

# PCBN Inserts For Cast Iron

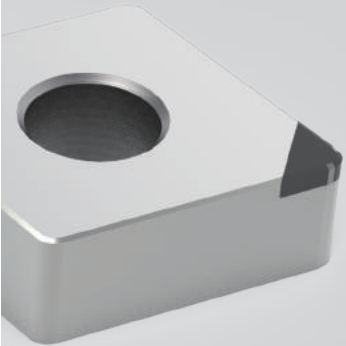
北京沃尔德金刚石工具股份有限公司  
BEIJING WORLDIA DIAMOND TOOLS CO.,LTD.



Worldia PCBN inserts for cast iron mainly used in engineering machinery and transportation industry, such as engine cylinder, valve body, hydraulic system, brake disc and etc.

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Material Group (ISO513 Standard)

**P**

P: Steel

**H**

H: Hardend Materials

**M**

M: Stainless Steel

**N**

N: Non-Ferrous Materials

**K**

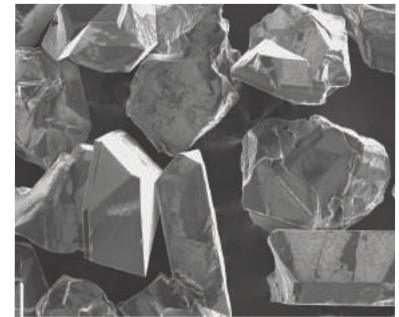
K: Cast Iron

**S**

S: High-Temp Alloys

## PCBN Material Introduction

Cubic boron nitride is the second hardest material in the world invented successfully in 1957; The microhardness of CBN's single crystal is HV8000-9000 while the hardness of PCBN is HV2500-5000, so it is considerably better abrasive resistance than tungsten carbide and ceramics. With a higher ability of oxidation resistance within 1000 °C, CBN will do not have any chemical reaction together with ferrous material in 1200-1300 °C. So it is unique for CBN material dry cutting ferrous materials. The principal application areas for CBN cutting tools are hardened steels, cast irons and sintered irons as well as powder metallurgy components.



Material Code Key








<b>PN</b>	<b>K10</b>	<b>20</b>
PCBN	Application	Material Code

Material	Application	Material Code	Characteristics
<b>PN</b>	K01	<b>20</b>	Speed ↑ Abrasive Resistance ↑ ↓ Interruption    ↓ Tenacity
	K10		
	K20		
	K30		

### Cast Iron Machining

Workpiece Material	WORLDIA PCBN Grades	Content	PCBN Grade	Hardness	Characteristics
<b>K</b>	PNK0117	85~90	5	3700~3900	Extreme abrasion resistance
	PNK0119	90~95	2	3700~3900	Excellent impact resistance and abrasion resistance
	PNK0121	60~70	2	2700~2900	Excellent toughness
	PNK3017	85~90	1	3700~3900	Combination of abrasion resistance and impact resistance

## ■ Cutting Data Recommendations

PCBN Grade	Cutting Condition Recommendations		
	Cutting Speed (m/min)	Feed Rate (mm/r)	Cutting Depth (mm)
PNK0110			Continue machining gray iron
PNK0118			Continue and light continue machining gray iron
PNK0122			Continue and interrupt machining cast iron
PNK3014			Heavy interrupt machining gray iron

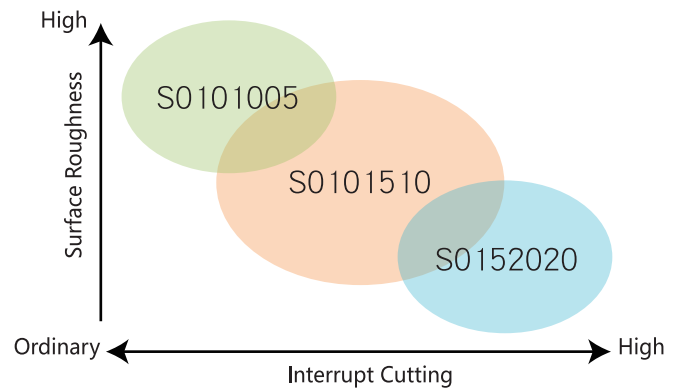
## ■ PCBN Inserts

Sharp Cutting Edge: S0101005

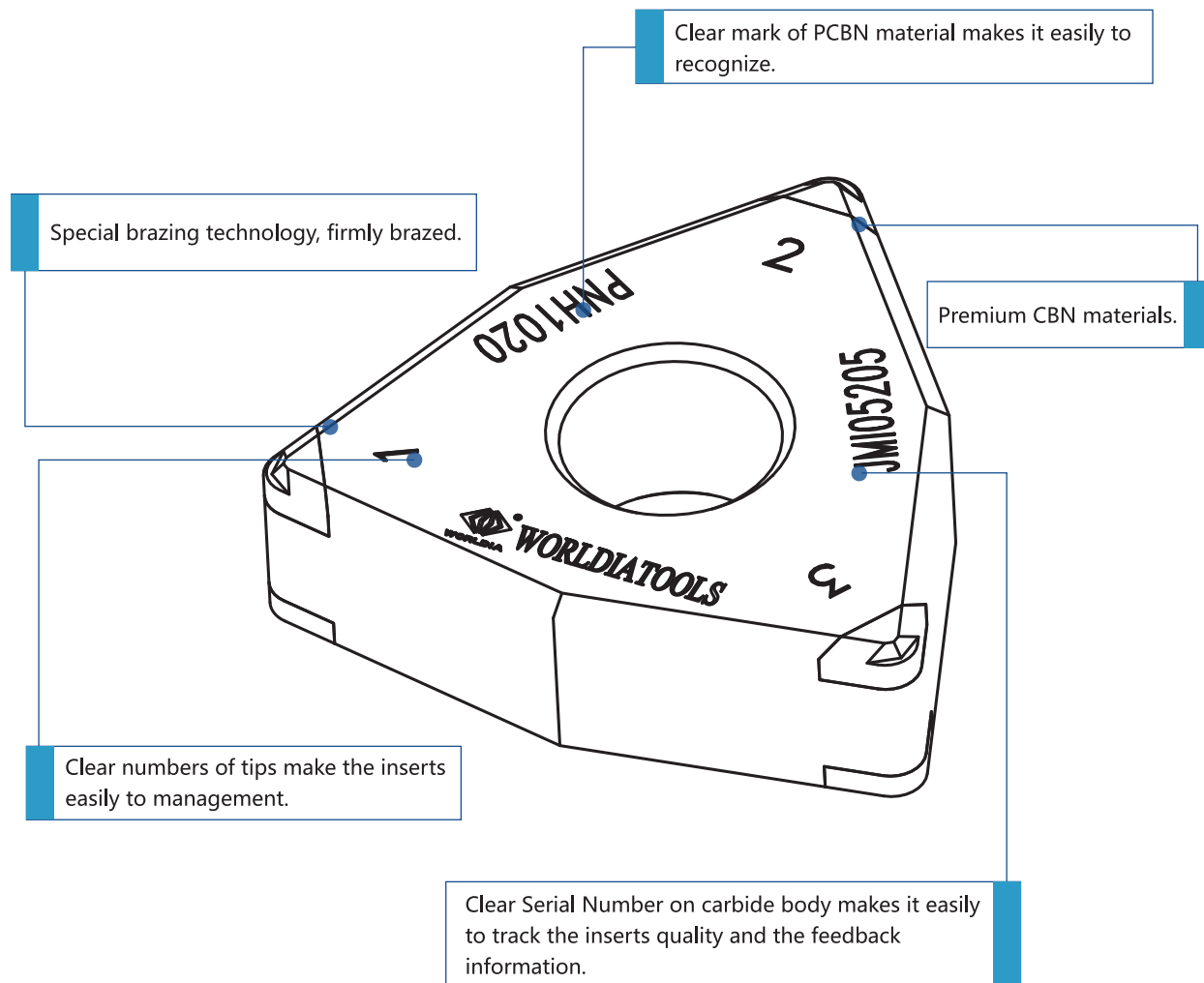
Standard Cutting Edge: S0101510

Strong Cutting Edge: S0152020

## ■ Cutting Edge of Recommendation



# PCBN Insert Identification Code

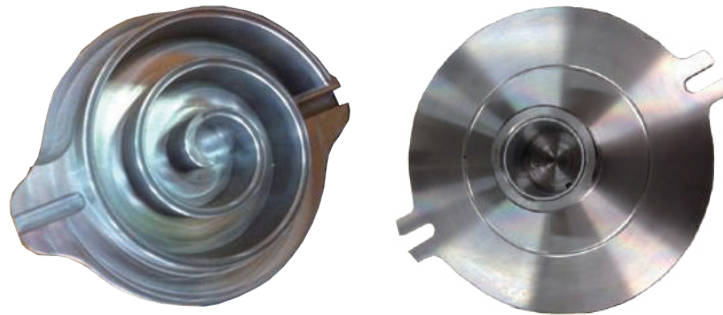
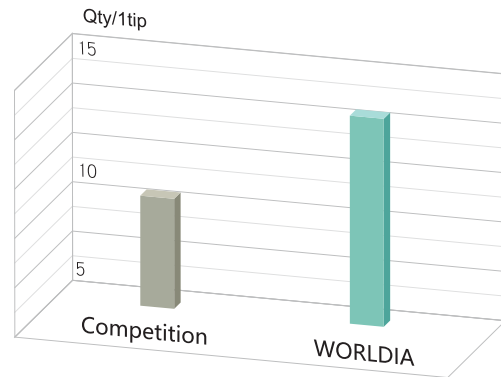


