



Application Specific

Beyond BLAST	F2–F12
Fix-Perfect	F14–F41
Top Notch Profiling	F42–F59
K-Lock	F60–F64
Kendex Mini	F66–F69
Wheel Reprofilng/Wheelset Truing	F70–F87
Axle and Wheel Reconditioning	F88–F94
Beyond RU and UP Geometries	F95
Wheel and Axle Tooling	F96–F97
New Railroad Wheel Manufacturing Tooling	F98–F109
Kennametal Select	F110–F134



Beyond BLAST™ • The First Through-Insert Coolant Delivery System from Kennametal



We didn't just improve metalcutting technology. We reinvented it.

Introducing Beyond BLAST, a revolutionary insert platform that delivers many of the benefits of high-pressure systems at conventional coolant pressures. Advanced coolant-application technology makes cutting more efficient and effective — while extending tool life. This tool is specifically designed for working with titanium and other high-temp alloys.

Features and Benefits

Higher Productivity, Extended Tool Life

- Increased tool life up to 300%, depending on the insert geometry and cutting conditions.
- Significant productivity and tool life increase in titanium machining.
- Higher metal removal rates and reduced cycle time.
- Chipbreaker design in combination with Precision Coolant Technology (PCT) provides excellent chip control and workpiece finish.

Versatility

- Ideal for applications where productivity or tool life is limited due to excess generated heat.
- Offered as a standard item with engineered solution capabilities.
- Provides increased performance with high-pressure or low-pressure coolant delivery systems.

More than just the right tool — the ultimate solution. That's **Beyond BLAST™**



That's **Different Thinking.**



A Simple Observation, a Revolutionary Concept

We took an entirely different approach to machining high-temperature alloys. We determined that the most effective way to deliver coolant would be to channel it through the insert — ensuring that it hits exactly where it does the most good. That means more efficient coolant delivery at a fraction of the cost of high-pressure coolant systems.

By precisely controlling coolant application, Beyond BLAST™ allows you to lower your energy consumption, saving you even more money and reducing your impact on the environment.

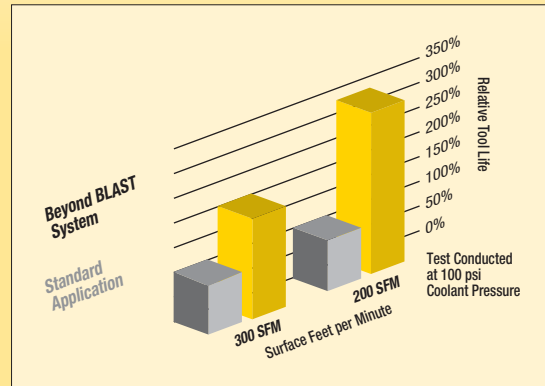
*To learn more, [scan here](#).
For instructions on how to scan, please see page xxix.*



Beyond BLAST System

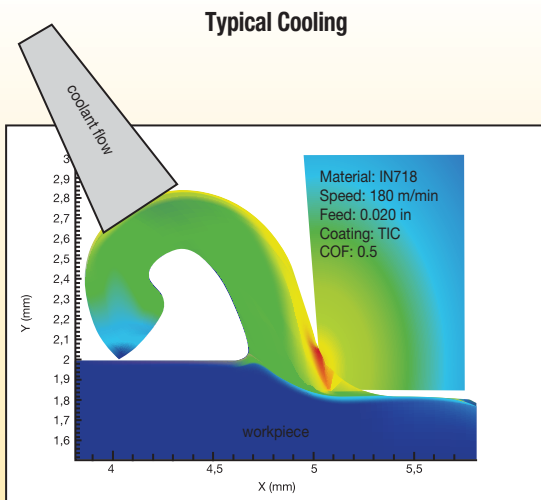
- Beyond BLAST delivers coolant directly and precisely to the cutting edge.
- Effective thermal management, higher speeds and reduced cycle times can be achieved.
- Delivers many of the benefits of high-pressure systems at low pressure.
- Provides increased performance with high-pressure or low-pressure coolant delivery systems.

Beyond BLAST for turning increases tool life by up to 300% compared with conventional coolant delivery systems.

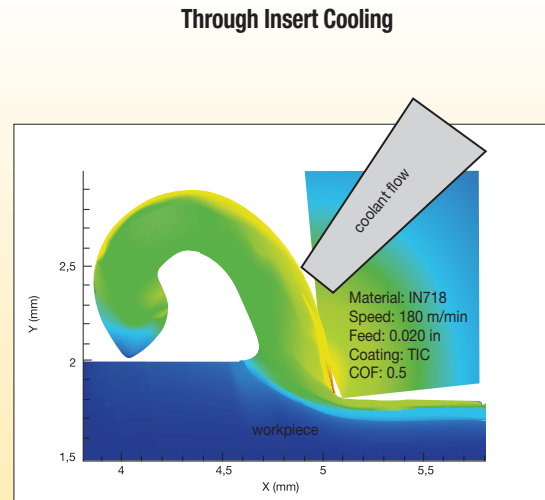


Application Specific

Coolant Application



Typical cooling applications often miss the point of highest heat, generated where the tool shears the material. Hitting chips after they have formed proves typical cooling applications can even work at cross-purposes by forcing chips back into the cut, accelerating tool wear. Part of the problem is that the coolant-delivering nozzle is located relatively far from the workpiece.



Beyond BLAST with Precision Coolant Technology (PCT)

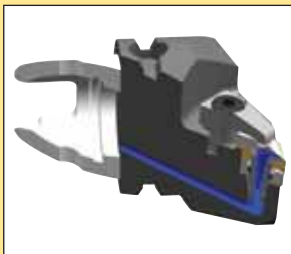
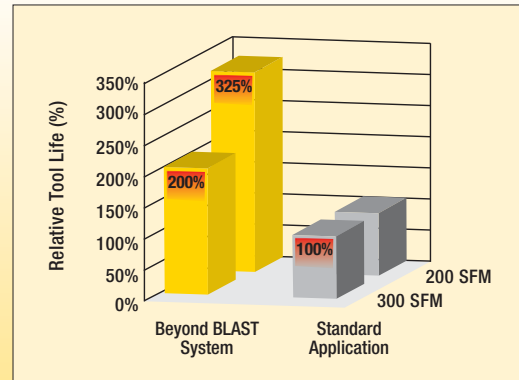
With Beyond BLAST, coolant is delivered through the insert, at the interface of the tool and the workpiece material, offering the best of both worlds.

Beyond BLAST with Precision Coolant Technology (PCT) features through-insert cooling. It delivers coolant much closer to the tool/chip interface. Coolant pressure remains adjustable. Since the coolant is delivered through the insert, coolant delivery is more reliable and controlled, significantly reducing temperatures at the point of the cut.

Application Data

The illustrations below show Beyond BLAST turning inserts and the coolant delivery path through the turning holder and insert.

In tests involving titanium turning, Beyond BLAST inserts at 100 psi showed 75% improvement in tool life over the same inserts with flood coolant at 100 psi. In a different test to evaluate the influence of coolant pressure, tool life for Beyond BLAST at 100 psi was nearly that of identical insert geometries at 1,000 psi, delivering cutting conditions and longer tool life on par with expensive, custom high-pressure coolant delivery systems at significantly lower cost.



Test 1
62 m/min (200 SFM)

Test 2
93 m/min (300 SFM)

Cutting Conditions and Parameters • CNMG432MBB • KCU10™

Workpiece	Ti6Al4V (Titanium)	Ti6Al4V (Titanium)
Hardness	42–46 Rc hardness	42–46 Rc hardness
Cutting fluid (100 psi)	Water-based synthetic	Water-based synthetic
Cutting speed (vc)	62 m/min (200 SFM)	93 m/min (300 SFM)
Feed rate (f)	0,2 mm/rev (.008 IPR)	0,2 mm/rev (.008 IPR)
Depth of cut	1,27mm (.05")	1,27mm (.05")
Tool life Beyond BLAST versus Standard	3,2x	2x
Result:	Over 3x tool life	Double the tool life

Product Portfolio

- KM50TS holders.
- Inch and metric square shanks.
- C- and R-shaped inserts.
- Geometries: FBB, MBB, RBB, ELF.
- Grades: KU10, KCU10.

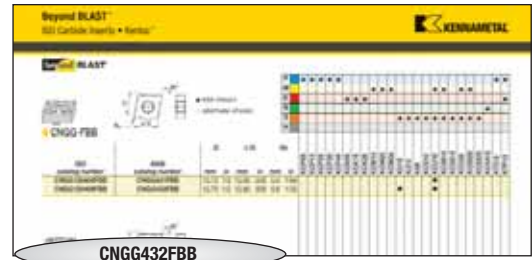
C-Style



R-Style



Beyond BLAST Identification System



CNGG432FBB
RCGX64ELF

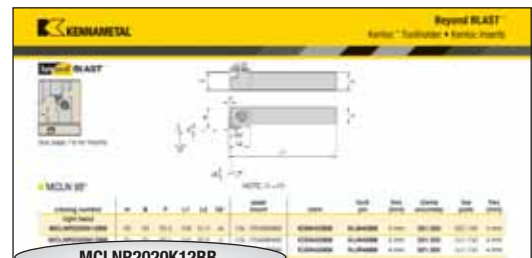
Inserts • C-Style

C Insert Shape	N Clearance Angle	G Tolerance Class	G Insert Features	4 Size	3 Thickness	2 Corner Radius "Re"	F Chip Control	BB Beyond BLAST
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Inserts • R-Style

R Insert Shape	C Clearance Angle	G Tolerance Class	X Geometry and Clamping Type	6 Size	4 Thickness	EL Corner Configuration	F Cutting Edge Form	
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Application Specific



MCLNR2020K12BB
MCLNR16DBB

Toolholders • ISO

M Insert Holding Method	C Insert Shape	L Tool Style	N Clearance Angle	R Hand of Tool	2020 Shank Dimensions	K Tool Length	12 Insert Size	BB Beyond BLAST
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Toolholders • ANSI

M Insert Holding Method	C Insert Shape	L Tool Style	N Clearance Angle	R Hand of Tool	16 Shank Dimensions	D Qualified Surface Length	BB Beyond BLAST	
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■ Step 1 • Select the insert geometry

Negative Inserts



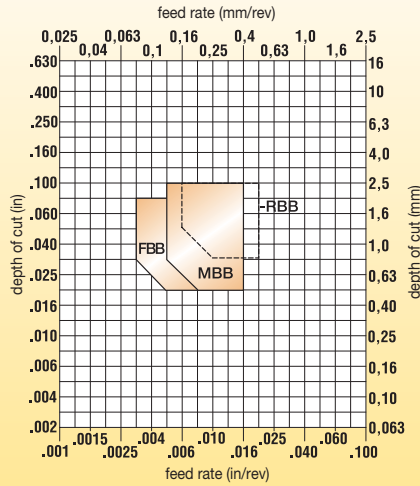
-RBB
Roughing



-MBB
Medium Machining



-FBB
Finishing



NOTE: Maximum depth of cut is 2,5mm (.100").

■ Step 2 • Select the grade

cutting condition	Negative Insert Geometry		
	-RBB	-MBB	-FBB
heavily interrupted cut	KCU10	KCU10	KCU10
lightly interrupted cut	KCU10	KCU10	KCU10
varying depth of cut, casting, or forging skin	KU10/KCU10	KU10/KCU10	KU10/KCU10
smooth cut, pre-turned surface	KU10/KCU10	KU10/KCU10	KU10/KCU10

■ Step 3 • Select the cutting speed

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)	m/min	SFM
S3	KU10										40	125
	KCU10										70	225

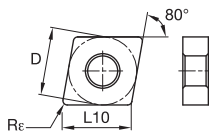
Titanium and Titanium Alloys (110–450 HB) (≤48 HRC)		speed — m/min (SFM)									starting conditions	
material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	m/min	SFM
S4	KU10										45	150
	KCU10										70	225

Application Specific

beyond BLAST™

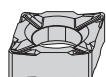


■ CNGG-FBB

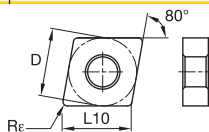


● first choice
○ alternate choice

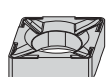
ISO catalog number	ANSI catalog number	D		L10		Re	
		mm	in	mm	in	mm	in
CNGG120404FBB	CNGG431FBB	12,70	1/2	12,90	.508	0,4	1/64
CNGG120408FBB	CNGG432FBB	12,70	1/2	12,90	.508	0,8	1/32



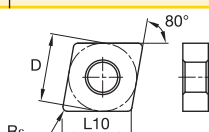
■ CNMG-MBB



ISO catalog number	ANSI catalog number	D		L10		Re	
		mm	in	mm	in	mm	in
CNMG120404MBB	CNMG431MBB	12,70	1/2	12,90	.508	0,4	1/64
CNMG120408MBB	CNMG432MBB	12,70	1/2	12,90	.508	0,8	1/32



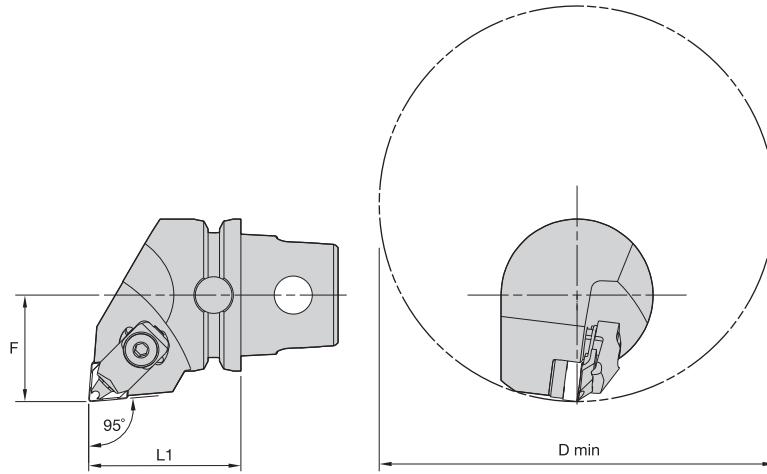
■ CNMG-RBB



ISO catalog number	ANSI catalog number	D		L10		Re	
		mm	in	mm	in	mm	in
CNMG120408RBB	CNMG432RBB	12,70	1/2	12,90	.508	0,8	1/32

	P	M	K	N	S	H	KCP05	KCP10	KCP25	KCP30	KCP40	KCK05	KCK15	KCK20	KCM15	KCM25	KCM35	KU10	K313	K68	KCS10	KCU10	KC5010	KC5510	KCU25	KC5025	KC5525	KC5410	KT315	KTP10	
CNGG120404FBB	●	●	●	●	●	●																									
CNGG120408FBB																		●				●									
CNMG120404MBB																						●									
CNMG120408MBB																		●				●									
CNMG120408RBB																		●				●									

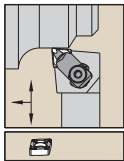
Application Specific



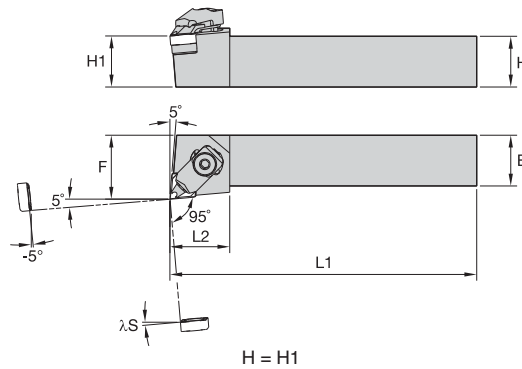
■ MCLN 95°

order number	catalog number	L1		F		D min		gage insert	shim	lock pin	clamp assembly	top plate	kg	lbs
		mm	in	mm	in	mm	in							
	right hand													
4098740	KM50TSMCLNR12BB	50	1.969	35	1.378	130	5.118	CN..120408RBB/CN..432RBB	ICSN433BB	KLM48BB	551.350	557.150	0,33	1.45
	left hand													
4098741	KM50TSMCLNL12BB	50	1.969	35	1.378	130	5.118	CN..120408RBB/CN..432RBB	ICSN433BB	KLM48BB	551.350	557.150	0,33	1.45

Application Specific



See page F8 for inserts.

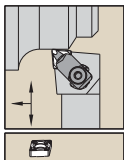


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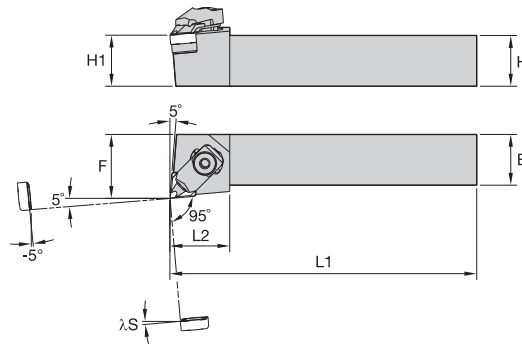
beyond BLAST™

■ MCLN 95°

catalog number	H	B	F	L1	L2	λS°	gage insert	shim	lock pin	hex (mm)	clamp assembly	top plate	hex (mm)
right hand													
MCLNR2020K12BB	20	20	25,5	128	31,2	-6	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNR2525M12BB	25	25	32,5	153	32,0	-5	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNR3232P12BB	32	32	40,5	173	37,2	-6	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
left hand													
MCLNL2020K12BB	20	20	25,5	128	31,2	-6	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNL2525M12BB	25	25	32,5	153	32,0	-5	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNL3232P12BB	32	32	40,5	173	37,2	-6	CN..120408RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm



See page F8 for inserts.

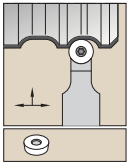


H = H1

■ MCLN -5°

catalog number	H	B	F	L1	L2	λS°	gage insert	shim	lock pin	hex (mm)	clamp assembly	top plate	hex (mm)
right hand													
MCLNR164DBB	1.00	1.00	1.250	6.00	1.17	-5	CN..432RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNR204DBB	1.25	1.25	1.500	6.00	1.17	-6	CN..432RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
left hand													
MCLNL164DBB	1.00	1.00	1.250	6.00	1.17	-5	CN..432RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm
MCLNL204DBB	1.25	1.25	1.500	6.00	1.17	-6	CN..432RBB	ICSN433BB	KLM48BB	4 mm	551.350	557.150	4 mm

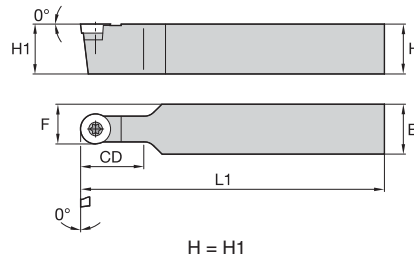
Application Specific



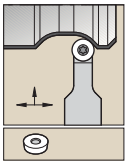
See page F9 for inserts.

beyond BLAST™

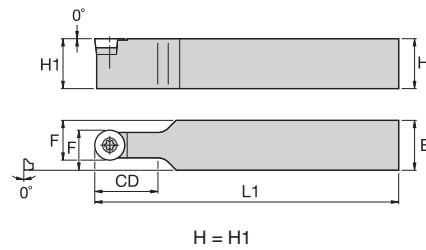
■ **SRDC**



catalog number	H	B	F	L1	CD	gage insert	shim	insert screw	wrench size insert screw
left hand SRDCN3232P19BB	32	32	25,5	173	50,8	RCGX190600ELF	SM907	MS2246	T25



See page F9 for inserts.



■ **SROC**

catalog number	H	B	F	L1	CD	gage insert	shim	insert screw	wrench size insert screw
left hand SROCN206BB	1.25	1.25	1.000	6.00	2.00	RCGX64ELF	SM907	MS2246	T25

Application Specific

Looking for a product that's not shown in this catalog?
Check the Kennametal website!



Turning

Online product catalog available 24/7

Visit <http://www.kennametal.com/turning/> to browse our electronic catalog any time you're looking for Kennametal's best tooling solutions. It's fast, free, and always available. The online e-catalog is updated weekly with products and solutions for milling, turning, holmaking, and tooling systems applications.



The Fix-Perfect™ Precision Ground Insert Program Goes Above and Beyond™!



Primary Application

The breakthrough performance characteristics of these precision ground inserts enable outstanding indexing accuracy and excellent chip flow when machining steel, cast iron, and stainless steel workpiece materials.

Fix-Perfect Beyond Inserts are the ideal solution to machining operations in a multitude of industries, including fluid power, energy, automotive, heavy equipment, and general engineering applications.

Features and Benefits

Features	Functions
Tangential design.	Stable system.
Rigid clamping system.	Very stable clamping system and quick and easy cutting edge switch.
Up to eight cutting edges (protected by pocket seat).	Use up to eight edges per insert.
Positive geometry.	Very low cutting forces and excellent chip control.
Precision ground insert.	Better indexing accuracy.



Benefits

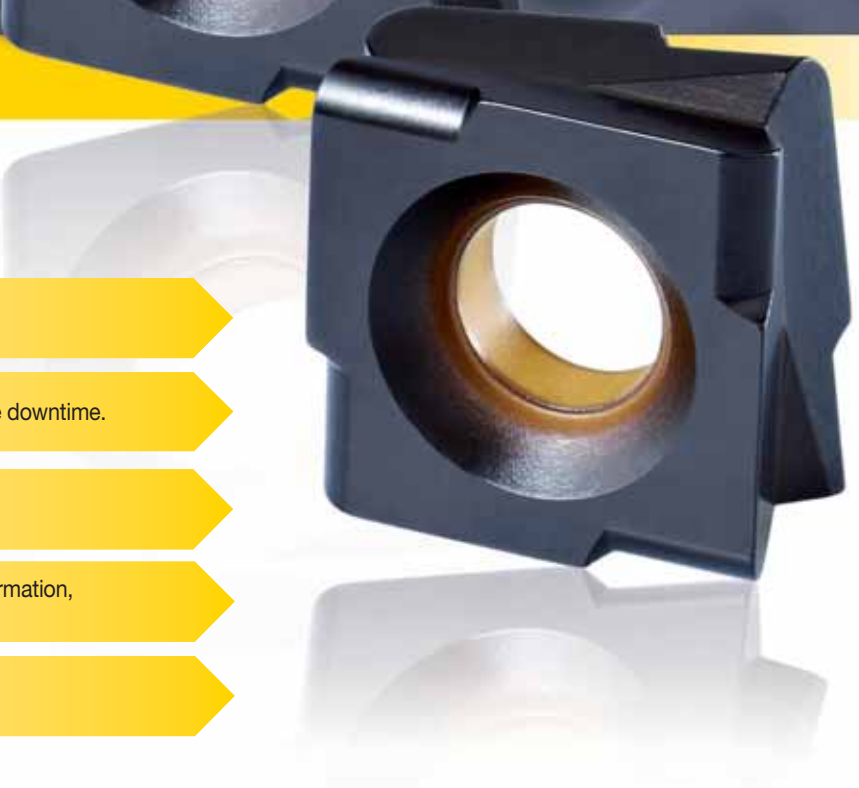
Process reliability and high productivity.

Process reliability, high productivity, and reduced machine downtime.

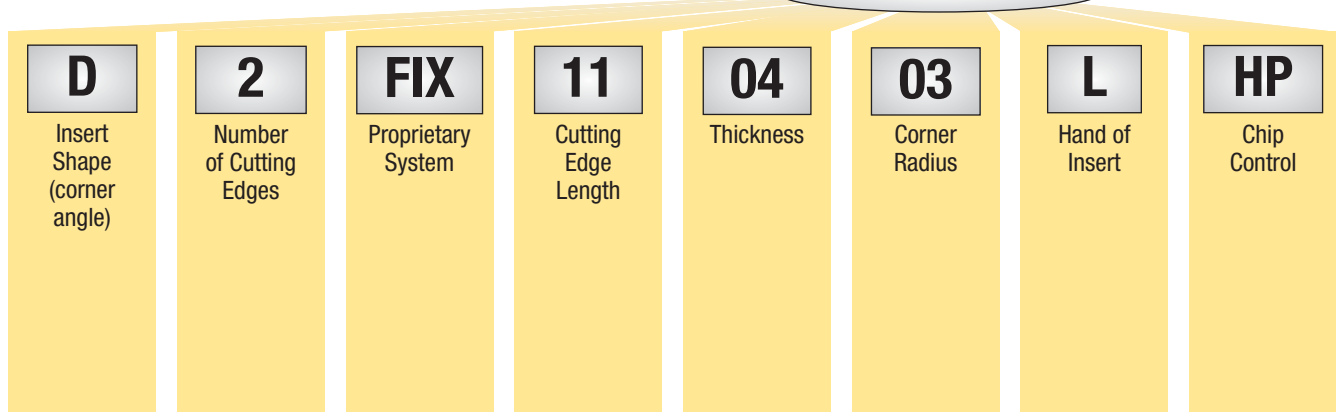
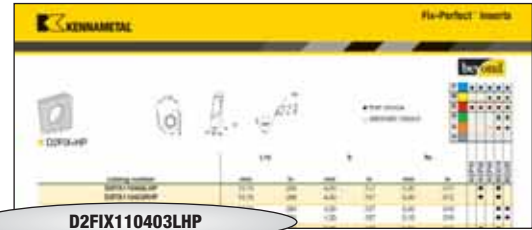
Higher productivity.

Low vibrations, smooth cut, silent cut, no workpiece deformation, and high surface quality.

Process reliability.



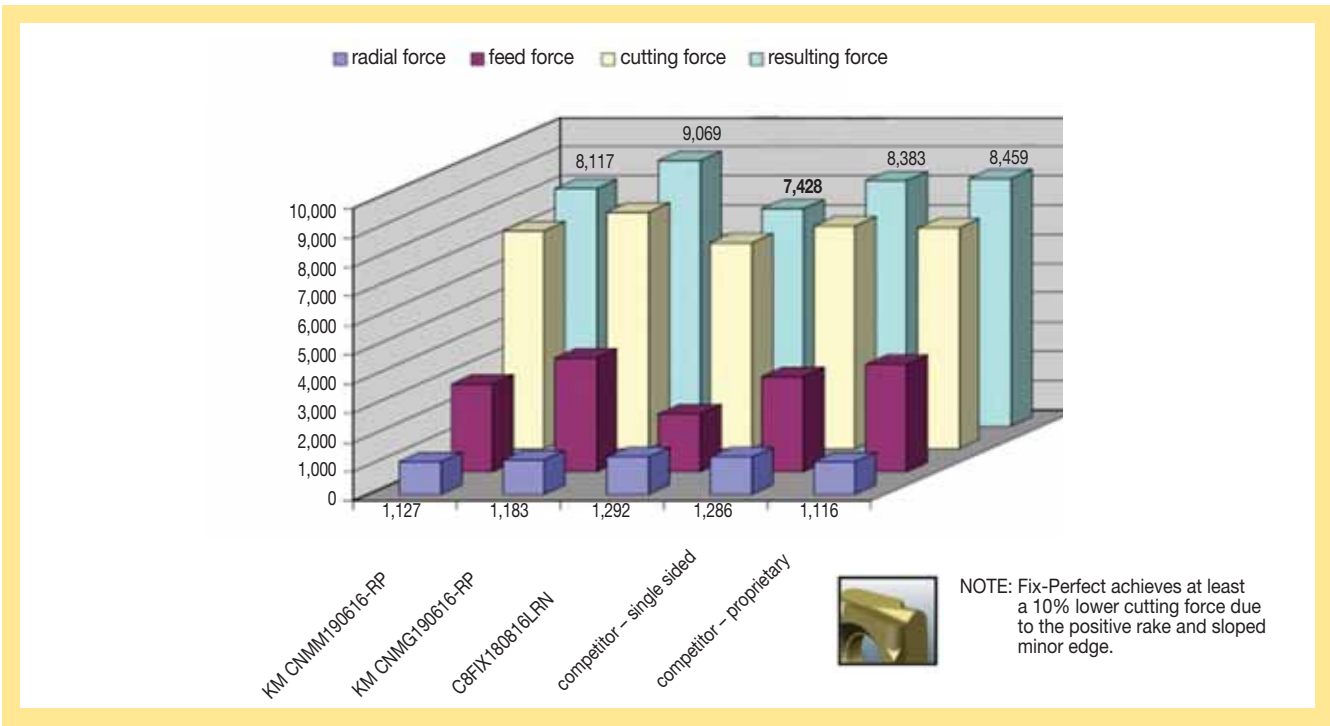
Beyond™ Identification System

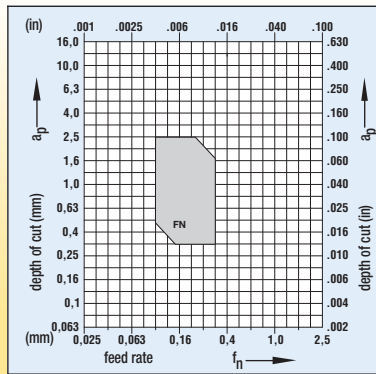
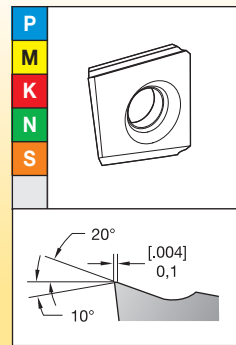


Application Specific

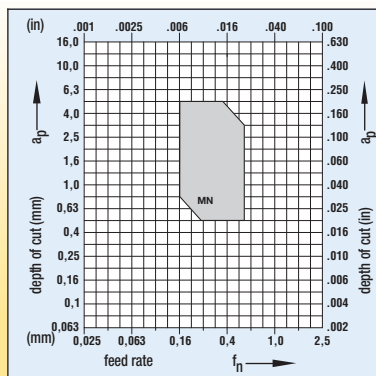
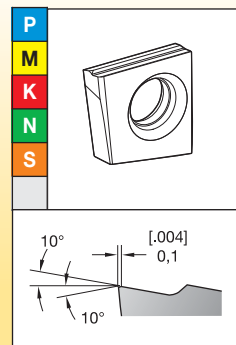
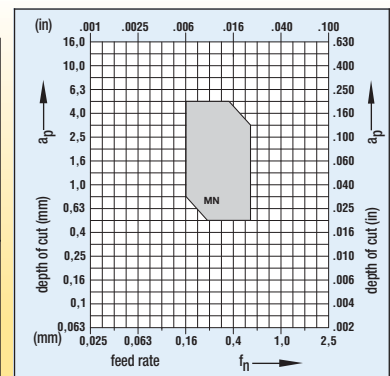
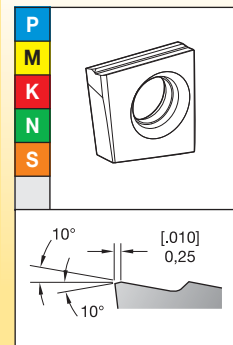
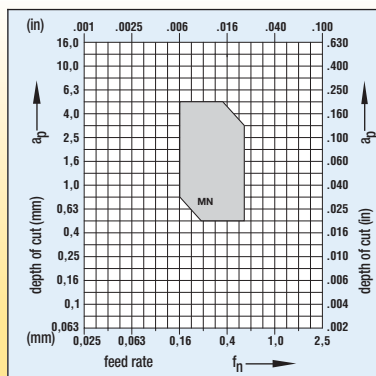
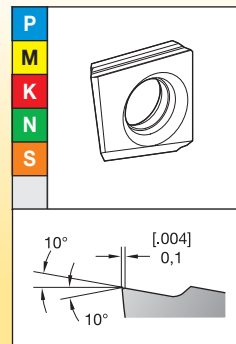
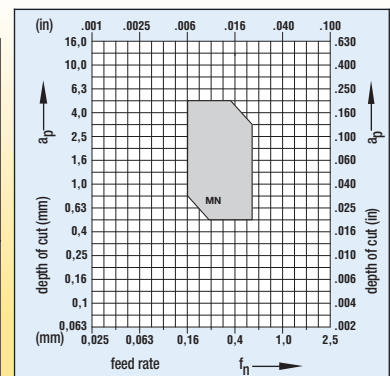
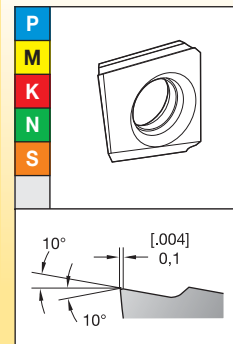
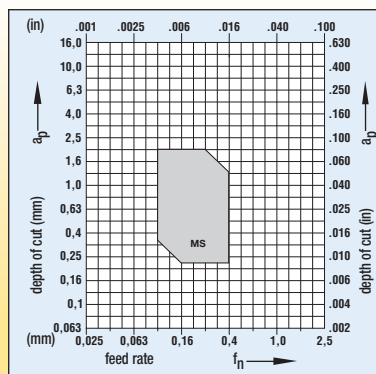
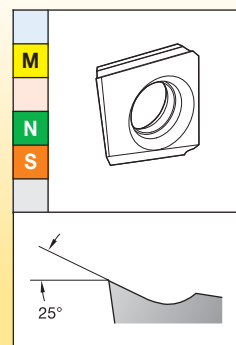
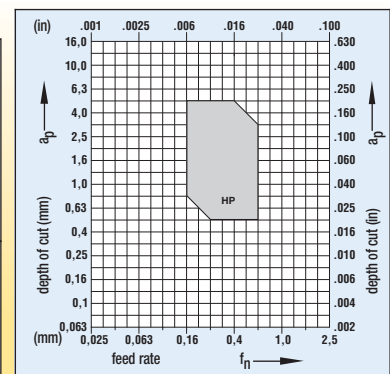
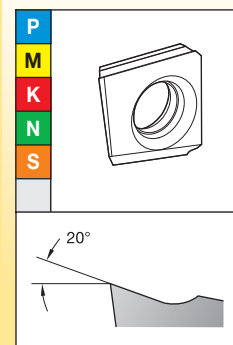
New Beyond Fix-Perfect Naming System

old catalog number	description	new catalog number
1.21101R151	insert with 2 positive cutting edges, corner radius e = 56°	D2FIX110403RMS



