

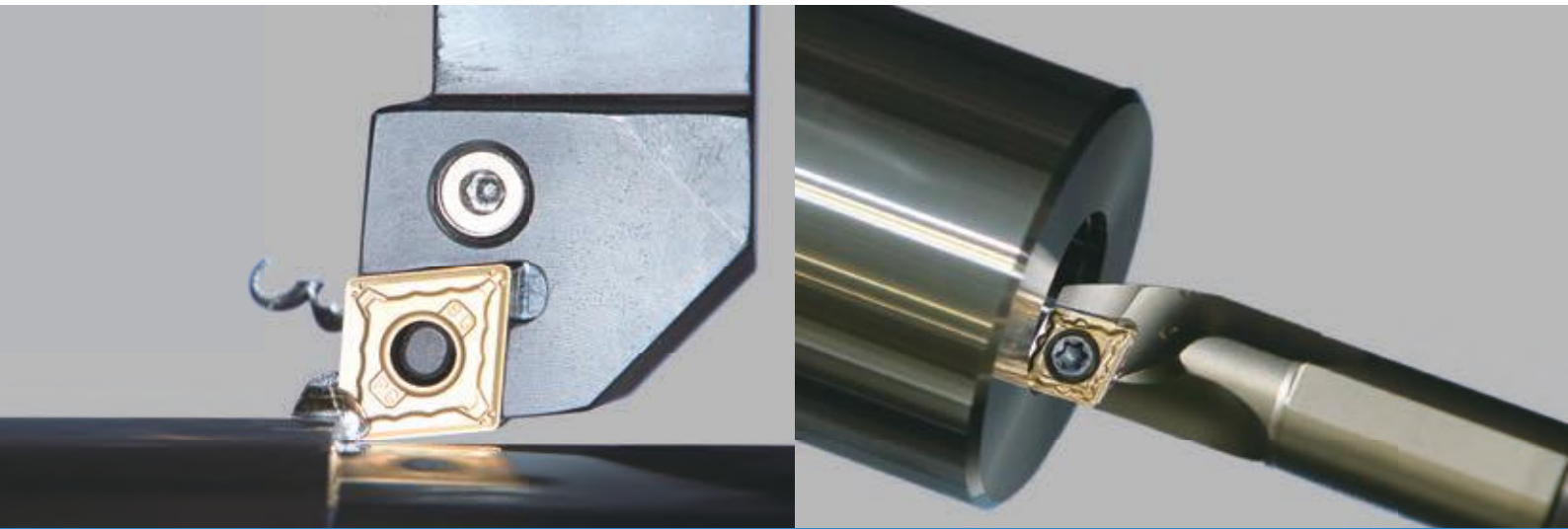
THE NEW VALUE FRONTIER



New CVD coated carbide grade
for steel

CA5 Series

CA5 Series



Long tool life and stable machining of steel

New CA5 series for longer tool life and stable machining

Various chipbreakers available for steel machining



NEW

WF chipbreaker
(finishing)



WE chipbreaker
(finishing - medium)



New CVD coated carbide grade for steel

CA5 Series

Longer tool life and stable machining

Various chipbreakers available

1

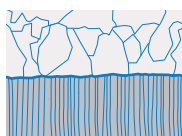
New coated carbide grade for longer tool life and stable machining

Longer tool life

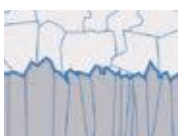
- High-performance α -Al₂O₃ layer
- Excellent wear and fracture resistance

Prevents layer peeling

- Strong Intra-coating adhesion
- Higher adhesion between each layer with improved crystal structure



CRIOS technology



Conventional

Suppresses chipping

- Micro TiCN layer
- Higher layer strength and fracture resistance



CRICOS technology is Kyocera's original CVD coating technology

1st recommendation

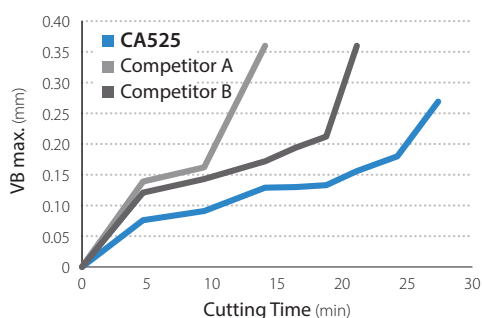
General use

CA525

Special substrate and tough coating layer provides high wear and fracture resistance

