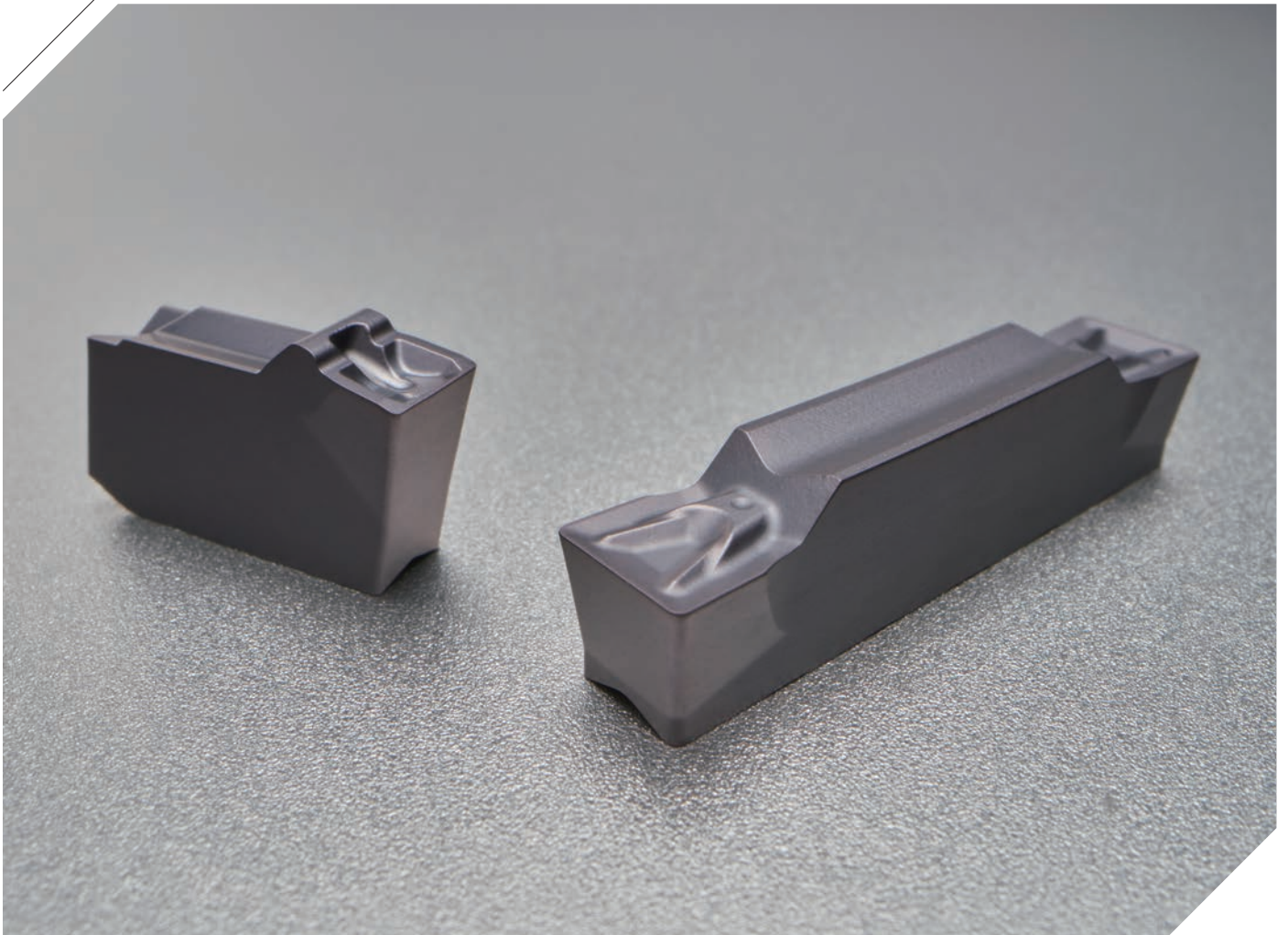


# PC3035

## Inserts for steel grooving and parting

- Stable tool life in steel grooving and parting
- Exclusive steel substrate with high toughness and lubricative coating layer with excellent wear resistance are applied.



