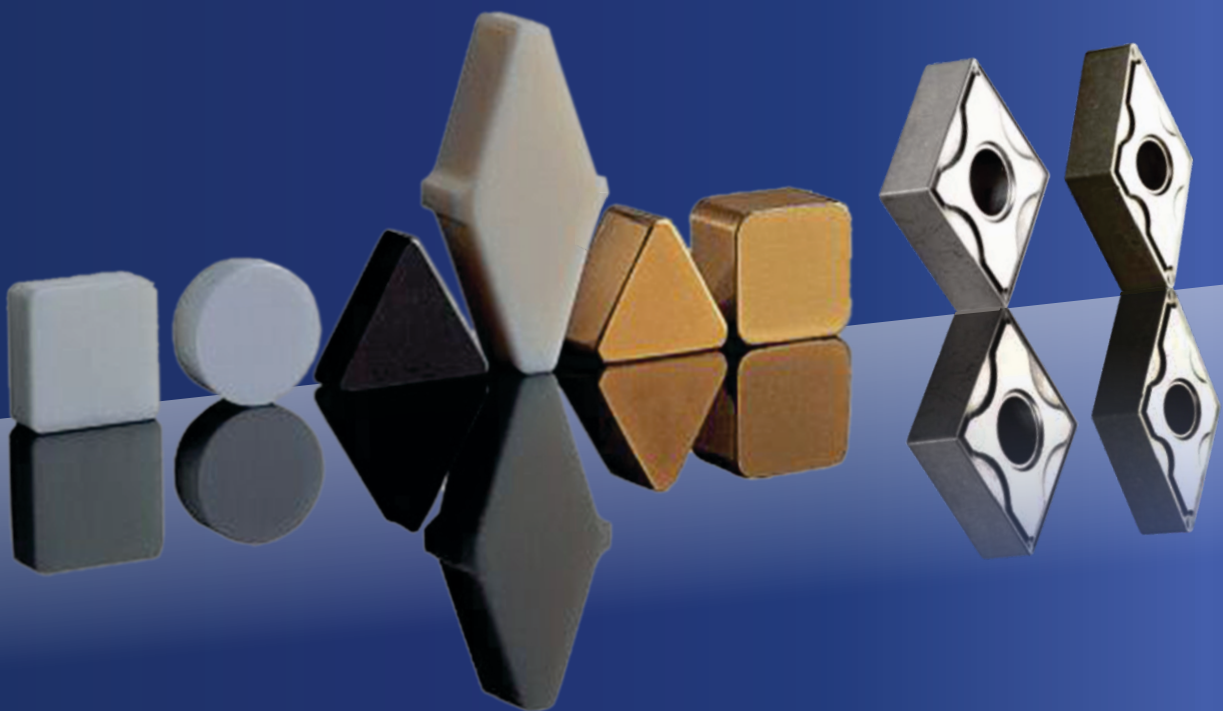




Ceramic & Cermet Inserts



Page 01	Ceramic Grade Information	Page 02	Ceramic Mechanical Properties	Page 03	CNGA, CNMA CNVX, CNMN Turning
Page 04	CNGN CNGX Turning	Page 05	CNMX.. CCGX, CCGW CPGN, DNMA Turning	Page 06	DNGA, DNGN DNGX, DNMX DCGX Turning
Page 07	ENGN RNGA RNGN Turning	Page 08	RPGA, RPGN RPGX, RNGX RBGN Turning Milling	Page 09	RCGN SNGA SNMA Turning
Page 10	SNGN SNGX Turning	Page 11	SNMX.. SCGN, SCGX SCGW, SPGN Turning	Page 12	TNGA TNGN Turning
Page 13	TCUN TPGN TPUN, VNGN Turning Milling	Page 14	VNGA VNGX CDH, WNGA Turning	Page 15	WNGX, RBGX RXGS, RCGX RPGX Turning
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Page 22	F13., F10.. F25.. Turning	Page 23	LNJ SNGN Turning	Page 24	Cermet Grade Information



Page 25	Cermet Mechanical Properties	
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Page 27	SNMG.. TNMG.. VNMG..	Turning
Page 28	WNMG.. CCMT, DCGW CPGT	Turning
Page 28	SPGT, TPGT TPGR SPMW	Turning
Page 29	DNGG, SNGG SNGL, TNGG..	Turning
Page 30	TNMG.. BSN	Turning
Page 31	BTN POLY V	Turning

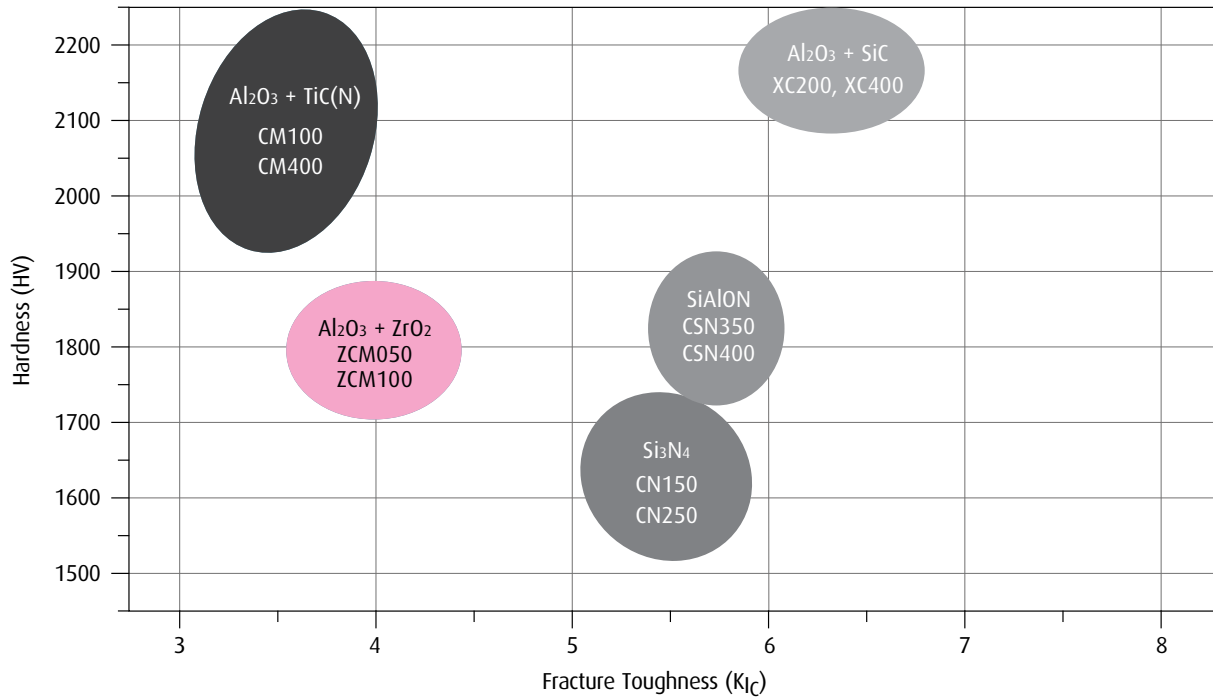
Brisloy Ceramics take pride in its outstanding wear resistance and thermal shock resistance with high speed cutting. Pure raw materials give stability and fine microstructure to the products. Through HIP process, shaped bodies are completely condensed so that the finished goods are strong and resistant against fracture and wear.

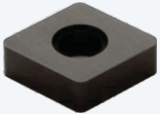
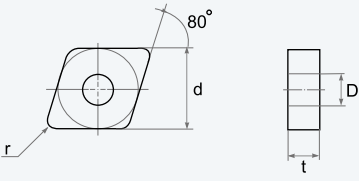
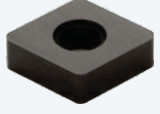
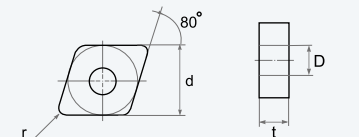
- Improved work efficiency by increasing cutting speed on extremely higher than carbide inserts.
- Longer tool life through excellent wear resistance.
- Precise cutting and superior surface roughness.

	Al ₂ O ₃ +TiC(N)	CM100	Excellent wear resistance Al ₂ O ₃ +TiCN	A basic choice for machining hardened steel and alloy steel
		CM400	Excellent wear and thermal shock resistance Al ₂ O ₃ +TiCN	Fine finishing for hardened steel and cast iron in high speed
	TiN Coating AlTiN coating	CCM100	Excellent wear resistance TiN coated	Finishing for hardened steel and cast iron
		CCM400	Excellent wear resistance TiN coated	Finishing for hardened steel and cast iron
		ACM100	Excellent wear resistance & thermal shock resistance	Finishing for hardened steel and cast iron
	TiC+Al ₂ O ₃	CM050	High thermal shock resistance Usable with coolant TiC+Al ₂ O ₃	Machining ductile cast iron Finishing for ductile cast iron and hard materials
	Al ₂ O ₃ +ZrO ₂	ZCM050	Toughened by zirconia High chemical stability Al ₂ O ₃ +ZrO ₂	Finishing, semi-finishing of cast iron and steel
		ZCM100	Harder alternative to SZ200 Al ₂ O ₃ +ZrO ₂	Finishing, semi-finishing of cast iron and steel
	Si ₃ N ₄	CN150	Excellent wear resistance in high speed cutting Si ₃ N ₄	First choice for roughing of cast iron High speed machining with interrupted cuts
		CN250	Excellent wear resistance in high speed cutting Si ₃ N ₄	Roughing for hard material with interruption and high speed
	SiAlON	CSN350	Advanced grade with SiAlON contained superior edge strength SiAlON	Great performance against notch wear High speed roughing of high temperature alloys and inconel
		CSN400	Excellent thermal shock resistance and thermal conductivity SiAlON	Tough machining in heat resistance Super alloy (HRSA)
	SiC-Whisker	XC200	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	High speed steel, high chrome steel in medium or low speed cutting Roughing & medium cutting with heavy interruption
		XC400	Excellent flank & notch wear in high speed cutting Al ₂ O ₃ +SiC	Nickel Base Alloy, cobalt base alloy in high speed cutting, Roughing & finishing with continuous or light interruption

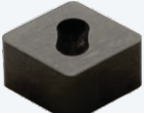
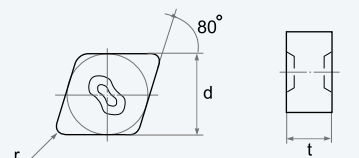
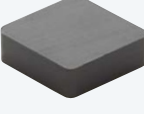
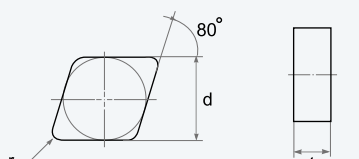


