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KENNAMETAL®

MASTER CATALOG 2018

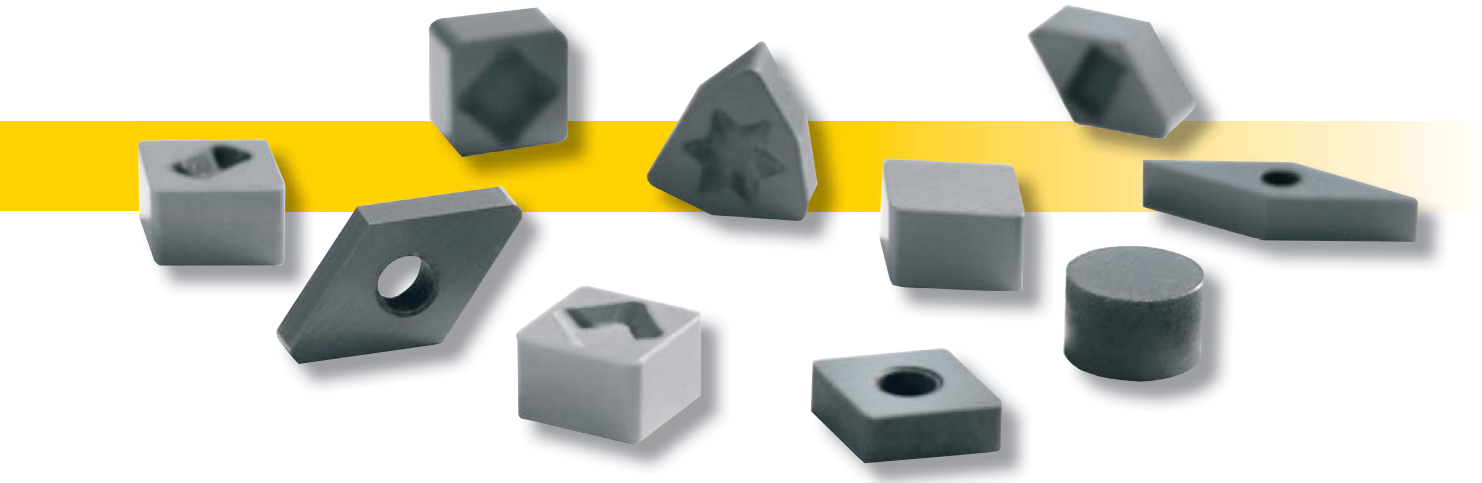
VOLUME ONE | **TURNING** TOOLS

ISO/ANSI TURNING | GROOVING & CUT-OFF | THREADING | APPLICATION SPECIFIC

Machining High-Temp Alloys with **Ceramics** and **PcBN**

Kennametal advanced materials, utilizing Beyond™ technology, offer greater wear resistance and toughness, depending on the job.

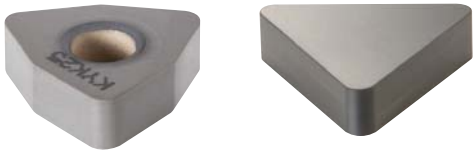
KYS ceramic inserts are the first choice for high-speed applications in high-temp alloys. The multilayer coating offers enhanced chemical wear resistance versus uncoated grades. A superior SiAlON ceramic substrate provides excellent depth of cut notching resistance versus whisker-reinforced ceramics.



Ceramic Inserts

KYS25™ Grade

- Excellent surface finish, lower cutting forces, and higher speeds.
- Advanced CVD coating provides excellent chemical and depth-of-cut notch resistance.



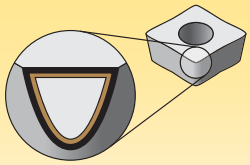
KYS30™ Grade

- Long, consistent tool life.
- Excellent toughness and depth-of-cut notch resistance.
- Performs in a wide variety of machining conditions, including interrupted cuts and applications involving scale.

