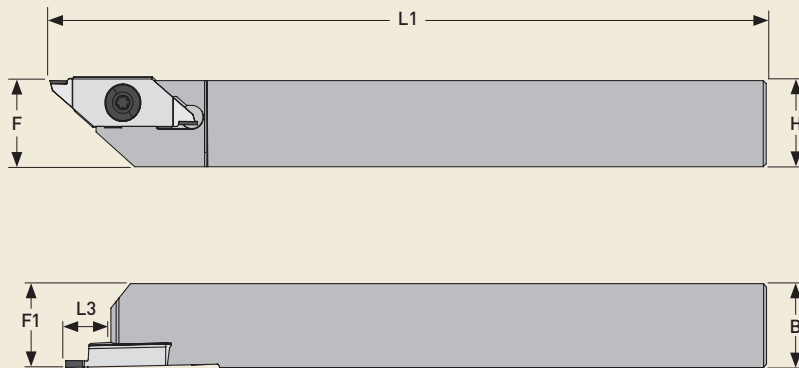
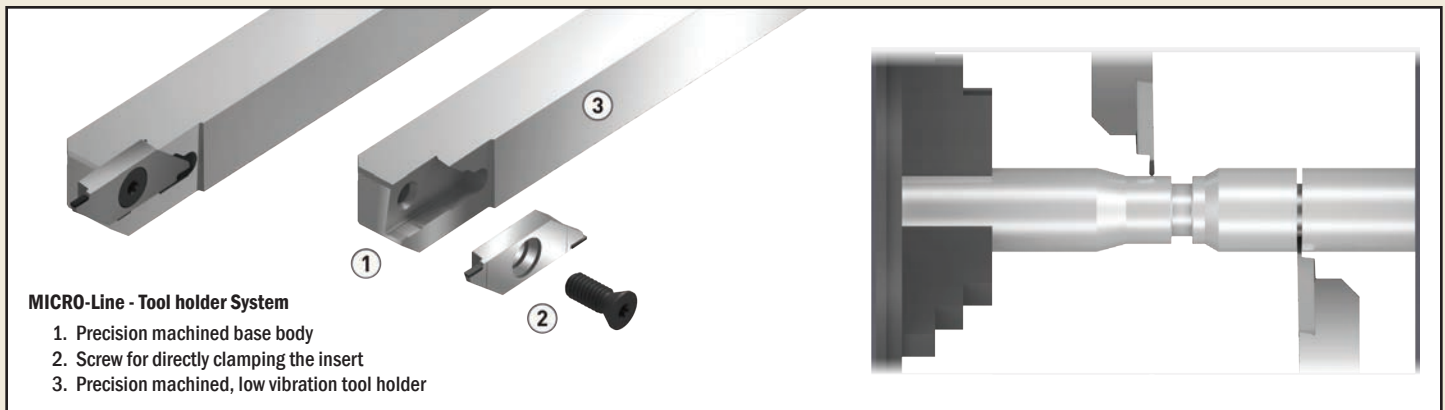


Micro-Line 1mm wide  
Cutting 55 Rc Steel



Scan for Video!

# Micro-Line Toolholder System



## INCH

Designation	B	H	L1	L3	F	F1	Version	PROMO
PGER-0375K	.375	.375	4.900	.310	.380	.380	RH	\$168.00
PGEL-0375K							LH	
PGER-0500K	.500	.500	4.900	.310	.500	.500	RH	
PGEL-0500K							LH	
PGER-0625K	.625	.625	4.900	.310	.630	.630	RH	
PGEL-0625K							LH	

