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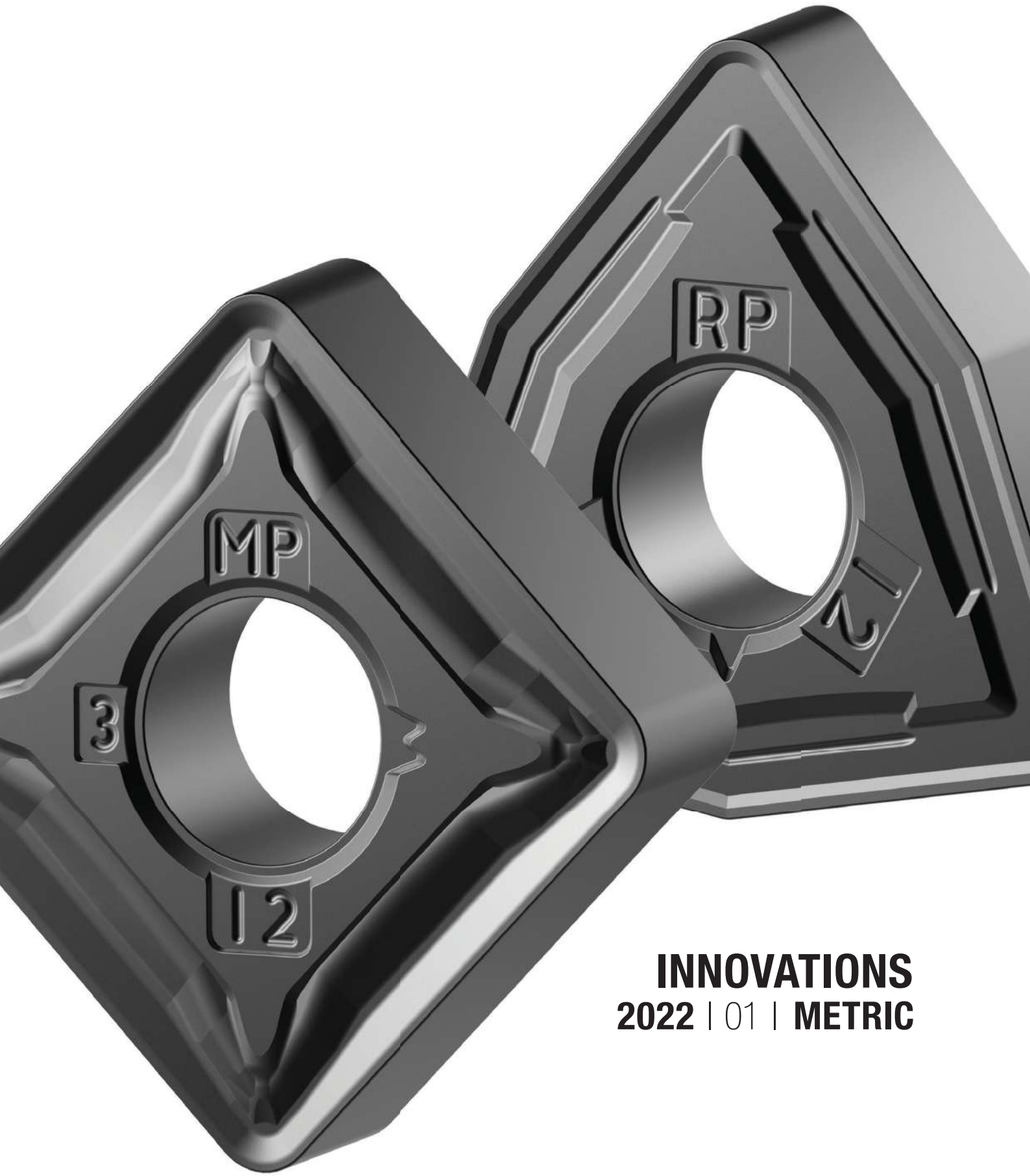

INNOVATIONS

2022 | 01 | **METRIC**

KCS10B™

Turning Grade for
High-Temperature Alloys

New High-PIMS PVD coating provides excellent surface qualities and excellent dimensional accuracy.

High depth-of-cut notching resistance.

New High-PIMS PVD coating reduces friction, providing longer tool life.

INNOVATIONS

CAS — Customer Application Support

Get Fast and Reliable Answers to Your Toughest Problems

Our CAS Team is the metalworking industry's leading help desk resource for tooling application solutions and problem resolution.

Easy Access to Proven Metalworking Expertise!

Kennametal Application Engineers assist customers and engineering groups throughout the world with expert tool selection and application recommendations for the entire range of Kennametal tooling.

Region	Originating Country	Language	CAS Hotline	Email
North America	**USA**	English	800 835 3668	na.techsupport@kennametal.com
	Mexico	Spanish	1800 253 0758	na.techsupport@kennametal.com
Africa	**South Africa**	English	0800 981643	na.techsupport@kennametal.com
Europe	**Austria**	German	0800 202873	eu.techsupport@kennametal.com
	Belgium	English/French	0800 80850	eu.techsupport@kennametal.com
	Denmark	English	808 89298	na.techsupport@kennametal.com
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	France	French	080 5540 367	eu.techsupport@kennametal.com
	Germany	German	0800 0006651	eu.techsupport@kennametal.com
	Israel	English	1809 449889	na.techsupport@kennametal.com
	Italy	Italian	800 916561	eu.techsupport@kennametal.com
	Netherlands	English	0800 0201 130	eu.techsupport@kennametal.com
	Norway	English	800 10080	na.techsupport@kennametal.com
	Poland	Polish	0080 04411887	eu.techsupport@kennametal.com
	Russia (landline)	Russian	8800 5556394	eu.techsupport@kennametal.com
	Russia (cell phone)	Russian	+7 800 5556394	eu.techsupport@kennametal.com
	Sweden	English	0207 99246	na.techsupport@kennametal.com
	UK	English	0800 032 8339	na.techsupport@kennametal.com
	Ukraine	Russian	800 502664	eu.techsupport@kennametal.com
Asia Pacific	**Australia**	English	1800 666 667	ap-kmt.techsupport@kennametal.com
	India	English	1 800 103 5227	in.techsupport@kennametal.com
	Japan	English	03 3820 2855	ap-kmt.techsupport@kennametal.com
	Korea (South)	English	+82 2 2100 6100	ap-kmt.techsupport@kennametal.com
	Malaysia	English	1800 812 990	ap-kmt.techsupport@kennametal.com
	New Zealand	English	0800 450 941	ap-kmt.techsupport@kennametal.com
	Singapore	English	1800 6221031	ap-kmt.techsupport@kennametal.com
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Numbers shown only serve the originating country listed.

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	Brazil	+55 19 3936 9200	bra.marketing@kennametal.com
	Chile	+56 2 2264 1177	kennametalchile@kennametalchile.cl
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	Belgium	+32 0800 81 372	belgium.sales@kennametal.com
	Czech Republic	+420 800 900 840	k-prha.sales@kennametal.com
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	Ireland	+44 1384 408060	na.techsupport@kennametal.com
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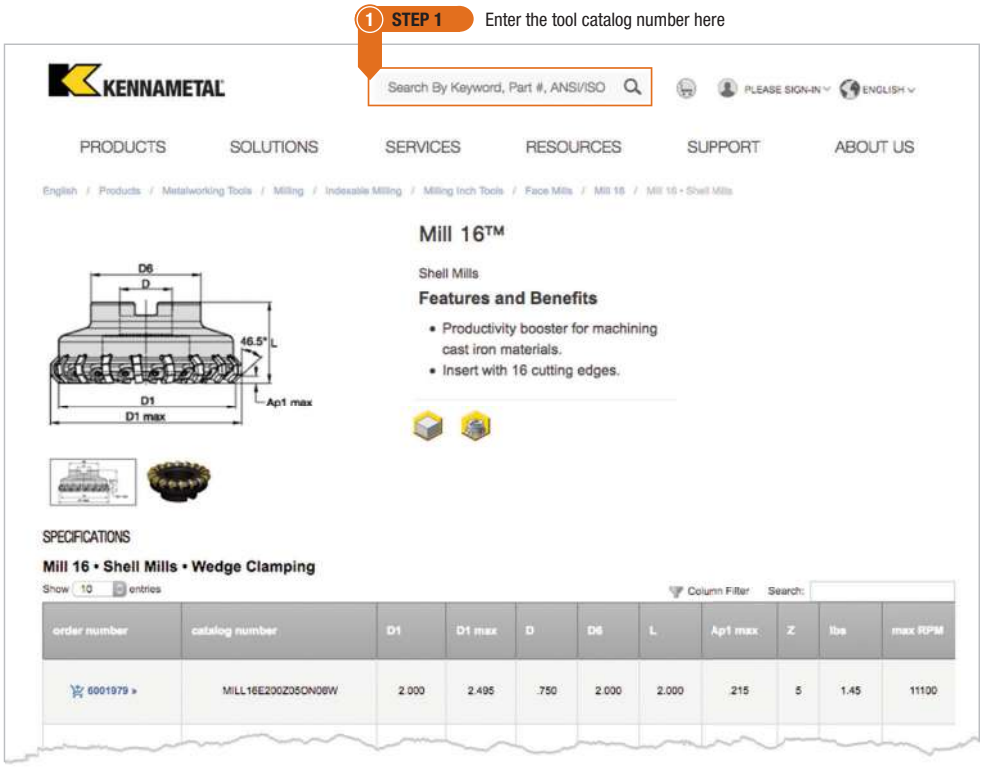
*Vietnam and Philippines individuals should contact the Singapore office.

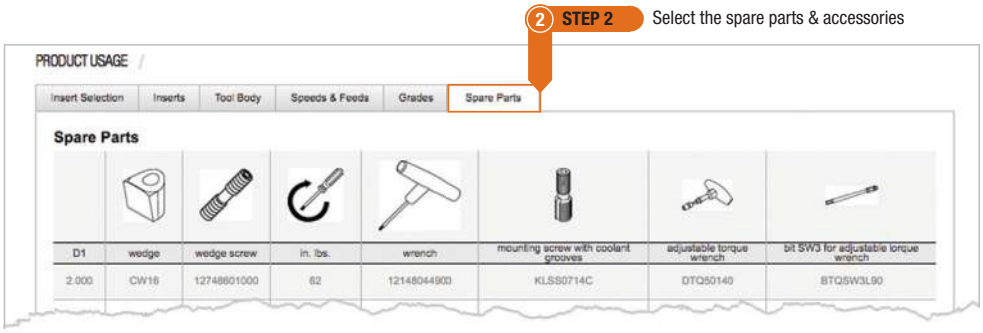
Visit kennametal.com to find local Authorized Kennametal Distributors.

Spare Parts & Accessories Information

Lost a screw? Have to replace worn-out clamping wedges?
Need to find and re-order those spare parts?

Are you in need of some accessories, like a torque wrench or coolant shower plate? These tools are at your fingertips!
Go to **kennametal.com** and find what you need in seconds. Enter the catalog number of the corresponding tool, and it will display.





NOVO™

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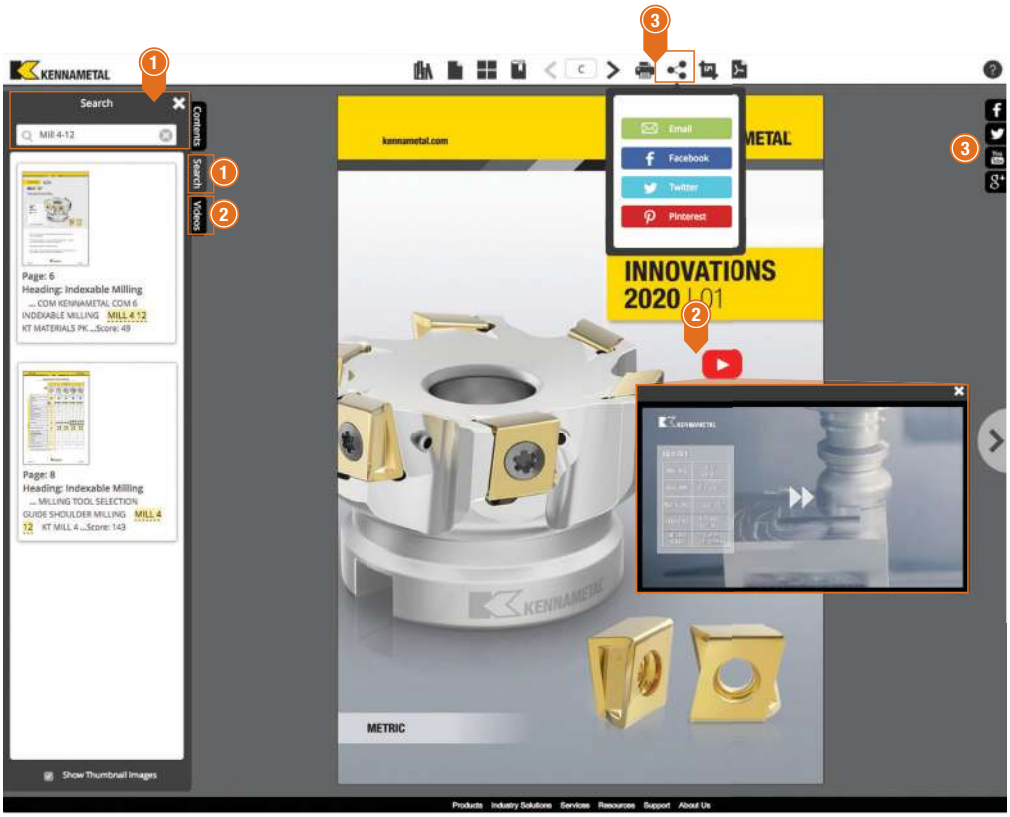


Check out our new catalog app.
Available in the Google Play™ Store or the App Store®

POWERED BY NOVO

KCS10B™

Turning Grade for High-Temperature Alloys

Materials

S

Applications

- Turning
- Facing
- Boring
- I.D. Facing
- Back Boring
- Chamfer Turning
- Profiling
- Deep Grooving

kennametal.com/KCS10B

The new KCS10B turning grade, featuring the new High-Power Impulse Magnetron Sputtering (High-PIMS).