## Inserts for steel grooving and parting

# PC3035

In grooving and parting, tools are easily fractured and get wear from chattering due to narrow and long insert in high speed cutting. In addition, spindle, shaft and bearing parts demanding grooving and parting generally applied heat treatment have characteristics that surface is hard and substrate is soft. This feature occurs unstable tool life due to repeated chipping, welding and eliminating.

KORLOY newly launches the exclusive grade PC3035 which shows higher productivity in steel grooving and parting.

**PC3035** is exclusive steel grooving and parting with high toughness substrate application maximized chipping resistance and fracture resistance to deal with frequent interruption while its application. It also adopted high hardness PVD coating with a lubricative surface treatment so it realized stable machinability with its enhanced welding resistance and chipping resistance even for the bearing steel machining.

PC3035 is the next generation grade solution from KORLOY well known for its fine technology in steel grooving and parting and it provides high productivity and stable cutting quality.

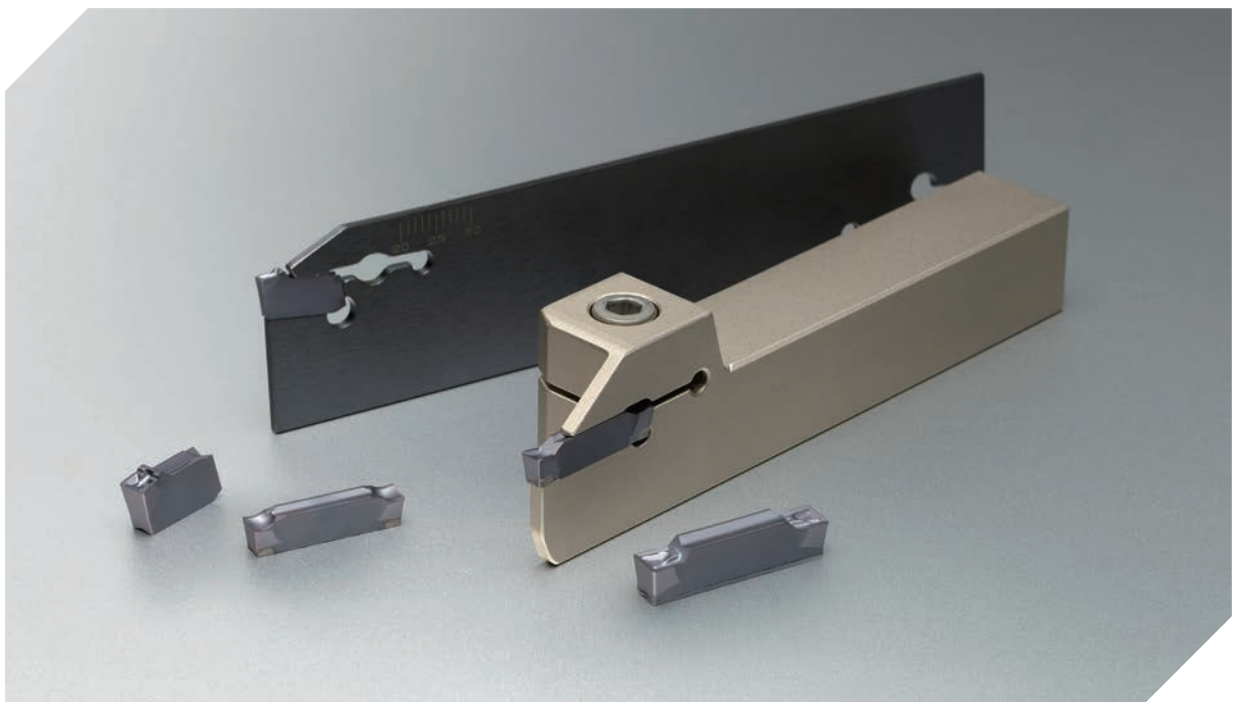
.....

