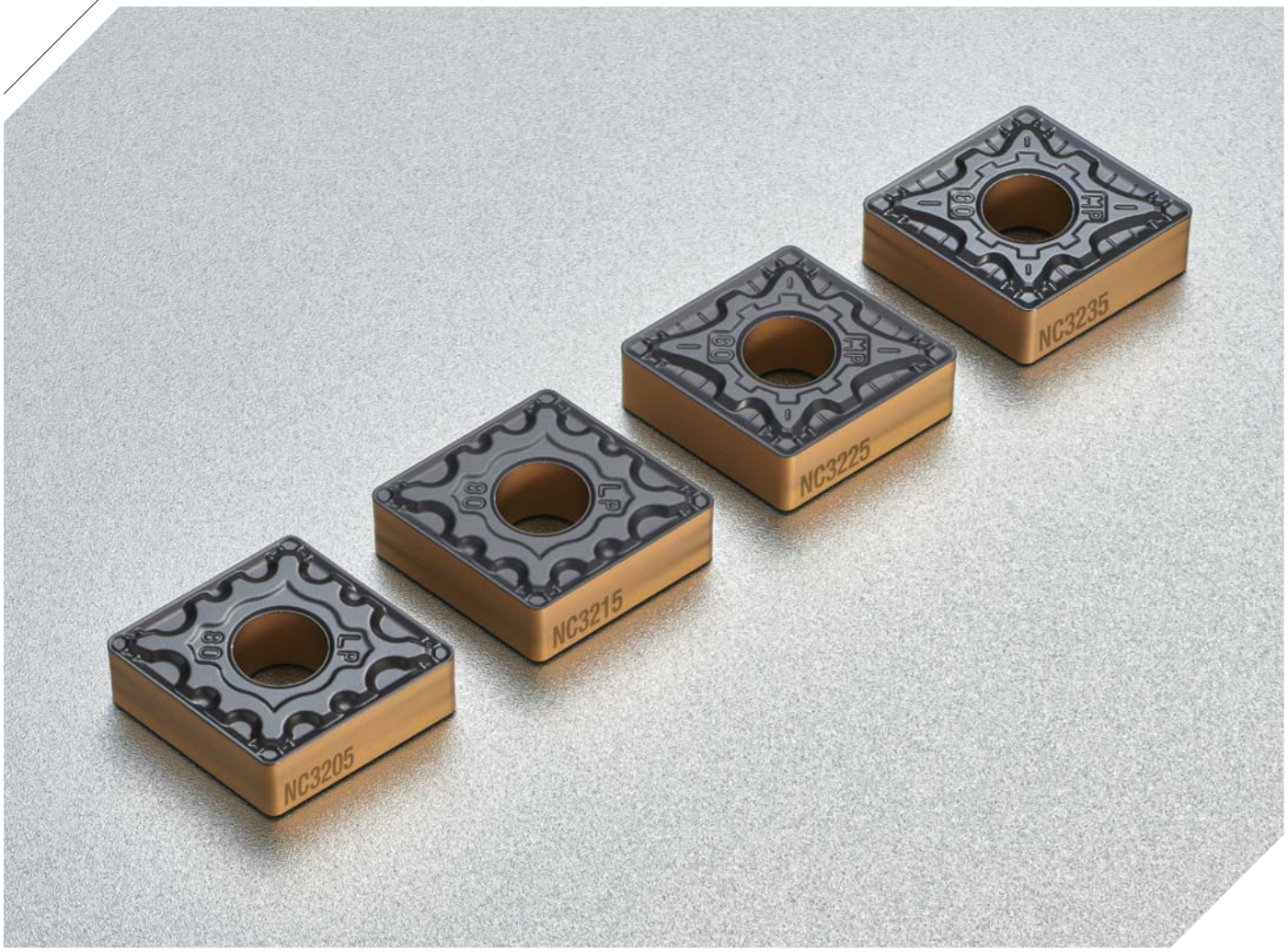
KORLOY
TECH-NEWS

NC3200 Turning Inserts

Grades: NC3205, NC3215, NC3225, NC3235

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



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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.

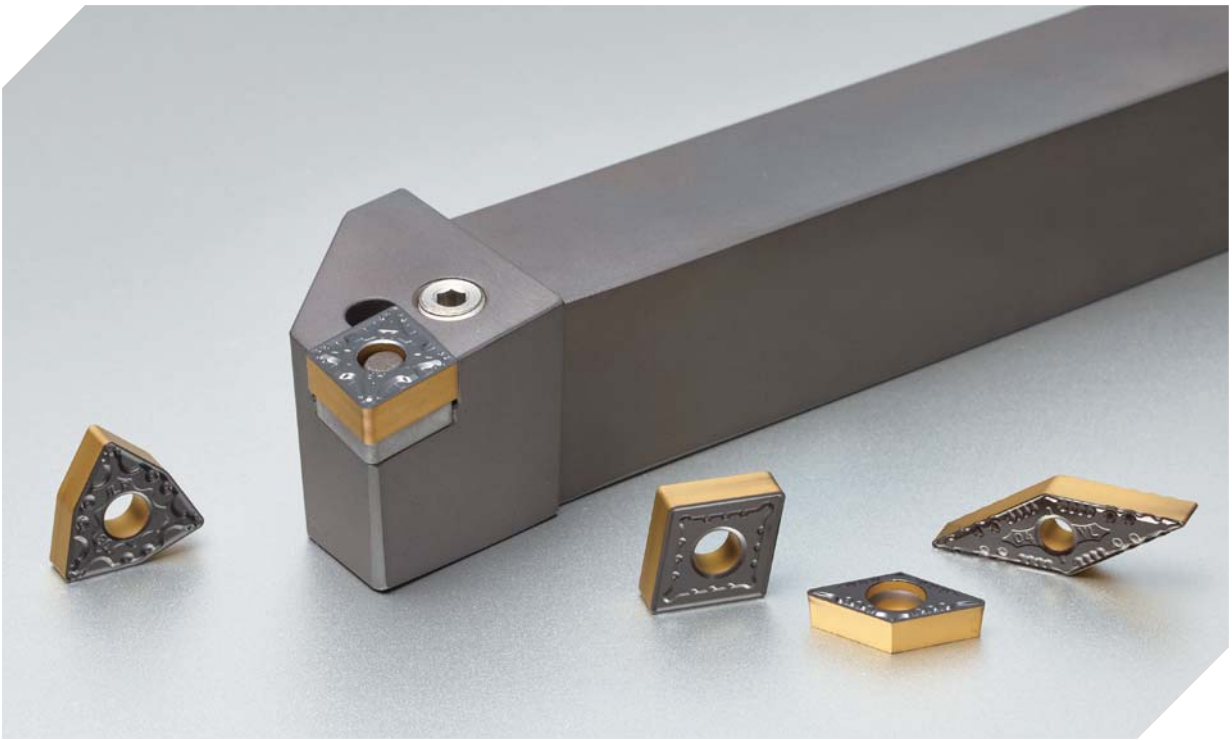
KORLOY's Steel Turning line-up is completed with a launch of NC3205 and NC3225 which are added to NC3215 and NC3225 for general Steel Turning. It provides perfect solutions to meet various demand from customers.

» **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

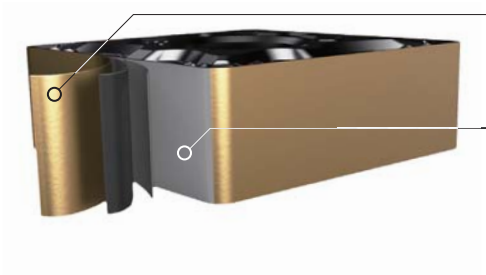
» **Optimized line-up in high quality cutting condition**
- NC3205, NC3215, NC3225, NC3235



Features

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

New CVD coating and substrate increasing stability



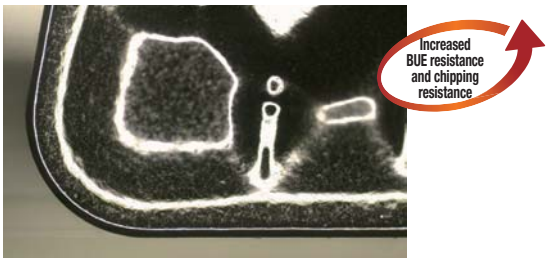
CVD coating with increased wear resistance and chipping resistance

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

High toughness and heat resistance substrate

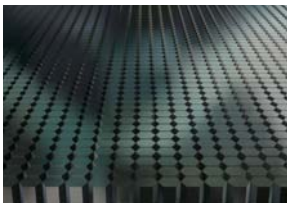
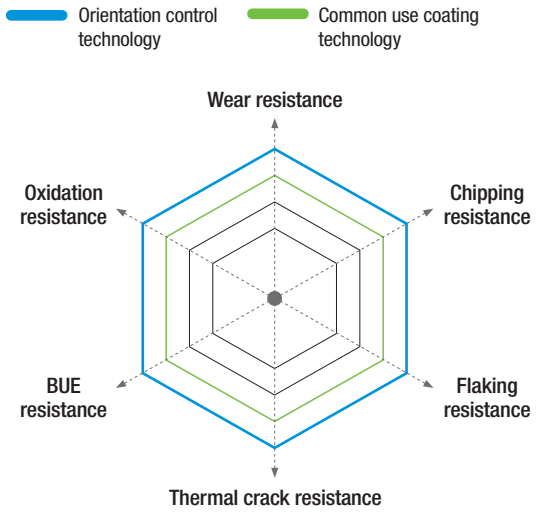
- Exclusive substrate per each grade increasing tool life

Highly lubricative coating with fine surface finish application



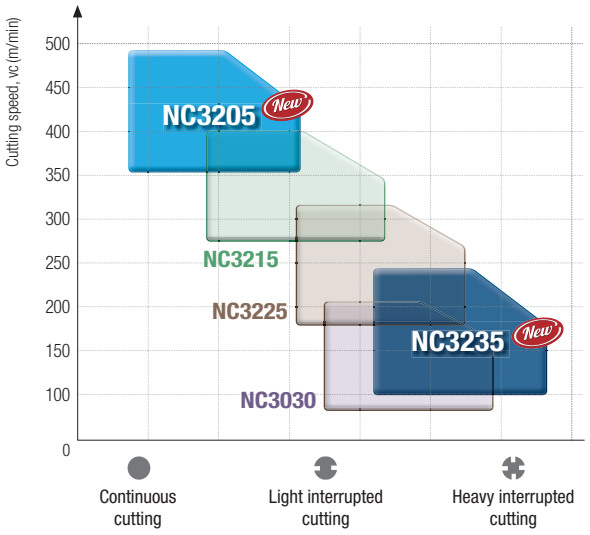
[NC3205, NC3235]

[Existing grade]

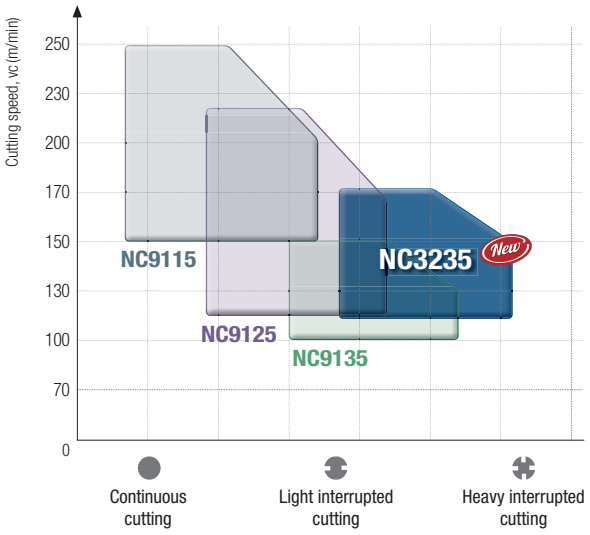
Orientation control technology	Existing and common use coating technology	Comparison of coating technology
		
• Increased crystal orientation, tool life and stability of wear due to the New CVD coating technology	• Randomly generated crystal orientation • Limitation of wear resistance and cutting stability	