# Processing cases

## ■ Vortex and spiral of air-conditioner compressor

Bore and end finishing

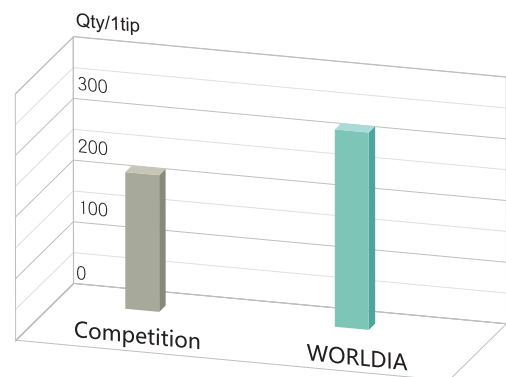
PCBN Grade	Competition	WORLDIA PNK0121
Insert type	DCGW11T308-2N	DCGW11T308-2N
Speed(m/min)	377	377
Feed(mm/r)	0.07	0.1
Cutting depth(mm)	0.1	0.1
Qty/1tip	9	13
Comparison of tool life	100%	145%



## ■ Engine cylinder

Bore finishing

PCBN Grade	Competition	WORLDIA PNK3017
Insert type	SNGA090308-4N	SNGA090308-4N
Speed(m/min)	570	570
Feed(mm/r)	0.3	0.3
Cutting depth(mm)	0.2	0.2
Qty/1tip	212	304
Comparison of tool life	100%	143%



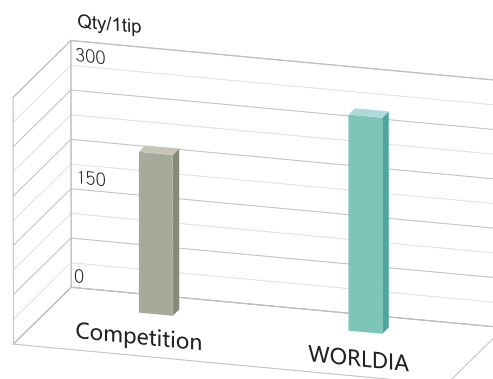


# Processing cases

## ■ Brake disc

End finishing

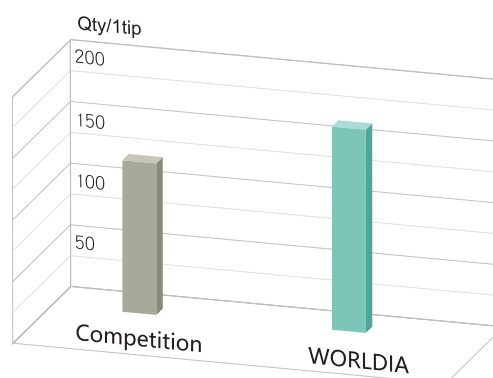
PCBN Grade	Competition	WORLDIA PNK0117
Insert type	SCGN090408-4N	SCGN090408-4N
Speed(m/min)	700	700
Feed(mm/r)	0.3	0.3
Cutting depth(mm)	0.5	0.5
Qty/1tip	200	262
Comparison of tool life	100%	130%



## ■ Turbine housing

Bore finishing

PCBN Grade	Competition	WORLDIA PNK0121
Insert type	TCGW090204-3N	TCGW090204-3N
Speed(m/min)	180	180
Feed(mm/r)	0.056	0.056
Cutting depth(mm)	0.1	0.1
Qty/1tip	120	155
Comparison of tool life	100%	129%



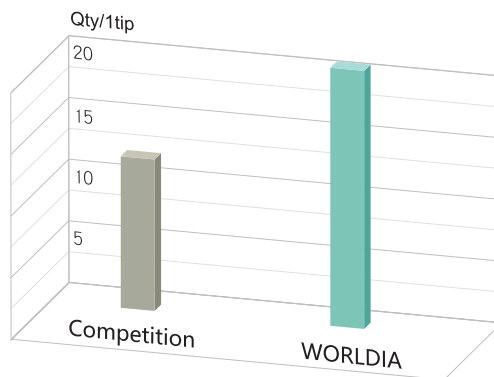


# Processing cases

## Auto

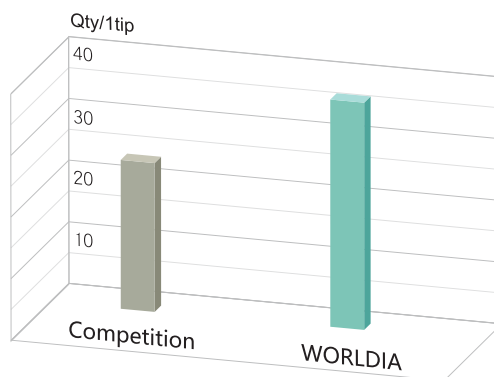
Outer round and end finishing

PCBN Grade	Competition	WORLDIA PNK0121
Insert type	DNGA 150608-2N	DNGA 150608-2N
Speed(m/min)	220	220
Feed(mm/r)	0.11	0.11
Cutting depth(mm)	0.5	0.5
Qty/1tip	12	20
Comparison of tool life	100%	167%



## Engineering Accessories

PCBN Grade	Competition	WORLDIA PNK0121
Insert type	DNGA 150408-2N	DNGA 150608-2N
Speed(m/min)	130	130
Feed(mm/r)	0.2	0.2
Cutting depth(mm)	0.15	0.15
Qty/1tip	22	35
Comparison of tool life	100%	159%



ISO	<b>C</b>	<b>C</b>	<b>M</b>	<b>W</b>	<b>09</b>	<b>T3</b>	<b>04</b>	<b>1</b>	<b>N</b>	<b>S</b>	<b>010</b>	<b>20</b>	<b>05</b>	<b>CB</b>	<b>ST</b>	<b>30</b>	<b>S</b>	<b>PNH1020</b>
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

ANSI	<b>C</b>	<b>C</b>	<b>M</b>	<b>W</b>	<b>3(2.5)</b>	<b>1</b>	<b>1</b>	<b>N</b>	<b>S</b>	<b>010</b>	<b>20</b>	<b>05</b>	<b>CB</b>	<b>ST</b>	<b>30</b>	<b>S</b>	<b>PNH1020</b>	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

## Rule of Mini Solid Insert Code

1 Shape						
	H	120°		C	80°	
	O	135°		D	55°	
	P	108°		E	75°	
	R			M	86°	
	S	90°		V	35°	
	T	60°		W	80°	
				L	90°	
				A	85°	
				B	82°	
				K	55°	

3 Tolerance-ISO				Tolerance-ANSI			
Code	inch(mm)			Code	inch		
级	m	s	IC		m	ic	s
<b>C</b>	±0.013	±0.025	±0.025	<b>C</b>	±.0005	±.001	±.001
<b>H</b>	±0.013	±0.025	±0.013	<b>H</b>	±.0005	±.0005	±.001
<b>E</b>	±0.025	±0.025	±0.025	<b>E</b>	±.001	±.001	±.001
<b>G</b>	±0.025	±0.13	±0.025	<b>G</b>	±.001	±.001	±.005
<b>K</b>	±0.013	±0.025	±0.05~±0.13	<b>K</b>	±.0005	±.002-.005	±.001
<b>M</b>	±0.08~±0.18	±0.13	±0.05~±0.13	<b>M</b>	±.002-.005	±.002-.005	±.005
<b>U</b>	±0.13~±0.38	±0.13	±0.08~±0.25	<b>U</b>	±.005-.012	±.005-.010	±.005

2 Clearance Angle			
	A		E
	B		F
	C		G
	D		N
			P
			O

4 Standard, Chipbreaker			
	N		G
	R		W
	F		T
	A		Q
	M		U
		Othe	X

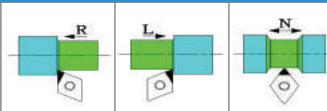
5 Inscribed Circle Dia.									
ISO							ANSI		
C	D	R	S	T	V	W	mm	Code	IC Size
S4	04	03	03	06	-	-	3.97	(1.2)	5/32
04	05	04	04	08	08	S3	4.76	(1.5)	3/16
05	06	05	05	09	09	03	5.56	(1.8)	7/32
-	-	06	-	-	-	-	6	-	-
06	07	06	06	11	11	04	6.35	2	1/4
08	09	07	07	13	13	05	7.94	(2.5)	5/16
-	-	08	-	-	-	-	8	-	-
09	11	09	09	16	16	06	9.525	3	3/8
-	-	10	-	-	-	-	10	-	-
-	-	12	-	-	-	-	12	-	-
12	15	12	12	22	22	08	12.7	4	1/2
16	19	15	15	27	27	10	15.875	5	5/8
-	-	16	-	-	-	-	16	-	-
19	23	19	19	33	33	13	19.05	6	3/4
-	-	20	-	-	-	-	20	-	-
22	27	22	22	38	38	15	22.225	7	7/8
-	-	25	-	-	-	-	25	-	-
25	31	25	25	44	44	17	25.4	8	1
32	38	31	31	54	54	21	31.75	10	1-1/4
-	-	32	-	-	-	-	32	-	-

6 Thickness			
ISO		ANSI	
Code	Size	Code	Size
S	mm	S	inch
01	1.59	1	1/16
02	2.38	(1.5)	3/32
T2	2.78	-	-
03	3.18	2	1/8
T3	3.97	(2.5)	5/32
04	4.76	3	3/16
05	5.56	(3.5)	7/32
06	6.35	4	1/4
07	7.94	5	5/16
09	9.525	6	3/8


7 Nose radius			
ISO		ANSI	
Code	Size	Code	Size
R <sub>c</sub>	mm	R <sub>c</sub>	inch
00		00	.000
003	0.03	(0.1)	.001
01	0.1	(0.2)	.004
02	0.2	(0.5)	.008
04	0.4	1	1/64
08	0.8	2	1/32
12	1.2	3	3/64
16	1.6	4	1/16
20	2.0	5	5/64
24	2.4	6	3/32
28	2.8	7	7/64
32	3.2	8	1/8
M0		0	circular