## METRIC

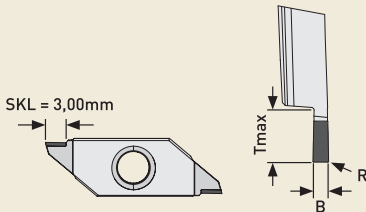
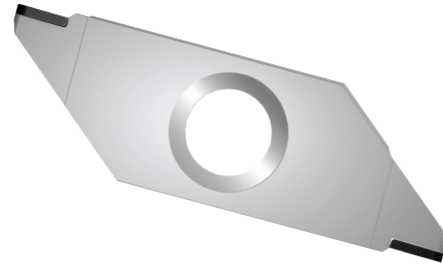
Designation	B	H	L1	L3	F	F1	Version	PROMO
ST7060-0010	8	8	125	8	10	10	RH	\$168.00
ST7060-0015							LH	
ST7060-0020	10	10	125	8	10	10	RH	
ST7060-0025							LH	
ST7060-0030	12	12	125	8	12	12	RH	
ST7060-0035							LH	
ST7060-0040	16	16	125	8	16	16	RH	
ST7060-0045							LH	
ST7060-0050	20	20	125	8	20	20	RH	
ST7060-0055							LH	

# Micro-Line Indexable Grooving Inserts System

## MICRO-Line - Indexable Grooving Insert

### Benefits:

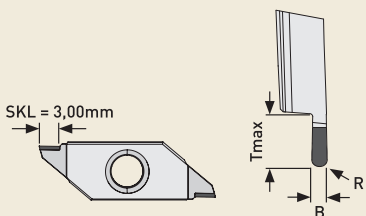
- Laser cut diamond or CBN cutting edge
- High vacuum brazed
- Precision machined carbide base body
- Precision machined center bore
- Tangential clamping provides the best stability
- Two cutting edges (Z2)
- In cutting materials: PCD / CVD-D / UltraDiamond / CBN



2-edge grooving and profile turning inserts  
Figure shows right version

### SQUARE END

				PCD		CVD-D		U-DIA		CBN-H	CBN-X	CBN-K	PROMO
B	R	Tmax	R/L	Item Code	PROMO	Item Code	PROMO	Item Code	PROMO	Item Code	Item Code	Item Code	
1	0.05	2.7	RH	ST1050-2100	143. <sup>00</sup>	ST2050-2100	207. <sup>00</sup>	ST1950-2100	223. <sup>00</sup>	ST5050-2100	ST5950-2100	ST5550-2100	143. <sup>00</sup>
			LH	ST1050-2101	143. <sup>00</sup>	ST2050-2101	207. <sup>00</sup>	ST1950-2101	223. <sup>00</sup>	ST5050-2101	ST5950-2101	ST5550-2101	143. <sup>00</sup>
	0.1	2.7	RH	ST1050-2102	143. <sup>00</sup>	ST2050-2102	207. <sup>00</sup>	ST1950-2102	223. <sup>00</sup>	ST5050-2102	ST5950-2102	ST5550-2102	143. <sup>00</sup>
			LH	ST1050-2103	143. <sup>00</sup>	ST2050-2103	207. <sup>00</sup>	ST1950-2103	223. <sup>00</sup>	ST5050-2103	ST5950-2103	ST5550-2103	143. <sup>00</sup>
1.5	0.05	3.8	RH	ST1050-2150	143. <sup>00</sup>	ST2050-2150	207. <sup>00</sup>	ST1950-2150	239. <sup>00</sup>	ST5050-2150	ST5950-2150	ST5550-2150	143. <sup>00</sup>
			LH	ST1050-2151	143. <sup>00</sup>	ST2050-2151	207. <sup>00</sup>	ST1950-2151	239. <sup>00</sup>	ST5050-2151	ST5950-2151	ST5550-2151	143. <sup>00</sup>
	0.1	3.8	RH	ST1050-2152	143. <sup>00</sup>	ST2050-2152	207. <sup>00</sup>	ST1950-2152	239. <sup>00</sup>	ST5050-2152	ST5950-2152	ST5550-2152	143. <sup>00</sup>
			LH	ST1050-2153	143. <sup>00</sup>	ST2050-2153	207. <sup>00</sup>	ST1950-2153	239. <sup>00</sup>	ST5050-2153	ST5950-2153	ST5550-2153	143. <sup>00</sup>
2	0.05	3.8	RH	ST1050-2200	159. <sup>00</sup>	ST2050-2200	223. <sup>00</sup>	ST1950-2200	255. <sup>00</sup>	ST5050-2200	ST5950-2200	ST5550-2200	159. <sup>00</sup>
			LH	ST1050-2201	159. <sup>00</sup>	ST2050-2201	223. <sup>00</sup>	ST1950-2201	255. <sup>00</sup>	ST5050-2201	ST5950-2201	ST5550-2201	159. <sup>00</sup>
	0.1	3.8	RH	ST1050-2202	159. <sup>00</sup>	ST2050-2202	223. <sup>00</sup>	ST1950-2202	255. <sup>00</sup>	ST5050-2202	ST5950-2202	ST5550-2202	159. <sup>00</sup>
			LH	ST1050-2203	159. <sup>00</sup>	ST2050-2203	223. <sup>00</sup>	ST1950-2203	255. <sup>00</sup>	ST5050-2203	ST5950-2203	ST5550-2203	159. <sup>00</sup>
	0.2	3.8	RH	ST1050-2204	159. <sup>00</sup>	ST2050-2204	223. <sup>00</sup>	ST1950-2204	255. <sup>00</sup>	ST5050-2204	ST5950-2204	ST5550-2204	159. <sup>00</sup>
			LH	ST1050-2205	159. <sup>00</sup>	ST2050-2205	223. <sup>00</sup>	ST1950-2205	255. <sup>00</sup>	ST5050-2205	ST5950-2205	ST5550-2205	159. <sup>00</sup>