Mechanical Properties



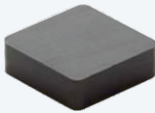
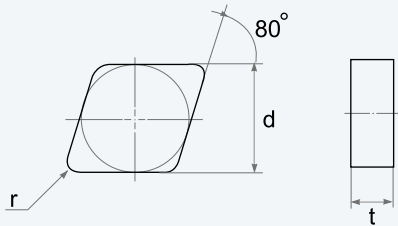
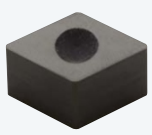
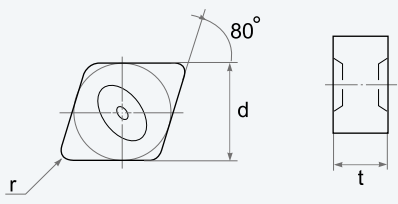
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	CNGA 120404	CNGA 431	12.70	4.76	0.4	5.16	
	CNGA 120408	CNGA 432	12.70	4.76	0.8	5.16	
	CNGA 120412	CNGA 433	12.70	4.76	1.2	5.16	
	CNGA 120416	CNGA 434	12.70	4.76	1.6	5.16	
	CNGA 120704	CNGA 451	12.70	7.94	0.4	5.16	
	CNGA 120708	CNGA 452	12.70	7.94	0.8	5.16	
	CNGA 120712	CNGA 453	12.70	7.94	1.2	5.16	
	CNGA 120716	CNGA 454	12.70	7.94	1.6	5.16	
	CNGA 160608	CNGA 542	15.87	6.35	0.8	6.35	
	CNGA 160612	CNGA 543	15.87	6.35	1.2	6.35	
	CNGA 160616	CNGA 544	15.87	6.35	1.6	6.35	
	CNGA 160708	CNGA 552	15.87	7.94	0.8	6.35	
	CNGA 160712	CNGA 553	15.87	7.94	1.2	6.35	
	CNGA 160716	CNGA 554	15.87	7.94	1.6	6.35	
	CNGA 190608	CNGA 642	19.05	6.35	0.8	7.93	
	CNGA 190612	CNGA 643	19.05	6.35	1.2	7.93	
	CNGA 190616	CNGA 644	19.05	6.35	1.6	7.93	
	CNGA 190712	CNGA 653	19.05	7.94	1.2	7.93	
	CNGA 190716	CNGA 654	19.05	7.94	1.6	7.93	
	CNMA 120408	CNMA 432	12.70	4.76	0.8	5.16	
	CNMA 120412	CNMA 433	12.70	4.76	1.2	5.16	
	CNMA 120416	CNMA 434	12.70	4.76	1.6	5.16	
	CNMA 160612	CNMA 543	15.87	6.35	1.2	6.35	
	CNMA 160616	CNMA 544	15.87	6.35	1.6	6.35	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

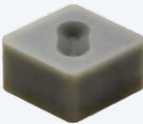
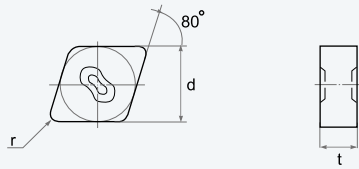
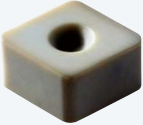
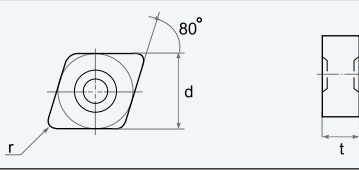
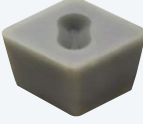
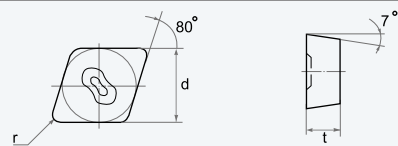
Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	CNVX 120412	CNVX 433	12.70	4.76	1.2	
	CNVX 120416	CNVX 434	12.70	4.76	1.6	
	CNVX 120708	CNVX 452	12.70	7.94	0.8	
	CNVX 120712	CNVX 453	12.70	7.94	1.2	
	CNVX 120716	CNVX 454	12.70	7.94	1.6	
	CNVX 160708	CNVX 552	15.87	7.94	0.8	
	CNVX 160712	CNVX 553	15.87	7.94	1.2	
	CNVX 160716	CNVX 554	15.87	7.94	1.6	
	CNMN 120412	CNMN 433	12.70	4.76	1.2	
	CNMN 120416	CNMN 434	12.70	4.76	1.6	

- Available Grades : CM100, CM400, CN150, CN250, CSN350.

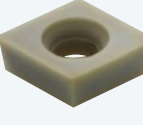
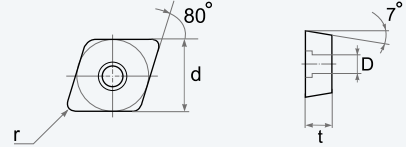
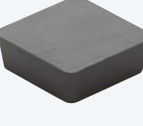
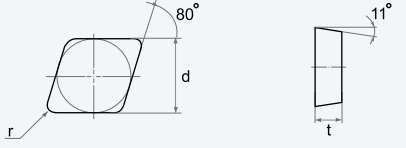
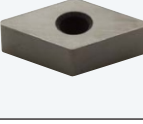
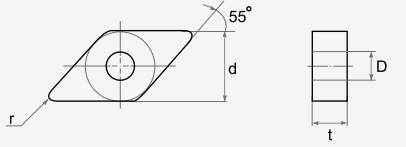


Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	CNGN 090304	CNGN 321	9.52	3.18	0.4	
	CNGN 090308	CNGN 322	9.52	3.18	0.8	
	CNGN 090312	CNGN 323	9.52	3.18	1.2	
	CNGN 120304	CNGN 421	12.70	3.18	0.4	
	CNGN 120308	CNGN 422	12.70	3.18	0.8	
	CNGN 120312	CNGN 423	12.70	3.18	1.2	
	CNGN 120404	CNGN 431	12.70	4.76	0.4	
	CNGN 120408	CNGN 432	12.70	4.76	0.8	
	CNGN 120412	CNGN 433	12.70	4.76	1.2	
	CNGN 120416	CNGN 434	12.70	4.76	1.6	
	CNGN 120704	CNGN 451	12.70	7.94	0.4	
	CNGN 120708	CNGN 452	12.70	7.94	0.8	
	CNGN 120712	CNGN 453	12.70	7.94	1.2	
	CNGN 120716	CNGN 454	12.70	7.94	1.6	
	CNGN 160608	CNGN 542	15.87	6.35	0.8	
	CNGN 160612	CNGN 543	15.87	6.35	1.2	
	CNGN 160616	CNGN 544	15.87	6.35	1.6	
	CNGN 160708	CNGN 552	15.87	7.94	0.8	
	CNGN 160712	CNGN 553	15.87	7.94	1.2	
	CNGN 160716	CNGN 554	15.87	7.94	1.6	
	CNGN 160720	CNGN 555	15.87	7.94	2.0	
	CNGN 190612	CNGN 643	19.05	6.35	1.2	
	CNGN 190616	CNGN 644	19.05	6.35	1.6	
	CNGN 190712	CNGN 653	19.05	7.94	1.2	
	CNGN 190716	CNGN 654	19.05	7.94	1.6	
	CNGN 190720	CNGN 655	19.05	7.94	2.0	
	CNGN 250724	CNGN 856	25.40	7.94	2.4	
	CNGN 250924	CNGN 866	25.40	9.52	2.4	
	CNGX 120412	CNGX 433	12.70	4.76	1.2	
	CNGX 120416	CNGX 434	12.70	4.76	1.6	
	CNGX 120708	CNGX 452	12.70	7.94	0.8	
	CNGX 120712	CNGX 453	12.70	7.94	1.2	
	CNGX 120716	CNGX 454	12.70	7.94	1.6	
	CNGX 160708	CNGX 552	15.87	7.94	0.8	
	CNGX 160712	CNGX 553	15.87	7.94	1.2	
	CNGX 160716	CNGX 554	15.87	7.94	1.6	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

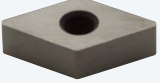
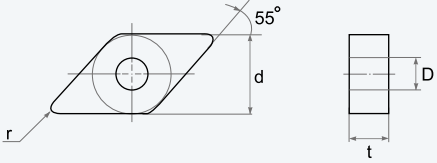
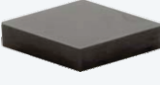
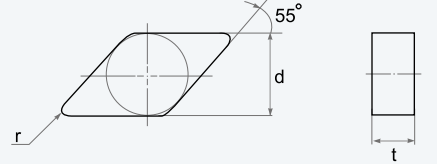
Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	CNMX 120712 CNMX 120716	CNMX 453 CNMX 454	12.70 12.70	7.94 7.94	1.2 1.6	
	CNMX120716RD	CNMX 454 RD	12.7	7.94	1.6	
	CCGX 120608 CCGX 120612 CCGX 120616	CCGX 442 CCGX 443 CCGX 444	12.70 12.70 12.70	6.35 6.35 6.35	0.8 1.2 1.6	

- Available Grades : CN150, CN250, CSN350, CSN400.

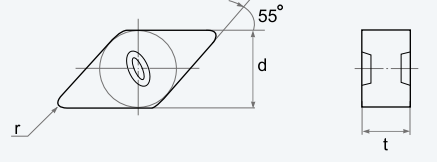
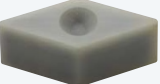
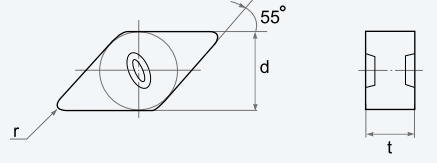
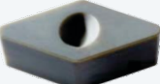
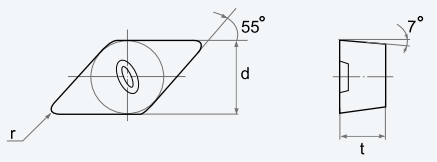
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	CCGW 09T304 CCGW 09T308 CCGW 09T312 CCGW 120408 CCGW 120412	- - - - -	9.52 9.52 9.52 12.70 12.70	3.97 3.97 3.97 4.76 4.76	0.4 0.8 1.2 0.8 1.2	4.40 4.40 4.40 5.50 5.50	
	CPGN 090304 CPGN 090308 CPGN 120408 CPGN 120412 CPGN 120416	CPGN 321 CPGN 322 CPGN 432 CPGN 433 CPGN 434	9.52 9.52 12.70 12.70 12.70	3.18 3.18 4.76 4.76 4.76	0.4 0.8 0.8 1.2 1.6	- - - - -	
	DNMA 150612 DNMA 150616	DNMA 443 DNMA 444	12.70 12.70	6.35 6.35	1.2 1.6	5.16 5.16	

- Available Grades : CM100, CM400, CN150, CN250, CSN350.

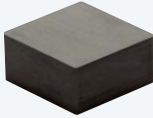
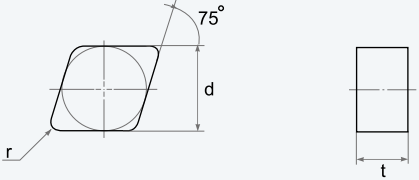


Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	DNGA 150404	DNGA 431	12.70	4.76	0.4	5.16	
	DNGA 150408	DNGA 432	12.70	4.76	0.8	5.16	
	DNGA 150412	DNGA 433	12.70	4.76	1.2	5.16	
	DNGA 150416	DNGA 434	12.70	4.76	1.6	5.16	
	DNGA 150604	DNGA 441	12.70	6.35	0.4	5.16	
	DNGA 150608	DNGA 442	12.70	6.35	0.8	5.16	
	DNGA 150612	DNGA 443	12.70	6.35	1.2	5.16	
	DNGA 150616	DNGA 444	12.70	6.35	1.6	5.16	
	DNGA 150704	DNGA 451	12.70	7.94	0.4	5.16	
	DNGA 150708	DNGA 452	12.70	7.94	0.8	5.16	
	DNGA 150712	DNGA 453	12.70	7.94	1.2	5.16	
	DNGA 150716	DNGA 454	12.70	7.94	1.6	5.16	
	DNGA 190608	DNGA 542	15.87	6.35	0.8	6.35	
	DNGA 190612	DNGA 543	15.87	6.35	1.2	6.35	
	DNGA 190616	DNGA 544	15.87	6.35	1.6	6.35	
	DNGN 150404	DNGN 431	12.70	4.76	0.4	-	
	DNGN 150408	DNGN 432	12.70	4.76	0.8	-	
	DNGN 150412	DNGN 433	12.70	4.76	1.2	-	
	DNGN 150416	DNGN 434	12.70	4.76	1.6	-	
	DNGN 150604	DNGN 441	12.70	6.35	0.4	-	
	DNGN 150608	DNGN 442	12.70	6.35	0.8	-	
	DNGN 150612	DNGN 443	12.70	6.35	1.2	-	
	DNGN 150616	DNGN 444	12.70	6.35	1.6	-	
	DNGN 150704	DNGN 451	12.70	7.94	0.4	-	
	DNGN 150708	DNGN 452	12.70	7.94	0.8	-	
	DNGN 150712	DNGN 453	12.70	7.94	1.2	-	
	DNGN 150716	DNGN 454	12.70	7.94	1.6	-	

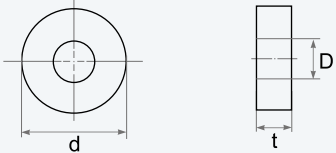
- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	DNGX 120708	DNGX 352	10.00	7.94	0.8	
	DNGX 120712	DNGX 353	10.00	7.94	1.2	
	DNGX 120716	DNGX 354	10.00	7.94	1.6	
	DNGX 150708	DNGX 452	12.70	7.94	0.8	
	DNGX 150712	DNGX 453	12.70	7.94	1.2	
	DNGX 150716	DNGX 454	12.70	7.94	1.6	
	DNMX 120708	DNMX 352	10.00	7.94	0.8	
	DNMX 120712	DNMX 353	10.00	7.94	1.2	
	DNMX 120716	DNMX 354	10.00	7.94	1.6	
	DCGX 150612	DCGX 443	12.70	6.35	1.2	
	DCGX 150616	DCGX 444	12.70	6.35	1.6	

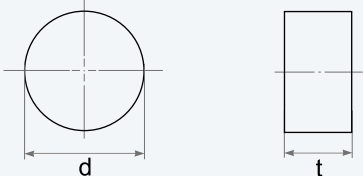
- Available Grades : CM100, CM400, CN150, CN250, CSN350.

