



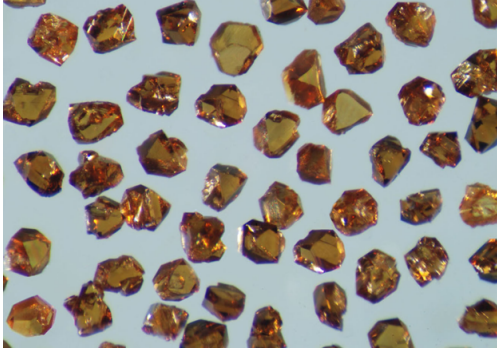
**ACCURATE** Solid PCBN insert / PCBN welded insert / PCBN compact welded insert  
Polycrystalline Cubic Boron Nitride (PCBN) Inserts



## Introduction

Cubic Boron Nitride (CBN) is second to diamond in hardness on the earth, and has high wear resistance and high thermal stability.

To be complementary to diamond, CBN is used in machining ferrous materials like steel and iron. CBN micron powder can be further sintered to Polycrystalline Cubic Boron Nitride (PCBN), including Solid PCBN and PCBN Compact, as cutting tools.



## Features of CBN material

### High hardness and wear resistance -

The hardness of CBN single crystal is HV 7000 to HV 9000, therefore, it has higher wear resistance than cemented carbide and ceramics when it is used to process high-hardness materials, and can reduce the dimensional deviation in the processing of large parts, especially suitable for equipment with a high degree of automation, thus reduces the auxiliary time for tool change and tool adjustment, so the efficiency can be fully exerted.

### High thermal stability -

The heat resistance of CBN can reach 1400°C to 1500°C, when the cutting temperature is high, the processed material will be softened, and the difference in hardness between the tool will be increased, which is conducive to the cutting process without big effect on the tool life.

### High chemical stability -

It has high antioxidant capacity, no oxidation occurs at 1000°C, and it will not chemically react with iron-based materials at 1200-1300 °C.

### High thermal conductivity -

The thermal conductivity of CBN is lower than diamond but much higher than cemented carbide, and the thermal conductivity of PCBN tool continues to increase with the increase of cutting temperature, so the heat at the tip of the tool can be quickly transmitted, which is beneficial to the machining accuracy improvement of the workpiece.

### Lower coefficient friction -

The friction coefficient of CBN is 0.1 to 0.3, which is much lower than that of cemented carbide (0.4 to 0.6), and decreases slightly with the increase of friction velocity and positive pressure. Therefore, the low friction coefficient and excellent anti-adhesion ability make it not easy to form a built-up edge when cutting, which is beneficial to improve the quality of machined surface.

## Applications of PCBN tools

PCBN tools are ideal for machining ferrous materials, have been widely used in machining the followings:

### Hardened steel -

wind powder bearing, slewing bearing, industrial gear, transmission gear, drive shaft, etc.

### Grey cast iron -

belt pulley, cylinder block, cylinder head, gearbox housing, etc.

### Alloy cast iron -

brake disc, brake drum, cylinder liner, etc.




### Chilled cast iron -

roller, slag pump parts, etc.

## PCBN Grades

GRADE	Machining method	Material machined	APPLICATIONS
290	finishing	cast iron	brake disc, brake drum, compressor flange
300	semi-finishing / roughing	hard steel / cast iron	roll, grinder roll, bearing, cylinder liner, industrial pump, brake disc, brake drum
320	finishing	hard steel / cast iron	ball screw, brake disc, brake drum, bearing, gear, compressor flange, transmission shaft
330	finishing	cast iron	brake disc, brake drum
620	finishing / semi-finishing	hard steel	ball screw, bearing, gear, transmission shaft
800	finishing / semi-finishing (wet cutting)	cast iron	brake disc, brake drum, gearbox housing, engine cylinder head, cylinder liner, cylinder
900	finishing	cast iron	brake disc, brake drum, flywheel

## PCBN Tools Category

Name	Tool category	
ABS	Solid PCBN	
BSW	Solid PCBN Welded	
BCW	PCBN Compact Welded	

### Solid PCBN Insert (ABS) -

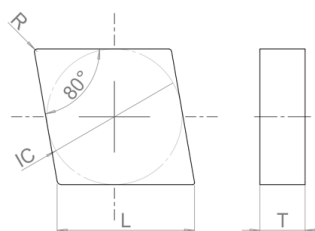
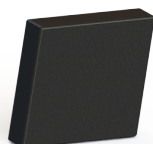
The whole blade is made of CBN powder sintered, with multiple cutting edges, both the top and bottom tips can be used for cutting, and the utilization rate of the blade is high. In addition, the blade has high bending strength, can withstand large depth of cut and high-speed cutting, is suitable for continuous and intermittent cutting, and can meet rough, semi-finishing and finishing.

### Solid PCBN Welded Insert (BSW) -

The insert is in welding form, with high welding strength, and the center hole is positioned, which can replace the coated blade. It is suitable for machining conditions with a depth of cut <2mm, light intermittent and continuous machining, and can be used for semi-finishing and finishing.

### PCBN Compact Welded Insert (BCW) -

The PCBN compact blank are cut to small tips and welded to the cemented carbide body to form various turning inserts and boring inserts. Generally, only one cutting edge is available, which is mainly used for finishing.

