

Turning and Boring

Carbide Inserts.....T 02-39

Ceramic InsertsT 40-60

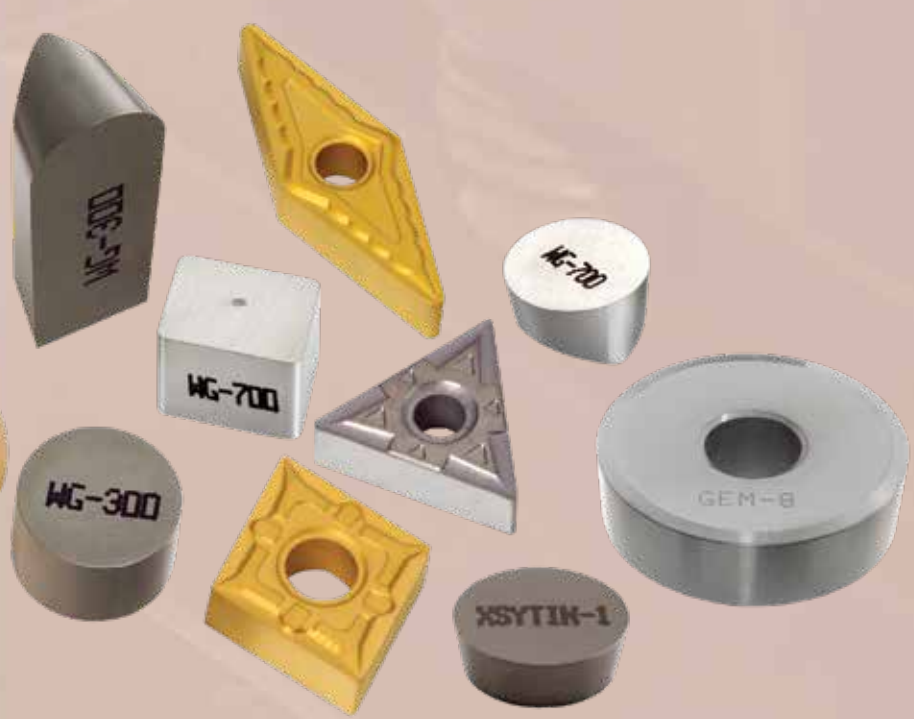
Industry-Standard Toolholders for Carbide InsertsT 61-81

Quick-Change ToolholdersT 82-85

Toolholders for Ceramic Inserts.....T 86-107

Industry-Standard Boring Bars for Carbide InsertsT 108-123

Boring Bars for Ceramic Inserts.....T 124-137

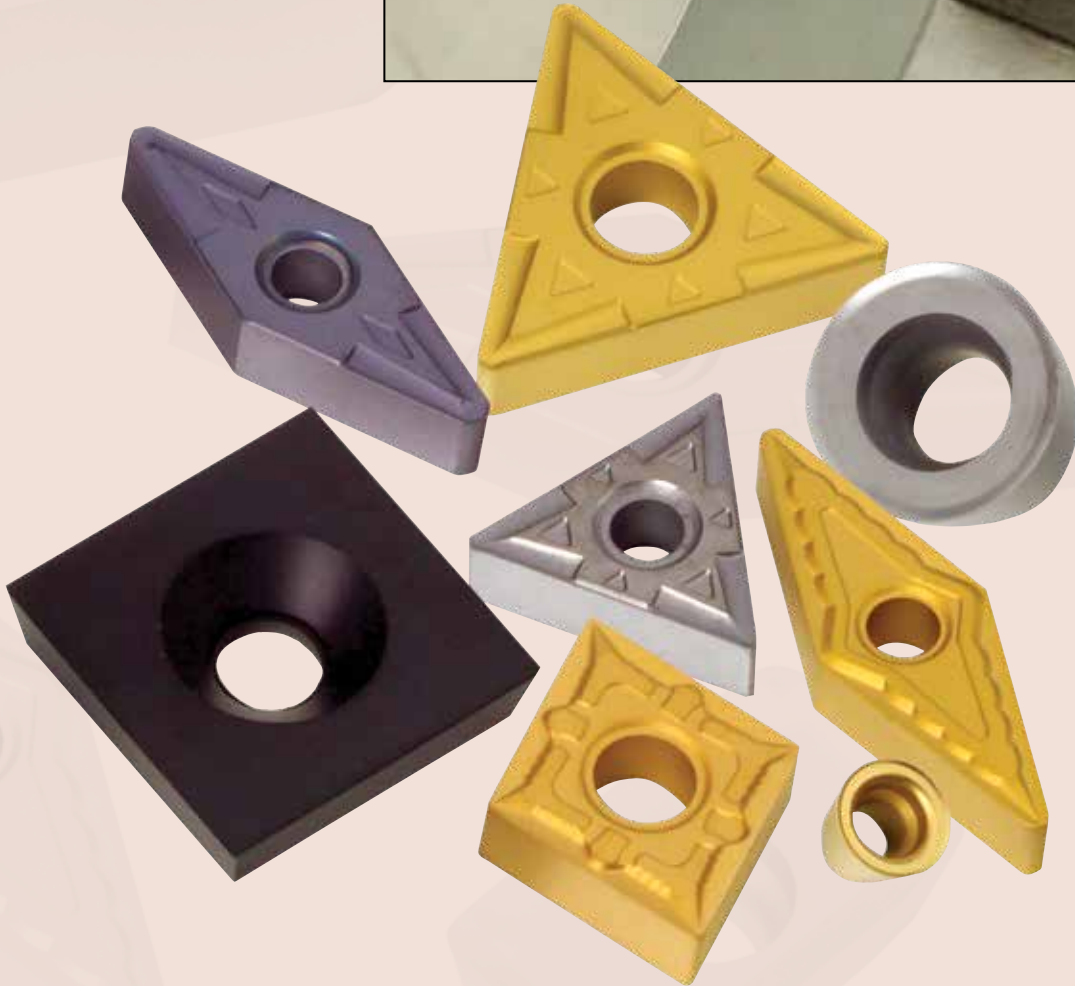


TURNING and BORING



Advanced Carbide Inserts

Greenleaf offers a comprehensive line of carbide inserts in grades for all materials. Carbide inserts are available in ANSI standard geometries with multi-purpose chipbreakers for heavy roughing through finishing.



Insert Grades

Carbide

Greenleaf offers a comprehensive line of carbide inserts in grades ranging from sub-micron C-1 through C-8 classifications. An industry pioneer in coated carbide, Greenleaf offers a variety of uncoated, MT-CVD coated and PVD-coated grades. Carbide inserts are available in ANSI standard geometries with multi-purpose chipbreakers for heavy roughing through finishing.



CVD Coated

G5125+

A tough, Co-enriched, CVD-coated grade that is ideally suited for the roughing and semi-finishing of steels in turning. Intended applications range from clean and continuous to heavily interrupted cuts in steels of various hardness and composition, at medium to high speeds and moderate feed rates.

GA5023

A high-performance grade designed for the turning and milling of various grades of cast iron, GA5023 features an advanced MT-CVD coating specifically developed to withstand the abrasiveness of cast iron in machining. Applications range from roughing to finishing in most grades of cast iron, including gray, nodular, and others. The high wear resistance and toughness of GA5023 enable high-speed machining in a wide range of feed rates.

GA5025

A high-speed MT-CVD coated grade developed primarily for turning, GA5025 excels in light roughing and finishing applications of carbon and alloy steels, including select stainless steels. GA5025 is preferred when tool life and wear resistance are essential in steel turning.

GA5026

A high-performance grade specifically developed for finish-turning in nickel- and cobalt-based super-alloys, stainless steels, hardened steels, and refractory metals. The advanced MT-CVD coating over a micro-grain substrate offers outstanding wear resistance while maintaining exceptional resistance to notching and deformation common in turning of high-strength materials. GA5026 is best applied at high speeds and low feed rates.

CVD Coated *continued*

GA5035

A high-performance MT-CVD coated grade for turning all types of steels, GA5035 can be used for heavy roughing to finish-turning applications requiring resistance to heat deformation, thermal shock from interrupted cuts, and abrasion. GA5035 should be applied at high speeds and a moderate range of feeds. GA5035 is the primary choice for steel turning.

GA5125

A high-performance MT-CVD coated carbide used primarily for the milling and turning of manganese steel. GA5125 can also be applied in Cr-Mo steels, tool steels, and other alloyed steels in continuous and interrupted turning. GA5125 provides excellent resistance to abrasion, crater wear, thermal shock, deformation, and built-up edge. It performs best when applied at high speeds and moderate feed rates.

PVD Coated

G-915

A multi-layer PVD-coated grade, G-915 is exceptional for milling and interrupted turning of heat-resistant alloys, stainless steels, and low-carbon steels. The coating adds heat and abrasion resistance to the tough substrate. G-915 should be used at moderate speeds and moderate to high feeds. It is a versatile grade that performs well in a variety of materials and operations outside its primary application range, making it a great choice for general machining.

G-9120

This multi-layer PVD-coated carbide grade excels at milling and turning steel castings and forgings. G-9120 was engineered specifically to maximize productivity at moderate to heavy feed rates and high depths of cut, making it ideal for heavy-turning applications in steel.

PVD Coated *continued*

G-920

A PVD-coated grade for light-to-medium turning of heat-resistant alloys and some stainless steels. It is also an excellent grade for aluminum and refractory metals. Given its resistance to deformation and notching, G-920 should be applied at higher speeds and is well-suited for grooving and finish-turning of HRSA.

G-9230

A PVD-coated grade designed for the machining of heat-resistant alloys, titanium, and hardened and stainless steels. G-9230 works particularly well in stainless steel turning, interrupted turning of HRSA, and interrupted turning of titanium. G-9230 has superior wear resistance and toughness and is excellent for casting and forging scale conditions.

G-925

A high-performance multi-layer PVD-coated grade, G-925 is specifically designed for turning abrasive and difficult-to-machine materials. Typical applications include turning of HRSA, titanium and other refractory metals, stainless steels, and ductile cast irons. G-925 exhibits excellent resistance to notching and deformation. Apply at moderate to high speeds and moderate feeds.

G-9610

A PVD-coated grade, G-9610 is designed for turning titanium-based alloys. The high-tech, wear-resistant, chemically stable, and very smooth and lubricious coating protects the heat-resistant, sub-micron substrate and allows for higher speeds and extended tool life in continuous cuts in non-ferrous alloys.

Uncoated

G-10

Used for roughing all cast irons in severe conditions, including broaching. The edge strength of G-10 makes it a great choice for roughing Ni-, Co-, and Ti-based alloys with positive rakes, and any machining of non-ferrous materials when toughness is of prime importance. Apply at moderate speeds and feeds.

G-02

An excellent general-purpose cast-iron grade, G-02 can be used for milling and turning cast iron at moderately high speeds and medium feeds. G-02 is also a good choice for machining aluminum with positive rakes and light roughing of some heat-resistant alloys and stainless steels.

G-20M

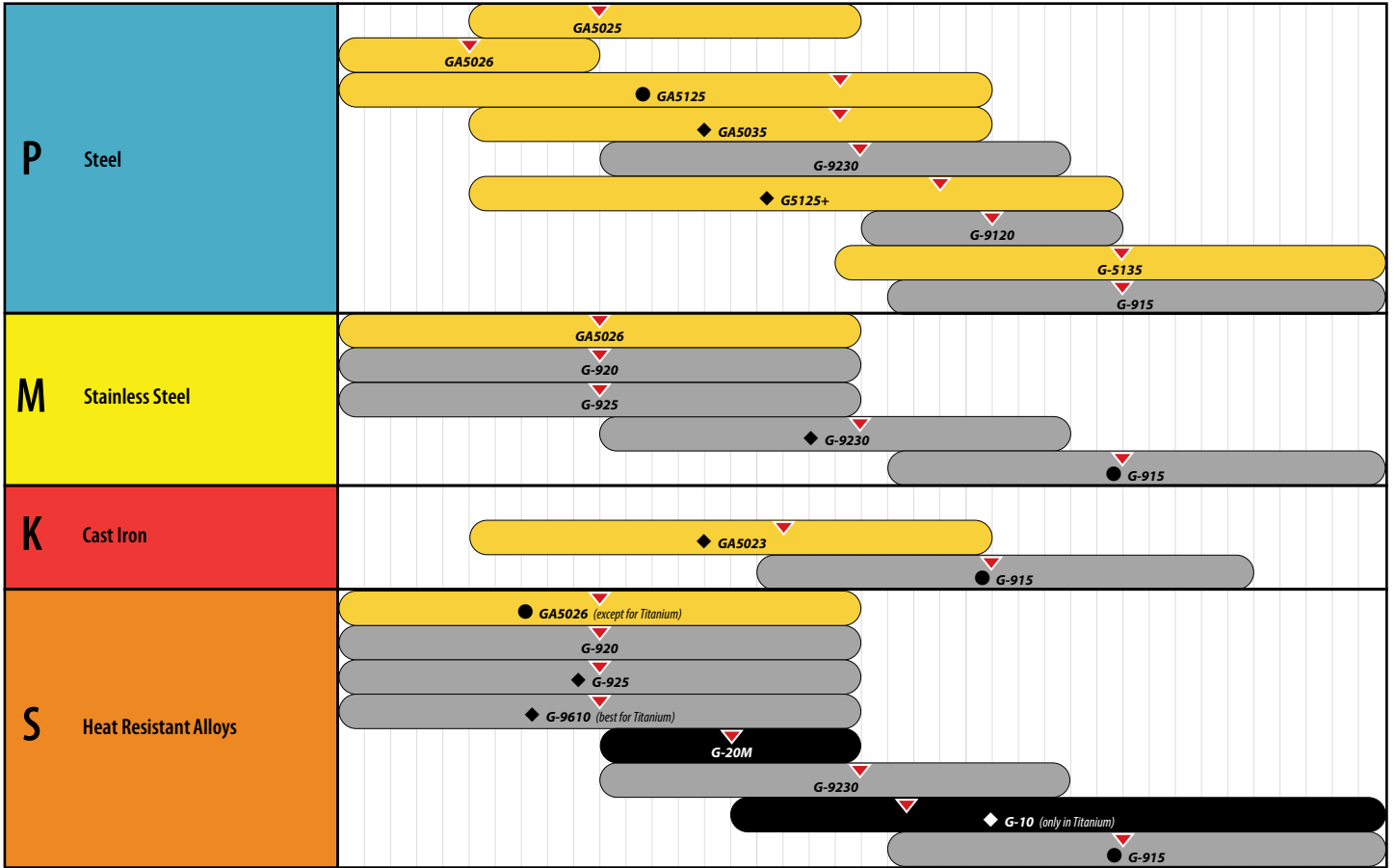
A sub-micron C-2 carbide grade suited for use in light-to-medium turning of titanium and heat-resistant super alloys, G-20M has the strength and edge wear characteristics to resist notching when turning high-strength materials.



Insert Grade Reference for Turning

Carbide


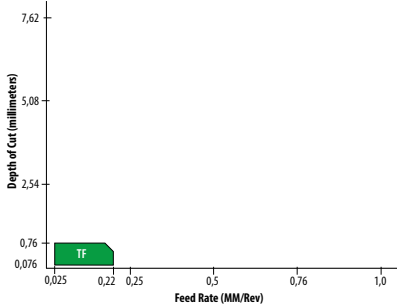

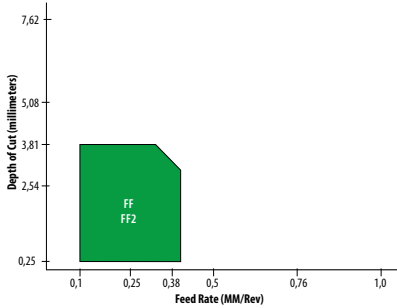

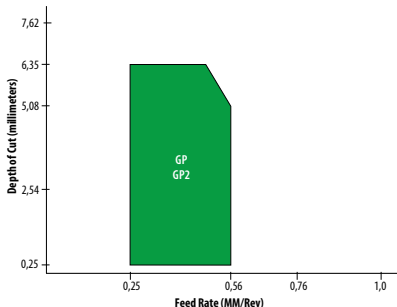

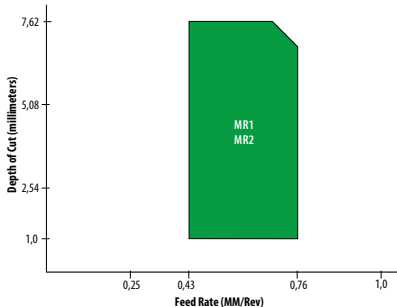

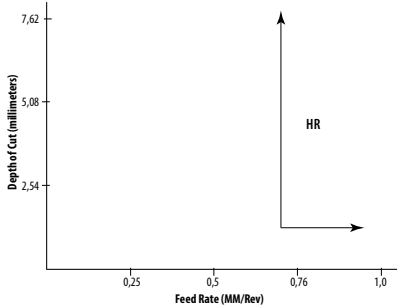
◀ Wear Resistance 5 10 15 20 25 30 35 40 Toughness ▶



CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ●

TB – CARBIDE INSERTS

Chipform Application Range

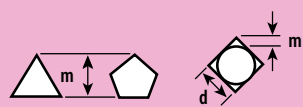
PRECISION FINISHING	<p>TF</p>  <p>Precision ground chipbreaker for nickel alloys. Good for feeds up to 0.009"/rev and depths to 0.03".</p>	 <p>Graph showing Depth of Cut (mm) vs Feed Rate (MM/Rev) for TF. The application range is a small green rectangle with a feed rate from 0.025 to 0.22 MM/Rev and a depth of cut from 0.076 to 0.76 mm.</p>
FINISHING	<p>FF and FF2</p>  <p>For finishing all types of material. Designed for feeds up to 0.0185"/rev and 0.15" depth of cut.</p>	 <p>Graph showing Depth of Cut (mm) vs Feed Rate (MM/Rev) for FF and FF2. The application range is a green rectangle with a feed rate from 0.1 to 0.38 MM/Rev and a depth of cut from 0.25 to 3.81 mm.</p>
GENERAL PURPOSE	<p>GP and GP2</p>  <p>General purpose chipbreaker. Feed rates up to 0.02"/rev and 0.25" depth of cut.</p>	 <p>Graph showing Depth of Cut (mm) vs Feed Rate (MM/Rev) for GP and GP2. The application range is a green rectangle with a feed rate from 0.25 to 0.56 MM/Rev and a depth of cut from 0.25 to 6.35 mm.</p>
MEDIUM ROUGHING	<p>MR and MR2</p>  <p>Used for medium roughing of all material. Feeds up to 0.028"/rev and depths up to 0.30".</p>	 <p>Graph showing Depth of Cut (mm) vs Feed Rate (MM/Rev) for MR1 and MR2. The application range is a green rectangle with a feed rate from 0.25 to 0.76 MM/Rev and a depth of cut from 1.0 to 7.62 mm.</p>
HEAVY ROUGHING	<p>HR</p>  <p>Heavy roughing for all materials. Feeds above 0.023"/rev. One-sided chipbreaker for heaviest feeds (MM). <i>Example: CNMM 644 HR</i></p>	 <p>Graph showing Depth of Cut (mm) vs Feed Rate (MM/Rev) for HR. The application range is indicated by an arrow pointing to the right, representing feeds above 0.023"/rev.</p>

I.S.O. Identification for Turning and Boring Inserts

TB – CARBIDE INSERTS

A 85° parallelogram
B 82° parallelogram
C 80° diamond
D 55° diamond
H hexagon
K 55° parallelogram
L 90° rectangle
M 86° diamond
O octagon
P pentagon
R round
S square
T triangle
V 35° diamond
W 80° Trigon

Shape



Dimensions			
	m	s	d
A	0.005	0.025	0.025
B	0.005	0.025	0.013
C	0.013	0.025	0.025
D	0.013	0.025	0.013
E	0.025	0.025	0.025
G	0.025	0.130	0.025
J	0.005	0.025	0.050-0.130
K	0.013	0.025	0.050-0.130
L	0.025	0.025	0.050-0.130
M	0.080-0.180	0.130	0.050-0.130
U	0.130-0.380	0.130	0.080-0.250

Tolerance Class (±mm)

T

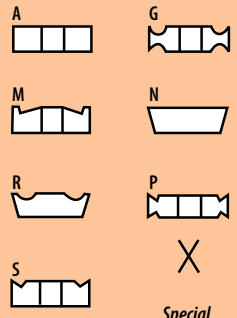
N

M

G

A 3°
B 5°
C 7°
D 15°
E 20°
F 25°
G 30°
N 0°
P 11°

Clearances



Type

Comparison cutting edge length in mm – IC in inches

△	06	09	11	16	22	27	33	44
□ ○				09	12	15	19	25
55°					15	19		
80°					12	16	19	25
35°				16	22			
IC = d	5/32"	7/32"	1/4"	3/8"	1/2"	5/8"	3/4"	1"

Integers to be preceded by a 0.
Example: 9,52 mm indicated by 09.

Cutting Edge Length

Cutting Edge

22

04

08

E

01	s =	1,59
T1	s =	1,98
02	s =	2,38
03	s =	3,18
T3	s =	3,97
04	s =	4,76
05	s =	5,56
06	s =	6,35
07	s =	7,94
09	s =	9,52
10	s =	10,00
12	s =	12,00

Thickness

Radius in terms of 0.1 mm

00	Round insert
00	sharp point
02	0.2
04	0.4
05	0.5
08	0.8
10	1.0
12	1.2
15	1.5
16	1.6
24	2.4
32	3.2
40	4.0

Cutting Point Configuration

A.N.S.I. Identification for Turning and Boring Inserts

TB – CARBIDE INSERTS

	Roll Dim. B	I.C. A	Thickness T
A	0.0002 ⁽²⁾	0.001	0.001
B	0.0002	0.001	0.005
C	0.0005	0.001	0.001
D	0.0005	0.001	0.005
E	0.001	0.001	0.001
F	0.0002 ⁽²⁾	0.0005	0.001
G	0.001	0.001	0.005
H	0.0005	0.0005	0.001
J	0.0002 ⁽²⁾	0.002-0.005	0.001
K	0.0005	0.002-0.005	0.001
L	0.001	0.002-0.005	0.001
M	0.002-0.010 ⁽³⁾	0.002-0.004 ⁽³⁾	0.005
U	0.005-0.012 ⁽³⁾	0.005-0.010 ⁽³⁾	0.005
N	0.002-0.010 ⁽³⁾	0.002-0.004 ⁽³⁾	0.001

Tolerance Class⁽¹⁾

Regular polygons and diamonds	Rectangles and parallelograms
Number of 1/64ths of an inch in the inscribed circle as per table below:	Use two digits to size
Example:	1st digit: Number of 1/64ths of an inch in width
5/32" I.C. 1.2	2nd digit: Number of 1/4ths of an inch in length
3/16" I.C. 1.5	
7/32" I.C. 1.8	
1/4" I.C. 2	
5/16" I.C. 2.5	
3/8" I.C. 3	
1/2" I.C. 4	
5/8" I.C. 5	
3/4" I.C. 6	
7/8" I.C. 7	
1" I.C. 8	
1-1/4" I.C. 10	

Size (I.C.)



V 35° diamond
D 55° diamond
K 55° parallelogram
T 60° triangle
E 75° diamond
C 80° diamond
W 80° Trigon
B 82° parallelogram
A 85° parallelogram
M 86° diamond
S 90° square
L 90° rectangle
P 108° pentagon
H 120° hexagon
O 135° octagon
R round

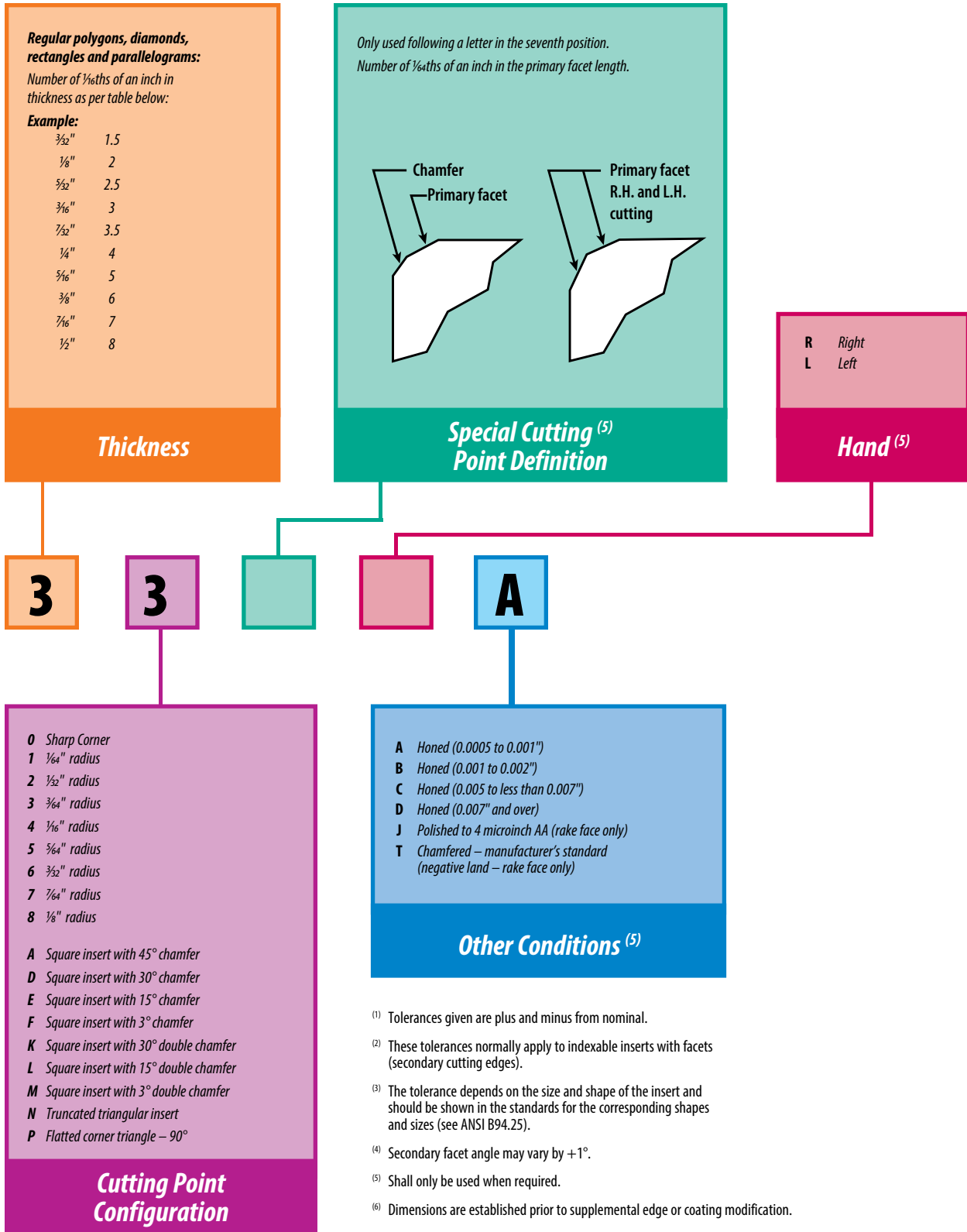
Shape

N 0°
A 3°
B 5°
C 7°
P 11°
D 15°
E 20°
F 25°
G 30°
H 0°-11° ⁽⁴⁾
J 0°-14° ⁽⁴⁾
K 0°-17° ⁽⁴⁾
L 0°-20° ⁽⁴⁾
M 11°-14° ⁽⁴⁾
R 11°-17° ⁽⁴⁾
S 11°-20° ⁽⁴⁾

Clearances

N Without hole
R Without hole with chip groove on one rake face
F Without hole with chip grooves on two rake faces
A With hole
B With hole and one countersinks (80°-90°)
C With hole and two countersinks (80°-90°)
W With hole and one countersink (40°-60°)
Q With hole and two countersinks (40°-60°)
M With hole and chip groove on one rake face
G With hole and chip grooves on two rake faces
H With hole, one countersink (80°-90°) and chip groove on one rake face
J With hole, two countersinks (80°-90°) and chip grooves on two rake faces
T With hole, one countersink (40°-60°) and chip groove on one rake face
U With hole, two countersinks (40°-60°) and chip grooves on two rake faces

Type



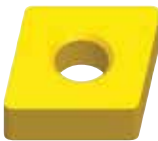
(1) Tolerances given are plus and minus from nominal.
 (2) These tolerances normally apply to indexable inserts with facets (secondary cutting edges).
 (3) The tolerance depends on the size and shape of the insert and should be shown in the standards for the corresponding shapes and sizes (see ANSI B94.25).
 (4) Secondary facet angle may vary by +1°.
 (5) Shall only be used when required.
 (6) Dimensions are established prior to supplemental edge or coating modification.

Pictorial Index

Negative Inserts



80° Diamond
Chip Control
page: T 14



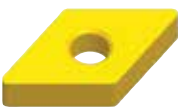
80° Diamond
Flat Top
page: T 15



80° Diamond
Flat Top
page: T 15



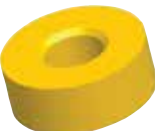
55° Diamond
Chip Control
page: T 16



55° Diamond
Flat Top
page: T 17



Round
Chip Control
page: T 18



Round
Flat Top
page: T 19



Round
Flat Top
page: T 19

Negative Inserts *continued*



Square
Chip Control
page: T 20



Square
Flat Top
page: T 21



Square
Flat Top
page: T 22-23



Triangle
Chip Control
page: T 24-25



Triangle
Flat Top
page: T 26



Triangle
Flat Top
page: T 27-28



35° Diamond
Chip Control
page: T 29



35° Diamond
Flat Top
page: T 30

Negative Inserts *continued*



80° Trigon
Chip Control
page: T 31



80° Trigon
Flat Top
page: T 32

TB — CARBIDE INSERTS

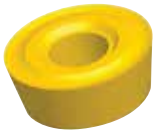
Positive Inserts



80° Diamond
Positive Flat Top
page: T 33



Round
Positive Flat Top
page: T 33



Round
Chip Control
page: T 34



Round
Chip Control
page: T 34



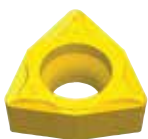
Square
Positive Flat Top
page: T 35



Triangle
Positive Flat Top
page: T 36-37

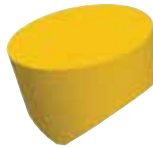


Triangle
Positive Flat Top
page: T 38

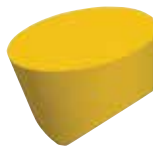


80° Trigon
Chip Control: Screw-On
page: T 39

V-Bottom Round Inserts



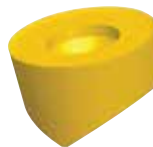
RCGX
Positive: Carbide
page: GP 14



RPGX
Positive: Carbide
page: GP 15



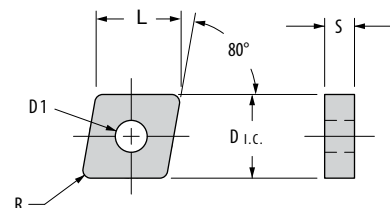
RCGR/RPGR
Positive Chipform
V-Bottom
page: GP 16



RCGT/RPGT
Positive Chipform
V-Bottom
page: GP 17

80° Diamond Inserts

Negative Chip Control (CNGG-CNMG-CNMM)



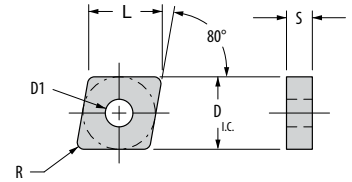
TB – CARBIDE INSERTS

Shape: 80° Diamond	Part Number ISO	Steel					Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Titanium				Part Number ANSI	Dimensions (mm)				
		P					M					K	S					S					D _{i.c.}	L	S	D1	R
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M	G-925	G-9610	G-10						
PRECISION FINISHING 	TurboForm® CNGG-120401.3-TF						●	▲	●	◆			●	◆	●	▲		●	◆			CNGG-430.3-TF	12,70	12,88	4,75	5,16	0,13
	CNGG-120402.6-TF						●	▲	●	◆			●	◆	●	▲		●	◆			CNGG-430.6-TF	12,70	12,88	4,75	5,16	0,25
	CNGG-120404-TF						●	▲	●	◆			●	◆	●	▲		●	◆			CNGG-431-TF	12,70	12,88	4,75	5,16	0,38
	CNGG-120408-TF						●	▲	●	◆			●	◆	●	▲		●	◆			CNGG-432-TF	12,70	12,88	4,75	5,16	0,79
	CNGG-120412-TF						●	▲	●	◆			●	◆	●	▲		●	◆			CNGG-433-TF	12,70	12,88	4,75	5,16	1,19
FINISHING 	CNMG-120404-FF2	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-431-FF2	12,70	12,88	4,75	5,16	0,38
	CNMG-120408-FF2	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-432-FF2	12,70	12,88	4,75	5,16	0,79
	CNMG-120412-FF2	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-433-FF2	12,70	12,88	4,75	5,16	1,19
	CNMG-120416-FF2	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-434-FF2	12,70	12,88	4,75	5,16	1,57
	CNMG-160608-FF	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-542-FF	15,88	16,13	6,35	6,35	0,79
	CNMG-160612-FF	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-543-FF	15,88	16,13	6,35	6,35	1,19
	CNMG-190612-FF	▲	◆	●			●	▲	●	◆		◆	●	◆	●	▲		●	◆	▲		CNMG-643-FF	19,05	19,33	6,35	7,92	1,19
GENERAL PURPOSE 	CNMG-120408-GP2	●	◆	▲	▲		●	▲	◆		◆	●	◆	▲			▲	●	◆	CNMG-432-GP2	12,70	12,88	4,75	5,16	0,79		
	CNMG-120412-GP2	●	◆	▲	▲		●	▲	◆		◆	●	◆	▲			▲	●	◆	CNMG-433-GP2	12,70	12,88	4,75	5,16	1,19		
	CNMG-120416-GP2	●	◆	▲	▲		●	▲	◆		◆	●	◆	▲			▲	●	◆	CNMG-434-GP2	12,70	12,88	4,75	5,16	1,57		
	CNMG-160608-GP2	●	◆	▲	▲			▲	◆	●	◆		◆	▲		●	▲	●	◆	CNMG-542-GP2	15,88	16,13	6,35	6,35	0,79		
	CNMG-160612-GP2	●	◆	▲	▲			▲	◆	●	◆		◆	▲		●	▲	●	◆	CNMG-543-GP2	15,88	16,13	6,35	6,35	1,19		
	CNMG-190612-GP	●	◆	▲	▲			▲	◆	●	◆		◆	▲		●	▲	●	◆	CNMG-643-GP	19,05	19,33	6,35	7,92	1,19		
MEDIUM ROUGHING 	CNMG-120408-MR2	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-432-MR2	12,70	12,88	4,75	5,16	0,79			
	CNMG-120412-MR2	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-433-MR2	12,70	12,88	4,75	5,16	1,19			
	CNMG-120416-MR2	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-434-MR2	12,70	12,88	4,75	5,16	1,57			
	CNMG-160608-MR2	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-542-MR2	15,88	16,13	6,35	6,35	0,79			
	CNMG-160612-MR2	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-543-MR2	15,88	16,13	6,35	6,35	1,19			
	CNMG-190608-MR	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-642-MR	19,05	19,33	6,35	7,92	0,79			
	CNMG-190612-MR	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-643-MR	19,05	19,33	6,35	7,92	1,19			
	CNMG-190616-MR	◆	▲	▲	●		▲	◆	●	◆		◆	▲		●	●	▲	◆	CNMG-644-MR	19,05	19,33	6,35	7,92	1,57			
HEAVY ROUGHING 	CNMM-190612-HR	◆		▲	●		▲	◆	●	◆		◆			●				CNMM-643-HR	19,05	19,33	6,35	7,92	1,19			
	CNMM-250924-HR	◆			●		▲	◆	●	◆		◆			●				CNMM-866-HR	25,40	25,78	9,53	9,12	2,39			

CARBIDE COATINGS: ME-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T-4
 For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

80° Diamond Inserts

Negative Flat Top (CNMA)



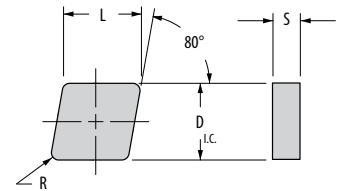
Shape: 80° Diamond	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		K			D _{I.C.}	L	S	D1	R
		GA5023	G-02						
	CNMA-120404	◆	▲	CNMA-431	12,70	12,88	4,75	5,16	0,38
	CNMA-120408	◆	▲	CNMA-432	12,70	12,88	4,75	5,16	0,79
	CNMA-120412	◆	▲	CNMA-433	12,70	12,88	4,75	5,16	1,19
	CNMA-120416	◆	▲	CNMA-434	12,70	12,88	4,75	5,16	1,57
	CNMA-160608	◆	▲	CNMA-542	15,88	16,13	6,35	6,35	0,79
	CNMA-160612	◆	▲	CNMA-543	15,88	16,13	6,35	6,35	1,19
	CNMA-190608	◆	▲	CNMA-642	19,05	19,33	6,35	7,92	0,79
	CNMA-190612	◆	▲	CNMA-643	19,05	19,33	6,35	7,92	1,19
	CNMA-190616	◆	▲	CNMA-644	19,05	19,33	6,35	7,92	1,57
	CNMA-250924	◆	▲	CNMA-866	25,40	25,78	9,53	9,12	2,39

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

80° Diamond Inserts

Negative Flat Top (CNGN)



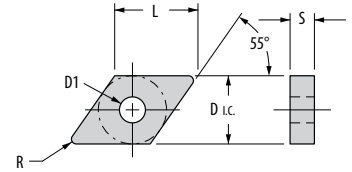
Shape: 80° Diamond	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)			
		K			D _{I.C.}	L	S	R
		GA5023	G-02					
	CNGN-120308	◆	▲	CNGN-422	12,70	12,88	3,18	0,79
	CNGN-120408	◆	▲	CNGN-432	12,70	12,88	4,75	0,79
	CNGN-190408	◆	▲	CNGN-632	19,05	19,33	4,75	0,79
	CNGN-190412	◆	▲	CNGN-633	19,05	19,33	4,75	1,19
	CNGN-190416	◆	▲	CNGN-634	19,05	19,33	4,75	1,57
	CNGN-190612	◆	▲	CNGN-643	19,05	19,33	6,35	1,19
	CNGN-190616	◆	▲	CNGN-644	19,05	19,33	6,35	1,57



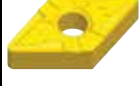

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

55° Diamond Inserts

Negative Chip Control (DNGG-DNMG)



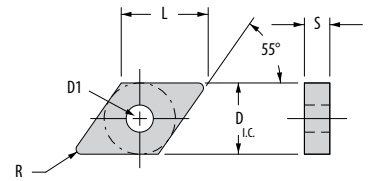
Shape: 55° Diamond	Part Number ISO	Steel					Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Titanium				Part Number ANSI	Dimensions (mm)					
		P					M					K	S					S					D _{i.c.}	L	S	D1	R	
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-5125+	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M	G-925	G-9610							G-10
PRECISION FINISHING 	DNGG-150401.3-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-430.3-TF	12,70	15,49	4,75	5,16	0,13	
	DNGG-150402.6-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-430.6-TF	12,70	15,49	4,75	5,16	0,25	
	DNGG-150404-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-431-TF	12,70	15,49	4,75	5,16	0,38	
	DNGG-150408-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-432-TF	12,70	15,49	4,75	5,16	0,79	
	DNGG-150412-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-433-TF	12,70	15,49	4,75	5,16	1,19	
	DNGG-190608-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-542-TF	15,88	19,38	6,35	6,35	0,79	
	DNGG-190612-TF						▲	●	◆				▲	◆	●				●	◆		DNGG-543-TF	15,88	19,38	6,35	6,35	1,19	
FINISHING 	DNMG-150404-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-431-FF2	12,70	15,49	4,75	5,16	0,38	
	DNMG-150408-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-432-FF2	12,70	15,49	4,75	5,16	0,79	
	DNMG-150412-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-433-FF2	12,70	15,49	4,75	5,16	1,19	
	DNMG-150604-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-441-FF2	12,70	15,49	6,35	5,16	0,38	
	DNMG-150608-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-442-FF2	12,70	15,49	6,35	5,16	0,79	
	DNMG-150612-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-443-FF2	12,70	15,49	6,35	5,16	1,19	
	DNMG-190608-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-542-FF2	15,88	19,38	6,35	6,35	0,79	
	DNMG-190612-FF2	▲	◆				●	▲	▲	◆		◆	●	◆	▲				●	◆		DNMG-543-FF2	15,88	19,38	6,35	6,35	1,19	
GENERAL PURPOSE 	DNMG-150408-GP2	●	◆	▲			●	▲	▲	◆		◆	●	◆	▲			▲	●	◆		DNMG-432-GP2	12,70	15,49	4,75	5,16	0,79	
	DNMG-150412-GP2	●	◆	▲			●	▲		◆		◆		▲	●	▲			▲	●	◆		DNMG-433-GP2	12,70	15,49	4,75	5,16	1,19
	DNMG-150608-GP2	●	◆	▲				▲	▲	◆	●	◆		◆	▲	●			▲	●	◆		DNMG-442-GP2	12,70	15,49	6,35	5,16	0,79
	DNMG-150612-GP2	●	◆	▲				▲	▲	◆	●	◆		◆	▲	●			▲	●	◆		DNMG-443-GP2	12,70	15,49	6,35	5,16	1,19
	DNMG-190608-GP2	●	◆	▲				▲	▲	◆	●	◆		◆	▲	●			▲	●	◆		DNMG-542-GP2	15,88	19,38	6,35	6,35	0,79
	DNMG-190612-GP2	●	◆	▲				▲	▲	◆	●	◆		◆	▲	●			▲	●	◆		DNMG-543-GP2	15,88	19,38	6,35	6,35	1,19
MEDIUM ROUGHING 	DNMG-150408-MR	◆	▲	●			▲	▲	◆	●	◆		◆	▲	●			●	▲	◆		DNMG-432-MR	12,70	15,49	4,75	5,16	0,79	
	DNMG-150608-MR	◆	▲	●			▲	▲	◆	●	◆		◆	▲	●			●	▲	◆		DNMG-442-MR	12,70	15,49	6,35	5,16	1,19	
	DNMG-190608-MR2	◆	▲	●			▲	▲	◆	●	◆		◆	▲	●			●	▲	◆		DNMG-542-MR	15,88	19,38	6,35	6,35	0,79	
	DNMG-190612-MR2	◆	▲	●			▲	▲	◆	●	◆		◆	▲	●			●	▲	◆		DNMG-543-MR2	15,88	19,38	6,35	6,35	1,19	

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4
For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

TB — CARBIDE INSERTS

55° Diamond Inserts

Negative Flat Top (DNMA)



Shape: 55° Diamond	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		GA5023	G-02		D _{i.c.}	L	S	D1	R
	DNMA-150404	◆	▲	DNMA-431	12,70	15,49	4,75	5,16	0,13
	DNMA-150408	◆	▲	DNMA-432	12,70	15,49	4,75	5,16	0,79
	DNMA-150412	◆	▲	DNMA-433	12,70	15,49	4,75	5,16	1,19
	DNMA-150416	◆	▲	DNMA-434	12,70	15,49	4,75	5,16	1,57
	DNMA-190412	◆	▲	DNMA-533	15,88	19,38	4,75	6,35	1,19
	DNMA-190608	◆	▲	DNMA-542	15,88	19,38	6,35	6,35	0,79
	DNMA-190612	◆	▲	DNMA-543	15,88	19,38	6,35	6,35	1,19
	DNMA-190616	◆	▲	DNMA-544	15,88	19,38	6,35	6,35	1,57

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated

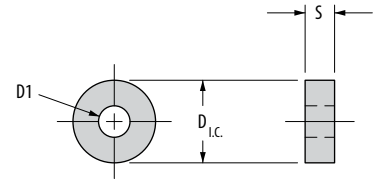
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Round Inserts

Negative Chip Control (RNGG-RNMG-RNMM)



Shape: Round	Part Number ISO	Steel					Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Titanium			Part Number ANSI	Dimensions (mm)			
		P					M					K	S					S				D _{1.c}	T	D1	
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M	G-925	G-9610					G-10
PRECISION FINISHING 	RNGG-120400-TF						●	▲	◆				●	◆	▲				●	◆		RNGG-43-TF	12,70	4,75	5,16
GENERAL PURPOSE 	RNMG-090300-GP	▲	◆				●	▲	◆	◆	●	◆	▲				▲	●	◆	RNMG-32-GP	9,53	3,18	3,81		
	RNMG-090400-GP	▲	◆				●	▲	◆	◆	●	◆	▲				▲	●	◆	RNMG-33-GP	9,53	4,75	3,81		
	RNMG-120400-GP	▲	◆				●	▲	◆	◆	●	◆	▲				▲	●	◆	RNMG-43-GP	12,70	4,75	5,16		
MEDIUM ROUGHING 	RNMG-190600-MR	●	◆	▲			●	▲	◆	◆	●	◆	▲				●	▲	◆	RNMG-64-MR	19,05	6,35	7,92		
	RNMG-250900-MR	●	◆	▲			●	▲	◆	◆	●	◆	▲				●	▲	◆	RNMG-86-MR	25,40	9,53	9,12		
HEAVY ROUGHING 	RNMM-250600-MR	●	◆	▲			●	▲	◆	◆	●	◆	▲							RNMM-84 MR	25,40	6,35	9,12		

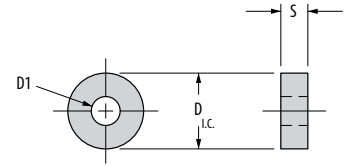
CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated
 For additional grades, please contact Greenleaf Technical Service.


