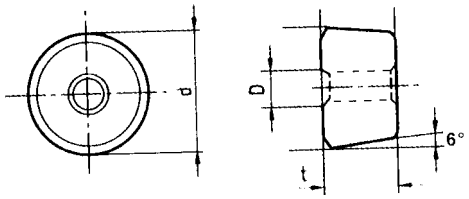
CDH / RCMA Ceramic

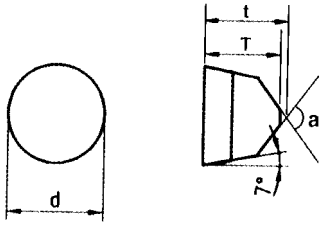
round positive rake button insert



DESIGNATION	INSERT STYLE	DIMENSIONS			BLACK / WHITE			SILICON NITRIDE
		IC	T	H	CC-10 CC-20 CC-30		CC-30-SC (COATED)	CC-5477
RCMA 41	**CDH 22**	1/2	1/4	.125	+ +		+	
RCMA 63	**CDH 315**	3/4	3/16	.125	+ +		+	
RCMA 66	**CDH 33**	3/4	3/8	.250	+ +		+	
RCMA 68	**CDH 34**	3/4	1/2	.250	+ +		+	
RCMA 88	**CDH 42**	1	1/2	.266	+ +		+	+
RCMA 812	**CDH 43**	1	3/4	.266	+ +		+	
RCMA 106	**CDH 515**	1-1/4	3/8	.390	+ +		+	+
RCMA 1012	**CDH 53**	1-1/4	3/4	.390	+ +		+	

RCGX Ceramic

round positive rake V-bottom inserts



ISO DESIGNATION	INSERT STYLE	DIMENSIONS			BLACK / WHITE			SILICON NITRIDE
		IC	T	ANGLE	CC-10 CC-20 CC-30		CC-30-SC (COATED)	CC-5477
RCGX 060400	**RCGX 102**	1/4	3/16	120 degrees	+ +		+	
RCGX 060600	**RCGX 102**	1/4	1/4	120 degrees	+ +		+	
RCGX 060700	**RCGX 102**	1/4	5/16	120 degrees	+ +		+	
RCGX 090700	**RCGX 103**	3/8	.313	120 degrees	+ +		+	+
RCGX 120700	**RCGX 104**	1/2	.313	120 degrees	+ +		+	+
RCGX 151000	**RCGX 105**	5/8	.394	120 degrees	+ +		+	+
RCGX 191000	**RCGX 106**	3/4	.394	120 degrees	+ +		+	
RCGX 251200	**RCGX 108**	1	.473	140 degrees	+ +		+	

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

- Silicone Nitride Comparison Chart -

Competitor Grades:	Romay Grades 1st Choice	2nd Choice
Kyon 1310, 1540, 2100	CC-5477	
Kyon 3000	CC-516	CC-514
Kyon 3400	CC-513	
Kyon 3500	CC-516-SC	CC-514-SC
Sandvik CC690	CC-513	
Sandvik CC1690	CC-516-SC	CC-514-SC
Sandvik CC6080, 6090	CC-516, CC-5477	CC-514
NTK Sx5, Sx9	CC-5477	
NTK Sx6, Sx8	CC-516	CC-514
NTK Sx1, SP9	CC-515, CC-516-SC	CC-514-SC
Tungaloy FX105	CC-516	CC-514
Tungaloy CX710	CC-515	
Indexable MW-43	CC-515	CC-5143
Ceratip KS-6000	CC-516	CC-513
Ceratip KS-500	CC-513	
Ceramtec SL-500, SL 508	CC-515, CC-516	CC-514
Ceramtec SL-250-C	CC-516-SC	CC-514-SC

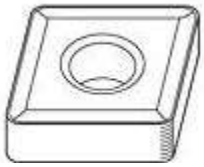
ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