Application range

P Steel



M Stainless steel

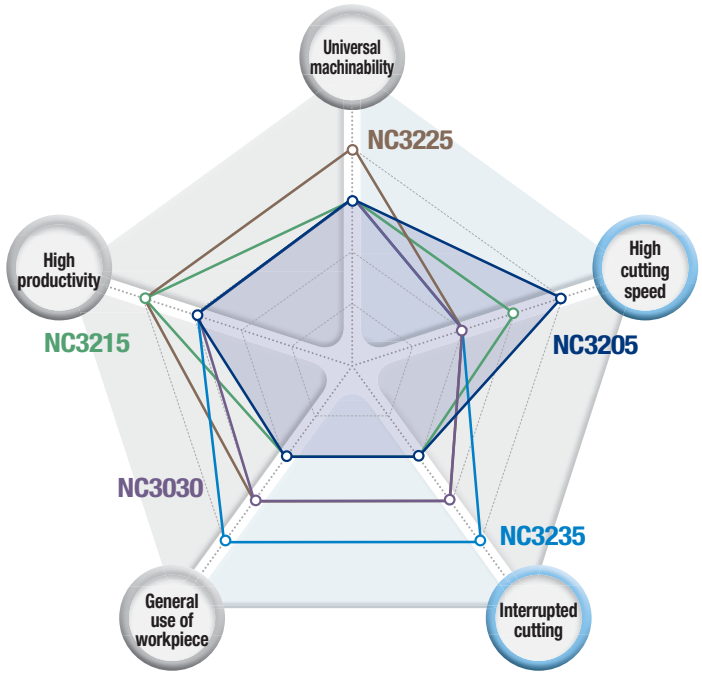


Recommended cutting conditions

※ Based on CNMG120408

Workpiece				Specific cutting force (N/mm^2)	Brinell hardness (HB)	Recommended cutting condition				
ISO	Workpiece material	ISO (DIN)	AISI			NC3205	NC3215	NC3225	NC3030	NC3235
						vc (m/min)				
P	Carbon steel	C25	1025	1500	125	330	300	270	190	210
						370	**340**	**310**	**230**	**250**
						410	380	350	270	290
		C35	1035	1600	150	310	280	250	170	190
						350	**320**	**290**	**210**	**230**
						390	360	330	250	270
		C55	1055	1700	229	290	260	230	150	170
						330	**300**	**270**	**190**	**210**
						370	340	310	230	250
	Low alloy steel	42CrMo4	4140 (H)	1700	180	260	240	200	120	140
						300	**270**	**240**	**160**	**180**
						340	310	280	200	220
		-	4145 (H)	2050	350	240	210	180	100	120
						280	**250**	**220**	**140**	**160**
						320	290	260	180	200
	High alloy steel (Alloy tool steel)	(X100CrMoV5 1)	D2	1950	200	220	190	160	80	100
						260	**230**	**200**	**120**	**140**
						300	270	240	160	180
		X40CrMoV5-1	H13	3000	352	220	190	160	80	100
						255	**225**	**195**	**115**	**135**
						290	260	230	150	170
	High carbon chrome steel (Bearing steel)	B1	52100	1950	201	260	230	200	120	140
						300	**270**	**240**	**160**	**180**
						340	310	280	200	220
M	Ferritic/ Martensitic series	X6Cr17 X12Cr13	430 410	1800	≤ 200	-	-	-	100	120
						-	**-**	**-**	**125**	**145**
						-	-	-	150	170
	Austenite series	X5CrNi18-9 X5CrNiMo17-12-2	304 316	2000	≤ 187	-	-	-	100	120
						-	**-**	**-**	**125**	**145**
						-	-	-	150	170
	Austenite-ferritic series (Duplex)	(X2CrNiMoN22-5-3) (X2CrNiMoCuN25-6-3) (X2CrNiMoN 25-7-4)	S31803 S32205 S32750	2200	≤ 310	-	-	-	50	70
						-	**-**	**-**	**70**	**90**
						-	-	-	70	90
	Precipitation hardening series	X5CrNiCuNb16-4	S17400	2800	≤ 350	-	-	-	30	50
						-	**-**	**-**	**65**	**85**
						-	-	-	100	120

Grade selection guide

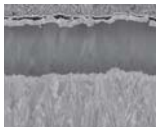


NC3205 New

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

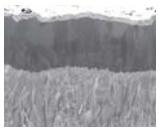
NC3215

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



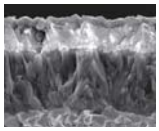
NC3225

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



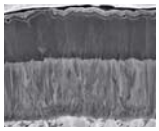
NC3030

- High cutting performance in medium to low speed and medium interrupted cutting
- Excellent chipping resistance



NC3235 New

- 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 New	★★★	★★★★	★★	★★	★★★
NC3215	★★★	★★★	★★	★★	★★★★
NC3225	★★★★	★★	★★★	★★★	★★★★
NC3030	★★★	★★	★★★	★★★	★★★
NC3235 New	★★★	★★	★★★★	★★★★	★★★

[The features of CVD coated grade]

Grade	ISO	Feature
NC3205 New	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
NC3030	P20 ~ P40	Good chipping resistance in medium to low speed and medium interrupted cutting
NC3235 New	P25 ~ P45	Good fracture resistance and chipping resistance in medium to low speed and heavy interrupted cutting

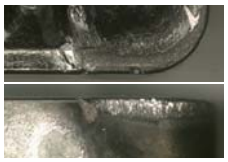
[Selection system of CVD coated grade]

Workpiece		Machining type	Grade	Recommended cutting speed (m/min)	ISO	Application range
P	Steel	Continuous cutting	NC3205 New	330 (220 ~ 440)	P01	NC3205 New
			NC3215	295 (170 ~ 420)	P10	NC3215
		Interrupted cutting	NC3225	260 (150 ~ 370)	P20	NC3225
			NC3030	205 (120 ~ 290)	P30	NC3030
			NC3235 New	225 (100 ~ 320)	P40	NC3235 New

Performance evaluation

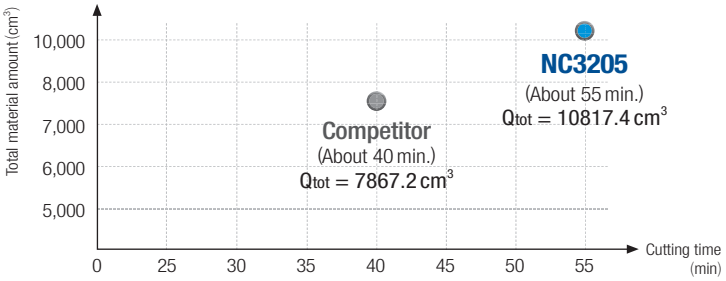
Wear resistance

Workpiece	Alloy steel (42CrMo4, HB180)
Cutting condition	vc (m/min) = 330, fn (mm/rev) = 0.3, ap (mm) = 1.5, wet
Tool	**Insert** CNMG120408-MP (NC3205) **Holder** PCLNL2525-M12N



[NC3205]

[Competitor]



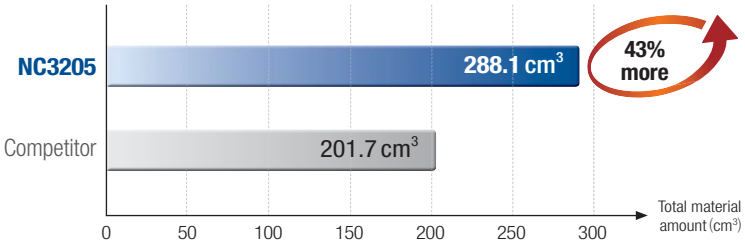
• Material removal rate Q (cm³/min) : 196.7

Chipping resistance

Workpiece	Chrome alloy steel (20Cr4H, HB260)
Cutting condition	vc (m/min) = 250, fn (mm/rev) = 0.2, ap (mm) = 2.0, dry
Tool	**Insert** CNMG120408-MP (NC3205) **Holder** PCLNL2525-M12N

[NC3205]

[Competitor]



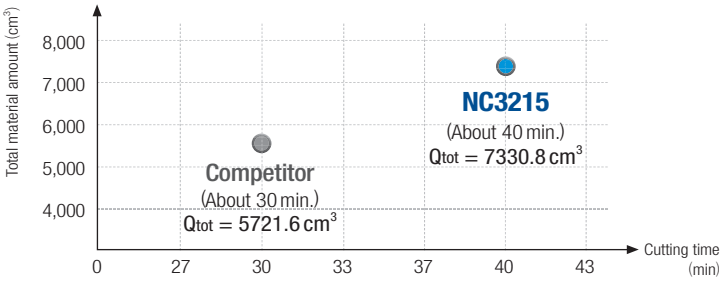
• Material removal rate Q (cm³/min) : 209.1 • Cutting time (min) : 1.38

Wear resistance

Workpiece	Alloy steel (42CrMo4, HB180)
Cutting condition	vc (m/min) = 300, fn (mm/rev) = 0.3, ap (mm) = 2.0, wet
Tool	**Insert** CNMG120408-MP (NC3215) **Holder** PCLNL2525-M12N

[NC3215]

[Competitor]

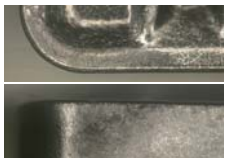


• Material removal rate Q (cm³/min) : 178.8

Performance evaluation

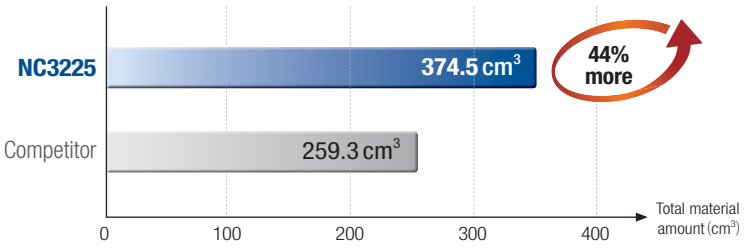
Chipping resistance

Workpiece	Chrome alloy steel (20Cr4H, HB260)
Cutting condition	vc (m/min) = 300, fn (mm/rev) = 0.2, ap (mm) = 1.5, wet
Tool	Insert CNMG120408-MP (NC3225) Holder PCLNL2525-M12N



[NC3225]

[Competitor]



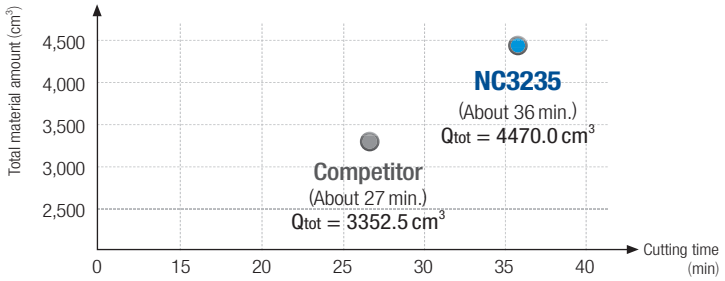
• Material removal rate Q (cm³/min) : 250.9 • Cutting time (min) : 1.49

Wear resistance

Workpiece	Carbon steel (C45,160HB)
Cutting condition	vc (m/min) = 250, fn (mm/rev) = 0.25, ap (mm) = 2.0, wet
Tool	Insert CNMG120408-MP (NC3235) Holder PCLNL2525-M12N

[NC3235]

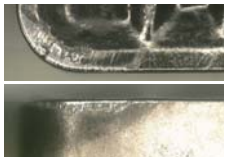
[Competitor]



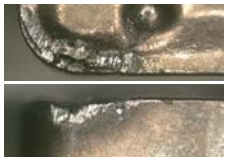
• Material removal rate Q (cm³/min) : 124.2

Chipping resistance

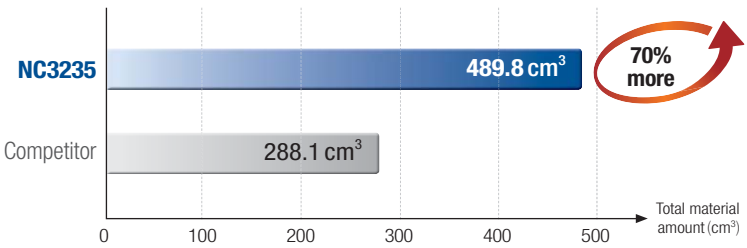
Workpiece	Chrome alloy steel (20Cr4H, HB260)
Cutting condition	vc (m/min) = 200, fn (mm/rev) = 0.2, ap (mm) = 1.5, wet
Tool	Insert CNMG120408-MP (NC3235) Holder PCLNL2525-M12N



[NC3235]



[Competitor]

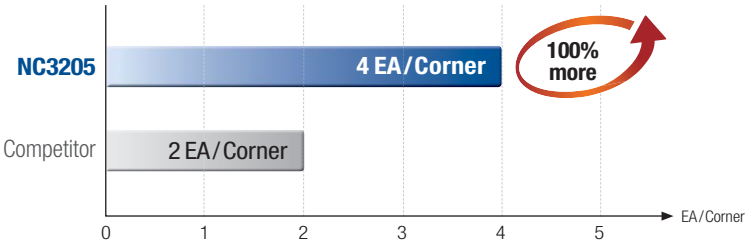


• Material removal rate Q (cm³/min) : 167.3 • Cutting time (min) : 2.9

Application examples

Alloy steel (42CrMo4)

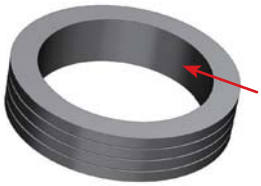
Workpiece use	Heavy equipment parts
Cutting condition	vc (m/min) = 350, fn (mm/rev) = 0.35, ap (mm) = 0.3, wet
Tool	**Insert** CNMG190608-HM (NC3205) **Holder** PCBNR3232-P19

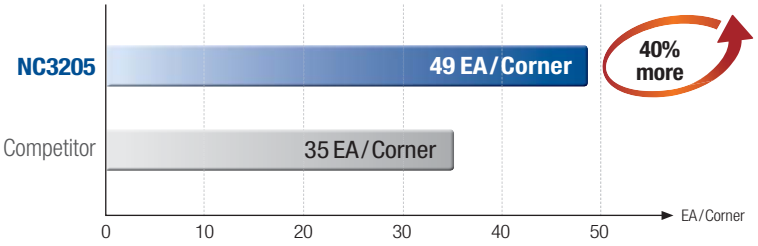


- Ensured good performance in high cutting speed with high heat due to excellent substrate with heat resistance and wear resistance
- 100% longer tool life with NC3205 than competitor's P05 grade

Carbon steel (C48)

Workpiece use	Ring gear
Cutting condition	vc (m/min) = 300, fn (mm/rev) = 0.25, ap (mm) = 0.8, wet
Tool	**Insert** SNMG120412-LP (NC3205) **Holder** PSKNL2525-M12

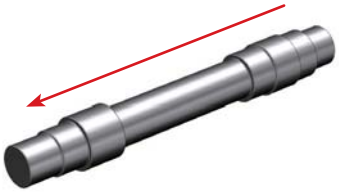


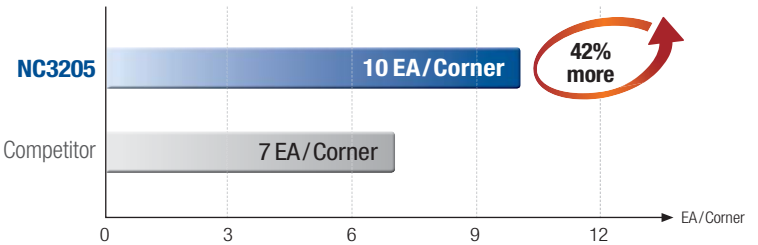


- High cutting performance in high hardness and high cutting speed by high oxidation resistance and wear resistance
- 40% longer tool life with NC3205 than competitor's P05 grade

Carbon steel (C45)