First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

TB – CARBIDE INSERTS

Round Inserts

Negative Flat Top (RNMA)



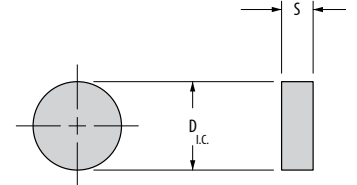
Shape: Round	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)		
		GA5023	G-02		D _{I.C.}	T	D1
	RNMA-090300	◆	▲	RNMA-32	9,53	3,18	3,81
	RNMA-090400	◆	▲	RNMA-33	9,53	4,75	3,81
	RNMA-120400	◆	▲	RNMA-43	12,70	4,75	5,16
	RNMA-150600	◆	▲	RNMA-54	15,88	6,35	6,35
	RNMA-190600	◆	▲	RNMA-64	19,05	6,35	7,92
	RNMA-250900	◆	▲	RNMA-86	25,40	9,53	9,12
	RNMA-310900	◆	▲	RNMA-106	31,75	9,53	12,70


CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated
 For additional grades, please contact Greenleaf Technical Service.

First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

Round Inserts

Negative Flat Top (RNGN)



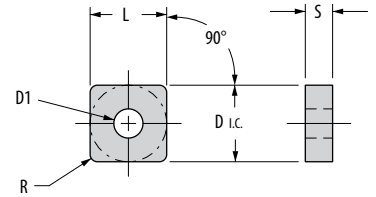
Shape: Round	Part Number ANSI	Cast Iron		Part Number ISO	Dimensions (inches)	
		GA5023	G-02		D _{I.C.}	S
	RNGN-090300	◆	▲	RNGN-32	9,53	3,81
	RNGN-120300	◆	▲	RNGN-42	12,70	3,81
	RNGN-120400	◆	▲	RNGN-43	12,70	4,75
	RNGN-120700	◆	▲	RNGN-45	12,70	7,92
	RNGN-150400	◆	▲	RNGN-53	15,88	4,75
	RNGN-190400	◆	▲	RNGN-63	19,05	4,75
	RNGN-250600	◆	▲	RNGN-84	25,40	6,35

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated
 For additional grades, please contact Greenleaf Technical Service.

First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

Square Inserts

Negative Chip Control (SNMG-SNMM)



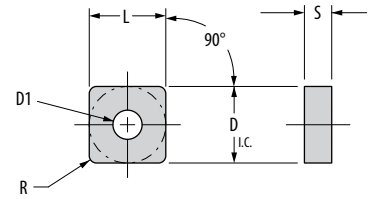
Shape: Square	Part Number ISO	Steel					Stainless Steel				Cast Iron	Heat-Resistant Super Alloys					Titanium			Part Number ANSI	Dimensions (mm)					
		P					M				K	S					S				D _{i.c.}	L	S	D1	R	
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M	G-925							G-9610
FINISHING 	SNMG-090308-FF2	▲	◆				●	▲	◆		◆	●	◆		▲			●	◆	▲	SNMG-322-FF2	9,53	9,53	3,18	3,81	0,79
	SNMG-120408-FF2	▲	◆				●	▲	◆		◆	●	◆		▲			●	◆	▲	SNMG-432-FF2	12,70	12,70	4,75	5,16	0,79
	SNMG-120412-FF	▲	◆				●	▲	◆		◆	●	◆		▲			●	◆	▲	SNMG-433-FF	12,70	12,70	4,75	5,16	1,19
	SNMG-150612-FF	▲	◆				●	▲	◆		◆	●	◆		▲			●	◆	▲	SNMG-543-FF	15,88	15,88	6,35	6,35	1,19
GENERAL PURPOSE 	SNMG-090308-GP	●	◆	▲			●	▲	◆		◆	●	◆		▲			▲	●	◆	SNMG-322-GP	9,53	9,53	3,18	3,81	0,79
	SNMG-120408-GP2	●	◆	▲			●	▲	◆		◆	●	◆		▲			▲	●	◆	SNMG-432-GP2	12,70	12,70	4,75	5,16	0,79
	SNMG-120412-GP2	●	◆	▲			●	▲	◆		◆	●	◆		▲			▲	●	◆	SNMG-433-GP2	12,70	12,70	4,75	5,16	1,19
	SNMG-120416-GP	●	◆	▲			●	▲	◆		◆	●	◆		▲			▲	●	◆	SNMG-434-GP	12,70	12,70	4,75	5,16	1,57
	SNMG-150612-GP2	●	◆	▲				▲	◆	●	◆		◆		▲	●		▲	●	◆	SNMG-543-GP2	15,88	15,88	6,35	6,35	1,19
	SNMG-190612-GP2	●	◆	▲				▲	◆	●	◆		◆		▲	●		▲	●	◆	SNMG-643-GP2	19,05	19,05	6,35	7,92	1,19
	SNMG-190616-GP2	●	◆	▲				▲	◆	●	◆		◆		▲	●		▲	●	◆	SNMG-644-GP2	19,05	19,05	6,35	7,92	1,57
MEDIUM ROUGHING 	SNMG-120408-MR2	●	◆	▲				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-432-MR2	12,70	12,70	4,75	5,16	0,79
	SNMG-120608-MR	●	◆	▲				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-442-MR	12,70	12,70	6,35	5,16	0,79
	SNMG-150612-MR2	◆	▲	●				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-543-MR2	15,88	15,88	6,35	6,35	1,19
	SNMG-190612-MR	◆	▲	●				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-643-MR	19,05	19,05	6,35	7,92	1,19
	SNMG-190616-MR	◆	▲	●				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-644-MR	19,05	19,05	6,35	7,92	1,57
SNMG-250924-MR	◆	▲	●				▲	◆	●	◆		◆		▲	●		●	▲	◆	SNMG-866-MR	25,40	25,40	9,53	9,12	2,39	
HEAVY ROUGHING 	SNMM-190612-HR	◆			●			▲			◆		◆								SNMM-643-HR	19,05	19,05	6,35	7,92	1,19
	SNMM-190616-HR	◆			●			▲			◆		◆								SNMM-644-HR	19,05	19,05	6,35	7,92	1,57

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Square Inserts

Negative Flat Top (SNMA)



Shape: Square	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		K	G-02		D _{I.C.}	L	S	D1	R
	SNMA-090304	◆	▲	SNMA-321	9,53	9,53	3,18	3,81	0,38
	SNMA-090308	◆	▲	SNMA-322	9,53	9,53	3,18	3,81	0,79
	SNMA-090312	◆	▲	SNMA-323	9,53	9,53	3,18	3,81	1,19
	SNMA-120404	◆	▲	SNMA-431	12,70	12,70	4,75	5,16	0,38
	SNMA-120408	◆	▲	SNMA-432	12,70	12,70	4,75	5,16	0,79
	SNMA-120412	◆	▲	SNMA-433	12,70	12,70	4,75	5,16	1,19
	SNMA-120416	◆	▲	SNMA-434	12,70	12,70	4,75	5,16	1,57
	SNMA-150608	◆	▲	SNMA-542	15,88	15,88	6,35	6,35	0,79
	SNMA-150612	◆	▲	SNMA-543	15,88	15,88	6,35	6,35	1,19
	SNMA-150616	◆	▲	SNMA-544	15,88	15,88	6,35	6,35	1,57
	SNMA-190612	◆	▲	SNMA-643	19,05	19,05	6,35	7,92	1,19
	SNMA-190616	◆	▲	SNMA-644	19,05	19,05	6,35	7,92	1,57
	SNMA-250916	◆	▲	SNMA-864	25,40	25,40	9,53	9,12	1,57
	SNMA-250924	◆	▲	SNMA-866	25,40	25,40	9,53	9,12	2,39

CARBIDE COATINGS: MI-CVD Coated PVD Coated Uncoated

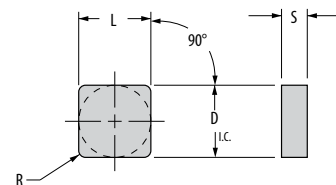
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Square Inserts

Negative Flat Top (SNGN)



TB – CARBIDE INSERTS

Shape: Square	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)			
		K	G-02		D _{I.C.}	L	S	R
	SNGN-090304	◆	▲	SNGN-321	9,53	9,53	3,18	0,38
	SNGN-090308	◆	▲	SNGN-322	9,53	9,53	3,18	0,79
	SNGN-120308	◆	▲	SNGN-422	12,70	12,70	3,18	0,79
	SNGN-120312	◆	▲	SNGN-423	12,70	12,70	3,18	1,19
	SNGN-120400	◆	▲	SNGN-430	12,70	12,70	4,75	0,13
	SNGN-120404	◆	▲	SNGN-431	12,70	12,70	4,75	0,38
	SNGN-120408	◆	▲	SNGN-432	12,70	12,70	4,75	0,79
	SNGN-120412	◆	▲	SNGN-433	12,70	12,70	4,75	1,19
	SNGN-120416	◆	▲	SNGN-434	12,70	12,70	4,75	1,57
	SNGN-150412	◆	▲	SNGN-533	15,88	15,88	4,75	1,19
	SNGN-150416	◆	▲	SNGN-534	15,88	15,88	4,75	1,57
	SNGN-150612	◆	▲	SNGN-543	15,88	15,88	6,35	1,19
	SNGN-190404	◆	▲	SNGN-631	19,05	19,05	4,75	0,38
	SNGN-190408	◆	▲	SNGN-632	19,05	19,05	4,75	0,79
	SNGN-190412	◆	▲	SNGN-633	19,05	19,05	4,75	1,19
	SNGN-190416	◆	▲	SNGN-634	19,05	19,05	4,75	1,57
	SNGN-190432	◆	▲	SNGN-638	19,05	19,05	4,75	3,18
	SNGN-190612	◆	▲	SNGN-643	19,05	19,05	6,35	1,19
	SNGN-190616	◆	▲	SNGN-644	19,05	19,05	6,35	1,57
	SNGN-190624	◆	▲	SNGN-646	19,05	19,05	6,35	2,39
	SNGN-250616	◆	▲	SNGN-844	25,40	25,40	6,35	1,57
	SNGN-250716	◆	▲	SNGN-854	25,40	25,40	7,92	1,57
	SNGN-310648	◆	▲	SNGN-10412	31,75	31,75	6,35	4,75
	SNGN-310924	◆	▲	SNGN-1066	31,75	31,75	9,53	2,39
	SNGN-310932	◆	▲	SNGN-1068	31,75	31,75	9,53	3,18
	SNGN-381232	◆	▲	SNGN-1288	38,10	38,10	12,70	3,18

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated

First Choice ◆ Second Choice ● Alternative ▲

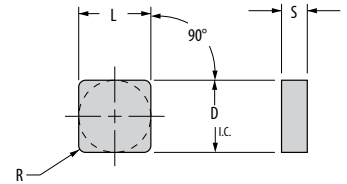
Grade descriptions — pages 1-4


For additional nose radii and available edge preps, please contact Greenleaf Technical Service.



Square Inserts

Negative Flat Top (SNUN)



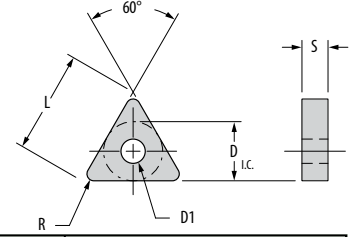
Shape: Square	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)			
		GA5023	K G-02		D I.C.	L	S	R
	SNUN-090308	◆	▲	SNUN-322	9,53	9,53	3,18	0,79
	SNUN-090312	◆	▲	SNUN-323	9,53	9,53	3,18	1,19
	SNUN-120308	◆	▲	SNUN-422	12,70	12,70	3,18	0,79
	SNUN-120312	◆	▲	SNUN-423	12,70	12,70	3,18	1,19
	SNUN-120316	◆	▲	SNUN-424	12,70	12,70	3,18	1,57
	SNUN-120408	◆	▲	SNUN-432	12,70	12,70	4,75	0,79
	SNUN-120412	◆	▲	SNUN-433	12,70	12,70	4,75	1,19
	SNUN-120416	◆	▲	SNUN-434	12,70	12,70	4,75	1,57
	SNUN-150412	◆	▲	SNUN-533	15,88	15,88	4,75	1,19
	SNUN-190408	◆	▲	SNUN-632	19,05	19,05	4,75	0,79
	SNUN-190412	◆	▲	SNUN-633	19,05	19,05	4,75	1,19
	SNUN-190416	◆	▲	SNUN-634	19,05	19,05	4,75	1,57
	SNUN-250616	◆	▲	SNUN-844	25,40	25,40	6,35	1,57
	SNUN-250632	◆	▲	SNUN-848	25,40	25,40	6,35	3,18
	SNUN-250716	◆	▲	SNUN-854	25,40	25,40	7,92	1,57
	SNUN-310924	◆	▲	SNUN-1066	31,75	31,75	9,53	2,39
	SNUN-310932	◆	▲	SNUN-1068	31,75	31,75	9,53	3,18
	SNUN-381232	◆	▲	SNUN-1288	38,10	38,10	12,70	3,18

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Negative Chip Control (TNGG-TNMG-TNMM)



TB – CARBIDE INSERTS

	Shape: Triangle	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Titanium				Part Number ANSI	Dimensions (mm)						
			P				M				K	S				S					D I.C.	L	S	D1	R		
			GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M		G-925	G-9610	G-10				
PRECISION FINISHING		TNGG-160401.3-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-330.3-TF	9,53	16,51	4,75	3,81	0,13
		TNGG-160402.6-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-330.6-TF	9,53	16,51	4,75	3,81	0,25
		TNGG-160404-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-331-TF	9,53	16,51	4,75	3,81	0,38
		TNGG-160408-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-332-TF	9,53	16,51	4,75	3,81	0,79
		TNGG-220401.3-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-430.3-TF	12,70	22,00	4,75	5,16	0,13
		TNGG-220402.6-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-430.6-TF	12,70	22,00	4,75	5,16	0,25
		TNGG-220404-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-431-TF	12,70	22,00	4,75	5,16	0,38
		TNGG-220408-TF					●	▲	●	◆		●	◆	●	▲			●	◆			TNGG-432-TF	12,70	22,00	4,75	5,16	0,79
FINISHING		TNMG-160304-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-321-FF2	9,53	16,51	3,18	3,81	0,38	
		TNMG-160308-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-322-FF2	9,53	16,51	3,18	3,81	0,79	
		TNMG-160312-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-323-FF2	9,53	16,51	3,18	3,81	1,19	
		TNMG-160316-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-324-FF2	9,53	16,51	3,18	3,81	1,57	
		TNMG-160404-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-331-FF2	9,53	16,51	4,75	3,81	0,38	
		TNMG-160408-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-332-FF2	9,53	16,51	4,75	3,81	0,79	
		TNMG-160416-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-334-FF2	9,53	16,51	4,75	3,81	1,57	
		TNMG-220404-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-431-FF2	12,70	22,00	4,75	5,16	0,38	
		TNMG-220408-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-432-FF2	12,70	22,00	4,75	5,16	0,79	
		TNMG-220412-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-433-FF2	12,70	22,00	4,75	5,16	1,19	
		TNMG-220416-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-434-FF2	12,70	22,00	4,75	5,16	1,57	
		TNMG-270608-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-542-FF2	15,88	27,51	6,35	6,35	0,79	
		TNMG-270612-FF2	▲	◆			●	▲		◆		◆	●	◆		▲		●	◆	▲	TNMG-543-FF2	15,88	27,51	6,35	6,35	1,19	
		GENERAL PURPOSE		TNMG-160304-GP2	●	◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-321-GP2	9,53	16,51	3,18	3,81
TNMG-160308-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-322-GP2	9,53	16,51	3,18	3,81	0,79	
TNMG-160312-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-323-GP2	9,53	16,51	3,18	3,81	1,19	
TNMG-160316-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-324-GP2	9,53	16,51	3,18	3,81	1,57	
TNMG-160412-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-333-GP2	9,53	16,51	4,75	3,81	1,19	
TNMG-220408-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-432-GP2	12,70	22,00	4,75	5,16	0,79	
TNMG-220412-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-433-GP2	12,70	22,00	4,75	5,16	1,19	
TNMG-220416-GP2	●			◆	▲		●	▲		◆		◆	●	◆		▲		▲	●	◆	TNMG-434-GP2	12,70	22,00	4,75	5,16	1,57	

CARBIDE COATINGS: ■ MT-CVD Coated ■ PVD Coated ■ Uncoated

First Choice ◆ Second Choice ● Alternative ▲

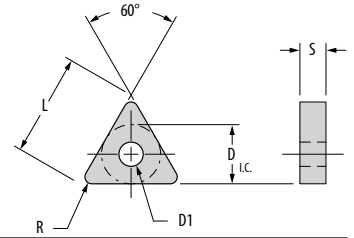
Grade descriptions — pages T 4

Continued on next page.

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Negative Chip Control (TNGG-TNMG-TNMM) *Continued*



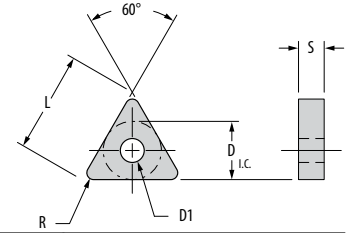
	Shape: Triangle	Part Number ISO	Steel					Stainless Steel				Cast Iron	Heat-Resistant Super Alloys					Titanium				Part Number ANSI	Dimensions (mm)					
			P					M					K	S					S				D _{1.c}	L	S	D1	R	
			GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230			G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M							G-925
MEDIUM ROUGHING		TNMG-110308-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-222-MR2	6,35	11,00	3,18	2,36	0,79
		TNMG-220412-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-433-MR2	12,70	22,00	4,75	5,16	1,19
		TNMG-220416-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-434-MR2	12,70	22,00	4,75	5,16	1,57
		TNMG-220432-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-438-MR2	12,70	22,00	4,75	5,16	3,18
		TNMG-270608-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-542-MR2	15,88	27,51	6,35	6,35	0,79
		TNMG-270612-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-543-MR2	15,88	27,51	6,35	6,35	1,19
		TNMG-270616-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-544-MR2	15,88	27,51	6,35	6,35	1,57
		TNMG-270624-MR2	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-546-MR2	15,88	27,51	6,35	6,35	2,39
		TNMG-330924-MR	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMG-666-MR	19,05	32,99	9,53	7,92	2,39
HEAVY ROUGHING		TNMM-220412-HR	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMM-433-HR	12,70	22,00	4,75	5,16	1,19	
		TNMM-270616-HR	◆	▲	●	●	▲	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	TNMM-544-HR	15,88	27,51	6,35	6,35	1,57	

CARBIDE COATINGS: ■ MT-CVD Coated ■ PVD Coated ■ Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Negative Flat Top (TNMA)



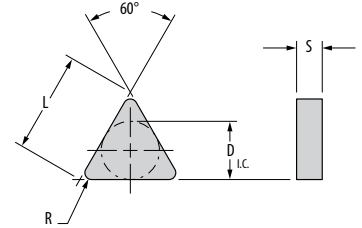
TB – CARBIDE INSERTS

Shape: Triangle	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		K	G-02		D I.C.	L	S	D1	R
	TNMA-110308	◆	▲	TNMA-222	6,35	11,00	3,18	2,36	0,79
	TNMA-160304	◆	▲	TNMA-321	9,53	16,51	3,18	3,81	0,38
	TNMA-160308	◆	▲	TNMA-322	9,53	16,51	3,18	3,81	0,79
	TNMA-160312	◆	▲	TNMA-323	9,53	16,51	3,18	3,81	1,19
	TNMA-160316	◆	▲	TNMA-324	9,53	16,51	3,18	3,81	1,57
	TNMA-160408	◆	▲	TNMA-332	9,53	16,51	4,75	3,81	0,79
	TNMA-160412	◆	▲	TNMA-333	9,53	16,51	4,75	3,81	1,19
	TNMA-220404	◆	▲	TNMA-431	12,70	22,00	4,75	5,16	0,38
	TNMA-220408	◆	▲	TNMA-432	12,70	22,00	4,75	5,16	0,79
	TNMA-220412	◆	▲	TNMA-433	12,70	22,00	4,75	5,16	1,19
	TNMA-220416	◆	▲	TNMA-434	12,70	22,00	4,75	5,16	1,57
	TNMA-270608	◆	▲	TNMA-542	15,88	27,51	6,35	6,35	0,79
	TNMA-270612	◆	▲	TNMA-543	15,88	27,51	6,35	6,35	1,19
	TNMA-270616	◆	▲	TNMA-544	15,88	27,51	6,35	6,35	1,57
	TNMA-270632	◆	▲	TNMA-548	15,88	27,51	6,35	6,35	3,18
	TNMA-270724	◆	▲	TNMA-556	15,88	27,51	7,92	6,35	2,39
	TNMA-270924	◆	▲	TNMA-566	15,88	27,51	9,53	6,35	2,39
	TNMA-330608	◆	▲	TNMA-642	19,05	32,99	6,35	7,92	0,79
	TNMA-330612	◆	▲	TNMA-643	19,05	32,99	6,35	7,92	1,19
	TNMA-330616	◆	▲	TNMA-644	19,05	32,99	6,35	7,92	1,57
	TNMA-330916	◆	▲	TNMA-664	19,05	32,99	9,53	7,92	1,57
	TNMA-330924	◆	▲	TNMA-666	19,05	32,99	9,53	7,92	2,39
	TNMA-330932	◆	▲	TNMA-668	19,05	32,99	9,53	7,92	3,18

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages 1-4
 For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Negative Flat Top (TNGN)



Shape: Triangle	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)			
		K			D _{1.c.}	L	D ₁	R
		GA5023	G02					
	TNGN-110308	◆	▲	TNGN-222	6,35	11,00	3,18	0,79
	TNGN-110312	◆	▲	TNGN-223	6,35	11,00	3,18	1,19
	TNGN-160300	◆	▲	TNGN-320	9,53	16,51	3,18	0,13
	TNGN-160304	◆	▲	TNGN-321	9,53	16,51	3,18	0,38
	TNGN-160308	◆	▲	TNGN-322	9,53	16,51	3,18	0,79
	TNGN-160312	◆	▲	TNGN-323	9,53	16,51	3,18	1,19
	TNGN-160316	◆	▲	TNGN-324	9,53	16,51	3,18	1,57
	TNGN-160404	◆	▲	TNGN-331	9,53	16,51	4,75	0,38
	TNGN-160408	◆	▲	TNGN-332	9,53	16,51	4,75	0,79
	TNGN-160412	◆	▲	TNGN-333	9,53	16,51	4,75	1,19
	TNGN-160416	◆	▲	TNGN-334	9,53	16,51	4,75	1,57
	TNGN-220404	◆	▲	TNGN-431	12,70	22,00	4,75	0,38
	TNGN-220408	◆	▲	TNGN-432	12,70	22,00	4,75	0,79
	TNGN-220412	◆	▲	TNGN-433	12,70	22,00	4,75	1,19
	TNGN-220416	◆	▲	TNGN-434	12,70	22,00	4,75	1,57
	TNGN-220432	◆	▲	TNGN-438	12,70	22,00	4,75	3,18
	TNGN-220608	◆	▲	TNGN-442	12,70	22,00	6,35	0,79
	TNGN-220612	◆	▲	TNGN-443	12,70	22,00	6,35	1,19
	TNGN-220616	◆	▲	TNGN-444	12,70	22,00	6,35	1,57
	TNGN-270408	◆	▲	TNGN-532	15,88	27,51	4,75	0,79
	TNGN-270432	◆	▲	TNGN-538	15,88	27,51	4,75	3,18
	TNGN-270604	◆	▲	TNGN-541	15,88	27,51	6,35	0,38
	TNGN-270608	◆	▲	TNGN-542	15,88	27,51	6,35	0,79
	TNGN-270612	◆	▲	TNGN-543	15,88	27,51	6,35	1,19
	TNGN-270616	◆	▲	TNGN-544	15,88	27,51	6,35	1,57
	TNGN-270716	◆	▲	TNGN-554	15,88	27,51	7,92	1,57
	TNGN-270724	◆	▲	TNGN-556	15,88	27,51	7,92	2,39
	TNGN-330716	◆	▲	TNGN-654	19,05	32,99	7,92	1,57
	TNGN-330724	◆	▲	TNGN-656	19,05	32,99	7,92	2,39
	TNGN-330916	◆	▲	TNGN-664	19,05	32,99	9,53	1,57
	TNGN-330924	◆	▲	TNGN-666	19,05	32,99	9,53	2,39
	TNGN-330932	◆	▲	TNGN-668	19,05	32,99	9,53	3,18
	TNGN-381124	◆	▲	TNGN-776	22,23	38,51	11,10	2,39
	TNGN-381132	◆	▲	TNGN-778	22,23	38,51	11,10	3,18
	TNGN-381140	◆	▲	TNGN-7710	22,23	38,51	11,10	3,96
	TNGN-441132	◆	▲	TNGN-878	25,40	43,99	11,10	3,18



CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated

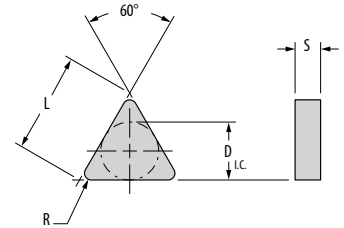
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Negative Flat Top (TNUN)



TB – CARBIDE INSERTS

Shape: Triangle	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)			
		K			D I.C.	L	S	R
	TNUN-160304	GA5023	G-D2	TNUN-321	9,53	16,51	3,18	0,38
	TNUN-160308	◆	▲	TNUN-322	9,53	16,51	3,18	0,79
	TNUN-160312	◆	▲	TNUN-323	9,53	16,51	3,18	1,19
	TNUN-160408	◆	▲	TNUN-332	9,53	16,51	4,75	0,79
	TNUN-160412	◆	▲	TNUN-333	9,53	16,51	4,75	1,19
	TNUN-160416	◆	▲	TNUN-334	9,53	16,51	4,75	1,57
	TNUN-220408	◆	▲	TNUN-432	12,70	22,00	4,75	0,79
	TNUN-220412	◆	▲	TNUN-433	12,70	22,00	4,75	1,19
	TNUN-220416	◆	▲	TNUN-434	12,70	22,00	4,75	1,57
	TNUN-220432	◆	▲	TNUN-438	12,70	22,00	4,75	3,18
	TNUN-220604	◆	▲	TNUN-441	12,70	22,00	6,35	0,38
	TNUN-220608	◆	▲	TNUN-442	12,70	22,00	6,35	0,79
	TNUN-220612	◆	▲	TNUN-443	12,70	22,00	6,35	1,19
	TNUN-220616	◆	▲	TNUN-444	12,70	22,00	6,35	1,57
	TNUN-220632	◆	▲	TNUN-448	12,70	22,00	6,35	3,18
	TNUN-270608	◆	▲	TNUN-542	15,88	27,51	6,35	0,79
	TNUN-270612	◆	▲	TNUN-543	15,88	27,51	6,35	1,19
	TNUN-270616	◆	▲	TNUN-544	15,88	27,51	6,35	1,57
	TNUN-270624	◆	▲	TNUN-546	15,88	27,51	6,35	2,39
	TNUN-270708	◆	▲	TNUN-552	15,88	27,51	7,92	0,79
	TNUN-270712	◆	▲	TNUN-553	15,88	27,51	7,92	1,19
	TNUN-270716	◆	▲	TNUN-554	15,88	27,51	7,92	1,57
	TNUN-270724	◆	▲	TNUN-556	15,88	27,51	7,92	2,39
	TNUN-330716	◆	▲	TNUN-654	19,05	32,99	7,92	1,57
	TNUN-330724	◆	▲	TNUN-656	19,05	32,99	7,92	2,39
	TNUN-330916	◆	▲	TNUN-664	19,05	32,99	9,53	1,57
	TNUN-330924	◆	▲	TNUN-666	19,05	32,99	9,53	2,39
	TNUN-330932	◆	▲	TNUN-668	19,05	32,99	9,53	3,18
	TNUN-381124	◆	▲	TNUN-776	22,23	38,51	11,10	2,39
	TNUN-381132	◆	▲	TNUN-778	22,23	38,51	11,10	3,18
	TNUN-381140	◆	▲	TNUN-7710	22,23	38,51	11,10	3,96

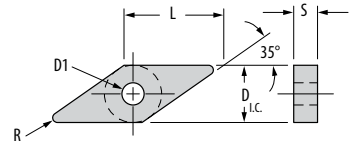





CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

35° Diamond Inserts

Negative Chip Control (VNGG-VNMG)



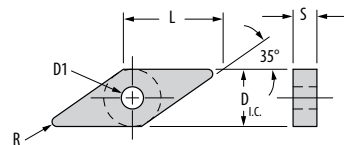
	Shape: 35° Diamond	Part Number ISO	Steel					Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Titanium			Part Number ANSI	Dimensions (mm)							
			P					M					K	S					S	D _{l.c.}	L		S	D1	R					
			GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M							G-925	G-9610	G-10		
PRECISION FINISHING	TurboForm® 	VNGG-160401.3-TF						●	▲	●	◆						●	◆	▲			●	◆		VNGG-330.3-TF	9,53	16,61	4,75	3,81	0,13
		VNGG-160402.6-TF						●	▲	●	◆						●	◆	▲			●	◆		VNGG-330.6-TF	9,53	16,61	4,75	3,81	0,25
		VNGG-160404-TF						●	▲	●	◆						●	◆	▲			●	◆		VNGG-331-TF	9,53	16,61	4,75	3,81	0,38
		VNGG-160408-TF						●	▲	●	◆						●	◆	▲			●	◆		VNGG-332-TF	9,53	16,61	4,75	3,81	0,79
		VNGG-160412-TF						●	▲	●	◆						●	◆	▲			●	◆		VNGG-333-TF	9,53	16,61	4,75	3,81	1,19
FINISHING	FF2 	VNMG-160404-FF2	▲	◆				●	▲		◆	◆	●	◆	▲		●	◆	▲		▲	●	◆	▲	VNMG-331-FF2	9,53	16,61	4,75	3,81	0,38
		VNMG-160408-FF2	▲	◆				●	▲		◆	◆	●	◆	▲		●	◆	▲		▲	●	◆	▲	VNMG-332-FF2	9,53	16,61	4,75	3,81	0,79
		VNMG-160412-FF2	▲	◆				●	▲		◆	◆	●	◆	▲		●	◆	▲		▲	●	◆	▲	VNMG-333-FF2	9,53	16,61	4,75	3,81	1,19
		VNMG-220408-FF2	▲	◆				●	▲		◆	◆	●	◆	▲		●	◆	▲		▲	●	◆	▲	VNMG-432-FF2	12,70	22,15	4,75	5,16	0,79
GENERAL PURPOSE	GP2 	VNMG-160408-GP2	●	◆	▲			▲		◆	●	◆	◆	▲	●		▲	●	◆	▲	●	◆	VNMG-332-GP2	9,53	16,61	4,75	3,81	0,79		
		VNMG-160412-GP2	●	◆	▲			▲		◆	●	◆	◆	▲	●		▲	●	◆	▲	●	◆	VNMG-333-GP2	9,53	16,61	4,75	3,81	1,19		
		VNMG-220408-GP2	●	◆	▲			▲		◆	●	◆	◆	▲	●		▲	●	◆	▲	●	◆	VNMG-432-GP2	12,70	22,15	4,75	5,16	0,79		

CARBIDE COATINGS: MF-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages 14

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

35° Diamond Inserts

Negative Flat Top (VNMA)



Shape: 35° Diamond	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		GA5023	G-02		D _{I.C.}	L	S	D1	R
	VNMA-160404	◆	▲	VNMA-331	9,53	16,61	4,75	3,81	0,38
	VNMA-160408	◆	▲	VNMA-332	9,53	16,61	4,75	3,81	0,79
	VNMA-220404	◆	▲	VNMA-431	12,70	22,15	4,75	5,16	0,38
	VNMA-220408	◆	▲	VNMA-432	12,70	22,15	4,75	5,16	0,79

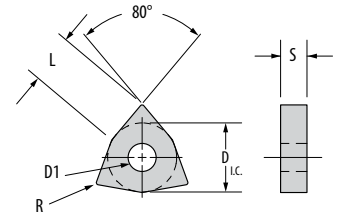
CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4




For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

TB — CARBIDE INSERTS

80° Trigon Inserts

Negative Chip Control (WNMG)



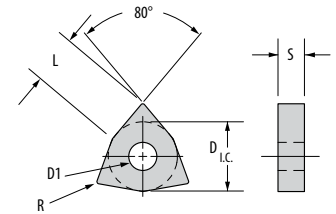
Shape: 80° Trigon	Part Number ISO	Steel					Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Titanium				Part Number ANSI	Dimensions (mm)				
		P					M					K	S					S					D _{i.c.}	L	S	D1	R
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230	G-9610	G-20M	G-925	G-9610	G-10						
PRECISION FINISHING 	WNMG-060404-FF2	▲	◆				●	▲		◆	◆	●	◆		▲			●	◆	▲	WNMG-331-FF2	9,53	6,53	4,75	3,81	0,38	
	WNMG-060408-FF2	▲	◆				●	▲		◆	◆	●	◆		▲			●	◆	▲	WNMG-332-FF2	9,53	6,53	4,75	3,81	0,79	
	WNMG-080404-FF2	▲	◆				●	▲		◆	◆	●	◆		▲			●	◆	▲	WNMG-431-FF2	12,70	8,69	4,75	5,16	0,38	
	WNMG-080408-FF2	▲	◆				●	▲		◆	◆	●	◆		▲			●	◆	▲	WNMG-432-FF2	12,70	8,69	4,75	5,16	0,79	
FINISHING 	WNMG-060404-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-331-GP2	9,53	6,53	4,75	3,81	0,38	
	WNMG-060408-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-332-GP2	9,53	6,53	4,75	3,81	0,79	
	WNMG-080404-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-431-GP2	12,70	8,69	4,75	5,16	0,38	
	WNMG-080408-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-432-GP2	12,70	8,69	4,75	5,16	0,79	
	WNMG-080412-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-433-GP2	12,70	8,69	4,75	5,16	1,19	
	WNMG-080416-GP2	●	◆	▲			●	▲		◆	◆	●	◆		▲			▲	●	◆	WNMG-434-GP2	12,70	8,69	4,75	5,16	1,57	
GENERAL PURPOSE 	WNMG-080408-MR2		◆	▲		●		▲		◆	◆		◆		▲	●		●	▲	◆	WNMG-432-MR2	12,70	8,69	4,75	5,16	0,79	
	WNMG-080412-MR2		◆	▲		●		▲		◆	◆		◆		▲	●		●	▲	◆	WNMG-433-MR2	12,70	8,69	4,75	5,16	1,19	

CARBIDE COATINGS: MF-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4
 For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

TB – CARBIDE INSERTS

80° Trigon Inserts

Negative Flat Top (WNMA)



Shape: 80° Trigon	Part Number ISO	Cast Iron		Part Number ANSI	Dimensions (mm)				
		GA5023	G-02		D.I.C.	L	S	D1	R
	WNMA-060404	◆	▲	WNMA-331	9,53	6,53	4,75	3,81	0,38
	WNMA-060408	◆	▲	WNMA-332	9,53	6,53	4,75	3,81	0,79
	WNMA-060412	◆	▲	WNMA-333	9,53	6,53	4,75	3,81	1,19
	WNMA-080404	◆	▲	WNMA-431	12,70	8,69	4,75	5,16	0,38
	WNMA-080408	◆	▲	WNMA-432	12,70	8,69	4,75	5,16	0,79
	WNMA-080412	◆	▲	WNMA-433	12,70	8,69	4,75	5,16	1,19
	WNMA-080416	◆	▲	WNMA-434	12,70	8,69	4,75	5,16	1,57

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated

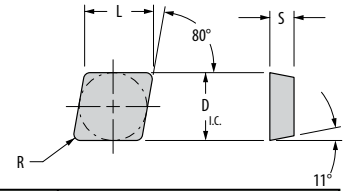
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

80° Diamond Inserts

Positive Flat Top (CPGN)



Shape: 80° Diamond	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)				
		P				M				K	S					D _{1.c.}	L	S	R	
		GA5025	GA5035	GA5125	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920		G-9230	G-20M			
	CPGN-120308	●	◆	▲		●	▲		◆	◆	●	◆		▲		CPGN-422	12,70	12,88	3,18	0,79
	CPGN-120316	●	◆	▲		●	▲		◆	◆	●	◆		▲		CPGN-424	12,70	12,88	3,18	1,57
	CPGN-120324	●	◆	▲		●	▲		◆	◆	●	◆		▲		CPGN-426	12,70	12,88	3,18	2,39
	CPGN-120412	●	◆	▲		●	▲		◆	◆	●	◆		▲		CPGN-433	12,70	12,88	4,75	1,19
	CPGN-120416	●	◆	▲		●	▲		◆	◆	●	◆		▲		CPGN-434	12,70	12,88	4,75	1,57
	CPGN-190408		◆	▲	●		▲		◆	●	◆			▲	●	CPGN-632	19,05	19,33	4,75	0,79
	CPGN-190412		◆	▲	●		▲		◆	●	◆			▲	●	CPGN-633	19,05	19,33	4,75	1,19

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated

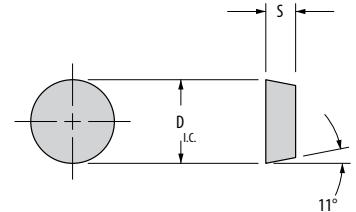
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Round Inserts

Positive Flat Top (RPGN)



Shape: Round	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)		
		P				M				K	S					D _{1.c.}	S	
		GA5025	GA5035	GA5125	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920		G-9230	G-20M	
	RPGN-090300	●	◆	▲		●	▲		◆	◆	●	◆		▲		RPGN-32	9,53	3,18
	RPGN-120400	●	◆	▲		●	▲		◆	◆	●	◆		▲		RPGN-43	12,70	4,75

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated

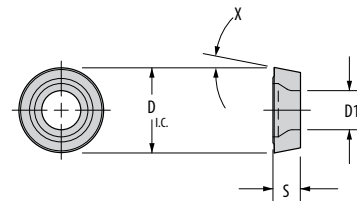
First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Round Inserts

Positive Chip Control (RCGT-RPGT-RCMT)



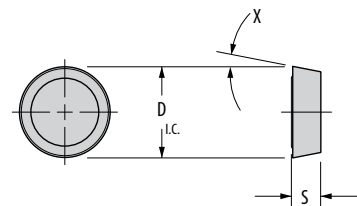
Shape: Round	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys					Titanium		Part Number ANSI	Dimensions (mm)						
		P				M				K	S					S	D _{I.C.}		S	D1	X				
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230						G-9610	G-20M	G-925	G-9610
	RCGT-060300-TF					●	▲	◆				●	◆	▲			●	◆			RCGT-22-TF	0.250	0.125	0.134	7°
	RCGT-09T300-TF					●	▲	◆				●	◆	▲			●	◆			RCGT-32.5-TF	0.375	0.156	0.173	7°
	RCGT-120400-TF					●	▲	◆				●	◆	▲			●	◆			RCGT-43-TF	0.500	0.187	0.217	7°
	RPGT-060300-TF					●	▲	◆				●	◆	▲			●	◆			RPGT-22-TF	0.250	0.125	0.134	11°
	RPGT-09T300-TF					●	▲	◆				●	◆	▲			●	◆			RPGT-32.5-TF	0.375	0.156	0.173	11°
	RPGT-120400-TF					●	▲	◆				●	◆	▲			●	◆			RPGT-43-TF	0.500	0.187	0.217	11°

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Round Inserts

Positive Chip Control (RCGR-RPGR)



Shape: Round	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys					Titanium		Part Number ANSI	Dimensions (mm)					
		P				M				K	S					S	D _{I.C.}		S	X				
		GA5025	GA5035	GA5125	G-5125+	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920	G-9230					G-9610	G-20M	G-925	G-9610
	RCGR-060300-TF					●	▲	◆				●	◆	▲			●	◆			RCGR-22-TF	6,35	3,18	7°
	RCGR-09T300-TF					●	▲	◆				●	◆	▲			●	◆			RCGR-32.5-TF	9,53	3,96	7°
	RCGR-120400-TF					●	▲	◆				●	◆	▲			●	◆			RCGR-43-TF	12,70	4,75	7°
	RPGR-060300-TF					●	▲	◆				●	◆	▲			●	◆			RPGR-22-TF	6,35	3,18	11°
	RPGR-09T300-TF					●	▲	◆				●	◆	▲			●	◆			RPGR-32.5-TF	9,53	3,96	11°
	RPGR-120400-TF					●	▲	◆				●	◆	▲			●	◆			RPGR-43-TF	12,70	4,75	11°

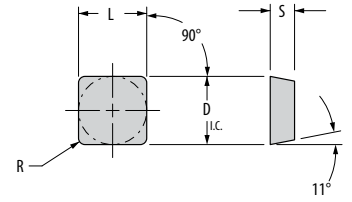
CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

TB — CARBIDE INSERTS

Square Inserts

Positive Flat Top (SPGN-SPUN)



