



WORLDIA
股票代码:688028

MN-N2005 EN

PCBN Insert

7 material / 1 type, univesal for hardened steel ,
cast Iron , ductile iron and powder metallurgy.



WORLDIA MANANOVA

Easy Choice Fast Delivery

ManaNova

An easy choica in cutting world



Contents

ISO Turning 03

Product range overview of indexable inserts
for ISO turning - Inserts description

PCBN Insert 06

Providing stable , universal , high efficient
cutting effects - MANANOVA EASY CHOICE

Definition Key - Material designation

Example

M	H	N	10	C
ManaNova	1	2	3	4

1
Application Materials
P Steel
M Stainless Steel
K Cast Iron
S Powder metallurgy
H Hardened Steel
N Non-ferrous Metal

2
Cutting Tool Material
D PCD
N PCBN

3
Material Code
10
20
30

4
Coating
C Coated
Without No coated

Material Introduction - Easy choice for PCBN Grade

ISO H: Hardened Steel

ISO K: Cast Iron

ISO S: Powder Metallurgy

- Continuous cutting
- ◐ Light interrupted cutting
- ▣ Medium interrupted cutting
- ✱ Heavy interrupted cutting

PCBN Grade	ISO H			ISO K		ISO S	
	MHN10C	MHN20C	MHN30C	MKN10	MKN20	MSN10	MSN20
	Smooth	Moderate	Toughness	Cast Iron	Ductile Iron	Powder Metallurgy	Powder Metallurgy
vc	180(150~250) m/min	100(50~150) m/min	80(30~120) m/min	600(300~800) m/min	300(150~450) m/min	300(200~500) m/min	500(300~800) m/min
fn	0.1(0.03~0.2) mm/r	0.1(0.03~0.2) mm/r	0.1(0.03~0.2) mm/r	0.1(0.03~0.3) mm/r	0.1(0.03~0.3) mm/r	0.1(0.03~0.3) mm/r	0.1(0.03~0.3) mm/r
%	45~55	60~70	85~95	85~95	60~70	60~70	85~95
Grain size	1~2 μm	1~2 μm	2~3 μm	2~3 μm	1~2 μm	1~2 μm	2~3 μm
Bond	TiC	TiN	Co/W	Co/W	TiCN	TiCN	Co/W
First Choice	●	◐ ▣	✱	● ◐ ▣ ✱	● ◐ ▣ ✱	● ◐ ▣ ✱	● ◐ ▣ ✱

● Continuous ◐ Light interrupted ▣ Medium interrupted ✱ Heavy interrupted

Definition Key - Identification Code

ANSI	C	-	C	C	G	W	2	1.5	0.5	-	1	N
------	---	---	---	---	---	---	---	-----	-----	---	---	---

ISO	C	-	C	C	G	W	06	02	02	-	1	N
-----	---	---	---	---	---	---	----	----	----	---	---	---

1		2	3	4	5	6	7	8		9	10
---	--	---	---	---	---	---	---	---	--	---	----

1		2		3		4		5	
Insert Style		Insert Shape		Clearance Angle		Tolerances		Pattern Type	
Without	Standard	A	85°	M	86°	G	ISO mm	A	
C	Chip breaker	B	82°	O	135°	m	±0.025	N	
L	Full Length	C	80°	P	108°	IC	±0.025	T	
F	Full Face	D	55°	R	90°	S	±0.130	W	
S	Solid	E	75°	S	90°	R	±0.03	R	
W	Wiper	H	120°	T	60°				
H	Heavy cutting	K	55°	V	35°				
		L	90°	W	80°				

