WORLDIA
MN-N2001

CBN Insert

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

WORLDIA MANANOVA

Easy Choice Fast Delivery

ManaNova

An easy choice in cutting world.

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

Designation Key - Material designation

Example

M	H	N	10	C
ManaNova	1	2	3	4

1	2	3	4
Application Materials	**Cutting Tool Material**	**Material Code**	**Coating**
P Steel	**D** PCD	**10**	**C** Coated
M Stainless Steel	**N** CBN	**20**	**Without** No coated
K Cast Iron		**30**	
S Powder metallurgy			
H Hardened Steel			
N Non-ferrous Metal			

Material range overview of indexable inserts for ISO turning - CBN Material Selection

Material Introduction - Easy choice for CBN Grade

ISO H : Hardened Steel

ISO K : Cast Iron

ISO S : Powder Metallurgy

- Continuous cutting
- Light interrupted cutting
- Medium interrupted cuttting
- Heavy interrupted cutting

CBN Grade	ISO H			ISO K		ISO S
	MHN10C	MHN20C	MHN30C	MKN10	MKN20	MSN10
	Smooth	Moderate	Toughness	Cast Iron	Ductile Iron	Powder Metallury
%	45 ~ 55	60 ~ 70	85 ~ 95	85 ~ 95	60 ~ 70	60 ~ 70
Grain size	1 ~ 2 µm	1 ~ 2 µm	2 ~ 3 µm	2 ~ 3 µm	1 ~ 2 µm	1 ~ 2 µm
Bond	TiC	TiN	Co W	Co W	TiCN	TiCN
Hardness	2600HV ~ 2800HV	3000HV ~ 3200HV	3900HV ~ 4200HV	3900HV ~ 4200HV	2700HV ~ 2900HV	2700HV ~ 2900HV
First Choice	●	◔ ⬢	✹	● ◔ ⬢ ✹	● ◔ ⬢ ✹	● ◔ ⬢ ✹

● Continuous ◔ Light interrupted ⬢ Medium interrupted ✹ Heavy interrupted

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

Designation Key - Identification Code

	1		2	3	4	5	6	7	8		9	10
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 Insert Style

Without	Standard
C	Chip breaker
L	Full Length
F	Full Face
S	Solid
W	Wiper
H	Heavy cutting

2 Insert Shape

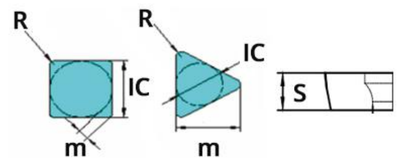
A	85°	**M**	86°
B	82°	**O**	135°
C	80°	**P**	108°
D	55°	**R**	
E	75°	**S**	90°
H	120°	**T**	60°
K	55°	**V**	35°
L	90°	**W**	80°

3 Clearance Angle

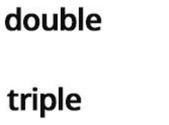
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		

4 Tolerances

	ISO mm	ANSI inch
G		
m	±0.025	±0.001
IC	±0.025	±0.001
S	±0.130	±0.005
R	±0.03	±0.001



5 Pattern Type

A	
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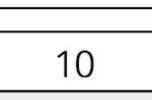
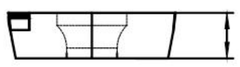
T	
W	
R	

6 Inscribed Circle Diameter

IC (mm) ISO	C	D	T	V	W	IC (inch) ANSI	Code
3.970						5/32	1.2
4.760			08			3/16	1.5
5.560			09			7/32	1.8
6.350	06	07	11	11		1/4	2
7.940						5/16	2.5
9.525	09	11	16	16		3/8	3
12.700	12	15			08	1/2	4
15.875						5/8	5

7 Insert Thickness



ISO	mm	ANSI	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

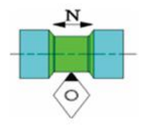
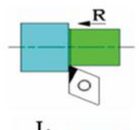
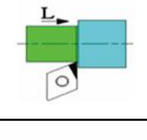
8 Nose Radius