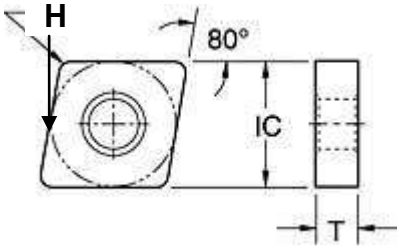
Ceramic Grade Comparison chart

ROMAY	CC-10	CC-20 CC-33	CC-20 CC-33	CC-30-SC CC-33-SC
Greenleaf	GEM 9	GEM 6	GEM 6	
Kennametal	K-060	K-090	Kyon 1516	Kyon 4400
Kyocera (Ceratip)	AZ-5000 SN-60	A-65	A-65	A66N PT600M
NTK	HC-1	HC-2	HC-4 HC-5 HC-7	ZC-4 ZC-7
CeramTec	SN-60 SN-80	SH-1	SH-3	SH-2C
Sandvik	CC-620	CC-650	CC-650	CC-6050
Sumitomo	W-80	NB-90-M	NB-90-S	NB-100-C
Tungaloy	LX-A	LX-21	LX-21	LX-11
TasquTec	AW-20	AB-30	AB-20	

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

CNMG Carbide

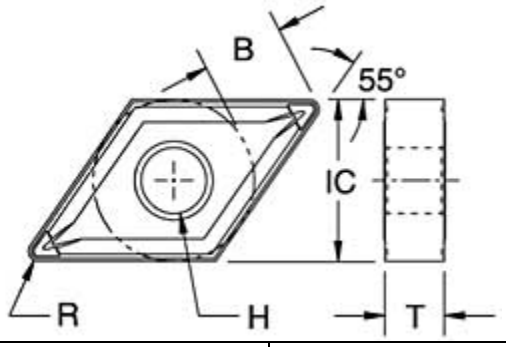




ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
CNMG 090304	**CNMG 321**	.375	.125	.016	.150	●	●	●	●	●	●
CNMG 090308	**CNMG 322**	.375	.125	.031	.150	●	●	●	●	●	●
CNMG 120404	**CNMG 431**	.500	.187	.016	.203	●	●	●	●	●	●
CNMG 120408	**CNMG 432**	.500	.187	.031	.203	●	●	●	●	●	●
CNMG 120412	**CNMG 433**	.500	.187	.047	.203	●	●	●	●	●	●
CNMG 120416	**CNMG 434**	.500	.187	.063	.203		●		●		
CNMG 160608	**CNMG 542**	.625	.250	.031	.250	●	●	●	●	●	
CNMG 160612	**CNMG 543**	.625	.250	.047	.250		●	●	●	●	
CNMG 160616	**CNMG 544**	.625	.250	.063	.250		●	●	●	●	
CNMG 190408	**CNMG 642**	.750	.250	.031	.313	●	●		●		
CNMG 190412	**CNMG 643**	.750	.250	.047	.313	●	●		●		
CNMG 190416	**CNMG 644**	.750	.250	.063	.313		●		●		
CNMG 190424	**CNMG 646**	.750	.250	.094	.313		●				
CNMG 250924	**CNMG 866**	1.00	.375	.094	.359		●	●		●	

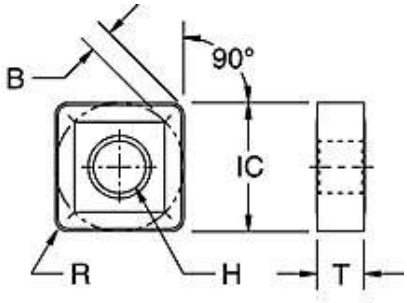
ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

