

CA115P/CA125P



Longer tool life in various steel machining environments

New coating and carbide substrate provide
excellent wear and fracture resistance

Longer tool life for a wide range of machining applications
Introducing PMG chipbreaker for medium-roughing

CA115P

Continuous to light interrupted machining
Highly-efficient machining

CA125P

Continuous to heavy interrupted machining
General purpose



Visit us on

LinkedIn

New CVD coated carbide grade for steel

CA115P/CA125P

The new standard for steel machining

Longer tool life in a wide range of machining environments

Expanded lineup of chipbreakers for steel machining in various applications

CA115P/CA125P drastically extends tool life

- Cost savings
- Reduced downtime
- Reduced inventory needed on hand
- Consistent machining quality
- Line automation and labor savings
- Promotes a carbon neutral society by reducing the amount of waste

Advancing technologies improve tool longevity

Advanced technology

New coating & New carbide substrate



Black & Gold

Excellent wear and fracture resistance





Innovative layering technology

Ultra-uniform alumina layering

Proprietary crystal forming technology

Achieving significant crystal growth uniformity and direction

Reduces crater wear and extends tool life



New development

PMG Chipbreaker for medium-roughing

Unique design covers a wide range of machining applications

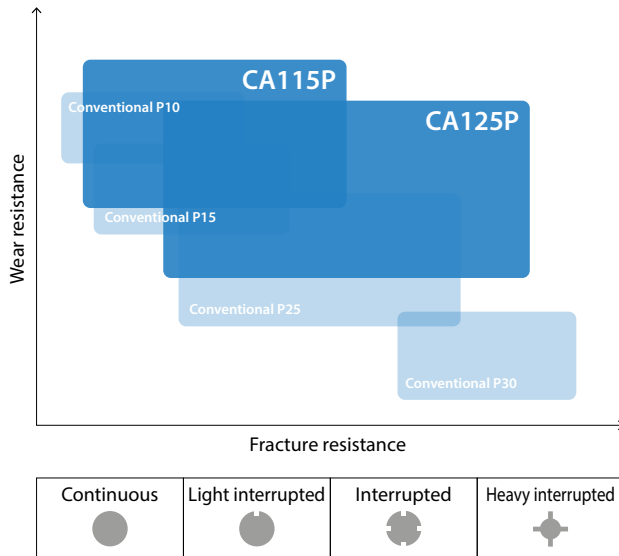
Maintains excellent chip control



1

Extended tool life in a wide variety of applications

Application map



CA115P

Continuous-light interrupted machining of steel

For high-efficient machining
with wear and chipping resistance

CA125P

Continuous-heavy interrupted steel machining

First recommendation for steel machining
High versatility

Solution

Long tool life in various machining environments from roughing to finishing

1 Shaft S43C



Good
Edge condition

CA125P maintained stability and achieved less wear than competitor A.

Edge condition



CA125P



Competitor A

Cutting conditions :
Vc = 200 m/min, ap = 0.5 mm
f = 0.3 mm/rev, Wet DNMG150408PP
Tool life : 150 pcs/corner

(User evaluation)

2 Sleeve HMM45



Tool life

2x

CA115P provides 2 times longer tool life than competitor B and maintained better edge wear.

Number of parts

CA115P **200 pcs/corner**

Competitor B **100 pcs/corner**

Cutting conditions :
Vc = 210 m/min, ap = 0.5 mm
f = 0.35 mm/rev, Wet DNMG150408PQ

(User evaluation)

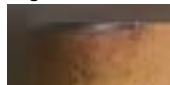
3 Automotive parts SCM420H



Good
Edge condition

CA125P provides stable machining without chipping even after reaching the end of estimated tool life.

Edge condition



CA125P



Competitor C

Cutting conditions :
Vc = 160 m/min, ap = 1.0 mm
f = 0.32 mm/rev, Wet CNMG120412PG
Tool life : 100 pcs/corner

(User evaluation)

4 Automotive parts Non-tempered steel



Tool life

1.4x

CA125P shows 1.4 times longer tool life than competitor D.

Number of parts

CA125P **80 pcs/corner**

Competitor D **55 pcs/corner**

Cutting conditions :
Vc = 160 m/min, ap = 0.2 mm
f = 0.32 mm/rev, Wet CNMG120408PG

(User evaluation)

Solution

New PMG chipbreaker provides up to 4 times longer tool life



5 Nut S45C

Tool life
↑ 4x

CA115P provides 4 times longer tool life than competitor E. The amount of wear after machining is also comparable.

Number of parts

CA115P **1,440 pcs/corner**

Competitor E **360 pcs/corner**

Cutting conditions :
Vc = 190 m/min, ap = 1.3 mm
f = 0.2 mm/rev, Wet CNMG120408PMG



(User evaluation)

6 Gear S35C

Tool life
↑ 2x

CA125P shows 2 times longer tool life than competitor F for stable machining even in interrupted machining sections.