### » Stable tool life

- Optimal for grooving and parting with the application of its exclusive substrate for steel cutting and the after treatment of lubrication

### » High productivity in high speed and high feed cutting

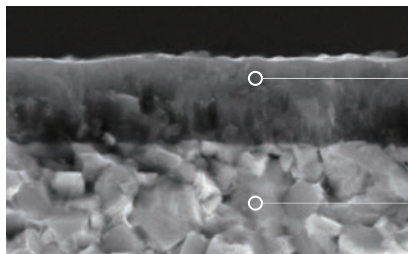
- Enhanced productivity by good wear resistance coating layer



## Features

- Suitable substrate for steel grooving and parting and good wear resistance coating layer
- Application of coating surface treatment improving welding resistance and chipping resistance

### Substrate for steel grooving and parting and PVD coating technology

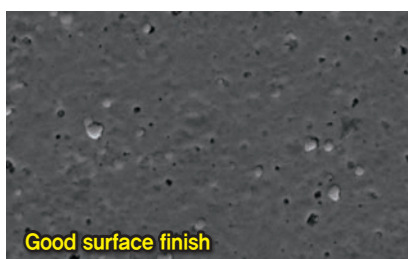


Enhanced wear resistance by high hardness TiAlN coating layer

Application of high toughness substrate technique which is optimized for steel machining

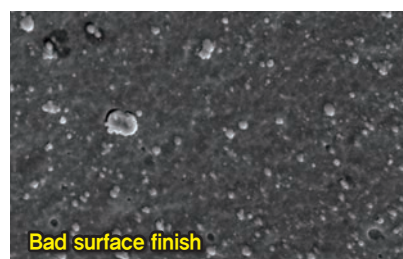


### Coating surface treatment technology



Good surface finish

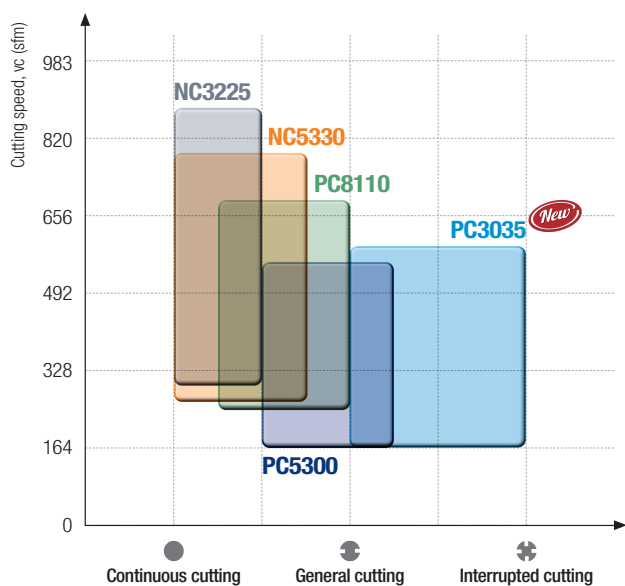
[ PC3035 ]



Bad surface finish

[ Existing grade ]

## Application range



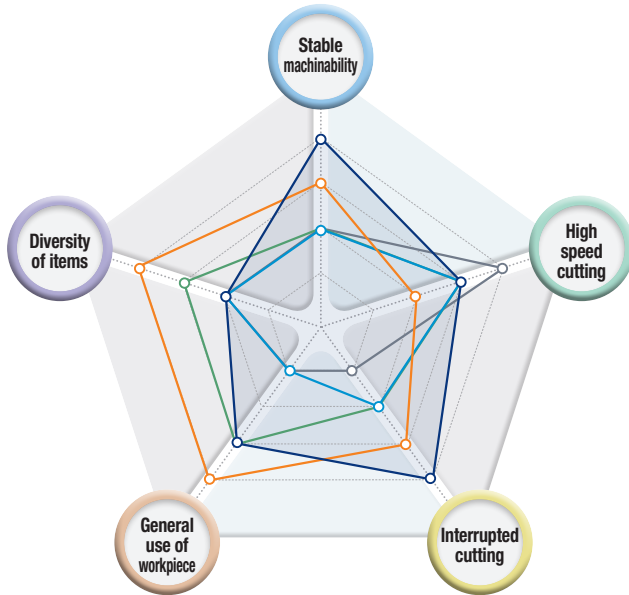
Application range	Grade	vc (m/min)
Continuous, high speed	NC3225	90 ~ 270
Continuous, medium speed	NC5330	80 ~ 240
Low interrupted, medium speed	PC8110	75 ~ 210
Low interrupted, low speed	PC5300	50 ~ 170
Interrupted, medium speed	PC3035 (New)	50 ~ 180