DNMG Carbide



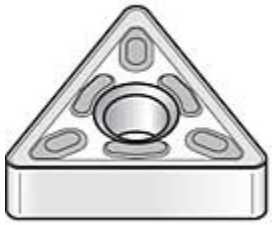
ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
DNMG 110404	**DNMG 331**	.375	.187	.016	.150	●	●	●	●	●	
DNMG 110408	**DNMG 332**	.375	.187	.031	.150	●	●	●	●	●	
DNMG 110412	**DNMG 333**	.375	.187	.047	.150	●	●	●	●	●	
DNMG 150404	**DNMG 431**	.500	.187	.016	.203	●	●	●	●	●	
DNMG 150408	**DNMG 432**	.500	.187	.031	.203	●	●	●	●	●	
DNMG 150412	**DNMG 433**	.500	.187	.047	.203	●	●	●	●	●	●
DNMG 150416	**DNMG 434**	.500	.187	.063	.203		●		●		
DNMG 150604	**DNMG 441**	.500	.250	.016	.203	●	●	●	●	●	
DNMG 150608	**DNMG 442**	.500	.250	.031	.203	●	●	●	●	●	●
DNMG 150612	**DNMG 443**	.500	.250	.047	.203	●	●	●	●	●	●
DNMG 150616	**DNMG 444**	.500	.250	.063	.203		●		●		
DNEG 150404	**DNEG 431**	.500	.187	.016	.203						●
DNEG 150408	**DNEG 432**	.500	.187	.031	.203						●
DNEG 150412	**DNEG 433**	.500	.187	.047	.203						●
DNEG 150604	**DNEG 441**	.500	.250	.016	.203						●
DNEG 150608	**DNEG 442**	.500	.250	.031	.203						●

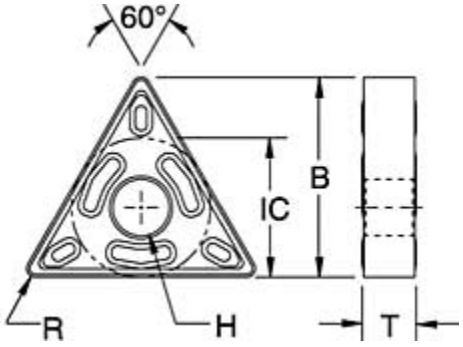
SNMG Carbide



ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
SNMG 090304	**SNMG 321**	.375	.125	.016	.150	●	●	●	●	●	
SNMG 090308	**SNMG 322**	.375	.125	.031	.150	●	●	●	●	●	
SNMG 090312	**SNMG 323**	.375	.125	.047	.150		●	●	●	●	
SNMG 120404	**SNMG 431**	.500	.187	.016	.203	●	●	●	●	●	
SNMG 120408	**SNMG 432**	.500	.187	.031	.203	●	●	●	●	●	●
SNMG 120412	**SNMG 433**	.500	.187	.047	.203	●	●	●	●	●	
SNMG 120416	**SNMG 434**	.500	.187	.063	.203		●	●	●	●	
SNMG 150608	**SNMG 542**	.625	.250	.031	.250	●	●				
SNMG 150612	**SNMG 543**	.625	.250	.047	.250	●	●	●	●	●	
SNMG 150616	**SNMG 544**	.625	.250	.063	.250		●	●		●	
SNMG 150624	**SNMG 546**	.625	.250	.094	.250		●				
SNMG 190612	**SNMG 643**	.750	.250	.047	.313		●				
SNMG 190616	**SNMG 644**	.750	.250	.063	.313		●		●		
SNMG 190624	**SNMG 646**	.750	.250	.094	.313		●				