6		7		8		9	
Inscribed Circle Diameter		Insert Thickness		Nose Radius		Cutting Edges	
IC (mm)	C D T V W	ISO mm	ANSI inch	ISO mm	ANSI inch	1 single	
ISO						2 double	
3.970		01 = 1.59	1 1/16	00 = 0.0	0 .000	3 triple	
4.760		02 = 2.38	1.5 3/32	01 = 2.1	0.2 .004		
5.560		T2 = 2.78		02 = 0.2	0.5 .008		
6.350	06 07 11 11	03 = 3.18	2 1/8	04 = 0.4	1 1/64		
7.940		T3 = 3.97	2.5 5/32	08 = 0.8	2 1/32		
9.525	09 11 16 16	04 = 4.76	3 3/16	12 = 1.2	3 3/64		
12.700	12 15	05 = 5.56	3.5 7/32	16 = 1.6	4 1/16		
15.875		06 = 6.35	4 1/4	20 = 2.0	5 5/64		
		07 = 7.94	5 5/16	24 = 2.4	6 3/32		
		09 = 9.525	6 3/8	28 = 2.8	7 7/64		

10	
Cutting Direction	
N	
R	
L	

PCBN Insert

CCGW-CNGA

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CC

80°Positive

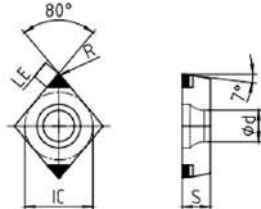
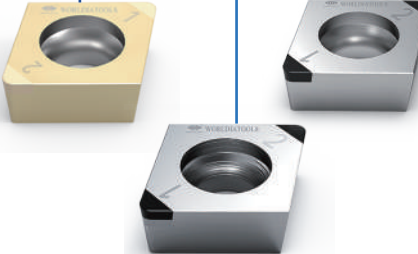
7°Relief

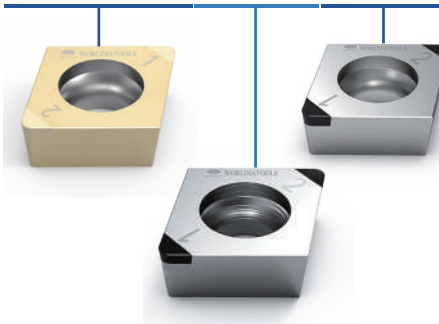
Application material:

H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

CCGW	Shape		Dimensions						Applications							
			Tips	IC mm	S mm	R mm	Φd mm	LE mm	H	H	H	K	K	S	S	
	Coated	Coated							Coated							
ANSI Code	ISO Code							MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20		
All Stocked	CCGW21.50.5	CCGW 060202	2N	6.35	2.38	0.2	2.8	2.2								
	CCGW21.51	CCGW 060204	2N	6.35	2.38	0.4	2.8	2.2								
	CCGW21.52	CCGW 060208	2N	6.35	2.38	0.8	2.8	2.2								
	CCGW32.50.5	CCGW 09T302	2N	9.525	3.97	0.2	4.4	2.2								
	CCGW32.51	CCGW 09T304	2N	9.525	3.97	0.4	4.4	2.2								
	CCGW32.52	CCGW 09T308	2N	9.525	3.97	0.8	4.4	2.2								
	CCGW32.53	CCGW 09T312	2N	9.525	3.97	1.2	4.4	2.2								



CN

80°

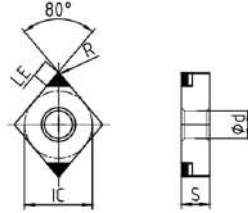
Negative

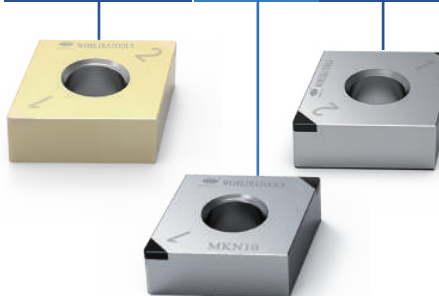
Application material:

H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

CNGA	Shape		Dimensions						Applications							
			Tips	IC mm	S mm	R mm	Φd mm	LE mm	H	H	H	K	K	S	S	
	ANSI Code	ISO Code							Coated	Coated	Coated					
									MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20	
All Stocked	CNGA431	CNGA 120404	2N	12.7	4.76	0.4	5.16	2.2								
	CNGA432	CNGA 120408	2N	12.7	4.76	0.8	5.16	2.2								
	CNGA432	CNGA 120408	4N	12.7	4.76	0.8	5.16	2.2								