Finishing
D2FIX-FN


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

Medium Machining
C2FIX15-MN

C2FIX18-MN

D2FIX-MN

K2FIX-MN

D2FIX-MS

D2FIX-HP


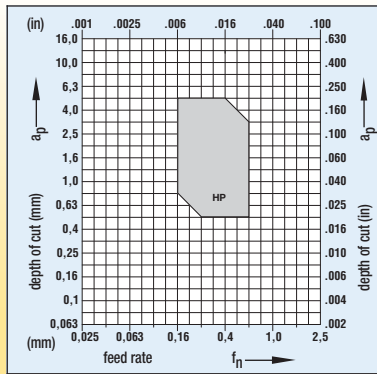
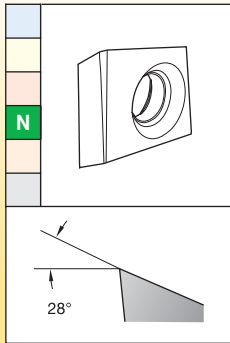
(continued)



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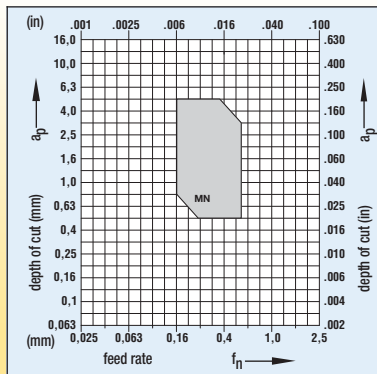
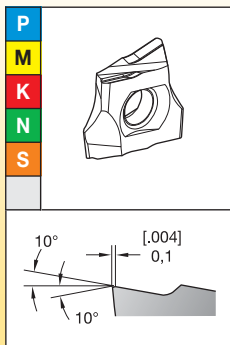
Medium Machining

E2FIX-HP

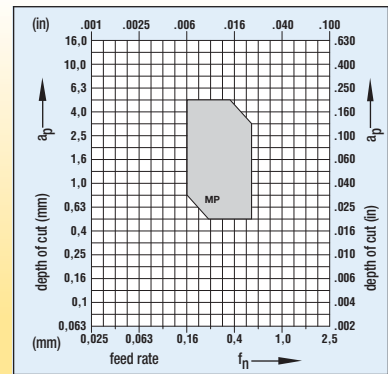
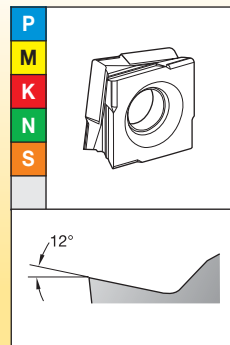


P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous Materials
S	High-Temp Alloys
H	Hardened Materials

D4FIX-MN



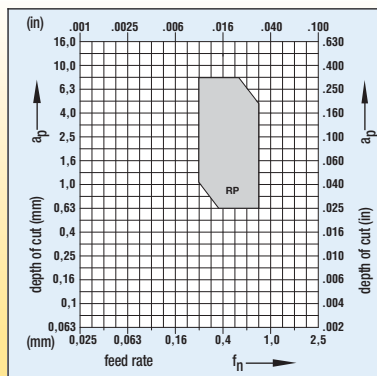
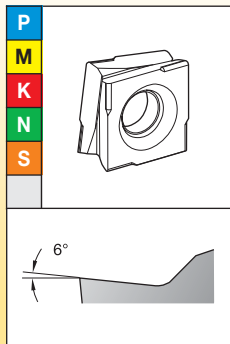
C8FIX-MP



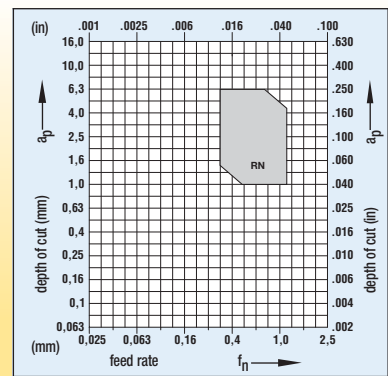
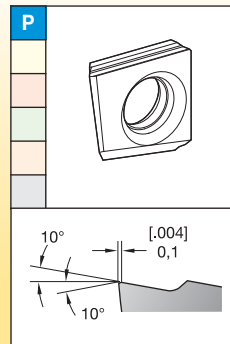
Application Specific

Roughing

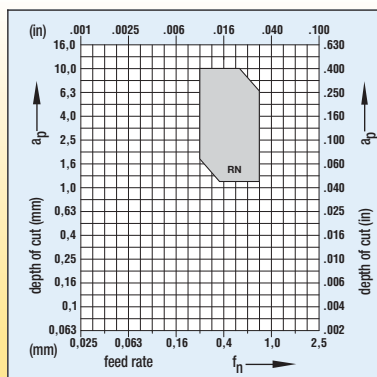
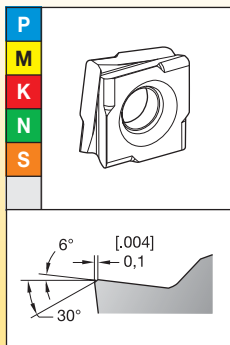
C8FIX-RP



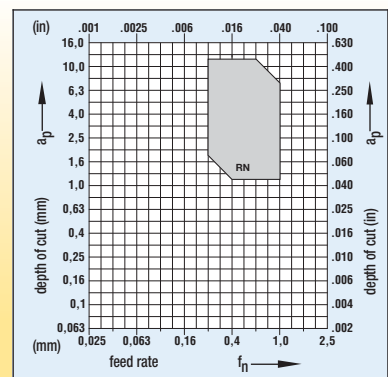
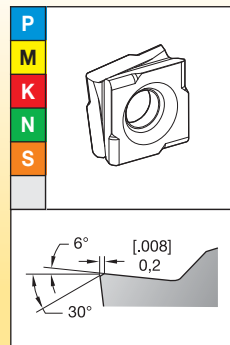
D2FIX-RN



C8FIX15-RN



C8FIX18-RN



Select the Insert Geometry

8-Edged Inserts

Roughing

Interrupted cut and/or heavy scale
USE: -RP OR -RN



-RP

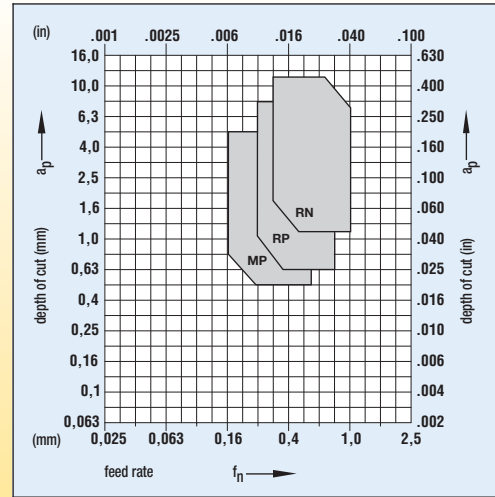
-RN

Medium Turning

Slightly interrupted cut and/or slight scale
USE: -MP



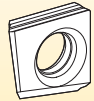
-MP



2- and 4-Edged Inserts

Roughing

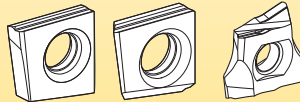
Interrupted cut and/or heavy scale
USE: -RN



-RN

Medium Turning

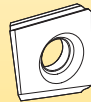
Slightly interrupted cut and/or slight scale
USE: -MN



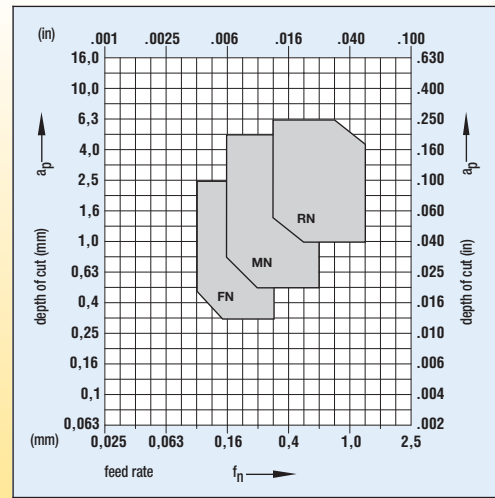
-MN

Finishing

Non-interrupted cut, no scale
USE: -FN



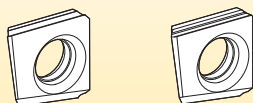
-FN



2-Edged Inserts, High Positive

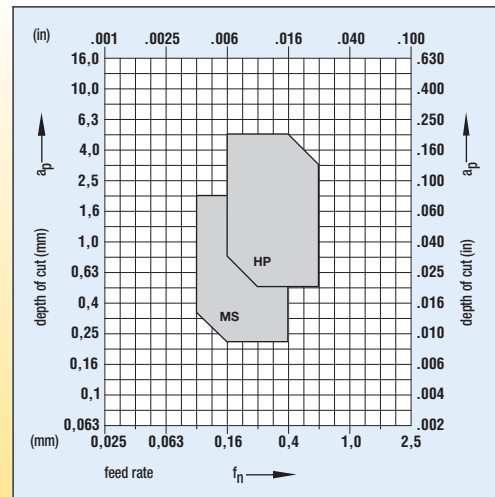
Medium Turning

Slightly interrupted cut and/or slight scale
USE: -HP OR -MS



-HP

-MS



Application Specific

■ Select the Grade

	P	M	K	N	S	H
heavy interrupted	KCP40/KCU25	KCU25	KCP25/KCU25	KCU25	KCU25	—
lightly interrupted	KCP25/KCU25	KCU25	KCP25/KCU25	KCU25	KCU25	—
varying depths of cut	KCP10/KCU10	KCU10	KCP10/KCU10	KCU10	KCU10	KCU10
smooth	KCP10/KCU10	KCU10	KCP10/KCU10	KCU10	KCU10	KCU10

■ Select the Cutting Speed

Application Specific

Steel speed — m/min (SFM) starting conditions

material group	grade	60 (200)	90 (300)	120 (400)	150 (500)	185 (617)	215 (717)	245 (800)	275 (900)	300 (1000)	m/min	SFM
P	KCP40	◊									150	500
	KCU10	◊									200	650
	KCP25	◊									200	650
	KCP10	◊									250	800

Stainless Steel speed — m/min (SFM) starting conditions

material group	grade	45 (150)	70 (233)	90 (300)	115 (383)	140 (467)	165 (550)	185 (617)	210 (700)	230 (767)	m/min	SFM
M	KCP40	◊									140	450
	KCU25	◊									165	500
	KCU10	◊									185	600

Cast Iron speed — m/min (SFM) starting conditions

material group	grade	90 (300)	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	460 (1500)	m/min	SFM
K	KCU25	◊									165	500
	KCU10	◊									180	600
	KCP25	◊									230	750
	KCP10	◊									260	850

Non-Ferrous speed — m/min (SFM) starting conditions

material group	grade	150 (500)	225 (750)	300 (1000)	380 (1267)	460 (1533)	535 (1783)	610 (2033)	685 (2283)	760 (2533)	m/min	SFM
N	KCU10	◊									460	1500

High-Temperature Alloys speed — m/min (SFM) starting conditions

material group	grade	35 (117)	45 (150)	55 (183)	65 (217)	75 (250)	85 (283)	95 (317)	120 (400)	140 (467)	m/min	SFM
S	KCU25	◊									45	150
	KCU10	◊									60	200

Hardened Steel speed — m/min (SFM) starting conditions

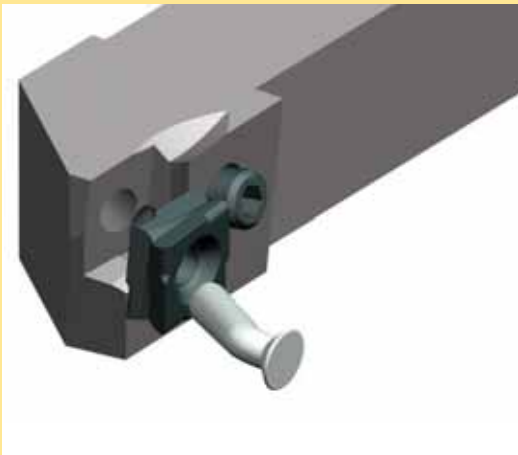
material group	grade	5 (17)	15 (50)	25 (83)	35 (117)	45 (150)	55 (183)	65 (217)	75 (250)	85 (283)	m/min	SFM
H	KCU10	◊									30	100

Fix-Perfect Tool System



With 2, 4, or 8 edges, this tool system is the ideal supplement to ISO tools.

The examples on the following page show the range of possible applications.



Use of the Fix-Perfect system results in:

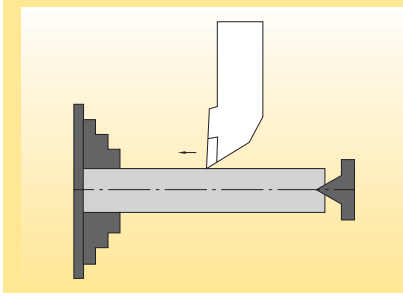
- Lower cutting forces.
- Smooth, open chips.
- Larger feed rates and depths of cut.



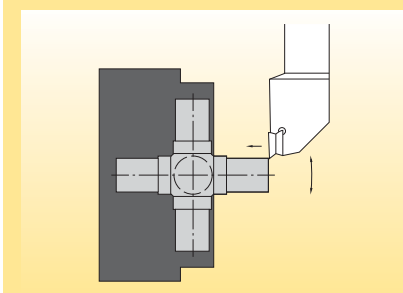
Application Specific

(continued)

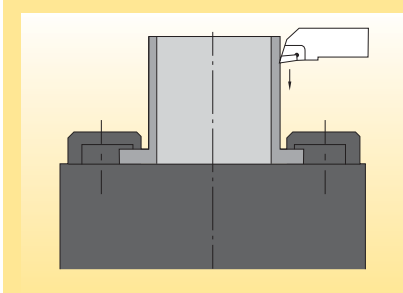
(continued)



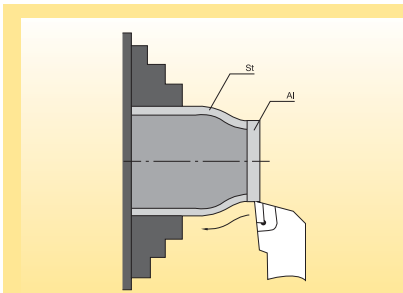
Turning slender shafts (clamping on one side also possible) with a workpiece length outside the chuck $>8 \times D$ with high geometric accuracy and surface finish.



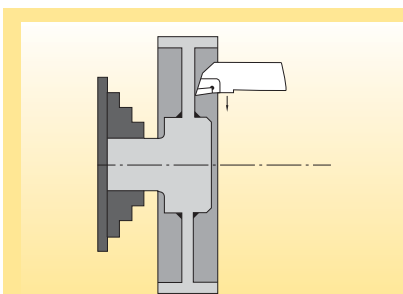
Machining of unstably chucked workpieces (e.g., in a swivel chuck).



External machining of thin-walled workpieces.

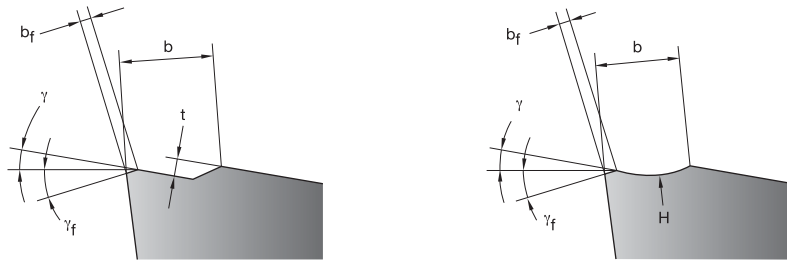


Turning material combinations of varying machinability, for example, aluminum combined with stainless and acid-proof steels.



Smoothing of welding seams with interrupted cuts.

Application Specific



old catalog number	new catalog number	b		t		γ°	b _f		γ _f °
		mm	inch	mm	inch		mm	inch	
NEW	C2FIX110404LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX110404RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21103L171	C2FIX110405LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21103R171	C2FIX110405RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX110408LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX110408RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX150504LMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX150504RMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21503L171	C2FIX150505LMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21503R171	C2FIX150505RMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX150508LMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
NEW	C2FIX150508RMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21503L172	C2FIX150510LMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21503R172	C2FIX150510RMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
NEW	C2FIX150512LMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
NEW	C2FIX150512RMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21803L171	C2FIX180610LMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21803R171	C2FIX180610RMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21803L172	C2FIX180615LMN	4,0	0.157	0,6	0.024	10	0,3	0.012	10
1.21803R172	C2FIX180615RMN	4,0	0.157	0,6	0.024	10	0,3	0.012	10
1.21501L152	D2FIX150505LFN	3,2	0.126	H	H	20	0,1	0.004	10
1.21501R152	D2FIX150505RFN	3,2	0.126	H	H	20	0,1	0.004	10
1.21101L173	D2FIX110403LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21101R173	D2FIX110403RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX110404LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX110404RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21101L171	D2FIX110405LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21101R171	D2FIX110405RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21501R175	D2FIX150503RMN	2,2*	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX150504LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX150504RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21501L171	D2FIX150505LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21501R171	D2FIX150505RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX150508LMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
NEW	D2FIX150508RMN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21501L173	D2FIX150510LMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21501R173	D2FIX150510RMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21801L171	D2FIX180610LMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21801R171	D2FIX180610RMN	3,2	0.126	0,5	0.020	10	0,2	0.008	10
1.21501L172	D2FIX150505LRN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21501R172	D2FIX150505RRN	2,6	0.102	0,4	0.016	10	0,1	0.004	10
1.21501L154	D2FIX150503LMS	3,0	0.118	H	H	25**	Sharp	Sharp	Sharp
1.21501R154	D2FIX150503RMS	3,0	0.118	H	H	25**	Sharp	Sharp	Sharp
1.21501L155	D2FIX150505LMS	3,0*	0.118	H	H	25**	Sharp	Sharp	Sharp

Application Specific

H – Hollow-ground.

* – Deviation from old catalog number.

** – At mounting angle (clearance) 7°. Also 12° mounting angle possible (dependent on toolholder), then γ = 20°.

(continued)

(continued)

Application Specific

old catalog number	new catalog number	b		t		γ°	b _r		γ _r °
		mm	inch	mm	inch		mm	inch	
1.21501R155	D2FIX150505RMS	3,0*	0.118	H	H	25**	Sharp	Sharp	Sharp
1.21101L151	D2FIX110403LHP	2,6	0.102	H	H	20	Sharp	Sharp	Sharp
1.21101R151	D2FIX110403RHP	2,6	0.102	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX110404LHP	2,6	0.102	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX110404RHP	2,6	0.102	H	H	20	Sharp	Sharp	Sharp
1.21501L151	D2FIX150503LHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
1.21501R151	D2FIX150503RHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX150504LHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX150504RHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX150508LHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
NEW	D2FIX150508RHP	3,0	0.118	H	H	20	Sharp	Sharp	Sharp
1.21500L145	E2FIX100505LHP	—	—	—	—	28	Sharp	Sharp	Sharp
1.21500R145	E2FIX100505RHP	—	—	—	—	28	Sharp	Sharp	Sharp
1.21500L171	K2FIX150505LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.21500R171	K2FIX150505RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.42002L173	D4FIX140603LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.42002R173	D4FIX140603RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D4FIX140604LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D4FIX140604RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.42002L171	D4FIX140605LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.42002R171	D4FIX140605RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D4FIX140608LMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
NEW	D4FIX140608RMN	2,2	0.087	0,4	0.016	10	0,1	0.004	10
1.81202L171	C8FIX120503LMP	1,6	0.063	0,3	0.012	12	—	—	—
1.81202R171	C8FIX120503RMP	1,6	0.063	0,3	0.012	12	—	—	—
1.81502L171	C8FIX150603LMP	2,0	0.079	0,3	0.012	12	—	—	—
1.81502R171	C8FIX150603RMP	2,0	0.079	0,3	0.012	12	—	—	—
1.81802L171	C8FIX180805LMP	2,3	0.091	0,4	0.016	12	—	—	—
1.81802R171	C8FIX180805RMP	2,3	0.091	0,4	0.016	12	—	—	—
1.81201L121	C8FIX120503LRP	—	—	—	—	6	—	—	—
1.81201R121	C8FIX120503RRP	—	—	—	—	6	—	—	—
NEW	C8FIX120504LRP	—	—	—	—	6	—	—	—
NEW	C8FIX120504RRP	—	—	—	—	6	—	—	—
1.81201L122	C8FIX120505LRP	—	—	—	—	6	—	—	—
1.81201R122	C8FIX120505RRP	—	—	—	—	6	—	—	—
NEW	C8FIX120508LRP	—	—	—	—	6	—	—	—
NEW	C8FIX120508RRP	—	—	—	—	6	—	—	—
NEW	C8FIX120512LRP	—	—	—	—	6	—	—	—
NEW	C8FIX120512RRP	—	—	—	—	6	—	—	—
1.81501L121	C8FIX150605LRN	—	—	—	—	6	0,1	0.004	30
1.81501R121	C8FIX150605RRN	—	—	—	—	6	0,1	0.004	30
1.81501L122	C8FIX150608LRN	—	—	—	—	6	0,1	0.004	30
1.81501R122	C8FIX150608RRN	—	—	—	—	6	0,1	0.004	30
NEW	C8FIX150612LRN	—	—	—	—	6	0,1	0.004	30
NEW	C8FIX150612RRN	—	—	—	—	6	0,1	0.004	30
1.81801L121	C8FIX180808LRN	—	—	—	—	6	0,2	0.008	30
1.81801R121	C8FIX180808RRN	—	—	—	—	6	0,2	0.008	30
1.81801L122	C8FIX180812LRN	—	—	—	—	6	0,2	0.008	30
1.81801R122	C8FIX180812RRN	—	—	—	—	6	0,2	0.008	30

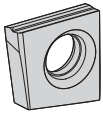
H – Hollow-ground.

* – Deviation from old catalog number.

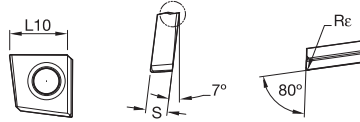
** – At mounting angle (clearance) 7°. Also 12° mounting angle possible (dependent on toolholder), then γ = 20°.

P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S	○	○	○	○	○	○
H	●	●	●	●	●	●

● first choice
○ alternate choice



■ C2FIX-MN



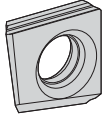
catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
C2FIX110404LMN	10,70	.423	4,00	.157	0,40	.016	●	●	●	●	●
C2FIX110404RMN	10,70	.423	4,00	.157	0,40	.016	●	●	●	●	●
C2FIX110405LMN	10,70	.423	4,00	.157	0,50	.020	●	●	●	●	●
C2FIX110405RMN	10,70	.432	4,00	.157	0,50	.020	●	●	●	●	●
C2FIX110408LMN	10,70	.419	4,00	.157	0,80	.032	●	●	●	●	●
C2FIX110408RMN	10,70	.419	4,00	.157	0,80	.032	●	●	●	●	●
C2FIX150504LMN	14,70	.578	5,00	.197	0,40	.016	●	●	●	●	●
C2FIX150504RMN	14,70	.578	5,00	.197	0,40	.016	●	●	●	●	●
C2FIX150505LMN	14,70	.578	5,00	.197	0,50	.020	●	●	●	●	●
C2FIX150505RMN	14,70	.578	5,00	.197	0,50	.020	●	●	●	●	●
C2FIX150508LMN	14,60	.574	5,00	.197	0,80	.032	●	●	●	●	●
C2FIX150508RMN	14,60	.574	5,00	.197	0,80	.032	●	●	●	●	●
C2FIX150510LMN	14,50	.571	5,00	.197	1,00	.039	●	●	●	●	●
C2FIX150510RMN	14,50	.572	5,00	.197	1,00	.039	●	●	●	●	●
C2FIX150512LMN	14,50	.571	5,00	.197	1,20	.048	●	●	●	●	●
C2FIX150512RMN	14,50	.571	5,00	.197	1,20	.048	●	●	●	●	●
C2FIX180610LMN	17,50	.689	6,00	.236	1,00	.039	●	●	●	●	●
C2FIX180610RMN	17,50	.689	6,00	.236	1,00	.039	●	●	●	●	●
C2FIX180615LMN	17,50	.689	6,00	.236	1,50	.059	●	●	●	●	●
C2FIX180615RMN	17,50	.689	6,00	.236	1,50	.059	●	●	●	●	●

Application Specific

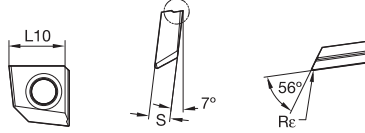
beyond

P	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○
K	●	●	●	●	●	●	●
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

● first choice
○ alternate choice



D2FIX-MN

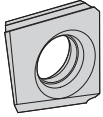
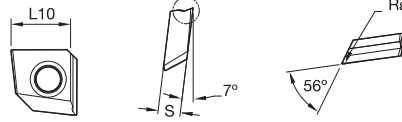


catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
D2FIX110403LMN	10,70	.420	4,00	.157	0,30	.012	●	●	○	○	○
D2FIX110403RMN	10,70	.420	4,00	.157	0,30	.012	●	●	○	○	○
D2FIX110404LMN	10,60	.417	4,00	.157	0,40	.016	●	●	○	○	○
D2FIX110404RMN	10,60	.417	4,00	.157	0,40	.016	●	●	○	○	○
D2FIX110405LMN	10,50	.413	4,00	.157	0,50	.020	●	●	○	○	○
D2FIX110405RMN	10,50	.413	4,00	.157	0,50	.020	●	●	○	○	○
D2FIX150503RMN	14,70	.579	5,00	.197	0,30	.012	●	●	○	○	○
D2FIX150504LMN	14,60	.575	5,00	.197	0,40	.016	●	●	○	○	○
D2FIX150504RMN	14,60	.575	5,00	.197	0,40	.016	●	●	○	○	○
D2FIX150505LMN	14,50	.571	5,00	.197	0,50	.020	●	●	○	○	○
D2FIX150505RMN	14,50	.571	5,00	.197	0,50	.020	●	●	○	○	○
D2FIX150508LMN	14,20	.560	5,00	.197	0,80	.032	●	●	○	○	○
D2FIX150508RMN	14,20	.560	5,00	.197	0,80	.032	●	●	○	○	○
D2FIX150510LMN	14,00	.551	5,00	.197	1,00	.039	●	●	○	○	○
D2FIX150510RMN	14,00	.551	5,00	.197	1,00	.039	●	●	○	○	○
D2FIX180610LMN	17,00	.669	6,00	.236	1,00	.039	○	○	○	○	○
D2FIX180610RMN	17,00	.669	6,00	.236	1,00	.039	○	○	○	○	○

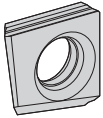
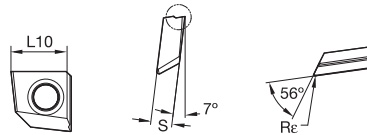
Application Specific

P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

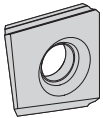
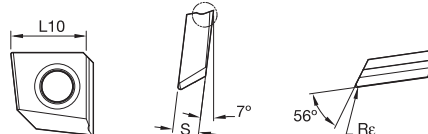
● first choice
○ alternate choice


D2FIX-HP


catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
D2FIX110403LHP	10,10	.396	4,00	.157	0,30	.012	●	●	●	●	●
D2FIX110403RHP	10,10	.396	4,00	.157	0,30	.012	●	●	●	●	●
D2FIX110404LHP	10,00	.394	4,00	.157	0,40	.016				●	●
D2FIX110404RHP	10,00	.394	4,00	.157	0,40	.016				●	●
D2FIX150503LHP	14,10	.554	5,00	.197	0,30	.012	●	●	●	●	●
D2FIX150503RHP	14,10	.554	5,00	.197	0,30	.012	●	●	●	●	●
D2FIX150504LHP	14,00	.551	5,00	.197	0,40	.016				●	●
D2FIX150504RHP	14,00	.551	5,00	.197	0,40	.016				●	●
D2FIX150508LHP	13,60	.535	5,00	.197	0,80	.032				●	●
D2FIX150508RHP	13,60	.535	5,00	.197	0,80	.032				●	●


D2FIX-MS


catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
D2FIX150505RMS	13,90	.549	5,00	.197	0,50	.020				●	●
D2FIX150505LMS	13,90	.549	5,00	.197	0,50	.020				●	●
D2FIX150503RMS	14,10	.554	5,00	.197	0,30	.012				●	●
D2FIX150503LMS	14,10	.554	5,00	.197	0,30	.012				●	●


D2FIX-FN


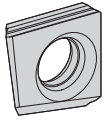
catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
D2FIX150505RFN	13,90	.549	5,00	.197	0,50	.020	●	●	●	●	●
D2FIX150505LFN	13,90	.549	5,00	.197	0,50	.020	●	●	●	●	●

Application Specific

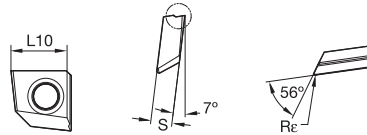
beyond

P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

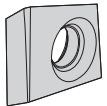
● first choice
○ alternate choice



■ D2FIX-RN



catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
D2FIX150505LRN	14,50	.571	5,00	.197	0,50	.020	●	●	●	○	○
D2FIX150505RRN	14,50	.571	5,00	.197	0,50	.020	●	○	○	○	○



■ E2FIX-HP



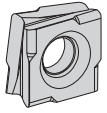
catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
E2FIX100505RHP	10,50	.413	5,00	.197	0,50	.020	○	○	○	○	○
E2FIX100505LHP	10,50	.413	5,00	.197	0,50	.020	○	○	○	○	○

Application Specific

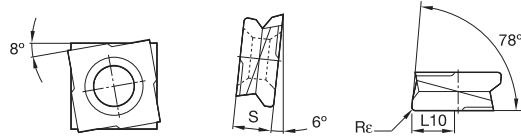
beyond

P	●	●	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○	○	○
K	●	●	●	●	●	●	●	●	●
N	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice



■ C8FIX-RN

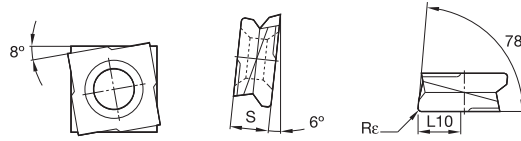


catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
C8FIX150605LRN	9,10	.358	6,60	.260	0,50	.020	●	●	●	●	●
C8FIX150605RRN	9,10	.358	6,60	.260	0,50	.020	●	●	●	●	●
C8FIX150608LRN	8,90	.350	6,60	.260	0,80	.031	●	●	●	●	●
C8FIX150608RRN	8,90	.350	6,60	.260	0,80	.031	●	●	●	●	●
C8FIX150612LRN	8,60	.339	6,60	.260	1,20	.047	●	●	●	●	●
C8FIX150612RRN	8,60	.339	6,60	.260	1,20	.047	●	●	●	●	●
C8FIX180808LRN	10,90	.429	7,90	.311	0,80	.031	●	●	●	●	●
C8FIX180808RRN	10,90	.429	7,90	.311	0,80	.031	●	●	●	●	●
C8FIX180812LRN	10,60	.417	7,90	.311	1,20	.047	●	●	●	●	●
C8FIX180812RRN	10,60	.417	7,90	.311	1,20	.047	●	●	●	●	●

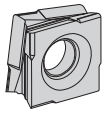
Application Specific



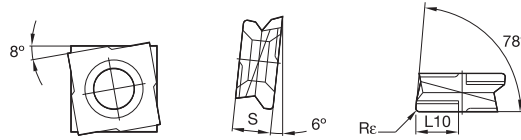
■ C8FIX-RP



catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
C8FIX120503LRP	7,30	.287	5,50	.217	0,30	.012	●	●	●	●	●
C8FIX120503RRP	7,30	.287	5,50	.217	0,30	.012	●	●	●	●	●
C8FIX120504LRP	7,20	.283	5,50	.217	0,40	.016	●	●	●	●	●
C8FIX120504RRP	7,20	.283	5,50	.217	0,40	.016	●	●	●	●	●
C8FIX120505LRP	7,10	.280	5,50	.217	0,50	.020	●	●	●	●	●
C8FIX120505RRP	7,10	.280	5,50	.217	0,50	.020	●	●	●	●	●
C8FIX120508LRP	6,90	.272	5,50	.217	0,80	.031	●	●	●	●	●
C8FIX120508RRP	6,90	.272	5,50	.217	0,80	.031	●	●	●	●	●



■ C8FIX-MP



catalog number	L10		S		Rε		KCP10	KCP25	KCP40	KCU10	KCU25
	mm	in	mm	in	mm	in					
C8FIX120503LMP	7,30	.287	5,50	.217	0,30	.012	●	●	●	●	●
C8FIX120503RMP	7,30	.287	5,50	.217	0,30	.012	●	●	●	●	●
C8FIX150603LMP	9,30	.366	6,60	.260	0,30	.012	●	●	●	●	●
C8FIX150603RMP	9,30	.366	6,60	.260	0,30	.012	●	●	●	●	●
C8FIX180805LMP	11,10	.437	7,90	.311	0,50	.020	●	●	●	●	●
C8FIX180805RMP	11,10	.437	7,90	.311	0,80	.031	●	●	●	●	●



Carbide Recycling

Help preserve and protect our planet!