ISO	mm	ANSI	inch
00	= 0.0	**0**	.000
01	= 2.1	**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

9 Cutting Edges

1	single	
2	double	
3	triple	

10 Cutting Direction

N	
R	
L	

CBN Insert

CCGW · CNGA

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

CC | 80° Positive | 7° Relief

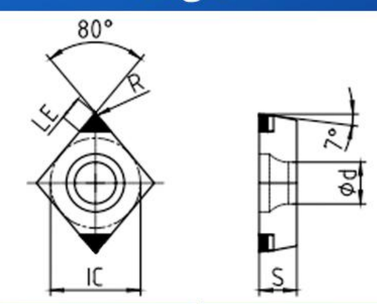
Application material:

- H - Hardened Steel
- K - Cast Iron
- K_1 - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

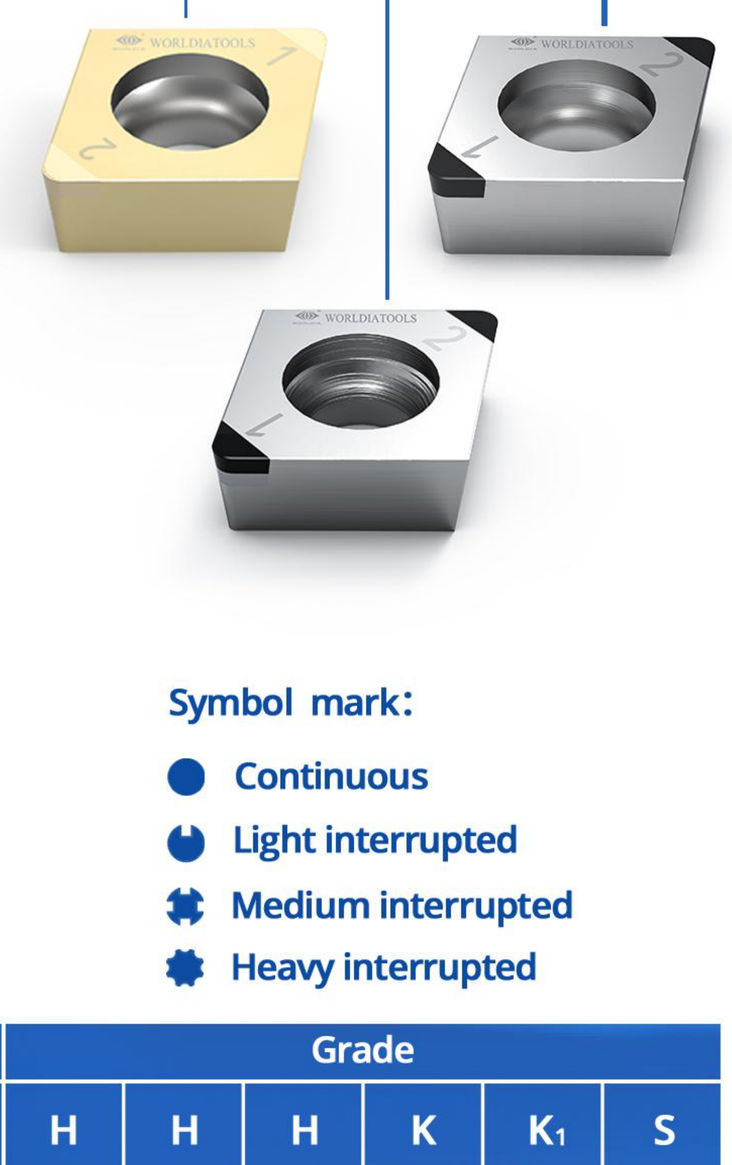
- Continuous
- Light interrupted
- Medium interrupted
- Heavy interrupted

CCGW



All Stocked

Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
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
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- S - Powder metallurgy

Symbol mark:

- Continuous
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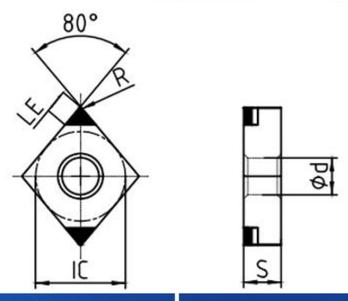
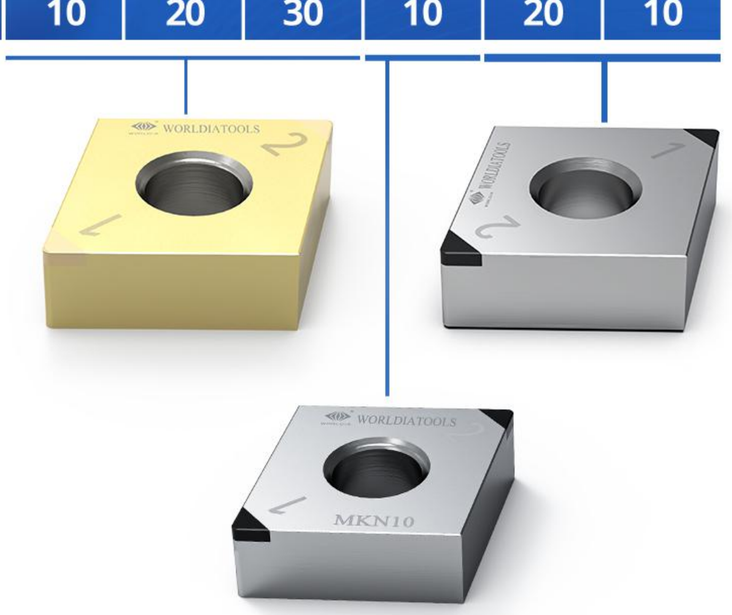
- Heavy interrupted

CNGA



All Stocked

Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
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						



CBN Insert

DCGW · DNGA

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DC

55° Positive

7° Relief

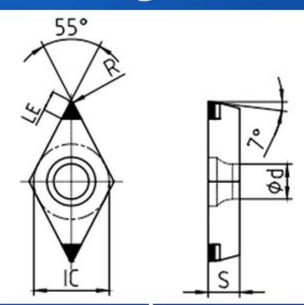
Application material:

H - Hardened Steel
K - Cast Iron
K_1 - Ductile iron (NCI)
S - Powder metallurgy

Symbol mark:

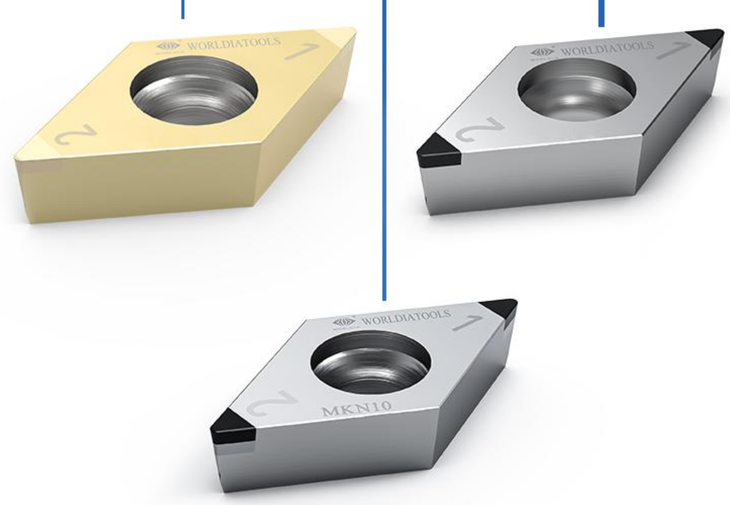
Continuous
Light interrupted
Medium interrupted
Heavy interrupted

DCGW



Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
DCGW21.51	DCGW 070204	2N	6.35	2.38	0.4	2.8	2.2						
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						

