



Greenleaf®

metalcutting tools and systems



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2016 METRIC

HEAVY TURNING



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Heavy Turning Inserts

The manufacture of rolls for use in steel making is an area where machinability has been decreased significantly by the introduction of alloyed materials, especially chromium content. In addition, the use of forged rolls is increasing, and centrifugally cast products with high hardness levels and surface contamination are another challenge.

Ceramic cutting tools such as Greenleaf GEM-7™ composite material and WG-300® whiskered material are finding an important place in heavy turning when combined with rigid, well-designed holding systems.

Greenleaf has extensive experience in the design and manufacture of heavy-turning tooling systems. For more than thirty years, we have supplied O.E.M. packages to many of the largest lathe manufacturers – both domestic and overseas.

We will be pleased to quote tooling systems for any type of machine to effectively use ceramic or carbide inserts. Most of the options regularly manufactured are outlined on page HT 34.

Call a Greenleaf heavy-turning specialist at 1-814-763-2915 to discuss your particular needs.



Greenleaf Corporation is continually upgrading its products.
For the most current information, please visit our web site at:

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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 chip-breakers for heavy roughing through finishing.

COATED – MT-CVD

GA5023 A high-speed performance grade for turning and milling cast iron. GA5023 features an advanced MT-CVD coating specifically developed for abrasive wear resistance. Application ranges from roughing to finishing on most cast iron materials including gray iron, ductile, nodular and other alloyed irons. The high wear and shock resistance of GA5023 allows machining at high speeds and a variety of feeds.

GA5035 A high-performance MT-CVD coated grade for turning all types of steels, and selected stainless steels. GA5035 can be used in rough, semi-finish, and finish turning situations requiring resistance to heat deformation, thermal shock, and abrasion. GA5035 should be applied at high speeds and a range of feeds.

GA5036 A high-performance MT-CVD coated grade for milling steels at high speed. GA5036 should be used when milling forged and cast steels and selected ductile irons. GA5036 has a unique combination of toughness and heat resistance making it suitable for heavy- and light-duty milling at high cutting speeds.

GA5125 New high-performance MT-CVD coated carbide milling grade especially suited for manganese steel. GA5125 is also applicable on chrome-moly steel, tool steel and similar high alloy steels. GA5125 provides excellent resistance to abrasion, crater wear, thermal shock, deformation and edge build-up. GA5125 should be applied at high speeds with moderate feed rates.

COATED – PVD

G-915 Multi-layer PVD-coated grade, excellent for cut off, milling and turning high-temp alloys, stainless steel, and low carbon steels. The multi-layer PVD coating adds heat and abrasion resistance to the tough, shock-resistant substrate. G-915 should be run at moderate speeds and moderate to high feeds in milling and interrupted turning applications.

G-935 Multi-layer PVD-coated grade for steel milling and turning applications requiring additional resistance to mechanical and thermal shock. The multi-layered PVD coating increases the speed capability and wear resistance in tough milling and interrupted turning applications.

CARBIDE

UNCOATED

G-20M A sub-micron C-2 carbide grade suited for use in turning and milling titanium and nickel-based super-alloys. G-20M has the strength and edge wear characteristics to resist notching when turning high-strength materials.

G-50 Heavy roughing grade for steel and steel castings under difficult conditions, and ferritic stainless steels in most applications. G-50 is tough enough to enable the use of positive rakes for turning.

G-74 Roughing or finishing grade for steel and steel castings. G-74 has higher shock resistance than G-70, and should be applied at high speeds and moderate to heavy feeds. Well suited for turning of steel rolls.

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CERAMIC

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

WG-300® Whisker-reinforced ceramic with excellent wear and shock resistance at high surface speeds. WG-300 is very effective at machining nickel and cobalt based super-alloys, and other hard materials at metal removal rates up to 10 times higher than carbide.

WG-600® Coated whisker-reinforced ceramic offering longer tool life and better performance over uncoated ceramics due to outstanding thermal properties and shock-resistance at high cutting speeds. Application areas include rough and finish turning, as well as high-performance milling of high-strength alloys, hardened steels and select stainless steels. *U.S. Patent No. 6,447,896 B1.*

WG-700™ New whisker-reinforced Al_2O_3 ceramic substrate featuring improved toughness and a unique high-speed coating. WG-700 is ideal for machining nickel- and cobalt-based super alloys and other difficult-to-machine materials. WG-700 exhibits high metal-removal rates with exceptional tool life. *U.S. Patent No. 6,447,896 B1*

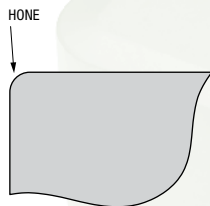
XSYTIN™-1 New phase-toughened ceramic capable of extreme feed rates. XSYTIN™-1 excels at machining a wide variety of materials including steels, cast and ductile irons, high-temperature alloys and other challenging metals. XSYTIN™-1 is ideal for use in interrupted cuts, scale, abrasive casting materials and milling.

GSN100™ New engineered blend of silicon nitride and proprietary toughening agents that redefines productivity in the machining of cast iron. GSN100 delivers outstanding tool life at high cutting speeds in turning, grooving and milling applications.

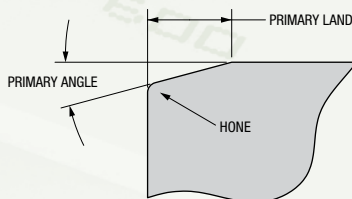
GEM-7™ $Al_2O_3 + TiC$ composite ceramic with a high degree of predictability in roll turning and hard alloy (up to 65 R/c) machining.

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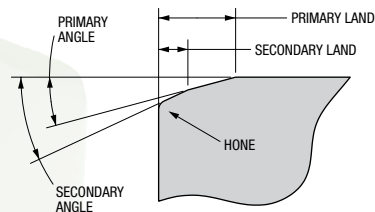
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HONE



PRIMARY ANGLE






SECONDARY ANGLE

Edge Prep	Hone	Primary Land	Primary Angle	Secondary Land	Secondary Angle	Application
T2A	0,015R	0,17	20°			Scale applications, light interruptions, weld overlays, finish turning and milling of hardened materials.
T4A	0,015R	1,90	10°	0,17	25°	Heavy machining <19mm IC - Roll turning, 3V, 4V, CDH-22, CDH-33.
T4B	0,035R	1,90	10°	0,17	25°	Heavy machining <19mm IC - Roll turning, 3V, 4V, CDH-22, CDH-33.
T10B	0,035R	2,41	15°	0,17	30°	Heavy machining, iron and steel roll turning >19mm IC, CDH-43, CDH-53.