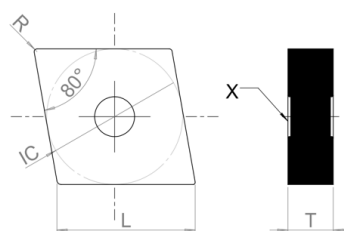
**C**
**CNGN / CNMN**
**Solid PCBN  
(ABS)**


ISO Designation			Dimension					Cutting edge
Metric	IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)			
CNGN CNMN	09 03 04	9.525	3.18	9.7	-	0.4	E002 S01020 S02020	
	09 03 08	9.525	3.18	9.7	-	0.8		
	09 03 12	9.525	3.18	9.7	-	1.2		
	09 04 04	9.525	4.76	9.7	-	0.4		
	09 04 08	9.525	4.76	9.7	-	0.8		
	09 04 12	9.525	4.76	9.7	-	1.2		
	12 03 04	12.7	3.18	12.9	-	0.4		
	12 03 08	12.7	3.18	12.9	-	0.8		
	12 03 12	12.7	3.18	12.9	-	1.2		
	12 03 16	12.7	3.18	12.9	-	1.6		
	12 04 04	12.7	4.76	12.9	-	0.4		
	12 04 08	12.7	4.76	12.9	-	0.8		
	12 04 12	12.7	4.76	12.9	-	1.2		
	12 04 16	12.7	4.76	12.9	-	1.6		
	12 06 08	12.7	6.35	12.9	-	0.8	E002 S02020 S05020	
	12 06 12	12.7	6.35	12.9	-	1.2		
	12 06 16	12.7	6.35	12.9	-	1.6		
	12 07 08	12.7	7.94	12.9	-	0.8		
	12 07 12	12.7	7.94	12.9	-	1.2		
	12 07 16	12.7	7.94	12.9	-	1.6		

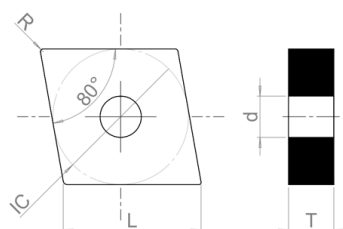
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

**C**
**CNGX / CNMX**
**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
CNGX CNMX	12	04	04	12.7	4.76	12.9	-	0.4	E002
	12	04	08	12.7	4.76	12.9	-	0.8	S01020
	12	04	12	12.7	4.76	12.9	-	1.2	S02020

**CNGA / CNMA**
**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
CNGA CNMA	12	03	04	12.7	3.18	12.9	5.16	0.4	E002 S01020 S02020
	12	03	08	12.7	3.18	12.9	5.16	0.8	
	12	03	12	12.7	3.18	12.9	5.16	1.2	
	12	03	16	12.7	3.18	12.9	5.16	1.6	
	12	04	04	12.7	4.76	12.9	5.16	0.4	
	12	04	08	12.7	4.76	12.9	5.16	0.8	
	12	04	12	12.7	4.76	12.9	5.16	1.2	
	12	04	16	12.7	4.76	12.9	5.16	1.6	

\* For the detailed ISO designation refer to pages 19-20

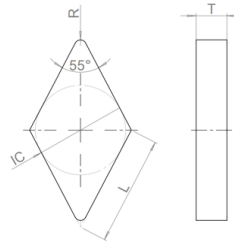
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# D

## DNGN / DNMN

Solid PCBN  
(ABS)



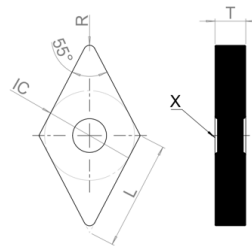
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	DNGN	11	04	04	9.525	4.76	11.6	-	
	11	04	08	9.525	4.76	11.6	-	0.8	
	11	04	12	9.525	4.76	11.6	-	1.2	
	15	04	04	12.7	4.76	15.5	-	0.4	
DNMN	15	04	08	12.7	4.76	15.5	-	0.8	E002 S02020 S05020
	15	04	12	12.7	4.76	15.5	-	1.2	
	15	06	08	12.7	6.35	15.5	-	0.8	
	15	06	12	12.7	6.35	15.5	-	1.2	
	15	06	16	12.7	6.35	15.5	-	1.6	E002 S02020 S05020
	15	06	20	12.7	6.35	15.5	-	2.0	

## DNGX / DNMX

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	DNGX	15	06	08	12.7	6.35	15.5	-	
DNMX	15	06	12	12.7	6.35	15.5	-	1.2	
	15	06	16	12.7	6.35	15.5	-	1.6	
	15	06	20	12.7	6.35	15.5	-	2.0	

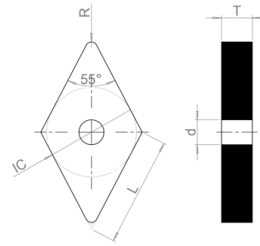
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

## DNGA / DNMA

Solid PCBN  
(ABS)



### ISO Designation

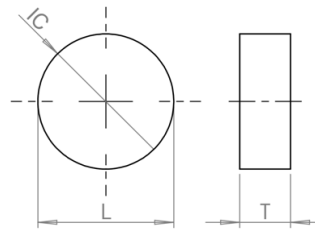
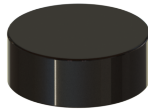
### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
DNGA	15	04	04	12.7	4.76	15.5	5.16	0.4	E002
	15	04	08	12.7	4.76	15.5	5.16	0.8	S02020
DNMA	15	04	12	12.7	4.76	15.5	5.16	1.2	S05020