All Stocked



DN

55°

Negative

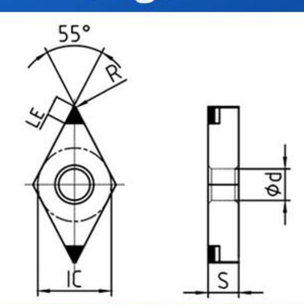
Application material:

H - Hardened Steel
K - Cast Iron
K_1 - Ductile iron (NCI)
S - Powder metallurgy

Symbol mark:

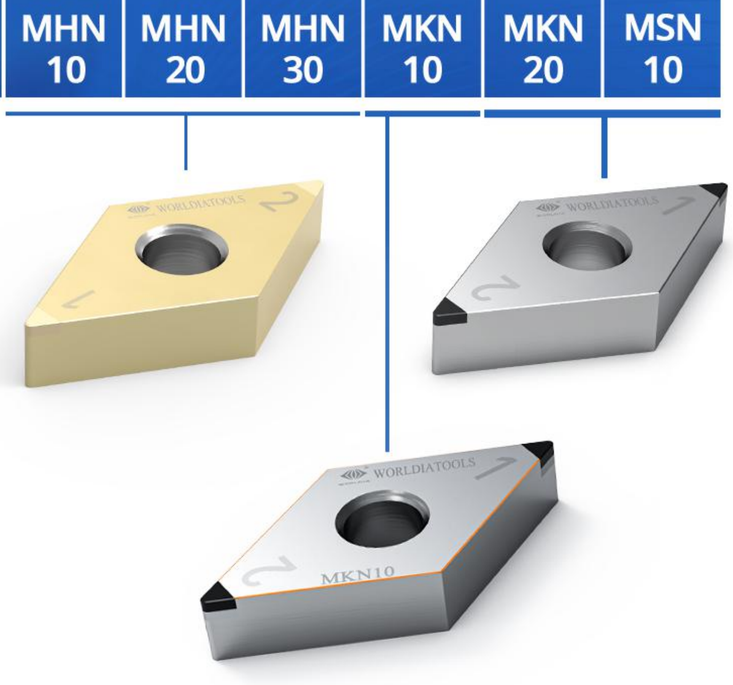
Continuous
Light interrupted
Medium interrupted
Heavy interrupted

CNGA



Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
DNGA431	DNGA 150404	2N	12.7	4.76	0.4	5.16	2.2						
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						

All Stocked



CBN Insert

TCGW · TNGA

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

TC | 60° Positive | 7° Relief

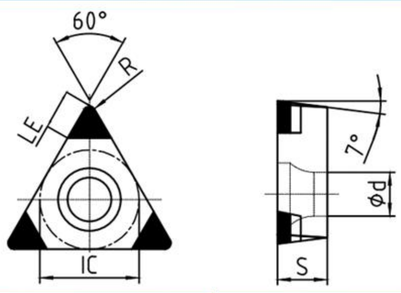
Application material:

H - Hardened Steel
K - Cast Iron
K_1 - Ductile iron (NCI)
S - Powder metallurgy

Symbol mark:

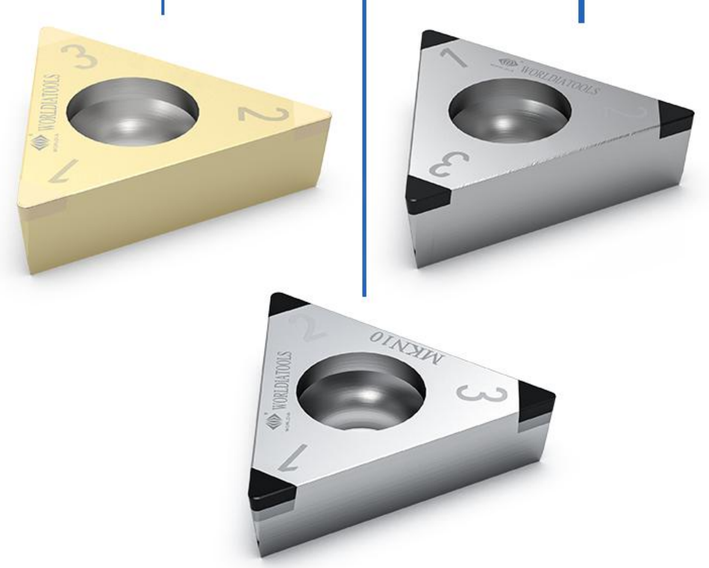
Continuous
Light interrupted
Medium interrupted
Heavy interrupted