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<p>GENERAL PURPOSE</p>	<p>GP and GP2</p>  <p>General purpose chipbreaker. Feed rates up to 0,56/rev and 6,35 depth of cut.</p>	
<p>MEDIUM ROUGHING</p>	<p>MR and MR2</p>  <p>Used for medium roughing of all material. Feeds up to 0,71/rev and depths up to 7,62.</p>	
<p>HEAVY ROUGHING</p>	<p>HR <i>single sided</i></p>  <p>Heavy roughing for all materials. Feeds above 0,58/rev. One-sided chipbreaker for heaviest feeds (MM). <i>Example: CNMM-190612 HR</i></p>	

WG-300

WG-300

WG-300

Carbide Inserts – Negative



80° Diamond
Chip Control
GP2, MR, HR – single sided
page: HT 10



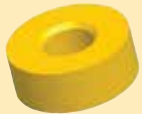
80° Diamond
Flat Top
page: HT 11



80° Diamond
Flat Top
page: HT 11



Round
Chip Control
MR, MR – single sided
page: HT 12



Round
Flat Top
page: HT 13



Round
Flat Top
page: HT 13



Square
Chip Control
GP2, MR,
HR – single sided
page: HT 14

Carbide Inserts – Negative *continued*



Square
Flat Top
page: HT 15



Square
Flat Top
page: HT 16



Triangle
Chip Control
MR
page: HT 17



Triangle
Flat Top
page: HT 17



Triangle
Flat Top
TNGN, TNUN
page: HT 18

Carbide Inserts – Positive



Triangle
Flat Top
page: HT 19



Square
Flat Top
page: HT 20

Ceramic Inserts – Negative



80° Diamond
page: HT 21



Round
page: HT 22



Square
page: HT 23



Triangle
page: HT 24

Ceramic Inserts – Positive



Square
page: HT 25

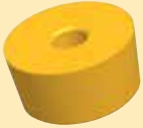
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Roll Turning



Roll Turning
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Roll Turning
page: HT 27



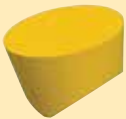
Roll Turning
page: HT 28



Roll Turning
page: HT 29



Round
V-Bottom
page: HT 30



Round
V-Bottom
page: HT 31

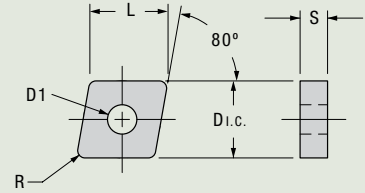


Square
Negative
page: HT 32



80° Diamond Inserts

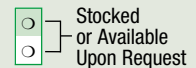
Chip Control



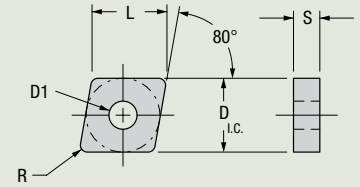
Shape: 80° Diamond	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)						
		P25	P25	P35	M20	M35	K15		S	D.I.C.	L	S	D1	R	
ISO		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M	ANSI	D.I.C.	L	S	D1	R
GENERAL PURPOSE GP 	CNMG-190612-GP	●	○	○	○	○	○	○	○	CNMG-643-GP	19,05	19,33	6,35	7,92	1,19
MEDIUM ROUGHING MR 	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 HR - single sided 	CNMM-190612-HR	○	○	○	○	○	○	○	○	CNMM-643-HR	19,05	19,33	6,35	7,92	1,19
Carbide Coatings		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M						
MT-CVD Coated	PVD Coated	Uncoated	P25	P25	P35	M20	M35	K15	S						
			Steel	S. Steel	Cast Iron	H-T A.									

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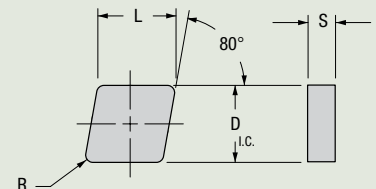
80° Diamond Inserts Flat Top (CNMA)



Shape: 80° Diamond	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)						
		P25	P25	P35	M20	M35	K15		S	D I.C.	L	S	D1	R	
	ISO	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M						
	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	2,36

Carbide Coatings			Steel		S. Steel		Cast Iron	H-T A.
			GA5035	GA5125	GA5036	GA5023	G-915	G-20M
MT-CVD Coated	PVD Coated	Uncoated	P25	P25	P35	M20	M35	K15
								S

80° Diamond Inserts Flat Top (CNGN)



Shape: 80° Diamond	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)					
		P25	P25	P35	M20	M35	K15		S	D I.C.	L	S	R	
	ISO	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M					
	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			Steel		S. Steel		Cast Iron	H-T A.
			GA5035	GA5125	GA5036	GA5023	G-915	G-20M
MT-CVD Coated	PVD Coated	Uncoated	P25	P25	P35	M20	M35	K15
								S

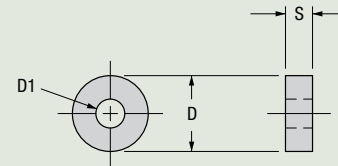
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Round Inserts

Chip Control



Shape: Round	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)			
		P25	P25	P35	M20	M35	K15		S	D	S	D1
ISO	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M	ANSI	D	S	D1
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		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M			
		P25	P25	P35	M20	M35	K15	S				
		Steel	S. Steel	Cast Iron	H-T A.							

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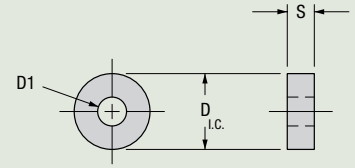
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Round Inserts

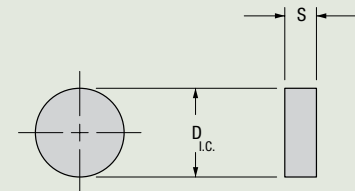
Flat Top (RNMA)



Shape: Round	Part Number	Material						Part Number	Dimensions (millimeters)				
		Steel	S. Steel	Cast Iron	H-T A.	D I.C.	S		D1				
ISO		P25	P25	P35	M20	M35	K15	S					
		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M				
	RNMA-190600	○	○	○	○	○	○	○	○	RNMA-64	19,05	6,35	7,92
	RNMA-250900	○	○	○	○	○	○	○	○	RNMA-86	25,40	9,53	9,12
Carbide Coatings		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M				
<input type="checkbox"/> MT-CVD Coated <input type="checkbox"/> PVD Coated <input type="checkbox"/> Uncoated		P25	P25	P35	M20	M35	K15	G-915	S				
		Steel	S. Steel	Cast Iron	H-T A.								