8 Edges						
Code	1	2	3	4	6	8
notes	1 edge	2 edges	3 edges	4 edges	6 edges	8 edges

9 Cutting Direction			
Code	R	L	N
notes	R	L	N



10 Cutting Edge Design			
E	T	S	F
Honed	Chamfered	Chamfered+Honed	Sharp Edge

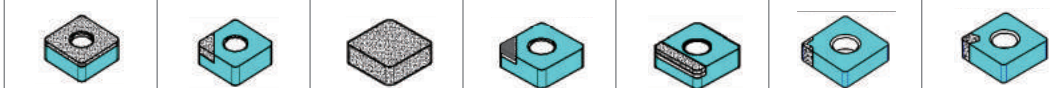


11 Chamfered Width						
Code	000	005	010	015	020	030
Size	-	0.05	0.1	0.15	0.2	0.3

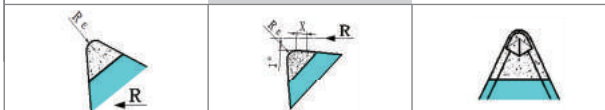
12 Chamfered Angle									
Code	$\alpha$	00	10	15	20	25	30	35	45
Size	°	-	10	15	20	25	30	35	45

13 Honed Size						
Code	00	02	05	10	20	30
Size	-	0.002	0.005	0.01	0.02	0.03


14 Insert type						
SF	SL	SS	CB	CS	SWW	SWU
Full Face	Solid Tipped Corner	Solid CBN	Standard Tipped Corners	Standard Full Edge	Solid Tipped Corners Type 'W'	Solid Tipped Corners Type 'U'



15 Cutting Edge Design		
ST	WG	CB
Nose Radius	Wiper	Chip Breaker



16 Cutting Edge Length						
Code	$A_p$	22	25	28	30	40
Size		2.2	2.5	2.8	3.0	4.0



17 Surface Treatment			
S	Uncoated	C1	Coated
R & D			

# Specifications of Mini PCBN Insert

**CC** 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW060202-1NS0101005	CBST22S	●	●	●	●	CCGW2(1.5)(0.5)-1NS0101005	CBST22S	6.35	2.8	2.38	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060204-1NS0101005		●	●	●	●	CCGW2(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060208-1NS0101005		●	●	●	●	CCGW2(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060202-2NS0101005	CBST22S	●	●	●	●	CCGW2(1.5)(0.5)-2NS0101005	CBST22S	6.35	2.8	2.38	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060204-2NS0101005		●	●	●	●	CCGW2(1.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060208-2NS0101005		●	●	●	●	CCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

**CC** 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW09T302-1NS0101005	CBST22S	●	●	●	●	CCGW3(2.5)(0.5)-1NS0101005	CBST22S	9.525	4.4	3.97	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW09T304-1NS0101005		●	●	●	●	CCGW3(2.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW09T308-1NS0101005		●	●	●	●	CCGW3(2.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW09T302-2NS0101005	CBST22S	●	●	●	●	CCGW3(2.5)(0.5)-2NS0101005	CBST22S	9.525	4.4	3.97	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW09T304-2NS0101005		●	●	●	●	CCGW3(2.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW09T308-2NS0101005		●	●	●	●	CCGW3(2.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert



80° PCBN Negative Inserts



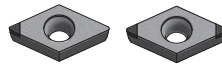
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW120402-1NS0101005	CBST22S	●	●	●	●	CCGW43(0.5)-1NS0101005	CBST22S	12.7	5.5	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120404-1NS0101005		●	●	●	●	CCGW431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120408-1NS0101005		●	●	●	●	CCGW432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120412-1NS0101005		●	●	●	●	CCGW433-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120402-2NS0101005	CBST22S	●	●	●	●	CCGW43(0.5)-2NS0101005	CBST22S	12.7	5.5	4.76	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120404-2NS0101005		●	●	●	●	CCGW431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120408-2NS0101005		●	●	●	●	CCGW432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120412-2NS0101005		●	●	●	●	CCGW433-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW070202-1NS0101005	CBST22S	●	●	●	●	DCGW2(1.5)(0.5)-1NS0101005	CBST22S	6.35	2.8	2.38	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070204-1NS0101005		●	●	●	●	DCGW2(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070208-1NS0101005		●	●	●	●	DCGW2(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070202-2NS0101005	CBST22S	●	●	●	●	DCGW2(1.5)(0.5)-2NS0101005	CBST22S	6.35	2.8	2.38	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW070204-2NS0101005		●	●	●	●	DCGW2(1.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW070208-2NS0101005		●	●	●	●	DCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW11T302-1NS0101005	CBST22S	●	●	●	●	DCGW3(2.5)(0.5)-1NS0101005	CBST22S	9.525	4.4	3.97	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T304-1NS0101005		●	●	●	●	DCGW3(2.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T308-1NS0101005		●	●	●	●	DCGW3(2.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T312-1NS0101005	CBST22S	●	●	●	●	DCGW3(2.5)3-1NS0101005	CBST22S	9.525	4.4	3.97	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T302-2NS0101005		●	●	●	●	DCGW3(2.5)(0.5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T304-2NS0101005		●	●	●	●	DCGW3(2.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T308-2NS0101005	CBST22S	●	●	●	●	DCGW3(2.5)2-2NS0101005	CBST22S	9.525	4.4	3.97	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T312-2NS0101005		●	●	●	●	DCGW3(2.5)3-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T312-2NS0101005		●	●	●	●	DCGW3(2.5)3-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW080202-1NS0101005	CBST22S	●	●	●	●	TPGW(1.5)(1.5)(0.5)-1NS0101005	CBST22S	4.76	2.4	2.38	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW080204-1NS0101005		●	●	●	●	TPGW(1.5)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW080202-3NS0101005	CBST22S	●	●	●	●	TPGW(1.5)(1.5)(0.5)-3NS0101005	CBST22S	4.76	2.4	2.38	0.4	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TPGW080204-3NS0101005		●	●	●	●	TPGW(1.5)(1.5)1-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW090202-1NS0101005	CBST22S	●	●	●	●	TPGW(1.8)(1.5)(0.5)-1NS0101005	CBST22S	5.56	2.8	2.38	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW090204-1NS0101005		●	●	●	●	TPGW(1.8)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW090202-3NS0101005	CBST22S	●	●	●	●	TPGW(1.8)(1.5)(0.5)-3NS0101005	CBST22S	5.56	2.8	2.38	0.4	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TPGW090204-3NS0101005		●	●	●	●	TPGW(1.8)(1.5)1-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117



# Specifications of Mini PCBN Insert

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW110302-1NS0101005	CBST22S	●	●	●	●	TPGW22(0.5)-1NS0101005	CBST22S	6.35	3.3	3.18	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW110304-1NS0101005		●	●	●	●	TPGW221-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW110302-3NS0101005	CBST22S	●	●	●	●	TPGW22(0.5)-3NS0101005	CBST22S	6.35	3.3	3.18	0.4	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152520		●	●	●	●	-3NS0152020						
	TPGW110304-3NS0101005		●	●	●	●	TPGW221-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW160302-1NS0101005	CBST22S	●	●	●	●	TPGW32(0.5)-1NS0101005	CBST22S	9.525	4.4	3.18	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW160304-1NS0101005		●	●	●	●	TPGW321-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW160302-3NS0101005	CBST22S	●	●	●	●	TPGW32(0.5)-3NS0101005	CBST22S	9.525	4.4	3.18	0.4	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TPGW160304-3NS0101005		●	●	●	●	TPGW321-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TPGW160308-1NS0101005	CBST22S	●	●	●	●	TPGW322-1NS0101005	CBST22S	9.525	4.4	3.18	0.8	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW160308-3NS0101005		●	●	●	●	TPGW322-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**TP** 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la	
	TPGW160402-1NS0101005	CBST22S	●	●	●	●	TPGW33(0.5)-1NS0101005	CBST22S	9.525	4.4	4.76	0.4	2.2	0.2
	-1NS0101510		●	●	●	●	-1NS0101510							0.8
	-1NS0152020		●	●	●	●	-1NS0152020							
	TPGW160404-1NS0101005		●	●	●	●	TPGW331-1NS0101005							
	-1NS0101510		●	●	●	●	-1NS0101510							
	-1NS0152020		●	●	●	●	-1NS0152020							
	TPGW160408-1NS0101005		●	●	●	●	TPGW332-1NS0101005							
	-1NS0101510		●	●	●	●	-1NS0101510							
	-1NS0152020		●	●	●	●	-1NS0152020							
	TPGW160402-3NS0101005	CBST22S	●	●	●	●	TPGW33(0.5)-3NS0101005	CBST22S	9.525	4.4	4.76	0.4	2.2	0.2
	-3NS0101510		●	●	●	●	-3NS0101510							0.8
	-3NS0152020		●	●	●	●	-3NS0152020							
	TPGW160404-3NS0101005		●	●	●	●	TPGW331-3NS0101005							
	-3NS0101510		●	●	●	●	-3NS0101510							
	-3NS0152020		●	●	●	●	-3NS0152020							
	TPGW160408-3NS0101005		●	●	●	●	TPGW332-3NS0101005							
	-3NS0101510		●	●	●	●	-3NS0101510							
	-3NS0152020		●	●	●	●	-3NS0152020							

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

## VB 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VBGW 110302-1NS0101005	CBST22S	●	●	●	●	VBGW22(0,5)-1NS0101005	CBST22S	6.35	2.8	3.18	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110304-1NS0101005		●	●	●	●	VBGW221-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110308-1NS0101005		●	●	●	●	VBGW222-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110302-2NS0101005	CBST22S	●	●	●	●	VBGW22(0,5)-2NS0101005	CBST22S	6.35	2.8	3.18	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 110304-2NS0101005		●	●	●	●	VBGW221-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 110308-2NS0101005		●	●	●	●	VBGW222-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## VB 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VBGW 160402-1NS0101005	CBST22S	●	●	●	●	VBGW33(0,5)-1NS0101005	CBST22S	9.525	4.4	4.76	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160404-1NS0101005		●	●	●	●	VBGW331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160408-1NS0101005		●	●	●	●	VBGW332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160412-1NS0101005	CBST22S	●	●	●	●	VBGW333-1NS0101005	CBST22S	9.525	4.4	4.76	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160402-2NS0101005		●	●	●	●	VBGW33(0,5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160404-2NS0101005		●	●	●	●	VBGW331-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160408-2NS0101005	CBST22S	●	●	●	●	VBGW332-2NS0101005	CBST22S	9.525	4.4	4.76	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160412-2NS0101005		●	●	●	●	VBGW333-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160412-2NS0101005		●	●	●	●	VBGW333-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)I-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