The AlTiN PVD coating is ideal for iron-based alloys (S1), cobalt-based alloys (S2), and nickel-based alloys (S3).

The High-PIMS coating technology is characterized by:

- Smooth coating surface.
- Optimum layer adhesion, especially on sharp cutting edges.
- High depth-of-cut notching resistance.
- Long tool life and high process reliability.

Applied on an extremely hard and wear-resistant, ultra fine-grain carbide substrate, the KCS10B grade is ideal for medium machining and finishing operations.

New High-PIMS PVD coating reduces friction, providing longer tool life.

New High-PIMS PVD coating provides excellent surface qualities and excellent dimensional accuracy.

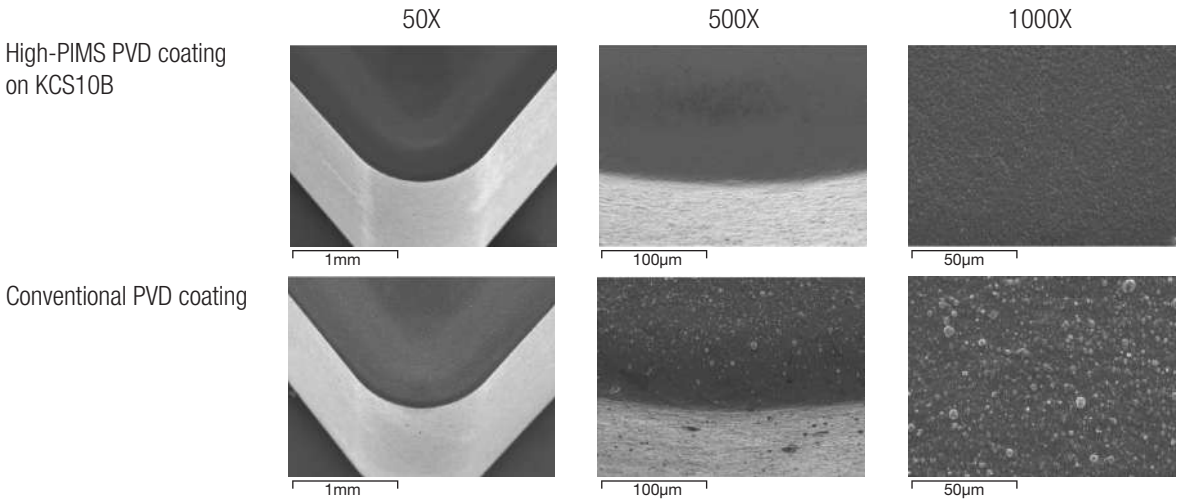
Less built-up edge.

An extremely smooth coating surface reduces friction, providing longer tool life and increased process reliability.

NEW!
RP Geometry for roughing.

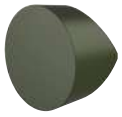
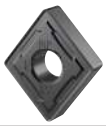
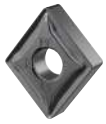
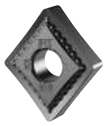
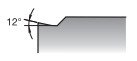
NEW!
IC 19mm and 33mm inserts available now.

The High-PIMS AlTiN PVD coating under the microscope.



ISO Carbide Inserts

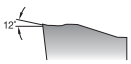
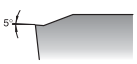
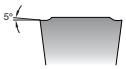
HIGH-TEMPERATURE ALLOYS • TOOL SELECTION GUIDE

	Ceramic Inserts		Negative Inserts Geometry				
	NG	GV	RP	MP	MS	FP	FS
Geometry							
Profile							
Edge Preparation							
T-Land	✔						
Honed		✔	✔	✔		✔	
Slightly Honed to Sharp					✔		
Sharp							✔
Application							
Roughing	✔	✔	✔				
Light Roughing	✔	✔	✔	✔			
Medium Machining				✔	✔		
Semi-Finishing					✔	✔	✔
Finishing						✔	✔
Cutting Condition							
Heavily Interrupted Cut	●		●				
Lightly Interrupted Cut	●	●	●	●	○	○	
Varying Depth of Cut, Casting or Forging Skin	●	●	●	●	●	●	●
Smooth Cut, Pre-Turned Surface	●	●		●	●	●	●

● Primary
○ Secondary

ISO Carbide Inserts

HIGH-TEMPERATURE ALLOYS • TOOL SELECTION GUIDE

	Positive Inserts Geometry					
	MP	**MP V-Bottom**	**MS**	**LF**	**FP**	**K-Lock FS**
Geometry						
Profile						
Edge Preparation						
T-Land						
Honed	✔	✔				
Slightly Honed to Sharp			✔	✔	✔	
Sharp						✔
Application						
Roughing						
Light Roughing	✔	✔				
Medium Machining	✔	✔				
Semi-Finishing			✔	✔	✔	✔
Finishing			✔	✔	✔	✔
Cutting Condition						
Heavily Interrupted Cut						
Lightly Interrupted Cut	●	●	○	○	○	
Varying Depth of Cut, Casting or Forging Skin	●	●	●	●	●	●
Smooth Cut, Pre-Turned Surface	●	●	●	●	●	●

● Primary
○ Secondary

ISO Carbide Inserts

HIGH-TEMPERATURE ALLOYS • APPLICATION DATA • FEED

Insert with positive rake angle

	Geometry				
Conditions	**FS**	**FP**	**LF**	**MS**	**MP**
Heavily Interrupted Cut					
Lightly Interrupted Cut		○	○	●	●
Varying Depth of Cut	●	●	●	●	●
Smooth Cut	●	●	●	●	●

Min. - Max.	**FS**	**FP**	**LF**	**MS**	**MP**
Depth of Cut - ap (mm)	0,1-5	0,1-2,5	0,1-2,5	0,5-5	0,4-5
Feed - fn (mm/rev)	0,04-0,4	0,05-0,3	0,06-0,4	0,15-0,8	0,1-0,6

Insert with negative rake angle

	Geometry				
Conditions	**FS**	**FP**	**MS**	**MP**	**RP**
Heavily Interrupted Cut					○
Lightly Interrupted Cut		○	○	●	●
Varying Depth of Cut	●	●	●	●	●
Smooth Cut	●	●	●	●	●

Min. - Max.	**FS**	**FP**	**MS**	**MP**	**RP**
Depth of Cut - ap (mm)	0,1-2,5	0,2-3,5	0,3-5,5	0,6-6	1-13
Feed - fn (mm/rev)	0,04-0,25	0,08-0,35	0,08-0,45	0,12-0,6	0,2-0,9

HIGH-TEMPERATURE ALLOYS • APPLICATION DATA • SPEED

Iron-Based, Heat-Resistant Alloys (135–320 HB) (<34 HRC) — **Speed — m/min** — **Starting Conditions** ◁▷

material group	grade	15	45	75	105	140	170	200	230	m/min
S1	KCS10B			◁▷						80

Cobalt-Based, Heat-Resistant Alloys (150–425 HB) (<45 HRC) — **Speed — m/min** — **Starting Conditions** ◁▷

material group	grade	15	45	75	105	140	170	200	230	m/min
S2	KCS10B			◁▷						50

Nickel-Based, Heat- Resistant Alloys (140-475 HB) (<48 HRC) — **Speed — m/min** — **Starting Conditions** ◁▷

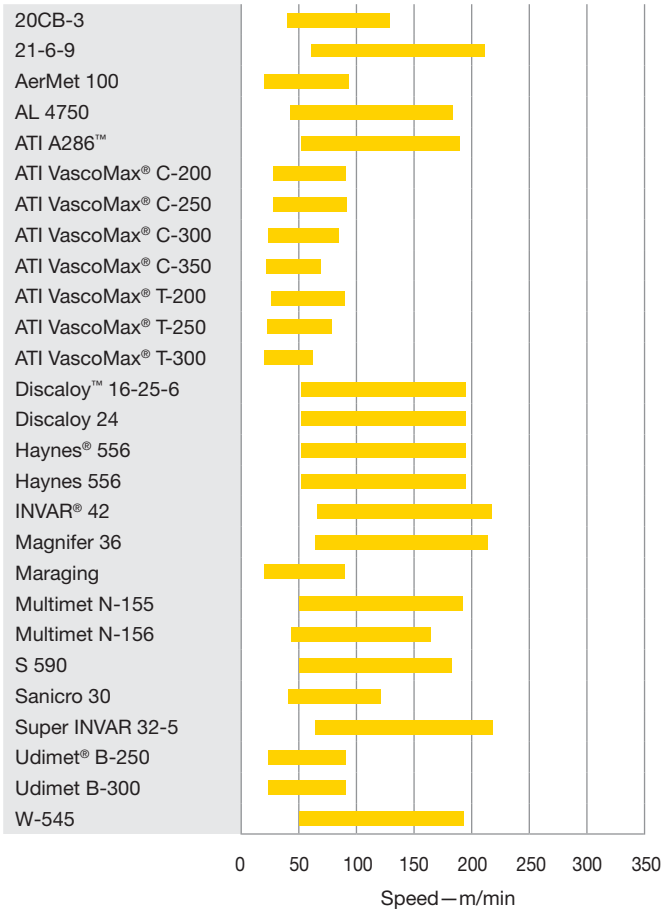
material group	grade	15	45	75	105	140	170	200	230	m/min
S3	KCS10B			◁▷						70

ISO Carbide Inserts

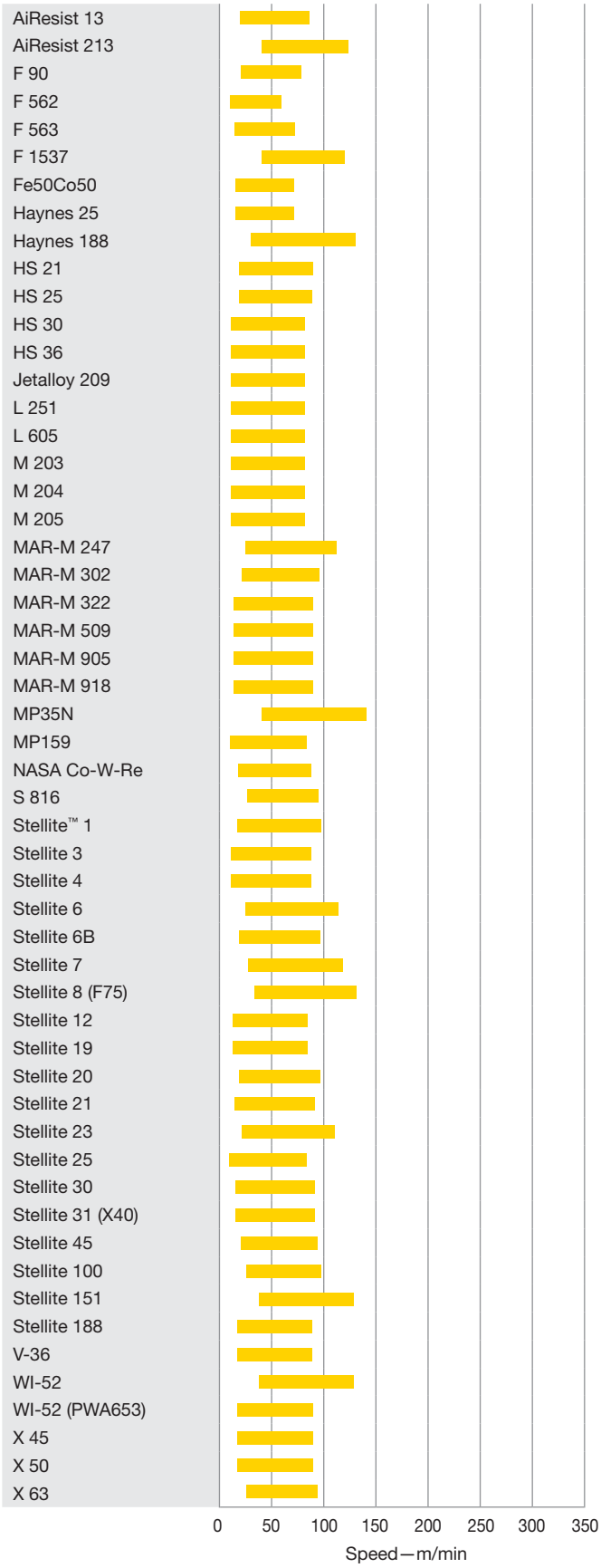
HIGH-TEMPERATURE ALLOYS • APPLICATION DATA

S1 Iron-Based, Heat-Resistant Alloys (135–320 HB) (≤34 HRC)