Round Inserts

Flat Top (RNGN)



Shape: Round	Part Number	Material						Part Number	Dimensions (millimeters)			
		Steel	S. Steel	Cast Iron	H-T A.	D I.C.	S					
ISO		P25	P25	P35	M20	M35	K15	S				
		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M			
	RNGN-190400	○	○	○	○	○	○	○	○	RNGN-63	19,05	4,75
	RNGN-250600	○	○	○	○	○	○	○	○	RNGN-84	25,40	6,35
Carbide Coatings		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M			
<input type="checkbox"/> MT-CVD Coated <input type="checkbox"/> PVD Coated <input type="checkbox"/> Uncoated		P25	P25	P35	M20	M35	K15	S	S			
		Steel	S. Steel	Cast Iron	H-T A.							

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Stocked Standard

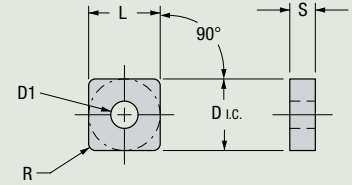
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90°



Square Inserts

Chip Control



GENERAL PURPOSE	Shape: Square GP2	Part Number ISO	Steel		S. Steel		Cast Iron	H-T A.	Part Number ANSI	Dimensions (millimeters)					
			P25	P25	P35	M20	M35	K15		S	D i.c.	L	S	D1	R
			GA5035	GA5125	GA5036	GA5023	G-915	GA5023		G-915	G-20M				
MEDIUM ROUGHING	MR	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
HEAVY ROUGHING	HR - single sided	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	2,36
		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

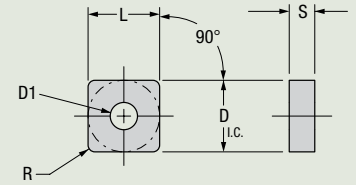
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Square Inserts

Flat Top (SNMA)



Shape: Square	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)						
		P25	P25	P35	M20	M35	K15		S	D I.C.	L	S	D1	R	
	ISO	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M						
	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	2,36
Carbide Coatings 		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M						
		P25	P25	P35	M20	M35	K15	S							
		Steel		S. Steel		Cast Iron		H-T A.							

Stocked or Available Upon Request
 Stocked Standard

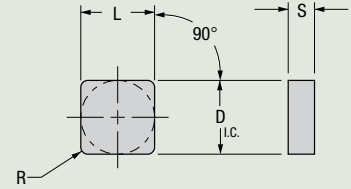
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90°



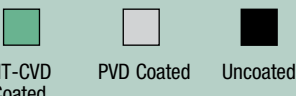
Square Inserts

Flat Top (SNGN/SNUN)



Shape: Square	Part Number ISO	Steel		S. Steel		Cast Iron	H-T A.	Part Number ANSI	Dimensions (millimeters)			
		P25	P25	P35	M20	M35	K15		S	D.I.C.	L	S
	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	2,36
	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	2,36
	SNGN-310932	○	○	○	○	○	○	SNGN-1068	31,75	31,75	9,53	3,18
	SNGN-381232	○	○	○	○	○	○	SNGN-1288	38,10	38,10	12,70	3,18
	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	2,36
	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



GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M
P25	P25	P35	M20	M35	K15	S	
Steel	S. Steel	Cast Iron	H-T A.				

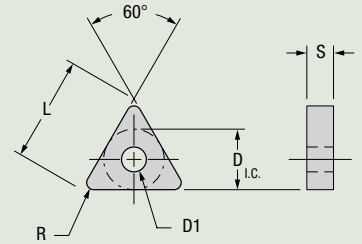
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Triangle Inserts

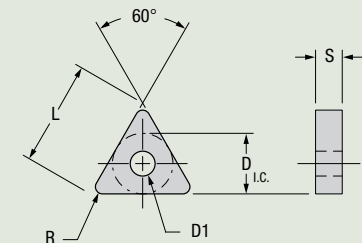
Chip Control



Shape: Triangle	Part Number	Steel	S. Steel	Cast Iron	H-T A.	Part Number	Dimensions (millimeters)							
		P25 GA5035	P25 GA5125	P35 GA5036	M20 GA5023		M35 G-915	K15 GA5023	S G-915	G-20M	D I.C.	L	S	D1
MR	TNMG-330924-MR	●	○	○	○	TNMG-666-MR	19,05	32,99	9,53	7,92	2,39			
Carbide Coatings 		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M					
		P25	P25	P35	M20	M35	K15	S						
		Steel	S. Steel	Cast Iron	H-T A.									

Triangle Inserts

Flat Top (TNMA)



Shape: Triangle	Part Number	Steel	S. Steel	Cast Iron	H-T A.	Part Number	Dimensions (millimeters)						
		P25 GA5035	P25 GA5125	P35 GA5036	M20 GA5023		M35 G-915	K15 GA5023	S G-915	G-20M	D I.C.	L	S
	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	2,36		
	TNMA-330932	○	○	○	○	TNMA-668	19,05	32,99	9,53	7,92	3,18		
Carbide Coatings 		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M				
		P25	P25	P35	M20	M35	K15	S					
		Steel	S. Steel	Cast Iron	H-T A.								

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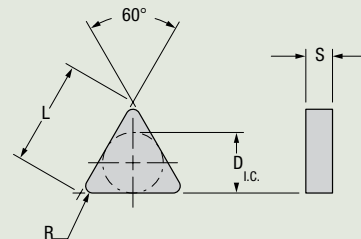
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Triangle Inserts

Flat Top (TNGN)

