

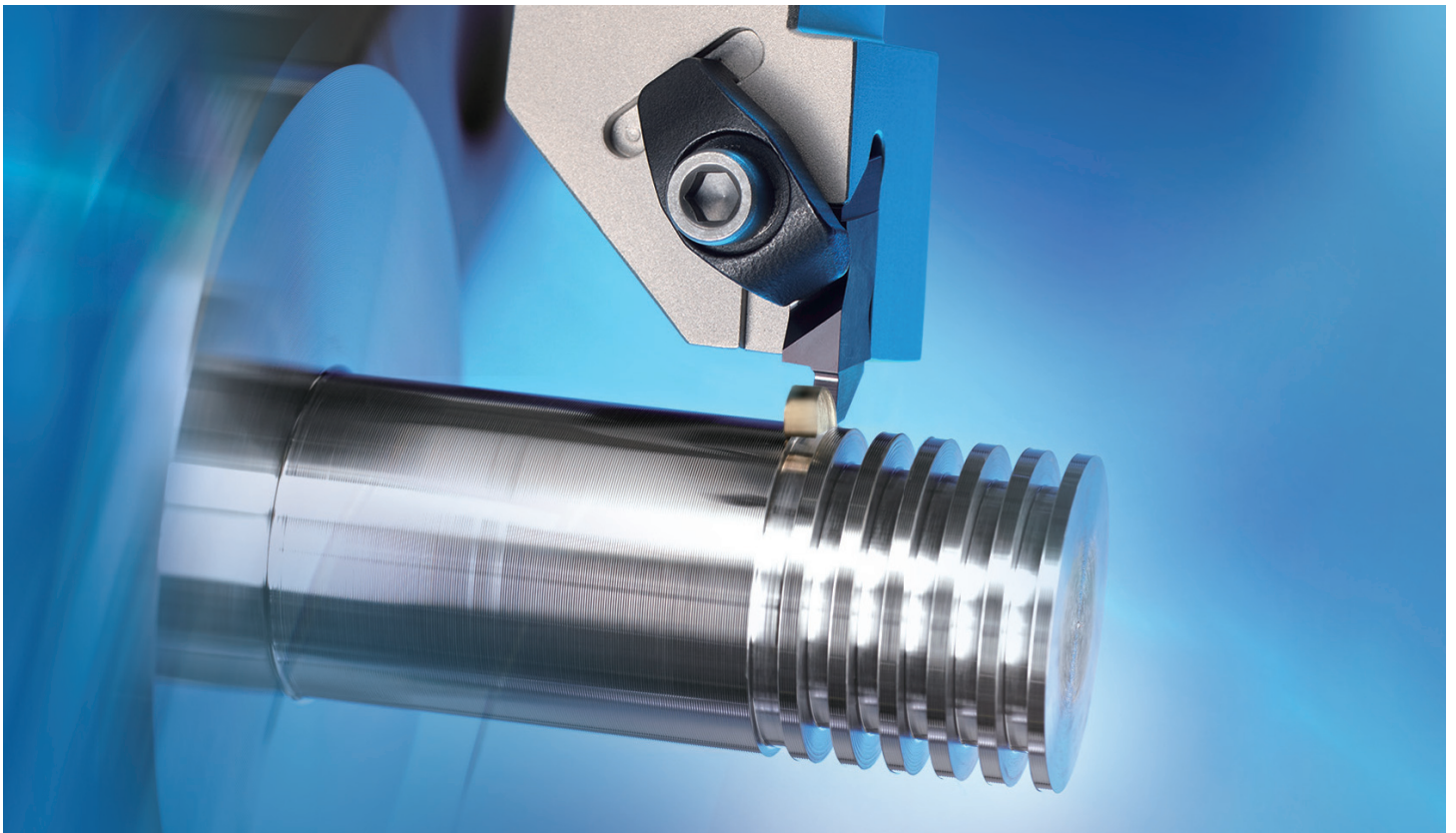
KORLOY Grooving Tool

K Notch



The Solution for High-Precision Grooving

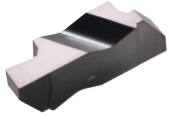
- ▣ KORLOY clamping system offers high rigidity for high precision machining
- ▣ High-quality cutting edge ensuring long tool life and excellent machinability
- ▣ Provides various cutting edge widths for a wide range of selection



High-Precision Grooving Inserts with High-Rigidity Clamping Design

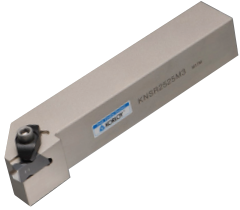
K Notch

The machining stability of cutting tools is a very important issue when machining hard-to-cut materials used for aircraft, medical devices and precision machining parts. Specifically, machining hard-to-cut materials requires not only high-quality surface finish and dimensions accuracy, but also decent cutting life.