Workpiece use	Axle
Cutting condition	vc (m/min) = 400, fn (mm/rev) = 0.55, ap (mm) = 0.5, wet
Tool	**Insert** DNMG150612-MP (NC3205) **Holder** PDJNL2525-M15



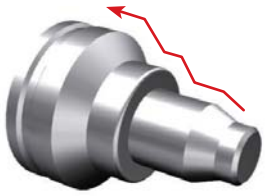


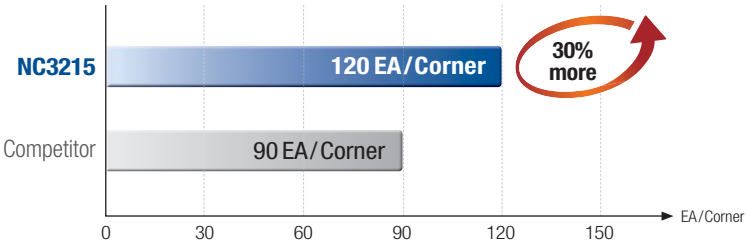
- Highly stable coating realizes stable tool life in various shape cutting
- 42% longer tool life with NC3205 than competitor's P05 grade

Application examples

Carbon steel (C45)

Workpiece use	BJ case
Cutting condition	vc(m/min) = 200~250, fn(mm/rev) = 0.25~0.35, ap(mm) = 1.0~2.0, wet
Tool	Insert DNMG150612-LP (NC3215) Holder PDJNL2525-M15

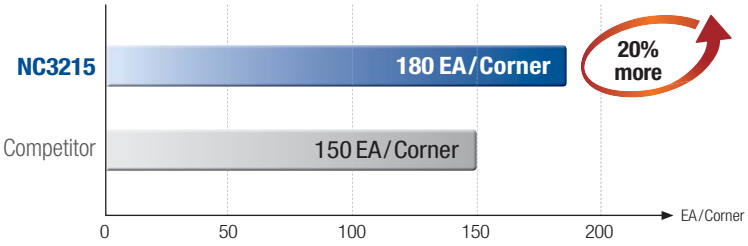




- Increased wear resistance due to LP retaining cutting edge space with good chip evacuation
- Stable tool life in high cutting speed from applying NC3215

Carbon steel (C20)

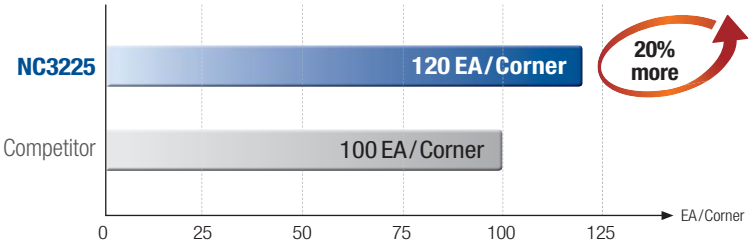
Workpiece use	Nipple
Cutting condition	vc(m/min) = 250~380, fn(mm/rev) = 0.2~0.3, ap(mm) = 1.5~2.0, wet
Tool	Insert CNMG120408-MP (NC3215) Holder PCLNL2525-M12N



- 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 use	Under disk
Cutting condition	vc(m/min) = 150, fn(mm/rev) = 0.2, ap(mm) = 1.5, wet
Tool	Insert CNMG120412-LP (NC3225) Holder PCLNL2525-M12N

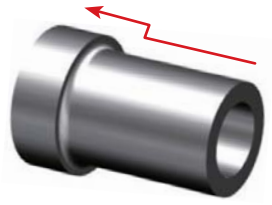


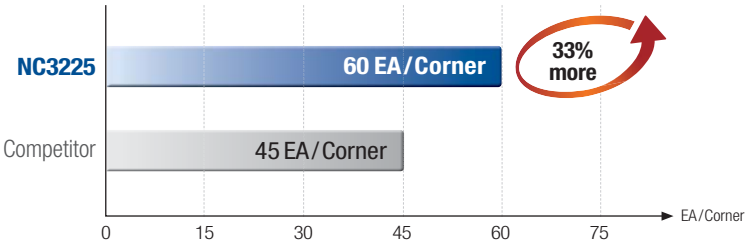
- Stable tool life in complex cutting with continuous and interrupted mixed conditions
- 20% longer tool life with NC3225 than competitor's P25 grade

Application examples

Alloy steel (SNCM439)

Workpiece use	Cylinder block part
Cutting condition	vc(m/min) = 100, fn(mm/rev) = 0.15, ap(mm) = 3.0, wet
Tool	**Insert** CNMG120408-MP (NC3225) **Holder** PCLNL2525-M12N

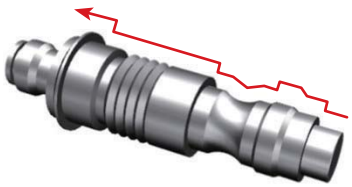


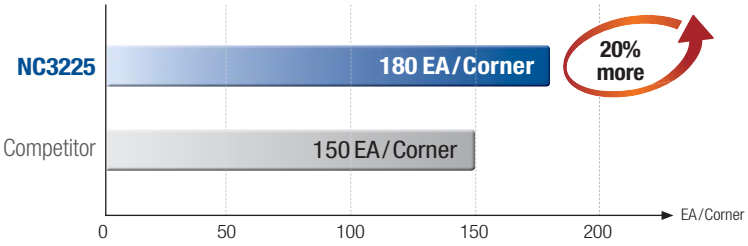


- Stable tool life through good chip evacuation of MP in external cutting with high depth of cut (3.0mm)
- 33% longer tool life with the New CVD coating NC3225 application than competitor's P25 grade

Carbon steel (C40)

Workpiece use	Input shaft
Cutting condition	vc(m/min) = 170, fn(mm/rev) = 0.30, ap(mm) = 2.7~3.0, wet
Tool	**Insert** DNMG150408-MP (NC3225) **Holder** PDJNL2525-M15

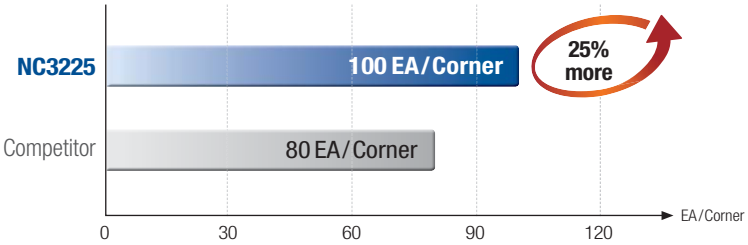




- Cutting without plastic deformation and wear on the insert due to the exclusive coating for high depth of cut and high feed Steel cutting
- 20% longer tool life with NC3225 than competitor's P25 grade

Carbon steel (C45)

Workpiece use	Wheel bearing
Cutting condition	vc(m/min) = 230, fn(mm/rev) = 0.30, ap(mm) = 0.5~1.5, wet
Tool	**Insert** CNMG120408-MP (NC3225) **Holder** PCLNL2525-M12N

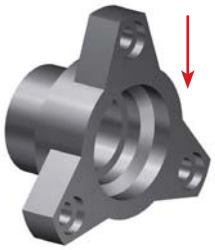


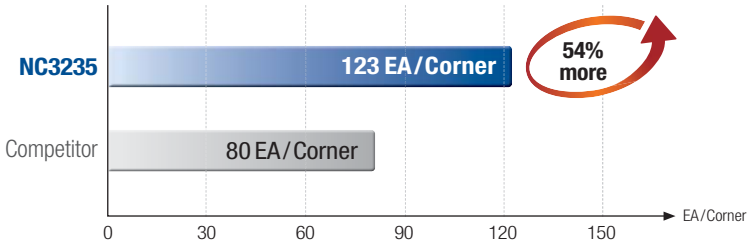
- Stable wear and regular tool life from the CVD coating NC3225
- Increased productivity due to longer tool life reducing times of changing tools

Application examples

Carbon steel (C45)

Workpiece use	Pinion flange
Cutting condition	vc(m/min) = 319, fn(mm/rev) = 0.25, ap(mm) = 2.1, dry
Tool	Insert SNMG120412-HM(NC3235) Holder PSKNL2525-M12

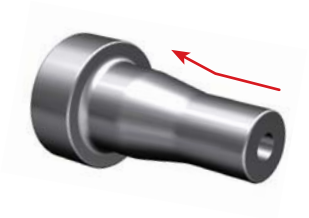


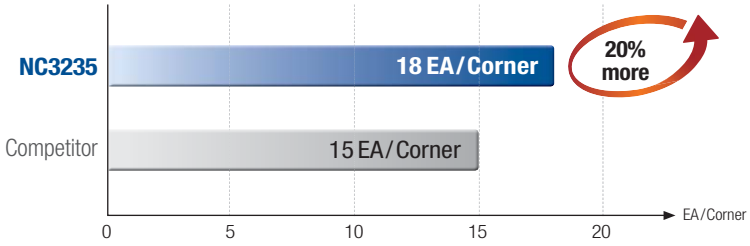


- Stable cutting without insert fracture due to applying high toughness substrate in even heavy interrupted machining
- Stable tool life in high cutting speed with the New CVD coating NC3235

Alloy steel (42CrMo4)

Workpiece use	Output shaft
Cutting condition	vc(m/min) = 230, fn(mm/rev) = 0.35, ap(mm) = 3.0, wet
Tool	Insert CNMG120408-GR(NC3235) Holder PCLNL2525-M12N

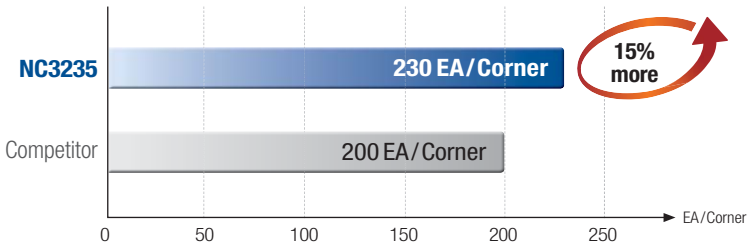




- Cutting in high depth of cut and high feed cutting without insert's plastic deformation and wear due to New CVD coating NC3235
- Fine chip evacuation from applying increased lubrication coating

Chrome alloy steel (20Cr4)

Workpiece use	Hub U/D brake
Cutting condition	vc(m/min) = 300, fn(mm/rev) = 0.25, ap(mm) = 1.0, wet
Tool	Insert CNMG090408-CP(NC3235) Holder PCLNL2020-K09



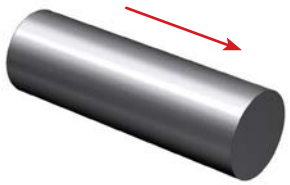
- Stable wear and regular tool life from the New CVD coating NC3235
- Increased productivity due to longer tool life reducing times of changing tools

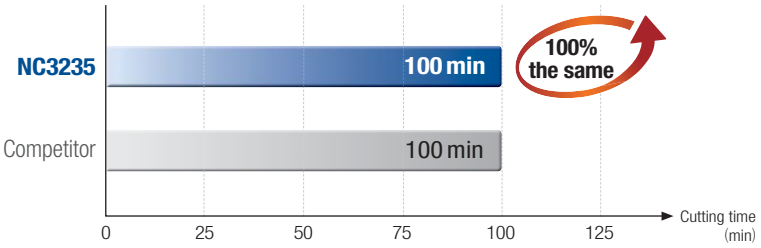
Application examples

Duplex stainless steel alloy (1.4501*)

(*: DIN)

Workpiece use	Cylinder
Cutting condition	vc (m/min) = 40, fn (mm/rev) = 0.75, ap (mm) = 15.0, dry
Tool	**Insert** SNMM250924-GH (NC3235) **Holder** PSBNR5050-T25-6

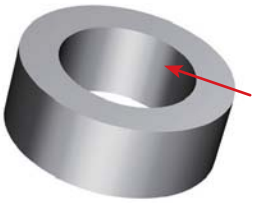


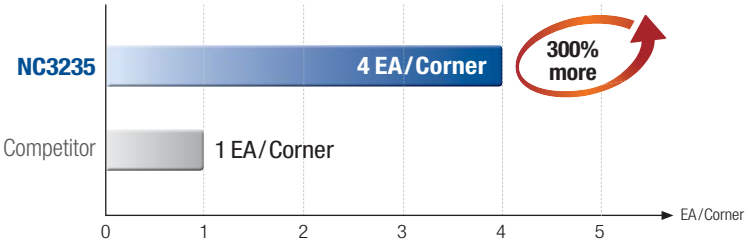


- Increases fracture resistance and tool life in high feed and high depth of cut cutting with M series workpiece though NC3235 applied high toughness substrate
- Good cutting performance and stable tool life in various Hard-to-cut material cuttings

HRSA (17753)

Workpiece use	Generator part
Cutting condition	vc (m/min) = 40, fn (mm/rev) = 0.4, ap (mm) = 6.0, wet
Tool	**Insert** CNMG190616-GR (NC3235) **Holder** PCBNR3232-P19



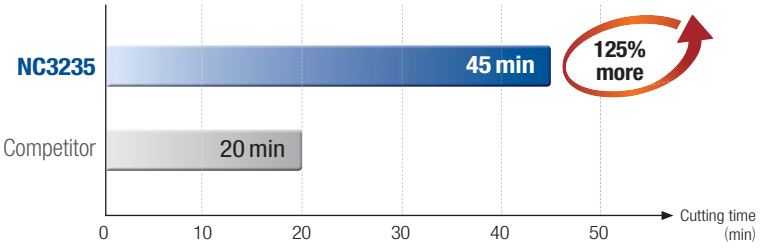


- Increased BUE resistance with less notch wear in low speed roughing with M series workpiece
- Applying the New CVD coating NC3235 with improved surface finish

Duplex stainless steel alloy (1.4462*)

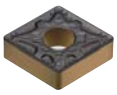
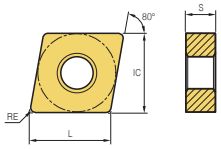
(*: DIN)