## ✓ Recommenden cutting conditions

Workpiece				Specific cutting force kc1 (N/mm <sup>2</sup> )	Brinell hardness (HB)	Parting and grooving				
ISO	Workpiece materials	ISO	AISI			PC3035				
						vc (m/min)	fn (mm/rev)			
<b>P</b>	Unalloyed steel	C = 0.1~0.25%	C25	1025	1500	125	100	0.12		
							<b>140</b>	<b>0.10</b>		
							180	0.05		
		C = 0.25~0.55%	C35	1035	1600	150	150	95	0.12	
								<b>130</b>	<b>0.10</b>	
								180	0.05	
	C = 0.55~0.80%	C55	1055	1700	229	229	90	0.12		
							<b>130</b>	<b>0.10</b>		
							170	0.05		
	Low-alloy steel	Non-hardened	42CrMo4	4140	1700	180	180	60	0.10	
								<b>100</b>	<b>0.08</b>	
								140	0.05	
		Hardened and tempered	-	-	4145	2050	350	350	40	0.10
									<b>65</b>	<b>0.08</b>
									90	0.05
	High-alloy steel	Annealing	-	D2	1950	200	200	50	0.10	
								<b>80</b>	<b>0.08</b>	
								120	0.05	
Hardened tool steel		X40CrMoV5-1	H13	3000	352	352	352	40	0.10	
								<b>65</b>	<b>0.08</b>	
								90	0.05	
High-carbon chrome steel (Bearing steel)	Annealed	B1	52100	1950	201	201	80	0.10		
							<b>120</b>	<b>0.08</b>		
							160	0.05		

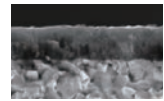
## ✓ Grade for selection guide

—○— PC3035 
 —○— PC5300 
 —○— PC8110 
 —○— NC5330 
 —○— NC3225



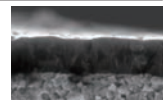
### PC3035 New!

- Good wear resistance and stable machinability
- Suitable for steel cutting



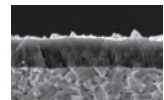
### PC5300

- Good wear resistance and suitable for interrupted cutting
- Universal grade



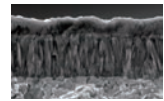
### PC8110

- Good wear resistance and suitable for continuous cutting
- For hard-to-cut materials and cast iron cutting



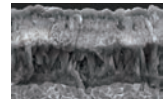
### NC5330

- Stable cutting in high speed machining
- Universal grade



### NC3225

- Good wear resistance and suitable for high speed cutting
- Suitable for steel cutting