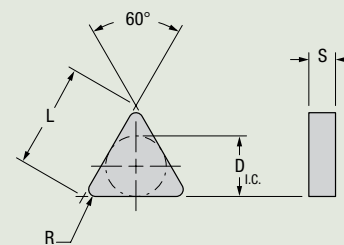


Shape: Triangle	Part Number ISO	Steel		S. Steel		Cast Iron	H-T A.	Part Number ANSI	Dimensions (millimeters)			
		P25	P25	P35	M20	M35	K15		S	D.I.C.	L	S
	TNGN-330716	○	○	○	○	○	○	TNGN-654	19,05	32,99	7,92	1,57
	TNGN-330724	○	○	○	○	○	○	TNGN-656	19,05	32,99	7,92	2,36
	TNGN-330916	○	○	○	○	○	○	TNGN-664	19,05	32,99	9,53	1,57
	TNGN-330924	○	○	○	○	○	○	TNGN-666	19,05	32,99	9,53	2,36
	TNGN-330932	○	○	○	○	○	○	TNGN-668	19,05	32,99	9,53	3,18
	TNGN-381124	○	○	○	○	○	○	TNGN-776	22,23	38,51	11,10	2,36
	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			Steel		S. Steel		Cast Iron	H-T A.	
			P25	P25	P35	M20	M35	K15	S
MT-CVD Coated	PVD Coated	Uncoated	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915
			G-20M	G-915	G-915	G-20M	G-915	G-20M	G-20M

Triangle Inserts

Flat Top (TNUN)



Shape: Triangle	Part Number ISO	Steel		S. Steel		Cast Iron	H-T A.	Part Number ANSI	Dimensions (millimeters)			
		P25	P25	P35	M20	M35	K15		S	D.I.C.	L	S
	TNUN-330716	○	○	○	○	○	○	TNUN-654	19,05	32,99	7,92	1,57
	TNUN-330724	○	○	○	○	○	○	TNUN-656	19,05	32,99	7,92	2,36
	TNUN-330916	○	○	○	○	○	○	TNUN-664	19,05	32,99	9,53	1,57
	TNUN-330924	○	○	○	○	○	○	TNUN-666	19,05	32,99	9,53	2,36
	TNUN-330932	○	○	○	○	○	○	TNUN-668	19,05	32,99	9,53	3,18
	TNUN-381124	○	○	○	○	○	○	TNUN-776	22,23	38,51	11,10	2,36
	TNUN-381132	○	○	○	○	○	○	TNUN-778	22,23	38,51	11,10	3,18
	TNUN-381140	○	○	○	○	○	○	TNUN-7710	22,23	38,51	11,10	3,96
	TNUN-441132	○	○	○	○	○	○	TNUN-878	25,40	43,99	11,10	3,18

Carbide Coatings			Steel		S. Steel		Cast Iron	H-T A.	
			P25	P25	P35	M20	M35	K15	S
MT-CVD Coated	PVD Coated	Uncoated	GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915
			G-20M	G-915	G-915	G-20M	G-915	G-20M	G-20M

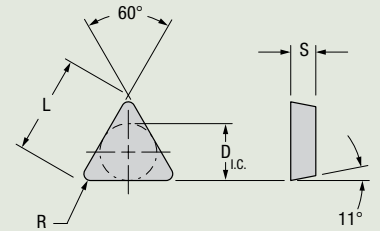
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Triangle Inserts

Flat Top (TPGN/TPUN)



Shape: Triangle	Part Number	Steel		S. Steel		Cast Iron	H-T A.	Part Number	Dimensions (millimeters)				
		P25	P25	P35	M20	M35	K15		S	D I.C.	L	S	R
	TPGN-330924	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TPGN-666	19,05	32,99	9,53	2,36	
	TPUN-330916	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TPUN-664	19,05	32,99	9,53	1,57	
	TPUN-330924	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TPUN-666	19,05	32,99	9,53	2,36	
Carbide Coatings <input type="checkbox"/> MT-CVD Coated <input type="checkbox"/> PVD Coated <input type="checkbox"/> Uncoated		GA5035	GA5125	GA5036	GA5023	G-915	GA5023	G-915	G-20M				
		P25	P25	P35	M20	M35	K15	S					
		Steel		S. Steel		Cast Iron		H-T A.					

positive carbide - HEAVY TURNING INSERTS

Stocked or Available Upon Request

Stocked Standard

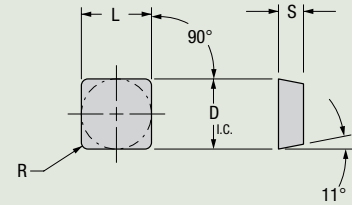
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90°



Square Inserts

Flat Top



Shape: Square	Part Number ISO	Steel		S. Steel		Cast Iron	H-T A.	Part Number ANSI	Dimensions (millimeters)				
		P25	P25	P35	M20	M35	K15		S	D I.C.	L	S	R
	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	2,36
	SPGN-190432	○	○	○	○	○	○	○	SPGN-638	19,05	19,05	4,75	3,18
	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	2,36
	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

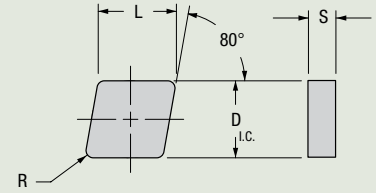
MT-CVD Coated
 PVD Coated
 Uncoated

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Stocked Standard
 Stocked or Available Upon Request

80° Diamond Inserts

Negative



Shape: 80° Diamond	Part Number ISO	Edge Prep	Whisker						Part Number ANSI	Edge Prep	Dimensions (millimeters)			
			WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	SiN _x GSN100	Al ₂ O ₃ -TiC GEM-7			D I.C.	L	S	R
	CNGN-190608	T2A	○	○	○	○	○	○	CNGN-642	T2A	19,05	19,33	6,35	0,79
	CNGN-190612	T4A	○	○	○	○	○	○	CNGN-643	T4A	19,05	19,33	6,35	1,19
		T2A	○	○	●	○	○	○		T2A	19,05	19,33	6,35	1,19
	CNGN-190616	T2A	○	○	○	○	○	○	CNGN-644	T2A	19,05	19,33	6,35	1,57

Ceramic Classification				Edge Prep Descriptions – HT 06						
				WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	SiN _x GSN100	Al ₂ O ₃ -TiC GEM-7	
Whisker Ceramic	Phase Toughened	Silicon Nitride	Alumina TiC	Whisker	Phase Toughened	SiN _x	Al ₂ O ₃ -TiC	GEM-7		

Page HT 05 – grade descriptions

If edge prep is not shown, call Greenleaf Technical Service for assistance.

radius forming insert & toolholder - HEAVY TURNING INSERTS

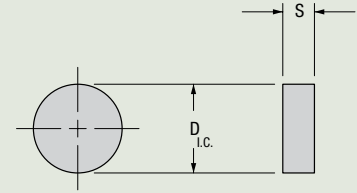
Inserts and Steel Products Only	Inserts Only	Steel Products
10 Business Days or Less <input type="checkbox"/>	Stocked or Available Upon Request <input type="checkbox"/>	Stocked Standard <input type="checkbox"/>