Wear resistance comparison

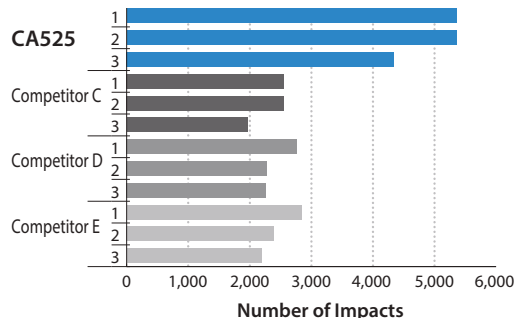
(In-house evaluation)



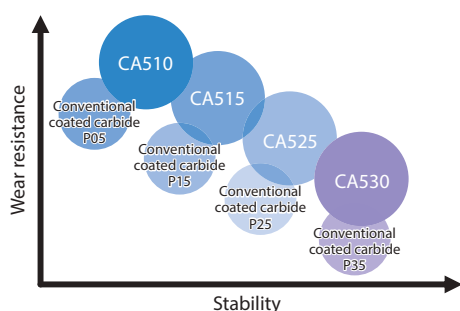
Cutting conditions: Vc = 300 m/min, ap = 2.0 mm, f = 0.3 mm/rev, wet
Workpiece: 34CrMo4

Fracture resistance comparison

(In-house evaluation)



Cutting conditions: Vc = 300 m/min, ap = 1.5 mm, f = 0.3 mm/rev, wet
Workpiece: 42CrMo4 (with 4 slots)



CA510

High speed and high efficiency steel machining
Wear resistance oriented

CA515

Continuous to light interrupted steel machining

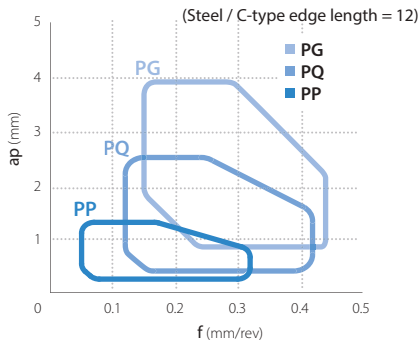
CA530

General to heavy interrupted machining
Stability oriented

2

Various chipbreakers available for steel machining

Negative type



PG chipbreaker (medium - roughing)

Provides stable machining with wide chip control range

Step wall

Prevents chip compacting at high feed rate

Hybrid land

Good balance of sharpness and strength due to double structure of flat and positive land design

Twin dots

Improve chip control at low feed rate
Control crater wear

PP chipbreaker (finishing)

For a wide range of feed rates in steel finishing

Smooth taper cutting edge

Reduces cutting force

3-step smart dot structure

3 different dots provide smooth chip evacuation in a wide range of feed rate

PQ chipbreaker (finishing - medium)

Stable chip control in a wide range of applications

2-step smart wall (2-step rising smooth surface)

Excellent chip control in a wide range of applications, preventing the dots from being damaged at high feed cuttings

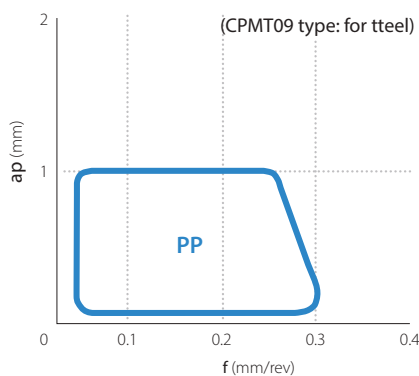
Twin dots

Flat zone (breaking area)

Continuously variable land

Specially designed positive land has well-balanced combination of sharpness and toughness

Positive type



PP chipbreaker (finishing)

Stable chip control when finishing steel

High-stability cutting edge design

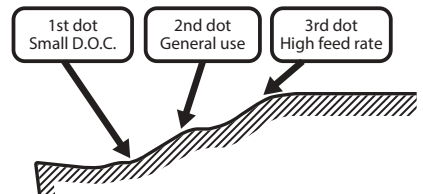
Suitable shape for controlling the edge stress and heat generation

Stable performance with superior edge strength

Composite-dot chipbreaker

Multi-dot design with different functions
Controls chip's curling condition and flow direction that varies depending on the cutting conditions and work materials

Stable chip control regardless of feed rate and work materials



3

New negative wiper inserts

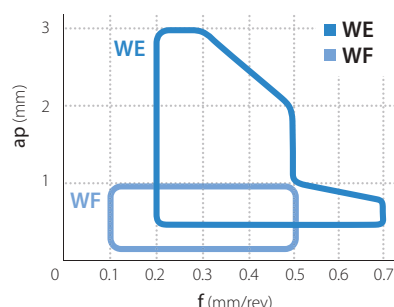
High productivity with newly designed wiper edge geometry

WE chipbreaker (finishing - medium)

Stable chip control in a wide range of feed rates

WF chipbreaker (finishing)

