

THE NEW VALUE FRONTIER



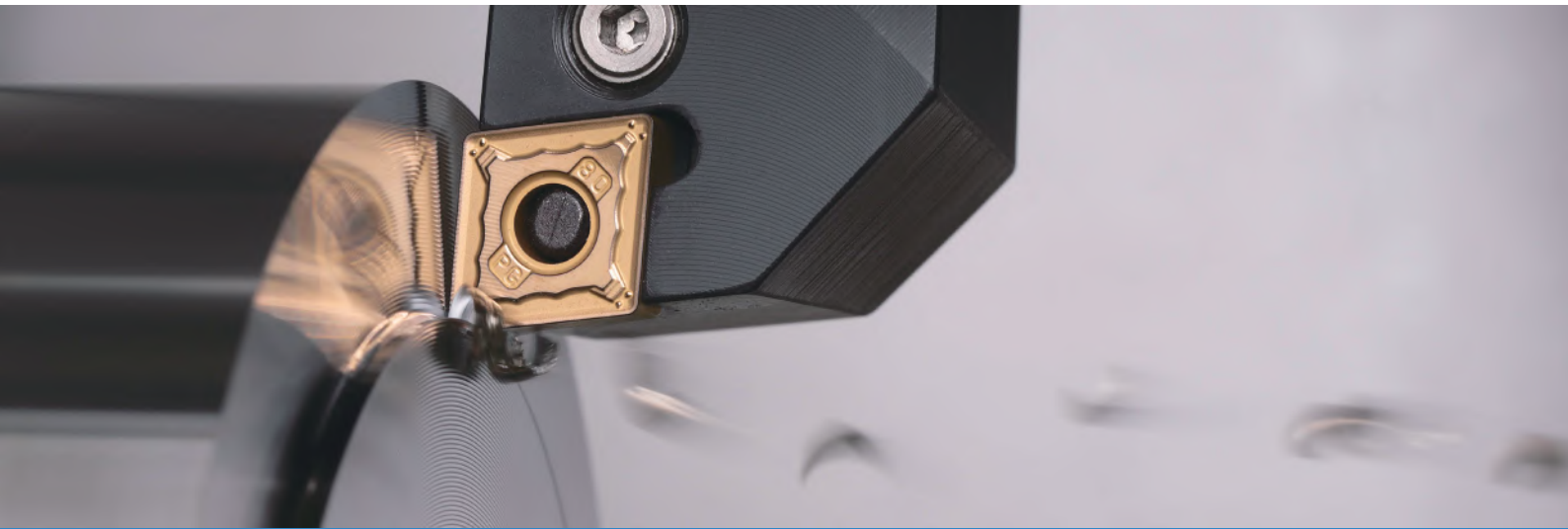
CVD Coated Carbide Grade for Steel

CA025P

CVD Coated Carbide Grade for Steel

CA025P

NEW



Next Generation CVD Coating for Longer Tool Life

Improved Wear Resistance

Excellent Fracture Resistance

Excellent Adhesion Resistance and Chipping Resistance

Positive Inserts Added to the Lineup



CVD Coated Carbide Grade for Steel

CA025P

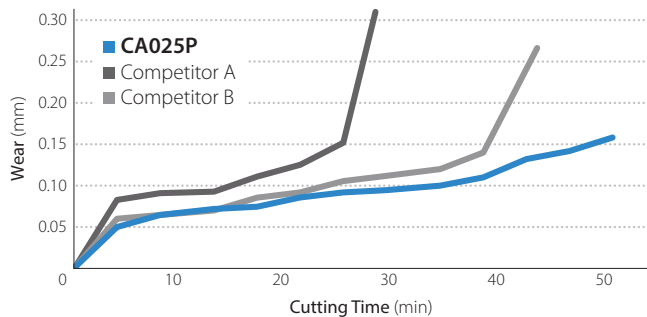
Next Generation CVD Coating for Longer Tool Life

1

Improved Wear Resistance with New CVD Grade for Steel

Thickened Alumina with Good Thermal Resistance (Twice as thick as conventional coating)
Improved Plastic Deformation Resistance by Increased Temperature Strength

Wear Resistance Comparison (Internal Evaluation)



CA025P (50.4 min)



Good Surface Condition

Competitor A (29.4 min)



Competitor B (42 min)



Cutting Conditions : $V_c = 300$ m/min, $a_p = 1.5$ mm, $f = 0.3$ mm/rev, Wet Workpiece : SCM435

Wear Comparison (Internal Evaluation) Cutting Time 25.2 min

CA025P Maintains Smooth and Flat Surface with Stable Tool Life

CA025P



Stable Wear on Surface

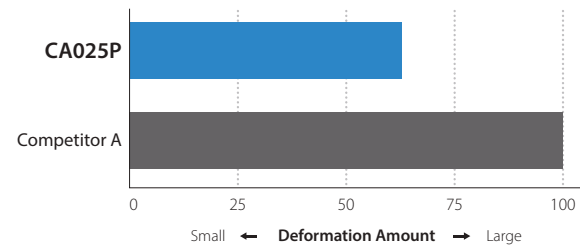
Competitor A



Unstable Wear Pattern

Cutting Conditions : $V_c = 300$ m/min, $a_p = 1.5$ mm, $f = 0.3$ mm/rev, Wet Workpiece : SCM435

Plastic Deformation Comparison under High Temperature (Internal Evaluation)
Comparison with Competitor A