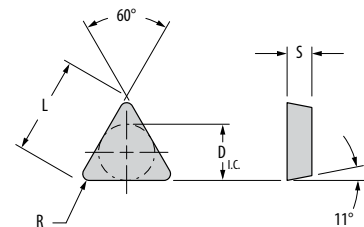
Shape: Square	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)				
		P				M				K	S					D _{i.c.}	L	S	R	
		GA5025	GA5035	GA5125	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920						G-9230
	SPGN-090308	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-322	9,53	9,53	3,18	0,79
	SPGN-090312	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-323	9,53	9,53	3,18	1,19
	SPGN-120308	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-422	12,70	12,70	3,18	0,79
	SPGN-120312	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-423	12,70	12,70	3,18	1,19
	SPGN-120316	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-424	12,70	12,70	3,18	1,57
	SPGN-120408	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-432	12,70	12,70	4,75	0,79
	SPGN-120412	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-433	12,70	12,70	4,75	1,19
	SPGN-120416	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-434	12,70	12,70	4,75	1,57
	SPGN-150408	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-532	15,88	15,88	4,75	0,79
	SPGN-150416	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPGN-534	15,88	15,88	4,75	1,57
	SPGN-190404		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-631	19,05	19,05	4,75	0,38
	SPGN-190408		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-632	19,05	19,05	4,75	0,79
	SPGN-190412		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-633	19,05	19,05	4,75	1,19
	SPGN-190416		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-634	19,05	19,05	4,75	1,57
	SPGN-190424		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-636	19,05	19,05	4,75	2,39
	SPGN-190432		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPGN-638	19,05	19,05	4,75	3,18
	SPUN-120308	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPUN-422	12,70	12,70	3,18	0,79
	SPUN-120312	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPUN-423	12,70	12,70	3,18	1,19
	SPUN-120316	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPUN-424	12,70	12,70	3,18	1,57
	SPUN-120408	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPUN-432	12,70	12,70	4,75	0,79
	SPUN-120412	●	◆	▲		●	▲		◆	◆	●	◆		▲		SPUN-433	12,70	12,70	4,75	1,19
	SPUN-190412		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-633	19,05	19,05	4,75	1,19
	SPUN-190416		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-634	19,05	19,05	4,75	1,57
	SPUN-190612		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-643	19,05	19,05	6,35	1,19
	SPUN-190616		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-644	19,05	19,05	6,35	1,57
	SPUN-250916		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-864	25,40	25,40	9,53	1,57
	SPUN-250924		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-866	25,40	25,40	9,53	2,39
	SPUN-250932		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-868	25,40	25,40	9,53	3,18
	SPUN-310932		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-1068	31,75	31,75	9,53	3,18
	SPUN-381232		◆	▲	●		▲		◆	●	◆		◆	▲	●	SPUN-1288	38,10	38,10	12,70	3,18

CARBIDE COATINGS: **MF-CVD Coated** **PVD Coated** **Uncoated** First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages 1-4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Positive Flat Top (TPGN)



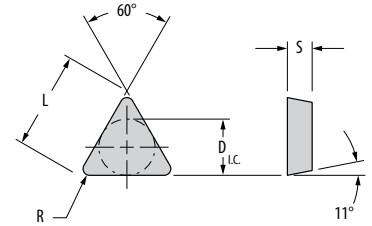
TB – CARBIDE INSERTS

Shape: Triangle	Part Number ISO	Steel				Stainless Steel					Cast Iron	Heat-Resistant Super Alloys					Part Number ANSI	Dimensions (mm)			
		P				M					K	S						D _{I.C.}	L	S	R
		GA-5025	GA-5035	GA-5125	G-9120	GA-5026	G-925	G-920	G-9230	G-915	GA-5023	GA-5026	G-925	G-920	G-9230	G-20M					
	TPGN-110304	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-221	6,35	11,00	3,18	0,38
	TPGN-110308	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-222	6,35	11,00	3,18	0,79
	TPGN-110312	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-223	6,35	11,00	3,18	1,19
	TPGN-110316	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-224	6,35	11,00	3,18	1,57
	TPGN-160300	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-320	9,53	16,51	3,18	0,13
	TPGN-160304	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-321	9,53	16,51	3,18	0,38
	TPGN-160308	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-322	9,53	16,51	3,18	0,79
	TPGN-160312	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-323	9,53	16,51	3,18	1,19
	TPGN-160316	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-324	9,53	16,51	3,18	1,57
	TPGN-160416	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-334	9,53	16,51	4,75	1,57
	TPGN-160424	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-336	9,53	16,51	4,75	2,39
	TPGN-220404	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-431	12,70	22,00	4,75	0,38
	TPGN-220408	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-432	12,70	22,00	4,75	0,79
	TPGN-220412	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-433	12,70	22,00	4,75	1,19
	TPGN-220416	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-434	12,70	22,00	4,75	1,57
	TPGN-220424	●	◆	▲		●	▲		◆		◆	●	◆		▲		TPGN-436	12,70	22,00	4,75	2,39
	TPGN-270408	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-532	15,88	27,51	4,75	0,79	
	TPGN-270412	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-533	15,88	27,51	4,75	1,19	
	TPGN-270416	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-534	15,88	27,51	4,75	1,57	
	TPGN-270604	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-541	15,88	27,51	6,35	0,38	
	TPGN-270608	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-542	15,88	27,51	6,35	0,79	
	TPGN-270612	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-543	15,88	27,51	6,35	1,19	
	TPGN-270616	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-544	15,88	27,51	6,35	1,57	
	TPGN-270632	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-548	15,88	27,51	6,35	3,18	
	TPGN-270716	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-554	15,88	27,51	7,92	1,57	
	TPGN-270724	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-556	15,88	27,51	7,92	2,39	
	TPGN-330924	●	◆	▲		▲		◆	●	◆		◆		▲	●	TPGN-666	19,05	32,99	9,53	2,39	

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages 1-4
For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Positive Flat Top (TPUN)



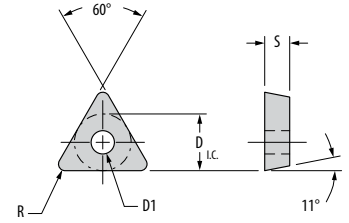
Shape: Triangle	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)				
		P				M				K	S					D _{I.C.}	L	S	R	
		GA-5025	GA-5035	GA-5125	G-9120	GA-5026	G-925	G-920	G-9230	G-915	GA-5023	GA-5026	G-925	G-920						G-9230
	TPUN-160304	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-321	9,53	16,51	3,18	0,38
	TPUN-160308	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-322	9,53	16,51	3,18	0,79
	TPUN-160312	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-323	9,53	16,51	3,18	1,19
	TPUN-220404	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-431	12,70	22,00	4,75	0,38
	TPUN-220408	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-432	12,70	22,00	4,75	0,79
	TPUN-220412	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-433	12,70	22,00	4,75	1,19
	TPUN-220416	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-434	12,70	22,00	4,75	1,57
	TPUN-270608	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-542	15,88	27,51	6,35	0,79
	TPUN-270612	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-543	15,88	27,51	6,35	1,19
	TPUN-270616	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-544	15,88	27,51	6,35	1,57
	TPUN-270708	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-552	15,88	27,51	7,92	0,79
	TPUN-270712	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-553	15,88	27,51	7,92	1,19
	TPUN-270716	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-554	15,88	27,51	7,92	1,57
	TPUN-270724	●	◆	▲		●	▲		◆	◆	●	◆		▲		TPUN-556	15,88	27,51	7,92	2,39
	TPUN-330916		◆	▲	●		▲		◆	●	◆		◆	▲	●	TPUN-664	19,05	32,99	9,53	1,57
	TPUN-330924		◆	▲	●		▲		◆	●	◆		◆	▲	●	TPUN-666	19,05	32,99	9,53	2,39

CARBIDE COATINGS: MT-CVD Coated PVD Coated Uncoated First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

Triangle Inserts

Positive Flat Top (TP-TPGA)



TB – CARBIDE INSERTS

Shape: Triangle	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)			
		P				M				K	S					D _{i.c.}	S	D1	R
		GA5025	GA5035	GA5125	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920					
	TP-41	●	◆	▲		●	▲		◆	◆	●	◆		▲	TP-41	6,35	2,36	3,48	0,38
	TP-42	●	◆	▲		●	▲		◆	◆	●	◆		▲	TP-42	6,35	2,36	3,48	0,79
	TP-62	●	◆	▲		●	▲		◆	◆	●	◆		▲	TP-62	9,53	3,18	4,14	0,79
	TP-64	●	◆	▲		●	▲		◆	◆	●	◆		▲	TP-64	9,53	3,18	4,14	1,57
	TP-82	●	◆	▲		●	▲		◆	◆	●	◆		▲	TP-82	12,70	4,75	5,16	0,79
	TPGA-160304	●	◆	▲		●	▲		◆	◆	●	◆		▲	TPGA-321	9,53	3,18	3,8	0,38
	TPGA-160308	●	◆	▲		●	▲		◆	◆	●	◆		▲	TPGA-322	9,53	3,18	3,8	0,79
	TPGA-160312	●	◆	▲		●	▲		◆	◆	●	◆		▲	TPGA-323	9,53	3,18	3,8	1,19

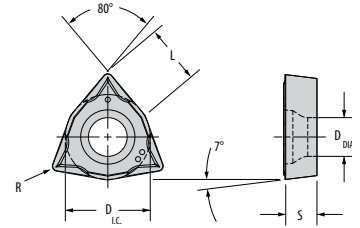
CARBIDE COATINGS: ■ M-CVD Coated ■ PVD Coated ■ Uncoated

First Choice ◆ Second Choice ● Alternative ▲ Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

80° Trigon Inserts

Chip Control: Screw On (WCMT)



Shape: 80° Trigon	Part Number ISO	Steel				Stainless Steel				Cast Iron	Heat-Resistant Super Alloys				Part Number ANSI	Dimensions (mm)					
		P				M				K	S					D _{L.C.}	L	S	D	R	
		GA5025	GA5035	GA5125	G-9120	GA5026	G-925	G-920	G-9230	G-915	GA5023	GA5026	G-925	G-920		G-9230	G-20M				
	WCMT-060202-X3	●	◆	▲		●	▲		◆	◆	●	◆		▲		WCMT-21.5.5-X3	6,35	4,34	2,36	2,79	0,20
	WCMT-060204-X3	●	◆	▲		●	▲		◆	◆	●	◆		▲		WCMT-21.51-X3	6,35	4,34	2,36	2,79	0,38
	WCMT-09T304-X3	●	◆	▲		●	▲		◆	◆	●	◆		▲		WCMT-32.51-X3	9,53	6,50	3,96	4,39	0,38
	WCMT-09T308-X3	●	◆	▲		●	▲		◆	◆	●	◆		▲		WCMT-32.52-X3	9,53	6,50	3,96	4,39	0,79

CARBIDE COATINGS: **MT-CVD Coated** PVD Coated Uncoated

First Choice ◆ Second Choice ● Alternative ▲

Grade descriptions — pages T 4

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.



Ceramic Inserts

Greenleaf is the industry leader in the development and manufacturing of ceramic and coated ceramic inserts in ANSI standard and special geometries.



TB – CERAMIC INSERTS

Insert Grades

Ceramic

Greenleaf is the industry leader in the development and manufacturing of ceramic and coated ceramic inserts in ANSI standard and special geometries. Some of the most prominent include:



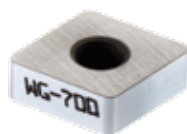
WG-300®

WG-300® is a whisker-reinforced Al_2O_3 ceramic that is very effective at machining nickel and cobalt-based super-alloys and hard steels at metal removal rates up to 10 times higher than carbide. It has excellent thermal and shock resistance at very high surface speeds. WG-300® is the first choice worldwide for milling, grooving, and turning difficult-to-cut, non-ferrous materials.



WG-600®

WG-600® is a coated whisker-reinforced Al_2O_3 ceramic that offers longer tool life and better performance over uncoated ceramics due to excellent thermal and wear resistance at very high surface speeds. It has extended tool life over uncoated whisker-reinforced ceramics. Application areas for WG-600® include rough and finish turning and high-performance milling of high-strength alloys, hardened steels, and select stainless steels.



WG-700™

WG-700™ is a whisker-reinforced Al_2O_3 ceramic substrate featuring improved toughness and a unique friction-reducing coating. WG-700™ is ideal for machining nickel- and cobalt-based super alloys and other difficult-to-machine materials. WG-700™ exhibits exceptional tool life with metal-removal rates up to ten times greater than carbide.



XSYTIN®-1

XSYTIN®-1 is a phase-toughened ceramic grade capable of extreme feed rates. XSYTIN®-1 excels at machining rough forgings and castings of high-strength alloy materials. XSYTIN®-1 is ideal for use in interrupted cuts, scale, and milling.



GSN100™

GSN100™ is an engineered blend of silicon nitride and proprietary toughening agents that excels in the machining of cast iron. GSN100™ delivers superior wear and toughness for turning, grooving, and milling applications. It is available in all standard geometries and engineered specials.

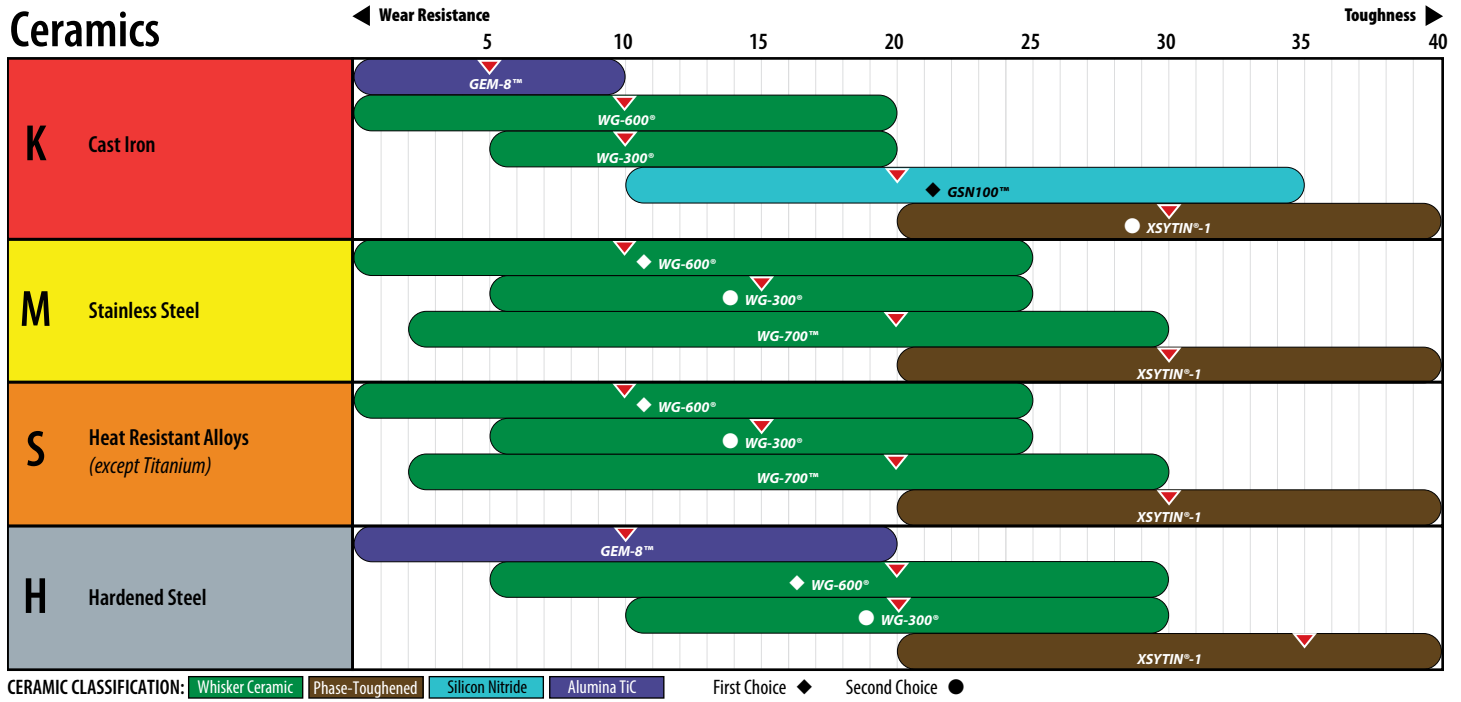


GEM-8™

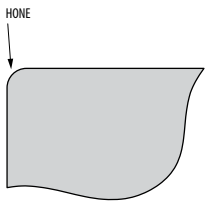
GEM-8™ is an $Al_2O_3 + TiC$ composite ceramic with a high degree of predictability in roll turning and hard alloy (up to 65 HRC) machining.



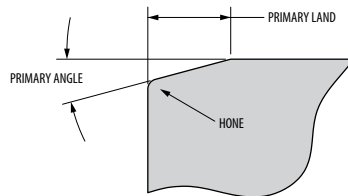
Insert Grade Reference for Turning



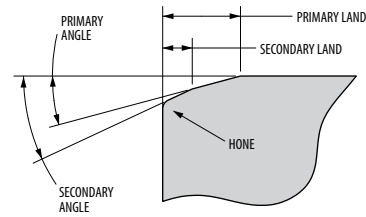
Edge Preparations



HONE



PRIMARY ANGLE



SECONDARY ANGLE

Edge Prep	Hone	Primary Land	Primary Angle	Application
A	0,015 R	–	–	For light finishing and grooving, also added to designated negative lands (i.e. T1, T2, T9).
T1	–	0,07	20°	General purpose for turning and light milling in clean high-temp. alloys and materials <50HRc.
T1A	0,015 R	0,07	20°	Used where more protection is needed than T1 such as in scale and light interruptions, hard turning.
T2	–	0,17	20°	General purpose chamfer for light to medium feed rates, cast-iron machining.
T2	0,015 R	0,17	20°	Scale applications, light interruptions, weld overlays, finish turning and milling of hardened materials.

See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

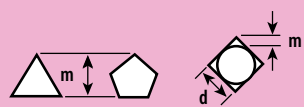
TB – CERAMIC INSERTS

I.S.O. Identification for Turning and Boring Inserts

TB – CERAMIC INSERTS

A 85° parallelogram
B 82° parallelogram
C 80° diamond
D 55° diamond
H hexagon
K 55° parallelogram
L 90° rectangle
M 86° diamond
O octagon
P pentagon
R round
S square
T triangle
V 35° diamond
W 80° Trigon

Shape



	Dimensions		
	m	s	d
A	0.005	0.025	0.025
B	0.005	0.025	0.013
C	0.013	0.025	0.025
D	0.013	0.025	0.013
E	0.025	0.025	0.025
G	0.025	0.130	0.025
J	0.005	0.025	0.050-0.130
K	0.013	0.025	0.050-0.130
L	0.025	0.025	0.050-0.130
M	0.080-0.180	0.130	0.050-0.130
U	0.130-0.380	0.130	0.080-0.250

Tolerance Class (\pm mm)

T

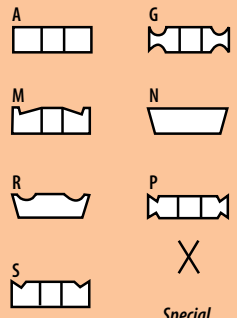
N

M

G

A 3°
B 5°
C 7°
D 15°
E 20°
F 25°
G 30°
N 0°
P 11°

Clearances



Type

Comparison cutting edge length in mm – IC in inches

△	06	09	11	16	22	27	33	44
□ ○				09	12	15	19	25
55°					15	19		
80°					12	16	19	25
35°				16	22			
IC = d	5/32"	7/32"	1/4"	3/8"	1/2"	5/8"	3/4"	1"

Integers to be preceded by a 0.
Example: 9,52 mm indicated by 09.

Cutting Edge Length

Cutting Edge

22

04

08

E

01	s=	1,59
T1	s=	1,98
02	s=	2,38
03	s=	3,18
T3	s=	3,97
04	s=	4,76
05	s=	5,56
06	s=	6,35
07	s=	7,94
09	s=	9,52
10	s=	10,00
12	s=	12,00

Radius in terms of 0.1 mm

00	Round insert
00	sharp point
02	0.2
04	0.4
05	0.5
08	0.8
10	1.0
12	1.2
15	1.5
16	1.6
24	2.4
32	3.2
40	4.0

Cutting Point Configuration

A.N.S.I. Identification for Turning and Boring Inserts

	Roll Dim. B	I.C. A	Thickness T
A	0.0002 ⁽²⁾	0.001	0.001
B	0.0002	0.001	0.005
C	0.0005	0.001	0.001
D	0.0005	0.001	0.005
E	0.001	0.001	0.001
F	0.0002 ⁽²⁾	0.0005	0.001
G	0.001	0.001	0.005
H	0.0005	0.0005	0.001
J	0.0002 ⁽²⁾	0.002-0.005	0.001
K	0.0005	0.002-0.005	0.001
L	0.001	0.002-0.005	0.001
M	0.002-0.010 ⁽³⁾	0.002-0.004 ⁽³⁾	0.005
U	0.005-0.012 ⁽³⁾	0.005-0.010 ⁽³⁾	0.005
N	0.002-0.010 ⁽³⁾	0.002-0.004 ⁽³⁾	0.001

Tolerance Class⁽¹⁾

Regular polygons and diamonds	Rectangles and parallelograms
Number of 1/8ths of an inch in the inscribed circle as per table below:	Use two digits to size
Example:	1st digit: Number of 1/8ths of an inch in width
1/2" I.C. 1.2	2nd digit: Number of 1/4ths of an inch in length
3/16" I.C. 1.5	
7/32" I.C. 1.8	
1/4" I.C. 2	
5/16" I.C. 2.5	
3/8" I.C. 3	
1/2" I.C. 4	
5/8" I.C. 5	
3/4" I.C. 6	
7/8" I.C. 7	
1" I.C. 8	
1-1/4" I.C. 10	

Size (I.C.)



V 35° diamond
D 55° diamond
K 55° parallelogram
T 60° triangle
E 75° diamond
C 80° diamond
W 80° Trigon
B 82° parallelogram
A 85° parallelogram
M 86° diamond
S 90° square
L 90° rectangle
P 108° pentagon
H 120° hexagon
O 135° octagon
R round

Shape

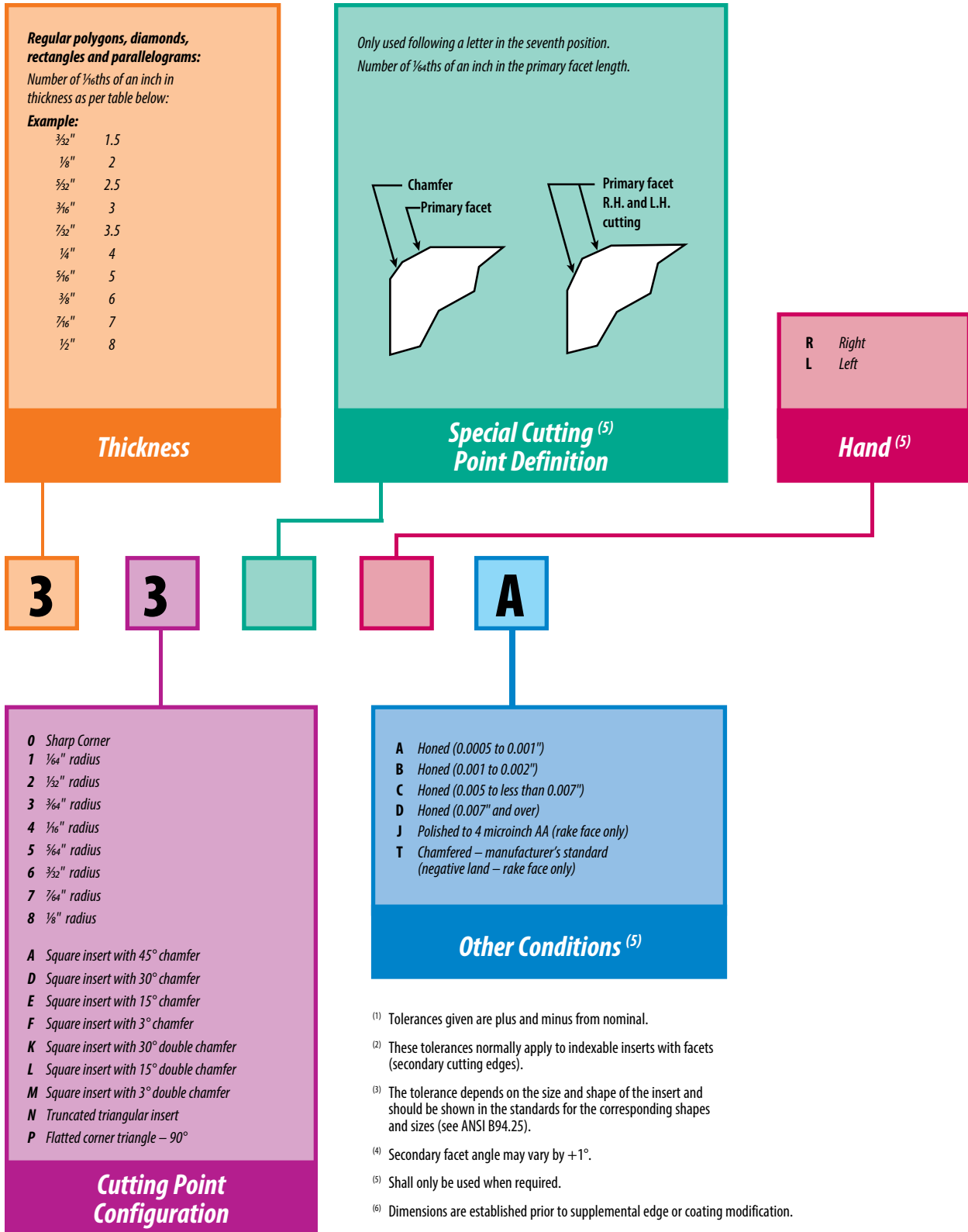
N 0°
A 3°
B 5°
C 7°
P 11°
D 15°
E 20°
F 25°
G 30°
H 0°-11°⁽⁴⁾
J 0°-14°⁽⁴⁾
K 0°-17°⁽⁴⁾
L 0°-20°⁽⁴⁾
M 11°-14°⁽⁴⁾
R 11°-17°⁽⁴⁾
S 11°-20°⁽⁴⁾

Clearances

N Without hole
R Without hole with chip groove on one rake face
F Without hole with chip grooves on two rake faces
A With hole
B With hole and one countersink (80°-90°)
C With hole and two countersinks (80°-90°)
W With hole and one countersink (40°-60°)
Q With hole and two countersinks (40°-60°)
M With hole and chip groove on one rake face
G With hole and chip grooves on two rake faces
H With hole, one countersink (80°-90°) and chip groove on one rake face
J With hole, two countersinks (80°-90°) and chip grooves on two rake faces
T With hole, one countersink (40°-60°) and chip groove on one rake face
U With hole, two countersinks (40°-60°) and chip grooves on two rake faces

Type

TB – CERAMIC INSERTS



Pictorial Index

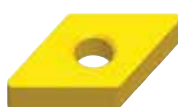
Negative Inserts



80° Diamond
page: T 49



80° Diamond
page: T 49



55° Diamond
page: T 50



55° Diamond
page: T 50



Round
page: T 51



Round
page: T 51



Square
page: T 52



Square
page: T 53



Triangle
page: T 54

Negative Inserts *continued*



Triangle
page: T 54



35° Diamond
page: T 55



Trigon
page: T 56

Positive Inserts



80° Diamond
Positive Flat Top
page: T 57



Round
Positive Flat Top
page: T 58



Square
Positive Flat Top
page: T 59



Triangle
Positive Flat Top
page: T 60

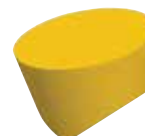


Triangle
page: T 60

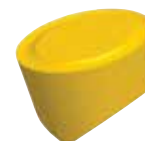
V-Bottom Round Inserts



RCGX
Positive: Ceramic
page: GP 14



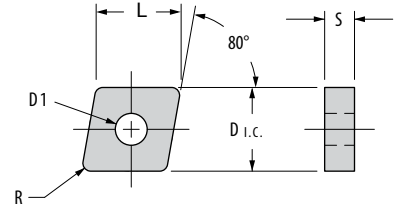
RPGX
Positive: Ceramic
page: GP 15



RCGR/RPGR
Positive Chipform
V-Bottom
page: GP 16

80° Diamond Inserts

Negative (CNGA)



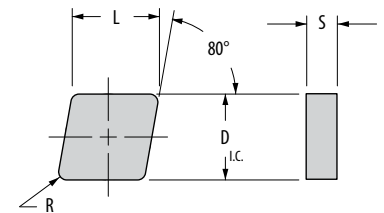
Shape: 80° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D I.C.	L		S	D1	R		
		WG-600®	WG-600®	GSN100™	XSYTIN®-1	WG-300®	WG-600®	WG-700™	XSYTIN®-1	WG-300®	WG-600®	XSYTIN®-1	GEM-8™						
	CNGA-120404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-431	12,70	12,90	4,75	5,16	0,38
	CNGA-120408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-432	12,70	12,90	4,75	5,16	0,79
	CNGA-120412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-433	12,70	12,90	4,75	5,16	1,19
	CNGA-120416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-434	12,70	12,90	4,75	5,16	1,57
	CNGA-120712	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-453	12,70	12,90	7,92	5,16	1,19
	CNGA-120716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-454	12,70	12,90	7,92	5,16	1,57
	CNGA-160608	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-542	15,88	16,13	6,35	6,35	0,79
	CNGA-160612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-543	15,88	16,13	6,35	6,35	1,19
	CNGA-160616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-544	15,88	16,13	6,35	6,35	1,57
	CNGA-190612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-643	19,05	19,35	6,35	7,92	1,19
	CNGA-190616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-644	19,05	19,35	6,35	7,92	1,57
	CNGA-190708	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-652	19,05	19,35	7,92	7,92	0,79
	CNGA-190712	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-653	19,05	19,35	7,92	7,92	1,19
	CNGA-190716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGA-654	19,05	19,35	7,92	7,92	1,57

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for information on edge preps. For availability and any application concerns, please contact Greenleaf Technical Service.

80° Diamond Inserts

Negative (CNGN)



Shape: 80° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)			
		M	K	S				H				D I.C.	L		S	R		
		WG-600®	WG-600®	GSN100™	XSYTIN®-1	WG-300®	WG-600®	WG-700™	XSYTIN®-1	WG-300®	WG-600®	XSYTIN®-1	GEM-8™					
	CNGN-120404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-431	12,70	12,90	4,75	0,38
	CNGN-120408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-432	12,70	12,90	4,75	0,79
	CNGN-120412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-433	12,70	12,90	4,75	1,19
	CNGN-120416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-434	12,70	12,90	4,75	1,57
	CNGN-120704	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-451	12,70	12,90	7,92	0,38
	CNGN-120708	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-452	12,70	12,90	7,92	0,79
	CNGN-120712	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-453	12,70	12,90	7,92	1,19
	CNGN-120716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-454	12,70	12,90	7,92	1,57
	CNGN-160608	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-542	15,88	16,13	6,35	0,79
	CNGN-160612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-543	15,88	16,13	6,35	1,19
	CNGN-190608	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-642	19,05	19,35	6,35	0,79
	CNGN-190612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-643	19,05	19,35	6,35	1,19
	CNGN-190616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-644	19,05	19,35	6,35	1,57
	CNGN-190732	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CNGN-658	19,05	19,35	7,92	3,18

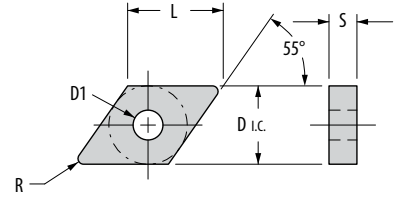
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for information on edge preps. For availability and any application concerns, please contact Greenleaf Technical Service.

TB — CERAMIC INSERTS

55° Diamond Inserts

Negative (DNGA)



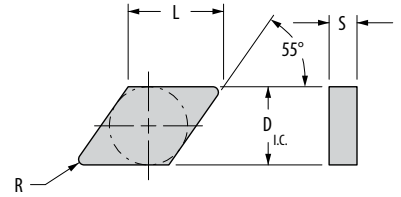
Shape: 55° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D _{I.C.}	L		S	D1	R		
		WG-600°	WG-600°	GSNT100™	XYTIN®-1	WG-300°	WG-600°	WG-700™	XYTIN®-1	WG-300°	WG-600°							XYTIN®-1	GEM-8™
	DNGA-110308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-322	9,53	11,63	3,18	3,81	0,79
	DNGA-110312	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-323	9,53	11,63	3,18	3,81	1,19
	DNGA-110316	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-324	9,53	11,63	3,18	3,81	1,57
	DNGA-110408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-332	9,53	11,63	4,75	3,81	0,79
	DNGA-150404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-431	12,70	15,49	4,75	5,16	0,38
	DNGA-150408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-432	12,70	15,49	4,75	5,16	0,79
	DNGA-150412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-433	12,70	15,49	4,75	5,16	1,19
	DNGA-150416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-434	12,70	15,49	4,75	5,16	1,57
	DNGA-150612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-443	12,70	15,49	6,35	5,16	1,19
	DNGA-190612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGA-543	15,88	19,38	6,35	6,35	1,19

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

55° Diamond Inserts

Negative (DNGN)



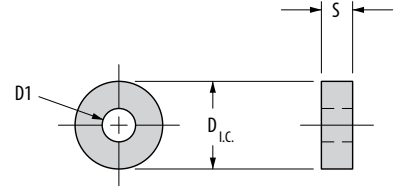
Shape: 55° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)			
		M	K	S				H				D _{I.C.}	L		S	R		
		WG-600°	WG-600°	GSNT100™	XYTIN®-1	WG-300°	WG-600°	WG-700™	XYTIN®-1	WG-300°	WG-600°						XYTIN®-1	GEM-8™
	DNGN-110308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-322	9,53	11,63	3,18	0,79
	DNGN-110312	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-323	9,53	11,63	3,18	1,19
	DNGN-110316	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-324	9,53	11,63	3,18	1,57
	DNGN-150408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-432	12,70	15,49	4,75	0,79
	DNGN-150412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-433	12,70	15,49	4,75	1,19
	DNGN-150416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	DNGN-434	12,70	15,49	4,75	1,57

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Round Inserts

Negative (RNGA)

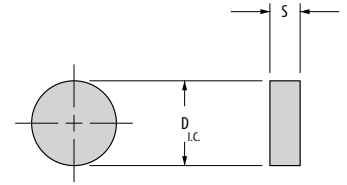


Shape: Round	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)		
		M	K	S				H				D _{I.C.}	S		D1		
		WG-600 [®]	WG-600 [®]	GSNT100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]					XSYTIN [®] -1	GEM-8 [™]
	RNGA-090300	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-32	9,53	3,18	3,81
	RNGA-090400	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-33	9,53	4,75	3,81
	RNGA-120400	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-43	12,70	4,75	5,16
	RNGA-120700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-45	12,70	7,92	5,16
	RNGA-150700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-55	15,88	7,92	6,35
	RNGA-190700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-65	19,05	7,92	7,92
	RNGA-250700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGA-85	25,40	7,92	9,12

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42
 See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Round Inserts

Negative (RNGN)



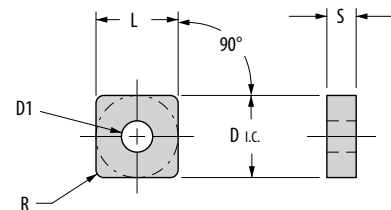
Shape: Round	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)	
		M	K	S				H				D _{I.C.}	S			
		WG-600 [®]	WG-600 [®]	GSNT100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]				XSYTIN [®] -1	GEM-8 [™]
	RNGN-090300	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-32	9,53	3,18
	RNGN-090400	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-33	9,53	4,75
	RNGN-120300	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-42	12,70	3,18
	RNGN-120400	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-43	12,70	4,75
	RNGN-120700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-45	12,70	7,92
	RNGN-150700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-55	15,88	7,92
	RNGN-190600	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-64	19,05	6,35
	RNGN-190700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-65	19,05	7,92
	RNGN-250600	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-84	25,40	6,35
	RNGN-250700	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-85	25,40	7,92
	RNGN-250900	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-86	25,40	9,53
	RNGN-310900	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RNGN-106	31,75	9,53


CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42
 See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

TB — CERAMIC INSERTS

Square Inserts

Negative (SNGA)



Shape: Square	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D i.c.	L		S	D1	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]							ASYTIN [®] -1	GEM-8 [™]
	SNGA-120408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-432	12,70	12,70	4,75	5,16	0,79
	SNGA-120412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-433	12,70	12,70	4,75	5,16	1,19
	SNGA-120416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-434	12,70	12,70	4,75	5,16	1,57
	SNGA-120708	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-452	12,70	12,70	7,92	5,16	0,79
	SNGA-120712	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-453	12,70	12,70	7,92	5,16	1,19
	SNGA-120716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-454	12,70	12,70	7,92	5,16	1,57
	SNGA-150608	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-542	15,88	15,88	6,35	6,35	0,79
	SNGA-150612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-543	15,88	15,88	6,35	6,35	1,19
	SNGA-150616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-544	15,88	15,88	6,35	6,35	1,57
	SNGA-190608	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-642	19,05	19,05	6,35	7,92	0,79
	SNGA-190612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-643	19,05	19,05	6,35	7,92	1,19
	SNGA-190616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	SNGA-644	19,05	19,05	6,35	7,92	1,57

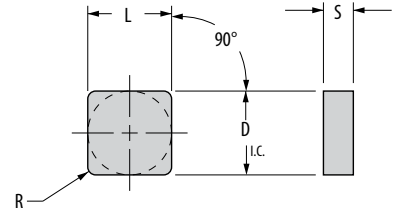
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Square Inserts

Negative (SNGN)



Shape: Square	Part Number ISO	S Steel		Cast Iron				Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)			
		M	K	S		H		D _{I.C.}	L	S	R									
		WG-600 [®]	WG-600 [®]	GSNT100 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]	XYTIN [®] -1	GEM-8 [™]	D _{I.C.}	L		S	R		
	SNGN-090308	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-322	9,53	9,53	3,18	0,79			
	SNGN-090412	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-333	9,53	9,53	4,75	1,19			
	SNGN-120408	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-432	12,70	12,70	4,75	0,79			
	SNGN-120412	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-433	12,70	12,70	4,75	1,19			
	SNGN-120416	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-434	12,70	12,70	4,75	1,57			
	SNGN-120708	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-452	12,70	12,70	7,92	0,79			
	SNGN-120712	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-453	12,70	12,70	7,92	1,19			
	SNGN-120716	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-454	12,70	12,70	7,92	1,57			
	SNGN-150608	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-542	15,88	15,88	6,35	0,79			
	SNGN-150612	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-543	15,88	15,88	6,35	1,19			
	SNGN-150616	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-544	15,88	15,88	6,35	1,57			
	SNGN-190663	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-6416	19,05	19,05	6,35	6,35			
	SNGN-190608	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-642	19,05	19,05	6,35	0,79			
	SNGN-190612	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-643	19,05	19,05	6,35	1,19			
	SNGN-190616	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-644	19,05	19,05	6,35	1,57			
	SNGN-190708	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-652	19,05	19,05	7,92	0,79			
	SNGN-190712	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-653	19,05	19,05	7,92	1,19			
	SNGN-190716	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-654	19,05	19,05	7,92	1,57			
	SNGN-190720	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-655	19,05	19,05	7,92	1,98			
	SNGN-190723	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-656	19,05	19,05	7,92	2,39			
	SNGN-250924	◆	▲	◆	●	●	◆	▲	◆	◆	◆	▲	SNGN-866	25,40	25,40	9,53	2,39			

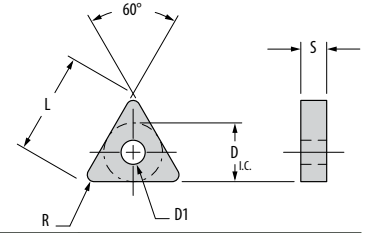
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ✦ Grade descriptions — pages T 42


For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

TB – CERAMIC INSERTS

Triangle Inserts

Negative (TNGA)



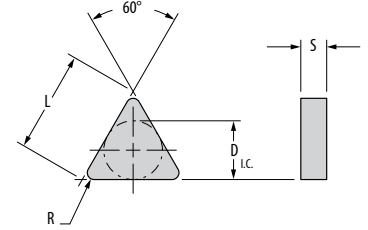
Shape: Triangle	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D _{I.C.}	L		S	D1	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]							XYTIN [®] -1	GEM-8 [™]
	TNGA-160404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-331	9,53	16,51	4,75	3,81	0,38
	TNGA-160408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-332	9,53	16,51	4,75	3,81	0,38
	TNGA-160412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-333	9,53	16,51	4,75	3,81	1,19
	TNGA-160416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-334	9,53	16,51	4,75	3,81	1,57
	TNGA-220408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-432	12,70	22,00	4,75	5,16	0,38
	TNGA-220412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-433	12,70	22,00	4,75	5,16	1,19
	TNGA-220416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-434	12,70	22,00	4,75	5,16	1,57
	TNGA-220716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGA-454	12,70	22,00	7,92	5,16	1,57


CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Triangle Inserts

Negative (TNGN)



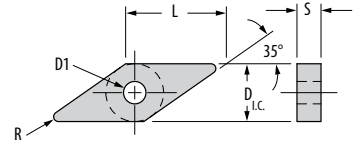
Shape: Triangle	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)			
		M	K	S				H				D _{I.C.}	L		S	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]						XYTIN [®] -1	GEM-8 [™]
	TNGN-110308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-222	6,35	11,00	3,18	0,79
	TNGN-160304	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-321	9,53	16,51	3,18	0,38
	TNGN-160308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-322	9,53	16,51	3,18	0,79
	TNGN-160404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-331	9,53	16,51	4,75	0,38
	TNGN-160408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-332	9,53	16,51	4,75	0,79
	TNGN-160412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-333	9,53	16,51	4,75	1,19
	TNGN-160416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-334	9,53	16,51	4,75	1,57
	TNGN-220404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-431	12,70	22,00	4,75	0,38
	TNGN-220408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-432	12,70	22,00	4,75	0,79
	TNGN-220412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-433	12,70	22,00	4,75	1,19
	TNGN-220416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-434	12,70	22,00	4,75	1,57
	TNGN-220432	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-438	12,70	22,00	4,75	3,18
	TNGN-220708	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-452	12,70	22,00	7,92	0,79
	TNGN-220712	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-453	12,70	22,00	7,92	1,19
	TNGN-220716	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-454	12,70	22,00	7,92	1,57
	TNGN-270612	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-543	15,88	27,51	6,35	1,19
	TNGN-270616	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-544	15,88	27,51	6,35	1,57
	TNGN-270632	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-548	15,88	27,51	6,35	3,18
	TNGN-330924	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-666	19,05	32,99	9,53	2,39
	TNGN-440932	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	TNGN-868	25,40	43,99	9,53	3,18


CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

35° Diamond Inserts

Negative (VNGA)



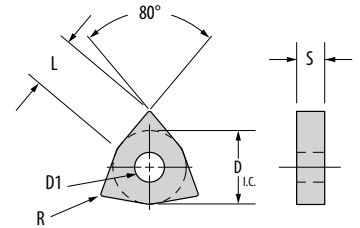
Shape: 35° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D _{I.C.}	L		S	D1	R		
		WG-600 [®]	WG-600 [®]	GSNT100 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XYTIN [®] -1	WG-300 [®]	WG-600 [®]							XYTIN [®] -1	GEM-8 [™]
	VNGA-160408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	VNGA-332	9,53	16,61	4,75	3,81	0,79
	VNGA-160412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	VNGA-333	9,53	16,61	4,75	3,81	1,19
	VNGA-220408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	VNGA-432	12,70	22,15	4,75	5,16	0,79
	VNGA-220424	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	VNGA-436	12,70	22,15	4,75	5,16	2,39

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Trigon Inserts

Negative (WNGA)



Shape: Trigon	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)				
		M	K	S				H				D I.C.	L		S	D1	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	XSYTIN [®] -1	GEM-8 [™]		D I.C.	L	S	D1	R
	WNGA-060404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-331	9,53	6,53	4,75	3,86	0,38
	WNGA-060408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-332	9,53	6,53	4,75	3,86	0,79
	WNGA-060412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-333	9,53	6,53	4,75	3,86	1,19
	WNGA-080404	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-431	12,70	8,69	4,75	5,16	0,38
	WNGA-080408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-432	12,70	8,69	4,75	5,16	0,79
	WNGA-080412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	WNGA-433	12,70	8,69	4,75	5,16	1,19

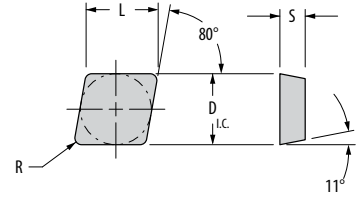
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42


For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

TB — CERAMIC INSERTS

80° Diamond Inserts

Positive (CPGN)



Shape: 80° Diamond	Part Number ISO	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)			
		M	K	S				H				D _{I.C.}	L		S	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]						ASYTIN [®] -1	GEM-8 [™]
	CPGN-090304	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-321	9,53	9,65	3,18	0,38
	CPGN-090308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-322	9,53	9,65	3,18	0,79
	CPGN-090312	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-323	9,53	9,65	3,18	1,19
	CPGN-120308	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-422	12,70	12,90	3,18	0,79
	CPGN-120316	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-424	12,70	12,90	3,18	1,57
	CPGN-120408	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-432	12,70	12,90	4,75	0,79
	CPGN-120412	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-433	12,70	12,90	4,75	1,19
	CPGN-120416	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	CPGN-434	12,70	12,90	4,75	1,57

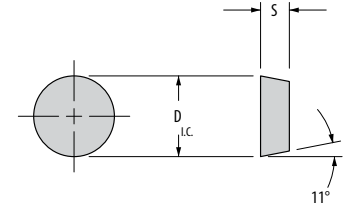
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42


For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

TB — CERAMIC INSERTS

Round Inserts

Positive Flat Top (RPGN)



Shape: Round	Part Number ANSI	S Steel	Cast Iron	Heat-Resistant Super Alloys				Hardened Steel				Part Number ISO	Dimensions (inches)			
		M	K	S				H					D _{i.c.}	S		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]				ASYTIN [®] -1	GEM-8 [™]
	RPGN-090300	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RPGN-32	9,53	3,18
	RPGN-120400	◆	▲	◆	●	●	◆	▲	❖	●	◆	❖	▲	RPGN-43	12,70	4,75

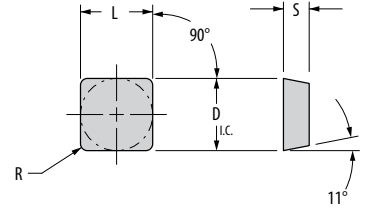
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ❖ Grade descriptions — pages T 42


For additional nose radii and available edge preps, please contact Greenleaf Technical Service. See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

TB — CERAMIC INSERTS

Square Inserts

Positive Flat Top (SPGN)



Shape: Square	Part Number ANSI	S Steel		Cast Iron		Heat-Resistant Super Alloys				Hardened Steel				Part Number ISO	Dimensions (inches)			
		M	K	S				H				D _{I.C.}	L		S	R		
		WG-600 [®]	WG-600 [®]	GSN100 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	ASYTIN [®] -1	WG-300 [®]	WG-600 [®]						ASYTIN [®] -1	GEM-8 [™]
	SPGN-090308	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-322	0.375	0.375	0.125	0.031
	SPGN-120308	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-422	0.500	0.500	0.125	0.031
	SPGN-120312	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-423	0.500	0.500	0.125	0.047
	SPGN-120408	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-432	0.500	0.500	0.187	0.031
	SPGN-120412	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-433	0.500	0.500	0.187	0.047
	SPGN-120416	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-434	0.500	0.500	0.187	0.062
	SPGN-190408	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-632	0.750	0.750	0.187	0.031
	SPGN-190412	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-633	0.750	0.750	0.187	0.047
	SPGN-190416	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-634	0.750	0.750	0.187	0.062
	SPGN-190608	◆	▲	◆	●	●	◆	▲	◇	●	◆	◇	▲	SPGN-642	0.750	0.750	0.250	0.031

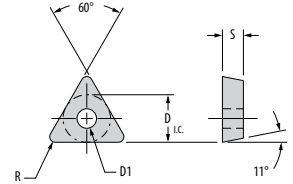
CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ◇ Grade descriptions — pages T42


For additional nose radii and available edge preps, please contact Greenleaf Technical Service.