Workpiece use	Generator part
Cutting condition	vc (m/min) = 50, fn (mm/rev) = 0.45, ap (mm) = 10.0, wet
Tool	**Insert** CNMG190616-GS (NC3235) **Holder** PCBNR3232-P19



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

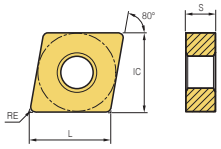
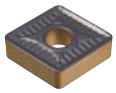
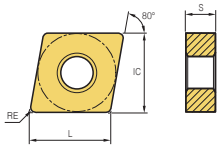
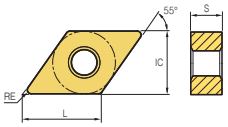
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 CNMG-MP*	CNMG	120404-B25			●	●		12.7	0.397	4.76	12.8959	0.35 (0.70~0.20)	4.00 (1.50~8.00)	
		120408-B25		●	●	●	●	12.7	0.794	4.76	12.8959	0.35 (0.70~0.25)	4.00 (1.30~8.00)	
		120412-B25		●	●	●		12.7	1.191	4.76	12.8959	0.38 (0.75~0.25)	4.00 (1.80~8.00)	
		160608-B25		●	●	●		15.875	0.794	6.35	16.1199	0.53 (0.75~0.30)	5.85 (1.70~10.00)	
		160612-B25		●	●			15.875	1.191	6.35	16.1199	0.55 (0.80~0.30)	5.90 (1.80~10.00)	
		160616-B25		●	●			15.875	1.588	6.35	16.1199	0.75 (1.00~0.50)	3.00 (1.00~5.00)	
		190604-B25				●		19.08	0.397	6.35	19.344	0.23 (0.45~0.20)	4.00 (3.00~8.00)	
		190608-B25		●	●	●		19.05	0.794	6.35	19.344	0.42 (0.60~0.23)	3.25 (1.50~5.00)	
		190612-B25		●	●	●		19.05	1.191	6.35	19.344	0.43 (0.60~0.25)	3.50 (2.00~5.00)	
		190616-B25		●	●			19.05	1.588	6.35	19.344	0.43 (0.60~0.25)	4.25 (2.00~6.50)	
		120408-GR		●	●	●	●	12.7	0.794	4.76	12.8959	0.33 (0.50~0.15)	2.90 (0.80~5.00)	
		120412-GR			●	●	●	12.7	1.191	4.76	12.8959	0.42 (0.55~0.28)	3.00 (1.00~5.00)	
		160608-GR		●	●	●		15.875	0.794	6.35	16.1199	0.30 (0.50~0.15)	3.50 (0.80~7.00)	
		160612-GR		●	●	●		15.875	1.191	6.35	16.1199	0.30 (0.55~0.15)	3.50 (0.80~7.00)	
		160616-GR		●	●	●		15.875	1.588	6.35	16.1199	0.30 (0.60~0.13)	4.00 (1.80~8.00)	
		190608-GR				●		19.05	0.794	6.35	19.344	0.60 (0.70~0.20)	7.80 (1.70~10.00)	
		190612-GR		●	●	●	●	19.05	1.191	6.35	19.344	0.35 (0.50~0.20)	4.00 (1.00~7.00)	
		190616-GR		●	●	●	●	19.05	1.588	6.35	19.344	0.38 (0.50~0.25)	4.15 (1.30~7.00)	
		250924-GR				●		25.4	2.381	9.52	25.792	0.70 (1.00~0.40)	8.60 (2.30~15.00)	
		120404-HM			●	●		12.7	0.397	4.76	12.8959	0.15 (0.30~0.07)	0.75 (0.50~1.50)	
		120408-HM			●	●		12.7	0.794	4.76	12.8959	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		120412-HM		●				12.7	1.191	4.76	12.8959	0.18 (0.30~0.05)	2.40 (0.80~4.00)	
		090308-LP			●			9.525	0.794	3.18	9.6719	0.25 (0.35~0.15)	1.15 (0.30~2.00)	
		120404-LP		●	●			12.7	0.397	4.76	12.8959	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		120408-LP		●	●			12.7	0.794	4.76	12.8959	0.35 (0.50~0.20)	1.25 (0.50~2.00)	
		120412-LP		●	●			12.7	1.191	4.76	12.8959	0.23 (0.35~0.10)	0.85 (0.20~1.50)	
		120408-LW		●	●			12.7	0.794	4.76	12.8959	0.23 (0.35~0.10)	0.85 (0.20~1.50)	
		120412-LW			●			12.7	1.191	4.76	12.8959	0.15 (0.30~0.10)	0.40 (0.30~1.50)	
		090304-MP		●	●			9.525	0.397	3.18	9.6719	0.24 (0.40~0.08)	2.40 (0.80~4.00)	
		090308-MP		●	●			9.525	0.794	3.18	9.6719	0.25 (0.55~0.12)	2.40 (0.80~4.00)	
		120404-MP	●	●	●			12.7	0.397	4.76	12.8959	0.15 (0.30~0.05)	2.50 (0.90~5.00)	
		120408-MP	●	●	●	●	●	12.7	0.794	4.76	12.8959	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		120412-MP	●	●	●			12.7	1.191	4.76	12.8959	0.30 (0.60~0.13)	2.50 (1.30~5.00)	
		120416-MP	●	●	●			12.7	1.588	4.76	12.8959	0.25 (0.40~0.15)	2.00 (0.50~4.00)	
		160608-MP		●	●			15.875	0.794	6.35	16.1199	0.25 (0.40~0.15)	2.00 (0.50~4.00)	
		160612-MP		●	●			15.875	1.191	6.35	16.1199	0.25 (0.40~0.10)	2.20 (0.40~4.00)	
		160616-MP		●	●			15.875	1.588	6.35	16.1199	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		120404-VB		●	●			12.7	0.397	4.76	12.8959	0.25 (0.35~0.15)	1.15 (0.30~2.00)	
		120408-VB	●	●	●			12.7	0.794	4.76	12.8959	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		120412-VB		●	●			12.7	1.191	4.76	12.8959	0.35 (0.50~0.20)	1.25 (0.50~2.00)	
		120404-VC	●	●	●			12.7	0.397	4.76	12.8959	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		120408-VC	●	●	●			12.7	0.794	4.76	12.8959	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		120412-VC		●	●			12.7	1.191	4.76	12.8959	0.29 (0.45~0.13)	1.90 (0.80~3.00)	
		090304-VF			●			9.525	0.397	3.18	9.6719	0.38 (0.60~0.15)	3.00 (1.00~5.00)	
		120408-VL	●	●	●			12.7	0.794	4.76	12.8959	0.23 (0.35~0.10)	0.85 (0.20~1.50)	
		120412-VL		●				12.7	1.191	4.76	12.8959	0.23 (0.35~0.10)	0.85 (0.20~1.50)	
		090308-VM				●		9.525	0.794	3.18	9.6719	0.28 (0.40~0.10)	2.25 (1.00~3.50)	
		120404-VM				●		12.7	0.397	4.76	12.8959	0.28 (0.42~0.10)	2.50 (1.00~5.00)	

* : Standard insert shape

● : Stock item

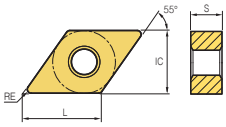
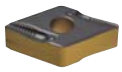
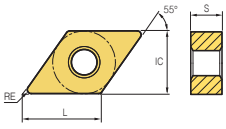
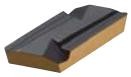
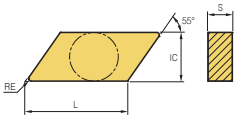
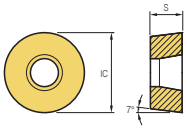
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 CNMG-MP*		120408-VM			●	●		12.7	0.794	4.76	12.8959	0.45 (0.70~0.20)	3.50 (1.00~6.00)	
		120412-VM				●		12.7	1.191	4.76	12.8959	0.30 (0.60~0.13)	2.50 (1.30~5.00)	
		190608-VM				●		19.05	0.794	6.35	19.344	0.32 (0.62~0.13)	3.35 (1.30~6.70)	
		120404-VP2			●			12.7	0.397	4.76	12.8959	0.44 (0.60~0.27)	4.25 (2.00~6.50)	
		190612-VR		●	●			19.05	1.191	6.35	19.344	0.44 (0.60~0.27)	4.25 (2.00~6.50)	
		190616-VR		●	●			19.05	1.588	6.35	19.344	0.43 (0.60~0.25)	5.50 (3.00~8.00)	
		120408-VW		●				12.7	0.794	4.76	12.8959	0.45 (0.60~0.30)	5.50 (3.00~8.00)	
 CNMM-HV*	CNMM	120408-GH			●	●		12.7	0.794	4.76	12.8959	0.47 (0.70~0.23)	5.50 (3.00~8.00)	
		120412-GH			●	●		12.7	1.191	4.76	12.8959	0.20 (0.50~0.10)	3.30 (1.00~6.60)	
		160612-GH				●		15.875	1.191	6.35	16.1199	0.45 (0.90~0.30)	5.00 (2.50~8.00)	
		190612-GH		●		●		19.05	1.191	6.35	19.344	0.53 (0.70~0.35)	6.00 (2.00~10.00)	
		190616-GH		●		●	●	19.05	1.588	6.35	19.344	0.55 (0.75~0.35)	6.10 (2.20~10.00)	
		190624-GH		●				19.05	2.381	6.35	19.344	0.33 (0.50~0.15)	2.25 (0.50~4.00)	
		250924-GH		●		●	●	25.4	2.381	9.52	25.792	0.50 (0.70~0.30)	5.25 (2.50~8.00)	
		190612-GR				●		19.05	1.191	6.35	19.344	0.35 (0.50~0.20)	4.00 (1.00~7.00)	
		250924-HG					●	25.4	2.381	9.52	25.792	0.68 (0.90~0.45)	5.50 (3.00~8.00)	
		190612-HL					●	19.05	1.191	6.35	19.344	0.50 (0.70~0.30)	5.50 (3.00~8.00)	
		250924-HV					●	25.4	2.381	9.52	25.792	0.88 (1.20~0.55)	6.50 (4.00~9.00)	
		190612-VH		●				19.05	1.191	6.35	19.344	0.80 (1.00~0.60)	9.50 (6.00~13.00)	
		190616-VH		●				19.05	1.588	6.35	19.344	0.85 (1.10~0.60)	9.50 (6.00~13.00)	
		190624-VH		●				19.05	2.381	6.35	19.344	1.10 (1.60~0.60)	10.0 (7.00~13.00)	
		250924-VH		●				25.4	2.381	9.52	25.792	1.18 (1.60~0.75)	12.0 (7.00~17.00)	
		190612-VT		●		●		19.05	1.191	6.35	19.344	0.88 (1.20~0.55)	8.50 (5.00~12.00)	
		190616-VT		●				19.05	1.588	6.35	19.344	0.88 (1.20~0.55)	8.50 (5.00~12.00)	
		190624-VT		●				19.05	2.381	6.35	19.344	0.58 (0.85~0.30)	6.50 (3.00~10.00)	
		250924-VT		●				25.4	2.381	9.52	25.792	0.95 (1.40~0.50)	9.50 (4.00~15.00)	
 DNMG-MP*	DNMG	150408-B25			●			12.7	0.794	4.76	15.5083	0.85 (1.10~0.60)	7.50 (5.00~10.00)	
		150604-B25		●	●	●		12.7	0.397	6.35	15.5083	1.05 (1.40~0.70)	10.5 (6.00~15.00)	
		150608-B25		●	●	●		12.7	0.794	6.35	15.5083	1.05 (1.40~0.70)	10.5 (6.00~15.00)	
		150612-B25		●	●			12.7	1.191	6.35	15.5083	0.31 (0.45~0.17)	2.50 (1.00~4.00)	
		150408-GR		●		●		12.7	0.794	4.76	15.5083	0.36 (0.55~0.17)	2.75 (1.50~4.00)	
		150608-GR			●	●	●	12.7	0.794	6.35	15.5083	0.40 (0.55~0.25)	2.75 (1.50~4.00)	
		150612-GR			●	●		12.7	1.191	6.35	15.508	0.36 (0.55~0.17)	2.75 (1.50~4.00)	
		110404-HM				●		9.525	0.397	4.76	11.6279	0.25 (0.50~0.10)	2.00 (1.00~4.00)	
		150404-HM			●			12.7	0.397	4.76	15.5083	0.36 (0.55~0.17)	2.75 (1.50~4.00)	
		150604-HM				●		12.7	0.397	6.35	15.5083	0.36 (0.55~0.17)	2.75 (1.50~4.00)	
		150608-HM			●	●		12.7	0.794	6.35	15.5083	0.40 (0.55~0.25)	2.75 (1.50~4.00)	
		150612-HM				●		12.7	1.191	6.35	15.5083	0.30 (0.60~0.13)	2.50 (1.30~5.00)	
		150612-HR		●				12.7	1.191	6.35	15.5083	0.25 (0.50~0.20)	2.50 (1.00~7.00)	
		150616-HR		●				12.7	1.588	6.35	15.5083	0.35 (0.50~0.20)	4.00 (1.00~7.00)	
		110404-LP		●	●			9.525	0.397	4.76	11.6279	0.35 (0.70~0.25)	3.00 (1.30~7.00)	
		150404-LP		●	●			12.7	0.397	4.76	15.5083	0.15 (0.30~0.05)	2.00 (0.90~4.00)	
		150408-LP		●	●			12.7	0.794	4.76	15.5083	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		150412-LP		●				12.7	1.191	4.76	15.508	0.35 (0.70~0.25)	3.50 (1.30~7.00)	
		150604-LP		●	●			12.7	0.397	6.35	15.5083	0.40 (0.65~0.25)	4.00 (1.80~8.00)	
		150608-LP		●	●			12.7	0.794	6.35	15.5083	0.19 (0.30~0.07)	0.90 (0.30~1.50)	
		150612-LP		●	●			12.7	1.191	6.35	15.5083	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		150608-LW		●				12.7	0.794	6.35	15.5083	0.25 (0.40~0.10)	1.50 (0.50~2.50)	