2-edge grooving and profile turning inserts  
Figure shows right version

### RADIUS END

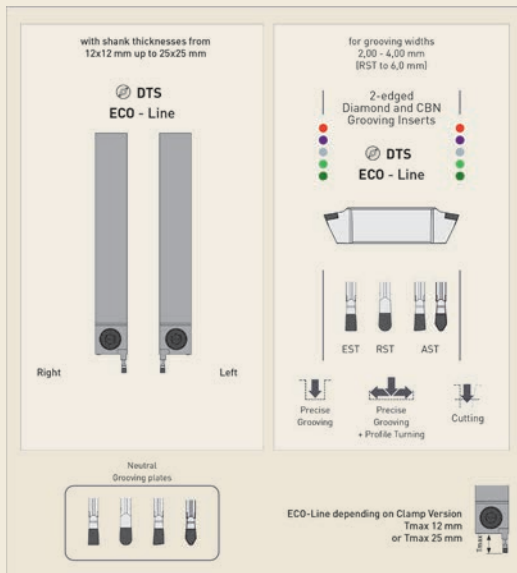
				PCD		CVD-D		U-DIA		CBN-H	CBN-X	CBN-K	PROMO
B	R	Tmax	R/L	Item Code	PROMO	Item Code	PROMO	Item Code	PROMO	Item Code	Item Code	Item Code	
1	0.5	2.7	RH	ST1050-3100	143. <sup>00</sup>	ST2050-3100	207. <sup>00</sup>	ST1950-3100	223. <sup>00</sup>	ST5050-3100	ST5950-3100	ST5550-3100	143. <sup>00</sup>
			LH	ST1050-3101	143. <sup>00</sup>	ST2050-3101	207. <sup>00</sup>	ST1950-3101	223. <sup>00</sup>	ST5050-3101	ST5950-3101	ST5550-3101	143. <sup>00</sup>
1.5	0.75	3.8	RH	ST1050-3150	143. <sup>00</sup>	ST2050-3150	207. <sup>00</sup>	ST1950-3150	239. <sup>00</sup>	ST5050-3150	ST5950-3150	ST5550-3150	143. <sup>00</sup>
			LH	ST1050-3151	143. <sup>00</sup>	ST2050-3151	207. <sup>00</sup>	ST1950-3151	239. <sup>00</sup>	ST5050-3151	ST5950-3151	ST5550-3151	143. <sup>00</sup>
2	1	3.8	RH	ST1050-3200	159. <sup>00</sup>	ST2050-3200	223. <sup>00</sup>	ST1950-3200	255. <sup>00</sup>	ST5050-3200	ST5950-3200	ST5550-3200	159. <sup>00</sup>
			LH	ST1050-3201	159. <sup>00</sup>	ST2050-3201	223. <sup>00</sup>	ST1950-3201	255. <sup>00</sup>	ST5050-3201	ST5950-3201	ST5550-3201	159. <sup>00</sup>