The most common HRSA alloys



S2 Cobalt-Based, Heat-Resistant Alloys (150–425 HB) (≤45 HRC)

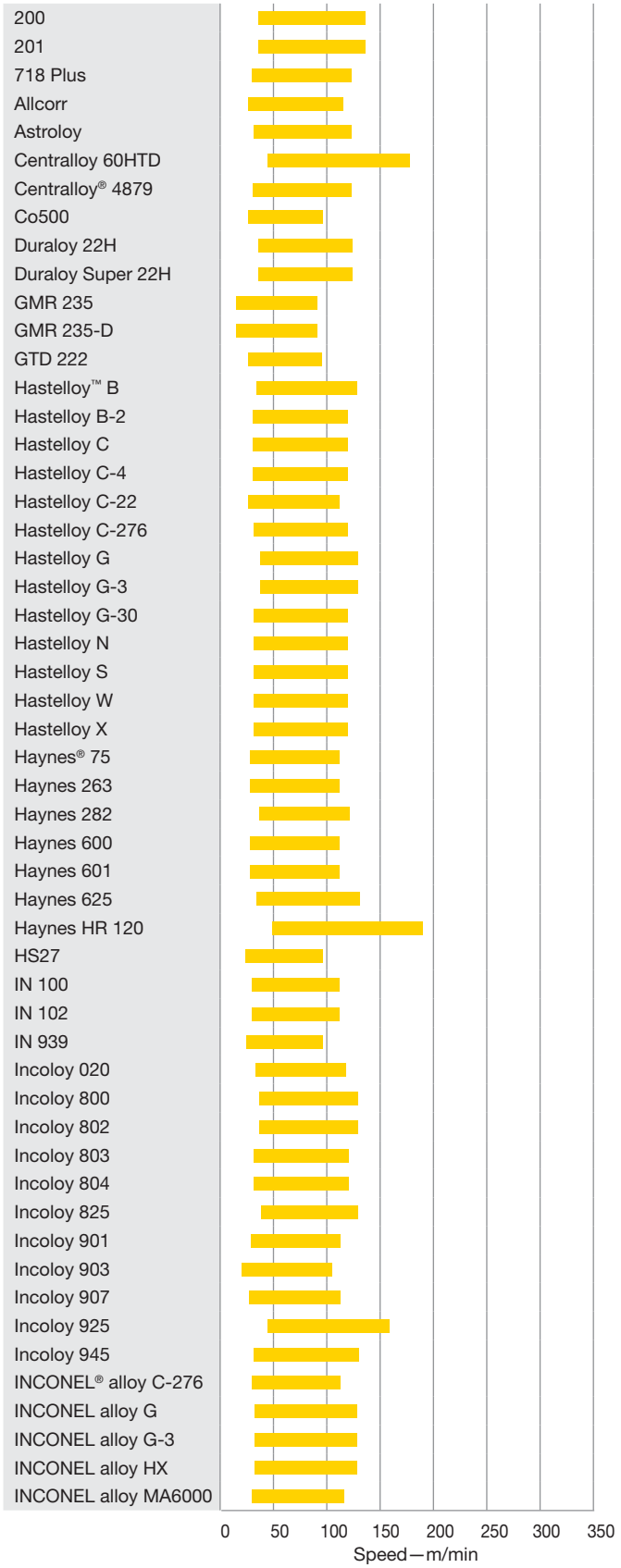


ISO Carbide Inserts

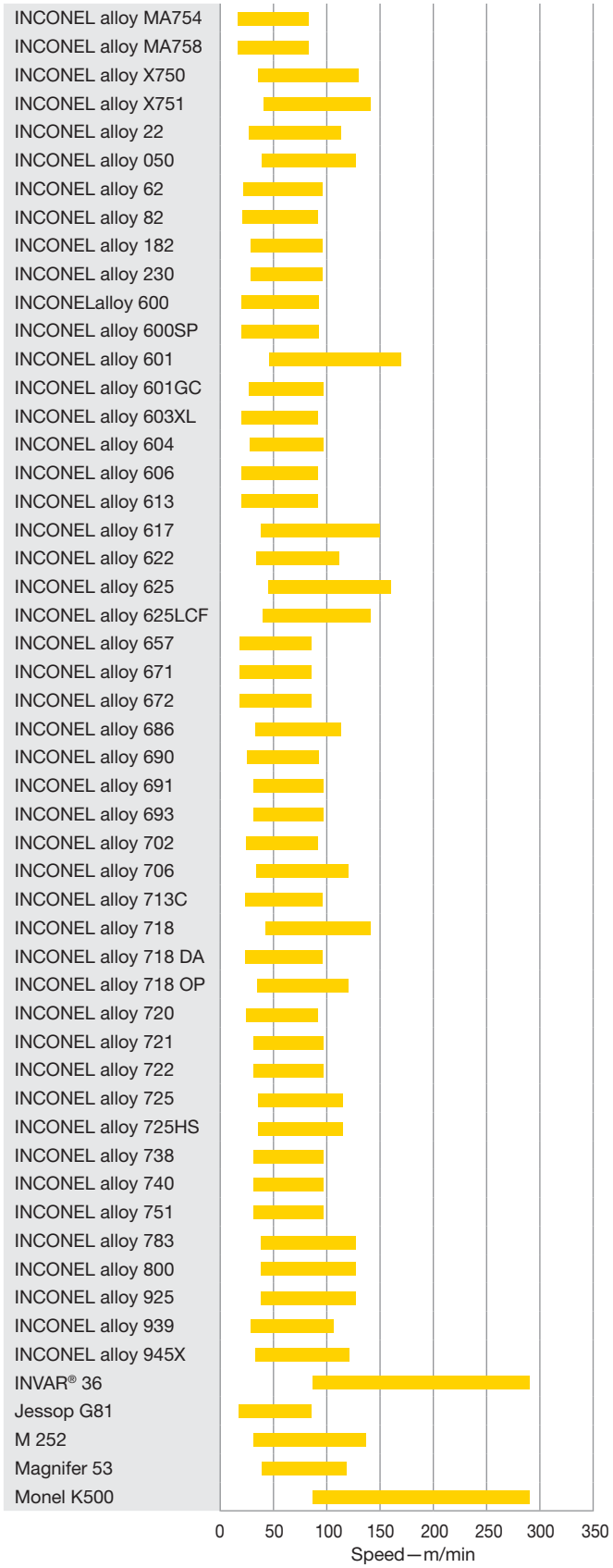
HIGH-TEMPERATURE ALLOYS • APPLICATION DATA

(continued)

S3 Nickel-Based, Heat-Resistant Alloys (140–475 HB) (≤48 HRC)



S3 Nickel-Based, Heat-Resistant Alloys (140–475 HB) (≤48 HRC)

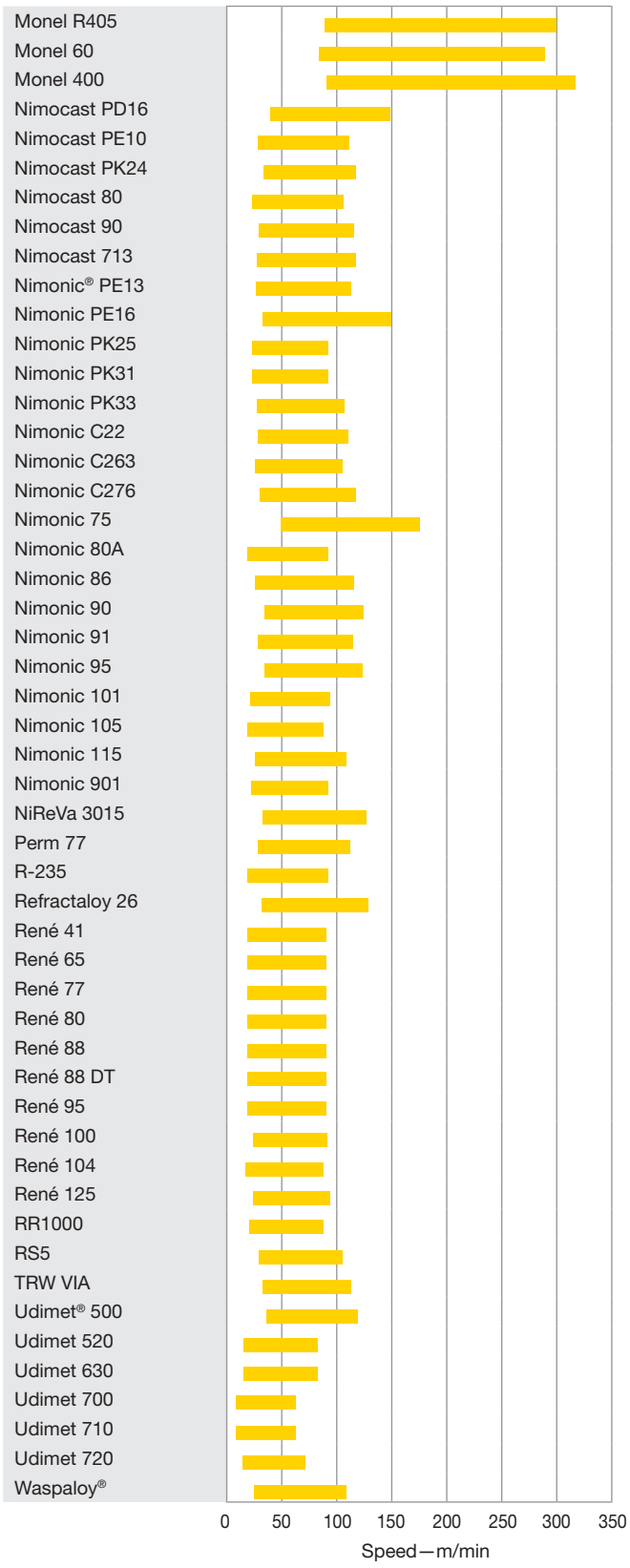


ISO Carbide Inserts

HIGH-TEMPERATURE ALLOYS • APPLICATION DATA

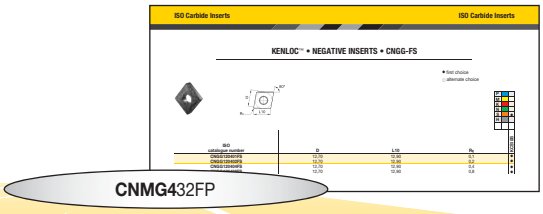
(continued)

S3 Nickel-Based, Heat-Resistant Alloys (140–475 HB) (≤48 HRC)



ISO INSERTS • CATALOG NUMBERING SYSTEM

Each character in our catalog number signifies a specific trait of that product.
Use the following key columns and corresponding images to easily identify which attributes apply.