It's easy for your company to be environmentally conscious with the Kennametal Carbide Recycling Program.

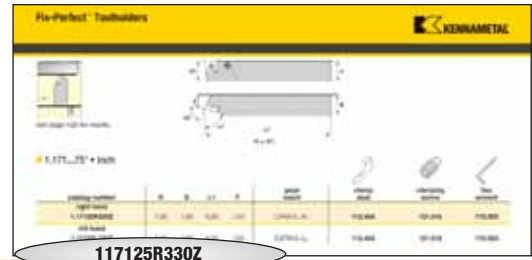
By sending us your used carbide tools, you help preserve and protect the environment and ensure that these products are recycled responsibly. Kennametal accepts any coated or non-coated carbide items, including inserts, drills, reamers, and taps.

By using the Kennametal Carbide Recycling Program, you will receive:

- A partner who cares about a sustainable environment.
- Easy-to-use web portal to value your used carbide.
- Access to our popular Green Box™ options for carbide collection.
- Systematic and efficient disposal of carbide materials.
- Improved profitability.



Program is not currently available in all geographical areas.
For more information, please visit www.kennametal.com/carbiderecycling.



117125R330Z

Application Specific

Metric/Inch

1

Turning Program

1 = Fix-Perfect

1

Number of Cutters

1 = Inserts with 2 cutting edges
3 = Inserts with 4 cutting edges
7 = Inserts with 8 cutting edges

71

Version

08 = 90° or 93° setting, for machining aluminum
16 = 92° setting angle
20 = 92° setting angle
22 = 92° setting angle
30 = 75° setting angle
71 = 75° setting angle
72 = 45° setting angle
77 = 90° setting angle
80 = 90° or 93° setting angle

25

Shaft Dimensions

R

Direction of Working

R = Right
L = Left

3

Insert Size and Type

3

Insert Shape

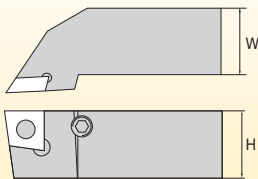
0

Clamping Screw Support

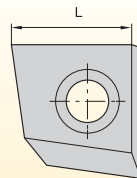
0 = Activated from main cutting edge
1 = Minor cutting edge
2 = Above
5 = Main cutting edge with sharp-edged full cartridge
6 = Minor cutting edge with sharp-edged full cartridge

Z

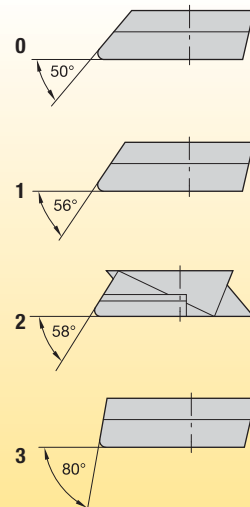
Inch Toolholder



Toolholder
10 = 10 x 10mm
11 = 40 x 40mm
16 = 16 x 16mm
20 = 20 x 20mm
21 = 50 x 50mm
25 = 25 x 25mm
32 = 32 x 25mm
32 = 32 x 32mm
40 = 40 x 32mm

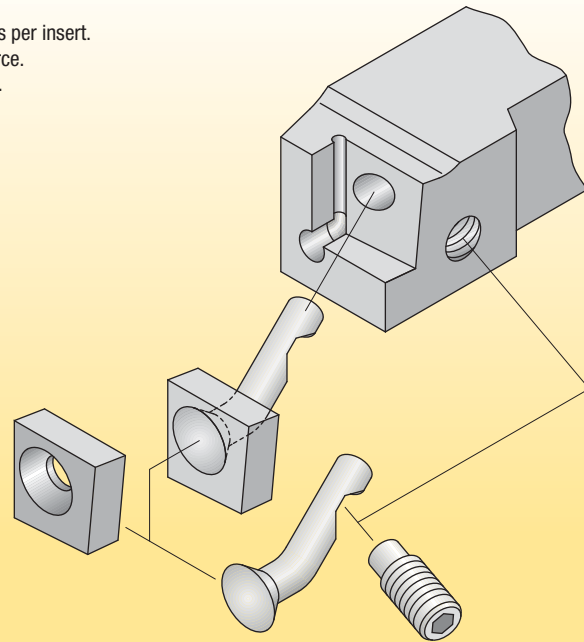


	L	cutting edges
0	8mm	4
	20mm	4
	25mm	4
1	10,5mm	2
	12mm	8
3	14,5mm	2
	15mm	8
4	17,5mm	2
	18mm	8
5	23,5mm	2
	21mm	8
7	10,5mm	2 Alu

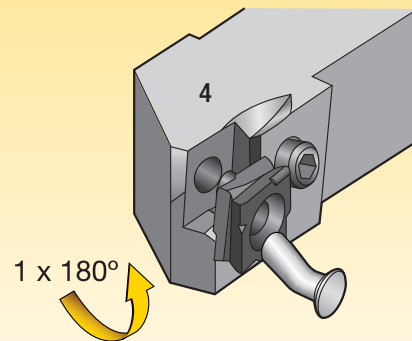
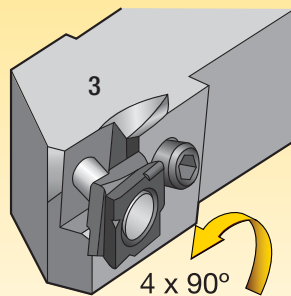
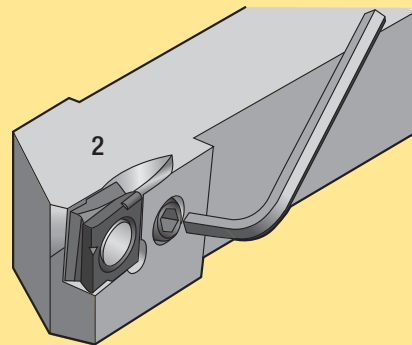
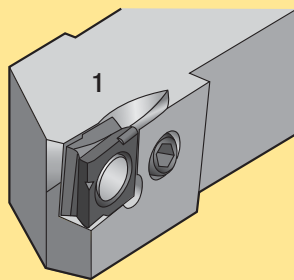


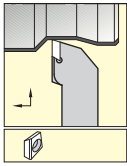
Features of the Fix-Perfect lathe tool system:

- Cost-effective use of inserts with up to eight positive cutting edges per insert.
- Indexable insert ground on all sides, thus requiring less cutting force.
- High stability due to upright insert for roughing and profiling tasks.
- Guaranteed rigid clamping of inserts.
- Optimum chip evacuation guaranteed.
- Cutting edges protected by insert seat.

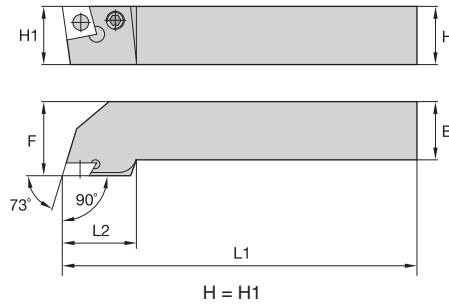


Quick and easy cutting edge switch —
just loosen the pin, no need to remove it.





See page F28 for inserts.



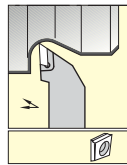
■ 1.108...90° • Metric



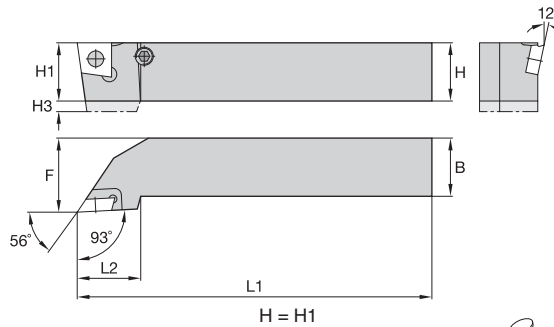
catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.10825R700	25	25	150,0	36	32,0	E2FIX10..R..	410.081	121.616	170.003
left hand 1.10825L700	25	25	150,0	36	32,0	E2FIX10..L..	410.081	121.616	170.003



Application Specific



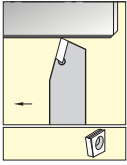
See page F27 for inserts.



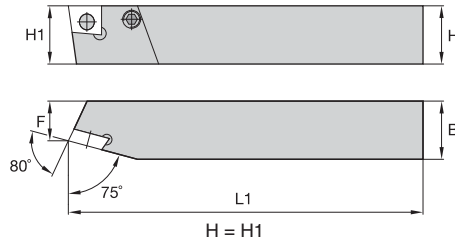
■ 1.108...93° • Metric



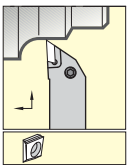
catalog number	H	H3	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.10820R310	20	5	20	125,0	26	25,0	D2FIX15..RHP/FN/MS	112.403	121.612	170.003
1.10825R310	25	—	25	150,0	26	32,0	D2FIX15..RHP/FN/MS	112.404	121.616	170.003
left hand 1.10820L310	20	5	20	125,0	26	25,0	D2FIX15..LHP/FN/MS	112.403	121.612	170.003
1.10825L310	25	—	25	150,0	26	32,0	D2FIX15..LHP/FN/MS	112.404	121.616	170.003



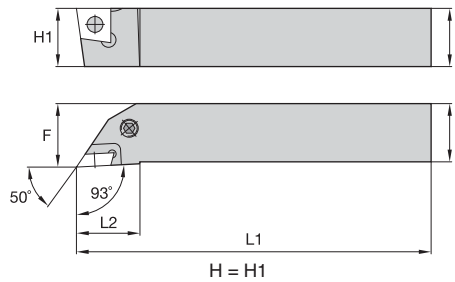
See page F25 for inserts.


1.171...75° • Metric


catalog number	H	B	L1	F	gage insert	clamp stud	clamping screw	hex wrench
right hand								
1.17120R130	20	20	125,0	15,0	C2FIX11..R..	112.244	121.612	170.003
1.17125R330	25	25	150,0	17,0	C2FIX15..R..	112.404	121.616	170.003
left hand								
1.17120L130	20	20	125,0	15,0	C2FIX11..L..	112.244	121.612	170.003
1.17125L330	25	25	150,0	17,0	C2FIX15..L..	112.404	121.616	170.003



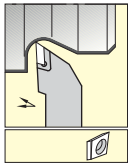
See page F29 for inserts.


1.180...93° • Metric

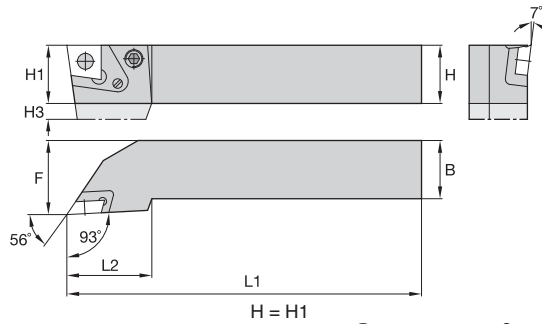

catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand									
1.18025R302	25	20	150,0	36	26,0	K2FIX15..R..	112.423	121.612	170.003
left hand									
1.18025L302	25	20	150,0	36	26,0	K2FIX15..L..	112.423	121.612	170.003



Application Specific



See page F27 for inserts.

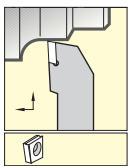


■ 1.18 • Metric

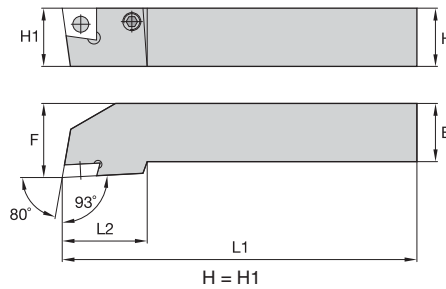


catalog number	H	H3	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench	steel nest assembly
right hand											
1.18016R110	16	4	16	100,0	28	24,0	D2FIX11..R..	112.244	121.612	170.003	—
1.18020R110	20	—	20	125,0	26	25,0	D2FIX11..R..	112.244	121.612	170.003	—
1.18020R310	20	5	20	125,0	26	26,0	D2FIX15..R..	112.403	121.612	170.003	—
1.18025R110	25	—	25	150,0	26	32,0	D2FIX11..R..	112.244	121.612	170.003	—
1.18025R310	25	—	25	150,0	26	32,0	D2FIX15..R..	112.404	121.616	170.003	—
1.18025R315	25	7	25	150,0	36	32,0	D2FIX15..R..	112.505	121.616	170.003	132.151
1.18032R315	32	—	25	170,0	36	32,0	D2FIX15..R..	112.505	121.616	170.003	132.151
1.18032R410	32	—	25	170,0	36	32,0	D2FIX18..R..	112.604	121.816	170.004	—
left hand											
1.18016L110	16	4	16	100,0	28	24,0	D2FIX11..L..	112.244	121.612	170.003	—
1.18020L110	20	—	20	125,0	26	25,0	D2FIX11..L..	112.244	121.612	170.003	—
1.18020L310	20	5	20	125,0	26	26,0	D2FIX15..L..	112.403	121.612	170.003	—
1.18025L110	25	—	25	150,0	26	32,0	D2FIX11..L..	112.244	121.612	170.003	—
1.18025L310	25	—	25	150,0	26	32,0	D2FIX15..L..	112.404	121.616	170.003	—
1.18025L315	25	7	25	150,0	36	32,0	D2FIX15..L..	112.505	121.616	170.003	132.156
1.18032L315	32	—	25	170,0	36	32,0	D2FIX15..L..	112.505	121.616	170.003	132.156
1.18032L410	32	—	25	170,0	36	32,0	D2FIX18..L..	112.604	121.816	170.004	—

Application Specific



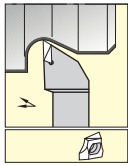
See page F25 for inserts.



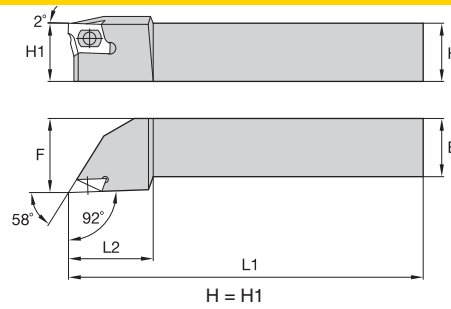
■ 1.180...93° • Metric



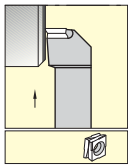
catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand									
1.18020R130	20	20	125,0	26	26,0	C2FIX11..R..	112.244	121.612	170.003
1.18025R130	25	25	150,0	26	32,0	C2FIX11..R..	112.244	121.612	170.003
1.18025R330	25	25	150,0	36	32,0	C2FIX15..R..	112.404	121.616	170.003
1.18032R430	32	25	170,0	36	32,0	C2FIX18..R..	112.604	121.816	170.004
left hand									
1.18020L130	20	20	125,0	26	26,0	C2FIX11..L..	112.244	121.612	170.003
1.18025L130	25	25	150,0	26	32,0	C2FIX11..L..	112.244	121.612	170.003
1.18025L330	25	25	150,0	36	32,0	C2FIX15..L..	112.404	121.616	170.003
1.18032L430	32	25	170,0	36	32,0	C2FIX18..L..	112.604	121.816	170.004



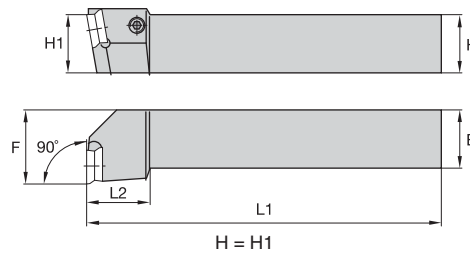
See page F29 for inserts.


1.380...92° • Metric

catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand									
1.38020R021	20	20	125,0	35	25,0	D4FIX..R..	114.111	121.812	170.004
1.38025R021	25	25	150,0	36	32,0	D4FIX..R..	114.111	121.816	170.004
left hand									
1.38020L021	20	20	125,0	35	25,0	D4FIX..L..	114.111	121.812	170.004
1.38025L021	25	25	150,0	36	32,0	D4FIX..L..	114.111	121.816	170.004

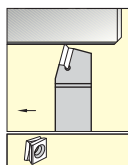


See page F30 for inserts.

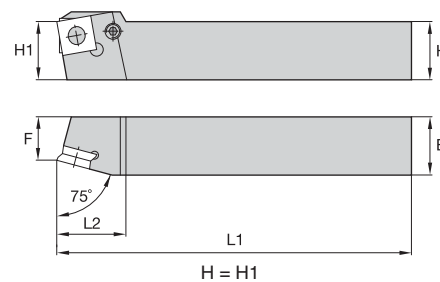

1.777...90° • Metric

catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand									
1.77720R101	20	20	125,0	26	25,5	1.81201L9	118.214	121.612	170.003
1.77725R301	25	25	150,0	26	32,0	C8FIX15..L..	118.314	121.816	170.004
left hand									
1.77720L101	20	20	125,0	26	25,5	1.81201R9	118.214	121.612	170.003

NOTE: Right-hand tool requires left-hand insert.






See page F30 for inserts.

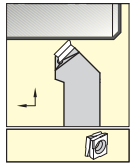

1.771...75° • Metric

catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand									
1.77120R100	20	20	125,0	20	17,0	C8FIX12..R..	118.204	121.612	170.003
1.77125R300	25	25	150,0	26	21,0	C8FIX15..R..	410.084	121.816	170.004
1.77132R400	32	32	170,0	38	27,0	C8FIX18..R..	118.404	121.820	170.004

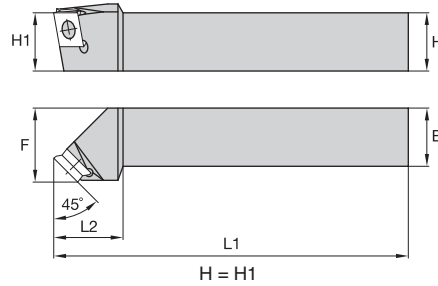
(continued)

(1.771...75° • Metric continued)

catalog number	H	B	L1	L2	F	gage insert	 clamp stud	 clamping screw	 hex wrench
left hand									
1.77120L100	20	20	125,0	20	17,0	C8FIX12..L..	118.204	121.612	170.003
1.77132L400	32	32	170,0	38	27,5	C8FIX18..L..	118.404	121.820	170.004






See page F30 for inserts.

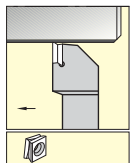


1.772...45° • Metric

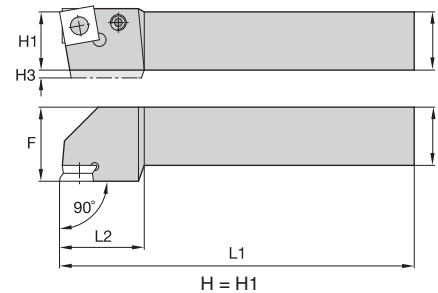
Application Specific

catalog number	H	B	L1	L2	F	gage insert	 clamp stud	 clamping screw	 hex wrench
right hand									
1.77225R301	25	25	150,0	26	32,0	C8FIX15..L..	118.314	121.816	170.004





NOTE: C8FIX15..L.. is usable just for plunging.
For both plunging and turning C4FIX15..L.. has to be used.

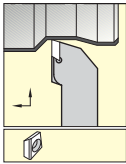


See page F30 for inserts.

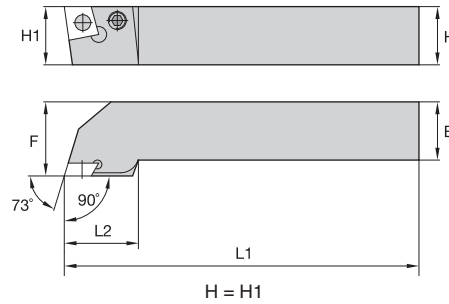


1.780...90° • Metric

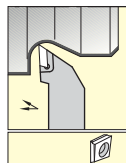
catalog number	H	H3	B	L1	L2	F	gage insert	 clamp stud	 clamping screw	 screw	 hex wrench
right hand											
1.78012R103	12	—	12	80,0	20	14,0	C8FIX12..R..	—	—	122.511	170.003
1.78016R100	16	4	16	100,0	28	25,0	C8FIX12..R..	118.204	121.616	—	170.003
1.78020R100	20	—	20	125,0	26	25,0	C8FIX12..R..	118.204	121.616	—	170.003
1.78025R100	25	—	25	150,0	26	32,0	1.81201R...	118.214	121.616	—	170.003
1.78025R300	25	—	25	150,0	36	32,0	C8FIX15..R..	410.084	121.816	—	170.004
1.78032R400	32	—	32	170,0	36	40,0	C8FIX18..R..	118.404	121.825	—	170.004
left hand											
1.78025L100	25	—	25	150,0	26	32,0	1.81201L...	118.214	121.616	—	170.003
1.78025L300	25	—	25	150,0	36	32,0	C8FIX15..L..	410.084	121.816	—	170.004
1.78032L400	32	—	32	170,0	36	40,0	C8FIX18..L..	118.404	121.825	—	170.004



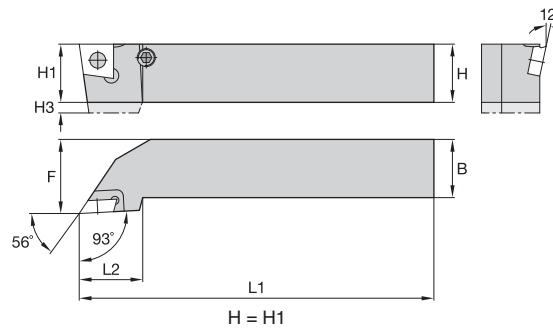
See page F28 for inserts.


1.108...90° • Inch


catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.10825R700Z	1.00	1.00	6.00	1.42	1.250	E2FIX10..R..	410.081	121.616	170.003
left hand 1.10825L700Z	1.00	1.00	6.00	1.42	1.250	E2FIX10..L..	410.081	121.616	170.003

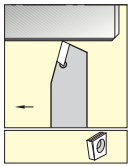


See page F27 for inserts.

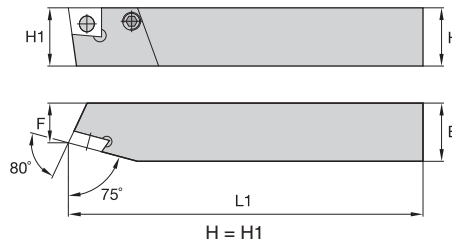

1.108...93° • Inch


catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.10825R310Z	1.00	1.00	6.00	1.18	1.250	D2FIX15..RHP/FN/MS	112.404	121.616	170.003
left hand 1.10825L310Z	1.00	1.00	6.00	1.18	1.250	D2FIX15..LHP/FN/MS	112.404	121.616	170.003

Application Specific



See page F25 for inserts.

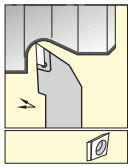


■ 1.171...75° • Inch

catalog number	H	B	L1	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.17125R330Z	1.00	1.00	6.00	.750	C2FIX15..R..	112.404	121.616	170.003
left hand 1.17125L330Z	1.00	1.00	6.00	.750	C2FIX15..L..	112.404	121.616	170.003

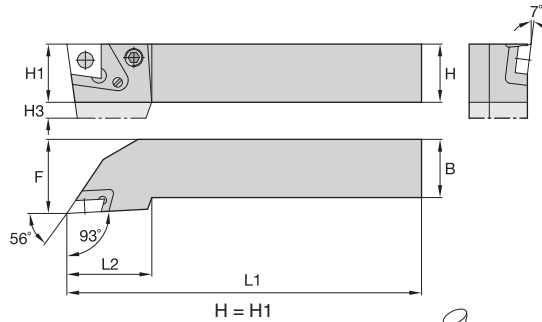


Application Specific

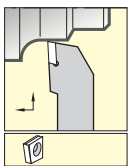


See page F26 for inserts.

■ 1.18 • Inch

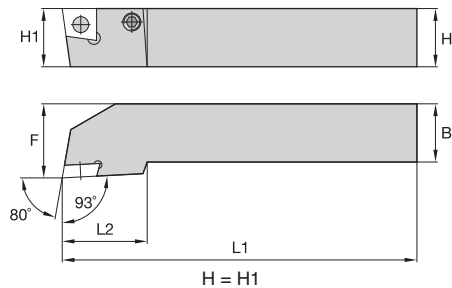


catalog number	H	H3	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench	steel nest assembly
right hand 1.18025R310Z	1.00	—	1.00	6.00	1.18	1.250	D2FIX15..L..	112.404	121.616	170.003	—
1.18025R315Z	1.00	.28	1.00	6.00	1.46	1.250	D2FIX15..L..	112.505	121.616	170.003	132.156
left hand 1.18025L310Z	1.00	—	1.00	6.00	1.18	1.250	D2FIX15..L..	112.404	121.616	170.003	—
1.18025L315Z	1.00	.28	1.00	6.00	1.46	1.250	D2FIX15..L..	112.505	121.616	170.003	132.156



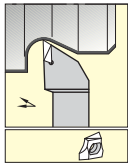
See page F25 for inserts.

■ 1.180...93° • Inch

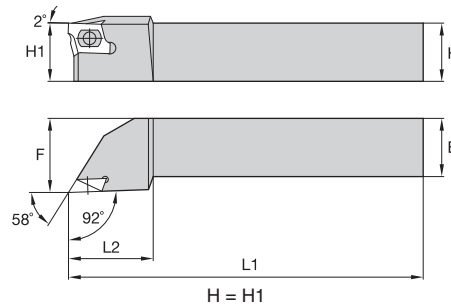


catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.18025R330Z	1.00	1.00	6.00	1.42	1.250	C2FIX15..L..	112.404	121.616	170.003
left hand 1.18025L330Z	1.00	1.00	6.00	1.42	1.250	C2FIX15..L..	112.404	121.616	170.003

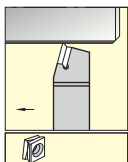




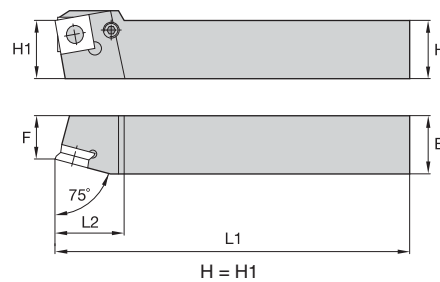
See page F29 for inserts.

1.380...92° • Inch


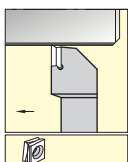
catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.38025R021Z	1.00	1.00	6.00	1.42	1.250	D4FIX..R..	114.114	121.816	170.004
left hand 1.38025L021Z	1.00	1.00	6.00	1.42	1.250	D4FIX..L..	114.114	121.816	170.004



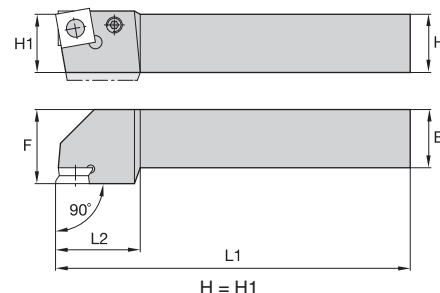
See page F30 for inserts.

1.771...75° • Inch


catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.77125R300Z	1.00	1.00	6.00	1.18	.875	C8FIX15..R..	410.084	121.816	170.004
right hand 1.77132R400Z	1.25	1.25	7.00	1.50	1.073	C8FIX18..R..	118.404	121.820	170.004
left hand 1.77125L300Z	1.00	1.00	6.00	1.18	.875	C8FIX15..L..	410.084	121.816	170.004
left hand 1.77132L400Z	1.25	1.25	7.00	1.50	1.073	C8FIX18..L..	118.404	121.820	170.004



See page F30 for inserts.

1.78...90° • Inch


catalog number	H	B	L1	L2	F	gage insert	clamp stud	clamping screw	hex wrench
right hand 1.78025R300Z	1.00	1.00	6.00	1.42	1.250	C8FIX15..R..	410.084	121.816	170.004
right hand 1.78032R400Z	1.25	1.25	7.00	1.42	1.500	C8FIX18..R..	118.404	121.825	170.004
left hand 1.78025L300Z	1.00	1.00	6.00	1.42	1.250	C8FIX15..L..	410.084	121.816	170.004
left hand 1.78032L400Z	1.25	1.25	7.00	1.42	1.500	C8FIX18..L..	118.404	121.825	170.004

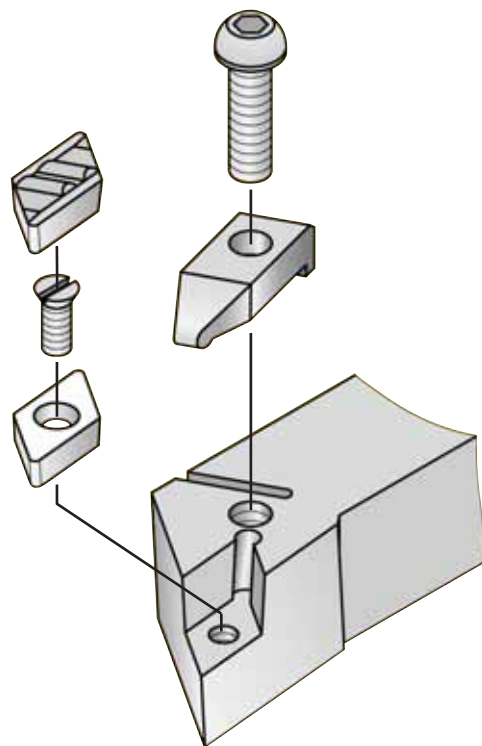
Top Notch™ Profiling

Primary Application

Top Notch is the proven solution for high productivity. The Top Notch system provides consistent tool performance, accurate indexing, and superior clamping to provide excellent surface finishing and superior tool life.

Features and Benefits

- Top Notch guarantees that the insert is rigidly held.
- Stable against alternating cutting force directions, compared with customary clamping methods.
- Second cutting edge well protected against chiphammering.
- Precision-ground inserts guarantee high precision indexing and lower cutting forces.



