

The background of the cover is a close-up photograph of a precision-machined metal component, likely a part of a machine tool. The component features several concentric cylindrical sections with varying diameters and finishes. A small, gold-colored pin or feature is visible on one of the upper sections. The lighting is dramatic, highlighting the metallic textures and sharp edges of the part.

# ***VR/Wesson***

## **PCD & CBN Catalog**



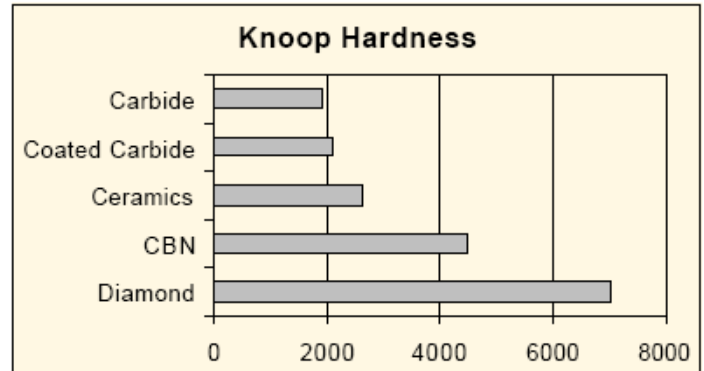
# Polycrystalline Diamond (PCD) & Cubic Boron Nitride (CBN)



VR/Wesson uses only the highest quality Diamond and PCD & CBN based products in their cutting tools.

VR/Wesson performs all grinding and inspection on the latest and most technologically advanced equipment.

VR/Wesson stands behind the quality and performance of its cutting tools 100%.





## Technical Data for Polycrystalline Diamond (PCD)

**PCD Grades** - VR/Wesson PCD tipped tools offer the hardness, strength and abrasion resistance of single crystal diamond without the susceptibility of fracturing. Our PCD tipped tools are capable of high material removal rates with very high thermal conductivity allowing greater heat dissipation in roughing and finishing operations. Additional benefits include long tool life in highly abrasive aluminum/silicon alloys, reinforced composites and plastics.

GRADE	APPLICATIONS	CHARACTERISTICS
VRS-5D	Successful in machining of high silicon aluminium alloys, metal matrix composites (MMC), tungsten carbides and ceramics.	Average grain size of 25µm. VRS-5D offers the optimum wear resistance for abrasive machining conditions.
VRS-6D	The ideal grade where roughing and finishing are performed with a single tool. Highly recommended for low to medium content aluminium alloys.	10 µm average grain size. VRS-6D is the workhorse PCD grade ideal for many applications where a good balance of toughness and wear resistance is required.
VRS-30D	Application areas include MMC, high silicon aluminium alloys, high strength cast irons and bi-metal applications. Excellent abrasive resistance and good thermal stability.	A multi-modal PCD with a combination of 2µm and 30µm grain sizes which gives VRS-30D excellent wear resistance, edge strength and edge quality.
VRS-850D	Ideal for milling and rough cutting of aluminium alloys where extreme chip resistance is required, also for machining titanium and composites.	Sub-micron grain size. VRS-850D's ultra-fine grain structure is suitable for applications where mirror finishes are required due to its extreme edge sharpness/retention.