PCBN Insert

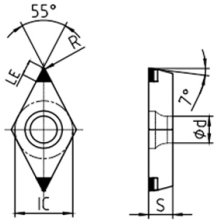
DCGW-DNGA

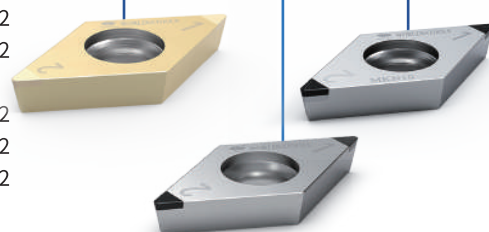
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DC 55°Positive
7°Relief

Application materila:
H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:
● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

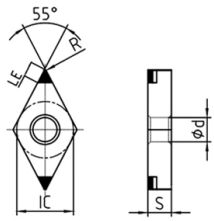
DCGW	Shape		Dimensions						Applications							
									H	H	H	K	K	S	S	
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	Φd mm	LE mm	Coated	Coated	Coated	Coated	Coated	Coated	Coated	Coated
All Stocked	DCGW21.51	DCGW 070204	2N	6.35	2.38	0.4	2.8	2.2	MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20	
	DCGW21.52	DCGW 070208	2N	6.35	2.38	0.8	2.8	2.2								
	DCGW32.50.5	DCGW 11T302	2N	9.525	3.97	0.2	4.4	2.2								
	DCGW32.51	DCGW 11T304	2N	9.525	3.97	0.4	4.4	2.2								
	DCGW32.52	DCGW 11T308	2N	9.525	3.97	0.8	4.4	2.2								

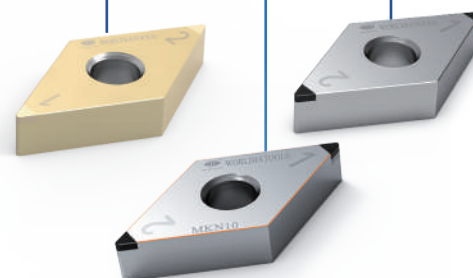


DN 55°
Negative

Application materila:
H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:
● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

DNGA	Shape		Dimensions						Applications							
									H	H	H	K	K	S	S	
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	Φd mm	LE mm	Coated	Coated	Coated	Coated	Coated	Coated	Coated	Coated
All Stocked	DNGA431	DNGA 150404	2N	12.7	4.76	0.4	5.16	2.2	MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20	
	DNGA432	DNGA 150408	2N	12.7	4.76	0.8	5.16	2.2								
	DNGA433	DNGA 150412	2N	12.7	4.76	1.2	5.16	2.2								
	DNGA441	DNGA 150604	2N	12.7	6.35	0.4	5.16	2.2								
	DNGA442	DNGA 150608	2N	12.7	6.35	0.8	5.16	2.2								



PCBN Insert

TCGW-TNGA

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TC

60°Positive

7°Relief

Application materila:

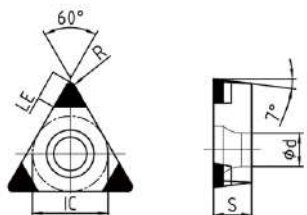
H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
● Light interrupted
✱ Medium interrupted
✱ Heavy interrupted

TCGW

Shape



ANSI Code

ISO Code

Dimensions

Tips	IC mm	S mm	R mm	ϕd mm	LE mm
------	----------	---------	---------	----------	----------

Applications

H	H	H	K	K	S	S
●	●	●	●	●	●	●
Coated	Coated	Coated				
MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20

All
Stocked

TCGW1.81.51
TCGW1.81.52

TCGW 090204
TCGW 090208

3N 5.56 2.38 0.4 2.8 2.2
3N 5.56 2.38 0.8 2.8 2.2

TCGW21.51
TCGW21.52

TCGW 110204
TCGW 110208

3N 6.35 2.38 0.4 2.8 2.2
3N 6.35 2.38 0.8 2.8 2.2

TCGW221
TCGW222

TCGW 110304
TCGW 110308

3N 6.35 3.18 0.4 2.8 2.2
3N 6.35 3.18 0.8 2.8 2.2



TN

60°

Negative

Application materila:

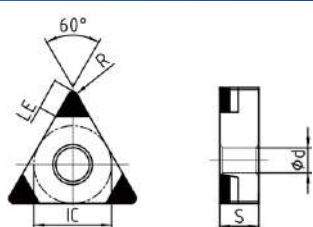
H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
● Light interrupted
✱ Medium interrupted
✱ Heavy interrupted

TNGA

Shape



ANSI Code

ISO Code

Dimensions

Tips	IC mm	S mm	R mm	ϕd mm	LE mm
------	----------	---------	---------	----------	----------

Applications

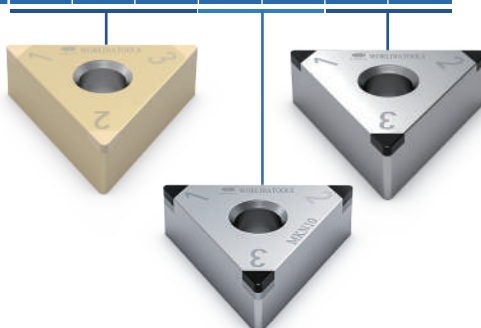
H	H	H	K	K	S	S
●	●	●	●	●	●	●
Coated	Coated	Coated				
MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20

All
Stocked

TNGA332
TNGA333

TNGA 160408
TNGA 160412

3N 9.525 4.76 0.8 3.81 2.2
3N 9.525 4.76 1.2 3.81 2.2



PCBN Insert

TPGW

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TP

60°Positive

11°Relief

Application material:

H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
◐ Light interrupted
◑ Medium interrupted
◒ Heavy interrupted

TPGW	Shape		Dimensions						Applications							
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	Φd mm	LE mm	H ●	H ◐	H ◑	K ◐	K ◑	S ◐	S ◑	S ◒
									Coated	Coated	Coated					
									MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20	
All Stocked	TPGW1.51.51	TPGW 080204	3N	4.76	2.38	0.4	2.4	2.2								
	TPGW1.51.52	TPGW 080208	3N	4.76	2.38	0.8	2.4	2.2								
	TPGW1.81.50.5	TPGW 090202	3N	5.56	2.38	0.2	2.8	2.2								
	TPGW1.81.51	TPGW 090204	3N	5.56	2.38	0.4	2.8	2.2								
	TPGW21.51	TPGW 110204	3N	6.35	2.38	0.4	2.8	2.2								
	TPGW21.52	TPGW 110208	3N	6.35	2.38	0.8	2.8	2.2								
	TPGW220.5	TPGW 110302	3N	6.35	3.18	0.2	3.3	2.2								
	TPGW221	TPGW 110304	3N	6.35	3.18	0.4	3.3	2.2								



PCBN Insert

VCGW-VNGA

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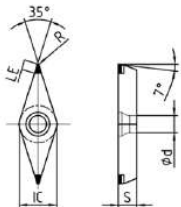
VC	35°Positive
	7°Relief

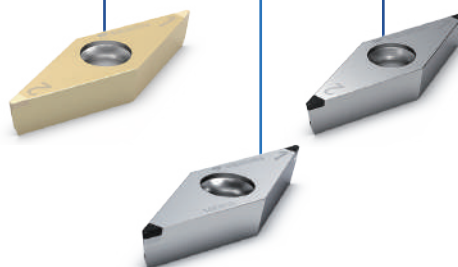
Application material:

H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

VCGW	Shape		Dimensions						Applications							
									H	H	H	K	K	S	S	
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	Φd mm	LE mm	Coated	Coated	Coated					
				MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20						
All Stocked	VCGW221	VCGW 110304	2N	6.35	3.18	0.4	2.8	2.2								
	VCGW222	VCGW 110308	2N	6.35	3.18	0.8	2.8	2.2								
	VCGW331	VCGW 160404	2N	9.525	4.76	0.4	4.4	2.2								
	VCGW332	VCGW 160408	2N	9.525	4.76	0.8	4.4	2.2								