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	ENGN 130404	ENGN 431	12.70	4.76	0.4	
	ENGN 130408	ENGN 432	12.70	4.76	0.8	
	ENGN 130412	ENGN 433	12.70	4.76	1.2	
	ENGN 130704	ENGN 451	12.70	7.94	0.4	
	ENGN 130708	ENGN 452	12.70	7.94	0.8	
	ENGN 130712	ENGN 453	12.70	7.94	1.2	
	ENGN 130716	ENGN 454	12.70	7.94	1.6	

- Available Grades : CM100, CM200, CM400, CM050, ZCM050
ZCM100, CN150, CSN350, XC200, XC400.

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	RNGA 120400	RNGA 430	12.70	4.76	5.16	
	RNGA 120700	RNGA 450	12.70	7.94	5.16	

- Available Grades : CM100, XC200, XC400.

Insert Shape	Type		Dimensions (mm)		Geometry
	ISO	ASA	d	t	
	RNGN 060300	RNGN 220	6.35	3.18	
	RNGN 060400	RNGN 230	6.35	4.76	
	RNGN 090300	RNGN 320	9.52	3.18	
	RNGN 090400	RNGN 330	9.52	4.76	
	RNGN 120300	RNGN 420	12.70	3.18	
	RNGN 120400	RNGN 430	12.70	4.76	
	RNGN 120600	RNGN 440	12.70	6.35	
	RNGN 120700	RNGN 450	12.70	7.94	
	RNGN 150700	RNGN 550	15.87	7.94	
	RNGN 190600	RNGN 640	19.05	6.35	
	RNGN 190700	RNGN 650	19.05	7.94	
	RNGN 250700	RNGN 850	25.40	7.94	
	RNGN 250900	RNGN 860	25.40	9.52	
	RNGN 320900	RNGN 106	31.75	9.52	
	RNGN 0807MO	-	8.00	7.94	
	RNGN 1007MO	-	10.00	7.94	
	RNGN 1207MO	-	12.00	7.94	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

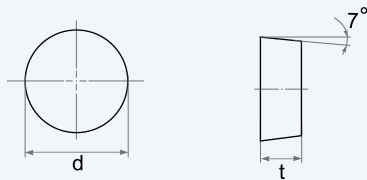


Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	D	
	RPGA 120400 RPGA 120700	RPGA 430 RPGA 450	12.70 12.70	4.76 7.94	5.16 5.16	
	RPGN 090300 RPGN 090400 RPGN 120300 RPGN 120400 RPGN 120700 RPGN 150700 RPGN 190700	RPGN 320 RPGN 330 RPGN 420 RPGN 430 RPGN 450 RPGN 550 RPGN 650	9.52 9.52 12.70 12.70 12.70 15.87 19.05	3.18 4.76 3.18 4.76 7.94 7.94 7.94	- - - - - - -	
	RPGX 1204 DP RPGX 1207 DP	RPGX 43 DP RPGX 45 DP	12.70 12.70	4.76 7.94	- -	
	RNGX 1207 DP	RNGX 45 DP	12.70	7.94	-	

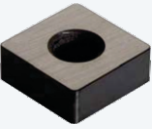
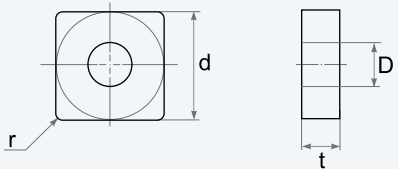
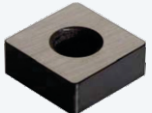
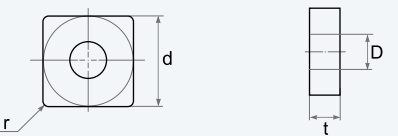
- Available Grades : CM100, CM200, CM400, CSN350, CSN400, XC200, XC400.

Insert Shape	Type		Dimensions (mm)		Geometry
	ISO	ASA	d	t	
	RBGN 060300 RBGN 060400 RBGN 090300 RBGN 090400 RBGN 120400 RBGN 120600 RBGN 120700 RBGN 0604MO RBGN 0804MO RBGN 1007MO RBGN 1207MO RBGN 1607MO	RBGN 220 RBGN 230 RBGN 320 RBGN 330 RBGN 430 RBGN 440 RBGN 450 - - - - -	6.35 6.35 9.52 9.52 12.70 12.70 12.70 6.00 8.00 10.00 12.00 16.00	3.18 4.76 3.18 4.76 4.76 6.35 7.94 4.76 4.76 7.94 7.94 7.94	

- Available Grades : CM100, CM200, CM400, CSN350, CSN400, XC200, XC400.

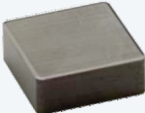
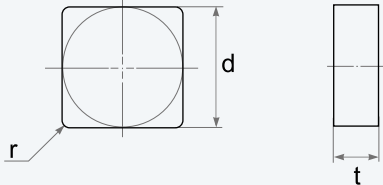
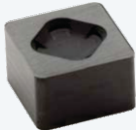
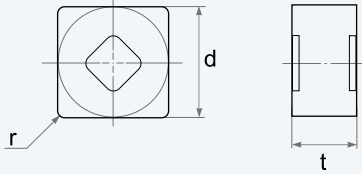
Insert Shape	Type		Dimensions (mm)		Geometry
	ISO	ASA	d	t	
	RCGN 060400	-	6.35	4.76	
	RCGN 060600	-	6.35	6.35	
	RCGN 060700	-	6.35	7.94	
	RCGN 070400	-	7.94	4.76	
	RCGN 090700	-	9.52	7.94	
	RCGN 120700	-	12.70	7.94	
	RCGN 151000	-	15.87	10.00	
	RCGN 191000	-	19.05	10.00	
	RCGN 251200	-	25.40	12.70	

- Available Grades : CM100, CM200, CN250, CSN350, CSN400.

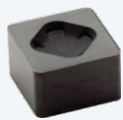
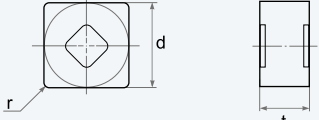
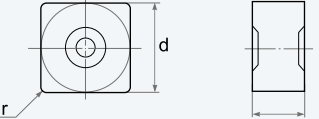
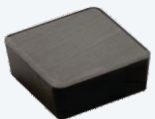
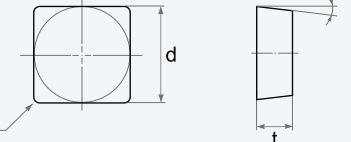
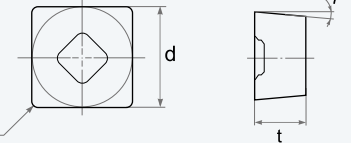
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	SNGA 090304	SNGA 321	9.52	3.18	0.4	3.81	
	SNGA 090308	SNGA 322	9.52	3.18	0.8	3.81	
	SNGA 090312	SNGA 323	9.52	3.18	1.2	3.81	
	SNGA 090404	SNGA 331	9.52	4.76	0.4	3.81	
	SNGA 090408	SNGA 332	9.52	4.76	0.8	3.81	
	SNGA 090412	SNGA 333	9.52	4.76	1.2	3.81	
	SNGA 090416	SNGA 334	9.52	4.76	1.6	3.81	
	SNGA 120404	SNGA 431	12.70	4.76	0.4	5.16	
	SNGA 120408	SNGA 432	12.70	4.76	0.8	5.16	
	SNGA 120412	SNGA 433	12.70	4.76	1.2	5.16	
	SNGA 120416	SNGA 434	12.70	4.76	1.6	5.16	
	SNGA 120708	SNGA 452	12.70	7.94	0.8	5.16	
	SNGA 120712	SNGA 453	12.70	7.94	1.2	5.16	
	SNGA 120716	SNGA 454	12.70	7.94	1.6	5.16	
	SNGA 150608	SNGA 542	15.87	6.35	0.8	6.35	
	SNGA 150612	SNGA 543	15.87	6.35	1.2	6.35	
	SNGA 150616	SNGA 544	15.87	6.35	1.6	6.35	
	SNGA 190612	SNGA 643	19.05	6.35	1.2	7.94	
	SNGA 190616	SNGA 644	19.05	6.35	1.6	7.94	
	SNMA 120408	SNMA 432	12.70	4.76	0.8	5.16	
	SNMA 120412	SNMA 433	12.70	4.76	1.2	5.16	
	SNMA 120416	SNMA 434	12.70	4.76	1.6	5.16	
	SNMA 150616	SNMA 544	15.87	6.35	1.6	6.35	

- Available Grades : CM100, CM200, ACM100, CM050, ZCM050, ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

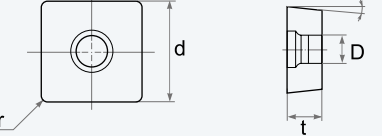
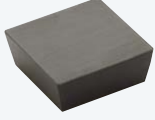
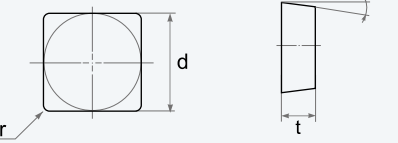


Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	SNGN 090304	SNGN 321	9.52	3.18	0.4	
	SNGN 090308	SNGN 322	9.52	3.18	0.8	
	SNGN 090312	SNGN 323	9.52	3.18	1.2	
	SNGN 090404	SNGN 331	9.52	4.76	0.4	
	SNGN 090408	SNGN 332	9.52	4.76	0.8	
	SNGN 090412	SNGN 333	9.52	4.76	1.2	
	SNGN 120404	SNGN 431	12.70	4.76	0.4	
	SNGN 120408	SNGN 432	12.70	4.76	0.8	
	SNGN 120412	SNGN 433	12.70	4.76	1.2	
	SNGN 120416	SNGN 434	12.70	4.76	1.6	
	SNGN 120420	SNGN 435	12.70	4.76	2.0	
	SNGN 120604	SNGN 441	12.70	6.35	0.4	
	SNGN 120608	SNGN 442	12.70	6.35	0.8	
	SNGN 120612	SNGN 443	12.70	6.35	1.2	
	SNGN 120616	SNGN 444	12.70	6.35	1.6	
	SNGN 120704	SNGN 451	12.70	7.94	0.4	
	SNGN 120708	SNGN 452	12.70	7.94	0.8	
	SNGN 120712	SNGN 453	12.70	7.94	1.2	
	SNGN 120716	SNGN 454	12.70	7.94	1.6	
	SNGN 120720	SNGN 455	12.70	7.94	2.0	
	SNGN 150404	SNGN 531	15.87	4.76	0.4	
	SNGN 150408	SNGN 532	15.87	4.76	0.8	
	SNGN 150412	SNGN 533	15.87	4.76	1.2	
	SNGN 150416	SNGN 534	15.87	4.76	1.6	
	SNGN 150708	SNGN 552	15.87	7.94	0.8	
	SNGN 150712	SNGN 553	15.87	7.94	1.2	
	SNGN 150716	SNGN 554	15.87	7.94	1.6	
	SNGN 190608	SNGN 642	19.05	6.35	0.8	
	SNGN 190612	SNGN 643	19.05	6.35	1.2	
	SNGN 190616	SNGN 644	19.05	6.35	1.6	
	SNGN 190712	SNGN 653	19.05	7.94	1.2	
	SNGN 190716	SNGN 654	19.05	7.94	1.6	
	SNGN 190720	SNGN 655	19.05	7.94	2.0	
	SNGN 250720	SNGN 854	25.40	7.94	2.0	
	SNGN 250724	SNGN 856	25.40	7.94	2.4	
	SNGN 250924	SNGN 866	25.40	9.52	2.4	
	SNGX 120408	SNGX 432	12.70	4.76	0.8	
	SNGX 120412	SNGX 433	12.70	4.76	1.2	
	SNGX 120416	SNGX 434	12.70	4.76	1.6	
	SNGX 120708	SNGX 452	12.70	7.94	0.8	
	SNGX 120712	SNGX 453	12.70	7.94	1.2	
	SNGX 120716	SNGX 454	12.70	7.94	1.6	
	SNGX 150708	SNGX 552	15.87	7.94	0.8	
	SNGX 150712	SNGX 553	15.87	7.94	1.2	
	SNGX 150716	SNGX 554	15.87	7.94	1.6	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

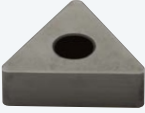
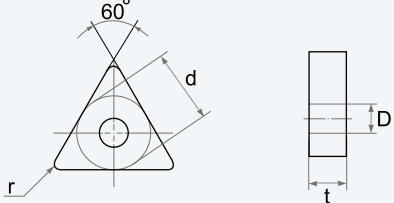
Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	SNMX 120712	SNMX 453	12.70	7.94	1.2	
	SNMX 120716	SNMX 454	12.70	7.94	1.6	
	SNMX120716RD	SNMX454RD	12.70	7.94	1.6	
	SCGN 090412	SCGN 333	9.52	4.76	1.2	
	SCGN 090416	SCGN 334	9.52	4.76	1.6	
	SCGN 120404	SCGN 431	12.70	4.76	0.4	
	SCGN 120408	SCGN 432	12.70	4.76	0.8	
	SCGN 120412	SCGN 433	12.70	4.76	1.2	
	SCGN 120416	SCGN 434	12.70	4.76	1.6	
	SCGX 120408	SCGX 432	12.70	4.76	0.8	
	SCGX 120616	SCGX 444	12.70	6.35	1.6	
	SCGX 120716	SCGX 454	12.70	7.94	1.6	

- Available Grades : ZCM100, CN150, CN250, CSN350, CSN400.

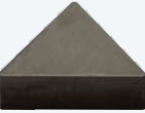
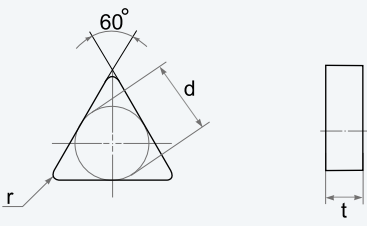
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	SCGW 09T304	-	9.52	3.97	0.4	4.40	
	SCGW 09T308	-	9.52	3.97	0.8	4.40	
	SCGW 120408	-	12.70	4.76	0.8	5.50	
	SPGN 090304	SPGN 321	9.52	3.18	0.4	-	
	SPGN 090308	SPGN 322	9.52	3.18	0.8	-	
	SPGN 090312	SPGN 323	9.52	3.18	1.2	-	
	SPGN 120304	SPGN 421	12.70	3.18	0.4	-	
	SPGN 120308	SPGN 422	12.70	3.18	0.8	-	
	SPGN 120312	SPGN 423	12.70	3.18	1.2	-	
	SPGN 120404	SPGN 431	12.70	4.76	0.4	-	
	SPGN 120408	SPGN 432	12.70	4.76	0.8	-	
	SPGN 120412	SPGN 433	12.70	4.76	1.2	-	
	SPGN 120416	SPGN 434	12.70	4.76	1.6	-	
	SPGN 150408	SPGN 532	15.87	4.76	0.8	-	
	SPGN 150412	SPGN 533	15.87	4.76	1.2	-	
	SPGN 190412	SPGN 633	19.05	4.76	1.2	-	
	SPGN 190416	SPGN 634	19.05	4.76	1.6	-	

- Available Grades : CM100, CCM100, CM050, ZCM050, ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

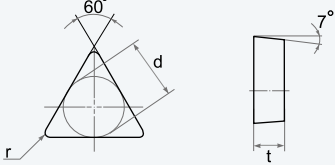
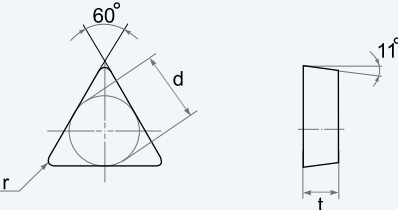
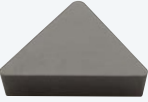
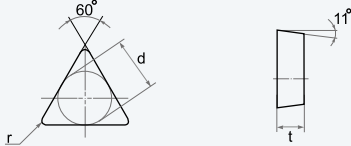
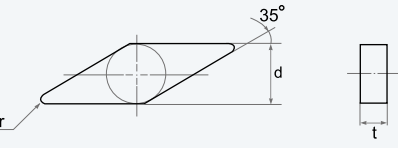


Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	TNGA 110304	TNGA 221	6.35	3.18	0.4	2.26	
	TNGA 110308	TNGA 222	6.35	3.18	0.8	2.26	
	TNGA 160304	TNGA 321	9.52	3.18	0.4	3.81	
	TNGA 160308	TNGA 322	9.52	3.18	0.8	3.81	
	TNGA 160312	TNGA 323	9.52	3.18	1.2	3.81	
	TNGA 160404	TNGA 331	9.52	4.76	0.4	3.81	
	TNGA 160408	TNGA 332	9.52	4.76	0.8	3.81	
	TNGA 160412	TNGA 333	9.52	4.76	1.2	3.81	
	TNGA 160416	TNGA 334	9.52	4.76	1.6	3.81	
	TNGA 220404	TNGA 431	12.70	4.76	0.4	5.16	
	TNGA 220408	TNGA 432	12.70	4.76	0.8	5.16	
	TNGA 220412	TNGA 433	12.70	4.76	1.2	5.16	
	TNGA 220416	TNGA 434	12.70	4.76	1.6	5.16	
	TNGA 220708	TNGA 452	12.70	7.94	0.8	5.16	
	TNGA 220712	TNGA 453	12.70	7.94	1.2	5.16	
	TNGA 270608	TNGA 542	15.87	6.35	0.8	6.35	
	TNGA 270612	TNGA 543	15.87	6.35	1.2	6.35	
	TNGA 330924	TNGA 666	19.05	9.52	2.4	7.94	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

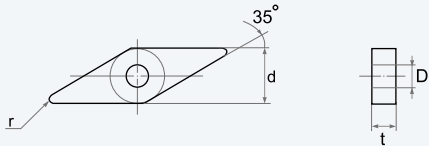
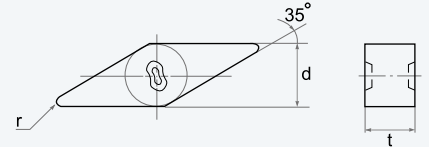
Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	TNGN 110304	TNGN 221	6.35	3.18	0.4	
	TNGN 110308	TNGN 222	6.35	3.18	0.8	
	TNGN 160404	TNGN 331	9.52	4.76	0.4	
	TNGN 160408	TNGN 332	9.52	4.76	0.8	
	TNGN 160412	TNGN 333	9.52	4.76	1.2	
	TNGN 160416	TNGN 334	9.52	4.76	1.6	
	TNGN 160704	TNGN 351	9.52	7.94	0.4	
	TNGN 160708	TNGN 352	9.52	7.94	0.8	
	TNGN 160712	TNGN 353	9.52	7.94	1.2	
	TNGN 160716	TNGN 354	9.52	7.94	1.6	
	TNGN 220404	TNGN 431	12.70	4.76	0.4	
	TNGN 220408	TNGN 432	12.70	4.76	0.8	
	TNGN 220412	TNGN 433	12.70	4.76	1.2	
	TNGN 220416	TNGN 434	12.70	4.76	1.6	
	TNGN 220708	TNGN 452	12.70	7.94	0.8	
	TNGN 220712	TNGN 453	12.70	7.94	1.2	
	TNGN 220716	TNGN 454	12.70	7.94	1.6	
	TNGN 270608	TNGN 542	15.87	6.35	0.8	
	TNGN 270612	TNGN 543	15.87	6.35	1.2	
	TNGN 270616	TNGN 544	15.87	6.35	1.6	
	TNGN 330924	TNGN 666	19.05	9.52	2.4	
	TNGN 440932	TNGN 868	25.40	9.52	3.2	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

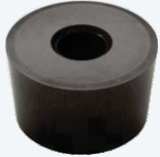
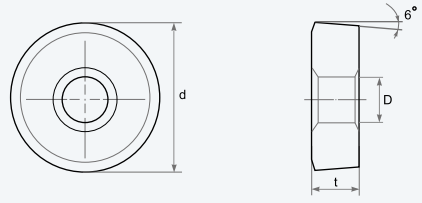
Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	TCUN 160408	TCUN 332	9.52	4.76	0.8	
	TCUN 160412	TCUN 333	9.52	4.76	1.2	
	TCUN 160416	TCUN 334	9.52	4.76	1.6	
	TPGN 090204	TPGN 731	5.56	2.38	0.4	
	TPGN 090208	TPGN 732	5.56	2.38	0.8	
	TPGN 110304	TPGN 221	6.35	3.18	0.4	
	TPGN 110308	TPGN 222	6.35	3.18	0.8	
	TPGN 160304	TPGN 321	9.52	3.18	0.4	
	TPGN 160308	TPGN 322	9.52	3.18	0.8	
	TPGN 160312	TPGN 323	9.52	3.18	1.2	
	TPGN 160404	TPGN 331	9.52	4.76	0.4	
	TPGN 160408	TPGN 332	9.52	4.76	0.8	
	TPGN 160412	TPGN 333	9.52	4.76	1.2	
	TPGN 160416	TPGN 334	9.52	4.76	1.6	
	TPGN 220404	TPGN 431	12.70	4.76	0.4	
	TPGN 220408	TPGN 432	12.70	4.76	0.8	
	TPGN 220412	TPGN 433	12.70	4.76	1.2	
	TPGN 220416	TPGN 434	12.70	4.76	1.6	
	TPGN 220712	TPGN 453	12.70	7.94	1.2	
	TPGN 220716	TPGN 454	12.70	7.94	1.6	
	TPGN 271232	TPGN 588	15.87	12.70	3.2	
	TPUN 110308	TPUN 222	6.35	3.18	0.8	
	TPUN 110312	TPUN 223	6.35	3.18	1.2	
	VNGN 160404	VNGN 331	9.52	4.76	0.4	
	VNGN 160408	VNGN 332	9.52	4.76	0.8	
	VNGN 160704	VNGN 351	9.52	7.94	0.4	
	VNGN 160708	VNGN 352	9.52	7.94	0.8	
	VNGN 160712	VNGN 353	9.52	7.94	1.2	
	VNGN 160716	VNGN 354	9.52	7.94	1.6	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