Material	Operation	Recommended Grade	Cutting Speed (SFPM)	Depth of Cut	Feed Rate IPR for Turning FPT for Milling
Aluminum Alloys	Rough Turning	VRS-5D	3000-10000 1000-3000	.004-.125 .004-.125	.004-.015 IPR .004-.015 IPR
	Finish Turning	VRS-6D	3000-10000 1000-3000	.004-.040 .004-.040	.004-.008 IPR .004-.008 IPR
	Milling	VRS-5D	5000-12000 1250-3000	.004-.125 .004-.125	.004-.012 FPT .004-.012 FPT
Copper, Zinc & Brass	Rough Turning	VRS-5D	2000-3000	.020-.080	.004-.012 IPR
	Finish Turning	VRS-6D	2250-4000	.004-.020	.004-.012 IPR
	Milling	VRS-5D	2250-4000	.004-.125	.004-.012 IPR
Reinforced Plastics	Rough Turning	VRS-5D	500-2500	.040-.080	.004-.015 IPR
	Finish Turning	VRS-6D	1000-5000	.004-.040	.004-.015 IPR
	Milling	VRS-5D	1000-5000	.004-.125	.004-.012 FPT
Sintered Tungsten Carbide	Rough Turning	VRS-5D	65-130	.004-.020	.004-.012 IPR
	Finish Turning	VRS-6D		.004-.008	.004-.012 IPR
Manufactured Wood	Sawing	VRS-850D	65-130	n/a	.020-.060 FPT
	Routing			n/a	.020-.060 FPT



# Technical Data for Cubic Boron Nitride (CBN)

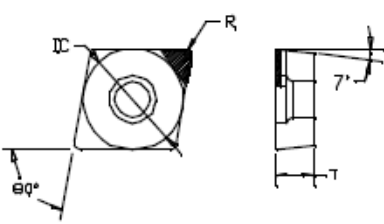


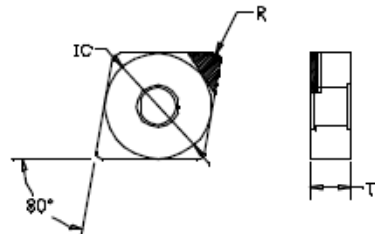
**CBN Grades** - VR/Wesson CBN consists of fine particles of CBN crystals, randomly oriented and strongly bonded together and to a ceramic matrix. This combination provides a uniform high hardness and wear resistance in all directions, resulting in high fracture and wear resistance as well as excellent thermal and chemical stability. CBN is specifically designed for machining ferrous materials for the automotive, aerospace and heavy machining industries.

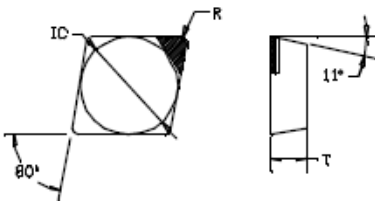
GRADE	APPLICATIONS	CHARACTERISTICS
VRS-100-C	Extreme wear resistance due to high content of course CBN grain. Size: 10µm, Content: 92%	Rough machining of cast iron and powder metal alloys. Binder: Aluminum Nitride, Hardness: 3700-3900
VRS-951-C	Extreme wear resistance and high chipping resistance due to high content CBN and fine CBN size. Size: 2µm, Content: 95%	Machining most kinds of cast iron and powder metal alloy. Binder: Titanium Alloy, Hardness: 3700-3900
VRS-953-C	Extreme wear resistance and high chipping resistance due to high content CBN and fine CBN size. Size: 2µm, Content: 95%	Machining most kinds of cast iron and powder metal alloy. Binder: Tungsten Cobalt Alloy, Hardness: 3700-3900
VRS-95N-C	Extreme wear resistance due to high content of CBN and metal binder. Size: 3µm, Content: 95%	Machining most kinds of cast iron. Binder: Titanium Alloy, Hardness: 3700-3900
VRS-650-C	Combination of wear resistance and thermal stability. Size: 3µm, Content: 65%	High speed and interrupted machining of hardened steel. Binder: Titanium Nitride, Hardness: 2700-2900
VRS-630-C	Combination of wear resistance and impact strength. Size: 1µm, Content: 60%	General use in continuous and light interrupted machining of hardened steel. Binder: Titanium Nitride, Hardness: 2500 - 2700
VRS-500-C	Good thermal stability and crater wear resistance. Size: 1µm, Content 50%	High speed continuous machining of hardened steel. Binder: Titanium Carbide, Hardness: 2500-2700

