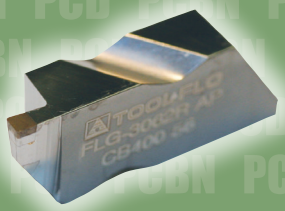
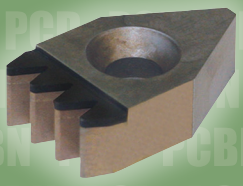


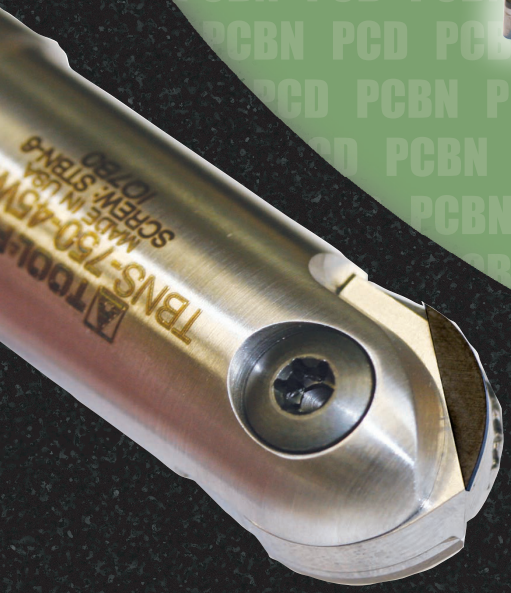
PCD

Polycrystalline Diamond

PCBN

Polycrystalline Cubic Boron Nitride





TOOL-FLO

Tool-Flo's Laser Technology!

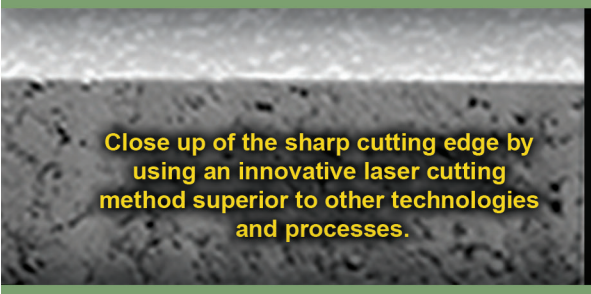
For unmatched cutting edge quality for PCD inserts!

PCD **Polycrystalline Diamond**

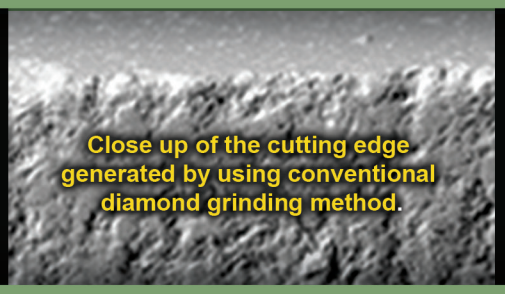
We manufacture with the very latest laser technology!

Most suppliers only use these two methods

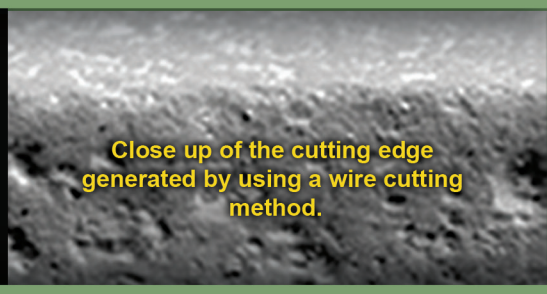
Laser **Grinding** **EDM**



Close up of the sharp cutting edge by using an innovative laser cutting method superior to other technologies and processes.



Close up of the cutting edge generated by using conventional diamond grinding method.



Close up of the cutting edge generated by using a wire cutting method.

Why use ultra-hard materials such as PCD?

It allows for longer tool life when cutting very abraisive materials such as graphite, hard rubber, plastics, carbon, fiberglass components, ceramics, wood, copper, bronze, brass and aluminum alloys where other cutting tools will wear out quickly . Allows for higher removal rates and decreased cycle times.

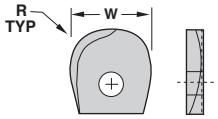
Why use lasar cut PCD?

The advantage of our laser cut PCD is in addition to better tool life, you also get an unmatched cutting edge quality which in turn will give you an excellent surface finish.

Ballnose Endmills

TBNR-N

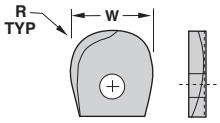
Neutral-Rake Finishing Inserts



Insert Description	EDP Code	Dia	R	PC210	PC225	PC33
TBNR-375-N	PCTBNR375N	.375	.187	●	●	●
TBNR-500-N	PCTBNR500N	.500	.250	●	●	●
TBNR-750-N	PCTBNR750N	.750	.375	●	●	●

*PCD tipped inserts must run in machine with head tilted at 5° minimum

Metric



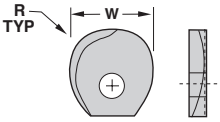
Insert Description	EDP Code	Dia	R	PC210	PC225	PC33
TBNR-10M-N	PCTBNR10MN	10,0	5,0	●	●	●
TBNR-12M-N	PCTBNR12MN	12,0	6,0	●	●	●
TBNR-20M-N	PCTBNR20MN	20,0	10,0	●	●	●

*PCD tipped inserts must run in machine with head tilted at 5° minimum

Spheroid Style

TBRR-N

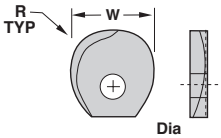
Positive-Rake Finishing Inserts



Insert Description	EDP Code	Dia	R	PC210	PC225	PC33
TBRR-375-N	PCTBRR375N	.375	.187	●	●	●
TBRR-500-N	PCTBRR500N	.500	.250	●	●	●
TBRR-750-N	PCTBRR750N	.750	.375	●	●	●

*PCD tipped inserts must run in machine with head tilted at 5° minimum

Metric



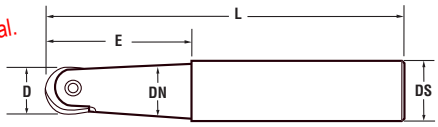
Insert Description	EDP Code	Dia	R	PC210	PC225	PC33
TBRR-10M-N	PCTBRR10MN	10,0	5,0	●	●	●
TBRR-12M-N	PCTBRR12MN	12,0	6,0	●	●	●
TBRR-20M-N	PCTBRR20MN	20,0	10,0	●	●	●

*PCD tipped inserts must run in machine with head tilted at 5° minimum

TBNS-WT

Tapered neck holders (Inch) without coolant port

Available in Steel, Carbide Cored & Heavy Metal.



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/8”	TBNS-500-50WT375	TBNS50050WT375	.375	1.375	5.000	.500	3° Taper	TBNR/RR-375	STBN-3	K3
1/2”	TBNS-625-60WT500	TBNS62560WT500	.500	2.312	6.000	.625	3° Taper	TBNR/RR-500	STBN-4	K3
3/4”	TBNS-100-75WT750	TBNS10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4

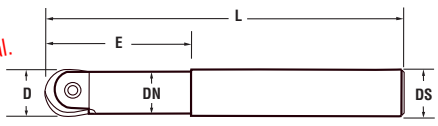
Tapered Neck Holder (**Metric**) without coolant port

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
10mm	TBNS-12M-125WT10	TBNS12M125WT10	10,0	35,0	125,0	12,0	3° Taper	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-16M-160WT12	TBNS16M160WT12	12,0	60,0	160,0	16,0	3° Taper	TBNR/RR-12M	STBN-4	K3
20mm	TBNS-25M-230WT20	TBNS25M230WT20	20,0	80,0	230,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4

TBNS-WS

Straight neck holders (Inch) without coolant port

Available in Steel, Carbide Cored & Heavy Metal.



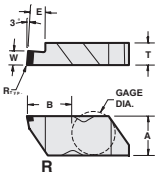
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/8”	TBNS-500-35WS375	TBNS50035WS375	.375	1.344	3.562	.500	.355	TBNR/RR-375	STBN-3	K3
1/2”	TBNS-500-35WS500	TBNS50035WS500	.500	1.250	3.562	.500	.470	TBNR/RR-500	STBN-4	K3
1/2”	TBNS-500-50WS500	TBNS50050WS500	.500	1.250	5.000	.500	.470	TBNR/RR-500	STBN-4	K3
3/4”	TBNS-750-82WS750	TBNS75082WS750	.750	2.375	8.250	.750	.690	TBNR/RR-750	STBN-6	K4

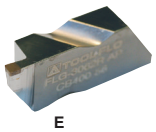
Straight Neck Holder (**Metric**) without coolant port (RH only)

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
10mm	TBNS-10M-100WS10	TBNS10M100WS10	10,0	19,0	100,0	10,0	9,0	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-12M-150WS12	TBNS12M150WS12	12,0	46,0	150,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
20mm	TBNS-20M-175WS20	TBNS20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4

