

Grades: NC3205 · NC3215 · NC3225 · NC3235

# NC3200

## Turning Inserts

**KORLOY**  
TECH-NEWS



- CVD insert series for Steel Turning.
- New CVD coating increasing productivity and stable tool life.

CVD insert series for Steel Turning

# NC3200 Turning Inserts

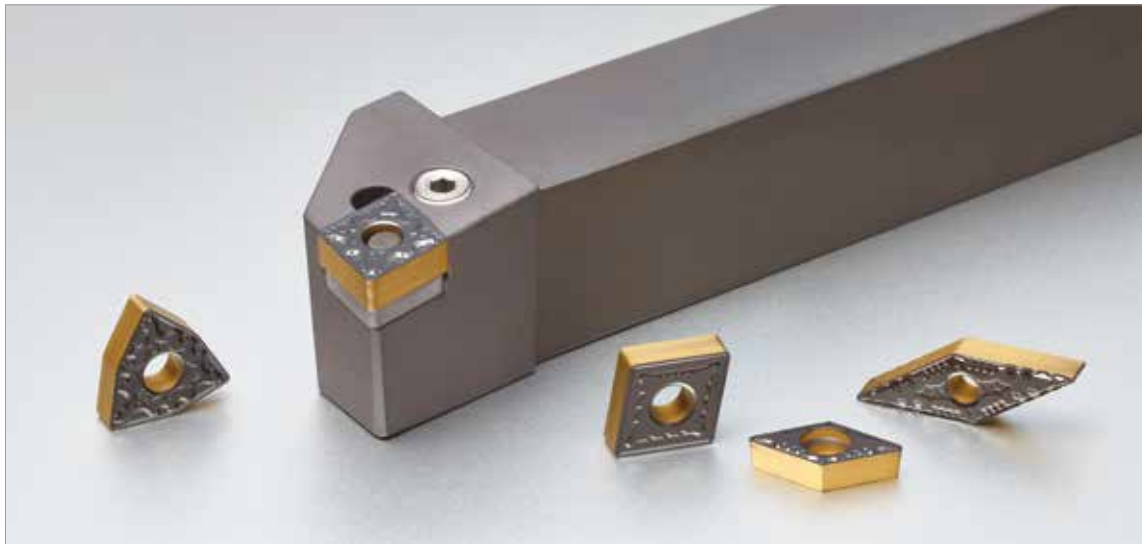
In the recent days, grades ensuring high precision, high quality, high productivity and stable tool life are necessary for increasing cutting quality in automobile and parts industries.

KORLOY launched CVD grade insert for Steel Turning providing stable cutting quality and high productivity with less wear, chipping and fracture in Steel Turning.

**NC3205** increased productivity due to New CVD coating technology for high speed Turning, saves changing tool time and minimizes tool life deviation.

**NC3235** realized high productivity and stable tool life from New CVD coating technology with stability and high lubrication in heavy interrupted cutting and cutting with frequent tool fracture.

KORLOY's Steel Turning line-up is completed with a launch of **NC3205** and **NC3225** which are added to **NC3215** and **NC3225** for general Steel Turning. It provides perfect solutions to meet various demand from customers.



**Optimal grade for high productivity on Steel cutting**

- New CVD coating with good heat resistance and wear resistance.

**Optimal for Steel continuous and interrupted cutting**

- Exclusive substrate application per each grade.

**Stable tool life due to increasing tool life**

- Enhanced lubrication and chipping resistance

**Optimized line-up in high quality cutting condition**

- NC3205, NC3215, NC3225, NC3235

# Features

## New CVD coating and substrate increasing stability

- Applied the New CVD coating increasing productivity and stable tool life
- Applied optimal substrate in cutting range (P05, P15, P25, P35)



### CVD coating with increased wear resistance and chipping resistance

- Ensured stable tool life due to increased wear resistance, chipping resistance and heat resistance

### High toughness and heat resistance substrate

- Exclusive substrate per each grade increasing tool life

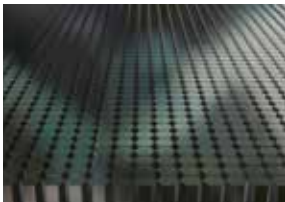

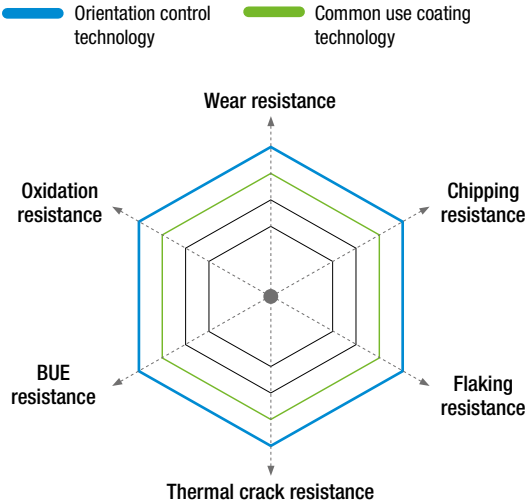
## Highly lubricative coating with fine surface finish application



NC3205, NC3235

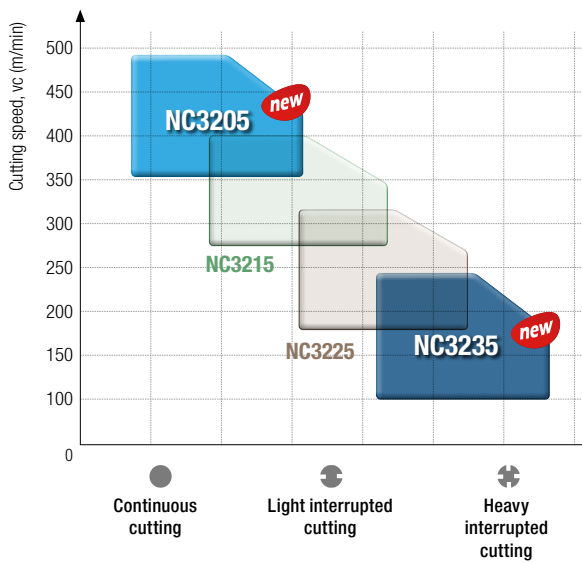


Existing grade

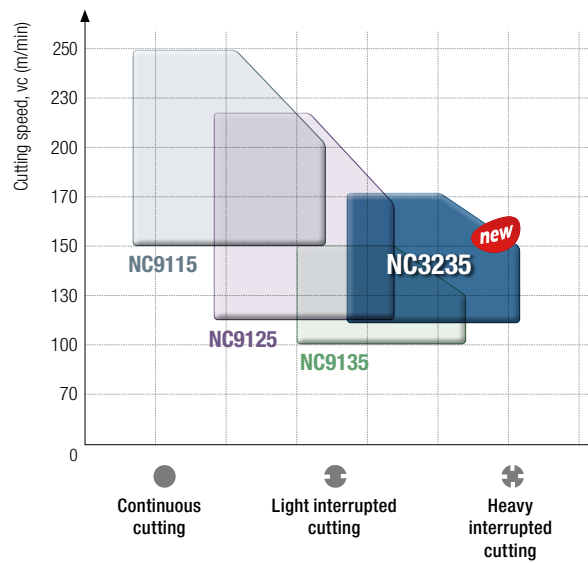
Orientation control technology	Existing and common use coating technology	Comparison of coating technology
		 <p> <span style="color: blue;">—</span> Orientation control technology     <span style="color: green;">—</span> Common use coating technology         </p>
<ul style="list-style-type: none"> <li>• Increased crystal orientation, tool life and stability of wear due to the New CVD coating technology</li> </ul>	<ul style="list-style-type: none"> <li>• Randomly generated crystal orientation</li> <li>• Limitation of wear resistance and cutting stability</li> </ul>	

# Application range

## P Steel



## M Stainless steel

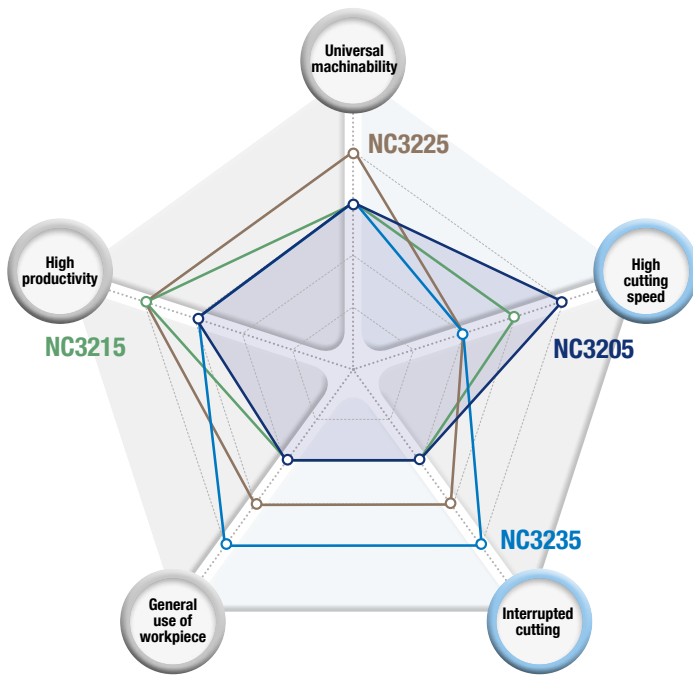


# Recommended cutting conditions

based on CNMG120408

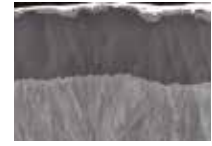
ISO	Workpiece			Specific cutting force (N/mm <sup>2</sup> )	Brinell hardness (HB)	Recommended cutting condition			
	Workpiece material	ISO	AISI			NC3205	NC3215	NC3225	NC3235
						vc (m/min)			
P	Carbon steel	C25	1025	1500	125	330	300	270	210
						<b>370</b>	<b>340</b>	<b>310</b>	<b>250</b>
						410	380	350	290
		C35	1035	1600	150	310	280	250	190
						<b>350</b>	<b>320</b>	<b>290</b>	<b>230</b>
						390	360	330	270
	C55	1055	1700	229	290	260	230	170	
					<b>330</b>	<b>300</b>	<b>270</b>	<b>210</b>	
					370	340	310	250	
	Low alloy steel	42CrMo4	4140 (H)	1700	180	260	240	200	140
						<b>300</b>	<b>270</b>	<b>240</b>	<b>180</b>
						340	310	280	220
-		4145 (H)	2050	350	240	210	180	120	
					<b>280</b>	<b>250</b>	<b>220</b>	<b>160</b>	
					320	290	260	200	
High alloy steel	(X100CrMoV5 1)	D2	1950	200	220	190	160	100	
					<b>260</b>	<b>230</b>	<b>200</b>	<b>140</b>	
					300	270	240	180	
	X40CrMoV5-1	H13	3000	352	220	190	160	100	
					<b>255</b>	<b>225</b>	<b>195</b>	<b>135</b>	
					290	260	230	170	
High carbon chrome steel	B1	52100	1950	201	260	230	200	140	
					<b>300</b>	<b>270</b>	<b>240</b>	<b>180</b>	
					340	310	280	220	
					-	-	-	120	
M	Ferritic/ Martensitic series	X6Cr17 X12Cr13	430 410	1800	≤ 200	-	-	-	120
						-	-	-	<b>145</b>
						-	-	-	170
	Austenite series	X5CrNi18-9 X5CrNiMo17-12-2	304 316	2000	≤ 187	-	-	-	120
						-	-	-	<b>145</b>
						-	-	-	170
	Austenite-ferritic series (Duplex)	(X2CrNiMoN22-5-3) (X2CrNiMoCuN25-6-3) (X2CrNiMoN 25-7-4)	S31803 S32205 S32750	2200	≤ 310	-	-	-	70
						-	-	-	<b>90</b>
						-	-	-	90
	Precipitation hardening series	X5CrNiCuNb16-4	S17400	2800	≤ 350	-	-	-	50
						-	-	-	<b>85</b>
						-	-	-	120

## Grade selection guide



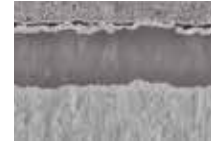
### NC3205 <sup>new</sup>

- High cutting performance in high speed and continuous cutting
- Good wear resistance



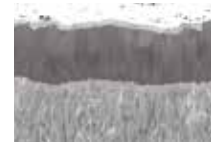
### NC3215

- High cutting performance in medium to high speed and light interrupted cutting
- Good wear resistance and heat resistance



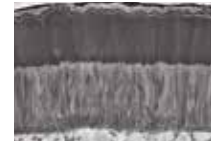
### NC3225

- High cutting performance in medium speed and medium interrupted cutting
- 1st recommended grade



### NC3235 <sup>new</sup>

- High cutting performance in medium to low speed and heavy interrupted cutting
- Good chipping resistance and fracture resistance



Grade	Universal machinability	High cutting speed	Interrupted cutting	General use of workpiece	High productivity
NC3205 <sup>new</sup>	★★★	★★★★★	★★	★★	★★★
NC3215	★★★	★★★	★★	★★	★★★★★
NC3225	★★★★★	★★	★★★★	★★★	★★★★★
NC3235 <sup>new</sup>	★★★	★★	★★★★★	★★★★★	★★★