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Round Inserts

Negative



Shape: Round	Part Number ISO	Edge Prep	Whisker						Part Number ANSI	Edge Prep	Dimensions (millimeters)	
			WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7			D I.C.	S
	RNGN-190600	T2A	○	○	○	○	○	○	RNGN-64	T2A	19,05	6,35
	RNGN-190700	T2A	●	○	●	○	○	○	RNGN-65	T2A	19,05	7,92
		T10B	○	○	○	○	○	●		T10B	19,05	7,92
	RNGN-250600	T2A	○	○	○	○	○	○	RNGN-84	T2A	25,40	6,35
	RNGN-250700	T2A	○	○	○	○	○	○	RNGN-85	T2A	25,40	7,92
	RNGN-250900	T2A	○	○	○	○	○	○	RNGN-86	T2A	25,40	9,53
	RNGN-310900	T4B	○	○	○	○	○	○	RNGN-106	T4B	31,75	9,53
		T10B	○	○	○	○	○	●		T10B	31,75	9,53

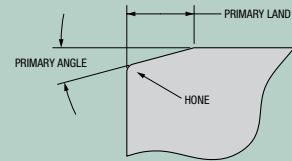
Ceramic Classification

- Whisker Ceramic
- Phase Toughened
- Silicon Nitride
- Alumina TiC

Page HT 05 – grade descriptions

WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7
Whisker	Phase Toughened	Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC	

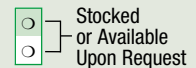
Edge Prep Descriptions – HT 06



If edge prep is not shown, call Greenleaf Technical Service for assistance.

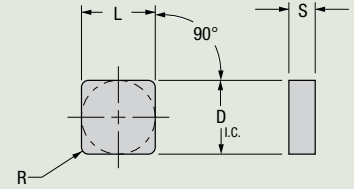
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Square Inserts

Negative



Shape: Square	Part Number ISO	Edge Prep	Whisker						Part Number ANSI	Edge Prep	Dimensions (millimeters)			
			WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	Si ₃ N ₄ GSN100	Al ₂ O ₃ -TiC GEM-7			D I.C.	L	S	R
	SNGN-190608	T2A	○	○	○	○	○	○	SNGN-642	T2A	19,05	19,05	6,35	0,79
	SNGN-190612	T2A	●	○	○	○	○	○	SNGN-643	T2A	19,05	19,05	6,35	1,19
	SNGN-190616	T2A	●	○	○	○	○	○	SNGN-644	T2A	19,05	19,05	6,35	1,57
	SNGN-190712	T2A	○	○	○	○	○	○	SNGN-653	T2A	19,05	19,05	7,92	1,19
	SNGN-190716	T10B	○	○	○	○	○	○	SNGN-654	T10B	19,05	19,05	7,92	1,57
	SNGN-190720	T2A	○	○	○	○	○	○	SNGN-655	T2A	19,05	19,05	7,92	1,98
	SNGN-250924	T10B	○	○	○	○	○	○	SNGN-866	T10B	25,40	25,40	9,53	2,39

Ceramic Classification Whisker Ceramic Phase Toughened Silicon Nitride Alumina TiC				<table border="1"> <tr> <td>WG-300</td> <td>WG-600</td> <td>WG-700</td> <td>Phase Toughened XSYTIN-1</td> <td>Si₃N₄ GSN100</td> <td>Al₂O₃-TiC GEM-7</td> </tr> <tr> <td>Whisker</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	Si ₃ N ₄ GSN100	Al ₂ O ₃ -TiC GEM-7	Whisker						Edge Prep Descriptions – HT 06
WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	Si ₃ N ₄ GSN100	Al ₂ O ₃ -TiC GEM-7												
Whisker																	

Page HT 05 – grade descriptions

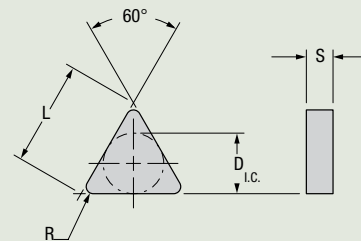
If edge prep is not shown, call Greenleaf Technical Service for assistance.

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Triangle Inserts Negative



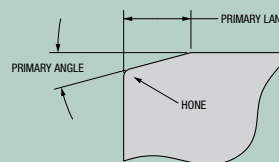
Shape: Triangle	Part Number ISO	Edge Prep	Whisker					Part Number ANSI	Edge Prep	Dimensions (millimeters)			
			WG-300	WG-600	WG-700	XSYTIN-1	GSN100			GEM-7	D I.C.	L	S
	TNGN-330924	T4B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TNGN-666	T4B	19,05	32,99	9,53	2,39
	TNGN-440932	T10B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TNGN-868	T10B	25,40	43,99	9,53	3,18

Ceramic Classification

- Whisker Ceramic
- Phase Toughened
- Silicon Nitride
- Alumina TiC

Page HT 05 – grade descriptions

Edge Prep Descriptions – page HT 06



If edge prep is not shown, call Greenleaf Technical Service for assistance.

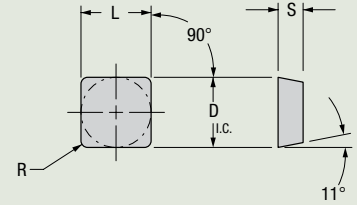
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Square Inserts

Positive



Shape: Square	Part Number ISO	Edge Prep	Whisker					Part Number ANSI	Edge Prep	Dimensions (mimlimeters)			
			WG-300	WG-600	WG-700	XSYTIN-1	GSN100			GEM-7	D I.C.	L	S
	SPGN-190412	T2A	○	○	○	○	○	SPGN-633	T2A	19,05	19,05	4,75	1,19
	SPGN-190416	T2A	○	○	○	○	○	SPGN-634	T2A	19,05	19,05	4,75	1,57
	SPGN-190608	T2A	○	○	○	○	○	SPGN-642	T2A	19,05	19,05	6,35	0,79

Ceramic Classification Whisker Ceramic Phase Toughened Silicon Nitride Alumina TiC				<table border="1"> <tr> <td>WG-300</td> <td>WG-600</td> <td>WG-700</td> <td>XSYTIN-1</td> <td>GSN100</td> <td>GEM-7</td> </tr> <tr> <td>Whisker</td> <td>Phase Toughened</td> <td>Si₃N₄</td> <td>Al₂O₃-TiC</td> <td></td> <td></td> </tr> </table>	WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7	Whisker	Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC			Edge Prep Descriptions – HT 06
WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7												
Whisker	Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC														

Page HT 05 – grade descriptions

If edge prep is not shown, call Greenleaf Technical Service for assistance.

