

## ANSI Insert Nomenclature

A - Parallelogram 85° B - Parallelogram 82° C - Diamond (Rhombic) 80° D - Diamond (Rhombic) 55° E - Diamond (Rhombic) 75° H - Hexagon K - Parallelogram 55° L - Rectangle M - Diamond (Rhombic) 86° O - Octagon P - Pentagon R - Round S - Square T - Triangle V - Diamond (Rhombic) 35° W - Trigon 80°	<table border="1"> <thead> <tr> <th>Symbol</th> <th>I.C.</th> <th>Thickness</th> </tr> </thead> <tbody> <tr><td>A</td><td>.001"</td><td>.001"</td></tr> <tr><td>B</td><td>.001"</td><td>.005"</td></tr> <tr><td>C</td><td>.001"</td><td>.001"</td></tr> <tr><td>D</td><td>.001"</td><td>.005"</td></tr> <tr><td>E</td><td>.001"</td><td>.001"</td></tr> <tr><td>F</td><td>.0005"</td><td>.001"</td></tr> <tr><td>G</td><td>.001"</td><td>.005"</td></tr> <tr><td>H</td><td>.0005"</td><td>.001"</td></tr> <tr><td>M</td><td>.002-.004"</td><td>.005"</td></tr> <tr><td>U</td><td>.005-.010"</td><td>.005"</td></tr> </tbody> </table>	Symbol	I.C.	Thickness	A	.001"	.001"	B	.001"	.005"	C	.001"	.001"	D	.001"	.005"	E	.001"	.001"	F	.0005"	.001"	G	.001"	.005"	H	.0005"	.001"	M	.002-.004"	.005"	U	.005-.010"	.005"	<table border="1"> <thead> <tr> <th>Insert</th> <th>I.C.</th> <th>Thickness</th> <th>Radius</th> </tr> </thead> <tbody> <tr><td>21.5</td><td>1/4"</td><td>3/32"</td><td>.004"</td></tr> <tr><td>21.50.5</td><td>1/4"</td><td>3/32"</td><td>.008"</td></tr> <tr><td>21.51</td><td>1/4"</td><td>3/32"</td><td>1/64"</td></tr> <tr><td>21.52</td><td>1/4"</td><td>3/32"</td><td>1/32"</td></tr> <tr><td>220</td><td>1/4"</td><td>1/8"</td><td>.004"</td></tr> <tr><td>22.5</td><td>1/4"</td><td>1/8"</td><td>.008"</td></tr> <tr><td>221</td><td>1/4"</td><td>1/8"</td><td>1/64"</td></tr> <tr><td>222</td><td>1/4"</td><td>1/8"</td><td>1/32"</td></tr> <tr><td>22.5</td><td>1/4"</td><td>5/32"</td><td>.004"</td></tr> <tr><td>22.50.5</td><td>1/4"</td><td>5/32"</td><td>.008"</td></tr> <tr><td>22.51</td><td>1/4"</td><td>5/32"</td><td>1/64"</td></tr> <tr><td>22.52</td><td>1/4"</td><td>5/32"</td><td>1/32"</td></tr> <tr><td>2.52.5</td><td>5/16"</td><td>1/8"</td><td>.008"</td></tr> <tr><td>2.521</td><td>5/16"</td><td>1/8"</td><td>1/64"</td></tr> <tr><td>2.522</td><td>5/16"</td><td>1/8"</td><td>1/32"</td></tr> <tr><td>320</td><td>3/8"</td><td>1/8"</td><td>.004"</td></tr> <tr><td>321</td><td>3/8"</td><td>1/8"</td><td>1/64"</td></tr> <tr><td>322</td><td>3/8"</td><td>1/8"</td><td>1/32"</td></tr> <tr><td>323</td><td>3/8"</td><td>1/8"</td><td>3/64"</td></tr> <tr><td>324</td><td>3/8"</td><td>1/8"</td><td>1/16"</td></tr> </tbody> </table>	Insert	I.C.	Thickness	Radius	21.5	1/4"	3/32"	.004"	21.50.5	1/4"	3/32"	.008"	21.51	1/4"	3/32"	1/64"	21.52	1/4"	3/32"	1/32"	220	1/4"	1/8"	.004"	22.5	1/4"	1/8"	.008"	221	1/4"	1/8"	1/64"	222	1/4"	1/8"	1/32"	22.5	1/4"	5/32"	.004"	22.50.5	1/4"	5/32"	.008"	22.51	1/4"	5/32"	1/64"	22.52	1/4"	5/32"	1/32"	2.52.5	5/16"	1/8"	.008"	2.521	5/16"	1/8"	1/64"	2.522	5/16"	1/8"	1/32"	320	3/8"	1/8"	.004"	321	3/8"	1/8"	1/64"	322	3/8"	1/8"	1/32"	323	3/8"	1/8"	3/64"	324	3/8"	1/8"	1/16"	<table border="1"> <thead> <tr> <th>Insert</th> <th>I.C.</th> <th>Thickness</th> <th>Radius</th> </tr> </thead> <tbody> <tr><td>330</td><td>3/8"</td><td>3/16"</td><td>.004"</td></tr> <tr><td>331</td><td>3/8"</td><td>3/16"</td><td>1/32"</td></tr> <tr><td>332</td><td>3/8"</td><td>3/16"</td><td>1/64"</td></tr> <tr><td>333</td><td>3/8"</td><td>3/16"</td><td>3/64"</td></tr> <tr><td>334</td><td>3/8"</td><td>3/16"</td><td>1/16"</td></tr> <tr><td>431</td><td>1/2"</td><td>3/16"</td><td>1/64"</td></tr> <tr><td>432</td><td>1/2"</td><td>3/16"</td><td>1/32"</td></tr> <tr><td>433</td><td>1/2"</td><td>3/16"</td><td>3/64"</td></tr> <tr><td>434</td><td>1/2"</td><td>3/16"</td><td>1/16"</td></tr> <tr><td>441</td><td>1/2"</td><td>1/4"</td><td>1/64"</td></tr> <tr><td>442</td><td>1/2"</td><td>1/4"</td><td>1/32"</td></tr> <tr><td>443</td><td>1/2"</td><td>1/4"</td><td>3/64"</td></tr> <tr><td>444</td><td>1/2"</td><td>1/4"</td><td>1/16"</td></tr> <tr><td>520</td><td>5/8"</td><td>1/8"</td><td>.004"</td></tr> <tr><td>542</td><td>5/8"</td><td>1/4"</td><td>1/32"</td></tr> <tr><td>543</td><td>5/8"</td><td>1/4"</td><td>3/64"</td></tr> <tr><td>544</td><td>5/8"</td><td>1/4"</td><td>1/16"</td></tr> <tr><td>642</td><td>3/4"</td><td>1/4"</td><td>1/32"</td></tr> <tr><td>643</td><td>3/4"</td><td>1/4"</td><td>3/64"</td></tr> <tr><td>644</td><td>3/4"</td><td>1/4"</td><td>1/16"</td></tr> <tr><td>666</td><td>3/4"</td><td>3/8"</td><td>3/32"</td></tr> </tbody> </table>	Insert	I.C.	Thickness	Radius	330	3/8"	3/16"	.004"	331	3/8"	3/16"	1/32"	332	3/8"	3/16"	1/64"	333	3/8"	3/16"	3/64"	334	3/8"	3/16"	1/16"	431	1/2"	3/16"	1/64"	432	1/2"	3/16"	1/32"	433	1/2"	3/16"	3/64"	434	1/2"	3/16"	1/16"	441	1/2"	1/4"	1/64"	442	1/2"	1/4"	1/32"	443	1/2"	1/4"	3/64"	444	1/2"	1/4"	1/16"	520	5/8"	1/8"	.004"	542	5/8"	1/4"	1/32"	543	5/8"	1/4"	3/64"	544	5/8"	1/4"	1/16"	642	3/4"	1/4"	1/32"	643	3/4"	1/4"	3/64"	644	3/4"	1/4"	1/16"	666	3/4"	3/8"	3/32"
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RELIEF ANGLE	INSERT TYPES			
	Types	Hole?	C'Sink?	Chip Grv?
N - 0°	A	Yes	No	No
A - 3°	B	Yes	Yes	No
B - 5°	C	Yes	Yes	No
C - 7°	F	No	No	Yes
P - 11°	G	Yes	No	Yes
D - 15°	H	Yes	Yes	Yes
E - 20°	J	Yes	Yes	Yes
F - 25°	M	Yes	No	Yes
G - 30°	N	No	No	No
	P	Yes	No	Yes
	Q	Yes	Yes	No
	R	No	No	Yes
	T	Yes	Yes	Yes
	U	Yes	Yes	Yes
NP - 0° 10°	W	Yes	Yes	No