Good surface finish due to stable chip control in steel finishing



Negative type inserts

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
	CNMG 120404WF	12.70	4.76	5.16	0.4	●	●	●	●
	120408WF				0.8	●	●	●	●
	CNMG 120404WP	12.70	4.76	5.16	0.4	●	●	●	●
	120408WP				0.8	●	●	●	●
	CNMG 120404WE	12.70	4.76	5.16	0.4	●	●	●	●
	120408WE				0.8	●	●	●	●
	120412WE				1.2	●	●	●	●
	CNMG 120404WQ	12.70	4.76	5.16	0.4	●	●	●	●
	120408WQ				0.8	●	●	●	●
	120412WQ				1.2	●	●	●	●
	CNMG 120402PP	12.70	4.76	5.16	0.2	●	●	●	●
	120404PP				0.4	●	●	●	●
	120408PP				0.8	●	●	●	●
	120412PP				1.2	●	●	●	●
	CNMG 120402GP	12.70	4.76	5.16	0.2	●	●	●	●
	120404GP				0.4	●	●	●	●
	120408GP				0.8	●	●	●	●
	CNMG 120404PQ	12.70	4.76	5.16	0.4	●	●	●	●
	120408PQ				0.8	●	●	●	●
	120412PQ				1.2	●	●	●	●
	CNMG 090404HQ	9.525	4.76	3.81	0.4	●	●	●	●
	090408HQ				0.8	●	●	●	●
	CNMG 120404HQ	12.70	4.76	5.16	0.4	●	●	●	●
	120408HQ				0.8	●	●	●	●
	120412HQ				1.2	●	●	●	●
	CNMG 120404CQ	12.70	4.76	5.16	0.4	●	●	●	●
	120408CQ				0.8	●	●	●	●
	120412CQ				1.2	●	●	●	●
	CNMG 160608CQ	15.875	6.35	6.35	0.8	●	●	●	●
	160612CQ				1.2	●	●	●	●
	CNMG 120408CJ	12.70	4.76	5.16	0.8	●	●	●	●
	120412CJ				1.2	●	●	●	●
	CNMG 160612CJ	15.875	6.35	6.35	1.2	●	●	●	●
	160616CJ				1.6	●	●	●	●
	CNMG 090404GS	9.525	4.76	3.81	0.4	●	●	●	●
	090408GS				0.8	●	●	●	●
	CNMG 120404GS	12.70	4.76	5.16	0.4	●	●	●	●
	120408GS				0.8	●	●	●	●
	120412GS				1.2	●	●	●	●

● : Available

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
	CNMG 120404PG	12.70	4.76	5.16	0.4	●	●	●	●
	120408PG				0.8	●	●	●	●
	120412PG				1.2	●	●	●	●
	120416PG				1.6	●	●	●	●
	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	●	●	●	●
	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	●	●	●	●
	160616PT				1.6	●	●	●	●
	CNMG 120408GT	12.70	4.76	5.16	0.8	●	●	●	●
	120412GT				1.2	●	●	●	●
	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	●	●	●	●
	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	●	●	●	●
	160616PH				1.6	●	●	●	●
	CNMG 190608PH	19.05	6.35	7.94	0.8	●	●	●	●
	190612PH				1.2	●	●	●	●
	190616PH				1.6	●	●	●	●
	190624PH				2.4	●	●	●	●
	CNMM 120408PX	12.70	4.76	5.16	0.8	●	●	●	●
	120412PX				1.2	●	●	●	●
	120416PX				1.6	●	●	●	●
	CNMM 160608PX	15.875	6.35	6.35	0.8	●	●	●	●
	160612PX				1.2	●	●	●	●
	160616PX				1.6	●	●	●	●
	CNMM 190608PX	19.05	6.35	7.94	0.8	●	●	●	●
	190612PX				1.2	●	●	●	●
	190616PX				1.6	●	●	●	●
	190624PX				2.4	●	●	●	●

● : Available

Negative type inserts

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
 Low carbon steel / Finishing	CNMG 120404XP	12.70	4.76	5.16	0.4	●	●	●	●
	120408XP				0.8	●	●	●	●
 Low carbon steel / Medium	CNMG 120404XQ	12.70	4.76	5.16	0.4	●	●	●	●
	120408XQ				0.8	●	●	●	●
 Low carbon steel / Roughing	CNMG 120408XS	12.70	4.76	5.16	0.8	●	●	●	●
 Finishing with 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	●	●	●	●
 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	●	●	●	●
	DNMG 150404PQ	12.70	4.76	5.16	0.4	●	●	●	●
 Finishing-Medium	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	●	●	●	●