Tipped PcBN Inserts

KB1630 Grade

- Long, consistent tool life.
- Excellent toughness and depth-of-cut notch resistance.
- Performs in a wide variety of machining conditions, including interrupted cuts and applications involving scale.



Coatings provide high-speed capability and are engineered for finishing to light roughing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ⟷ toughness

	Coating	Grade Description		05	10	15	20	25	30	35	40	45
Ceramic Grades	KYS25	**Composition:** SiAlON ceramic with a multilayered alumina-TiCN CVD coating. **Application:** Complements the KYS30™ grade when machining high-temp and nickel-based alloys and cast materials with high Brinell hardness. This advanced CVD coating provides excellent chemical and depth-of-cut notch resistance compared to whisker ceramics.	S									
			H									
	KYS30	**Composition:** Latest and most advanced SiAlON material developed. **Application:** Combines excellent wear properties, fracture toughness, and thermal shock resistance for general-purpose to finish machining of high-temp alloys. Provides superior depth-of-cut notch resistance compared to whisker ceramics.	S									
PcBN – Polycrystalline Cubic Boron Nitride Grades	KB1630	**Composition:** An uncoated high content PcBN grade. PcBN tips are brazed onto a carbide insert. **Application:** Designed for roughing to finishing in interrupted cuts on hardened steels (>45 HRC). It can also be applied on gray cast iron, chilled irons, high chrome alloyed steels, high temp alloys and sintered powder metals. The tipped PcBN inserts are available in a wide range of insert styles, including Top Notch™ and Screw-On geometries.	K									
			S									
			H									

NOVO KNOWS SEARCH

Searching for a tool has been enhanced by Advise and Select functions from NOVO™ applications — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Feature (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Receive Ranked Results

SELECT

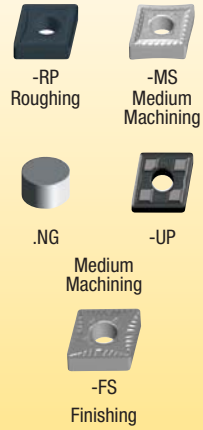
A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

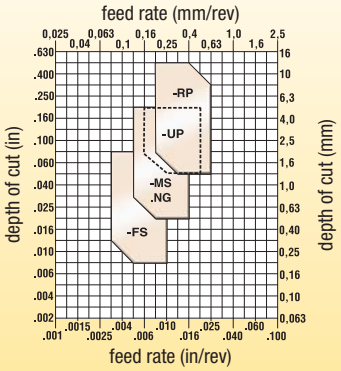
- If you know which product you are looking for, a quick search can be performed by just the catalog number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptive item options that fit with your solution.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. **kennametal.com/novo**

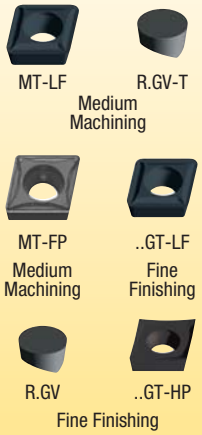
Step 1 • Select the insert geometry

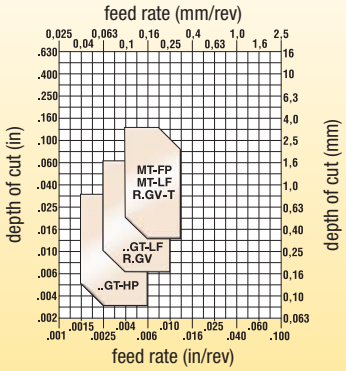
Negative Inserts





Positive Inserts





Step 2 • Select the grade

cutting condition	Negative Insert Geometry .NG
heavily interrupted cut	–
lightly interrupted cut	KYS30/KY1540
varying depth of cut, casting, or forging skin	KYS30/KY1540/KYS25/KY4300
smooth cut, pre-turned surface	KYS25/KY4300

cutting condition	Positive Insert Geometry R.GV-T
heavily interrupted cut	–
lightly interrupted cut	KYS30/KY1540
varying depth of cut, casting, or forging skin	KYS30/KY1540/KYS25/KY4300
smooth cut, pre-turned surface	KYS25/KY4300