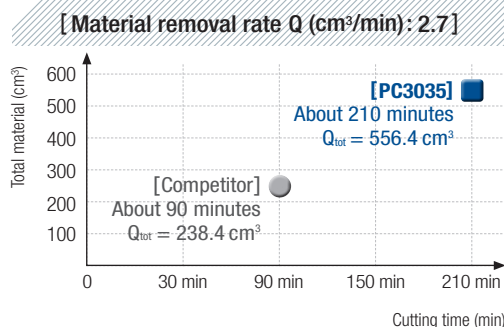
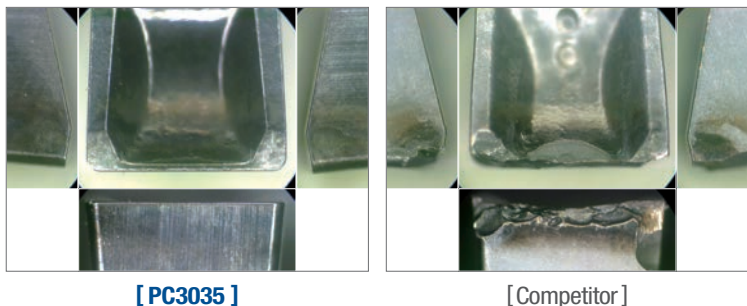
Grade	Stable machinability	High speed cutting	Interrupted cutting	General use of workpiece	Diversity of items
PC3035 <span style="color: red; font-weight: bold;">New!</span>	★★★★★	★★★	★★★★★	★★★	★★
PC5300	★★★	★★	★★★	★★★★★	★★★★★
PC8110	★★	★★★	★★	★	★★
NC5330	★★	★★★	★★	★★★	★★★
NC3225	★★	★★★★★	★	★	★★



## Performance evaluation

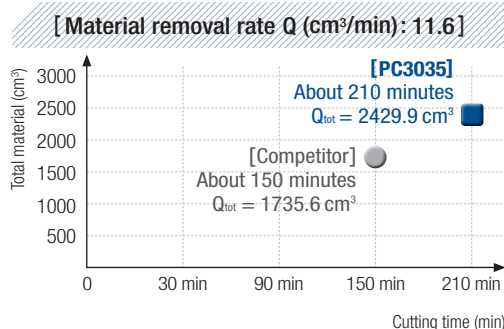
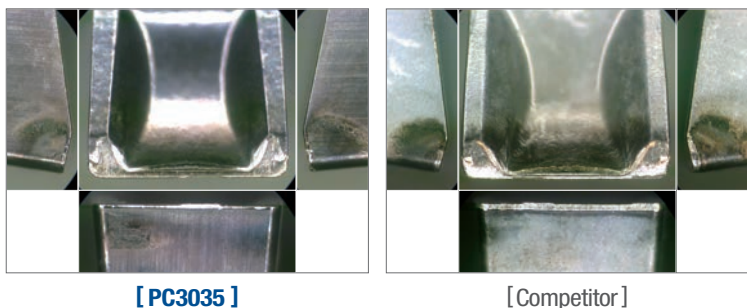
### Fracture resistance

<b>Workpiece</b>	Alloy steel(42CrMo4)	
<b>Cutting conditions</b>	vc(m/min) = 100, fn(mm/rev) = 0.15, ap(mm) = 5.0	
<b>Tools</b>	<b>Insert</b> KGGMN300-02-R(PC3035)	<b>Holder</b> KGEHR2525-3-T10



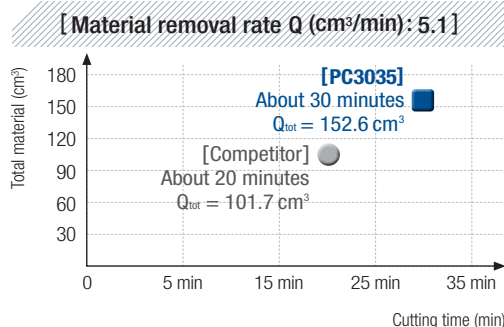
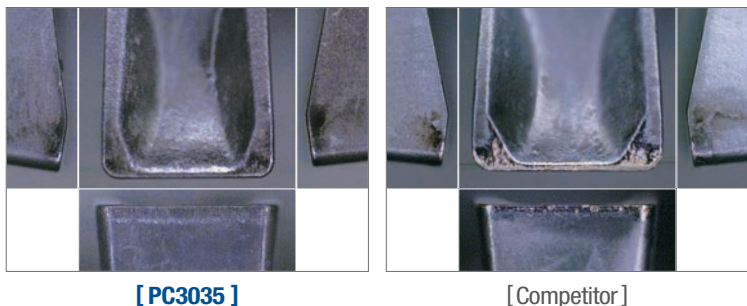
### Wear resistance