TCGW



Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
TCGW1.81.51	TCGW 090204	3N	5.56	2.38	0.4	2.8	2.2						
TCGW1.81.52	TCGW 090208	3N	5.56	2.38	0.8	2.8	2.2						
TCGW21.51	TCGW 110204	3N	6.35	2.38	0.4	2.8	2.2						
TCGW21.52	TCGW 110208	3N	6.35	2.38	0.8	2.8	2.2						
TCGW221	TCGW 110304	3N	6.35	3.18	0.4	2.8	2.2						
TCGW222	TCGW 110308	3N	6.35	3.18	0.8	2.8	2.2						

All Stocked



TN | 60° | Negative

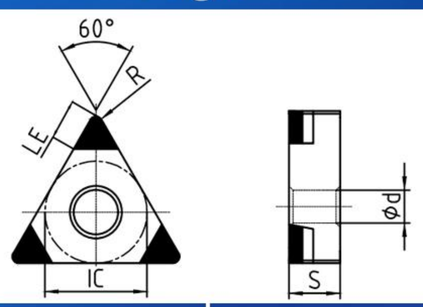
Application material:

H - Hardened Steel
K - Cast Iron
K_1 - Ductile iron (NCI)
S - Powder metallurgy

Symbol mark:

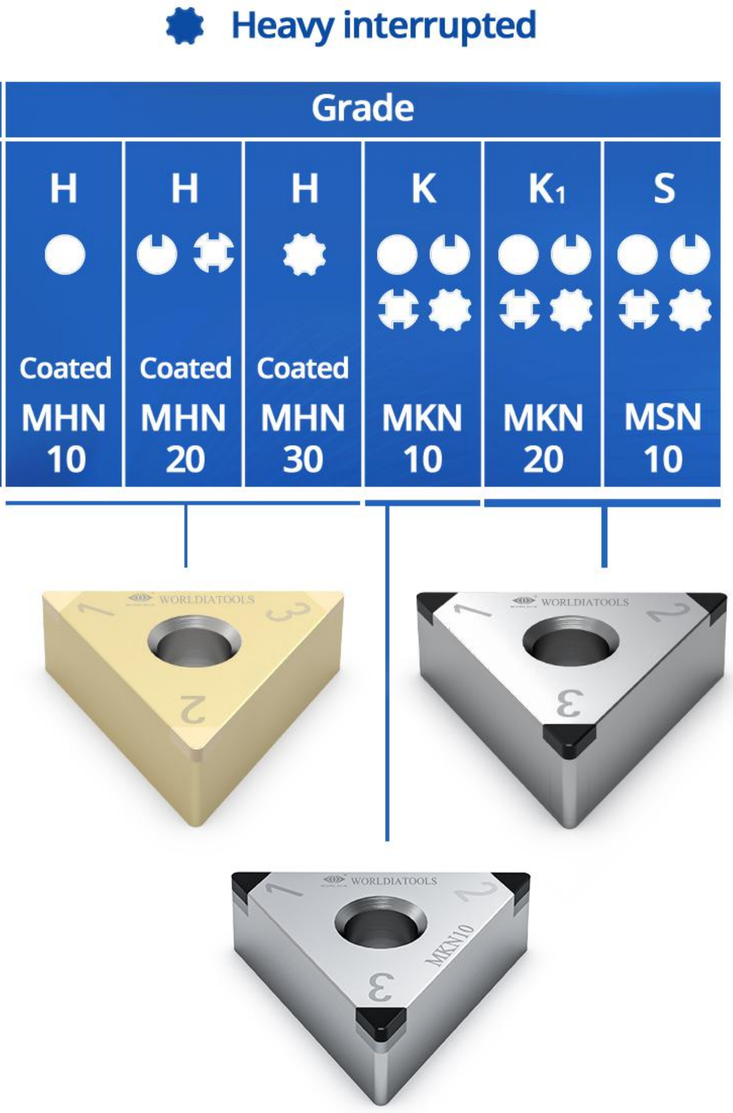
Continuous
Light interrupted
Medium interrupted
Heavy interrupted