Grooving Inserts

FLG

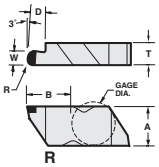


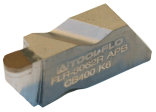


Description	EDP Code	W	R	T	H	E	Edge Prep	PC210	PC225	PC33
FLG-2031L	PC562631L	.031	.002/.005	.150	.219	.050	Sharp	●	●	●
FLG-2031R	PC562631R	.031	.002/.005	.150	.219	.050	Sharp	●	●	●
FLG-2062L	PC562662L	.062	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-2062R	PC562662R	.062	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-2094L	PC562694L	.094	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-2094R	PC562694R	.094	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-2125L	PC523825L	.125	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-2125R	PC562625R	.125	.005/.010	.150	.219	.110	Sharp	●	●	●
FLG-3031L	PC563631L	.031	.005/.010	.195	.344	.075	Sharp	●	●	●
FLG-3031R	PC563631R	.031	.005/.010	.195	.344	.075	Sharp	●	●	●
FLG-3062L	PC563662L	.062	.005/.010	.195	.344	.120	Sharp	●	●	●
FLG-3062R	PC563662R	.062	.005/.010	.195	.344	.120	Sharp	●	●	●
FLG-3094L	PC563694L	.094	.005/.010	.195	.344	.180	Sharp	●	●	●
FLG-3094R	PC563694R	.094	.005/.010	.195	.344	.180	Sharp	●	●	●
FLG-3125L	PC563825L	.125	.005/.010	.195	.344	.180	Sharp	●	●	●
FLG-3125R	PC563625R	.125	.005/.010	.195	.344	.180	Sharp	●	●	●
FLG-3189L	PC563889L	.189	.020/.025	.195	.344	.180	Sharp	●	●	●
FLG-3189R	PC563889R	.189	.020/.025	.195	.344	.180	Sharp	●	●	●

FLR

Full Nose Radius



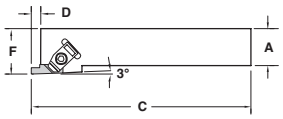


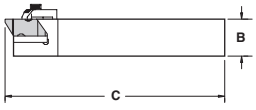
Description	EDP Code	W	R	T	H	E	Edge Prep	PC210	PC225	PC33
FLR-3031L	PC593031L	.062	.031	.195	.344	.125	Sharp	●	●	●
FLR-3031R	PC593031R	.062	.031	.195	.344	.125	Sharp	●	●	●
FLR-3062L	PC593062L	.125	.062	.195	.344	.180	Sharp	●	●	●
FLR-3062R	PC593062R	.125	.062	.195	.344	.180	Sharp	●	●	●

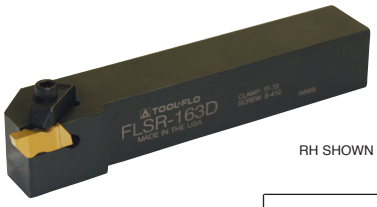
External Holder (Inch)

FLSR/L

Threading and Grooving







RH SHOWN

Most holders available with coolant port (ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F*	Clamp	Clamp Screw
FLSR-163D	93401616D	FL_-3R	1	1	6	.21	1.250	TF-72	S-412
FLSL-163D	93301616D	FL_-3L	1	1	6	.21	1.250	TF-73	S-412
FLSR-203D	93402016D	FL_-3R	1-1/4	1-1/4	6	.21	1.500	TF-72	S-412
FLSL-203D	93302016D	FL_-3L	1-1/4	1-1/4	6	.21	1.500	TF-73	S-412

* "F" Dim. over sharp point of grooving insert.

Metric

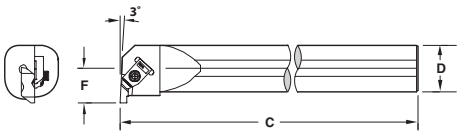
Description	EDP Code	Insert	A	B	C	D	F*	Clamp	Clamp Screw
FLSR-2020M3	93412016	FL_-3R	20,0	20,0	125,0	5,0	32,0	TF-72	S-412
FLSL-2020M3	93312016	FL_-3L	20,0	20,0	125,0	5,0	32,0	TF-73	S-412
FLSR-2525M3	93412516	FL_-3R	25,0	25,0	150,0	5,0	32,0	TF-72	S-412
FLSL-2525M3	93312516	FL_-3L	25,0	25,0	150,0	5,0	32,0	TF-73	S-412

* "F" Dim. over sharp point of grooving insert.

Internal Bars (Inch)

A-FLER/L

Threading and Grooving
Coolant hole



RH SHOWN

Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A16-FLER3	96501616	●	FL-3L	1.375	1.000	12	.688	TF-73	S-412
A16-FLEL3	96401616	●	FL-3R	1.375	1.000	12	.688	TF-72	S-412
A24-FLER3	96502416	●	FL-3L	2.000	1.500	14	1.000	TF-73	S-412
A24-FLEL3	96402416	●	FL-3R	2.000	1.500	14	1.000	TF-72	S-412

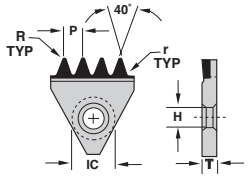
"F" and "C" Dim. over sharp point of grooving insert.

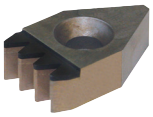
Metric

Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A25M-FLER3	96442516	●	FL-3L	34,9	25,0	300,0	17,7	TF-73	S-412
A25M-FLEL3	96432516	●	FL-3R	34,9	25,0	300,0	17,7	TF-72	S-412
A40M-FLER3	96444016	●	FL-3L	50,8	40,0	350,0	24,45	TF-73	S-412
A40M-FLEL3	96434016	●	FL-3R	50,8	40,0	350,0	24,45	TF-72	S-412

"F" and "C" Dim. over sharp point of grooving insert.

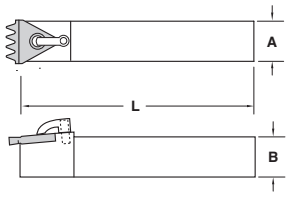
Poly-Vee Inserts
PV

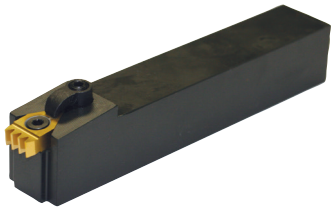




Description	EDP Code	Cross Section	IC	H	T	P	r	R	# of teeth	PC210	PC225	PC33
PV-5092-4E	PCPV50924E	J	.625	.203	.252	.092	.008	.012	4	●	●	●
PV-5140-2E	PCPV51402E	K	.625	.203	.252	.140	.013	.016	2	●	●	●
PV-5140-4E	PCPV51404E	K	.625	.203	.252	.140	.013	.016	4	●	●	●
PV-6185-4E	PCPV61854E	L	.750	.203	.252	.185	.021	.013	4	●	●	●

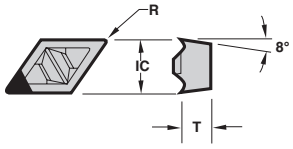
External Holder
STCNR

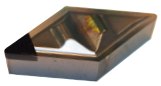




Description	EDP Code	A	B	L	Insert	Insert Screw	Clamp	Clamp Screw
STCNR-165	977064641	1.000	1.000	6.000	PV-5	SD-2	TC-250	STC-11
STCNR-205	9770206641	1.250	1.250	6.000	PV-5	SD-2	TC-250	STC-11

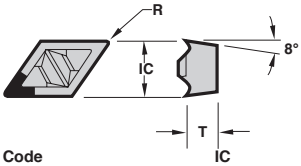
Profiling Inserts
DPGN

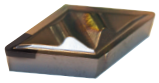




Description	EDP Code	IC	R	T	B	PC210	PC225	PC33
DPGN-432	PC643432N	.500	.031	.187	.255	●	●	●

DPGR

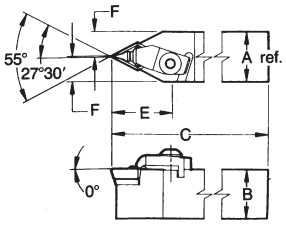




Description	EDP Code	IC	R	T	B	PC210	PC225	PC33
DPGR-431	PC643431	.500	.015	.187	.255	●	●	●
DPGR-432	PC643432	.500	.031	.187	.255	●	●	●

External Holder (Inch)
FLDPPN

Most holders available with coolant port
(ie: Add CP to end of description)

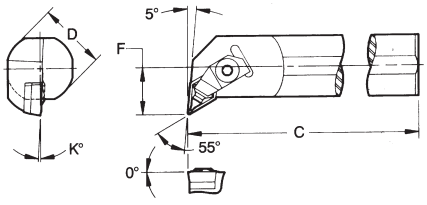


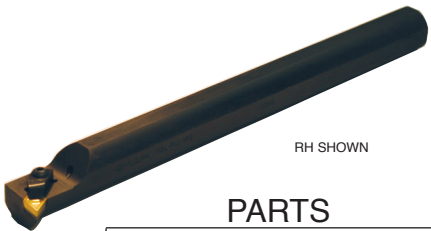
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLDPPN-164D	92841625	DPGR/N-43_	1	1	6	1.59	.519	SM-414	S-111	CM116	S-532
FLDPPN-204D	92842025	DPGR/N-43_	1-1/4	1-1/4	6	1.59	.644	SM-414	S-111	CM116	S-532

Internal Bars (Inch)
A-FLDL

Most bars available with coolant port
(ie: Add CP to end of description)