<b>Workpiece</b>	Bearing steel(100Cr6)	
<b>Cutting conditions</b>	vc(m/min) = 180, fn(mm/rev) = 0.15, ap(mm) = 5.0	
<b>Tools</b>	<b>Insert</b> KGGMN300-02-R(PC3035)	<b>Holder</b> KGEHR2525-3-T10



### Wear resistance

<b>Workpiece</b>	Alloy steel(42CrMo4)	
<b>Cutting conditions</b>	vc(m/min) = 114, fn(mm/rev) = 0.04, ap(mm) = 9.0	
<b>Tools</b>	<b>Insert</b> KGGMN200-02-R(PC3035)	<b>Holder</b> KGEHR1212-2-D25A

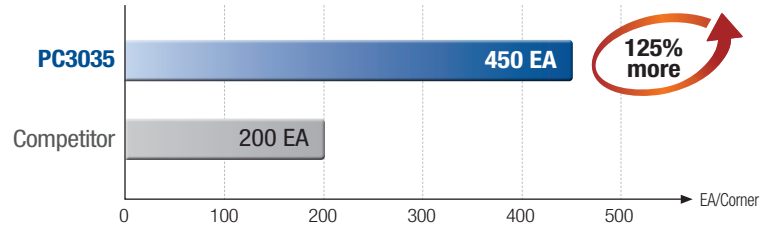
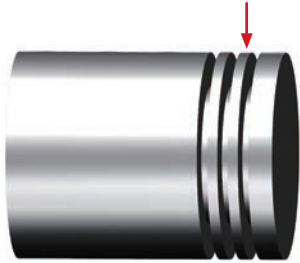


## Application examples

### Carbon steel (C45)

**Cutting conditions**  $vc(m/min) = 134$ ,  $fn(mm/rev) = 0.1$ ,  $ap(mm) = 3.4$ , wet

**Tools** **Insert** KGMN400-03-R(PC3035) **Holder** KGEHR2525-4-T10

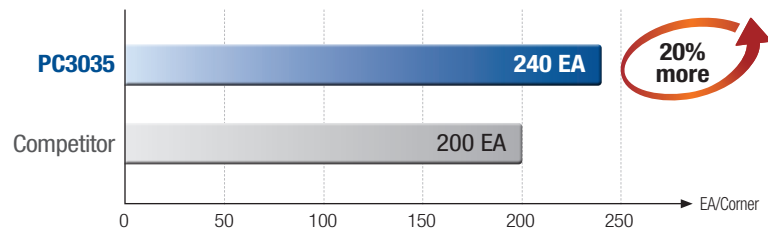
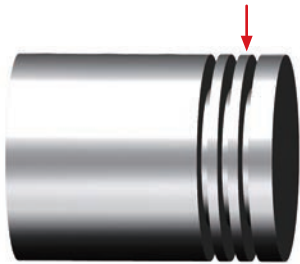


» 125% longer tool life than competitor

### Bearing steel (100Cr6)

**Cutting conditions**  $vc(m/min) = 70$ ,  $fn(mm/rev) = 0.08$ ,  $ap(mm) = 1.05$ , wet

**Tools** **Insert** KGGN3-2.15-R0.4(PC3035) **Holder** KGEHR2525-3-T10

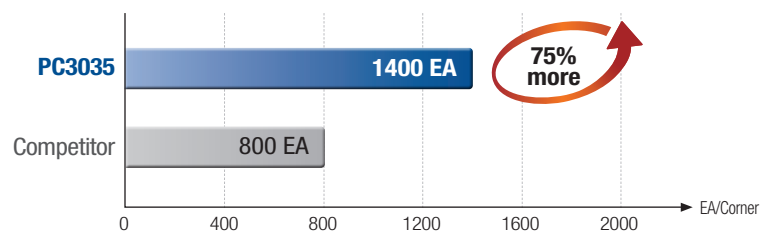
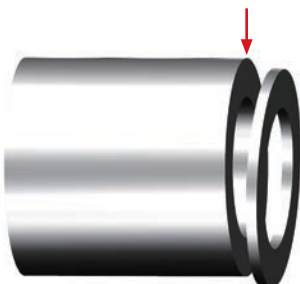