# R

## RNGN / RNMN

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge	
RNGN	09	03	00	9.525	3.18	9.525	-	-	S01020 S02020	
	09	04	00	9.525	4.76	9.525	-	-		
	09	07	00	9.525	7.94	9.525	-	-		
	12	03	00	12.7	3.18	12.7	-	-		
	12	04	00	12.7	4.76	12.7	-	-		
	12	07	00	12.7	7.94	12.7	-	-		
	RNMN	15	04	00	15.875	4.76	15.875	-	-	S02020 S05020
		15	06	00	15.875	6.35	15.875	-	-	
		15	07	00	15.875	7.94	15.875	-	-	
		15	10	00	15.875	10	15.875	-	-	
		19	04	00	19.05	4.76	19.05	-	-	
		19	06	00	19.05	6.35	19.05	-	-	
19		10	00	19.05	10	19.05	-	-		
19		12	00	19.05	12	19.05	-	-		
20		06	00	20	6.35	20	-	-		
20		08	00	20	8	20	-	-		
20		10	00	20	10	20	-	-		
20		12	00	20	12	20	-	-		
	25	04	00	25.4	4.76	25.4	-	-		
	25	07	00	25.4	7.94	25.4	-	-		
	25	10	00	25.4	10	25.4	-	-		
	25	12	00	25.4	12	25.4	-	-		

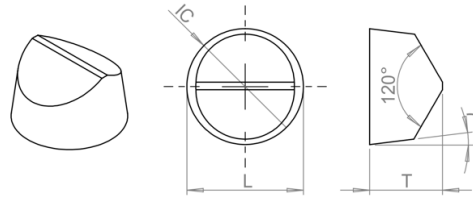
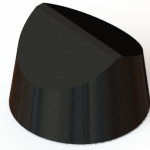
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

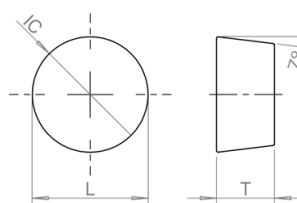
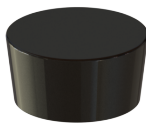
**R**

## RCGX / RCMX

**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

Metric				IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
RCGX RCMX	09	06	00	V	9.525	6.35	9.525	-	-
	09	07	00	V	9.525	7.94	9.525	-	-
	12	06	00	V	12.7	6.35	12.7	-	-
	12	07	00	V	12.7	7.94	12.7	-	-
	15	06	00	V	15.875	6.35	15.875	-	-
	15	07	00	V	15.875	7.94	15.875	-	-
	15	10	00	V	15.875	10	15.875	-	-
	19	06	00	V	19.05	6.35	19.05	-	-
	19	07	00	V	19.05	7.94	19.05	-	-
	19	10	00	V	19.05	10	19.05	-	-
	19	12	00	V	19.05	12	19.05	-	-
	20	08	00	V	20	8	20	-	-
	20	10	00	V	20	10	20	-	-
	20	12	00	V	20	12	20	-	-
	25	07	00	V	25.4	7.94	25.4	-	-
25	10	00	V	25.4	10	25.4	-	-	
25	12	00	V	25.4	12	25.4	-	-	

## RCGN / RCMN

**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

Metric				IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
RCGN RCMN	09	03	00	9.525	3.18	9.525	-	-	
	09	04	00	9.525	4.76	9.525	-	-	
	09	07	00	9.525	7.94	9.525	-	-	S01020
	12	03	00	12.7	3.18	12.7	-	-	S02020
	12	04	00	12.7	4.76	12.7	-	-	
	12	07	00	12.7	7.94	12.7	-	-	
	15	06	00	15.875	6.35	15.875	-	-	
	15	07	00	15.875	7.94	15.875	-	-	S02020
	19	04	00	19.05	4.76	19.05	-	-	S05020
	19	06	00	19.05	6.35	19.05	-	-	

\* For the detailed ISO designation refer to pages 19-20

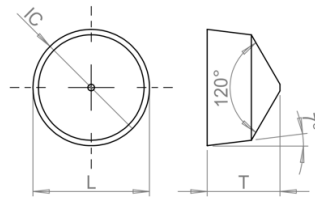
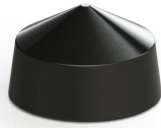
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request



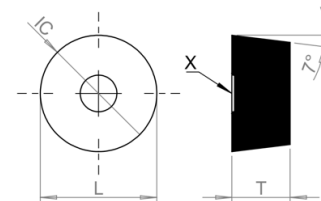
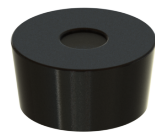
R

## RCGX / RCMX

Solid PCBN  
(ABS)