# Technical Information

 <p><b>PCD Diamant</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Aluminium &lt; 10%Si</li> <li>• Copper / Tungsten Copper</li> <li>• CFRP / GFRP Sandwich Materials</li> <li>• Graphite</li> </ul>	 <p><b>CBN-H</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Hardened Steels up to a hardness of 72 HRC</li> <li>• Sintered Steel hardened</li> </ul>
 <p><b>CVD-D Diamant</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Carbide G-Grade &gt;12% Co</li> <li>• Carbide K-Grade &gt;15% Co</li> <li>• Ceramics / Glass-ceramic</li> <li>• Aluminium &gt; 10% Si</li> <li>• Fused Silica / Glass</li> <li>• Titanium (Finishing operations)</li> <li>• Copper / Tungsten Copper</li> <li>• CFRP / GFRP Sandwich Materials</li> <li>• Glass / Plexiglass</li> <li>• Abrasive non-ferrous materials</li> <li>• Other brittle non-ferrous materials</li> </ul>	 <p><b>CBN-X</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Tool Steel hardened up to 72 HRC</li> <li>• Stellite</li> <li>• Tungsten Carbide &gt; 20%</li> </ul>
 <p><b>Ultra Diamant</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Carbide G-Grade &gt;12% Co</li> <li>• Carbide K-Grade &gt;7% Co</li> <li>• Carbide with Ni Binder</li> <li>• Ceramics / Glass-ceramic</li> <li>• Fused Silica / Glass</li> <li>• Other brittle non-ferrous materials</li> </ul>	 <p><b>CBN-K</b></p> <p>Applications:</p> <ul style="list-style-type: none"> <li>• Cast Iron</li> <li>• Nodular Graphite Cast Iron</li> </ul>

## For even more grooving options, check out our Eco-Line series tools



- Laser cut diamond or CBN edges
- Two cutting edges per insert
- Square End, Full radius, Cut-Off Chamfering geometries
- From 2.0mm to 6.0mm widths
- Available in PCD, CVD-D Diamond Tips
- Also available in CBN-H, CBN-K, CBN-X tips for wide application range
- Large range of holders (Metric Only)

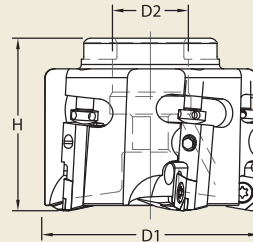
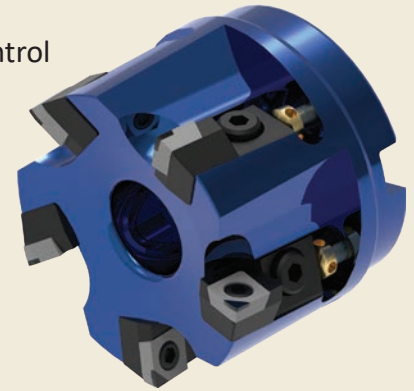
**New Tool Design!**