* : Standard insert shape

● : Stock item

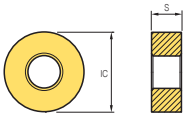
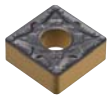
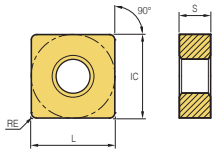
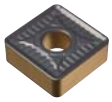
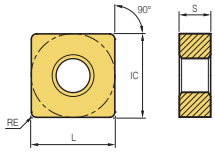
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 DNMG-MP*	DNMG	110404-MP		●	●			9.525	0.397	4.76	11.6279	0.29 (0.45~0.13)	1.90 (0.80~3.00)	
		110408-MP		●	●			9.525	0.794	4.76	11.6279	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		150404-MP		●	●			12.7	0.397	4.76	15.5083	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		150408-MP	●	●	●			12.7	0.794	4.76	15.5083	0.29 (0.45~0.13)	1.90 (0.80~3.00)	
		150412-MP	●	●	●			12.7	1.191	4.76	15.508	0.33 (0.50~0.15)	2.60 (0.70~4.50)	
		150604-MP	●	●	●		●	12.7	0.397	6.35	15.5083	0.15 (0.30~0.05)	1.75 (0.90~3.50)	
		150608-MP	●	●	●		●	12.7	0.794	6.35	15.5083	0.25 (0.40~0.15)	2.00 (0.50~4.00)	
		150612-MP	●	●	●			12.7	1.191	6.35	15.5083	0.25 (0.40~0.10)	2.20 (0.40~4.00)	
		150404-VB		●	●			12.7	0.397	4.76	15.5083	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		150408-VB		●	●			12.7	0.794	4.76	15.5083	0.33 (0.50~0.15)	2.90 (0.80~5.00)	
		150412-VB		●	●			12.7	1.191	4.76	15.508	0.25 (0.40~0.10)	2.20 (0.40~4.00)	
		150604-VB		●	●			12.7	0.397	6.35	15.5083	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		150608-VB	●	●	●			12.7	0.794	6.35	15.5083	0.33 (0.50~0.15)	2.90 (0.80~5.00)	
		150612-VB			●			12.7	1.191	6.35	15.5083	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		150404-VC		●				12.7	0.397	4.76	15.5083	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		150408-VC		●	●			12.7	0.794	4.76	15.5083	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		150412-VC		●	●			12.7	1.191	4.76	15.508	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		150604-VC		●	●			12.7	0.397	6.35	15.5083	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		150608-VC		●	●			12.7	0.794	6.35	15.5083	0.35 (0.50~0.20)	1.50 (0.50~2.50)	
		150612-VC		●	●			12.7	1.191	6.35	15.5083	0.18 (0.35~0.10)	1.00 (0.30~2.00)	
		150404-VL			●			12.7	0.397	4.76	15.5083	0.15 (0.25~0.05)	0.80 (0.10~1.50)	
		150408-VL		●	●			12.7	0.794	4.76	15.5083	0.18 (0.30~0.05)	0.85 (0.20~1.50)	
		150604-VL	●					12.7	0.397	6.35	15.5083	0.15 (0.25~0.05)	0.80 (0.10~1.50)	
		150608-VL	●	●	●			12.7	0.794	6.35	15.5083	0.18 (0.30~0.05)	0.85 (0.20~1.50)	
		150408-VM				●		12.7	0.794	4.76	15.5083	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		150604-VM				●		12.7	0.397	6.35	15.5083	0.15 (0.30~0.05)	2.50 (0.90~5.00)	
		150608-VM			●	●		12.7	0.794	6.35	15.5083	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		150608-VP2			●			12.7	0.794	6.35	15.5083	0.18 (0.35~0.05)	1.50 (0.10~3.00)	
	DNMX	150604L-SH		●	●			12.7	0.397	6.35	15.5083	0.23 (0.30~0.15)	2.50 (1.00~4.00)	
		150604R-SH		●	●			12.7	0.397	6.35	15.5083	0.23 (0.30~0.15)	2.50 (1.00~4.00)	
		150608L-SH		●	●			12.7	0.794	6.35	15.5083	0.33 (0.50~0.15)	3.25 (1.50~5.00)	
		150608R-SH		●	●			12.7	0.794	6.35	15.5083	0.33 (0.50~0.15)	3.25 (1.50~5.00)	
 KNUX-11*	KNUX	160405L-11		●	●	●	●	-	0.5	4.76	19.7155	0.28 (0.35~0.20)	3.50 (1.00~6.00)	
		160405R-11		●	●	●	●	-	0.5	4.76	19.7155	0.28 (0.35~0.20)	3.50 (1.00~6.00)	
		160410L-11		●	●	●		-	1	4.76	19.7155	0.45 (0.60~0.30)	3.75 (1.50~6.00)	
		160410R-11		●	●	●		-	1	4.76	19.7155	0.45 (0.60~0.30)	3.75 (1.50~6.00)	
		160405R-12		●	●	●		-	0.5	4.76	19.7155	0.30 (0.35~0.25)	3.75 (1.50~6.00)	
		160410L-12				●		-	1	4.76	19.7155	0.55 (0.70~0.40)	3.75 (1.50~6.00)	
		160410R-12		●	●	●		-	1	4.76	19.7155	0.55 (0.70~0.40)	3.75 (1.50~6.00)	
	RCMX	1003M0			●	●		10	-	3.97	-	0.38 (0.50~0.25)	2.75 (1.50~4.00)	
		1204M0			●	●	●	12	-	4.76	-	0.45 (0.60~0.30)	3.75 (2.50~5.00)	
		1606M0			●	●		16	-	6.35	-	0.55 (0.70~0.40)	5.00 (3.00~7.00)	
		2006M0				●		20	-	6.35	-	0.69 (0.90~0.48)	6.25 (3.50~9.00)	
		2507M0				●		25	-	7.94	-	0.88 (1.20~0.55)	8.00 (4.00~12.00)	
		3209M0				●		32	-	9.52	-	1.08 (1.05~0.65)	10.0 (5.00~15.00)	

* : Standard insert shape

● : Stock item

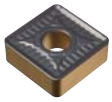
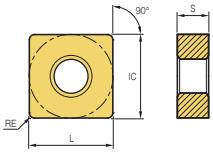
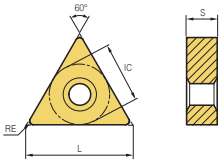
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
	**RNMG**	120400-B25				●		12.7	-	4.76	-	0.66 (1.20~0.12)	3.00 (1.20~4.80)	
		150600-B25				●		15.875	-	6.35	-	0.80 (1.50~0.10)	3.50 (1.40~5.50)	
		250900-B25				●		25.4	-	9.52	-	1.50 (1.50~0.25)	5.00 (2.50~10.00)	
 SNMG-MP*	**SNMG**	120404-B25			●	●		12.7	0.397	4.76	12.7	0.31 (0.45~0.17)	2.25 (1.00~3.50)	
		120408-B25		●	●	●	●	12.7	0.794	4.76	12.7	0.42 (0.60~0.23)	3.25 (1.50~5.00)	
		120412-B25		●	●	●		12.7	1.191	4.76	12.7	0.43 (0.60~0.25)	3.50 (2.00~5.00)	
		120416-B25		●	●	●		12.7	1.588	4.76	12.7	0.53 (0.70~0.35)	3.75 (2.50~5.00)	
		150608-B25				●		15.875	0.794	6.35	15.875	0.43 (0.60~0.25)	3.75 (1.50~6.00)	
		150616-B25			●			15.875	1.600	6.35	15.875	0.53 (0.70~0.35)	4.00 (2.00~6.00)	
		190608-B25		●	●	●		19.05	0.794	6.35	19.05	0.43 (0.60~0.25)	5.50 (3.00~8.00)	
		190612-B25		●	●	●		19.05	1.191	6.35	19.05	0.45 (0.60~0.30)	5.50 (3.00~8.00)	
		190616-B25		●	●	●		19.05	1.588	6.35	19.05	0.53 (0.70~0.35)	5.50 (3.00~8.00)	
		250724-B25		●				25.4	2.381	7.94	25.4	0.75 (1.00~0.50)	8.50 (5.00~12.0)	
		120408-GR				●	●	12.7	0.794	4.76	12.7	0.35 (0.50~0.20)	4.00 (1.00~7.00)	
		120412-GR				●		12.7	1.191	4.76	12.7	0.25 (0.50~0.20)	3.00 (1.00~7.00)	
		150608-GR				●		15.875	0.794	6.35	15.875	0.35 (0.60~0.25)	5.30 (1.00~7.00)	
		150612-GR		●	●	●		15.875	1.191	6.35	15.875	0.52 (0.75~0.29)	4.20 (1.40~7.00)	
		190608-GR				●		19.05	0.794	6.35	19.05	0.73 (0.80~0.30)	7.10 (1.70~9.00)	
		190612-GR			●	●	●	19.05	1.191	6.35	19.05	0.55 (0.80~0.30)	5.35 (1.70~9.00)	
		190616-GR		●	●	●	●	19.05	1.588	6.35	19.05	0.55 (0.80~0.30)	5.35 (1.70~9.00)	
		250724-GR				●		25.4	2.381	7.94	25.4	1.10 (0.45~1.20)	11.00 (2.6~14.00)	
		250924-GR				●		25.4	2.381	9.52	25.4	1.10 (0.45~1.20)	11.00 (2.6~14.00)	
		120408-HM		●		●		12.7	0.794	4.76	12.7	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		120412-HM		●			●	12.7	1.191	4.76	12.7	0.34 (0.50~0.18)	3.00 (1.00~5.00)	
		120404-LP			●			12.7	0.397	4.76	12.7	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		120408-LP		●	●			12.7	0.794	4.76	12.7	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		120412-LP		●	●			12.7	1.191	4.76	12.7	0.25 (0.45~0.13)	1.50 (0.80~3.00)	
		090304-MP		●	●			9.525	0.397	3.18	9.525	0.15 (0.30~0.05)	1.50 (0.90~3.00)	
		090308-MP		●	●			9.525	0.794	3.18	9.525	0.23 (0.45~0.10)	1.75 (1.00~3.50)	
		120404-MP		●	●			12.7	0.397	4.76	12.7	0.25 (0.40~0.10)	2.20 (0.40~4.00)	
		120408-MP	●	●	●		●	12.7	0.794	4.76	12.7	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		120412-MP	●	●	●			12.7	1.191	4.76	12.7	0.33 (0.50~0.15)	2.90 (0.80~5.00)	
		120416-MP		●	●			12.7	1.588	4.76	12.7	0.30 (0.55~0.28)	2.00 (1.00~5.00)	
		120404-VB		●				12.7	0.397	4.76	12.7	0.21 (0.36~0.06)	1.50 (0.50~3.00)	
		120408-VB		●	●			12.7	0.794	4.76	12.7	0.21 (0.36~0.06)	1.50 (0.50~3.00)	
		120408-VC			●			12.7	0.794	4.76	12.7	0.28 (0.40~0.15)	2.00 (0.50~3.50)	
		190612-VR		●	●			19.05	1.191	6.35	19.05	0.53 (0.70~0.35)	6.00 (2.00~10.00)	
		190616-VR		●	●			19.05	1.588	6.35	19.05	0.55 (0.75~0.35)	6.10 (2.20~10.00)	
		120408-VP2			●			12.7	0.794	4.76	12.7	0.23 (0.45~0.10)	2.25 (0.50~4.50)	
 SNMM-HV*	**SNMM**	120408-GH				●		12.7	1.191	4.76	12.7	0.30 (0.60~0.25)	7.00 (2.50~8.00)	
		120412-GH			●	●		12.7	1.191	4.76	12.7	0.35 (0.30~0.60)	4.00 (2.50~8.00)	
		150612-GH				●		15.875	1.191	6.35	15.875	0.67 (0.70~0.30)	7.00 (2.50~8.00)	
		190612-GH		●		●	●	19.05	1.191	6.35	19.05	0.50 (0.70~0.30)	5.25 (2.50~8.00)	
		190616-GH		●		●		19.05	1.588	6.35	19.05	0.73 (1.00~0.45)	6.50 (4.00~9.00)	
		190624-GH		●		●		19.05	2.381	6.35	19.05	0.88 (1.20~0.55)	6.50 (4.00~9.00)	