Step 3 • Select the cutting speed

Iron-Based, Heat-Resistant Alloys (135–320 HB) (≤34 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

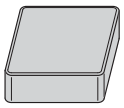
material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	290 (950)	310 (1050)	350 (1150)	380 (1250)	m/min	SFM
S1	KB1630									◁▷					260	850
	KYS25/KY4300								◁▷						200	650
	KYS30/KY1540							◁▷							170	550

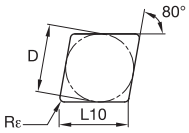
Cobalt-Based, Heat-Resistant Alloys (150–425 HB) (≤45 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	290 (950)	310 (1050)	350 (1150)	380 (1250)	m/min	SFM
S2	KB1630									◁▷					260	850
	KYS25/KY4300								◁▷						220	720
	KYS30/KY1540							◁▷							185	600

Nickel-Based, Heat-Resistant Alloys (140–475 HB) (≤48 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	290 (950)	310 (1050)	350 (1150)	380 (1250)	m/min	SFM
S3	KB1630									◁▷					260	850
	KYS25/KY4300									◁▷					250	820
	KYS30/KY1540							◁▷							215	700



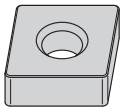


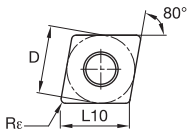
● first choice
○ alternate choice

P			
M			
K			
N			
S	●	●	○
H	○		●

CNGN/CNG

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
CNGN120416T01020	CNG434T0420	12,70	1/2	12,90	.508	1,6	1/16	●	–	–
CNGN120712T01020	CNG453T0420	12,70	1/2	12,90	.508	1,2	3/64	●	●	–
CNGN120716T01020	CNG454T0420	12,70	1/2	12,90	.508	1,6	1/16	–	●	–

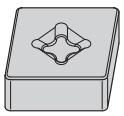


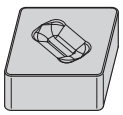


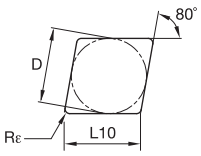
CNGA

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
CNGA120408E	CNGA432E	12,70	1/2	12,90	.508	0,8	1/32	●	●	–
CNGA120408T01020	CNGA432T0420	12,70	1/2	12,90	.508	0,8	1/32	●	●	–
CNGA120412T01020	CNGA433T0420	12,70	1/2	12,90	.508	1,2	3/64	●	●	–

NOTE: For toolholders and boring bars, see pages B58–B76.

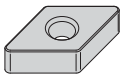


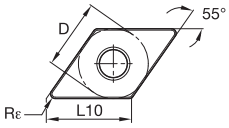




CNGX

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
CNGX120708T01020	CNGX452T0420	12,70	1/2	12,90	.508	0,8	1/32	●	●	–
CNGX120712T01020	CNGX453T0420	12,70	1/2	12,90	.508	1,2	3/64	●	●	–
CNGX120716E	CNGX454E	12,70	1/2	12,90	.508	1,6	1/16	–	●	–





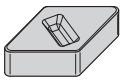
● first choice
○ alternate choice

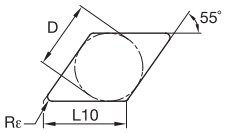
P			
M			
K			
N			
S	●	●	○
H	○		●

DNGA

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
DNGA150408T01020	DNGA432T0420	12,70	1/2	15,50	.610	0,8	1/32	–	●	–
DNGA150412T01020	DNGA433T0420	12,70	1/2	15,50	.610	1,2	3/64	–	●	–

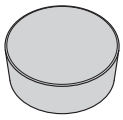
NOTE: For toolholders and boring bars, see pages B87–B96.