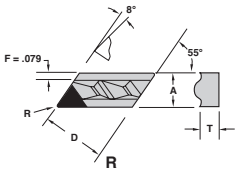


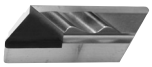
PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A20-FLDLPR4	90522025	DPGR/N-43_	1.250	14	.875	3°	1.585	SM-414	S-111	CM118	S-532
A20-FLDLPL4	90502025	DPGR/N-43_	1.250	14	.875	3°	1.585	SM-414	S-111	CM119	S-532
A24-FLDLPR4	90522425	DPGR/N-43_	1.500	14	1.000	2°	1.835	SM-414	S-111	CM118	S-532
A24-FLDLPL4	90502425	DPGR/N-43_	1.500	14	1.000	2°	1.835	SM-414	S-111	CM119	S-532
A28-FLDLPR4	90522825	DPGR/N-43_	1.750	14	1.125	2°	2.120	SM-414	S-111	CM118	S-532
A28-FLDLPL4	90502825	DPGR/N-43_	1.750	14	1.125	2°	2.120	SM-414	S-111	CM119	S-532
A32-FLDLPR4	90523225	DPGR/N-43_	2.000	16	1.250	2°	2.400	SM-414	S-111	CM118	S-532
A32-FLDLPL4	90503225	DPGR/N-43_	2.000	16	1.250	2°	2.400	SM-414	S-111	CM119	S-532

Profiling Inserts

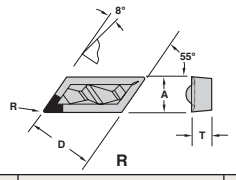
FLPR/L





Description	EDP Code	R	T	D	A	PC210	PC225	PC33
FLPR-50.5	PC642505	.005	.125	.375	.250	●	●	●
FLPR-51	PC64251	.015	.125	.375	.250	●	●	●
FLPL-50.5	PC641505	.005	.125	.375	.250	●	●	●
FLPL-51	PC64151	.015	.125	.375	.250	●	●	●
FLPR-130.5	PC6421305	.005	.187	.500	.375	●	●	●
FLPR-131F	PC642131F	.015	.187	.500	.375	●	●	●
FLPL-132F	PC642132F	.031	.187	.500	.375	●	●	●
FLPL-130.5	PC6411305	.005	.187	.500	.375	●	●	●
FLPL-131F	PC641131F	.015	.187	.500	.375	●	●	●

FLPGR/L

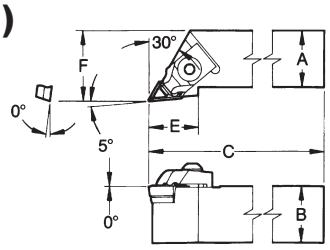


Description	EDP Code	R	T	D	A	PC210	PC225	PC33
FLPGR-51	PC642G51	.015	.125	.375	.250	●	●	●
FLPGR-52	PC642G52	.031	.125	.375	.250	●	●	●
FLPGL-51	PC641G51	.015	.125	.375	.250	●	●	●
FLPGL-52	PC641G52	.031	.125	.375	.250	●	●	●

External Holder (Inch)

FLKL

Most holders available with coolant port
(ie: Add CP to end of description)



PARTS

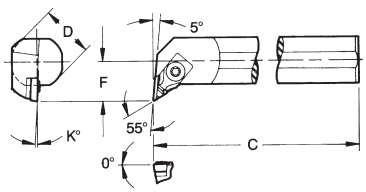
Description	EDP Code	Insert	A	B	C	F	E	Seat	Seat Screw	Clamp	Clamp Screw
FLKLCR-0805V	93130829	FLPR-5_*	1/2	1/2	3-1/2	.750	.875	SM-285	S-959	CM79	S-524
FLKLCL-0805V	93120829	FLPL-5_*	1/2	1/2	3-1/2	.750	.875	SM-286	S-959	CM71	S-524
FLKLCR-1205B	93131229	FLPR-5_*	3/4	3/4	4-1/2	1.000	.875	SM-285	S-959	CM68	S-524
FLKLCL-1205B	93121229	FLPL-5_*	3/4	3/4	4-1/2	1.000	.875	SM-286	S-959	CM68	S-524
FLKLNR-121B	93131230	FLPR-13_	3/4	3/4	4-1/2	1.000	1.250	SM-272	SL-344	CM66	S-625
FLKLNL-121B	93121230	FLPL-13_	3/4	3/4	4-1/2	1.000	1.250	SM-271	SL-344	CM66	S-625
FLKLNR-161C	93131630	FLPR-13_	1	1	5	.750	.875	SM-272	SL-344	CM66	S-625
FLKLNL-161C	93121630	FLPL-13_	1	1	5	.750	.875	SM-271	SL-344	CM66	S-625

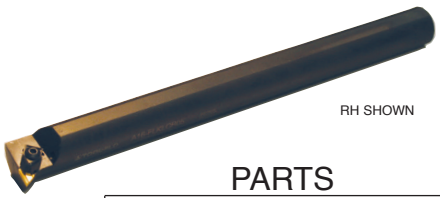
*Also used with inserts FLPGR/FLPGL.

Internal Bars (Inch)

A-FLKL

Most bars available with coolant port
(ie: Add CP to end of description)





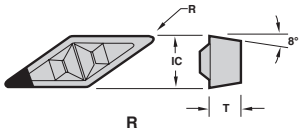
PARTS

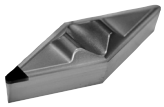
Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A10-FLKLCR05	90561029	FLPL-5_*	.625	10	.500	5°	.900	SM-286	S-959	CM79	S-524
A10-FLKLCL05	90541029	FLPR-5_*	.625	10	.500	5°	.900	SM-285	S-959	CM71	S-524
A12-FLKLCR05	90561229	FLPL-5_*	.750	10	.562	5°	.980	SM-286	S-959	CM79	S-524
A12-FLKLCL05	90541229	FLPR-5_*	.750	10	.562	5°	.980	SM-285	S-959	CM71	S-524
A16-FLKLCR05	90561629	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKLCL05	90541629	FLPR-5_*	1.000	12	.750	3°	1.300	SM-285	S-959	CM68	S-524
A20-FLKLCR05	90562029	FLPL-5_*	1.250	14	.875	3°	1.585	SM-286	S-959	CM68	S-524
A20-FLKLCL05	90542029	FLPR-5_*	1.250	14	.875	3°	1.585	SM-285	S-959	CM68	S-524
A24-FLKLCR05	90562429	FLPL-5_*	1.500	14	1.000	2°	1.835	SM-286	S-959	CM68	S-524
A24-FLKLCL05	90542429	FLPR-5_*	1.500	14	1.000	2°	1.835	SM-285	S-959	CM68	S-524
A32-FLKLCR05	90563229	FLPL-5_*	2.000	16	1.250	2°	2.400	SM-286	S-959	CM68	S-524
A32-FLKLCL05	90543229	FLPR-5_*	2.000	16	1.250	2°	2.400	SM-285	S-959	CM68	S-524

*Also used with inserts FLPGR/FLPGL.

Profiling Inserts

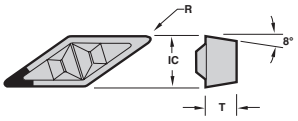
VPGN

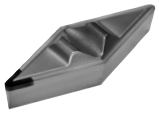




Description	EDP Code	R	T	IC	PC210	PC225	PC33
VPGN-331	PC644331N	.015	.187	.375	●	●	●
VPGN-332	PC644332N	.031	.187	.375	●	●	●
VPGN-333	PC644333N	.047	.187	.375	●	●	●

VPGR

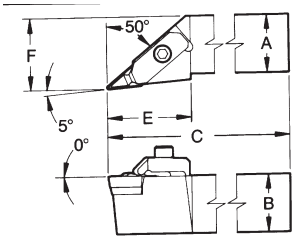




Description	EDP Code	R	T	IC	PC210	PC225	PC33
VPGR-331	PC644331	.015	.187	.375	●	●	●
VPGR-332	PC644332	.031	.187	.375	●	●	●
VPGR-333	PC644333	.047	.187	.375	●	●	●

External Holder (Inch)

FLVLCR/L



RH SHOWN

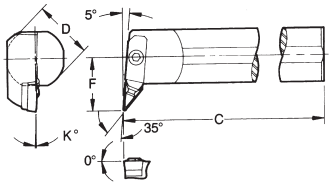
Most holders available with coolant port
(ie: Add CP to end of description)

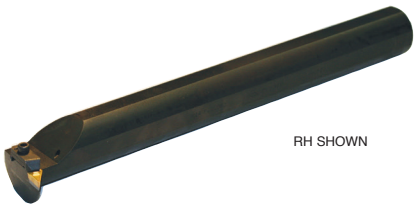
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLVLCR-123B	93531226	VPGR/N-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM113	S-412
FLVLCL-123B	93521226	VPGR/N-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM114	S-412
FLVLCR-163D	93531626	VPGR/N-33_	1	1	6	1.44	1.250	SM-412	S-959	CM113	S-412
FLVLCL-163D	93521626	VPGR/N-33	1	1	6	1.44	1.250	SM-412	S-959	CM114	S-412
FLVLCR-203D	93532026	VPGR/N-33_	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM113	S-412
FLVLCL-203D	93522026	VPGR/N-33_	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM114	S-412