## VC 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VCGW080202-1NS0101005	CBST22S	●	●	●	●	VCGW(1.5)(1.5)(0.5)-1NS0101005	CBST22S	4.76	2.2	2.38	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080204-1NS0101005		●	●	●	●	VCGW(1.5)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080208-1NS0101005		●	●	●	●	VCGW(1.5)(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080202-2NS0101005	CBST22S	●	●	●	●	VCGW(1.5)(1.5)(0.5)-2NS0101005	CBST22S	4.76	2.2	2.38	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW080204-2NS0101005		●	●	●	●	VCGW(1.5)(1.5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW080208-2NS0101005		●	●	●	●	VCGW(1.5)(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## VC 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VCGW110302-1NS0101005	CBST22S	●	●	●	●	VCGW22(0.5)-1NS0101005	CBST22S	6.35	2.8	3.18	0.4	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110304-1NS0101005		●	●	●	●	VCGW221-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110308-1NS0101005		●	●	●	●	VCGW222-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110302-2NS0101005	CBST22S	●	●	●	●	VCGW22(0.5)-2NS0101005	CBST22S	6.35	2.8	3.18	0.4	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW110304-2NS0101005		●	●	●	●	VCGW221-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW110308-2NS0101005		●	●	●	●	VCGW222-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**VC**

35° PCBN Negative Inserts



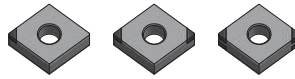
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la
	VCGW160402-1NS0101005	CBST22S	●	●	●	●	VCGW33(0,5)-1NS0101005	CBST22S	9.525	4.4	2.38	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160404-1NS0101005		●	●	●	●	VCGW331-1NS0101005					0.4	
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160408-1NS0101005		●	●	●	●	VCGW332-1NS0101005					0.8	
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160402-2NS0101005	CBST22S	●	●	●	●	VCGW33(0,5)-2NS0101005	CBST22S	9.525	4.4	2.38	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW160404-2NS0101005		●	●	●	●	VCGW331-2NS0101005					0.4	
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW160408-2NS0101005		●	●	●	●	VCGW332-2NS0101005					0.8	
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**CN** 80° PCBN Negative Inserts



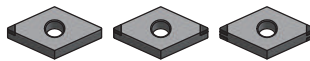
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CNGA 120402-1NS0101005	CBST22S	●	●	●	●	CNGA43(0,5)-1NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120404-1NS0101005		●	●	●	●	CNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120408-1NS0101005		●	●	●	●	CNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120412-1NS0101005		●	●	●	●	CNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	CNGA 120402-2NS0101005	CBST22S	●	●	●	●	CNGA43(0,5)-2NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120404-2NS0101005		●	●	●	●	CNGA431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120408-2NS0101005		●	●	●	●	CNGA432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120412-2NS0101005		●	●	●	●	CNGA433-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	CNGA 120402-4NS0101005	CBST22S	●	●	●	●	CNGA43(0,5)-4NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120404-4NS0101005		●	●	●	●	CNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120408-4NS0101005		●	●	●	●	CNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120412-4NS0101005		●	●	●	●	CNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1,5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**DN** 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

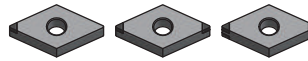
Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DNGA 150402-1NS0101005	CBST22S	●	●	●	●	DNGA43(0,5)-1NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150404-1NS0101005		●	●	●	●	DNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150408-1NS0101005		●	●	●	●	DNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150412-1NS0101005		●	●	●	●	DNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	DNGA 150402-2NS0101005	CBST22S	●	●	●	●	DNGA43(0,5)-2NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150404-2NS0101005		●	●	●	●	DNGA431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150408-2NS0101005		●	●	●	●	DNGA432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150412-2NS0101005		●	●	●	●	DNGA433-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	DNGA 150402-4NS0101005	CBST22S	●	●	●	●	DNGA43(0,5)-4NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150404-4NS0101005		●	●	●	●	DNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150408-4NS0101005		●	●	●	●	DNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150412-4NS0101005		●	●	●	●	DNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117



# Specifications of Mini PCBN Insert

**DN** 55° PCBN Negative Inserts



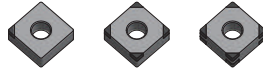
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DNGA 150602-1NS0101005	CBST22S	●	●	●	●	DNGA44(0,5)-1NS0101005	CBST22S	12.7	5.16	6.35	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150604-1NS0101005		●	●	●	●	DNGA441-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150608-1NS0101005		●	●	●	●	DNGA442-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150612-1NS0101005		●	●	●	●	DNGA443-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	DNGA 150602-2NS0101005	CBST22S	●	●	●	●	DNGA44(0,5)-2NS0101005	CBST22S	12.7	5.16	6.35	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150604-2NS0101005		●	●	●	●	DNGA441-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150608-2NS0101005		●	●	●	●	DNGA442-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150612-2NS0101005		●	●	●	●	DNGA443-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	DNGA 150602-4NS0101005	CBST22S	●	●	●	●	DNGA44(0,5)-4NS0101005	CBST22S	12.7	5.16	6.35	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150604-4NS0101005		●	●	●	●	DNGA441-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150608-4NS0101005		●	●	●	●	DNGA442-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150612-4NS0101005		●	●	●	●	DNGA443-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**SN** 90° PCBN Negative Inserts



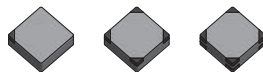
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	SNGA 120402-1NS0101005	CBST22S	●	●	●	●	SNGA43(0,5)-1NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120404-1NS0101005		●	●	●	●	SNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120408-1NS0101005		●	●	●	●	SNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120412-1NS0101005		●	●	●	●	SNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	SNGA 120402-4NS0101005	CBST22S	●	●	●	●	SNGA43(0,5)-4NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120404-4NS0101005		●	●	●	●	SNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120408-4NS0101005		●	●	●	●	SNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120412-4NS0101005		●	●	●	●	SNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								
	SNGA 120402-8NS0101005	CBST22S	●	●	●	●	SNGA43(0,5)-8NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120404-8NS0101005		●	●	●	●	SNGA431-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120408-8NS0101005		●	●	●	●	SNGA432-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120412-8NS0101005		●	●	●	●	SNGA433-8NS0101005						
-8NS0101510	●	●	●	●	-8NS0101510								
-8NS0152020	●	●	●	●	-8NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1,5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**SN** 90° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	SNGN090402-1NS0101005	CBST22S	●	●	●	●	SNGN33(0.5)-1NS0101005	CBST22S	9.525	-	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090404-1NS0101005		●	●	●	●	SNGN331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090408-1NS0101005		●	●	●	●	SNGN332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090412-1NS0101005		●	●	●	●	SNGN333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	SNGN090402-4NS0101005	CBST22S	●	●	●	●	SNGN33(0.5)-4NS0101005	CBST22S	9.525	-	4.76	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090404-4NS0101005		●	●	●	●	SNGN331-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090408-4NS0101005		●	●	●	●	SNGN332-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090412-4NS0101005		●	●	●	●	SNGN333-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								
	SNGN090402-8NS0101005	CBST22S	●	●	●	●	SNGN33(0.5)-8NS0101005	CBST22S	9.525	-	4.76	0.2	2.2
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090404-8NS0101005		●	●	●	●	SNGN331-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090408-8NS0101005		●	●	●	●	SNGN332-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090412-8NS0101005		●	●	●	●	SNGN333-8NS0101005						
-8NS0101510	●	●	●	●	-8NS0101510								
-8NS0152020	●	●	●	●	-8NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)I-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert

**TN** 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

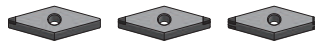
Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TNGA 160402-1NS0101005	CBST22S	●	●	●	●	TNGA33(0,5)-1NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160404-1NS0101005		●	●	●	●	TNGA331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160408-1NS0101005		●	●	●	●	TNGA332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160412-1NS0101005		●	●	●	●	TNGA333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	TNGA 160402-3NS0101005	CBST22S	●	●	●	●	TNGA33(0,5)-3NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160404-3NS0101005		●	●	●	●	TNGA331-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160408-3NS0101005		●	●	●	●	TNGA332-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160412-3NS0101005		●	●	●	●	TNGA333-3NS0101005						
-3NS0101510	●	●	●	●	-3NS0101510								
-3NS0152020	●	●	●	●	-3NS0152020								
	TNGA 160402-6NS0101005	CBST22S	●	●	●	●	TNGA33(0,5)-6NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160404-6NS0101005		●	●	●	●	TNGA331-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160408-6NS0101005		●	●	●	●	TNGA332-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160412-6NS0101005		●	●	●	●	TNGA333-6NS0101005						
-6NS0101510	●	●	●	●	-6NS0101510								
-6NS0152020	●	●	●	●	-6NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert



35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

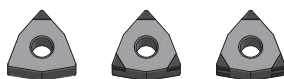
Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VNGA 160402-1NS0101005	CBST22S	●	●	●	●	VNGA33(0.5)-1NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160404-1NS0101005		●	●	●	●	VNGA331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160408-1NS0101005		●	●	●	●	VNGA332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160412-1NS0101005		●	●	●	●	VNGA333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	VNGA 160402-2NS0101005	CBST22S	●	●	●	●	VNGA33(0.5)-2NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160404-2NS0101005		●	●	●	●	VNGA331-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160408-2NS0101005		●	●	●	●	VNGA332-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160412-2NS0101005		●	●	●	●	VNGA333-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	VNGA 160402-4NS0101005	CBST22S	●	●	●	●	VNGA33(0.5)-4NS0101005	CBST22S	9.525	3.81	4.76	0.2	2.2
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160404-4NS0101005		●	●	●	●	VNGA331-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160408-4NS0101005		●	●	●	●	VNGA332-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160412-4NS0101005		●	●	●	●	VNGA333-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Mini PCBN Insert