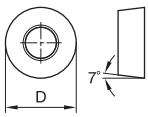




DNGX

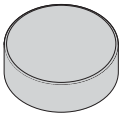
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
DNGX150708T01020	DNGX452T0420	12,70	1/2	15,50	.610	0,8	1/32	●	–	–
DNGX150712T01020	DNGX453T0420	12,70	1/2	15,50	.610	1,2	3/64	●	●	–
DNGX150716T01020	DNGX454T0420	12,70	1/2	15,50	.610	1,6	1/16	–	●	–

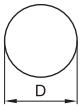




RCGX/RCGV

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
RCGX060400E	RCGV23E	6,35	1/4	–	–	–	–	●	●	–
RCGX090700E	RCGV35E	9,53	3/8	–	–	–	–	●	●	–
RCGX090700T00525	RCGV35T0225	9,53	3/8	–	–	–	–	–	●	–
RCGX090700T01020	RCGV35T0420	9,53	3/8	–	–	–	–	●	●	–
RCGX120700E	RCGV45E	12,70	1/2	–	–	–	–	●	●	–
RCGX120700T01020	RCGV45T0420	12,70	1/2	–	–	–	–	●	●	–
RCGX120700T01025	RCGV45T0425	12,70	1/2	–	–	–	–	●	●	–



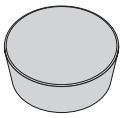


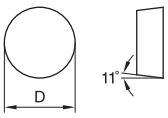
● first choice
○ alternate choice

P			
M			
K			
N			
S	●	●	○
H	○		●

RNGN/RNG

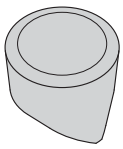
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KY525	KY530	KB1630
RNGN120400T01020	RNG43T0420	12,70	1/2	–	–	–	–	–	●	–
RNGN120700T00525	RNG45T0225	12,70	1/2	–	–	–	–	–	●	–
RNGN120700T01020	RNG45T0420	12,70	1/2	–	–	–	–	–	●	–
RNGN120700T01025	RNG45T0425	12,70	1/2	–	–	–	–	●	●	–
RNGN190700T01020	RNG65T0420	19,05	3/4	–	–	–	–	–	●	–

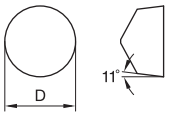




RPGN/RPG

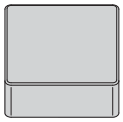
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KY525	KY530	KB1630
RPGN060200E	RPG2150E	6,35	1/4	–	–	–	–	–	●	–
RPGN090300E	RPG32E	9,53	3/8	–	–	–	–	–	●	–
RPGN090300T01020	RPG32T0420	9,53	3/8	–	–	–	–	–	●	–
RPGN120400E	RPG43E	12,70	1/2	–	–	–	–	–	●	–
RPGN120400T01020	RPG43T0420	12,70	1/2	–	–	–	–	–	●	–

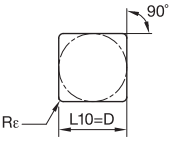




RPGX/RPGV

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KY525	KY530	KB1630
RPGX090700E	RPGV35E	9,53	3/8	–	–	–	–	●	●	–
RPGX090700T01020	RPGV35T0420	9,53	3/8	–	–	–	–	–	●	–
RPGX120700E	RPGV45E	12,70	1/2	–	–	–	–	●	●	–
RPGX120700T01020	RPGV45T0420	12,70	1/2	–	–	–	–	–	●	–