Internal Bars (Inch)

A-FLVL





RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

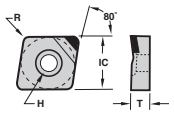
PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A20-FLVLCR3	90682026	VPGR/N-33_	1.250	14	1.125	2°	1.830	SM-412	S-959	CM113	S-412
A20-FLVLCL3	90662026	VPGR/N-33_	1.250	14	1.125	2°	1.830	SM-412	S-959	CM114	S-412
A24-FLVLCR3	90682426	VPGR/N-33_	1.500	14	1.250	2°	2.120	SM-412	S-959	CM113	S-412
A24-FLVLCL3	90662426	VPGR/N-33_	1.500	14	1.250	2°	2.120	SM-412	S-959	CM114	S-412
A32-FLVLCR3	90683226	VPGR/N-33_	2.000	16	1.500	2°	2.620	SM-412	S-959	CM113	S-412
A32-FLVLCL3	90663226	VPGR/N-33_	2.000	16	1.500	2°	2.620	SM-412	S-959	CM114	S-412

Turning Inserts

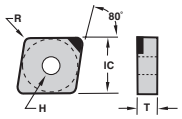
CCMX

Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
CCMX-21.50	PCJAMXD0	.250	.004	.094	.110	●	●	●
CCMX-21.51	PCJAMXD1	.250	.015	.094	.110	●	●	●
CCMX-32.51	PCJAMXG1	.375	.015	.156	.173	●	●	●
CCMX-32.52	PCJAMXG2	.375	.031	.156	.173	●	●	●

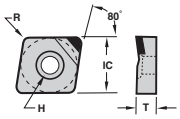
CNMA



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
CNMA-431	PCJBMAJ1	.500	.015	.187	.203	●	●	●
CNMA-432	PCJBMAJ2	.500	.031	.187	.203	●	●	●
CNMA-433	PCJBMAJ3	.500	.047	.187	.203	●	●	●

CNMX

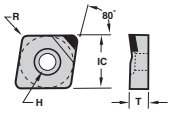
Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
CNMX-431	PCJBMXJ1	.500	.015	.187	.203	●	●	●
CNMX-432	PCJBMXJ2	.500	.031	.187	.203	●	●	●
CNMX-433	PCJBMXJ3	.500	.047	.187	.203	●	●	●

CPMX

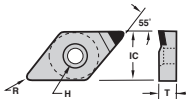
Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
CPMX-21.50	PCJPMXD0	.250	.004	.094	.134	●	●	●
CPMX-21.51	PCJPMXD1	.250	.015	.094	.134	●	●	●
CPMX-320.5	PCJPMXG05	.375	.007	.125	.173	●	●	●
CPMX-321	PCJPMXG1	.375	.015	.125	.173	●	●	●
CPMX-322	PCJPMXG2	.375	.031	.125	.173	●	●	●

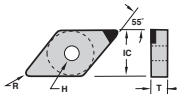
DCMX

Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
DCMX-21.50	PCJDMXD0	.250	.004	.094	.110	●	●	●
DCMX-21.51	PCJDMXD1	.250	.015	.094	.110	●	●	●
DCMX-32.50	PCJDMXG0	.375	.004	.156	.173	●	●	●
DCMX-32.50.5	PCJDMXG05	.375	.007	.156	.173	●	●	●
DCMX-32.51	PCJDMXG1	.375	.015	.156	.173	●	●	●

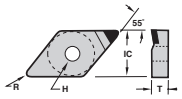
DNMA



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
DNMA-431	PCJEMAJ1	.500	.015	.187	.203	●	●	●
DNMA-432	PCJEMAJ2	.500	.031	.187	.203	●	●	●
DNMA-433	PCJEMAJ3	.500	.047	.187	.203	●	●	●

DNMX

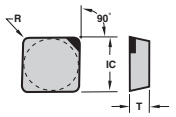
Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
DNMX-431	PCJEMXJ1	.500	.015	.187	.203	●	●	●
DNMX-432	PCJEMXJ2	.500	.031	.187	.203	●	●	●
DNMX-433	PCJEMXJ3	.500	.047	.187	.203	●	●	●

Turning Inserts

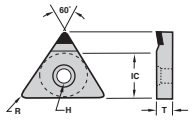
SPG



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
SPG-321	PCMSG321	.375	.015	.125	-	●	●	●
SPG-322	PCMSG322	.375	.031	.125	-	●	●	●
SPG-421	PCMSG421	.500	.015	.125	-	●	●	●
SPG-422	PCMSG422	.500	.031	.125	-	●	●	●

TCMX

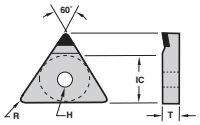
Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
TCMX1.81.50	PCJTQMXA0	.219	.004	.094	-	●	●	●
TCMX1.81.50.5	PCJTQMXA05	.219	.007	.094	-	●	●	●
TCMX1.81.51	PCJTQMXA1	.219	.015	.094	-	●	●	●
TCMX21.50	PCJTQMXD0	.250	.004	.094	-	●	●	●
TCMX21.50.5	PCJTQMXD05	.250	.007	.094	-	●	●	●
TCMX21.51	PCJTQMXD1	.250	.015	.094	-	●	●	●

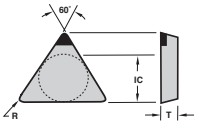
TNMX

Positive Rake



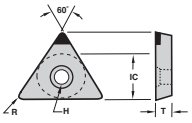
Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
TNMX-331	PCJTMXH1	.375	.015	.187	.150	●	●	●
TNMX-332	PCJTMXH2	.375	.031	.187	.150	●	●	●

TPG



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
TPG-221	PCTPG221	.250	.015	.125	-	●	●	●
TPG-222	PCTPG222	.250	.031	.125	-	●	●	●
TPG-321	PCTPG321	.375	.015	.125	-	●	●	●
TPG-322	PCTPG322	.375	.031	.125	-	●	●	●
TPG-323	PCTPG323	.375	.047	.125	-	●	●	●
TPG-431	PCTPG431	.500	.015	.187	-	●	●	●
TPG-432	PCTPG432	.500	.031	.187	-	●	●	●

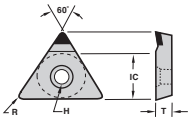
TPGA



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
TPGA-220.5	PCTPGA2205	.250	.007	.125	.130	●	●	●
TPGA-221	PCTPGA221	.250	.015	.125	.130	●	●	●
TPGA-222	PCTPGA222	.250	.031	.125	.130	●	●	●
TPGA-331	PCTPGA331	.375	.015	.187	.169	●	●	●
TPGA-332	PCTPGA332	.375	.031	.187	.169	●	●	●
TPGA-333	PCTPGA333	.375	.047	.187	.169	●	●	●

TPMX

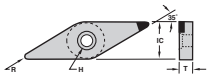
Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
TPMX-220.5	PCTPMX2205	.250	.007	.125	.130	●	●	●
TPMX-221	PCTPMX221	.250	.015	.125	.130	●	●	●
TPMX-222	PCTPMX222	.250	.031	.125	.130	●	●	●

Turning Inserts

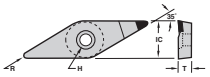
VCMA



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
VCMA-333	PCJWMAH3	.375	.047	.187	.173	●	●	●

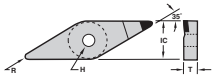
VCMX

Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
VCMX-333	PCJWMXH3	.375	.047	.187	.173	●	●	●

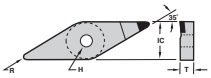
VNMA



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
VNMA-333	PCJXMAH3	.375	.047	.187	.173	●	●	●

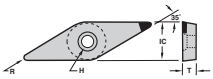
VNMX

Positive Rake



Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
VNMX-331	PCJXMXH1	.375	.015	.187	.150	●	●	●
VNMX-332	PCJXMXH2	.375	.031	.187	.150	●	●	●
VNMX-333	PCJXMXH3	.375	.047	.187	.150	●	●	●

VPMA

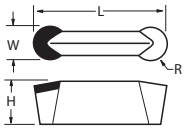


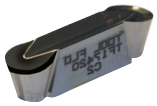
Description	EDP Code	IC	R	T	H	PC210	PC225	PC33
VPMA-443	PCJXPAN3	.500	.047	.250	.214	●	●	●

For complete listing of turning style tool holders and bars, please see our general catalog online at toolflo.com.