## The features of CVD coated grade

Grade	ISO	Features
NC3205 <sup>new</sup>	P01 - P15	Good wear resistance and deformation resistance in high speed and continuous cutting
NC3215	P05 - P25	Good wear resistance and heat resistance in medium to high speed and light interrupted cutting
NC3225	P15 - P35	Good wear resistance and chipping resistance in medium speed and medium interrupted cutting
NC3235 <sup>new</sup>	P25 - P45	Good fracture resistance and chipping resistance in medium to low speed and heavy interrupted cutting

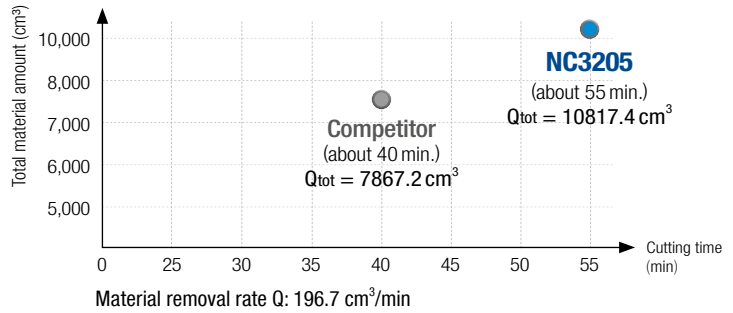
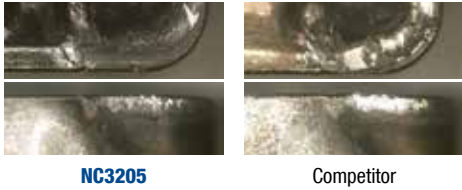
## Selection system of CVD coated grade

Workpiece	Machining	Grade	Recommended cutting speed (m/min)	ISO	Application range
P Steel	Continuous cutting	NC3205	315 (220 - 410)	P01	NC3205 <sup>new</sup> → NC3215
				P10	
	Interrupted cutting	NC3215	285 (190 - 380)	P20	NC3215 → NC3225 → NC3235 <sup>new</sup>
		NC3225	255 (160 - 350)	P30	
		NC3235	195 (100 - 290)	P40	

# Performance evaluation

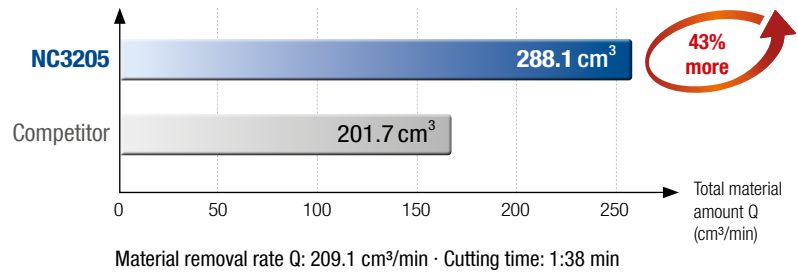
## Wear resistance

- **Workpiece** Alloy steel (42CrMo4, HB180)
- **Cutting condition**  $vc = 330 \text{ m/min} \cdot fn = 0,30 \text{ mm/rev} \cdot ap = 1,5 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-MP (NC3205) **Holder** PCLNL2525-M12N



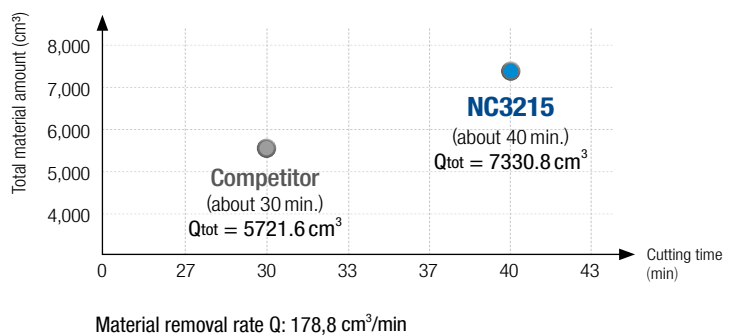
## Chipping resistance

- **Workpiece** Chrome alloy steel (20Cr4H, HB260)
- **Cutting condition**  $vc = 250 \text{ m/min} \cdot fn = 0,2 \text{ mm/rev} \cdot ap = 3,0 \text{ mm} \cdot \text{dry}$
- **Tools** **Insert** CNMG120408-MP (NC3205) **Holder** PCLNL2525-M12N



## Wear resistance

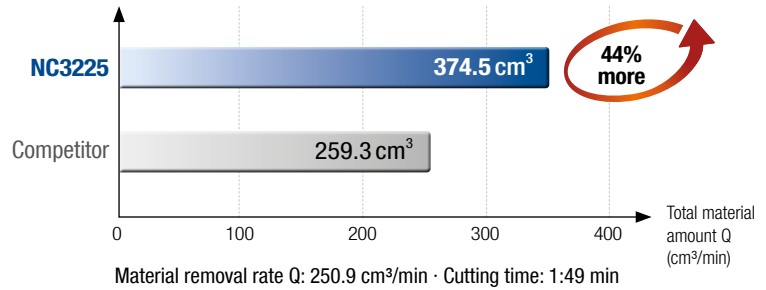
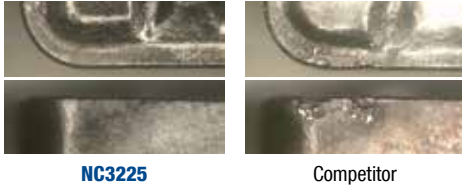
- **Workpiece** Alloy steel (42CrMo4, HB180)
- **Cutting condition**  $vc = 300 \text{ m/min} \cdot fn = 0,3 \text{ mm/rev} \cdot ap = 2,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-MP (NC3215) **Holder** PCLNL2525-M12N



# Performance evaluation

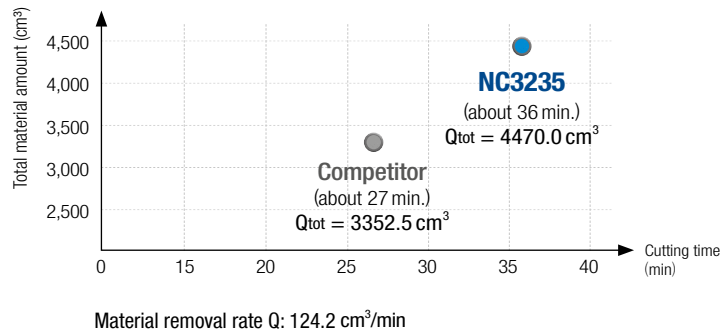
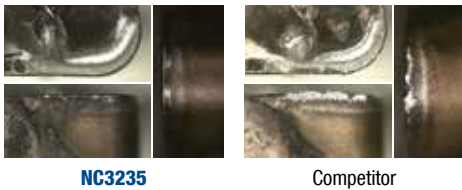
## Chipping resistance

- Workpiece** Chrome alloy steel (20Cr4H, HB260)
- Cutting condition**  $vc = 300 \text{ m/min} \cdot fn = 0,2 \text{ mm/rev} \cdot ap = 1,5 \text{ mm} \cdot \text{wet}$
- Tools** **Insert** CNMG120408-MP (NC3225) **Holder** PCLNL2525-M12N



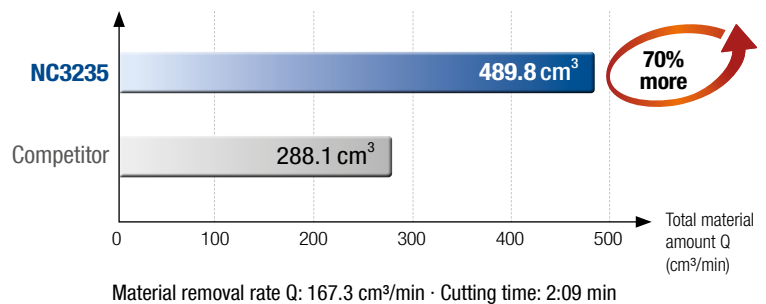
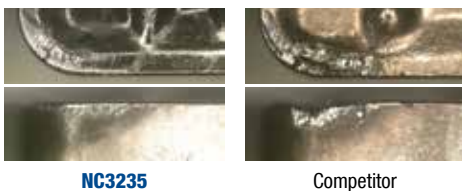
## Wear resistance

- Workpiece** Carbon steel (C45, HB160)
- Cutting condition**  $vc = 250 \text{ m/min} \cdot fn = 0,25 \text{ mm/rev} \cdot ap = 2,0 \text{ mm} \cdot \text{wet}$
- Tools** **Insert** CNMG120408-MP (NC3235) **Holder** PCLNL2525-M12N



## Chipping resistance

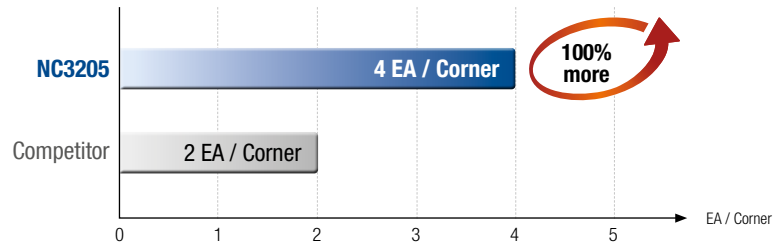
- Workpiece** Chrome alloy steel (20Cr4H, HB260)
- Cutting condition**  $vc = 200 \text{ m/min} \cdot fn = 0,2 \text{ mm/rev} \cdot ap = 1,5 \text{ mm} \cdot \text{wet}$
- Tools** **Insert** CNMG120408-MP (NC3235) **Holder** PCLNL2525-M12N



# Application examples

## Alloy steel (42CrMo4)

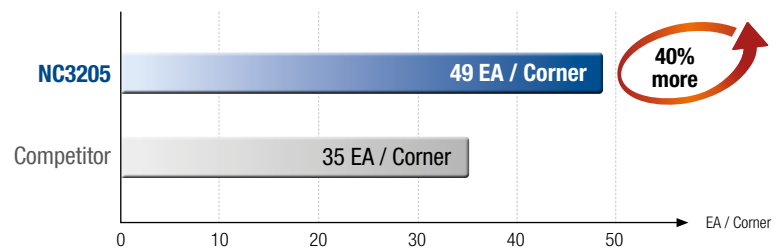
- **Workpiece** Heavy equipment parts
- **Cutting condition**  $vc = 350 \text{ m/min} \cdot fn = 0,35 \text{ mm/rev} \cdot ap = 3,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG190608-HM (NC3205) **Holder** PCBNR3232-P19



► Ensured good performance in high cutting speed with high heat due to excellent substrate with heat resistance and wear resistance. 100% longer tool life with NC3205 than competitor's P05 grade.

## Carbon steel (C48)

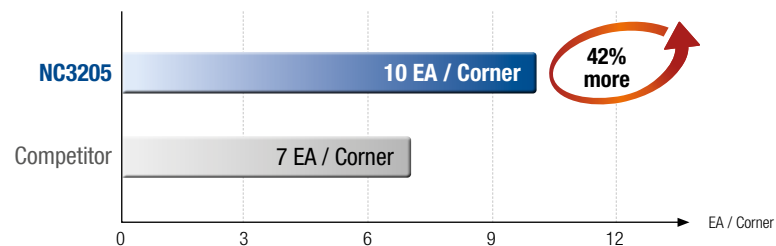
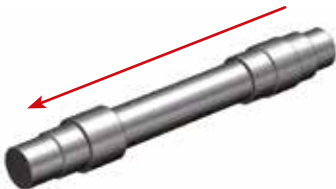
- **Workpiece** Ring gear
- **Cutting condition**  $vc = 300 \text{ m/min} \cdot fn = 0,25 \text{ mm/rev} \cdot ap = 0,8 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** SNMG120412-LP (NC3205) **Holder** PSKNL2525-M12



► High cutting performance in high hardness and high cutting speed by high oxidation resistance and wear resistance. 40% longer tool life with NC3205 than competitor's P05 grade.

## Carbon steel (C45)

- **Workpiece** Axle
- **Cutting condition**  $vc = 400 \text{ m/min} \cdot fn = 0,55 \text{ mm/rev} \cdot ap = 4,0 - 5,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** DNMG150612-MP (NC3205) **Holder** PDJNL2525-M15



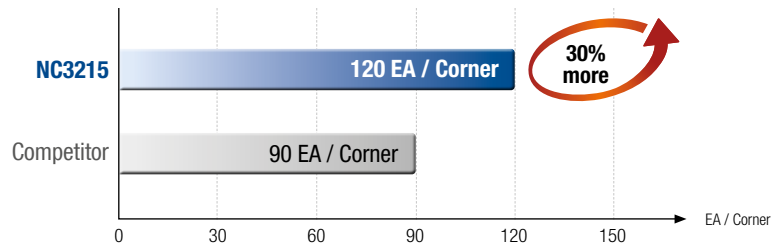
► Highly stable coating realizes stable tool life in various shape cutting. 42% longer tool life with NC3205 than competitor's P05 grade.