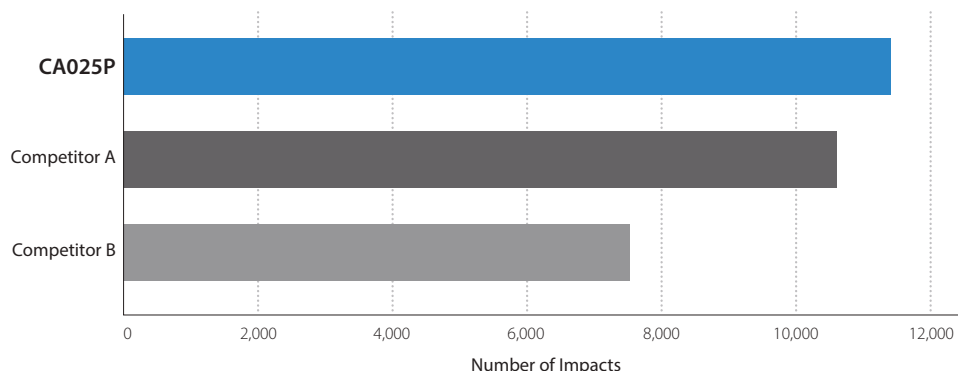
Small ← Deformation Amount → Large

2

Excellent Fracture Resistance

New Substrate with High Stability Provides Excellent Chipping Resistance

Fracture Resistance Comparison (Internal Evaluation) Average of 5 times

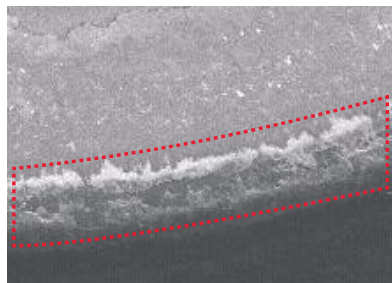


Cutting Conditions : $V_c = 250$ m/min,
 $a_p = 1.5$ mm, $f = 0.35$ mm/rev, Wet
Workpiece : SCM440 (with 4 Slots)

Specialized Post-coating Process Prevents Adhesion

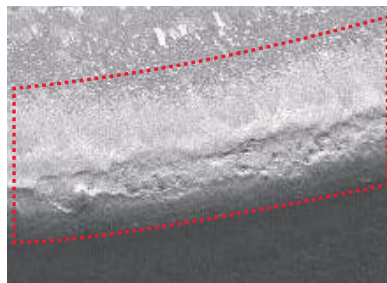
Adhesion on the Edge after Cutting (Internal Evaluation)

Specialized Post-coating



Less Adhesion

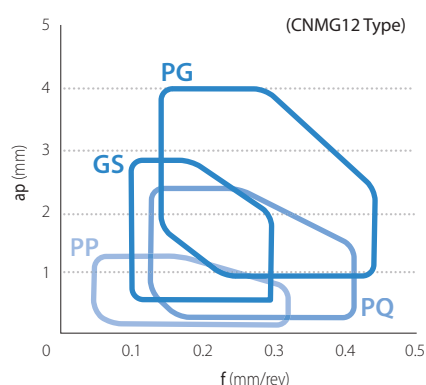
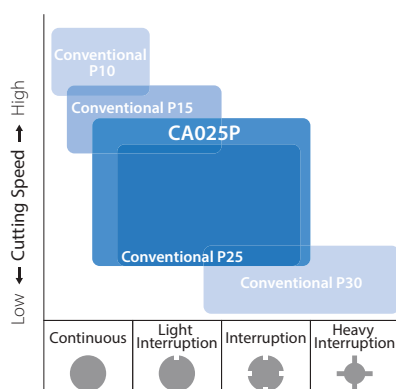
Not Specialized Post-coating



Wide Area of Adhesion

* Adhesion Area Appears White

Cutting Conditions : $V_c = 270$ m/min, $a_p = 1.0$ mm, $f = 0.1$ mm/rev, Wet
 Workpiece : SCM440 (with 4 Slots)



■ PG Chipbreaker (Medium-Roughing)

Stable Machining and Good Chip Control in a Wide Range of Applications

Interruption (Medium-Roughing)
1st Recommendation

■ GS Chipbreaker (Medium-Roughing)

Hybrid Land Enables Stable Machining During Light Interruption

Continuous (Medium-Roughing)
1st Recommendation

■ PQ Chipbreaker (Finishing-Medium)

Reduces Chip Clogging and Resistance at High Feed Rates

■ PP Chipbreaker (Finishing)

Improves Chip Clogging and Chip Crunching at High Feed Rates with Small a_p

Recommended Cutting Conditions

		Vc (m/min)		
		Low Carbon Steel Low Carbon Alloy Steel	Medium Carbon Steel Medium Carbon Alloy Steel	High Carbon Alloy Steel
		150 HB or Below	250 HB or Below	300 HB or Below
CA025P	Negative	150 ~ 240 ~ 320		150 ~ 220 ~ 280
	Positive	120 ~ 190 ~ 260		110 ~ 170 ~ 230

Case Studies

Cold Forging Die SKD61

Vc = 230 m/min
ap = 2.0 mm~
f = 0.23 mm/rev
Wet
CNMG120408PG
CA025P

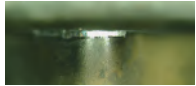


Tool Life

**CA025P
PG Chipbreaker** **25 pcs/edge**

UP
x1.6
Tool Life

**Competitor B
(Molded Chipbreaker)** **15 pcs/edge**



CA025P



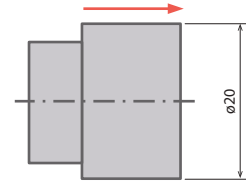
Competitor B

CA025P PG chipbreaker extended tool life by 1.6 times when compared to Competitor B. Good cutting edge provided continuous machining.