### CARBIDE GRADE CROSS-REFERENCE CHART

Industry Code (uncoated carbide)	ISO Code	Materials to be Machined
C2	M10-20 K10-20	General purpose grade for cast iron, non-ferrous alloys, high temperature exotics, stone, and plastics
C3, C4	K01-05	.Wear resistant grade for finishing cuts on cast iron, non-ferrous materials, high temperature exotics.
C5, C6	P20-30 M20-40	General purpose grade for steel, cast steel, malleable cast iron, 400/500 series stainless.
C7	P05-15	Light roughing to finish for steel, cast steel, malleable cast iron, 400/500 series stainless.
C8	P01-10	High speed finish grade for steel, cast steel, malleable cast iron, 400/500 series stainless
C2	P15-20 M15-30 K20-30	General purpose fine grade for steel, cast steel, alloyed cast irons, cast alloys, exotics.
C2	M20-30 K15-30	General purpose grade for roughing to finish in cast irons.
C2, C3	M10-20 K10-20	Fine grain grade for finishing of exotic iron, non-ferrous metals.
C5	P20-35	General purpose steel milling grade.
C1	M30-40 K30-40	Fine grain heavy-duty grade for roughing on iron, 200/300 series stainless steel and exotics.
C1	M30-45 K30-40	Heavy-duty grade for roughing on iron, stainless steel and exotics.
C2	K05-30	Cast iron, aluminum, non-ferrous alloys, exotics
C5	P25-50	For unfavorable conditions on steel, stainless steel.

### COATINGS

TiN	Titanium Nitride Coated-P.V.D. process - Gold color - .00015 - .00035 thick, up to 83 Rc. Lower coefficient of friction, abrasion-resistant, reduces galling, corrosion-resistant. Good for roughing, runs at high F & S.
TiC	Titanium Carbide Coated-C.V.D. Process - Purplish-gray color - Abrasion-resistant, cratering resistant.
Al2O3	Aluminum Oxide Coating - Abrasion resistant - Good on cast iron.
Cermet	Composite material produced from ceramic and metal, sintered with iron group metals as a main ingredient in titanium carbide. Has wear-resistance, chip control at higher speed machining.
Tri-Ctg	Titanium Carbide, Aluminum Oxide 203, Titanium Nitride Coated in 3 layers.
Uncoated	Solid homogeneous carbide - Recommended for many non-ferrous and non-metallic applications.

NOTE: Inserts with a 3 letter identification (i.e., CPG, SNG, SPG, TNG, TPG, TPU) are solid and have NO HOLE.