# Application examples

## Carbon steel (C45)

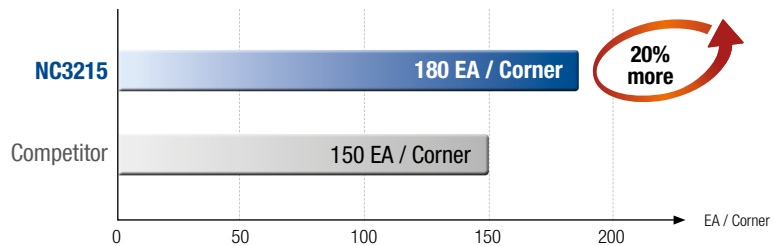
- **Workpiece** BJ-case
- **Cutting condition**  $vc = 200-250 \text{ m/min} \cdot fn = 0,25 - 0,35 \text{ mm/rev} \cdot ap = 1,0 - 2,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** DNMG150612-LP (NC3215) **Holder** PDJNL2525-M15



- ▶ Increased wear resistance due to LP retaining cutting edge space with good chip evacuation.
- ▶ Stable tool life in high cutting speed from applying NC3215.

## Carbon steel (C20)

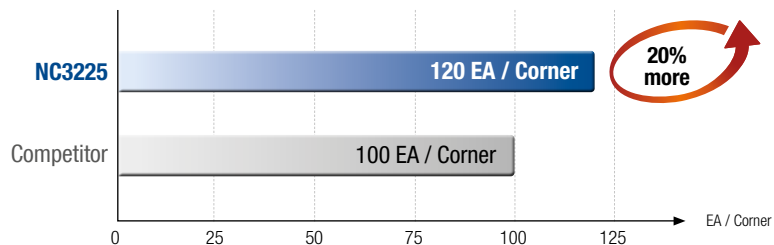
- **Workpiece** Nipple
- **Cutting condition**  $vc = 250 - 380 \text{ m/min} \cdot fn = 0,2 - 0,3 \text{ mm/rev} \cdot ap = 1,5 - 2,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-MP (NC3215) **Holder** PCLNL2525-M12N



- ▶ Stable chip evacuation and tool life in various cutting and cutting condition.
- ▶ 20% longer tool life with NC3215 than competitor's P15 grade.

## Carbon steel (C500)

- **Workpiece** Under disk
- **Cutting condition**  $vc = 150 \text{ m/min} \cdot fn = 0,2 \text{ mm/rev} \cdot ap = 1,5 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120412-LP (NC3225) **Holder** PCLNL2525-M12N

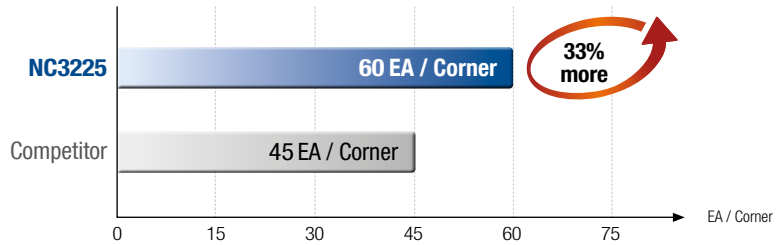


- ▶ Stable tool life in complex cutting with continuous and interrupted mixed conditions.
- ▶ 20% longer tool life with NC3225 than competitor's P25 grade

# Application examples

## Alloy steel (SNCM439)

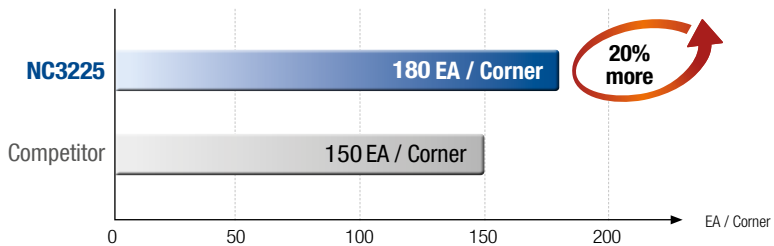
- **Workpiece** Cylinder block part
- **Cutting condition**  $vc = 100 \text{ m/min} \cdot fn = 0,15 \text{ mm/rev} \cdot ap = 3,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-MP (NC3225) **Holder** PCLNL2525-M12N



- ▶ Stable tool life through good chip evacuation of MP in external cutting with high depth of cut (3.0mm). 33% longer tool life with the New CVD coating NC3225 application than competitor's P25 grade.

## Carbon steel (C40)

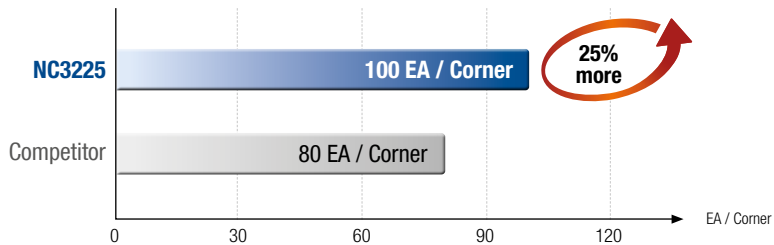
- **Workpiece** Input shaft
- **Cutting condition**  $vc = 170 \text{ m/min} \cdot fn = 0,30 \text{ mm/rev} \cdot ap = 2,7 - 3,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** DNMG150408-MP (NC3225) **Holder** PDJNL2525-M15



- ▶ Cutting without plastic deformation and wear on the insert due to the exclusive coating for high depth of cut and high feed Steel cutting. 20% longer tool life with NC3225 than competitor's P25 grade.

## Carbon steel (C45)

- **Workpiece** Wheel bearing
- **Cutting condition**  $vc = 230 \text{ m/min} \cdot fn = 0,30 \text{ mm/rev} \cdot ap = 0,5 - 1,5 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-MP (NC3225) **Holder** PCLNL2525-M12N

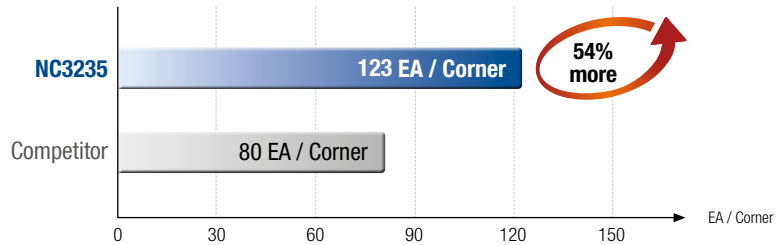


- ▶ Stable wear and regular tool life from the CVD coating NC3225. Increased productivity due to longer tool life reducing times of changing tools.

# Application examples

## Carbon steel (C45)

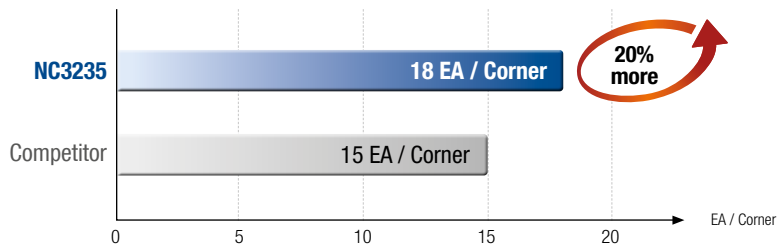
- **Workpiece** Pinion flange
- **Cutting condition**  $vc = 319 \text{ m/min} \cdot fn = 0,25 \text{ mm/rev} \cdot ap = 2,1 \text{ mm} \cdot \text{dry}$
- **Tools** **Insert** SNMG120412-HM (NC3235) **Holder** PSKNL2525-M12



- ▶ Stable cutting without insert fracture due to applying high toughness substrate in even heavy interrupted machining.
- ▶ Stable tool life in high cutting speed with the New CVD coating NC3235.

## Alloy steel (42CrMo4)

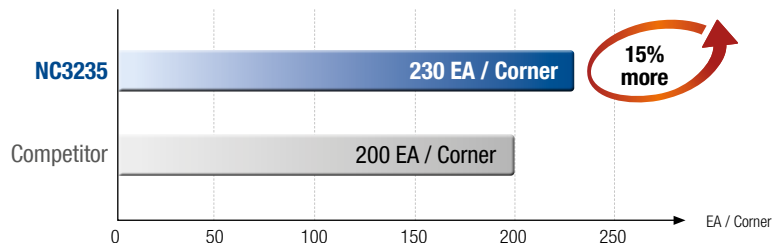
- **Workpiece** Output shaft
- **Cutting condition**  $vc = 230 \text{ m/min} \cdot fn = 0,35 \text{ mm/rev} \cdot ap = 3,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG120408-GR (NC3235) **Holder** PCLNL2525-M12N



- ▶ Cutting in high depth of cut and high feed cutting without insert's plastic deformation and wear due to New CVD coating NC3235.
- ▶ Fine chip evacuation from applying increased lubrication coating.

## Chrome alloy steel (20Cr4)

- **Workpiece** Hub U/D brake
- **Cutting condition**  $vc = 300 \text{ m/min} \cdot fn = 0,25 \text{ mm/rev} \cdot ap = 1,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG090408-CP (NC3235) **Holder** PCLNL2020-K09

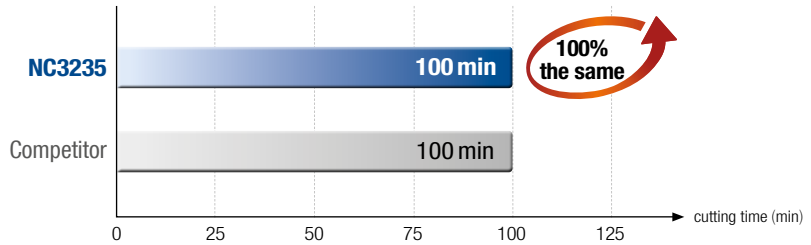


- ▶ Stable wear and regular tool life from the New CVD coating NC3235.
- ▶ Increased productivity due to longer tool life reducing times of changing tools.

# Application examples

## Duplex stainless steel alloy (1.4501)

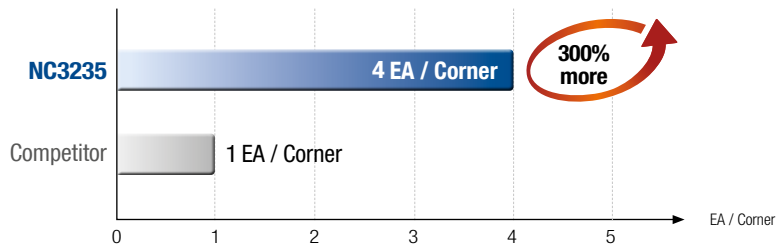
- **Workpiece** Cylinder
- **Cutting condition**  $vc = 40 \text{ m/min} \cdot fn = 0,75 \text{ mm/rev} \cdot ap = 15,0 \text{ mm} \cdot \text{dry}$
- **Tools** **Insert** SNMM250924-GH (NC3235) **Holder** PSBNR5050-T25-6



► Increases fracture resistance and tool life in high feed and high depth of cut cutting with M series workpiece though NC3235 applied high toughness substrate. Good cutting performance and stable tool life in various Hard-to-cut material cuttings.

## HRSA (17753)

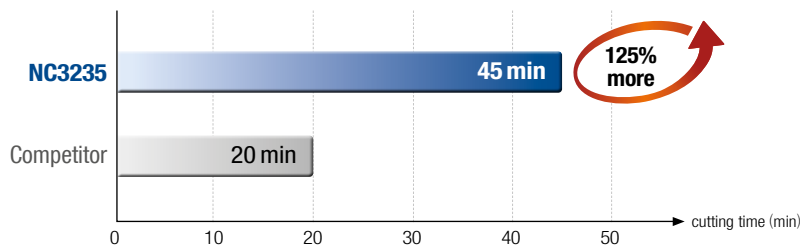
- **Workpiece** Generator part
- **Cutting condition**  $vc = 40 \text{ m/min} \cdot fn = 0,40 \text{ mm/rev} \cdot ap = 6,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG190616-GR (NC3235) **Holder** PCBNR3232-P19



► Increased BUE resistance with less notch wear in low speed roughing with M series workpiece. Applying the New CVD coating NC3235 with improved surface finish.

## Duplex stainless steel alloy (1.4462)

- **Workpiece** Generator part
- **Cutting condition**  $vc = 50 \text{ m/min} \cdot fn = 0,45 \text{ mm/rev} \cdot ap = 0,5 - 10,0 \text{ mm} \cdot \text{wet}$
- **Tools** **Insert** CNMG190616-GS (NC3235) **Holder** PCBNR3232-P19

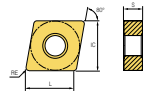
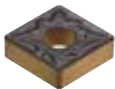


► Long tool life in cutting with high amount of workpiece of M series. Applying high toughness substrate.

# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)	
120404-VB		▲	▲		12,896	12,7	4,76	0,397	0.25 (0.35-0.15)	1.15 (0.30-2.00)	
120408-VB		▲	▲		12,896	12,7	4,76	0,794	0.30 (0.45-0.15)	1.25 (0.50-2.00)	
120412-VB		▲	●		12,896	12,7	4,76	1,191	0.35 (0.50-0.20)	1.25 (0.50-2.00)	
120408-VL	●	▲	▲		12,896	12,7	4,76	0,794	0.23 (0.35-0.10)	0.85 (0.20-1.50)	
120412-VL		▲	○		12,896	12,7	4,76	1,191	0.23 (0.35-0.10)	0.85 (0.20-1.50)	
090308-LP		●	●		9,672	9,525	3,18	0,794	0.25 (0.35-0.15)	1.15 (0.30-2.00)	
120404-LP		▲	▲		12,896	12,7	4,76	0,397	0.30 (0.45-0.15)	1.25 (0.50-2.00)	
120408-LP		▲	▲		12,896	12,7	4,76	0,794	0.35 (0.50-0.20)	1.25 (0.50-2.00)	
120412-LP		●	●		12,896	12,7	4,76	1,191	0.23 (0.35-0.10)	0.85 (0.20-1.50)	
120408-LW		▲	▲		12,896	12,7	4,76	0,794	0.23 (0.35-0.10)	0.85 (0.20-1.50)	
120412-LW		▲	▲		12,896	12,7	4,76	1,191	0.15 (0.30-0.10)	0.40 (0.30-1.50)	
120404-VC		▲	▲		12,896	12,7	4,76	0,397	0.23 (0.35-0.10)	1.15 (0.30-2.00)	
120408-VC	●	▲	▲		12,896	12,7	4,76	0,794	0.25 (0.40-0.10)	1.50 (0.50-2.50)	
120412-VC		▲	▲		12,896	12,7	4,76	1,191	0.29 (0.45-0.13)	1.90 (0.80-3.00)	
090304-VF		▲	▲		9,672	9,525	3,18	0,397	0.38 (0.60-0.15)	3.00 (1.00-5.00)	
120408-VM		○	●		12,896	12,7	4,76	0,794	0.45 (0.70-0.20)	3.50 (1.00-6.00)	
120404-HM		○	●		12,896	12,7	4,76	0,397	0.15 (0.30-0.07)	0.75 (0.50-1.50)	
120408-HM		○	●		12,896	12,7	4,76	0,794	0.25 (0.50-0.10)	2.50 (1.00-5.00)	
120412-HM		●	○		12,896	12,7	4,76	1,191	0.18 (0.30-0.05)	2.40 (0.80-4.00)	
090304-MP		●	▲		9,672	9,525	3,18	0,397	0.24 (0.40-0.08)	2.40 (0.80-4.00)	
090308-MP		●	▲		9,672	9,525	3,18	0,794	0.25 (0.55-0.12)	2.40 (0.80-4.00)	
120404-MP	●	▲	▲		12,896	12,7	4,76	0,397	0.15 (0.30-0.05)	2.50 (0.90-5.00)	
120408-MP	●	▲	▲	■	12,896	12,7	4,76	0,794	0.25 (0.50-0.10)	2.50 (1.00-5.00)	
120412-MP	●	▲	▲		12,896	12,7	4,76	1,191	0.30 (0.60-0.13)	2.50 (1.30-5.00)	
120416-MP	●	●	●		12,896	12,7	4,76	1,588	0.25 (0.40-0.15)	2.00 (0.50-4.00)	
160608-MP		▲	▲	○	16,120	15,875	6,35	0,794	0.25 (0.40-0.15)	2.00 (0.50-4.00)	
160612-MP		▲	▲		16,120	15,875	6,35	1,191	0.25 (0.40-0.10)	2.20 (0.40-4.00)	
160616-MP		●	▲		16,120	15,875	6,35	1,588	0.30 (0.45-0.15)	2.50 (0.50-4.50)	
120408-GR		▲	▲	●	12,896	12,7	4,76	0,794	0.33 (0.50-0.15)	2.90 (0.80-5.00)	
120412-GR		○	▲		12,896	12,7	4,76	1,191	0.42 (0.55-0.28)	3.00 (1.00-5.00)	
160608-GR			●		16,120	15,875	6,35	0,794	0.30 (0.50-0.15)	3.50 (0.80-7.00)	
160612-GR		●	▲		16,120	15,875	6,35	1,191	0.30 (0.55-0.15)	3.50 (0.80-7.00)	
160616-GR		●	●		16,120	15,875	6,35	1,588	0.30 (0.60-0.13)	4.00 (1.80-8.00)	
190612-GR		●	●	●	19,344	19,05	6,35	1,191	0.35 (0.50-0.20)	4.00 (1.00-7.00)	
190616-GR		●	●		19,344	19,05	6,35	1,588	0.38 (0.50-0.25)	4.15 (1.30-7.00)	
120404-B25		▲	▲		12,896	12,7	4,76	0,397	0.35 (0.70-0.20)	4.00 (1.50-8.00)	
120408-B25		▲	▲	■	12,896	12,7	4,76	0,794	0.35 (0.70-0.25)	4.00 (1.30-8.00)	
120412-B25		▲	▲		12,896	12,7	4,76	1,191	0.38 (0.75-0.25)	4.00 (1.80-8.00)	
160608-B25		▲	▲		16,120	15,875	6,35	0,794	0.53 (0.75-0.30)	5.85 (1.70-10.0)	
160612-B25		▲	▲		16,120	15,875	6,35	1,191	0.55 (0.80-0.30)	5.90 (1.80-10.0)	
160616-B25		▲	▲		16,120	15,875	6,35	1,588	0.75 (1.00-0.50)	3.00 (1.00-5.00)	
190608-B25		▲	▲		19,344	19,05	6,35	0,794	0.42 (0.60-0.23)	3.25 (1.50-5.00)	
190612-B25		▲	▲		19,344	19,05	6,35	1,191	0.43 (0.60-0.25)	3.50 (2.00-5.00)	
190616-B25		▲	▲		19,344	19,05	6,35	1,588	0.43 (0.60-0.25)	4.25 (2.00-6.50)	
120404-VP2			●		12,896	12,7	4,76	0,397	0.44 (0.60-0.27)	4.25 (2.00-6.50)	
190612-VR		●	●		19,344	19,05	6,35	1,191	0.44 (0.60-0.27)	4.25 (2.00-6.50)	
190616-VR		●	●		19,344	19,05	6,35	1,588	0.43 (0.60-0.25)	5.50 (3.00-8.00)	
120408-VW		▲	▲		12,896	12,7	4,76	0,794	0.45 (0.60-0.30)	5.50 (3.00-8.00)	


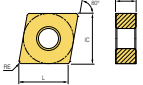

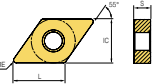
CNMG-MP\*



\*: Standard shape of insert

▲ : Stock item Europe ● : Stock item Korea ○ : Production on demand


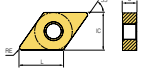

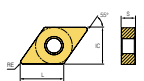

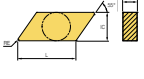

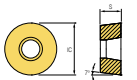

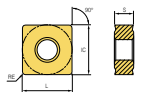
# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry		
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)			
 CNMM-HV*	120408-GH			▲	12,896	12,7	4,76	0,794	0.47 (0.70-0.23)	5.50 (3.00-8.00)			
	190612-GH		▲	▲	19,344	19,05	6,35	1,191	0.53 (0.70-0.35)	6.00 (2.00-10.0)			
	190616-GH		▲	▲	19,344	19,05	6,35	1,588	0.55 (0.75-0.35)	6.10 (2.20-10.0)			
	190624-GH		▲	▲	19,344	19,05	6,35	2,381	0.33 (0.50-0.15)	2.25 (0.50-4.00)			
	250924-GH		▲	▲	25,792	25,4	9,52	2,381	0.50 (0.70-0.30)	5.25 (2.50-8.00)			
	190612-HL			●	19,344	19,05	6,35	1,191	0.50 (0.70-0.30)	5.50 (3.00-8.00)			
	250924-HG			●	25,792	25,4	9,52	2,381	0.68 (0.90-0.45)	5.50 (3.00-8.00)			
	250924-HV			●	25,792	25,4	9,52	2,381	0.88 (1.20-0.55)	6.50 (4.00-9.00)			
	190612-VT		▲	▲	19,344	19,05	6,35	1,191	0.88 (1.20-0.55)	8.50 (5.00-12.0)			
	190616-VT		▲	▲	19,344	19,05	6,35	1,588	0.88 (1.20-0.55)	8.50 (5.00-12.0)			
	190624-VT		▲	▲	19,344	19,05	6,35	2,381	0.58 (0.85-0.30)	6.50 (3.00-10.0)			
	250924-VT		▲	▲	25,792	25,4	9,52	2,381	0.95 (1.40-0.50)	9.50 (4.00-15.0)			
	190612-VH		▲	▲	19,344	19,05	6,35	1,191	0.80 (1.00-0.60)	9.50 (6.00-13.0)			
	190616-VH		▲	▲	19,344	19,05	6,35	1,588	0.85 (1.10-0.60)	9.50 (6.00-13.0)			
	190624-VH		▲	▲	19,344	19,05	6,35	2,381	1.10 (1.60-0.60)	10.0 (7.00-13.0)			
250924-VH		▲	▲	25,792	25,4	9,52	2,381	1.18 (1.60-0.75)	12.0 (7.00-17.0)				
 DNMG-MP*	150408-B25		●	▲	15,508	12,7	4,76	0,794	0.85 (1.10-0.60)	7.50 (5.00-10.0)			
	150604-B25		●	●	15,508	12,7	6,35	0,397	1.05 (1.40-0.70)	10.5 (6.00-15.0)			
	150608-B25		▲	▲	15,508	12,7	6,35	0,794	1.05 (1.40-0.70)	10.5 (6.00-15.0)			
	150612-B25		▲	▲	15,508	12,7	6,35	1,191	0.31 (0.45-0.17)	2.50 (1.00-4.00)			
	150408-GR		●		15,508	12,7	4,76	0,794	0.36 (0.55-0.17)	2.75 (1.50-4.00)			
	150608-GR			▲	●	15,508	12,7	6,35	0,794	0.40 (0.55-0.25)		2.75 (1.50-4.00)	
	150612-GR			●		15,508	12,7	6,35	1,191	0.36 (0.55-0.17)		2.75 (1.50-4.00)	
	150404-HM			●		15,508	12,7	4,76	0,397	0.36 (0.55-0.17)		2.75 (1.50-4.00)	
	150608-HM		○	●		15,508	12,7	6,35	0,794	0.40 (0.55-0.25)		2.75 (1.50-4.00)	
	150612-HR		●			15,508	12,7	6,35	1,191	0.25 (0.50-0.20)		2.50 (1.00-7.00)	
	150616-HR		●	○		15,508	12,7	6,35	1,588	0.35 (0.50-0.20)		4.00 (1.00-7.00)	
	110404-LP		▲	●		11,628	9,525	4,76	0,397	0.35 (0.70-0.25)		3.00 (1.30-7.00)	
	150404-LP		▲	▲		15,508	12,7	4,76	0,397	0.15 (0.30-0.05)		2.00 (0.90-4.00)	
	150408-LP		●	▲		15,508	12,7	4,76	0,794	0.25 (0.50-0.10)		2.50 (1.00-5.00)	
	150412-LP		●	●		15,508	12,7	4,76	1,191	0.35 (0.70-0.25)		3.50 (1.30-7.00)	
	150604-LP		▲	▲		15,508	12,7	6,35	0,397	0.40 (0.65-0.25)		4.00 (1.80-8.00)	
	150608-LP		▲	▲		15,508	12,7	6,35	0,794	0.19 (0.30-0.07)		0.90 (0.30-1.50)	
	150612-LP		▲	▲		15,508	12,7	6,35	1,191	0.23 (0.35-0.10)		1.15 (0.30-2.00)	
	150608-LW		▲	▲		15,508	12,7	6,35	0,794	0.25 (0.40-0.10)		1.50 (0.50-2.50)	
	110404-MP		●	▲		11,628	9,525	4,76	0,397	0.29 (0.45-0.13)		1.90 (0.80-3.00)	
	110408-MP		●	▲		11,628	9,525	4,76	0,794	0.25 (0.40-0.10)		1.50 (0.50-2.50)	
	150404-MP		▲	▲		15,508	12,7	4,76	0,397	0.25 (0.40-0.10)		1.50 (0.50-2.50)	
	150408-MP		●	▲	▲	15,508	12,7	4,76	0,794	0.29 (0.45-0.13)		1.90 (0.80-3.00)	
	150412-MP		●	▲	▲	15,508	12,7	4,76	1,191	0.33 (0.50-0.15)		2.60 (0.70-4.50)	
	150604-MP		●	▲	▲	15,508	12,7	6,35	0,397	0.15 (0.30-0.05)		1.75 (0.90-3.50)	
	150608-MP		●	▲	▲	●	15,508	12,7	6,35	0,794		0.25 (0.40-0.15)	2.00 (0.50-4.00)
	150612-MP		●	▲	▲	15,508	12,7	6,35	1,191	0.25 (0.40-0.10)		2.20 (0.40-4.00)	
	150404-VB		●	▲		15,508	12,7	4,76	0,397	0.30 (0.45-0.15)		2.50 (0.50-4.50)	
	150408-VB		▲	●		15,508	12,7	4,76	0,794	0.33 (0.50-0.15)		2.90 (0.80-5.00)	
	150412-VB		●	●		15,508	12,7	4,76	1,191	0.25 (0.40-0.10)		2.20 (0.40-4.00)	
150604-VB		▲	▲		15,508	12,7	6,35	0,397	0.30 (0.45-0.15)	2.50 (0.50-4.50)			
150608-VB		●	▲	▲	15,508	12,7	6,35	0,794	0.33 (0.50-0.15)	2.90 (0.80-5.00)			
150612-VB		▲	●		15,508	12,7	6,35	1,191	0.23 (0.35-0.10)	1.15 (0.30-2.00)			