**DTS GmbH**

**Diamond Tooling Systems**

- Ultra precise finishing with two different insert wiper configurations and micro-adjustable cartridges to produce the ultimate surface finishes
- Maxicool through coolant for maximum chip evacuation and temperature control
- Milling bodies made from lightweight 7075-T6 aluminum
- Two diamond grades PCD and CVD-D
- Three CBN grades to machine a wide range of materials
- Two cutting edges per insert with 3mm, 3.5mm & 6mm cutting edge lengths



**TCP90 Face Mills for PCD / TFC Milling Applications**



















Designation	D1	D2	H	Flutes	Insert	List Price	PROMO	Cartridge	Cartridge Screw	Insert Screw	Height Adj. Screw
TCP90-2000-AL	2.00	.75	2.00	3	CPGX-32.5...	\$499.00	<b>\$379.00</b>	BC100X5000 BRTC	M5 SHCS	TCP951	HAS6823
TCP90-2500-AL	2.50	1.00	2.00	5		\$699.00	<b>\$539.00</b>				
TCP90-3000-AL	3.00	1.00	2.00	7		\$899.00	<b>\$699.00</b>				
TCP90-4000-AL	4.00	1.25	2.00	10		Available On Request					
TCP90-5000-AL	5.00	1.50	2.50	11							
TCP90-6000-AL	6.00	1.50	2.50	13							
TCP90-8000-AL	8.00	2.00	2.50	16							

\* Steel cutter bodies are available on request and are recommended when using CBN Tipped Inserts

	Designation	Cut Length	Radius	GRADES				
				PCD	CVD-D	CBN-H	CBN-K	CBN-X
	CPGX-32.50.5PDR-35	.138"	.008"	\$129.00	\$149.00	\$129.00	\$129.00	\$129.00
	CPGX-32.51PDR-35	.138"	.016"	\$129.00	\$149.00	\$129.00	\$129.00	\$129.00
	CPGX-32.52PDR-35	.138"	.032"	\$129.00	\$149.00	\$129.00	\$129.00	\$129.00
	CPGX-32.53PDR-35	.138"	.047"	\$129.00	\$149.00	\$129.00	\$129.00	\$129.00
	CPGX-32.50.5PDR-60	.236"	.008"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.51PDR-60	.236"	.016"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.52PDR-60	.236"	.032"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.53PDR-60	.236"	.047"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.50.5SFR-30	.118"	.008"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.51SFR-30	.118"	.016"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.52SFR-30	.118"	.032"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00
	CPGX-32.53SFR-30	.118"	.047"	\$159.00	\$256.00	\$159.00	\$159.00	\$159.00

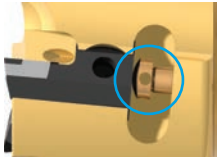
# Technical Information

## High Performance Grades

<b>PCD</b>	is ideally suited for the machining of * Aluminum <10% Si   Brass   Copper, Copper Alloys   Graphite   Magnesium   PEEK   Tungsten alloy	  
<b>CVD-D</b>	is ideally suited for the machining of * Acrylic (PMMA)   Aluminum >10% Si   Carbide   Ceramics   Composites (GFRP/CFRP)   Copper, Copper Alloys   Glass, Glass ceramic   Magnesium   Plastic   Silver, Gold, Platinum   Titanium   Zirconium	  
<b>CBN-H</b>	is ideally suited for the machining of * Steel, hardened up to 72 HRC Sinter Steel, hardened	  
<b>CBN-K</b>	is ideally suited for the machining of * Powder metallurgical Steel, hardened Special Alloys such as ASP, CPM, Hardox Tool Steel, hardened up to 72 HRC	  
<b>CBN-X</b>	is ideally suited for the machining of * Grey Cast Iron (GCI) Ductile Cast Iron (DCI)	  
 Continuous Cut  Light Interrupted Cut  Heavy Interrupted Cut		


## Security & Performance Features

### Micro Adjustable



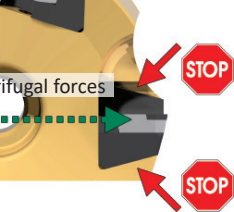
Easily pre-set cartridges to within microns  
All new milling cutters are factory pre-set in height to within  $\pm 0.0004$  with a master gauge insert