■ Select the geometry —
based on feed rate and depth of cut

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

operation	insert style application	insert geometry	profile	feed rate — in (mm)											
				.0015 (0,04)	.0025 (0,063)	.004 (0,01)	.006 (0,16)	.010 (0,25)	.016 (0,4)	.025 (0,63)	.040 (1,0)	.060 (1,6)	.100 (2,5)	.200 (5,0)	
				depth of cut — in (mm)											
finishing	DCGR			.004-.012 (0,1-0,3)											
				.010-.070 (0,3-1,8)											
finishing	KCGR			.004-.012 (0,1-0,3)											
				.010-.070 (0,3-1,8)											
finishing	VBMR			.004-.014 (0,1-0,4)											
				.010-.080 (0,3-2,0)											
finishing	VCGR			.004-.014 (0,1-0,4)											
				.010-.080 (0,3-2,0)											
finishing	KNGX-15			.006-.016 (0,2-0,4)											
medium machining	KNGX-20			.008-.018 (0,2-0,5)											
				.040-.120 (1,0-3,0)											
medium machining	KNGX-25			.010-.022 (0,3-0,6)											
				.045-.140 (1,1-3,6)											
roughing	KNGX-32			.012-.026 (0,3-0,7)											
				.060-.200 (1,5-5,1)											

Application Specific

Step 1 • Select the insert geometry

Negative Inserts



-K...X-32
Roughing



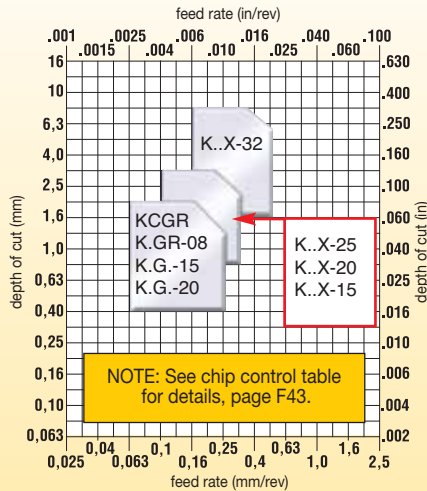
-K...X-25 – K...X-15,
Medium Machining



-KCGR
Finishing



-K. GR-08, K.G.-15,
K.G.-20
Finishing



Positive Inserts



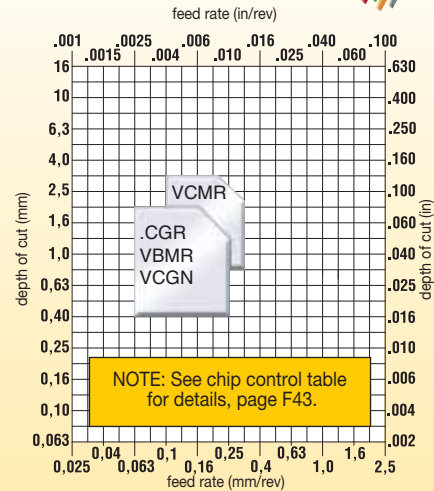
-VCMR
Medium Machining



-.CGR, VBMR
Finishing



-VCGN
Finishing



Application Specific

Step 2 • Select the grade

cutting condition		Steel			Stainless Steel		
		Finishing	Medium Machining	Roughing	Finishing	Medium Machining	Roughing
heavily interrupted cut	⚙️	KC9125	KC8050	KC8050	KC9225	KC8050	KC8050
lightly interrupted cut	⚙️	KC9110	KC9125	KC8050	KC5010	KC5025	KC5025
varying depth of cut, casting, or forging skin	⚙️	KT315	KC9125	KC9125	KT315	KC9225	KC9225
smooth cut, pre-turned surface	⚙️	KT315	KC9110	KC9110	KT315	KC5010	KC9225

cutting condition		Cast Iron			Non-Ferrous		
		Finishing	Medium Machining	Roughing	Finishing	Medium Machining	Roughing
heavily interrupted cut	⚙️	KC8050	KC8050	KC8050	KC5010	KC5010	KC5010
lightly interrupted cut	⚙️	KC9315	KC8050	KC8050	KC5410 KD1425	KC5010	KC5010
varying depth of cut, casting, or forging skin	⚙️	KC9315	KC9315	KC9315	KD1425	KC5410	KC5410
smooth cut, pre-turned surface	⚙️	KC5010	KC5010	KC5010	KD1425	KC5410	KC5410

High-Temperature Alloys

cutting condition		High-Temperature Alloys		
		Finishing	Medium Machining	Roughing
heavily interrupted cut	⚙️	KC5025	K68	K68
lightly interrupted cut	⚙️	KC5010	KC5010	KC8050
varying depth of cut, casting, or forging skin	⚙️	KC5010	KC5010	KC5010
smooth cut, pre-turned surface	⚙️	KC5010	KC9110	KC5010

■ Step 3 • Select the cutting speed

Steel speed — m/min (SFM) ▶◀ starting conditions ▶◀

material group	grade	50 (170)	100 (330)	150 (490)	200 (655)	250 (820)	300 (980)	350 (1150)	400 (1300)	m/min	SFM
P	KT315									260	850
	KC9110									340	800
	KC9125									180	600
	KC8050									165	550

Stainless Steel speed — m/min (SFM) ▶◀ starting conditions ▶◀

material group	grade	50 (170)	100 (330)	150 (490)	200 (655)	250 (820)	300 (980)	350 (1150)	400 (1300)	m/min	SFM
M	KT315									230	750
	KC5010/KCU10									180	600
	KC5025/KCU25									120	400
	KC9225									170	550
	KC8050									150	500

Cast Iron speed — m/min (SFM) ▶◀ starting conditions ▶◀

material group	grade	150 (490)	200 (655)	250 (820)	300 (980)	350 (1150)	400 (1300)	500 (1600)	750 (2400)	m/min	SFM
K	KB1345									760	2520
	KT315									275	900
	KC5010/KCU10									245	800
	KC9315									245	800
	KC8050									230	750

Non-Ferrous speed — m/min (SFM) ▶◀ starting conditions ▶◀

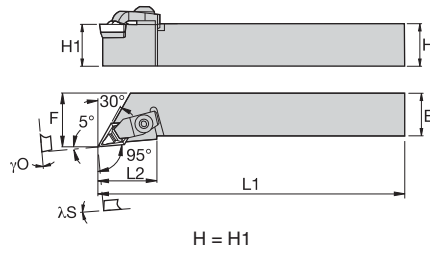
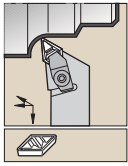
material group	grade	250 (800)	500 (1600)	750 (2400)	1000 (3200)	1250 (4000)	1500 (4800)	1750 (5600)	2000 (6400)	m/min	SFM
N	KO1425									765	2500
	KC5410									550	1800
	KC5010/KCU10									460	1500
	K68									150	500

High-Temperature Alloys speed — m/min (SFM) ▶◀ starting conditions ▶◀

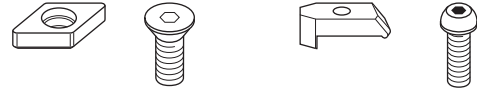
material group	grade	15 (50)	40 (120)	55 (180)	80 (250)	100 (330)	170 (550)	200 (655)	230 (750)	m/min	SFM
S	KC5010/KCU10									60	200
	KC5025/KCU25									50	170
	KC8050									70	230
	K68									30	100

▶◀ Represents the recommended starting conditions. Optimize for your specific application.

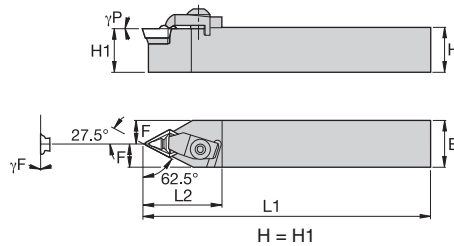
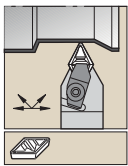
Application Specific



■ NDLP -5°



catalog number	H	B	F	L1	L2	B3	λS°	γO°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand															
NDLPR164C	1.000	1.000	1.250	5.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32
NDLPR164D	1.000	1.000	1.250	6.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32
NDLPR204D	1.250	1.250	1.500	6.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32
left hand															
NDLPL164C	1.000	1.000	1.250	5.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32
NDLPL164D	1.000	1.000	1.250	6.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32
NDLPL204D	1.250	1.250	1.500	6.00	1.38	—	0.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32

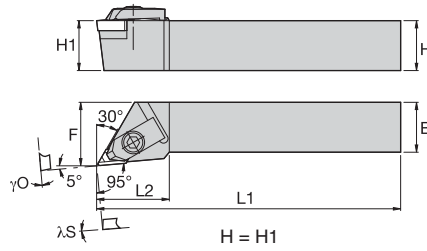
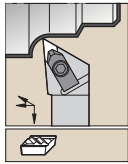


■ NDPP 27.5°

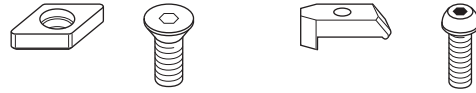


catalog number	H	B	F	L1	L2	B3	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
NDPPN164D	1.000	1.000	.500	6.00	1.59	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32
NDPPN204D	1.250	1.250	.625	6.00	1.59	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32

Application Specific



■ **NKLC -5°**



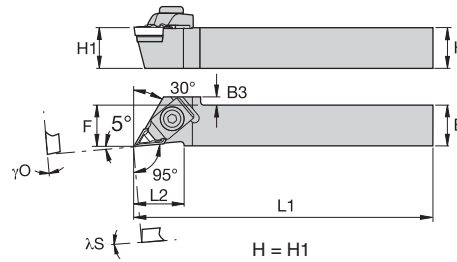
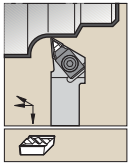
catalog number	H	B	F	L1	L2	B3	λS°	γO°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand															
NKLCR0805V	.500	.500	.750	3.50	.88	—	0.0	0.0	NP..51R	SM285	S959	—	CM79	S524	1/8
NKLCR1005B	.625	.625	.750	4.50	.88	—	0.0	0.0	NP..51R	SM285	S959	—	CM79	S524	1/8
NKLCR1205A	.750	.750	1.000	4.00	.88	—	0.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8
NKLCR1205B	.750	.750	1.000	4.50	.88	—	0.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8
NKLCR1605C	1.000	1.000	1.250	5.00	.88	—	0.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8
left hand															
NKLCL0805V	.500	.500	.750	3.50	.88	—	0.0	0.0	NP..51L	SM286	S959	—	CM71	S524	1/8
NKLCL1005B	.625	.625	.750	4.50	.88	—	0.0	0.0	NP..51L	SM286	S959	—	CM71	S524	1/8
NKLCL1205A	.750	.750	1.000	4.00	.88	—	0.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8
NKLCL1205B	.750	.750	1.000	4.50	.88	—	0.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8
NKLCL1605C	1.000	1.000	1.250	5.00	.88	—	0.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8

Application Specific

■ **NKLN -5°**



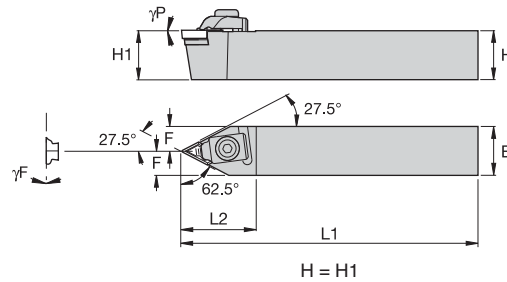
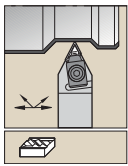
catalog number	H	B	F	L1	L2	B3	λS°	γO°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand															
NKLN121B	.750	.750	1.000	4.50	1.25	—	-2.0	-5.0	NPR132	SM272	SL344	—	CM66	S625	5/32
NKLN161C	1.000	1.000	1.250	5.00	1.25	—	-2.0	-5.0	NPR132	SM272	SL344	—	CM66	S625	5/32
NKLN163D	1.000	1.000	1.250	6.00	1.44	—	-2.0	-5.0	NPR332	SM268	SL344	—	CM65	S625	5/32
left hand															
NKLN121B	.750	.750	1.000	4.50	1.25	—	-2.0	-5.0	NPL132	SM271	SL344	—	CM66	S625	5/32
NKLN161C	1.000	1.000	1.250	5.00	1.25	—	-2.0	-5.0	NPL132	SM271	SL344	—	CM66	S625	5/32
NKLN163D	1.000	1.000	1.250	6.00	1.44	—	-2.0	-5.0	NPL332	SM267	SL344	—	CM65	S625	5/32



■ NKLC-F -5°



catalog number	H	B	F	L1	L2	B3	λS°	γO°	gage insert	shim	shim screw	hex (mm)	clamp	clamp screw	hex (mm)
right hand															
NKLCRF0805D	.500	.500	.500	6.00	.75	.15	0.0	0.0	NP..51R	SM285	S959	—	CM180	S524	1/8
NKLCRF1005B	.625	.625	.625	4.50	.75	—	0.0	0.0	NP..51R	SM285	S959	—	CM180	S524	1/8
left hand															
NKLCFL0805D	.500	.500	.500	6.00	.75	.15	0.0	0.0	NP..51L	SM286	S959	—	CM181	S524	1/8
NKLCFL1005B	.625	.625	.625	4.50	.75	—	0.0	0.0	NP..51L	SM286	S959	—	CM181	S524	1/8

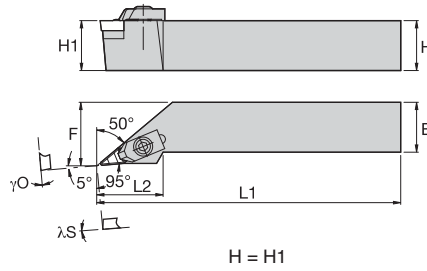
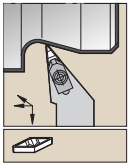


■ NKPC 27.5°



catalog number	H	B	F	L1	L2	B3	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
NKPCN0805V	.500	.500	.250	3.50	1.13	—	0.0	0.0	NP..51R	SM285	S959	—	CM79	S524	1/8
NKPCN1205B	.750	.750	.375	4.50	1.13	—	0.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8

Application Specific

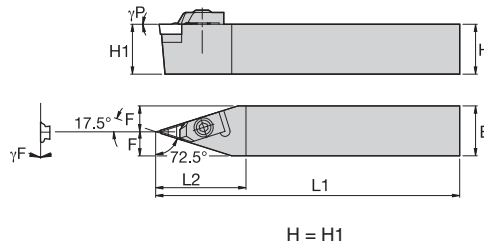
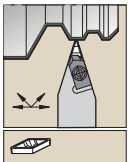


■ NVLC -5°

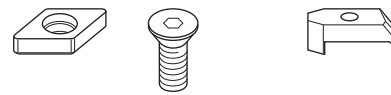


catalog number	H	B	F	L1	L2	B3	γO°	λS°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand															
NVLCR123B	.750	.750	1.000	4.50	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
NVLCR163D	1.000	1.000	1.250	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
NVLCR203D	1.250	1.250	1.500	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
NVLCR243D	1.500	1.500	2.000	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
left hand															
NVLCR123B	.750	.750	1.000	4.50	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32
NVLCR163D	1.000	1.000	1.250	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32
NVLCR203D	1.250	1.250	1.500	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32
NVLCR243D	1.500	1.500	2.000	6.00	1.44	—	0.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32

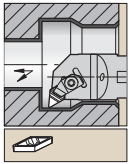
Application Specific



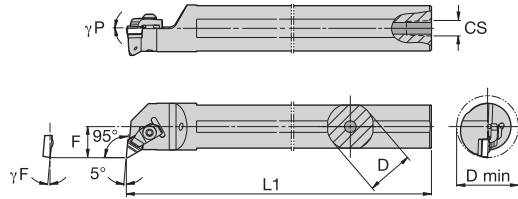
■ NVVC 17.5°



catalog number	H	B	F	L1	L2	B3	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
NVVCN163D	1.000	1.000	.497	6.00	1.62	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
NVVCN203D	1.250	1.250	.622	6.00	1.62	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
NVVCN243D	1.500	1.500	.747	6.00	1.62	—	0.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32



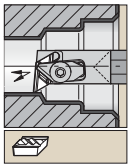
Steel shank with through coolant.



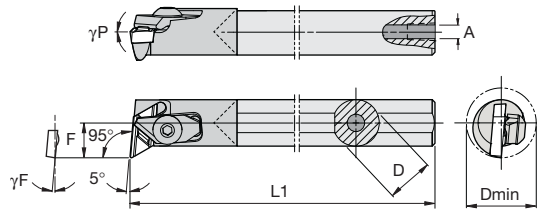
■ A-NDLP -5°



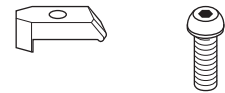
catalog number	D	D min	F	L1	L	CD	A	CS	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand																	
A20NDLPR4	1.250	1.585	.875	14.00	—	—	—	1/4-18 NPT	-3.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32
A24NDLPR4	1.500	1.835	1.000	14.00	—	—	—	1/4-18 NPT	-2.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32
A32NDLPR4	2.000	2.400	1.250	16.00	—	—	—	1/4-18 NPT	-2.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32
left hand																	
A20NDLPL4	1.250	1.585	.875	14.00	—	—	—	1/4-18 NPT	-3.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32
A24NDLPL4	1.500	1.835	1.000	14.00	—	—	—	1/4-18 NPT	-2.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32
A32NDLPL4	2.000	2.400	1.250	16.00	—	—	—	1/4-18 NPT	-2.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32



Carbide shank with through coolant.

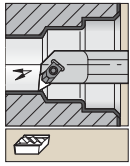


■ E-NEL -5°

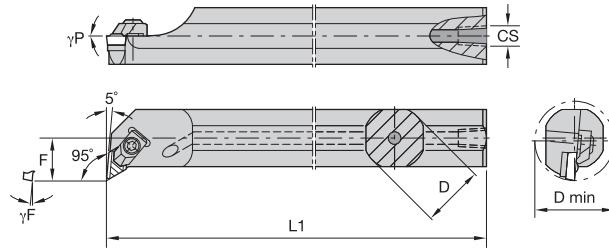


catalog number	D	D min	F	L1	L	CD	A	CS	γF°	γP°	gage insert	clamp	clamp screw	hex (inch)
right hand														
E08NELR05	.500	.750	.375	8.15	—	—	.187	—	-5.0	0.0	NPL51	CM106	S518	3/32
left hand														
E08NELL05	.500	.750	.375	8.15	—	—	.187	—	-5.0	0.0	NPR51	CM105	S518	3/32

Application Specific



Steel shank with through coolant.

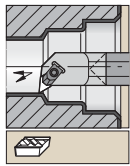


■ **A-NKLC -5°**

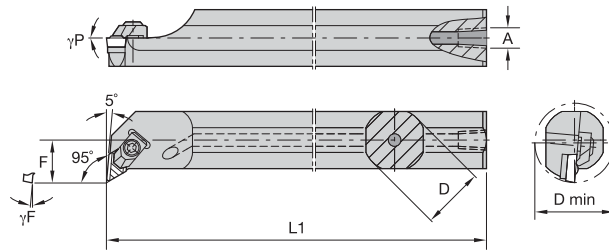


catalog number	D	D min	F	L1	CS	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)	
right hand															
A10NKLCR05	.625	.900	.500	10.00	1/8-27 NPT	-5.00	0.0	NP..51L	SM286	S959	—	CM79	S524	1/8	
A12NKLCR05	.750	.980	.562	10.00	1/8-27 NPT	-5.00	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8	
A16NKLCR05	1.000	1.300	.750	12.00	1/4-18 NPT	-3.00	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8	
A20NKLCR05	1.250	1.580	.875	14.00	1/4-18 NPT	-3.00	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8	
A24NKLCR05	1.500	1.870	1.000	14.00	1/4-18 NPT	-2.00	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8	
A32NKLCR05	2.000	2.370	1.250	16.00	1/4-18 NPT	-2.00	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8	
left hand															
A10NKLCL05	.625	.900	.500	10.00	1/8-27 NPT	-5.00	0.0	NP..51R	SM285	S959	—	CM71	S524	1/8	
A12NKLCL05	.750	.980	.562	10.00	1/8-27 NPT	-5.00	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8	
A16NKLCL05	1.000	1.300	.750	12.00	1/4-18 NPT	-3.00	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8	
A24NKLCL05	1.500	1.870	1.000	14.00	1/4-18 NPT	-2.00	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8	
A32NKLCL05	2.000	2.370	1.250	16.00	1/4-18 NPT	-2.00	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8	

Application Specific



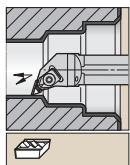
Carbide shank with through coolant.



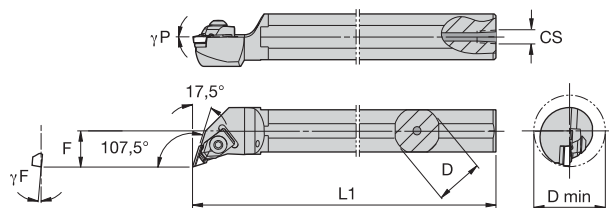
■ E-NKLC -5°



catalog number	D	D min	F	L1	A	γF°	γP°	gage insert	shim	shim screw	hex (mm)	clamp	clamp screw	hex (mm)
right hand														
E08NKLCR05	.500	.660	.375	8.00	.187	-5.0	0.0	NP..51L	—	—	—	CM106	S518	3/32
E10NKLCR05	.625	.900	.500	10.00	.218	-5.0	0.0	NP..51L	SM286	S959	—	CM79	S524	1/8
E12NKLCR05	.750	.980	.562	10.00	.281	-5.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8
left hand														
E08NKLCL05	.500	.660	.375	8.00	.187	-5.0	0.0	NP..51R	—	—	—	CM105	S518	3/32
E10NKLCL05	.625	.900	.500	10.00	.218	-5.0	0.0	NP..51R	SM285	S959	—	CM71	S524	1/8
E12NKLCL05	.750	.980	.562	10.00	.281	-5.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8



Steel shank with through coolant.

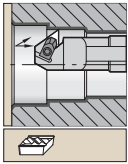


■ A-NKQC -17.5°

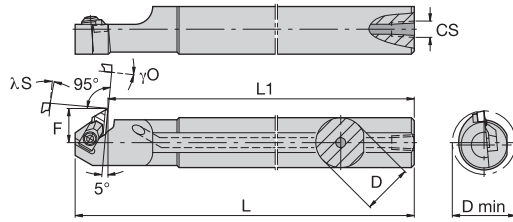


catalog number	D	D min	F	L1	CS	γF°	γP°	gage insert	shim	shim screw	hex (mm)	clamp	clamp screw	hex (mm)
right hand														
A08NKQCR05	.500	.670	.375	8.00	1/16-27 NPT	-6.0	0.0	NP..51L	—	—	—	CM112	S518	3/32
A12NKQCR05	.750	.980	.562	10.00	1/8-27 NPT	-6.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8
A16NKQCR05	1.000	1.300	.750	12.00	1/4-18 NPT	-3.0	0.0	NP..51L	SM286	S959	—	CM68	S524	1/8
left hand														
A08NKQCL05	.500	.670	.375	8.00	1/16-27 NPT	-6.0	0.0	NP..51R	—	—	—	CM111	S518	3/32
A12NKQCL05	.750	.980	.562	10.00	1/8-27 NPT	-6.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8
A16NKQCL05	1.000	1.300	.750	12.00	1/4-18 NPT	-3.0	0.0	NP..51R	SM285	S959	—	CM68	S524	1/8

Application Specific



Steel shank with through coolant.



■ **A-NKXC -5°**



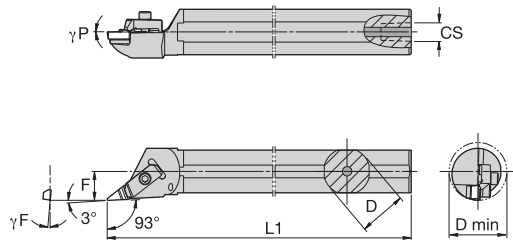
catalog number	D	D min	F	L1	L	CS	λS°	γO°	gage insert	shim	shim screw	hex (mm)	clamp	clamp screw	hex (mm)
right hand															
A12NKXCR05	.750	1.060	.625	10.00	10.69	1/8-27 NPT	-5.0	0.0	NP..51R	SM285	S959	—	CM79	S524	1/8
A16NKXCR05	1.000	1.300	.750	12.00	12.69	1/4-18 NPT	-5.0	0.0	NP..51R	SM285	S959	—	CM79	S524	1/8
left hand															
A12NKXCL05	.750	1.060	.625	10.00	10.69	1/8-27 NPT	-5.0	0.0	NP..51L	SM286	S959	—	CM71	S524	1/8
A16NKXCL05	1.000	1.300	.750	12.00	12.69	1/4-18 NPT	-5.0	0.0	NP..51L	SM286	S959	—	CM71	S524	1/8



Application Specific



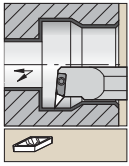
Steel shank with through coolant.



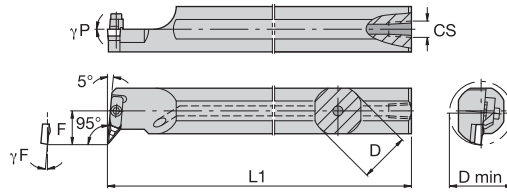
■ **A-NVJC -3°**



catalog number	D	D min	F	L1	CS	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand														
A20NVJCR3	1.250	1.774	.765	14.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32



Steel shank with through coolant.



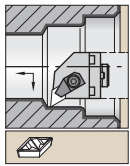
■ A-NVLC -5°



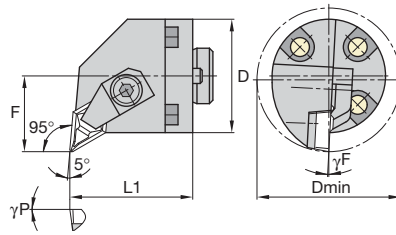
catalog number	D	D min	F	L1	CS	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)
right hand														
A20NVLCR3	1.250	1.830	1.125	14.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
A24NVLCR3	1.500	2.120	1.250	14.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
A32NVLCR3	2.000	2.620	1.500	16.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32
left hand														
A20NVLC L3	1.250	1.830	1.125	14.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32
A24NVLC L3	1.500	2.120	1.250	14.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32
A32NVLC L3	2.000	2.620	1.500	16.00	1/4-18 NPT	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32



Application Specific



With through coolant.

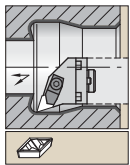


■ **H-NDLP -5°**

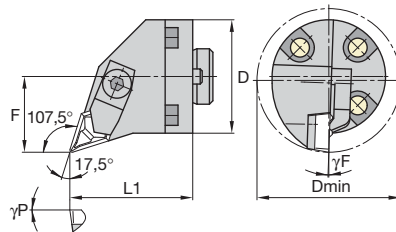


catalog number	D	D min	F	L1	L	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)	
right hand															
H20NDLPR4W	1.250	1.580	.875	1.625	—	-3.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H24NDLPR4W	1.500	1.870	1.000	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H32NDLPR4W	2.000	2.370	1.250	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H40NDLPR4W	2.500	3.125	1.625	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
left hand															
H20NDLPL4W	1.250	1.580	.875	1.625	—	-3.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H24NDLPL4W	1.500	1.870	1.000	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H28NDLPL4W	1.750	2.125	1.125	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H32NDLPL4W	2.000	2.370	1.250	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H40NDLPL4W	2.500	3.125	1.625	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	

Application Specific



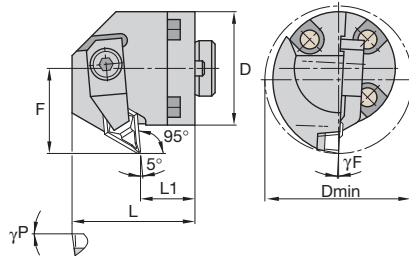
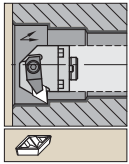
With through coolant.



■ **H-NDQP -17.5°**



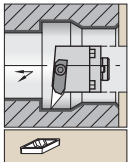
catalog number	D	D min	F	L1	L	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)	
right hand															
H20NDQPR4W	1.250	1.585	.875	1.625	—	-3.0	0.0	DP..432	SM414	S111	1/16	CM117	S530	5/32	
H24NDQPR4W	1.500	1.835	1.000	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32	
H32NDQPR4W	2.000	2.500	1.375	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32	
H40NDQPR4W	2.500	3.125	1.625	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM117	S532	5/32	
left hand															
H20NDQPL4W	1.250	1.585	.875	1.625	—	-3.0	0.0	DP..432	SM414	S111	1/16	CM116	S530	5/32	
H24NDQPL4W	1.500	1.835	1.000	1.625	—	-2.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32	
H32NDQPL4W	2.000	2.500	1.375	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32	
H40NDQPL4W	2.500	3.125	1.625	1.625	—	0.0	0.0	DP..432	SM414	S111	1/16	CM116	S532	5/32	



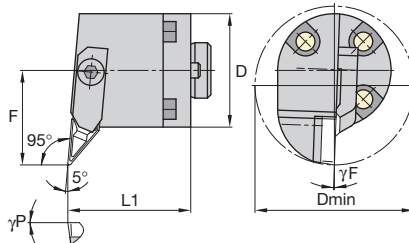
■ H-NDXP -5°



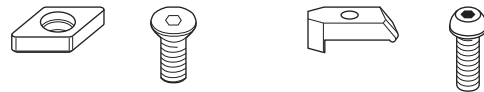
catalog number	D	D min	F	L1	L	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)	
right hand															
H20NDXPR4W	1.250	1.705	1.000	.750	1.62	-3.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H24NDXPR4W	1.500	2.000	1.125	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H32NDXPR4W	2.000	2.500	1.375	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
H40NDXPR4W	2.500	3.125	1.625	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM118	S532	5/32	
left hand															
H20NDXPL4W	1.250	1.705	1.000	.750	1.62	-3.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H24NDXPL4W	1.500	2.000	1.125	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H32NDXPL4W	2.000	2.500	1.375	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	
H40NDXPL4W	2.500	3.125	1.625	.750	1.62	0.0	0.0	DP..432	SM414	S111	1/16	CM119	S532	5/32	



With through coolant.



■ H-NVLP -5°



catalog number	D	D min	F	L1	L	γF°	γP°	gage insert	shim	shim screw	hex (inch)	clamp	clamp screw	hex (inch)	
right hand															
H20NVLPR3W	1.250	1.830	1.125	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32	
H24NVLPR3W	1.500	2.120	1.250	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32	
H32NVLPR3W	2.000	2.620	1.500	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32	
H40NVLPR3W	2.500	3.500	2.000	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM113	S412	5/32	
left hand															
H20NVLPL3W	1.250	1.830	1.125	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32	
H24NVLPL3W	1.500	2.120	1.250	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32	
H32NVLPL3W	2.000	2.620	1.500	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32	
H40NVLPL3W	2.500	3.500	2.000	1.625	—	-2.0	0.0	VP..332	SM412	S959	—	CM114	S412	5/32	

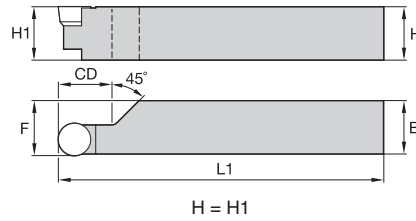
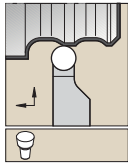
Application Specific

K-Lock™ Inserts

Features and Benefits

- K-Lock inserts are ideal for deep grooving and profiling.
- A unique insert clamping system enables unimpeded chip flow.
- Available in molded and ground peripheries.

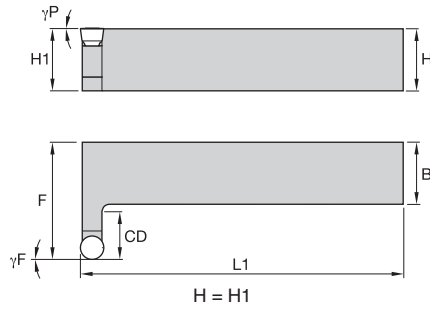
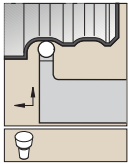




■ **TRAO**

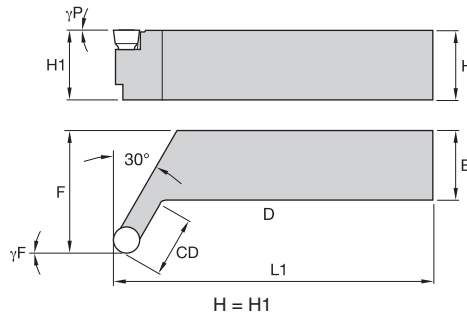
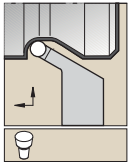
catalog number	H1	B	F	L1	CD	γF°	γP°	gage insert
right hand								
TRAOR1615D	1.00	1.00	1.003	6.00	.50	0.0	0.0	RC..152
TRAOR2015D	1.25	1.25	1.253	6.00	.50	0.0	0.0	RC..152
TRAOR2415E	1.50	1.50	1.503	7.00	.50	0.0	0.0	RC..152
TRAOR162D	1.00	1.00	1.016	6.00	.75	0.0	0.0	RC..23
TRAOR202D	1.25	1.25	1.266	6.00	.75	0.0	0.0	RC..23
TRAOR242E	1.50	1.50	1.516	7.00	.75	0.0	0.0	RC..23
TRAOR163D	1.00	1.00	1.020	6.00	.75	0.0	0.0	RC..35
TRAOR203D	1.25	1.25	1.270	6.00	.75	0.0	0.0	RC..35
TRAOR243E	1.50	1.50	1.520	7.00	.75	0.0	0.0	RC..35
TRAOR164D	1.00	1.00	1.032	6.00	1.00	0.0	0.0	RC..46
TRAOR204D	1.25	1.25	1.282	6.00	1.00	0.0	0.0	RC..46
TRAOR244E	1.50	1.50	1.532	7.00	1.00	0.0	0.0	RC..46
left hand								
TRAOL1615D	1.00	1.00	1.003	6.00	.50	0.0	0.0	RC..152
TRAOL2015D	1.25	1.25	1.253	6.00	.50	0.0	0.0	RC..152
TRAOL2415E	1.50	1.50	1.503	7.00	.50	0.0	0.0	RC..152
TRAOL162D	1.00	1.00	1.016	6.00	.75	0.0	0.0	RC..23
TRAOL202D	1.25	1.25	1.266	6.00	.75	0.0	0.0	RC..23
TRAOL242E	1.50	1.50	1.516	7.00	.75	0.0	0.0	RC..23
TRAOL163D	1.00	1.00	1.020	6.00	.75	0.0	0.0	RC..35
TRAOL203D	1.25	1.25	1.270	6.00	.75	0.0	0.0	RC..35
TRAOL243E	1.50	1.50	1.520	7.00	.75	0.0	0.0	RC..35
TRAOL164D	1.00	1.00	1.032	6.00	1.00	0.0	0.0	RC..46
TRAOL204D	1.25	1.25	1.282	6.00	1.00	0.0	0.0	RC..46
TRAOL244E	1.50	1.50	1.532	7.00	1.00	0.0	0.0	RC..46

Application Specific


TRHO

catalog number	H1	B	F	L1	CD	γF°	γP°	gage insert
right hand								
TRHOR1615D	1.00	1.00	1.625	6.00	.50	0.0	0.0	RC..152
TRHOR2015D	1.25	1.25	1.875	6.00	.50	0.0	0.0	RC..152
TRHOR162D	1.00	1.00	1.875	6.00	.75	0.0	0.0	RC..23
TRHOR203D	1.25	1.25	2.125	6.00	.75	0.0	0.0	RC..35
TRHOR243E	1.50	1.50	2.375	7.00	.75	0.0	0.0	RC..35
TRHOR204D	1.25	1.25	2.125	6.00	.75	0.0	0.0	RC..46
TRHOR244E	1.50	1.50	2.375	7.00	.75	0.0	0.0	RC..46

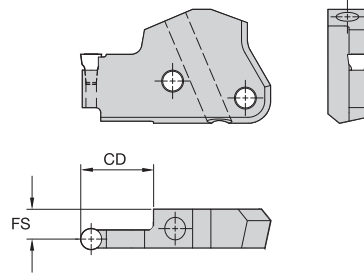
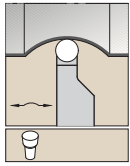
NOTE: Left-hand holders are available as specials.