Number of parts

CA125P **200 pcs/corner**

Competitor F **100 pcs/corner**

Cutting conditions :
Vc = 260 m/min, ap = 1.5 mm
f = 0.3 mm/rev, Wet CNMG120412PMG



(User evaluation)

7 Bearing SCM415

Edge condition
↑ Good

CA125P maintained machining without fractures compared to competitor G, which was damaged frequently during machining.

Edge condition



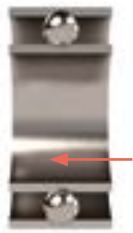
CA125P



Competitor G

Cutting conditions :
Vc = 270 m/min, ap = 1.3 mm
f = 0.25 mm/rev, Wet WNMG080408PMG
Tool life : 300 pcs/corner

(User evaluation)



8 Yoke S45C

Tool life
↑ 2x

CA125P shows 2 times longer tool life than competitor H.

Number of parts

CA125P **100 pcs/corner**

Competitor H **50 pcs/corner**

Cutting conditions :
Vc = 160 m/min, ap = 1.0 mm
f = 0.37 mm/rev, Wet WNMG080408PMG



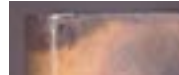
(User evaluation)

9 Bolt SCM440H

Edge condition
↑ Good

CA125P has better chipping resistance against competitor I.

Edge condition



CA125P



Competitor I

Cutting conditions :
Vc = 200 m/min, ap = 2.0 mm
f = 0.3 mm/rev, Wet TNMG160408PMG
Tool life : 130 pcs/corner

(User evaluation)



10 Nut S45C

Tool life
↑ 2x

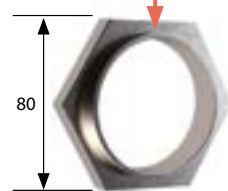
CA125P shows 2 times longer tool life than competitor J due to improved wear resistance.

Number of parts

CA125P **720 pcs/corner**

Competitor J **360 pcs/corner**

Cutting conditions :
Vc = 200 m/min, ap = 2.2 mm
f = 0.2 mm/rev, Wet WNMG080408PMG



(User evaluation)



2

Newly developed proprietary coating and carbide substrate with superior wear and fracture resistance.

Optimized coating properties on rake and flank faces provides wear resistance and fracture resistance

The industry's most uniform alumina film* reduces crater wear

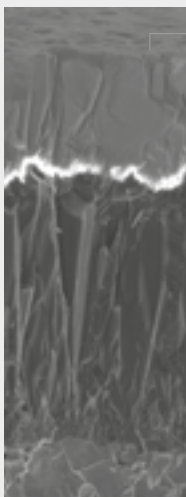
*March 2023, by Kyocera research

Black & Gold

Rake face

Suppresses crater wear and fracturing

- New surface treatment technology improves fracture resistance
- Highly uniform alumina layer reduces wear



Surface treatment

Highly uniform alumina layer

Unique TiCN layer

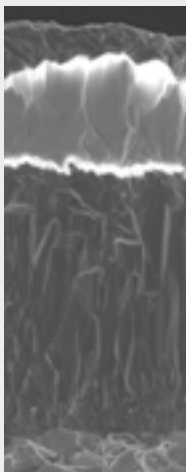
New carbide substrate



Flank face

Improved wear resistance

- High hardness surface layer suppresses abrasion
- Uniform alumina layer reduces wear
- Easy to see edge defects with golden surface



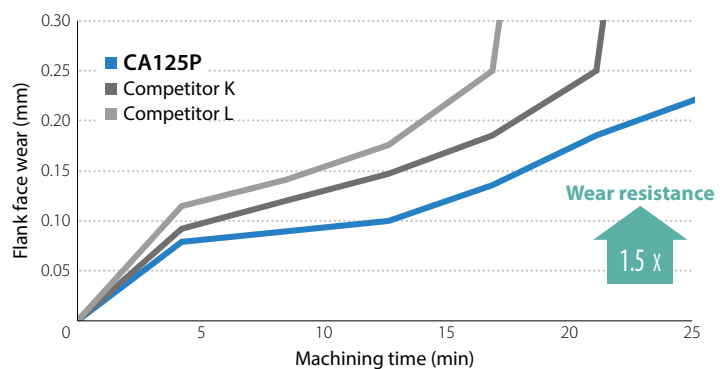
High hardness surface layer

Highly uniform alumina layer

Unique TiCN layer

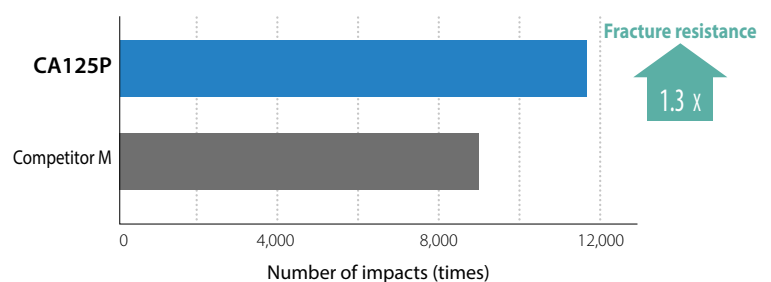
New carbide substrate

Wear resistance comparison (Internal evaluation)