* : Standard insert shape

● : Stock item

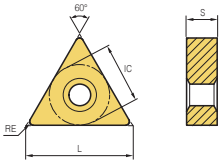
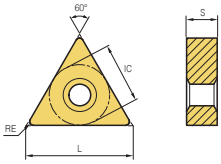
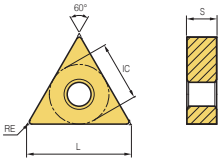
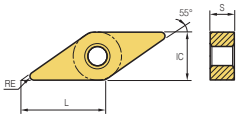
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 SNMM-HV*	SNMM	250724-GH		●		●		25.4	2.381	7.94	25.4	0.88 (1.20~0.55)	8.50 (5.00~12.00)	
		250924-GH		●		●	●	25.4	2.381	9.52	25.4	0.88 (1.20~0.55)	8.50 (5.00~12.00)	
		120412-GR				●		12.7	1.191	4.76	12.7	0.25 (0.50~0.20)	3.00 (1.00~7.00)	
		190612-GR				●		19.05	1.588	6.35	19.05	0.55 (0.80~0.30)	5.35 (1.70~9.00)	
		250924-HG					●	25.4	2.381	9.52	25.4	0.80 (1.20~0.40)	8.25 (3.50~13.00)	
		250924-HV					●	25.4	2.381	9.52	25.4	0.95 (1.40~0.50)	9.50 (4.00~15.00)	
		190616-VH		●				19.05	1.588	6.35	19.05	0.80 (1.10~0.50)	7.50 (5.00~10.00)	
		190624-VH		●				19.05	2.381	6.35	19.05	0.90 (1.20~0.60)	9.00 (6.00~12.00)	
		250924-VH		●				25.4	2.381	9.52	25.4	1.05 (1.40~0.70)	10.5 (6.00~15.00)	
		190612-VT		●				19.05	1.191	6.35	19.05	0.80 (1.00~0.60)	9.50 (6.00~13.00)	
		190616-VT		●				19.05	1.588	6.35	19.05	0.85 (1.10~0.60)	9.50 (6.00~13.00)	
		190624-VT		●				19.05	2.381	6.35	19.05	1.10 (1.60~0.60)	1.00 (7.00~13.00)	
		250724-VT		●		●		25.4	2.381	7.94	25.4	1.18 (1.60~0.75)	11.0 (7.00~15.00)	
		250924-VT		●		●		25.4	2.381	9.52	25.4	1.18 (1.60~0.75)	12.0 (7.00~17.00)	
 TNMG-MP*	TNMG	160404-B25		●	●	●		9.525	0.397	4.76	16.498	0.31 (0.45~0.17)	2.75 (2.00~3.50)	
		160408-B25		●	●	●	●	9.525	0.794	4.76	16.498	0.36 (0.55~0.17)	2.75 (2.00~3.50)	
		160412-B25			●			9.525	1.191	4.76	16.498	0.40 (0.55~0.25)	2.75 (2.00~3.50)	
		220404-B25		●	●	●		12.7	0.397	4.76	21.997	0.31 (0.45~0.17)	3.25 (1.50~5.00)	
		220408-B25		●	●	●		12.7	0.794	4.76	21.997	0.36 (0.55~0.17)	3.50 (2.00~5.00)	
		220412-B25		●	●	●		12.7	1.191	4.76	21.997	0.40 (0.55~0.25)	3.50 (2.00~5.00)	
		220416-B25			●			12.7	1.588	4.76	21.997	0.45 (0.60~0.30)	3.50 (2.00~5.00)	
		270608-B25				●		15.875	0.794	6.35	27.496	0.35 (0.50~0.15)	5.00 (3.00~7.00)	
		270612-B25			●	●		15.875	1.191	6.35	27.496	0.40 (0.55~0.25)	5.00 (3.00~7.00)	
		330716-B25		●	●			19.05	1.588	7.94	32.996	0.60 (0.80~0.40)	6.00 (3.00~9.00)	
		160408-GR			●	●		9.525	0.794	4.76	16.498	0.35 (0.50~0.20)	4.00 (1.00~7.00)	
		160412-GR			●			9.525	1.191	4.76	16.498	0.39 (0.54~0.23)	4.60 (1.20~8.00)	
		220408-GR			●	●	●	12.7	0.794	4.76	21.997	0.42 (0.61~0.22)	4.45 (1.10~7.80)	
		220412-GR		●	●	●	●	12.7	1.191	4.76	21.997	0.53 (0.78~0.28)	4.50 (1.20~7.80)	
		220416-GR				●		12.7	1.588	4.76	21.997	0.55 (0.80~0.30)	5.00 (1.20~8.00)	
		270608-GR				●		15.875	0.794	6.35	27.496	0.71 (0.85~0.31)	6.20 (7.80~1.50)	
		270612-GR			●	●		15.875	1.191	6.35	27.496	0.71 (0.75~0.31)	6.20 (1.50~7.80)	
		270616-GR				●		15.875	1.588	6.35	27.496	0.75 (0.85~0.35)	6.20 (1.50~7.80)	
		330924-GR				●		19.05	2.381	9.52	32.996	0.93 (1.00~0.40)	7.30 (2.00~9.00)	
		160404-HM			●	●		9.525	0.397	4.76	16.498	0.15 (0.30~0.05)	2.00 (0.90~4.00)	
		160408-HM		●	●	●		9.525	0.794	4.76	16.498	0.25 (0.50~0.10)	2.50 (1.00~4.00)	
		220404-HM			●			12.7	0.397	4.76	21.997	0.15 (0.30~0.05)	3.30 (0.90~6.60)	
		220408-HM			●	●		12.7	0.794	4.76	21.997	0.25 (0.50~0.10)	3.30 (1.00~6.60)	
		160404-LP		●	●			9.525	0.397	4.76	16.498	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		160408-LP		●	●			9.525	0.794	4.76	16.498	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		160412-LP		●	●			9.525	1.191	4.76	16.498	0.20 (0.45~0.13)	1.50 (0.45~0.80)	
		110308-MP			●			6.35	0.794	3.18	10.999	0.23 (0.42~0.15)	1.20 (0.50~3.50)	
		160404-MP	●	●	●			9.525	0.397	4.76	16.498	0.25 (0.40~0.10)	1.95 (0.40~3.50)	
		160408-MP	●	●	●			9.525	0.794	4.76	16.498	0.30 (0.45~0.15)	2.25 (0.50~4.00)	
		160412-MP	●	●	●			9.525	1.191	4.76	16.498	0.33 (0.50~0.15)	2.65 (0.80~4.50)	
		220404-MP		●	●			12.7	0.397	4.76	21.997	0.20 (0.35~0.10)	3.00 (0.40~5.00)	
		220408-MP		●	●			12.7	0.794	4.76	21.997	0.25 (0.50~0.10)	3.30 (1.00~6.60)	
		220412-MP		●	●			12.7	1.191	4.76	21.997	0.30 (0.50~0.15)	3.50 (0.80~6.00)	
		220416-MP		●	●			12.7	1.588	4.76	21.997	0.43 (0.60~0.25)	4.65 (1.30~8.00)	

* : Standard insert shape

● : Stock item

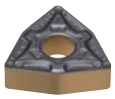
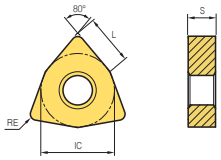
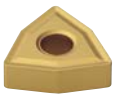
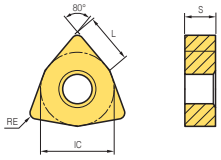
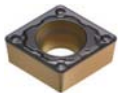
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 TNMG-MP*	TNMG	160404-VB		●	●			9.525	0.397	4.76	16.498	0.20 (0.35~0.10)	1.00 (0.30~1.50)	
		160408-VB		●	●			9.525	0.794	4.76	16.498	0.30 (0.45~0.15)	3.75 (0.50~7.00)	
		160412-VB			●			9.525	1.191	4.76	16.498	0.33 (0.45~0.20)	1.65 (0.80~2.50)	
		160404-VC		●	●			9.525	0.397	4.76	16.498	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		160408-VC	●	●	●			9.525	0.794	4.76	16.498	0.28 (0.40~0.15)	1.75 (0.50~3.00)	
		160412-VC		●	●			9.525	1.191	4.76	16.498	0.30 (0.45~0.15)	1.75 (0.50~3.00)	
		220408-VC		●	●			12.7	0.794	4.76	21.997	0.28 (0.40~0.15)	1.75 (0.50~3.00)	
		160408-VF		●				9.525	0.794	4.76	16.498	0.25 (0.40~0.10)	1.00 (0.50~1.50)	
		160404-VL		●				9.525	0.397	4.76	16.498	0.15 (0.30~0.07)	0.75 (0.50~1.50)	
		160408-VL		●	●			9.525	0.794	4.76	16.498	0.18 (0.35~0.10)	0.75 (0.50~1.50)	
		160412-VL		●				9.525	1.191	4.76	16.498	0.21 (0.55~0.13)	0.85 (0.60~1.70)	
		160404-VM				●		9.525	0.397	4.76	16.498	0.15 (0.30~0.05)	1.75 (0.90~3.50)	
		160408-VM		●	●	●		9.525	0.794	4.76	16.498	0.30 (0.50~0.10)	3.00 (1.00~5.00)	
		160412-VM		●				9.525	1.191	4.76	16.498	0.37 (0.60~0.13)	3.15 (1.30~5.00)	
	TNMM	220612-GH			●			12.7	1.191	6.35	21.997	0.47 (0.50~0.20)	6.00 (1.00~8.00)	
 TNMX-SH*	TNMX	160404L			●	●		9.525	0.397	4.76	16.498	0.28 (0.30~0.12)	3.00 (1.00~3.50)	
		160404R			●	●		9.525	0.397	4.76	16.498	0.28 (0.30~0.12)	3.00 (1.00~3.50)	
		160408L				●		9.525	0.794	4.76	16.498	0.33 (0.35~0.15)	3.13 (1.30~3.40)	
		160408R			●	●		9.525	0.794	4.76	16.498	0.33 (0.35~0.15)	3.13 (1.30~3.40)	
		160404L-SH		●	●			9.525	0.397	4.76	16.498	0.21 (0.30~0.12)	2.25 (1.00~3.50)	
		160404R-SH		●	●			9.525	0.397	4.76	16.498	0.21 (0.30~0.12)	2.25 (1.00~3.50)	
		160408L-SH		●	●			9.525	0.794	4.76	16.498	0.30 (0.45~0.15)	2.50 (1.00~4.00)	
		160408R-SH		●	●			9.525	0.794	4.76	16.498	0.30 (0.45~0.15)	2.50 (1.00~4.00)	
 VNMG-MP*	VNMG	160404-HM				●		9.525	0.397	4.76	16.606	0.15 (0.30~0.15)	1.75 (0.90~3.50)	
		160408-HM			●	●		9.525	0.794	4.76	16.606	0.25 (0.50~0.10)	2.00 (1.00~4.00)	
		160412-HM			●			9.525	1.191	4.76	16.606	0.25 (0.50~0.20)	2.00 (1.50~4.00)	
		160404-LP		●	●			9.525	0.397	4.76	16.606	0.20 (0.35~0.10)	0.50 (0.30~1.50)	
		160408-LP		●	●			9.525	0.794	4.76	16.606	0.20 (0.40~0.10)	0.80 (0.50~2.00)	
		160412-LP		●				9.525	1.191	4.76	16.606	0.20 (0.45~0.13)	1.20 (0.80~2.50)	
		160404-MP	●	●	●			9.525	0.397	4.76	16.606	0.25 (0.40~0.10)	1.95 (0.40~3.50)	
		160408-MP	●	●	●			9.525	0.794	4.76	16.606	0.30 (0.45~0.15)	2.25 (0.50~4.00)	
		160412-MP		●	●			9.525	1.191	4.76	16.606	0.30 (0.50~0.15)	1.50 (0.80~4.50)	
		160404-VB	●	●	●			9.525	0.397	4.76	16.606	0.23 (0.35~0.10)	0.90 (0.30~1.50)	
		160408-VB	●	●	●			9.525	0.794	4.76	16.606	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		160412-VB		●	●			9.525	1.191	4.76	16.606	0.33 (0.45~0.20)	1.65 (0.80~2.50)	
		160404-VC		●	●			9.525	0.397	4.76	16.606	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		160408-VC		●	●			9.525	0.794	4.76	16.606	2.08 (4.00~0.15)	1.75 (0.50~3.00)	
		160412-VC		●	●			9.525	1.191	4.76	16.606	0.28 (0.40~0.15)	1.90 (0.80~3.00)	
		160408-VF			●			9.525	0.794	4.76	16.606	0.25 (0.40~0.10)	1.00 (0.50~1.50)	
		160404-VL	●	●	●			9.525	0.397	4.76	16.606	0.13 (0.20~0.05)	0.55 (0.10~1.00)	
		160408-VL	●	●	●			9.525	0.794	4.76	16.606	0.18 (0.25~0.10)	0.85 (0.20~1.50)	
		160412-VL	●	●				9.525	1.191	4.76	16.606	0.23 (0.30~0.15)	1.25 (0.50~2.00)	
		160404-VM				●		9.525	0.397	4.76	16.606	0.15 (0.30~0.15)	1.75 (0.90~3.50)	
		160408-VM			●	●		9.525	0.794	4.76	16.606	0.30 (0.50~0.10)	2.50 (1.00~4.00)	