\*: Standard shape of insert

▲ : Stock item Europe ● : Stock item Korea ○ : Production on demand

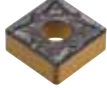
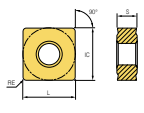
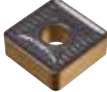
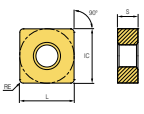

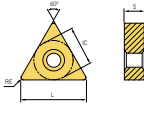
# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry	
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)		
	150404-VC	●	●		15,508	12,7	4,76	0,397	0.30 (0.45-0.15)	1.25 (0.50-2.00)		
	150408-VC	▲	▲		15,508	12,7	4,76	0,794	0.30 (0.45-0.15)	1.25 (0.50-2.00)		
	150412-VC	●	●		15,508	12,7	4,76	1,191	0.23 (0.35-0.10)	1.15 (0.30-2.00)		
	150604-VC	▲	▲		15,508	12,7	6,35	0,397	0.30 (0.45-0.15)	1.25 (0.50-2.00)		
	150608-VC	▲	▲		15,508	12,7	6,35	0,794	0.35 (0.50-0.20)	1.50 (0.50-2.50)		
	150612-VC	●	●		15,508	12,7	6,35	1,191	0.18 (0.35-0.10)	1.00 (0.30-2.00)		
	150404-VL	○	▲		15,508	12,7	4,76	0,397	0.15 (0.25-0.05)	0.80 (0.10-1.50)		
	150408-VL	●	●		15,508	12,7	4,76	0,794	0.18 (0.30-0.05)	0.85 (0.20-1.50)		
	150604-VL	●	●		15,508	12,7	6,35	0,397	0.15 (0.25-0.05)	0.80 (0.10-1.50)		
	150608-VL	●	●	●	15,508	12,7	6,35	0,794	0.18 (0.30-0.05)	0.85 (0.20-1.50)		
	150608-VM	○			15,508	12,7	6,35	0,794	0.25 (0.50-0.10)	2.50 (1.00-5.00)		
	150604L-SH		▲	▲	15,508	12,7	6,35	0,397	0.23 (0.30-0.15)	2.50 (1.00-4.00)		
	150604R-SH		▲	▲	15,508	12,7	6,35	0,397	0.23 (0.30-0.15)	2.50 (1.00-4.00)		
	150608L-SH		▲	▲	15,508	12,7	6,35	0,794	0.33 (0.50-0.15)	3.25 (1.50-5.00)		
	150608R-SH		▲	▲	15,508	12,7	6,35	0,794	0.33 (0.50-0.15)	3.25 (1.50-5.00)		
	160405L-11		▲	▲	19,716	-	4,76	0.5	0.28 (0.35-0.20)	3.50 (1.00-6.00)		
	160405R-11		▲	▲	●	19,716	-	4,76	0.5	0.28 (0.35-0.20)		3.50 (1.00-6.00)
	160410L-11		▲	▲		19,716	-	4,76	1.0	0.45 (0.60-0.30)		3.75 (1.50-6.00)
	160410R-11		▲	▲		19,716	-	4,76	1.0	0.45 (0.60-0.30)		3.75 (1.50-6.00)
	160405R-12		●	▲		19,716	-	4,76	0.5	0.30 (0.35-0.25)		3.75 (1.50-6.00)
	160410R-12		●	▲		19,716	-	4,76	1.0	0.55 (0.70-0.40)		3.75 (1.50-6.00)
	1003M0		○	▲	19,716	10,0	3,97	-	0.38 (0.50-0.25)	2.75 (1.50-4.00)		
	1204M0			▲	●	19,716	12,0	4,76	-	0.45 (0.60-0.30)		3.75 (2.50-5.00)
	1606M0		○	●		19,716	16,0	6,35	-	0.55 (0.70-0.40)		5.00 (3.00-7.00)
	120404-LP		▲	▲	12,700	12,7	4,76	0,397	0.23 (0.35-0.10)	1.15 (0.30-2.00)		
	120408-LP		●	▲	12,700	12,7	4,76	0,794	0.25 (0.40-0.10)	1.50 (0.50-2.50)		
	120412-LP		●	●	12,700	12,7	4,76	1,191	0.25 (0.45-0.13)	1.50 (0.80-3.00)		
	120408-VC		○	▲	12,700	12,7	4,76	0,794	0.28 (0.40-0.15)	2.00 (0.50-3.50)		
	120404-VB		●	●	12,700	12,7	4,76	0,397	0.21 (0.36-0.06)	1.50 (0.50-3.00)		
	120408-VB		●	●	12,700	12,7	4,76	0,794	0.21 (0.36-0.06)	1.50 (0.50-3.00)		
	090304-MP		●	●	9,525	9,525	3,18	0,397	0.15 (0.30-0.05)	1.50 (0.90-3.00)		
	090308-MP		●	●	9,525	9,525	3,18	0,794	0.23 (0.45-0.10)	1.75 (1.00-3.50)		
	120404-MP		▲	▲	12,700	12,7	4,76	0,397	0.25 (0.40-0.10)	2.20 (0.40-4.00)		
	120408-MP		●	▲	▲	12,700	12,7	4,76	0,794	0.30 (0.45-0.15)		2.50 (0.50-4.50)
	120412-MP		●	▲	▲	12,700	12,7	4,76	1,191	0.33 (0.50-0.15)		2.90 (0.80-5.00)
	120416-MP		●	●		12,700	12,7	4,76	1,588	0.30 (0.55-0.28)		2.00 (1.00-5.00)
	120404-B25		○	▲		12,700	12,7	4,76	0,397	0.31 (0.45-0.17)		2.25 (1.00-3.50)
	120408-B25		▲	▲	●	12,700	12,7	4,76	0,794	0.42 (0.60-0.23)		3.25 (1.50-5.00)
	120412-B25		▲	▲		12,700	12,7	4,76	1,191	0.43 (0.60-0.25)		3.50 (2.00-5.00)
	120416-B25		●	●		12,700	12,7	4,76	1,588	0.53 (0.70-0.35)		3.75 (2.50-5.00)
	190608-B25		▲	▲		19,050	19,05	6,35	0,794	0.43 (0.60-0.25)		5.50 (3.00-8.00)
	190612-B25		●	▲		19,050	19,05	6,35	1,191	0.45 (0.60-0.30)		5.50 (3.00-8.00)

\*: Standard shape of insert

▲: Stock item Europe ●: Stock item Korea ○: Production on demand

# Stock items


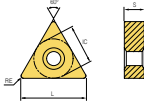

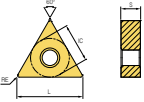
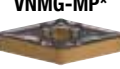
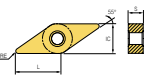
Designation	Grade				Dimension (mm)				Cutting conditions		Geometry	
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)		
	190616-B25	▲	▲		19,050	19,05	6,35	1,588	0.53 (0.70-0.35)	5.50 (3.00-8.00)		
	250724-B25	●	○		25,400	25,4	7,94	2,381	0.75 (1.00-0.50)	8.50 (5.00-12.0)		
	120408-HM	●	○		12,700	12,7	4,76	0,794	0.25 (0.50-0.10)	2.50 (1.00-5.00)		
	120412-HM			○	12,700	12,7	4,76	1,191	0.34 (0.50-0.18)	3.00 (1.00-5.00)		
	120408-GR			▲	12,700	12,7	4,76	0,794	0.35 (0.50-0.20)	4.00 (1.00-7.00)		
	150612-GR	●	●		15,875	15,875	6,35	1,191	0.52 (0.75-0.29)	4.20 (1.40-7.00)		
	190612-GR	○	●	●	19,050	19,05	6,35	1,191	0.55 (0.80-0.30)	5.35 (1.70-9.00)		
	190616-GR	●	●		19,050	19,05	6,35	1,588	0.55 (0.80-0.30)	5.35 (1.70-9.00)		
	190612-VR	●	●		19,050	19,05	6,35	1,191	0.53 (0.70-0.35)	6.00 (2.00-10.0)		
	190616-VR	●	●		19,050	19,05	6,35	1,588	0.55 (0.75-0.35)	6.10 (2.20-10.0)		
	120412-GH			●	12,700	12,7	4,76	1,191	0.35 (0.70-0.30)	4.00 (2.50-8.00)		
	190612-GH		▲	▲	19,050	19,05	6,35	1,191	0.50 (0.70-0.30)	5.25 (2.50-8.00)		
	190616-GH		▲	▲	19,050	19,05	6,35	1,588	0.73 (1.00-0.45)	6.50 (4.00-9.00)		
	190624-GH		▲	○	19,050	19,05	6,35	2,381	0.88 (1.20-0.55)	6.50 (4.00-9.00)		
	250724-GH		▲	▲	25,400	25,4	7,94	2,381	0.88 (1.20-0.55)	8.50 (5.00-12.0)		
	250924-GH		▲	▲	25,400	25,4	9,52	2,381	0.88 (1.20-0.55)	8.50 (5.00-12.0)		
	250924-HG				●	25,400	25,4	9,52	2,381	0.80 (1.20-0.40)		8.25 (3.50-13.0)
	250924-HV				●	25,400	25,4	9,52	2,381	0.95 (1.40-0.50)		9.50 (4.00-15.0)
	190612-VT		●	▲	19,050	19,05	6,35	1,191	0.80 (1.00-0.60)	9.50 (6.00-13.0)		
	190616-VT		●	▲	19,050	19,05	6,35	1,588	0.85 (1.10-0.60)	9.50 (6.00-13.0)		
	190624-VT		▲	▲	19,050	19,05	6,35	2,381	1.10 (1.60-0.60)	1.00 (7.00-13.0)		
	250724-VT		▲	▲	25,400	25,4	7,94	2,381	1.18 (1.60-0.75)	11.0 (7.00-15.0)		
	250924-VT		▲	▲	25,400	25,4	9,52	2,381	1.18 (1.60-0.75)	12.0 (7.00-17.0)		
	190616-VH		●	▲	19,050	19,05	6,35	1,588	0.80 (1.10-0.50)	7.50 (5.00-10.0)		
190624-VH		▲	▲	19,050	19,05	6,35	2,381	0.90 (1.20-0.60)	9.00 (6.00-12.0)			
250924-VH		▲	○	25,400	25,4	9,52	2,381	1.05 (1.40-0.70)	10.5 (6.00-15.0)			
	160404-VB		●	●	16,498	9,525	4,76	0,397	0.20 (0.35-0.10)	1.00 (0.30-1.50)		
	160408-VB		▲	●	16,498	9,525	4,76	0,794	0.30 (0.45-0.15)	3.75 (0.50-7.00)		
	160408-VF		●	○	16,498	9,525	4,76	0,794	0.25 (0.40-0.10)	1.00 (0.50-1.50)		
	160404-LP		▲	▲	16,498	9,525	4,76	0,397	0.23 (0.35-0.10)	1.15 (0.30-2.00)		
	160408-LP		▲	▲	16,498	9,525	4,76	0,794	0.25 (0.40-0.10)	1.50 (0.50-2.50)		
	160412-LP		●		16,498	9,525	4,76	1,191	0.20 (0.45-0.13)	1.50 (0.45-0.80)		
	160404-VC		●	▲	16,498	9,525	4,76	0,397	0.23 (0.35-0.10)	1.15 (0.30-2.00)		
	160408-VC		●	●	16,498	9,525	4,76	0,794	0.28 (0.40-0.15)	1.75 (0.50-3.00)		
	160412-VC		●	●	16,498	9,525	4,76	1,191	0.30 (0.45-0.15)	1.75 (0.50-3.00)		
	220408-VC			▲	21,997	12,7	4,76	0,794	0.28 (0.40-0.15)	1.75 (0.50-3.00)		
	160404-VL			▲	16,498	9,525	4,76	0,387	0.15 (0.30-0.07)	0.75 (0.50-1.50)		
	160408-VL		●	●	16,498	9,525	4,76	0,794	0.18 (0.35-0.10)	0.75 (0.50-1.50)		
	160412-VL		●		16,498	9,525	4,76	1,191	0.21 (0.55-0.13)	0.85 (0.60-1.70)		
	160404-HM			●	16,498	9,525	4,76	0,397	0.15 (0.30-0.05)	2.00 (0.90-4.00)		
	160408-HM		●	●	16,498	9,525	4,76	0,794	0.25 (0.50-0.10)	2.50 (1.00-4.00)		
	220404-HM			●	21,997	12,7	4,76	0,397	0.15 (0.30-0.05)	3.30 (0.90-6.60)		
	220408-HM		○	●	21,997	12,7	4,76	0,794	0.25 (0.50-0.10)	3.30 (1.00-6.60)		
	110308-MP		●	●	10,997	6,350	3,18	0,794	0.23 (0.42-0.15)	1.20 (0.50-3.50)		
	160404-MP		●	▲	▲	16,498	9,525	4,76	0,397	0.25 (0.40-0.10)		1.95 (0.40-3.50)
	160408-MP		●	▲	▲	16,498	9,525	4,76	1,191	0.30 (0.45-0.15)		2.25 (0.50-4.00)
160412-MP		●	▲	▲	16,498	9,525	4,76	1,191	0.33 (0.50-0.15)	2.65 (0.80-4.50)		
220404-MP		▲	▲	21,997	12,7	4,76	0,397	0.20 (0.35-0.10)	3.00 (0.40-5.00)			
220408-MP		▲	▲	21,997	12,7	4,76	0,794	0.25 (0.50-0.10)	3.30 (1.00-6.60)			