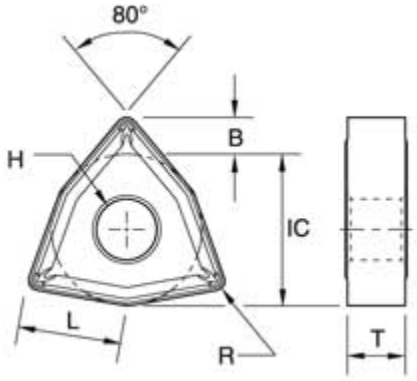
TNMG Carbide





ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
TNMG 110304	**TNMG 221**	.250	.125	.016	.089	●	●	●	●	●	
TNMG 110308	**TNMG 222**	.250	.125	.031	.089	●	●	●	●	●	
TNMG 160404	**TNMG 331**	.375	.187	.016	.150	●	●	●	●	●	
TNMG 160408	**TNMG 332**	.375	.187	.031	.150	●	●	●	●	●	
TNMG 160412	**TNMG 333**	.375	.187	.047	.150	●	●	●	●	●	
TNMG 220404	**TNMG 431**	.500	.187	.016	.203	●	●	●		●	
TNMG 220408	**TNMG 432**	.500	.187	.031	.203	●	●	●	●	●	
TNMG 220412	**TNMG 433**	.500	.187	.047	.203	●	●	●	●	●	
TNMG 220416	**TNMG 434**	.500	.187	.063	.203		●	●	●	●	
TNMG 270608	**TNMG 542**	.625	.250	.031	.250	●	●				
TNMG 270612	**TNMG 543**	.625	.250	.047	.250		●				
TNMG 270616	**TNMG 544**	.625	.250	.063	.250		●				
TNMG 330916	**TNMG 664**	.750	.375	.063	.313		●				
TNMG 330924	**TNMG 666**	.750	.375	.094	.313		●				

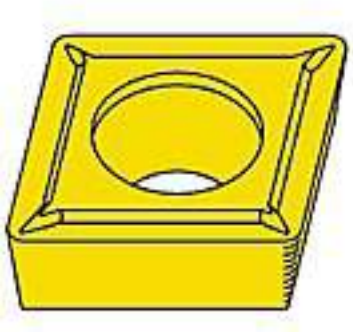
WNMG Carbide

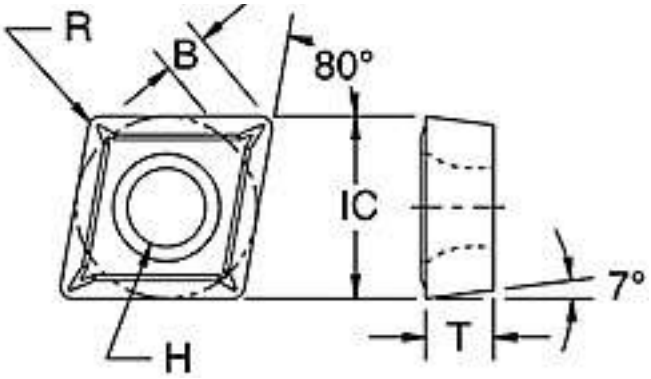


ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
WNMG 06T304	**WNMG 3(2.5)1**	.375	.156	.016	.150	●	●	●		●	
WNMG 06T308	**WNMG 3(2.5)2**	.375	.156	.031	.150	●	●	●		●	
WNMG 06T312	**WNMG 3(2.5)3**	.375	.156	.047	.150	●	●	●		●	
WNMG 060404	**WNMG 331**	.375	.187	.016	.150	●		●		●	
WNMG 060408	**WNMG 332**	.375	.187	.031	.150	●	●	●	●	●	
WNMG 060412	**WNMG 333**	.375	.187	.047	.150	●	●		●		
WNMG 080404	**WNMG 431**	.500	.187	.016	.203	●	●	●	●	●	●
WNMG 080408	**WNMG 432**	.500	.187	.031	.203	●	●	●	●	●	●
WNMG 080412	**WNMG 433**	.500	.187	.047	.203	●	●	●	●	●	●
WNMG 080416	**WNMG 434**	.500	.187	.063	.203		●		●		
WNMG 080608	**WNMG 442**	.500	.250	.031	.203	●	●		●		