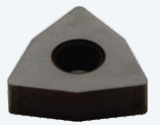
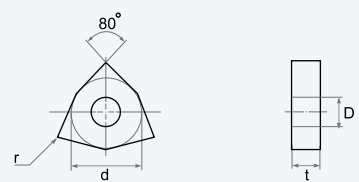


Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	VNGA 160404	VNGA 331	9.52	4.76	0.4	3.81	
	VNGA 160408	VNGA 332	9.52	4.76	0.8	3.81	
	VNGA 160412	VNGA 333	9.52	4.76	1.2	3.81	
	VNGA 160604	VNGA 341	9.52	6.35	0.4	3.81	
	VNGA 160608	VNGA 342	9.52	6.35	0.8	3.81	
	VNGA 160612	VNGA 343	9.52	6.35	1.2	3.81	
	VNGA 220404	VNGA 431	12.70	4.76	0.4	5.16	
	VNGA 220408	VNGA 432	12.70	4.76	0.8	5.16	
	VNGA 220412	VNGA 433	12.70	4.76	1.2	5.16	
	VNGA 220424	VNGA 436	12.70	4.76	2.4	5.16	
	VNGX 160708	VNGX 352	9.52	7.94	0.8	-	
	VNGX 160712	VNGX 353	9.52	7.94	1.2	-	
	VNGX 160716	VNGX 354	9.52	7.94	1.6	-	

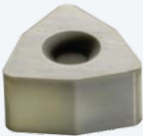
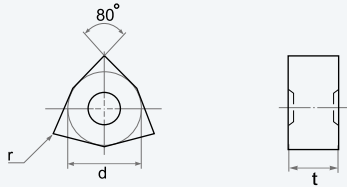
- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, ZCM050
ZCM100, CN150, CN250, CSN350, CSN400, XC200, XC400.

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	D	
	CDH 120600	CDH 22	12.70	6.35	3.18	
	CDH 120900	CDH 23	12.70	9.52	3.18	
	CDH 190900	CDH 33	19.05	9.52	6.35	
	CDH 191200	CDH 34	19.05	12.70	6.35	
	CDH 251200	CDH 42	25.40	12.70	6.75	
	CDH 251900	CDH 43	25.40	19.05	6.75	
	CDH 320900	CDH 515	31.75	9.52	10.00	
	CDH 321900	CDH 53	31.75	19.05	10.00	
	CDH 381100	-	38.10	11.11	9.93	

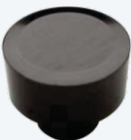
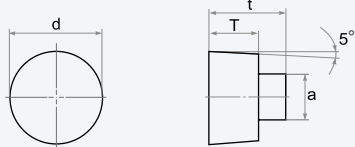
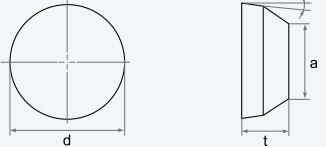
- Available Grades : CM100, CM200, CM400, ZCM100, CN150, CN250, CSN350.

Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	D	
	WNGA 080404	WNGA 431	12.70	4.76	0.4	5.16	
	WNGA 080408	WNGA 432	12.70	4.76	0.8	5.16	
	WNGA 080412	WNGA 433	12.70	4.76	1.2	5.16	

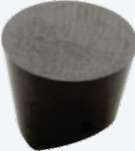
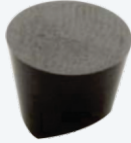
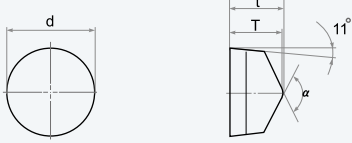
- Available Grades : CM100, CM200, ZCM100, CN150, CN250, CSN350, XC200, XC400.

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	r	
	WNGX 080708	WNGX 452	12.70	7.94	0.8	
	WNGX 080712	WNGX 453	12.70	7.94	1.2	
	WNGX 080716	WNGX 454	12.70	7.94	1.6	

- Available Grades : CN150, CN250, CSN350, CSN400.

Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	T	a	
	RBGX 06T	-	6.00	5.00	3.00	3.00	
	RBGX 08T	-	8.00	6.50	4.00	4.00	
	RBGX 10T	-	10.00	9.00	6.00	6.00	
	RBGX 12T	-	12.00	9.00	6.00	6.00	
	RBGX 16T	-	16.00	13.00	8.00	8.00	
	RBGX 20T	-	20.00	15.00	10.00	10.00	
	RBGX 26T	-	26.00	15.00	10.00	14.00	
	RXGX 1207MO	-	12.00	7.94	-	6.90	
	RXGX 1608MO	-	16.00	8.00	-	9.50	
	RXGX 2508MO	-	25.00	8.00	-	18.20	

- Available Grades : CM100, CM200, CM400, CCM100.

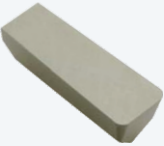
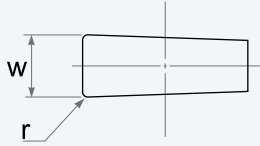
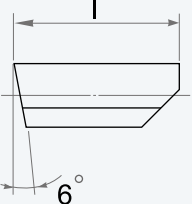
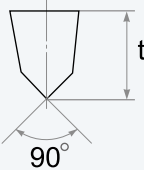
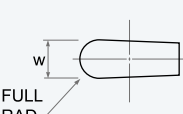
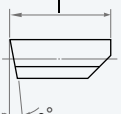
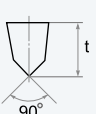
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	T	α	
	RCGX 060400	RCGX 102	6.35	4.76	4.57	120°	
	RCGX 060600	RCGX 102	6.35	6.35	6.20	120°	
	RCGX 060700	RCGX 102	6.35	7.94	7.70	120°	
	RCGX 090700	RCGX 103	9.52	7.94	7.70	120°	
	RCGX 120700	RCGX 104	12.70	7.94	7.70	120°	
	RCGX 151000	RCGX 105	15.87	10.00	9.77	120°	
	RCGX 191000	RCGX 106	19.05	10.00	9.77	120°	
	RCGX 251200	RCGX 108	25.40	12.00	11.85	140°	
	RPGX 060400	RPGX 102	6.35	4.76	4.57	120°	
	RPGX 090700	RPGX 103	9.52	7.94	7.70	120°	
	RPGX 120700	RPGX 104	12.70	7.94	7.70	120°	

- Available Grades : CM100, CM200, CM400, CCM100, ACM100, CM050, CSN350, CSN400, XC200, XC400.

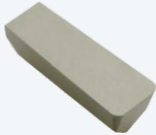
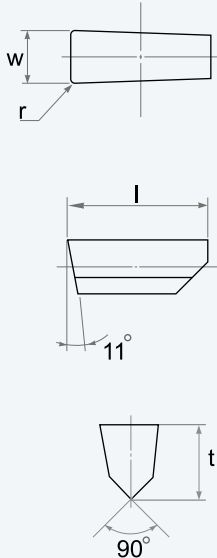
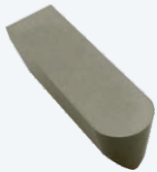
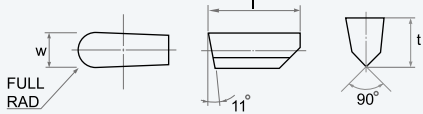


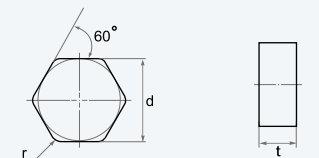
Insert Shape	Type ISO	Dimensions (mm)					Geometry
		l	w	t	s	α	
	BGYF 031828604-2E	28.58	3.18	6.35	2.69	5.0°	
	BGYF 047828604-2E	28.58	4.78	6.35	3.66	5.0°	
	BGYF 055428604-2E	28.58	5.54	6.35	3.66	5.0°	
	BGYF 063528604-2E	28.58	6.35	8.56	5.13	7.0°	
	BGYF 079328604-2E	28.58	7.93	8.56	5.13	7.0°	
	BGYF 095328604-2E	28.58	9.53	8.56	6.99	7.0°	
	BGYR 031828600-2E	28.58	3.18	6.35	2.69	5.0°	
	BGYR 047828600-2E	28.58	4.78	6.35	3.66	5.0°	
	BGYR 055428600-2E	28.58	5.54	6.35	3.66	5.0°	
	BGYR 063528600-2E	28.58	6.35	8.56	5.13	7.0°	
	BGYR 079328600-2E	28.58	7.93	8.56	5.13	7.0°	
	BGYR 095328600-2E	28.58	9.53	8.56	6.99	7.0°	

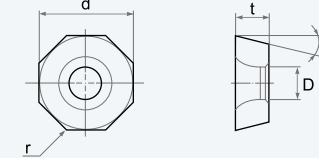
Insert Shape	Type ISO	Dimensions (mm)				Geometry
		l	w	t	r	
	BGSF 040012005-1E	12.00	4.00	5.00	0.50	
	BGSF 050012008-1E	12.00	5.00	5.00	0.80	
	BGSF 060015008-1E	15.00	6.00	7.50	0.80	
	BGSF 070015008-1E	15.00	7.00	7.50	0.80	
	BGSF 080015008-1E	15.00	8.00	7.50	0.80	
	BGSF 100015008-1E	15.00	10.00	7.50	0.80	
	BGSR 040012000-1E	12.00	4.00	5.00	-	
	BGSR 050012000-1E	12.00	5.00	5.00	-	
	BGSR 060015000-1E	15.00	6.00	7.50	-	
	BGSR 070015000-1E	15.00	7.00	7.50	-	
	BGSR 080015000-1E	15.00	8.00	7.50	-	
	BGSR 100015000-1E	15.00	10.00	7.50	-	
	BGSF 040012005-2E	12.00	4.00	5.00	0.85	
	BGSF 050012008-2E	12.00	5.00	5.00	0.80	
	BGSF 060015008-2E	15.00	6.00	7.50	0.80	
	BGSF 070015008-2E	15.00	7.00	7.50	0.80	
	BGSF 080015008-2E	15.00	8.00	7.50	0.80	
	BGSF 100015008-2E	15.00	10.00	7.50	0.80	
	BGSR 040012000-2E	12.00	4.00	5.00	-	
	BGSR 050012000-2E	12.00	5.00	5.00	-	
	BGSR 060015000-2E	15.00	6.00	7.50	-	
	BGSR 070015000-2E	15.00	7.00	7.50	-	
	BGSR 080015000-2E	15.00	8.00	7.50	-	
	BGSR 100015000-2E	15.00	10.00	7.50	-	