\*: Standard shape of insert

▲ : Stock item Europe ● : Stock item Korea ○ : Production on demand




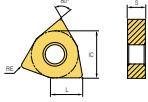

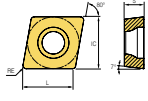
# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)	
 <b>TNMG-MP*</b>		▲	▲		21,997	12,7	4,76	1,191	0.30 (0.50-0.15)	3.50 (0.80-6.00)	
		●	●		21,997	12,700	4,76	1,588	0.43 (0.60-0.25)	4.65 (1.30-8.00)	
				▲	16,498	9,525	4,76	0,794	0.35 (0.50-0.20)	4.00 (1.00-7.00)	
		○	▲		16,498	9,525	4,76	1,191	0.39 (0.54-0.23)	4.60 (1.20-8.00)	
				●	21,997	12,7	4,76	0,794	0.42 (0.61-0.22)	4.45 (1.10-7.80)	
		●	●		21,997	12,7	4,76	1,191	0.53 (0.78-0.28)	4.50 (1.20-7.80)	
		○	●		27,496	15,875	6,35	1,191	0.71 (0.75-0.31)	6.20 (1.50-7.80)	
		●	●		16,498	9,525	4,76	0,794	0.30 (0.50-0.10)	3.00 (1.00-5.00)	
		●	○		16,498	9,525	4,76	1,191	0.37 (0.60-0.13)	3.15 (1.30-5.00)	
		▲	▲		16,498	9,525	4,76	0,397	0.31 (0.45-0.17)	2.75 (2.00-3.50)	
		▲	▲	●	16,498	9,525	4,76	0,794	0.36 (0.55-0.17)	2.75 (2.00-3.50)	
		▲	●		16,498	9,525	4,76	1,191	0.40 (0.55-0.25)	2.75 (2.00-3.50)	
		▲	▲		21,997	12,7	4,76	0,397	0.31 (0.45-0.17)	3.25 (1.50-5.00)	
		●	▲		21,997	12,7	4,76	0,794	0.36 (0.55-0.17)	3.50 (2.00-5.00)	
		▲	▲		21,997	12,7	4,76	1,191	0.40 (0.55-0.25)	3.50 (2.00-5.00)	
		▲	▲		21,997	12,7	4,76	1,588	0.45 (0.60-0.30)	3.50 (2.00-5.00)	
	○	▲		27,496	15,875	6,35	1,191	0.40 (0.55-0.25)	5.00 (3.00-7.00)		
	●	●		32,996	19,05	7,94	1,588	0.60 (0.80-0.40)	6.00 (3.00-9.00)		
 <b>TNMX-SH*</b>		●	●		16,498	9,525	4,76	0,397	0.28 (0.30-0.12)	3.00 (1.00-3.50)	
		●	●		16,498	9,525	4,76	0,397	0.28 (0.30-0.12)	3.00 (1.00-3.50)	
		●	●		16,498	9,525	4,76	0,794	0.33 (0.35-0.15)	3.13 (1.30-3.40)	
		●	●		16,498	9,525	4,76	0,397	0.21 (0.30-0.12)	2.25 (1.00-3.50)	
		●	●		16,498	9,525	4,76	0,397	0.21 (0.30-0.12)	2.25 (1.00-3.50)	
		●	●		16,498	9,525	4,76	0,794	0.30 (0.45-0.15)	2.50 (1.00-4.00)	
		●	●		16,498	9,525	4,76	0,794	0.30 (0.45-0.15)	2.50 (1.00-4.00)	
 <b>VNMG-MP*</b>		●	▲	▲	16,498	9,525	4,76	0,397	0.23 (0.35-0.10)	0.90 (0.30-1.50)	
		●	▲	●	16,498	9,525	4,76	0,794	0.30 (0.45-0.15)	1.25 (0.50-2.00)	
			●		16,498	9,525	4,76	1,191	0.33 (0.45-0.20)	1.65 (0.80-2.50)	
			▲	▲	16,498	9,525	4,76	0,397	0.23 (0.35-0.10)	1.15 (0.30-2.00)	
			▲	▲	16,498	9,525	4,76	0,794	2.08 (4.00-0.15)	1.75 (0.50-3.00)	
			●		16,498	9,525	4,76	1,191	0.28 (0.40-0.15)	1.90 (0.80-3.00)	
			▲	▲	16,498	9,525	4,76	0,794	0.25 (0.40-0.10)	1.00 (0.50-1.50)	
		●	●		16,498	9,525	4,76	0,397	0.13 (0.20-0.05)	0.55 (0.10-1.00)	
		●	▲	●	16,498	9,525	4,76	0,794	0.18 (0.25-0.10)	0.85 (0.20-1.50)	
		●	●		16,498	9,525	4,76	1,191	0.23 (0.30-0.15)	1.25 (0.50-2.00)	
			○	●	16,498	9,525	4,76	0,794	0.30 (0.50-0.10)	2.50 (1.00-4.00)	
			●	●	16,498	9,525	4,76	0,397	0.20 (0.35-0.10)	0.50 (0.30-1.50)	
			●	●	16,498	9,525	4,76	0,794	0.20 (0.40-0.10)	0.80 (0.50-2.00)	
			●		16,498	9,525	4,76	1,191	0.20 (0.45-0.13)	1.20 (0.80-2.50)	
			○	●	16,498	9,525	4,76	0,794	0.25 (0.50-0.10)	2.00 (1.00-4.00)	
				●	16,498	9,525	4,76	1,191	0.25 (0.50-0.20)	2.00 (1.50-4.00)	
		●	▲	▲	16,498	9,525	4,76	0,397	0.25 (0.40-0.10)	1.95 (0.40-3.50)	
		●	▲	▲	16,498	9,525	4,76	0,794	0.30 (0.45-0.15)	2.25 (0.50-4.00)	
			●	●	16,498	9,525	4,76	1,191	0.30 (0.50-0.15)	1.50 (0.80-4.50)	

\*: Standard shape of insert

▲ : Stock item Europe ● : Stock item Korea ○ : Production on demand


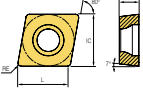

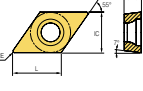
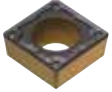
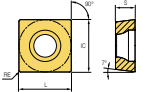
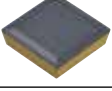
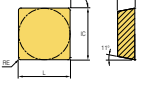
# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry		
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)			
<b>WNMG-MP*</b> 		▲	▲		8,687	12,7	4,76	0,397	0.23 (0.35-0.10)	0.90 (0.30-1.50)			
	080404-VB		▲	▲		8,687	12,7	4,76	0,794	0.30 (0.45-0.15)		1.25 (0.50-2.00)	
	080412-VB		●	●		8,687	12,7	4,76	1,191	0.32 (0.45-0.18)		1.65 (0.80-2.50)	
	060408-LP		●	●		6,515	9,525	4,76	0,794	0.25 (0.50-0.10)		1.75 (1.00-3.50)	
	080404-LP		▲	▲		8,687	12,7	4,76	0,397	0.23 (0.35-0.10)		1.15 (0.30-2.00)	
	080408-LP		▲	▲		8,687	12,7	4,76	0,794	0.25 (0.40-0.10)		1.50 (0.50-2.50)	
	080412-LP		●	▲		8,687	12,7	4,76	1,191	0.29 (0.45-0.13)		1.90 (0.80-3.00)	
	080404-VC		●	●		8,687	12,7	4,76	0,794	0.20 (0.45-0.12)		2.00 (0.50-3.50)	
	080408-VC	●	▲	▲		8,687	12,7	4,76	0,794	0.30 (0.45-0.15)		2.33 (0.15-4.50)	
	080412-VC		▲	●		8,687	12,7	4,76	1,191	0.30 (0.45-0.15)		2.33 (0.15-4.50)	
	080408-VL			●		8,687	12,7	4,76	0,794	0.18 (0.35-0.10)		0.75 (0.20-1.50)	
	060408-VM		○	●		6,515	9,525	4,76	0,794	0.25 (0.50-0.10)		2.00 (1.00-4.00)	
	080408-VM		○	●		8,687	12,7	4,76	0,794	0.25 (0.50-0.10)		2.50 (1.00-5.00)	
	080408-VP2			●		8,687	12,7	4,76	0,794	0.25 (0.50-0.10)		2.50 (1.00-5.00)	
	080408-HM		●	●		8,687	12,7	4,76	0,794	0.25 (0.50-0.10)		2.50 (1.00-5.00)	
	060404-MP		●	●		6,515	9,525	4,76	0,397	0.20 (0.40-0.10)		2.00 (0.50-3.00)	
	060408-MP		▲	▲		6,515	9,525	4,76	0,794	0.25 (0.45-0.15)		2.00 (0.50-3.00)	
	080404-MP	●	▲	▲		8,687	12,7	4,76	0,397	0.30 (0.45-0.15)		2.50 (0.50-4.50)	
	080408-MP	●	▲	▲	●	8,687	12,7	4,76	0,794	0.30 (0.45-0.15)		2.50 (0.50-4.50)	
	080412-MP	●	▲	▲		8,687	12,7	4,76	1,191	0.33 (0.50-0.15)		2.90 (0.80-5.00)	
	080416-MP	●	●	●		8,687	12,7	4,76	1,588	0.37 (0.55-0.18)		2.55 (0.10-5.00)	
	080416-HR		●			8,687	12,7	4,76	1,588	0.51 (0.70-0.32)		4.40 (1.80-7.00)	
	080408-GR		○	▲		8,687	12,7	4,76	0,794	0.25 (0.50-0.20)		3.50 (1.00-7.00)	
	080412-GR		●	▲		8,687	12,7	4,76	1,191	0.38 (0.50-0.25)		4.15 (1.30-7.00)	
	080404-B25		●	▲		8,687	12,7	4,76	0,397	0.31 (0.45-0.17)		3.00 (1.00-5.00)	
	080408-B25		▲	▲		8,687	12,7	4,76	0,794	0.42 (0.60-0.23)		3.25 (1.50-5.00)	
	080412-B25		▲	▲		8,687	12,7	4,76	1,191	0.43 (0.60-0.25)		3.50 (2.00-5.00)	
	<b>CCMT-MP*</b> 	060202-VF		○	▲	6,448	6,35	2,38	0,198	0.13 (0.20-0.05)		0.65 (0.30-1.00)	
		060204-VF		▲	▲	6,448	6,35	2,38	0,397	0.18 (0.25-0.10)		0.65 (0.30-1.00)	
		09T302-VF		▲	▲	9,672	9,525	3,97	0,198	0.10 (0.16-0.04)		1.15 (0.80-1.50)	
09T304-VF			▲	▲	9,672	9,525	3,97	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)			
09T308-VF			○	▲	9,672	9,525	3,97	0,794	0.18 (0.25-0.10)	0.90 (0.30-1.50)			
120404-VF			▲	▲	12,896	12,7	4,76	0,397	0.15 (0.22-0.07)	1.05 (0.10-2.00)			
060204-VL		●	▲	▲	6,448	6,35	2,38	0,397	0.07 (0.10-0.04)	0.49 (0.08-0.90)			
060208-VL		●	●	●	6,448	6,35	2,38	0,794	0.09 (0.12-0.06)	0.55 (0.10-1.00)			
09T304-VL			▲	▲	9,672	9,525	3,97	0,397	0.08 (0.10-0.05)	0.55 (0.10-1.00)			
09T308-VL			▲	▲	9,672	9,525	3,97	0,794	0.12 (0.15-0.08)	0.55 (0.10-1.00)			
120404-HMP			○	●	12,896	12,7	4,76	0,397	0.24 (0.27-0.09)	2.60 (0.30-3.60)			
060202-MP			▲	▲	6,448	6,35	2,38	0,198	0.08 (0.12-0.04)	0.85 (0.20-1.50)			
060204-MP		●	▲	▲	6,448	6,35	2,38	0,397	0.10 (0.15-0.05)	0.90 (0.30-1.50)			
060208-MP		●		▲	6,448	6,35	2,38	0,794	0.11 (0.15-0.07)	1.25 (0.50-2.00)			
09T302-MP			▲	▲	9,672	9,525	3,97	0,198	0.11 (0.15-0.07)	1.15 (0.30-2.00)			
09T304-MP		●	▲	▲	9,672	9,525	3,97	0,397	0.17 (0.25-0.08)	1.50 (0.50-2.50)			
09T308-MP		●	▲	▲	9,672	9,525	3,97	0,794	0.20 (0.30-0.10)	1.50 (0.50-2.50)			
120404-MP				▲	12,896	12,7	4,76	0,397	0.20 (0.30-0.10)	2.00 (0.50-3.50)			
120408-MP			○	▲	12,896	12,7	4,76	0,794	0.18 (0.35-0.15)	1.75 (0.80-3.50)			
060202-FP			●		6,448	6,35	2,38	0,198	0.03 (0.10-0.01)	0.20 (0.05-0.80)			
060204-FP			▲	▲	6,448	6,35	2,38	0,397	0.05 (0.10-0.01)	0.25 (0.10-0.90)			
09T302-FP			●		9,672	9,525	3,97	0,198	0.03 (0.10-0.01)	0.25 (0.05-1.00)			
09T304-FP			▲	▲	9,672	9,525	3,97	0,397	0.05 (0.10-0.01)	0.40 (0.10-1.00)			
09T308-FP			●	▲	9,672	9,525	3,97	0,794	0.07 (0.12-0.04)	0.40 (0.10-1.00)			