TRTO

catalog number	H1	B	F	L1	CD	γF°	γP°	gage insert
right hand								
TRTOR1615D	1.00	1.00	1.500	6.00	.55	0.0	0.0	RC..152
TRTOR2015D	1.25	1.25	1.750	6.00	.55	0.0	0.0	RC..152
TRTOR162D	1.00	1.00	1.750	6.00	.84	0.0	0.0	RC..23
TRTOR163D	1.00	1.00	1.750	6.00	.87	0.0	0.0	RC..35
TRTOR203D	1.25	1.25	2.000	6.00	.87	0.0	0.0	RC..35
TRTOR204D	1.25	1.25	2.000	6.00	.89	0.0	0.0	RC..46
TRTOR244E	1.50	1.50	2.250	7.00	.89	0.0	0.0	RC..46

NOTE: Left-hand holders are available as specials.

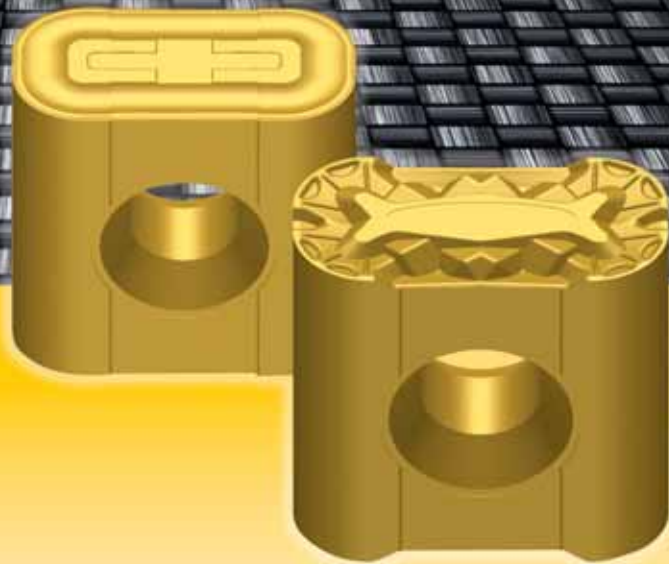
Application Specific



■ TRM

Application Specific

catalog number	CD		FS		cartridge size	gage insert
	mm	in	mm	in		
right hand						
TRM50R0432M	32	1.25	9,62	.379	50	RCMK152
TRM50R0620M	19	.75	8,98	.354	50	RCMK23
TRM50R0632M	32	1.25	8,98	.354	50	RCMK-23
TRM50R0640M	38	1.50	8,98	.354	50	RCGK23
TRM50R0657M	57	2.25	8,98	.354	50	RCMK-23
TRM50R0720M	19	.75	8,42	.332	50	RCMK-2.55
TRM50R0725M	25	1.00	8,42	.332	50	RCMK-2.55
TRM50R0732M	32	1.25	8,42	.332	50	RCMK-2.55
TRM50R0920M	19	.75	7,64	.301	50	RC_K35
TRM50R0932M	32	1.25	7,65	.301	50	RCMK-35
TRM50R0940M	38	1.50	7,64	.301	50	RC_K35
TRM50R0950M	50	1.95	7,65	.301	50	RCMK-35
TRM50R0957M	57	2.25	7,65	.301	50	RCMK-35
TRM50R1250M	51	2.00	6,25	.246	50	RC_K46
left hand						
TRM50L0432M	32	1.25	9,62	.379	50	RCMK152
TRM50L0620M	19	.75	8,98	.354	50	RCMK23
TRM50L0632M	32	1.25	8,98	.354	50	RCMK-23
TRM50L0640M	38	1.50	8,98	.354	50	RCGK23
TRM50L0657M	57	2.25	8,98	.354	50	RCMK-23
TRM50L0720M	19	.75	8,42	.332	50	RCMK-2.55
TRM50L0725M	25	1.00	8,42	.332	50	RCMK-2.55
TRM50L0732M	32	1.25	8,42	.332	50	RCMK-2.55
TRM50L0920M	19	.75	7,64	.301	50	RC_K35
TRM50L0932M	32	1.25	7,65	.301	50	RCMK-35
TRM50L0940M	38	1.50	7,64	.301	50	RC_K35
TRM50L0950M	50	1.95	7,65	.301	50	RCMK-35
TRM50L0957M	57	2.25	7,65	.301	50	RCMK-35
TRM50L1250M	51	2.00	6,25	.246	50	RC_K46



Kennametal™ Tools for Railways and Wheel Machining

Kennametal offers a complete line of tooling for wheel and axle maintenance in railroad shops. All tools incorporate the latest in tooling technology for maximum metal removal and higher productivity. All tools are proven performers in actual use over extended periods of time, under a wide range of operating conditions. Standard off-the-shelf inserts and fewer pieces of hardware reduce inventory and operating costs. Included in this range are tools for reconditioning mounted wheel sets, wheel boring, wheel truing, axle turning, and journal burnishing.

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www.kennametal.com

 **KENNAMETAL®**



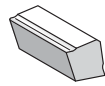
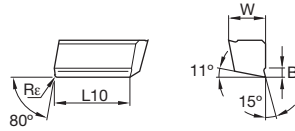
Kendex™ Mini Boring Bars

Primary Application

Ground inserts in their neutral position and the precision insert pocket combine to ensure superior surface finishes. The unique system design protects the second cutting edge from damage while the first edge is in operation.

Features and Benefits

- Kendex mini boring bars are specially designed to finish bore diameters as small as .250".
- Kendex mini inserts contain two precision ground cutting edges.
- Inserts are available in uncoated and PVD coated grades.

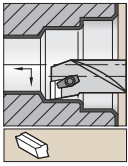

BPGF


● first choice
 ○ alternate choice

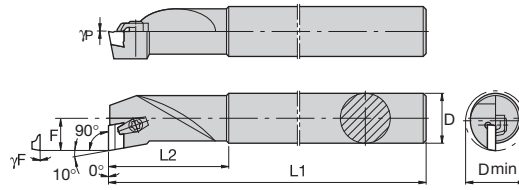
P	■	○
M	■	●
K	■	○
N	■	○
S	■	●
H	■	○

ISO catalog number	ANSI catalog number	L10		W		Rε		B		K68	KC720
		mm	in	mm	in	mm	in	mm	in		
right hand BPGF030202R14	BPGF030202R	3,00	.118	2,00	.079	0,20	.008	1,40	.055	●	●
left hand BPGF050302R12	BPGF050302R	4,50	.177	2,50	.098	0,20	.008	1,20	.047	●	●
BPGF030201L14	BPGF030201L	3,00	.118	2,00	.079	0,05	.002	1,40	.055	●	●
BPGF030202L14	BPGF030202L	3,00	.118	2,00	.079	0,20	.008	1,40	.055	●	●
BPGF050301L12	BPGF050301L	4,50	.177	2,50	.098	0,05	.002	1,20	.047	●	●
BPGF050302L12	BPGF050302L	4,50	.177	2,50	.098	0,20	.008	1,20	.047	●	●
BPGF050304L16	BPGF050304L	4,50	.177	2,50	.098	0,40	.016	1,60	.063	●	●
BPGF070304L18	BPGF070304L	7,00	.276	2,50	.098	0,40	.016	1,80	.071	●	●
BPGF080404L22	BPGF080404L	8,00	.315	4,00	.157	0,40	.016	2,20	.087	●	●





Steel shank without through coolant.



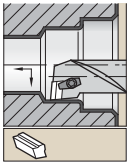
■ **S-KBFP 0°**



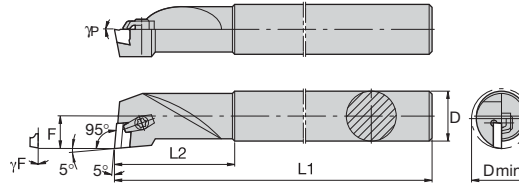
catalog number	D	D min	F	L1	L2	γF°	γP°	gage insert	clamp assembly	wrench size clamp screw
right hand S04KBFP03	.250	.250	.128	2.375	.625	0.0	0.0	BP..030202L	CE1031	T6
S04KBFP05	.250	.315	.177	2.375	.625	0.0	0.0	BP..050302L	CE1014	T8
S05KBFP05	.313	.394	.216	3.125	.750	0.0	0.0	BP..050302L	CE1014	T8



Application Specific



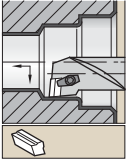
Steel Shank without through coolant.



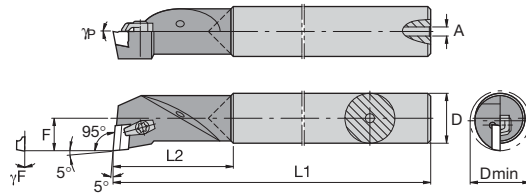
■ **S-KBLP -5°**



catalog number	D	D min	F	L1	L2	γF°	γP°	gage insert	clamp assembly	wrench size clamp screw
right hand S04KBLPR03	.250	.250	.128	2.375	.625	0.0	0.0	BP..030202L	CE1031	T6
S04KBLPR05	.250	.315	.177	2.375	.625	0.0	0.0	BP..050302L	CE1014	T8
S05KBLPR05	.313	.394	.216	3.125	.750	0.0	0.0	BP..050302L	CE1014	T8
left hand S04KBLPL03	.250	.250	.128	2.375	.625	0.0	0.0	BP..030202R	CE1031	T6
S04KBLPL05	.250	.315	.177	2.375	.625	0.0	0.0	BP..050302R	CE1014	T8
S05KBLPL05	.313	.394	.216	3.125	.750	0.0	0.0	BP..050302R	CE1014	T8



Carbide shank with through coolant.



■ E-KBLP -5°



catalog number	D	D min	F	L1	L2	A	γF°	γP°	gage insert	clamp assembly	wrench size clamp screw
right hand											
E04KBLPR03	.250	.250	.128	3.938	1.220	.06	0.0	0.0	BP..030202L	CE1031	T6
E04KBLPR05	.250	.315	.177	3.938	.630	.06	0.0	0.0	BP..050302L	CE1014	T8
E05KBLPR05	.313	.394	.216	4.922	.787	.08	0.0	0.0	BP..050302L	CE1014	T8
left hand											
E04KBLPL05	.250	.315	.177	3.938	.630	.06	0.0	0.0	BP..050302R	CE1014	T8
E05KBLPL05	.313	.394	.216	4.922	.787	.08	0.0	0.0	BP..050302R	CE1014	T8



Application Specific

Wheel Reprofilng/Wheelset Truing

Primary Application

Kennametal offers a complete line of tooling for wheel and axle maintenance in railroad shops. All tools incorporate the latest in tooling technology for maximum metal removal and higher productivity. All tools are proven performers in actual use over extended periods of time, under a wide range of operating conditions. Standard off-the-shelf inserts and fewer pieces of hardware reduce inventory and operating costs.

Features and Benefits

Versatility

Included in the new expanded line are tools for reconditioning mounted wheel sets, wheel boring, wheel turning, wheel truing, axle turning, and journal burnishing.

Advantages

Machining conditions for these tools vary with the type of service the wheel has seen. Among the problems encountered are skid flat areas, overheating of spinning wheels, accidental torch burns, excessive mushroom and rollovers that are hardened by unusual hump retarder pressure and mismatched wheels that cause excessive wear on the side of the flange. Each of these conditions require a different machining speed and depth of cut. Even under these tough conditions, Kennametal tools have produced superior results through reduced production time and lower maintenance costs.

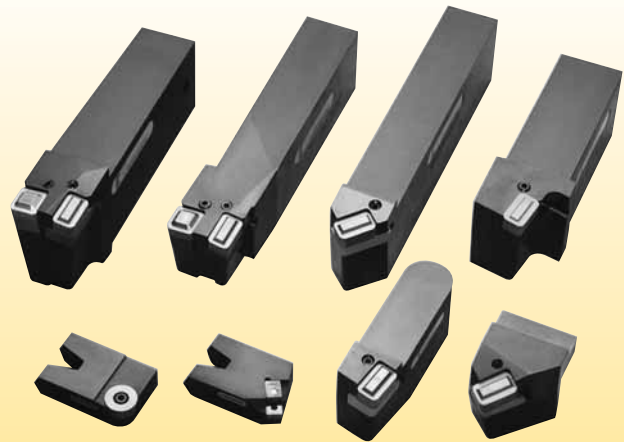


■ Wheel Lathe Tooling

Kennametal railroad tooling incorporates a unique locking unit design developed through years of testing on all types of wheel lathes and machining wheels with all types of tread surfaces.

This heavy-duty, rugged design has proven to be effective in reducing machining costs on tread turning applications, the most severe machining operation encountered in wheel and axle shops.

Strong inserts, with raised chipbreaker land and honed cutting edges, offer more effective chip control and a stronger cutting edge. Combining this tool geometry with Kennametal's grade selection delivers higher wheel turning productivity.



■ Wheelset Reconditioning

Advantages of Kennametal Wheel Lathe Tools:

- No top clamp to wear out or interfere with chip flow.
- Insert locks against two walls in the toolholder to prevent insert movement under heavy cutting loads.
- Hardened steel locking unit provides positive insert seating and holder protection.
- Fast, trouble-free insert indexing — just unlock one screw to release the insert.
- Quick removal of the steel locking unit and insert for cleaning or replacement.
- Heavy-duty steel locking unit design ensures longer life and helps reduce operating costs.
- Fewer parts to inventory.
- Toolholders and steel locking units, made from heat-treated alloy steel, provide support to withstand severe roughing cuts on work-hardened wheels.



LNUX-RRH



LNUX-RRP



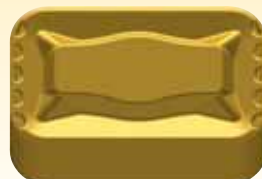
KRR6586-71



KRR6586-75



LNUX-RRSM



KRR6586-65

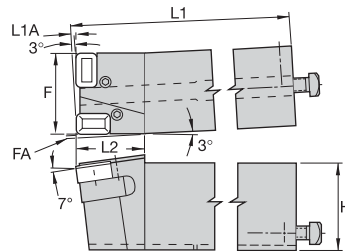
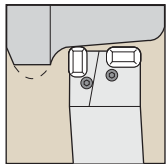


KRR6586-52



KRR6586-50

- Portal-type wheel lathe is a fully automatic, heavy-duty wheel lathe. An integrated measuring device determines wheel set profile wear to establish minimum stock removal.
- The portal-type machine bed enables roll-through operation.
- This tooling is suitable for economical machining of wheel sets for locomotives, transit, passenger, and freight cars.



Tread Profile Turning

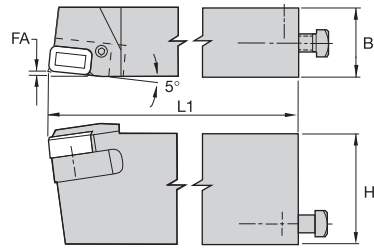
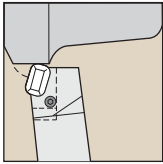
order number	catalog number	H		F		L1		L2		FA		L1A		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
1015754	HUWTCL	80,00	3.150	76,20	3.000	275,00	10.827	63,50	2.500	3,00	.118	3,00	.118	KRR6586__
1015723	HUWTCR	80,00	3.150	76,20	3.000	275,00	10.827	63,50	2.500	3,00	.118	3,00	.118	KRR6586__

Spare Parts

catalog number	shim	shim	lock screw	cup point socket set screw	brass plug	heavy-duty clamp screw
HUWTCL	SU7	SU8	S1006PKG	S751	S1033	S1014
HUWTCR	SU6	SU8	S1006PKG	S751	S1033	S1014

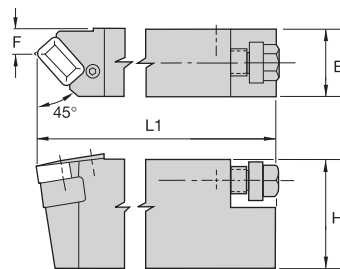
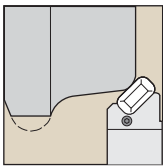
NOTE: Requires two inserts.
See page F84 for insert selection.

Application Specific



■ Flange Topping

order number	catalog number	H		B		L1		FA		insert 1
		mm	in	mm	in	mm	in	mm	in	
1015755	HUWFTR	80,00	3.150	50,00	1.969	265,00	10.433	3,53	.139	KRR6586_
1015756	HUWFTL	80,00	3.150	50,00	1.969	265,00	10.433	3,53	.139	KRR6586_



■ Mushroom Removal

order number	catalog number	H		B		F		L1		insert 1
		mm	in	mm	in	mm	in	mm	in	
1015685	HUMRR	80,00	3.150	50,00	1.969	19,50	.768	265,00	10.433	KRR6586_
1015686	HUMRL	80,00	3.150	50,00	1.969	19,50	.768	265,00	10.433	KRR6586_

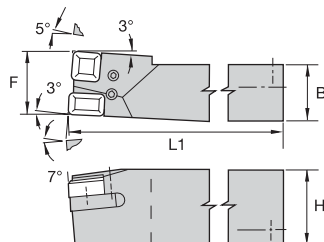
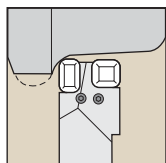
NOTE: See page F84 for insert selection.

Application Specific

- Tools and inserts are specifically designed for the feeds and speeds normally used on this type of lathe.
- Style HUTC is used for profiling the tread contours on the wheel, and style HUFT is used for normal flange topping.
- For heavy flange topping it may be necessary to use two flange-topping tools, styles HUFT-A and HUFT-B.



Hegenscheidt Portal-Type Wheel Lathe

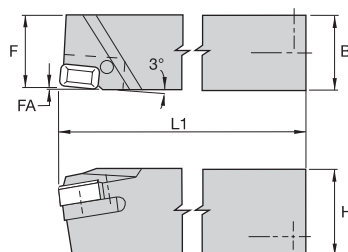
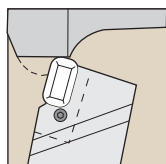


Tread Profile Turning

order number	catalog number	H		B		F		L1		insert 1	insert 2
		mm	in	mm	in	mm	in	mm	in		
1015757	HUTCR	69,85	2.750	50,00	1.969	57,15	2.250	275,00	10.827	KRR6586_	KRR86650
1015758	HUTCL	69,85	2.750	50,00	1.969	57,15	2.250	275,00	10.827	KRR6586_	KRR86650

NOTE: Requires 2 inserts.

Application Specific



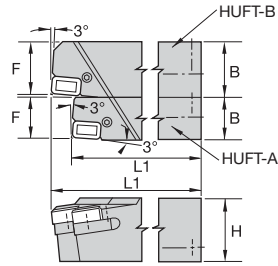
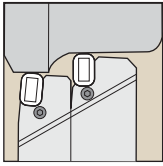
Flange Topping

order number	catalog number	H		B		F		L1		FA		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	
1015717	HUFTR	69,85	2.750	60,00	2.362	58,17	2.290	250,00	9.843	1,70	.067	KRR6586_
1015718	HUFTL	69,85	2.750	60,00	2.362	58,17	2.290	250,00	9.843	1,70	.067	KRR6586_

Spare Parts

catalog number	steel locking unit	cone point screw	optional set screw	optional brass slug	optional square head bolt
HUFTR	SU2	S1006PKG	S1015	S1033	S1014
HUFTL	SU3	S1006PKG	S1015	S1033	S1014

NOTE: See page F84 for insert selection.



■ Heavy Flange Topping

order number	catalog number	H		B		F		L1		insert 1
		mm	in	mm	in	mm	in	mm	in	
1015719	HUFTRA	69,85	2.750	47,00	1.850	45,21	1.780	228,60	9.000	KRR6586_
3385736	HUFTRB	69,85	2.750	60,00	2.362	55,12	2.170	250,00	9.843	KRR6586_
3385735	HUFTLA	69,85	2.750	47,00	1.850	45,21	1.780	228,60	9.000	KRR6586_
3385737	HUFTLB	69,85	2.750	60,00	2.362	55,12	2.170	250,00	9.843	KRR6586_

NOTE: See page F84 for insert selection.

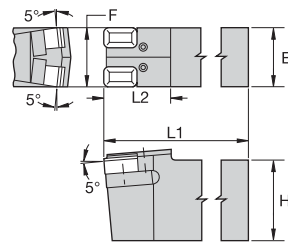
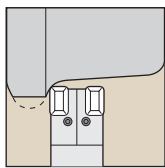


Application Specific

- Delivers maximum productivity at minimum operating costs.
- Fast insert indexing is possible with the tool mounted in the tool block.
- Individual steel locking units make it easy to index and lock each insert separately.
- Gage location on tool, over insert, is held to +/- .003" (0,08mm).
- No top clamp is used so it won't wear out or interfere with chip flow.
- Replaceable steel locking unit protects toolholder from damage.
- Indexable inserts with pre-formed chipbreakers deliver chip control at optimum feeds and speeds.



Simmons-Niles Wheel Turning Lathe

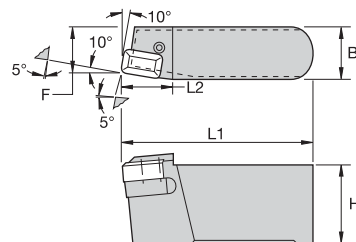
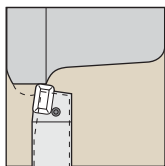


Wheel Tread Contouring

Application Specific

order number	catalog number	H		B		F		L1		L2		insert 1	steel locking unit	lock screw
		mm	in	mm	in	mm	in	mm	in	mm	in			
1015684	NUWTC	76,20	3.000	57,15	2.250	57,15	2.250	412,75	16.250	95,25	3.750	KRR6586__	SU3	S1006PKG

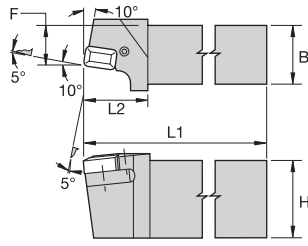
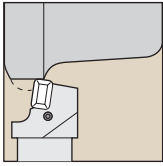
NOTE: Requires two inserts.
See page F84 for insert selection.



Wheel Flange Topping

order number	catalog number	H		B		F		L1		L2		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	
1015689	NUFRR	63,50	2.500	41,28	1.625	36,53	1.438	152,40	6.000	39,62	1.560	KRR6586__
1015690	NUFRL	63,50	2.500	41,28	1.625	36,53	1.438	152,40	6.000	39,62	1.560	KRR6586__

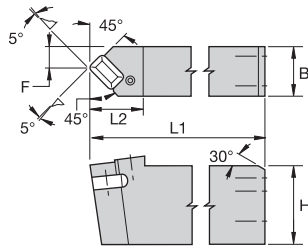
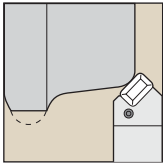
NOTE: See page F84 for insert selection.



■ Wheel Flange Roughing

order number	catalog number	H		B		F		L1		L2		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	
1015693	NUFRAR	76,20	3.000	57,15	2.250	38,10	1.500	212,85	8.380	63,50	2.500	KRR6586_
1015714	NUFRAL	76,20	3.000	57,15	2.250	38,10	1.500	212,85	8.380	63,50	2.500	KRR6586_

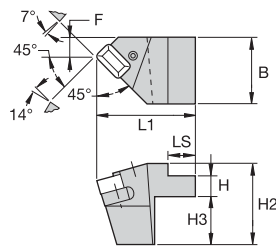
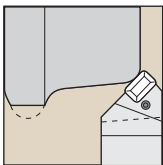
NOTE: See page F84 for insert selection.



■ Mushroom Removal

order number	catalog number	H		B		F		L1		L2		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	
3385765	NUMRAR	76,20	3.000	47,63	1.875	19,51	.768	311,15	12.250	50,80	2.000	KRR6586_
3385766	NUMRAL	76,20	3.000	47,63	1.875	19,51	.768	311,15	12.250	50,80	2.000	KRR6586_

NOTE: See page F84 for insert selection.



■ Mushroom Removal

order number	catalog number	H		H2		H3		B		F		L1		LS		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
3385767	NUMRR	19,05	.750	76,20	3.000	45,21	1.780	63,50	2.500	19,05	.750	93,52	3.682	25,40	1.000	KRR6586_
3385768	NUMRL	19,05	.750	76,20	3.000	45,21	1.780	63,50	2.500	19,05	.750	93,52	3.682	25,40	1.000	KRR6586_

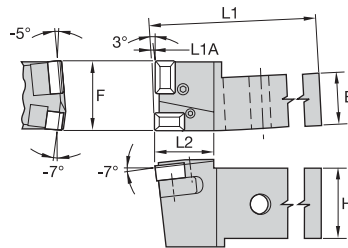
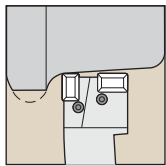
NOTE: See page F84 for insert selection.

Application Specific

- Delivers maximum productivity at minimum operating costs.
- Fast insert indexing is possible with the tool mounted in the tool block.
- Individual steel locking units make it easy to index and lock each insert separately.
- Gage location on tool, over insert, is held to +/- .003" (0,08mm).
- No top clamp is used to wear out or interfere with chip flow.
- Replaceable steel locking unit protects toolholder from damage.
- Improved inserts with chip control are offered.



Simmons-Farrel CNC Portal Wheel Lathe



Application Specific

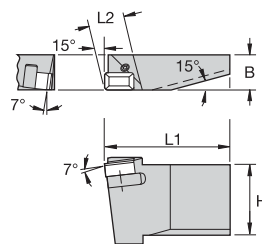
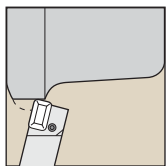
Wheel Tread Contouring

order number	catalog number	H		B		F		L1		L2		L1A		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
1015687	FUWTCR	76,20	3.000	57,15	2.250	76,20	3.000	254,00	10.000	66,55	2.620	3,05	.120	KRR6586__
1015688	FUWTCL	76,20	3.000	57,15	2.250	76,20	3.000	254,00	10.000	66,55	2.620	3,05	.120	KRR6586__

Spare Parts

catalog number	steel locking unit	steel locking unit	lock screw
FUWTCR	SU6	SU8	S1006PKG
FUWTCL	SU6	SU8	S1006PKG

NOTE: Requires two inserts.
See page F84 for insert selection.

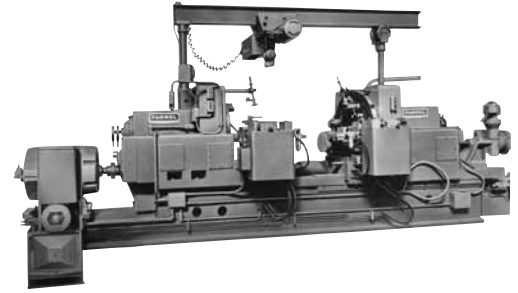


Wheel Flange Topping

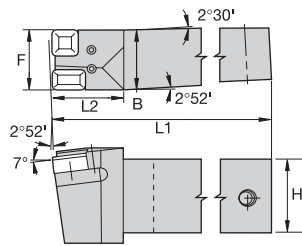
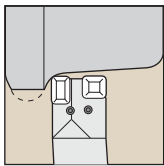
order number	catalog number	H		B		L1		L2		insert 1	steel locking unit	set screw
		mm	in	mm	in	mm	in	mm	in			
1015662	FUWFTR	76,20	3.000	38,10	1.500	133,35	5.250	38,10	1.500	KRR6586__	SU4	S1006PKG
1015663	FUWFTL	76,20	3.000	38,10	1.500	133,35	5.250	38,10	1.500	KRR6586__	SU4	S1006PKG

NOTE: See page F84 for insert selection.

- Delivers maximum productivity at minimum operating costs.
- Fast insert indexing is possible with the tool mounted in the tool block.
- Individual steel locking units make it easy to index and lock each insert separately.
- Minimum parts for lower inventory.
- No top clamp is used to wear out or interfere with chip flow.
- Replaceable steel locking unit protects toolholder from damage.
- Indexable inserts with pre-formed chipbreakers deliver chip control at optimum feeds and speeds.



Simmons-Farrel (Sellers) Tracer Wheel Lathe



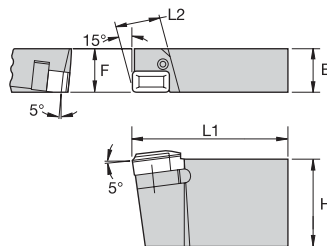
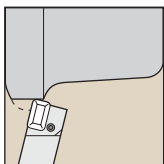
Wheel Tread Contouring

order number	catalog number	H		B		F		L1		L2		insert 1	insert 2
		mm	in	mm	in	mm	in	mm	in	mm	in		
1015658	SUWTCR	76,20	3.000	57,15	2.250	57,15	2.250	254,00	10.000	66,55	2.620	KRR6586__	KRR86650
1015659	SUWTCL	76,20	3.000	57,15	2.250	57,15	2.250	254,00	10.000	66,55	2.620	KRR6586__	KRR86650

Spare Parts

catalog number	shim	shim	cone point socket set screw	lock screw
SUWTCR	SU2	SU11	S939	S1006PKG
SUWTCL	SU3	SU10	S939	S1006PKG

NOTE: Requires two inserts.
See page F84 for insert selection.



Wheel Flange Topping

order number	catalog number	H		B		F		L1		L2		insert 1	steel locking unit	cone point set screw
		mm	in	mm	in	mm	in	mm	in	mm	in			
1864582	SUWFTR	76,20	3.000	38,10	1.500	38,10	1.500	133,35	5.250	37,72	1.485	KRR6586__	—	—
1015661	SUWFTL	76,20	3.000	38,10	1.500	38,10	1.500	133,35	5.250	37,72	1.485	KRR6586__	SU5	S1006PKG

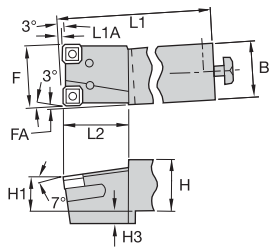
NOTE: See page F84 for insert selection.

Application Specific

- Kennametal tooling for underfloor wheel lathes features a steel sliding shim unit. The sliding shim unit holds the insert securely in the pocket, ensures easy insert indexing, and is simple and economical to replace.
- The insert used in these holders, KRR-6610, features improved chip control for safer and easier chip disposal.



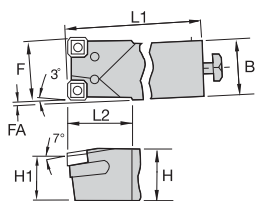
Hegenscheidt Underfloor Wheel Lathe



Model 104 Tread Profile Turning

order number	catalog number	H		H1		H3		B		F		L1		L2		FA		L1A		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
1015759	H104R55	49,91	1.965	31,88	1.255	12,00	.472	54,86	2.160	54,86	2.160	250,00	9.843	63,50	2.500	3,00	.118	3,00	.118	KRR6610
1015760	H104R60	49,91	1.965	31,88	1.255	12,00	.472	54,86	2.160	59,87	2.357	250,00	9.843	63,50	2.500	3,00	.118	3,00	.118	KRR6610
1015761	H104L55	49,91	1.965	31,88	1.255	12,00	.472	54,86	2.160	54,86	2.160	250,00	9.843	63,50	2.500	3,00	.118	3,00	.118	KRR6610
1015762	H104L60	49,91	1.965	31,88	1.255	12,00	.472	54,86	2.160	59,87	2.357	250,00	9.843	63,50	2.500	3,00	.118	3,00	.118	KRR6610

Application Specific



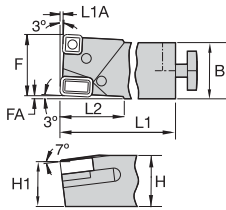
Model 106 Tread Profile Turning

order number	catalog number	H		H1		B		F		L1		L2		FA		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
3385769	H106R55	49,91	1.965	43,87	1.727	54,86	2.160	54,86	2.160	225,00	8.858	63,50	2.500	3,00	.118	KRR6610
1015763	H106R60	49,91	1.965	43,87	1.727	54,86	2.160	59,87	2.357	225,00	8.858	63,50	2.500	3,00	.118	KRR6610
3385770	H106L55	49,91	1.965	43,87	1.727	54,86	2.160	54,86	2.160	225,00	8.858	63,50	2.500	3,00	.118	KRR6610
1015784	H106L60	49,91	1.965	43,87	1.727	54,86	2.160	59,87	2.357	225,00	8.858	63,50	2.500	3,00	.118	KRR6610

Spare Parts

catalog number	steel locking unit	steel locking unit	cone point set screw	optional socket set screw	optional brass slug	optional square head bolt
H106R55	SU12	SU13	S1006PKG	S749	S1033	S1014
H106R60	SU12	SU13	S1006PKG	S749	S1033	S1014
H106L60	SU12	SU13	S1006PKG	S749	S1033	S1014
H106L60	SU12	SU13	S1006PKG	S749	S1033	S1014

NOTE: Requires two inserts.
See page F84 for insert selection.