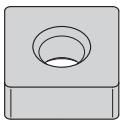


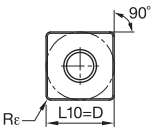
● first choice
○ alternate choice

P			
M			
K			
N			
S	●	●	○
H	○		●

SNGN/SNG

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
SNGN120408T01020	SNG432T0420	12,70	1/2	12,70	.500	0,8	1/32	–	●	–
SNGN120412T01020	SNG433T0420	12,70	1/2	12,70	.500	1,2	3/64	–	●	–
SNGN120416T01020	SNG434T0420	12,70	1/2	12,70	.500	1,6	1/16	●	●	–
SNGN120716T01020	SNG454T0420	12,70	1/2	12,70	.500	1,6	1/16	–	●	–
SNGN190616E	SNG644E	19,05	3/4	19,05	.750	1,6	1/16	●	–	–
SNGN190616T01020	SNG644T0420	19,05	3/4	19,05	.750	1,6	1/16	–	●	–
SNGN190724E	SNG656E	19,05	3/4	19,05	.750	2,4	3/32	–	●	–

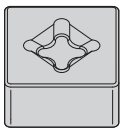


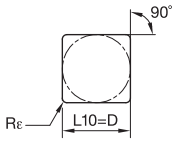


SNGA

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
SNGA120412T01020	SNGA433T0420	12,70	1/2	12,70	.500	1,2	3/64	●	●	–

NOTE: For toolholders and boring bars, see pages B109–B120.



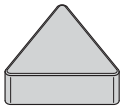


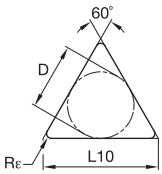
SNGX

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
SNGX120712T01020	SNGX453T0420	12,70	1/2	12,70	.500	1,2	3/64	–	●	–
SNGX120716T01020	SNGX454T0420	12,70	1/2	12,70	.500	1,6	1/16	–	●	–

● first choice
○ alternate choice

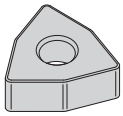
P			
M			
K			
N			
S	●	●	○
H	○		●

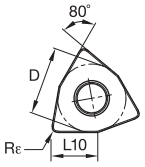




TNGN/TNG

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
TNGN220412T01020	**TNG433T0420**	12,70	1/2	22,00	.866	1,2	3/64	●	–	–
TNGN220416T01020	**TNG434T0420**	12,70	1/2	22,00	.866	1,6	1/16	●	–	–

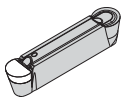


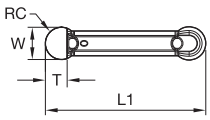


WNGA

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KYS25	KYS30	KB1630
WNGA080408T01020	**WNGA432T0420**	12,70	1/2	8,69	.342	0,8	1/32	–	●	–
WNGA080416T01020	**WNGA434T0420**	12,70	1/2	8,69	.342	1,6	1/16	–	●	–

NOTE: For toolholders and boring bars, see page B163.





● first choice
○ alternate choice

		KCU10	KCU25	KCP10	KCP25	KCK20	K313	KC5010	KC5025	KY3500	KT315	KB1630	KB5625	KD1405
P		●	●	●	●	○		○	○		●			
M		●	●				○	●	○					
K		○	○	○	○	●	○	○	○	●	○	○		
N		●	○				●	●	○					●
S		●	●				●	○	○			○		
H		○						○				●	●	

Flat Top Full Radius Precision Ground • PcBN

catalog number	seat size	W mm	W in	RR mm	RR in	LI mm	LI in	T mm	T in	KCU10	KCU25	KCP10	KCP25	KCK20	K313	KC5010	KC5025	KY3500	KT315	KB1630	KB5625	KD1405
A4R0300M03P00EST	3	3,00	.118	1,5	.059	20	.78	2,2	.087	–	–	–	–	–	–	–	–	–	–	●	–	–
A4R0400M04P00EST	4	4,00	.157	2,0	.079	20	.78	2,9	.114	–	–	–	–	–	–	–	–	–	–	●	–	–
A4R0500M05P00EST	5	5,00	.197	2,5	.099	25	.98	3,7	.146	–	–	–	–	–	–	–	–	–	–	●	–	–
A4R0600M06P00EST	6	6,00	.236	3,0	.118	30	1.18	4,4	.173	–	–	–	–	–	–	–	–	–	–	●	–	–

NOTE: For A4 holder, boring bars, and blades, see pages C114–C151.