\*: Standard shape of insert

▲ : Stock item Europe ● : Stock item Korea ○ : Production on demand


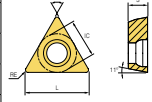

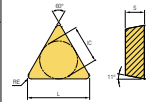

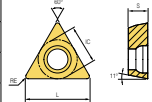

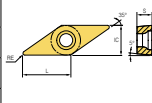
# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)	
 <b>CCMT-MP*</b>		▲	▲		6,448	6,35	2,38	0,198	0.08 (0.12-0.03)	1.20 (0.40-2.00)	
		▲	▲		6,448	6,35	2,38	0,397	0.10 (0.15-0.05)	1.45 (0.60-2.30)	
		▲	▲		6,448	6,35	2,38	0,794	0.14 (0.20-0.07)	1.55 (0.80-2.30)	
		▲	▲	●	9,672	9,525	3,97	0,397	0.17 (0.25-0.08)	1.90 (0.80-3.00)	
		▲	▲	●	9,672	9,525	3,97	0,794	0.20 (0.30-0.10)	2.00 (1.00-3.00)	
		▲	▲		12,896	12,7	4,76	0,397	0.21 (0.32-0.10)	1.90 (0.80-3.00)	
		▲	▲		12,896	12,7	4,76	0,794	0.24 (0.36-0.12)	2.35 (1.20-3.50)	
		▲	▲		12,896	12,7	4,76	1,191	0.28 (0.40-0.15)	2.45 (1.40-3.50)	
 <b>DCMT-MP*</b>		○	▲		7,752	6,35	2,38	0,198	0.07 (0.10-0.03)	0.53 (0.06-1.00)	
		▲	▲		7,752	6,35	2,38	0,397	0.13 (0.20-0.05)	0.75 (0.30-1.20)	
		▲	▲		11,628	9,525	3,97	0,198	0.10 (0.15-0.04)	0.79 (0.08-1.50)	
		▲	▲		11,628	9,525	3,97	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
		▲	▲		7,752	6,35	2,38	0,397	0.18 (0.25-0.10)	0.90 (0.30-1.50)	
		●	●		7,752	6,35	2,38	0,794	0.20 (0.40-0.05)	2.00 (0.10-4.00)	
		●	▲	▲	11,628	9,525	3,97	0,397	0.08 (0.10-0.05)	0.55 (0.10-1.00)	
		●	▲	▲	11,628	9,525	3,97	0,794	0.12 (0.15-0.08)	0.55 (0.10-1.00)	
			●		7,752	6,35	2,38	0,198	0.03 (0.10-0.01)	0.20 (0.05-0.80)	
		▲	▲		7,752	6,35	2,38	0,397	0.05 (0.10-0.01)	0.25 (0.10-0.90)	
		▲			11,628	9,525	3,97	0,198	0.03 (0.10-0.01)	0.25 (0.05-1.00)	
		▲	▲		11,628	9,525	3,97	0,397	0.05 (0.10-0.01)	0.40 (0.10-1.00)	
		▲	▲		11,628	9,525	3,97	0,794	0.07 (0.12-0.04)	0.40 (0.10-1.00)	
		○	●		11,628	9,525	3,97	0,397	0.16 (0.23-0.08)	1.65 (0.30-3.00)	
		▲	▲		7,752	6,35	2,38	0,198	0.09 (0.15-0.03)	1.15 (0.30-2.00)	
		▲	▲		7,752	6,35	2,38	0,397	0.13 (0.20-0.05)	1.50 (0.50-2.50)	
		▲	▲		7,752	6,35	2,38	0,794	0.16 (0.25-0.06)	1.65 (0.80-2.50)	
		●	▲		11,628	9,525	3,97	0,198	0.15 (0.25-0.04)	1.50 (0.50-2.50)	
		▲	▲	●	11,628	9,525	3,97	0,397	0.19 (0.30-0.08)	1.90 (0.80-3.00)	
		▲	▲		11,628	9,525	3,97	0,794	0.20 (0.30-0.10)	2.00 (1.00-3.00)	
		▲	▲		7,752	6,35	2,38	0,198	0.08 (0.12-0.04)	0.96 (0.12-1.80)	
		●	▲	▲	7,752	6,35	2,38	0,397	0.10 (0.15-0.05)	1.05 (0.30-1.80)	
		▲	▲		7,752	6,35	2,38	0,794	0.15 (0.22-0.08)	1.05 (0.30-1.80)	
		▲	▲		11,628	9,525	3,97	0,198	0.10 (0.15-0.04)	1.15 (0.30-2.00)	
	●	▲	▲	11,628	9,525	3,97	0,397	0.14 (0.20-0.08)	1.40 (0.50-2.30)		
	●	▲	▲	11,628	9,525	3,97	0,794	0.20 (0.30-0.10)	1.40 (0.50-2.30)		
 <b>SCMT-MP*</b>		▲	●		9,672	9,525	3,97	0,794	0.12 (0.15-0.08)	0.55 (0.10-1.00)	
		▲	▲		9,672	9,525	3,97	0,397	0.17 (0.25-0.08)	1.80 (0.60-3.00)	
		●	▲		9,672	9,525	3,97	0,794	0.20 (0.30-0.10)	2.00 (1.00-3.00)	
		▲	▲		12,896	12,7	4,76	0,397	0.20 (0.30-0.10)	2.30 (0.80-3.80)	
		▲	▲		12,896	12,7	4,76	0,794	0.25 (0.38-0.12)	2.50 (1.20-3.80)	
		▲	▲		9,672	9,525	3,97	0,397	0.15 (0.25-0.05)	1.55 (0.30-2.80)	
		●	▲	▲	9,672	9,525	3,97	0,794	0.20 (0.30-0.10)	1.65 (0.50-2.80)	
		●	●		12,896	12,7	4,76	0,397	0.20 (0.30-0.10)	1.65 (0.50-2.80)	
 <b>SPMR</b>			▲		12,700	12,7	3,18	0,397	0.23 (0.25-0.10)	1.67 (0.50-2.00)	

\*: Standard shape of insert

▲: Stock item Europe ●: Stock item Korea ○: Production on demand


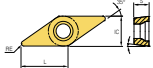

# Stock items

Designation	Grade				Dimension (mm)				Cutting conditions		Geometry
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)	
<b>TCMT-MP*</b> 	16T304-VF	○	▲		16,498	9,525	3,97	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	16T304-VL		▲	▲	16,498	9,525	3,97	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	16T308-VL	●	●	▲	16,498	9,525	3,97	0,794	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	090204-C25		▲	▲	9,630	5,56	2,38	0,397	0.12 (0.18-0.06)	1.45 (0.40-2.50)	
	090208-C25		●	▲	9,630	5,56	2,38	0,794	0.17 (0.25-0.08)	1.65 (0.80-2.50)	
	110202-C25		▲	▲	10,999	6,35	2,38	0,198	0.08 (0.12-0.04)	1.20 (0.40-2.00)	
	110204-C25		▲	▲	10,999	6,35	2,38	0,397	0.13 (0.20-0.06)	1.55 (0.60-2.50)	
	110208-C25		●	▲	10,999	6,35	2,38	0,794	0.17 (0.25-0.08)	1.65 (0.80-2.50)	
	16T304-C25		▲	▲	16,498	9,525	3,97	0,397	0.18 (0.28-0.08)	1.90 (0.80-3.00)	
	16T308-C25		▲	▲	16,498	9,525	3,97	0,794	0.20 (0.30-0.10)	2.00 (1.00-3.00)	
	090204-MP			○	9,630	5,56	2,38	0,397	0.12 (0.18-0.05)	0.55 (0.10-1.00)	
	110202-MP		▲	▲	10,999	6,35	2,38	0,198	0.08 (0.12-0.03)	0.85 (0.20-1.50)	
	110204-MP		▲	▲	10,999	6,35	2,38	0,397	0.10 (0.15-0.05)	0.85 (0.20-1.50)	
	110208-MP		▲	▲	10,999	6,35	2,38	0,794	0.19 (0.28-0.10)	1.13 (0.25-2.00)	
	16T304-MP	●	▲	▲	16,498	9,525	3,97	0,397	0.14 (0.20-0.08)	1.40 (0.30-2.50)	
	16T308-MP	●	▲	▲	16,498	9,525	3,97	0,794	0.20 (0.30-0.10)	1.50 (0.50-2.50)	
16T312-MP		▲	▲	16,498	9,525	3,97	1,191	0.30 (0.40-0.20)	1.50 (0.50-2.50)		
<b>TPMR</b> 	110304-F			▲	10,999	6,35	3,18	0,397	0.17 (0.20-0.05)	1.20 (0.30-1.50)	
	160304-F			▲	16,498	9,525	3,18	0,397	0.17 (0.25-0.08)	1.25 (0.50-2.00)	
<b>TPMT-VL*</b> 	110304-VF		▲	▲	10,999	6,35	3,18	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	110308-VF		○	●	10,999	6,35	3,18	0,794	0.18 (0.25-0.10)	0.90 (0.30-1.50)	
	110304-MP		●	●	10,999	6,35	3,18	0,397	0.10 (0.20-0.05)	0.50 (0.10-1.00)	
	110308-MP		●	●	10,999	6,35	3,18	0,794	0.14 (0.20-0.08)	1.40 (0.30-2.50)	
	160404-MP		●	●	16,498	9,525	4,76	0,397	0.10 (0.20-0.05)	1.15 (0.30-2.00)	
	160408-MP		●	●	16,498	9,525	4,76	0,794	0.25 (0.45-0.15)	1.50 (0.50-4.00)	
	090202-FP		●	●	9,630	5,56	3,18	0,198	0.03 (0.06-0.01)	0.16 (0.04-0.50)	
	090204-FP		▲	▲	9,630	5,56	3,18	0,397	0.04 (0.08-0.01)	0.18 (0.05-0.60)	
	110302-FP		●	●	10,999	6,35	3,18	0,198	0.03 (0.10-0.01)	0.20 (0.05-0.80)	
	110304-FP		▲	▲	10,999	6,35	3,18	0,397	0.05 (0.10-0.01)	0.25 (0.10-0.90)	
	110308-FP		●	●	10,999	6,35	3,18	0,794	0.06 (0.10-0.01)	0.25 (0.10-0.90)	
	160404-FP		●		16,498	9,525	4,76	0,397	0.05 (0.10-0.01)	0.40 (0.10-1.00)	
	160408-FP		●		16,498	9,525	4,76	0,794	0.07 (0.12-0.04)	0.40 (0.10-1.00)	
	110304-VL		▲	○	10,999	6,35	3,18	0,397	0.10 (0.15-0.05)	0.70 (0.10-1.30)	
<b>VBMT-MP*</b> 	160408			●	16,606	9,525	4,76	0,794	0.20 (0.25-0.15)	1.35 (0.70-2.00)	
	160404-VB		▲	▲	16,606	9,525	4,76	0,397	0.14 (0.20-0.08)	0.85 (0.20-1.50)	
	160408-VB		○	▲	16,606	9,525	4,76	0,794	0.17 (0.23-0.10)	1.00 (0.50-1.50)	
	160404-VF		▲	▲	16,606	9,525	4,76	0,397	0.13 (0.20-0.05)	0.65 (0.30-1.00)	
	160404-VL	●	▲	▲	16,606	9,525	4,76	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	160408-VL	●	▲	▲	16,606	9,525	4,76	0,794	0.15 (0.20-0.10)	0.90 (0.30-1.50)	
	110302-FP		●		11,071	6,35	3,18	0,198	0.03 (0.10-0.01)	0.20 (0.05-0.80)	
	110304-FP		●		11,071	6,35	3,18	0,397	0.05 (0.10-0.01)	0.25 (0.10-0.90)	
	110308-FP		●		11,071	6,35	3,18	0,794	0.06 (0.10-0.01)	0.25 (0.10-0.90)	
	160404-FP		▲	▲	11,071	6,35	3,18	0,397	0.05 (0.10-0.01)	0.40 (0.10-1.00)	
	160408-FP		▲	▲	16,606	9,525	4,76	0,794	0.07 (0.12-0.04)	0.40 (0.10-1.00)	
	160408-HMP		○	●	16,606	9,525	4,76	0,794	0.31 (0.33-0.13)	2.13 (0.60-2.60)	
	110304-MP		●	▲	11,071	6,35	3,18	0,397	0.10 (0.15-0.05)	0.85 (0.20-1.50)	
	110308-MP	●	●	●	11,071	6,35	3,18	0,794	0.19 (0.28-0.10)	1.15 (0.30-2.00)	
	160404-MP	●	▲	▲	16,606	9,525	4,76	0,397	0.14 (0.20-0.08)	1.15 (0.30-2.00)	
	160408-MP	●	▲	▲	16,606	9,525	4,76	0,794	0.18 (0.25-0.10)	1.40 (0.50-2.30)	
	160412-MP		▲	▲	16,606	9,525	4,76	1,191	0.23 (0.35-0.10)	1.40 (0.50-2.30)	