■ Model 106 Tread Profile Turning • Carbide Shim

order number	catalog number	H		H1		B		F		L1		L2		FA		L1A		insert 1	insert 2
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
1015557	H106R60H	50,00	1.969	43,87	1.727	54,86	2.160	59,87	2.357	225,00	8.858	63,50	2.500	3,00	.118	3,00	.118	KRR658671	KRR6610
1015558	H106L60H	50,00	1.969	43,87	1.727	54,86	2.160	59,87	2.357	225,00	8.858	63,50	2.500	3,00	.118	3,00	.118	KRR658671	KRR6610

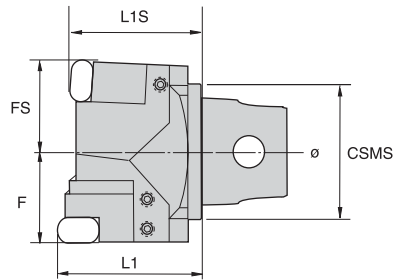
■ Spare Parts

catalog number	steel locking unit	cone point set screw	optional socket set screw	optional brass slug	optional square head bolt
H106R60H	SU6B	S1006PKG	S751	S1033	S1014
H106L60H	SU7B	S1006PKG	S751	S1033	S1014

NOTE: Requires two inserts.
See page F84 for insert selection.



Application Specific



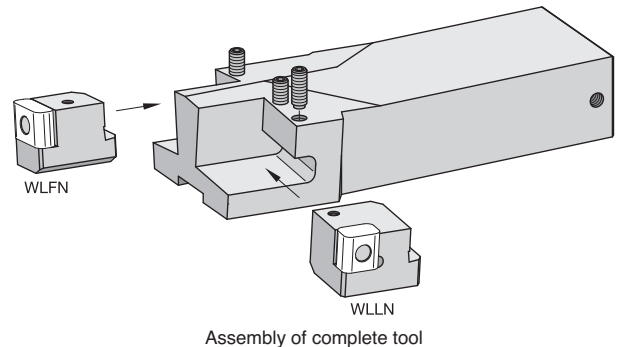
■ TK

order number	catalog number	CSMS system size	F		FS		L1		L1S	
			mm	in	mm	in	mm	in	mm	in
1781756	TK01339D	KM63	42,50	1.673	42,50	1.673	66,00	2.598	60,00	2.362
1781755	TK01338D	KM63	42,50	1.673	42,50	1.673	66,00	2.598	60,00	2.362

NOTE: See page F86 for insert selection.

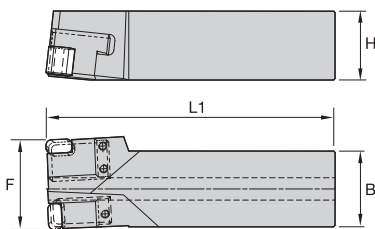
Assembly Instructions

basic/KM shank	cartridge WLLN..	cartridge WLFN..
right	right	left
left	left	right



Assembly of complete tool

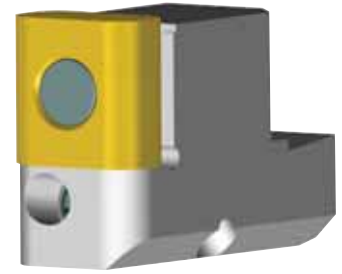
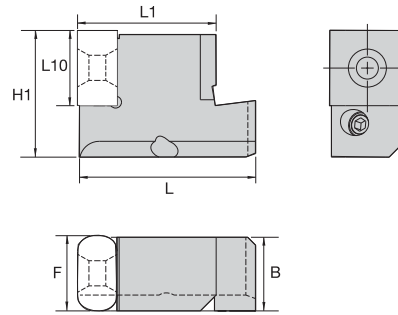
Application Specific



■ Basic Shank WXXN

order number	catalog number	H		B		F assembly		L1 assembly		clamp screw
		mm	in	mm	in	mm	in	mm	in	
1251262	WXXNR4455X-FL	50,00	1.969	55,00	2.165	65,00	2.559	210,00	8.268	PT00163
1251261	WXXNL4455X-FL	50,00	1.969	55,00	2.165	65,00	2.559	210,00	8.268	PT00163

NOTE: See page F86 for insert selection.



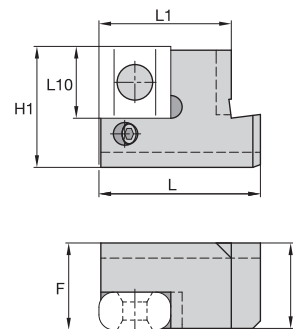
■ Cartridge WLFN

order number	catalog number	H1		B		F		L10		L1		L		gage insert
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
2435187	WLFNR32CA19S	32,00	1.260	18,60	.732	19,00	.748	19,00	.748	35,00	1.378	45,00	1.772	LNUX191940...
2435188	WLFNL32CA19S	32,00	1.260	18,60	.732	19,00	.748	19,00	.748	35,00	1.378	45,00	1.772	LNUX191940...

■ Spare Parts

catalog number	clamp stud	clamp screw	hex wrench
WLFNR32CA19S	114.305	121.616	170.003
WLFNL32CA19S	114.305	121.616	170.003

NOTE: See page F86 for insert selection.



Application Specific

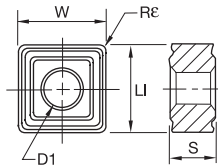
■ Cartridge WLLN

order number	catalog number	H1		B		F		L10		L1		L		gage insert
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
2435183	WLLNR32CA19S	32,00	1.260	22,60	.890	23,00	.906	19,00	.748	35,00	1.378	45,00	1.772	LNUX191940...
2435185	WLLNR32CA30S	32,00	1.260	22,60	.890	23,00	.906	30,00	1.181	35,00	1.378	45,00	1.772	LNUX301940...
2435184	WLLNL32CA19S	32,00	1.260	22,60	.890	23,00	.906	19,00	.748	35,00	1.378	45,00	1.772	LNUX191940...
2435186	WLLNL32CA30S	32,00	1.260	22,60	.890	23,00	.906	30,00	1.181	35,00	1.378	45,00	1.772	LNUX301940...

■ Spare Parts

catalog number	clamp stud	clamp screw	hex wrench
WLLNR32CA19S	114.305	121.616	170.003
WLLNR32CA30S	114.305	121.616	170.003
WLLNL32CA19S	114.305	121.616	170.003
WLLNL32CA30S	114.305	121.616	170.003

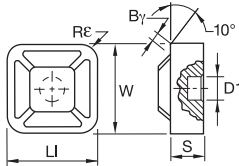
NOTE: See page F86 for insert selection.



● first choice
○ alternate choice

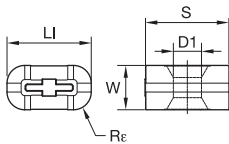
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M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

ISO catalog number	ANSI catalog number	W		LI		S		Re		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in												
KRR6610	KRR6610	19,05	.750	19,05	.750	9,53	3/8	4,00	5/32	7,87	.310	—	—	●										●	



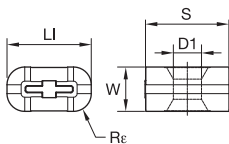
ISO catalog number	ANSI catalog number	W		LI		S		Re		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in												
KRR86650	KRR86650	25,40	1.000	25,40	1.000	9,53	3/8	4,76	3/16	7,87	.310	0,51	.020	●											

Application Specific



ISO catalog number	ANSI catalog number	W		LI		S		Re		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in												
LNUX191940RRF	LNUX191940RRF	10,00	.394	19,00	.748	19,05	3/4	4,00	5/32	6,35	.250	—	—				●	●							
LNUX301940RRF	LNUX301940RRF	12,00	.472	30,00	1.181	19,05	3/4	4,00	5/32	6,35	.250	—	—				●	●							

NOTE: Also available in KC9105.

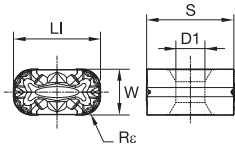


ISO catalog number	ANSI catalog number	W		LI		S		Re		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in												
LNUX191940RRH	LNUX191940RRH	10,00	.394	19,00	.748	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●								
LNUX301940RRH	LNUX301940RRH	12,00	.472	30,00	1.181	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●								

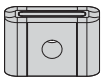
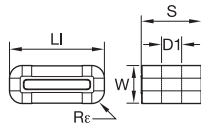
NOTE: Also available in KC9105.

P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● first choice
○ alternate choice

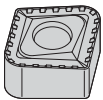
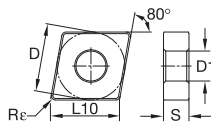

LNUX-RRP


ISO catalog number	ANSI catalog number	W		LI		S		Rε		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in											
LNUX191940RRP	LNUX191940RRP	10,00	.394	19,00	.748	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●	●	●	●	●	●	●	●
LNUX301940RRP	LNUX301940RRP	12,00	.472	30,00	1.181	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●	●	●	●	●	●	●	●

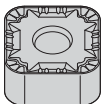
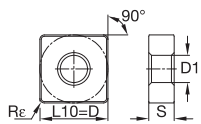

LNUX-RRSM


ISO catalog number	ANSI catalog number	W		LI		S		Rε		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in											
LNUX191940RRSM	LNUX191940RRSM	10,00	.394	19,00	.748	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●	●	●	●	●	●	●	●
LNUX301940RRSM	LNUX301940RRSM	12,00	.472	30,00	1.181	19,05	3/4	4,00	5/32	6,35	.250	—	—	●	●	●	●	●	●	●	●	●	●	●

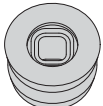
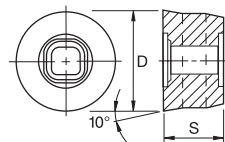
NOTE: Also available in KC9105™.


CNMM-RRP


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in											
CNMM190740RRP	CNMM190740RRP	19,05	3/4	19,34	.762	7,94	5/16	4,00	5/32	7,93	.313	—	—	●	●	●	●	●	●	●	●	●	●	●


SNMX-RRP


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in											
SNMX190640RRP	SNMX190640RRP	19,05	3/4	19,05	.750	6,350	1/4	4,000	5/32	6,35	.250	—	—	●	●	●	●	●	●	●	●	●	●	●


WTS-P


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		By		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in											
WTS10P	WTS10P	15,82	.623	—	—	9,525	3/8	—	—	—	—	—	—	●	●	●	●	●	●	●	●	●	●	●

Application Specific

Kennametal Tools for Railways and Wheel Machining

Primary Application

Kennametal offers a complete line of tooling that incorporates the latest technology for maximum metal removal and higher productivity. All tools perform in actual use over extended periods of time, under a wide range of operating conditions. Standard off-the-shelf inserts and fewer pieces of hardware reduce inventory and operating costs. Tools in this range are for reconditioning mounted wheel sets, wheel boring, wheel truing, axle turning and journal burnishing.

Features and Benefits

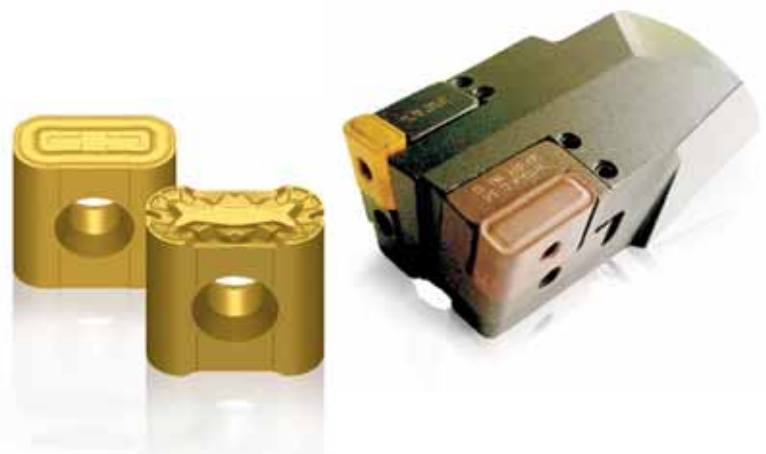
Machining conditions vary with the wheel's type of service. Reduced production time and lower maintenance costs produce superior results even under these tough conditions.

- Skid flat areas.
- Accidental torch burns.
- Overheating of spinning wheels.
- Excessive mushroom and rollovers that are hardened by unusual hump retarder pressure.
- Mismatched wheels that cause excessive wear on the side of the flange.

Each of these conditions requires a different machining speed and depth of cut.

Advantages of Wheelset Reconditioning with Kennametal Wheel Lathe Tools.

- Heavy-duty steel locking unit ensures longer life and reduces operating costs.
- No top clamp to wear out or interfere with chip flow.
- Hardened-steel locking unit locks the insert against two walls in the toolholder to prevent insert movement under heavy cutting loads.
- Quick removal of the steel locking unit.
- Fast trouble free insert indexing.
- Made from heat-treated alloy steel to withstand severe roughing cuts on work-hardened wheels.



■ **L-Type Boring Bars**

Railroad wheels are wrought steel and cast steel made in a number of designs. Steel wheels are classified as multiple-wear, two-wear, or one-wear wheels.

Composition and specifications of wheels include Class A, a relatively low carbon steel wheel; Class L, a lower carbon content than Class A; Class B, an intermediate carbon steel; and Class C, a relatively high-carbon steel wheel.

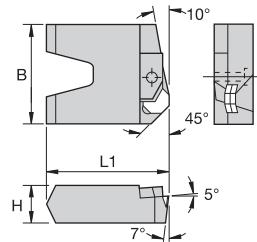
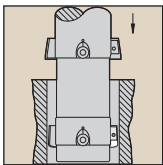


Kennametal provides L-type bar tooling to bore wheels to match journal sizes from 4 1/2" x 8" to 8" x 16".

- Tools are precision ground and hardened for maximum life.
- Lower profile permits use in L-type bars without modification.
- Fast insert indexing reduces tool changing downtime.
- Enables free cutting action at higher feed rates.
- Delivers good chip control under a wide range of conditions.
- Inserts are available in both coated and uncoated grades.
- Kennametal also provides cartridges to fit Kennametal-supplied bars to run on CNC boring machines.
- Most bars and cartridges are supplied as specials per machine manufacturers' specifications.

Application Specific

- Uses OPG-524 positive rake, octagonal inserts for free cutting action while finish boring.
- Tool positions the insert parallel to the bore in the operation.
- Consistently produces bore finishes to specifications.
- Inserts have eight indexable cutting edges.
- Available in 11 sizes to fit L-type boring bars.

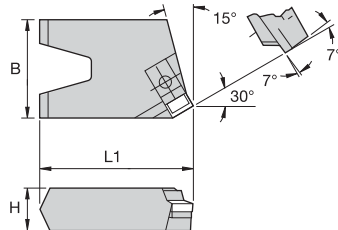
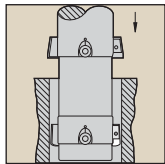


■ **OWF-Style Tools for Roughing**

order number	catalog number	min wheel bore		H		B		L1		journal size	insert 1	shim	shim screw	clamp	clamp screw
		mm	in	mm	in	mm	in	mm	in						
1015785	OWF744SET	139,70	5.500	22,23	.875	50,80	2.000	69,06	2.719	4 1/2 X 8	OPG524	SM159	S125	CMR15	S472
1015793	OWF863SET	200,03	7.875	25,40	1.000	57,15	2.250	99,21	3.906	6 1/2 X 12	OPG524	SM159	S125	CMR15	S421

NOTE: Tool sets contain a ground matched pair of toolholders.
See page F97 for insert selection.

- Uses SNMG-style molded chipbreaker inserts with eight cutting edges.
- Available in 11 sizes to fit L-type boring bars.
- Employs a low-profile design.
- Delivers fast insert indexing while maintaining bore size.
- Tools have a protective insert seat.



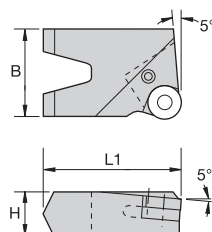
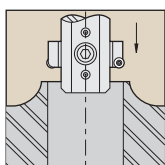
■ SWR-Style Tools for Roughing

Application Specific

order number	catalog number	min wheel bore		H		B		L1		journal size	insert 1
		mm	in	mm	in	mm	in	mm	in		
1015559	SWR744SET	234,95	9.250	22,23	.875	50,80	2.000	69,06	2.719	4 1/2 X 8	SNMG433
1015560	SWR750SET	158,75	6.250	22,23	.875	50,80	2.000	78,59	3.094	5 X 9	SNMG433
1015561	SWR754SET	171,45	6.750	22,23	.875	50,80	2.000	84,94	3.344	5 1/2 X 10	SNMG433
1015562	SWR759SET	187,33	7.375	22,23	.875	50,80	2.000	92,86	3.656	6 X 11	SNMG433
1015563	SWR763SET	200,03	7.875	22,23	.875	50,80	2.000	99,21	3.906	6 1/2 X 12	SNMG433
1015584	SWR770SET	222,25	8.750	22,23	.875	50,80	2.000	107,16	4.219	7 X 14	SNMG433
1015585	SWR854SET	171,45	6.750	25,40	1.000	57,15	2.250	84,94	3.344	5 1/2 X 10	SNMG433
1015586	SWR859SET	187,33	7.375	25,40	1.000	57,15	2.250	92,86	3.656	6 X 11	SNMG433
1015587	SWR863SET	200,03	7.875	25,40	1.000	57,15	2.250	99,21	3.906	6 1/2 X 12	SNMG433
1015588	SWR870SET	222,25	8.750	25,40	1.000	57,15	2.250	107,16	4.219	7 X 14	SNMG433
1015589	SWR874SET	234,95	9.250	25,40	1.000	57,15	2.250	116,69	4.594	8 X 16	SNMG433

NOTE: Tool sets contain a ground matched pair of toolholders.
See page F96 for insert selection.

- Available in the rugged unit locking design for operating at higher feed ranges.
- Unit locking design ensures maximum insert locking by pulling the insert down and back into the pocket.
- Locking unit protects the holder and properly seats the insert.
- Insert can be released quickly for fast indexing, minimizing downtime.
- Available in 11 sizes to fit L-type boring bars.



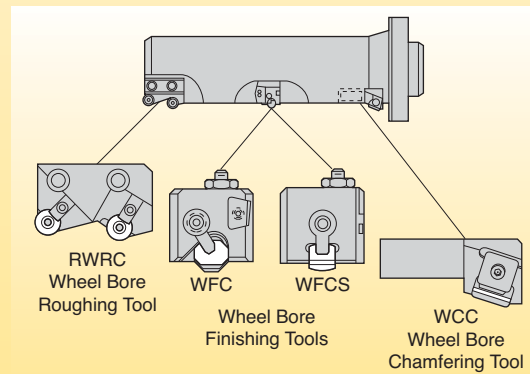
■ RUWR-Style Tools for Roughing

order number	catalog number	min wheel bore		H		B		L1		journal size	insert 1
		mm	in	mm	in	mm	in	mm	in		
1015656	RUWR870SET	222,25	8.750	25,40	1.000	57,15	2.250	107,16	4.219	7 X 14	RNMG64

NOTE: Tool sets contain a ground matched pair of toolholders.
See page F96 for insert selection.

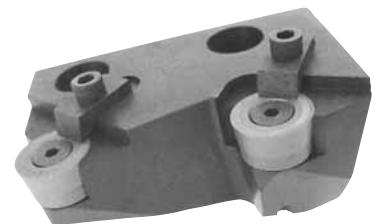
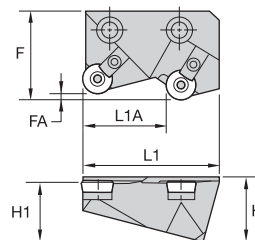
■ **Advantages of Kennametal Wheel Boring Tools**

- Available in several styles for rough and finish boring.
- Tools are available for finishing KRR- or OPG-style inserts.
- Rough boring tools use RCMH round inserts.
- Tools keep the insert parallel to the bore during operation to ensure a smooth cut within established finish specifications.
- All styles of tools are designed with insert locking confined within the shank height. This enables the tools to be retracted to bore the smaller sizes without modifying the standard bar.
- Check the catalog number and dimensions of your cartridges before ordering. Bars and cartridges on older machines may not be the same. Call Kennametal's Customer Application Support team for assistance.



Application Specific

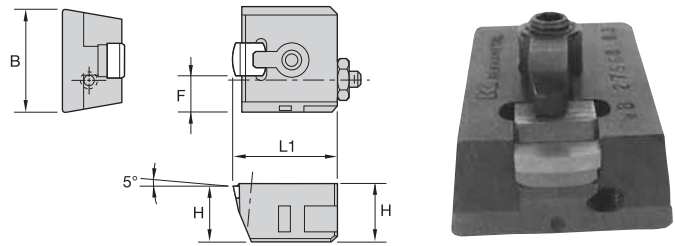
- Uses RCMH-style inserts for free cutting action while rough boring.
- This is a double-pocket cartridge and requires two inserts and two sets of hardware.
- Cartridges are easily replaceable.



■ **RWRC-Style Tools for Roughing**

order number	catalog number	H		H1		F		L1		FA		L1A		insert 1	insert screw	shim	clamp	clamp screw
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in					
1015616	RWRC	41,15	1.620	38,10	1.500	57,11	2.249	85,85	3.380	4,75	.187	52,38	2.062	RCMH64	S1001	SM381	S412	S412

NOTE: See page F95 for insert selection.



■ **WFCs-Style Tools for Finishing**

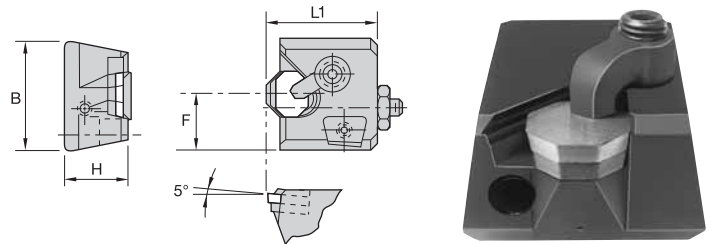
order number	catalog number	H		B		F		L1		H1		insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	
1015615	WFCs	23,88	.940	39,68	1.562	14,28	.562	41,15	1.620	22,23	.875	KRR4210R

■ **Spare Parts**

catalog number	adjusting screw	jam nut	chipbreaker	shim	shim screw	clamp	clamp screw
WFCs	S846	S936	CBS16	SRR4210R	S111	CK13	STC4

NOTE: See page F97 for insert selection.

Application Specific



■ **WFC-Style Tools for Finishing**

order number	catalog number	H		B		F		L1		insert 1
		mm	in	mm	in	mm	in	mm	in	
1177582	WFC	23,80	.937	39,68	1.562	20,63	.812	41,15	1.620	OPG524

■ **Spare Parts**

catalog number	adjusting screw	jam nut	chipbreaker	shim	shim screw	clamp	clamp screw
WFC	S846	S936	CBO560	SM159	S125	CK13	STC4

NOTE: See page F97 for insert selection.

■ Axle Turning Tools

Freight car and passenger car axles are usually made of carbon steel and may be heat treated or untreated. Locomotive axles, electric transit axles, and industrial-use axles are made of a variety of carbon and alloy steels. The alloy steel axles are heat treated, while the carbon steel axles are either heat treated or untreated.

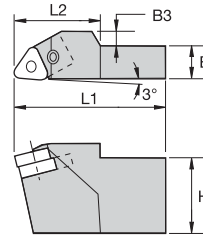
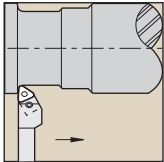
Kennametal offers two styles of holders to suit user needs for re-machining journal surfaces on car axles.

- These two standard designs use indexable inserts and have a 3° lead built into the holder to conform to the AAR standards.
- To use these tools in some dual-end-drive axle lathes, a slight modification to the existing tool block is necessary. This is required to clear the head portion of the tool to generate the required radius on the axle.
- Kennametal offers a wide variety of standard off-the-shelf tooling as well as special tooling for all types of machining applications on various machines for reconditioning axles.



Application Specific

- Steel locking unit design ensures maximum insert locking pressure.
- Insert locks firmly in place against the one-wall pocket for fast insert indexing.
- Locking unit protects holders and provides secure seating for the insert.
- Indexable inserts eliminate regrinding.
- Uses 1/2" IC triangular inserts that provide up to six cutting edges.



JTU-Style Tools

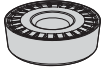
order number	catalog number	H		B		B3		L1		L2		insert 1	lock screw	steel locking unit
		mm	in	mm	in	mm	in	mm	in	mm	in			
1015592	JTU56R	38,10	1.500	15,88	.625	6,35	.250	73,03	2.875	41,15	1.620	TNMP438_/KRRT438	S1007PKG	SU9
1015593	JTU56L	38,10	1.500	15,88	.625	6,35	.250	73,03	2.875	41,15	1.620	TNMP438_/KRRT438	S1007PKG	SU9

NOTE: See page F97 for insert selection.

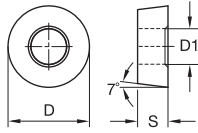
Application Specific

P	●	●	○	○	●	●
M	●	○	○	○	○	○
K	○	○	○	○	○	○
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

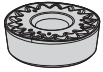
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○ alternate choice



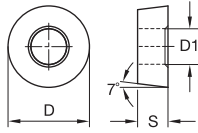
RCMH-UP



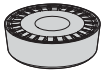
ISO catalog number	ANSI catalog number	D		D1		S		KCP10	KCP25	KCK20	KCU10	KC9110	KC9125
		mm	in	mm	in	mm	in						
RCMH2507M0TUP	RCMH2507M0TUP	25	.984	7,55	.297	7,94	.313	●	●	●	○	○	○
RCMH3209M0TUP	RCMH3209M0TUP	32	1.260	10,35	.407	9,53	.375	●	●	●	○	○	○



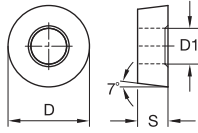
RCMH-RU



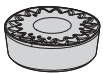
ISO catalog number	ANSI catalog number	D		D1		S		KCP10	KCP25	KCK20	KCU10	KC9110	KC9125
		mm	in	mm	in	mm	in						
RCMH2507M0RU	RCMH2507M0RU	25	.984	7,55	.297	7,94	.313	●	●	●	○	○	○
RCMH3209M0RU	RCMH3209M0RU	32	1.260	10,35	.407	9,53	.375	●	●	●	○	○	○



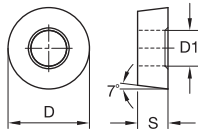
RCMX-UP



ISO catalog number	ANSI catalog number	D		D1		S		KCP10	KCP25	KCK20	KCU10	KC9110	KC9125
		mm	in	mm	in	mm	in						
RCMX2507M0TUP	RCMX2507M0TUP	25	.984	7,19	.283	7,94	.313	●	●	●	○	○	○
RCMX3209M0TUP	RCMX3209M0TUP	32	1.260	9,78	.385	9,53	.375	●	●	●	○	○	○

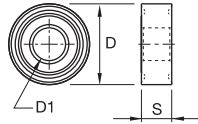


RCMX-RU



ISO catalog number	ANSI catalog number	D		D1		S		KCP10	KCP25	KCK20	KCU10	KC9110	KC9125
		mm	in	mm	in	mm	in						
RCMX2507M0RU	RCMX2507M0RU	25	.984	7,19	.283	7,94	.313	●	●	●	○	○	○
RCMX3209M0RU	RCMX3209M0RU	32	1.260	9,78	.385	9,53	.375	●	●	●	○	○	○

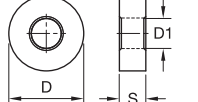




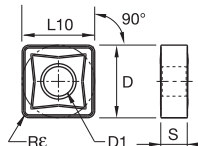
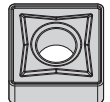
● first choice
○ alternate choice

P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

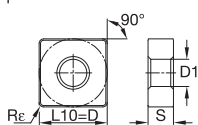
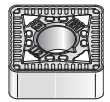
ISO catalog number	ANSI catalog number	D		L10		S		R _e		D1		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in												
		RNMG4009M0	RNMG4009M0	40,00	1.57	—	—	9,52	3/8	—	—												12,70
RNMG190600	RNMG64	19,05	3/4	—	—	6,35	1/4	—	—	7,93	.313				●		●						



ISO catalog number	ANSI catalog number	D		L10		S		R _e		D1		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in												
		RNMG090300RN	RNMG32RN	9,53	3/8	—	—	3,18	1/8	—	—												3,81
RNMG120400RN	RNMG43RN	12,70	1/2	—	—	4,76	3/16	—	—	5,16	.203	●	●	●	●								
RNMG150600RN	RNMG54RN	15,88	5/8	—	—	6,35	1/4	—	—	6,35	.250		●	●	●	●							
RNMG190600RN	RNMG64RN	19,05	3/4	—	—	6,35	1/4	—	—	7,93	.313	●	●	●	●								
RNMG190900RN	RNMG66RN	19,05	3/4	—	—	9,52	3/8	—	—	7,93	.313		●										
RNMG250900RN	RNMG86RN	25,40	1	—	—	9,53	3/8	—	—	9,12	.359		●	●	●								



ISO catalog number	ANSI catalog number	D		L10		S		R _e		D1		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in												
		SNMG120412	SNMG433	12,70	1/2	12,70	.500	4,76	3/16	1,20	3/64												5,16
SNMG190612	SNMG643	19,05	3/4	19,05	.750	6,35	1/4	1,20	3/64	7,93	.312					●							
SNMG190616	SNMG644	19,05	3/4	19,05	.750	6,35	1/4	1,60	1/16	7,93	.313					●							
SNMG250924	SNMG866	25,40	1	25,40	1.000	9,53	3/8	2,40	3/32	9,12	.359					●							



ISO catalog number	ANSI catalog number	D		L10		S		R _e		D1		K40	KC9110	KC9125	KCP10	KCP25	KC9110RR	KC9115RR	KC9125RR	KC5115RR	KC5125RR	KCK20	
		mm	in	mm	in	mm	in	mm	in	mm	in												
		SNMG090412RN	SNMG333RN	9,53	3/8	9,53	.375	4,76	3/16	1,20	3/64												3,81
SNMG120408RN	SNMG432RN	12,70	1/2	12,70	.500	4,76	3/16	0,80	1/32	5,16	.203	●	●	●	●								
SNMG120412RN	SNMG433RN	12,70	1/2	12,70	.500	4,76	3/16	1,20	3/64	5,16	.203	●	●	●	●								
SNMG120416RN	SNMG434RN	12,70	1/2	12,70	.500	4,76	3/16	1,60	1/16	5,16	.203	●	●	●	●								
SNMG150608RN	SNMG542RN	15,88	5/8	15,88	.625	6,35	1/4	0,80	1/32	6,35	.250	●		●	●								
SNMG150612RN	SNMG543RN	15,88	5/8	15,88	.625	6,35	1/4	1,20	3/64	6,35	.250	●		●	●								
SNMG150616RN	SNMG544RN	15,88	5/8	15,88	.625	6,35	1/4	1,60	1/16	6,35	.250	●		●	●								
SNMG190608RN	SNMG642RN	19,05	3/4	19,05	.750	6,35	1/4	0,80	1/32	7,93	.313	●	●			●							
SNMG190612RN	SNMG643RN	19,05	3/4	19,05	.750	6,35	1/4	1,20	3/64	7,93	.313	●	●	●	●								
SNMG190616RN	SNMG644RN	19,05	3/4	19,05	.750	6,35	1/4	1,60	1/16	7,93	.313	●	●	●	●								
SNMG190624RN	SNMG646RN	19,05	3/4	19,05	.750	6,35	1/4	2,40	3/32	7,93	.313	●	●			●							

Application Specific

New Railroad Wheel Manufacturing Tooling

Features and Benefits

Wheel Production

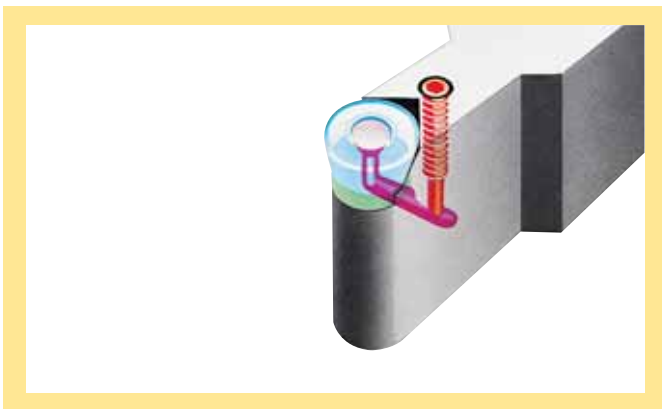
In wheel production, the forged blanks are mainly machined using RC.. inserts.