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

CCMT / CCGX Carbide

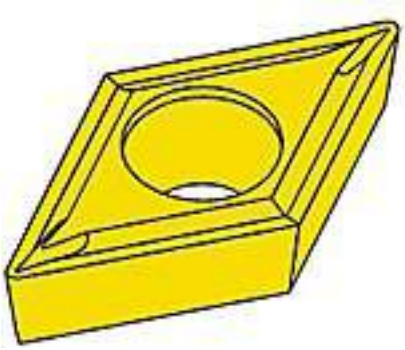


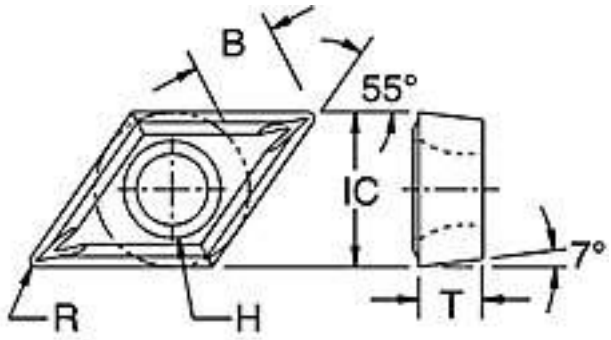


ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
CCMT 060202	**CCMT 21.50**	.250	.094	.008	.110	●	●	●		●	
CCMT 060204	**CCMT 21.51**	.250	.094	.016	.110	●	●	●		●	
CCMT 060208	**CCMT 21.52**	.250	.094	.031	.110	●	●	●		●	
CCMT 09T302	**CCMT 32.50**	.375	.156	.008	.173	●	●	●		●	
CCMT 09T304	**CCMT 32.51**	.375	.156	.016	.173	●	●	●		●	
CCMT 09T308	**CCMT 32.52**	.375	.156	.031	.173	●	●	●		●	
CCMT 120404	**CCMT 431**	.500	.187	.016	.219	●	●	●		●	
CCMT 120408	**CCMT 432**	.500	.187	.031	.219	●	●	●		●	
CCMT 120412	**CCMT 433**	.500	.187	.047	.219		●	●		●	
CCGX 060202	**CCGX 21.50**	.250	.094	.008	.110						●
CCGX 060204	**CCGX 21.51**	.250	.094	.016	.110						●
CCGX 060208	**CCGX 21.52**	.250	.094	.031	.110						●
CCGX 09T302	**CCGX 32.50**	.375	.156	.008	.173						●
CCGX 09T304	**CCGX 32.51**	.375	.156	.016	.173						●
CCGX 09T308	**CCGX 32.52**	.375	.156	.031	.173						●
CCGX 120402	**CCGX 430**	.500	.187	.008	.219						●
CCGX 120404	**CCGX 431**	.500	.187	.016	.219						●
CCGX 120408	**CCGX 432**	.500	.187	.031	.219						●

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

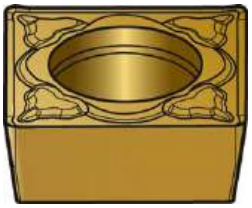
DCMT / DCGX Carbide

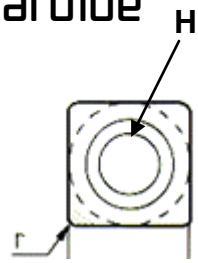


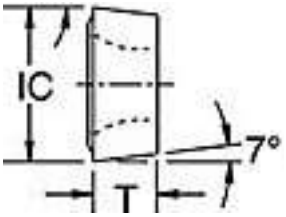


ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
DCMT 060202	**DCMT 21.50**	.250	.094	.008	.110	●		●		●	
DCMT 060204	**DCMT 21.51**	.250	.094	.016	.110	●	●	●		●	
DCMT 060208	**DCMT 21.52**	.250	.094	.031	.110	●	●	●		●	
DCMT 09T302	**DCMT 32.50**	.375	.156	.008	.173	●	●	●		●	
DCMT 09T304	**DCMT 32.51**	.375	.156	.016	.173	●	●	●		●	
DCMT 09T308	**DCMT 32.52**	.375	.156	.031	.173	●	●	●		●	
DCMT 09T312	**DCMT 32.53**	.375	.156	.047	.173		●	●		●	
DCGX 060202	**DCGX 21.50**	.250	.094	.008	.110						●
DCGX 060204	**DCGX 21.51**	.250	.094	.016	.110						●
DCGX 09T302	**DCGX 32.50**	.375	.156	.008	.173						●
DCGX 09T304	**DXGX 32.51**	.375	.156	.016	.173						●
DCGX 09T308	**DCGX 32.52**	.375	.156	.031	.173						●