(User Evaluation)

Pipe SCM440

Vc = 160 m/min
ap = 1.2 mm
f = 0.2 mm/rev
Wet
DNMG150408PG
CA025P



Tool Life

**CA025P
PG Chipbreaker** **40 pcs/edge**

UP
x2
Tool Life

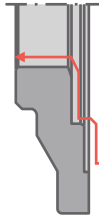
**Competitor C
(Molded Chipbreaker)** **20 pcs/edge**

CA025P PG chipbreaker maintained doubled the tool life of Competitor C. Less edge build-up and superior surface finish.

(User Evaluation)

Flange S45C

Vc = 250 m/min
ap = 1.0 mm
f = 0.1 ~ 0.35 mm/rev
Wet
WNMG080408PQ
CA025P



Tool Life

**CA025P
PQ Chipbreaker** **150 pcs/edge**

UP
x1.5
Tool Life

**Competitor D
(Molded Chipbreaker)** **100 pcs/edge**



CA025P



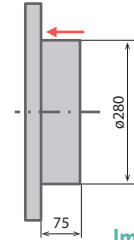
Competitor D

CA025P PQ chipbreaker extended tool life by 1.5 times that of Competitor D. Excellent cutting edge maintained continuous machining.

(User Evaluation)

Flange SCM440 (Normalized)

Vc = 200 m/min
ap = 0.3 mm
f = 0.15 mm/rev
Wet
DNMG150404PP
CA025P



Tool Life

**CA025P
PP Chipbreaker** **30 pcs/edge**

Improved
Cutting Edge

**Competitor E
(Molded Chipbreaker)** **30 pcs/edge**



CA025P

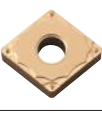


Competitor E

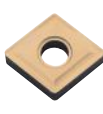
CA025P PP chipbreaker showed less wear on cutting edge after machining 30 pcs and maintained stable machining.

(User Evaluation)

Stock Items (Negative)

Shape		Description	Dimensions (mm)				CVD Coated Carbide CA025P
			I.C.	Thickness	Hole	Corner-R (RE)	
Wiper Edge		CNMG 120404WF	12.70	4.76	5.16	0.4	●
		120408WF				0.8	●
Wiper Edge		CNMG 120404WP	12.70	4.76	5.16	0.4	●
		120408WP				0.8	●
Wiper Edge		CNMG 120404WE	12.70	4.76	5.16	0.4	●
		120408WE				0.8	●
		120412WE				1.2	●
Wiper Edge		CNMG 120404WQ	12.70	4.76	5.16	0.4	●
		120408WQ				0.8	●
		120412WQ				1.2	●
Finishing		CNMG 120402PP	12.70	4.76	5.16	0.2	●
		120404PP				0.4	●
		120408PP				0.8	●
		120412PP				1.2	●
Finishing		CNMG 120402GP	12.70	4.76	5.16	0.2	●
		120404GP				0.4	●
		120408GP				0.8	●
Finishing-Medium		CNMG 120404PQ	12.70	4.76	5.16	0.4	●
		120408PQ				0.8	●
		120412PQ				1.2	●
Finishing-Medium		CNMG 090404HQ	9.525	4.76	3.81	0.4	●
		090408HQ				0.8	●
		CNMG 120404HQ	12.70	4.76	5.16	0.4	●
Finishing-Medium / Up Facing		120408HQ				0.8	●
		120412HQ				1.2	●
Finishing-Medium / Up Facing		CNMG 120404CQ	12.70	4.76	5.16	0.4	●
		120408CQ				0.8	●
		120412CQ				1.2	●
Finishing-Medium / Up Facing		CNMG 160608CQ	15.875	6.35	6.35	0.8	●
		160612CQ				1.2	●
Finishing-Medium / Up Facing		CNMG 120408CJ	12.70	4.76	5.16	0.8	●
		120412CJ				1.2	●
Medium-Roughing (Continuous)		CNMG 160612CJ	15.875	6.35	6.35	1.2	●
		160616CJ				1.6	●
		CNMG 090404GS	9.525	4.76	3.81	0.4	●
Medium-Roughing (Continuous)		090408GS				0.8	●
		CNMG 120404GS	12.70	4.76	5.16	0.4	●
		120408GS				0.8	●
		120412GS				1.2	●