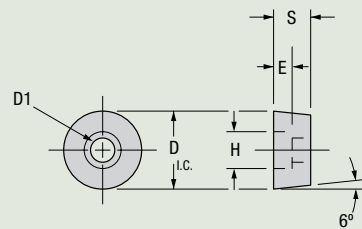
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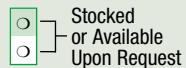
Roll Turning Inserts



Shape: CDH	Part Number ISO					Part Number ANSI	Dimensions (millimeters)				
		GA5035	G-935	G-50	G-74		D I.C.	S	H	D1	E
	CDH-42	○	○	○	○	CDH-42	25,40	12,70	10,31	6,73	6,35
	CDH-43	○	○	○	○	CDH-43	25,40	19,05	10,31	6,73	12,70
	CDH-51.5	○	○	○	○	CDH-51.5	31,75	9,53	15,06	9,91	9,53
	CDH-53	○	○	○	○	CDH-53	31,75	19,05	15,06	9,91	9,53
Carbide Coatings  MT-CVD Coated  PVD Coated  Uncoated		GA5035	G-935	G-50	G-74						

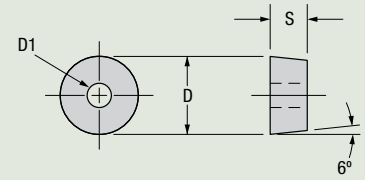
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Roll Turning Inserts



Shape: C-CDH	Part Number ISO	Edge Prep	Whisker						Part Number ANSI	Edge Prep	Dimensions (millimeters)		
			WG-300	WG-600	WG-700	XSYTIN-1 <small>Phase Toughened</small>	GSN100 <small>Si₃N₄</small>	GEM-7 <small>Al₂O₃-TiC</small>			D I.C.	S	D1
	C-CDH-21	T4B	○	○	○	○	○	○	C-CDH-21	T4B	12,70	6,35	3,18
		T10B	○	○	○	○	○	○		T10B	12,70	6,35	3,18
	C-CDH-22	T4B	○	○	○	○	○	○	C-CDH-22	T4B	12,70	12,70	3,18
		T10B	○	○	○	○	○	○		T10B	12,70	12,70	3,18
	C-CDH-31	T4B	○	○	○	○	○	○	C-CDH-31	T4B	19,05	6,35	6,73
		T10B	○	○	○	○	○	○		T10B	19,05	6,35	6,73
	C-CDH-31.5	T4B	○	○	○	○	○	○	C-CDH-31.5	T4B	19,05	9,53	6,73
		T10B	○	○	○	○	○	○		T10B	19,05	9,53	6,73
	C-CDH-42	T4B	○	○	○	○	○	○	C-CDH-42	T4B	25,40	12,70	6,73
		T10B	●	○	○	○	○	●		T10B	25,40	12,70	6,73
	C-CDH-43	T4B	○	○	○	○	○	○	C-CDH-43	T4B	25,40	19,05	6,73
		T10B	○	○	○	○	○	○		T10B	25,40	19,05	6,73
	C-CDH-51.5	T4B	○	○	○	○	○	○	C-CDH-51.5	T4B	31,75	9,53	9,91
		T10B	○	○	○	○	○	○		T10B	31,75	9,53	9,91
	C-CDH-53	T4B	○	○	○	○	○	○	C-CDH-53	T4B	31,75	19,05	9,91
		T10B	○	○	○	○	○	●		T10B	31,75	19,05	9,91

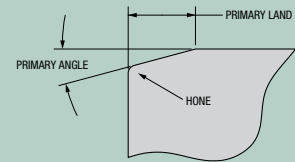
Ceramic Classification

Whisker Ceramic
 Phase Toughened
 Silicon Nitride
 Alumina TiC

Page HT 05 – grade descriptions

WG-300
 WG-600
 WG-700
 XSYTIN-1
 GSN100
 GEM-7

Edge Prep Descriptions – HT 06



If edge prep is not shown, call Greenleaf Technical Service for assistance.

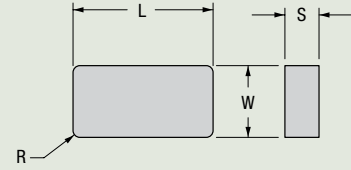
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90°



Roll Turning Inserts



Shape: LNUN	Part Number ISO					Part Number ANSI	Dimensions (millimeters)			
		GA5035	G-935	G-50	G-74		W	L	S	R
	LNUN-4442	○	○	○	○	LNUN-4442	12,70	25,40	6,35	0,79
	LNUN-4444	○	○	○	○	LNUN-4444	12,70	25,40	6,35	1,57
	LNUN-4452	○	○	○	○	LNUN-4452	12,70	25,40	7,92	0,79
	LNUN-4454	○	○	○	○	LNUN-4454	12,70	25,40	7,92	1,57
	LNUN-5444	○	○	○	○	LNUN-5444	15,88	25,40	6,35	1,57
	LNUN-5464	○	○	○	○	LNUN-5464	15,88	25,40	9,53	1,57
	LNUN-5564	○	○	○	○	LNUN-5564	15,88	31,75	9,53	1,57
	LNUN-6568	○	○	○	○	LNUN-6568	19,05	31,75	9,53	3,18
	LNUN-6684	○	○	○	○	LNUN-6684	19,05	38,10	12,70	1,57
	LNUN-6688	○	○	●	○	LNUN-6688	19,05	38,10	12,70	3,18
	LNUN-66812	○	○	○	○	LNUN-66812	19,05	38,10	12,70	4,75
	LNUN-68812	○	○	○	○	LNUN-68812	19,05	50,80	12,70	4,75

Carbide Coatings			GA5035	G-935	G-50	G-74
MT-CVD Coated	PVD Coated	Uncoated				

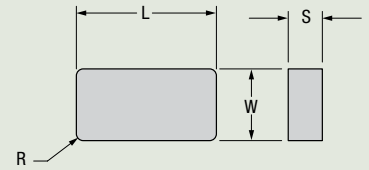
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Roll Turning Inserts