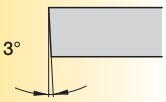
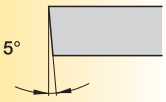
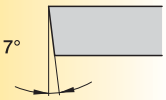
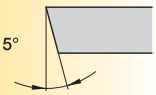
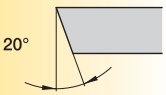
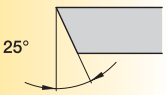
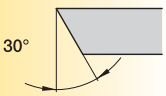
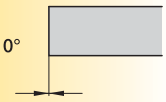
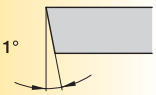


CNMG432FP

C — Insert Shape

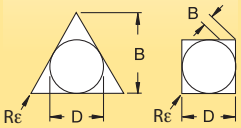
H	Hexagon 120°	
O	Octagon 135°	
P	Pentagon 108°	
R	Round—	
S	Square 90°	
T	Triangular 60°	
C **D** **E** **M** **V**	Rhomboid 80° 55° 75° 86° 35°	
W	Trigon 80° with enlarged corner angles	
L	Rectangular 90°	
A **B** **N/K**	Parallelogram 85° 82° 55°	

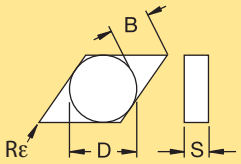
N — Insert Clearance Angle

A	3°	
B	5°	
C	7°	
D	15°	
E	20°	
F	25°	
G	30°	
N	0°	
P	11°	
O	Indicated for other clearance angles requiring descriptions.	

M — Tolerance Class

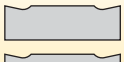
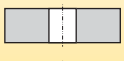
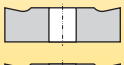
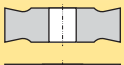
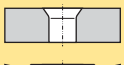
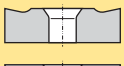
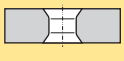
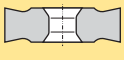
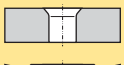
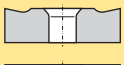
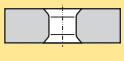
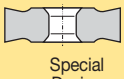
Tolerances apply prior to edge prep and coating.





D = Theoretical diameter of the insert inscribed circle
S = Thickness
B = See figures below

G — Insert Features

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

4 — Size

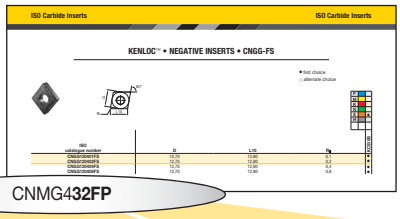
Code for metric cutting edge length "L10"

"D" mm	C	D	R	S	T	V	W
3,97	S4	04	03	03	06	—	—
4,76	04	05	04	04	08	08	S3
5,56	05	06	05	05	09	09	03
6,00	—	—	06	—	—	—	—
6,35	06	07	06	06	11	11	04
7,94	08	09	07	07	13	13	05
8,00	—	—	08	—	—	—	—
9,52	09	11	09	09	16	16	06
10,00	—	—	10	—	—	—	—
11,11	11	13	11	11	19	19	07
12,00	—	—	12	—	—	—	—
12,70	12	15	12	12	22	22	08
14,29	14	17	14	14	24	24	09
15,88	16	19	15	15	27	27	10
16,00	—	—	16	—	—	—	—
17,46	17	21	17	17	30	30	11
19,05	19	23	19	19	33	33	13
20,00	—	—	20	—	—	—	—
22,22	22	27	22	22	38	38	15
25,00	—	—	25	—	—	—	—
25,40	25	31	25	25	44	44	17
31,75	32	38	31	31	54	54	21
32,00	—	—	32	—	—	—	—

tolerance class	tolerance on "D"	tolerance on "B"	tolerance on "S"
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	±0,013
M	See tables on next page		±0,013
U	See tables on next page		±0,013

ISO INSERTS • CATALOG NUMBERING SYSTEM

(continued)



CNMG4**32FP**

3	2			FP
Thickness S	Corner Radius "Rε"	Hand of Insert *(optional)*	Cutting Edge *(optional)*	Chipbreaker *(optional)*

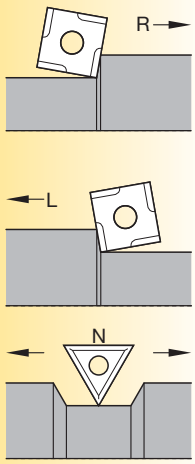
symbol	thickness
mm	mm
–	0,79
T0	1,00
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
9	9,52
11	11,11
12	12,70

symbol	corner radius
mm	mm
X0	0,04
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
28	2,8
32	3,2
00	round insert
M0	round insert
–	round insert

R = Right hand

L = Left hand

N = Neutral



F Sharp

E Rounded

T Chamfered

S Chamfered and Rounded

K Double-Chamfered

P Double-Chamfered and Rounded

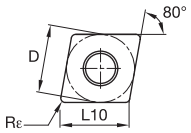
F = Sharp
FF = Fine Finishing
FN = Finishing Negative
MN = Medium Negative
MR = Medium Roughing
RN = Roughing Negative
UN = Universal Medium
FP = Finishing Positive
MP = Medium Positive
RP = Roughing Positive
RM = Roughing Medium
RH = Roughing Heavy
FW = Finishing Wiper
MW = Medium Wiper
FS = Finishing Sharp
MS = Medium Sharp
RW = Roughing Wiper
HP = High Positive
UP = Universal Positive
K = Light-Feed Chip Control
UF = Ultra-Fine Finishing
LF = Light Finishing
MF = Medium Finishing
E = Hone Only
T = Negative Land
S = Negative Land Plus Hone
MP-K = Medium Positive
MG-P = Medium Positive

	± Tolerance on "D"					± Tolerance on "B"				
	Class M Tolerance			Class U Tolerance		Class M Tolerance			Class U Tolerance	
"D"	Shapes S, T, C, R, & W	Shape D	Shape V	Shapes S, T, & C	"D"	Shapes S, T, C, R, & W	Shape D	Shape V	Shapes S, T, & C	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
3,97	0,05	–	–	–	3,97	0,08	–	–	–	
4,76	0,05	–	–	0,08	4,76	0,08	–	–	0,13	
5,56	0,05	0,05	0,05	0,08	5,56	0,08	0,11	–	0,13	
6,35	0,05	0,05	0,05	0,08	6,35	0,08	0,11	–	0,13	
7,94	0,05	0,05	0,05	0,08	7,94	0,08	0,11	–	0,13	
9,52	0,05	0,05	0,05	0,08	9,52	0,08	0,11	0,18	0,13	
11,11	0,08	0,08	0,08	0,13	11,11	0,13	0,15	–	–	
12,70	0,08	0,08	0,08	0,13	12,70	0,13	0,15	0,25	0,20	
14,29	0,08	0,08	0,08	0,13	14,29	0,13	0,15	–	–	
15,88	0,10	0,10	0,10	0,18	15,88	0,15	0,18	–	0,27	
17,46	0,10	0,10	0,10	0,18	17,46	0,15	0,18	–	0,27	
19,05	0,10	0,10	0,10	0,18	19,05	0,15	0,18	–	0,27	
22,22	0,13	–	–	0,25	22,22	0,15	–	–	0,38	
25,40	0,13	–	–	0,25	25,40	0,18	–	–	0,38	
31,75	0,15	–	–	0,25	31,75	0,20	–	–	0,38	

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • CNGG-FS

● first choice
○ alternate choice

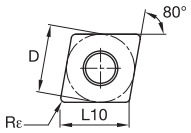


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
CNGG120401FS	12,70	12,90	0,1	●
CNGG120402FS	12,70	12,90	0,2	●
CNGG120404FS	12,70	12,90	0,4	●
CNGG120408FS	12,70	12,90	0,8	●

KENLOC • NEGATIVE INSERTS • CNMG-FP

● first choice
○ alternate choice

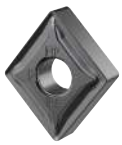


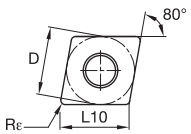
P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
CNMG120404FP	12,70	12,90	0,4	●
CNMG120408FP	12,70	12,90	0,8	●
CNMG120412FP	12,70	12,90	1,2	●

KENLOC • NEGATIVE INSERTS • CNMG-MP

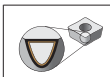
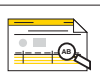
● first choice
○ alternate choice





P	
M	
K	
N	
S	●
H	

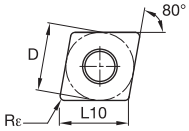
ISO catalogue number	D	L10	Rε	KCS10B
CNMG120404MP	12,70	12,90	0,4	●
CNMG120408MP	12,70	12,90	0,8	●
CNMG120412MP	12,70	12,90	1,2	●
CNMG120416MP	12,70	12,90	1,6	●
CNMG160612MP	15,88	16,12	1,2	●
CNMG160616MP	15,88	16,12	1,6	●

			
44	45	14-15	48

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • CNMG-MS

● first choice
○ alternate choice

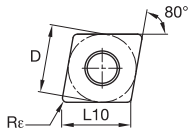


P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
CNMG120404MS	12,70	12,90	0,4	●
CNMG120408MS	12,70	12,90	0,8	●
CNMG120412MS	12,70	12,90	1,2	●

KENLOC • NEGATIVE INSERTS • CNMG-RP

● first choice
○ alternate choice

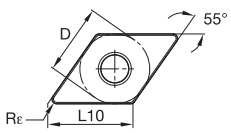


P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
CNMG120408RP	12,70	12,90	0,8	●
CNMG120412RP	12,70	12,90	1,2	●
CNMG120416RP	12,70	12,90	1,6	●
CNMG160608RP	15,88	16,12	0,8	●
CNMG160612RP	15,88	16,12	1,2	●
CNMG160616RP	15,88	16,12	1,6	●
CNMG190612RP	19,05	19,34	1,2	●
CNMG190616RP	19,05	19,34	1,6	●

KENLOC • NEGATIVE INSERTS • DNGG-FS

● first choice
○ alternate choice



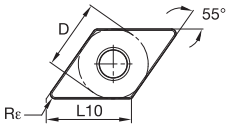
P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
DNGG150401FS	12,70	15,50	0,1	●
DNGG150601FS	12,70	15,50	0,1	●
DNGG150402FS	12,70	15,50	0,2	●
DNGG150602FS	12,70	15,50	0,2	●
DNGG150404FS	12,70	15,50	0,4	●
DNGG150604FS	12,70	15,50	0,4	●
DNGG150408FS	12,70	15,50	0,8	●
DNGG150608FS	12,70	15,50	0,8	●

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • DNMG-FP

● first choice
○ alternate choice

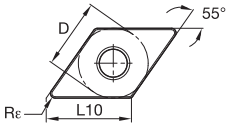


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
DNMG110404FP	9,53	11,63	0,4	●
DNMG110408FP	9,53	11,63	0,8	●
DNMG150404FP	12,70	15,50	0,4	●
DNMG150604FP	12,70	15,50	0,4	●
DNMG150408FP	12,70	15,50	0,8	●
DNMG150608FP	12,70	15,50	0,8	●
DNMG150412FP	12,70	15,50	1,2	●
DNMG150612FP	12,70	15,50	1,2	●

KENLOC • NEGATIVE INSERTS • DNMG-MP

● first choice
○ alternate choice

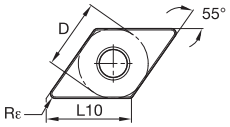


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
DNMG150404MP	12,70	15,50	0,4	●
DNMG150604MP	12,70	15,50	0,4	●
DNMG150408MP	12,70	15,50	0,8	●
DNMG150608MP	12,70	15,50	0,8	●
DNMG150412MP	12,70	15,50	1,2	●
DNMG150612MP	12,70	15,50	1,2	●

KENLOC • NEGATIVE INSERTS • DNMG-MS

● first choice
○ alternate choice



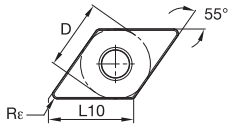
P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
DNMG150404MS	12,70	15,50	0,4	●
DNMG150604MS	12,70	15,50	0,4	●
DNMG150408MS	12,70	15,50	0,8	●
DNMG150608MS	12,70	15,50	0,8	●
DNMG150412MS	12,70	15,50	1,2	●
DNMG150612MS	12,70	15,50	1,2	●

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • DNMG-RP

● first choice
○ alternate choice

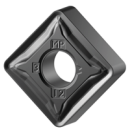


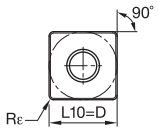
P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
DNMG150408RP	12,70	15,50	0,8	●
DNMG150608RP	12,70	15,50	0,8	●
DNMG150412RP	12,70	15,50	1,2	●
DNMG150612RP	12,70	15,50	1,2	●

KENLOC • NEGATIVE INSERTS • SNMG-MP

● first choice
○ alternate choice



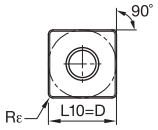


P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
SNMG120408MP	12,70	12,70	0,8	●
SNMG120412MP	12,70	12,70	1,2	●
SNMG150608MP	15,88	15,88	0,8	●
SNMG150612MP	15,88	15,88	1,2	●