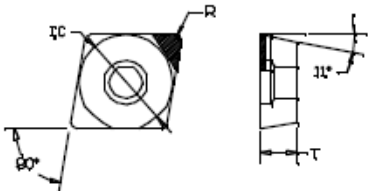
Material	Operation	Recommended Grade	Cutting Speed (SFPM)	Depth of Cut	Feed Rate IPR for Turning FPT for Milling
Pearlitic Grey Cast Iron	Rough/Finish	AG600 AG700	1950-3950	.004-.100	.006-.023
Hard Cast Iron (>45Rc)	Rough/Finish	AG700	250-495	.008-.100	.005-.025
Hardened Steels (>45Rc)	Rough/Finish	AG600 AG700	215-395	.020-.100	.004-.020
Alloy Steels	Finishing	AG820	325-495	.004-.020	.004-.006
Tool and Die Steels	Finishing	AG820	295-360	.004-.020	.004-.006
Hard Facing Alloys	Rough/Finish	AG600	985-2300	.004-.060	.004-.010
Powder Metals	Rough/Finish	AG600	295-590	.004-.050	.004-.010
Super Alloys	Finishing	AG600	495-820	.004-.100	.004-.012

# PCD & CBN INSERTS

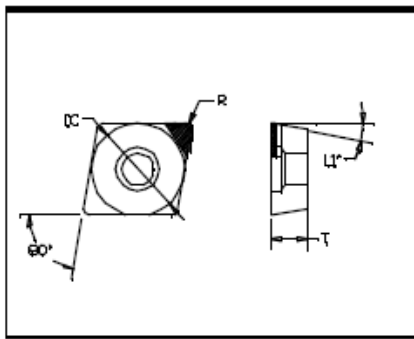
	CCGW	IC	T	R	HOLE
	CCGW2150	0.250	0.094	0.004	0.110
	CCGW2151	0.250	0.094	0.016	0.110
	CCGW2152	0.250	0.094	0.031	0.110
	CCGW3250	0.375	0.156	0.004	0.173
	CCGW3251	0.375	0.156	0.016	0.173
	CCGW3252	0.375	0.156	0.031	0.173

	CNGA	IC	T	R	HOLE
	CNGA431	0.500	0.188	0.016	0.203
	CNGA432	0.500	0.188	0.031	0.203
	CNGA433	0.500	0.188	0.047	0.203

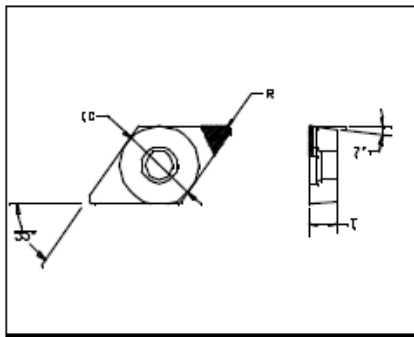
	CPG	IC	T	R	HOLE
	CPG421	0.500	0.125	0.016	-
	CPG422	0.500	0.125	0.031	-
	CPG423	0.500	0.125	0.047	-

	CPGW	IC	T	R	HOLE
	CPGW2150	0.250	0.094	0.004	0.110
	CPGW2151	0.250	0.094	0.016	0.110
	CPGW2152	0.250	0.094	0.031	0.110
	CPGW3250	0.375	0.156	0.004	0.173
	CPGW3251	0.375	0.156	0.016	0.173
	CPGW3252	0.375	0.156	0.031	0.173

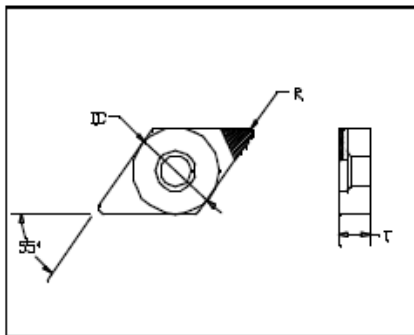
# PCD & CBN INSERTS



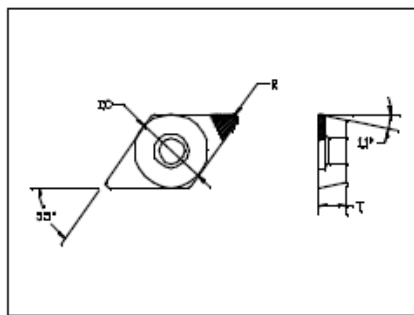
CPMW	IC	T	R	HOLE
CPMW 1.81.51	0.219	0.094	0.016	0.098