See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Triangle Inserts

Positive Flat Top (TP)



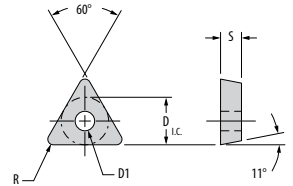
Shape: Triangle	Part Number ISO	S Steel	Cast Iron	Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)								
		M	K	S				H					D1.C	L	S	D1	R				
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]		XSYTIN [®] -1	GEM-8 [™]							
	TP-41	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TP-41	6,35	11,00	2,36	3,48	0,38
	TP-42	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TP-42	6,35	11,00	2,36	3,48	0,79
	TP-62	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TP-62	9,53	16,51	3,18	4,14	0,79
	TP-64	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TP-64	9,53	16,51	3,18	4,14	1,57
	TP-82	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TP-82	12,70	22,00	4,75	5,16	0,79


CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ✦ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Triangle Inserts

Positive Flat Top (TPGA)



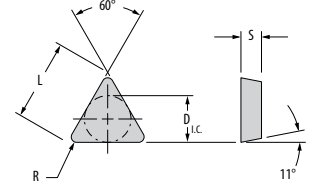
Shape: Triangle	Part Number ISO	S Steel	Cast Iron	Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)								
		M	K	S				H					D1.C	L	S	D1	R				
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]		XSYTIN [®] -1	GEM-8 [™]							
	TPGA-160304	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGA-321	9,53	16,51	3,18	3,81	0,38
	TPGA-160308	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGA-322	9,53	16,51	3,18	3,81	0,79


CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ✦ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Triangle Inserts

Positive Flat Top (TPGN)



Shape: Triangle	Part Number ISO	S Steel	Cast Iron	Heat-Resistant Super Alloys				Hardened Steel				Part Number ANSI	Dimensions (mm)							
		M	K	S				H					D1.C	L	S	R				
		WG-600 [®]	WG-600 [®]	GSN100 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]	WG-700 [™]	XSYTIN [®] -1	WG-300 [®]	WG-600 [®]		XSYTIN [®] -1	GEM-8 [™]						
	TPGN-110304	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-221	6,35	11,00	3,18	0,38
	TPGN-110308	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-222	6,35	11,00	3,18	0,79
	TPGN-160304	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-321	9,53	16,51	3,18	0,38
	TPGN-160308	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-322	9,53	16,51	3,18	0,79
	TPGN-160312	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-323	9,53	16,51	3,18	1,19
	TPGN-160316	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-324	9,53	16,51	3,18	1,57
	TPGN-220404	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-431	12,70	22,00	4,75	0,38
	TPGN-220408	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-432	12,70	22,00	4,75	0,79
	TPGN-220412	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-433	12,70	22,00	4,75	1,19
	TPGN-220416	◆	▲	◆	●	◆	▲	◆	●	◆	▲	◆	●	◆	▲	TPGN-434	12,70	22,00	4,75	1,57

CERAMIC CLASSIFICATION: Whisker Ceramic Phase-Toughened Silicon Nitride Alumina TiC First Choice ◆ Second Choice ● Alternative ▲ Interrupted/Milling ✦ Grade descriptions — pages T 42

For additional nose radii and available edge preps, please contact Greenleaf Technical Service.
See pages ATI 22-23 for other Greenleaf edge preps or call Greenleaf Technical Service for application concerns.

Industry-Standard Toolholders for Carbide Inserts

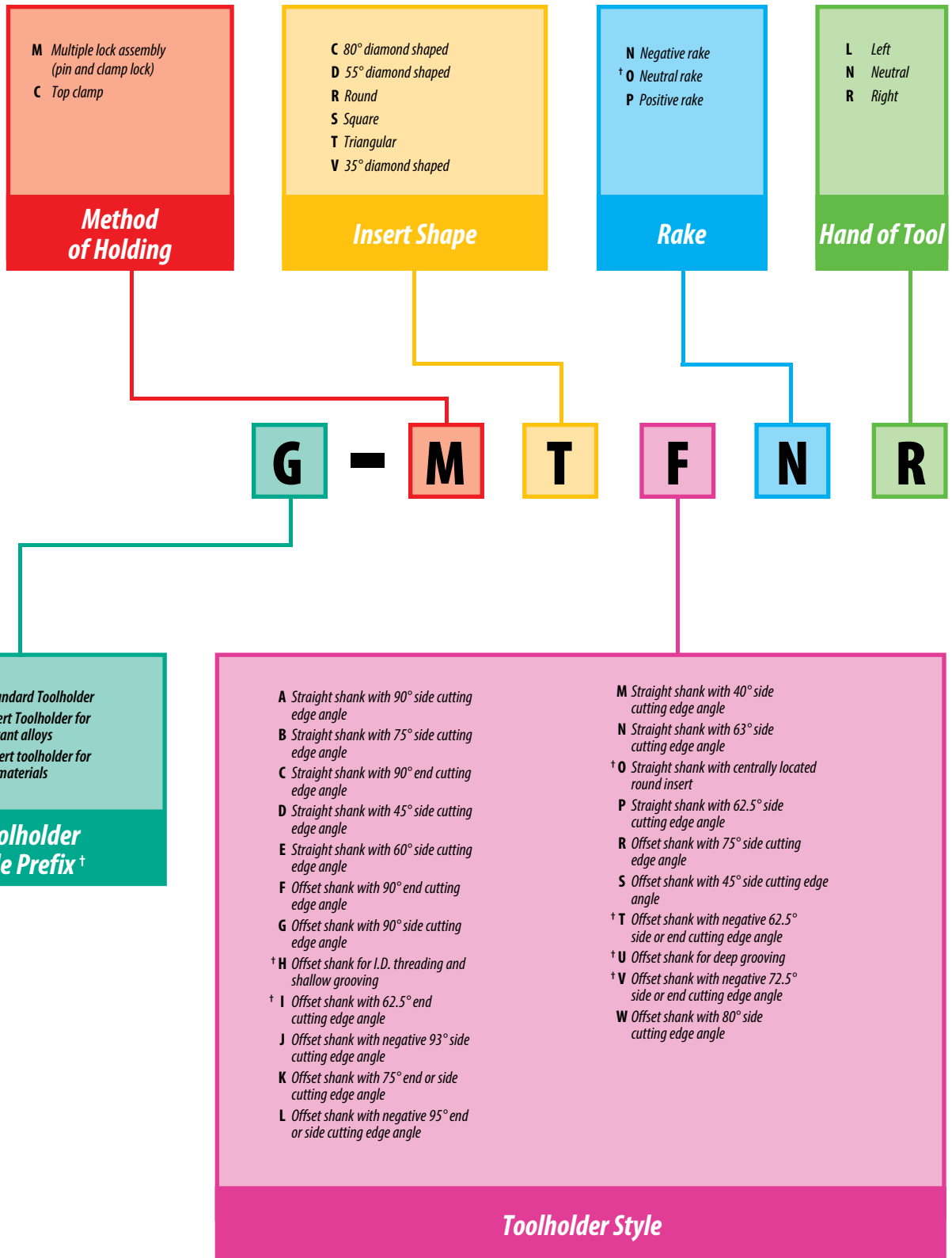
Greenleaf manufactures a complete line of industry-standard toolholders in conformance with ANSI specifications in 4140 and 4150 alloy steel, hardened up to 42 HRC and oxide coated.

Greenleaf Tune-Up Kits

A Tune-Up Kit consists of all the standard hardware to refurbish a particular toolholder, boring bar, or milling cutter. A toolholder will have a readily visible, laser-inscribed Tune-Up Kit number on it for ease in ordering. This number will prevent any confusion created by searching a catalog for hardware, and it will help reduce downtime.

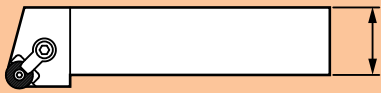


Industry-Standard Toolholder Identification System



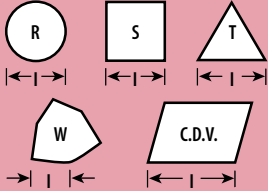
[†]Greenleaf standard.

TB — TOOLHOLDERS FOR CARBIDE INSERTS




Integers to be preceded by 0.
Example: 8mm = 08

**Toolholder
Shank Width**



Cutting Edge Length

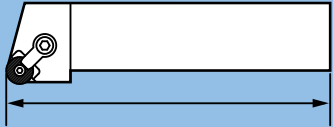
32 **32** **P** - **12**



Integers to be preceded by 0.
Example: 8mm = 08

**Toolholder
Shank Height**

A = 32	N = 160
B = 40	P = 170
C = 50	Q = 180
D = 60	R = 200
E = 70	S = 250
F = 80	T = 300
G = 90	U = 350
H = 100	V = 400
J = 110	W = 450
K = 125	Y = 500
L = 140	X = Special Length
M = 150	

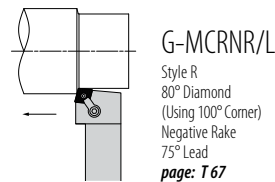
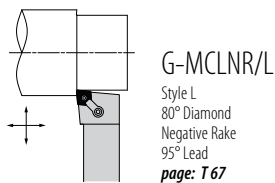
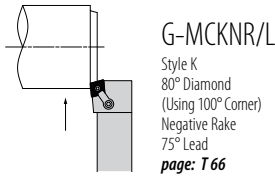
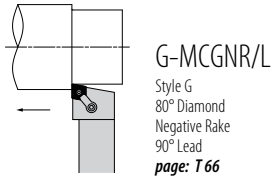


Toolholder Length

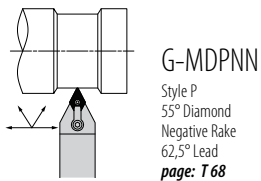
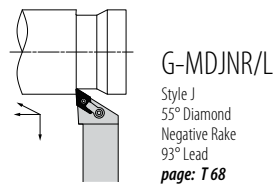
NOTE:
All toolholders are qualified to $\pm 0,07$ over gage insert radius on the "C" and "F" dimensions as standard. Some toolholders are qualifiable on the "C" length dimension only.

Pictorial Index

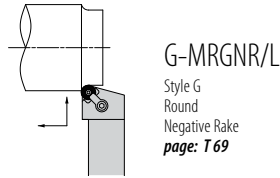
80° Diamond – Negative



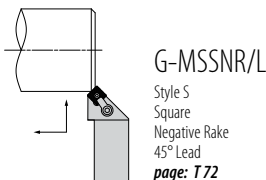
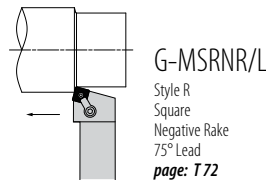
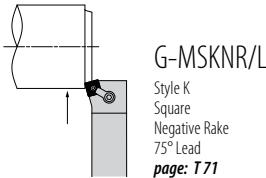
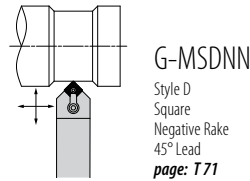
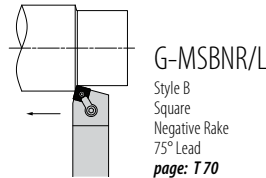
55° Diamond – Negative



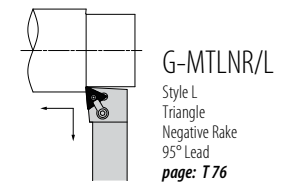
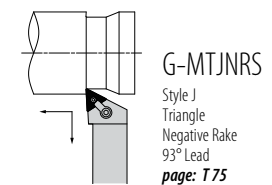
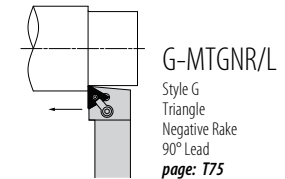
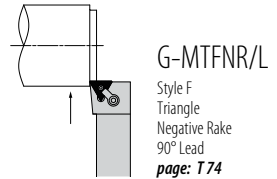
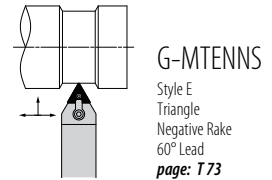
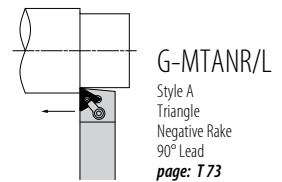
Round – Negative



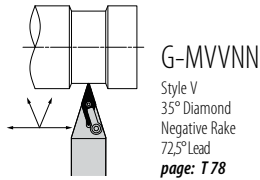
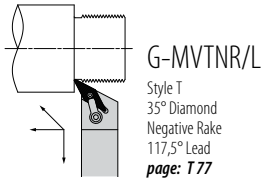
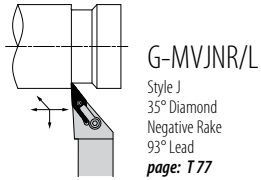
Square – Negative



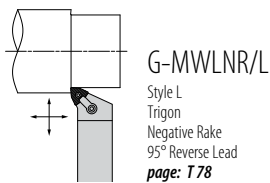
Triangle – Negative



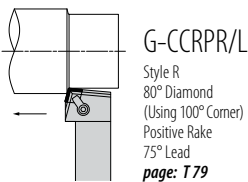
35° Diamond – Negative



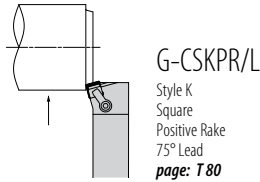
Trigon – Negative



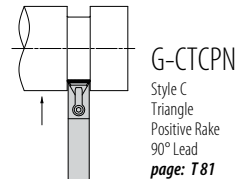
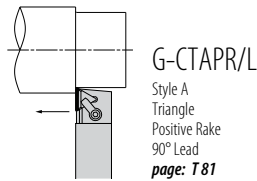
80° Diamond – Positive



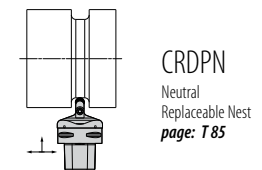
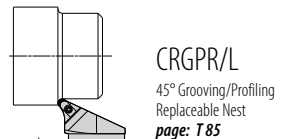
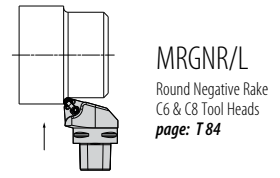
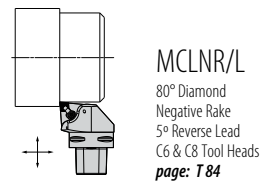
Square – Positive



Triangle – Positive

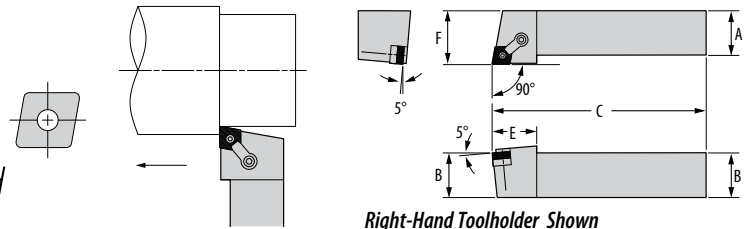


Quick-Change Toolholders



G-MCGNR/L

Style G / 80° Diamond / Negative Rake / 90° Lead



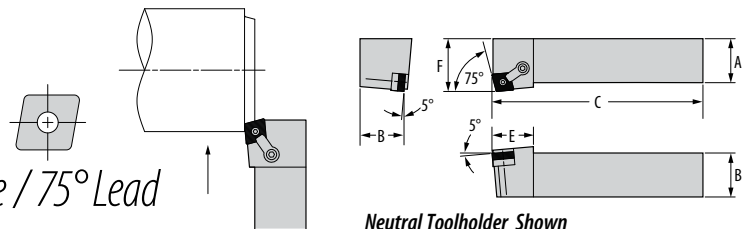
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Seat
G-MCGNR-2020M12	G-MCGNL-2020M12	CNMG-120408	20	20	150	32	25	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCGNR-2525M12	G-MCGNL-2525M12	CNMG-120408	25	25	150	32	32	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCGNR-3225P12	G-MCGNL-3225P12	CNMG-120408	25	32	170	32	32	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCGNR-3232P12	G-MCGNL-3232P12	CNMG-120408	32	32	170	32	40	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCGNR-2525M16	G-MCGNL-2525M16	CNMG-160612	25	25	150	38	32	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCGNR-3225P16	G-MCGNL-3225P16	CNMG-160612	25	32	170	38	32	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCGNR-3232P16	G-MCGNL-3232P16	CNMG-160612	32	32	170	38	40	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCGNR-4040R16	G-MCGNL-4040R16	CNMG-160612	40	40	200	38	50	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCGNR-2525M19	G-MCGNL-2525M19	CNMG-190612	25	25	150	41	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCGNR-3225P19	G-MCGNL-3225P19	CNMG-190612	25	32	170	41	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCGNR-3232P19	G-MCGNL-3232P19	CNMG-190612	32	32	170	41	40	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCGNR-4040R19	G-MCGNL-4040R19	CNMG-190612	40	40	200	41	50	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCGNR-4040R25	G-MCGNL-4040R25	CNMG-250924	40	40	200	41	50	CSN-846	NLM-810	CLM-24	STCM-19	TK-02723	S-810M	-

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MCKNR/L

Style K / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead



Neutral Toolholder Shown

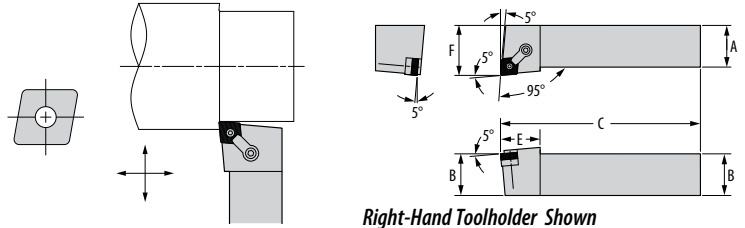
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Seat
G-MCKNR-2020M12	G-MCKNL-2020M12	CNMG-120408	20	20	150	30	25	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCKNR-2525M12	G-MCKNL-2525M12	CNMG-120408	25	25	150	30	32	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCKNR-3232P12	G-MCKNL-3232P12	CNMG-120408	32	32	170	30	40	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCKNR-4040R12	G-MCKNL-4040R12	CNMG-120408	40	40	200	30	50	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	-
G-MCKNR-2525M16	G-MCKNL-2525M16	CNMG-160612	25	25	150	37	32	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCKNR-3225P16	G-MCKNL-3225P16	CNMG-160612	25	32	170	37	32	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCKNR-3232P16	G-MCKNL-3232P16	CNMG-160612	32	32	170	37	40	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCKNR-2525M19	G-MCKNL-2525M19	CNMG-190612	25	25	150	37	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCKNR-3225P19	G-MCKNL-3225P19	CNMG-190612	25	32	170	37	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCKNR-3232P19	G-MCKNL-3232P19	CNMG-190612	32	32	170	37	40	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCKNR-4040R19	G-MCKNL-4040R19	CNMG-190612	40	40	200	37	50	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCKNR-4040R25	G-MCKNL-4040R25	CNMG-250924	40	40	200	50	50	CSN-846	NLM-810	CLM-24	STCM-19	TK-02723	S-810M	-

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB -- TOOLHOLDERS FOR CARBIDE INSERTS

G-MCLNR/L

Style L / 80° Diamond / Negative Rake / 95° Lead



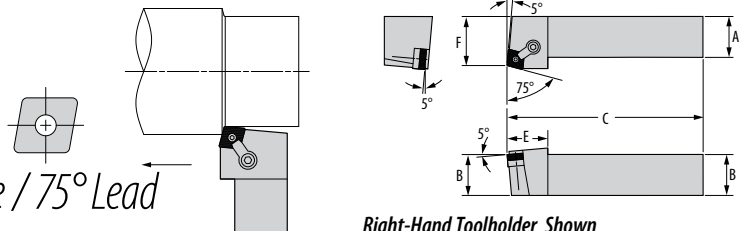
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Seat
G-MCLNR-2020M12	G-MCLNL-2020M12	CNMG-120408	20	20	150	30	25	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	—
G-MCLNR-2525M12	G-MCLNL-2525M12	CNMG-120408	25	25	150	30	32	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	—
G-MCLNR-3225P12	G-MCLNL-3225P12	CNMG-120408	25	32	170	30	32	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	—
G-MCLNR-3232P12	G-MCLNL-3232P12	CNMG-120408	32	32	170	30	40	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	—
G-MCLNR-4040R12	G-MCLNL-4040R12	CNMG-120408	40	40	200	30	50	CSN-433	NLM-46	CLM-20	STCM-20	TK-02718	S-46M	—
G-MCLNR-2525M16	G-MCLNL-2525M16	CNMG-160612	25	25	150	35	32	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCLNR-3225P16	G-MCLNL-3225P16	CNMG-160612	25	32	170	35	32	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCLNR-3232P16	G-MCLNL-3232P16	CNMG-160612	32	32	170	35	40	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCLNR-4040R16	G-MCLNL-4040R16	CNMG-160612	40	40	200	35	50	CSN-533	NLM-58	CLM-12	STCM-8	TK-02728	S-58M	CSN-543
G-MCLNR-2525M19	G-MCLNL-2525M19	CNMG-190612	25	25	150	35	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCLNR-3225P19	G-MCLNL-3225P19	CNMG-190612	25	32	170	35	32	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCLNR-3232P19	G-MCLNL-3232P19	CNMG-190612	32	32	170	35	40	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCLNR-4040R19	G-MCLNL-4040R19	CNMG-190612	40	40	200	35	50	CSN-633	NLM-68	CLM-12	STCM-8	TK-02722	S-68M	CSN-643
G-MCLNR-4040R25	G-MCLNL-4040R25	CNMG-250924	40	40	200	38	50	CSN-846	NLM-810	CLM-24	STCM-19	TK-02723	S-810M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MCRNR/L

Style R / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead



Right-Hand Toolholder Shown

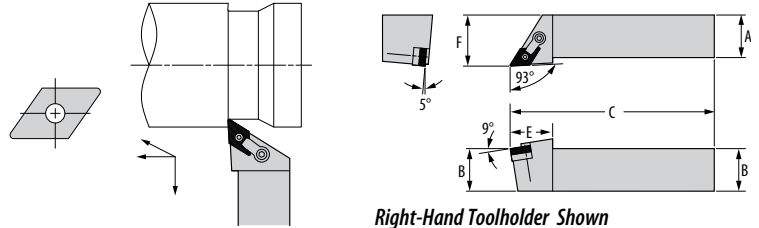
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Seat
G-MCRNR-2020M12	G-MCRNL-2020M12	CNMG-120708	20	20	150	32	25	CSN-433	NLM-46	CLM-9	STCM-4	TK-02719	S-46M	—
G-MCRNR-2525M12	G-MCRNL-2525M12	CNMG-120708	25	25	150	32	32	CSN-433	NLM-46	CLM-9	STCM-4	TK-02719	S-46M	—
G-MCRNR-3232P12	G-MCRNL-3232P12	CNMG-120708	32	32	170	32	40	CSN-433	NLM-46	CLM-9	STCM-4	TK-02719	S-46M	—
G-MCRNR-4040R12	G-MCRNL-4040R12	CNMG-120708	40	40	200	32	50	CSN-433	NLM-46	CLM-9	STCM-4	TK-02719	S-46M	—
G-MCRNR-2525M16	G-MCRNL-2525M16	CNMG-160612	25	25	150	34	32	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCRNR-3225P16	G-MCRNL-3225P16	CNMG-160612	25	32	170	34	32	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCRNR-3232P16	G-MCRNL-3232P16	CNMG-160612	32	32	170	34	40	CSN-533	NLM-58	CLM-9	STCM-4	TK-02720	S-58M	CSN-543
G-MCRNR-3225M19	G-MCRNL-3225M19	CNMG-196012	25	32	150	38	32	CSN-633	NLM-68	CLM-12	STCM-4	TK-02721	S-68M	CSN-643
G-MCRNR-3232P19	G-MCRNL-3232P19	CNMG-196012	32	32	170	38	40	CSN-633	NLM-68	CLM-12	STCM-4	TK-02721	S-68M	CSN-643
G-MCRNR-4040R19	G-MCRNL-4040R19	CNMG-196012	40	40	200	38	50	CSN-633	NLM-68	CLM-12	STCM-4	TK-02721	S-68M	CSN-643
G-MCRNR-4040R25	G-MCRNL-4040R25	CNMG-250923	40	40	200	42	50	CSN-846	NLM-810	CLM-24	STCM-19	TK-02723	S-810M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.








TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MDJNR/L

Style J / 55° Diamond / Negative Rake / 93° Lead



Right-Hand Toolholder Shown

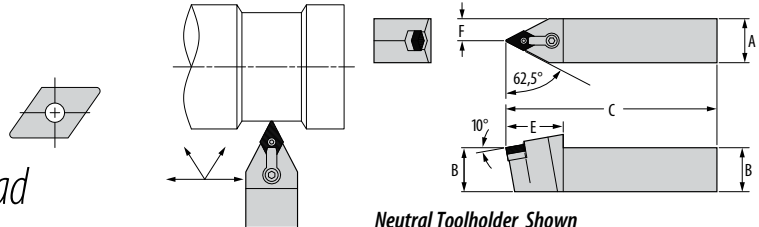
Part Number		Gage	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F							
G-MDJNR-2020M15	G-MDJNL-2020M15		DNMG-150408	20	20	150	35	25	DSN-433	NLM-46	CLM-20	STCM-26		TK-02724
G-MDJNR-2525M15	G-MDJNL-2525M15	DNMG-150408	25	25	150	35	32	DSN-433	NLM-46	CLM-20	STCM-26	TK-02724	S-46M	DSN-423**
G-MDJNR-3225P15	G-MDJNL-3225P15	DNMG-150408	25	32	170	35	32	DSN-433	NLM-46	CLM-20	STCM-26	TK-02724	S-46M	DSN-423**
G-MDJNR-3232P15	G-MDJNL-3232P15	DNMG-150408	32	32	170	35	40	DSN-433	NLM-46	CLM-20	STCM-26	TK-02724	S-46M	DSN-423**
G-MDJNR-4040R15	G-MDJNL-4040R15	DNMG-150408	40	40	200	35	50	DSN-433	NLM-46	CLM-20	STCM-26	TK-02724	S-46M	DSN-423**
G-MDJNR-2525M19	G-MDJNL-2525M19	DNMG-190612	25	25	150	38	32	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDJNR-3225P19	G-MDJNL-3225P19	DNMG-190612	25	32	170	38	32	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDJNR-3232P19	G-MDJNL-3232P19	DNMG-190612	32	32	170	38	40	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDJNR-4040R19	G-MDJNL-4040R19	DNMG-190612	40	40	200	38	50	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.








** Cannot be used with lock pin.

G-MDPNN

Style P / 55° Diamond / Negative Rake / 62,5° Lead



Neutral Toolholder Shown

Part Number		Gage	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Neutral			B	C	E	F								
G-MDPNN-2020M15			DNMG-150408	20	20	150	42	10	DSN-433	NLM-46		CLM-12	STCM-4	TK-02725
G-MDPNN-2525M15		DNMG-150408	25	25	150	42	12,5	DSN-433	NLM-46	CLM-12	STCM-4	TK-02725	S-46M	DSN-423**
G-MDPNN-3225P15		DNMG-150408	25	32	170	42	12,5	DSN-433	NLM-46	CLM-12	STCM-4	TK-02725	S-46M	DSN-423**
G-MDPNN-3232P15		DNMG-150408	32	32	170	42	16	DSN-433	NLM-46	CLM-12	STCM-4	TK-02725	S-46M	DSN-423**
G-MDPNN-4040R15		DNMG-150408	40	40	200	42	20	DSN-433	NLM-46	CLM-12	STCM-4	TK-02725	S-46M	DSN-423**
G-MDPNN-2525M19		DNMG-190612	25	25	150	49	12,5	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDPNN-3225P19		DNMG-190612	25	32	170	49	12,5	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDPNN-3232P19		DNMG-190612	32	32	170	49	16	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543
G-MDPNN-4040R19		DNMG-190612	40	40	200	49	20	DSN-533	NLM-58	CLM-12	STCM-4	TK-02726	S-58M	DSN-543

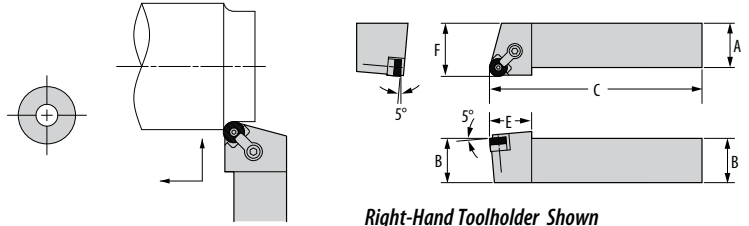
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.








** Cannot be used with lock pin.

TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MRGNR/L

Style G / Round / Negative Rake

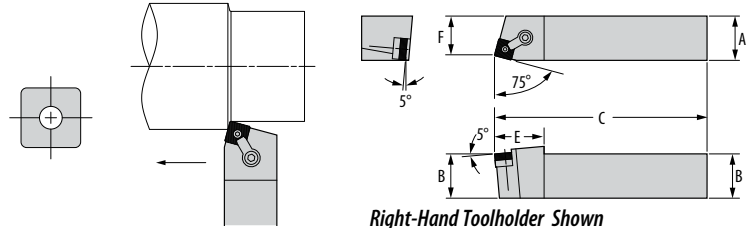


Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Seat
G-MRGNR-2020M09	G-MRGNL-2020M09	RNMG-090300	20	20	150	25	25	—	NLM-33	CLM-6	STCM-25	TK-02727	—	—
G-MRGNR-2020M12	G-MRGNL-2020M12	RNMG-120400	20	20	150	30	25	IRSN-43	NLM-46	CLM-9	STCM-4	TK-02705	S-46M	IRSN-44
G-MRGNR-2525M12	G-MRGNL-2525M12	RNMG-120400	25	25	150	30	32	IRSN-43	NLM-46	CLM-9	STCM-4	TK-02705	S-46M	IRSN-44
G-MRGNR-3225P12	G-MRGNL-3225P12	RNMG-120400	25	32	170	30	32	IRSN-43	NLM-46	CLM-9	STCM-4	TK-02705	S-46M	IRSN-44
G-MRGNR-3232P12	G-MRGNL-3232P12	RNMG-120400	32	32	170	30	40	IRSN-43	NLM-46	CLM-9	STCM-4	TK-02705	S-46M	IRSN-44
G-MRGNR-2525M15	G-MRGNL-2525M15	RNMG-150600	25	25	150	35	32	RSN-53	NLM-58	CLM-9	STCM-4	TK-02706	S-58M	—
G-MRGNR-3225P15	G-MRGNL-3225P15	RNMG-150600	25	32	170	35	32	RSN-53	NLM-58	CLM-9	STCM-4	TK-02706	S-58M	—
G-MRGNR-3232P15	G-MRGNL-3232P15	RNMG-150600	32	32	170	35	40	RSN-53	NLM-58	CLM-9	STCM-4	TK-02706	S-58M	—
G-MRGNR-2525M19	G-MRGNL-2525M19	RNMG-190600	25	25	150	39	32	RSN-63	NLM-68	CLM-12	STCM-4	TK-02707	S-68M	—
G-MRGNR-3225P19	G-MRGNL-3225P19	RNMG-190600	25	32	170	39	32	RSN-63	NLM-68	CLM-12	STCM-4	TK-02707	S-68M	—
G-MRGNR-3232P19	G-MRGNL-3232P19	RNMG-190600	32	32	170	39	40	RSN-63	NLM-68	CLM-12	STCM-4	TK-02707	S-68M	—
G-MRGNR-4040R25	G-MRGNL-4040R25	RNMG-250900	40	40	200	43	50	RSN-84	NLM-810	CLM-24	STCM-19	TK-02708	S-810M	—








* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MSBNR/L

Style B / Square / Negative Rake / 75° Lead



Right-Hand Toolholder Shown

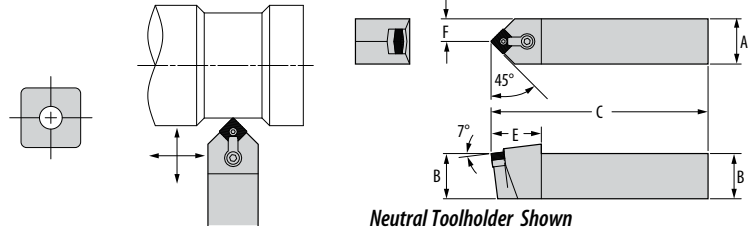
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Seat
G-MSBNR-1616M09	G-MSBNL-1616M09	SNMG-090308	16	16	150	27	12	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	–
G-MSBNR-2020M09	G-MSBNL-2020M09	SNMG-090308	20	20	150	27	16	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	–
G-MSBNR-2525M09	G-MSBNL-2525M09	SNMG-090308	25	25	150	27	22	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	–
G-MSBNR-2020M12	G-MSBNL-2020M12	SNMG-120408	20	20	150	36	20	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSBNR-2525M12	G-MSBNL-2525M12	SNMG-120408	25	25	150	36	22	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSBNR-3225P12	G-MSBNL-3225P12	SNMG-120408	25	32	170	36	22	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSBNR-3232P12	G-MSBNL-3232P12	SNMG-120408	32	32	170	36	28	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSBNR-2525M15	G-MSBNL-2525M15	SNMG-150612	25	25	150	40	21	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSBNR-3225P15	G-MSBNL-3225P15	SNMG-150612	25	32	170	40	21	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSBNR-3232P15	G-MSBNL-3232P15	SNMG-150612	32	32	170	40	28	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSBNR-4040R15	G-MSBNL-4040R15	SNMG-150612	40	40	200	40	34	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSBNR-3232P19	G-MSBNL-3232P19	SNMG-190612	32	32	170	40	26	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSBNR-4040R19	G-MSBNL-4040R19	SNMG-190612	40	40	200	40	33	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSBNR-4040R25	G-MSBNL-4040R25	SNMG-250924	40	40	200	50	32	SSN-844	NLM-810	CLM-24	STCM-19	TK-02647	S-810M	–








* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CARBIDE INSERTS

G-MSDNN

Style D / Square / Negative Rake / 45° Lead

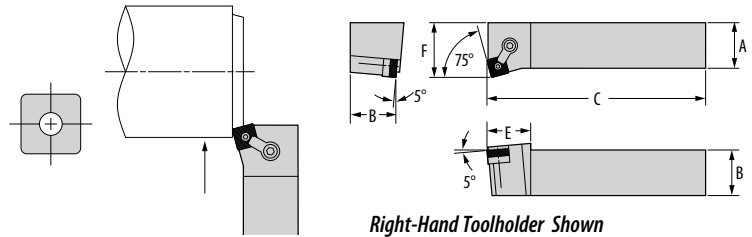









Part Number	Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Seat
G-MSDNN-1616M09	SNMG-090308	16	16	150	29	8	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	—
G-MSDNN-2020M09	SNMG-090308	20	20	150	29	10	ISSN-322	NLM-34L	CLM-6	STCM-25	TK-02711	S-34M	—
G-MSDNN-2020M12	SNMG-120408	20	20	150	35	10	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSDNN-2525M12	SNMG-120408	25	25	150	35	12,5	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSDNN-3225P12	SNMG-120408	25	32	170	35	12,5	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSDNN-3232P12	SNMG-120408	32	32	170	35	16	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSDNN-2525M15	SNMG-150612	25	25	150	41	12,5	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSDNN-3225P15	SNMG-150612	25	32	170	41	12,5	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSDNN-3232P15	SNMG-150612	32	32	170	41	16	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSDNN-4040R15	SNMG-150612	40	40	200	41	20	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSDNN-3225P19	SNMG-190612	25	32	170	44	12,5	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSDNN-3232P19	SNMG-190612	32	32	170	44	16	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSDNN-4040R19	SNMG-190612	40	40	200	44	20	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSDNN-4040R25	SNMG-250924	40	40	200	57	20	SSN-844	NLM-810	CLM-24	STCM-19	TK-02647	S-810M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MSKNR/L

Style K / Square / Negative Rake / 75° Lead



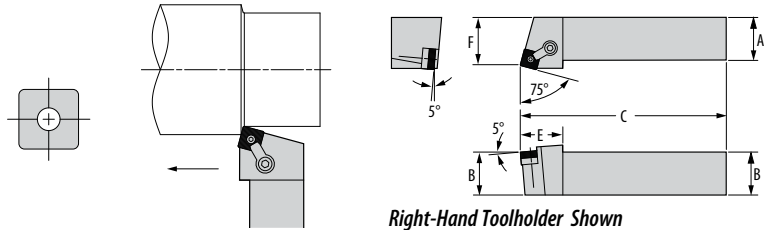
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Seat
G-MSKNR-1616M09	G-MSKNL-1616M09	SNMG-090308	16	16	150	25	20	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	—
G-MSKNR-2020M09	G-MSKNL-2020M09	SNMG-090308	20	20	150	25	25	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	—
G-MSKNR-2525M09	G-MSKNL-2525M09	SNMG-090308	25	25	150	25	32	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	—
G-MSKNR-2020M12	G-MSKNL-2020M12	SNMG-120408	20	20	150	31	25	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSKNR-2525M12	G-MSKNL-2525M12	SNMG-120408	25	25	150	31	32	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSKNR-3225P12	G-MSKNL-3225P12	SNMG-120408	25	32	170	31	32	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSKNR-3232P12	G-MSKNL-3232P12	SNMG-120408	32	32	170	31	40	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSKNR-2525M15	G-MSKNL-2525M15	SNMG-150612	25	25	150	37	32	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSKNR-3225P15	G-MSKNL-3225P15	SNMG-150612	25	32	170	37	32	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSKNR-3232P15	G-MSKNL-3232P15	SNMG-150612	32	32	170	37	40	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSKNR-3225P19	G-MSKNL-3225P19	SNMG-190612	25	32	170	40	32	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSKNR-3232P19	G-MSKNL-3232P19	SNMG-190612	32	32	170	40	40	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSKNR-4040R19	G-MSKNL-4040R19	SNMG-190612	40	40	200	40	50	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSKNR-4040R25	G-MSKNL-4040R25	SNMG-250924	40	40	200	50	50	SSN-844	NLM-810	CLM-24	STCM-19	TK-02647	S-810M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MSRNR/L

Style R / Square / Negative Rake / 75° Lead



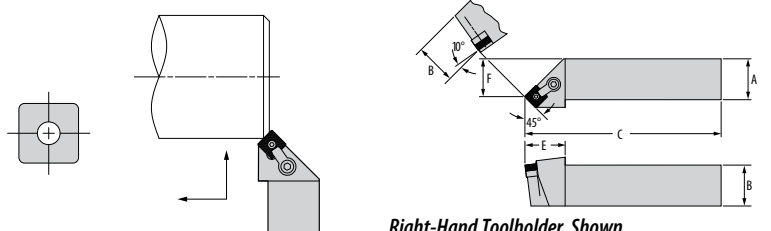
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Filler
G-MSRNR-1616M09	G-MSRNL-1616M09	SNMG-090308	16	16	150	27	20	ISSN-322	NLM-34	CLM-6	STCM-25	TK-02710	S-34M	—
G-MSRNR-2020M09	G-MSRNL-2020M09	SNMG-090308	20	20	150	27	23	ISSN-322	NLM-34L	CLM-6	STCM-25	TK-02711	S-34M	—
G-MSRNR-2020M12	G-MSRNL-2020M12	SNMG-120408	20	20	150	31	22	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSRNR-2525M12	G-MSRNL-2525M12	SNMG-120408	25	25	150	31	29	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSRNR-3225P12	G-MSRNL-3225P12	SNMG-120408	25	32	170	31	29	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSRNR-3232P12	G-MSRNL-3232P12	SNMG-120408	32	32	170	31	35	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSRNR-2525M15	G-MSRNL-2525M15	SNMG-150612	25	25	150	37	28	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSRNR-3225P15	G-MSRNL-3225P15	SNMG-150612	25	32	170	37	28	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSRNR-3232P15	G-MSRNL-3232P15	SNMG-150612	32	32	170	37	34	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSRNR-4040R15	G-MSRNL-4040R15	SNMG-150612	40	40	200	37	47	SSN-533	NLM-58	CLM-12	STCM-4	TK-02713	S-58M	ISSN-543
G-MSRNR-3225P19	G-MSRNL-3225P19	SNMG-190612	25	32	170	38	27	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSRNR-3232P19	G-MSRNL-3232P19	SNMG-190612	32	32	170	38	33	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSRNR-4040R19	G-MSRNL-4040R19	SNMG-190612	40	40	200	38	46	ISSN-633	NLM-68	CLM-12	STCM-4	TK-02714	S-68M	ISSN-643
G-MSRNR-4040R25	G-MSRNL-4040R25	SNMG-250924	40	40	200	41	45	SSN-844	NLM-810	CLM-24	STCM-19	TK-02647	S-810M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MSSNR/L

Style S / Square / Negative Rake / 45° Lead



Right-Hand Toolholder Shown

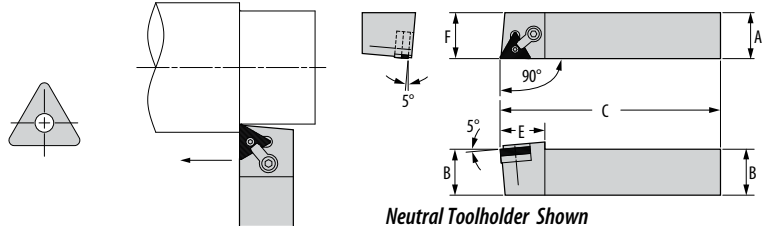
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Filler
G-MSSNR-2020M12	G-MSSNL-2020M12	SNMG-120408	20	20	150	31	17	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSSNR-2525M12	G-MSSNL-2525M12	SNMG-120408	25	25	150	31	23	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSSNR-3225P12	G-MSSNL-3225P12	SNMG-120408	25	32	170	31	23	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSSNR-3232P12	G-MSSNL-3232P12	SNMG-120408	32	32	170	31	30	ISSN-433	NLM-46	CLM-9	STCM-4	TK-02712	S-46M	ISSN-443
G-MSSNR-2525M15	G-MSSNL-2525M15	SNMG-150612	25	25	150	35	21	SSN-533	NLM-58	CLM-9	STCM-4	TK-02688	S-58M	ISSN-543
G-MSSNR-3225P15	G-MSSNL-3225P15	SNMG-150612	25	32	170	35	21	SSN-533	NLM-58	CLM-9	STCM-4	TK-02688	S-58M	ISSN-543
G-MSSNR-3232P15	G-MSSNL-3232P15	SNMG-150612	32	32	170	35	27	SSN-533	NLM-58	CLM-9	STCM-4	TK-02688	S-58M	ISSN-543
G-MSSNR-4040R15	G-MSSNL-4040R15	SNMG-150612	40	40	200	35	34	SSN-533	NLM-58	CLM-9	STCM-4	TK-02688	S-58M	ISSN-543
G-MSSNR-3225P19	G-MSSNL-3225P19	SNMG-190612	25	32	170	38	20	ISSN-633	NLM-68	CLM-9	STCM-4	TK-02735	S-68M	ISSN-643
G-MSSNR-3232P19	G-MSSNL-3232P19	SNMG-190612	32	32	170	38	25	ISSN-633	NLM-68	CLM-9	STCM-4	TK-02735	S-68M	ISSN-643
G-MSSNR-4040R19	G-MSSNL-4040R19	SNMG-190612	40	40	200	38	40	ISSN-633	NLM-68	CLM-9	STCM-4	TK-02735	S-68M	ISSN-643








* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB -- TOOLHOLDERS FOR CARBIDE INSERTS

G-MTANR/L

Style A / Triangle / Negative Rake / 90° Lead

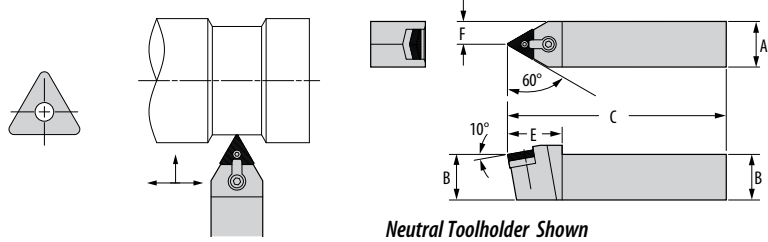









Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Filler
G-MTANR-1616M11	G-MTANL-1616M11	TNMG-110304	16	16	150	25	16	—	NLM-23	CLM-19	STCM-25	TK-02762	—	—
G-MTANR-1616M16	G-MTANL-1616M16	TNMG-160308	16	16	150	29	16	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTANR-2020M16	G-MTANL-2020M16	TNMG-160308	20	20	150	29	20	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTANR-2525M16	G-MTANL-2525M16	TNMG-160308	25	25	150	29	25	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTANR-3225P16	G-MTANL-3225P16	TNMG-160308	25	32	170	29	25	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTANR-2525M22	G-MTANL-2525M22	TNMG-220408	25	25	150	29	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02763	S-46M	ITSN-424
G-MTANR-3225P22	G-MTANL-3225P22	TNMG-220408	25	32	170	29	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02763	S-46M	ITSN-424
G-MTANR-3232P22	G-MTANL-3232P22	TNMG-220408	32	32	170	29	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02763	S-46M	ITSN-424
G-MTANR-4040R22	G-MTANL-4040R22	TNMG-220408	40	40	200	29	40	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02763	S-46M	ITSN-424
G-MTANR-2525M27	G-MTANL-2525M27	TNMG-270612	25	25	150	37	25	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTANR-3225P27	G-MTANL-3225P27	TNMG-270612	25	32	170	37	25	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTANR-3232P27	G-MTANL-3232P27	TNMG-270612	32	32	170	37	32	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTANR-4040R27	G-MTANL-4040R27	TNMG-270612	40	40	200	37	40	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTANR-4040R33	G-MTANL-4040R33	TNMG-330912	40	40	200	50	40	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	TSN-657

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.
** Cannot be used with lock pin.

