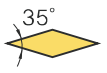
KOVES TOOLS
Create customer value
Promote customer success

C N M G 12

1	2	3	4	5
Insert Shape	Relief Angle	Tolerance	Cross Section Type	Cutting Edge Length, Diameter of Inscribed Circle

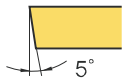
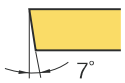
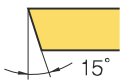
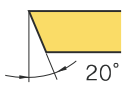
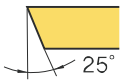
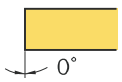
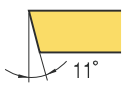
1 C N M G 12 04 08 - K1

Insert Shape

				
C	D	E	K	L
				
R	S	T	V	W

2 C N M G 12 04 08 - K1

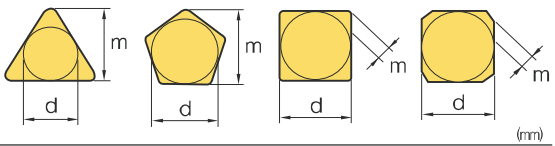
Relief Angle

			
B	C	D	E
			Special type
F	N	P	O

3 C N M G 12 04 08 - K1

Tolerance

d : Inscribed circle
t : Thickness
m : Refer to figure



(mm)

Class	d	m	t
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J*	±0.05 ~ ±0.15	±0.005	±0.025
K*	±0.05 ~ ±0.15	±0.013	±0.025
L*	±0.05 ~ ±0.15	±0.025	±0.025
M*	±0.05 ~ ±0.15	±0.08 ~ ±0.20	±0.13
N*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025
U*	±0.08 ~ ±0.25	±0.13 ~ ±0.38	±0.13

* Sides are based on unground insert

Tolerance on C,E,H,M,O,P,R,S,T,W Insert Shape (Exceptional case)

d	Tolerance on d		Tolerance on m	
	J, K, L, M, N	U	M, N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

Tolerance on D Insert Shape (Exceptional case)

d	Tolerance on d	Tolerance on m
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

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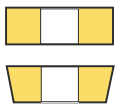
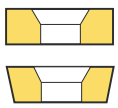
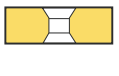
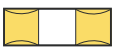
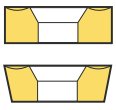
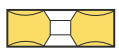
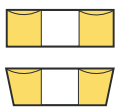
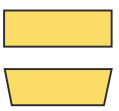
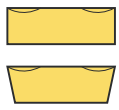
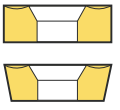
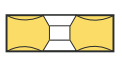
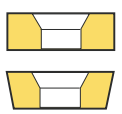
Cross Section Type

		
A	B	C
		
F	G	H
		
J	M	N
		
Q	R	T
		Special type
U	W	X

04 08 – K1

6	7	8
Height of Cutting Edge	Nose Radius (Nose R)	Chip Breaker for Turning

5 C N M G 12 04 08 - K1

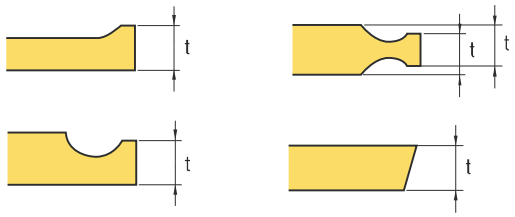
Cutting Edge Length, Diameter of Inscribed Circle

Symbol								IC
C	d	S	T	R	V	W		
Metric							Inch	d(mm)
03	04	03	06	03	-	02	1.2(5)	3.97
04	05	04	08	04	08	S3	1.5(6)	4.76
05	06	05	09	05	09	03	1.8(7)	5.56
-	-	-	-	06	-	-	-	6.00
06	07	06	11	06	11	04	2	6.35
08	09	07	13	07	13	05	2.5	7.94
-	-	-	-	08	-	-	-	8.00
09	11	09	16	09	16	06	3	9.525
-	-	-	-	10	-	-	-	10.00
11	13	11	19	11	19	07	3.5	11.11
-	-	-	-	12	-	-	-	12.00
12	15	12	22	12	22	08	4	12.70
14	17	14	24	14	24	09	4.5	14.29
16	19	15	27	15	27	10	5	15.875
-	-	-	-	16	-	-	-	16.00
17	21	17	30	17	30	11	5.5	17.46
19	23	19	33	19	33	13	6	19.05
-	-	-	-	20	-	-	-	20.00
22	27	22	38	22	38	15	7	22.225
-	-	-	-	25	-	-	-	25.00
25	31	25	44	25	44	17	8	25.40
32	38	31	54	31	54	21	10	31.75
-	-	-	-	32	-	-	-	32.00

( ) Symbol for small size insert

6 C N M G 12 04 08 - K1

Height of Cutting Edge



Symbol		Height of Cutting Edge(t)	
Metric	Inch	mm	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

( ) Symbol for small size insert

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Nose Radius (Nose R)