Wheel Turning Inserts

DBV

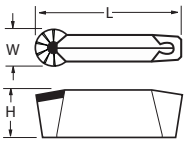




Description	EDP Code	W	R	L	H	PC210	PC225	PC33
DBV-315 FNR-CB	PCTF17420	.315	.157	1.180	.320	●	●	●

DBV

Chipbreaker
CBYZ

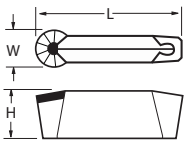


Description	EDP Code	W	R	L	H	PC210	PC225	PC33
DBV-315 FNR-CBYZ	PCTF22487	.315	.157	1.180	.320	●	●	●

DBV

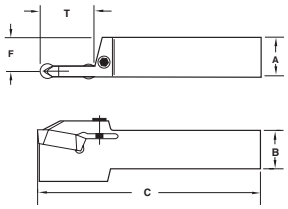
Chipbreaker
TFCB

NEW DESIGN!
Patent Pending



Description	EDP Code	W	R	L	H	PC210	PC225	PC33
DBV-315 FNR-TFCB	PCTF	.315	.157	1.180	.320	●	●	●

External Holder (Inch)
TFHDR/L



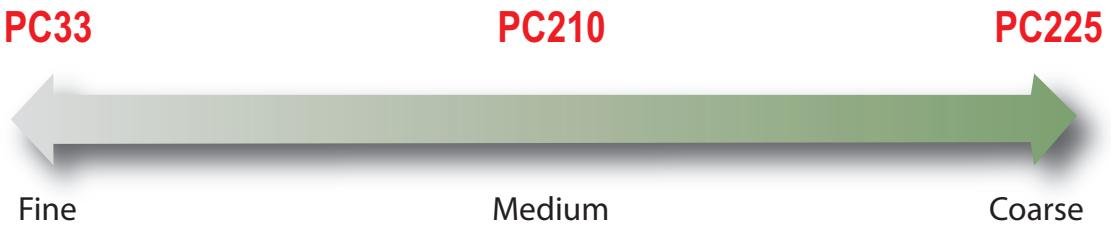
RH SHOWN

Description	EDP Code	Insert	T	A	B	C	F	Screw
TFHDR-25.4-8	9828168	DBV	1.000	1.000	1.000	6.000	.884	S-412
TFHDL-25.4-8	9827168	DBV	1.000	1.000	1.000	6.000	.884	S-412
TFHDR-31.7-8	9828208	DBV	1.000	1.250	1.250	6.700	1.133	S-412
TFHDL-31.7-8	9827208	DBV	1.000	1.250	1.250	6.700	1.133	S-412

Close up view of the cutting edge on various inserts of various brands compared to Tool-Flo's laser cut PCD. The superiority of our cutting edge quality can be clearly seen!

Technical Information

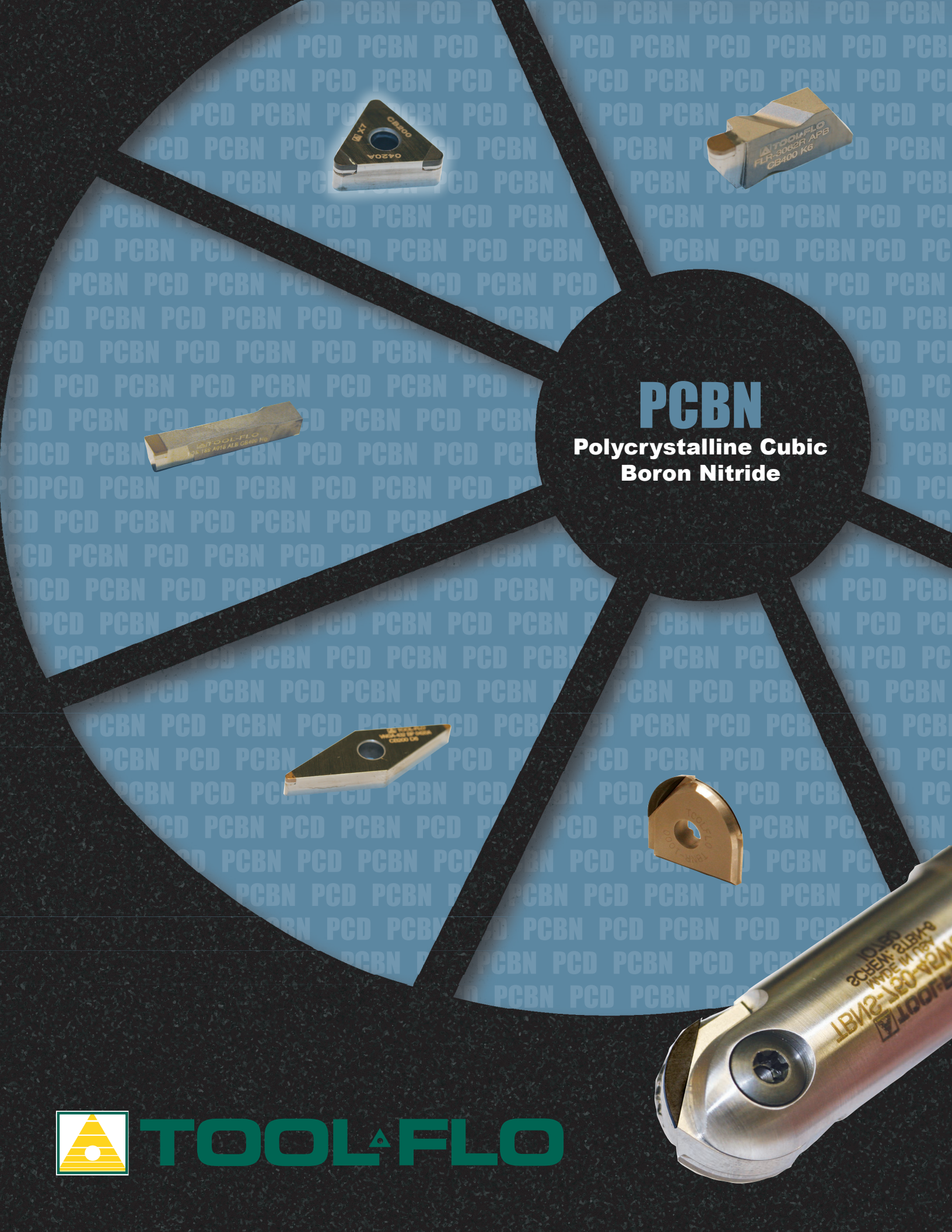
All Tool-Flo PCD grades are fine grain Diamond. PC225 has a high abrasion resistance and excellent tool edge sharpness. PC33 is a submicron grain diamond with a high degree of toughness and superior wear resistance.



Polycrystalline Diamond (PCD)

Recommended Speeds and Feeds

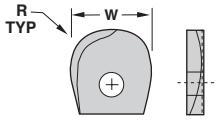
Material	Speed Rate (SFPM)	Depth of Cut (DOC)	Feeds Rate (IPR)	Grade	
				First Choice	Second Choice
Aluminum less than 7.5% Silicon	1800 - 5000	.002 - .125	.004 - .020	PC33	PC210
Aluminum 7.5 - 12% Silicon	1000 - 4000	.002 - .125	.004 - .020	PC33	PC210
Aluminum 16 - 18% Silicon	1200 - 3500	.002 - .100	.002 - .010	PC33	PC210
Copper	1200 - 3500	.005 - .125	.005 - .020	PC33	PC210
Brass	1200 - 3500	.005 - .125	.005 - .020	PC33	PC210
Sintered Carbide	40 - 90	.002 - .025	.004 - .020	PC33	PC210
Unsintered Carbide	400 - 1200	.005 - .100	.004 - .025	PC210	
Ceramics	200 - 800	.001 - .005	.001 - .005	PC210	
Fiberglass	300 - 2500	.005 - .020	.001 - .010	PC33	PC210
Nylons, Acrylics	550 - 4500	.002 - .100	.005 - .020	PC33	PC210
Graphite	500 - 1200	.005 - .100	.005 - .015	PC33	PC210
Hard Rubber	550 - 2500	.005 - .125	.004 - .020	PC33	PC210
Plastics	550 - 4500	.002 - .100	.005 - .020	PC33	PC210


PCBN
Polycrystalline Cubic
Boron Nitride
TOOL-FLO

Ballnose Endmills

TBNR-N

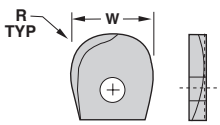
Neutral-Rake Finishing Inserts



Insert Description	EDP Code	Dia	R	CB200	CB400	CB410	CB600	CB900
TBNR-375-N	PCTBNR375N	.375	.187	●	●	●	●	●
TBNR-500-N	PCTBNR500N	.500	.250	●	●	●	●	●
TBNR-750-N	PCTBNR750N	.750	.375	●	●	●	●	●

*CBN tipped inserts must run in machine with head tilted at 5° minimum

Metric



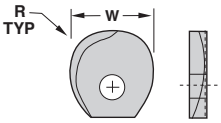
Insert Description	EDP Code	Dia	R	CB200	CB400	CB410	CB600	CB900
TBNR-10M-N	PCTBNR10MN	10,0	5,0	●	●	●	●	●
TBNR-12M-N	PCTBNR12MN	12,0	6,0	●	●	●	●	●
TBNR-20M-N	PCTBNR20MN	20,0	10,0	●	●	●	●	●

*CBN tipped inserts must run in machine with head tilted at 5° minimum

Spheroid Style

TBRR-N

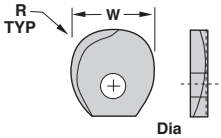
Positive-Rake Finishing Inserts



Insert Description	EDP Code	Dia	R	CB200	CB400	CB410	CB600	CB900
TBRR-375-N	PCTBRR375N	.375	.187	●	●	●	●	●
TBRR-500-N	PCTBRR500N	.500	.250	●	●	●	●	●
TBRR-750-N	PCTBRR750N	.750	.375	●	●	●	●	●

*CBN tipped inserts must run in machine with head tilted at 5° minimum

Metric



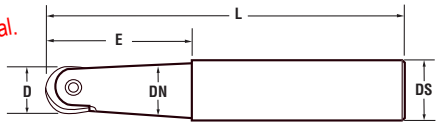
Insert Description	EDP Code	Dia	R	CB200	CB400	CB410	CB600	CB900
TBRR-10M-N	PCTBRR10MN	10,0	5,0	●	●	●	●	●
TBRR-12M-N	PCTBRR12MN	12,0	6,0	●	●	●	●	●
TBRR-20M-N	PCTBRR20MN	20,0	10,0	●	●	●	●	●

*CBN tipped inserts must run in machine with head tilted at 5° minimum

TBNS-WT

Tapered neck holders (Inch) without coolant port

Available in Steel, Carbide Cored & Heavy Metal.