Insert

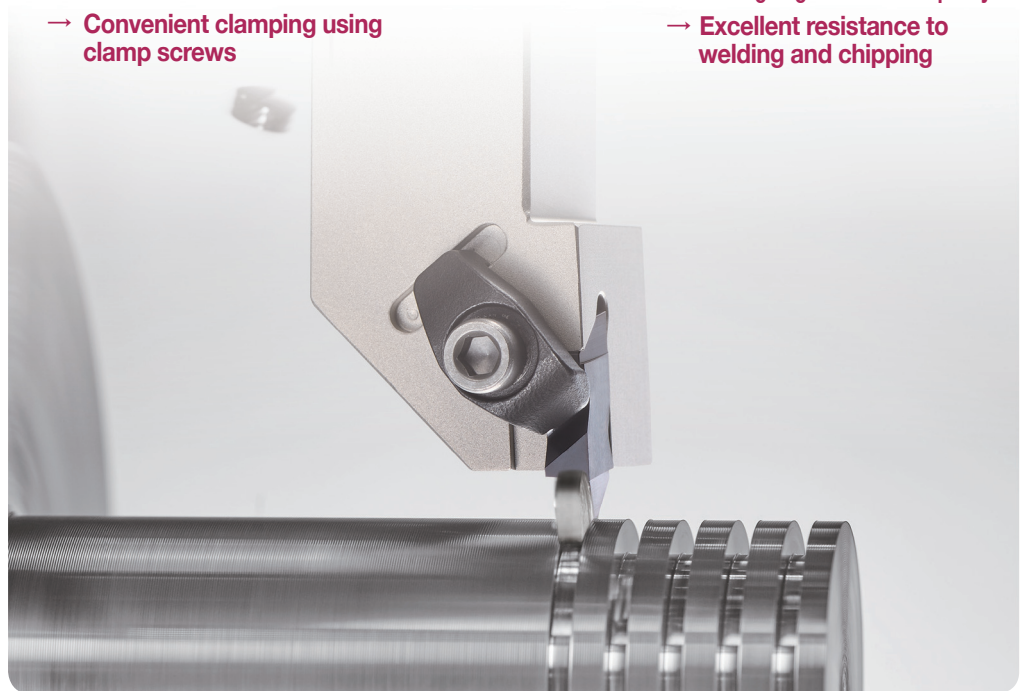
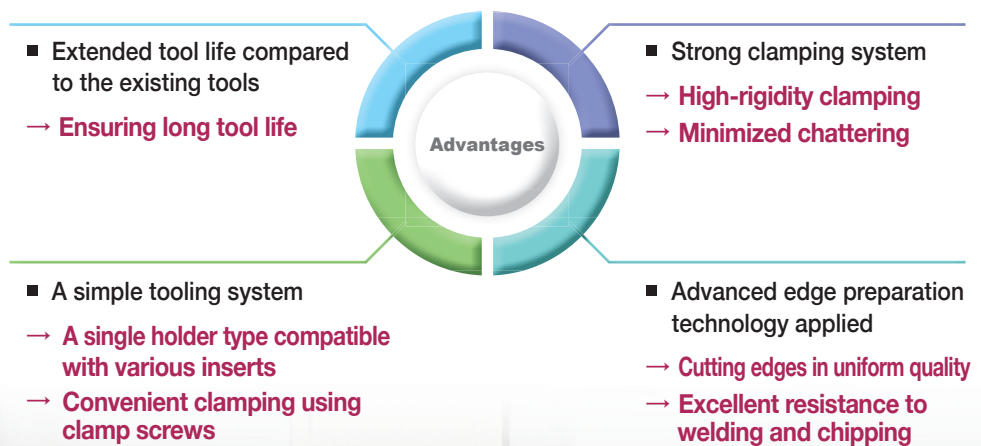
K Notch holders feature the 3-face clamping design for high rigidity. The clamping force increases with the tightening force for clamp screws. They can minimize chattering even under heavy cutting load, providing long and stable machining life.



Holder

K Notch inserts ensure high quality cutting edges with outstanding edge preparation. The mirror-like insert surface provides stronger resistance to welding and chipping for improved surface finish of workpieces.

KORLOY's K Notch offers a single holder type which can be easily clamped to a wide range of cutting edge widths so that it provides higher convenience to its users.