80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	WNGA080402-1NS0101005	CBST22S	●	●	●	●	WNGA43(0.5)-1NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080404-1NS0101005		●	●	●	●	WNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080408-1NS0101005		●	●	●	●	WNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080412-1NS0101005		●	●	●	●	WNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	WNGA080402-3NS0101005	CBST22S	●	●	●	●	WNGA43(0.5)-3NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080404-3NS0101005		●	●	●	●	WNGA431-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080408-3NS0101005		●	●	●	●	WNGA432-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080412-3NS0101005		●	●	●	●	WNGA433-3NS0101005						
-3NS0101510	●	●	●	●	-3NS0101510								
-3NS0152020	●	●	●	●	-3NS0152020								
	WNGA080402-6NS0101005	CBST22S	●	●	●	●	WNGA43(0.5)-6NS0101005	CBST22S	12.7	5.16	4.76	0.2	2.2
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080404-6NS0101005		●	●	●	●	WNGA431-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080408-6NS0101005		●	●	●	●	WNGA432-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080412-6NS0101005		●	●	●	●	WNGA433-6NS0101005						
-6NS0101510	●	●	●	●	-6NS0101510								
-6NS0152020	●	●	●	●	-6NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## CC 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW060202-1NS0101005	CBST30S	●	●	●	●	CCGW2(1.5)(0.5)-1NS0101005	CBST30S	6.35	2.8	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060204-1NS0101005		●	●	●	●	CCGW2(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060208-1NS0101005		●	●	●	●	CCGW2(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060202-2NS0101005	CBST30S	●	●	●	●	CCGW2(1.5)(0.5)-2NS0101005	CBST30S	6.35	2.8	2.38	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060204-2NS0101005		●	●	●	●	CCGW2(1.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060208-2NS0101005		●	●	●	●	CCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## CC 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW060202-1NS0101005	CBST30S	●	●	●	●	CCGW2(1.5)(0.5)-1NS0101005	CBST30S	9.525	4.4	3.97	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060204-1NS0101005		●	●	●	●	CCGW2(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060208-1NS0101005		●	●	●	●	CCGW2(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW060202-2NS0101005	CBST30S	●	●	●	●	CCGW2(1.5)(0.5)-2NS0101005	CBST30S	9.525	4.4	3.97	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060204-2NS0101005		●	●	●	●	CCGW2(1.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW060208-2NS0101005		●	●	●	●	CCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117



# Specifications of Standard PCBN Insert

**CC** 80° PCBN Negative Inserts



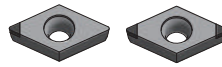
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW120402-1NS0101005	CBST30S	●	●	●	●	CCGW43(0.5)-1NS0101005	CBST30S	12.7	5.5	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120404-1NS0101005		●	●	●	●	CCGW431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120408-1NS0101005		●	●	●	●	CCGW432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120412-1NS0101005		●	●	●	●	CCGW433-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CCGW120402-2NS0101005	CBST30S	●	●	●	●	CCGW43(0.5)-2NS0101005	CBST30S	12.7	5.5	4.76	0.2	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120404-2NS0101005		●	●	●	●	CCGW431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120408-2NS0101005		●	●	●	●	CCGW432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW120412-2NS0101005		●	●	●	●	CCGW433-2NS0102510						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW070202-1NS0101005	CBST30S	●	●	●	●	DCGW2(1.5)(0.5)-1NS0101005	CBST30S	6.35	2.8	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070204-1NS0101005		●	●	●	●	DCGW2(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070208-1NS0101005		●	●	●	●	DCGW2(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW070202-2NS0101005	CBST30S	●	●	●	●	DCGW2(1.5)(0.5)-2NS0101005	CBST30S	6.35	2.8	2.38	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW070204-2NS0101005		●	●	●	●	DCGW2(1.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW070208-2NS0101005		●	●	●	●	DCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW11T302-1NS0101005	CBST30S	●	●	●	●	DCGW3(2.5)(0.5)-1NS0101005	CBST30S	9.525	4.4	3.97	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T304-1NS0101005		●	●	●	●	DCGW3(2.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T308-1NS0101005		●	●	●	●	DCGW3(2.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T312-1NS0101005	CBST30S	●	●	●	●	DCGW3(2.5)3-1NS0101005	CBST30S	9.525	4.4	3.97	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DCGW11T302-2NS0101005		●	●	●	●	DCGW3(2.5)(0.5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T304-2NS0101005		●	●	●	●	DCGW3(2.5)1-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T308-2NS0101005	CBST30S	●	●	●	●	DCGW3(2.5)2-2NS0101005	CBST30S	9.525	4.4	3.97	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T312-2NS0101005		●	●	●	●	DCGW3(2.5)3-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T312-2NS0101005		●	●	●	●	DCGW3(2.5)3-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW080202-1NS0101005	CBST30S	●	●	●	●	TPGW(1.5)(1.5)(0.5)-1NS0101005	CBST30S	4.76	2.4	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW080204-1NS0101005		●	●	●	●	TPGW(1.5)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW080202-3NS0101005	CBST30S	●	●	●	●	TPGW(1.5)(1.5)(0.5)-3NS0101005	CBST30S	4.76	2.4	2.38	0.4	3.0
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TPGW080204-3NS0101005		●	●	●	●	TPGW(1.5)(1.5)1-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TPGW090202-1NS0101005	CBST30S	●	●	●	●	TPGW(1.8)(1.5)(0.5)-1NS0101005	CBST30S	5.56	2.8	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW090204-1NS0101005		●	●	●	●	TPGW(1.8)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW090208-1NS0101005	CBST30S	●	●	●	●	TPGW(1.8)(1.5)2-1NS0101005	CBST30S	5.56	2.8	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TPGW090202-3NS0101005		●	●	●	●	TPGW(1.8)(1.5)(0.5)-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la	
	TPGW110302-1NS0101005	CBST30S	●	●	●	●	TPGW22(0.5)-1NS0101005	CBST30S	6.35	3.3	3.18	0.4	3.0	
	-1NS0101510		●	●	●	●								-1NS0101510
	-1NS0152020		●	●	●	●								-1NS0152020
	TPGW110304-1NS0101005		●	●	●	●								TPGW221-1NS0101005
	-1NS0101510		●	●	●	●								-1NS0101510
	-1NS0152020		●	●	●	●								-1NS0152020
	TPGW110302-3NS0101005	CBST30S	●	●	●	●	TPGW22(0.5)-3NS0101005	CBST30S	6.35	3.3	3.18	0.4	3.0	
	-3NS0101510		●	●	●	●								-3NS0101510
	-3NS0152020		●	●	●	●								-3NS0152020
	TPGW110304-3NS0101005		●	●	●	●								TPGW221-3NS0101005
	-3NS0101510		●	●	●	●								-3NS0101510
	-3NS0152020		●	●	●	●								-3NS0152020

## TP 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la	
	TPGW160302-1NS0101005	CBST30S	●	●	●	●	TPGW32(0.5)-1NS0101005	CBST30S	9.525	4.4	3.18	0.4	3.0	
	-1NS0101510		●	●	●	●								-1NS0101510
	-1NS0152020		●	●	●	●								-1NS0152020
	TPGW160304-1NS0101005		●	●	●	●								TPGW321-1NS0101005
	-1NS0101510		●	●	●	●								-1NS0101510
	-1NS0152020		●	●	●	●								-1NS0152020
	TPGW160308-1NS0101005	CBST30S	●	●	●	●	TPGW322-1NS0101005	CBST30S	9.525	4.4	3.18	0.4	3.0	
	-1NS0101510		●	●	●	●								-1NS0101510
	-1NS0152020		●	●	●	●								-1NS0152020
	TPGW160302-3NS0101005		●	●	●	●								TPGW32(0.5)-3NS0101005
	-3NS0101510		●	●	●	●								-3NS0101510
	-3NS0152020		●	●	●	●								-3NS0152020

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**TP** 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la
	TPGW160402-1NS0101005	CBST30S	●	●	●	●	CBST30S	9.525	4.4	4.76	0.4	3.0	TPGW33(0,5)-1NS0101005
	-1NS0101510		●	●	●	●							-1NS0101510
	-1NS0152020		●	●	●	●							-1NS0152020
	TPGW160404-1NS0101005		●	●	●	●							TPGW331-1NS0101005
	-1NS0101510		●	●	●	●							-1NS0101510
	-1NS0152020		●	●	●	●							-1NS0152020
	TPGW160408-1NS0101005		●	●	●	●							TPGW332-1NS0101005
	-1NS0101510		●	●	●	●							-1NS0101510
	-1NS0152020		●	●	●	●							-1NS0152020
	TPGW160402-3NS0101005	CBST30S	●	●	●	●	CBST30S	9.525	4.4	4.76	0.4	3.0	TPGW33(0,5)-3NS0101005
	-3NS0101510		●	●	●	●							-3NS0101510
	-3NS0152020		●	●	●	●							-3NS0152020
	TPGW160404-3NS0101005		●	●	●	●							TPGW331-3NS0101005
	-3NS0101510		●	●	●	●							-3NS0101510
	-3NS0152020		●	●	●	●							-3NS0152020
	TPGW160408-3NS0101005		●	●	●	●							TPGW332-3NS0101005
	-3NS0101510		●	●	●	●							-3NS0101510
	-3NS0152020		●	●	●	●							-3NS0152020

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## VB 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VBGW 110302-1NS0101005	CBST30S	●	●	●	●	VBGW22(0,5)-1NS0101005	CBST30S	6.35	2.8	3.18	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110304-1NS0101005		●	●	●	●	VBGW221-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110308-1NS0101005		●	●	●	●	VBGW222-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 110302-2NS0101005	CBST30S	●	●	●	●	VBGW22(0,5)-2NS0101005	CBST30S	6.35	2.8	3.18	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 110304-2NS0101005		●	●	●	●	VBGW221-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 110308-2NS0101005		●	●	●	●	VBGW222-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## VB 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VBGW 160402-1NS0101005	CBST30S	●	●	●	●	VBGW33(0,5)-1NS0101005	CBST30S	9.525	4.4	4.76	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160404-1NS0101005		●	●	●	●	VBGW331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160408-1NS0101005		●	●	●	●	VBGW332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160412-1NS0101005	CBST30S	●	●	●	●	VBGW333-1NS0101005	CBST30S	9.525	4.4	4.76	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VBGW 160402-2NS0101005		●	●	●	●	VBGW33(0,5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160404-2NS0101005		●	●	●	●	VBGW331-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160408-2NS0101005	CBST30S	●	●	●	●	VBGW332-2NS0101005	CBST30S	9.525	4.4	4.76	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160412-2NS0101005		●	●	●	●	VBGW333-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VBGW 160412-2NS0101005		●	●	●	●	VBGW333-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)I-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