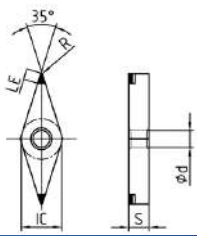
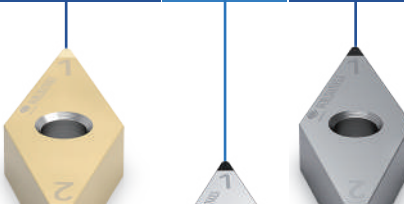
VN	35°
	Negative

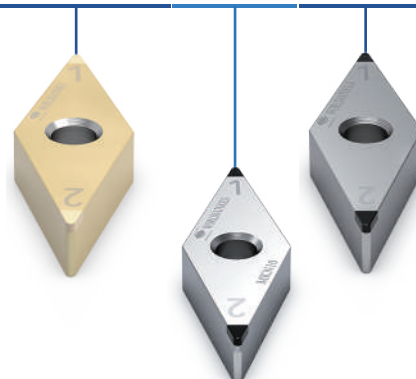
Application material:

H - Hardened Steel
K - Cast Iron
K - Ductile iron(NCI)
S - Powder metallurgy

Symbol mark:

● Continuous
◐ Light interrupted
◑ Medium interrupted
✱ Heavy interrupted

VNGA	Shape		Dimensions						Applications							
									H	H	H	K	K	S	S	
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	ϕd mm	LE mm	Coated	Coated	Coated					
				MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20						
All Stocked	VNGA330.5	VNGA 160402	2N	9.525	4.76	0.2	3.81	2.2								
	VNGA331	VNGA 160404	2N	9.525	4.76	0.4	3.81	2.2								
	VNGA332	VNGA 160408	2N	9.525	4.76	0.8	3.81	2.2								
	VNGA333	VNGA 160412	2N	9.525	4.76	1.2	3.81	2.2								



PCBN Insert

WNGW

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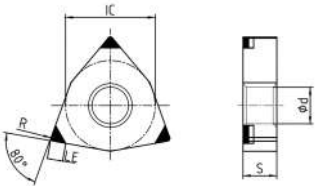
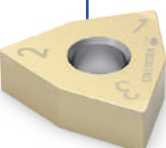
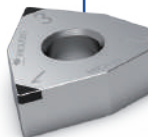


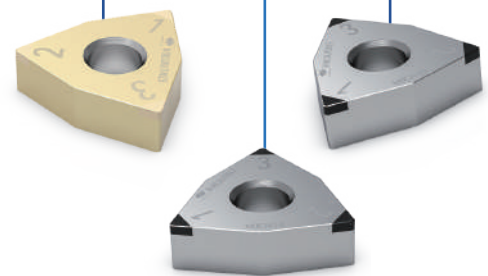
Application material:

- H - Hardened Steel
- K - Cast Iron
- K - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

- Continuous
- ◐ Light interrupted
- ◑ Medium interrupted
- ✱ Heavy interrupted

WNGA	Shape		Dimensions						Applications							
			Tips	IC mm	S mm	R mm	Φd mm	LE mm	H	H	H	K	K	S	S	
	ANSI Code	ISO Code							Coated	Coated	Coated	●	◐	◑	✱	◐
									MHN 10C	MHN 20C	MHN 30C	MKN 10	MKN 20	MSN 10	MSN 20	
All Stocked	WNGA431	WNGA080404	3N	12.7	4.76	0.4	5.16	2.2								
	WNGA342	WNGA080408	3N	12.7	4.76	0.8	5.16	2.2								



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Fast delivery

What we focus on is

Maximize the convenience for end users to use the product.

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Industrial Park, Langfang City, Hebei Province
065300 China

www.worldia-tools.com



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WORLDIA

沃尔德

证券代码: 688028



www.worldia-tools.com

Tel: +86-10-58411388 Fax: +86-10-58411388 ext 8131

Office: H-03,5F,M7 Building,No.1 Jiuxianqiao East Road,Chaoyang District,Beijing,
China Factory

Add: No.2 Industry Road,Dachang Chaobaihe Industrial Park,Langfang City,Hebei China

E-mail: info@worldia-tools.com