Symbol		Corner Radius	
Metric	Inch	Metric	Inch
01	0	0.1	0.004
02	0.5	0.2	0.008
04	1	0.4	1/64
08	2	0.8	1/32
12	3	1.2	3/64
16	4	1.6	1/16
20	5	2.0	5/64
24	6	2.4	3/32
28	7	2.8	7/64
32	8	3.2	1/8
00	-	Round insert(Inch)	
M0	-	Round insert(Metric)	

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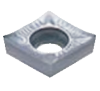
Chip Breaker for Turning

					
KG	H3	K5	KA	K1	H3
					
KS	H5	H2	H1	H6	KC
					
VF	VM	VG	AK	AR	

Selection system

Workpiece	P						M				K				N			S				H		
ISO	P01	P10	P20	P30	P40	P50	M10	M20	M30	M40	K01	K10	K20	K30	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20
Coated carbide	KC1115	KC1120	KC1125	KC1130	KC1135	KTX	KP2120	KP2130	KP2135	KKX	KC3110	KC3120	KC3130							KP2135	KKX	KP2115		
Cermet	KTN40	KTN50	KTN60								KTN40													
cBN / PCD											KBN10	KBN20			KPD10							KBN210	KBN250	
Uncoated carbide											KW12	H01	KW20	H10		H01						KW12		

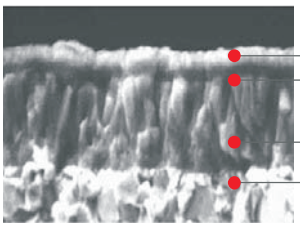
CVD coated Grade

CVD Coated grade for stainless steel and soft steel

KTX KC1130

- Tough carbide, smooth coating applied
- Built-up-edge resistance, notch wear resistance, and the toughness have been improved
- Outstanding performance for stainless steel machining
- Excellent for machining sticky, soft steels and forged steels
- Superior tool life for machining hard to cut material such as inconel and stellite

Coating structure



- TiN film : Smooth surface roughness and superior anti built-up-edge
- Fine columnar TiCN film : Optimimal toughness and hardness
- Toughest dedicated carbide substrate employed
- Al_2O_3 film : Excellent oxidation resistance

The features of CVD turning grades

CVD Coated grades	ISO	Features
KC1115	P05 ~ P15	• High speed cutting for steel • Combining excellent wear resistance substrate with chipping resistance and heat resistance Al_2O_3 increased stability • MT-TiCN + Al_2O_3 + TiN
KC1120	P15 ~ P25	• High speed cutting for steel • Combining excellent wear resistance substrate with chipping resistance and heat resistance Al_2O_3 increased stability • MT-TiCN + Al_2O_3 + TiN
KC1125	P15 ~ P30	• Medium to roughing for steel • Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al_2O_3 increased stability • MT-TiCN + TiC + Al_2O_3
KC1135	P25 ~ P35	• For general cutting, interrupted cutting and roughing operations in steel and stainless steel • Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al_2O_3 increased stability in wide ranges of cutting conditions • MT-TiCN + TiC + Al_2O_3 + TiN
KTX	P30~P40 M25~M35 K15~K25 S15~S25	• stainless Steel/General Cutting for Mild Steel & Forging Steel • MT-TiCN + Al_2O_3 + TiN
KC1130	M25 ~ M35	• General stainless Steel • MT-TiCN + Al_2O_3 + TiN

PVD coating Grade

PVD Coated grade for stainless steel and HRSA.

KP2120

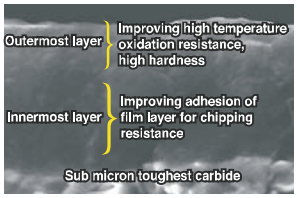
- Micro grain carbide provides minimized chipping of cutting edge due to the enhanced edge strength
- Latest technology of PVD coating equipped with high hardness and high temperature oxidation resistance has applied
- KP2120provides high productivity during machining HRSA material in high speed, high feed cutting conditions

PVD turning grade for stainless steel and HRSA

KKX

- High efficiency during machining for carbon steel / cast iron / stainless steel / HRSA
- Stable machining due to specific carbide substrate with strong toughness and high hardness that restrains fracture by chipping
- Excellent wear resistance due to special PVD coating film with oxidation resistance, thermal stability, and surface smoothness

Coating structure



Latest PVD coating technology developed by KOVES
New concept of coating equipped with high temperature oxidation resistance and high hardness

The features of PVD coated grades

PVD Coated grades	ISO	Features
KP2135	M30~M40	• Medium,roughing and heavy interrupted cutting for stainless steel • TiAlN coating and ultra fine grain substrate adopted • High chipping and welding resistance for stable machining
KP2120	M10~M20 S10~S20	• High speed and continuous machining for stainless & HRSA • High chipping and welding resistance longer tool life • New TiAlN coating and ultra fine grain substrate adopted
KKX	P30~P40 M20~M30 K20~K25 S20~S30	• Universal grade for stainless,HRSA,steel and interrupted cast iron machining • High chipping and welding resistance longer tool life • New TiAlN coating and ultra fine grain substrate adopted