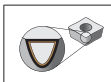
KENLOC • NEGATIVE INSERTS • SNMG-RP

● first choice
○ alternate choice



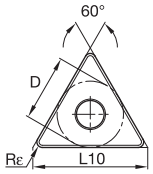
P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
SNMG120408RP	12,70	12,70	0,8	●
SNMG120412RP	12,70	12,70	1,2	●
SNMG190612RP	19,05	19,05	1,2	●
SNMG190616RP	19,05	19,05	1,6	●

			NOVO
44	45	14-15	48

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • TNMG-RP

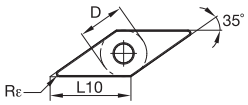


● first choice
○ alternate choice

P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
TNMG270616RP	15,88	27,50	1,6	●
TNMG330924RP	19,05	33,00	2,4	●

KENLOC • NEGATIVE INSERTS • VNGG-FS

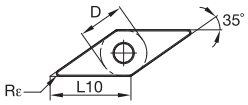


● first choice
○ alternate choice

P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
VNGG160401FS	9,53	16,61	0,1	●
VNGG160402FS	9,53	16,61	0,2	●
VNGG160404FS	9,53	16,61	0,4	●
VNGG160408FS	9,53	16,61	0,8	●

KENLOC • NEGATIVE INSERTS • VNMG-FP



● first choice
○ alternate choice

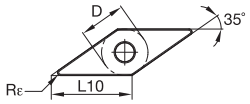
P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
VNMG160404FP	9,53	16,61	0,4	●
VNMG160408FP	9,53	16,61	0,8	●

44	45	14-15	48

ISO Carbide Inserts

KENLOC™ • NEGATIVE INSERTS • VNMG-MP

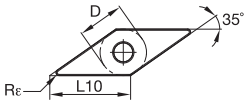


● first choice
○ alternate choice

P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
VNMG160404MP	9,53	16,61	0,4	●
VNMG160408MP	9,53	16,61	0,8	●
VNMG160412MP	9,53	16,61	1,2	●

KENLOC • NEGATIVE INSERTS • VNMG-MS

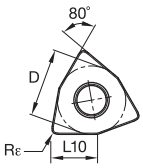


● first choice
○ alternate choice

P	M	K	N	S	H
				●	

ISO catalogue number	D	L10	Rε	KCS10B
VNMG160402MS	9,53	16,61	0,2	●
VNMG160404MS	9,53	16,61	0,4	●
VNMG160408MS	9,53	16,61	0,8	●
VNMG220404MS	12,70	22,14	0,4	●
VNMG220408MS	12,70	22,14	0,8	●

KENLOC • NEGATIVE INSERTS • WNMG-RP



● first choice
○ alternate choice

P	M	K	N	S	H
				●	

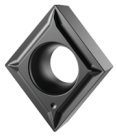
ISO catalogue number	D	L10	Rε	KCS10B
WNMG080408RP	12,70	8,69	0,8	●
WNMG080412RP	12,70	8,69	1,2	●

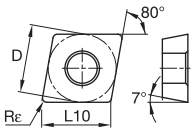
44	45	14-15	48

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • CCGT-LF

● first choice
○ alternate choice



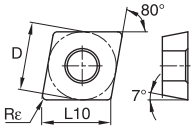


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
CCGT060202LF	6,35	6,45	0,2	●
CCGT060204LF	6,35	6,45	0,4	●
CCGT060208LF	6,35	6,45	0,8	●
CCGT09T302LF	9,53	9,67	0,2	●
CCGT09T304LF	9,53	9,67	0,4	●
CCGT09T308LF	9,53	9,67	0,8	●

SCREW-ON • POSITIVE INSERTS • CCMT-MP

● first choice
○ alternate choice

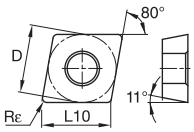


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
CCMT060204MP	6,35	6,45	0,4	●
CCMT060208MP	6,35	6,45	0,8	●
CCMT09T304MP	9,53	9,67	0,4	●
CCMT09T308MP	9,53	9,67	0,8	●
CCMT120404MP	12,70	12,90	0,4	●
CCMT120408MP	12,70	12,90	0,8	●

SCREW-ON • POSITIVE INSERTS • CPGT-LF

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
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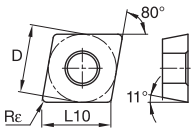
ISO catalogue number	D	L10	Rε	KCS10B
CPGT060202LF	6,35	6,45	0,2	●
CPGT060204LF	6,35	6,45	0,4	●
CPGT060208LF	6,35	6,45	0,8	●
CPGT09T302LF	9,53	9,67	0,2	●
CPGT09T304LF	9,53	9,67	0,4	●
CPGT09T308LF	9,53	9,67	0,8	●

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • CPMT-MP

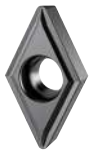
● first choice
○ alternate choice

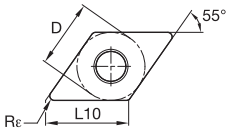


ISO catalogue number	D	L10	Rε	KCS10B
CPMT060204MP	6,35	6,45	0,4	●
CPMT060208MP	6,35	6,45	0,8	●
CPMT09T304MP	9,53	9,67	0,4	●
CPMT09T308MP	9,53	9,67	0,8	●

SCREW-ON • POSITIVE INSERTS • DCGT-LF

● first choice
○ alternate choice

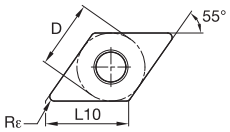




ISO catalogue number	D	L10	Rε	KCS10B
DCGT070202LF	6,35	7,75	0,2	●
DCGT070204LF	6,35	7,75	0,4	●
DCGT070208LF	6,35	7,75	0,8	●
DCGT11T302LF	9,53	11,63	0,2	●
DCGT11T304LF	9,53	11,63	0,4	●
DCGT11T308LF	9,53	11,63	0,8	●

SCREW-ON • POSITIVE INSERTS • DCMT-MP

● first choice
○ alternate choice



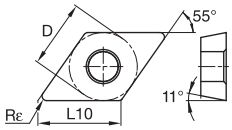
ISO catalogue number	D	L10	Rε	KCS10B
DCMT11T304MP	9,53	11,63	0,4	●
DCMT11T308MP	9,53	11,63	0,8	●
DCMT11T312MP	9,53	11,63	1,2	●

44	45	14-15	48

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • DPGT-LF

● first choice
○ alternate choice



P	
M	
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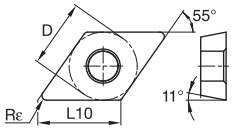
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
DPGT070202LF	6,35	7,75	0,2	●
DPGT070204LF	6,35	7,75	0,4	●
DPGT070208LF	6,35	7,75	0,8	●
DPGT11T302LF	9,53	11,63	0,2	●
DPGT11T304LF	9,53	11,63	0,4	●
DPGT11T308LF	9,53	11,63	0,8	●

SCREW-ON • POSITIVE INSERTS • DPMT-MP

● first choice
○ alternate choice

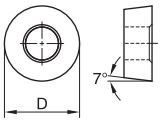


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
DPMT11T304MP	9,53	11,63	0,4	●
DPMT11T308MP	9,53	11,63	0,8	●
DPMT11T312MP	9,53	11,63	1,2	●

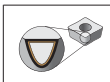
SCREW-ON • POSITIVE INSERTS • RCGT-MS

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
H	

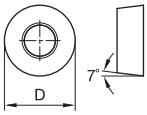
ISO catalogue number	D	L10	Rε	KCS10B
RCGT0803M0MS	8,00	–	–	●
RCGT1204M0MS	12,00	–	–	●

			NOVO
44	45	14-15	48

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • RCMT-MP

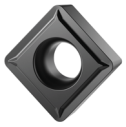
● first choice
○ alternate choice

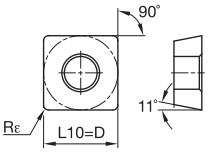


ISO catalogue number	D	L10	Rε	KCS10B
RCMT0803M0MP	8,00	–	–	●
RCMT10T3M0MP	10,00	–	–	●
RCMT1204M0MP	12,00	–	–	●
RCMT120400MP	12,70	–	–	●
RCMT1606M0MP	16,00	–	–	●

SCREW-ON • POSITIVE INSERTS • SCGT-LF

● first choice
○ alternate choice

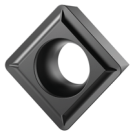


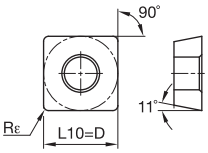


ISO catalogue number	D	L10	Rε	KCS10B
SCGT09T304LF	9,53	9,53	0,4	●
SCGT09T308LF	9,53	9,53	0,8	●
SCGT120404LF	12,70	12,70	0,4	●
SCGT120408LF	12,70	12,70	0,8	●
SCGT120412LF	12,70	12,70	1,2	●

SCREW-ON • POSITIVE INSERTS • SPGT-LF

● first choice
○ alternate choice





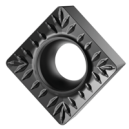
ISO catalogue number	D	L10	Rε	KCS10B
SPGT09T304LF	9,53	9,53	0,4	●
SPGT09T308LF	9,53	9,53	0,8	●

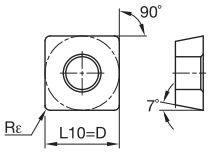
44	45	14-15	48

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • SCMT-MP

● first choice
○ alternate choice



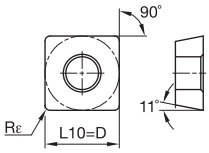


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
SCMT09T304MP	9,53	9,53	0,4	●
SCMT09T308MP	9,53	9,53	0,8	●
SCMT120404MP	12,70	12,70	0,4	●
SCMT120408MP	12,70	12,70	0,8	●

SCREW-ON • POSITIVE INSERTS • SPMT-MP

● first choice
○ alternate choice

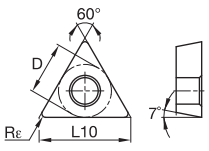


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
SPMT09T304MP	9,53	9,53	0,4	●
SPMT09T308MP	9,53	9,53	0,8	●
SPMT120404MP	12,70	12,70	0,4	●
SPMT120408MP	12,70	12,70	0,8	●

SCREW-ON • POSITIVE INSERTS • TCGT-LF

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
H	

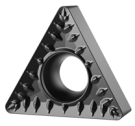
ISO catalogue number	D	L10	Rε	KCS10B
TCGT110204LF	6,35	11,00	0,4	●
TCGT110208LF	6,35	11,00	0,8	●
TCGT16T302LF	9,53	16,50	0,2	●
TCGT16T304LF	9,53	16,50	0,4	●
TCGT16T308LF	9,53	16,50	0,8	●

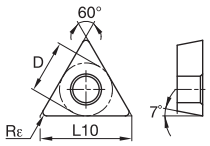
44	45	14-15	48

ISO Carbide Inserts

SCREW-ON • POSITIVE INSERTS • TCMT-MP

● first choice
○ alternate choice



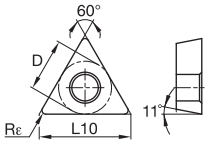


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
TCMT110204MP	6,35	11,00	0,4	●
TCMT110208MP	6,35	11,00	0,8	●
TCMT16T304MP	9,53	16,50	0,4	●
TCMT16T308MP	9,53	16,50	0,8	●

SCREW-ON • POSITIVE INSERTS • TPGT-LF

● first choice
○ alternate choice

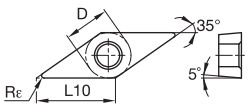


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	Rε	KCS10B
TPGT090202LF	5,56	9,62	0,2	●
TPGT090204LF	5,56	9,62	0,4	●
TPGT110202LF	6,35	11,00	0,2	●
TPGT110204LF	6,35	11,00	0,4	●
TPGT110208LF	6,35	11,00	0,8	●

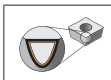
SCREW-ON • POSITIVE INSERTS • VBGT-LF

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
H	

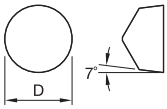
ISO catalogue number	D	L10	Rε	KCS10B
VBGT110302LF	6,35	11,07	0,2	●
VBGT110304LF	6,35	11,07	0,4	●
VBGT110308LF	6,35	11,07	0,8	●
VBGT160402LF	9,53	16,61	0,2	●
VBGT160404LF	9,53	16,61	0,4	●
VBGT160408LF	9,53	16,61	0,8	●

			NOVO
44	45	14-15	48

ISO Carbide Inserts

KENDEX™ • POSITIVE INSERTS • RCGX-MP

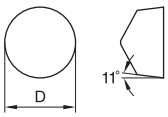
● first choice
○ alternate choice

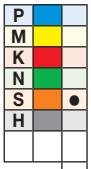


ISO catalogue number	D	L10	Rε	KCS10B
RCGX060400MP	6,35	–	–	●
RCGX090700MP	9,53	–	–	●
RCGX120700MP	12,70	–	–	●