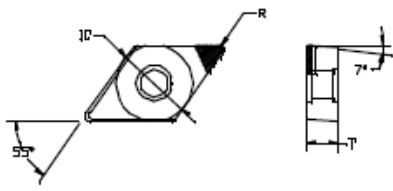
DCGW	IC	T	R	HOLE
DCGW2150	0.250	0.094	0.004	0.110
DCGW2151	0.250	0.094	0.016	0.110
DCGW2152	0.250	0.094	0.031	0.110
DCGW3250	0.375	0.156	0.004	0.173
DCGW3251	0.375	0.156	0.016	0.173
DCGW3252	0.375	0.156	0.031	0.173

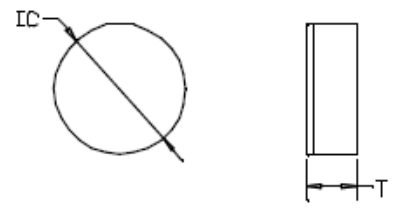


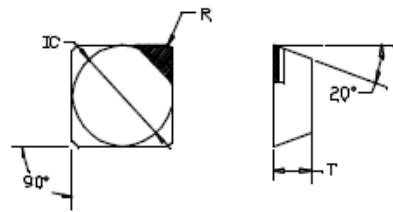
DNGA	IC	T	R	HOLE
DNGA431	0.500	0.188	0.016	0.203
DNGA432	0.500	0.188	0.031	0.203
DNGA433	0.500	0.188	0.047	0.203

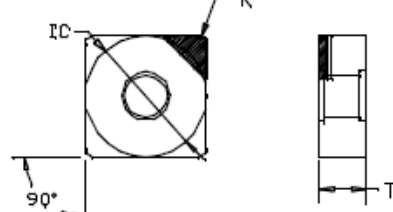


DPGW	IC	T	R	HOLE
DPGW2150	0.250	0.094	0.004	0.110
DPGW2151	0.250	0.094	0.016	0.110
DPGW2152	0.250	0.094	0.031	0.110
DPGW3250	0.375	0.156	0.004	0.173
DPGW3251	0.375	0.156	0.016	0.173
DPGW3252	0.375	0.156	0.031	0.173

	DTGA	IC	T	R	HOLE
	DTGA432	0.500	0.188	0.031	0.203
	DTGA433	0.500	0.188	0.047	0.203

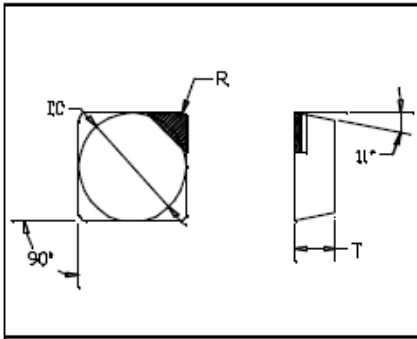
	RNG	IC	T	R	HOLE
	RNG32	0.375	0.125	0.188	-
	RNG42	0.500	0.125	0.250	-
	RNG43	0.500	0.188	0.250	-

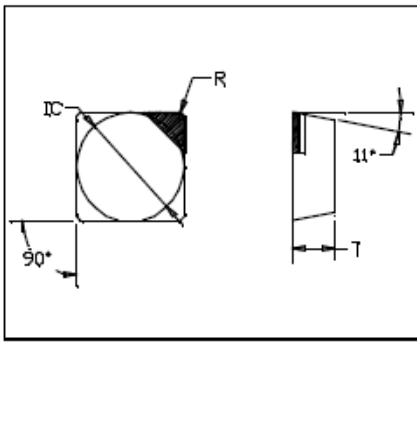
	SEC	IC	T	R	HOLE
	SEC421	0.500	0.125	0.016	-
	SEC422	0.500	0.125	0.031	-
	SEC432	0.500	0.188	0.031	-
	SEC433	0.500	0.188	0.047	-
	SEC434	0.500	0.188	0.062	-