G-MTENNS

Style E / Triangle / Negative Rake / 60° Lead



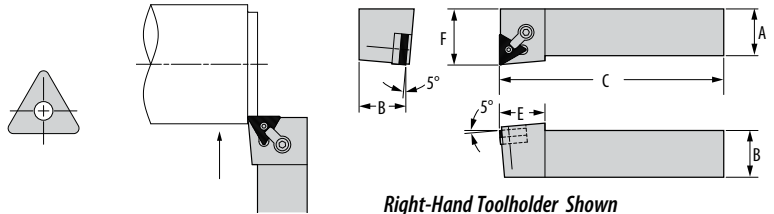
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Filler
G-MTENNS-1616M11		TNMG-110304	16	16	150	25	8	—	NLM-23	CLM-6	STCM-25	TK-02752	—	—
G-MTENNS-1616M16		TNMG-160308	16	16	150	30	8	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTENNS-2020M16		TNMG-160308	20	20	150	30	10	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTENNS-2525M16		TNMG-160308	25	25	150	30	12,5	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTENNS-3225P16		TNMG-160308	25	32	170	30	12,5	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTENNS-2020M22		TNMG-220408	20	20	150	38	10	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTENNS-2525M22		TNMG-220408	25	25	150	38	12,5	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTENNS-3225P22		TNMG-220408	25	32	170	38	12,5	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTENNS-3232P22		TNMG-220408	32	32	170	38	16	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTENNS-3232P27		TNMG-270612	32	32	170	42	16	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	—
G-MTENNS-4040R27		TNMG-270612	40	40	200	42	20	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	—
G-MTENNS-4040R33		TNMG-330912	40	40	200	50	20	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CARBIDE INSERTS

G-MTFNR/L

Style F / Triangle / Negative Rake / 90° Lead



Right-Hand Toolholder Shown

Part Number		Gage 	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat Screw	Filler
G-MTFNR-1616M11	G-MTFNL-1616M11	TNMG-110304	16	16	150	20	22	—	NLM-23	CLM-19	STCM-25	TK-02762	—	—
G-MTFNR-1616M16	G-MTFNL-1616M16	TNMG-160308	16	16	150	24	22	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTFNR-2020M16	G-MTFNL-2020M16	TNMG-160308	20	20	150	24	25	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTFNR-2525M16	G-MTFNL-2525M16	TNMG-160308	25	25	150	24	32	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTFNR-3225P16	G-MTFNL-3225P16	TNMG-160308	25	32	170	24	32	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTFNR-3232P16	G-MTFNL-3232P16	TNMG-160308	32	32	170	24	40	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTFNR-2525M22	G-MTFNL-2525M22	TNMG-220408	25	25	150	31	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTFNR-3225P22	G-MTFNL-3225P22	TNMG-220408	25	32	170	31	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTFNR-3232P22	G-MTFNL-3232P22	TNMG-220408	32	32	170	31	40	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTFNR-4040R22	G-MTFNL-4040R22	TNMG-220408	40	40	200	31	50	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTFNR-2525M27	G-MTFNL-2525M27	TNMG-270612	25	25	150	36	32	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTFNR-3225P27	G-MTFNL-3225P27	TNMG-270612	25	32	170	36	32	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTFNR-3232P27	G-MTFNL-3232P27	TNMG-270612	32	32	170	36	40	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTFNR-4040R27	G-MTFNL-4040R27	TNMG-270612	40	40	200	36	50	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTFNR-4040R33	G-MTFNL-4040R33	TNMG-330912	40	40	200	38	50	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	TSN-657

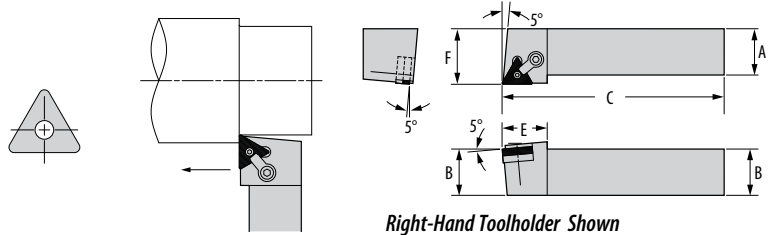
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.








** Cannot be used with lock pin.

TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MTGNR/L

Style G / Triangle / Negative Rake / 90° Lead

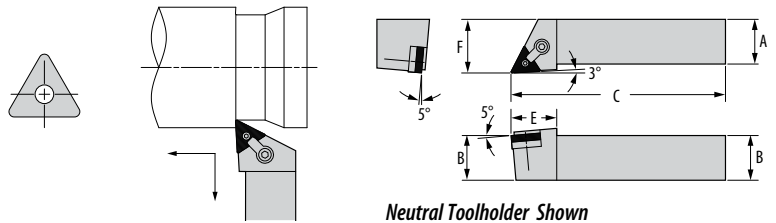









Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Filler
G-MTGNR-1616M11	G-MTGNL-1616M11	TNMG-110304	16	16	150	25	20	—	NLM-23	CLM-19	STCM-25	TK-02639	—	—
G-MTGNR-1616M16	G-MTGNL-1616M16	TNMG-160308	16	16	150	28	22	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTGNR-2020M16	G-MTGNL-2020M16	TNMG-160308	20	20	150	28	25	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTGNR-2525M16	G-MTGNL-2525M16	TNMG-160308	25	25	150	28	32	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTGNR-3225P16	G-MTGNL-3225P16	TNMG-160308	25	32	170	28	32	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTGNR-3232P16	G-MTGNL-3232P16	TNMG-160308	32	32	170	28	40	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTGNR-2020M22	G-MTGNL-2020M22	TNMG-220408	20	20	150	31	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTGNR-2525M22	G-MTGNL-2525M22	TNMG-220408	25	25	150	31	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTGNR-3225P22	G-MTGNL-3225P22	TNMG-220408	25	32	170	31	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTGNR-3232P22	G-MTGNL-3232P22	TNMG-220408	32	32	170	31	40	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTGNR-4040R22	G-MTGNL-4040R22	TNMG-220408	40	40	200	31	50	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	ITSN-424
G-MTGNR-2525M27	G-MTGNL-2525M27	TNMG-270612	25	25	150	37	32	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTGNR-3225P27	G-MTGNL-3225P27	TNMG-270612	25	32	170	37	32	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTGNR-3232P27	G-MTGNL-3232P27	TNMG-270612	32	32	170	37	40	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTGNR-4040R27	G-MTGNL-4040R27	TNMG-270612	40	40	200	37	50	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTGNR-4040R33	G-MTGNL-4040R33	TNMG-330912	40	40	200	38	50	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	TSN-657

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.
 ** Cannot be used with lock pin.

G-MTJNRS

Style J / Triangle / Negative Rake / 93° Lead



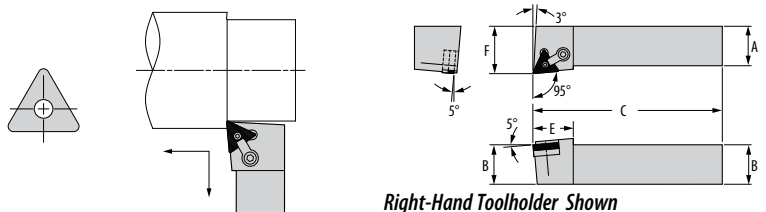
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Filler
G-MTJNRS-2020M16	G-MTJNLS-2020M16	TNMG-160308	20	20	150	28	25	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTJNRS-2525M16	G-MTJNLS-2525M16	TNMG-160308	25	25	150	28	32	ITSN-333	NLM-34L	CLM-6	STCM-25	TK-02753	S-34M	ITSN-323
G-MTJNRS-2525M22	G-MTJNLS-2525M22	TNMG-220408	25	25	150	30	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTJNRS-3225P22	G-MTJNLS-3225P22	TNMG-220408	25	32	170	30	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTJNRS-3232P22	G-MTJNLS-3232P22	TNMG-220408	32	32	170	30	40	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	—
G-MTJNRS-3232P27	G-MTJNLS-3232P27	TNMG-270612	32	32	170	36	40	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	—
G-MTJNRS-4040R27	G-MTJNLS-4040R27	TNMG-270612	40	40	200	36	50	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	—
G-MTJNRS-4040R33	G-MTJNLS-4040R33	TNMG-330912	40	40	200	42	50	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MTLNR/L

Style L / Triangle / Negative Rake / 95° Lead



Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		 Seat Screw	 Filler
G-MTLNR-2525M22	G-MTLNL-2525M22	TNMG-220408	25	25	150	32	25	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	TS-424**
G-MTLNR-3225P22	G-MTLNL-3225P22	TNMG-220408	25	32	170	32	32	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	TS-424**
G-MTLNR-3232P22	G-MTLNL-3232P22	TNMG-220408	32	32	170	32	40	ITSN-433	NLM-46	CLM-9	STCM-4	TK-02754	S-46M	TS-424**
G-MTLNR-3232P27	G-MTLNL-3232P27	TNMG-270612	32	32	170	36	40	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTLNR-4040R27	G-MTLNL-4040R27	TNMG-270612	40	40	200	36	50	ITSN-533	NLM-58	CLM-9	STCM-4	TK-02755	S-58M	ITSN-543
G-MTLNR-4040R33	G-MTLNL-4040R33	TNMG-330912	40	40	200	39	50	TSN-637	NLM-68L	CLM-12	STCM-4	TK-02756	S-68M	TSN-657

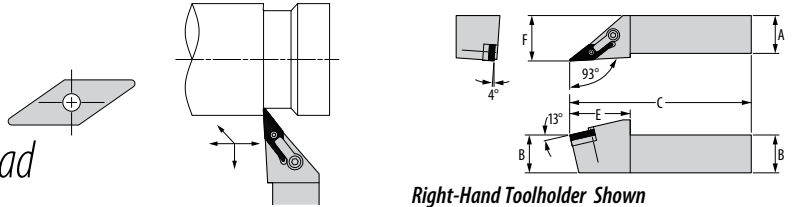
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

** Cannot be used with lock pin.







TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MVJNR/L

Style J / 35° Diamond / Negative Rake / 93° Lead



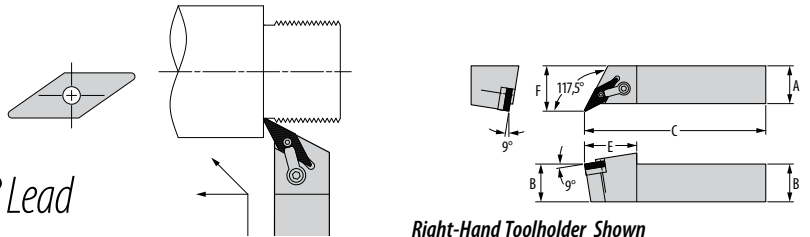
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Component 
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		
G-MVJNR-2020M16	G-MVJNL-2020M16	VNMG-160408	20	20	150	43	25	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVJNR-2525M16	G-MVJNL-2525M16	VNMG-160408	25	25	150	43	32	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVJNR-3225P16	G-MVJNL-3225P16	VNMG-160408	25	32	170	43	32	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVJNR-3232P16	G-MVJNL-3232P16	VNMG-160408	32	32	170	43	40	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVJNR-4040R16	G-MVJNL-4040R16	VNMG-160408	40	40	200	43	50	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVJNR-2525M22	G-MVJNL-2525M22	VNMG-220408	25	25	150	50	32	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M
G-MVJNR-3232P22	G-MVJNL-3232P22	VNMG-220408	32	32	170	50	40	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M
G-MVJNR-4040R22	G-MVJNL-4040R22	VNMG-220408	40	40	200	50	50	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M







* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MVTNR/L

Style T / 35° Diamond / Negative Rake / 117.5° Lead



Right-Hand Toolholder Shown

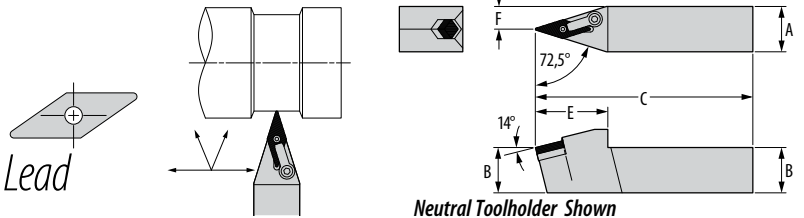
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Component 
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Lock Pin	 Clamp	 Clamp Screw		
G-MVTNR-2020M16	G-MVTNL-2020M16	VNMG-160408	20	20	150	44	25	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVTNR-2525M16	G-MVTNL-2525M16	VNMG-160408	25	25	150	44	32	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVTNR-3225P16	G-MVTNL-3225P16	VNMG-160408	25	32	170	44	32	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVTNR-3232P16	G-MVTNL-3232P16	VNMG-160408	32	32	170	44	40	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVTNR-4040R16	G-MVTNL-4040R16	VNMG-160408	40	40	200	44	45	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CARBIDE INSERTS

G-MVVNN

Style V / 35° Diamond / Negative Rake / 72,5° Lead



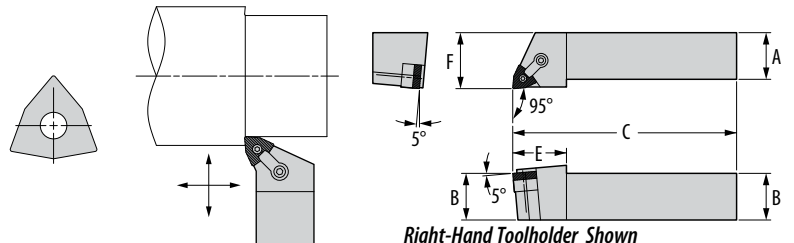
Neutral Toolholder Shown

Part Number	Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Component
		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		
G-MVVNN-2020M16	VNMG-160408	20	20	150	45	10	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVVNN-2525M16	VNMG-160408	25	25	150	45	12,5	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVVNN-3225P16	VNMG-160408	25	32	170	45	12,5	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVVNN-3232P16	VNMG-160408	32	32	170	45	16	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVVNN-4040R16	VNMG-160408	40	40	200	45	20	IVSN-322	NLM-34L	CLM-30	STCM-4	TK-02758	S-34M
G-MVVNN-2525M22	VNMG-220408	25	25	150	54	12,5	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M
G-MVVNN-3232P22	VNMG-220408	32	32	170	54	16	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M
G-MVVNN-4040R22	VNMG-220408	40	40	200	54	20	IVSN-433	NLM-46	CLM-30	STCM-4	TK-02759	S-46M

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-MWLNR/L

Style L / Trigon / Negative Rake / 95° Lead



Right-Hand Toolholder Shown

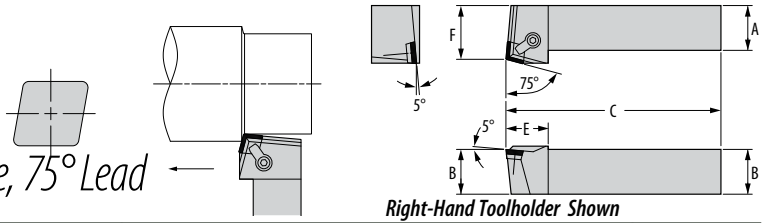
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Component
Right Hand	Left Hand		A	B	C	E	F	Seat	Lock Pin	Clamp	Clamp Screw		
G-MWLNR-2020M06	G-MWLNL-2020M06	WNMG-060408	20	20	150	25	25	IWSN-323	NLM-34L	CLM-6	STCM-25	TK-02807	IWSN-332
G-MWLNR-2525M06	G-MWLNL-2525M06	WNMG-060408	25	25	150	25	32	IWSN-323	NLM-34L	CLM-6	STCM-25	TK-02807	IWSN-332
G-MWLNR-3232P06	G-MWLNL-3232P06	WNMG-060408	32	32	170	25	40	IWSN-323	NLM-34L	CLM-6	STCM-25	TK-02807	IWSN-332
G-MWLNR-4040R06	G-MWLNL-4040R06	WNMG-060408	40	40	200	25	50	IWSN-323	NLM-34L	CLM-6	STCM-25	TK-02807	IWSN-332
G-MWLNR-2020M08	G-MWLNL-2020M08	WNMG-080408	20	20	150	30	25	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	–
G-MWLNR-2525M08	G-MWLNL-2525M08	WNMG-080408	25	25	150	30	32	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	–
G-MWLNR-3232P08	G-MWLNL-3232P08	WNMG-080408	32	32	170	30	40	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	–
G-MWLNR-4040R08	G-MWLNL-4040R08	WNMG-080408	40	40	200	30	50	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	–







* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CARBIDE INSERTS

G-CCRPR/L

Style R / 80° Diamond (Using 100° Corner) / Positive Rake, 75° Lead



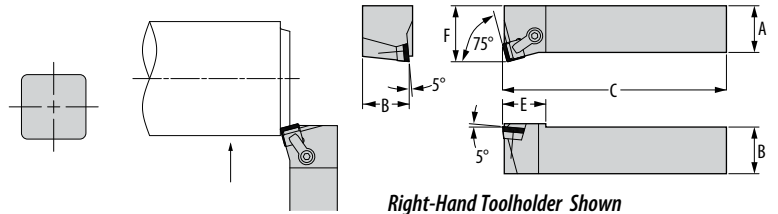
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components					*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Seat Screw	 Clamp	 Clamp Screw	 Chip Breaker	Includes all Standard Components
G-CCLPR-2020M12	G-CCLPL-2020M12	CPGN-120308	20	20	150	31	25	CSP-422	TFHCSM3-0.5x10mm	CLM-9	STCM-4	CBDC-415L	TK-02737
G-CCLPR-2525M12	G-CCLPL-2525M12	CPGN-120308	25	25	150	31	32	CSP-422	TFHCSM3-0.5x10mm	CLM-9	STCM-4	CBDC-415L	TK-02737
G-CCLPR-3225P12	G-CCLPL-3225P12	CPGN-120308	25	32	170	31	32	CSP-422	TFHCSM3-0.5x10mm	CLM-9	STCM-4	CBDC-415L	TK-02737
G-CCLPR-3232P12	G-CCLPL-3232P12	CPGN-120308	32	32	170	31	40	CSP-422	TFHCSM3-0.5x10mm	CLM-9	STCM-4	CBDC-415L	TK-02737
G-CCLPR-4040R12	G-CCLPL-4040R12	CPGN-120308	40	40	200	31	50	CSP-422	TFHCSM3-0.5x10mm	CLM-9	STCM-4	CBDC-415L	TK-02737
G-CCLPR-2525M19	G-CCLPL-2525M19	CPGN-190412	25	25	150	33	32	CSP-632	TFHCSM3-0.5x10mm	CLM-12	STCM-4	CBDC-615G	TK-02742
G-CCLPR-3225P19	G-CCLPL-3225P19	CPGN-190412	25	32	170	33	32	CSP-632	TFHCSM3-0.5x10mm	CLM-12	STCM-4	CBDC-615G	TK-02742
G-CCLPR-3232P19	G-CCLPL-3232P19	CPGN-190412	32	32	170	33	40	CSP-632	TFHCSM3-0.5x10mm	CLM-12	STCM-4	CBDC-615G	TK-02742
G-CCLPR-4040R19	G-CCLPL-4040R19	CPGN-190412	40	40	200	33	50	CSP-632	TFHCSM3-0.5x10mm	CLM-12	STCM-4	CBDC-615G	TK-02742

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CARBIDE INSERTS

G-CSKPR/L

Style K / Square / Positive Rake / 15° Lead



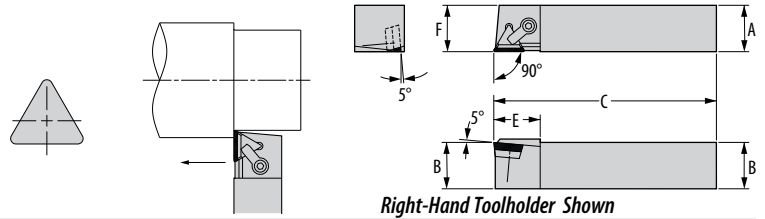
Part Number		Gage Inserts	Dimensions (mm)					Standard Components					*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw	Chip Breaker	Includes all Standard Components
G-CSKPR-2020M12	G-CSKPL-2020M12	SPGN-120308	20	20	150	29	25	SP-40	TFHCSM3-0.5x12mm	CLM-12	STCM-8	CBS-4G	TK-02766
G-CSKPR-2525M12	G-CSKPL-2525M12	SPGN-120308	25	25	150	29	32	SP-40	TFHCSM3-0.5x12mm	CLM-12	STCM-8	CBS-4G	TK-02766
G-CSKPR-3225P12	G-CSKPL-3225P12	SPGN-120308	25	32	170	29	32	SP-40	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBS-4G	TK-02767
G-CSKPR-3232P12	G-CSKPL-3232P12	SPGN-120308	32	32	170	29	40	SP-40	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBS-4G	TK-02767
G-CSKPR-4040R12	G-CSKPL-4040R12	SPGN-120308	40	40	200	29	50	SP-40	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBS-4G	TK-02767
G-CSKPR-2525M19	G-CSKPL-2525M19	SPGN190412	25	25	150	38	32	SP-60M	TFHCSM5-0.8x12mm	CLM-30	STCM-4	CBS-6G	TK-02768
G-CSKPR-3225P19	G-CSKPL-3225P19	SPGN190412	25	32	170	38	32	SP-60M	TFHCSM5-0.8x12mm	CLM-30	STCM-4	CBS-6G	TK-02768
G-CSKPR-3232P19	G-CSKPL-3232P19	SPGN190412	32	32	170	38	40	SP-60M	TFHCSM5-0.8x12mm	CLM-30	STCM-4	CBS-6G	TK-02768
G-CSKPR-4040R19	G-CSKPL-4040R19	SPGN190412	40	40	200	38	50	SP-60M	TFHCSM5-0.8x12mm	CLM-30	STCM-4	CBS-6G	TK-02768







* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB -- TOOLHOLDERS FOR CARBIDE INSERTS

G-CTAPR/L

Style A / Triangle / Positive Rake / 90° Lead

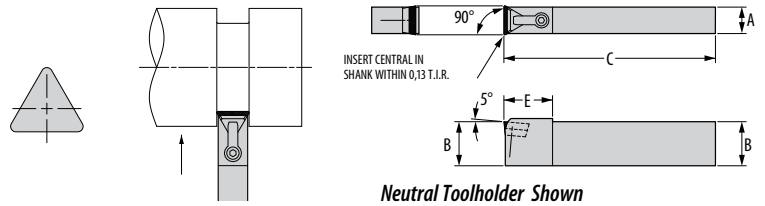








Part Number		Gage  Inserts	Dimensions (mm)					Standard Components					*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F	 Seat	 Seat Screw	 Clamp	 Clamp Screw	 Chip Breaker	Includes all Standard Components
G-CTAPR-2020M16	G-CTAPL-2020M16	TPGN-160308	20	20	150	25	20	TSP-321	TFHCSM3-0.5x10mm	CLM-7	STCM-25	CBT-3G	TK-02773
G-CTAPR-2525M16	G-CTAPL-2525M16	TPGN-160308	25	25	150	25	25	TSP-321	TFHCSM3-0.5x10mm	CLM-7	STCM-25	CBT-3G	TK-02773
G-CTAPR-3225P16	G-CTAPL-3225P16	TPGN-160308	25	32	170	25	25	TSP-321	TFHCSM3-0.5x10mm	CLM-7	STCM-25	CBT-3G	TK-02773
G-CTAPR-2525M22	G-CTAPL-2525M22	TPGN-220408	25	25	150	32	25	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBT-4G	TK-02774
G-CTAPR-3225P22	G-CTAPL-3225P22	TPGN-220408	25	32	170	32	25	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBT-4G	TK-02774
G-CTAPR-3232P22	G-CTAPL-3232P22	TPGN-220408	32	32	170	32	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBT-4G	TK-02774
G-CTAPR-4040R22	G-CTAPL-4040R22	TPGN-220408	40	40	200	32	40	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	CBT-4G	TK-02774
G-CTAPR-2525M27	G-CTAPL-2525M27	TPGN-270612	25	25	150	35	25	SP-5	TFHCSM4-0.7x12mm	CLM-12	STCM-4	CBT-5G	TK-02775
G-CTAPR-3232P27	G-CTAPL-3232P27	TPGN-270612	32	32	170	35	32	SP-5	TFHCSM4-0.7x12mm	CLM-12	STCM-4	CBT-5G	TK-02775
G-CTAPR-4040R27	G-CTAPL-4040R27	TPGN-270612	40	40	200	35	40	SP-5	TFHCSM4-0.7x12mm	CLM-12	STCM-4	CBT-5G	TK-02775
G-CTAPR-4040R33	G-CTAPL-4040R33	TPGN-330924	40	40	200	40	40	SP-6	TFHCSM5-0.8x12mm	CLM-12	STCM-4	CBT-6G	TK-02776

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

G-CTCPN

Style C / Triangle / Positive Rake / 90° Lead



Part Number		Gage  Inserts	Dimensions (mm)				Standard Components					*Tune-Up Kit
Neutral			A	B	C	E	 Seat	 Seat Screw	 Clamp	 Clamp Screw	 Chip Breaker	Includes all Standard Components
G-CTCPN-2512M16		TPGN-160308	12	25	150	32	TSP-321	TFHCSM3-0.5x10mm	CLM-22	STCM-26	CBT-3G	TK-02830
G-CTCPN-2520M22		TPGN-220408	20	25	150	35	SP-4	TFHCSM3-0.5x10mm	CLM-30	STCM-4	CBT-4G	TK-02831
G-CTCPN-3220P22		TPGN-220408	20	32	170	35	SP-4	TFHCSM3-0.5x10mm	CLM-30	STCM-4	CBT-4G	TK-02831
G-CTCPN-4020R22		TPGN-220408	20	40	200	35	SP-4	TFHCSM3-0.5x10mm	CLM-30	STCM-4	CBT-4G	TK-02831
G-CTCPN-4025R27		TPGN-270612	22	40	200	40	SP-5	TFHCSM5-0.8x12mm	CLM-30	STCM-4	CBT-5G	TK-02832

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB - TOOLHOLDERS FOR CARBIDE INSERTS



Quick-Change Toolholders

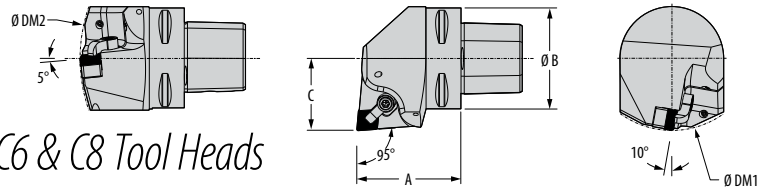
The Greenleaf Quick-Change Toolholders conform to ISO 26623, utilize standard components, and are designed to maximize tool life in carbide and ceramic turning applications.










Greenleaf's special design capabilities offer customers unique solutions to further increase productivity.



MCLNR/L

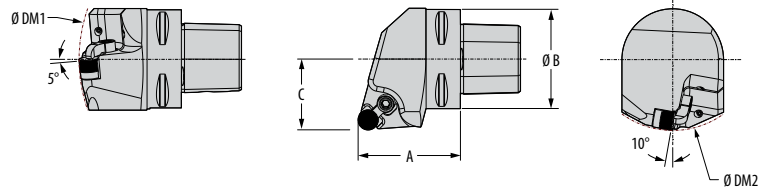
80° Diamond Negative Rake / 5° Reverse Lead / C6 & C8 Tool Heads












Part Number		Gage	Dimensions (mm)					Standard Components					Optional Components		
Right Hand	Left Hand	 Inserts	A	B	C	DM1	DM2								
GC6-MCLNR-45065-12	GC6-MCLNL-45065-12	CNGN-120408	65	63	45	110	195	CSN-453	S-46M	CLM-12	STCM-4	5691 026-03	NLM-46L	CLM9	CSN-433
GC8-MCLNR-55080-12	GC8-MCLNL-55080-12	CNGN-120408	80	80	55	235	300	CSN-453	S-46M	CLM-12	STCM-4	5691 026-03	NLM-46L	CLM9	CSN-433

MRGNR/L

Round Negative Rake / C6 & C8 Tool Heads

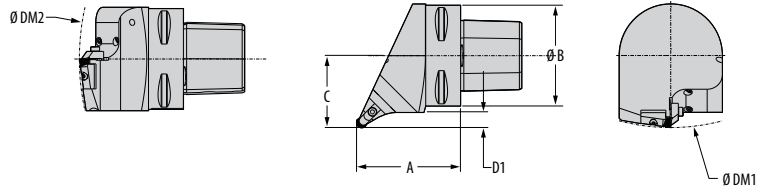








Part Number		Gage	Dimensions (mm)					Standard Components					Optional Components		
Right Hand	Left Hand	 Inserts	A	B	C	DM1	DM2								
GC6-MRGNR-45065-12	GC6-MRGNL-45065-12	CNGN-120700	65	63	45	110	195	IRSN-43	S-46M	CLM-12	STCM-4	5691 026-03	NLM-46L	CLM9	IRSN-45
GC8-MRGNR-55080-12	GC8-MRGNL-55080-12	CNGN-120700	80	80	55	235	300	IRSN-43	S-46M	CLM-12	STCM-4	5691 026-03	NLM-46L	CLM9	IRSN-45

TB — QUICK-CHANGE TOOLHOLDERS

CRGPR/L

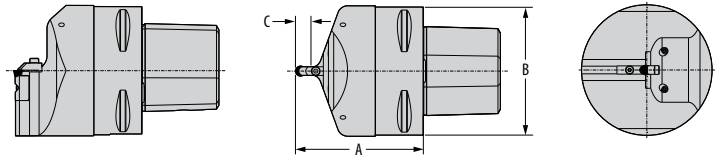
45° Grooving/Profiling / Replaceable Nest









Part Number		Gage Insert 	Dimensions (mm)					Standard Components					
Right Hand	Left Hand		A	B	C	D	DM1	DM2					
GC6-CRGPR-45065-06V	GC6-CRGPL-45065-06V	RPGX-060400	65	63	45	9,53	250	300	411108	M2.5-.45 x 10mm BHCS	308618	M3-0.5 x 12mm SHCS	5691 026-03
GC8-CRGPR-55080-06V	GC8-CRGPL-55080-06V	RPGX-060400	80	80	55	9,53	300	350	411108	M2.5-.45 x 10mm BHCS	308618	M3-0.5 x 12mm SHCS	5691 026-03
GC6-CRGPR-45065-09V	GC6-CRGPL-45065-09V	RPGX-090700	65	63	45	9,53	250	300	414009	M3-0.5 x 12mm TBHCS	308063	M5-.8 x 12mm TSHCS	5691 026-03
GC8-CRGPR-55080-09V	GC8-CRGPL-55080-09V	RPGX-090700	80	80	55	9,53	300	350	414009	M3-0.5 x 12mm TBHCS	308063	M5-.8 x 12mm TSHCS	5691 026-03
GC6-CRGPR-45065-12V	GC6-CRGPL-45065-12V	RPGX-120700	65	63	45	9,53	250	300	414008	M5-.8 x 16mm TBHCS	308136	434258 (M6-1.0 x 19mm TSHCS)	5691 026-03
GC8-CRGPR-55080-12V	GC8-CRGPL-55080-12V	RPGX-120700	80	80	55	9,53	300	350	414008	M5-.8 x 16mm TBHCS	308136	434258 (M6-1.0 x 19mm TSHCS)	5691 026-03

CRDPN

Neutral / Replaceable Nest



Part Number	Gage Insert 	Dimensions (mm)			Standard Components				
		A	B	C					
GC6-CRDPN-03065-06V	RPGX-060400	65	63	9,53	410631	M2.5-.45 x 10mm BHCS	308618	M3-0.5 x 12mm SHCS	5691 026-03
GC8-CRDPN-03080-06V	RCGX-120700	80	80	9,53	410631	M2.5-.45 x 10mm BHCS	308618	M3-0.5 x 12mm SHCS	5691 026-03
GC6-CRDPN-05065-09V	RPGX-090700	65	63	14,28	413970	M3-0.5 x 12mm TBHCS	308063	M5-.8 x 12mm TSHCS	5691 026-03
GC8-CRDPN-05080-09V	RCGX-090700	80	80	14,28	413970	M3-0.5 x 12mm TBHCS	308063	M5-.8 x 12mm TSHCS	5691 026-03
GC6-CRDPN-06065-12V	RPGX-120700	65	63	19,05	414007	M5-.8 x 16mm TBHCS	308136	434258 (M6-1.0 x 19mm TSHCS)	5691 026-03
GC8-CRDPN-06080-12V	RCGX-120700	80	80	19,05	414007	M5-.8 x 16mm TBHCS	308136	434258 (M6-1.0 x 19mm TSHCS)	5691 026-03



Toolholders for Ceramic Inserts

Greenleaf toolholder systems for use with ceramic inserts are based upon industry standard hardware. However, geometry and pocket depth are designed to maximize ceramic performance. Negative tools have a 10° negative side rake rather than the 5° usually found in tools for carbide inserts. This will increase clearance and, in turn, tool life. The additional pocket depth allows for thicker inserts with shims available to adjust the thickness stack-up for thinner tools if necessary.

The standard clamp is the long series to secure the inserts without a hole which is a stronger setup. Short clamps are an optional item.

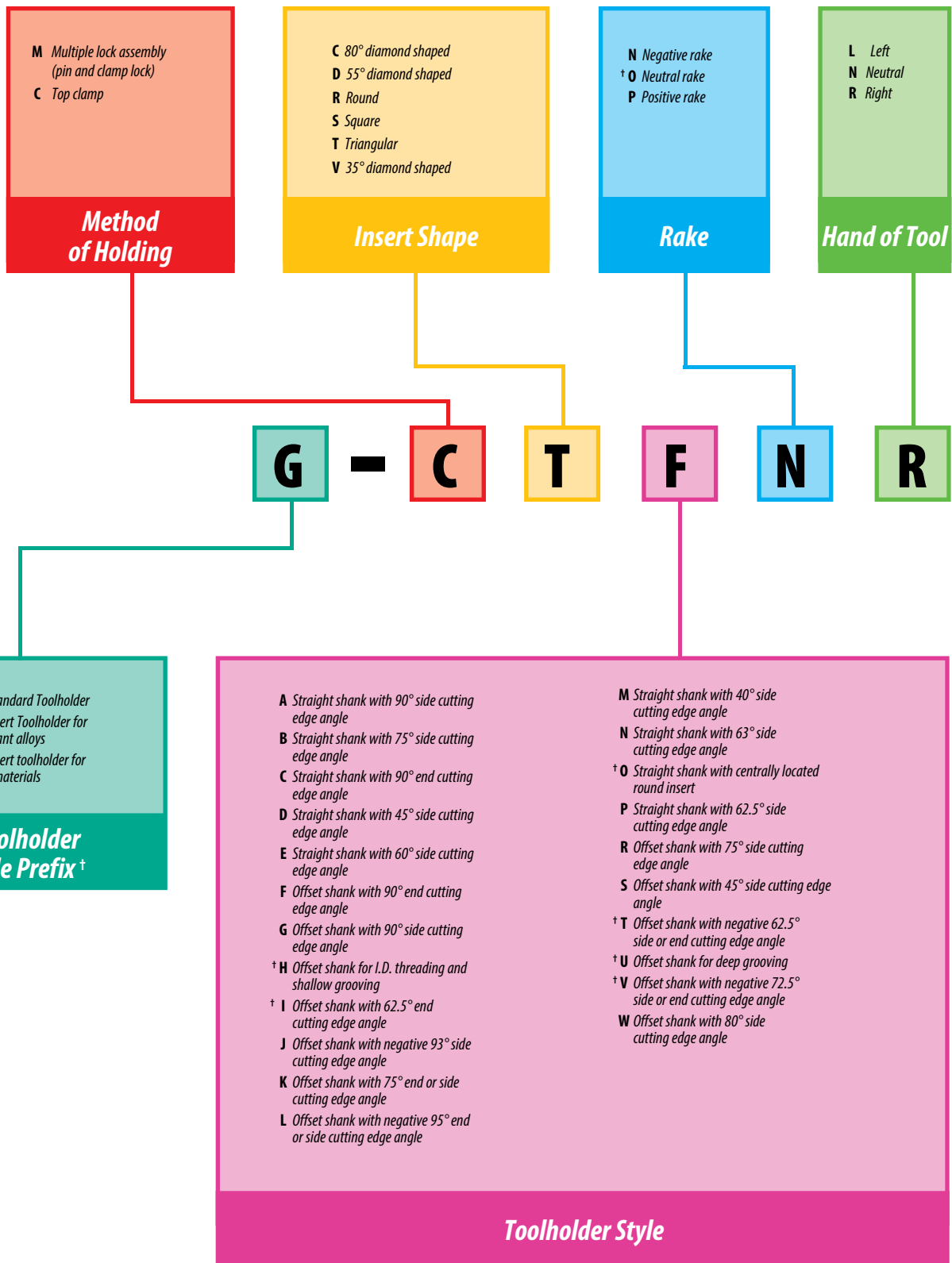
Greenleaf has designated a "C" prefix for a ceramic insert toolholder and an "H" prefix for ceramic insert toolholder for hard material machining.

Greenleaf Tune-Up Kits

A Tune-Up Kit consists of all the standard hardware to refurbish a particular toolholder, boring bar, or milling cutter. A toolholder will have a readily visible, laser-inscribed Tune-Up Kit number on it for ease in ordering. This number will prevent any confusion created by searching a catalog for hardware, and it will help reduce downtime.