● : Available

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
 Finishing-Medium / Up facing	DNMG 150404CQ	12.70	4.76	5.16	0.4	●	●	●	●
	150408CQ				0.8	●	●	●	●
	150412CQ				1.2	●	●	●	●
 Finishing-Medium / Up facing	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	●	●	●	●
 Medium-Roughing	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	●	●	●	●
 Medium-Roughing	150608GS				0.8	●	●	●	●
	DNMG 150404PG	12.70	4.76	5.16	0.4	●	●	●	●
	150408PG				0.8	●	●	●	●
	150412PG				1.2	●	●	●	●
	150416PG				1.6	●	●	●	●
	DNMG 150604PG	12.70	6.35	5.16	0.4	●	●	●	●
 Medium-Roughing	150608PG				0.8	●	●	●	●
	150612PG				1.2	●	●	●	●
	150616PG				1.6	●	●	●	●
	DNMG 150404PS	12.70	4.76	5.16	0.4	●	●	●	●
	150408PS				0.8	●	●	●	●
	150412PS				1.2	●	●	●	●
 Medium-Roughing	DNMG 150604PS	12.70	6.35	5.16	0.4	●	●	●	●
	150608PS				0.8	●	●	●	●
	150612PS				1.2	●	●	●	●
	150616PS				1.6	●	●	●	●
	DNMG 150408PT	12.70	4.76	5.16	0.8	●	●	●	●
	150412PT				1.2	●	●	●	●
 Medium-Roughing / High feed	DNMG 150608PT	12.70	6.35	5.16	0.8	●	●	●	●
	150612PT				1.2	●	●	●	●
	DNMG 150408GT	12.70	4.76	5.16	0.8	●	●	●	●
 Medium-Roughing / High feed	150412GT				1.2	●	●	●	●
	DNMG 150608GT	12.70	6.35	5.16	0.8	●	●	●	●
	150612GT				1.2	●	●	●	●

● : Available

Negative type inserts

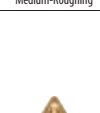
Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (rø)				
 Roughing	DNMG 150404	12.70	4.76	5.16	0.4	●	●	●	●
	150408				0.8	●	●	●	●
	DNMG 150608	12.70	6.35	5.16	0.8	●	●	●	●
	150612				1.2	●	●	●	●
 Roughing	DNMG 150408PH	12.70	4.76	5.16	0.8	●	●	●	●
	150412PH				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	SNMG 120408PG	12.70	4.76	5.16	0.8	●	●	●	●
	120412PG				1.2	●	●	●	●
	120416PG				1.6	●	●	●	●

● : Available

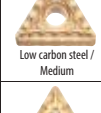
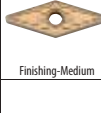
Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (rø)				
 Medium-Roughing	SNMG 120408PS	12.70	4.76	5.16	0.8	●	●	●	●
	120412PS				1.2	●	●	●	●
	120416PS				1.6	●	●	●	●
 Medium-Roughing High feed	SNMG 120408PT	12.70	4.76	5.16	0.8	●	●	●	●
	120412PT				1.2	●	●	●	●
 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	●	●	●	●
	SNMG 120408PH				0.8	●	●	●	●
 Roughing	SNMG 120412PH	12.70	4.76	5.16	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	●	●	●	●
 Low carbon steel / Finishing	SNMG 120408XP	12.70	4.76	5.16	0.8	●	●	●	●
	120408XQ				0.8	●	●	●	●
	SNMG 120408XS	12.70	4.76	5.16	0.8	●	●	●	●
	120408XQ				0.8	●	●	●	●
	SNMG 120408XS	12.70	4.76	5.16	0.8	●	●	●	●
	120408XQ				0.8	●	●	●	●
 Finishing with wiper edge	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	●	●	●	●