* : Standard insert shape

● : Stock item

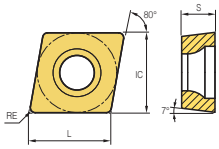
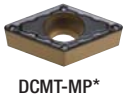
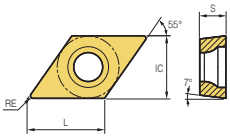
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 WNMG-MP*	**WNMG**	080404-B25			●			12.7	0.397	4.76	8.687	0.31 (0.45~0.17)	3.00 (1.00~5.00)	
		080408-B25		●	●	●		12.7	0.794	4.76	8.687	0.42 (0.60~0.23)	3.25 (1.50~5.00)	
		080412-B25		●	●			12.7	1.191	4.76	8.687	0.43 (0.60~0.25)	3.50 (2.00~5.00)	
		080408-GR			●	●		12.7	0.794	4.76	8.687	0.25 (0.50~0.20)	3.50 (1.00~7.00)	
		080412-GR		●	●	●		12.7	1.191	4.76	8.687	0.38 (0.50~0.25)	4.15 (1.30~7.00)	
		060408-HM				●		9.525	0.794	4.76	6.515	0.25 (0.50~0.10)	1.75 (1.00~3.50)	
		080404-HM				●		12.7	0.397	4.76	8.687	0.25 (0.50~0.10)	1.75 (1.00~3.50)	
		080408-HM		●	●	●		12.7	0.794	4.76	8.687	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		080416-HR		●				12.7	1.588	4.76	8.687	0.51 (0.70~0.32)	4.40 (1.80~7.00)	
		060408-LP		●	●			9.525	0.794	4.76	6.515	0.25 (0.50~0.10)	1.75 (1.00~3.50)	
		080404-LP		●	●			12.7	0.397	4.76	8.687	0.23 (0.35~0.10)	1.15 (0.30~2.00)	
		080408-LP		●	●			12.7	0.794	4.76	8.687	0.25 (0.40~0.10)	1.50 (0.50~2.50)	
		080412-LP		●	●			12.7	1.191	4.76	8.687	0.29 (0.45~0.13)	1.90 (0.80~3.00)	
		060404-MP		●	●			9.525	0.397	4.76	6.515	0.20 (0.40~0.10)	2.00 (0.50~3.00)	
		060408-MP		●	●			9.525	0.794	4.76	6.515	0.25 (0.45~0.15)	2.00 (0.50~3.00)	
		080404-MP	●	●	●			12.7	0.397	4.76	8.687	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		080408-MP	●	●	●		●	12.7	0.794	4.76	8.687	0.30 (0.45~0.15)	2.50 (0.50~4.50)	
		080412-MP	●	●	●			12.7	1.191	4.76	8.687	0.33 (0.50~0.15)	2.90 (0.80~5.00)	
		080416-MP	●	●	●			12.7	1.588	4.76	8.687	0.37 (0.55~0.18)	2.55 (0.10~5.00)	
		080404-VB		●	●			12.7	0.397	4.76	8.687	0.23 (0.35~0.10)	0.90 (0.30~1.50)	
		080408-VB		●	●			12.7	0.794	4.76	8.687	0.30 (0.45~0.15)	1.25 (0.50~2.00)	
		080412-VB		●				12.7	1.191	4.76	8.687	0.32 (0.45~0.18)	1.65 (0.80~2.50)	
		080408-VC		●				12.7	0.794	4.76	8.687	0.20 (0.45~0.12)	2.00 (0.50~3.50)	
		080408-VC	●	●	●			12.7	0.794	4.76	8.687	0.30 (0.45~0.15)	2.33 (0.15~4.50)	
		080412-VC		●	●			12.7	1.191	4.76	8.687	0.30 (0.45~0.15)	2.33 (0.15~4.50)	
		080408-VL			●			12.7	0.794	4.76	8.687	0.18 (0.35~0.10)	0.75 (0.20~1.50)	
		060408-VM			●			9.525	0.794	4.76	6.515	0.25 (0.50~0.10)	2.00 (1.00~4.00)	
		080408-VM			●	●		12.7	0.794	4.76	8.687	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
		080408-VP2			●			12.7	0.794	4.76	8.687	0.25 (0.50~0.10)	2.50 (1.00~5.00)	
	**WNMM**	100608-B25				●		15.875	0.794	6.35	10.859	0.43 (0.60~0.25)	3.80 (2.50~6.00)	
 CCMT-MP*	**CCMT**	060202-C25		●	●	●		6.35	0.198	2.38	6.448	0.08 (0.12~0.03)	1.20 (0.40~2.00)	
		060204-C25		●	●	●	●	6.35	0.397	2.38	6.448	0.10 (0.15~0.05)	1.45 (0.60~2.30)	
		060208-C25		●	●	●		6.35	0.794	2.38	6.448	0.14 (0.20~0.07)	1.55 (0.80~2.30)	
		09T304-C25		●	●	●	●	9.525	0.397	3.97	9.6719	0.17 (0.25~0.08)	1.90 (0.80~3.00)	
		09T308-C25		●	●	●	●	9.525	0.794	3.97	9.6719	0.20 (0.30~0.10)	2.00 (1.00~3.00)	
		120404-C25		●	●	●		12.7	0.397	4.76	12.8959	0.21 (0.32~0.10)	1.90 (0.80~3.00)	
		120408-C25		●	●	●	●	12.7	0.794	4.76	12.8959	0.24 (0.36~0.12)	2.35 (1.20~3.50)	
		120412-C25		●	●			12.7	1.191	4.76	12.8959	0.28 (0.40~0.15)	2.45 (1.40~3.50)	
		060202-FP		●				6.35	0.198	2.38	6.448	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		060204-FP		●	●			6.35	0.397	2.38	6.448	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		09T302-FP		●				9.525	0.198	3.97	9.6719	0.03 (0.10~0.01)	0.25 (0.05~1.00)	
		09T304-FP		●	●			9.525	0.397	3.97	9.6719	0.05 (0.10~0.01)	0.40 (0.10~1.00)	

* : Standard insert shape

● : Stock item

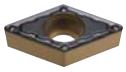
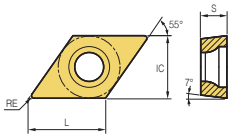
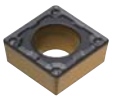
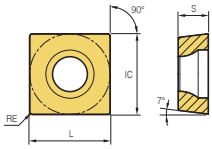
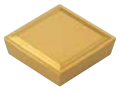
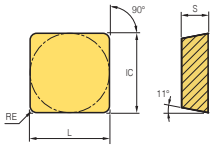
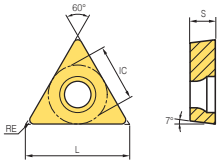
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 CCMT-MP*	CCMT	09T308-FP		●	●			9.525	0.794	3.97	9.6719	0.07 (0.12~0.04)	0.40 (0.10~1.00)	
		060204-HMP				●		6.35	0.397	2.38	6.448	0.12 (0.17~0.06)	1.30 (0.20~2.40)	
		060208-HMP				●		6.35	0.794	2.38	6.448	0.21 (0.23~0.08)	0.87 (0.40~2.40)	
		09T304-HMP				●		9.525	0.397	3.97	9.6719	0.16 (0.23~0.08)	1.65 (0.30~3.00)	
		09T308-HMP				●		9.525	0.794	3.97	9.6719	0.18 (0.30~0.10)	1.85 (0.50~3.00)	
		120404-HMP			●	●		12.7	0.397	4.76	12.8959	0.24 (0.27~0.09)	2.60 (0.30~3.60)	
		120408-HMP				●		12.7	0.794	4.76	12.8959	0.28 (0.29~0.10)	2.73 (0.50~3.60)	
		060202-MP		●	●			6.35	0.198	2.38	6.448	0.08 (0.12~0.04)	0.85 (0.20~1.50)	
		060204-MP	●	●	●			6.35	0.397	2.38	6.448	0.10 (0.15~0.05)	0.90 (0.30~1.50)	
		060208-MP	●					6.35	0.794	2.38	6.448	0.11 (0.15~0.07)	1.25 (0.50~2.00)	
		09T302-MP		●	●			9.525	0.198	3.97	9.6719	0.11 (0.15~0.07)	1.15 (0.30~2.00)	
		09T304-MP	●	●	●		●	9.525	0.397	3.97	9.6719	0.17 (0.25~0.08)	1.50 (0.50~2.50)	
		09T308-MP	●	●	●		●	9.525	0.794	3.97	9.6719	0.20 (0.30~0.10)	1.50 (0.50~2.50)	
		120404-MP			●			12.7	0.397	4.76	12.8959	0.20 (0.30~0.10)	2.00 (0.50~3.50)	
		120408-MP			●			12.7	0.794	4.76	12.8959	0.18 (0.35~0.15)	1.75 (0.80~3.50)	
		060202-VF			●			6.35	0.198	2.38	6.448	0.13 (0.20~0.05)	0.65 (0.30~1.00)	
		060204-VF			●			6.35	0.397	2.38	6.448	0.18 (0.25~0.10)	0.65 (0.30~1.00)	
		09T302-VF			●			9.525	0.198	3.97	9.6719	0.10 (0.16~0.04)	1.15 (0.80~1.50)	
		09T304-VF			●			9.525	0.397	3.97	9.6719	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		09T308-VF			●			9.525	0.794	3.97	9.6719	0.18 (0.25~0.10)	0.90 (0.30~1.50)	
		120404-VF			●			12.7	0.397	4.76	12.8959	0.15 (0.22~0.07)	1.05 (0.10~2.00)	
		060204-VL	●	●	●			6.35	0.397	2.38	6.448	0.07 (0.10~0.04)	0.49 (0.08~0.90)	
		060208-VL	●	●	●			6.35	0.794	2.38	6.448	0.09 (0.12~0.06)	0.55 (0.10~1.00)	
		09T304-VL		●	●			9.525	0.397	3.97	9.6719	0.08 (0.10~0.05)	0.55 (0.10~1.00)	
		09T308-VL		●	●			9.525	0.794	3.97	9.6719	0.12 (0.15~0.08)	0.55 (0.10~1.00)	
 DCMT-MP*	DCMT	070202-C25			●			6.35	0.198	2.38	7.7519	0.09 (0.15~0.03)	1.15 (0.30~2.00)	
		070204-C25		●	●	●	●	6.35	0.397	2.38	7.7519	0.13 (0.20~0.05)	1.50 (0.50~2.50)	
		070208-C25		●	●	●		6.35	0.794	2.38	7.7519	0.16 (0.25~0.06)	1.65 (0.80~2.50)	
		11T302-C25		●	●			9.525	0.198	3.97	11.6279	0.15 (0.25~0.04)	1.50 (0.50~2.50)	
		11T304-C25		●	●	●	●	9.525	0.397	3.97	11.6279	0.19 (0.30~0.08)	1.90 (0.80~3.00)	
		11T308-C25		●	●	●	●	9.525	0.794	3.97	11.6279	0.20 (0.30~0.10)	2.00 (1.00~3.00)	
		070202-FP		●				6.35	0.198	2.38	7.7519	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		070204-FP		●	●			6.35	0.397	2.38	7.7519	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		11T302-FP		●				9.525	0.198	3.97	11.6279	0.03 (0.10~0.01)	0.25 (0.05~1.00)	
		11T304-FP		●	●			9.525	0.397	3.97	11.6279	0.05 (0.10~0.01)	0.40 (0.10~1.00)	
		11T308-FP		●	●			9.525	0.794	3.97	11.6279	0.07 (0.12~0.04)	0.40 (0.10~1.00)	
		070202-HMP				●		6.35	0.198	2.38	7.7519	0.08 (0.12~0.03)	0.80 (0.10~1.50)	
		070204-HMP				●		6.35	0.397	2.38	7.7519	0.12 (0.17~0.06)	1.30 (0.20~2.40)	
		070208-HMP				●		6.35	0.794	2.38	7.7519	0.21 (0.23~0.08)	0.87 (0.40~2.40)	
		11T302-HMP				●		9.525	0.198	3.97	11.6279	0.11 (0.22~0.04)	1.00 (0.10~2.00)	
		11T304-HMP			●	●		9.525	0.397	3.97	11.6279	0.16 (0.23~0.08)	1.65 (0.30~3.00)	
		11T308-HMP				●		9.525	0.794	3.97	11.6279	0.20 (0.30~0.10)	1.75 (0.50~3.00)	
		070202-MP		●	●			6.35	0.198	2.38	7.7519	0.08 (0.12~0.04)	0.96 (0.12~1.80)	
		070204-MP	●	●	●			6.35	0.397	2.38	7.7519	0.10 (0.15~0.05)	1.05 (0.30~1.80)	
		070208-MP		●	●			6.35	0.794	2.38	7.7519	0.15 (0.22~0.08)	1.05 (0.30~1.80)	
		11T302-MP		●	●			9.525	0.198	3.97	11.6279	0.10 (0.15~0.04)	1.15 (0.30~2.00)	
		11T304-MP	●	●	●		●	9.525	0.397	3.97	11.6279	0.14 (0.20~0.08)	1.40 (0.50~2.30)	