Code System

[Insert]

KN	G	P	3		125	R
K Notch	Insert type B: Blank G: Grooving R: Full Radius	Additional information P: Positive None: Flat	Insert size 2, 3, 4	Unit M: Metric None: Inch	Insert width 125: 0.125 inch	Hand L: Left R: Right

[Holder]

KN	S	R	16	3	C
K Notch	Clamping position S: Side	Hand L: Left R: Right	Shank size (Height x Width) 06: 0.375 inch 12: 0.75 inch 08: 0.5 inch 16: 1 inch 10: 0.625 inch 20: 1.25 inch	Insert size 2, 3, 4	Holder length B: 4.5 inch C: 5.0 inch D: 6.0 inch V: 3.5 inch None: 2.5 inch

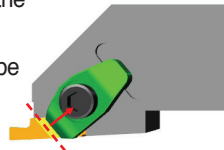
Holder Features

- High-rigidity clamps enduring a variety of machining conditions

Clamp

- Rigid binding force relative to the clamping force
- User-oriented convenient shape

Clamped view

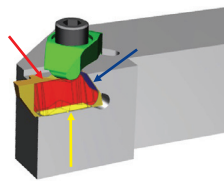


- Compatible with various types of inserts including KNB, KNG and KNR

Insert clamping

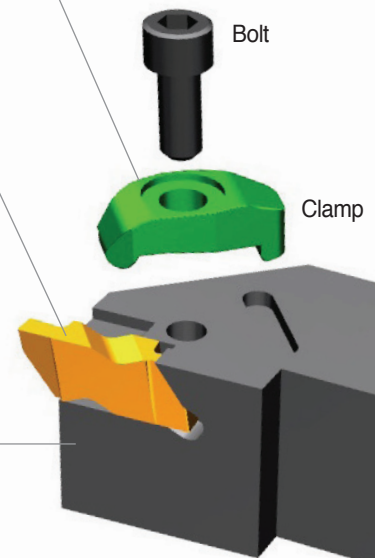
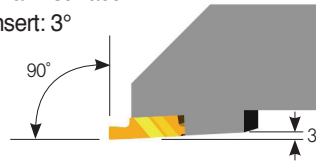
- Provides excellent clamping stability due to the 3-face (bottom, side, and rear face) binding

3-face clamping



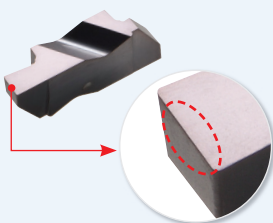
Relief angle

- The relief angle of a flank surface when clamping an insert: 3°



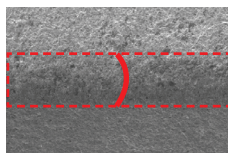
Insert Features

[Edge preparation]

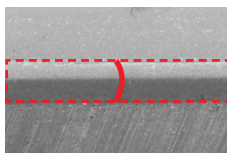


High-quality edge preparation

- Cutting edges in uniform quality
- Long tool life



[Competitor]



[K Notch]

Mirror-like rake surface

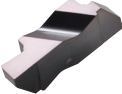

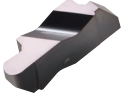

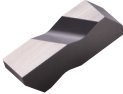
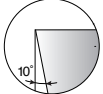
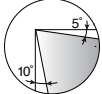
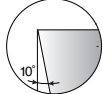
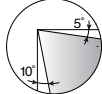
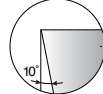
- Improved resistance to welding and chipping
- Improved surface finish of workpieces



[K Notch]

➤ Recommended Feed per Insert Type

• Various applications and sizes provide customers with a wider selection.

Type	KNG	KNGP	KNR	KNRP	KNB	
Insert shape						
Cutting-edge						
Application	General grooving	General grooving	Turning profiling	Turning profiling	Blank	
Recommended workpiece	1st	P, K	M, N, S	P, K	M, N, S	-
	2nd	M, N, S	P, K	M, N, S	P, K	-
Recommended feed, f_n (ipr)	P	0.004 - 0.011	0.003 - 0.010	0.004 - 0.011	0.003 - 0.010	-
	M	0.004 - 0.010	0.003 - 0.010	0.004 - 0.010	0.003 - 0.010	-
	K	0.004 - 0.011	0.003 - 0.010	0.004 - 0.011	0.003 - 0.010	-
	N	0.001 - 0.012	0.001 - 0.012	0.001 - 0.012	0.001 - 0.012	-
	S	0.002 - 0.006	0.002 - 0.006	0.002 - 0.006	0.002 - 0.006	-

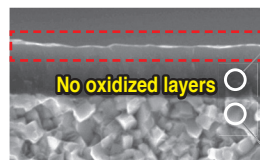
➤ Recommended Cutting Speed per Grade

• An appropriate choice for cutting speed is directly linked with surface finish of workpieces.