● : Standard Stock

Shape		Description	Dimensions (mm)				CVD Coated Carbide CA025P
			I.C.	Thickness	Hole	Corner-R (RE)	
Medium-Roughing (Intermittent)		CNMG 120404PG	12.70	4.76	5.16	0.4	●
		120408PG				0.8	●
		120412PG				1.2	●
		120416PG				1.6	●
Medium-Roughing		CNMG 120404PS	12.70	4.76	5.16	0.4	●
		120408PS				0.8	●
		120412PS				1.2	●
		120416PS				1.6	●
		CNMG 160612PS	15.875	6.35	6.35	1.2	●
		160616PS				1.6	●
Medium-Roughing / High Feed		CNMG 120408PT	12.70	4.76	5.16	0.8	●
		120412PT				1.2	●
		CNMG 160608PT	15.875	6.35	6.35	0.8	●
		160612PT				1.2	●
Medium-Roughing / High Feed		160616PT	12.70	4.76	5.16	1.6	●
		CNMG 120408GT				0.8	●
		120412GT				1.2	●
Roughing		CNMG 120404	12.70	4.76	5.16	0.4	●
		120408				0.8	●
		120412				1.2	●
		CNMG 160608	15.875	6.35	6.35	0.8	●
		160612				1.2	●
		CNMG 190612	19.05	6.35	7.94	1.2	●
Roughing		190616				1.6	●
		CNMG 120408PH	12.70	4.76	5.16	0.8	●
		120412PH				1.2	●
		120416PH				1.6	●
		CNMG 160608PH	15.875	6.35	6.35	0.8	●
		160612PH				1.2	●
Single-Sided Roughing / High Feed		160616PH	19.05	6.35	7.94	1.6	●
		CNMG 190608PH				0.8	●
		190612PH				1.2	●
		190616PH	12.70	4.76	5.16	1.6	●
		190624PH				2.4	●
		CNMM 120408PX	15.875	6.35	6.35	0.8	●
Single-Sided Roughing / High Feed		120412PX				1.2	●
		120416PX				1.6	●
		CNMM 160608PX	19.05	6.35	7.94	0.8	●
		160612PX				1.2	●
		160616PX				1.6	●
		CNMM 190608PX	12.70	4.76	5.16	0.8	●
Single-Sided Roughing / High Feed		190612PX				1.2	●
		190616PX				1.6	●
		190624PX				2.4	●
		CNMM 120408PX	15.875	6.35	6.35	0.8	●
		120412PX				1.2	●
		120416PX				1.6	●
Single-Sided Roughing / High Feed		CNMM 160608PX	19.05	6.35	7.94	0.8	●
		160612PX				1.2	●
		160616PX				1.6	●
		CNMM 190608PX	12.70	4.76	5.16	0.8	●
		190612PX				1.2	●
		190616PX				1.6	●
Single-Sided Roughing / High Feed		190624PX	15.875	6.35	6.35	2.4	●
		CNMM 120408PX				0.8	●
		120412PX				1.2	●
		120416PX	19.05	6.35	7.94	1.6	●
		CNMM 160608PX				0.8	●
		160612PX				1.2	●
Single-Sided Roughing / High Feed		160616PX	12.70	4.76	5.16	1.6	●
		CNMM 190608PX				0.8	●
		190612PX				1.2	●
		190616PX	15.875	6.35	6.35	1.6	●
		190624PX				2.4	●
		CNMM 120408PX				0.8	●
Single-Sided Roughing / High Feed		120412PX	19.05	6.35	7.94	1.2	●
		120416PX				1.6	●
		CNMM 160608PX				0.8	●
		160612PX	12.70	4.76	5.16	1.2	●
		160616PX				1.6	●
		190624PX				2.4	●

● : Standard Stock

Stock Items (Negative)

Shape	Description	Dimensions (mm)				CVD Coated Carbide	
		I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Low Carbon Steel 	CNMG 120404XP	12.70	4.76	5.16	0.4	●	
	120408XP				0.8	●	
Low Carbon Steel 	CNMG 120404XQ	12.70	4.76	5.16	0.4	●	
	120408XQ				0.8	●	
Low Carbon Steel 	CNMG 120408XS	12.70	4.76	5.16	0.8	●	
Wiper Edge 	DNMX 150404WF	12.70	4.76	5.16	0.4	●	
	150408WF				0.8	●	
	150412WF				1.2	●	
	DNMX 150604WF	12.70	6.35	5.16	0.4	●	
	150608WF				0.8	●	
	150612WF				1.2	●	
Finishing 	DNMG 150402PP	12.70	4.76	5.16	0.2	●	
	150404PP				0.4	●	
	150408PP				0.8	●	
	150412PP				1.2	●	
	DNMG 150602PP	12.70	6.35	5.16	0.2	●	
	150604PP				0.4	●	
	150608PP				0.8	●	
	150612PP				1.2	●	
Finishing 	DNMG 110404GP	9.525	4.76	3.81	0.4	●	
	110408GP				0.8	●	
	DNMG 150402GP	12.70	4.76	5.16	0.2	●	
	150404GP				0.4	●	
	150408GP				0.8	●	
Finishing-Medium 	DNMG 150404PQ	12.70	4.76	5.16	0.4	●	
	150408PQ				0.8	●	
	150412PQ				1.2	●	
	DNMG 150604PQ	12.70	6.35	5.16	0.4	●	
	150608PQ				0.8	●	
	150612PQ				1.2	●	
Finishing-Medium 	DNMG 110402HQ	9.525	4.76	3.81	0.2	●	
	110404HQ				0.4	●	
	DNMG 150404HQ	12.70	4.76	5.16	0.4	●	
	150408HQ				0.8	●	
	150412HQ				1.2	●	
	DNMG 150604HQ	12.70	6.35	5.16	0.4	●	
	150608HQ				0.8	●	
	150612HQ				1.2	●	

● : Standard Stock

Shape	Description	Dimensions (mm)				CVD Coated Carbide	
		I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Finishing-Medium / Up Facing 	DNMG 150404CQ	12.70	4.76	5.16	0.4	●	
	150408CQ				0.8	●	
	150412CQ				1.2	●	
	DNMG 150604CQ	12.70	6.35	5.16	0.4	●	
	150608CQ				0.8	●	
	150612CQ				1.2	●	
Finishing-Medium / Up Facing 	DNMG 150408CJ	12.70	4.76	5.16	0.8	●	
	150412CJ				1.2	●	
	DNMG 150608CJ	12.70	6.35	5.16	0.8	●	
	150612CJ				1.2	●	
Medium-Roughing (Continuous) 	DNMG 110404GS	9.525	4.76	3.81	0.4	●	
	110408GS				0.8	●	
	DNMG 150404GS	12.70	4.76	5.16	0.4	●	
	150408GS				0.8	●	
	150412GS				1.2	●	
	DNMG 150604GS	12.70	6.35	5.16	0.4	●	
	150608GS				0.8	●	
	DNMG 150404PG	12.70	4.76	5.16	0.4	●	
	150408PG				0.8	●	
	150412PG				1.2	●	
Medium-Roughing (Interruption) 	150416PG	12.70	6.35	5.16	1.6	●	
	DNMG 150604PG				0.4	●	
	150608PG				0.8	●	
	150612PG	12.70	6.35	5.16	1.2	●	
	150616PG				1.6	●	
	DNMG 150404PS	12.70	4.76	5.16	0.4	●	
	150408PS				0.8	●	
	150412PS				1.2	●	
	DNMG 150604PS	12.70	6.35	5.16	0.4	●	
	150608PS				0.8	●	
	150612PS				1.2	●	
Medium-Roughing 	150616PS	12.70	6.35	5.16	1.6	●	
	DNMG 150408PT				0.8	●	
	150412PT				1.2	●	
	DNMG 150608PT	12.70	6.35	5.16	0.8	●	
	150612PT				1.2	●	
Medium-Roughing / High Feed 	DNMG 150408GT	12.70	4.76	5.16	0.8	●	
	150412GT				1.2	●	
	DNMG 150608GT	12.70	6.35	5.16	0.8	●	
	150612GT				1.2	●	