### Through Coolant Enabled




Coolant ports are directed at the cutting edge to extend tool life and improve surface finishes

### Cartridge Dovetail Lock



Insert cartridge is fitted into cutter body with dovetail design  
Centrifugal forces acting on insert cartridge are neutralized by wedge profile of cartridge and matching shape on cutter body

### Wiper Radius



Unique wiper is a compound radius that outperforms traditional wiper flats  
With every insert in the cutter loaded with the wiper radius, super finishing is easily attained

ISO	Material	PCD	CVD-D	CBN-H	CBN-X	CBN-K
H	Powder metallurgical Steel, hardened			●	●	
	Special Alloys (ASP,CPM,Hardox)			●	●	
	Steel, hardened up to 72 HRC			●	●	
	Tool Steel, hardened up to 72 HRC			●	●	
P	Sintered Steel				●	●
	Sintered Steel, hardened			●	●	
K	Grey Cast Iron (GCI)					●
	Ductile Cast Iron (DCI)				●	●
	Shell Chilled Cast Iron			●	●	
S	Ni-, Co-, Fe- and Cr-Alloys			●	●	
	Titanium Alloys			●	●	
M	Stainless Steel, hardened			●	●	
N	Acrylic (PMMA)		●			
	Aluminum, < 10% Si	●	●			
	Aluminum, > 10% Si	●	●			
	Brass	●	●			
	Ceramics	●	●			

ISO	Material	PCD	CVD-D	CBN-H	CBN-X	CBN-K
N	Ceramics (Green)	●	●			
	Plastics	●	●			
	Composite such as CFG/GFRP	●	●			
	Copper, Copper Alloys	●	●			
	Glass, Glass Ceramic	●	●			
	Graphite	●	●			
	Magnesium	●	●			
	MMC	●	●			
	PEEK	●	●			
	Silver, Gold, Platinum	●	●			
	Tungsten alloy	●	●			
	Zirconium	●	●			



# DTS GmbH

Diamond Tooling Systems



## Welcome to DTS GmbH - Diamond Tooling Systems!

Based in Kaiserslautern, Germany, we specialize in the development, manufacture and sale of precision tools equipped with ultra-hard cutting materials such as PCD (Polycrystalline Diamond), CVD-D (CVD Thick Film Diamond), UltraDiamond (Binderless) and CBN (Cubic Boron Nitride).

As a leading manufacturer of tools with laser-cut cutting edges, we offer machining solutions in the areas of turning, milling, grooving, drilling, reaming and tool holders.

In order to be able to economically process ultra-hard cutting materials such as PKD, CVD-D, UltraDiamant (binderless) and CBN on precision tools, we recognized early on that we had to develop from the old production technology "grinding" to new technologies such as the "laser ablation process".

In the meantime, our customers confirm us as the leading manufacturer of laser-cut tools for metal cutting.

Ultra-hard, high-performance cutting materials play a key role in machining. Precision tools equipped with ultra-hard cutting materials are products that require a lot of explanation. The economical use of the cutting materials can only be ensured if the machining process and the cutting material are coordinated.

This is exactly where we as DTS - Diamond Tooling Systems GmbH come in, "Our core competence is precision tools equipped with ultra-hard cutting materials". These high-tech tools have to be precisely coordinated with application engineers for the machining process.

Tools and processes are comprehensively analysed by our experienced application engineers, the new well thought-out, tailor-made process optimisation is presented to the customer and used together in production in the next step, only in this way is it possible to exploit the optimum potential of the high-hard cutting materials.

With more than 25 years of optimization experience in the manufacturing industry, this is where we see our strength!

During ongoing production, we are at your side with our experienced application engineers. This close cooperation and mutual trust is the basis of our success.



## **Rani Tool Corp.**

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