● : Available

Negative type inserts

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
 Finishing	TNMG 160402GP	9.525	4.76	3.81	0.2	●	●	●	●
	160404GP				0.4	●	●	●	●
	160408GP				0.8	●	●	●	●
 Finishing-Medium	TNMG 160404PQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408PQ				0.8	●	●	●	●
	160412PQ				1.2	●	●	●	●
 Finishing-Medium	TNMG 110404HQ	6.35	4.76	2.26	0.4	●	●	●	●
	110408HQ				0.8	●	●	●	●
	TNMG 160404HQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408HQ				0.8	●	●	●	●
 Finishing-Medium	160412HQ				1.2	●	●	●	●
	TNMG 160404CQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408CQ				0.8	●	●	●	●
 Finishing-Medium / Up facing	160412CQ				1.2	●	●	●	●
	TNMG 220408CQ	12.70	4.76	5.16	0.8	●	●	●	●
	220412CQ				1.2	●	●	●	●
 Medium-Roughing	TNMG 110404GS	6.35	4.76	2.26	0.4			●	●
	110408GS				0.8			●	●
	TNMG 160404GS	9.525	4.76	3.81	0.4	●	●	●	●
	160408GS				0.8	●	●	●	●
 Medium-Roughing	TNMG 160404PG	9.525	4.76	3.81	0.4	●	●	●	●
	160408PG				0.8	●	●	●	●
	160412PG				1.2	●	●	●	●
 Medium-Roughing	TNMG 160404PS	9.525	4.76	3.81	0.4	●	●	●	●
	160408PS				0.8	●	●	●	●
	160412PS				1.2	●	●	●	●
	TNMG 220404PS	12.70	4.76	5.16	0.4	●	●	●	●
	220408PS				0.8	●	●	●	●
	220412PS				1.2	●	●	●	●
	220416PS				1.6	●	●	●	●
 Medium-Roughing / High feed	TNMG 160408PT	9.525	4.76	3.81	0.8	●	●	●	●
	160412PT				1.2	●	●	●	●
 Medium-Roughing / High feed	TNMG 160408GT	9.525	4.76	3.81	0.8	●	●	●	●
	160412GT				1.2	●	●	●	●
 Roughing	TNMG 160404	9.525	4.76	3.81	0.4	●	●	●	●
	160408				0.8	●	●	●	●
	160412				1.2	●	●	●	●
	TNMG 220408	12.70	4.76	5.16	0.8	●	●	●	●
	220412				1.2	●	●	●	●

● : Available

Shape Handed Insert shows Right-hand	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r _e)				
 Roughing	TNMG 160408PH	9.525	4.76	3.81	0.8	●	●	●	●
	160412PH				1.2	●	●	●	●
	TNMG 220408PH	12.70	4.76	5.16	0.8	●	●	●	●
	220412PH				1.2	●	●	●	●
 Roughing	220416PH				1.6	●	●	●	●
	TNMM 160408PX	9.525	4.76	3.81	0.8			●	●
	160412PX				1.2			●	●
 Single-Sided / Roughing / High feed	TNMM 220408PX	12.70	4.76	5.16	0.8			●	●
	220412PX				1.2			●	●
	220416PX				1.6			●	●
 Low carbon steel / Finishing	TNMG 160404XP	9.525	4.76	3.81	0.4	●	●	●	●
	160408XP				0.8	●	●	●	●
 Low carbon steel / Medium	TNMG 160404XQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408XQ				0.8	●	●	●	●
 Low carbon steel / Roughing	TNMG 160408XS	9.525	4.76	3.81	0.8	●	●	●	●
 Medium-Roughing	TNMG 160404 R/L-ST	9.525	4.76	3.81	0.4	●	●	●	●
	160408 R/L-ST				0.8	●	●	●	●
 Finishing	VNMG 160402PP	9.525	4.76	3.81	0.2	●	●	●	●
	160404PP				0.4	●	●	●	●
	160408PP				0.8	●	●	●	●
	160412PP				1.2	●	●	●	●
 Finishing	VNMG 160402GP	9.525	4.76	3.81	0.2	●	●	●	●
	160404GP				0.4	●	●	●	●
	160408GP				0.8	●	●	●	●
 Finishing-Medium	VNMG 160404 R/L-VC	9.525	4.76	3.81	0.4	●	●	●	●
	160408 R/L-VC				0.8	●	●	●	●
	160412 R/L-VC				1.2	●	●	●	●
 Finishing-Medium	VNMG 160404VF	9.525	4.76	3.81	0.4	●	●	●	●
	160408VF				0.8	●	●	●	●
	160412VF				1.2	●	●	●	●
 Finishing-Medium	VNMG 160404PQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408PQ				0.8	●	●	●	●
	160412PQ				1.2	●	●	●	●
 Finishing-Medium	VNMG 160404HQ	9.525	4.76	3.81	0.4	●	●	●	●
	160408HQ				0.8	●	●	●	●
	160412HQ				1.2	●	●	●	●
 Roughing	VNMG 160404	9.525	4.76	3.81	0.4	●	●	●	●
	160408				0.8	●	●	●	●