SCMT / SCGX Carbide

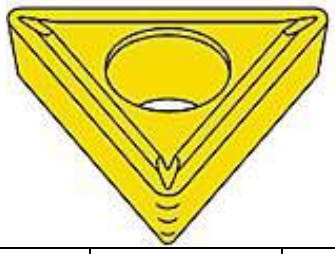


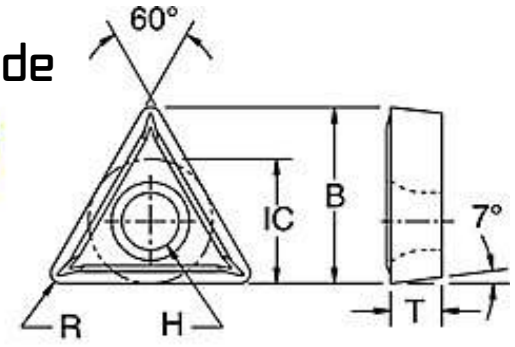




ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
SCMT 09T302	**SCMT 32.50**	.375	.156	.008	.173	●		●		●	
SCMT 09T304	**SCMT 32.51**	.375	.156	.016	.173	●	●	●		●	
SCMT 09T308	**SCMT 32.52**	.375	.156	.031	.173	●	●	●		●	
SCMT 120404	**SCMT 431**	.500	.187	.016	.219	●	●	●		●	
SCMT 120408	**SCMT 432**	.500	.187	.031	.219	●	●	●		●	
SCMT 120412	**SCMT 433**	.500	.187	.047	.219		●	●		●	
SCGX 09T302	**SCGX 32.50**	.375	.156	.008	.173						●
SCGX 09T304	**SCGX 32.51**	.375	.156	.016	.173						●
SCGX 09T308	**SCGX 32.52**	.375	.156	.031	.173						●
SCGX 120404	**SCGX 431-LH**	.500	.187	.016	.219						●
SCGX 120408	**SCGX 432-LH**	.500	.187	.031	.219						●

TCMT / TCGX Carbide





ISO DESIGNATION	ANSI DESIGNATION	DIMENSIONS				GRADES					
		IC	T	R	H	R-100-SC	R-200-SC	R-300-SC	R-400-SC	R-500-SC	R-600-SC
TCMT 060102	**TCMT 1.21.20**	.156	.078	.008	.087	●		●		●	
TCMT 060104	**TCMT 1.21.21**	.156	.078	.016	.087	●	●	●		●	
TCMT 060108	**TCMT 1.21.22**	.156	.078	.031	.087	●	●	●		●	
TCMT 080202	**TCMT 1.81.50**	.219	.094	.008	.098	●	●	●		●	
TCMT 080204	**TCMT 1.81.51**	.219	.094	.016	.098	●	●	●		●	
TCMT 080208	**TCMT 1.81.52**	.219	.094	.031	.098	●	●	●		●	
TCMT 110202	**TCMT 21.50**	.250	.094	.008	.110	●		●		●	
TCMT 110204	**TCMT 21.51**	.250	.094	.016	.110	●	●	●		●	
TCMT 110208	**TCMT 21.52**	.250	.094	.031	.110	●	●	●		●	
TCMT 16T302	**TCMT 32.50**	.375	.156	.008	.173	●					
TCMT 16T304	**TCMT 32.51**	.375	.156	.016	.173	●	●	●		●	
TCMT 16T308	**TCMT 32.52**	.375	.156	.031	.173	●	●	●		●	
TCMT 16T312	**TCMT 32.53**	.375	.156	.047	.173		●	●		●	
TCMT 220408	**TCMT 432**	.500	.187	.031	.217	●	●	●		●	
TCGX 080202	**TCGX 1.81.50**	.219	.094	.008	.098						●
TCGX 080204	**TCGX 1.81.51**	.219	.094	.016	.098						●
TCGX 110202	**TCGX 21.50**	.250	.094	.008	.110						●
TCGX 110204	**TCGX 21.51**	.250	.094	.016	.110						●
TCGX 110208	**TCGX 21.52**	.250	.094	.031	.110						●
TCGX 16T302	**TCGX 32.50**	.375	.156	.008	.173						●
TCGX 16T304	**TCGX 32.51**	.375	.156	.016	.173						●
TCGX 16T308	**TCGX 32.52**	.375	.156	.031	.173						●