Workpiece	Grade	Recommended cutting speed, vc (sfm)					
		164	328	656	984	1969	
P	Grade	PC5300		262	656		
	Alloy steel	PC5300	197	525			
M	Stainless steel	PC5300		262	427		
		PC8110		262	525		
K	Cast iron	PC5300		295	656		
N	Non-ferrous metal	PC5300			525		1969
S	Heat-resistant alloy	PC8110	114	213			

➤ PVD Coated Grades

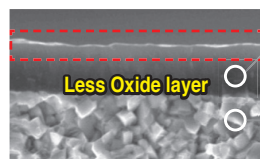
PC5300



No oxidized layers

- PVD coating layer with high hardness and oxidation resistance during machining at high temperature
- Superior oxidation resistance during machining of steel, cast iron, stainless steel, and heat-resistant alloys
- Applying ultra-fine high toughness substrate
- Improved welding and chipping resistance

PC8110



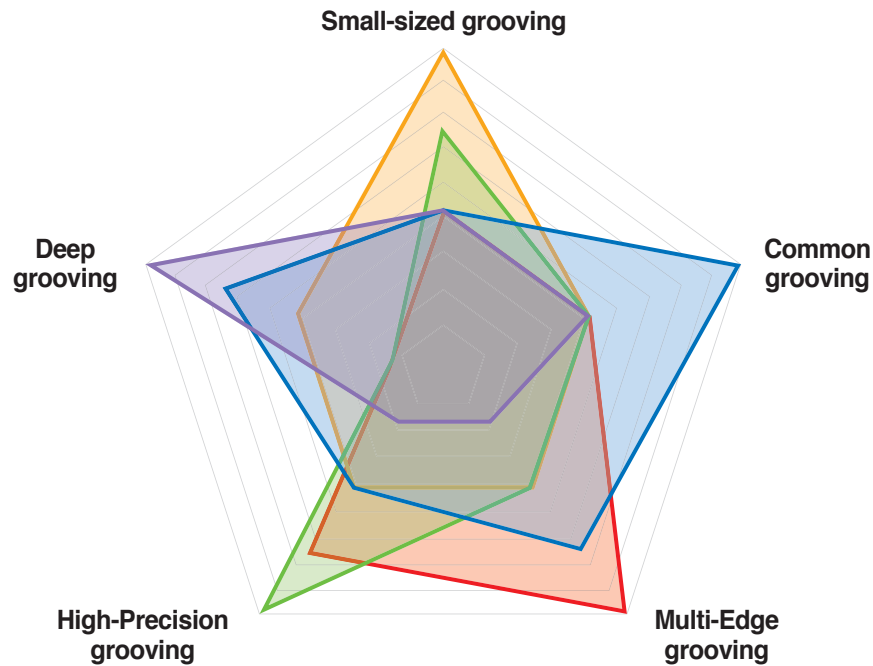
Less Oxide layer

- Prevents wear at a high temperature to apply excellent surface roughness and coating with oxidation resistance and high hardness
- Improves wear resistance to equalize sub-micron matrix, secure stability between corners and improve chipping and wear resistance

⇒ Inserts Selection Guide

Selection system of tools

■ K Notch
 ■ TB
 ■ MGT, KGT
 ■ Saw-man
 ■ Auto tools



K Notch *New*

- High-rigidity clamping



TB

- 3-corner grooving



MGT, KGT

- Various machining



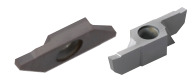
Saw-man

- 1-corner parting machining



Auto tools

- Automatic lathes



Product name	High-precision grooving	Common grooving	Small-sized grooving	Deep grooving	Multi-edge grooving
K Notch <i>New</i>	★★★★★	★★	★★★★	★	★★
TB	★★★★	★★	★★	★★	★★★★★
MGT, KGT	★★	★★★★★	★★	★★★★	★★
Saw-man	★	★★	★★	★★★★★	★
Auto tools (Blade, Multifunctional)	★★★★	★★	★★★★★	★★	★★

⇒ Cutting Edge Width of Insert and T-max

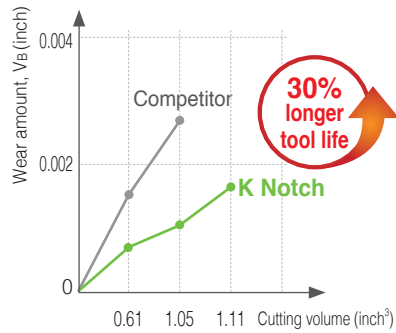
◎ : 1st Rec. ○ : 2nd Rec.