\*: Standard shape of insert

▲: Stock item Europe ●: Stock item Korea ○: Production on demand

# Stock items

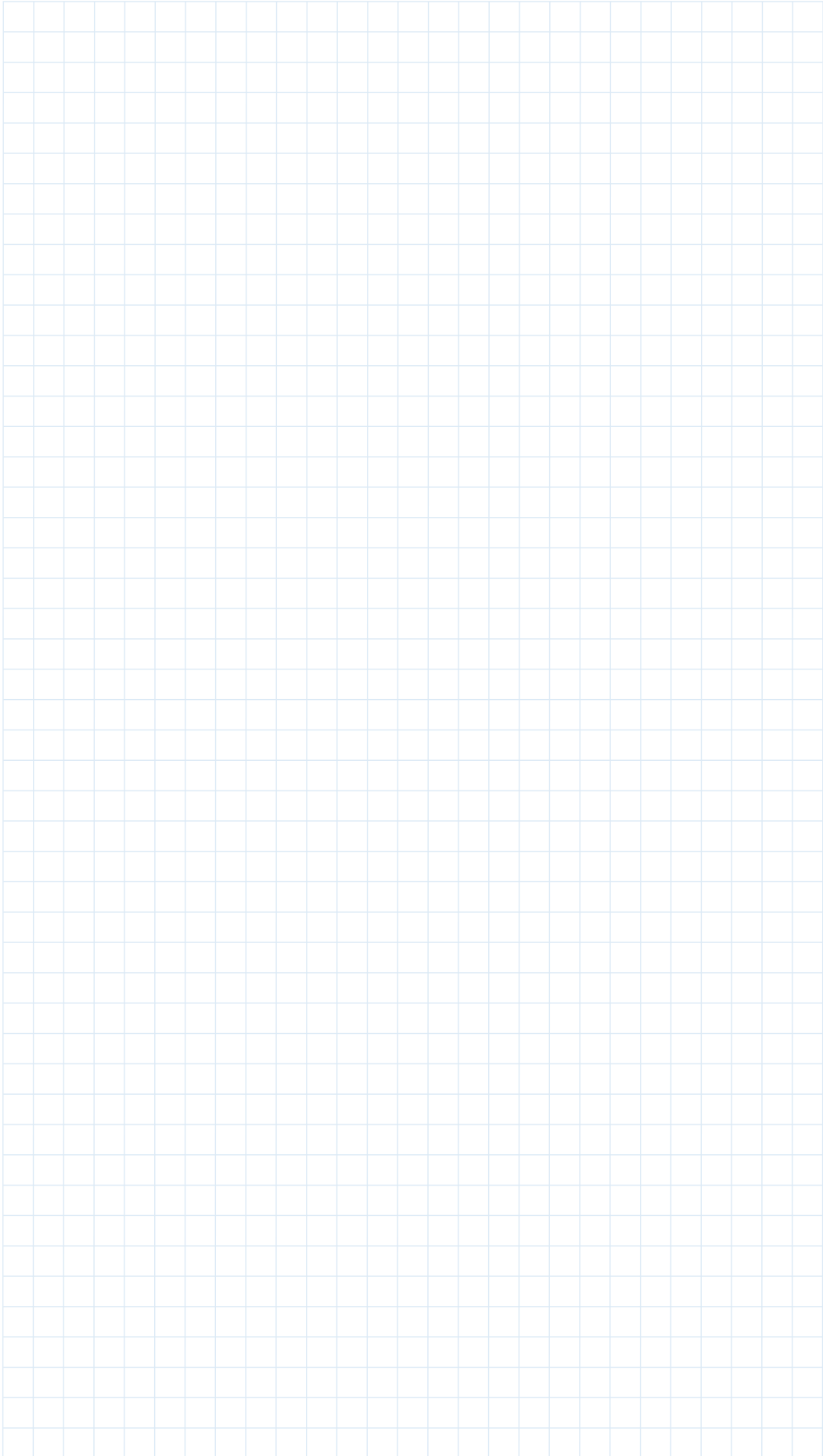
Designation	Grade				Dimension (mm)				Cutting conditions		Geometry
	NC3205	NC3215	NC3225	NC3235	L	IC	S	RE	fn (mm/rev)	ap (mm)	
 VCMT-MP*	110304-VF	▲	▲		11,071	6,35	3,18	0,397	0.11 (0.18-0.03)	0.68 (0.15-1.20)	
	160404-VF	▲	▲		16,606	9,525	4,76	0,397	0.12 (0.20-0.04)	0.83 (0.15-1.50)	
	080202-VL	●	●		8,299	4,76	2,38	0,198	0.13 (0.20-0.05)	0.65 (0.30-1.00)	
	080204-VL	●	●		8,299	4,76	2,38	0,397	0.18 (0.25-0.10)	0.65 (0.30-1.00)	
	160404-VL	▲	▲		16,606	9,525	4,76	0,397	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	160408-VL	▲	▲		16,606	9,525	4,76	0,794	0.13 (0.20-0.05)	0.90 (0.30-1.50)	
	080202-FP	▲			8,299	4,76	2,38	0,198	0.03 (0.10-0.01)	0.20 (0.05-0.80)	
	080204-FP	●			8,299	4,76	2,38	0,397	0.05 (0.10-0.01)	0.25 (0.10-0.90)	
	080208-FP	●			8,299	4,76	2,38	0,794	0.06 (0.10-0.01)	0.25 (0.10-0.90)	
	160404-FP	●			16,606	9,525	4,76	0,397	0.05 (0.10-0.01)	0.40 (0.10-1.00)	
	160408-FP	●	●		16,606	9,525	4,76	0,794	0.07 (0.12-0.04)	0.40 (0.10-1.00)	
	160404-MP	▲	▲		16,606	9,525	4,76	0,397	0.13 (0.18-0.08)	1.15 (0.30-2.00)	
	160408-MP	▲	▲		16,606	9,525	4,76	0,794	0.17 (0.23-0.10)	1.40 (0.50-2.30)	
	 VCGT	160404-VP1	○	●		16,606	9,525	4,76	0,397	0.13 (0.20-0.05)	
160408-VP1		●			16,606	9,525	4,76	0,794	0.14 (0.20-0.06)	1.30 (0.20-1.80)	

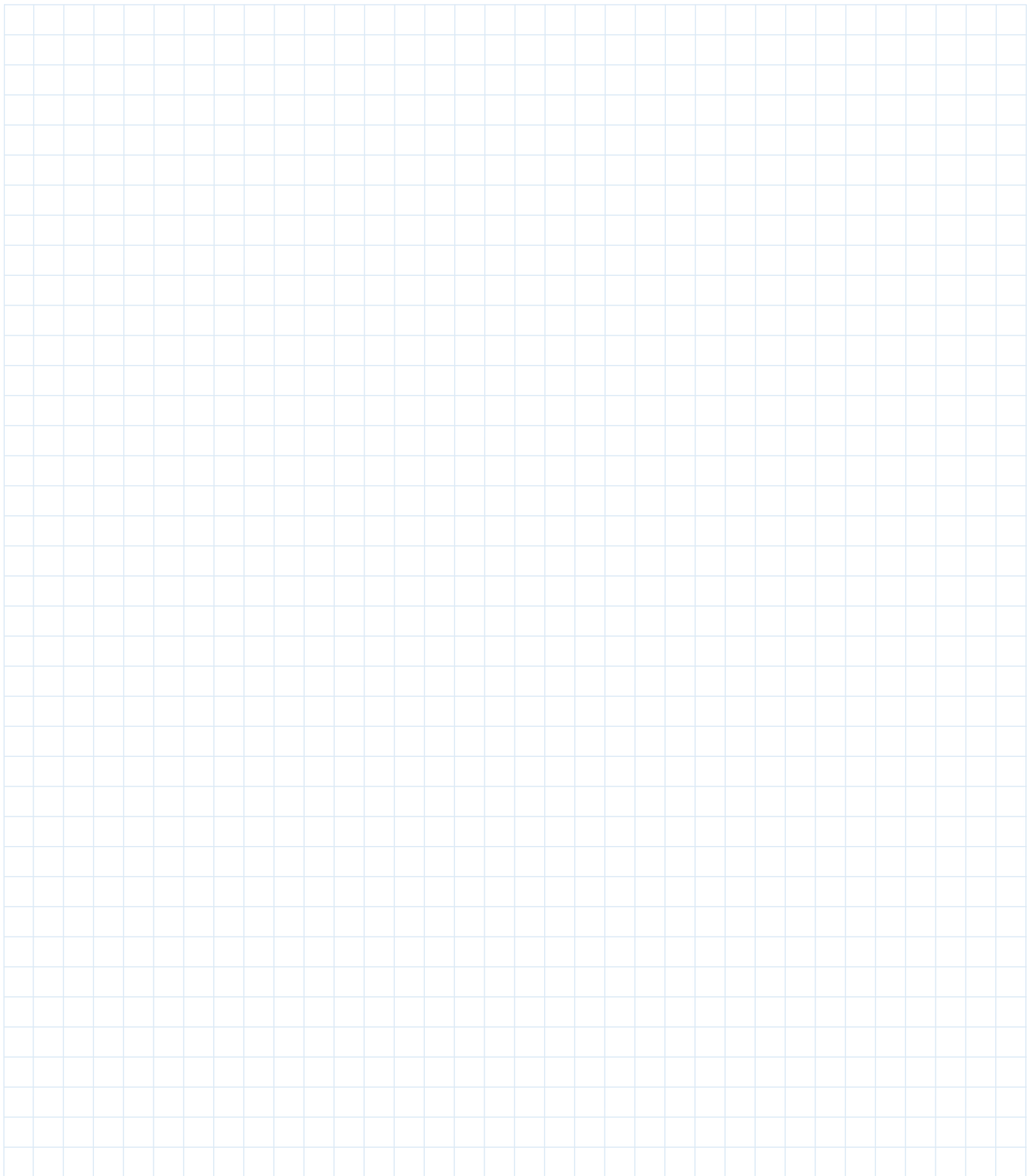
\*: Standard shape of insert

▲: Stock item Europe ●: Stock item Korea ○: Production on demand

# Notes

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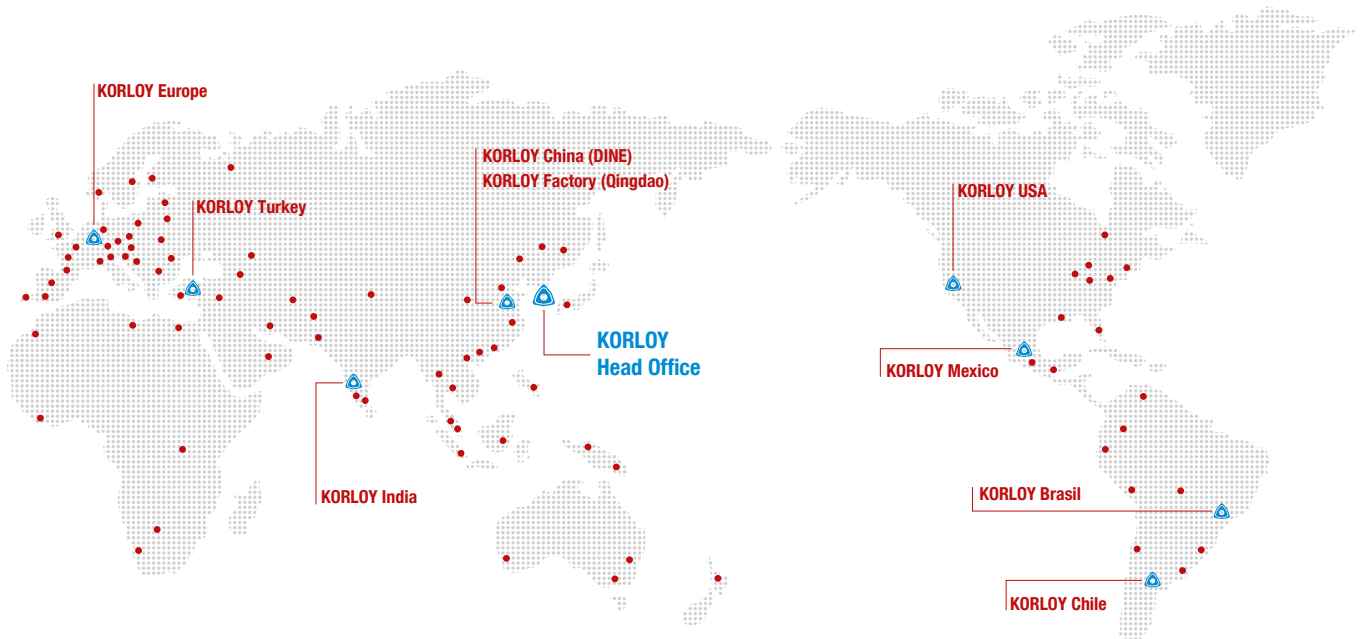
**⚠ For the safe metalcutting**

- 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 threaten 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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