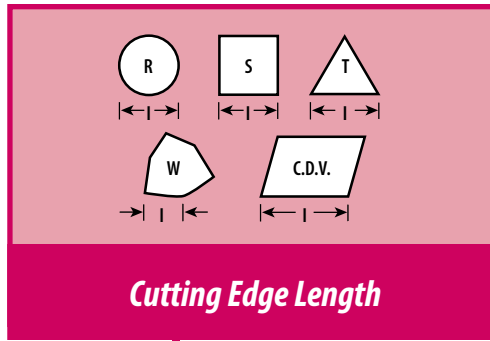
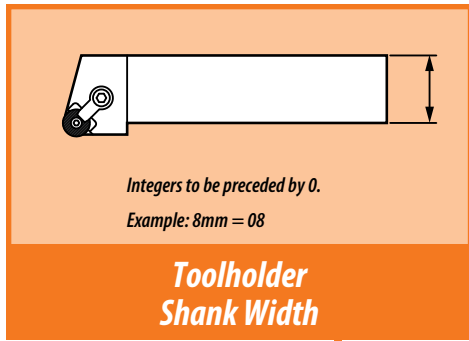


Advanced Ceramic Toolholder Identification System

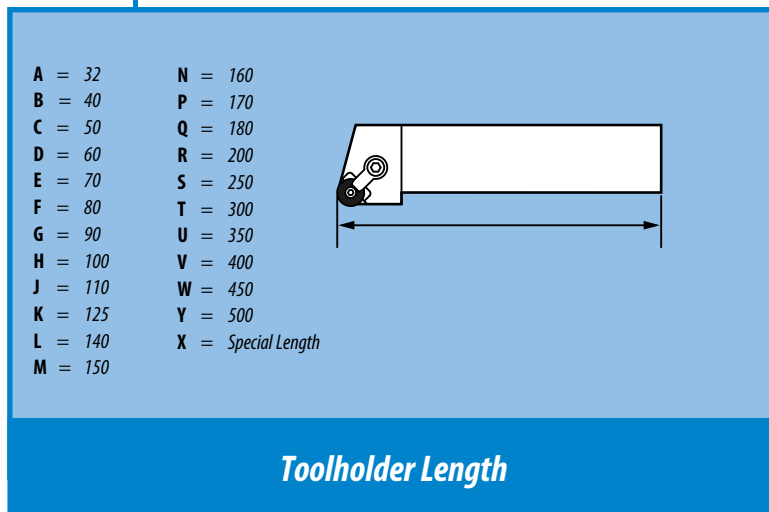
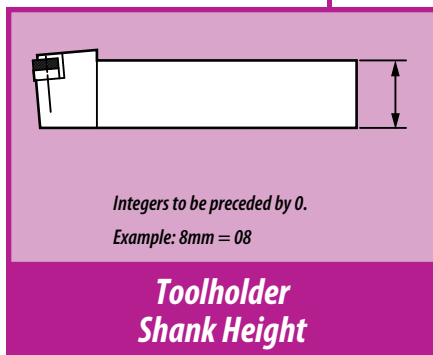


†Greenleaf standard.

TB – TOOLHOLDERS FOR CERAMIC INSERTS



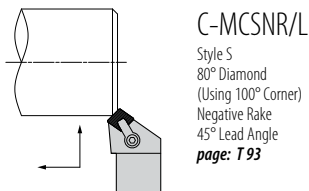
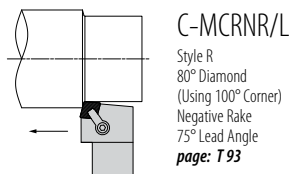
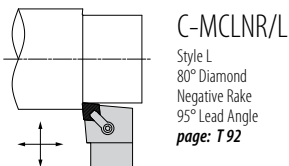
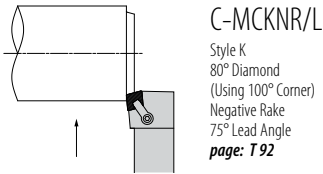
32 **32** **P** - **12**



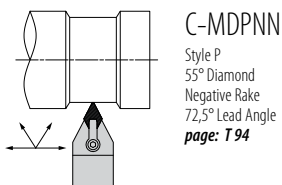
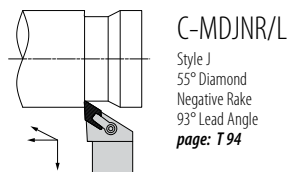
NOTE:
All toolholders are qualified to $\pm 0,07$ over gage insert radius on the "C" and "F" dimensions as standard. Some toolholders are qualifiable on the "C" length dimension only.

Pictorial Index

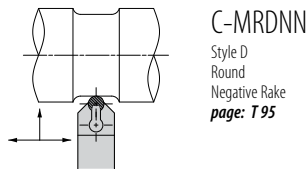
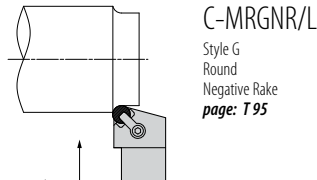
80° Diamond – Negative



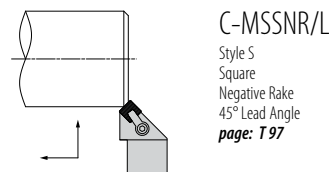
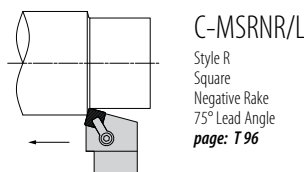
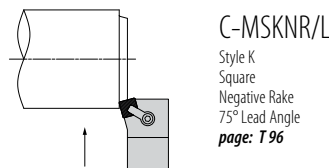
55° Diamond – Negative



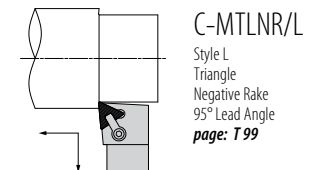
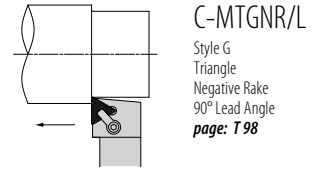
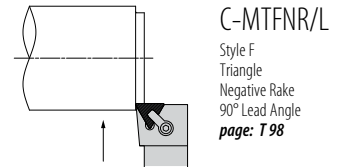
Round – Negative



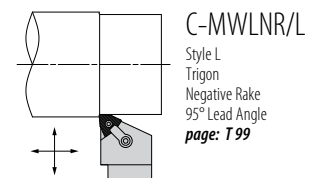
Square – Negative



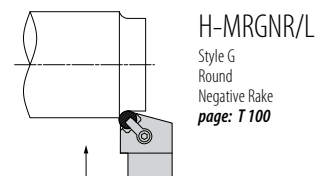
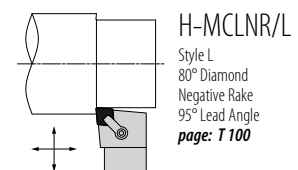
Triangle – Negative



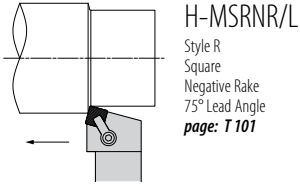
Trigon – Negative



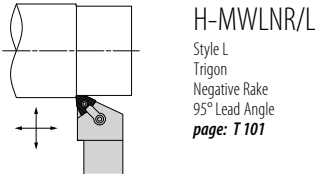
Hard-Turning – Negative



Hard-Turning – Negative *continued*

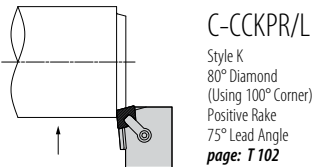


H-MSRNR/L
Style R
Square
Negative Rake
75° Lead Angle
page: T 101

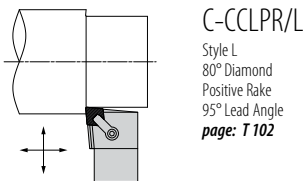


H-MWLNR/L
Style L
Trigon
Negative Rake
95° Lead Angle
page: T 101

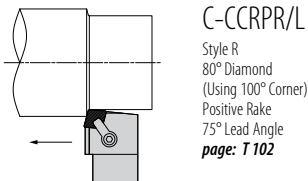
80°/100° Diamond – Positive



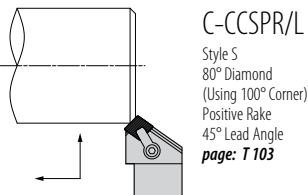
C-CCKPR/L
Style K
80° Diamond
(Using 100° Corner)
Positive Rake
75° Lead Angle
page: T 102



C-CCLPR/L
Style L
80° Diamond
Positive Rake
95° Lead Angle
page: T 102

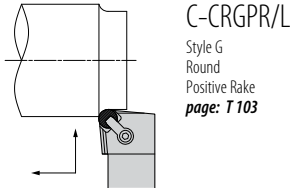


C-CCRPR/L
Style R
80° Diamond
(Using 100° Corner)
Positive Rake
75° Lead Angle
page: T 102



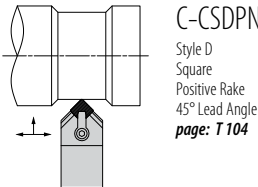
C-CCSPR/L
Style S
80° Diamond
(Using 100° Corner)
Positive Rake
45° Lead Angle
page: T 103

Round – Positive

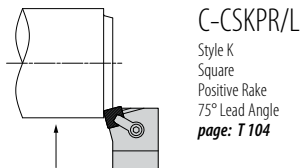


C-CRGPRL
Style G
Round
Positive Rake
page: T 103

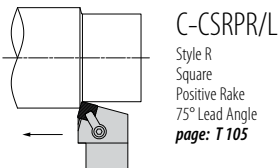
Square – Positive



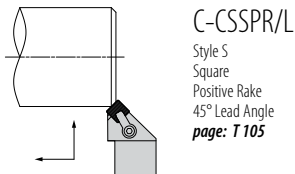
C-CSDPN
Style D
Square
Positive Rake
45° Lead Angle
page: T 104



C-CSKPR/L
Style K
Square
Positive Rake
75° Lead Angle
page: T 104

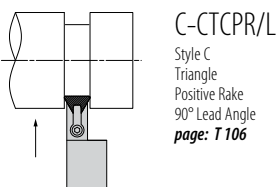


C-CSRPR/L
Style R
Square
Positive Rake
75° Lead Angle
page: T 105



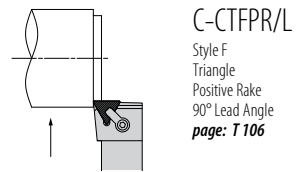
C-CSSPR/L
Style S
Square
Positive Rake
45° Lead Angle
page: T 105

Triangle – Positive

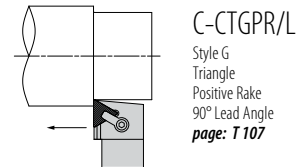


C-CTCPR/L
Style C
Triangle
Positive Rake
90° Lead Angle
page: T 106

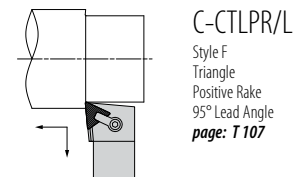
Triangle – Positive *continued*



C-CTFPR/L
Style F
Triangle
Positive Rake
90° Lead Angle
page: T 106

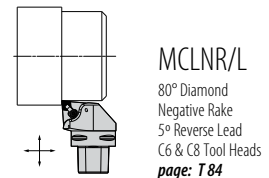


C-CTGPR/L
Style G
Triangle
Positive Rake
90° Lead Angle
page: T 107

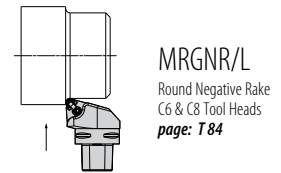


C-CTLPR/L
Style F
Triangle
Positive Rake
95° Lead Angle
page: T 107

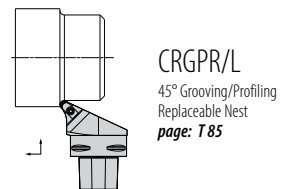
Quick-Change Toolholders



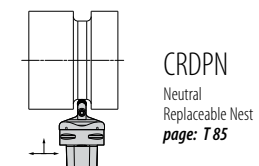
MCLNR/L
80° Diamond
Negative Rake
5° Reverse Lead
C6 & C8 Tool Heads
page: T 84



MRGNR/L
Round Negative Rake
C6 & C8 Tool Heads
page: T 84



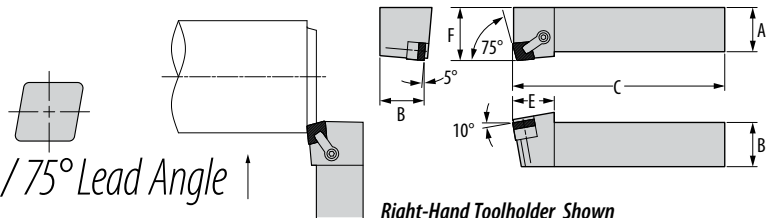
CRGPR/L
45° Grooving/Profiling
Replaceable Nest
page: T 85



CRDPN
Neutral
Replaceable Nest
page: T 85

C-MCKNR/L

Style K / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead Angle ↑



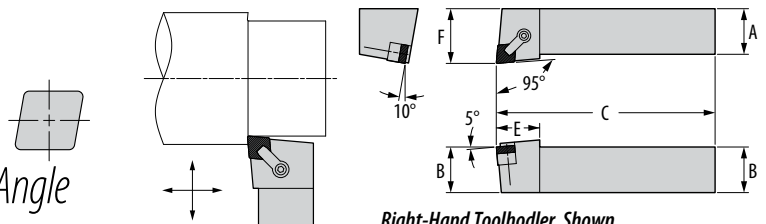
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	Shim Seat	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp	5/16" Insert Shim Seat
C-MCKNR-2525M12	C-MCKNL-2525M12	CNGN-120408	25	25	150	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCKNR-2525P12	C-MCKNL-2525P12	CNGN-120408	25	25	170	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCKNR-3232P12	C-MCKNL-3232P12	CNGN-120408	32	32	170	30	40	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCKNR-3232P19	C-MCKNL-3232P19	CNGN-190612	32	32	170	36	40	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633
C-MCKNR-4040R19	C-MCKNL-4040R19	CNGN-190612	40	40	200	36	50	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MCLNR/L

Style L / 80° Diamond / Negative Rake / 95° Lead Angle



Right-Hand Toolholder Shown

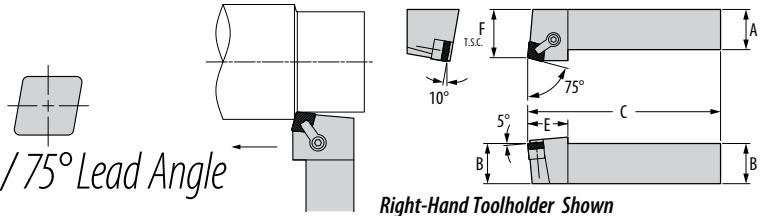
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	Shim Seat	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp	5/16" Insert Shim Seat
C-MCLNR-2525M12	C-MCLNL-2525M12	CNGN-120408	25	25	150	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCLNR-2525P12	C-MCLNL-2525P12	CNGN-120408	25	25	170	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCLNR-3232P12	C-MCLNL-3232P12	CNGN-120408	32	32	170	30	40	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCLNR-3232P19	C-MCLNL-3232P19	CNGN-190612	32	32	170	40	40	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633
C-MCLNR-4040R19	C-MCLNL-4040R19	CNGN-190612	40	40	200	40	50	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.









TB – TOOLHOLDERS FOR CERAMIC INSERTS

C-MCRNR/L

Style R / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead Angle



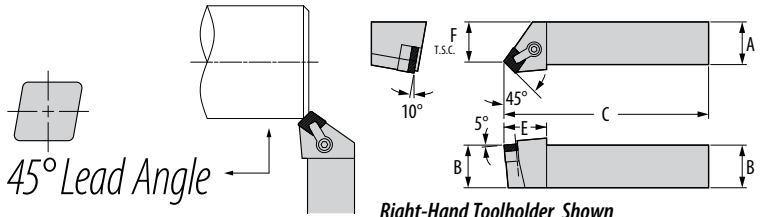
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw		 Lock Pin	 Clamp	 5/16" Insert Shim Seat
C-MCRNR-2525M12	C-MCRNL-2525M12	CNGN-120408	25	25	150	32	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCRNR-2525P12	C-MCRNL-2525P12	CNGN-120408	25	25	170	32	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCRNR-3232P12	C-MCRNL-3232P12	CNGN-120408	32	32	170	32	40	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCRNR-3232P19	C-MCRNL-3232P19	CNGN-190612	32	32	170	38	40	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633
C-MCRNR-4040R19	C-MCRNL-4040R19	CNGN-190612	40	40	200	38	50	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MCSNR/L

Style S / 80° Diamond (Using 100° Corner) / Negative Rake, 45° Lead Angle



Right-Hand Toolholder Shown

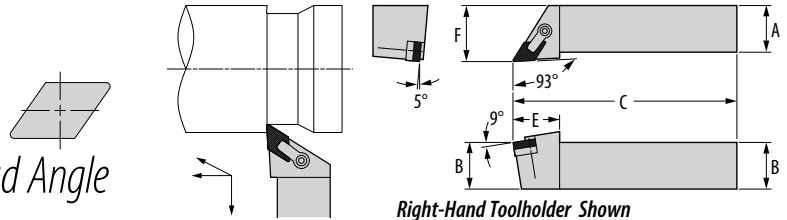
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw		 Lock Pin	 Clamp	 5/16" Insert Shim Seat
C-MCSNR-2525M12	C-MCSNL-2525M12	CNGN-120408	25	25	150	32	23	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCSNR-2525P12	C-MCSNL-2525P12	CNGN-120408	25	25	170	32	23	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCSNR-3232P12	C-MCSNL-3232P12	CNGN-120408	32	32	170	32	29	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
C-MCSNR-3232P19	C-MCSNL-3232P19	CNGN-190612	32	32	170	38	25	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633
C-MCSNR-4040R19	C-MCSNL-4040R19	CNGN-190612	40	40	200	38	38	CSN-643	S-68M	CLM-30	STCM-4	TK-02751	NLM-68L	CLM-12	CSN-633

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-MDJNR/L

Style J / 55° Diamond / Negative Rake / 93° Lead Angle



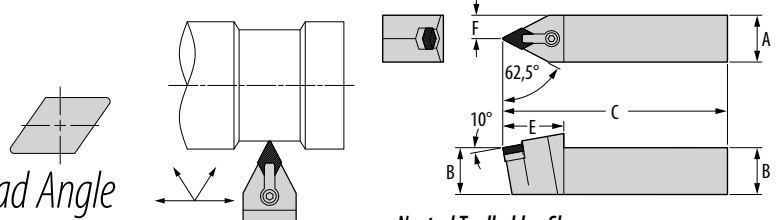
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F							
C-MDJNR-2525M11	C-MDJNL-2525M11	DNGN-110308	25	25	150	25	32	DSN-333	S-34M	CLM-7	STCM-25	TK-02788	NLM-34L	CLM-6
C-MDJNR-2525P11	C-MDJNL-2525P11	DNGN-110308	25	25	170	25	32	DSN-333	S-34M	CLM-7	STCM-25	TK-02788	NLM-34L	CLM-6
C-MDJNR-3232P11	C-MDJNL-3232P11	DNGN-110308	32	32	170	25	40	DSN-333	S-34M	CLM-7	STCM-25	TK-02788	NLM-34L	CLM-6
C-MDJNR-2525M15	C-MDJNL-2525M15	DNGN-150408	25	25	150	32	32	DSN-433	S-46M	CLM-22	STCM-26	TK-02789	NLM-46	CLM-20
C-MDJNR-2525P15	C-MDJNL-2525P15	DNGN-150408	25	25	170	32	32	DSN-433	S-46M	CLM-22	STCM-26	TK-02789	NLM-46	CLM-20
C-MDJNR-3232P15	C-MDJNL-3232P15	DNGN-150408	32	32	170	32	40	DSN-433	S-46M	CLM-22	STCM-26	TK-02789	NLM-46	CLM-20
C-MDJNR-4040R15	C-MDJNL-4040R15	DNGN-150408	40	40	200	32	50	DSN-433	S-46M	CLM-22	STCM-26	TK-02789	NLM-46	CLM-20

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MDPNN

Style P / 55° Diamond / Negative Rake / 62,5° Lead Angle



Neutral Toolholder Shown

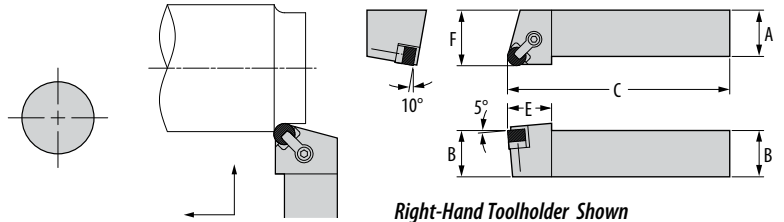
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand		A	B	C	E	F							
C-MDPNN-2525M11		DNGN-110308	25	25	150	40	12,5	DSN-333	S-34M	CLM-12	STCM-4	TK-02785	NLM-34L	CLM-9
C-MDPNN-2525P11		DNGN-110308	25	25	170	40	12,5	DSN-333	S-34M	CLM-12	STCM-4	TK-02785	NLM-34L	CLM-9
C-MDPNN-3232P11		DNGN-110308	32	32	170	40	16	DSN-333	S-34M	CLM-12	STCM-4	TK-02785	NLM-34L	CLM-9
C-MDPNN-2525M15		DNGN-150408	25	25	150	41	12,5	DSN-433	S-46M	CLM-30	STCM-4	TK-02786	NLM-46L	CLM-12
C-MDPNN-2525P15		DNGN-150408	25	25	170	41	12,5	DSN-433	S-46M	CLM-30	STCM-4	TK-02786	NLM-46L	CLM-12
C-MDPNN-3232P15		DNGN-150408	32	32	170	41	16	DSN-433	S-46M	CLM-30	STCM-4	TK-02786	NLM-46L	CLM-12
C-MDPNN-4040R15		DNGN-150408	40	40	200	41	20	DSN-433	S-46M	CLM-30	STCM-4	TK-02786	NLM-46L	CLM-12









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CERAMIC INSERTS

C-MRGNR/L

Style G / Round / Negative Rake

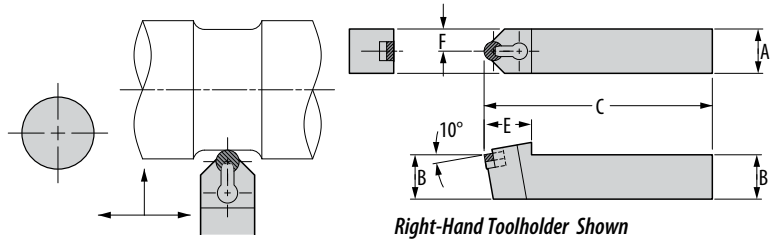










Part Number		Gage 	Dimensions (mm)					Standard Components				*Tune-Up Kit	Opt. Components #1		Opt. Components #2	
Right Hand	Left Hand		A	B	C	E	F								Insert Thickness	
C-MRGNR-2525M09	C-MRGNL-2525M09	RNGN-090400	25	25	150	25	32	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRGNR-2525P09	C-MRGNL-2525P09	RNGN-090400	25	25	170	25	32	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRGNR-3232P09	C-MRGNL-3232P09	RNGN-090400	32	32	170	25	40	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRGNR-2525M12	C-MRGNL-2525M12	RNGN-120700	25	25	150	30	32	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRGNR-2525P12	C-MRGNL-2525P12	RNGN-120700	25	25	170	30	32	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRGNR-3232P12	C-MRGNL-3232P12	RNGN-120700	32	32	170	30	40	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRGNR-4040R12	C-MRGNL-4040R12	RNGN-120700	40	40	200	30	50	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRGNR-2525M19	C-MRGNL-2525M19	RNGN-190700	25	25	150	38	32	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRGNR-2525P19	C-MRGNL-2525P19	RNGN-190700	25	25	170	38	32	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRGNR-3232P19	C-MRGNL-3232P19	RNGN-190700	32	32	170	38	40	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRGNR-4040R19	C-MRGNL-4040R19	RNGN-190700	40	40	200	38	50	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MRDNN

Style D / Round / Negative Rake



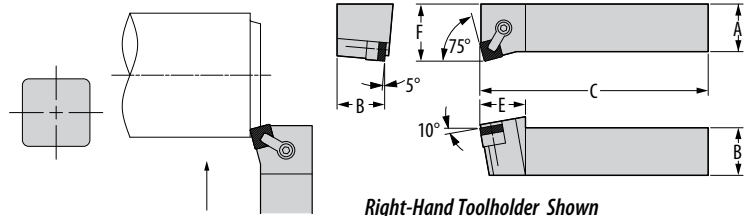
Part Number		Gage 	Dimensions (mm)					Standard Components				*Tune-Up Kit	Opt. Components #1		Opt. Components #2	
Neutral			A	B	C	E	F								Insert Thickness	
C-MRDNN-2525M09		RNGN-090400	25	25	150	25	12,5	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRDNN-2525P09		RNGN-090400	25	25	170	25	12,5	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRDNN-3232P09		RNGN-090400	32	32	170	25	16	RSN-32	S-34M	CLM-7	STCM-25	TK-02790	NLM-34L	CLM-6	3,18	RSN-33
C-MRDNN-2525M12		RNGN-120700	25	25	150	35	12,5	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRDNN-2525P12		RNGN-120700	25	25	170	35	12,5	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRDNN-3232P12		RNGN-120700	32	32	170	35	16	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRDNN-4040R12		RNGN-120700	40	40	200	35	20	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	4,75	IRSN-45
C-MRDNN-2525M19		RNGN-190700	25	25	150	40	12,5	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRDNN-2525P19		RNGN-190700	25	25	170	40	12,5	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRDNN-3232P19		RNGN-190700	32	32	170	40	16	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—
C-MRDNN-4040R19		RNGN-190700	40	40	200	40	20	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	NLM-68L	CLM-12	—	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-MSKNR/L

Style K / Square / Negative Rake / 75° Lead Angle



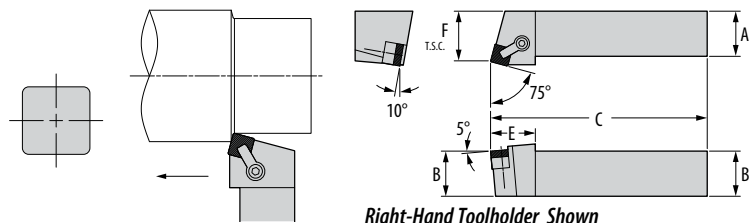
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	Shim Seat	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp	5/16" Insert Shim Seat
C-MSKNR-2525M12	C-MSKNL-2525M12	SNGN-120408	25	25	150	31	32	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSKNR-2525P12	C-MSKNL-2525P12	SNGN-120408	25	25	170	31	32	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSKNR-3232P12	C-MSKNL-3232P12	SNGN-120408	32	32	170	31	40	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSKNR-3232P15	C-MSKNL-3232P15	SNGN-150612	32	32	170	36	40	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSKNR-4040R15	C-MSKNL-4040R15	SNGN-150612	40	40	200	36	50	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSKNR-3232P19	C-MSKNL-3232P19	SNGN-190612	32	32	170	40	40	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623
C-MSKNR-4040R19	C-MSKNL-4040R19	SNGN-190612	40	40	200	40	50	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.
 ** The lock pin option can NOT be used with this shim.

C-MSRNR/L

Style R / Square / Negative Rake / 75° Lead Angle



Right-Hand Toolholder Shown

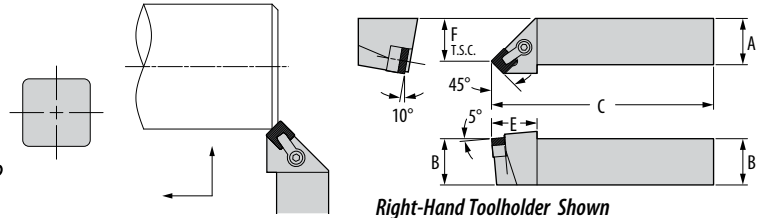
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	Shim Seat	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp	5/16" Insert Shim Seat
C-MSRNR-2525M12	C-MSRNL-2525M12	SNGN-120408	25	25	150	31	28	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSRNR-2525P12	C-MSRNL-2525P12	SNGN-120408	25	25	170	31	28	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSRNR-3232P12	C-MSRNL-3232P12	SNGN-120408	32	32	170	31	39	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSRNR-3232P15	C-MSRNL-3232P15	SNGN-150612	32	32	170	37	34	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSRNR-4040R15	C-MSRNL-4040R15	SNGN-150612	40	40	200	37	47	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSRNR-3232P19	C-MSRNL-3232P19	SNGN-190612	32	32	170	40	33	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623
C-MSRNR-4040R19	C-MSRNL-4040R19	SNGN-190612	40	40	200	40	46	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.
 ** The lock pin option can NOT be used with this shim.

TB – TOOLHOLDERS FOR CERAMIC INSERTS

C-MSSNR/L

Style S / Square / Negative Rake / 45° Lead Angle



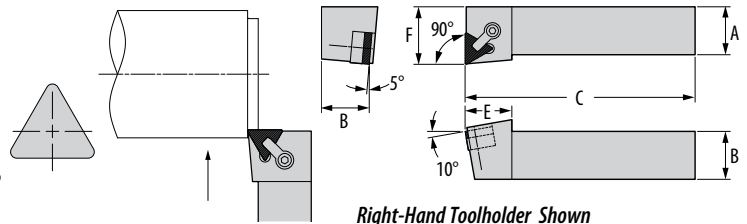
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
C-MSSNR-2525M12	C-MSSNL-2525M12	SNGN-120408	25	25	150	31	23	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSSNR-2525P12	C-MSSNL-2525P12	SNGN-120408	25	25	170	31	23	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSSNR-3232P12	C-MSSNL-3232P12	SNGN-120408	32	32	170	31	29	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
C-MSSNR-3232P15	C-MSSNL-3232P15	SNGN-150612	32	32	170	35	27	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSSNR-4040R15	C-MSSNL-4040R15	SNGN-150612	40	40	200	35	40	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9	—
C-MSSNR-3232P19	C-MSSNL-3232P19	SNGN-190612	32	32	170	38	25	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623
C-MSSNR-4040R19	C-MSSNL-4040R19	SNGN-190612	40	40	200	38	40	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12	**ISSN-623

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

** The lock pin option can NOT be used with this shim.

C-MTFNR/L

Style F / Triangle / Negative Rake / 90° Lead Angle



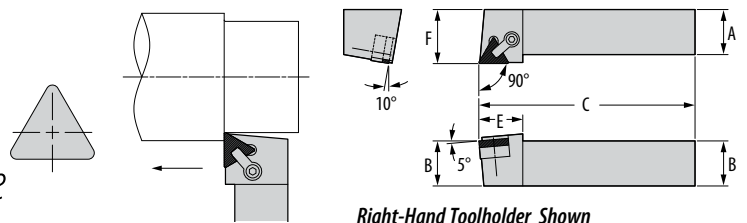
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
C-MTFNR-2525M16	C-MTFNL-2525M16	TNGN-160408	25	25	150	24	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTFNR-2525P16	C-MTFNL-2525P16	TNGN-160408	25	25	170	24	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTFNR-3232P16	C-MTFNL-3232P16	TNGN-160408	32	32	170	24	40	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTFNR-2525M22	C-MTFNL-2525M22	TNGN-220408	25	25	150	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTFNR-2525P22	C-MTFNL-2525P22	TNGN-220408	25	25	170	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTFNR-3232P22	C-MTFNL-3232P22	TNGN-220408	32	32	170	30	40	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTFNR-4040R22	C-MTFNL-4040R22	TNGN-220408	40	40	200	30	50	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MTGNR/L

Style G / Triangle / Negative Rake / 90° Lead Angle



Right-Hand Toolholder Shown

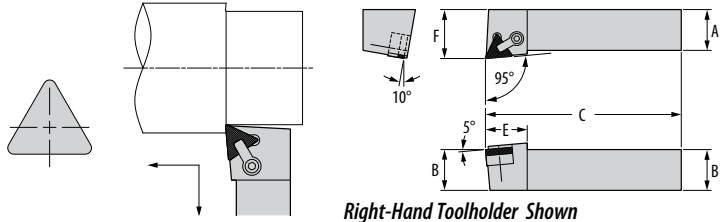
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
C-MTGNR-2525M16	C-MTGNL-2525M16	TNGN-160408	25	25	150	28	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTGNR-2525P16	C-MTGNL-2525P16	TNGN-160408	25	25	170	28	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTGNR-3232P16	C-MTGNL-3232P16	TNGN-160408	32	32	170	28	40	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTGNR-2525M22	C-MTGNL-2525M22	TNGN-220408	25	25	150	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTGNR-2525P22	C-MTGNL-2525P22	TNGN-220408	25	25	170	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTGNR-3232P22	C-MTGNL-3232P22	TNGN-220408	32	32	170	30	40	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTGNR-4040R22	C-MTGNL-4040R22	TNGN-220408	40	40	200	30	50	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-MTLNR/L

Style L / Triangle / Negative Rake / 95° Lead Angle

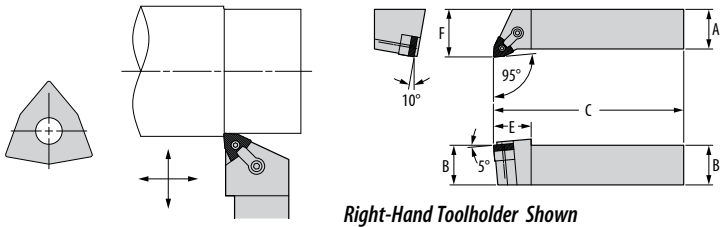







Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
C-MTLNR-2525M16	C-MTLNL-2525M16	TNGN-160408	25	25	150	28	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTLNR-2525P16	C-MTLNL-2525P16	TNGN-160408	25	25	170	28	32	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTLNR-3232P16	C-MTLNL-3232P16	TNGN-160408	32	32	170	28	40	ITSN-322	S-34M	CLM-7	STCM-25	TK-02809	NLM-34L	CLM-6	—
C-MTLNR-2525M22	C-MTLNL-2525M22	TNGN-220408	25	25	150	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTLNR-2525P22	C-MTLNL-2525P22	TNGN-220408	25	25	170	30	32	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTLNR-3232P22	C-MTLNL-3232P22	TNGN-220408	32	32	170	30	40	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433
C-MTLNR-4040R22	C-MTLNL-4040R22	TNGN-220408	40	40	200	30	50	ITSN-453	S-46M	CLM-12	STCM-4	TK-02810	NLM-46L	CLM-9	ITSN-433

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-MWLNR/L

Style L / Trigon / Negative Rake / 95° Lead Angle



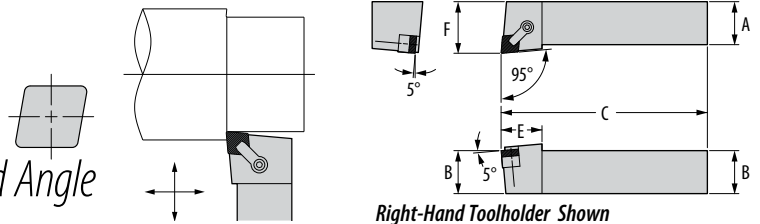
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-MWLNR-2020M06	C-MWLNL-2020M06	WNGA-060408	20	20	150	25	25	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
C-MWLNR-2525M06	C-MWLNL-2525M06	WNGA-060408	25	25	150	25	32	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
C-MWLNR-3232P06	C-MWLNL-3232P06	WNGA-060408	32	32	170	25	40	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
C-MWLNR-4040R06	C-MWLNL-4040R06	WNGA-060408	40	40	200	25	50	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
C-MWLNR-2020M08	C-MWLNL-2020M08	WNGA-080408	20	20	150	27	25	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
C-MWLNR-2525M08	C-MWLNL-2525M08	WNGA-080408	25	25	150	27	32	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
C-MWLNR-3232P08	C-MWLNL-3232P08	WNGA-080408	32	32	170	27	40	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
C-MWLNR-4040R08	C-MWLNL-4040R08	WNGA-080408	40	40	200	27	50	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.









TB — TOOLHOLDERS FOR CERAMIC INSERTS

H-MCLNR/L

Style L / 80° Diamond / Negative Rake / 95° Lead Angle



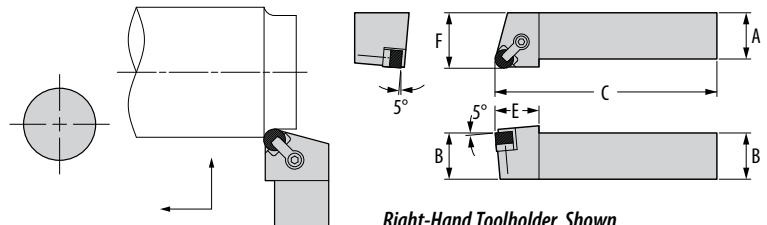
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
H-MCLNR-2525M12	H-MCLNL-2525M12	CNGN-120408	25	25	150	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
H-MCLNR-2525P12	H-MCLNL-2525P12	CNGN-120408	25	25	170	30	32	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433
H-MCLNR-3232P12	H-MCLNL-3232P12	CNGN-120408	32	32	170	30	40	CSN-453	S-46M	CLM-12	STCM-4	TK-02750	NLM-46L	CLM-9	CSN-433









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

H-MRGNR/L

Style G / Round / Negative Rake



Right-Hand Toolholder Shown

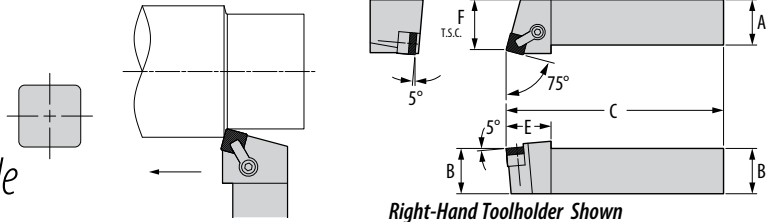
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F								
H-MRGNR-2525M12	H-MRGNL-2525M12	RNGN-120700	25	25	150	30	32	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	IRSN-45
H-MRGNR-2525P12	H-MRGNL-2525P12	RNGN-120700	25	25	170	30	32	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	IRSN-45
H-MRGNR-3232P12	H-MRGNL-3232P12	RNGN-120700	32	32	170	30	40	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	IRSN-45
H-MRGNR-4040R12	H-MRGNL-4040R12	RNGN-120700	40	40	200	30	50	IRSN-43	S-46M	CLM-12	STCM-4	TK-02791	NLM-46L	CLM-9	IRSN-45









* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

*These toolholders are for hard turning
with ceramic inserts
using industry standard components.*

H-MSRNR/L

Style R / Square / Negative Rake / 75° Lead Angle

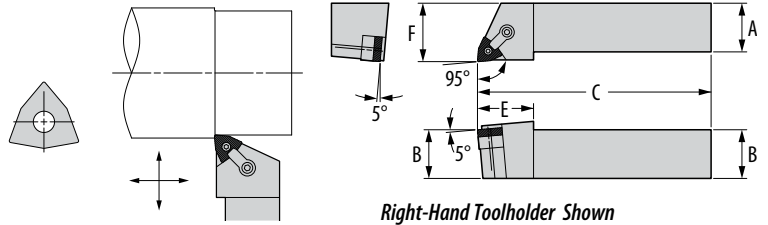







Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand		A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw		 Lock Pin	 Clamp	 5/16" Insert Shim Seat
H-MSRNR-2525M12	H-MSRNL-2525M12	SNGN-120408	25	25	150	31	28	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
H-MSRNR-2525P12	H-MSRNL-2525P12	SNGN-120408	25	25	170	31	28	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433
H-MSRNR-3232P12	H-MSRNL-3232P12	SNGN-120408	32	32	170	31	35	ISSN-453	S-46M	CLM-12	STCM-4	TK-02793	NLM-46L	CLM-9	ISSN-433

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

H-MWLNR/L

Style L / Trigon / Negative Rake / 95° Lead Angle



Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw	
H-MWLNR-2020M06	H-MWLNL-2020M06	WNGA-060408	20	20	150	25	25	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
H-MWLNR-2525M06	H-MWLNL-2525M06	WNGA-060408	25	25	150	25	32	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
H-MWLNR-3232P06	H-MWLNL-3232P06	WNGA-060408	32	32	170	25	40	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
H-MWLNR-4040R06	H-MWLNL-4040R06	WNGA-060408	40	40	200	25	50	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
H-MWLNR-2020M08	H-MWLNL-2020M08	WNGA-080408	20	20	150	27	25	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
H-MWLNR-2525M08	H-MWLNL-2525M08	WNGA-080408	25	25	150	27	32	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
H-MWLNR-3232P08	H-MWLNL-3232P08	WNGA-080408	32	32	170	27	40	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812
H-MWLNR-4040R08	H-MWLNL-4040R08	WNGA-080408	40	40	200	27	50	IWSN-453	NLM-46L	CLM-20	STCM-26	TK-02812

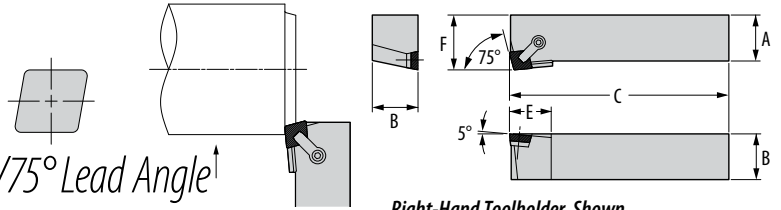
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

These toolholders are for hard turning with ceramic inserts using industry standard components.






TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-CCKPR/L

Style K / 80° Diamond (Using 100° Corner) / Positive Rake / 75° Lead Angle¹



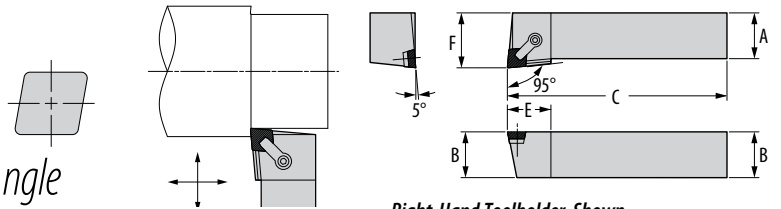
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CCKPR-2525M12	C-CCKPL-2525M12	CPGN-120408	25	25	150	30	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCKPR-2525P12	C-CCKPL-2525P12	CPGN-120408	25	25	170	30	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCKPR-3232P12	C-CCKPL-3232P12	CPGN-120408	32	32	170	30	40	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779






* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CCLPR/L

Style L / 80° Diamond / Positive Rake / 95° Lead Angle



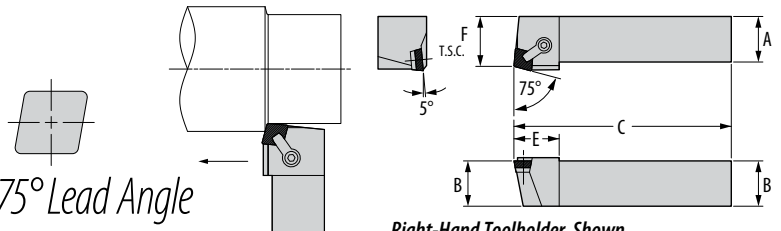
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CCLPR-2525M12	C-CCLPL-2525M12	CPGN-120408	25	25	150	30	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCLPR-2525P12	C-CCLPL-2525P12	CPGN-120408	25	25	170	30	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCLPR-3232P12	C-CCLPL-3232P12	CPGN-120408	32	32	170	30	40	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779






* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CCRPR/L

Style R / 80° Diamond (Using 100° Corner) / Positive Rake / 75° Lead Angle



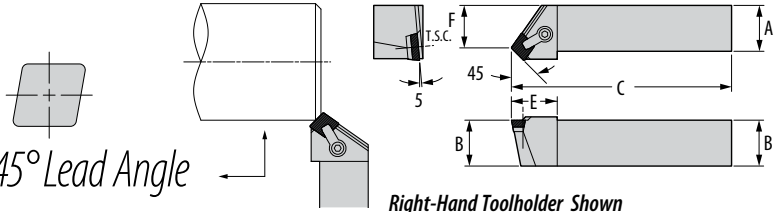
Right-Hand Toolholder Shown






Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CCRPR-2525M12	C-CCRPL-2525M12	CPGN-120408	25	25	150	32	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCRPR-2525P12	C-CCRPL-2525P12	CPGN-120408	25	25	170	32	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCRPR-3232P12	C-CCRPL-3232P12	CPGN-120408	32	32	170	32	40	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CCSPR/L

Style S / 80° Diamond (Using 100° Corner) / Positive Rake / 45° Lead Angle

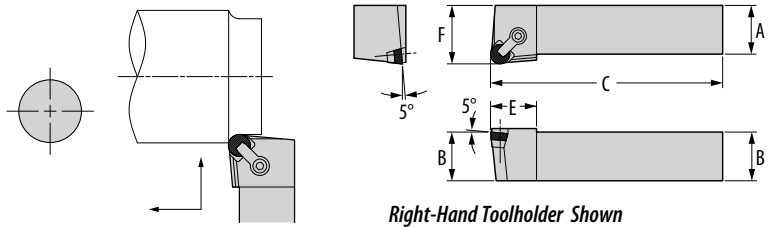







Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CCSPR-2525M12	C-CCSPL-2525M12	CPGN-120408	25	25	150	32	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCSPR-2525P12	C-CCSPL-2525P12	CPGN-120408	25	25	170	32	32	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
C-CCSPR-3232P12	C-CCSPL-3232P12	CPGN-120408	32	32	170	32	40	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CRGPR/L

Style G / Round / Positive Rake



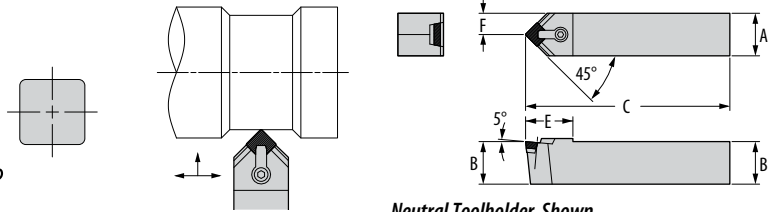
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CRGPR-2525M09	C-CRGPL-2525M09	RPGN-090300	25	25	150	25	32	SP-34	TSHCSM2-0.4x6mm	CLM-7	STCM-25	TK-02813
C-CRGPR-2525P09	C-CRGPL-2525P09	RPGN-090300	25	25	170	25	32	SP-34	TSHCSM2-0.4x6mm	CLM-7	STCM-25	TK-02813
C-CRGPR-3232P09	C-CRGPL-3232P09	RPGN-090300	32	32	170	25	40	SP-34	TSHCSM2-0.4x6mm	CLM-7	STCM-25	TK-02813
C-CRGPR-2525M12	C-CRGPL-2525M12	RPGN-120400	25	25	150	30	32	SP-44	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02814
C-CRGPR-2525P12	C-CRGPL-2525P12	RPGN-120400	25	25	170	30	32	SP-44	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02814
C-CRGPR-3232P12	C-CRGPL-3232P12	RPGN-120400	32	32	170	30	40	SP-44	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02814
C-CRGPR-4040R12	C-CRGPL-4040R12	RPGN-120400	40	40	200	30	50	SP-44	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02814

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.






TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-CSDPN

Style D / Square / Positive Rake / 45° Lead Angle



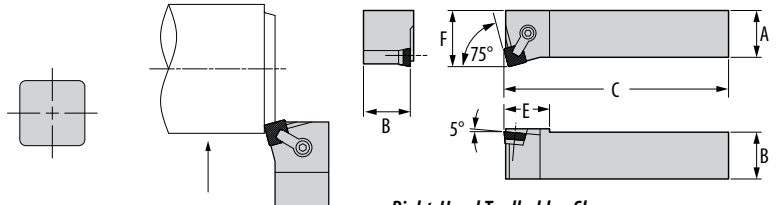
Neutral Toolholder Shown

Part Number		Gage	Dimensions (mm)					Standard Components				*Tune-Up Kit
Neutral		 Inserts	A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw	
C-CSDPN-2525M12		SPGN-120408	25	25	150	35	12,5	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSDPN-2525P12		SPGN-120408	25	25	170	35	12,5	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSDPN-3232P12		SPGN-120408	32	32	170	35	16	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780






* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CSKPR/L

Style K / Square / Positive Rake / 75° Lead Angle



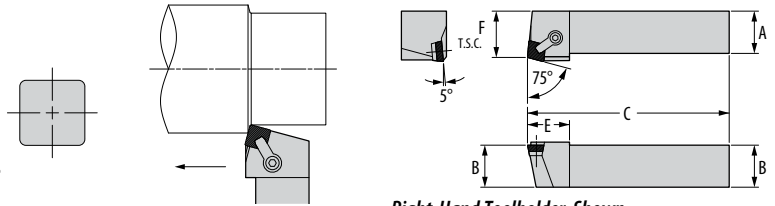
Right-Hand Toolholder Shown

Part Number		Gage	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand	 Inserts	A	B	C	E	F	 Shim Seat	 Seat Screw	 Clamp	 Clamp Screw	
C-CSKPR-2525M12	C-CSKPL-2525M12	SPGN-120408	25	25	150	31	32	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSKPR-2525P12	C-CSKPL-2525P12	SPGN-120408	25	25	170	31	32	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSKPR-3232P12	C-CSKPL-3232P12	SPGN-120408	32	32	170	31	40	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780






* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CSRPR/L

Style R / Square / Positive Rake / 75° Lead Angle



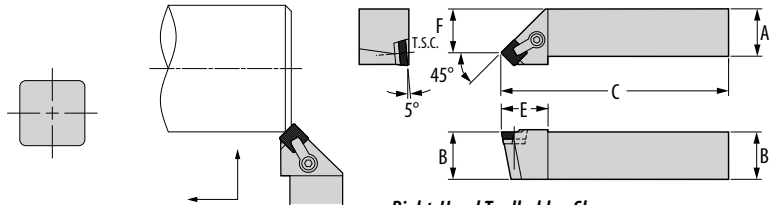
Right-Hand Toolholder Shown

Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CSRPR-2525M12	C-CSRPL-2525M12	SPGN-120408	25	25	150	31	28	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSRPR-2525P12	C-CSRPL-2525P12	SPGN-120408	25	25	170	31	28	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSRPR-3232P12	C-CSRPL-3232P12	SPGN-120408	32	32	170	31	35	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780






* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CSSPR/L

Style S / Square / Positive Rake / 45° Lead Angle



Right-Hand Toolholder Shown

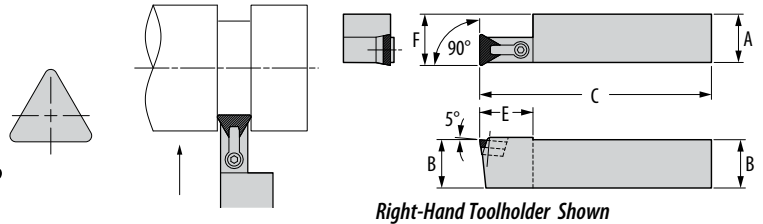
Part Number		Gage  Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CSSPR-2525M12	C-CSSPL-2525M12	SPGN-120408	25	25	150	31	23	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSSPR-2525P12	C-CSSPL-2525P12	SPGN-120408	25	25	170	31	23	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
C-CSSPR-3232P12	C-CSSPL-3232P12	SPGN-120408	32	32	170	31	29	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CERAMIC INSERTS

C-CTCPR/L

Style C / Triangle / Positive Rake / 90° Lead Angle



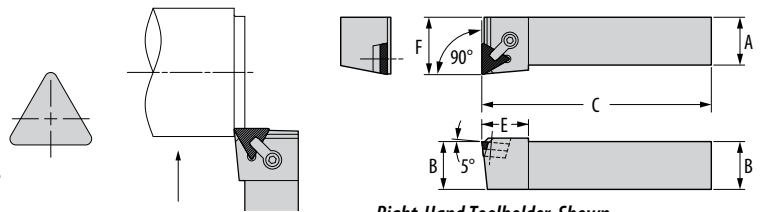
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CTCPR-2525M16	C-CTCPL-2525M16	TPGN-160308	25	25	150	29	26,2	SP3A	TFHCSM3-0.5x10mm	CLM-22	STCM-26	TK-02815
C-CTCPR-2525P16	C-CTCPL-2525P16	TPGN-160308	25	25	170	29	26,2	SP3A	TFHCSM3-0.5x10mm	CLM-22	STCM-26	TK-02815
C-CTCPR-3232P16	C-CTCPL-3232P16	TPGN-160308	32	32	170	29	33,2	SP3A	TFHCSM3-0.5x10mm	CLM-22	STCM-26	TK-02815
C-CTCPR-2525M22	C-CTCPL-2525M22	TPGN-220408	25	25	150	35	27	SP-4	TFHCSM3-0.5x12mm	CLM-30	STCM-4	TK-02816
C-CTCPR-2525P22	C-CTCPL-2525P22	TPGN-220408	25	25	170	35	27	SP-4	TFHCSM3-0.5x12mm	CLM-30	STCM-4	TK-02816
C-CTCPR-3232P22	C-CTCPL-3232P22	TPGN-220408	32	32	170	35	34	SP-4	TFHCSM3-0.5x12mm	CLM-30	STCM-4	TK-02816
C-CTCPR-4040R22	C-CTCPL-4040R22	TPGN-220408	40	40	200	35	42	SP-4	TFHCSM3-0.5x12mm	CLM-30	STCM-4	TK-02816

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CTFPR/L

Style F / Triangle / Positive Rake / 90° Lead Angle



Right-Hand Toolholder Shown

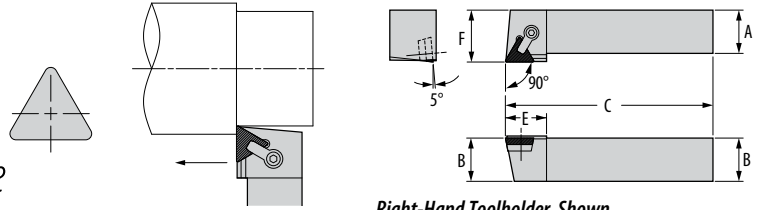
Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CTFPR-2525M16	C-CTFPL-2525M16	TPGN-160308	25	25	150	24	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTFPR-2525P16	C-CTFPL-2525P16	TPGN-160308	25	25	170	24	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTFPR-3232P16	C-CTFPL-3232P16	TPGN-160308	32	32	170	24	40	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTFPR-2525M22	C-CTFPL-2525M22	TPGN-220408	25	25	150	31	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTFPR-2525P22	C-CTFPL-2525P22	TPGN-220408	25	25	170	31	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTFPR-3232P22	C-CTFPL-3232P22	TPGN-220408	32	32	170	31	40	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTFPR-4040R22	C-CTFPL-4040R22	TPGN-220408	40	40	200	31	50	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB – TOOLHOLDERS FOR CERAMIC INSERTS

C-CTGPR/L

Style G / Triangle / Positive Rake / 90° Lead Angle



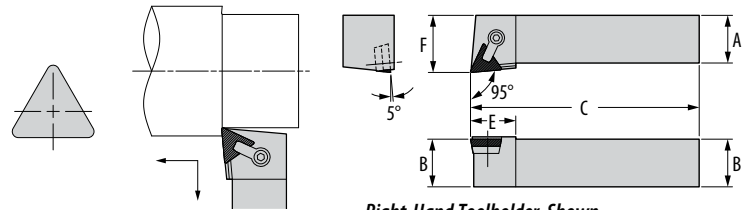
Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CTGPR-2525M16	C-CTGPL-2525M16	TPGN-160308	25	25	150	28	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTGPR-2525P16	C-CTGPL-2525P16	TPGN-160308	25	25	170	28	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTGPR-3232P16	C-CTGPL-3232P16	TPGN-160308	32	32	170	28	40	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTGPR-2525M22	C-CTGPL-2525M22	TPGN-220408	25	25	150	30	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTGPR-2525P22	C-CTGPL-2525P22	TPGN-220408	25	25	170	30	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTGPR-3232P22	C-CTGPL-3232P22	TPGN-220408	32	32	170	30	40	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTGPR-4040R22	C-CTGPL-4040R22	TPGN-220408	40	40	200	30	50	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

C-CTLPR/L

Style F / Triangle / Positive Rake / 95° Lead Angle

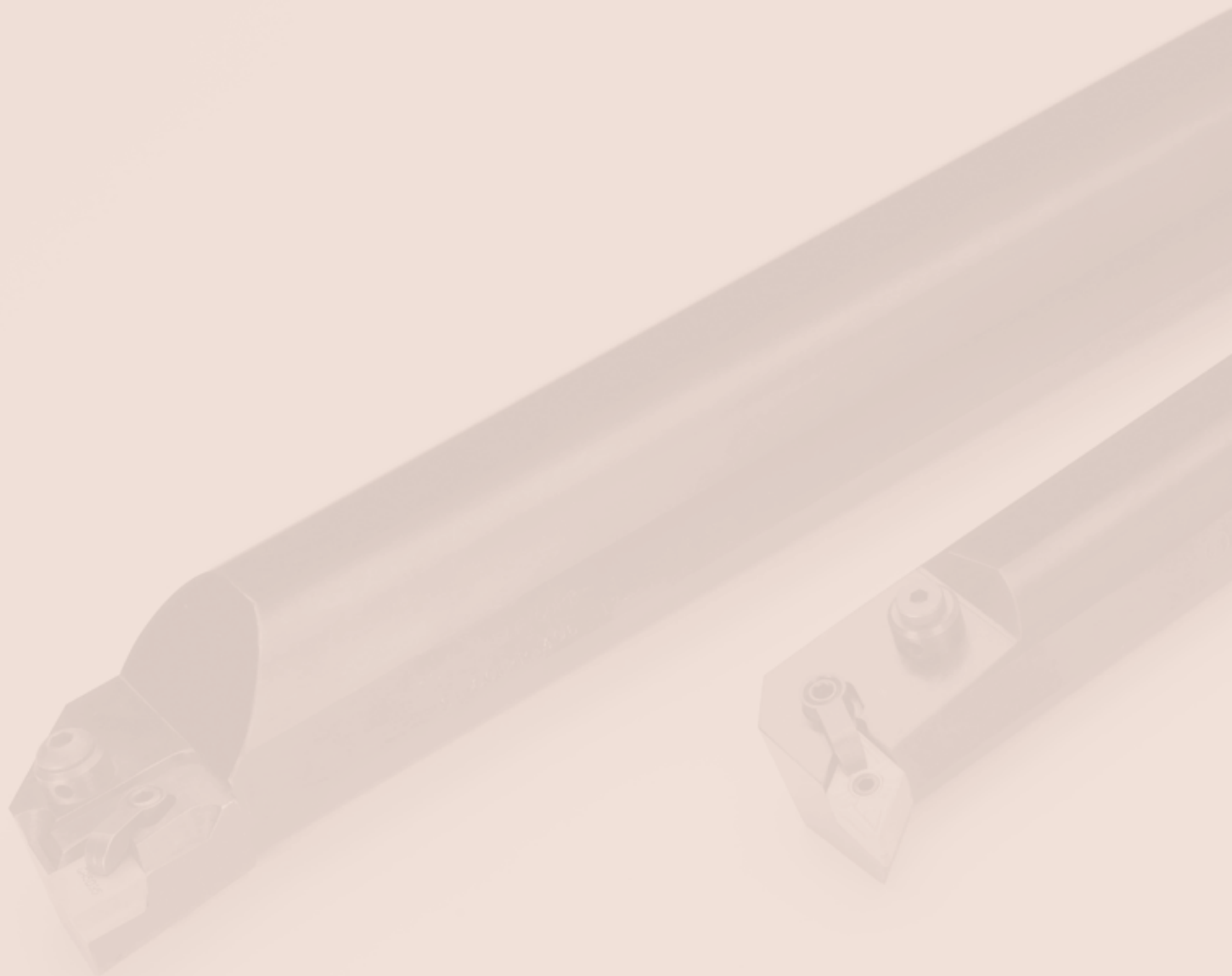


Right-Hand Toolholder Shown

Part Number		Gage Inserts	Dimensions (mm)					Standard Components				*Tune-Up Kit
Right Hand	Left Hand		A	B	C	E	F					
C-CTLPR-2525M16	C-CTLPL-2525M16	TPGN-160308	25	25	150	28	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTLPR-2525P16	C-CTLPL-2525P16	TPGN-160308	25	25	170	28	32	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTLPR-3232P16	C-CTLPL-3232P16	TPGN-160308	32	32	170	28	40	SP3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
C-CTLPR-2525M22	C-CTLPL-2525M22	TPGN-220408	25	25	150	30	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTLPR-2525P22	C-CTLPL-2525P22	TPGN-220408	25	25	170	30	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTLPR-3232P22	C-CTLPL-3232P22	TPGN-220408	32	32	170	30	40	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818
C-CTLPR-4040R22	C-CTLPL-4040R22	TPGN-220408	40	40	200	30	50	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

TB — TOOLHOLDERS FOR CERAMIC INSERTS



Industry-Standard Boring Bars for Carbide Inserts

The boring bar systems and cartridges in this catalog are designed around industry standard hardware. This gives complete interchangeability with other tooling components and minimizes spare parts inventories.

Most bars incorporate “through the bar” coolant feed with directable outlet nozzle.

Greenleaf uses heat-treated alloy steel to ensure a consistent, high-quality product for maximum life performance.

Custom engineered tooling is a Greenleaf specialty and we will be pleased to quote your special requirements for boring. Additionally, Greenleaf has the capability to quote boring bars made of heavy metal shanks or “No-Chat” material.

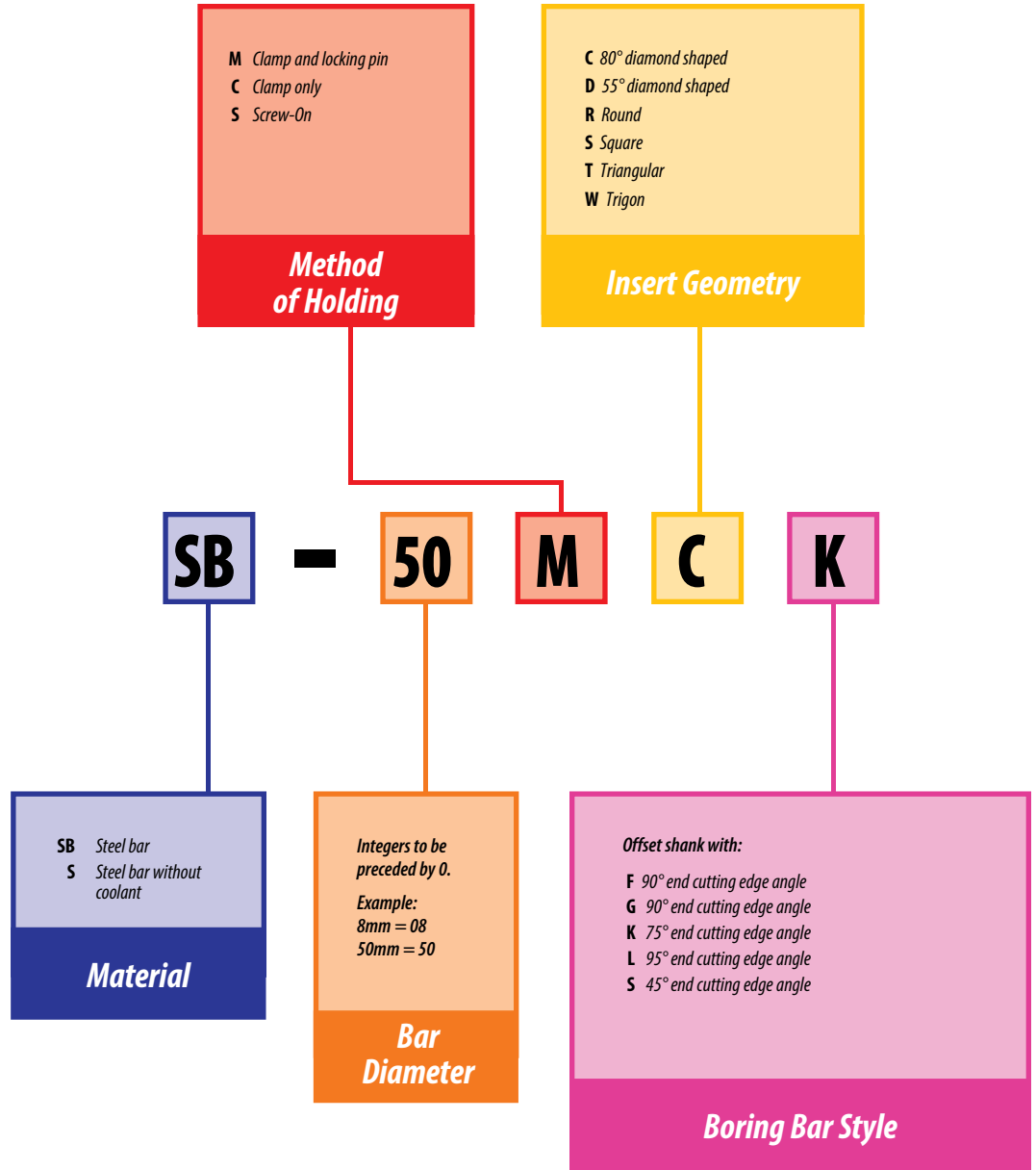
Greenleaf Tune-Up Kits

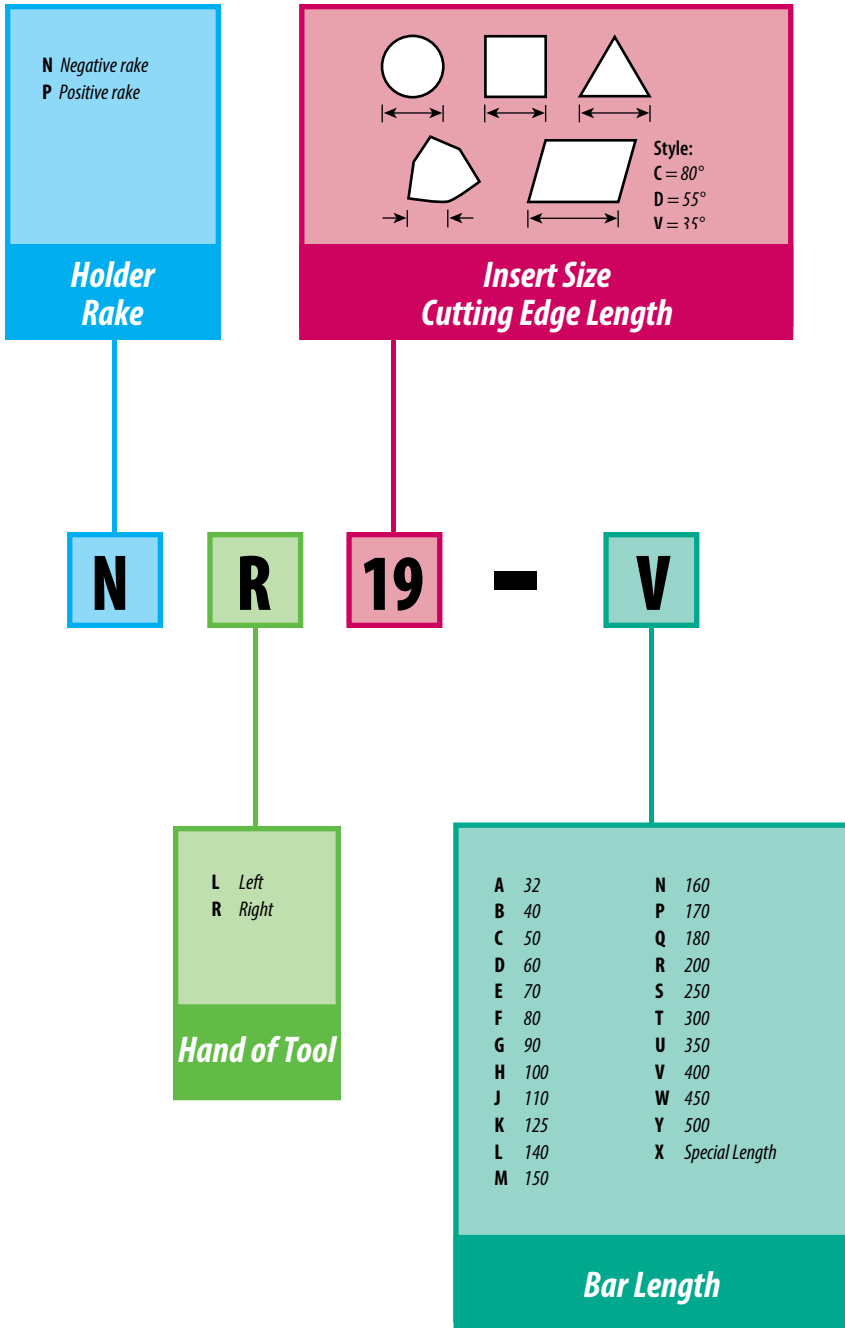
A Tune-Up Kit consists of all the standard hardware to refurbish a particular toolholder, boring bar, or milling cutter. A toolholder will have a readily visible, laser-inscribed Tune-Up Kit number on it for ease in ordering. This number will prevent any confusion created by searching a catalog for hardware, and it will help reduce downtime.



Boring Bar Identification System

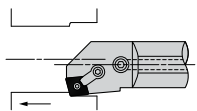
BORING BARS – FOR CARBIDE INSERTS





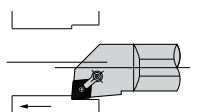
Pictorial Index

80° Diamond – Negative



SB-MCKNR/L

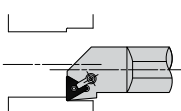
Style K
80° Diamond
(Using 100° Corner)
Negative Rake
75° Lead Angle
page: T 114



SB-MCLNR/L

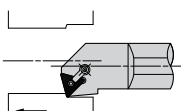
Style L
80° Diamond
Negative Rake
95° Lead Angle
page: T 114

Triangle – Negative



SB-MTFNR/L

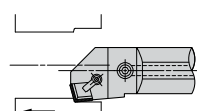
Style F
Triangle
Negative Rake
90° Lead Angle
page: T 117



SB-MTKNR/L

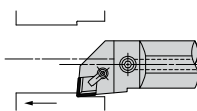
Style K
Triangle
Negative Rake
75° Lead Angle
page: T 117

80° Diamond – Positive



SB-CCKPR/L

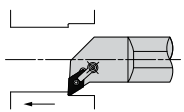
Style K
80° Diamond
(Using 100° Corner)
Positive Rake
75° Lead Angle
page: T 119



SB-CCLPR/L

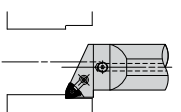
Style L
80° Diamond
Positive Rake
95° Lead Angle
page: T 119

55° Diamond – Negative



SB-MDUNR/L

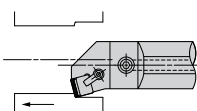
Style U
55° Diamond
Negative Rake
93° Lead Angle
page: T 115



SB-MWLNR/L

Style L
80° Trigon
Negative Rake
95° Lead Angle
page: T 118

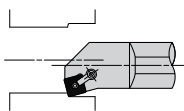
Square – Positive



SB-CSKPR/L

Style K
Square
Positive Rake
75° Lead Angle
page: T 120

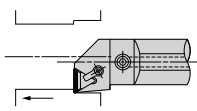
Square – Negative



SB-MSKNR/L

Style K
Square
Negative Rake
75° Lead Angle
page: T 116

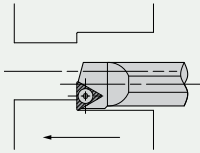
Triangle – Positive



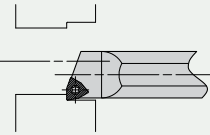
SB-CTFPR/L

Style F
Triangle
Positive Rake
90° Lead Angle
page: T 121

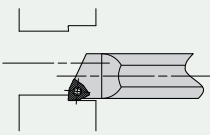
Screw-On



S-STFNR/L
 Style F
 Triangle
 Positive Rake
 90° Lead Angle
page: T 121



C-SWFCR/L
 Style F
 Screw-On Trigon
 Solid Steel
 90° Lead Angle
page: T 122

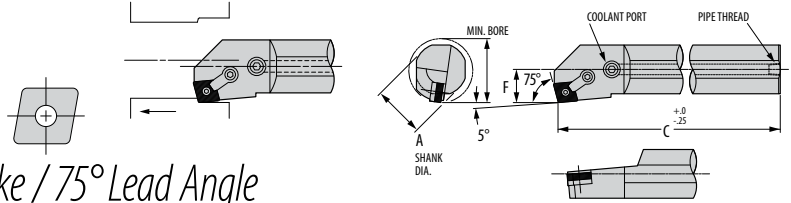


S-SWLCR/L
 Style L
 Screw-On Trigon
 Solid Steel
 95° Lead Angle
page: T 123

These Boring Bars do not follow the Boring Bar Identification System.

SB-MCKNR/L

Style K / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead Angle



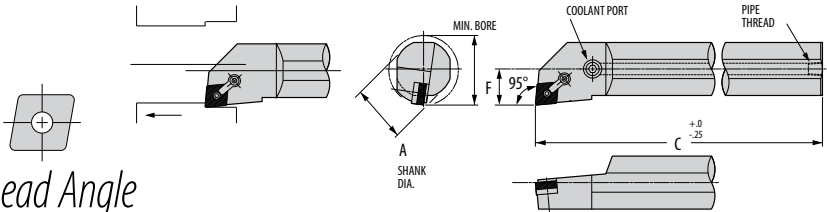
Right-Hand Boring Bar Shown

Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F	Clamp	Clamp Screw	Shim	Lock Pin		Shim Screw	Shim
SB25-MCKNR-12T	SB25-MCKNL-12T	CNGA-120408	32	25	300	17	CLM-20	STCM-11	—	NLM-44	TK-02796	—	—
SB32-MCKNR-12U	SB32-MCKNL-12U	CNGA-120408	38	32	350	20	CLM-20	STCM-11	CSNB-433	NLM-46S	TK-02797	S-46MS	—
SB40-MCKNR-12U	SB40-MCKNL-12U	CNGA-120408	44	40	350	23	CLM-20	STCM-11	CSN-432	NLM-46	TK-02798	S-46MS	—
SB50-MCKNR-19V	SB50-MCKNL-19V	CNGA-190612	63	50	400	33	CLM-12	STCM-4	CSN-633	NLM-68	TK-02721	S-68MS	CSN-642

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

SB-MCLNR/L

Style L / 80° Diamond / Negative Rake / 95° Lead Angle



Right-Hand Boring Bar Shown

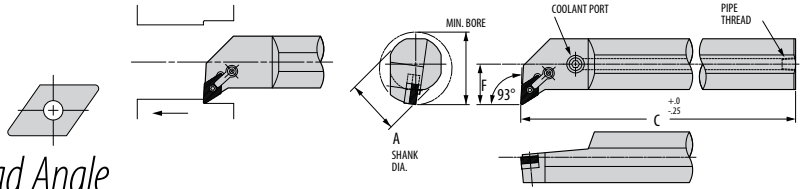
Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F	Clamp	Clamp Screw	Shim	Lock Pin		Shim Screw	Shim
SB25-MCLNR-12T	SB25-MCLNL-12T	CNGA-120408	32	25	300	17	CLM-20	STCM-11	—	NLM-44	TK-02796	—	—
SB32-MCLNR-12U	SB32-MCLNL-12U	CNGA-120408	38	32	350	20	CLM-20	STCM-11	CSNB-433	NLM-46S	TK-02797	S-46MS	—
SB40-MCLNR-12U	SB40-MCLNL-12U	CNGA-120408	44	40	350	23	CLM-20	STCM-11	CSN-432	NLM-46	TK-02798	S-46MS	—
SB50-MCLNR-19V	SB50-MCLNL-19V	CNGA-190612	63	50	400	33	CLM-12	STCM-4	CSN-633	NLM-68	TK-02721	S-68MS	CSN-642

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.







BORING BARS — FOR CARBIDE INSERTS

SB-MDUNR/L

Style U / 55° Diamond / Negative Rake / 93° Lead Angle



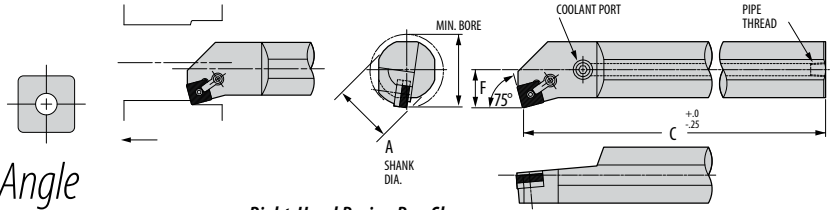
Right-Hand Boring Bar Shown

Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components
Right Hand	Left Hand			A	C	F	 Clamp	 Clamp Screw	 Shim	 Lock Pin		 Shim Screw
SB32-MDUNR-15U	SB32-MDUNR-15L	DNGA-150408	50	32	350	25	CLM-12	STCM-4	DSN-433	NLM-46	TK-02725	S-46MS
SB40-MDUNR-15U	SB40-MDUNR-15L	DNGA-150408	58	40	350	29	CLM-12	STCM-4	DSN-433	NLM-46	TK-02725	S-46MS
SB50-MDUNR-19V	SB50-MDUNR-19L	DNGA-190612	76	50	400	38	CLM-30	STCM-4	DSN-533	NLM-58	TK-02799	S-58MS

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

SB-MSKNR/L

Style K / Square / Negative Rake / 75° Lead Angle



Right-Hand Boring Bar Shown

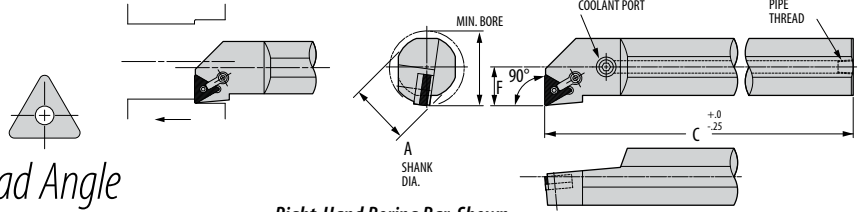
Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand	Inserts		A	C	F	Clamp	Clamp Screw	Shim	Lock Pin		Shim Screw	Shim
SB25-MSKNR-12T	SB25-MSKNL-12T	SNGA-120408	32	25	300	16	CLM-6	STCM-25	—	NLM-44	TK-02801	—	—
SB32-MSKNR-12U	SB32-MSKNL-12U	SNGA-120408	38	32	350	19	CLM-9	STCM-4	ISSNB-433	NLM-46	TK-02802	S-46MS	—
SB40-MSKNR-12U	SB40-MSKNL-12U	SNGA-120408	44	40	350	22	CLM-9	STCM-4	ISSNB-433	NLM-46	TK-02802	S-46MS	—
SB40-MSKNR-15V	SB40-MSKNL-15V	SNGA-150612	63	50	400	32	CLM-12	STCM-4	SSN-533	NLM-58	TK-02713	S-58MS	ISSN-543
SB50-MSKNR-19V	SB50-MSKNL-19V	SNGA-190612	63	50	400	32	CLM-12	STCM-4	ISSN-633	NLM-68	TK-02714	S-68MS	ISSN-643

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.








BORING BARS — FOR CARBIDE INSERTS

SB-MTFNR/L

Style F / Triangle / Negative Rake / 90° Lead Angle



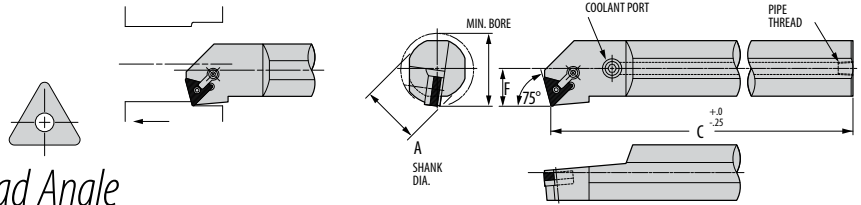
Right-Hand Boring Bar Shown

Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F							
SB25-MTFNR-16T	SB25-MTFNL-16T	TNGA-160408	32	25	300	16	CLM-6	STCM-25	—	NLM-33L	TK-02803	—	—
SB32-MTFNR-16U	SB32-MTFNL-16U	TNGA-160408	38	32	350	19	CLM-6	STCM-25	ITSN-322	NLM-34L	TK-02804	S-34MS	—
SB40-MTFNR-16U	SB40-MTFNL-16U	TNGA-160408	44	40	350	22	CLM-6	STCM-25	ITSN-322	NLM-34L	TK-02804	S-34MS	—
SB40-MTFNR-22U	SB40-MTFNL-22U	TNGA-220408	50	40	350	26	CLM-9	STCM-4	ITSN-432	NLM-46	TK-02805	S-46MS	TS-424
SB50-MTFNR-27V	SB50-MTFNL-27V	TNGA-270612	63	50	400	32	CLM-12	STCM-4	ITSN-533	NLM-58	TK-02806	S-58MS	—








* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

SB-MTKNR/L

Style K / Triangle / Negative Rake / 75° Lead Angle



Right-Hand Boring Bar Shown

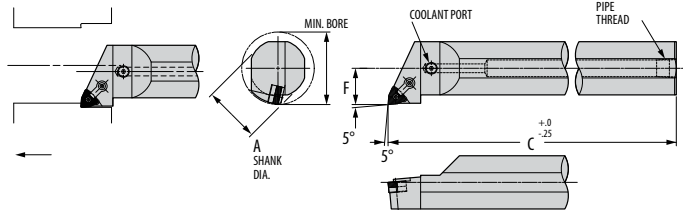
Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F							
SB25-MTKNR-16T	SB25-MTKNL-16T	TNGA-160408	32	25	300	16	CLM-6	STCM-9	—	NLM-33L	TK-02777	—	—
SB32-MTKNR-16U	SB32-MTKNL-16U	TNGA-160408	38	32	350	19	CLM-6	STCM-9	ITSN-322	NLM-34L	TK-02828	S-34MS	—
SB40-MTKNR-16U	SB40-MTKNL-16U	TNGA-160408	44	40	350	22	CLM-6	STCM-9	ITSN-322	NLM-34L	TK-02828	S-34MS	—
SB40-MTKNR-22U	SB40-MTKNL-22U	TNGA-220408	50	40	350	26	CLM-9	STCM-4	ITSN-432	NLM-46	TK-02805	S-46MS	TS-424
SB50-MTKNR-27V	SB50-MTKNL-27V	TNGA-270612	63	50	400	32	CLM-12	STCM-4	ITSN-533	NLM-58	TK-02806	S-58MS	—

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CARBIDE INSERTS

SB-MWLNRL

Style L / 80° Trigon / Negative Rake / 95° Lead Angle



Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components
Right Hand	Left Hand	Inserts		A	C	F	Seat	Lock Pin	Clamp	Clamp Screw		Seat
SB20-MWLNRL-06S†	SB20-MWLNLL-06S†	WNMA-060408	24	20	250	13	—	NLM-33L	CLM-6	STCM-25	TK-02803	—
SB25-MWLNRL-06T	SB25-MWLNLL-06T	WNMA-060408	30	25	300	16	—	NLM-33L	CLM-6	STCM-25	TK-02803	—
SB32-MWLNRL-06U	SB32-MWLNLL-06U	WNMA-060408	38	32	350	19	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811	IWSN-332
SB40-MWLNRL-06U	SB40-MWLNLL-06U	WNMA-060408	46	40	350	22	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811	IWSN-332
SB25-MWLNRL-08T	SB25-MWLNLL-08T	WNMA-080408	33	25	300	16	—	NLM-44	CLM-20	STCM-11	TK-02796	—
SB32-MWLNRL-08U	SB32-MWLNLL-08U	WNMA-080408	39	32	350	19	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	—
SB40-MWLNRL-08U	SB40-MWLNLL-08U	WNMA-080408	45	40	350	22	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808	—

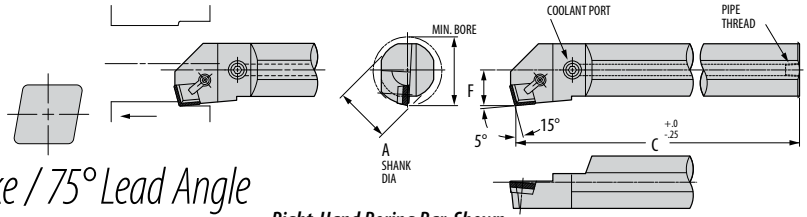
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

† Coolant port not available.

BORING BARS — FOR CARBIDE INSERTS

SB-CCKPR/L

Style K / 80° Diamond (Using 100° Corner) / Positive Rake / 75° Lead Angle



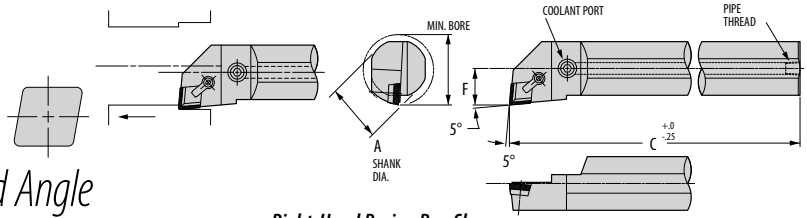
Right-Hand Boring Bar Shown

Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components					*Tune-Up Kit
Right Hand	Left Hand			A	C	F	Clamp	Clamp Screw	Shim	Shim Screw	Chipbreaker	
SB25-CCKPR-12T	SB25-CCKPL-12T	CPGN-120308	32	25	300	16	CLM-7	STCM-25	—	—	CBDC-415L	TK-02833
SB32-CCKPR-12U	SB32-CCKPL-12U	CPGN-120308	38	32	350	19	CLM-20	STCM-11	CSP-422	TFHCSM3-0.5x6mm	CBDC-415L	TK-02834
SB40-CCKPR-12U	SB40-CCKPL-12U	CPGN-120308	44	40	350	22	CLM-20	STCM-11	CSP-422	TFHCSM3-0.5x6mm	CBDC-415L	TK-02834
SB50-CCKPR-19V	SB50-CCKPL-19V	CPGN-190412	63	50	400	32	CLM-30	STCM-4	CSP-632	TFHCSM3-0.5x10mm	CBDC-615G	TK-02835

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

SB-CCLPR/L

Style L / 80° Diamond / Positive Rake / 95° Lead Angle



Right-Hand Boring Bar Shown

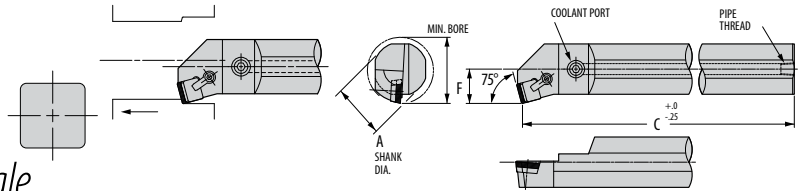
Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components					*Tune-Up Kit
Right Hand	Left Hand			A	C	F	Clamp	Clamp Screw	Shim	Shim Screw	Chipbreaker	
SB25-CCLPR-12T	SB25-CCLPL-12T	CPGN-120308	32	25	300	16	CLM-7	STCM-25	—	—	CBDC-4L	TK-02782
SB32-CCLPR-12U	SB32-CCLPL-12U	CPGN-120308	38	32	350	19	CLM-20	STCM-11	CSP-422	TFHCSM3-0.5x6mm	CBDC-4L	TK-02836
SB40-CCLPR-12U	SB40-CCLPL-12U	CPGN-120308	44	40	350	22	CLM-20	STCM-11	CSP-422	TFHCSM3-0.5x6mm	CBDC-4L	TK-02836
SB50-CCLPR-19V	SB50-CCLPL-19V	CPGN-190412	63	50	400	32	CLM-30	STCM-4	CSP-632	TFHCSM3-0.5x10mm	CBDC-6G	TK-02784

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CARBIDE INSERTS

SB-CSKPR/L

Style K / Square / Positive Rake / 75° Lead Angle



Right-Hand Boring Bar Shown

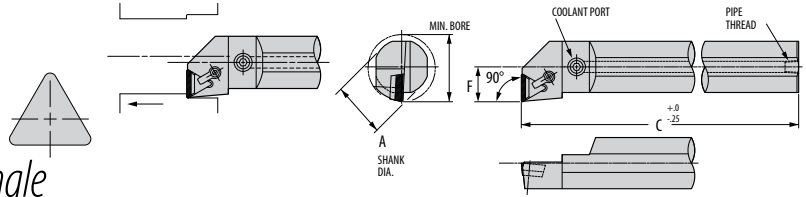
Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components					*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Clamp	Clamp Screw	Shim	Shim Screw	Chipbreaker	
SB25-CSKPR-12T	SB25-CSKPL-12T	SPGN-120308	32	25	300	16	CLM-7	STCM-25	—	—	CBS-4G	TK-02782
SB32-CSKPR-12U	SB32-CSKPL-12U	SPGN-120308	38	32	350	19	CLM-20	STCM-11	—	—	CBS-4G	TK-02868
SB40-CSKPR-12U	SB40-CSKPL-12U	SPGN-120308	44	40	350	22	CLM-20	STCM-11	SP-40	TFHCSM3-0.5x12mm	CBS-4G	TK-02869
SB50-CSKPR-19V	SB50-CSKPL-19V	SPGN-190412	63	50	400	32	CLM-30	STCM-4	SP-60	TFHCSM4-0.7x12mm	CBS-6G	TK-02870

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.