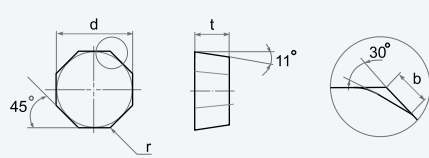
Insert Shape	Type ISO	Dimensions (mm)				Geometry
		l	w	t	r	
	BGCF 023912704-1E	12.70	2.388	4.75	0.40	  
	BGCF 023912708-1E	12.70	2.388	4.75	0.80	
	BGCF 031812704-1E	12.70	3.175	4.75	0.40	
	BGCF 031812708-1E	12.70	3.175	4.75	0.80	
	BGCF 039612704-1E	12.70	3.962	4.75	0.40	
	BGCF 039612708-1E	12.70	3.962	4.75	0.80	
	BGCF 047512704-1E	12.70	4.750	4.75	0.40	
	BGCF 047512708-1E	12.70	4.750	4.75	0.80	
	BGCF 055419004-1E	19.05	5.537	6.35	0.40	
	BGCF 055419008-1E	19.05	5.537	6.35	0.80	
	BGCF 063519004-1E	19.05	6.350	6.35	0.40	
	BGCF 063519008-1E	19.05	6.350	6.35	0.80	
	BGCF 063519012-1E	19.05	6.350	6.35	1.20	
	BGCF 071419004-1E	19.05	7.137	6.35	0.40	
	BGCF 071419008-1E	19.05	7.137	6.35	0.80	
	BGCF 071419012-1E	19.05	7.137	6.35	1.20	
	BGCF 079225404-1E	25.40	7.925	8.56	0.40	
	BGCF 079225408-1E	25.40	7.925	8.56	0.80	
	BGCF 079225412-1E	25.40	7.925	8.56	1.20	
	BGCF 079225416-1E	25.40	7.925	8.56	1.60	
	BGCF 087425404-1E	25.40	8.738	8.56	0.40	
	BGCF 087425408-1E	25.40	8.738	8.56	0.80	
	BGCF 087425412-1E	25.40	8.738	8.56	1.20	
	BGCF 087425416-1E	25.40	8.738	8.56	1.60	
	BGCF 095225404-1E	25.40	9.525	8.56	0.40	
	BGCF 095225408-1E	25.40	9.525	8.56	0.80	
	BGCF 095225412-1E	25.40	9.525	8.56	1.20	
	BGCF 095225416-1E	25.40	9.525	8.56	1.60	
	BGCR 023912700-1E	12.70	2.388	4.75	-	  
	BGCR 031812700-1E	12.70	3.175	4.75	-	
	BGCR 039612700-1E	12.70	3.962	4.75	-	
	BGCR 047512700-1E	12.70	4.750	4.75	-	
	BGCR 055419000-1E	19.05	5.537	6.35	-	
	BGCR 063519000-1E	19.05	6.350	6.35	-	
	BGCR 071419000-1E	19.05	7.137	6.35	-	
	BGCR 079225400-1E	25.40	7.925	8.56	-	
	BGCR 087425400-1E	25.40	8.738	8.56	-	
	BGCR 095225400-1E	25.40	9.525	8.56	-	
	BGCR 095225400-1E	25.40	9.525	8.56	-	

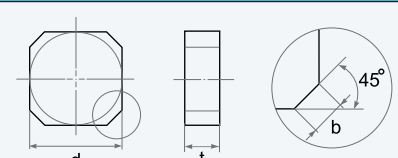


Insert Shape	Type ISO	Dimensions (mm)				Geometry
		l	w	t	r	
	BGPF 023912704-1E	12.70	2.388	4.75	0.40	
	BGPF 023912708-1E	12.70	2.388	4.75	0.80	
	BGPF 031812704-1E	12.70	3.175	4.75	0.40	
	BGPF 031812708-1E	12.70	3.175	4.75	0.80	
	BGPF 039612704-1E	12.70	3.962	4.75	0.40	
	BGPF 039612708-1E	12.70	3.962	4.75	0.80	
	BGPF 047512704-1E	12.70	4.750	4.75	0.40	
	BGPF 047512708-1E	12.70	4.750	4.75	0.80	
	BGPF 055419004-1E	19.05	5.537	6.35	0.40	
	BGPF 055419008-1E	19.05	5.537	6.35	0.80	
	BGPF 063519004-1E	19.05	6.350	6.35	0.40	
	BGPF 063519008-1E	19.05	6.350	6.35	0.80	
	BGPF 063519012-1E	19.05	6.350	6.35	1.20	
	BGPF 071419004-1E	19.05	7.137	6.35	0.40	
	BGPF 071419008-1E	19.05	7.137	6.35	0.80	
	BGPF 071419012-1E	19.05	7.137	6.35	1.20	
	BGPF 079225404-1E	25.40	7.925	8.56	0.40	
	BGPF 079225408-1E	25.40	7.925	8.56	0.80	
	BGPF 079225412-1E	25.40	7.925	8.56	1.20	
	BGPF 079225416-1E	25.40	7.925	8.56	1.60	
	BGPF 087425404-1E	25.40	8.738	8.56	0.40	
	BGPF 087425408-1E	25.40	8.738	8.56	0.80	
	BGPF 087425412-1E	25.40	8.738	8.56	1.20	
	BGPF 087425416-1E	25.40	8.738	8.56	1.60	
	BGPF 095225404-1E	25.40	9.525	8.56	0.40	
	BGPF 095225408-1E	25.40	9.525	8.56	0.80	
	BGPF 095225412-1E	25.40	9.525	8.56	1.20	
	BGPF 095225416-1E	25.40	9.525	8.56	1.60	
	BGPR 023912700-1E	12.70	2.388	4.75	-	
	BGPR 031812700-1E	12.70	3.175	4.75	-	
	BGPR 039612700-1E	12.70	3.962	4.75	-	
	BGPR 047512700-1E	12.70	4.750	4.75	-	
	BGPR 055419000-1E	19.05	5.537	6.35	-	
	BGPR 063519000-1E	19.05	6.350	6.35	-	
	BGPR 071419000-1E	19.05	7.137	6.35	-	
	BGPR 079225400-1E	25.40	7.925	8.56	-	
	BGPR 087425400-1E	25.40	8.738	8.56	-	
	BGPR 095225400-1E	25.40	9.525	8.56	-	
	BGPR 095225400-1E	25.40	9.525	8.56	-	
	BGPR 095225400-1E	25.40	9.525	8.56	-	

Insert Shape	Type ISO	Dimensions (mm)			Geometry
		d	t	r	
	HNEN 090520	16.20	5.56	2.0	
	HNEN 090530	16.20	5.56	3.0	
	HNEN 090508 ANSN	15.87	5.64	0.8	

Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	D	r	
	OEGB 070408	-	15.87	4.76	5.18	0.8	
	OEGB 070416	-	15.87	4.76	5.18	1.6	
	OEGB 070516	-	15.87	5.13	5.18	1.6	

Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	b	
	OPEN 050408 TR	-	13.97	4.76	0.80	2.10	
	OPEN 050608 TR	-	13.97	6.35	0.80	2.10	

Insert Shape	Type		Dimensions (mm)			Geometry
	ISO	ASA	d	t	b	
	SNCN 1204AN	SNCN43AN	12.70	4.76	2.50	
	SNCN 1204ZN	SNCN43ZN	12.70	4.76	1.10	

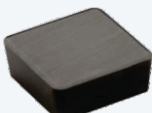
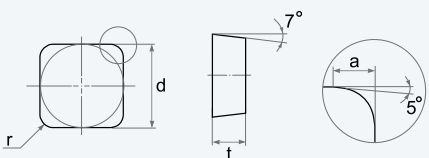
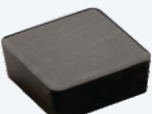
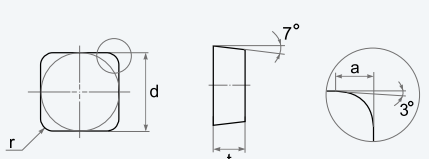
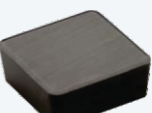
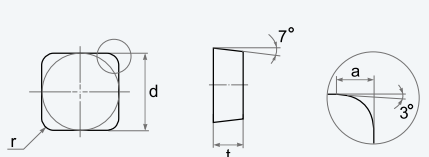
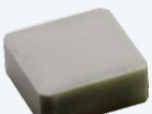
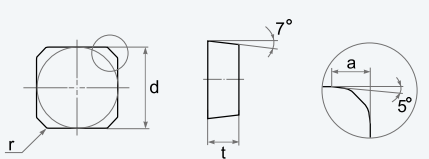
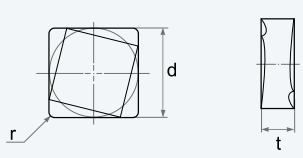


Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	a	b	
	SNCN 1204 ENTN	SNCN 43 ENTN	12.70	4.76	2.50	2.50	
	SNCN 1504 ENTN	SNCN 53 ENTN	12.70	4.76	1.10	1.10	
	SNGN 1204 ING	SNGN 43 ING	12.70	4.76	-	1.50	
	SNGN 1904 ING	SNGN 63 ING	19.05	4.76	-	2.50	
	SNCN 0904 ZZT	SNCN33ZZT	9.52	4.76	1.30	1.10	
	SNCN 1204 ZZT	SNCN43ZZT	12.70	4.76	3.25	1.10	

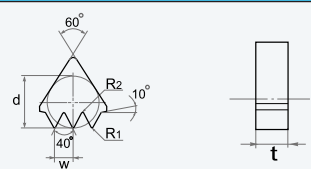
- Available Grades : ST300, SN400, SN500.

Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	a	
	SNCN 0904 GZ	SNCN33GZ	9.52	4.76	0.8	1.00	
	SNCN 1204 KZ	SNCN43KZ	12.70	4.76	1.2	1.80	

- Available Grades : SN400.

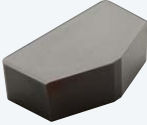
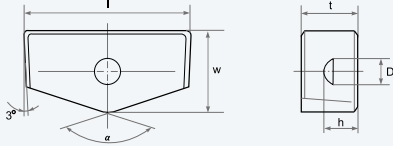
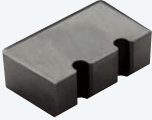
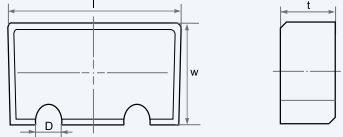
Insert Shape	Type		Dimensions (mm)				Geometry
	ISO	ASA	d	t	r	a	
	SCGN 0904 WZ SCGN 1204 WZ	SCGN 33 WZ SCGN 43 WZ	9.52 12.70	4.76 4.76	0.8 0.8	1.60 1.60	
	SCGN 0904 XZ SCGN 1204 XZ	SCGN 33 XZ SCGN 43 XZ	9.52 12.70	4.76 4.76	0.8 0.8	1.20 1.20	
	SCGN 0904 ZZ SCGN 1204 ZZ	SCGN 33 ZZ SCGN 43 ZZ	9.52 12.70	4.76 4.76	0.8 0.8	1.00 1.00	
	SCGN 0904 MZ SCGN 1204 MZ	SCGN 33 MZ SCGN 43 MZ	9.52 12.70	4.76 4.76	0.8 0.8	1.80 1.80	
	SNGF 120412	SNGF 433	12.70	4.76	1.2	-	

- Available Grades : ST300, SN400, SN500.

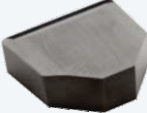
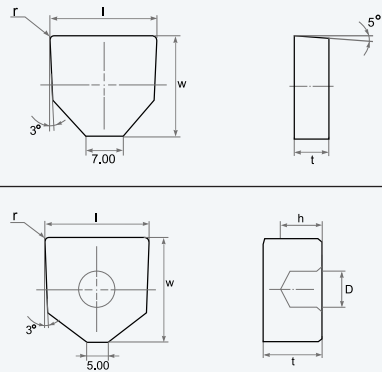
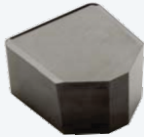
Insert Shape	Type ISO	Dimensions (mm)					Geometry
		d	t	w	R1	R2	
	POLY V F303	9.52	4.76	3.56	0.5	0.3	
	POLY V F304	9.52	4.76	3.56	0.5	0.4	
	POLY V F403	12.70	4.76	3.56	0.5	0.3	
	POLY V F404	12.70	4.76	3.56	0.5	0.4	

- Available Grades : XCM050.