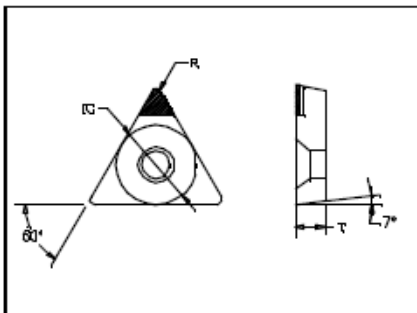
	SNGA	IC	T	R	HOLE
	SNGA431	0.500	0.188	0.016	0.203
	SNGA432	0.500	0.188	0.031	0.203
	SNGA433	0.500	0.188	0.047	0.203

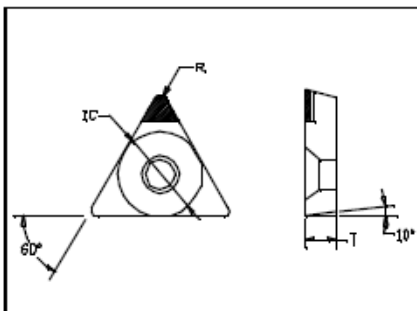
# PCD & CBN INSERTS

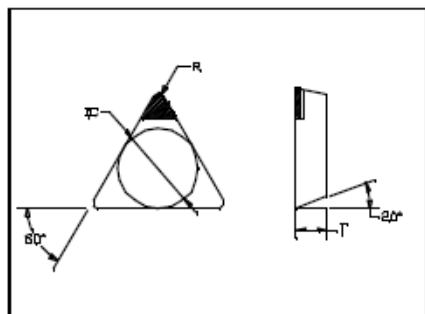


	SPCE	IC	T	R	HOLE
	SPCE731	0.219	0.094	0.016	-
	SPCE732	0.219	0.094	0.031	-

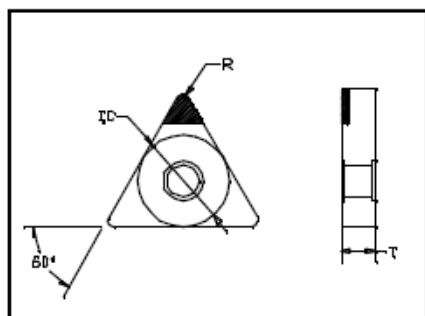
	SPG	IC	T	R	HOLE
	SPG321	0.375	0.125	0.016	-
	SPG322	0.375	0.125	0.031	-
	SPG323	0.375	0.125	0.047	-
	SPG324	0.375	0.125	0.062	-
	SPG421	0.500	0.125	0.016	-
	SPG422	0.500	0.125	0.031	-
	SPG423	0.500	0.125	0.047	-
	SPG424	0.500	0.125	0.062	-
	SPG432	0.500	0.188	0.031	-
	SPG433	0.500	0.188	0.047	-
	SPG434	0.500	0.188	0.062	-

	TCGW	IC	T	R	HOLE
	TCGW2150	0.250	0.094	0.004	0.110
	TCGW2151	0.250	0.094	0.016	0.110
	TCGW2152	0.250	0.094	0.031	0.110
	TCGW3250	0.375	0.156	0.004	0.173
	TCGW3251	0.375	0.156	0.016	0.173
	TCGW3252	0.375	0.156	0.031	0.173