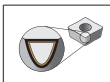
KENDEX • POSITIVE INSERTS • RPGX-MP

● first choice
○ alternate choice





ISO catalogue number	D	L10	Rε	KCS10B
RPGX060400MP	6,35	–	–	●
RPGX090700MP	9,53	–	–	●
RPGX120700MP	12,70	–	–	●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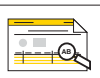

45

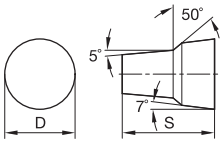
14-15

48

ISO Carbide Inserts

K-LOCK™ • POSITIVE INSERTS • RCGK-FS

● first choice
○ alternate choice

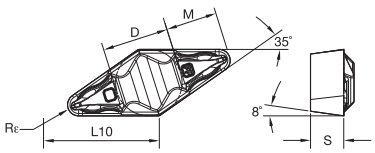


P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	S	KCS10B
RCGK040300FS	4,75	6,59	●
RCGK060400FS	6,35	9,30	●
RCGK090700FS	9,53	13,23	●
RCGK120800FS	12,70	16,92	●

TOP NOTCH™ PROFILING • POSITIVE INSERTS • VCGR-FP

● first choice
○ alternate choice



P	
M	
K	
N	
S	●
H	

ISO catalogue number	D	L10	S	M	Rε	KCS10B
VCGR160402FP	9,52	16,61	4,76	10,60	0,2	●
VCGR160404FP	9,52	16,61	4,76	10,15	0,4	●
VCGR160408FP	9,52	16,61	4,76	9,23	0,8	●
VCGR160412FP	9,52	16,61	4,76	8,31	1,2	●

44	45	14-15	48

ISO Carbide Inserts

KCS10B™ • WEAR IDENTIFICATION

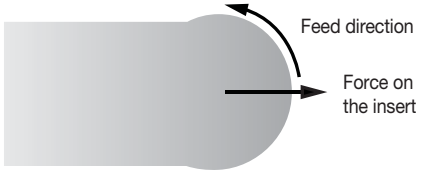
WEAR PROGRESSION

The new KCS10B coating provides easy wear identification. The shown wear pattern indicates end of tool life is near.

An extremely smooth coating surface, reducing friction, providing longer tool life, increasing process reliability.

The new KCS10B turning grade, featuring the new High-Power Impulse Magnetron Sputtering (High-PIMS) is ideal for iron-based alloys (S1), cobalt-based alloys (S2), and nickel-based alloys (S3).

KCS10B • PROFILING WITH TOP NOTCH



Multiple feed direction profiling with highest accuracy and excellent surface finishes.

Rigid clamping mechanism holds insert precisely in place and eliminates insert movement.

- Desired shape = Programmed shape.
- Strong insert design.
- Accurate indexing.
- Superior clamping forces.
- Second cutting edge protected from chip hammering.

ISO Carbide Inserts

HIGH-TEMPERATURE ALLOYS • TROUBLESHOOTING

Material Characteristics

- High forces at the cutting edge.
- High heat concentration in cutting area.
- High cutting speed may cause insert failure by plastic deformation.
- Relatively poor tool life.
- Small depths of cut are difficult.
- Rapid work-hardening.
- Usually abrasive rather than hard.

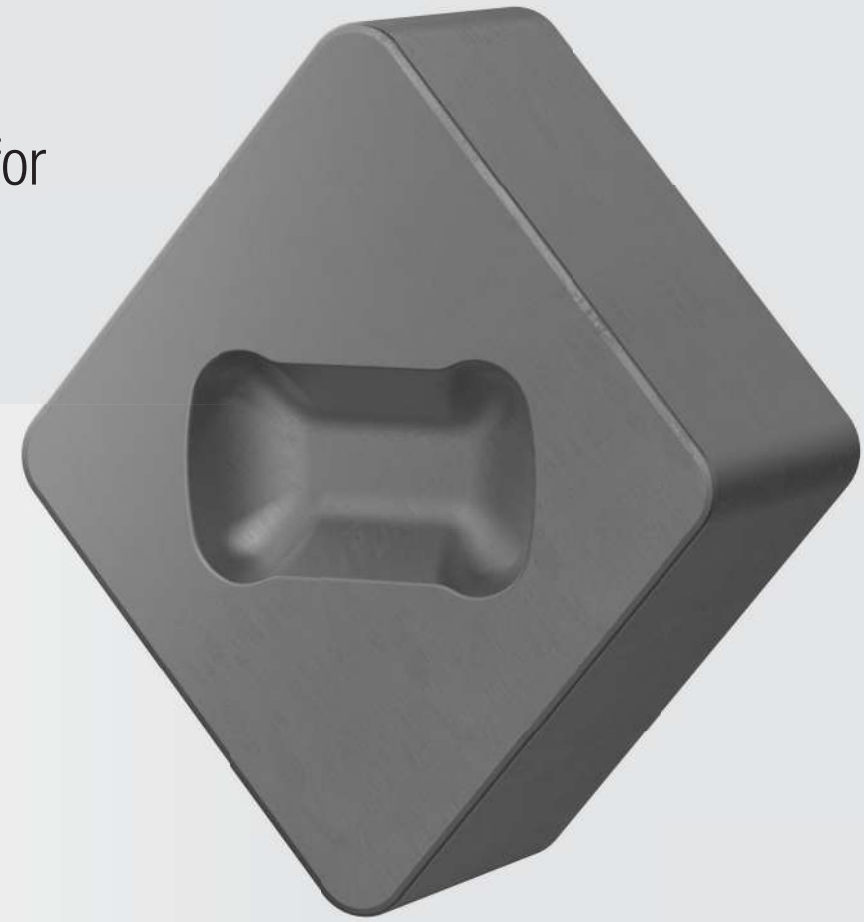
Troubleshooting

Problem	Solution	
Depth-of-cut notch	1. Increase toolholder lead angle. 2. Use tougher grades like KC5025™ and KY4300™ in -MS, -MP, and -RP geometries, or ceramic grade KYS30™/KYS25™. 3. Use a 0,63mm/.025" or greater depth of cut. 4. Depth of cut should be greater than the work-hardened layer resulting from the previous cut (>0,12mm/.005"). 5. Program a ramp to vary depth of cut. 6. Feed greater than 0,12mm/.005 IPR. 7. Use strongest insert shape possible. 8. When possible, use round inserts in carbide grade KCS10B™, or ceramic grade KYS30/KYS25. 9. Decrease depth to 1/7 of insert diameter for round inserts (i.e.: 1,90mm/.075" max. depth for 12,7mm/1/2" IC RNG45).	 Depth-of-cut notch
Built-up edge	1. Increase speed. 2. Use grades KYS30 or KY4300. 3. Use positive rake, sharp PVD coated grade KCS10B. 4. Use flood coolant.	 Built-up edge
Chipping	1. Use MG-MS geometry in place of MG-FS geometries. 2. For interrupted cutting, maintain speed and decrease feed. 3. Use a tougher grade like KC5025.	 Chipping

POWERED BY NOVO

KYK10

Ceramic Turning Grade for Cast Iron



Materials

K

Applications

- O.D. Turning
- Facing
- Multi-Direction
- Chamfer Turning
- Boring
- I.D. Facing

kennametal.com/KYK10

KYK10 ceramic turning grade is a high-performance solution for cast iron materials. Ideal for continuous and lightly interrupted cuts.

Machining gray cast iron components such as brake disks or fly wheels, KYK10 offers great wear resistance, toughness, and improved fracture toughness.

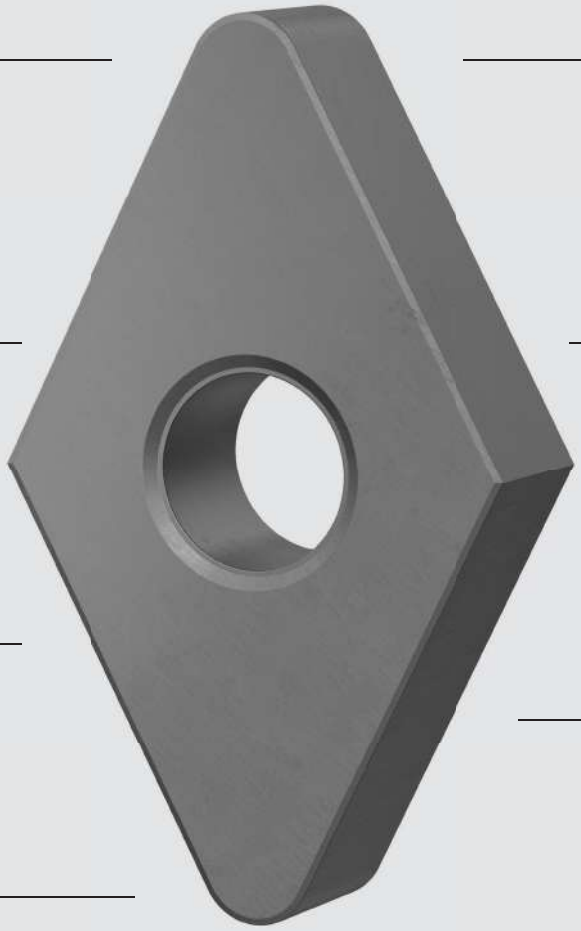
The new SiAlON ceramic turning grade features a 30% increased speed capability.

Highest productivity through maximum cutting speeds.

Excellent for roughing to finishing operations.

Pressed-to-size inserts in M tolerance for roughing and medium machining.

Suitable for wet or dry machining.

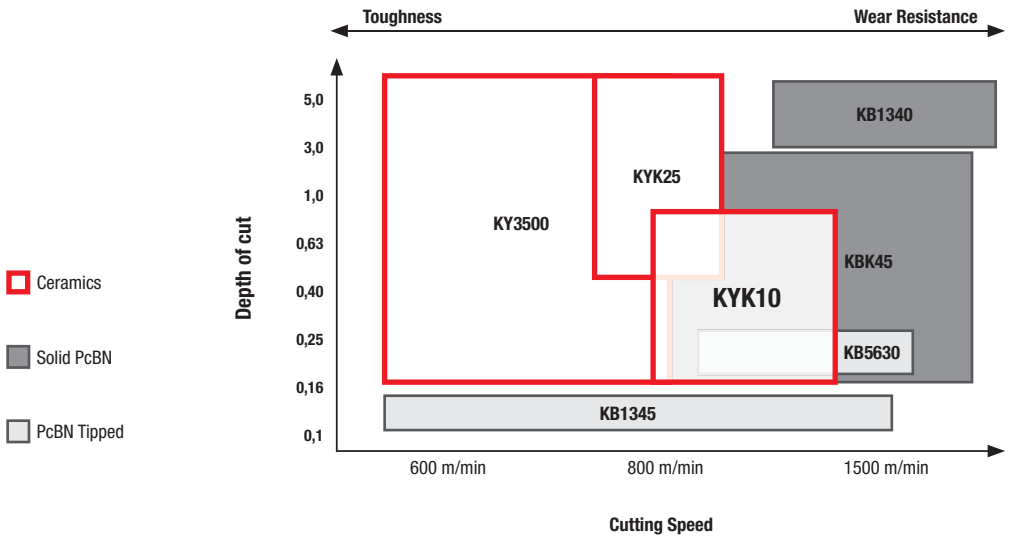


Dimple clamping provides exceptional rigidity.

Precision ground inserts in G tolerance for finishing applications.

The KYK10 turning grade shows high chemical resistance. Also withstands high temperatures and higher speeds to provide longer tool life.

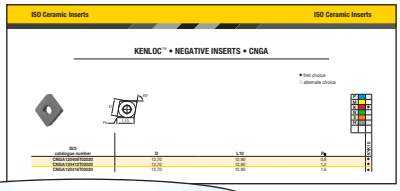
Cast Iron Grades Overview



Advanced Material Inserts

ISO INSERTS • CATALOG NUMBERING SYSTEM

Each character in our catalog number signifies a specific trait of that product.
Use the following key columns and corresponding images to easily identify which attributes apply.