Shape: LNMN	Part Number ISO	Edge Prep	Whisker						Part Number ANSI	Edge Prep	Dimensions (millimeters)			
			WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	Si ₃ N ₄ GSN100	Al ₂ O ₃ -TiC GEM-7			W	L	S	R
	LNMN-4442	T4B	○	○	○	○	○	○	LNMN-4442	T4B	12,70	25,40	6,35	0,79
		T10B	○	○	○	○	○	○	LNMN-4442	T10B	12,70	25,40	6,35	0,79
	LNMN-4444	T4B	○	○	○	○	○	○	LNMN-4444	T4B	12,70	25,40	6,35	1,57
		T10B	○	○	○	○	○	○	LNMN-4444	T10B	12,70	25,40	6,35	1,57
	LNMN-4452	T4B	○	○	○	○	○	○	LNMN-4452	T4B	12,70	25,40	7,92	0,79
		T10B	○	○	○	○	○	○	LNMN-4452	T10B	12,70	25,40	7,92	0,79
	LNMN-4454	T4B	○	○	○	○	○	○	LNMN-4454	T4B	12,70	25,40	7,92	1,57
		T10B	○	○	○	○	○	○	LNMN-4454	T10B	12,70	25,40	7,92	1,57
	LNMN-5444	T4B	○	○	○	○	○	○	LNMN-5444	T4B	15,88	25,40	6,35	1,57
		T10B	○	○	○	○	○	○	LNMN-5444	T10B	15,88	25,40	6,35	1,57
	LNMN-5464	T4B	○	○	○	○	○	○	LNMN-5464	T4B	15,88	25,40	9,53	1,57
		T10B	○	○	○	○	○	●	LNMN-5464	T10B	15,88	25,40	9,53	1,57
	LNMN-5564	T4B	○	○	○	○	○	○	LNMN-5564	T4B	15,88	31,75	9,53	1,57
		T10B	○	○	○	○	○	○	LNMN-5564	T10B	15,88	31,75	9,53	1,57
	LNMN-6568	T4B	○	○	○	○	○	○	LNMN-6568	T4B	19,05	31,75	9,53	3,18
		T10B	○	○	○	○	○	○	LNMN-6568	T10B	19,05	31,75	9,53	3,18
	LNMN-6684	T4B	○	○	○	○	○	○	LNMN-6684	T4B	19,05	38,10	12,70	1,57
		T10B	○	○	○	○	○	○	LNMN-6684	T10B	19,05	38,10	12,70	1,57
	LNMN-6688	T4B	○	○	●	○	○	○	LNMN-6688	T4B	19,05	38,10	12,70	3,18
		T10B	●	●	●	○	○	●	LNMN-6688	T10B	19,05	38,10	12,70	3,18
	LNMN-66812	T4B	○	○	○	○	○	○	LNMN-66812	T4B	19,05	38,10	12,70	4,75
		T10B	○	○	○	○	○	○	LNMN-66812	T10B	19,05	38,10	12,70	4,75

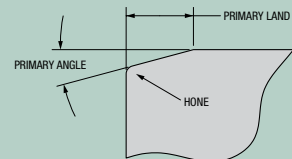
Ceramic Classification

Whisker Ceramic	Phase Toughened	Silicon Nitride	Alumina TiC

Page HT 05 – grade descriptions

WG-300	WG-600	WG-700	Phase Toughened XSYTIN-1	Si ₃ N ₄ GSN100	Al ₂ O ₃ -TiC GEM-7
Whisker					

Edge Prep Descriptions – HT 06



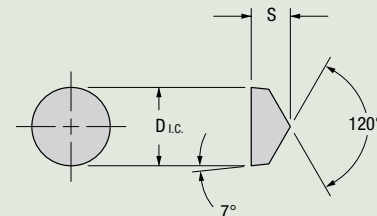
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Round V-Bottom Inserts



Shape: Round V-Bottom	Part Number ISO	Edge Prep	Whisker					Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC	Part Number ANSI	Edge Prep	Dimensions (millimeters)	
			WG-300	WG-600	WG-700	XSYTIN-1	GSN100						GEM-7	D.I.C.
	RCGX-060400	T2A	○	○	○	○	○	○	●	RCGN-2V	T2A	6,35	4,75	
	RCGX-090700	T2A	●	○	○	○	○	○	●	RCGN-3V	T2A	9,53	7,92	
		T4B	●	○	○	○	○	○	○		T5B	9,53	7,92	
	RCGX-120700	T2A	●	●	●	○	○	○	●	RCGN-4V	T2A	12,70	7,92	
		T4A	○	○	○	○	○	○	●		T4A	12,70	7,92	
		T5A	●	○	○	○	○	○	●		T5A	12,70	7,92	
		T5B	●	○	○	○	○	○	●		T5B	12,70	7,92	
	RCGX-151000	T2A	○	○	○	○	○	○	○	RCGN-5V	T2A	15,88	10,01	
	RCGX-191000	T2A	○	○	○	○	○	○	○	RCGX-106	T2A	19,05	10,01	
	RCGX-191200	T2A	○	○	○	○	○	○	○	RCGN-6V	T2A	19,05	12,70	

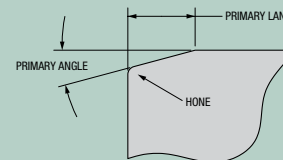
Ceramic Classification

Whisker Ceramic	Phase Toughened	Silicon Nitride	Alumina TiC

Page HT 05 – grade descriptions

WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7
Whisker	Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC		

Edge Prep Descriptions – HT 06



Page HT 34 – toolholders:

If edge prep is not shown, call Greenleaf Technical Service for assistance.

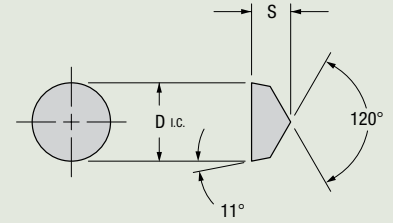
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Round V-Bottom Inserts



Shape: Round V-Bottom	Part Number ISO	Edge Prep	Whisker							Part Number ANSI	Edge Prep	Dimensions (millimeters)	
			WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7	Al ₂ O ₃ -TiC			D I.C.	S
	RPGX-060400	T2A	●	○	●	○	○	○	RPGN-2V	T2A	6,35	4,75	
	RPGX-090700	T2A	●	●	●	○	○	○	RPGN-3V	T2A	9,53	7,92	
		T4B	○	○	○	○	○	○		T4B	9,53	7,92	
	RPGX-120700	T2A	●	●	○	○	○	○	RPGN-4V	T2A	12,70	7,92	
		T4B	○	○	○	○	○	○		T4B	12,70	7,92	

Ceramic Classification				WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7
				Whisker	Phase Toughened	Silicon Nitride	Alumina TiC	Whisker	Phase Toughened
Whisker Ceramic	Phase Toughened	Silicon Nitride	Alumina TiC						

Edge Prep Descriptions – HT 06	

Page HT 05 – grade descriptions

If edge prep is not shown, call Greenleaf Technical Service for assistance.