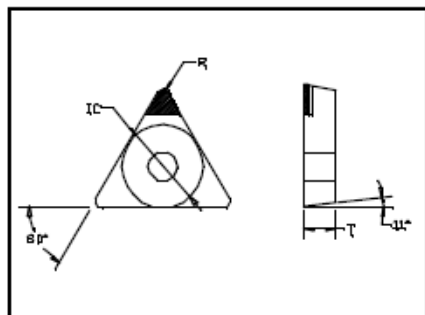
	TD	IC	T	R	HOLE
	TD6P	0.375	0.125	0.031	0.125
	TD7P	0.438	0.125	0.031	0.125



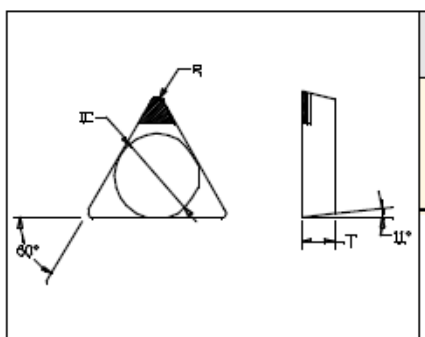
TEC	IC	T	R	HOLE
TEC2521	0.312	0.125	0.016	-
TEC2522	0.312	0.125	0.031	-
TEC321	0.375	0.125	0.016	-
TEC322	0.375	0.125	0.031	-



TNGA	IC	T	R	HOLE
TNGA431	0.500	0.188	0.016	0.203
TNGA432	0.500	0.188	0.031	0.203
TNGA433	0.500	0.188	0.047	0.203



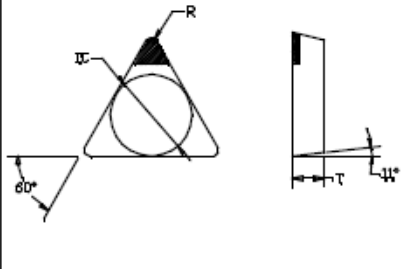
TP	IC	T	R	HOLE
TP41	0.250	0.094	0.016	0.137
TP61	0.375	0.125	0.031	0.163

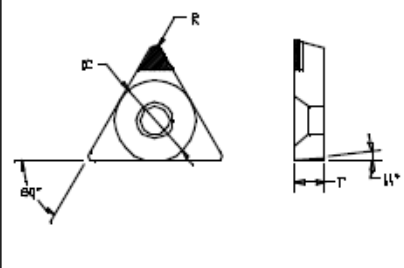


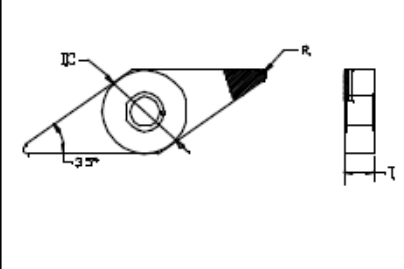
TPEE	IC	T	R	HOLE
TPEE521	0.156	0.063	0.016	-
TPEE631	0.188	0.094	0.016	-
TPEE731	0.219	0.094	0.016	-
TPEE732	0.219	0.094	0.031	-

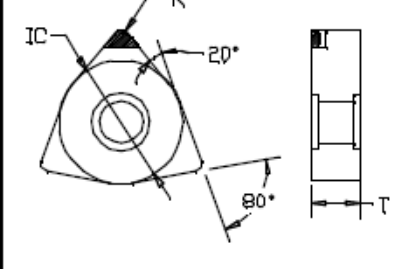
# PCD & CBN INSERTS



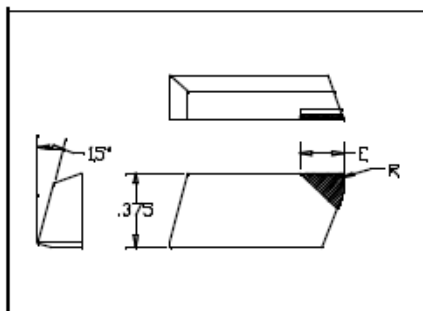
	TPG	IC	T	R	HOLE
	TPG321	0.375	0.125	0.016	-
	TPG322	0.375	0.125	0.031	-
	TPG323	0.375	0.125	0.047	-
	TPG324	0.375	0.125	0.062	-
	TPG421	0.500	0.125	0.016	-
	TPG422	0.500	0.125	0.031	-
	TPG423	0.500	0.125	0.047	-
	TPG424	0.500	0.125	0.062	-
	TPG432	0.500	0.188	0.031	-
	TPG433	0.500	0.188	0.047	-
	TPG434	0.500	0.188	0.062	-