## VC 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VCGW080202-1NS0101005	CBST30S	●	●	●	●	VCGW(1.5)(1.5)(0.5)-1NS0101005	CBST30S	6.35	2.2	2.38	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080204-1NS0101005		●	●	●	●	VCGW(1.5)(1.5)1-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080208-1NS0101005		●	●	●	●	VCGW(1.5)(1.5)2-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW080202-2NS0101005	CBST30S	●	●	●	●	VCGW(1.5)(1.5)(0.5)-2NS0101005	CBST30S	6.35	2.2	2.38	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW080204-2NS0101005		●	●	●	●	VCGW(1.5)(1.5)-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW080208-2NS0101005		●	●	●	●	VCGW(1.5)(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## VC 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VCGW110302-1NS0101005	CBST30S	●	●	●	●	VCGW22(0.5)-1NS0101005	CBST30S	6.35	2.8	3.18	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110304-1NS0101005		●	●	●	●	VCGW221-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110308-1NS0101005		●	●	●	●	VCGW222-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW110302-2NS0101005	CBST30S	●	●	●	●	VCGW22(0.5)-2NS0101005	CBST30S	6.35	2.8	3.18	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW110304-2NS0101005		●	●	●	●	VCGW221-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW110308-2NS0101005		●	●	●	●	VCGW222-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117



# Specifications of Standard PCBN Insert

**VC** 35° PCBN Negative Inserts



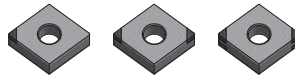
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la
	VCGW160402-1NS0101005	CBST30S	●	●	●	●	VCGW33(0,5)-1NS0101005	CBST30S	6.35	4.4	4.76	0.4	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160404-1NS0101005		●	●	●	●	VCGW331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160408-1NS0101005		●	●	●	●	VCGW332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VCGW160402-2NS0101005	CBST30S	●	●	●	●	VCGW33(0,5)-2NS0101005	CBST30S	6.35	4.4	4.76	0.4	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW160404-2NS0101005		●	●	●	●	VCGW331-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VCGW160408-2NS0101005		●	●	●	●	VCGW332-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**CN** 80° PCBN Negative Inserts



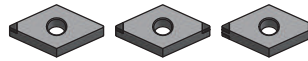
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CNGA 120402-1NS0101005	CBST30S	●	●	●	●	CNGA43(0,5)-1NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120404-1NS0101005		●	●	●	●	CNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120408-1NS0101005		●	●	●	●	CNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	CNGA 120412-1NS0101005		●	●	●	●	CNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	CNGA 120402-2NS0101505	CBST30S	●	●	●	●	CNGA43(0,5)-2NS0101505	CBST30S	12.7	5.16	4.76	0.2	3.0
	-2NS0101505		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120404-2NS0101005		●	●	●	●	CNGA431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120408-2NS0101005		●	●	●	●	CNGA432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CNGA 120412-2NS0101005		●	●	●	●	CNGA433-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	CNGA 120402-4NS0101005	CBST30S	●	●	●	●	CNGA43(0,5)-4NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120404-4NS0101005		●	●	●	●	CNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120408-4NS0101005		●	●	●	●	CNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	CNGA 120412-4NS0101005		●	●	●	●	CNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1,5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**DN** 55° PCBN Negative Inserts



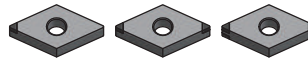
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DNGA 150402-1NS0101005	CBST30S	●	●	●	●	DNGA43(0,5)-1NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150404-1NS0101005		●	●	●	●	DNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150408-1NS0101005		●	●	●	●	DNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150412-1NS0101005		●	●	●	●	DNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	DNGA 150402-2NS0101005	CBST30S	●	●	●	●	DNGA43(0,5)-2NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150404-2NS0101005		●	●	●	●	DNGA431-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150408-2NS0101005		●	●	●	●	DNGA432-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150412-2NS0101005		●	●	●	●	DNGA433-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	DNGA 150402-4NS0101005	CBST30S	●	●	●	●	DNGA43(0,5)-4NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150404-4NS0101005		●	●	●	●	DNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150408-4NS0101005		●	●	●	●	DNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152520						
	DNGA 150412-4NS0101005		●	●	●	●	DNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**DN** 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DNGA 150602-1NS0101005	CBST30S	●	●	●	●	DNGA44(0,5)-1NS0101005	CBST30S	12.7	5.16	6.35	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150604-1NS0101005		●	●	●	●	DNGA441-1NS0102010						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150608-1NS0101005		●	●	●	●	DNGA442-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	DNGA 150612-1NS0101005		●	●	●	●	DNGA443-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	DNGA 150602-2NS0101005	CBST30S	●	●	●	●	DNGA44(0,5)-2NS0101005	CBST30S	12.7	5.16	6.35	0.2	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150604-2NS0101005		●	●	●	●	DNGA441-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150608-2NS0101005		●	●	●	●	DNGA442-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DNGA 150612-2NS0101005		●	●	●	●	DNGA443-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	DNGA 150602-4NS0101005	CBST30S	●	●	●	●	DNGA44(0,5)-4NS0101005	CBST30S	12.7	5.16	6.35	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150604-4NS0101005		●	●	●	●	DNGA441-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150608-4NS0101005		●	●	●	●	DNGA442-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	DNGA 150612-4NS0101005		●	●	●	●	DNGA443-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1,5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**SN** 90° PCBN Negative Inserts



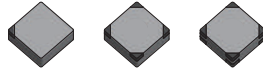
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	SNGA 120402-1NS0101005	CBST30S	●	●	●	●	SNGA43(0,5)-1NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120404-1NS0101005		●	●	●	●	SNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120408-1NS0101005		●	●	●	●	SNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGA 120412-1NS0101005		●	●	●	●	SNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	SNGA 120402-4NS0101005	CBST30S	●	●	●	●	SNGA43(0,5)-4NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120404-4NS0101005		●	●	●	●	SNGA431-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120408-4NS0101005		●	●	●	●	SNGA432-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGA 120412-4NS0101005		●	●	●	●	SNGA433-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								
	SNGA 120402-8NS0101005	CBST30S	●	●	●	●	SNGA43(0,5)-8NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120404-8NS0101005		●	●	●	●	SNGA431-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120408-8NS0101005		●	●	●	●	SNGA432-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGA 120412-8NS0101005		●	●	●	●	SNGA433-8NS0101005						
-8NS0101510	●	●	●	●	-8NS0101510								
-8NS0152020	●	●	●	●	-8NS0152020								

Examples : ISO : CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI : CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**SN** 90° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PKM0117	PKM0119	PKM0121	PKM3017			ic	Ød	s	r	la
	SNGN090402-1NS0101005	CBST30S	●	●	●	●	SNGA33(0,5)-1NS0101005	CBST30S	9.252	-	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090404-1NS0101005		●	●	●	●	SNGA331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090408-1NS0101005		●	●	●	●	SNGA332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	SNGN090412-1NS0101005		●	●	●	●	SNGA333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	SNGN090402-4NS0101005	CBST30S	●	●	●	●	SNGA33(0,5)-4NS0101005	CBST30S	9.525	-	4.76	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090404-4NS0101005		●	●	●	●	SNGA331-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090408-4NS0101005		●	●	●	●	SNGA332-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SNGN090412-4NS0101005		●	●	●	●	SNGA333-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								
	SNGN090402-8NS0101005	CBST30S	●	●	●	●	SNGA33(0,5)-8NS0101005	CBST30S	9.525	-	4.76	0.2	3.0
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090404-8NS0101005		●	●	●	●	SNGA331-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090408-8NS0101005		●	●	●	●	SNGA332-8NS0101005						
	-8NS0101510		●	●	●	●	-8NS0101510						
	-8NS0152020		●	●	●	●	-8NS0152020						
	SNGN090412-8NS0101005		●	●	●	●	SNGA333-8NS0101005						
-8NS0101510	●	●	●	●	-8NS0101510								
-8NS0152020	●	●	●	●	-8NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)I-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert

**TN** 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

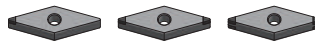
Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TNGA 160402-1NS0101005	CBST30S	●	●	●	●	TNGA33(0,5)-1NS0101005	CBST30S	9.525	3.81	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160404-1NS0101005		●	●	●	●	TNGA331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160408-1NS0101005		●	●	●	●	TNGA332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	TNGA 160412-1NS0101005		●	●	●	●	TNGA333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	TNGA 160402-3NS0101005	CBST30S	●	●	●	●	TNGA33(0,5)-3NS0101005	CBST30S	9.525	3.81	4.76	0.2	3.0
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160404-3NS0101005		●	●	●	●	TNGA331-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160408-3NS0101005		●	●	●	●	TNGA332-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160412-3NS0101005		●	●	●	●	TNGA333-3NS0101005						
-3NS0101510	●	●	●	●	-3NS0101510								
-3NS0152020	●	●	●	●	-3NS0152020								
	TNGA 160402-6NS0101005	CBST30S	●	●	●	●	TNGA33(0,5)-6NS0101005	CBST30S	9.525	3.81	4.76	0.2	3.0
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160404-6NS0101005		●	●	●	●	TNGA331-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160408-6NS0101005		●	●	●	●	TNGA332-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	TNGA 160412-6NS0101005		●	●	●	●	TNGA333-6NS0101005						
-6NS0101510	●	●	●	●	-6NS0101510								
-6NS0152020	●	●	●	●	-6NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117