TNGA



Angle		Dimensions						Grade					
ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
TNGA332	TNGA 160408	3N	9.525	4.76	0.8	3.81	2.2						
TNGA333	TNGA 160412	3N	9.525	4.76	1.2	3.81	2.2						

All Stocked



CBN Insert

TPGW

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

TP | 60° Positive | 11° Relief

Application material:

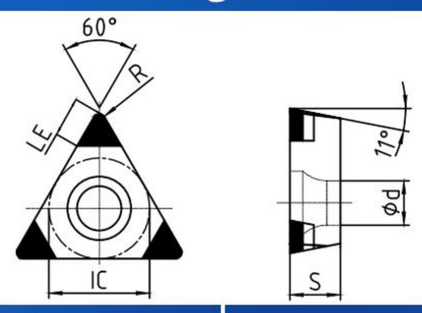
- H - Hardened Steel
- K - Cast Iron
- K_1 - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

- Continuous
- Light interrupted
- Medium interrupted
- Heavy interrupted

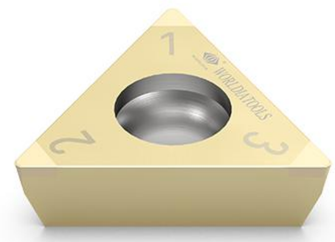
TPGW

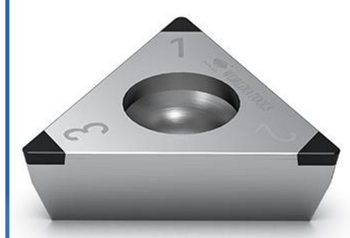
Angle



ANSI Code	ISO Code	Tips	Dimensions IC mm	S mm	R mm	φd mm	LE mm	Grade H Coated MHN 10	H Coated MHN 20	H Coated MHN 30	K MKN 10	K_1 MKN 20	S MSN 10
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						

All Stocked





CBN Insert

VCGW · VNGA

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

VC

35° Positive

7° Relief

Application material:

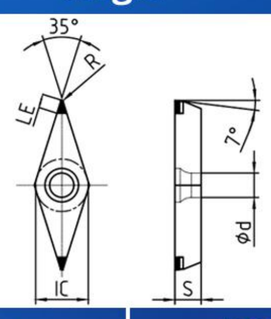
- H - Hardened Steel
- K - Cast Iron
- K_1 - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

- Continuous
- Light interrupted
- Medium interrupted
- Heavy interrupted

VCGW

All Stocked



ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm
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

Grade: H Coated MHN 10 · H Coated MHN 20 · H Coated MHN 30 · K MKN 10 · K_1 MKN 20 · S MSN 10

VN

35°

Negative

Application material:

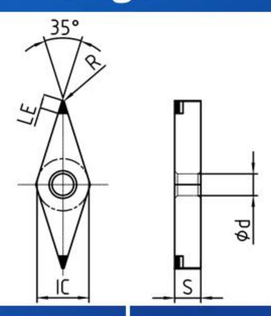
- H - Hardened Steel
- K - Cast Iron
- K_1 - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