	TPHB	IC	T	R	HOLE
	TPHB090204	0.219	0.094	0.016	0.112
	TPHB110208	0.250	0.094	0.031	0.112

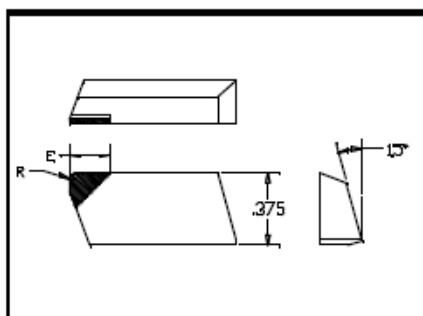
	VNGA	IC	T	R	HOLE
	VNGA331	0.375	0.188	0.016	0.150
	VNGA332	0.375	0.188	0.031	0.150
	VNGA333	0.375	0.188	0.047	0.150

	WNMA	IC	T	R	HOLE
	WNMA431	0.500	0.188	0.016	0.203
	WNMA432	0.500	0.188	0.031	0.203
	WNMA433	0.500	0.188	0.047	0.203

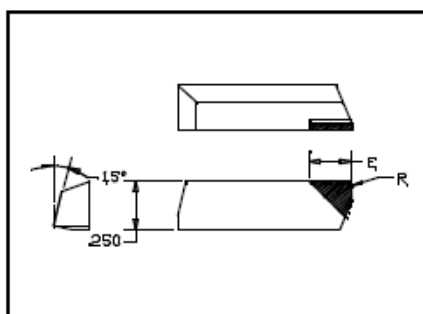
EDGE LENGTH	
E1	0.250
E2	0.375
E3	0.500
E4	0.625
E5	0.750