- Whisker Ceramics -
CC-60

Machining Recommendations:

MATERIAL	HARONESS RC	SPEED (SFM)	FEED (IPR)	DOC
Inconel 718	36 - 46	900 - 2,500	.004 - .012	.600 (Max)
Rene 95	45 - 50	300 - 900	.004 - .012	.500 (Max)
Waspaloy	45 - 50	800 - 900	.004 - .008	.100
Hastelloy	30 - 40	900 - 2,000	.006 - .015	.150 (Max)
Stellite	35 - 45	500 - 1,200	.004- .012	.060
400 Stainless Steel	45 - 55	500 - 900	.006 - .015	.200 (Max)
02 Tool Steel	60	150 - 450	.004 - .015	.015
H13 Tool Steel	35	1400	.030	.060
52 100	62	450 - 650	.003 - .008	.060 - .015
Nodular Iron	25	1,000 - 1,200	.007 - .020	.300 (Max)

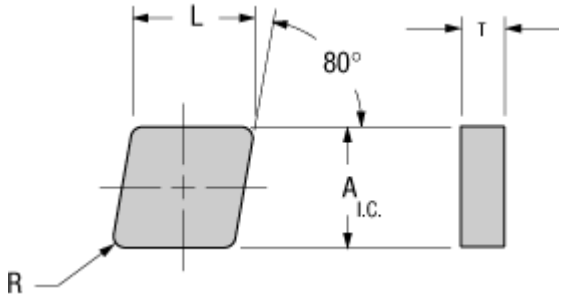
Whisker Ceramic Comparison Chart:

Competitor Grades:	Romay Grades 1st Choice	2nd Choice
Greenleaf WG-300	CC-60	CC-62
Kennametal KY1525	CC-60	CC-62
NTK WA1	CC-61	
Sandvik CC670	CC-60	

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY

CNGN Whisker Ceramic

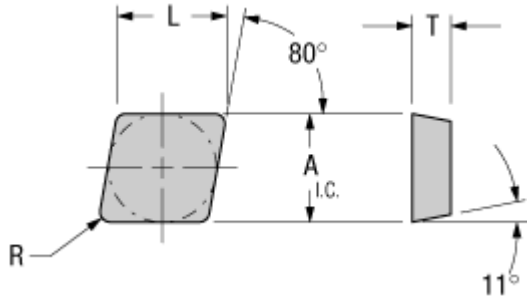
80 degree diamond negative rake inserts



ISO DESIGNATION	INSERT STYLE	DIMENSIONS			WHISKER CERAMIC
		IC(A)	T	R	CC-60
CNGN 120408	**CNGN 432**	1/2	3/16	1/32	+
CNGN 120412	**CNGN 433**			3/64	+
CNGN 120416	**CNGN 434**			1/16	+
CNGN 120708	**CNGN 452**	1/2	5/16	1/32	+
CNGN 120712	**CNGN 453**			3/64	+
CNGN 120716	**CNGN 454**			1/16	+

CPGN Whisker Ceramic

80 degree diamond positive rake insert



ISO DESIGNATION	INSERT STYLE	DIMENSIONS			WHISKER CERAMIC
		IC(A)	T	R	CC-60
CPGN 120408	**CPGN 432**	1/2	3/16	1/32	+
CPGN 120412	**CPGN 433**			3/64	+
CPGN 120416	**CPGN 434**			1/16	+

ROMAY CORP
SETTING NEW STANDARDS IN PRODUCTIVITY