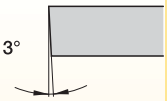
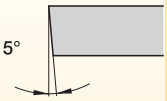
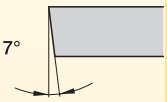
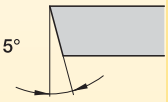
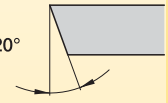
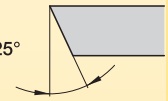
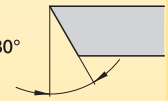
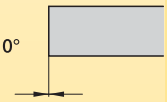
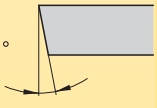
CNGN0408T02020

C	N	G	N	0
Insert Shape	Insert Clearance Angle	Tolerance Class	Insert Features	Size

C — Insert Shape

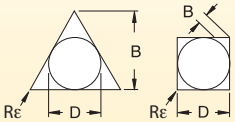
H	Hexagon 120°	
O	Octagon 135°	
P	Pentagon 108°	
R	Round —	
S	Square 90°	
T	Triangular 60°	
C D E M V	Rhomboid 80° 55° 75° 86° 35°	
W	Trigon 80° with enlarged corner angles	
L	Rectangular 90°	
A B N/K	Parallelogram 85° 82° 55°	

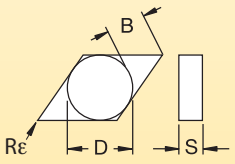
N — Insert Clearance Angle

A	3°	
B	5°	
C	7°	
D	15°	
E	20°	
F	25°	
G	30°	
N	0°	
P	11°	
O	For other clearance angles requiring descriptions.	

G — Tolerance Class

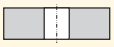
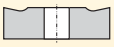
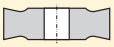
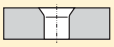
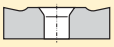
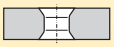
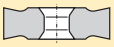
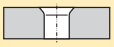
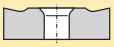
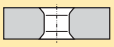
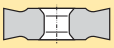
Tolerances apply prior to edge prep and coating.





D = Theoretical diameter of the insert inscribed circle
S = Thickness
B = See figures below

N — Insert Features

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

0 — Size

"D" mm	Code for metric cutting edge length "L10" C	D	R	S	T	V	W
3,97	S4	04	03	03	06	—	—
4,76	04	05	04	04	08	08	S3
5,56	05	06	05	05	09	09	03
6,00	—	—	06	—	—	—	—
6,35	06	07	06	06	11	11	04
7,94	08	09	07	07	13	13	05
8,00	—	—	08	—	—	—	—
9,52	09	11	09	09	16	16	06
10,00	—	—	10	—	—	—	—
11,11	11	13	11	11	19	19	07
12,00	—	—	12	—	—	—	—
12,70	12	15	12	12	22	22	08
14,29	14	17	14	14	24	24	09
15,88	16	19	15	15	27	27	10
16,00	—	—	16	—	—	—	—
17,46	17	21	17	17	30	30	11
19,05	19	23	19	19	33	33	13
20,00	—	—	20	—	—	—	—
22,22	22	27	22	22	38	38	15
25,00	—	—	25	—	—	—	—
25,40	25	31	25	25	44	44	17
31,75	32	38	31	31	54	54	21
32,00	—	—	32	—	—	—	—

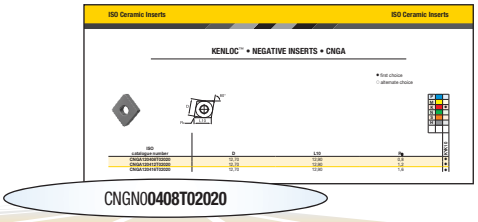
tolerance class*	tolerance on "D"	tolerance on "B"	tolerance on "S"
C	±0,025	±0,013	±0,025
H	±0,013	±0,013	±0,025
E	±0,025	±0,025	±0,025
G	±0,025	±0,025	±0,013
M	See tables on next page		±0,013
U	See tables on next page		±0,013

*Tolerances apply prior to edge prep and coating.

Advanced Material Inserts

ISO INSERTS • CATALOG NUMBERING SYSTEM

(continued)



04	08		T	020	20		
Thickness "S"	Corner Radius "Rε"	Hand of Insert *(optional)*	Cutting Edge *(optional)*	T-Land Width *(optional)*	T-Land Angle *(optional)*	Tip Style *(optional)*	Chipbreaker *(optional)*

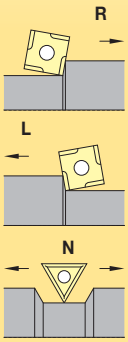
symbol mm	thick-ness mm
–	0,79
T0	1,00
01	11,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52
11	11,11
12	12,70

symbol mm	corner radius mm
X0	0,4
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
28	2,8
32	3,2
00	round insert
M0	

R = Right hand

L = Left hand

N = Neutral



F* Sharp

E Rounded

T* Chamfered

S* Chamfered and Rounded

K Double-Chamfered

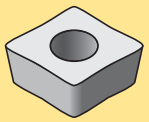
P Double-Chamfered and Rounded

*Also available in wiper style.

symbol ISO	size mm
010	0,01
020	0,2

symbol	size
10	10°
15	15°
20	20°
25	25°
30	30°

symbol	usage
C	full tip
M	mini tip
MT	multi-tip
ST	single tip



FW = Finishing Wiper

MW = Medium Wiper

"D" mm	± Tolerance on "D" Class M Tolerance Shapes S, T, C, R, & W mm	Class M Tolerance Shape D mm	Class M Tolerance Shape V mm	Class U Tolerance Shapes S, T, & C mm
3,97	0,05	–	–	–
4,76	0,05	–	–	0,08
5,56	0,05	0,05	0,05	0,08
6,35	0,05	0,05	0,05	0,08
7,94	0,05	0,05	0,05	0,08
9,52	0,05	0,05	0,05	0,08
11,11	0,08	0,08	0,08	0,13
12,70	0,08	0,08	0,08	0,13
14,29	0,08	0,08	0,08	0,13
15,88	0,10	0,10	0,10	0,18
17,46	0,10	0,10	0,10	0,18
19,05	0,10	0,10	0,10	0,18
22,22	0,13	–	–	0,25
25,40	0,13	–	–	0,25
31,75	0,15	–	–	0,25

"D" mm	± Tolerance on "B" Class M Tolerance Shapes S, T, C, R, & W mm	Class M Tolerance Shape D mm	Class M Tolerance Shape V mm	Class U Tolerance Shapes S, T, & C mm
3,97	0,08	–	–	–
4,76	0,08	–	–	0,13
5,56	0,08	0,11	–	0,13
6,35	0,08	0,11	–	0,13
7,94	0,08	0,11	–	0,13
9,52	0,08	0,11	0,18	0,13
11,11	0,13	0,15	–	–
12,70	0,13	0,15	0,25	0,20
14,29	0,13	0,15	–	–
15,88	0,15	0,18	–	0,27
17,46	0,15	0,18	–	0,27
19,05	0,15	0,18	–	0,27
22,22	0,15	–	–	0,38
25,40	0,18	–	–	0,38
31,75	0,20	–	–	0,38

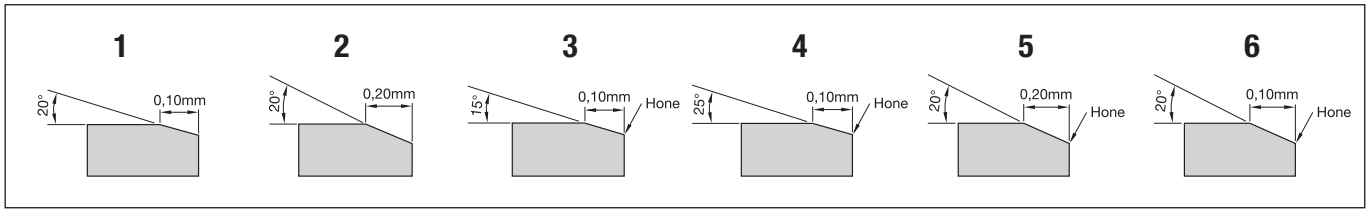
ISO Turning Inserts

CAST IRON • TOOL SELECTION GUIDE

Toughness ← → Wear Resistance

	Ceramic Inserts												
	KY3500					KYK25				KYK10			
Geometry	GX		GN	GA		GX	GN	GA		GX	GN	GA	
Profile **See bottom of page*	2	1	2	2	1	2	2	2	1	2	2	2	1
Clamping Rigidity	■■■	■■■	■■	■	■	■■■	■■	■	■	■■■	■■	■	■
Edge Preparation	T02020	T01020FW	T02020	T02020	T01020FW	T02020	T02020	T02020	T01020FW	T02020	T02020	T02020	T01020FW
T-Land	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Honed													
Wiper		✔			✔				✔				✔
Application													
Heavy-Roughing	●		●			●	●			○	○		
Roughing	●	○	●	●		●	●	●		●	●	●	
Medium Machining	●	●	●	●	●	●	●	●	●	●	●	●	●
Finishing		○	○	○	●	○	○	○	●	○	○	○	●
Fine-Finishing													
Cutting Condition													
Heavily Interrupted Cut	●		●			●	●			○	○		
Lightly Interrupted Cut	●	○	●	●	○	●	●	●	○	●	●	●	○
Varying Depth of Cut, Casting or Forging Skin	●	●	●	●	●	●	●	●	●	●	●	●	●
Smooth Cut, Pre-Turned Surface	○	●	○	○	●	○	○	○	●	●	●	●	●

● first choice
○ alternate choice



ISO Turning Inserts

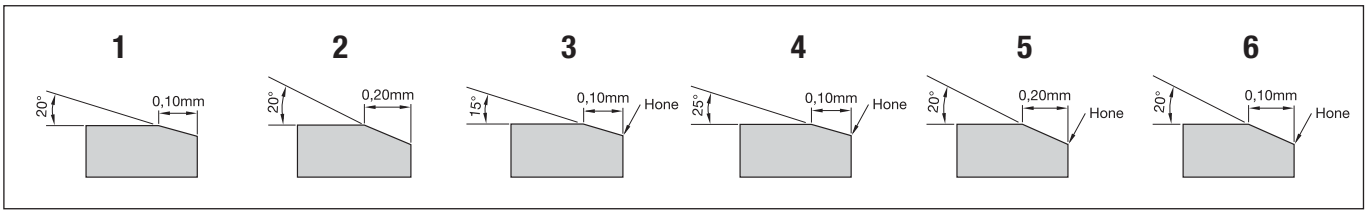
CAST IRON • TOOL SELECTION GUIDE

Toughness ← → Wear Resistance

	Solid PcBN Inserts						Tipped PcBN Inserts		
	KBK45			KB1340			KB5630		KB1345
Geometry	GX	GN		GX			GA		GA
Profile **See bottom of page*	5	5	3	5	3	3	4	3	6
Clamping Rigidity	■■■	■■	■■	■■■	■■■	■■■	■	■	■
Edge Preparation	S02020	S02020	S01015W..	S02020	S01015	S01015FW	S01025	S01025FW	S01020
T-Land	✔	✔	✔	✔	✔	✔	✔	✔	✔
Honed	✔	✔	✔	✔	✔	✔	✔	✔	✔
Wiper			✔			✔		✔	
Application									
Heavy-Roughing	●	●		●					
Roughing	●	●	○	●	○		○		
Medium Machining	●	●	●	●	●	●	●	○	○
Finishing	○	○	●	○	○	●	●	●	●
Fine-Finishing			○			○	○	●	●
Cutting Condition									
Heavily Interrupted Cut	●	●	○	●	●	○	○		
Lightly Interrupted Cut	●	●	●	●	●	●	●	●	●
Varying Depth of Cut, Casting or Forging Skin	●	●	●	●	●	●	●	●	●
Smooth Cut, Pre-Turned Surface	●	●	●	●	●	●	●	●	●

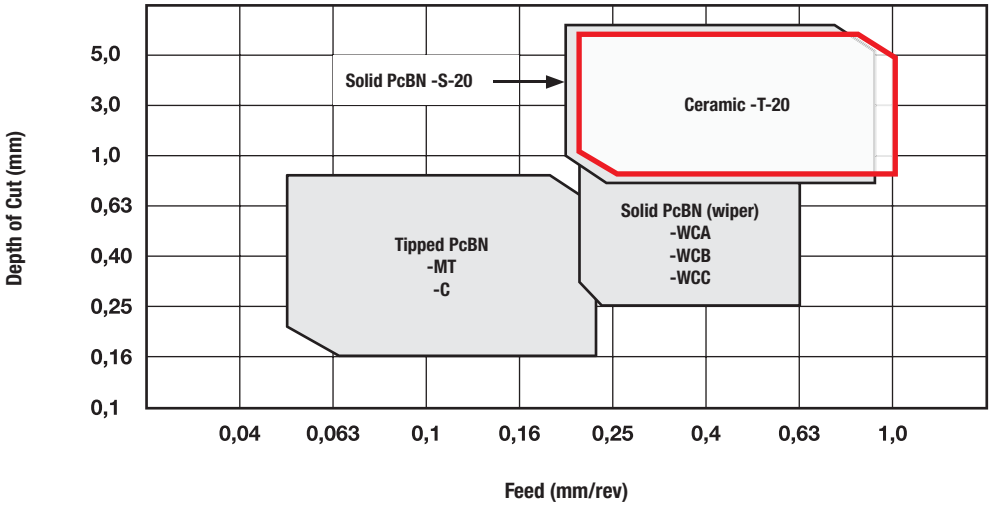
● first choice

○ alternate choice



ISO Turning Inserts

CAST IRON • APPLICATION DATA • FEED



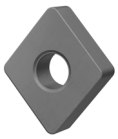
CAST IRON • APPLICATION DATA • SPEED

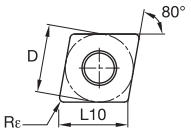
material group	grade	Speed — m/min 60	180	305	430	550	675	800	920	1040	1160	1290	1400	1530	Starting Conditions m/min
K1	KY3500														700
	KYK25														700
	KYK10														800
	KBK45														1000
	KB1340														1000
	KB5630														800
	KB1345														800