Picture	Cutting edge width (inch)				No. of edges	Machining				Features
	0.08	0.16	0.24	0.31		External	Internal	Facing	Parting-off	
K Notch	0.03	0.26	0.25		2	◎				<ul style="list-style-type: none"> • Rigid clamping system • High-quality edge preparation
TB	0.05	0.26	0.24		3	◎			○	<ul style="list-style-type: none"> • High-precision ground • Optimized to automated machining
KGT	0.06	1.10	0.31		2	◎	○	○	○	<ul style="list-style-type: none"> • Diverse machining method • Wide range of machining
Saw-man	0.08	4.92	0.24		1	○			◎	<ul style="list-style-type: none"> • Various lead angle • Minimized burr
Auto tools	0.03	0.08			2	◎			○	<ul style="list-style-type: none"> • For automatic lathes (Blade) • Machining of small precision parts
	0.04	0.33	0.16		2	◎			○	<ul style="list-style-type: none"> • For automatic lathes (Multi-functional) • Machining of small precision parts

➔ Performance Evaluation

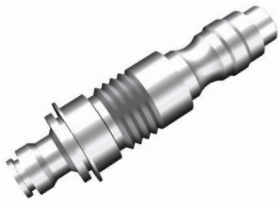
Evaluation of Wear Resistance

- Workpiece Ti-6Al-4V
- Cutting conditions vc (sfm) = 230, fn (ipr) = 0.006, ap (inch) = 0.118, Wet
- Tool
 - Insert KNG3125R (PC8110)
 - Holder KNSR2525M3



Type	K Notch	Competitor
Picture of wear		
Tool life	100%	70%

➔ Application Examples



Input shaft (Carbon steel)

- Workpiece 1039
- Cutting conditions vc (sfm) = 492, fn (ipr) = 0.006, ap (inch) = 0.118, Wet
- Tool
 - Insert KNG3125R (PC5300)
 - Holder KNSR2525M3

K Notch **100ea/Corner**

Competitor **80ea/Corner**



➔ 25% longer tool life compared to the competitor



Medical device parts (Titanium)

- Workpiece Ti-6Al-4V
- Cutting conditions vc (sfm) = 262, fn (ipr) = 0.004, ap (inch) = 0.079, Wet
- Tool
 - Insert KNGP3088R (PC8110)
 - Holder KNSR2525M3

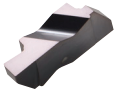
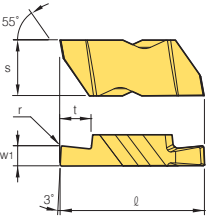
K Notch **200ea/Corner**

Competitor **160ea/Corner**

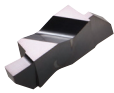
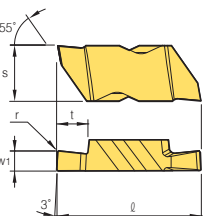


➔ 25% longer tool life compared to the competitor

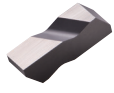
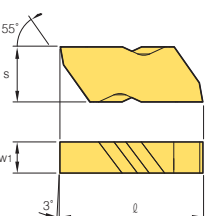
➔ Insert (Metric)

Type	Insert shape	Designation		Coated		Dimensions										Figure
				PC5300	PC8110	inch					mm					
						s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ	
Flat Top		KNG	2M 150R		0.219	0.059	0.0075	0.11	0.513	5.56	1.50	0.19	2.79	13.030		
			2M 200R		0.219	0.079	0.0075	0.11	0.513	5.56	2.00	0.19	2.79	13.030		
			2M 250R		0.219	0.098	0.0075	0.11	0.513	5.56	2.50	0.19	2.79	13.030		
			2M 300R		0.219	0.118	0.0075	0.11	0.513	5.56	3.00	0.19	2.79	13.030		
			3M 150R	● ●	0.344	0.059	0.0075	0.075	0.894	8.74	1.50	0.19	1.91	22.709		
			3M 200R	● ●	0.344	0.079	0.0075	0.11	0.894	8.74	2.00	0.19	2.79	22.709		
			3M 250R	● ●	0.344	0.098	0.0075	0.15	0.894	8.74	2.50	0.19	3.81	22.709		
			3M 300R	● ●	0.344	0.118	0.0075	0.15	0.894	8.74	3.00	0.19	3.81	22.709		
			3M 400R	● ●	0.344	0.157	0.0075	0.15	0.894	8.74	4.00	0.19	3.81	22.709		
			4M 500R		0.453	0.197	0.0079	0.25	1.128	11.51	5.00	0.20	6.35	28.663		
			4M 600R		0.453	0.236	0.0079	0.25	1.128	11.51	6.00	0.20	6.35	28.663		