ISO Designation				Dimension					Cutting edge
Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)		
RCGX RCMX	09	06	00	9.525	6.35	9.525	-	-	S01020 S02020
	09	07	00	9.525	7.94	9.525	-	-	
	12	06	00	12.7	6.35	12.7	-	-	
	12	07	00	12.7	7.94	12.7	-	-	
	15	06	00	15.875	6.35	15.875	-	-	S02020 S05020
	15	07	00	15.875	7.94	15.875	-	-	
	15	10	00	15.875	10	15.875	-	-	
	19	06	00	19.05	6.35	19.05	-	-	
	19	07	00	19.05	7.94	19.05	-	-	
	19	10	00	19.05	10	19.05	-	-	
	19	12	00	19.05	12	19.05	-	-	
	20	08	00	20	8	20	-	-	
	20	10	00	20	10	20	-	-	
	20	12	00	20	12	20	-	-	
	25	07	00	25.4	7.94	25.4	-	-	
	25	10	00	25.4	10	25.4	-	-	
	25	12	00	25.4	12	25.4	-	-	

## RCGX / RCMX

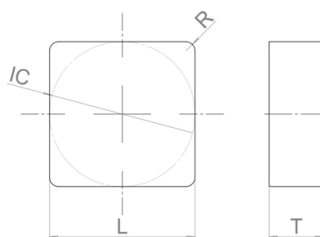
Solid PCBN  
(ABS)

ISO Designation				Dimension					Cutting edge
Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)		
RCGX RCMX	12	06	00	12.7	6.35	12.7	-	-	S02020
	12	07	00	12.7	7.94	12.7	-	-	
	15	06	00	15.875	6.35	15.875	-	-	S05020
	15	07	00	15.875	7.94	15.875	-	-	

\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

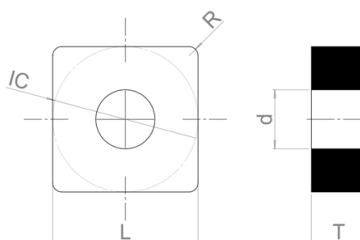
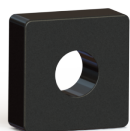
**S**
**SNGN / SNMN**
**Solid PCBN  
(ABS)**


ISO Designation			Dimension					Cutting edge
Metric	IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)			
SNGN SNMN	09 03 04	9.525	3.18	9.525	-	0.4	E002 S01020 S02020	
	09 03 08	9.525	3.18	9.525	-	0.8		
	09 03 12	9.525	3.18	9.525	-	1.2		
	09 04 04	9.525	4.76	9.525	-	0.4		
	09 04 08	9.525	4.76	9.525	-	0.8		
	09 04 12	9.525	4.76	9.525	-	1.2		
	12 03 04	12.7	3.18	12.7	-	0.4		
	12 03 08	12.7	3.18	12.7	-	0.8		
	12 03 12	12.7	3.18	12.7	-	1.2		
	12 03 16	12.7	3.18	12.7	-	1.6		
	12 04 04	12.7	4.76	12.7	-	0.4		
	12 04 08	12.7	4.76	12.7	-	0.8		
	12 04 12	12.7	4.76	12.7	-	1.2		
	12 04 16	12.7	4.76	12.7	-	1.6		
	12 07 08	12.7	7.94	12.7	-	0.8	E002 S02020 S05020	
	12 07 12	12.7	7.94	12.7	-	1.2		
	12 07 16	12.7	7.94	12.7	-	1.6		
	15 07 08	15.875	7.94	15.875	-	0.8		
	15 07 12	15.875	7.94	15.875	-	1.2		
	15 07 16	15.875	7.94	15.875	-	1.6		
20 10 08	20	10	20	-	0.8			
20 10 12	20	10	20	-	1.2			
20 10 16	20	10	20	-	1.6			
20 10 24	20	10	20	-	2.4			

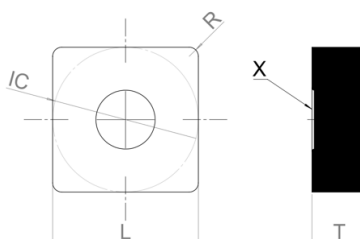
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

**S**
**SNGA / SNMA**
**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

	<b>Metric</b>			<b>IC (mm)</b>	<b>T (mm)</b>	<b>L (mm)</b>	<b>d (mm)</b>	<b>R (mm)</b>	<b>Cutting edge</b>
	SNGA SNMA	12	03	04	12.7	3.18	12.7	5.16	
12		03	08	12.7	3.18	12.7	5.16	0.8	
12		03	12	12.7	3.18	12.7	5.16	1.2	
12		03	16	12.7	3.18	12.7	5.16	1.6	
12		04	04	12.7	4.76	12.7	5.16	0.4	
12		04	08	12.7	4.76	12.7	5.16	0.8	
12		04	12	12.7	4.76	12.7	5.16	1.2	
12		04	16	12.7	4.76	12.7	5.16	1.6	

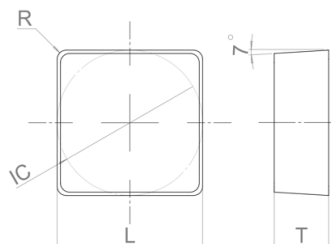
**SNGX / SNMX**
**Solid PCBN  
(ABS)**

**ISO Designation**
**Dimension**

	<b>Metric</b>			<b>IC (mm)</b>	<b>T (mm)</b>	<b>L (mm)</b>	<b>d (mm)</b>	<b>R (mm)</b>	<b>Cutting edge</b>
	SNGX SNMX	12	04	04	12.7	4.76	12.7	-	
12		04	08	12.7	4.76	12.7	-	0.8	
12		04	12	12.7	4.76	12.7	-	1.2	
12		07	08	12.7	7.94	12.7	-	0.8	
12		07	12	12.7	7.94	12.7	-	1.2	
12		07	16	12.7	7.94	12.7	-	1.6	
15		07	08	15.875	7.94	15.875	-	0.8	
15		07	12	15.875	7.94	15.875	-	1.2	
15		07	16	15.875	7.94	15.875	-	1.6	