» 20% longer tool life than competitor

### Bearing steel (100Cr6)


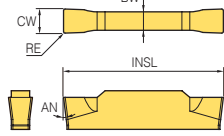





**Cutting conditions**  $vc(m/min) = 101$ ,  $fn(mm/rev) = 0.04 \sim 0.06$ ,  $ap(mm) = 8.09$ , wet

**Tools** **Insert** KGMN200-02-R(PC3035) **Holder** KGEHR1212-2-D25A



» 75% longer tool life than Competitor

 Stock item

Application	Picture	Designation	Coated	Dimensions (mm)						Geometries	
			PC3035	CW	RE	INSL	PSIRR	BW	AN		
Grooving		<b>KGMN</b>	200-02-L	●	2.0	0.2	20	-	1.7	7	
			300-02-L	●	3.0	0.2	20	-	2.3	7	
			400-02-L	●	4.0	0.2	20	-	2.3	7	
			500-03-L	●	5.0	0.3	25	-	4.1	7	
Grooving-parting		<b>KGMN</b>	200-02-R	●	2.0	0.2	20	-	1.7	7	
			300-02-R	●	3.0	0.2	20	-	2.3	7	
			400-03-R	●	4.0	0.3	20	-	3.3	7	
Grooving-turning		<b>KGMN</b>	200-02-T	●	2.0	0.2	20	-	1.7	7	
			300-02-T	●	3.0	0.2	20	-	2.3	7	
			300-04-T	●	3.0	0.4	20	-	2.3	7	
			400-04-T	●	4.0	0.4	20	-	3.3	7	
			400-08-T	●	4.0	0.8	20	-	3.3	7	
			500-04-T	●	5.0	0.4	25	-	4.1	7	
			500-08-T	●	5.0	0.8	25	-	4.1	7	
			600-04-T	●	6.0	0.4	25	-	5.1	7	
			600-08-T	●	6.0	0.8	25	-	5.1	7	
800-08-T	●	8.0	0.8	30	-	6.1	7				
Relief profiling		<b>KRMN</b>	200-C	●	2.0	1.0	20	-	1.7	7	
			300-C	●	3.0	1.5	20	-	2.2	7	
			400-C	●	4.0	2.0	20	-	4.0	7	
			500-C	●	5.0	2.5	25	-	5.0	7	
			600-C	●	6.0	3.0	25	-	6.0	7	
Parting off		<b>KSP</b>	200-020-N	●	2.0	0.20	11.0	-	1.6	-	
			300-020-N	●	3.0	0.20	12.0	-	2.5	-	
			400-025-N	●	4.0	0.25	12.5	-	3.3	-	
			500-025-N	●	5.0	0.25	13.5	-	4.5	-	
			600-035-N	●	6.0	0.35	14.5	-	5.3	-	
Parting off (Right handed)		<b>KSP</b>	200R-6D-N	●	2.0	0.20	11.0	6°	1.6	-	
			300R-6D-N	●	3.0	0.20	12.1	6°	2.5	-	
			400R-4D-N	●	4.0	0.25	12.6	4°	3.3	-	

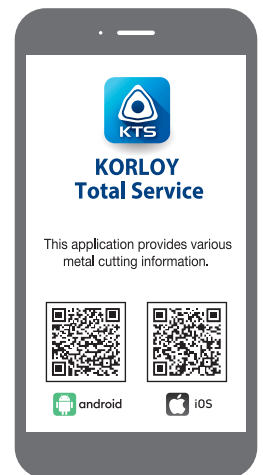
● : Stock item

### ⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.



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