BORING BARS — FOR CARBIDE INSERTS

SB-CTFPR/L

Style F / Triangle / Positive Rake / 90° Lead Angle



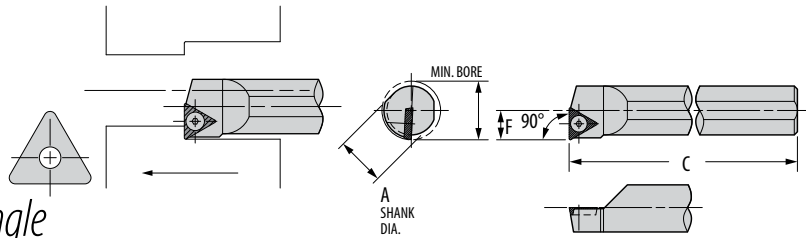
Right-Hand Boring Bar Shown

Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Standard Components					*Tune-Up Kit
Right Hand	Left Hand			A	C	F	 Clamp	 Clamp Screw	 Shim	 Shim Screw	 Chipbreaker	
SB25-CTFPR-16T	SB25-CTFPL-16T	TPGN-160308	32	25	300	16	CLM-7	STCM-25	—	—	CBT-3G	TK-02783
SB32-CTFPR-16U	SB32-CTFPL-16U	TPGN-160308	38	32	350	19	CLM-6	STCM-25	TSP-321	—	CBT-3G	TK-02840
SB40-CTFPR-16U	SB40-CTFPL-16U	TPGN-160308	44	40	350	22	CLM-6	STCM-25	TSP-321	TFHCSM3-0.5x10mm	CBT-3G	TK-02840
SB40-CTFPR-22U	SB40-CTFPL-22U	TPGN-220408	50	40	350	26	CLM-12	STCM-8	SP-4	TFHCSM3-0.5x12mm	CBT-4G	TK-02748
SB50-CTFPR-27V	SB50-CTFPL-27V	TPGN-270612	63	50	400	32	CLM-12	STCM-4	SP-5	TFHCSM3-0.5x12mm	CBT-5G	TK-02749



* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-STFNR/L

Style F / Triangle / Positive Rake / 90° Lead Angle



Right-Hand Boring Bar Shown

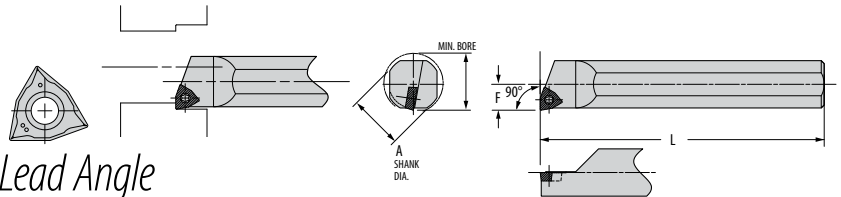
Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Std Components	*Tune-Up Kit
Right Hand	Left Hand			A	C	F	 Insert Screw	
S10-STFNR-11M	S10-STFNL-11M	TP41	13	10	150	6	TBHCSM3-0.5x6mm	TK-02838
S12-STFNR-11R	S12-STFNL-11R	TP41	16	12	200	8	TBHCSM3-0.5x6mm	TK-02838
S16-STFNR-11S	S16-STFNL-11S	TP41	20	16	250	9	TBHCSM3-0.5x6mm	TK-02838

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.


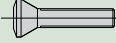
BORING BARS — FOR CARBIDE INSERTS

S-SWFCR/L

Style F / Screw-On Trigon / Solid Steel / 90° Lead Angle



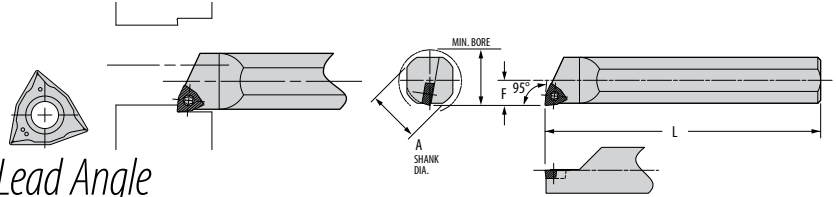
Right-Hand Boring Bar Shown

Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Std Components	*Tune-Up Kit
Right Hand	Left Hand			A	F	C	 Insert Screw	
S10-SWFCR-04K	S10-SWFCL-04K	WCMT-060204	11	10	5,5	125	PT-589T	TK-00804
S12-SWFCR-04M	S12-SWFCL-04M	WCMT-060204	14	12	7	150	PT-589T	TK-00804
S12-SWFCR-06D	S12-SWFCL-06D	WCMT-09T304	16	12	8	60	PT-559T	TK-00807
S12-SWFCR-06M	S12-SWFCL-06M	WCMT-09T304	16	12	8	150	PT-559T	TK-00807
S16-SWFCR-06H	S16-SWFCL-06H	WCMT-09T304	18	16	9	100	PT-559T	TK-00807
S16-SWFCR-06Q	S16-SWFCL-06Q	WCMT-09T304	18	16	9	180	PT-559T	TK-00807
S20-SWFCR-06H	S20-SWFCL-06H	WCMT-09T304	22	20	11	100	PT-559T	TK-00807
S20-SWFCR-06R	S20-SWFCL-06R	WCMT-09T304	22	20	11	200	PT-559T	TK-00807
S25-SWFCR-06K	S25-SWFCL-06K	WCMT-09T304	28	25	14	125	PT-559T	TK-00807
S25-SWFCR-06S	S25-SWFCL-06S	WCMT-09T304	28	25	14	250	PT-559T	TK-00807
S32-SWFCR-06T	S32-SWFCL-06T	WCMT-09T304	34	32	17	300	PT-559T	TK-00807


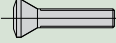
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-SWLCR/L

Style L / Screw-On Trigon / Solid Steel / 95° Lead Angle



Right-Hand Boring Bar Shown

Part Number		Gage  Inserts	Minimum Bore	Dimensions (mm)			Std Components	*Tune-Up Kit
Right Hand	Left Hand			A	F	C	 Insert Screw	
S10-SWLCR-04K	S10-SWLCL-04K	WCMT-060204	11	10	5,5	125	PT-589T	TK-00804
S12-SWLCR-04M	S12-SWLCL-04M	WCMT-060204	14	12	7	150	PT-589T	TK-00804
S12-SWLCR-06D	S12-SWLCL-06D	WCMT-09T304	16	12	8	60	PT-559T	TK-00807
S12-SWLCR-06M	S12-SWLCL-06M	WCMT-09T304	16	12	8	150	PT-559T	TK-00807
S16-SWLCR-06H	S16-SWLCL-06H	WCMT-09T304	18	16	9	100	PT-559T	TK-00807
S16-SWLCR-06Q	S16-SWLCL-06Q	WCMT-09T304	18	16	9	180	PT-559T	TK-00807
S20-SWLCR-06H	S20-SWLCL-06H	WCMT-09T304	22	20	11	100	PT-559T	TK-00807
S20-SWLCR-06R	S20-SWLCL-06R	WCMT-09T304	22	20	11	200	PT-559T	TK-00807
S25-SWLCR-06K	S25-SWLCL-06K	WCMT-09T304	28	25	14	125	PT-559T	TK-00807
S25-SWLCR-06S	S25-SWLCL-06S	WCMT-09T304	28	25	14	250	PT-559T	TK-00807
S32-SWLCR-06T	S32-SWLCL-06T	WCMT-09T304	34	32	17	300	PT-559T	TK-00807

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.



Boring Bars for Ceramic Inserts

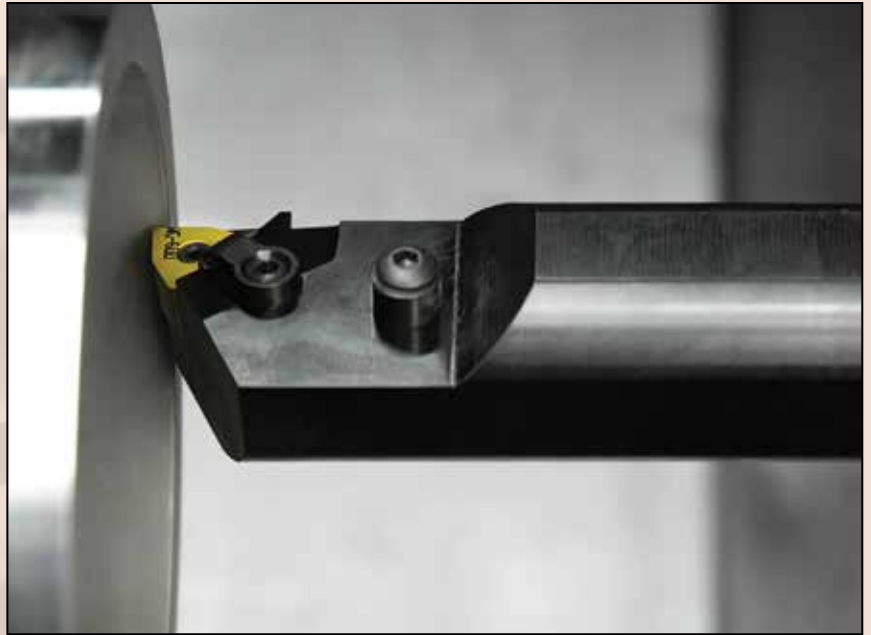
This section contains boring bars using the ceramic inserts most often used by industry.

In addition to tempered-steel bars, Greenleaf also can supply Heavy Metal or "No Chat" high-density steel bars that can reduce, and sometimes eliminate, "chatter" for those applications that require a longer reach.

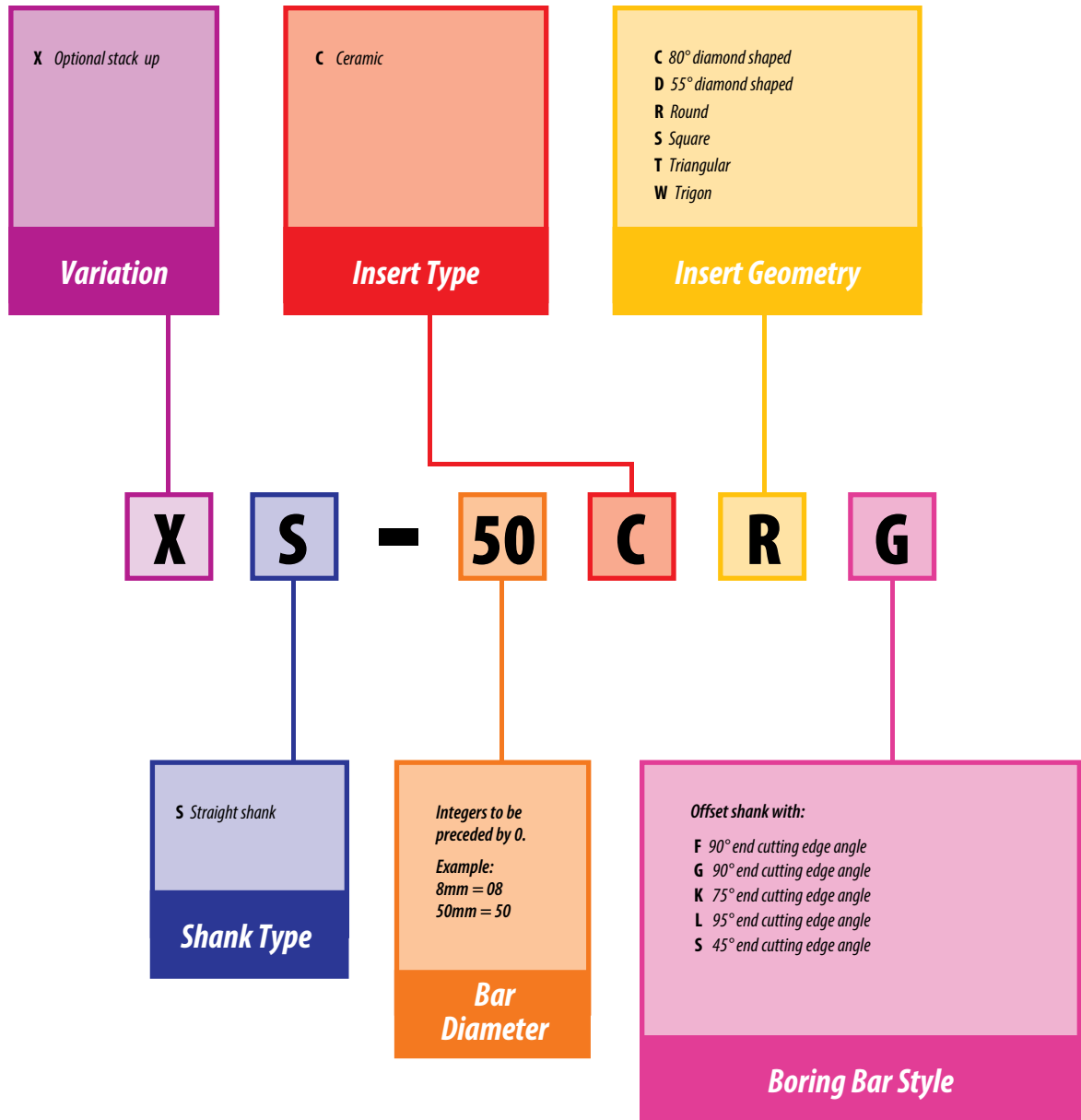
Greenleaf's boring bar capability includes numerous additional styles not shown in this catalog. Contact us if you do not see the bar you need. Our special design and build services can be counted on to meet your individual needs.

Greenleaf Tune-Up Kits

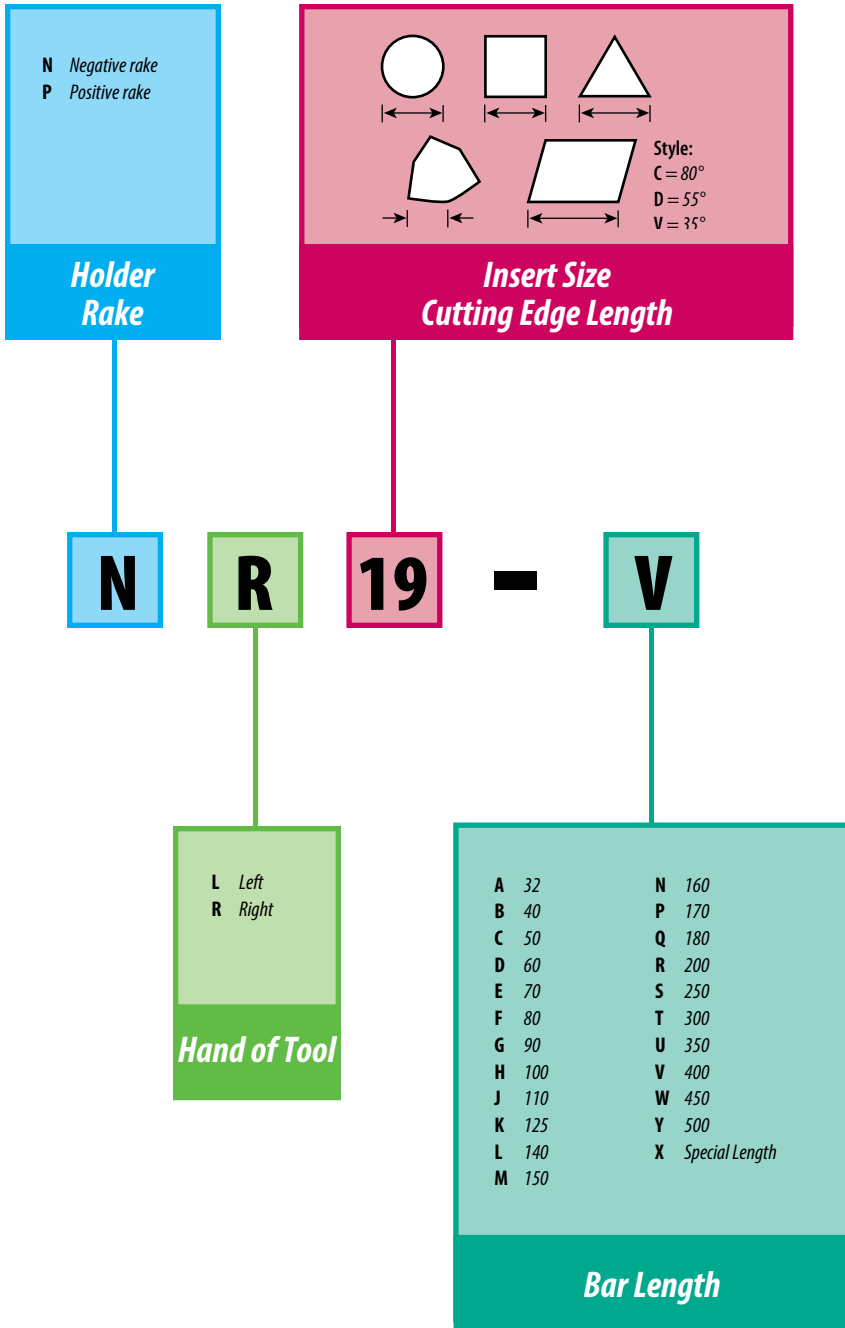
A Tune-Up Kit consists of all the standard hardware to refurbish a particular toolholder, boring bar, or milling cutter. A toolholder will have a readily visible, laser-inscribed Tune-Up Kit number on it for ease in ordering. This number will prevent any confusion created by searching a catalog for hardware, and it will help reduce downtime.



Ceramic-Insert Boring Bar Identification System

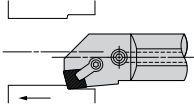


BORING BARS – FOR CERAMIC INSERTS

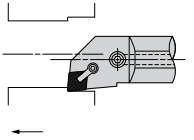


Pictorial Index

80°/100° Diamond – Negative

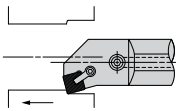


S-CCKNR/L
Style K
80° Diamond
(Using 100° Corner)
Negative Rake
15° Lead
page: T 130

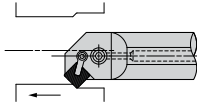


S-CCLNR/L
Style L
80° Diamond
Negative Rake
5° Reverse Lead
page: T 130

Square – Negative

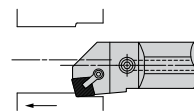


S-CSKNR/L
Style K
Square
Negative Rake
15° Lead
page: T 132

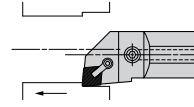


S-CSSNR/L
Style S
Square
Negative Rake
45° Lead
page: T 132

80° Diamond – Positive

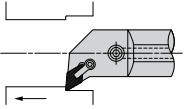


S-CCKPR/L
Style K
80° Diamond
(Using 100° Corner)
Positive Rake
15° Lead
page: T 134

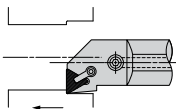


S-CCLPR/L
Style L
80° Diamond
Positive Rake
5° Reverse Lead
page: T 134

55° Diamond – Negative



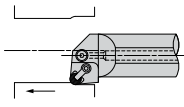
S-CDLNR/L
Style L
55° Diamond
Negative Rake
5° Reverse Lead
page: T 131



S-CTFNR/L
Style F
Triangle
Negative Rake
0° Lead
page: T 133

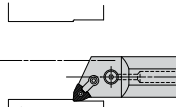
Triangle – Negative

Round – Negative



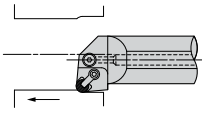
S-CRGNR/L
Style G
Round
Negative Rake
page: T 131

Trigon – Negative



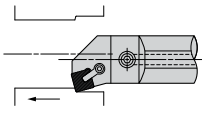
S-CWLNLR/L
Style L
Trigon
Negative Rake
5° Reverse Lead
page: T 133

Round – Positive

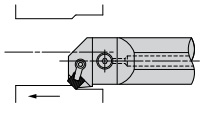


S-CRGP/L
 Style G
 Round
 Positive Rake
page: T 134

Square – Positive

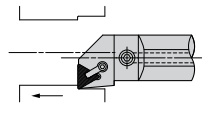


S-CSKPR/L
 Style K
 Square
 Positive Rake
 15° Lead
page: T 135

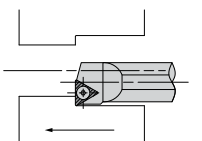


S-CSSPR/L
 Style S
 Square
 Positive Rake
 45° Lead
page: T 135

Triangle – Positive



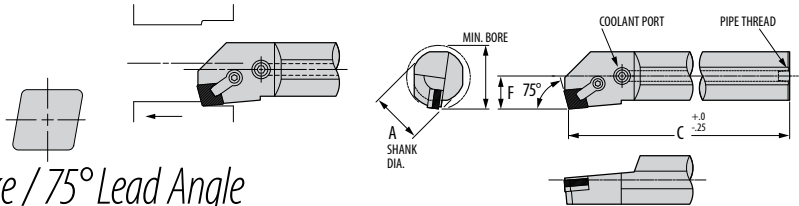
S-CTFPR/L
 Style F
 Triangle
 Positive Rake
 0° Lead
page: T 136



S-STFNR/L
 Style F
 Triangle
 Positive Rake
 0° Lead
page: T 136

S-CCKNR/L

Style K / 80° Diamond (Using 100° Corner) / Negative Rake / 75° Lead Angle



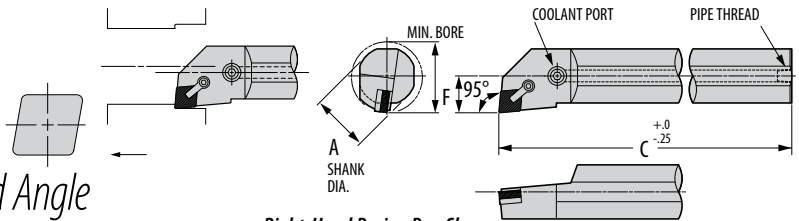
Right-Hand Boring Bar Shown

Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S25-CCKNR-12T	S25-CCKNL-12T	CNGN-120408	76	25	300	16	—	—	CLM-12	STCM-8	TK-02822	NLM-44	CLM-9
S40-CCKNR-12U	S40-CCKNL-12U	CNGN-120408	102	40	350	22	CSN-433	S-46MS	CLM-12	STCM-4	TK-02841	NLM-46	CLM-9
S50-CCKNR-12V	S50-CCKNL-12V	CNGN-120408	102	50	400	29	CSN-433	S-46M	CLM-12	STCM-4	TK-02823	NLM-46	CLM-9
S50-CCKNR-19V	S50-CCKNL-19V	CNGN-190612	127	50	400	32	CSN-633	S-68M	CLM-30	STCM-4	TK-02824	NLM-68	CLM-12

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CCLNR/L

Style L / 80° Diamond / Negative Rake / 95° Lead Angle



Right-Hand Boring Bar Shown

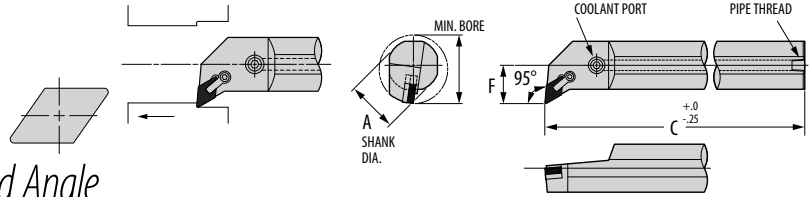
Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S25-CCLNR-12T	S25-CCLNL-12T	CNGN-120408	76	25	300	16	—	—	CLM-12	STCM-8	TK-02822	NLM-44	CLM-9
S40-CCLNR-12U	S40-CCLNL-12U	CNGN-120408	102	40	350	22	CSN-433	S-46M	CLM-12	STCM-4	TK-02823	NLM-46	CLM-9
S50-CCLNR-12V	S50-CCLNL-12V	CNGN-120408	102	50	400	29	CSN-433	S-46M	CLM-12	STCM-4	TK-02823	NLM-46	CLM-9
S50-CCLNR-19V	S50-CCLNL-19V	CNGN-190612	127	50	400	32	CSN-633	S-68M	CLM-30	STCM-4	TK-02824	NLM-68	CLM-12

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CERAMIC INSERTS

S-CDLNR/L

Style L / 55° Diamond / Negative Rake / 95° Lead Angle



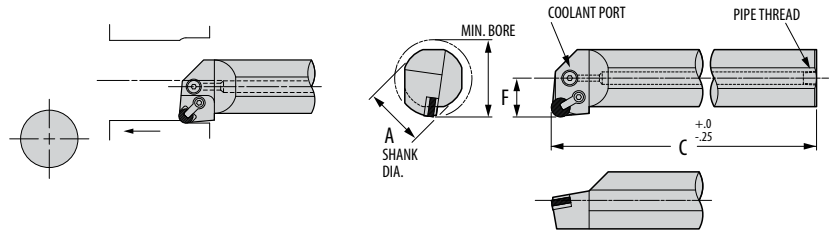
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand	Inserts		A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S40-CDLNR-11U	S40-CDLNL-11U	DNGN-110308	90	40	350	25	DSN-333	S-34M	CLM-12	STCM-4	TK-02785	NLM-34L	—
S50-CDLNR-11V	S50-CDLNL-11V	DNGN-110308	90	50	400	32	DSN-333	S-34M	CLM-12	STCM-4	TK-02785	NLM-34L	—
S50-CDLNR-15V	S50-CDLNL-15V	DNGN-150408	102	50	400	35	DSN-433	S-46M	CLM-30	STCM-4	TK-02786	NLM-46	CLM-12

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CRGNR/L

Style G / Round / Negative Rake



Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components		
Right Hand	Left Hand	Inserts		A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw		Clamp	Combination	
											Clamp	Insert Thick.	Shim Seat	
S40-CRGNR-09U	S40-CRGNL-09U	RNGN-090400	76	40	350	25	—	—	CLM-6	STCM-25	TK-02819	CLM-6	—	—
S50-CRGNR-09V	S50-CRGNL-09V	RNGN-090400	76	50	400	32	—	—	CLM-6	STCM-25	TK-02819	CLM-6	—	—
S50-CRGNR-12V	S50-CRGNL-12V	RNGN-120400	90	50	400	32	IRSN-42	S-46M	CLM-12	STCM-4	TK-02820	CLM-9	7,92	No Shim
XS50-CRGNR-12V	XS50-CRGNL-12V	RNGN-120700	125	50	400	32	IRSN-43	S-46MS	CLM-12	STCM-4	TK-03064	CLM-9	4,75	IRSN-45
S50-CRGNR-15V	S50-CRGNL-15V	RNGN-150700	90	50	400	32	—	—	CLM-12	STCM-4	TK-02821	CLM-9	4,75	RSN-52
XS50-CRGNR-15V	XS50-CRGNL-15V	RNGN-150700	125	50	400	32	RSN-53	S-58M	CLM-12	STCM-4	TK-02825	CLM-9	4,75	IRSN-55
S50-CRGNR-19V	S50-CRGNL-19V	RNGN-190700	90	50	400	32	—	—	CLM-30	STCM-4	TK-02829	CLM-12	4,75	RSN-62
XS50-CRGNR-19V	XS50-CRGNL-19V	RNGN-190700	125	50	400	32	RSN-63	S-68M	CLM-30	STCM-4	TK-02792	CLM-12	4,75	IRSN-65

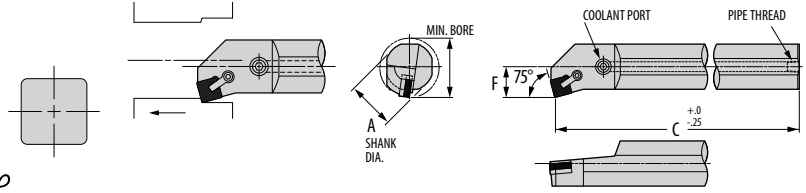
* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

† You can alternately use a 3/16 thick insert with the corresponding shim or a 1/4 thick insert with the right shim.

BORING BARS — FOR CERAMIC INSERTS

S-CSKNR/L

Style K / Square / Negative Rake / 75° Lead Angle



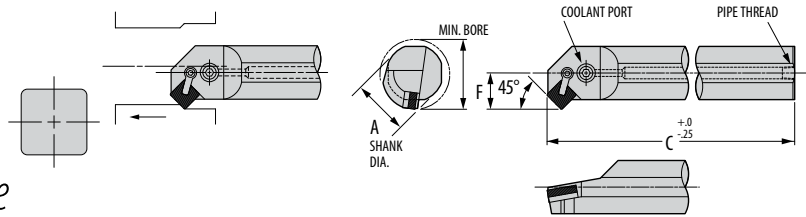
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand	Inserts		A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S25-CSKNR-12T	S25-CSKNL-12T	SNGN-120408	76	25	300	16	—	—	CLM-12	STCM-8	TK-02822	NLM-44	CLM-9
S40-CSKNR-12U	S40-CSKNL-12U	SNGN-120408	102	40	350	22	ISSN-433	S-46M	CLM-12	STCM-4	TK-02844	NLM-46	CLM-9
S50-CSKNR-12V	S50-CSKNL-12V	SNGN-120408	102	50	400	29	ISSN-433	S-46M	CLM-12	STCM-4	TK-02844	NLM-46	CLM-9
S50-CSKNR-15V	S50-CSKNL-15V	SNGN-150612	127	50	400	32	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9
S50-CSKNR-19V	S50-CSKNL-19V	SNGN-190612	127	50	400	32	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CSSNR/L

Style S / Square / Negative Rake / 45° Lead Angle



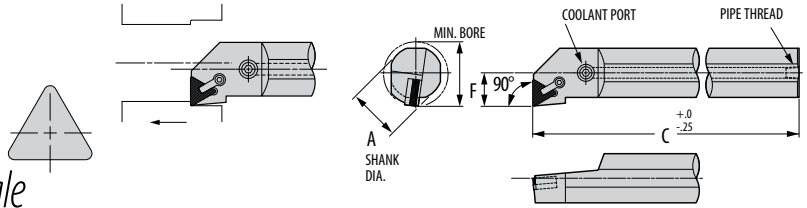
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand	Inserts		A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S25-CSSNR-12T	S25-CSSNL-12T	SNGN-120408	76	25	300	16	—	—	CLM-12	STCM-4	TK-02821	NLM-44	CLM-9
S40-CSSNR-12U	S40-CSSNL-12U	SNGN-120408	102	40	350	22	ISSN-433	S-46M	CLM-12	STCM-4	TK-02844	NLM-46	CLM-9
S50-CSSNR-12V	S50-CSSNL-12V	SNGN-120408	102	50	400	29	ISSN-433	S-46M	CLM-12	STCM-4	TK-02844	NLM-46	CLM-9
S50-CSSNR-15V	S50-CSSNL-15V	SNGN-150612	127	50	400	32	SSN-533	S-58M	CLM-12	STCM-4	TK-02794	NLM-58	CLM-9
S50-CSSNR-19V	S50-CSSNL-19V	SNGN-190612	127	50	400	32	ISSN-633	S-68M	CLM-30	STCM-4	TK-02795	NLM-68	CLM-12

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CTFNR/L

Style F / Triangle / Negative Rake / 90° Lead Angle



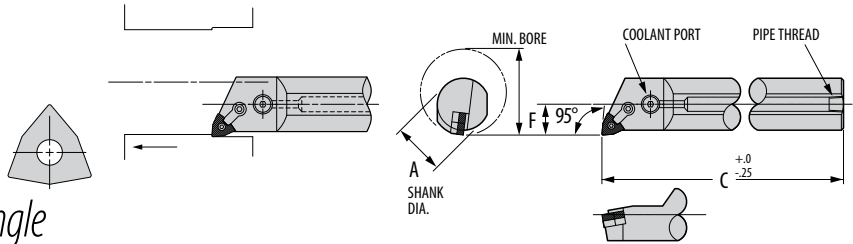
Right-Hand Boring Bar Shown

Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit	Optional Components	
Right Hand	Left Hand			A	C	F	Clamp	Seat Screw	Clamp	Clamp Screw		Lock Pin	Clamp
S25-CTFNR-16T	S25-CTFNL-16T	TNGN-160408	76	25	300	16	—	—	CLM-7	STCM-25	TK-02782	NLM-33L	CLM-6
S40-CTFNR-16U	S40-CTFNL-16U	TNGN-160408	90	40	350	22	ITSN-322	S-34M	CLM-7	STCM-25	TK-02757	NLM-34L	CLM-6
S40-CTFNR-22U	S40-CTFNL-22U	TNGN-220408	102	40	350	26	ITSN-432	S-46M	CLM-12	STCM-4	TK-02771	NLM-46	CLM-9
S50-CTFNR-22V	S50-CTFNL-22V	TNGN-220408	102	50	400	32	ITSN-432	S-46M	CLM-12	STCM-4	TK-02771	NLM-46	CLM-9

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CWLNR/L

Style L / Trigon / Negative Rake / 95° Lead Angle



Right-Hand Boring Bar Shown

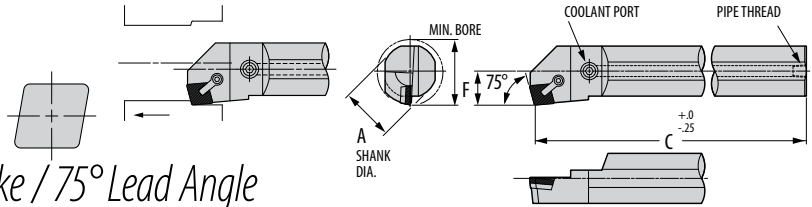
Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand			A	C	F	Shim Seat	Lock Pin	Clamp	Clamp Screw	
S25-CWLNR-06T	S25-CWLNL-06T	WNGA-060408	76	25	300	16	—	NLM-33L	CLM-6	STCM-25	TK-02803
S40-CWLNR-06U	S40-CWLNL-06U	WNGA-060408	90	40	350	22	IWSN-322	NLM-34L	CLM-6	STCM-25	TK-02811
S40-CWLNR-08T	S40-CWLNL-08T	WNGA-080408	76	25	300	16	—	NLM-44	CLM-20	STCM-26	TK-02826
S50-CWLNR-08U	S50-CWLNL-08U	WNGA-080408	102	40	350	22	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808
S63-CWLNR-08V	S63-CWLNL-08V	WNGA-080408	102	50	400	32	IWSN-433	NLM-46	CLM-20	STCM-26	TK-02808

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CERAMIC INSERTS

S-CCKPR/L

Style K / 80° Diamond (Using 100° Corner) / Positive Rake / 75° Lead Angle



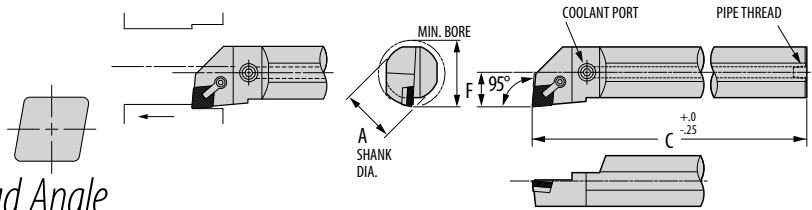
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CCKPR-12T	S25-CCKPL-12T	CPGN-120408	32	25	300	16	—	—	CLM-22	STCM-32	TK-02778
S40-CCKPR-12U	S40-CCKPL-12U	CPGN-120408	44	40	350	22	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
S50-CCKPR-12V	S50-CCKPL-12V	CPGN-120408	56	50	400	29	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CCLPR/L

Style L / 80° Diamond / Positive Rake / 95° Lead Angle



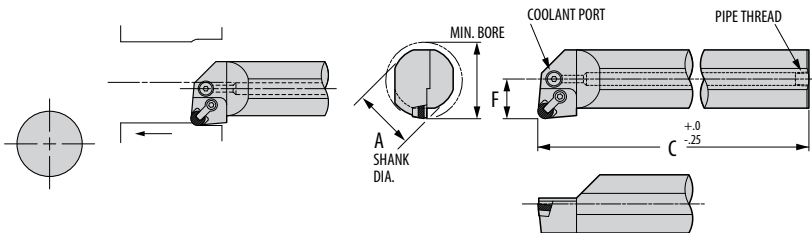
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CCLPR-12T	S25-CCLPL-12T	CPGN-120408	32	25	300	16	—	—	CLM-22	STCM-32	TK-02778
S40-CCLPR-12U	S40-CCLPL-12U	CPGN-120408	44	40	350	22	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779
S50-CCLPR-12V	S50-CCLPL-12V	CPGN-120408	56	50	400	29	SP-49	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02779

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CRGPR/L

Style G / Round / Positive Rake



Right-Hand Boring Bar Shown

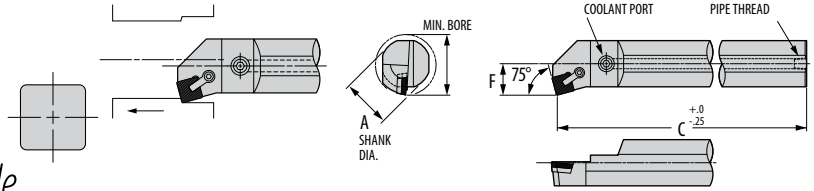
Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CRGPR-09T	S25-CRGPL-09T	RPGN-090300	32	25	300	16	—	—	CLM-7	STCM-25	TK-02782
S40-CRGPR-09U	S40-CRGPL-09U	RPGN-090300	44	40	350	22	SP-34	TSHCSM2-0.4x6mm	CLM-7	STCM-25	TK-02813
S50-CRGPR-09V	S50-CRGPL-09V	RPGN-090300	56	50	400	29	SP-34	TSHCSM2-0.4x6mm	CLM-7	STCM-25	TK-02813
S50-CRGPR-12V	S50-CRGPL-12V	RPGN-120400	63	50	400	32	SP-44	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02814

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CERAMIC INSERTS

S-CSKPR/L

Style K / Square / Positive Rake / 75° Lead Angle



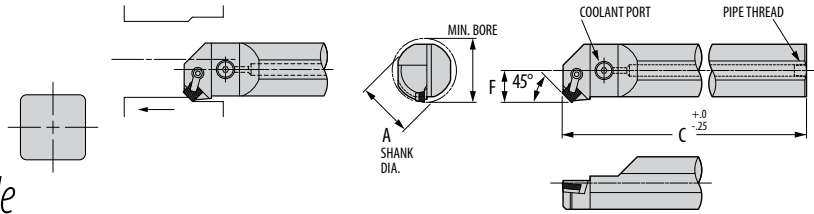
Right-Hand Boring Bar Shown

Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand			A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CSKPR-12T	S25-CSKPL-12T	SPGN-120408	32	25	300	16	—	—	CLM-7	STCM-25	TK-02782
S40-CSKPR-12U	S40-CSKPL-12U	SPGN-120408	44	40	350	22	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
S50-CSKPR-12V	S50-CSKPL-12V	SPGN-120408	56	50	400	29	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-CSSPR/L

Style S / Square / Positive Rake / 45° Lead Angle



Right-Hand Boring Bar Shown

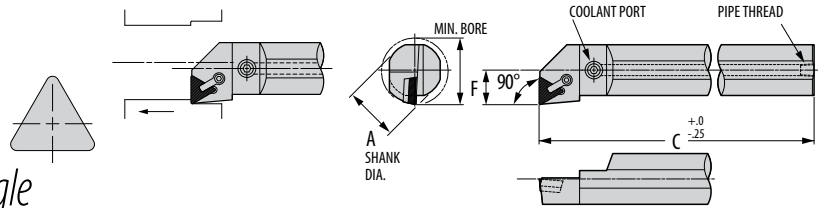
Part Number		Gage Inserts	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand			A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CSSPR-12T	S25-CSSPL-12T	SPGN-120408	32	25	300	16	—	—	CLM-7	STCM-25	TK-02782
S40-CSSPR-12U	S40-CSSPL-12U	SPGN-120408	44	40	350	22	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780
S50-CSSPR-12V	S50-CSSPL-12V	SPGN-120408	56	50	400	29	SP-41	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02780

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CERAMIC INSERTS

S-CTFPR/L

Style F / Triangle / Positive Rake / 90° Lead Angle



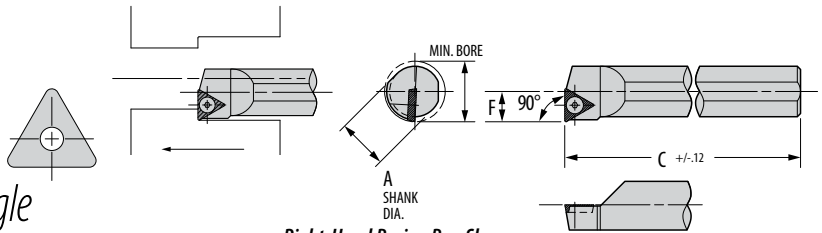
Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components				*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Shim Seat	Seat Screw	Clamp	Clamp Screw	
S25-CTFPR-16T	S25-CTFPL-16T	TPGN-160308	32	25	300	16	—	—	CLM-7	STCM-25	TK-02782
S40-CTFPR-16U	S40-CTFPL-16U	TPGN-160308	44	40	350	22	SP-3A	TFHCSM3-0.5x10mm	CLM-7	STCM-25	TK-02817
S40-CTFPR-22U	S40-CTFPL-22U	TPGN-220408	50	40	350	26	SP-4	TFHCSM3-0.5x10mm	CLM-12	STCM-4	TK-02839
S50-CTFPR-22V	S50-CTFPL-22V	TPGN-220408	63	50	400	32	SP-4	TFHCSM3-0.5x12mm	CLM-12	STCM-4	TK-02818

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

S-STFNR/L

Style F / Triangle / Positive Rake / 90° Lead Angle



Right-Hand Boring Bar Shown

Part Number		Gage	Minimum Bore	Dimensions (mm)			Standard Components	*Tune-Up Kit
Right Hand	Left Hand	Inserts		A	C	F	Insert Screw	
S10-STFNR-11M	S10-STFNL-11M	TP41	13	10	150	6	TBHCSM3-0.5x6mm	TK-02838
S12-STFNR-11R	S12-STFNL-11R	TP41	16	12	200	8	TBHCSM3-0.5x6mm	TK-02838
S16-STFNR-11S	S16-STFNL-11S	TP41	20	16	250	9	TBHCSM3-0.5x6mm	TK-02838

* Tune-Up Kits include one complete set of Standard Components to allow you to refurbish the toolholder.

BORING BARS — FOR CERAMIC INSERTS