* : Standard insert shape

● : Stock item

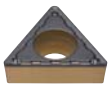
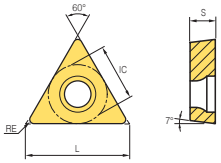
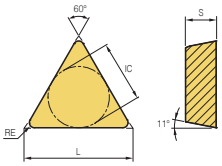
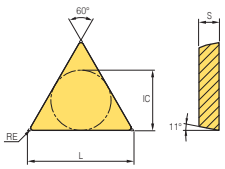
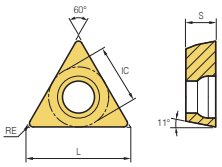
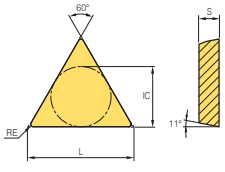
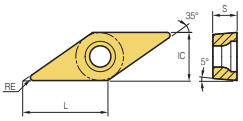
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 DCMT-MP*	DCMT	11T308-MP	●	●	●			9.525	0.794	3.97	11.6279	0.20 (0.30~0.10)	1.40 (0.50~2.30)	
		070202-VF			●			6.35	0.198	2.38	7.7519	0.07 (0.10~0.03)	0.53 (0.06~1.00)	
		070204-VF			●			6.35	0.397	2.38	7.7519	0.13 (0.20~0.05)	0.75 (0.30~1.20)	
		11T302-VF			●			9.525	0.198	3.97	11.6279	0.10 (0.15~0.04)	0.79 (0.08~1.50)	
		11T304-VF			●			9.525	0.397	3.97	11.6279	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		070204-VL		●	●			6.35	0.397	2.38	7.7519	0.18 (0.25~0.10)	0.90 (0.30~1.50)	
		070208-VL		●	●			6.35	0.794	2.38	7.7519	0.20 (0.40~0.05)	2.00 (0.10~4.00)	
		11T304-VL	●	●	●			9.525	0.397	3.97	11.6279	0.08 (0.10~0.05)	0.55 (0.10~1.00)	
		11T308-VL	●	●	●			9.525	0.794	3.97	11.6279	0.12 (0.15~0.08)	0.55 (0.10~1.00)	
 SCMT-MP*	SCMT	09T304-FP		●				9.525	0.397	3.97	9.6719	0.05 (0.10~0.01)	0.40 (0.10~1.00)	
		09T308-FP		●	●			9.525	0.794	3.97	9.6719	0.07 (0.12~0.04)	0.40 (0.10~1.00)	
		060204-C25				●		6.35	0.397	2.38	6.35	0.15 (0.20~0.06)	1.45 (0.40~2.50)	
		09T304-C25		●	●	●		9.525	0.397	3.97	9.6719	0.17 (0.25~0.08)	1.80 (0.60~3.00)	
		09T308-C25		●	●	●		9.525	0.794	3.97	9.6719	0.20 (0.30~0.10)	2.00 (1.00~3.00)	
		120404-C25		●	●			12.7	0.397	4.76	12.8959	0.20 (0.30~0.10)	2.30 (0.80~3.80)	
		120408-C25		●	●	●		12.7	0.794	4.76	12.8959	0.25 (0.38~0.12)	2.50 (1.20~3.80)	
		09T304-HMP				●		9.525	0.397	3.97	9.6719	0.12 (0.23~0.08)	1.50 (0.30~3.00)	
		09T308-HMP				●		9.525	0.794	3.97	9.6719	0.18 (0.30~0.10)	1.75 (0.50~3.00)	
		120408-HMP				●		12.7	0.794	4.76	12.8959	0.20 (0.36~0.12)	1.80 (0.60~3.60)	
		09T304-MP		●	●			9.525	0.397	3.97	9.6719	0.15 (0.25~0.05)	1.55 (0.30~2.80)	
		09T308-MP	●	●	●			9.525	0.794	3.97	9.6719	0.20 (0.30~0.10)	1.65 (0.50~2.80)	
		120404-MP		●	●			12.7	0.397	4.76	12.8959	0.20 (0.30~0.10)	1.65 (0.50~2.80)	
		120408-MP		●	●			12.7	0.794	4.76	12.8959	0.18 (0.35~0.15)	1.80 (0.80~3.50)	
		09T308-VL			●			9.525	0.794	3.97	9.6719	0.12 (0.15~0.08)	0.55 (0.10~1.00)	
 SPMR-F*	SPMR	120304-F			●	●		12.7	0.397	3.18	12.7	0.23 (0.25~0.10)	1.67 (0.50~2.00)	
		090308-M			●	●		9.525	0.794	3.18	9.525	0.25 (0.40~0.10)	2.25 (1.00~3.50)	
		120308-M			●	●		12.7	0.794	3.18	12.7	0.25 (0.40~0.10)	2.75 (1.00~3.50)	
		120312-M				●		12.7	1.191	3.18	12.7	0.30 (0.40~0.20)	2.75 (1.50~4.00)	
 TCMT-MP*	TCMT	110202-FP		●				6.35	0.198	2.38	10.999	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		110204-FP		●				6.35	0.397	2.38	10.999	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		090204-C25		●	●	●		5.56	0.397	2.38	9.63	0.12 (0.18~0.06)	1.45 (0.40~2.50)	
		090208-C25		●	●			5.56	0.794	2.38	9.63	0.17 (0.25~0.08)	1.65 (0.80~2.50)	
		110202-C25			●			6.35	0.198	2.38	10.999	0.08 (0.12~0.04)	1.20 (0.40~2.00)	
		110204-C25		●	●	●	●	6.35	0.397	2.38	10.999	0.13 (0.20~0.06)	1.55 (0.60~2.50)	
		110208-C25		●	●	●		6.35	0.794	2.38	10.999	0.17 (0.25~0.08)	1.65 (0.80~2.50)	
		16T304-C25		●	●	●	●	9.525	0.397	3.97	16.498	0.18 (0.28~0.08)	1.90 (0.80~3.00)	
		16T308-C25		●	●	●	●	9.525	0.794	3.97	16.498	0.20 (0.30~0.10)	2.00 (1.00~3.00)	
		110204-HMP			●	●		6.35	0.397	2.38	10.999	0.13 (0.19~0.06)	1.35 (0.20~2.50)	
		110204-HMP				●		6.35	0.397	2.38	10.999	0.13 (0.19~0.06)	1.35 (0.20~2.50)	
		16T304-HMP				●		9.525	0.397	3.97	16.498	0.13 (0.23~0.08)	1.50 (0.30~3.00)	
		16T308-HMP				●		9.525	0.794	3.97	16.498	0.13 (0.23~0.08)	1.50 (0.30~3.00)	
		090204-MP	●					5.56	0.397	2.38	9.63	0.12 (0.18~0.05)	0.55 (0.10~1.00)	
		110202-MP		●	●			6.35	0.198	2.38	10.999	0.08 (0.12~0.03)	0.85 (0.20~1.50)	
		110204-MP	●	●	●			6.35	0.397	2.38	10.999	0.10 (0.15~0.05)	0.85 (0.20~1.50)	
		110208-MP		●	●			6.35	0.794	2.38	10.999	0.19 (0.28~0.10)	1.13 (0.25~2.00)	

* : Standard insert shape

● : Stock item

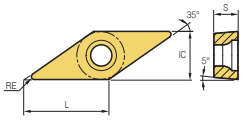
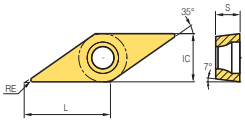
Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 TCMT-MP*	TCMT	16T304-MP	●	●	●			9.525	0.397	3.97	16.498	0.14 (0.20~0.08)	1.40 (0.30~2.50)	
		16T308-MP	●	●	●			9.525	0.794	3.97	16.498	0.20 (0.30~0.10)	1.50 (0.50~2.50)	
		16T312-MP		●	●			9.525	1.191	3.97	16.498	0.30 (0.40~0.20)	1.50 (0.50~2.50)	
		16T304-VF			●			9.525	0.397	3.97	16.498	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		16T304-VL		●				9.525	0.397	3.97	16.498	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		16T308-VL	●	●	●			9.525	0.794	3.97	16.498	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
	TPGN	110304				●		6.35	0.397	3.18	10.999	0.14 (0.20~0.07)	1.85 (0.70~3.00)	
		110308				●		6.35	0.794	3.18	10.999	0.18 (0.25~0.10)	1.85 (1.00~3.00)	
		160304			●	●		9.525	0.397	3.18	16.498	0.14 (0.20~0.07)	3.00 (1.00~5.00)	
		160308			●	●		9.525	0.794	3.18	16.498	0.18 (0.25~0.10)	3.00 (1.00~5.00)	
		220404				●		12.7	0.397	4.76	21.997	0.14 (0.20~0.07)	4.25 (1.50~7.00)	
		220408				●		12.7	0.794	4.76	21.997	0.18 (0.25~0.10)	4.25 (1.50~7.00)	
		220412				●		12.7	1.191	4.76	21.997	0.23 (0.30~0.15)	4.25 (1.50~7.00)	
 TPMR-F*	TPMR	110304-F			●	●		6.35	0.397	3.18	10.999	0.17 (0.20~0.05)	1.20 (0.30~1.50)	
		160304-F			●	●		9.525	0.397	3.18	16.498	0.17 (0.25~0.08)	1.25 (0.50~2.00)	
		110308-M				●		6.35	0.794	3.18	10.999	0.15 (0.25~0.05)	0.90 (0.30~1.50)	
		160304-M				●		9.525	0.397	3.18	16.498	0.18 (0.25~0.10)	2.50 (1.00~5.00)	
		160308-M			●	●		9.525	0.794	3.18	16.498	0.20 (0.30~0.13)	2.80 (1.00~5.00)	
		160312-M				●		9.525	1.191	3.18	16.498	0.23 (0.35~0.15)	3.00 (1.00~5.00)	
		220408-M			●			12.7	0.794	4.76	21.997	0.15 (0.30~0.13)	3.50 (7.00~1.50)	
 TPMT-VL*	TPMT	090202-FP		●				5.56	0.198	3.18	9.63	0.03 (0.06~0.01)	0.16 (0.04~0.50)	
		090204-FP		●	●			5.56	0.397	3.18	9.63	0.04 (0.08~0.01)	0.18 (0.05~0.60)	
		110302-FP		●				6.35	0.198	3.18	10.999	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		110304-FP		●	●			6.35	0.397	3.18	10.999	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		110308-FP		●	●			6.35	0.794	3.18	10.999	0.06 (0.10~0.01)	0.25 (0.10~0.90)	
		160404-FP		●				9.525	0.397	4.76	16.498	0.05 (0.10~0.01)	0.40 (0.10~1.00)	
		160408-FP		●				9.525	0.794	4.76	16.498	0.07 (0.12~0.04)	0.40 (0.10~1.00)	
		110304-MP		●	●			6.35	0.397	3.18	10.999	0.10 (0.20~0.05)	0.50 (0.10~1.00)	
		110308-MP		●	●			6.35	0.794	3.18	10.999	0.14 (0.20~0.08)	1.40 (0.30~2.50)	
		160404-MP		●	●			9.525	0.397	4.76	16.498	0.10 (0.20~0.05)	1.15 (0.30~2.00)	
		160408-MP		●	●			9.525	0.794	4.76	16.498	0.25 (0.45~0.15)	1.50 (0.50~4.00)	
		110304-VF			●			6.35	0.397	3.18	10.999	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		110308-VF			●			6.35	0.794	3.18	10.999	0.18 (0.25~0.10)	0.90 (0.30~1.50)	
		110304-VL		●				6.35	0.397	3.18	10.999	0.10 (0.15~0.05)	0.70 (0.10~1.30)	
	TPUN	160304				●		9.525	0.397	3.18	16.498	0.20 (0.30~0.10)	3.00 (1.00~5.00)	
		160308				●		9.525	0.794	3.18	16.498	0.28 (0.40~0.15)	3.00 (1.00~5.00)	
		220408				●		12.7	0.794	4.76	21.997	0.28 (0.40~0.15)	4.25 (1.50~7.00)	
 VBMT-MP*	VBMT	160404				●		9.525	0.397	4.76	16.606	0.10 (0.20~0.07)	1.35 (0.20~2.70)	
		160408			●	●		9.525	0.794	4.76	16.606	0.20 (0.25~0.15)	1.35 (0.70~2.00)	
		110302-FP		●				6.35	0.198	3.18	11.071	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		110304-FP		●				6.35	0.397	3.18	11.071	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		110308-FP		●				6.35	0.794	3.18	11.071	0.06 (0.10~0.01)	0.25 (0.10~0.90)	
		160404-FP		●	●			9.525	0.397	4.76	16.606	0.05 (0.10~0.01)	0.40 (0.10~1.00)	
		160408-FP		●	●			9.525	0.794	4.76	16.606	0.07 (0.12~0.04)	0.40 (0.10~1.00)	

* : Standard insert shape

● : Stock item

Stock items

Picture	Designation		Coated					Dimension (mm)				Cutting condition		Geometry
			NC3205	NC3215	NC3225	NC3030	NC3235	IC	RE	S	L	fn (mm/rev)	ap (mm)	
 VBMT-MP*	VBMT	160404-HMP				●		9.525	0.397	4.76	16.606	0.14 (0.20~0.07)	1.45 (0.20~2.70)	
		160408-HMP			●	●		9.525	0.794	4.76	16.606	0.31 (0.33~0.13)	2.13 (0.60~2.60)	
		110304-MP	●	●	●			6.35	0.397	3.18	11.071	0.10 (0.15~0.05)	0.85 (0.20~1.50)	
		110308-MP	●	●	●			6.35	0.794	3.18	11.071	0.19 (0.28~0.10)	1.15 (0.30~2.00)	
		160404-MP	●	●	●		●	9.525	0.397	4.76	16.606	0.14 (0.20~0.08)	1.15 (0.30~2.00)	
		160408-MP	●	●	●			9.525	0.794	4.76	16.606	0.18 (0.25~0.10)	1.40 (0.50~2.30)	
		160412-MP		●	●			9.525	1.191	4.76	16.606	0.23 (0.35~0.10)	1.40 (0.50~2.30)	
		160404-VB			●			9.525	0.397	4.76	16.606	0.14 (0.20~0.08)	0.85 (0.20~1.50)	
		160408-VB			●			9.525	0.794	4.76	16.606	0.17 (0.23~0.10)	1.00 (0.50~1.50)	
		160404-VF			●			9.525	0.397	4.76	16.606	0.13 (0.20~0.05)	0.65 (0.30~1.00)	
		160404-VL	●	●	●			9.525	0.397	4.76	16.606	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		160408-VL	●	●	●			9.525	0.794	4.76	16.606	0.15 (0.20~0.10)	0.90 (0.30~1.50)	
 VCMT-MP*	VCMT	080202-FP		●				4.76	0.198	2.38	8.299	0.03 (0.10~0.01)	0.20 (0.05~0.80)	
		080204-FP		●				4.76	0.397	2.38	8.299	0.05 (0.10~0.01)	0.25 (0.10~0.90)	
		080208-FP		●				4.76	0.794	2.38	8.299	0.06 (0.10~0.01)	0.25 (0.10~0.90)	
		160404-FP		●				9.525	0.397	4.76	16.606	0.05 (0.10~0.01)	0.40 (0.10~1.00)	
		160408-FP		●	●			9.525	0.794	4.76	16.606	0.07 (0.12~0.04)	0.40 (0.10~1.00)	
		160404-HMP				●		9.525	0.397	4.76	16.606	0.14 (0.20~0.07)	1.45 (0.20~2.70)	
		160408-HMP				●		9.525	0.794	4.76	16.606	0.31 (0.33~0.13)	2.13 (0.60~2.60)	
		080202-MP		●	●			4.76	0.198	2.38	8.299	0.08 (0.15~0.03)	0.55 (0.10~1.00)	
		080204-MP		●	●			4.76	0.397	2.38	8.299	0.11 (0.18~0.03)	0.55 (0.10~1.00)	
		160404-MP		●	●			9.525	0.397	4.76	16.606	0.13 (0.18~0.08)	1.15 (0.30~2.00)	
		160408-MP		●	●			9.525	0.794	4.76	16.606	0.17 (0.23~0.10)	1.40 (0.50~2.30)	
		110304-VF			●			6.35	0.397	3.18	11.071	0.11 (0.18~0.03)	0.68 (0.15~1.20)	
		160404-VF			●			9.525	0.397	4.76	16.606	0.12 (0.20~0.04)	0.83 (0.15~1.50)	
		080202-VL		●	●			4.76	0.198	2.38	8.299	0.13 (0.20~0.05)	0.65 (0.30~1.00)	
		080204-VL		●	●			4.76	0.397	2.38	8.299	0.18 (0.25~0.10)	0.65 (0.30~1.00)	
		160404-VL		●	●			9.525	0.397	4.76	16.606	0.13 (0.20~0.05)	0.90 (0.30~1.50)	
		160408-VL		●	●			9.525	0.794	4.76	16.606	0.13 (0.20~0.05)	0.90 (0.30~1.50)	

* : Standard insert shape

● : 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 glasess 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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