● : Stock item

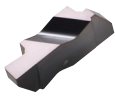
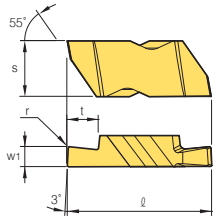
Type	Insert shape	Designation		Coated		Dimensions										Figure
				PC5300	PC8110	inch					mm					
						s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ	
C/B Ground		KNGP	2M 150R		0.219	0.059	0.0075	0.11	0.513	5.56	1.50	0.19	2.79	13.030		
			2M 200R		0.219	0.079	0.0075	0.11	0.513	5.56	2.00	0.19	2.79	13.030		
			2M 250R		0.219	0.098	0.0075	0.11	0.513	5.56	2.50	0.19	2.79	13.030		
			2M 300R		0.219	0.118	0.0075	0.11	0.513	5.56	3.00	0.19	2.79	13.030		
			3M 150R	● ●	0.344	0.059	0.0075	0.075	0.894	8.74	1.50	0.19	1.91	22.709		
			3M 200R	● ●	0.344	0.079	0.0075	0.11	0.894	8.74	2.00	0.19	2.79	22.709		
			3M 250R	● ●	0.344	0.098	0.0075	0.15	0.894	8.74	2.50	0.19	3.81	22.709		
			3M 300R	● ●	0.344	0.118	0.0075	0.15	0.894	8.74	3.00	0.19	3.81	22.709		
			3M 400R	● ●	0.344	0.157	0.0075	0.15	0.894	8.74	4.00	0.19	3.81	22.709		
			4M 500R		0.453	0.197	0.0079	0.25	1.128	11.51	5.00	0.20	6.35	28.663		
			4M 600R		0.453	0.236	0.0079	0.25	1.128	11.51	6.00	0.20	6.35	28.663		

● : Stock item

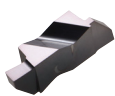
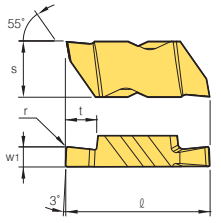
Type	Insert shape	Designation		Coated		Dimensions										Figure
				H05	inch					mm						
					s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ		
Blank		KNB	2R		0.219	0.150	-	-	0.513	5.56	3.81	-	-	13.030		
			3R		0.344	0.195	-	-	0.894	8.74	4.95	-	-	22.709		
			4R		0.453	0.255	-	-	1.128	11.51	6.48	-	-	28.663		

● : Stock item

⇒ Insert (Inch)