● : Standard Stock

Stock Items (Negative)

Shape		Description	Dimensions (mm)				CVD Coated Carbide	
			I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Roughing		DNMG 150404	12.70	4.76	5.16	0.4	●	
		150408				0.8	●	
		DNMG 150608	12.70	6.35	5.16	0.8	●	
		150612				1.2	●	
Roughing		DNMG 150408PH	12.70	4.76	5.16	0.8	●	
		150412PH				1.2	●	
		150416PH				1.6	●	
		DNMG 150608PH	12.70	6.35	5.16	0.8	●	
		150612PH				1.2	●	
		150616PH				1.6	●	
Single-Sided Roughing / High Feed		DNMM 150408PX	12.70	4.76	5.16	0.8	●	
		150412PX				1.2	●	
		150416PX				1.6	●	
		DNMM 150608PX	12.70	6.35	5.16	0.8	●	
		150612PX				1.2	●	
		150616PX				1.6	●	
Low Carbon Steel	 Finishing	DNMG 150404XP	12.70	4.76	5.16	0.4	●	
		150408XP				0.8	●	
Low Carbon Steel	 Medium	DNMG 150404XQ	12.70	4.76	5.16	0.4	●	
		150408XQ				0.8	●	
Low Carbon Steel	 Roughing	DNMG 150408XS	12.70	4.76	5.16	0.8	●	
Medium-Roughing		RNMG 090300	9.525	3.18	3.81	—	●	
		RNMG 120400	12.70	4.76	5.16	—	●	
		RNMG 150600	15.875	6.35	6.35	—	●	
Finishing-Medium		SNMG 120404PQ	12.70	4.76	5.16	0.4	●	
		120408PQ				0.8	●	
		120412PQ				1.2	●	
Finishing-Medium		SNMG 120404HQ	12.70	4.76	5.16	0.4	●	
		120408HQ				0.8	●	
		120412HQ				1.2	●	
Medium-Roughing (Interpolation)		SNMG 120408PG	12.70	4.76	5.16	0.8	●	
		120412PG				1.2	●	
		120416PG				1.6	●	

● : Standard Stock

Shape		Description	Dimensions (mm)				CVD Coated Carbide	
			I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Medium-Roughing		SNMG 120408PS	12.70	4.76	5.16	0.8	●	
		120412PS				1.2	●	
		120416PS				1.6	●	
Medium-Roughing / High Feed		SNMG 120408PT	12.70	4.76	5.16	0.8	●	
		120412PT				1.2	●	
Roughing		SNMG 090304	9.525	3.18	3.81	0.4	●	
		090308				0.8	●	
		SNMG 120408	12.70	4.76	5.16	0.8	●	
		120412				1.2	●	
		120416				1.6	●	
Roughing		SNMG 120408PH	12.70	4.76	5.16	0.8	●	
		120412PH				1.2	●	
		120416PH				1.6	●	
		SNMG 150612PH	15.875	6.35	6.35	1.2	●	
		150616PH				1.6	●	
		SNMG 190612PH	19.05	6.35	7.94	1.2	●	
		190616PH				1.6	●	
Single-Sided Roughing / High Feed		SNMM 120408PX	12.70	4.76	5.16	0.8	●	
		120412PX				1.2	●	
		120416PX				1.6	●	
		SNMM 150612PX	15.875	6.35	6.35	1.2	●	
		150616PX				1.6	●	
		SNMM 190612PX	19.05	6.35	7.94	1.2	●	
		190616PX				1.6	●	
		190624PX				2.4	●	
Low Carbon Steel	 Finishing	SNMG 120408XP	12.70	4.76	5.16	0.8	●	
Low Carbon Steel	 Medium	SNMG 120408XQ	12.70	4.76	5.16	0.8	●	
Low Carbon Steel	 Roughing	SNMG 120408XS	12.70	4.76	5.16	0.8	●	
Wiper Edge	 Finishing	TNMX 160404WF	9.525	4.76	3.81	0.4	●	
		160408WF				0.8	●	
		160412WF				1.2	●	
Finishing		TNMG 160402PP	9.525	4.76	3.81	0.2	●	
		160404PP				0.4	●	
		160408PP				0.8	●	
		160412PP				1.2	●	

● : Standard Stock

Stock Items (Negative)