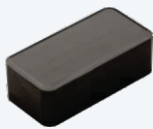
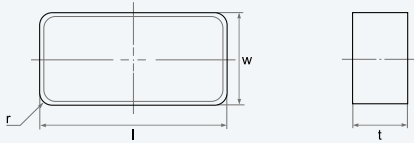


Insert Shape	Type ISO	Dimensions (mm)						Geometry
		l	w	t	D	h	α	
	F 13941	32.00	19.05	12.00	6.50	6.00	120°	
	F 10537	44.50	25.40	14.20	6.50	7.00	120°	
	F 10537 V	44.00	26.00	15.00	5.00	-	-	

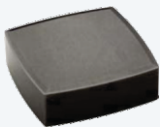
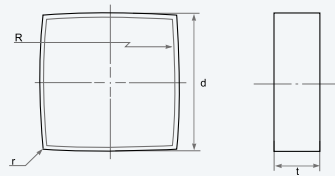
- Available Grades : CM100, ZCM050.

Insert Shape	Type ISO	Dimensions (mm)						Geometry
		l	t	r	w	D	h	
	F 250723	25.00	7.94	1.20	23.00	-	-	
	F 251425	25.00	14.40	2.40	25.40	9.17	10.00	
	F251425 H65	25.40	14.40	2.40	25.40	6.50	10.00	

- Available Grades : CM100, ZCM050.

Insert Shape	Type ISO	Dimensions (mm)				Geometry
		l	w	t	r	
	LNJ 5464	25.40	15.87	9.52	1.6	
	LNJ 5568	31.75	15.87	9.52	3.2	
	LNJ 6588	31.75	19.05	12.70	3.2	
	LNJ 6688	38.10	19.05	12.70	3.2	
	LNJ 6898	48.10	21.05	12.70	3.2	

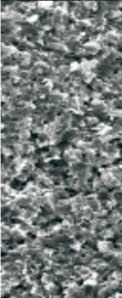
- Available Grades : CM100, CM200, CM400, CCM100, ZCM100, CN150, CN250, CSN350, XC200.

Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	t	r	R	
	SNGN 3812R	38.10	12.70	0.4	114	

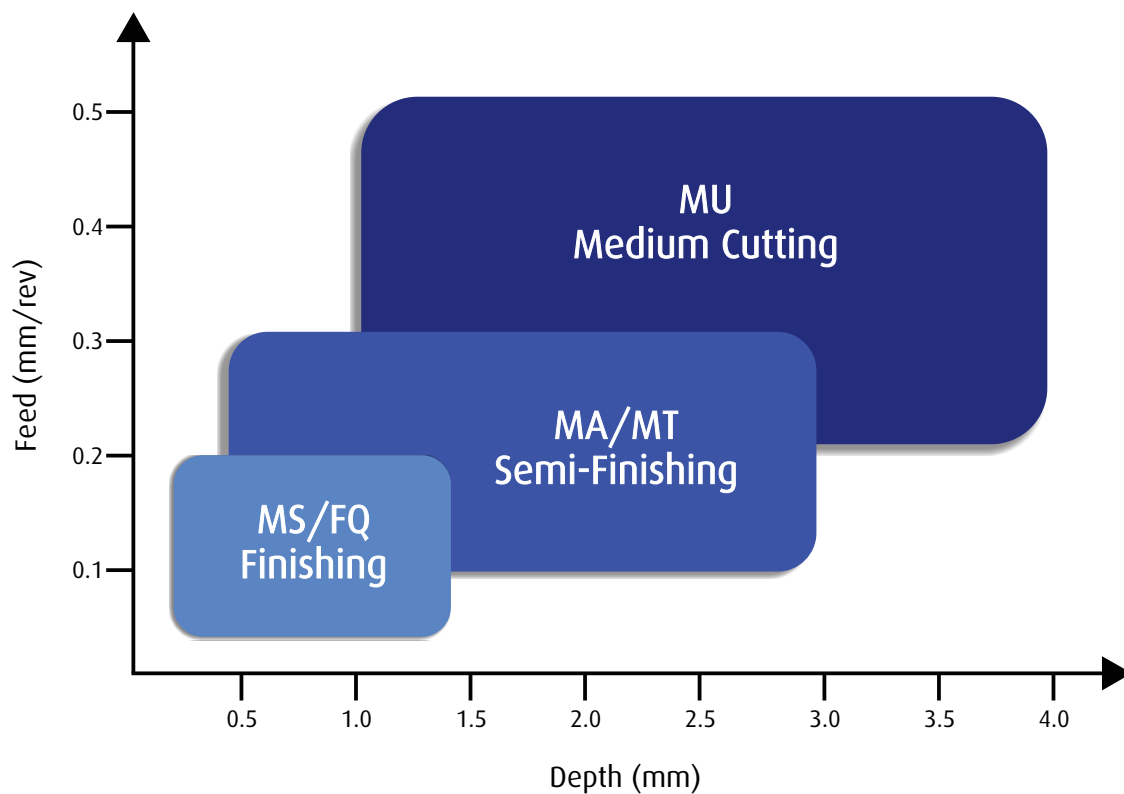
- Available Grades : CM100, CM200.



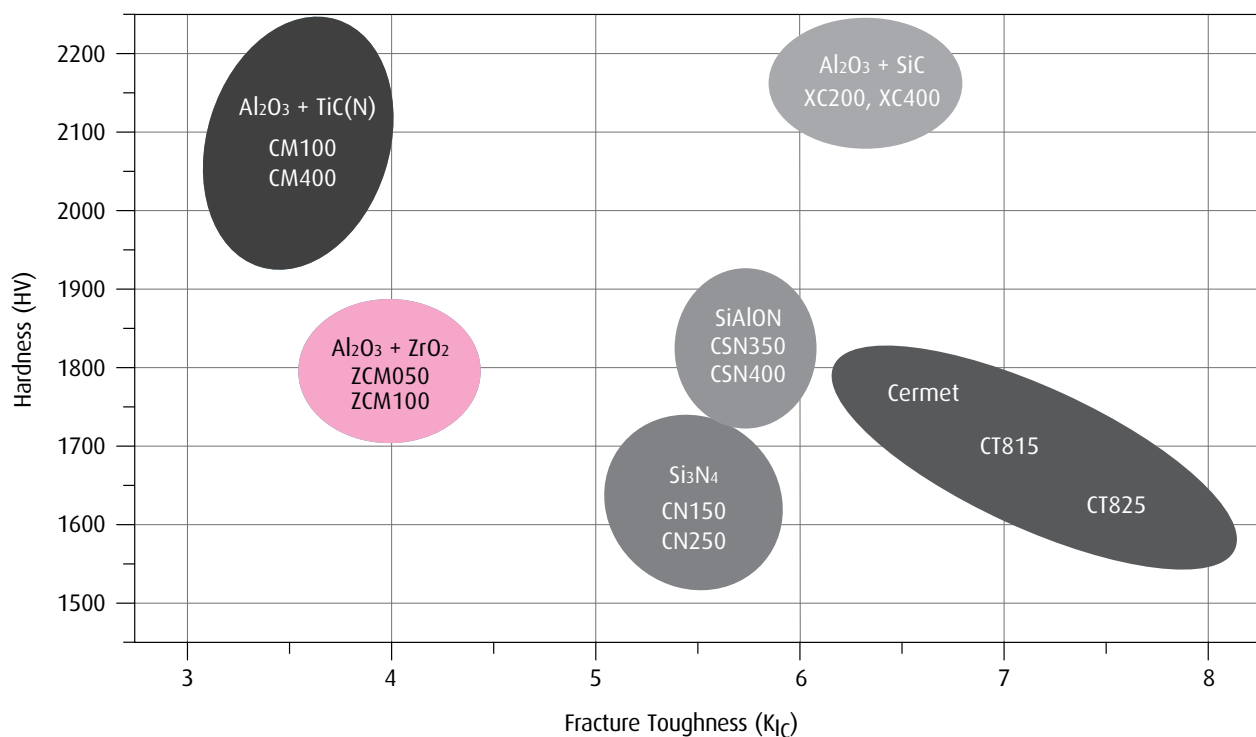
Combination of TiCN with carbide as a binder, Cermets are tougher than ceramics and harder than tungsten carbides, which are wear resistance than carbide and thus can work at higher cutting speed than carbides. It gives better surface finish with extended tool life for finishing and semi finishing applications. Brisloy has three different grades for different workpiece and cutting condition. Ideal for high-speed finishing and milling of mild steel, carbon steel and alloy steel.

	TiCN+TaC	CT815	Excellent wear resistance, thermal stress resistance and high mechanical strength.	Ultra fine finish, finish of alloy steels and low carbon steels for continuous cuts.
		CT825	Excellent wear resistance and high mechanical strength.	Fine finish, Finish of alloy steels and low carbon steels for continuous and light interrupted cuts.

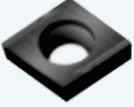
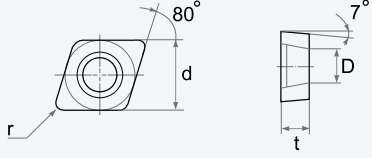
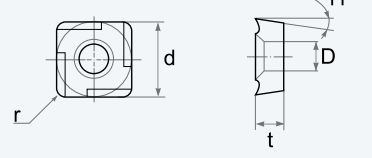
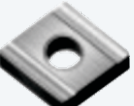
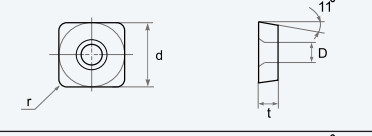
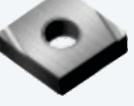
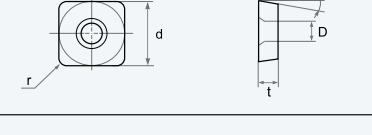
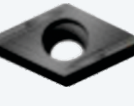
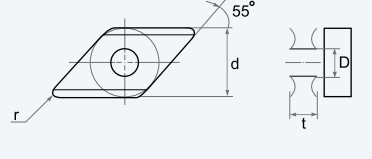
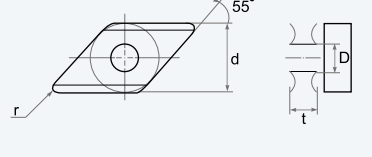
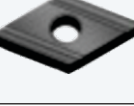
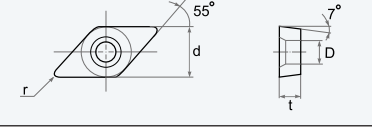
Choice of Chipbreaker



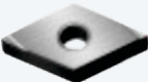
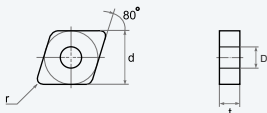
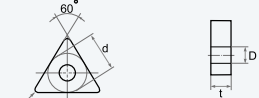
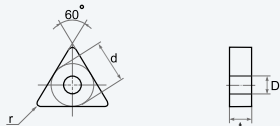
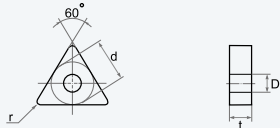
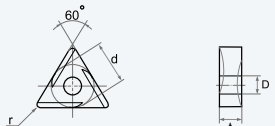
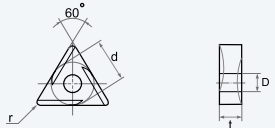
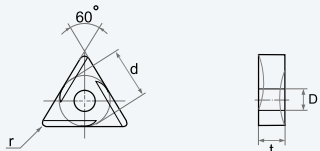
Mechanical Properties





Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	l.C	r	S	
	CCGT 060201 R/L-C	2.80	6.35	0.1	2.38	
	CCGT 060202 R/L-C	2.80	6.35	0.2	2.38	
	CCGT 060204 R/L-C	2.80	6.35	0.4	2.38	
	CCGT 09T301 R/L-C	4.40	9.525	0.1	3.97	
	CCGT 09T302 R/L-C	4.40	9.525	0.2	3.97	
	CCGT 09T304 R/L-C	4.40	9.525	0.4	3.97	
	CCGT 060201 R/L-S	2.80	6.35	0.1	2.38	
	CCGT 060202 R/L-S	2.80	6.35	0.2	2.38	
	CCGT 060204 R/L-S	2.80	6.35	0.4	2.38	
	CCGT 09T301 R/L-S	4.40	9.525	0.1	3.97	
	CCGT 09T302 R/L-S	4.40	9.525	0.2	3.97	
	CCGT 09T304 R/L-S	4.40	9.525	0.4	3.97	
	CNGG 120404 R/L-H	5.16	12.70	0.4	4.76	
	CNGG 120408 R/L-H	5.16	12.70	0.8	4.76	
	CNGG 120404 R/L-S	5.16	12.70	0.4	4.76	
	CNGG 120408 R/L-S	5.16	12.70	0.8	4.76	
	DCGT 070201 R/L-C	2.80	6.35	0.1	2.38	
	DCGT 070202 R/L-C	2.80	6.35	0.2	2.38	
	DCGT 070204 R/L-C	2.80	6.35	0.4	2.38	
	DCGT 11T301 R/L-C	4.40	9.525	0.1	3.97	
	DCGT 11T302 R/L-C	4.40	9.525	0.2	3.97	
	DCGT 11T304 R/L-C	4.40	9.525	0.4	3.97	
	DCGT 070201 R/L-S	2.80	6.35	0.1	2.38	
	DCGT 070202 R/L-S	2.80	6.35	0.2	2.38	
	DCGT 070204 R/L-S	2.80	6.35	0.4	2.38	
	DCGT 11T301 R/L-S	4.40	9.525	0.1	3.97	
	DCGT 11T302 R/L-S	4.40	9.525	0.2	3.97	
	DCGT 11T304 R/L-S	4.40	9.525	0.4	3.97	
	CNGG 120404 R/L-H	5.16	12.70	0.4	4.76	
	CNGG 120408 R/L-H	5.16	12.70	0.8	4.76	

- Available Grades : CT815, CT825.

Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	l.C	r	S	
	CNGG 120404 R/L-S	5.16	12.70	0.4	4.76	
	CNGG 120408 R/L-S	5.16	12.70	0.8	4.76	
	TBGT 060101 R/L-S	2.3	3.97	0.1	1.59	
	TBGT 060102 R/L-S	2.3	3.97	0.2	1.59	
	TBGT 060104 R/L-S	2.3	3.97	0.4	1.59	
	TNGG 160402 R/L-C	3.81	9.525	0.2	4.76	
	TNGG 160404 R/L-C	3.81	9.525	0.4	4.76	
	TNGG 160408 R/L-C	3.81	9.525	0.8	4.76	
	TNGG 220404 R/L-C	5.16	12.70	0.4	4.76	
	TNGG 220408 R/L-C	5.16	12.70	0.8	4.76	
	TNGG 160402 R/L-F	3.81	9.525	0.2	4.76	
	TNGG 160404 R/L-F	3.81	9.525	0.4	4.76	
	TNGG 160408 R/L-F	3.81	9.525	0.8	4.76	
	TNGG 220404 R/L-F	5.16	12.70	0.4	4.76	
	TNGG 220408 R/L-F	5.16	12.70	0.8	4.76	
	TNMG 160402 R/L-1C	3.81	9.53	0.2	3.18	
	TNMG 160404 R/L-1C	3.81	9.53	0.4	3.18	
	TNMG 160408 R/L-1C	3.81	9.53	0.8	3.18	
	TNMG 160402 R/L-C	3.81	9.53	0.2	3.18	
	TNMG 160404 R/L-C	3.81	9.53	0.4	3.18	
	TNMG 160408 R/L-C	3.81	9.53	0.8	3.18	
	TPGH 080202 R/L-C	2.3	4.76	0.2	2.38	
	TPGH 080204 R/L-C	2.3	4.76	0.4	2.38	
	TPGH 090202 R/L-C	2.5	5.56	0.2	2.38	
	TPGH 090204 R/L-C	2.5	5.56	0.4	2.38	
	TPGH 110302 R/L-C	3.3	6.35	0.2	3.18	
	TPGH 110304 R/L-C	3.3	6.35	0.4	3.18	

- Available Grades : CT815, CT825.



Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	l.C	r	S	
	TPGH 080202 R/L-S	2.30	4.76	0.2	2.38	
	TPGH 080204 R/L-S	2.30	4.76	0.4	2.38	
	TPGH 090202 R/L-S	2.50	5.56	0.2	2.38	
	TPGH 090204 R/L-S	2.50	5.56	0.4	2.38	
	TPGH 110302 R/L-S	3.30	6.35	0.2	3.18	
	TPGH 110304 R/L-S	3.30	6.35	0.4	3.18	
	WBGT 060102 R/L-S	2.30	3.97	0.2	1.59	
	WBGT 060104 R/L-S	2.30	3.97	0.4	1.59	
	WNGG 060404 R/L-C	3.81	9.525	0.4	4.76	
	WNGG 060408 R/L-C	3.81	9.525	0.8	4.76	
	WNGG 080404 R/L-C	5.16	12.7	0.4	4.76	
	WNGG 080408 R/L-C	5.16	12.7	0.8	4.76	
	WNGG 060404 R/L-S	3.81	9.525	0.4	4.76	
	WNGG 060408 R/L-S	3.81	9.525	0.8	4.76	
	WNGG 080404 R/L-S	5.16	12.7	0.4	4.76	
	WNGG 080408 R/L-S	5.16	12.7	0.8	4.76	
	VBGT 110302 R/L-C	2.80	6.35	0.2	3.18	
	VBGT 110304 R/L-C	2.80	6.35	0.4	3.18	
	VBGT 160402 R/L-C	4.40	9.525	0.2	4.76	
	VBGT 160404 R/L-C	4.40	9.525	0.4	4.76	
	VBGT 160408 R/L-C	4.40	9.525	0.8	4.76	
	VBGT 110301 FR/L-P	2.80	6.35	0.1	3.18	
	VBGT 110302 FR/L-P	2.80	6.35	0.2	3.18	
	VBGT 110304 FR/L-P	2.80	6.35	0.4	3.18	
	VBGT 110301 R/L-S	2.80	6.35	0.1	3.18	
	VBGT 110302 R/L-S	2.80	6.35	0.2	3.18	
	VBGT 110304 R/L-S	2.80	6.35	0.4	3.18	

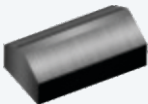
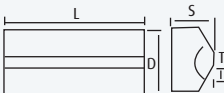
- Available Grades : CT815, CT825.

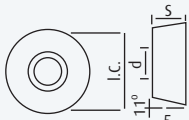
Bearing Inserts

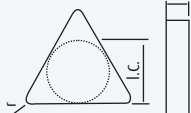
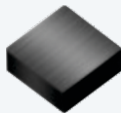
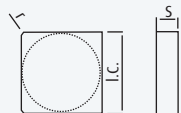
Triangle Square Round V-ship.

Mainly used for Turning / Chamfer / Grooving
bearing steel (GCr15) after profile ground.



Insert Shape	Type ISO	Dimensions (mm)					Geometry
		L	B	S	T	Angle	
	F8	21.6	8	8	1	90	
	F10	23.6	10	8	1	90	
	F12	26	12	8	2	120	

Insert Shape	Type ISO	Dimensions (mm)			Geometry
		I.C.	S	d	
	RPGET 1203 MO-BB	12.0	3.18	4.40	
	RPGET 1604 MO-BB	16.0	4.76	5.50	

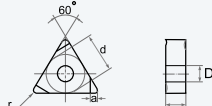
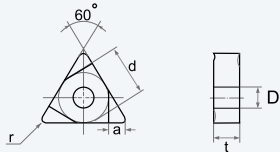
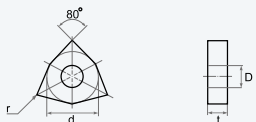
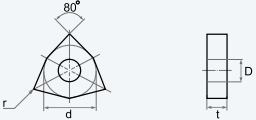
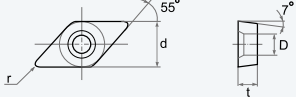
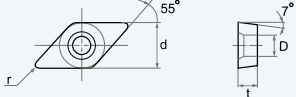
Insert Shape	Type ISO	Dimensions (mm)			Geometry
		I.C.	S	r	
	TNGN 220404	12.70	4.76	0.4	
	TNGN 270408	15.875	4.76	0.8	
	SNMN 120404	12.70	4.76	0.4	
	SNMN 150404	15.875	4.76	0.4	

- Available Grades : CT815, CT825.



Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	l.C	r	S	
	CNMG 120404-MS	5.16	12.70	0.4	4.76	
	CNMG 120408-MS	5.16	12.70	0.8	4.76	
	CNMG 090304-MU	3.81	9.525	0.4	3.18	
	CNMG 090308-MU	3.81	12.70	0.8	3.18	
	CNMG 120404-MU	5.16	12.70	0.4	4.76	
	CNMG 120408-MU	5.16	12.70	0.8	4.76	
	CNMG 120412-MU	5.16	12.70	1.2	4.76	
	DNMG 150404-MS	5.16	12.70	0.4	4.76	
	DNMG 150408-MS	5.16	12.70	0.8	4.76	
	DNMG 150604-MS	5.16	12.70	0.4	6.35	
	DNMG 150608-MS	5.16	12.70	0.8	6.35	
	DNMG 110404-MU	3.81	9.525	0.4	4.76	
	DNMG 110408-MU	3.81	9.525	0.8	4.76	
	DNMG 150404-MU	5.16	12.70	0.4	4.76	
	DNMG 150408-MU	5.16	12.70	0.8	4.76	
	DNMG 150412-MU	5.16	12.70	1.2	4.76	
	DNMG 150604-MU	5.16	12.70	0.4	6.35	
	DNMG 150608-MU	5.16	12.70	0.8	6.35	
	DNMG 150612-MU	5.16	12.70	1.2	6.35	
	RNMG 090300-MU	3.81	9.525	-	3.18	
	RNMG 120400-MU	5.16	12.70	-	4.76	
	RNMG 150600-MU	6.35	15.875	-	6.35	
	SNMG 120404-MS	5.16	12.70	0.4	4.76	
	SNMG 120408-MS	5.16	12.70	0.8	4.76	
	SNMG 090304-MU	3.81	9.525	0.4	3.18	
	SNMG 090308-MU	3.81	9.525	0.8	3.18	
	SNMG 120404-MU	5.16	12.70	0.4	4.76	
	SNMG 120408-MU	5.16	12.70	0.8	4.76	
	SNMG 120412-MU	5.16	12.70	1.2	4.76	

- Available Grades : CT815, CT825.

Insert Shape	Type ISO	Dimensions (mm)				Geometry
		d	l.C	r	S	
	TNMG 160404-MS	3.81	9.525	0.4	4.76	
	TNMG 160408-MS	3.81	9.525	0.8	4.76	
	TNMG 110304-MU	2.26	6.35	0.4	3.18	
	TNMG 110308-MU	2.26	6.35	0.8	3.18	
	TNMG 160404-MU	3.81	9.525	0.4	4.76	
	TNMG 160408-MU	3.81	9.525	0.8	4.76	
	TNMG 160412-MU	3.81	9.525	1.2	4.76	
	WNMG 080404-MS	5.16	12.70	0.4	4.76	
	WNMG 080408-MS	5.16	12.70	0.8	4.76	
	WNMG 080404-MU	5.16	12.70	0.4	4.76	
	WNMG 080408-MU	5.16	12.70	0.8	4.76	
	WNMG 080412-MU	5.16	12.70	1.2	4.76	
	VNMG 160404-MS	3.81	9.525	0.4	4.76	
	VNMG 160408-MS	3.81	9.525	0.8	4.76	
	VNMG 160404-MU	3.81	9.525	0.4	4.76	
	VNMG 160408-MU	3.81	9.525	0.8	4.76	

- Available Grades : CT815, CT825.



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