\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

**S**
**SCGN / SCMN**
**Solid PCBN  
(ABS)**


ISO Designation			Dimension					Cutting edge	
	Metric		IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)		
SCGN SCMN	09	03	04	9.525	3.18	9.525	-	0.4	E002 S01020 S02020
	09	03	08	9.525	3.18	9.525	-	0.8	
	09	03	12	9.525	3.18	9.525	-	1.2	
	09	04	04	9.525	4.76	9.525	-	0.4	
	09	04	08	9.525	4.76	9.525	-	0.8	
	09	04	12	9.525	4.76	9.525	-	1.2	
	12	03	04	12.7	3.18	12.7	-	0.4	
	12	03	08	12.7	3.18	12.7	-	0.8	
	12	03	12	12.7	3.18	12.7	-	1.2	
	12	03	16	12.7	3.18	12.7	-	1.6	
	12	04	04	12.7	4.76	12.7	-	0.4	
	12	04	08	12.7	4.76	12.7	-	0.8	
	12	04	12	12.7	4.76	12.7	-	1.2	
	12	04	16	12.7	4.76	12.7	-	1.6	

\* For the detailed ISO designation refer to pages 19-20

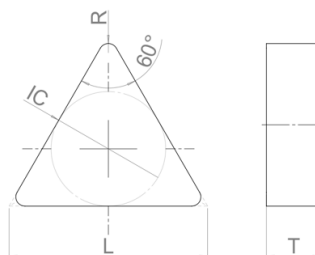
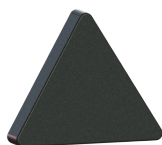
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# T

## TNGN / TNMN

Solid PCBN  
(ABS)



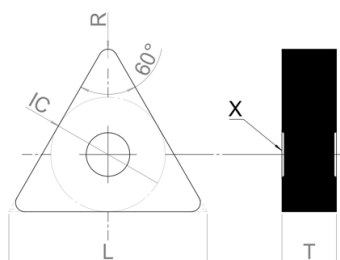
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	TNGN	11	03	04	6.35	3.18	11	-	
TNMN	11	03	08	6.35	3.18	11	-	0.8	
	11	03	12	6.35	3.18	11	-	1.2	
	11	T3	04	6.35	3.97	11	-	0.4	
	11	T3	08	6.35	3.97	11	-	0.8	
	11	T3	12	6.35	3.97	11	-	1.2	
	11	04	04	6.35	4.76	11	-	0.4	
	11	04	08	6.35	4.76	11	-	0.8	
	11	04	12	6.35	4.76	11	-	1.2	
	16	04	04	9.525	4.76	16.5	-	0.4	
	16	04	08	9.525	4.76	16.5	-	0.8	
	16	04	12	9.525	4.76	16.5	-	1.2	
	16	04	16	9.525	4.76	16.5	-	1.6	
	16	07	08	9.525	7.94	16.5	-	0.8	E002
	16	07	12	9.525	7.94	16.5	-	1.2	S02020
	16	07	16	9.525	7.94	16.5	-	1.6	S05020

## TNGX / TNMX

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	TNGX	16	07	08	9.525	7.94	16.5	-	
TNMX	16	07	12	9.525	7.94	16.5	-	1.2	S02020
	16	07	16	9.525	7.94	16.5	-	1.6	S05020

\* For the detailed ISO designation refer to pages 19-20

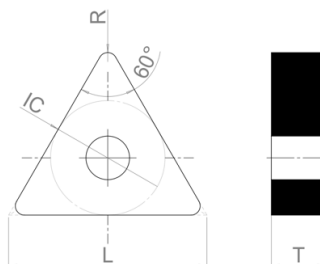
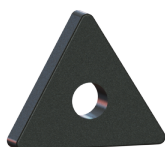
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# T

## TNGA / TNMA

Solid PCBN  
(ABS)



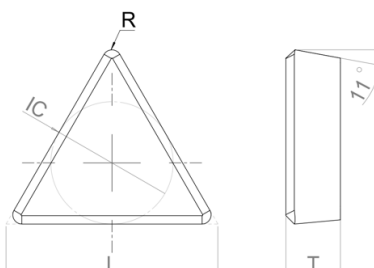
### ISO Designation

### Dimension

Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
TNGA TNMA	11	04	04	6.35	4.76	11	2.26	
	11	04	08	6.35	4.76	11	2.26	
	11	04	12	6.35	4.76	11	2.26	
	11	04	16	6.35	4.76	11	2.26	
	16	04	04	9.525	4.76	16.5	3.81	
	16	04	08	9.525	4.76	16.5	3.81	
	16	04	12	9.525	4.76	16.5	3.81	
	16	04	16	9.525	4.76	16.5	3.81	