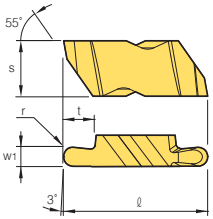
Type	Insert shape	Designation	Coated		Dimensions										Figure	
			PC5300	PC8110	inch					mm						
					s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ		
Flat Top		KNG	2031R			0.219	0.031	0.0035	0.05	0.513	5.56	0.79	0.09	1.27	13.030	
			2041R			0.219	0.041	0.0035	0.05	0.513	5.56	1.04	0.09	1.27	13.030	
			2047R			0.219	0.047	0.0035	0.05	0.513	5.56	1.19	0.09	1.27	13.030	
			2058R			0.219	0.058	0.0075	0.05	0.513	5.56	1.47	0.19	1.27	13.030	
			2062R			0.219	0.062	0.0075	0.11	0.513	5.56	1.57	0.19	2.79	13.030	
			2094R			0.219	0.094	0.0075	0.11	0.513	5.56	2.39	0.19	2.79	13.030	
			2125R			0.219	0.125	0.0075	0.11	0.513	5.56	3.18	0.19	2.79	13.030	
			3047R			0.344	0.047	0.0075	0.075	0.894	8.74	1.19	0.19	1.91	22.709	
			3062R	●	●	0.344	0.062	0.0075	0.094	0.894	8.74	1.57	0.19	2.39	22.709	
			3072R			0.344	0.072	0.0075	0.094	0.894	8.74	1.83	0.19	2.39	22.709	
			3078R	●	●	0.344	0.078	0.0075	0.094	0.894	8.74	1.98	0.19	2.39	22.709	
			3088R			0.344	0.088	0.0075	0.094	0.894	8.74	2.24	0.19	2.39	22.709	
			3094R			0.344	0.094	0.0075	0.15	0.894	8.74	2.39	0.19	3.81	22.709	
			3097R	●	●	0.344	0.097	0.0125	0.15	0.894	8.74	2.46	0.32	3.81	22.709	
			3105R			0.344	0.105	0.0075	0.15	0.894	8.74	2.67	0.19	3.81	22.709	
			3110R			0.344	0.110	0.0125	0.15	0.894	8.74	2.79	0.32	3.81	22.709	
			3122R			0.344	0.122	0.0075	0.15	0.894	8.74	3.10	0.19	3.81	22.709	
			3125R	●	●	0.344	0.125	0.0075	0.15	0.894	8.74	3.18	0.19	3.81	22.709	
			3142R			0.344	0.142	0.0125	0.15	0.894	8.74	3.61	0.32	3.81	22.709	
			3156R	●	●	0.344	0.156	0.0075	0.15	0.894	8.74	3.96	0.19	3.81	22.709	
			3178R			0.344	0.178	0.0075	0.15	0.894	8.74	4.52	0.19	3.81	22.709	
			3185R			0.344	0.185	0.0225	0.15	0.894	8.74	4.70	0.57	3.81	22.709	
			3189R	●	●	0.344	0.189	0.0225	0.15	0.894	8.74	4.80	0.57	3.81	22.709	
			4125R	●	●	0.453	0.125	0.0075	0.15	1.128	11.51	3.18	0.19	3.81	28.663	
			4189R			0.453	0.189	0.0225	0.25	1.128	11.51	4.80	0.57	6.35	28.663	
			4213R			0.453	0.213	0.0075	0.25	1.128	11.51	5.41	0.19	6.35	28.663	
4219R			0.453	0.219	0.0225	0.25	1.128	11.51	5.56	0.57	6.35	28.663				
4250R			0.453	0.250	0.0225	0.25	1.128	11.51	6.35	0.57	6.35	28.663				

● : Stock item

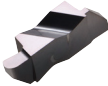
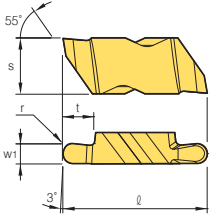
Type	Insert shape	Designation	Coated		Dimensions										Figure	
			PC5300	PC8110	inch					mm						
					s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ		
C/B Ground		KNGP	2031R			0.219	0.031	0.0035	0.05	0.513	5.56	0.79	0.09	1.27	13.030	
			2062R			0.219	0.062	0.0075	0.11	0.513	5.56	1.57	0.19	2.79	13.030	
			2125R			0.219	0.125	0.0075	0.11	0.513	5.56	3.18	0.19	2.79	13.030	
			3088R			0.344	0.088	0.0075	0.094	0.894	8.74	2.24	0.19	2.39	22.709	
			3125R	●	●	0.344	0.125	0.0075	0.15	0.894	8.74	3.18	0.19	3.81	22.709	
			3156R	●	●	0.344	0.156	0.0075	0.15	0.894	8.74	3.96	0.19	3.81	22.709	
			3189R			0.344	0.189	0.0225	0.15	0.894	8.74	4.80	0.57	3.81	22.709	
			4189R			0.453	0.189	0.0225	0.25	1.128	11.51	4.80	0.57	6.35	28.663	
4250R			0.453	0.250	0.0225	0.25	1.128	11.51	6.35	0.57	6.35	28.663				

● : Stock item

➔ Insert (Inch)


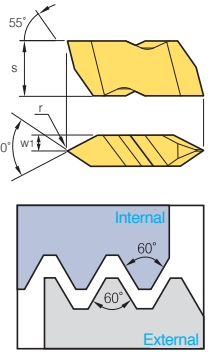
Type	Insert shape	Designation		Coated		Dimensions										Figure
				PC5300	PC8110	inch					mm					
						s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ	
Round Flat Top		KNR	2031R		0.219	0.062	0.031	0.11	0.513	5.56	1.57	0.79	2.79	13.030		
			2047R		0.219	0.094	0.047	0.11	0.513	5.56	2.39	1.19	2.79	13.030		
			3031R	● ●	0.344	0.062	0.031	0.094	0.894	8.74	1.57	0.79	2.39	22.709		
			3047R	● ●	0.344	0.094	0.047	0.15	0.894	8.74	2.39	1.19	3.81	22.709		
			3062R	● ●	0.344	0.125	0.0625	0.15	0.894	8.74	3.18	1.59	3.81	22.709		
			3078R	● ●	0.344	0.156	0.078	0.15	0.894	8.74	3.96	1.98	3.81	22.709		
			3094R	● ●	0.344	0.188	0.094	0.15	0.894	8.74	4.78	2.39	3.81	22.709		
			4125R		0.453	0.250	0.125	0.25	1.128	11.51	6.35	3.18	6.35	28.663		