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/8"	TBNS-500-50WT375	TBNS50050WT375	.375	1.375	5.000	.500	3° Taper	TBNR/RR-375	STBN-3	K3
1/2"	TBNS-625-60WT500	TBNS62560WT500	.500	2.312	6.000	.625	3° Taper	TBNR/RR-500	STBN-4	K3
3/4"	TBNS-100-75WT750	TBNS10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4

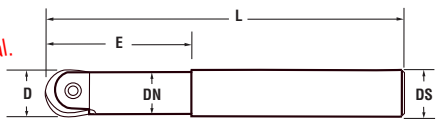
Tapered Neck Holder (**Metric**) without coolant port

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
10mm	TBNS-12M-125WT10	TBNS12M125WT10	10,0	35,0	125,0	12,0	3° Taper	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-16M-160WT12	TBNS16M160WT12	12,0	60,0	160,0	16,0	3° Taper	TBNR/RR-12M	STBN-4	K3
20mm	TBNS-25M-230WT20	TBNS25M230WT20	20,0	80,0	230,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4

TBNS-WS

Straight neck holders (Inch) without coolant port

Available in Steel, Carbide Cored & Heavy Metal.



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/8"	TBNS-500-35WS375	TBNS50035WS375	.375	1.344	3.562	.500	.355	TBNR/RR-375	STBN-3	K3
1/2"	TBNS-500-35WS500	TBNS50035WS500	.500	1.250	3.562	.500	.470	TBNR/RR-500	STBN-4	K3
1/2"	TBNS-500-50WS500	TBNS50050WS500	.500	1.250	5.000	.500	.470	TBNR/RR-500	STBN-4	K3
3/4"	TBNS-750-82WS750	TBNS75082WS750	.750	2.375	8.250	.750	.690	TBNR/RR-750	STBN-6	K4

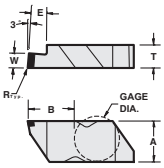
Straight Neck Holder (**Metric**) without coolant port (RH only)

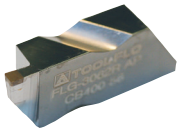
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
10mm	TBNS-10M-100WS10	TBNS10M100WS10	10,0	19,0	100,0	10,0	9,0	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-12M-150WS12	TBNS12M150WS12	12,0	46,0	150,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
20mm	TBNS-20M-175WS20	TBNS20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4

Grooving Inserts

FLG

Single Edge

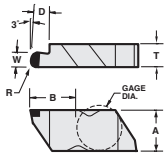


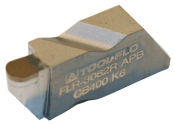


Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400	CB410	CB600	CB900
FLG-3047L APB	CB563647LAPB	.047	.005/.010	.195	.344	.075	.001 Hone	●	●	●	●	●
FLG-3047R APB	CB563647RAPB	.047	.005/.010	.195	.344	.075	.001 Hone	●	●	●	●	●
FLG-3062L APB	CB563662LAPB	.062	.005/.010	.195	.344	.120	.001 Hone	●	●	●	●	●
FLG-3062R APB	CB563662RAPB	.062	.005/.010	.195	.344	.120	.001 Hone	●	●	●	●	●
FLG-3094L AMB	CB563694LAMB	.094	.005/.010	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-3094R AMB	CB563694RAMB	.094	.005/.010	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-3125L AMB	CB563825LAMB	.125	.005/.010	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-3125R AMB	CB563625RAMB	.125	.005/.010	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-3189L ALB	CB563889LALB	.189	.020/.025	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-3189R ALB	CB563889RALB	.189	.020/.025	.195	.344	.180	.001 Hone	●	●	●	●	●
FLG-4250L ALB	CB574050LALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●	●	●	●
FLG-4250R ALB	CB574050RALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●	●	●	●

FLR - Full Nose Radius

Single Edge

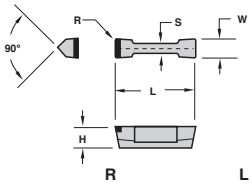




Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400	CB410	CB600	CB900
FLR-3031L APB	CB593031LAPB	.062	.031	.195	.344	.125	.001 Hone	●	●	●	●	●
FLR-3031R APB	CB593031RAPB	.062	.031	.195	.344	.125	.001 Hone	●	●	●	●	●
FLR-3062L APB	CB593062LAPB	.125	.062	.195	.344	.180	.001 Hone	●	●	●	●	●
FLR-3062R APB	CB593062RAPB	.125	.062	.195	.344	.180	.001 Hone	●	●	●	●	●

VDB

Single Edge

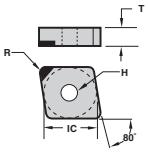


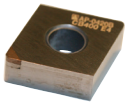
Description	EDP Code	W	R	L	H	S	Edge Prep	CB200	CB400	CB410	CB600	CB900
VDB 125 A015 AMB	CB79125AMB	.125	.015	1.125	.250	.106	.001 Hone	●	●	●	●	●
VDB 188 A015 ALB	CB79188ALB	.188	.015	1.125	.250	.144	.001 Hone	●	●	●	●	●
VDB 250 A015 ALB	CB79250ALB	.250	.015	1.125	.250	.144	.001 Hone	●	●	●	●	●

Turning Inserts

CNGA

Single Edge

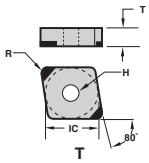




Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400	CB410	CB600	CB900
CNGA-431 APS	CBGAM1APS	.500	.015	.187	.203	Sharp	●	●	●	●	●
CNGA-432 APS	CBGAM2APS	.500	.031	.187	.203	Sharp	●	●	●	●	●
CNGA-433 APS	CBGAM3APS	.500	.047	.187	.203	Sharp	●	●	●	●	●
CNGA-431 AP 0420A	CBGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-432 AP 0420A	CBGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-433 AP 0420A	CBGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-431 AL 0420A	CBGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-432 AL 0420A	CBGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-433 AL 0420A	CBGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●

CNGA

Double Edge



Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400	CB410	CB600	CB900
CNGA-431 BPS	CBGAM1BPS	.500	.015	.187	.203		Sharp	●	●	●	●	●
CNGA-432 BPS	CBGAM2BPS	.500	.031	.187	.203		Sharp	●	●	●	●	●
CNGA-433 BPS	CBGAM3BPS	.500	.047	.187	.203		Sharp	●	●	●	●	●
CNGA-431 BP 0420A	CBGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-432 BP 0420A	CBGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-433 BP 0420A	CBGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-431 WBP 0420A	CBGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-432 WBP 0420A	CBGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
CNGA-433 WBP 0420A	CBGAM2WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

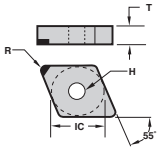
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

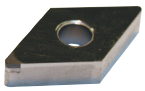
Cast Irons				●	
Hardened & Bearing Steel					●
Powdered Metals				●	
Super Alloys				●	

Turning Inserts

DNGA

Single Edge

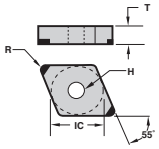


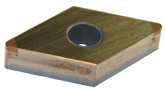


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400	CB410	CB600	CB900
DNGA-431 APS	CEGAM1APS	.500	.015	.187	.203	Sharp	●	●	●	●	●
DNGA-432 APS	CEGAM2APS	.500	.031	.187	.203	Sharp	●	●	●	●	●
DNGA-433 APS	CEGAM3APS	.500	.047	.187	.203	Sharp	●	●	●	●	●
DNGA-431 AP 0420A	CEGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-432 AP 0420A	CEGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-433 AP 0420A	CEGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-431 AL 0420A	CEGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-432 AL 0420A	CEGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-433 AL 0420A	CEGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●	●	●	●

DNGA

Double Edge

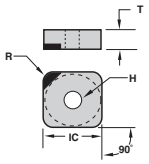




Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400	CB410	CB600	CB900
DNGA-431 BPS	CEGAM1BPS	.500	.015	.187	.203		Sharp	●	●	●	●	●
DNGA-432 BPS	CEGAM2BPS	.500	.031	.187	.203		Sharp	●	●	●	●	●
DNGA-433 BPS	CEGAM3BPS	.500	.047	.187	.203		Sharp	●	●	●	●	●
DNGA-431 BP 0420A	CEGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-432 BP 0420A	CEGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-433 BP 0420A	CEGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-431 WBP 0420A	CEGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-432 WBP 0420A	CEGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
DNGA-433 WBP 0420A	CEGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●