Shape	Description	Dimensions (mm)				CVD Coated Carbide	
		I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Finishing		TNMG 160402GP	9.525	4.76	3.81	0.2	●
						0.4	●
						0.8	●
Finishing-Medium		TNMG 160404PQ	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Finishing-Medium		TNMG 110404HQ	6.35	4.76	2.26	0.4	●
						0.8	●
		TNMG 160404HQ	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
						1.2	●
Finishing-Medium / Up Facing		TNMG 160404CQ	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
		TNMG 220408CQ	12.70	4.76	5.16	0.8	●
						1.2	●
						1.2	●
Medium-Roughing (Continuous)		TNMG 110404GS	6.35	4.76	2.26	0.4	●
						0.8	●
		TNMG 160404GS	9.525	4.76	3.81	0.4	●
						0.8	●
Medium-Roughing (Interruption)		TNMG 160404PG	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Medium-Roughing		TNMG 160404PS	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
		TNMG 220404PS	12.70	4.76	5.16	0.4	●
						0.8	●
						1.2	●
						1.6	●
						1.6	●
Medium-Roughing / High Feed		TNMG 160408PT	9.525	4.76	3.81	0.8	●
						1.2	●
Medium-Roughing / High Feed		TNMG 160408GT	9.525	4.76	3.81	0.8	●
						1.2	●
Roughing		TNMG 160404	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
		TNMG 220408	12.70	4.76	5.16	0.8	●
						1.2	●

● : Standard Stock

Shape Handed Insert shows Right-hand	Description	Dimensions (mm)				CVD Coated Carbide	
		I.C.	Thickness	Hole	Corner-R (RE)	CA025P	
Roughing		TNMG 160408PH	9.525	4.76	3.81	0.8	●
						1.2	●
		TNMG 220408PH	12.70	4.76	5.16	0.8	●
						1.2	●
						1.6	●
Single Sided Roughing / High Feed		TNMM 160408PX	9.525	4.76	3.81	0.8	●
						1.2	●
		TNMM 220408PX	12.70	4.76	5.16	0.8	●
						1.2	●
						1.6	●
						1.6	●
Low Carbon Steel	 Finishing	TNMG 160404XP	9.525	4.76	3.81	0.4	●
						0.8	●
Low Carbon Steel	 Medium	TNMG 160404XQ	9.525	4.76	3.81	0.4	●
						0.8	●
Low Carbon Steel	 Roughing	TNMG 160408XS	9.525	4.76	3.81	0.8	●
						0.8	●
Medium-Roughing		TNMG 160404 R/L-ST	9.525	4.76	3.81	0.4	●
						0.8	●
Finishing		VNMG 160402PP	9.525	4.76	3.81	0.2	●
						0.4	●
						0.8	●
						1.2	●
Finishing		VNMG 160402GP	9.525	4.76	3.81	0.2	●
						0.4	●
						0.8	●
Finishing-Medium		VNMG 160404 R/L-VC	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Finishing-Medium		VNMG 160404VF	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Finishing-Medium		VNMG 160404PQ	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Finishing-Medium		VNMG 160404HQ	9.525	4.76	3.81	0.4	●
						0.8	●
						1.2	●
Roughing		VNMG 160404	9.525	4.76	3.81	0.4	●
						0.8	●

● : Standard Stock

Stock Items (Negative)

Shape		Description	Dimensions (mm)				CVD Coated Carbide
			I.C.	Thickness	Hole	Corner-R (RE)	CA025P
Wiper Edge		WNMG 080404WF	12.70	4.76	5.16	0.4	●
		080408WF				0.8	●
Wiper Edge		WNMG 080404WP	12.70	4.76	5.16	0.4	●
		080408WP				0.8	●
Wiper Edge		WNMG 080404WE	12.70	4.76	5.16	0.4	●
		080408WE				0.8	●
		080412WE				1.2	●
Wiper Edge		WNMG 080404WQ	12.70	4.76	5.16	0.4	●
		080408WQ				0.8	●
		080412WQ				1.2	●
Finishing		WNMG 080402PP	12.70	4.76	5.16	0.2	●
		080404PP				0.4	●
		080408PP				0.8	●
		080412PP				1.2	●
Finishing-Medium		WNMG 080404PQ	12.70	4.76	5.16	0.4	●
		080408PQ				0.8	●
		080412PQ				1.2	●
Finishing-Medium		WNMG 06T304HQ	9.525	3.97	3.81	0.4	●
		06T308HQ				0.8	●
		WNMG 060404HQ	9.525	4.76	3.81	0.4	●
		060408HQ				0.8	●
		WNMG 080404HQ	12.70	4.76	5.16	0.4	●
		080408HQ				0.8	●
		080412HQ				1.2	●
Finishing-Medium / Up Facing		WNMG 080404CQ	12.70	4.76	5.16	0.4	●
		080408CQ				0.8	●
		080412CQ				1.2	●
Finishing-Medium / Up Facing		WNMG 080408CJ	12.70	4.76	5.16	0.8	●
		080412CJ				1.2	●
Medium-Roughing (Continuous)		WNMG 060404GS	9.525	4.76	3.81	0.4	●
		060408GS				0.8	●
		WNMG 080404GS	12.70	4.76	5.16	0.4	●
		080408GS				0.8	●
Medium-Roughing (Interruption)		WNMG 080404PG	12.70	4.76	5.16	0.4	●
		080408PG				0.8	●
		080412PG				1.2	●
		080416PG				1.6	●

● : Standard Stock

Shape		Description	Dimensions (mm)				CVD Coated Carbide
			I.C.	Thickness	Hole	Corner-R (RE)	CA025P
Medium-Roughing		WNMG 080404PS	12.70	4.76	5.16	0.4	●
		080408PS				0.8	●
		080412PS				1.2	●
		080416PS				1.6	●
Medium-Roughing / High Feed		WNMG 080408PT	12.70	4.76	5.16	0.8	●
		080412PT				1.2	●
Medium-Roughing / High Feed		WNMG 080408GT	12.70	4.76	5.16	0.8	●
		080412GT				1.2	●
Roughing		WNMG 080404	12.70	4.76	5.16	0.4	●
		080408				0.8	●
		080412				1.2	●
Roughing		WNMG 080408PH	12.70	4.76	5.16	0.8	●
		080412PH				1.2	●
Low Carbon Steel		WNMG 080404XP	12.70	4.76	5.16	0.4	●
		080408XP				0.8	●
Low Carbon Steel		WNMG 080404XQ	12.70	4.76	5.16	0.4	●
		080408XQ				0.8	●
Low Carbon Steel		WNMG 080408XS	12.70	4.76	5.16	0.8	●