## TPGN / TPMN

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
TPGN TPMN	11	03	04	6.35	3.18	11	-	
	11	03	08	6.35	3.18	11	-	
	11	03	12	6.35	3.18	11	-	
	16	04	04	9.525	4.76	16.5	-	
	16	04	08	9.525	4.76	16.5	-	
	16	04	12	9.525	4.76	16.5	-	

\* For the detailed ISO designation refer to pages 19-20

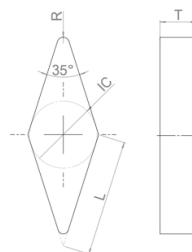
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# V

## VNGN / VNMN

Solid PCBN  
(ABS)



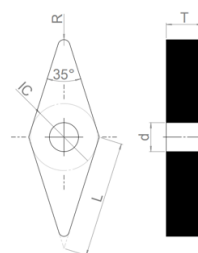
### ISO Designation

### Dimension

Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge	
VNGN VNMN	16	04	04	9.525	4.76	16.6	-	0.4	E002
	16	04	08	9.525	4.76	16.6	-	0.8	S01020
	16	04	12	9.525	4.76	16.6	-	1.2	S02020
	16	07	04	9.525	7.94	16.6	-	0.4	E002
	16	07	08	9.525	7.94	16.6	-	0.8	S02020
	16	07	12	9.525	7.94	16.6	-	1.2	S05020
	16	07	16	9.525	7.94	16.6	-	1.6	

## VNGA / VNMA

Solid PCBN  
(ABS)



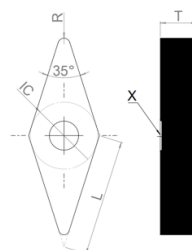
### ISO Designation

### Dimension

Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge	
VNMA	16	04	04	9.525	4.76	16.6	3.81	0.4	E002
	16	04	08	9.525	4.76	16.6	3.81	0.8	S01020
	16	04	12	9.525	4.76	16.6	3.81	1.2	S02020

## VNGX / VNMX

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge	
VNGX VNMX	16	07	04	9.525	7.94	16.6	-	0.4	E002
	16	07	08	9.525	7.94	16.6	-	0.8	S02020
	16	07	12	9.525	7.94	16.6	-	1.2	S05020
	16	07	16	9.525	7.94	16.6	-	1.6	

\* For the detailed ISO designation refer to pages 19-20

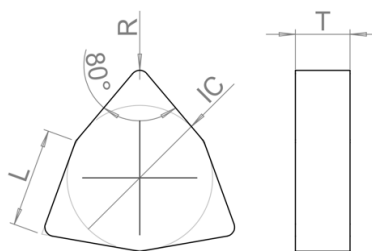
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# W

## WNGN / WNMN

Solid PCBN  
(ABS)



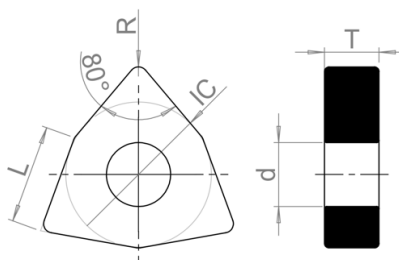
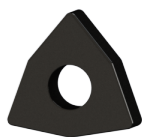
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
WNGN	08	04	04	12.7	4.76	8.7	-	0.4	E002
	08	04	08	12.7	4.76	8.7	-	0.8	S01020
WNMN	08	04	12	12.7	4.76	8.7	-	1.2	S02020

## WNGA / WNMA

Solid PCBN  
(ABS)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
WNGA	08	04	04	12.7	4.76	8.7	5.16	0.4	E002
	08	04	08	12.7	4.76	8.7	5.16	0.8	S01020
WNMA	08	04	12	12.7	4.76	8.7	5.16	1.2	S02020

\* For the detailed ISO designation refer to pages 19-20

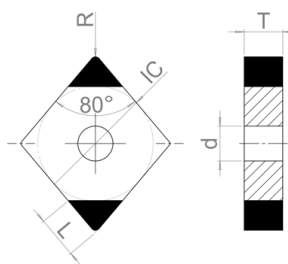
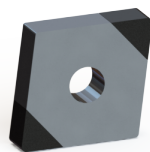
\* Other accuracy grades (tolerance) on request

\* Other dimensions on request



## C CNGA / CNMA

Solid PCBN Welded (BSW)



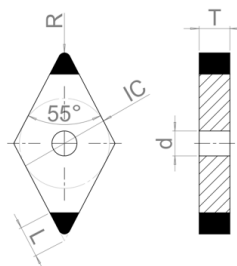
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	CNGA	12	04	08	12.7	4.76	3.5	5.16	0.8
CNMA	12	04	12	12.7	4.76	3.5	5.16	1.2	S01020
	12	04	16	12.7	4.76	3.5	5.16	1.6	S02020

## D DNGA / DNMA

Solid PCBN Welded (BSW)



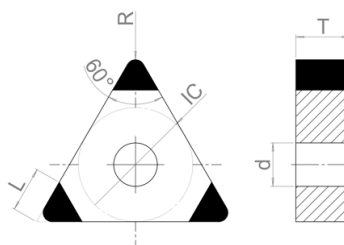
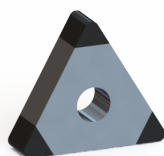
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	DNGA	15	04	04	12.7	4.76	3.5	5.16	0.4
DNMA	15	04	08	12.7	4.76	3.5	5.16	0.8	S01020
	15	04	12	12.7	4.76	3.5	5.16	1.2	S02020
	15	04	16	12.7	4.76	3.5	5.16	1.6	