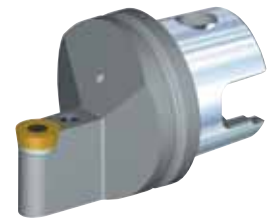
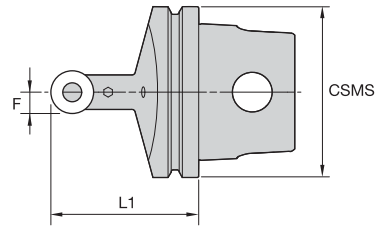
For this, Kennametal offers a comprehensive range of high-performance indexable inserts. Proprietary coatings combined with application-specific chipbreakers make these inserts well suited for new wheel production.

Together with the KM™ quick change tooling system, high stability, repeatability, and process security are ensured.

Clamping System

Our Fix-Perfect™ clamping system will provide optimum security during the most arduous machining process. With just a few revolutions of the clamping screw, the complete insert set (insert, shim, and clamping stud) can be changed.

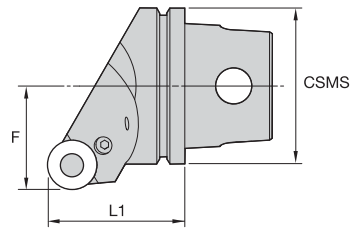




■ KM-PRDCN

order number	catalog number	CSMS system size	F		L1		insert 1	shim	clamp stud	set screw
			mm	in	mm	in				
3662606	KM80SPRDCN20	KM80TS	10,00	.394	70,00	2.756	RCMT2006M0	169.333	119.073	121.820
3662607	KM80SPRDCN25	KM80TS	12,50	.492	70,00	2.756	RCMX2507M0RP	169.337	118.404	121.820

NOTE: Engineered solutions available.
KM100 units are made to order.
KM80 units require torque wrench TWH60R, which must be purchased separately.
See page F107 for insert selection.

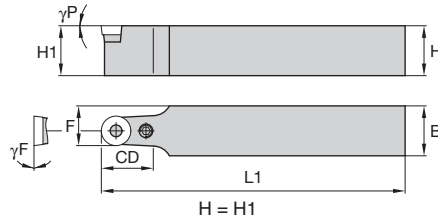
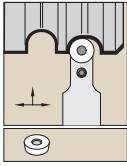


Application Specific

■ KM-PRGC

order number	catalog number	CSMS system size	F		L1		insert 1	shim	clamp stud	set screw
			mm	in	mm	in				
1238702	KM80PRGCL32	KM80	53,00	2.087	80,00	3.150	RC..3209M0	169.339	118.604	121.030
1238697	KM80PRGCR20	KM80	53,00	2.087	70,00	2.756	RC..2006M0	169.333	119.073	121.820

NOTE: Engineered solutions available.
KM100 units are made to order.
KM80 units require torque wrench TWH60R, which must be purchased separately.
See page F107 for insert selection.



PRCC

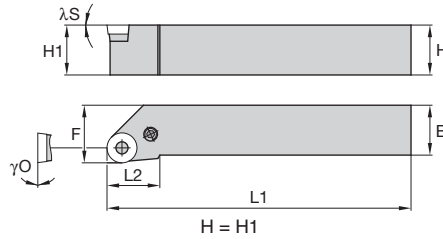
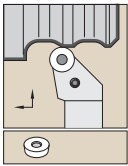
order number	catalog number	H		B		F		L1		CD		γF°	γP°	insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in			
1244761	PRCCN2020K08H1	20,00	.787	20,00	.787	14,00	.551	125,00	4.921	16,00	.630	0.0	0.0	RC..0803M0
1244762	PRCCN2020K10H1	20,00	.787	20,00	.787	15,00	.591	125,00	4.921	24,00	.945	0.0	0.0	RC..1003M0
1244826	PRCCN2525M08H1	25,00	.984	25,00	.984	16,50	.650	150,00	5.906	16,00	.630	0.0	0.0	RC..0803M0
1244827	PRCCN2525M10H1	25,00	.984	25,00	.984	17,50	.689	150,00	5.906	24,00	.945	0.0	0.0	RC..1003M0
1244828	PRCCN2525M12H1	25,00	.984	25,00	.984	18,50	.728	150,00	5.906	24,00	.945	0.0	0.0	RC..1204M0
5002098	PRCCN2020M0H1	31,75	1.250	31,75	1.250	25,62	1.009	152,40	6.000	31,80	1.250	0.0	0.0	RCMT2006M0
1192388	PRCCN3225P16H1	32,00	1.260	25,00	.984	20,50	.807	170,00	6.693	33,00	1.299	0.0	0.0	RC..1606M0
1192389	PRCCN3232P20H1	32,00	1.260	32,00	1.260	26,00	1.024	170,00	6.693	32,00	1.260	0.0	0.0	RC..2006M0
5002099	PRCCN2425M0H1	38,10	1.500	38,10	1.500	31,30	1.232	177,80	7.000	38,10	1.500	0.0	0.0	RCMX2507M0-RP
1228888	PRCCN4040S25H1	40,00	1.575	40,00	1.575	32,50	1.280	250,00	9.843	78,00	3.071	0.0	0.0	RC..2507M0

Application Specific

Spare Parts

catalog number	shim	clamp stud	clamp screw	hex wrench
PRCCN2020K08H1	—	119.069	—	170.001
PRCCN2020K10H1	169.325	119.069	—	170.001
PRCCN2525M08H1	—	119.069	—	170.001
PRCCN2525M10H1	169.325	119.069	—	170.001
PRCCN2525M12H1	169.322	119.071	—	170.002
PRCCN2020M0H1	169.333	119.073	121.820	—
PRCCN3225P16H1	169.327	410.081	—	170.003
PRCCN3232P20H1	169.333	119.073	121.820	170.004
PRCCN2425M0H1	169.337	118.404	121.820	—
PRCCN4040S25H1	169.337	118.404	121.820	170.004

NOTE: Engineered solutions available.
See page F107 for insert selection.



■ PRGC

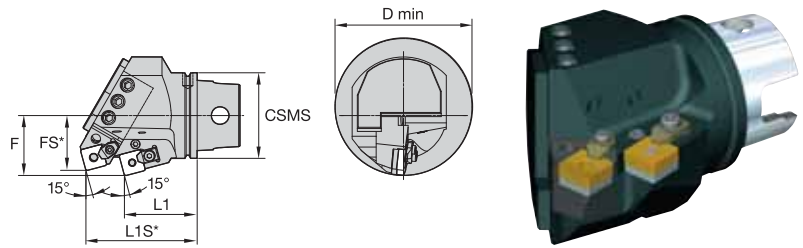
order number	catalog number	H		B		F		L1		L2		λS°	γO°	insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in			
1244829	PRGCL4040S25H1	40,00	1.575	40,00	1.575	50,00	1.969	250,00	9.843	47,00	1.850	0.0	0.0	RC..2507M0
1192390	PRGCL6050U32H1	60,00	2.362	50,00	1.969	60,00	2.362	350,00	13.780	75,00	2.953	0.0	0.0	RC..3209M0
1192391	PRGCR6050U32H1	60,00	2.362	50,00	1.969	60,00	2.362	350,00	13.780	75,00	2.953	0.0	0.0	RC..3209M0
1197549	PRGCR4040S25H1	40,00	1.575	40,00	1.575	50,00	1.969	250,00	9.843	47,00	1.850	0.0	0.0	RC..2507M0

■ Spare Parts

catalog number	shim	clamp stud	clamp screw	hex wrench
PRGCL4040S25H1	169.337	118.404	121.820	170.004
PRGCL6050U32H1	169.339	118.604	121.030	170.005
PRGCR6050U32H1	169.339	118.604	121.030	170.005
PRGCR4040S25H1	169.337	118.404	121.820	170.004

NOTE: See page F107 for insert selection.

Application Specific



■ **KM-PSDN 95° with Adjustable Cartridge**

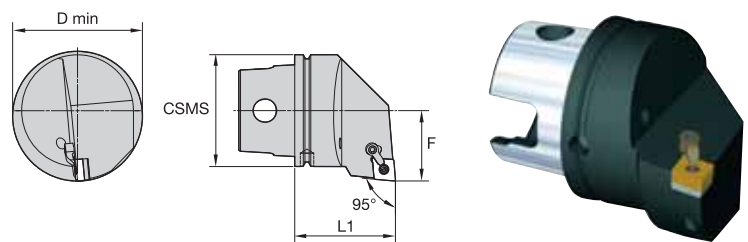
order number	catalog number	CSMS system size	F		FS		L1		L1S		D min		insert 1
			mm	in	mm	in	mm	in	mm	in	mm	in	
1152381	KM100-TK00055D	KM100	70,00	2.756	64,00	2.520	85,00	3.347	130,00	5.118	160,00	6.299	SN..250724/SN..856

■ **Cartridge • PSDN 95°**

order number	catalog number	CSMS system size	F		L1		gage insert
			mm	in	mm	in	
1178625	PSDNN3240X25-01	—	21,00	.827	120,00	4.724	SN..250724/SN..856

NOTE: Adjustable top cartridge.
Made to order.
See page F107 for insert selection.

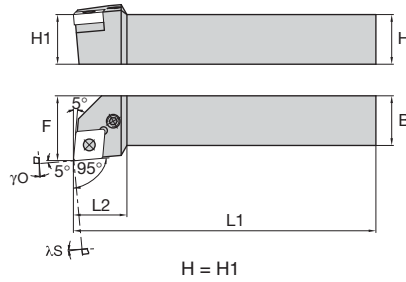
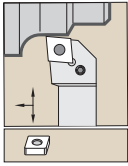
Application Specific



■ **KM • MCLN 95°**

order number	catalog number	CSMS system size	D min		F		L1		insert 1
			mm	in	mm	in	mm	in	
1151977	KM100-TK00344D	KM100	116,00	4.567	63,00	2.480	90,00	3.543	CN..190612/CN..643

NOTE: Made to order.
See page F107 for insert selection.



■ PCLN 95°

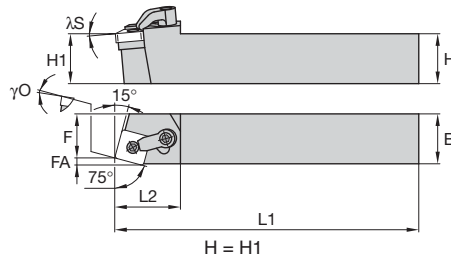
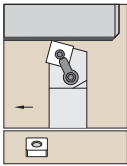
order number	catalog number	H		B		F		L1		L2		λS°	γO°	insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in			
1192379	PCLNR4040S19	40,00	1.575	40,00	1.575	50,00	1.969	250,00	9.843	36,00	1.417	-6.000	-6.000	CN..190612
1192377	PCLNL4040S19	40,00	1.575	40,00	1.575	50,00	1.969	250,00	9.843	36,00	1.417	-6.000	-6.000	CN..190612

■ Spare Parts

catalog number	shim	shim pin	toggle lever	clamp screw	punch
right hand PCLNR4040S19	512.123	513.033	511.033	514.133	515.022
left hand PCLNL4040S19	512.123	513.033	511.033	514.133	515.022

NOTE: Engineered solutions available.
See page F107 for insert selection.

Application Specific



■ MSBN 75°

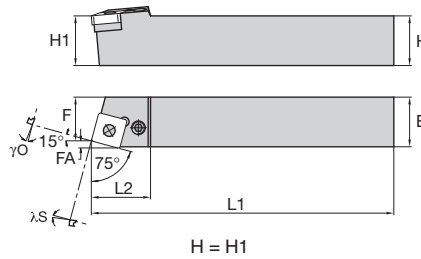
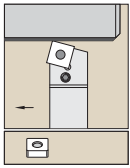
order number	catalog number	H		B		F		L1		L2		FA		λS°	γO°	insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in			
1101954	MSBNR4040R19	40,00	1.575	40,00	1.575	35,00	1.378	200,00	7.874	40,00	1.575	4,60	.181	-5.000	-5.000	SN..190612
1099148	MSBNL4040R19	40,00	1.575	40,00	1.575	35,00	1.378	200,00	7.874	40,00	1.575	4,60	.181	-5.000	-5.000	SN..190612

■ Spare Parts

catalog number	shim	lock pin	clamp	clamp screw
MSBNR4040R19	ISSN633	KLM68	CKM12	STCM4
MSBNL4040R19	ISSN633	KLM68	CKM12	STCM4

NOTE: Engineered solutions available.
See page F108 for insert selection.

Application Specific



■ PSBN 75°

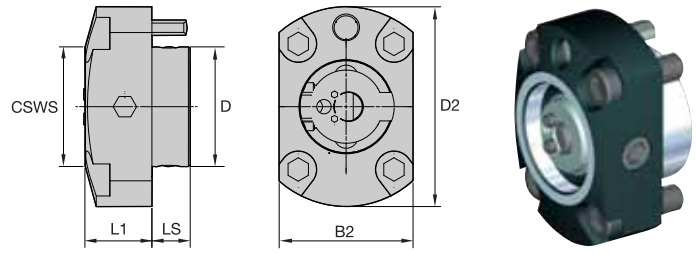
order number	catalog number	H		B		F		L1		L2		FA		λS°	γO°	insert 1
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in			
1244682	PSBNR4040S19	40,00	1.575	40,00	1.575	35,00	1.378	250,00	9.843	38,00	1.496	4,60	.181	-6.000	-6.000	SN..190612
1244683	PSBNR4040S25	40,00	1.575	40,00	1.575	35,00	1.378	250,00	9.843	47,00	1.850	5,90	.232	-6.000	-6.000	SN..250724
1244674	PSBNL4040S19	40,00	1.575	40,00	1.575	35,00	1.378	250,00	9.843	38,00	1.496	4,60	.181	-6.000	-6.000	SN..190612
1244675	PSBNL4040S25	40,00	1.575	40,00	1.575	35,00	1.378	250,00	9.843	47,00	1.850	5,90	.232	-6.000	-6.000	SN..250724

■ Spare Parts

catalog number	shim	shim pin	toggle lever	clamp screw	punch
PSBNR4040S19	512.083	513.033	511.033	514.133	515.022
PSBNR4040S25	512.092	513.038	511.038	514.138	515.028
PSBNL4040S19	512.083	513.033	511.033	514.133	515.022
PSBNL4040S25	512.092	513.038	511.038	514.138	515.028

NOTE: Engineered solutions available.
See page F108 for insert selection.

Application Specific



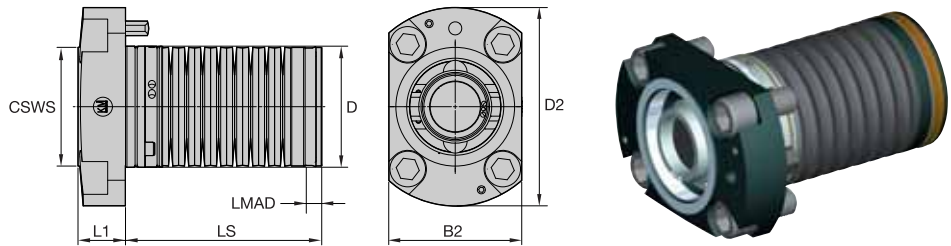
■ KM-NCM-EF

order number	catalog number	CSWS system size	L1		LS		B2		D		D2		KM spare parts package	screw
			mm	in	mm	in	mm	in	mm	in	mm	in		
2420366	KM100NCMEF	KM100	56,00	2.205	32,00	1.260	112,00	4.409	100,00	3.937	167,00	6.575	—	—
1021576	KM32NCMEF	KM32	20,00	.787	12,00	.472	36,00	1.417	32,00	1.260	54,00	2.126	KM32PKG3L	—
1021642	KM40NCMEF	KM40	25,00	.984	15,00	.591	44,00	1.732	40,00	1.575	68,00	2.677	KM40PKG3L	MS1217
1021749	KM50NCMEF	KM50	30,00	1.181	20,00	.787	55,00	2.165	50,00	1.969	84,00	3.307	KM50PKG3L	MS1361
1021753	KM63NCMEF	KM63	40,00	1.575	20,00	.787	72,00	2.835	63,00	2.480	102,00	4.016	KM63PKG3L	MS1460
1144799	KM80NCMEF	KM80	50,00	1.969	25,00	.984	90,00	3.543	80,00	3.150	132,00	5.197	KM80PKG3L	DWG MS1599

NOTE: KM100 clamping units are made to order.



Application Specific



■ KM100-Spring Packs

order number	catalog number	CSWS system size	L1		LS		LMAD travel		B2		D		D2		KM spare parts package	screw
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
1178668	KM100-PK00001D	KM100	40,00	1.575	165,25	6.506	13,00	.512	112,00	4.409	101,98	4.015	167,00	6.575	KM80PKG3L	MS1566

NOTE: KM100 clamping units are made to order.



Kennametal Select • The Inserts You Want at a Price You'll Love



Introducing Kennametal Select inserts — the cost-effective line from the brand you already know and trust for quality. Each insert is engineered and manufactured by Kennametal to outperform competitive inserts when cutting steel, stainless steel, cast iron, and high-temperature alloys. These inserts can be used in an incredible 80% of all applications. This versatility, along with the simple grade selection method and great price, make Kennametal Select inserts perfect for small and midsize turning operations.

Features and Benefits



Getting the Most from Every Insert

Kennametal Select products make it simple to get the most out of your inserts, and your money. Every insert is gold, which exposes wear as the tool continues to be used — making it easy to detect when an insert is ready to be changed — maximizing the product's value and protecting the workpiece. Also, because Kennametal Select inserts can be used in most applications, a single insert can take on any number of tasks, thus reducing your inventory. Kennametal Select products are also reliable enough to cut steel, stainless steel, cast iron, and high-temperature alloys, enabling quick changes in workpiece materials without the need to swap inserts, saving time and money.

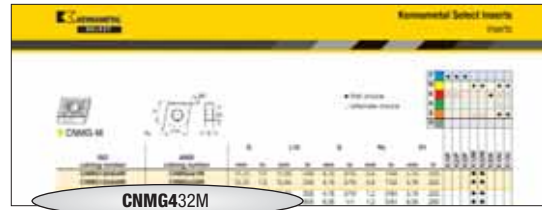


Best Way to Save

Kennametal Select inserts were developed to make it easy for small and midsize turning operations to utilize an affordable, quality product with greater durability than competitively listed products. Kennametal Select inserts ensure an overall reduction of tooling costs. Purchasing Kennametal Select inserts through one of our distributor partners or online, can save as much as 50%.

How Do Catalog Numbers Work?

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.



Application Specific

C

Insert Shape

H Hexagon 120°

O Octagon 135°

P Pentagon 108°

R Round

S Square 90°

T Triangular 60°

C Rhomboid 80°

D 55°

E 75°

M 86°

V 35°

W Trigon 80° with enlarged corner angles

L Rectangular 90°

A Parallelogram 85°

B 82°

N/K 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

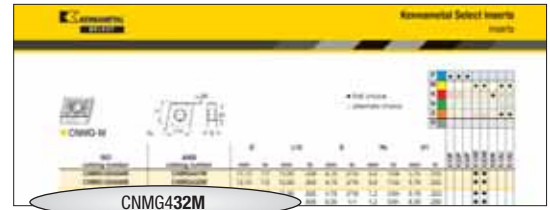
Size

Code for inch cutting edge length "L10"

inch	"D"	C	D	R	S	T	V	W
1.2 (5)	5/32	S4	04	03	03	06	-	-
1.5 (6)	3/16	04	05	04	04	08	08	S3
1.8 (7)	7/32	05	06	05	05	09	09	03
-	.236	-	-	06	-	-	-	-
2	1/4	06	07	06	06	11	11	04
2.5	5/16	08	09	07	07	13	13	05
-	.315	-	-	08	-	-	-	-
3	3/8	09	11	09	09	16	16	06
-	.394	-	-	10	-	-	-	-
3.5	7/16	11	13	11	11	19	19	07
-	.472	-	-	12	-	-	-	-
4	1/2	12	15	12	12	22	22	08
4.5	9/16	14	17	14	14	24	24	09
5	5/8	16	19	15	15	27	27	10
-	.630	-	-	16	-	-	-	-
5.5	11/16	17	21	17	17	30	30	11
6	3/4	19	23	19	19	33	33	13
-	.787	-	-	20	-	-	-	-
7	7/8	22	27	22	22	38	38	15
-	.984	-	-	25	-	-	-	-
8	1	25	31	25	25	44	44	17
10	1-1/4	32	38	31	31	54	54	21
-	1.260	-	-	32	-	-	-	-

tolerance class	tolerance on "D"	tolerance on "B"	tolerance on "S"
C	±.0010"	±.0005"	±.001"
H	±.0005"	±.0005"	±.001"
E	±.0010"	±.0010"	±.001"
G	±.0010"	±.0010"	±.005"
M	See tables in size column		±.005"
U	See tables in size column		±.005"

By referencing this easy-to-use guide, you can identify the correct product to meet your needs.



3

Thickness
S

symbol inch	thickness inch
.5 (1)	1/32
.6	.040
1 (2)	1/16
1.2	5.64
1.5 (3)	3/32
2	1/8
2.5	5/32
3	3/16
3.5	7/32
4	1/4
5	5/16
6	3/8
7	7/16
18	1/2

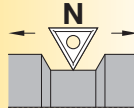
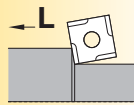
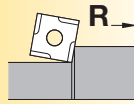
2

Corner
Radius "R_c"

symbol inch	corner radius inch
X0	.0015
0	.004
.5	.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8
-	round insert

Hand of Insert (optional)

R = Right hand
L = Left hand
N = Neutral



Cutting Edge (optional)

- F** Sharp
- E** Rounded
- T** Chamfered
- S** Chamfered and Rounded
- K** Double-Chamfered
- P** Double-Chamfered and Rounded

M

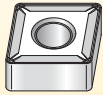
Chipbreaker
(optional)

GT-F	Finishing	M	Medium Machining
MT-F	Finishing	R	Medium Roughing
F	Finishing	..MA	Roughing
..GP	Medium Machining	H	Heavy Roughing

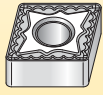
Application Specific

■ Step 1 • Select the insert geometry

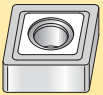
Negative Inserts



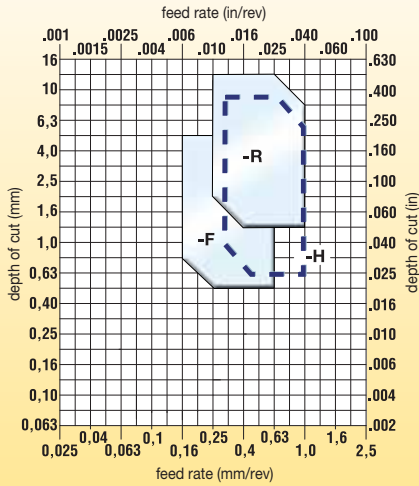
-F
Finishing



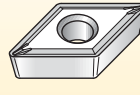
-R
Roughing



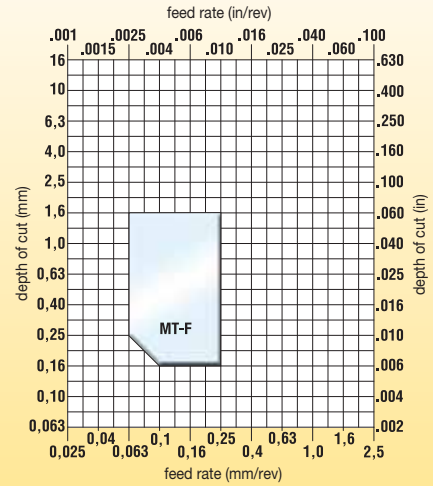
-H
Heavy Roughing



Positive Inserts



MT-F
Finishing



Application Specific

■ Step 2 • Select the grade

cutting condition	Negative Insert Geometry			Positive Insert Geometry
	-F	-R	-H	MT-F
heavily interrupted cut	K35P	K35P	K35P	K35P
lightly interrupted cut	K25P/K35P	K25P/K35P	K25P/K35P	K25P
varying depth of cut, casting, or forging skin	K10P	K10P	K10P	K10P
smooth cut, pre-turned surface	K10P	K10P	K10P	K10P

■ Step 3 • Select the cutting speed

Low-Carbon (<0.3% C) and Free-Machining Steel

material group	grade	speed — m/min (SFM)									starting conditions		
		135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM	
P0/P1	K10P											316	1056
	K25P											248	833
	K35P											189	630

Medium- and High-Carbon Steels (<0.3% C)

material group	grade	speed — m/min (SFM)									starting conditions		
		135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM	
P2	K10P											212	704
	K25P											176	585
	K35P											135	450

Alloy Steels and Tool Steels (≤330 HB) (≤35 HRC)

material group	grade	speed — m/min (SFM)									starting conditions		
		135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM	
P3	K10P											152	504
	K25P											140	459
	K35P											108	360

Alloy Steels and Tool Steels (340–450 HB) (36–48 HRC)

material group	grade	speed — m/min (SFM)									starting conditions		
		60 (200)	90 (300)	120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	m/min	SFM	
P4	K10P											116	384
	K25P											95	324
	K35P											86	293

Ferritic, Martensitic, and PH Stainless Steels (≤330 HB) (≤35 HRC)

material group	grade	speed — m/min (SFM)									starting conditions		
		120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	330 (1100)	360 (1200)	m/min	SFM	
P5	K10P											172	576
	K25P											176	585
	K35P											122	405

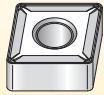
Ferritic, Martensitic, and PH Stainless Steels (340–450 HB) (36–48 HRC)

material group	grade	speed — m/min (SFM)									starting conditions		
		105 (350)	135 (450)	165 (550)	195 (650)	225 (750)	255 (850)	285 (950)	315 (1050)	345 (1150)	m/min	SFM	
P6	K10P											144	480
	K25P											135	450
	K35P											95	315

Application Specific

Step 1 • Select the insert geometry

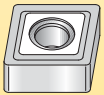
Negative Inserts



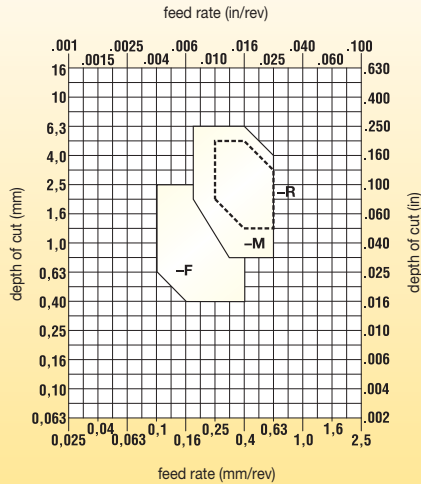
-F
Finishing



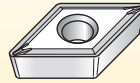
-M
Medium



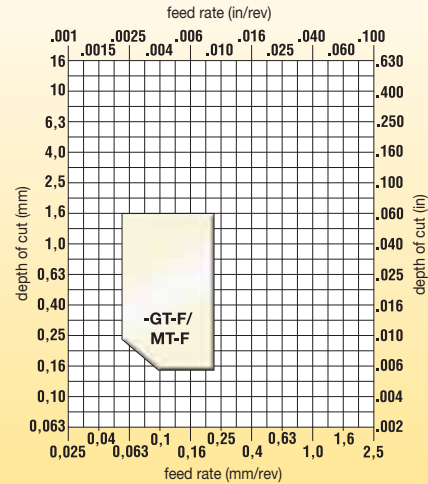
-R
Roughing



Positive Inserts



-GT-F/MT-F
Finishing



Application Specific

Step 2 • Select the grade

cutting condition	Negative Insert Geometry			Positive Insert Geometry	
	-M	-R	-F	GT-F	MT-F
heavily interrupted cut	K25M	K25M	K10M	K25M	K25M
lightly interrupted cut	K25M	K25M	K10M	K25M	K25M
varying depth of cut, casting, or forging skin	K10M/K25M	K10M/K25M	K10M	K10M/K25M	K10M/K25M
smooth cut, pre-turned surface	K10M	K10M	K10M	K10M	K10M

Step 3 • Select the cutting speed

Austenitic Stainless Steel speed — m/min (SFM) starting conditions

material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M1	K10M										162	540
	K25M										135	450
	K10U										194	630
	K15U										129	420

Austenitic Stainless Steel speed — m/min (SFM) starting conditions

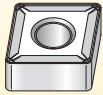
material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M2	K10M										149	495
	K25M										135	450
	K10U										180	585
	K15U										120	390

Austenitic Stainless Steel: Duplex (Ferritic and Austenitic Mixture) speed — m/min (SFM) starting conditions

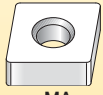
material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M3	K10M										135	450
	K25M										108	360
	K10U										167	540
	K15U										111	360

■ Step 1 • Select the insert geometry

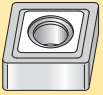
Negative Inserts



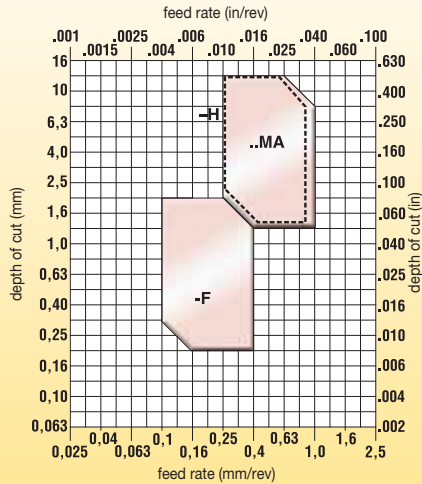
-F
Finishing



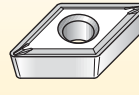
..MA
Heavy Roughing



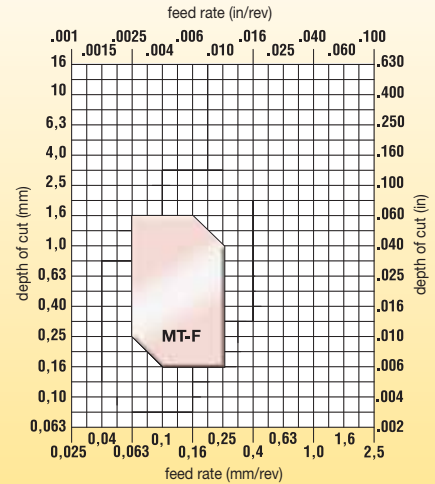
-H
Heavy Roughing



Positive Inserts



MT-F
Finishing



■ Step 2 • Select the grade

cutting condition	Negative Insert Geometry			Positive Insert Geometry
	..MA	-H	-F	MT-F
heavily interrupted cut	K20K	K20K	K20K	K20K
lightly interrupted cut	K20K	K20K	K20K	K20K
varying depth of cut, casting, or forging skin	K20K	K20K	K20K	K20K
smooth cut, pre-turned surface	K20K	K20K	K20K	K20K

■ Step 3 • Select the cutting speed

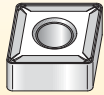
Gray Cast Iron		speed — m/min (SFM)									starting conditions	
material group	grade	60 (200)	150 (500)	240 (800)	330 (1100)	420 (1400)	510 (1700)	600 (2000)	690 (2300)	780 (2600)	m/min	SFM
K1	K20K										270	900

Ductile, Compacted Graphite, and Malleable Cast Irons (<80 KSI tensile strength)		speed — m/min (SFM)									starting conditions	
material group	grade	60 (200)	150 (500)	240 (800)	330 (1100)	420 (1400)	510 (1700)	600 (2000)	690 (2300)	780 (2600)	m/min	SFM
K2	K20K										216	720

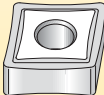
Ductile, Compacted Graphite, and Malleable Cast Irons (>80 KSI tensile strength)		speed — m/min (SFM)									starting conditions	
material group	grade	60 (200)	150 (500)	240 (800)	330 (1100)	420 (1400)	510 (1700)	600 (2000)	690 (2300)	780 (2600)	m/min	SFM
K3	K20K										189	630

Step 1 • Select the insert geometry

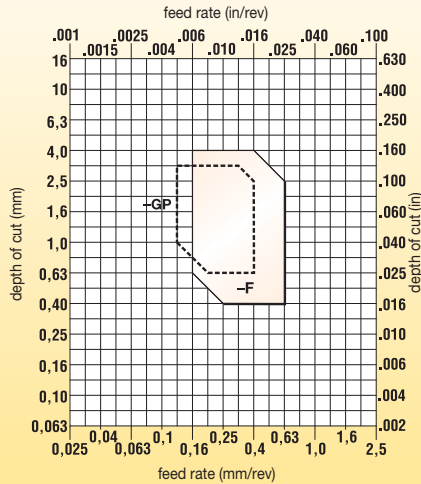
Negative Inserts



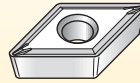
-F
Finishing



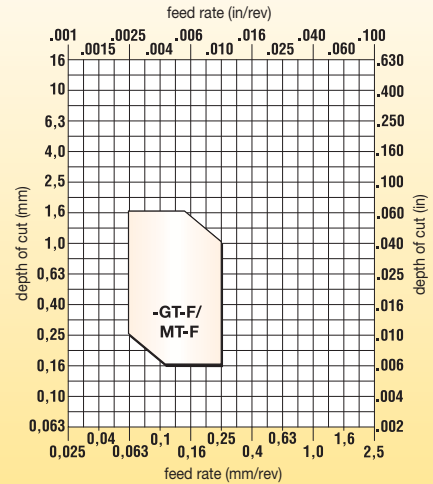
..GP
Medium



Positive Inserts



GT-F/MT-F
Finishing



Application Specific

Step 2 • Select the grade

cutting condition	Negative Insert Geometry	Positive Insert Geometry			
		..GP	-F	GT-F	MT-F
heavily interrupted cut	—	K15U	K15U	K15U	
lightly interrupted cut	⊙	K10U	K10U	K15U	K15U
varying depth of cut, casting, or forging skin	⊙	K10U	K10U	K10U	K10U
smooth cut, pre-turned surface	⊙	K10U	K10U	K10U	K10U

Step 3 • Select the cutting speed

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

material group	grade	speed — m/min (SFM)									starting conditions	
		15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	m/min	SFM
S1	K10U										50	162
	K15U										33	108

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

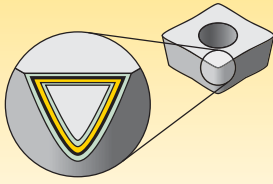
material group	grade	speed — m/min (SFM)									starting conditions	
		15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	m/min	SFM
S2	K10U										54	176
	K15U										36	117

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

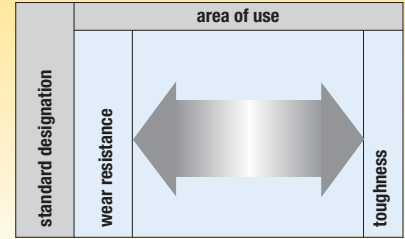
material group	grade	speed — m/min (SFM)									starting conditions	
		15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	m/min	SFM
S3	K10U										63	203
	K15U										42	135

Titanium and Titanium Alloys (110–450 HB) (≤48 HRC)

material group	grade	speed — m/min (SFM)									starting conditions	
		15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	260 (850)	m/min	SFM
S4	K10U										63	203
	K15U										42	135



- Engineered to optimize performance.
- Gold coating on every insert.
- Proven grade technologies.