● : Standard Stock

Shape	Description	Dimensions (mm)				Relief Angel	CVD Coated Carbide CA025P
		I.C.	Thickness	Hole	Corner-R (RE)		
Wiper Edge  Finishing	CCMT 060202WP	6.35	2.38	2.8	0.2	7°	●
	060204WP				0.4		●
	060208WP				0.8		●
	CCMT 09T302WP	9.525	3.97	4.4	0.2	7°	●
	09T304WP				0.4		●
	09T308WP				0.8		●
	CCMT 060202PP	6.35	2.38	2.8	0.2	7°	●
	060204PP				0.4		●
	CCMT 09T302PP	9.525	3.97	4.4	0.2	7°	●
Finishing 	09T304PP				0.4		●
	09T308PP				0.8		●
Finishing-Medium 	CCMT 060202GK	6.35	2.38	2.8	0.2	7°	●
	060204GK				0.4		●
	CCMT 09T302GK	9.525	3.97	4.4	0.2	7°	●
	09T304GK				0.4		●
	CCMT 120404GK	12.70	4.76	5.5	0.4	7°	●
	120408GK				0.8		●
	120412GK				1.2		●
Finishing-Medium 	CCMT 060202HQ	6.35	2.38	2.8	0.2	7°	●
	060204HQ				0.4		●
	CCMT 09T302HQ	9.525	3.97	4.4	0.2	7°	●
	09T304HQ				0.4		●
	09T308HQ				0.8		●
Medium 	CCMT 09T308	9.525	3.97	4.4	0.8	7°	●
Finishing 	CPMT 080202PP	7.94	2.38	3.3	0.2	11°	●
	080204PP				0.4		●
	CPMT 090302PP	9.525	3.18	4.4	0.2	11°	●
	090304PP				0.4		●
	090308PP				0.8		●
Finishing 	CPMT 080204GP	7.94	2.38	3.3	0.4	11°	●
	CPMT 090304GP	9.525	3.18	4.4	0.4	11°	●
	090308GP				0.8		●
Finishing-Medium 	CPMH 080204HQ	7.94	2.38	3.5	0.4	11°	●
	080208HQ				0.8		●
	CPMH 090304HQ	9.525	3.18	4.5	0.4	11°	●
	090308HQ				0.8		●
Medium 	CPMH 080204	7.94	2.38	3.5	0.4	11°	●
	080208				0.8		●
	CPMH 090304	9.525	3.18	4.5	0.4	11°	●
	090308				0.8		●
Low Carbon Steel  Finishing	CPMT 080204XP	7.94	2.38	3.3	0.4	11°	●
	CPMT 090304XP	9.525	3.18	4.4	0.4	11°	●
	090308XP				0.8		●
Low Carbon Steel  Finishing-Medium	CPMT 090304XQ	9.525	3.18	4.4	0.4	11°	●
	090308XQ				0.8		●

● : Standard Stock

Shape	Description	Dimensions (mm)				Relief Angel	CVD Coated Carbide CA025P
		I.C.	Thickness	Hole	Corner-R (RE)		
Wiper Edge  Finishing	DCMX 070202WP	6.35	2.38	2.8	0.2	7°	●
	070204WP				0.4		●
	070208WP				0.8		●
	DCMX 11T302WP	9.525	3.97	4.4	0.2	7°	●
	11T304WP				0.4		●
	11T308WP				0.8		●
Finishing 	DCMT 070202PP	6.35	2.38	2.8	0.2	7°	●
	070204PP				0.4		●
	DCMT 11T302PP	9.525	3.97	4.4	0.2	7°	●
	11T304PP				0.4		●
	11T308PP				0.8		●
Finishing 	DCMT 070202GP	6.35	2.38	2.8	0.2	7°	●
	070204GP				0.4		●
	DCMT 11T304GP	9.525	3.97	4.4	0.4	7°	●
	11T308GP				0.8		●
Finishing-Medium 	DCMT 070202GK	6.35	2.38	2.8	0.2	7°	●
	070204GK				0.4		●
	070208GK				0.8		●
	DCMT 11T302GK	9.525	3.97	4.4	0.2	7°	●
	11T304GK				0.4		●
	11T308GK				0.8		●
Finishing-Medium 	DCMT 070202HQ	6.35	2.38	2.8	0.2	7°	●
	070204HQ				0.4		●
	070208HQ				0.8		●
	DCMT 11T302HQ	9.525	3.97	4.4	0.2	7°	●
	11T304HQ				0.4		●
	11T308HQ				0.8		●
Low Carbon Steel  Finishing	DCMT 070204XP	6.35	2.38	2.8	0.4	7°	●
	DCMT 11T302XP	9.525	3.97	4.4	0.2	7°	●
	11T304XP				0.4		●
	11T308XP				0.8		●
Low Carbon Steel  Finishing-Medium	DCMT 11T304XQ	9.525	3.97	4.4	0.4	7°	●
	11T308XQ				0.8		●
Medium 	RCMX 1003M0	10.0	3.18	3.6	—	7°	●
	RCMX 1204M0	12.0	4.76	4.2	—		●
Finishing-Medium 	SCMT 09T304HQ	9.525	3.97	4.4	0.4	7°	●
	09T308HQ				0.8		●
Medium 	SPMR 090304	9.525	3.18	—	0.4	11°	●
	090308				0.8		●
	SPMR 120304	12.7	3.18	—	0.4	11°	●
	120308				0.8		●
Finishing 	TBMT 060102DP	3.97	1.59	2.3	0.2	5°	●
	060104DP				0.4		●