SNGA

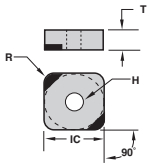
Single Edge

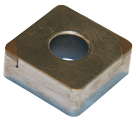


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400	CB410	CB600	CB900
SNGA-431 APS	CNGAM1APS	.500	.015	.187	.203	Sharp				●	●
SNGA-432 APS	CNGAM2APS	.500	.031	.187	.203	Sharp				●	●
SNGA-433 APS	CNGAM3APS	.500	.047	.187	.203	Sharp				●	●
SNGA-431 AP 0420A	CNGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°				●	●
SNGA-432 AP 0420A	CNGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°				●	●
SNGA-433 AP 0420A	CNGAM2AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°				●	●
SNGA-431 AL 0420A	CNGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°				●	●
SNGA-432 AL 0420A	CNGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°				●	●
SNGA-433 AL 0420A	CNGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°				●	●

SNGA

Double Edge





Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400	CB410	CB600	CB900
SNGA-431 BPS	CNGAM1BPS	.500	.015	.187	.203		Sharp	●	●	●	●	●
SNGA-432 BPS	CNGAM2BPS	.500	.031	.187	.203		Sharp	●	●	●	●	●
SNGA-433 BPS	CNGAM3BPS	.500	.047	.187	.203		Sharp	●	●	●	●	●
SNGA-431 BP 0420A	CNGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
SNGA-432 BP 0420A	CNGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
SNGA-433 BP 0420A	CNGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
SNGA-431 WBP 0420A	CNGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
SNGA-432 WBP 0420A	CNGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
SNGA-433 WBP 0420A	CNGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●

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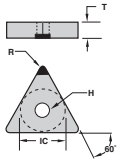
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Irons				●	
Hardened & Bearing Steel					●
Powdered Metals				●	
Super Alloys				●	

Turning Inserts

TNGA

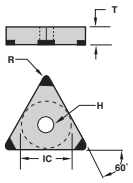
Single Edge



Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400	CB410	CB600	CB900
TNGA-331 APS	CTGAH1APS	.375	.015	.187	.150	Sharp	●	●	●	●	●
TNGA-332 APS	CTGAH2APS	.375	.031	.187	.150	Sharp	●	●	●	●	●
TNGA-333 APS	CTGAH3APS	.375	.047	.187	.150	Sharp	●	●	●	●	●
TNGA-331 AP 0420A	CTGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-332 AP 0420A	CTGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-333 AP 0420A	CTGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-331 AL 0420A	CTGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-332 AL 0420A	CTGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-333 AL 0420A	CTGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-431 APS	CTGAJ1APS	.500	.015	.187	.203	Sharp	●	●	●	●	●
TNGA-432 APS	CTGAJ2APS	.500	.031	.187	.203	Sharp	●	●	●	●	●
TNGA-433 APS	CTGAJ3APS	.500	.047	.187	.203	Sharp	●	●	●	●	●
TNGA-431 AP 0420A	CTGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-432 AP 0420A	CTGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-433 AP 0420A	CTGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-431 AL 0420A	CTGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-432 AL 0420A	CTGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-433 AL 0420A	CTGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●

TNGA

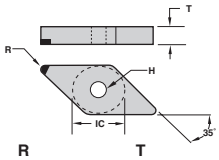
Triple Edge

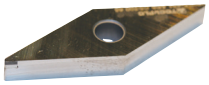


Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400	CB410	CB600	CB900
TNGA-331 CPS	CTGAH1CPS	.375	.015	.187	.150		Sharp	●	●	●	●	●
TNGA-332 CPS	CTGAH2CPS	.375	.031	.187	.150		Sharp	●	●	●	●	●
TNGA-333 CPS	CTGAH3CPS	.375	.047	.187	.150		Sharp	●	●	●	●	●
TNGA-331 CP 0420A	CTGAH1CP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-332 CP 0420A	CTGAH2CP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-333 CP 0420A	CTGAH3CP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-331 WCP 0420A	CTGAH1WCP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-332 WCP 0420A	CTGAH2WCP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-333 WCP 0420A	CTGAH3WCP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-431 CPS	CTGAJ1CPS	.500	.015	.187	.203		Sharp	●	●	●	●	●
TNGA-432 CPS	CTGAJ2CPS	.500	.031	.187	.203		Sharp	●	●	●	●	●
TNGA-433 CPS	CTGAJ3CPS	.500	.047	.187	.203		Sharp	●	●	●	●	●
TNGA-431 CP 0420A	CTGAJ1CP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-432 CP 0420A	CTGAJ2CP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-433 CP 0420A	CTGAJ3CP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-431 WCP 0420A	CTGAJ1WCP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-432 WCP 0420A	CTGAJ2WCP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●
TNGA-433 WCP 0420A	CTGAJ3WCP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●	●	●	●

VNGA

Single Edge



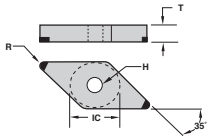


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400	CB410	CB600	CB900
VNGA-331 APS	CXGAH1APS	.375	.015	.187	.150	Sharp	●	●	●	●	●
VNGA-332 APS	CXGAH2APS	.375	.031	.187	.150	Sharp	●	●	●	●	●
VNGA-333 APS	CXGAH3APS	.375	.047	.187	.150	Sharp	●	●	●	●	●
VNGA-331 AP 0420A	CXGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-332 AP 0420A	CXGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-333 AP 0420A	CXGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-331 AL 0420A	CXGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-332 AL 0420A	CXGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-333 AL 0420A	CXGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-431 APS	CXGAJ1APS	.500	.015	.187	.203	Sharp	●	●	●	●	●
VNGA-432 APS	CXGAJ2APS	.500	.031	.187	.203	Sharp	●	●	●	●	●
VNGA-433 APS	CXGAJ3APS	.500	.047	.187	.203	Sharp	●	●	●	●	●
VNGA-431 AP 0420A	CXGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-432 AP 0420A	CXGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-433 AP 0420A	CXGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-431 AL 0420A	CXGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-432 AL 0420A	CXGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●
VNGA-433 AL 0420A	CXGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●	●	●

Turning Inserts

VNGA

Double Edge



Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400	CB410	CB600	CB900
VNGA-331 BPS	CXGAH1BPS	.375	.015	.187	.150		Sharp	●	●	●	●	●
VNGA-332 BPS	CXGAH2BPS	.375	.031	.187	.150		Sharp	●	●	●	●	●
VNGA-331 BP 0420A	CXGAH1BP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-332 BP 0420A	CXGAH2BP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-333 BP 0420A	CXGAH3BP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-331 WBP 0420A	CXGAH1WBP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-332 WBP 0420A	CXGAH2WBP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-333 WBP 0420A	CXGAH3WBP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-431 BPS	CXGAJ1BPS	.500	.015	.187	.203		Sharp	●	●	●	●	●
VNGA-432 BPS	CXGAJ2BPS	.500	.031	.187	.203		Sharp	●	●	●	●	●
VNGA-433 BPS	CXGAJ3BPS	.500	.047	.187	.203		Sharp	●	●	●	●	●
VNGA-431 BP 0420A	CXGAJ1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-432 BP 0420A	CXGAJ2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-433 BP 0420A	CXGAJ3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-431 WBP 0420A	CXGAJ1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-432 WBP 0420A	CXGAJ2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●
VNGA-433 WBP 0420A	CXGAJ3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

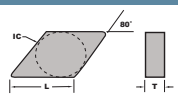
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Irons				●	
Hardened & Bearing Steel					●
Powdered Metals				●	
Super Alloys				●	

SOLID PCBN

CNR

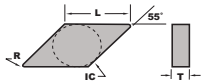
80° Rhombus



Description	EDP Code	I.C. mm	I.C. Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
CNR-320 J	CBNRG0	9,525	.375	10,1	.398	3,2	.125	Sharp	●	●	●
CNR-330 J	CBNRH0	9,525	.375	10,1	.398	4,8	.189	Sharp	●	●	●
CNR-420 J	CBNRN0	12,7	.500	13,35	.525	3,2	.125	Sharp	●	●	●
CNR-43 J	CBNRM0	12,7	.500	13,35	.525	4,8	.189	Sharp	●	●	●

DNR

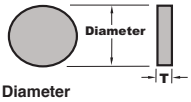
55° Diamond



Description	EDP Code	I.C. mm	I.C. Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
DNR-320 J	CENRG0	9,525	.375	11,63	.458	3,2	.125	Sharp	●	●	●
DNR-330 J	CENRH0	9,525	.375	11,63	.458	3,2	.125	Sharp	●	●	●
DNR-430 J	CENRM0	12,7	.500	15,5	.610	4,8	.187	Sharp	●	●	●
DNR-450 J	CENRL0	12,7	.500	15,5	.610	7,94	.312	Sharp	●	●	●