ISO Ceramic Inserts

KENLOC™ • NEGATIVE INSERTS • CNGA

● first choice
○ alternate choice

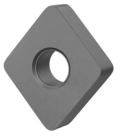


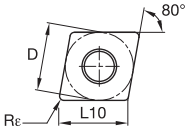


ISO catalogue number	D	L10	Rε	KYK10
CNGA120408T02020	12,70	12,90	0,8	●
CNGA120412T02020	12,70	12,90	1,2	●
CNGA120416T02020	12,70	12,90	1,6	●

KENLOC • NEGATIVE INSERTS • CNGA-FW

● first choice
○ alternate choice

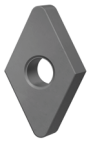


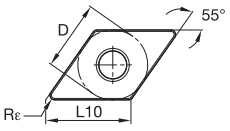


ISO catalogue number	D	L10	Rε	KYK10
CNGA120412T01020FW	12,70	12,90	1,2	●

KENLOC • NEGATIVE INSERTS • DNGA

● first choice
○ alternate choice





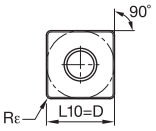
ISO catalogue number	D	L10	Rε	KYK10
DNGA150416T02020	12,70	15,50	1,6	●

44 | 45 | 34-35 | 48

ISO Ceramic Inserts

KENLOC™ • NEGATIVE INSERTS • SNGA

● first choice
○ alternate choice

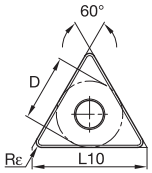


P	M	K	N	S	H
		●			

ISO catalogue number	D	L10	Rε	KYK10
SNGA120408T02020	12,70	12,70	0,8	●

KENLOC • NEGATIVE INSERTS • TNGA

● first choice
○ alternate choice



P	M	K	N	S	H
		●			

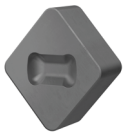
ISO catalogue number	D	L10	Rε	KYK10
TNGA160408T02020	9,53	16,50	0,8	●

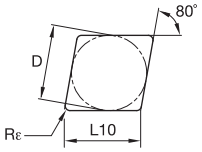
44	45	34-35	48

ISO Ceramic Inserts

KENDEX™ • NEGATIVE INSERTS • CNGX

● first choice
○ alternate choice



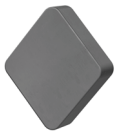


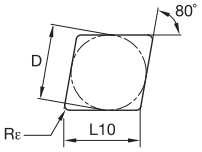
P	M	K	N	S	H
		●			

ISO catalogue number	D	L10	Rε	KYK10
CNGX120712T02020	12,70	12,90	1,2	●
CNGX120716T02020	12,70	12,90	1,6	●

KENDEX • NEGATIVE INSERTS • CNMN

● first choice
○ alternate choice



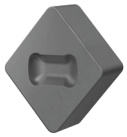


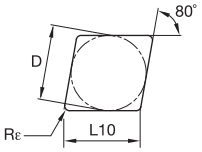
P	M	K	N	S	H
		●			

ISO catalogue number	D	L10	Rε	KYK10
CNMN120412T02020	12,70	12,90	1,2	●
CNMN120416T02020	12,70	12,90	1,6	●

KENDEX • NEGATIVE INSERTS • CNMX

● first choice
○ alternate choice





P	M	K	N	S	H
		●			

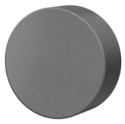
ISO catalogue number	D	L10	Rε	KYK10
CNMX120712T02020	12,70	12,90	1,2	●
CNMX120716T02020	12,70	12,90	1,6	●

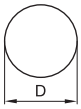
44	45	34-35	48

ISO Ceramic Inserts

KENDEX™ • NEGATIVE INSERTS • RNGN

● first choice
○ alternate choice



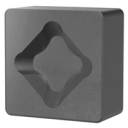


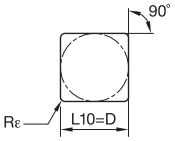
P	
M	
K	●
N	
S	
H	

ISO catalogue number	D	L10	Rε	KYK10
RNGN120400T02020	12,70	–	–	●

KENDEX • NEGATIVE INSERTS • SNGX

● first choice
○ alternate choice



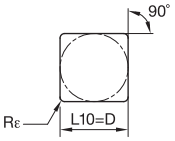


P	
M	
K	●
N	
S	
H	

ISO catalogue number	D	L10	Rε	KYK10
SNGX120712T02020	12,70	12,70	1,2	●
SNGX120716T02020	12,70	12,70	1,6	●
SNGX150724T02020	15,88	15,88	2,4	●

KENDEX • NEGATIVE INSERTS • SNMN

● first choice
○ alternate choice



P	
M	
K	●
N	
S	
H	

ISO catalogue number	D	L10	Rε	KYK10
SNMN120412T02020	12,70	12,70	1,2	●
SNMN120416T02020	12,70	12,70	1,6	●


44


45

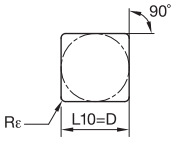
34-35

48

ISO Ceramic Inserts

KENDEX™ • NEGATIVE INSERTS • SNMX

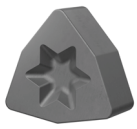
● first choice
○ alternate choice

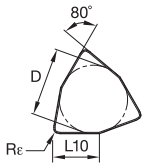


ISO catalogue number	D	L10	Rε	KYK10
SNMX120712T02020	12,70	12,70	1,2	●
SNMX120716T02020	12,70	12,70	1,6	●

KENDEX • NEGATIVE INSERTS • WNGX

● first choice
○ alternate choice





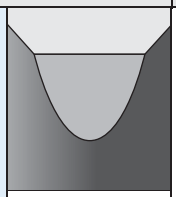
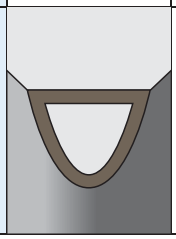
ISO catalogue number	D	L10	Rε	KYK10
WNGX080712T02020	12,70	8,69	1,2	●

44 | 45 | 34-35 | 48

Grade and Grade Descriptions

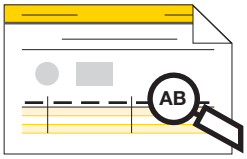
TURNING

wear resistance ⟷ toughness

Coating		Grade Description		05	10	15	20	25	30	35	40	45
KYK10	 –	Composition: An advanced SiAlON ceramic grade. Application: Provides maximum wear resistance. Used for high-speed continuous turning of grey cast iron, including through scale. To be used for varying cast iron machinability.	K									
KCS10B		Composition: PVD-AlTiN coating with a very smooth coating surface and extremely hard, wear-resistant ultra fine-grain carbide substrate. Application: The KCS10B™ grade is ideal for medium machining and finishing operations of Nickel-Based, Cobalt-Based, and Iron-Based High-Temperature Alloys. The extremely hard, wear-resistant carbide substrate allows for longer tool life while the ultra fine-grain carbide substrate and smoother coating reduces friction.	S									

General Information

KEY TO PRODUCT TABLE COLUMN HEADINGS



You may notice a slight change in the appearance of our product tables and specification charts. In this catalog, Kennametal introduces a set of short-name codes to improve the readability of tables and drawings. These codes replace full-text descriptions. The full list of codes and their definitions can be found below.

Short-Name Code	Full Text Description
D	Insert: Insert IC Size
L10	Insert Cutting Edge Length
M	Insert Gage Dimension
Rε	Corner Radius
S	Insert Thickness

Material Cross Reference • DIN

P Steel
M Stainless Steel
K Cast Iron

N Non-Ferrous
S High-Temp Alloys

H Hardened Materials
C CFRP Materials

material group	description	content	tensile strength RM (MPa)*	hardness (HB)	hardness (HRC)	material number
P0	Low-Carbon Steels, Long Chipping	C <0,25%	<530	<125	–	–
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0,25%	<530	<125	–	C15, Ck22, ST37-2, S235JR, 9SMnPb28, GS38
P2	Medium- and High-Carbon Steels	C >0,25%	>530	<220	<25	ST52, S355JR, C35, GS60, Cf53
P3	Alloy Steels and Tool Steels	C >0,25%	600–850	<330	<35	16MnCr5, Ck45, 21CrMoV5-7, 38SMn28
P4	Alloy Steels and Tool Steels	C >0,25%	850–1400	340–450	35–48	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P5	Ferritic, Martensitic, and PH Stainless Steels	–	600–900	<330	<35	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	–	900–1350	350–450	35–48	X102CrMo17, G-X120Cr29
M1	Austenitic Stainless Steel	–	<600	130–200	–	X5CrNi 18 10, X2CrNiMo 17 13 2, G-X25CrNiSi18 9, X15CrNiSi 20 12
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	–	600–800	150–230	<25	X2CrNiMo 13 4, X5NiCr 32 21, X5CrNiNb 18 10, G-X15CrNi 25-20
M3	Duplex Stainless Steel	–	<800	135–275	<30	X8CrNiMo27 5, X2CrNiMoN22 5 3, X20CrNiSi25 4, G-X40CrNiSi27 4
K1	Grey Cast Iron	–	125–500	120–290	<32	GG15, GG25, GG30, GG40, GTW40
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	–	<600	130–260	<28	GGG40, GTS35
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	–	>600	180–350	<43	GGG60, GTW55, GTS65
N1	Wrought Aluminium	–	–	–	–	AlMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminium Alloys and Magnesium Alloys	Si <12,2%	–	–	–	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminium Alloys and Magnesium Alloys	Si >12,2%	–	–	–	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fibreglass	–	–	–	–	LEXAN®, Hostalen™, Polystyrol®, MAKROLON®
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	CFK, GFK
N7	Metal Matrix Composites (MMC)	–	–	–	–	–
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	X1NiCrMoCu32 28 7, X12NiCrSi36 16, X5NiCrAlTi31 20, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 188, Stellite® 6,21,31
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	INCONEL® 690, INCONEL 625, Hastelloy®, NIMONIC® 75
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	–	–	–	44–48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153, Hardox® 400
H2	Hardened Materials	–	–	–	48–55	–
H3	Hardened Materials	–	–	–	56–60	–
H4	Hardened Materials	–	–	–	>60	–
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

NOTES

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METALCUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalogue!

Projectile and Fragmentation Hazards:

Modern metalcutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metalcutting. Although cutting tools are designed and manufactured to withstand high cutting forces and temperatures, they can sometimes fragment, particularly if they are subjected to over-stress, severe impact, or other abuse.

To avoid injury:

- Always wear appropriate personal protective equipment, including safety goggles, when operating metalcutting machines or working nearby.
- Always make sure all machine guards are in place.

Breathing and Skin Contact Hazards:

Grinding carbide or other advanced cutting tool materials produces dust or mist containing metallic particles. Breathing this dust or mist — especially over an extended period — can cause temporary or permanent lung disease or make existing medical conditions worse. Contact with this dust or mist can irritate eyes, skin, and mucous membranes and may make existing skin conditions worse.

To avoid injury:

- Always wear breathing protection and safety goggles when grinding.
- Provide ventilation control and collect and properly dispose of dust, mist, or sludge from grinding.
- Avoid skin contact with dust or mist.

For more information, read the applicable Material Safety Data Sheet provided by Kennametal and consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

These safety instructions are general guidelines. Many variables affect machining operations. It is impossible to cover every specific situation. The technical information included in this catalogue and recommendations on machining practices may not apply to your particular operation. For more information, consult the Kennametal Metalcutting Safety booklet, available free from Kennametal at 724 539 5747 or fax 724 539 5439. For specific product safety and environmental questions, contact our Corporate Environmental Health and Safety Office at 724 539 5066 or fax 724 539 5372.

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