## T TNGA / TNMA

Solid PCBN Welded (BSW)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	TNGA	16	04	04	9.525	4.76	3.5	3.81	0.4
TNMA	16	04	08	9.525	4.76	3.5	3.81	0.8	S01020
	16	04	12	9.525	4.76	3.5	3.81	1.2	S02020
	16	04	16	9.525	4.76	3.5	3.81	1.6	

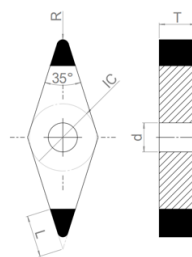
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

## V VNGA / VNMA

Solid PCBN Welded (BSW)



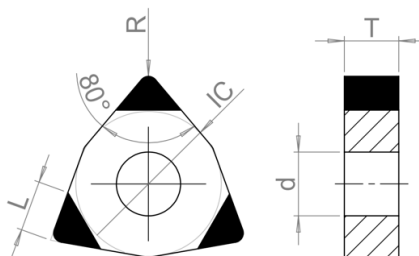
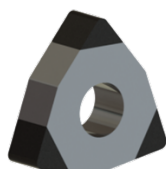
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	VNGA	16	04	04	9.525	4.76	3.5	3.81	
VNMA	16	04	08	9.525	4.76	3.5	3.81	0.8	S01020
	16	04	12	9.525	4.76	3.5	3.81	1.2	S02020

## W WNGA / WNMA

Solid PCBN Welded (BSW)



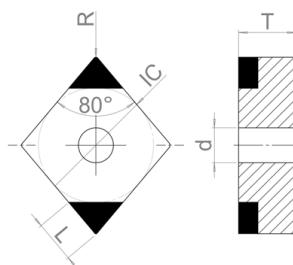
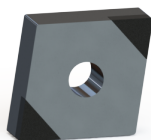
### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	WNGA	08	04	04	12.7	4.76	3.5	5.16	
WNMA	08	04	08	12.7	4.76	3.5	5.16	0.8	S01020
	08	04	12	12.7	4.76	3.5	5.16	1.2	S02020
	08	04	16	12.7	4.76	3.5	5.16	1.6	

## C CNGA / CNMA

PCBN Compact Welded (BCW)



### ISO Designation

### Dimension

	Metric			IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)	Cutting edge
	CNGA	12	04	08	12.7	4.76	2.5	5.16	
CNMA	12	04	12	12.7	4.76	2.3	5.16	1.2	S01020
	12	04	16	12.7	4.76	2.1	5.16	1.6	S02020

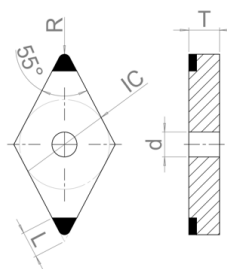
\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

## D DNGA / DNMA

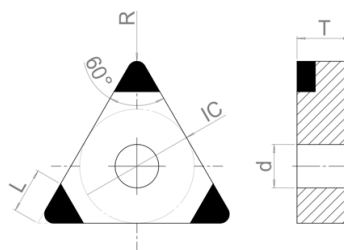
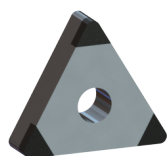
PCBN Compact Welded (BCW)



ISO Designation			Dimension						Cutting edge
Metric	IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)				
DNGA DNMA	15 04 04	12.7	4.76	2.7	5.16	0.4	E002		
	15 04 08	12.7	4.76	2.5	5.16	0.8			
	15 04 12	12.7	4.76	2.3	5.16	1.2	S01020		
	15 04 16	12.7	4.76	2.1	5.16	1.6	S02020		

## T TNGA / TNMA

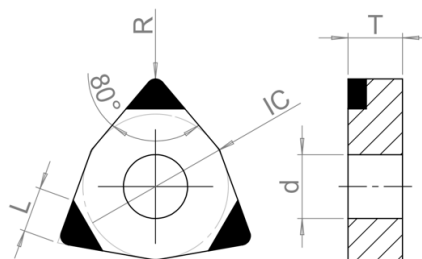
PCBN Compact Welded (BCW)



ISO Designation			Dimension						Cutting edge
Metric	IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)				
TNGA TNMA	16 04 04	9.525	4.76	2.7	3.81	0.4	E002		
	16 04 08	9.525	4.76	2.5	3.81	0.8	S01020		
	16 04 12	9.525	4.76	2.3	3.81	1.2	S02020		

## W WNGA / WNMA

PCBN Compact Welded (BCW)



ISO Designation			Dimension						Cutting edge
Metric	IC (mm)	T (mm)	L (mm)	d (mm)	R (mm)				
WNGA WNMA	08 04 04	12.7	4.76	2.7	5.16	0.4	E002		
	08 04 08	12.7	4.76	2.5	5.16	0.8	S01020		
	08 04 12	12.7	4.76	2.3	5.16	1.2	S02020		

