



Technical Resources
for
manufacturing professionals

Insert Designation Chart

Click the code letter or their description links in the example charts below for definitions of values:

Turning

C	N	M	G	4	3	2
Shape	Clearance Angle	Tolerance	Groove / Hole	Size (IC)	Thickness	Radius

Milling










S	E	K	N	4	2		A	E	I	N
Shape	Clearance Angle	Tolerance	Groove / Hole	Size (IC)	Thickness	Radius	Wiper Lead Angle	Wiper Clearance Angle	Cutting Edge Preparation	Cutting Direction

Shape (e.g. "CNMG432" / "CCMT32.51")

[\(close window\)](#)

Code Letter	Description	Diagram	Nose Angle
A	85° parallelogram		85°
B	82° parallelogram		82°
C	80° diamond		80°
D	55° diamond		55°
E	75° diamond		75°
H	hexagon		120°
K	55° parallelogram		55°
L	rectangle		90°
M	86° diamond		86°
N	55° parallelogram		55°
O	octagon		135°
P	pentagon		108°
R	round		full radius
S	square		90°
T	triangle		60°
V	35° diamond		35°
W	trigon		80°
X	sp. parallelogram		85°







Clearance or Relief Angle (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

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

Tolerance (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

Code Letter	Cornerpoint (inches)	Thickness (inches)	Inscribed Circle (in)	Cornerpoint (mm)	Thickness (mm)	Inscribed Circle (mm)
A	.0002"	.001"	.001"	.005mm	.025mm	.025mm
C	.0005"	.001"	.001"	.013mm	.025mm	.025mm
E	.001"	.001"	.001"	.025mm	.025mm	.025mm
F	.0002"	.001"	.0005"	.005mm	.025mm	.013mm
G	.001"	.005"	.001"	.025mm	.13mm	.025mm
H	.0005"	.001"	.0005"	.013mm	.025mm	.013mm
J	.002"	.001"	.002-.005"	.005mm	.025mm	.05-.13mm
K	.0005"	.001"	.002-.005"	.013mm	.025mm	.05-.13mm
L	.001"	.001"	.002-.005"	.025mm	.025mm	.05-.13mm
M	.002-.005"	.005"	.002-.005"	.05-.13mm	.13mm	.05-.15mm
U	.005-.012"	.005"	.005-.010"	.06-.25mm	.13mm	.08-.25mm

Hole / Chipbreaker (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

Code Letter	Diagram	Hole	Hole Shape	Chipbreaker Type
Null		No		None
A		Yes	Cylindrical	None
B		Yes	70-90° double countersink	None
D		Yes	Cylindrical	None
E		No		None
		No		Double-sided

F				
G		Yes	Cylindrical	Double-sided
H		Yes	70-90° single countersink	Single-sided
M		Yes	Cylindrical, or dbl countersink	Single-sided
N		No		None
P		Yes	Cylindrical	Hi-double positive
Q		Yes	40-60° double countersink	None
R		No		Single-sided
S		Yes	Cylindrical	Hi-double positive
T		Yes	40-60° double countersink	Single-sided
U		Yes	40-60° double countersink	Double-sided
W		Yes	40-60° double countersink	None
Z		Yes	Cylindrical	Double-sided hi-double positive