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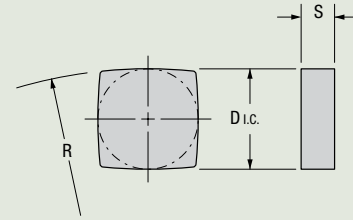
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90°



Square Inserts

Negative



Shape: Square	Part Number		Edge Prep	Whisker						Part Number	Edge Prep	Dimensions (millimeters)						
	ISO	ANSI		WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7			D.I.C.	S	R				
	SNGN-128-R4.5		T4B	○	○	○	○	○	○									
										SNGN-128-R4.5	T4B	38,10	12,70	114,30				

Ceramic Classification

Whisker Ceramic	Phase Toughened	Silicon Nitride	Alumina TiC	Al ₂ O ₃

Page HT 05 – grade descriptions

Edge Prep Descriptions – HT 06

WG-300	WG-600	WG-700	XSYTIN-1	GSN100	GEM-7
Whisker	Phase Toughened	Si ₃ N ₄	Al ₂ O ₃ -TiC		

If edge prep is not shown, call Greenleaf Technical Service for assistance.

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Stocked Standard
 Stocked or Available Upon Request

Stocked
or Available
Upon Request

Stocked Standard

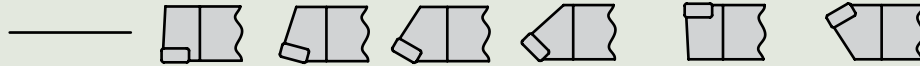
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Inserts

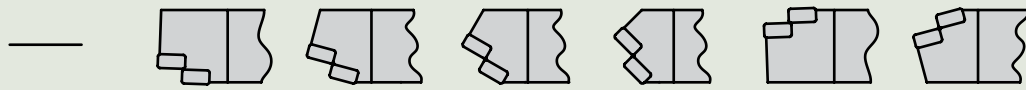
ROUND
V-BOTTOM
RPGN , RCGN STYLES



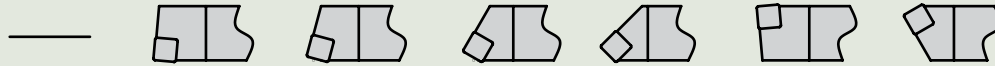
SINGLE
RECTANGULAR
LNU STYLE



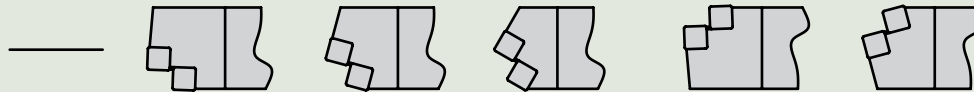
DOUBLE
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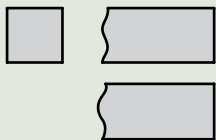
SINGLE SQUARE
NEGATIVE OR POSITIVE
SNUN , SPUN STYLES



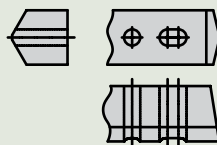
DOUBLE SQUARE
NEGATIVE OR POSITIVE
SNUN , SPUN STYLE



Shank Options



STRAIGHT
SHANK



CUSTOMIZED
V-BOTTOM
SHANK



FARREL
QUICK CHANGE

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Inserts *continued*

TRIANGULAR INSERT

NEGATIVE OR POSITIVE
TPGN , TNUN STYLES



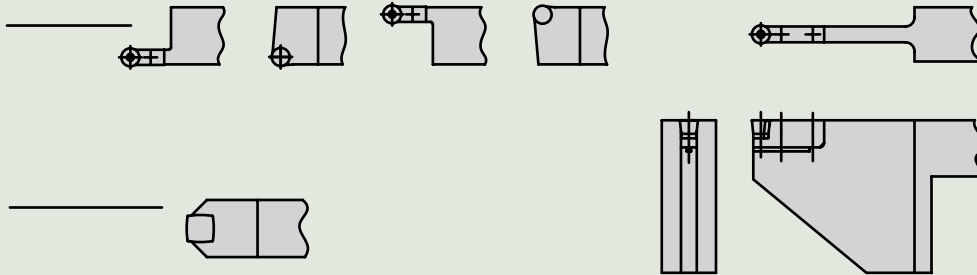
DIAMOND INSERT

NEGATIVE OR POSITIVE
CNGN , CPGN STYLES



ROUND INSERT

NEGATIVE OR POSITIVE
RNGN , RCGN STYLES
CDH STYLES

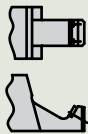


FINISHING INSERT

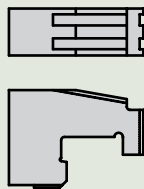
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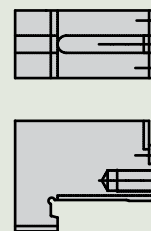
Shank Options *continued*



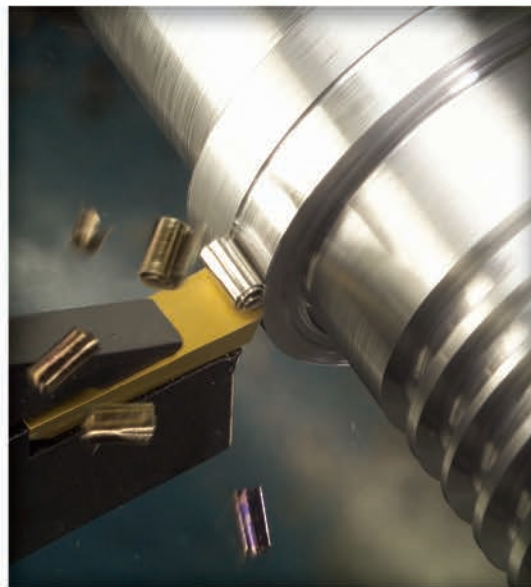
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CAM LOCK



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