# Specifications of Standard PCBN Insert

## VN 35° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

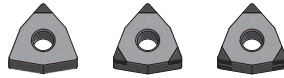
Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	VNGA 160402-1NS0101005	CBST30S	●	●	●	●	VNGA33(0.5)-1NS0101005	CBST30S	9.525	3.81	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160404-1NS0101005		●	●	●	●	VNGA331-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160408-1NS0101005		●	●	●	●	VNGA332-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	VNGA 160412-1NS0101005		●	●	●	●	VNGA333-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	VNGA 160402-2NS0101005	CBST30S	●	●	●	●	VNGA33(0.5)-2NS0101005	CBST30S	9.525	3.81	4.76	0.2	3.0
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160404-2NS0101005		●	●	●	●	VNGA331-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160408-2NS0101005		●	●	●	●	VNGA332-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	VNGA 160412-2NS0101005		●	●	●	●	VNGA333-2NS0101005						
-2NS0101510	●	●	●	●	-2NS0101510								
-2NS0152020	●	●	●	●	-2NS0152020								
	VNGA 160402-4NS0101005	CBST30S	●	●	●	●	VNGA33(0.5)-4NS0102510	CBST30S	9.525	3.81	4.76	0.2	3.0
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160404-4NS0101005		●	●	●	●	VNGA331-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160408-4NS0101005		●	●	●	●	VNGA332-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	VNGA 160412-4NS0101005		●	●	●	●	VNGA333-4NS0101005						
-4NS0101510	●	●	●	●	-4NS0101510								
-4NS0152020	●	●	●	●	-4NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)I-2NS0101510 CBST22S PNK0117

# Specifications of Standard PCBN Insert



80° PCBN Negative Inserts



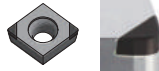
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	WNGA080402-1NS0101005	CBST30S	●	●	●	●	WNGA43(0.5)-1NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080404-1NS0101005		●	●	●	●	WNGA431-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080408-1NS0101005		●	●	●	●	WNGA432-1NS0101005						
	-1NS0101510		●	●	●	●	-1NS0101510						
	-1NS0152020		●	●	●	●	-1NS0152020						
	WNGA080412-1NS0101005		●	●	●	●	WNGA433-1NS0101005						
-1NS0101510	●	●	●	●	-1NS0101510								
-1NS0152020	●	●	●	●	-1NS0152020								
	WNGA080402-3NS0101005	CBST30S	●	●	●	●	WNGA43(0.5)-3NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080404-3NS0101005		●	●	●	●	WNGA431-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080408-3NS0101005		●	●	●	●	WNGA432-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080412-3NS0101005		●	●	●	●	WNGA433-3NS0101005						
-3NS0101510	●	●	●	●	-3NS0101510								
-3NS0152020	●	●	●	●	-3NS0152020								
	WNGA080402-6NS0101005	CBST30S	●	●	●	●	WNGA43(0.5)-6NS0101005	CBST30S	12.7	5.16	4.76	0.2	3.0
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080404-6NS0101005		●	●	●	●	WNGA431-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080408-6NS0101005		●	●	●	●	WNGA432-6NS0101005						
	-6NS0101510		●	●	●	●	-6NS0101510						
	-6NS0152020		●	●	●	●	-6NS0152020						
	WNGA080412-6NS0101005		●	●	●	●	WNGA433-6NS0101005						
-6NS0101510	●	●	●	●	-6NS0101510								
-6NS0152020	●	●	●	●	-6NS0152020								

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Wiper PCBN Insert

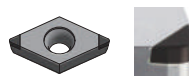
## CC 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	CCGW09T304-2NS0101005	CBWG22S	●	●	●	●	CCGW3(2.5)1-2NS0101005	CBWG22S	9.525	4.4	3.97	0.8	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	CCGW09T308-2NS0101005		●	●	●	●	CCGW3(2.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

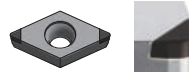
## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW070204-2NS0101005	CBWG22S	●	●	●	●	DCGW2(1.5)1-2NS0101005	CBWG22S	6.35	2.8	2.38	0.8	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW070208-2NS0101005		●	●	●	●	DCGW2(1.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

## DC 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DCGW11T304-2NS0101005	CBWG22S	●	●	●	●	DCGW3(2.5)1-2NS0101005	CBWG22S	9.525	4.4	3.97	0.8	2.2
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						
	DCGW11T308-2NS0101005		●	●	●	●	DCGW3(2.5)2-2NS0101005						
	-2NS0101510		●	●	●	●	-2NS0101510						
	-2NS0152020		●	●	●	●	-2NS0152020						

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
 ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Wiper PCBN Insert

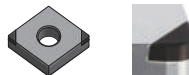
## SC 90° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm					
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la
	SCGN090404-4NS0101005	CBWG22S	●	●	●	●	SCGN331-4NS0101005	CBWG22S	9.525	3.97	0.8	2.2	
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						
	SCGN090408-4NS0101005		●	●	●	●	SCGN33(0,5)2-4NS0101005						
	-4NS0101510		●	●	●	●	-4NS0101510						
	-4NS0152020		●	●	●	●	-4NS0152020						

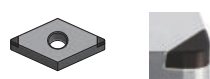
## CN 80° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm						
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la	
	CNGA 120404-2NS0101005	CBWG22S	●	●	●	●	CNGA431-2NS0101005	CBWG22S	12.7	5.16	4.76	0.8	2.2	
	-2NS0101510		●	●	●	●	-2NS0101510							
	-2NS0152020		●	●	●	●	-2NS0152020							
	CNGA 120408-2NS0101005		●	●	●	●	CNGA432-2NS0101005							
	-2NS0101510		●	●	●	●	-2NS0101510							
	-2NS0152020		●	●	●	●	-2NS0152020							

## DN 55° PCBN Negative Inserts



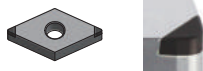
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K			ANSI	Tip Shape	Dimensions in mm						
			PNK0117	PNK0119	PNK0121			PNK3017	ic	Ød	s	r	la	
	DNGA 150404-2NS0101005	CBWG22S	●	●	●	●	DNGA431-2NS0101005	CBWG22S	12.7	5.16	4.76	0.8	2.2	
	-2NS0101510		●	●	●	●	-2NS0101510							
	-2NS0152020		●	●	●	●	-2NS0152020							
	DNGA 150408-2NS0101005		●	●	●	●	DNGA432-2NS0101005							
	-2NS0101510		●	●	●	●	-2NS0101510							
	-2NS0152020		●	●	●	●	-2NS0152020							

Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Specifications of Wiper PCBN Insert

## DN 55° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	DNGA 150604-2NS0102510	CBWG22S	●	●	●	●	DNGA441-2NS0102510	CBWG22S	12.7	5.16	4.76	0.4	2.2
	-2NS0101505		●	●	●	●	-2NS0101505						
	-2NS0152520		●	●	●	●	-2NS0152520						
	DNGA 150608-2NS0102510		●	●	●	●	DNGA442-2NS0102510						
	-2NS0101505		●	●	●	●	-2NS0101505						
	-2NS0152520		●	●	●	●	-2NS0152520						

## TN 60° PCBN Negative Inserts



Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	TNGA 160404-3NS0101005	CBWG22S	●	●	●	●	TNGA331-3NS0101005	CBWG22S	9.525	3.81	4.76	0.4	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	TNGA 160408-3NS0101005		●	●	●	●	TNGA332-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

## WN 80° PCBN Negative Inserts



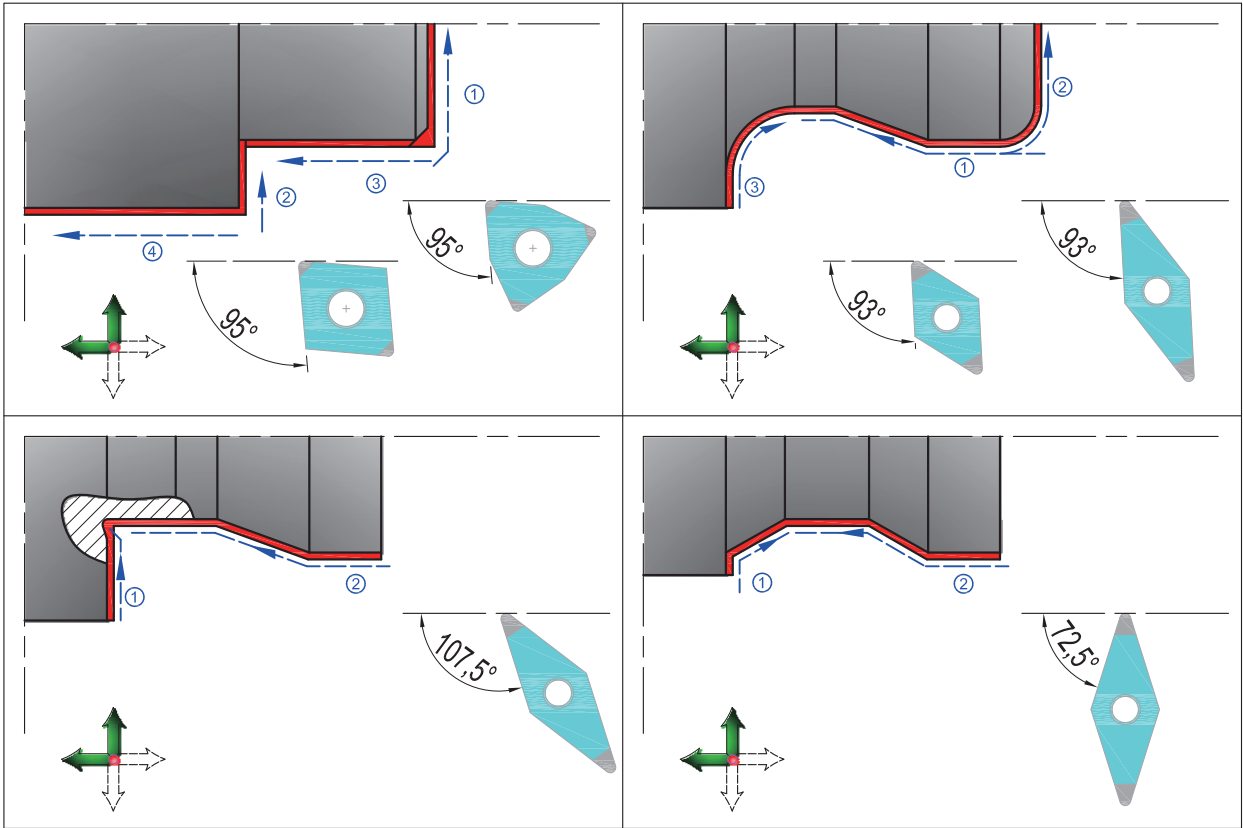
Sharp Cutting Edge	Standard Cutting Edge	Strong Cutting Edge
S0101005	S0101510	S0152020