● : Available

Negative type inserts

Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (rø)				
	WNMG 080404WF	12.70	4.76	5.16	0.4	●	●	●	●
	080408WF				0.8	●	●	●	●
	WNMG 080404WP	12.70	4.76	5.16	0.4	●	●	●	●
	080408WP				0.8	●	●	●	●
	WNMG 080404WE	12.70	4.76	5.16	0.4	●	●	●	●
	080408WE				0.8	●	●	●	●
	WNMG 080404WQ	12.70	4.76	5.16	0.4	●	●	●	●
	080408WQ				0.8	●	●	●	●
	WNMG 080404PP	12.70	4.76	5.16	0.2	●	●	●	●
	080408PP				0.4	●	●	●	●
	WNMG 080404PQ	12.70	4.76	5.16	0.8	●	●	●	●
	080412PQ				1.2	●	●	●	●
	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	●	●	●	●
	WNMG 080412HQ				1.2	●	●	●	●
	WNMG 080404CQ	12.70	4.76	5.16	0.4	●	●	●	●
	080408CQ				0.8	●	●	●	●
	080412CQ				1.2	●	●	●	●
	WNMG 080408CJ	12.70	4.76	5.16	0.8	●	●	●	●
	080412CJ				1.2	●	●	●	●
	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	●	●	●	●
	WNMG 080412GS				1.2	●	●	●	●
	WNMG 080404PG	12.70	4.76	5.16	0.4	●	●	●	●
	080408PG				0.8	●	●	●	●
	080412PG				1.2	●	●	●	●
	080416PG				1.6	●	●	●	●

● : Available

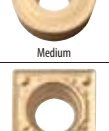
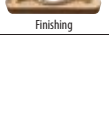
Shape	Description	Dimensions (mm)				CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (rø)				
	WNMG 080404PS	12.70	4.76	5.16	0.4	●	●	●	●
	080408PS				0.8	●	●	●	●
	080412PS				1.2	●	●	●	●
	080416PS				1.6	●	●	●	●
	WNMG 080408PT	12.70	4.76	5.16	0.8	●	●	●	●
	080412PT				1.2	●	●	●	●
	WNMG 080408GT	12.70	4.76	5.16	0.8	●	●	●	●
	080412GT				1.2	●	●	●	●
	WNMG 080404	12.70	4.76	5.16	0.4	●	●	●	●
	080408				0.8	●	●	●	●
	080412				1.2	●	●	●	●
	WNMG 080408PH	12.70	4.76	5.16	0.8	●	●	●	●
	080412PH				1.2	●	●	●	●
	WNMG 080404XP	12.70	4.76	5.16	0.4	●	●	●	●
	080408XP				0.8	●	●	●	●
	WNMG 080404XQ	12.70	4.76	5.16	0.4	●	●	●	●
	080408XQ				0.8	●	●	●	●
	WNMG 080408XS	12.70	4.76	5.16	0.8	●	●	●	●

● : Available

Positive type inserts

Shape	Description	Dimensions (mm)				Relief Angle	CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r)					
	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°	●	●	●	●
	09T304PP				0.4		●	●	●	●
	09T308PP				0.8		●	●	●	●
	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		●	●	●	●
	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		●	●	●	●
	CCMT 09T308	9.525	3.97	4.4	0.8	7°	●	●	●	●
	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		●	●	●	●
	CPMT 080204GP	7.94	2.38	3.3	0.4	11°	●	●	●	●
	090304GP				0.4		●	●	●	●
	CPMT 090308GP	9.525	3.18	4.4	0.8	11°	●	●	●	●
							●	●	●	●
							●	●	●	●
	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		●	●	●	●
							●	●	●	●
	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		●	●	●	●
							●	●	●	●
	CPMT 080204XP	7.94	2.38	3.3	0.4	11°	●	●	●	●
	090304XP				0.4		●	●	●	●
	CPMT 090308XP	9.525	3.18	4.4	0.8	11°	●	●	●	●
							●	●	●	●
							●	●	●	●
	CPMT 090304XQ	9.525	3.18	4.4	0.4	11°	●	●	●	●
	090308XQ				0.8		●	●	●	●
							●	●	●	●
							●	●	●	●
							●	●	●	●
							●	●	●	●

● : Available

Shape	Description	Dimensions (mm)				Relief Angle	CA510	CA515	CA525	CA530	
		I.C.	Thickness	Hole	Corner-R (r _e)						
 Finishing with wiper edge	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	12.70	3.18	—	0.4	11°	●	●	●	●	
	120308				0.8		●	●	●	●	
 Finishing	TBMT 060102DP	3.97	1.59	2.3	0.2	5°	●	●	●	●	
	060104DP				0.4		●	●	●	●	

Positive type inserts

Shape	Description	Dimensions (mm)				Relief Angle	CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r)					
 Finishing with 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		●	●	●	●
 Finishing with wiper edge	TPMX 090202WP	5.56	2.38	3.0	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°	●	●	●	●
	TPMT 090202HQ	5.56	2.38	2.8	0.2	11°	●	●	●	●
	090204HQ				0.4		●	●	●	●
 Finishing-Medium	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 / Finishing	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°	●	●	●	●
	160308XP				0.8		●	●	●	●
	TPMT 110304XQ	6.35	3.18	3.3	0.4	11°	●	●	●	●
	110308XQ				0.8		●	●	●	●
 Low carbon steel / Finishing-Medium	TPMT 160304XQ	9.525	3.18	4.4	0.4	11°	●	●	●	●
	160308XQ				0.8		●	●	●	●
	TPMR 160304GP	9.525	3.18	—	0.4	11°	●	●	●	●
 Finishing-Medium	TPMR 110304HQ	6.35	3.18	—	0.4	11°	●	●	●	●
	110308HQ				0.8		●	●	●	●
	TPMR 160304HQ	9.525	3.18	—	0.4	11°	●	●	●	●
	160308HQ				0.8		●	●	●	●
	TPMR 110304	6.35	3.18	—	0.4	11°	●	●	●	●
	110308				0.8		●	●	●	●
 Medium	TPMR 160304	9.525	3.18	—	0.4	11°	●	●	●	●
	160308				0.8		●	●	●	●