● : Standard Stock

Shape		Description	Dimensions (mm)				Relief Angle	CVD Coated Carbide CA025P
			I.C.	Thickness	Hole	Corner-R (RE)		
Wiper Edge		TCMX 090204WP	5.56	2.38	2.5	0.4	7°	●
		TCMX 110204WP	6.35	2.38	2.8	0.4	7°	●
Finishing-Medium		TCMT 110204HQ	6.35	2.38	2.8	0.4	7°	●
		110208HQ				0.8		●
Wiper Edge		TPMX 090202WP	5.56	2.38	2.8	0.2	11°	●
		090204WP				0.4		●
		090208WP				0.8		●
		TPMX 110302WP	6.35	3.18	3.3	0.2	11°	●
		110304WP				0.4		●
		110308WP				0.8		●
Finishing		TPMT 090202PP	5.56	2.38	2.8	0.2	11°	●
		090204PP				0.4		●
		TPMT 110302PP	6.35	3.18	3.3	0.2	11°	●
		110304PP				0.4		●
		110308PP				0.8		●
Finishing		TPMT 090204GP	5.56	2.38	2.8	0.4	11°	●
		TPMT 110304GP	6.35	3.18	3.3	0.4	11°	●
		110308GP				0.8		●
		TPMT 160304GP	9.525	3.18	4.4	0.4	11°	●
Finishing-Medium		TPMT 090202HQ	5.56	2.38	2.8	0.2	11°	●
		090204HQ				0.4		●
		TPMT 110302HQ	6.35	3.18	3.3	0.2	11°	●
		110304HQ				0.4		●
		110308HQ				0.8		●
		TPMT 160304HQ	9.525	3.18	4.4	0.4	11°	●
		160308HQ				0.8		●
		TPMT 090204XP	5.56	2.38	2.8	0.4	11°	●
Low Carbon Steel		TPMT 110304XP	6.35	3.18	3.3	0.4	11°	●
		110308XP				0.8		●
		TPMT 160304XP	9.525	3.18	4.4	0.4	11°	●
Low Carbon Steel		TPMT 110304XQ	6.35	3.18	3.3	0.4	11°	●
		110308XQ				0.8		●
		TPMT 160304XQ	9.525	3.18	4.4	0.4	11°	●
Finishing		TPMR 160304GP	9.525	3.18	—	0.4	11°	●
		TPMR 110304HQ	6.35	3.18	—	0.4	11°	●
Finishing-Medium		110308HQ				0.8		●
		TPMR 160304HQ	9.525	3.18	—	0.4	11°	●
Medium		160308HQ				0.8		●
		TPMR 110304	6.35	3.18	—	0.4	11°	●
		110308				0.8		●
		TPMR 160304	9.525	3.18	—	0.4	11°	●
		160308				0.8		●

● : Standard Stock

Shape Handed Insert shows Left-hand		Description	Dimensions (mm)				Relief Angle	CVD Coated Carbide CA025P
			I.C.	Thickness	Hole	Corner-R (RE)		
Finishing		VBMT 110302PP	6.35	3.18	2.8	0.2	5°	●
		110304PP				0.4		●
		110308PP				0.8		●
		VBMT 160404PP	9.525	4.76	4.4	0.4	5°	●
Finishing		160408PP				0.8		●
		160412PP				1.2		●
		VBMT 110304GP	6.35	3.18	2.8	0.4	5°	●
		VBMT 160404GP	9.525	4.76	4.4	0.4	5°	●
Finishing		160408GP				0.8		●
		VBMT 110302VF	6.35	3.18	2.8	0.2	5°	●
		110304VF				0.4		●
		110308VF				0.8		●
Finishing		VBMT 160402VF	9.525	4.76	4.4	0.2	5°	●
		160404VF				0.4		●
		160408VF				0.8		●
		160412VF				1.2		●
Finishing-Medium		VBMT 110304HQ	6.35	3.18	2.8	0.4	5°	●
		110308HQ				0.8		●
		VBMT 160404HQ	9.525	4.76	4.4	0.4	5°	●
		160408HQ				0.8		●
Finishing		VCMT 080202PP	4.76	2.38	2.3	0.2	7°	●
		080204PP				0.4		●
		VCMT 160404PP	9.525	4.76	4.4	0.4	7°	●
		160408PP				0.8		●
Finishing		VCMT 080202VF	4.76	2.38	2.3	0.2	7°	●
		080204VF				0.4		●
Finishing-Medium		VCMT 080202HQ	4.76	2.38	2.3	0.2	7°	●
		080204HQ				0.4		●
Finishing		WBMT 060102L-DP	3.97	1.59	2.3	0.2	5°	L
		060104L-DP				0.4		L
Finishing		WBMT 080202L-DP	4.76	2.38	2.3	0.2	5°	L
		080204L-DP				0.4		L
Finishing		WPMT 110204GP	6.35	2.38	2.8	0.4	11°	●
		WPMT 160304GP	9.525	3.18	4.4	0.4	11°	●
Finishing-Medium		WPMT 110202HQ	6.35	2.38	2.8	0.2	11°	●
		110204HQ				0.4		●
		WPMT 160304HQ	9.525	3.18	4.4	0.4	11°	●
		160308HQ				0.8		●

● : Standard Stock
L : L-hand Only

ADVANCING PRODUCTIVITY

A red swoosh graphic that starts under the 'A' and ends under the 'Y', with a slight upward curve at the right end.