RNR

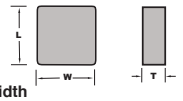
Round



Description	EDP Code	Diameter mm	Diameter Inch	Thickness mm	Thickness Inch	Edge Prep	CB600	CB900	CB950
RNR-32 J	CJNRG0	9,92	.390	3,2	.125	Sharp	●	●	●
RNR-33 J	CJNRH0	9,92	.390	4,8	.189	Sharp	●	●	●
RNR-42 J	CJNRN0	13,1	.515	3,2	.125	Sharp	●	●	●
RNR-43 J	CJNRM0	13,1	.515	4,8	.189	Sharp	●	●	●

SNR

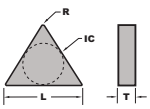
Square

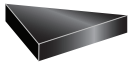


Description	EDP Code	(W) Width mm	(W) Width Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
SNR-320 J	CNNRG0	9,92	.390	9,92	.390	3,2	.125	Sharp	●	●	●
SNR-330 J	CNNRH0	9,92	.390	9,92	.390	4,8	.189	Sharp	●	●	●
SNR-430 J	CNNRM0	13,1	.515	13,1	.515	3,2	.125	Sharp	●	●	●
SNR-450 J	CNNRL0	13,1	.515	13,1	.515	4,8	.189	Sharp	●	●	●

TNR

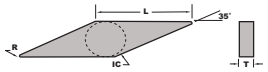
60° Triangle





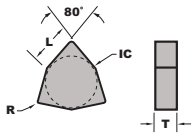
Description	EDP Code	I.C. mm	I.C. Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
TNR-220 J	CTNRD0	6,53	.257	11,7	.460	3,2	.125	Sharp	●	●	●
TNR-230 J	CTNRE0	6,53	.257	11,7	.460	4,8	.189	Sharp	●	●	●
TNR-320 J	CTNRG0	9,53	.375	17,5	.689	3,2	.125	Sharp	●	●	●
TNR-330 J	CTNRH0	9,53	.375	17,5	.689	4,8	.189	Sharp	●	●	●
TNR-420 J	CTNRN0	12,7	.500	22,7	.894	3,2	.125	Sharp	●	●	●
TNR-430 J	CTNRM0	12,7	.500	22,7	.894	4,8	.189	Sharp	●	●	●

VNR
35˚ Diamond



Description	EDP Code	I.C. mm	I.C. Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
VNR-220		6,35	.250	11,7	.460	3,2	.125	Sharp	●	●	●
VNR-230		6,35	.250	11,7	.460	4,8	.189	Sharp	●	●	●
VNR-320		9,53	.375	16,61	.654	3,2	.125	Sharp	●	●	●
VNR-330		9,53	.375	16,61	.654	4,8	.189	Sharp	●	●	●

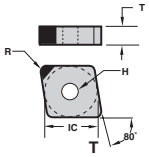
WNR
80˚

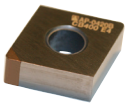


Description	EDP Code	I.C. mm	I.C. Inch	(L) Length mm	(L) Length Inch	(T) Thickness mm	(T) Thickness Inch	Edge Prep	CB600	CB900	CB950
WNR-330		9,53	.375	5,56	.219	4,76	.187	Sharp	●	●	●
WNR-430		12,7	.500	7,57	.298	4,76	.187	Sharp	●	●	●
WNR-530		9,46	.372	9,46	.372	4,76	.187	Sharp	●	●	●

FULL TIP PCBN

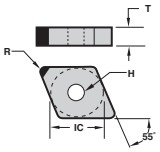
CNMA
Full Tip

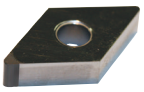




Description	EDP Code	IC	R	T	H	Edge Prep	CB600	CB900	CB950
CNGA-431 KM 0420A	CBGAM1KM0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
CNGA-432 KM 0420A	CBGAM2KM0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
CNGA-433 KM 0420A	CBGAM3KM0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●

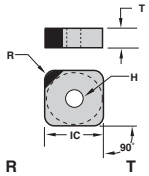
DNMA
Full Tip





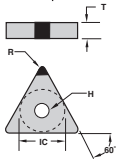
Description	EDP Code	IC	R	T	H	Edge Prep	CB600	CB900	CB950
DNGA-431 KM 0420A	CEGAM1KM0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
DNGA-432 KM 0420A	CEGAM2KM0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
DNGA-433 KM 0420A	CEGAM3KM0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●

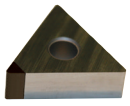
SNGA
Full Tip



Description	EDP Code	IC	R	T	H	Edge Prep	CB600	CB900	CB950
SNGA-431 KM 0420A	CNGAM1KM0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
SNGA-432 KM 0420A	CNGAM2KM0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
SNGA-433 KM 0420A	CNGAM2KM0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●

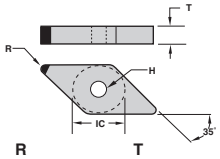
TNGA
Full Tip

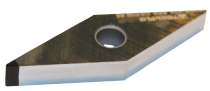




Description	EDP Code	IC	R	T	H	Edge Prep	CB600	CB900	CB950
TNGA-331 KM 0420A	CTGAH1KM0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●
TNGA-332 KM 0420A	CTGAH2KM0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●
TNGA-333 KM 0420A	CTGAH3KM0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●
TNGA-431 KM 0420A	CTGAJ1KM0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
TNGA-432 KM 0420A	CTGAJ2KM0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●	●
TNGA-433 KM 0420A	CTGAJ3KM0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●	●

VNGA
Full Tip





Description	EDP Code	IC	R	T	H	Edge Prep	CB600	CB900	CB950
VNGA-331 KM 0420A	CXGAH1KM0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●	●
VNGA-332 KM 0420A	CXGAH2KM0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●	●
VNGA-333 KM 0420A	CXGAH3KM0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●	●

Technical Information

Recommended Feed rate - inch/rev (mm/rev)

workpiece material	hardened steels	grey cast irons	white alloy cast iron	super alloys	powder metal	bearing steels
CB200 *high content CBN for finishing*		.010 - .020 (0,25 - 0,51)	.010 - .030 (0,25 - 0,76)	.003 - .008 (0,08 - 0,20)	.003 - .008 (0,08 - 0,20)	
CB400 *low content CBN for roughing*	.004 - .008 (0,10 - 0,20)					.002 - .008 (0,05 - 0,20)
CB410 *low content CBN for finishing*	.004 - .008 (0,10 - 0,20)					.002 - .008 (0,05 - 0,20)
CB600 *low content CBN for finishing*	.004 - .008 (0,10 - 0,20)					.002 - .008 (0,05 - 0,20)
CB900 *high content CBN for roughing/finishing*		.010 - .020 (0,25 - 0,51)	.010 - .030 (0,25 - 0,76)			

Recommended Grade and Speed - sfpm (mm/min)

workpiece material	hardened steels	grey cast irons	white alloy cast iron	super alloys	powder metal	bearing steels
CB200 *high content CBN for finishing*		*< 240 HBN* 1500 - 3500(457 - 1067) *> 240 HBN* 1000 - 2000(305 - 610)	300 - 600 (91 - 200)	500 - 1000 (152 - 305)	300 - 1000 (91 - 305)	
CB400 *low content CBN for roughing*	400 - 500 (122 - 152)					375 - 500 (114 - 152)
CB410 *low content CBN for finishing*	400 - 500 (122 - 152)					375 - 500 (114 - 152)
CB600 *low content CBN for roughing*	300 - 700 (91 - 213)					375 - 500 (114 - 152)
CB900 *high content CBN for roughing/finishing*		800 - 2300 (244 - 700)	500 - 1500 (152 - 457)			

Recommended Edge Preparation

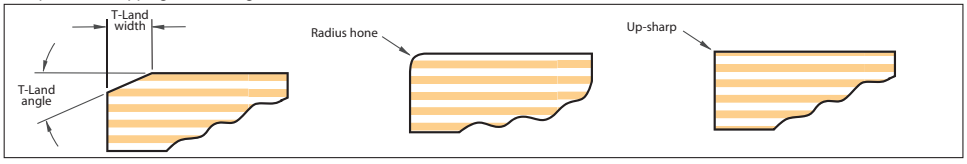
The following are suggestions for standard edge preperations.

Turning	**CB200**	.008 x 20˚ and/or .001 hone
Grooving (Flo-Lock and Vee-Bottom)	**CB400**	.004 x 20˚ and/or .001 hone
	CB410	.004 x 20˚ and/or .001 hone

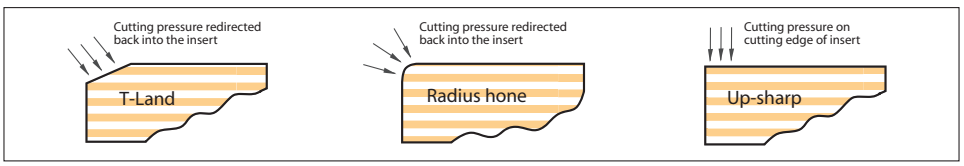
Turning	**CB600**	.008 x 20˚ and/or .001 hone
Grooving (Flo-Lock and Vee-Bottom)	**CB900**	.004 x 20˚ and/or .001 hone

Due to unique applications, special edge preparations may be required.

T-Land and hones protect the cutting edge by eliminating a sharp cutting edge which reduces edge chipping and breakage. Up-sharp edges are prone to chipping or breakage.



T-Land and hones strengthen the cutting edges by redirecting the cutting forces back into the insert.



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