● : Available

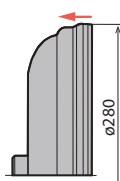
Shape Handed Insert shows Left-hand	Description	Dimensions (mm)				Relief Angle	CA510	CA515	CA525	CA530
		I.C.	Thickness	Hole	Corner-R (r)					
 Finishing	VBMT 110302PP	6.35	3.18	2.8	0.2	5°	●	●	●	●
	110304PP				0.4		●	●	●	●
	110308PP				0.8		●	●	●	●
	VBMT 160404PP	9.525	4.76	4.4	0.4	5°	●	●	●	●
	160408PP				0.8		●	●	●	●
	160412PP				1.2		●	●	●	●
 Finishing	VBMT 110304GP	6.35	3.18	2.8	0.4	5°	●	●	●	●
	VBMT 160404GP	9.525	4.76	4.4	0.4	5°	●	●	●	●
	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		●	●	●	●
	VBMT 110304HQ	6.35	3.18	2.8	0.4	5°	●	●	●	●
	110308HQ				0.8		●	●	●	●
 Finishing-Medium	VBMT 160404HQ	9.525	4.76	4.4	0.4	5°	●	●	●	●
	160408HQ				0.8		●	●	●	●
	160412HQ				1.2		●	●	●	●
	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°	●	●	●	●
 Finishing	VCMT 080202VF	4.76	2.38	2.3	0.2	7°	●	●	●	●
	080204VF				0.4		●	●	●	●
	VCMT 080202HQ	4.76	2.38	2.3	0.2	7°	●	●	●	●
	080204HQ				0.4		●	●	●	●
	WBMT 060102L-DP	3.97	1.59	2.3	0.2	5°	L	L	L	L
	060104L-DP				0.4		L	L	L	L
 Finishing	WBMT 080202L-DP	4.76	2.38	2.3	0.2	5°	L	L	L	L
	080204L-DP				0.4		L	L	L	L
	WPMT 110204GP	6.35	2.38	2.8	0.4	11°	●	●	●	●
	WPMT 160304GP	9.525	3.18	4.4	0.4	11°	●	●	●	●
	WPMT 110202HQ	6.35	2.38	2.8	0.2	11°	●	●	●	●
	110204HQ				0.4		●	●	●	●
 Finishing	WPMT 160304HQ	9.525	3.18	4.4	0.4	11°	●	●	●	●
	160308HQ				0.8		●	●	●	●

● : Available
L : L-hand Only

Case studies

Hot rolled steel

Automotive parts
Vc = 500 m/min
ap = 0.7 mm
f = 0.3 mm/rev
Wet
CNMG120408PG



CA510

100 pcs/edge

x1.3

Competitor F *

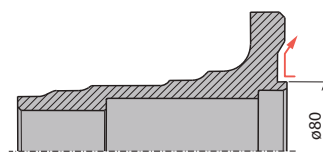
75 pcs/edge

CA510 produces 33% longer tool life compared to competitor F's CVD.

(User evaluation)

Carbon steel

Automotive parts
Vc = 300 m/min
ap = 1.0 mm
f = 0.3 mm/rev
Wet
DNMG150408PQ



CA510

200 pcs/edge

x1.3

Competitor G *

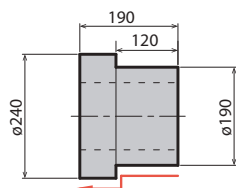
150 pcs/edge

CA510 produces 33% longer tool life compared to competitor G's CVD.

(User evaluation)

42CrMo4

Cover
Vc = 140~150 m/min
ap = 3.0~3.5 mm
f = 0.35~0.4 mm/rev
Wet
CNMG120408PT



CA515

10 pcs/edge

x1.4

Competitor H *

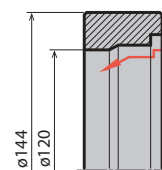
7 pcs/edge

CA515 produces 43% longer tool life compared to competitor H's CVD.