● : Stock item

Type	Insert shape	Designation		Coated		Dimensions										Figure
				PC5300	PC8110	inch					mm					
						s	w ₁	r	t	ℓ	s	w ₁	r	t	ℓ	
Round C/B Ground		KNRP	2031R		0.219	0.062	0.031	0.11	0.513	5.56	1.57	0.79	2.79	13.030		
			2047R		0.219	0.094	0.047	0.11	0.513	5.56	2.39	1.19	2.79	13.030		
			3031R	● ●	0.344	0.062	0.031	0.094	0.894	8.74	1.57	0.79	2.39	22.709		
			3047R	● ●	0.344	0.094	0.047	0.15	0.894	8.74	2.39	1.19	3.81	22.709		
			3062R	● ●	0.344	0.125	0.0625	0.15	0.894	8.74	3.18	1.59	3.81	22.709		
			3078R	● ●	0.344	0.156	0.078	0.15	0.894	8.74	3.96	1.98	3.81	22.709		
			3094R	● ●	0.344	0.188	0.094	0.15	0.894	8.74	4.78	2.39	3.81	22.709		
			4125R		0.453	0.250	0.125	0.25	1.128	11.51	6.35	3.18	6.35	28.663		

● : Stock item

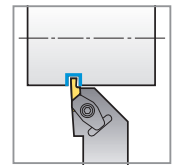
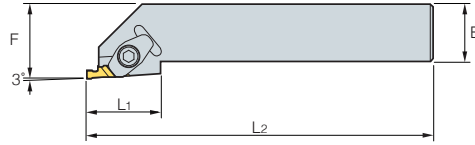
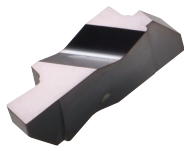
➔ Insert (Threading)

Type	Insert shape	Designation		Coated		Dimensions										Figure
				PC5300	PC8110	inch			mm			Pitch (External)				
						s	w ₁	r	s	w ₁	r	tpi	mm			
Partial Profiling 60°		KNT	2R		0.219	0.150	0.004	5.56	3.81	0.10	8-36	0.70-3.00				
			3R		0.344	0.195	0.007	8.74	4.95	0.17	6-20	1.25-4.00				
			4R		0.453	0.255	0.007	11.51	6.48	0.17	4-20	1.25-6.25				

● : Stock item

➔ Holder (Metric)

• Grooving, Profiling



R type insert

KNG KNGP KNT
KNR KNRP KNB

Designation	Stock	inch					mm					Insert	Clamp	Screw	Wrench	
		H	B	F	L1	L2	H	B	F	L1	L2					
KNSR	062		0.375	0.375	0.562	0.75	2.5	9.525	9.525	14.275	19.05	63.5	KNG2□ KNGP2□ KNR2□ KNB2R KNT2R	CM74	MHB3010	HW25L
	082V		0.5	0.5	0.75	0.75	3.5	12.7	12.7	19.05	19.05	88.9				
	102B		0.625	0.625	0.875	0.75	4.5	15.875	15.875	22.225	19.05	114.3				
	122B		0.75	0.75	1	0.75	4.5	19.05	19.05	25.4	19.05	114.3				
	162C		1	1	1.25	0.75	5	25.4	25.4	31.75	19.05	127				
	123B		0.75	0.75	1	1.25	4.5	19.05	19.05	25.4	31.75	114.3	KNG3□ KNGP3□ KNR3□ KNRP3□ KNB3R KNT3R	CM72LP	MHA0512	HW40L
	163C	●	1	1	1.25	1.25	5	25.4	25.4	31.75	31.75	127				
	163D	●	1	1	1.25	1.25	6	25.4	25.4	31.75	31.75	152.4				
	203D	●	1.25	1.25	1.5	1.25	6	31.75	31.75	38.1	31.75	152.4				
	164D		1	1	1.25	1.38	6	25.4	25.4	31.75	35.052	152.4	KNG4□ KNGP4□ KNR4□ KNB4R KNT4R	CM72LP	MHA0512	HW40L
204D		1.25	1.25	1.5	1.38	5	31.75	31.75	38.1	35.052	127					

● : Stock item



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