\* For the detailed ISO designation refer to pages 19-20

\* Other accuracy grades (tolerance) on request

\* Other dimensions on request

# ISO Code for Inserts

C		C		M			T																																																				
1		2		3			4																																																				
Shapes		Clearance angle		Tolerance (mm)			Hole and chipbreaker																																																				
H	120°	A			<table border="1"> <tr> <td></td> <td>m</td> <td>IC</td> <td>S</td> </tr> <tr> <td>A</td> <td>±0.05</td> <td>±0.025</td> <td>±0.025</td> </tr> <tr> <td>F</td> <td>±0.05</td> <td>±0.013</td> <td>±0.025</td> </tr> <tr> <td>C</td> <td>±0.013</td> <td>±0.025</td> <td>±0.025</td> </tr> <tr> <td>H</td> <td>±0.013</td> <td>±0.013</td> <td>±0.025</td> </tr> <tr> <td>E</td> <td>±0.025</td> <td>±0.025</td> <td>±0.025</td> </tr> <tr> <td>G</td> <td>±0.025</td> <td>±0.025</td> <td>±0.013</td> </tr> <tr> <td>J</td> <td>±0.005</td> <td>±0.05 ~ ±0.13</td> <td>±0.025</td> </tr> <tr> <td>K</td> <td>±0.013</td> <td>±0.05 ~ ±0.13</td> <td>±0.025</td> </tr> <tr> <td>L</td> <td>±0.025</td> <td>±0.05 ~ ±0.13</td> <td>±0.025</td> </tr> <tr> <td>M</td> <td>±0.08 ~ ±0.18</td> <td>±0.05 ~ ±0.13</td> <td>±0.13</td> </tr> <tr> <td>N</td> <td>±0.08 ~ ±0.18</td> <td>±0.05 ~ ±0.13</td> <td>±0.025</td> </tr> <tr> <td>U</td> <td>±0.13 ~ ±0.38</td> <td>±0.08 ~ ±0.25</td> <td>±0.13</td> </tr> </table>		m	IC	S	A	±0.05	±0.025	±0.025	F	±0.05	±0.013	±0.025	C	±0.013	±0.025	±0.025	H	±0.013	±0.013	±0.025	E	±0.025	±0.025	±0.025	G	±0.025	±0.025	±0.013	J	±0.005	±0.05 ~ ±0.13	±0.025	K	±0.013	±0.05 ~ ±0.13	±0.025	L	±0.025	±0.05 ~ ±0.13	±0.025	M	±0.08 ~ ±0.18	±0.05 ~ ±0.13	±0.13	N	±0.08 ~ ±0.18	±0.05 ~ ±0.13	±0.025	U	±0.13 ~ ±0.38	±0.08 ~ ±0.25	±0.13	N	
	m	IC	S																																																								
A	±0.05	±0.025	±0.025																																																								
F	±0.05	±0.013	±0.025																																																								
C	±0.013	±0.025	±0.025																																																								
H	±0.013	±0.013	±0.025																																																								
E	±0.025	±0.025	±0.025																																																								
G	±0.025	±0.025	±0.013																																																								
J	±0.005	±0.05 ~ ±0.13	±0.025																																																								
K	±0.013	±0.05 ~ ±0.13	±0.025																																																								
L	±0.025	±0.05 ~ ±0.13	±0.025																																																								
M	±0.08 ~ ±0.18	±0.05 ~ ±0.13	±0.13																																																								
N	±0.08 ~ ±0.18	±0.05 ~ ±0.13	±0.025																																																								
U	±0.13 ~ ±0.38	±0.08 ~ ±0.25	±0.13																																																								
O	135°	B		R																																																							
P	108°	C		F																																																							
S	90°	D		A																																																							
T	60°	E		M																																																							
C	80°	F		G																																																							
D	55°	G		W																																																							
E	75°	N		T																																																							
F	50°	P		Q																																																							
M	86°			U																																																							
V	35°																																																										
W	80°																																																										
L	90°																																																										
A	85°																																																										
B	82°																																																										
K	55°																																																										
R																																																											

06

5

Inscribed circle

Shapes ISO code							IC
C	D	R	S	T	V	W	mm
S4	04	03	03	06	-	-	3.97
04	05	04	04	08	08	S3	4.76
05	06	05	05	09	09	03	5.56
-	-	06	-	-	-	-	6
06	07	06	06	11	11	04	6.35
08	09	07	07	13	13	05	7.94
-	-	08	-	-	-	-	8
09	11	09	09	16	16	06	9.525
-	-	10	-	-	-	-	10
-	-	12	-	-	-	-	12
12	15	12	12	22	22	08	12.7
16	19	15	15	27	27	10	15.875
-	-	16	-	-	-	-	16
19	23	19	19	33	33	13	19.05
-	-	20	-	-	-	-	20
22	27	22	22	38	38	15	22.225
-	-	25	-	-	-	-	25
25	31	25	25	44	44	17	25.4
32	38	31	31	54	54	21	31.75
-	-	32	-	-	-	-	32

02

6

Thickness

ISO	mm
T0	1
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.52
11	11.1
12	12.7

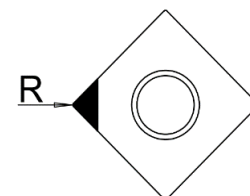


02

7

Nose radius

ISO	mm
00	sharp
01	0.1
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2





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