- Continuous
- Light interrupted
- Medium interrupted
- Heavy interrupted

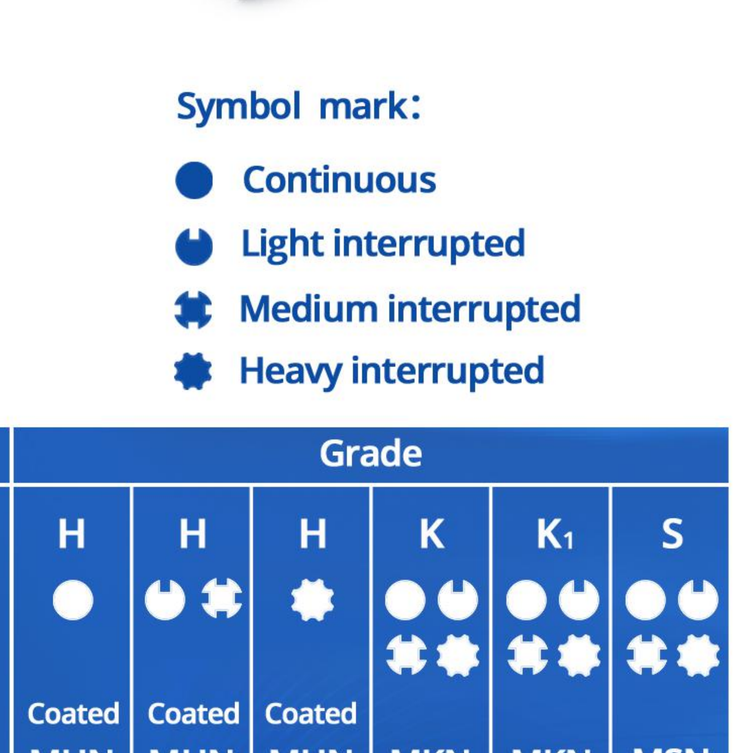
VNGA

All Stocked



ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm
VNGA330.5	VNGA160402	2N	9.525	4.76	0.2	3.81	2.2
VNGA331	VNGA160404	2N	9.525	4.76	0.4	3.81	2.2
VNGA332	VNGA160408	2N	9.525	4.76	0.8	3.81	2.2
VNGA333	VNGA160412	2N	9.525	4.76	1.2	3.81	2.2

Grade: H Coated MHN 10 · H Coated MHN 20 · H Coated MHN 30 · K MKN 10 · K_1 MKN 20 · S MSN 10



CBN Insert

WNGA

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

WN	80°
	Nagetive

Application material:

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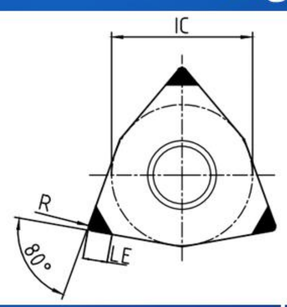
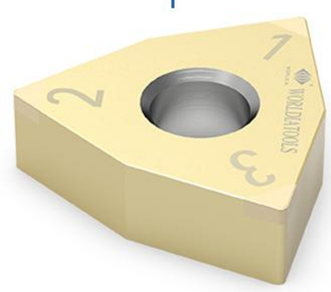
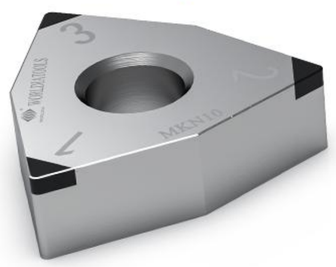
- K - Cast Iron
- K_1 - Ductile iron (NCI)
- S - Powder metallurgy

Symbol mark:

- Continuous
- Light interrupted
- Medium interrupted
- Heavy interrupted

WNGA	Angle		Dimensions						Grade					
									H	H	H	K	K_1	S
	ANSI Code	ISO Code	Tips	IC mm	S mm	R mm	φd mm	LE mm	Coated MHN 10	Coated MHN 20	Coated MHN 30	MKN 10	MKN 20	MSN 10
All Stocked	WNGA431	WNGA080404	3N	12.7	4.76	0.4	5.16	2.2						
	WNGA432	WNGA080408	3N	12.7	4.76	0.8	5.16	2.2						





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