SDR	RADIUS	EDGE LENGTH (E)
SDR-100-031	0.031	E1-E5
SDR-100-062	0.062	E1-E5
SDR-100-093	0.093	E1-E5



SDL	RADIUS	EDGE LENGTH (E)
SDL-200-031	0.031	E1-E5
SDL-200-062	0.062	E1-E5
SDL-200-093	0.093	E1-E5

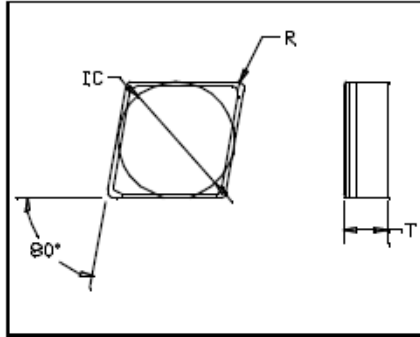


EDR	RADIUS	EDGE LENGTH (E)
EDR-100-015	0.015	E1-E5
EDR-100-031	0.031	E1-E5
EDR-100-062	0.062	E1-E5

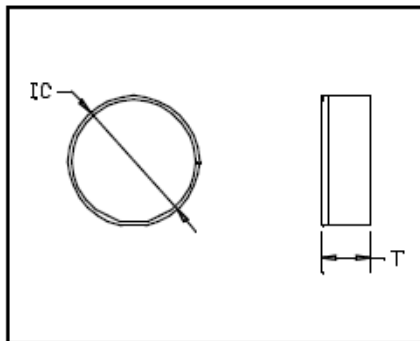
# PCD & CBN INSERTS



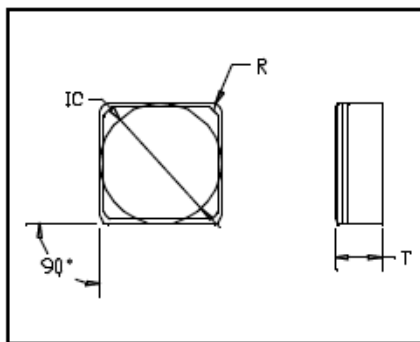
## FULL TOP AND SOLID CBN ANSI INSERTS



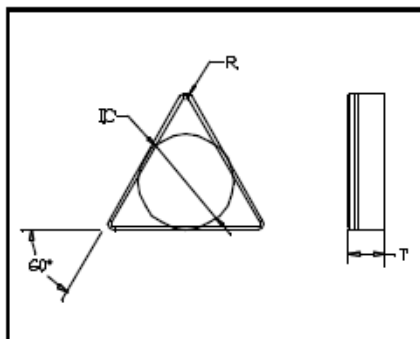
CNM	IC	T	R
CNM322	0.375	0.125	0.031
CNM323	0.375	0.125	0.047
CNM324	0.375	0.125	0.062
CNM432	0.500	0.188	0.031
CNM433	0.500	0.188	0.047
CNM434	0.500	0.188	0.062



RNM	IC	T	R
RNM32	0.375	0.125	0.188
RNM43	0.500	0.188	0.250

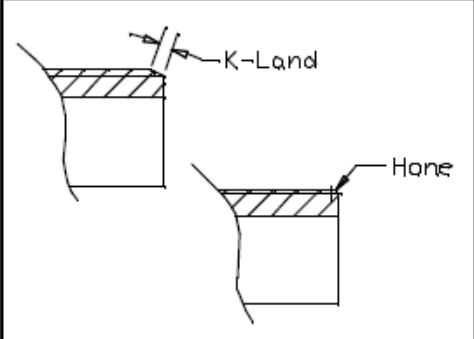


SNM	IC	T	R
SNM322	0.375	0.125	0.031
SNM323	0.375	0.125	0.047
SNM324	0.375	0.125	0.062
SNM432	0.500	0.188	0.031
SNM433	0.500	0.188	0.047
SNM434	0.500	0.188	0.062



TNM	IC	T	R
TNM221	0.250	0.125	0.016
TNM222	0.250	0.125	0.031
TNM223	0.250	0.125	0.047
TNM224	0.250	0.125	0.062

## EDGE PREPS FOR TIPPED, FULL TOP AND SOLID CBN ANSI INSERTS

	MATERIAL	EDGE PREP FOR ROUGHING	EDGE PREP FOR FINISHING
	Hardened Steel Hard Facing Alloys Powdered Metals	20° x .008/.010 15°/20° x .008 20° x .008/.010	20° x .004/.006 20° x .008 20° x .008
	Grey Cast Iron Hard Cast Iron Superalloys	15°/20° x .008 15°/20° x .008 15°/20° x .008	.001/.002 Hone 20° x .008 .0005 Hone

### General tips for PCD and CBN tipped tools

- Always use rigid machining systems with sufficient horsepower.
- Always minimize tool overhang.
- Always handle PCD and CBN tools with great care to avoid chipping.

### Tips for using PCD tipped tools:

- Use positive rake geometry tooling and the largest nose radius possible.
- Climb mill whenever possible.
- Keep depth of cut below 75% of the PCD segment length.
- Can be used wet or dry, but flood coolant is recommended.
- Never use when machining any ferrous materials.

### Tips for using CBN tipped tools:

- Use negative rake tooling and the largest lead angles possible.
- Set tool height on center.
- Use the largest nose radius possible.
- Use chamfered edge on severe and interrupted cuts.





AGI VR/Wesson Inc.  
2673 NE 9th Ave  
Cape Coral, FL 33909

Made In The USA  
ISO 9001:2015 Certified

Phone: 239-573-5132

Fax: 239-573-5137

Email: [sales@vrwesson.com](mailto:sales@vrwesson.com)

[www.vrwesson.com](http://www.vrwesson.com)