(User evaluation)

17Cr3

Gear
Vc = 380 m/min
ap = 1.5~2.0 mm
f = 0.3~0.4 mm/rev
Wet
WNMG080408PQ



CA515

430 pcs/edge

x1.1

Competitor I *

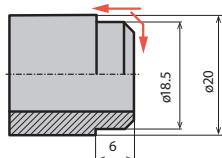
380 pcs/edge

CA515 produces 13% longer tool life compared to competitor I's CVD.

(User evaluation)

Ust42-2

Machine Part
Vc = 170 m/min
ap = 0.8 mm
f = 0.2 mm/rev
Wet
CNMG120408PQ



CA525

1,400 pcs/edge and more

x1.4

Competitor J *

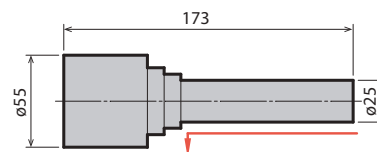
800-1,000 pcs/edge

CA525 produces 43% longer tool life compared to competitor J's CVD. Chip control was smooth.

(User evaluation)

20CrMo5

Shaft
Vc = 120 m/min
ap = 2.0 mm
f = 0.25 mm/rev
Dry
TNMG160408R-ST



CA525

10 pcs/edge

x5

Competitor K *

2 pcs/edge

CA525 shows 5 times longer tool life compared to competitor K's CVD.

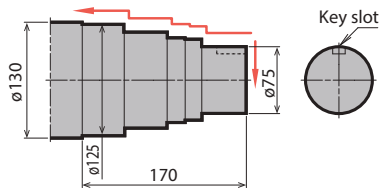
(User evaluation)

* CVD coated carbide

Case studies

C45

Shaft
Vc = 250 m/min
ap = 3.0 mm
f = 0.3 mm/rev
Wet
CNMG120408PS



CA525

10 pcs/edge

x1.6

Competitor L *
Competitor M **

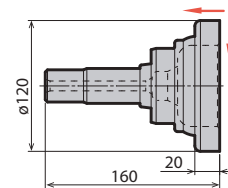
6 pcs/edge

Instant breakage

CA525 produces 66% longer tool life compared to competitor L's CVD. Competitor M's PVD carbide could not complete 1pc before breakage. (User evaluation)

20CrMo5

Flange shaft
Vc = 260~280 m/min
ap = 0.6 mm
f = 0.3~0.5 mm/rev
Wet
CNMG120408PQ



CA525

180 pcs/edge

x1.2

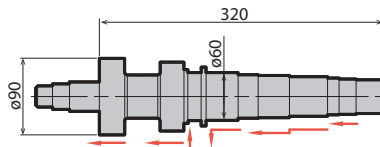
Competitor N *

150 pcs/edge

CA525 produces 20% longer tool life compared to competitor N's CVD. (User evaluation)

C45

Shaft
Vc = 100 m/min
ap = 2.0~4.0 mm
f = 0.4 mm/rev
Wet
WNMG080408PS



CA525

70 pcs/edge

x1.7

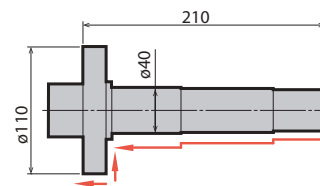
Competitor O *

40 pcs/edge

CA525 produces 70% longer tool life compared to competitor O's CVD. (User evaluation)

20Cr4

Shaft
Vc = 90 m/min
ap = 2.0~3.0 mm
f = 0.32 mm/rev
Wet
WNMG080408PS



CA525

260 pcs/edge

x1.3

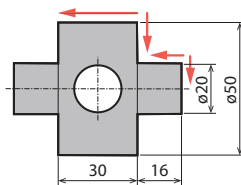
Competitor P *

190 pcs/edge

CA525 produces 30% longer tool life compared to competitor P's CVD. (User evaluation)

17Cr3

Gear
Vc = 180 m/min
ap = 2.0 mm
f = 0.2 mm/rev
Wet
DNMG150404CQ



CA530

10 pcs/edge

x1.25

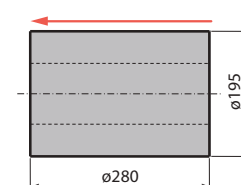
Competitor Q *

3-8 pcs/edge

CA530 averages 25% longer tool life compared to competitor Q's CVD. (User evaluation)

X6Cr13

Machine Parts
Vc = 100 m/min
ap = 2.0 mm
f = 0.4 mm/rev
Wet
SNMG120412PH



CA530

9 pcs/edge

x1.8

**Efficiency
11%**

Competitor R *

5 pcs/edge

CA530 produces 80% longer tool life compared to competitor R's CVD. Improved machining efficiency by 1.1 times. (User evaluation)

* CVD coated carbide

** PVD coated carbide