Shape	ISO	Tip Shape	K				ANSI	Tip Shape	Dimensions in mm				
			PNK0117	PNK0119	PNK0121	PNK3017			ic	Ød	s	r	la
	WNGA080404-3NS0101005	CBWG22S	●	●	●	●	WNGA431-3NS0101005	CBWG22S	12.7	5.16	4.76	0.8	2.2
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						
	WNGA080408-3NS0101005		●	●	●	●	WNGA432-3NS0101005						
	-3NS0101510		●	●	●	●	-3NS0101510						
	-3NS0152020		●	●	●	●	-3NS0152020						

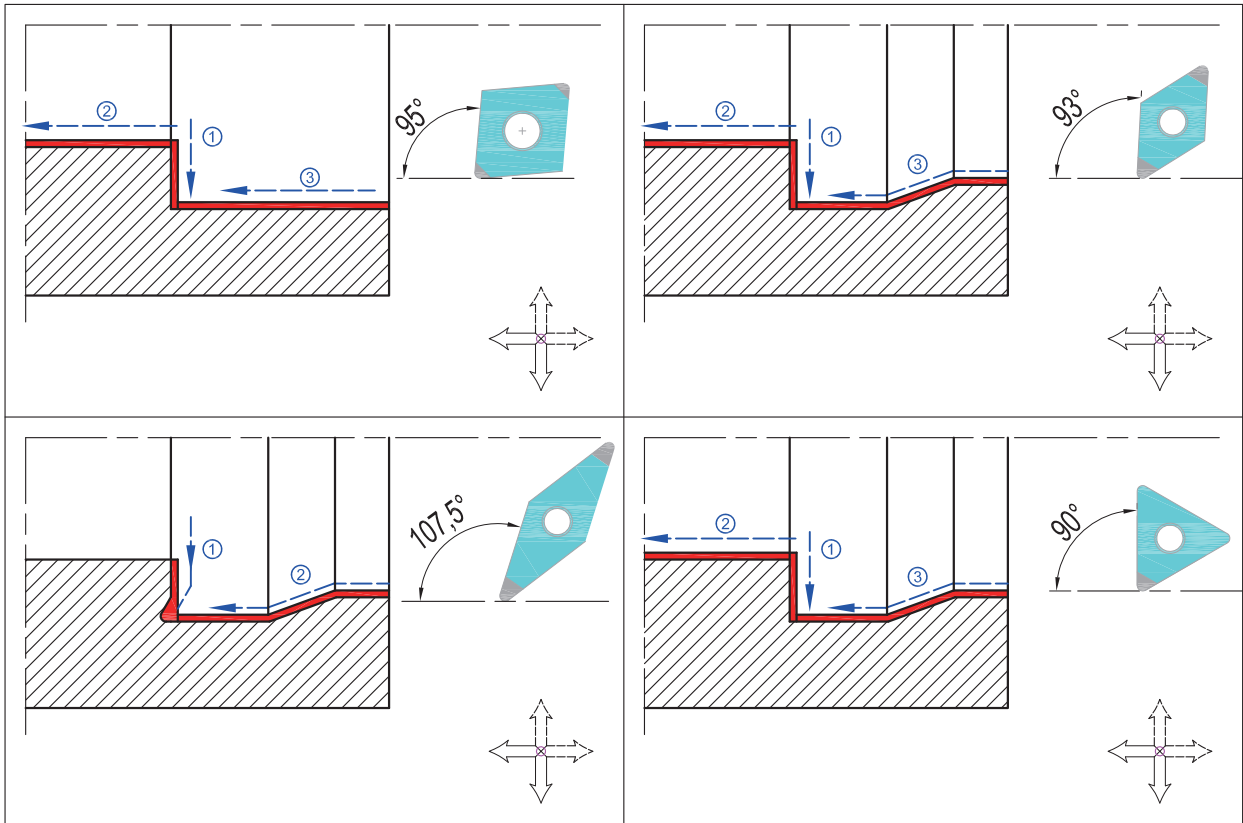
Examples: ISO: CCGW060204-2NS0101510 CBST22S PNK0117  
ANSI: CCGW2(1.5)1-2NS0101510 CBST22S PNK0117

# Cutting Direction Recommendation

## External machining



## Internal machining



# Nose radius, Feed Rate Against Surface Finish Spindle Speed Recommendation

## ■ Influence of nose radius and feed rate on the surface finish.

The table below gives recommended maximum feed rates to achieve a special Ra. Value.

$$h = r\epsilon - (r\epsilon^2 - (0.5 \times f)^2) / 0.5$$

$$f_{\max} = (Ra \times r\epsilon / 50)^{\frac{1}{2}}$$

Nose radius (mm)	Surface finish Ra value(μm)					
	0.2	0.4	0.8	1.6	3.2	6.4
	feed (mm/rev) rate ≡					
0.2	0.028	0.040	0.057	0.080	0.113	0.160
0.4	0.040	0.057	0.080	0.113	0.160	0.226
0.8	0.057	0.080	0.113	0.160	0.226	0.320
1.2	0.069	0.098	0.139	0.196	0.277	0.392
1.6	0.080	0.113	0.160	0.226	0.320	0.453
2.4	0.098	0.139	0.196	0.277	0.392	0.554

## ■ Spindle speed recommendation

Speed (m/min)	Workpiece/Tool Holer Diameter (mm)													
	12	16	20	25	32	50	63	80	100	125	160	175	200	250
80	2123	1592	1274	1019	796	510	404	318	255	204	159	146	127	102
90	2389	1791	1433	1146	896	573	455	358	287	229	179	164	143	115
100	2654	1990	1592	1274	995	637	506	398	318	255	199	182	159	127
110	2919	2189	1752	1401	1095	701	556	438	350	280	219	200	175	140
120	3185	2389	1911	1529	1194	764	607	478	382	306	239	218	191	153
140	3715	2787	2229	1783	1393	892	708	557	446	357	279	255	223	178
160	4246	3185	2548	2038	1592	1019	809	637	510	408	318	291	255	204
180	4777	3583	2866	2293	1791	1146	910	717	573	459	358	328	287	229
200	5308	3981	3185	2548	1990	1274	1011	796	637	510	398	364	318	255
220	5839	4379	3503	2803	2189	1401	1112	876	701	561	438	400	350	280
240	6369	4777	3822	3057	2389	1529	1213	955	764	611	478	437	382	306
260	6900	5175	4140	3312	2588	1656	1314	1035	828	662	518	473	414	331
280	7431	5573	4459	3567	2787	1783	1415	1115	892	713	557	510	446	357
300		5971	4777	3822	2986	1911	1517	1194	955	764	597	546	478	382
400						2548	2022	1592	1274	1019	796	728	637	510
600						3822	3033	2389	1911	1529	1194	1092	955	764
800						5096	4044	3185	2548	2038	1592	1456	1274	1019
1000						6369	5055	3981	3185	2548	1990	1820	1592	1274

# Hardness Conversion Charts

## ■ Hardness Conversion Charts

According to Germany standard DIN50150, the following is the reference list for the steel's usual range of vickers hardness, brinell hardness and rockwell hardness.

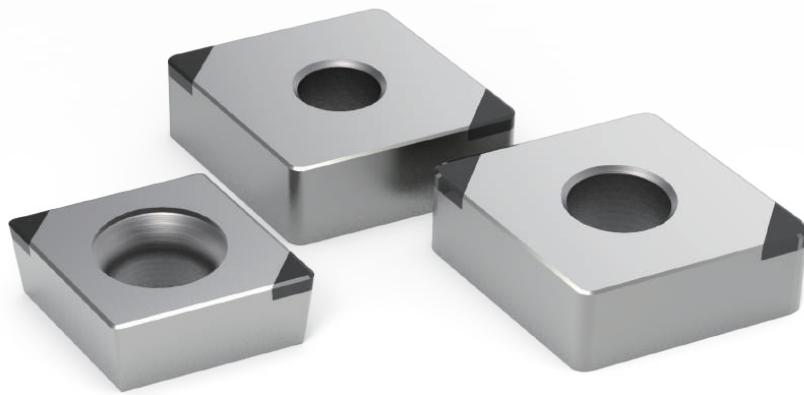
Tensile Strength Rm N/mm	Vickers Hardness HV	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength Rm N/mm	Vickers Hardness HV	Brinell Hardness HB	Rockwell Hardness HRC
250	80	76.0	-	595	185	176	-
270	85	80.7	-	610	190	181	-
285	90	85.2	-	625	195	185	-
305	95	90.2	-	640	200	190	-
320	100	95.0	-	660	205	195	-
335	105	99.8	-	675	210	199	-
350	110	105	-	690	215	204	-
370	115	109	-	705	220	209	-
380	120	114	-	720	225	214	-
400	125	119	-	740	230	219	-
415	130	124	-	755	235	223	-
430	135	128	-	770	240	228	20.3
450	140	133	-	785	245	233	21.3
465	145	138	-	800	250	238	22.2
480	150	143	-	820	255	242	23.1
490	155	147	-		840		65.3
510	160	152	-		860		65.9
530	165	156	-		880		66.4
545	170	162	-		900		67.0
560	175	166	-		920		67.5
575	180	171	-		940		68.0





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**Add :** No.2 Industry Road ,Dachang Chaobaihe Industrial Park,  
Langfang City,Hebei Province 065300,China  
**E-mail :** marketing@worldiatools.com