Grade	Coating	Grade Description	area of use																			
			05	10	15	20	25	30	35	40	45											
K10P		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Ideal for light finishing to medium machining applications. Superior wear resistance.	P																			
	C3, C7		K																			
K25P		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Great general-purpose turning grade for steels. Ideal for semi-finishing to moderately heavy roughing.	P																			
	C2, C3, C6-C7		K																			
K35P		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Tough carbide grade. Ideal for roughing and heavy roughing applications	P																			
	C5-C6																					
K10M		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Ideal for finishing to medium machining of austenitic stainless steels.	P																			
	M10-M20		M																			
K25M		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Ideal for general-purpose machining of stainless steels.	P																			
	C1-C2		M																			
K20K		Coated carbide. MTCVD — TiN-TiCN-Al ₂ O ₃ -TiN. Great when used for straight or lightly interrupted cut applications of ductile and cast irons.	P																			
	C3-C4		K																			
K10U		Coated carbide. PVD-TiAlN-TiN. Ideal for finishing of difficult-to-machine alloys and stainless steels.	P																			
	C3-C4		M																			
K15U		Uncoated carbide. Excellent abrasion resistance for machining cast irons, austenitic stainless steels, and most high-temperature alloys.	P																			
	C3		M																			
			K																			
			N																			
			S																			

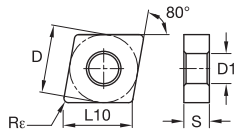
Application Specific

■ Select the geometry —
based on feed rate and depth of cut

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

operation	insert style application	insert geometry	profile	feed rate — mm (in)										
				0,04 (.0015)	0,063 (.0025)	0,1 (.004)	0,16 (.006)	0,25 (.010)	0,4 (.016)	0,63 (.025)	1,0 (.040)	1,6 (.060)	2,5 (.100)	5,0 (.200)
				depth of cut — mm (in)										
				0,1 (.004)	0,16 (.006)	0,25 (.010)	0,4 (.016)	0,63 (.025)	1,0 (.040)	1,6 (.060)	2,5 (.100)	4,0 (.160)	6,3 (.250)	10,0 (.500)
finishing	GT-F MT-F									0,15-0,4 (.006-.016)				
											0,5-2,3 (.020-.091)			
finishing	F							0,01-0,25 (.004-.010)						
										0,25-1,3 (.010-.051)				
medium	..GP									0,3-0,5 (.012-.020)				
												1,5-3,2 (.059-.126)		
medium	M								0,15-0,5 (.006-.020)					
												0,75-5,0 (.030-.197)		
roughing	R									0,2-0,6 (.008-.024)				
												1,1-6,4 (.043-.250)		
roughing	H									0,3-0,6 (.012-.024)				
												1,1-6,4 (.043-.250)		
roughing	..MA									0,3-0,6 (.012-.024)				
												1,1-6,4 (.043-.250)		

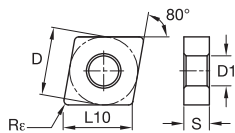
Application Specific



● first choice
○ alternate choice

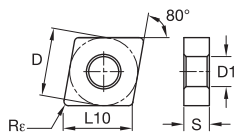
P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
CNMA120404	CNMA431	12,70	1/2	12,90	.508	4,76	3/16	0,4	1/64	5,16	.203									
CNMA120408	CNMA432	12,70	1/2	12,90	.508	4,76	3/16	0,8	1/32	5,16	.203						●			
CNMA120412	CNMA433	12,70	1/2	12,90	.508	4,76	3/16	1,2	3/64	5,16	.203						●			
CNMA120416	CNMA434	12,70	1/2	12,90	.508	4,76	3/16	1,6	1/16	5,16	.203						●			
CNMA160612	CNMA543	15,88	5/8	16,12	.635	6,35	1/4	1,2	3/64	6,35	.250						●			
CNMA160616	CNMA544	15,88	5/8	16,12	.635	6,35	1/4	1,6	1/16	6,35	.250						●			
CNMA190612	CNMA643	19,05	3/4	19,34	.762	6,35	1/4	1,2	3/64	7,93	.313						●			
CNMA190616	CNMA644	19,05	3/4	19,34	.762	6,35	1/4	1,6	1/16	7,93	.313						●			



Application Specific

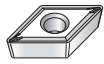
ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
CNMG120404F	CNMG431F	12,70	1/2	12,90	.508	4,76	3/16	0,4	1/64	5,16	.203	●	●				●	●	●	●
CNMG120408F	CNMG432F	12,70	1/2	12,90	.508	4,76	3/16	0,8	1/32	5,16	.203	●	●				●	●	●	●
CNMG120412F	CNMG433F	12,70	1/2	12,90	.508	4,76	3/16	1,2	3/64	5,16	.203	●	●				●	●	●	●



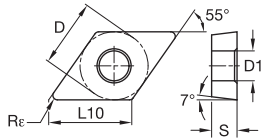
ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
CNMG120404H	CNMG431H	12,70	1/2	12,90	.508	4,76	3/16	0,4	1/64	5,16	.203	●	●				●			
CNMG120408H	CNMG432H	12,70	1/2	12,90	.508	4,76	3/16	0,8	1/32	5,16	.203	●	●				●			
CNMG120412H	CNMG433H	12,70	1/2	12,90	.508	4,76	3/16	1,2	3/64	5,16	.203	●	●				●			
CNMG120416H	CNMG434H	12,70	1/2	12,90	.508	4,76	3/16	1,6	1/16	5,16	.203	●	●				●			
CNMG160612H	CNMG543H	15,88	5/8	16,12	.635	6,35	1/4	1,2	3/64	6,35	.250	●	●				●			
CNMG160616H	CNMG544H	15,88	5/8	16,12	.635	6,35	1/4	1,6	1/16	6,35	.250	●	●				●			
CNMG190608H	CNMG642H	19,05	3/4	19,34	.762	6,35	1/4	0,8	1/32	7,93	.313	●	●				●			
CNMG190612H	CNMG643H	19,05	3/4	19,34	.762	6,35	1/4	1,2	3/64	7,93	.313	●	●				●			
CNMG190616H	CNMG644H	19,05	3/4	19,34	.762	6,35	1/4	1,6	1/16	7,93	.313	●	●				●			
CNMG250924H	CNMG866H	25,40	1	25,79	1.015	9,53	3/8	2,4	3/32	9,12	.359						●			

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

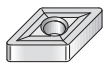
● first choice
○ alternate choice



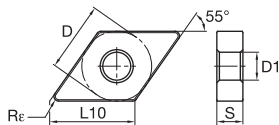
■ DCMT-F



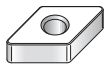
ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DCMT070202F	DCMT21505F	6,35	1/4	7,75	.305	2,38	3/32	0,2	.008	2,80	.110	●	●	●	●	●	●	●	●	●
DCMT070204F	DCMT2151F	6,35	1/4	7,75	.305	2,38	3/32	0,4	1/64	2,80	.110	●	●	●	●	●	●	●	●	●
DCMT11T302F	DCMT32505F	9,53	3/8	11,63	.458	3,97	5/32	0,2	.008	4,40	.173	●	●	●	●	●	●	●	●	●
DCMT11T304F	DCMT3251F	9,53	3/8	11,63	.458	3,97	5/32	0,4	1/64	4,40	.173	●	●	●	●	●	●	●	●	●
DCMT11T308F	DCMT3252F	9,53	3/8	11,63	.458	3,97	5/32	0,8	1/32	4,40	.173	●	●	●	●	●	●	●	●	●
DCMT11T312F	DCMT3253F	9,53	3/8	11,63	.458	3,97	5/32	1,2	3/64	4,40	.173	●	●	●	●	●	●	●	●	●
DCMT150404F	DCMT431F	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,50	.217	●	●	●	●	●	●	●	●	●
DCMT150408F	DCMT432F	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,50	.217	●	●	●	●	●	●	●	●	●



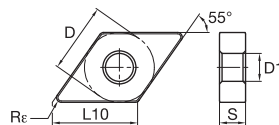
■ DNGP



ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNGP150401	DNGP430	12,70	1/2	15,50	.610	4,76	3/16	0,1	.004	5,16	.203	●	●	●	●	●	●	●	●	●
DNGP150402	DNGP4305	12,70	1/2	15,50	.610	4,76	3/16	0,2	.008	5,16	.203	●	●	●	●	●	●	●	●	●
DNGP150404	DNGP431	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
DNGP150408	DNGP432	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●



■ DNMA

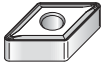
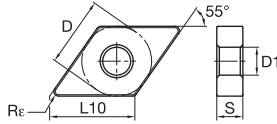


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNMA150408	DNMA432	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
DNMA150412	DNMA433	12,70	1/2	15,50	.610	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●
DNMA150608	DNMA442	12,70	1/2	15,50	.610	6,35	1/4	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
DNMA150612	DNMA443	12,70	1/2	15,50	.610	6,35	1/4	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●

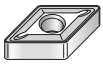
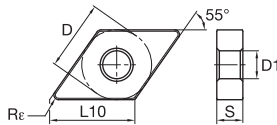
Application Specific

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

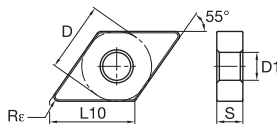
● first choice
○ alternate choice


■ DNMG-F


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNMG150404F	DNMG431F	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150408F	DNMG432F	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150604F	DNMG441F	12,70	1/2	15,50	.610	6,35	1/4	0,4	1/64	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150608F	DNMG442F	12,70	1/2	15,50	.610	6,35	1/4	0,8	1/32	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150612F	DNMG443F	12,70	1/2	15,50	.610	6,35	1/4	1,2	3/64	5,16	.203	●	●	●	○	○	○	○	○	○

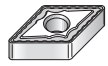

■ DNMG-H


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNMG150404H	DNMG431H	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150408H	DNMG432H	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150412H	DNMG433H	12,70	1/2	15,50	.610	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150608H	DNMG442H	12,70	1/2	15,50	.610	6,35	1/4	0,8	1/32	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG150612H	DNMG443H	12,70	1/2	15,50	.610	6,35	1/4	1,2	3/64	5,16	.203	●	●	●	○	○	○	○	○	○
DNMG190612H	DNMG543H	15,88	5/8	19,38	.763	6,35	1/4	1,2	3/64	6,35	.250	●	●	●	○	○	○	○	○	○

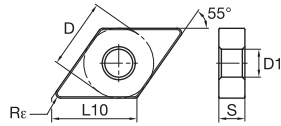

■ DNMG-M


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNMG150404M	DNMG431M	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,16	.203	○	○	○	○	○	○	○	○	○
DNMG150408M	DNMG432M	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	○	○	○	○	○	○	○	○	○
DNMG150604M	DNMG441M	12,70	1/2	15,50	.610	6,35	1/4	0,4	1/64	5,16	.203	○	○	○	○	○	○	○	○	○
DNMG150608M	DNMG442M	12,70	1/2	15,50	.610	6,35	1/4	0,8	1/32	5,16	.203	○	○	○	○	○	○	○	○	○
DNMG150612M	DNMG443M	12,70	1/2	15,50	.610	6,35	1/4	1,2	3/64	5,16	.203	○	○	○	○	○	○	○	○	○

Application Specific



■ DNMG-R



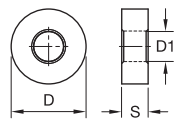
● first choice
○ alternate choice

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
DNMG110408R	DNMG332R	9,53	3/8	11,63	.458	4,76	3/16	0,8	1/32	3,81	.150	●	●	○	○	○	○	○	○	○
DNMG150404R	DNMG431R	12,70	1/2	15,50	.610	4,76	3/16	0,4	1/64	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG150408R	DNMG432R	12,70	1/2	15,50	.610	4,76	3/16	0,8	1/32	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG150412R	DNMG433R	12,70	1/2	15,50	.610	4,76	3/16	1,2	3/64	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG150604R	DNMG441R	12,70	1/2	15,50	.610	6,35	1/4	0,4	1/64	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG150608R	DNMG442R	12,70	1/2	15,50	.610	6,35	1/4	0,8	1/32	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG150612R	DNMG443R	12,70	1/2	15,50	.610	6,35	1/4	1,2	3/64	5,16	.203	●	●	○	○	○	○	○	○	○
DNMG190612R	DNMG543R	15,88	5/8	19,38	.763	6,35	1/4	1,2	3/64	6,35	.250	●	●	○	○	○	○	○	○	○



■ RNMG-H

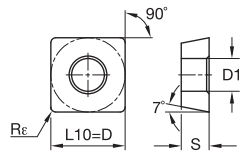


Application Specific

ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
RNMG1204H	RNMG43H	12,70	1/2	—	—	4,76	3/16	—	—	5,16	.203	●	●	○	○	○	○	○	○	○
RNMG1906H	RNMG64H	19,05	3/4	—	—	6,35	1/4	—	—	7,93	.313	●	●	○	○	○	○	○	○	○



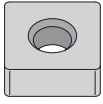
■ SCMT-F



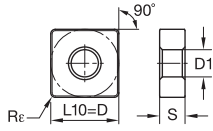
ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SCMT09T304F	SCMT3251F	9,53	3/8	9,53	.375	3,97	5/32	0,4	1/64	4,40	.173	●	●	○	○	○	○	○	○	○
SCMT09T308F	SCMT3252F	9,53	3/8	9,53	.375	3,97	5/32	0,8	1/32	4,40	.173	●	●	○	○	○	○	○	○	○
SCMT120404F	SCMT431F	12,70	1/2	12,70	.500	4,76	3/16	0,4	1/64	5,50	.217	●	●	○	○	○	○	○	○	○
SCMT120408F	SCMT432F	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,50	.217	●	●	○	○	○	○	○	○	○

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice



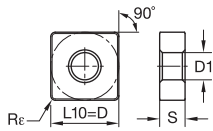
■ SNMA



ISO catalog number	ANSI catalog number	D		L10		S		R _ε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SNMA120408	SNMA432	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,16	.203						●			
SNMA120412	SNMA433	12,70	1/2	12,70	.500	4,76	3/16	1,2	3/64	5,16	.203						●			
SNMA150612	SNMA543	15,88	5/8	15,88	.625	6,35	1/4	1,2	3/64	6,35	.250						●			
SNMA190612	SNMA643	19,05	3/4	19,05	.750	6,35	1/4	1,2	3/64	7,93	.313						●			



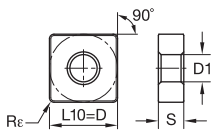
■ SNMG-F



ISO catalog number	ANSI catalog number	D		L10		S		R _ε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SNMG090308F	SNMG322F	9,53	3/8	9,53	.375	3,18	1/8	0,8	1/32	3,81	.150	●	●				●	●		
SNMG120408F	SNMG432F	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,16	.203	●	●			●	●	●	●	



■ SNMG-H



ISO catalog number	ANSI catalog number	D		L10		S		R _ε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SNMG120408H	SNMG432H	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,16	.203	●	●				●			
SNMG120412H	SNMG433H	12,70	1/2	12,70	.500	4,76	3/16	1,2	3/64	5,16	.203	●	●	●			●			
SNMG120416H	SNMG434H	12,70	1/2	12,70	.500	4,76	3/16	1,6	1/16	5,16	.203	●	●	●			●			
SNMG150612H	SNMG543H	15,88	5/8	15,88	.625	6,35	1/4	1,2	3/64	6,35	.250	●	●	●			●			
SNMG150616H	SNMG544H	15,88	5/8	15,88	.625	6,35	1/4	1,6	1/16	6,35	.250	●	●	●			●			
SNMG190612H	SNMG643H	19,05	3/4	19,05	.750	6,35	1/4	1,2	3/64	7,93	.313	●	●	●			●			
SNMG190616H	SNMG644H	19,05	3/4	19,05	.750	6,35	1/4	1,6	1/16	7,93	.313	●	●	●			●			

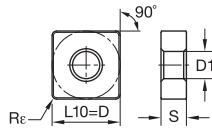
Application Specific

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice



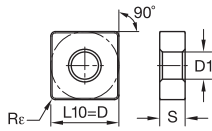
■ SNMG-M



ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SNMG120408M	SNMG432M	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,16	.203				●	●				
SNMG120412M	SNMG433M	12,70	1/2	12,70	.500	4,76	3/16	1,2	3/64	5,16	.203				●	●				



■ SNMG-R

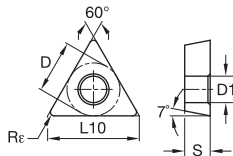


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
SNMG090308R	SNMG322R	9,53	3/8	9,53	.375	3,18	1/8	0,8	1/32	3,81	.150	●	●							
SNMG120404R	SNMG431R	12,70	1/2	12,70	.500	4,76	3/16	0,4	1/64	5,16	.203	●	●		●	●				
SNMG120408R	SNMG432R	12,70	1/2	12,70	.500	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●				
SNMG120412R	SNMG433R	12,70	1/2	12,70	.500	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●				
SNMG190612R	SNMG643R	19,05	3/4	19,05	.750	6,35	1/4	1,2	3/64	7,93	.313	●	●	●	●					

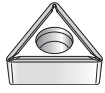
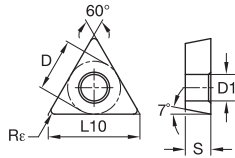
Application Specific



■ TCGT-F

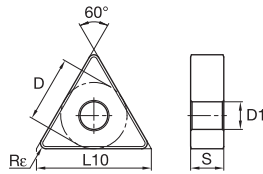


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TCGT110201F	TCGT2150F	6,35	1/4	11,00	.433	2,38	3/32	0,1	.004	2,80	.110								●	●
TCGT110204F	TCGT2151F	6,35	1/4	11,00	.433	2,38	3/32	0,4	1/64	2,80	.110								●	●
TCGT16T302F	TCGT32505F	9,53	3/8	16,50	.650	3,97	5/32	0,2	.008	4,40	.173								●	●
TCGT16T304F	TCGT3251F	9,53	3/8	16,50	.650	3,97	5/32	0,4	1/64	4,40	.173								●	●
TCGT16T308F	TCGT3252F	9,53	3/8	16,50	.650	3,97	5/32	0,8	1/32	4,40	.173								●	●

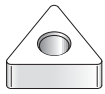
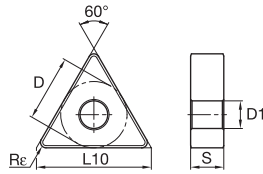

TCMT-F

 ● first choice
 ○ alternate choice

P	●	●	●	○	○	○	○	○	○	○
M	●	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○

ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TCMT110202F	TCMT21505F	6,35	1/4	11,00	.433	2,38	3/32	0,2	.008	2,90	.114	●	●	○	○	○	○	○	○	○
TCMT110204F	TCMT2151F	6,35	1/4	11,00	.433	2,38	3/32	0,4	1/64	2,80	.110	●	●	○	○	○	○	○	○	○
TCMT110208F	TCMT2152F	6,35	1/4	11,00	.433	2,38	3/32	0,8	1/32	2,80	.110	●	●	○	○	○	○	○	○	○
TCMT16T302F	TCMT32505F	9,53	3/8	16,50	.650	3,97	5/32	0,2	.008	4,40	.173	●	●	○	○	○	○	○	○	○
TCMT16T304F	TCMT3251F	9,53	3/8	16,50	.650	3,97	5/32	0,4	1/64	4,40	.173	●	●	○	○	○	○	○	○	○
TCMT16T308F	TCMT3252F	9,53	3/8	16,50	.650	3,97	5/32	0,8	1/32	4,40	.173	●	●	○	○	○	○	○	○	○
TCMT16T312F	TCMT3253F	9,53	3/8	16,50	.650	3,97	5/32	1,2	3/64	4,40	.173	●	●	○	○	○	○	○	○	○
TCMT220408F	TCMT432F	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,50	.217	●	●	○	○	○	○	○	○	○


TNGP


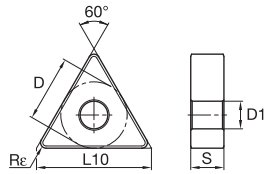
ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNGP160402	TNGP3305	9,53	3/8	16,50	.650	4,76	3/16	0,2	.008	3,81	.150	○	○	○	○	○	○	○	○	○
TNGP160404	TNGP331	9,53	3/8	16,50	.650	4,76	3/16	0,4	1/64	3,81	.150	○	○	○	○	○	○	○	○	○
TNGP160408	TNGP332	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	○	○	○	○	○	○	○	○	○


TNMA


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNMA160408	TNMA332	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	○	○	○	○	○	○	○	○	○
TNMA160412	TNMA333	9,53	3/8	16,50	.650	4,76	3/16	1,2	3/64	3,81	.150	○	○	○	○	○	○	○	○	○
TNMA220408	TNMA432	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,16	.203	○	○	○	○	○	○	○	○	○

Application Specific

TNMG-F

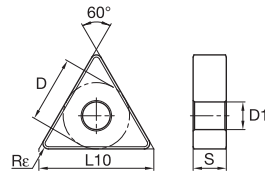


● first choice
○ alternate choice

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNMG160404F	TNMG331F	9,53	3/8	16,50	.650	4,76	3/16	0,4	1/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160408F	TNMG332F	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160412F	TNMG333F	9,53	3/8	16,50	.650	4,76	3/16	1,2	3/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG220408F	TNMG432F	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●

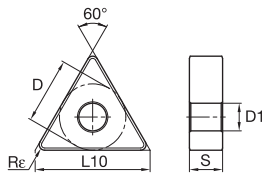
TNMG-H



Application Specific

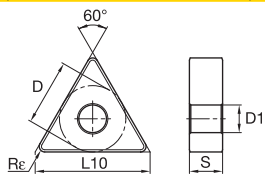
ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNMG160404H	TNMG331H	9,53	3/8	16,50	.650	4,76	3/16	0,4	1/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160408H	TNMG332H	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160412H	TNMG333H	9,53	3/8	16,50	.650	4,76	3/16	1,2	3/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG220404H	TNMG431H	12,70	1/2	22,00	.866	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
TNMG220408H	TNMG432H	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
TNMG220412H	TNMG433H	12,70	1/2	22,00	.866	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●
TNMG270612H	TNMG543H	15,88	5/8	27,50	1.083	6,35	1/4	1,2	3/64	6,35	.250	●	●	●	●	●	●	●	●	●
TNMG330924H	TNMG666H	19,05	3/4	33,00	1.299	9,53	3/8	2,4	3/32	7,93	.313	●	●	●	●	●	●	●	●	●

TNMG-M



ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNMG160404M	TNMG331M	9,53	3/8	16,50	.650	4,76	3/16	0,4	1/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160408M	TNMG332M	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160412M	TNMG333M	9,53	3/8	16,50	.650	4,76	3/16	1,2	3/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG220404M	TNMG431M	12,70	1/2	22,00	.866	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
TNMG220408M	TNMG432M	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●

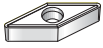
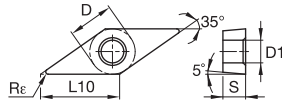
TNMG-R



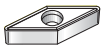
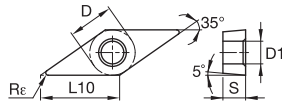
ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
TNMG160404R	TNMG331R	9,53	3/8	16,50	.650	4,76	3/16	0,4	1/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160408R	TNMG332R	9,53	3/8	16,50	.650	4,76	3/16	0,8	1/32	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG160412R	TNMG333R	9,53	3/8	16,50	.650	4,76	3/16	1,2	3/64	3,81	.150	●	●	●	●	●	●	●	●	●
TNMG220404R	TNMG431R	12,70	1/2	22,00	.866	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
TNMG220408R	TNMG432R	12,70	1/2	22,00	.866	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice

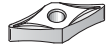

VBGT-F


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VBGT110302F	VBGT2205F	6,35	1/4	11,07	.436	3,18	1/8	0,2	.008	2,80	.110								●	●
VBGT110301F	VBGT220F	6,35	1/4	11,07	.436	3,18	1/8	0,1	.004	2,80	.110								●	●
VBGT110304F	VBGT221F	6,35	1/4	11,07	.436	3,18	1/8	0,4	1/64	2,80	.110								●	●
VBGT160402F	VBGT3305F	9,53	3/8	16,61	.654	4,76	3/16	0,2	.008	4,40	.173								●	●
VBGT160401F	VBGT330F	9,53	3/8	16,61	.654	4,76	3/16	0,1	.004	4,40	.173								●	●
VBGT160404F	VBGT331F	9,53	3/8	16,61	.654	4,76	3/16	0,4	1/64	4,40	.173								●	●

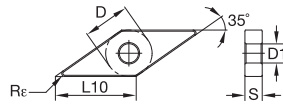

VBMT-F


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VBMT110302F	VBMT2205F	6,35	1/4	11,07	.436	3,18	1/8	0,2	.008	2,80	.110								●	●
VBMT110304F	VBMT221F	6,35	1/4	11,07	.436	3,18	1/8	0,4	1/64	2,80	.110	●	●						●	●
VBMT110308F	VBMT222F	6,35	1/4	11,07	.436	3,18	1/8	0,8	1/32	2,80	.110	●	●		●				●	●
VBMT160402F	VBMT3305F	9,53	3/8	16,61	.654	4,76	3/16	0,2	.008	4,40	.173	●	●				●		●	●
VBMT160404F	VBMT331F	9,53	3/8	16,61	.654	4,76	3/16	0,4	1/64	4,40	.173	●	●				●		●	●
VBMT160408F	VBMT332F	9,53	3/8	16,61	.654	4,76	3/16	0,8	1/32	4,40	.173	●	●				●		●	●

Application Specific



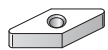
■ VNGP



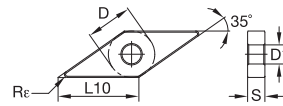
● first choice
○ alternate choice

P	●	●	●	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○

ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VNGP160401	VNGP330	9,53	3/8	16,61	.654	4,76	3/16	0,1	.004	3,81	.150							●	●	
VNGP160402	VNGP3305	9,53	3/8	16,61	.654	4,76	3/16	0,2	.008	3,81	.150							●	●	
VNGP220404	VNGP431	12,70	1/2	22,14	.872	4,76	3/16	0,4	1/64	5,16	.203							●	●	
VNGP220408	VNGP432	12,70	1/2	22,14	.872	4,76	3/16	0,8	1/32	5,16	.203							●	●	

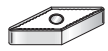


■ VNMA

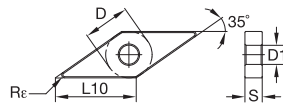


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VNMA160408	VNMA332	9,53	3/8	16,61	.654	4,76	3/16	0,8	1/32	3,81	.150							●		

Application Specific



■ VNMG-F



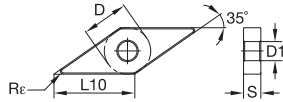
ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VNMG160404F	VNMG331F	9,53	3/8	16,61	.654	4,76	3/16	0,4	1/64	3,81	.150	●	●		●	●	●	●	●	●
VNMG160408F	VNMG332F	9,53	3/8	16,61	.654	4,76	3/16	0,8	1/32	3,81	.150	●	●		●	●	●	●	●	●

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice



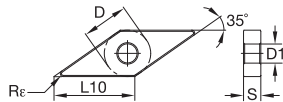
VNMG-M



ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VNMG160404M	VNMG331M	9,53	3/8	16,61	.654	4,76	3/16	0,4	1/64	3,81	.150				●	●				
VNMG160408M	VNMG332M	9,53	3/8	16,61	.654	4,76	3/16	0,8	1/32	3,81	.150				●	●				



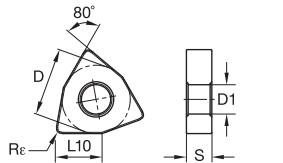
VNMG-R



ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
VNMG160408R	VNMG332R	9,53	3/8	16,61	.654	4,76	3/16	0,8	1/32	3,81	.150	●	●		●	●				



WNMA

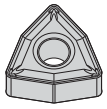


ISO catalog number	ANSI catalog number	D		L10		S		Rε		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
WNMA060408	WNMA332	9,53	3/8	6,52	.257	4,76	3/16	0,8	1/32	3,81	.150									●
WNMA080408	WNMA432	12,70	1/2	8,69	.342	4,76	3/16	0,8	1/32	5,16	.203									●
WNMA080412	WNMA433	12,70	1/2	8,69	.342	4,76	3/16	1,2	3/64	5,16	.203									●

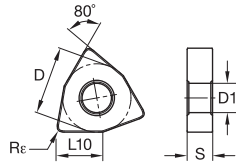
Application Specific

P	●	●	●	○	○	○	○	○	○	○	○
M	●	●	●	●	●	●	●	●	●	●	●
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

● first choice
○ alternate choice



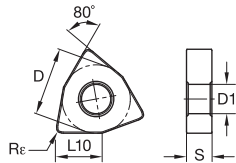
■ WNMG-F



ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
WNMG080404F	WNMG431F	12,70	1/2	8,69	.342	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080408F	WNMG432F	12,70	1/2	8,69	.342	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●

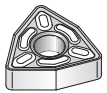


■ WNMG-H

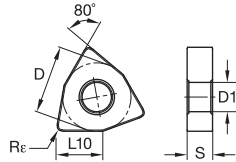


ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
WNMG080408H	WNMG432H	12,70	1/2	8,69	.342	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080412H	WNMG433H	12,70	1/2	8,69	.342	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080416H	WNMG434H	12,70	1/2	8,69	.342	4,76	3/16	1,6	1/16	5,16	.203	●	●	●	●	●	●	●	●	●

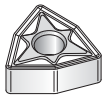
Application Specific



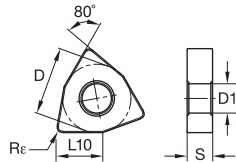
■ WNMG-M



ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
WNMG080404M	WNMG431M	12,70	1/2	8,69	.342	4,76	3/16	0,4	1/64	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080408M	WNMG432M	12,70	1/2	8,69	.342	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080412M	WNMG433M	12,70	1/2	8,69	.342	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●



■ WNMG-R



ISO catalog number	ANSI catalog number	D		L10		S		Re		D1		K10P	K25P	K35P	K10M	K25M	K20K	K10U	K15U	
		mm	in	mm	in	mm	in	mm	in	mm	in									
WNMG060408R	WNMG332R	9,53	3/8	6,52	.257	4,76	3/16	0,8	1/32	3,81	.150	●	●	●	●	●	●	●	●	●
WNMG080408R	WNMG432R	12,70	1/2	8,69	.342	4,76	3/16	0,8	1/32	5,16	.203	●	●	●	●	●	●	●	●	●
WNMG080412R	WNMG433R	12,70	1/2	8,69	.342	4,76	3/16	1,2	3/64	5,16	.203	●	●	●	●	●	●	●	●	●



Carbide Recycling

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