Size (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

ANSI Code No.	Inscribed Circle Size		ISO Code No. (metric cutting edge length) by shape code letter of insert						
	decimal in.	fractional in.	C	D	R	S	T	V	W
0.5	.0625"	1/16							
1.2 (5)	.15625"	5/32	S4	04 (4mm)	03 (3mm)	03 (3mm)	06 (6mm)		
1.5 (6)	.1875"	3/16	04 (4mm)	05 (5mm)	04 (4mm)	04 (4mm)	08 (8mm)	08 (8mm)	S3
1.8 (7)	.21875"	7/32	05 (5mm)	06 (6mm)	05 (5mm)	05 (5mm)	09 (9mm)	09 (9mm)	03 (3mm)
2	.25"	1/4	06 (6mm)	07 (7mm)	06 (6mm)	06 (6mm)	11 (11mm)	11 (11mm)	04 (4mm)
2.5	.3125"	5/16	08 (8mm)	9mm	07 (7mm)	07 (7mm)	13 (13mm)	13 (13mm)	05 (5mm)
3	.375"	3/8	09 (9mm)	11 (11mm)	09 (9mm)	09 (9mm)	16 (16mm)	16 (16mm)	06 (6mm)
3.5	.4375"	7/16	11mm	13mm	11 (11mm)	11 (11mm)	19 (19mm)	19mm	7mm
4	.5"	1/2	12 (12mm)	15 (15mm)	12 (12mm)	12 (12mm)	22 (22mm)	22 (22mm)	08 (8mm)
4.5	.5625"	9/16	14mm	17mm	14 (14mm)	14 (14mm)	24mm	24mm	9mm
5	.625"	5/8	16 (16mm)	19 (9mm)	15 (15mm)	15 (15mm)	27 (27mm)	27 (27mm)	10 (10mm)
5.5	.6875"	11/16	17mm	21mm	17 (17mm)	17 (17mm)	30mm	30mm	11mm
6	.75"	3/4	19 (19mm)	23 (23mm)	19 (19mm)	19 (19mm)	33 (33mm)	33 (33mm)	13 (13mm)
6.5	.8125"	13/16							
7	.875"	7/8	22 (22mm)	27 (27mm)	22 (22mm)	22 (22mm)	38 (38mm)	38 (38mm)	15 (15mm)
8	1"	1	25 (25mm)	31 (31mm)	25 (25mm)	25 (25mm)	44 (44mm)	44 (44mm)	17 (17mm)
10	1.25"	1-1/4	32 (32mm)	38mm	31 (31mm)	31 (31mm)	54 (54mm)	54 (54mm)	21 (21mm)
	1.26"				32 (32mm)				

Thickness (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

ANSI Code No.	ISO Code No.	Decimal Value	Fractional Value	Millimeter Value
.5 (1)	-	0.03125"	1/32	0.79mm
.6	T0	0.040"		1.00mm

1 (2)	01	0.0625"	1/16	1.59mm
1.2	T1	0.078"	5/64	1.98mm
1.5 (3)	02	0.094"	3/32	2.38mm
	T2	0.109"	7/64	2.78mm
2	03	0.125"	1/8	3.18mm
2.5	T3	0.156"	5/32	3.97mm
3	04	0.187"	3/16	4.76mm
	05	0.219"	7/32	5.56mm
4	06	0.25"	1/4	6.35mm
5	07	0.313"	5/16	7.9mm
6	09	0.375"	3/8	9.53mm
8		0.5"	1/2	12.7mm

Radius (e.g. "CNMG432" / "CCMT32.51") [\(close window\)](#)

ANSI Code No.	ISO Code No.	Decimal Value	Fractional Value	Millimeter Value
Null	Null	Wiper flat	Wiper flat	Wiper flat
V	M0	0	0	0
0.2	00	0.004"		0.1mm
X		0.004"		0.1mm
0	00	0.004"		0.2mm
0.5		0.008"		0.2mm
Y		0.008"		0.2mm
1	04	0.016"	1/64	0.4mm
	05	0.020"		0.5mm
2	08	0.031"	1/32	0.8mm
	10	0.040"		1.02mm
3	12	0.047"	3/64	1.2mm
4	16	0.062"	1/16	1.6mm
5	20	0.078"	5/64	2mm
6	24	0.094"	3/32	2.4mm
7	29	0.109"	7/64	2.9mm
8	32	0.125"	1/8	3.2mm

Wiper Lead Angle (e.g. "SEKN42AFTN") [\(close window\)](#)

Code Letter	Angle
A	45°
D	60°
K	60°
E	75°
L	75°
P	0°
S	75°

Wiper Clearance Angle (e.g. "SEKN42AFTN") [\(close window\)](#)

Code Letter	Angle
C	7°
D	15°
E	20°
F	25-26°
G	30°
N	0°
P	11°

Cutting Edge Preparation (e.g. "SEKN42AFTN") [\(close window\)](#)

Code Letter	Edge Preparation
F	sharp
E	honed
T	T-land
S	honed T-land
X	special chamfer

Cutting Direction (e.g. "SEKN42AFTN") [\(close window\)](#)

Code Letter	Direction
R	right-hand cutting only
L	left-hand cutting only
N	both right-hand and left-hand cutting