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

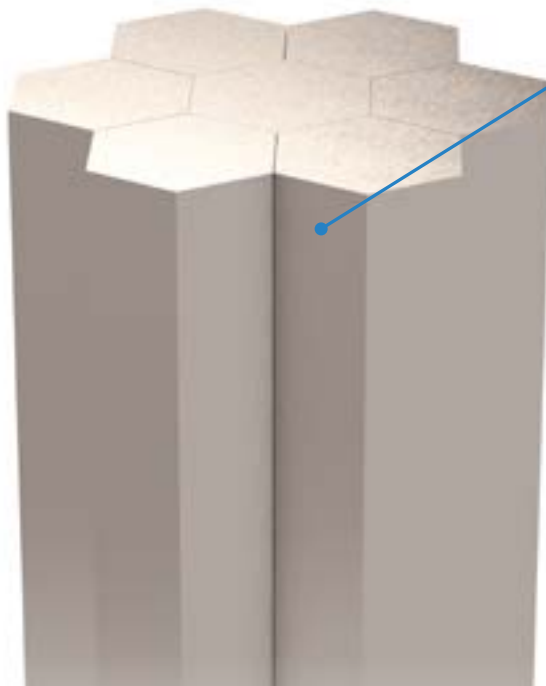
Fracture resistance comparison (Internal evaluation) Interrupted machining n = 3 mean



Cutting conditions : $V_c = 300$ m/min, $a_p = 1.5$ mm, $f = 0.35$ mm/rev, Wet Workpiece : S45C (4 grooves)

Highly uniform alumina layer

Excellent wear resistance due to the most uniform crystal orientation in the industry.*



Alumina film crystal structure (CG image)

Uniform crystal orientation

New crystal control technology provides industry-leading Al_2O_3 orientation

Comparison of cutting edge conditions (Internal evaluation)

After machining for 16.9 minutes

Improved wear resistance

Reduces crater wear and external abrasion caused by chip scraping



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

*March 2023, by Kyocera research

Crystal orientation analysis (EBSD pattern)

A higher percentage of red indicates a more uniform growth pattern

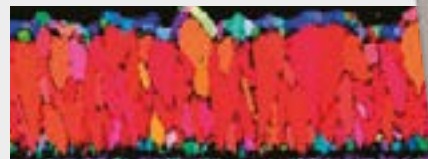
CA125P



Uniform crystal direction

(CG image)

Conventional A



Nonuniform crystal orientation

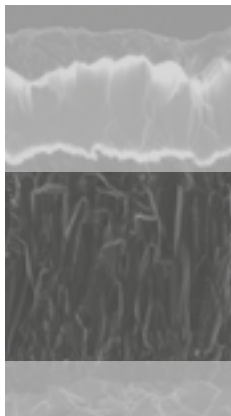
(CG image)

Unique TiCN layer

Proper TiCN particle size with proprietary crystal control technology

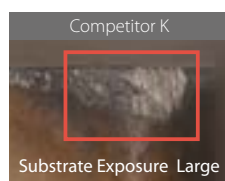
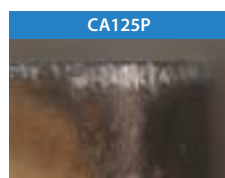
Greatly improved chipping resistance

TiCN layer (CA125P)



Edge condition comparison
(Internal evaluation)

After machining 70 mm



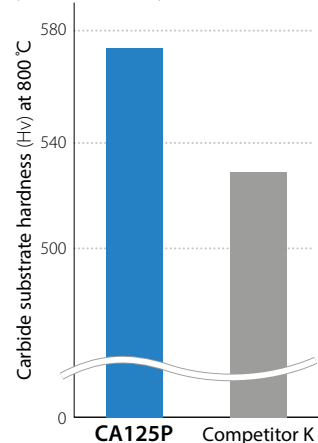
Cutting conditions : $V_c = 250$ m/min
 $a_p = 1.0$ mm, $f = 0.4$ mm/rev
 $L = 1.0$ mm, Wet, Workpiece : SUJ2

New carbide substrate

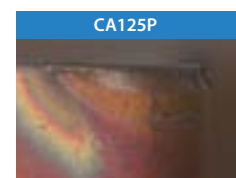
Improved resistance to plastic deformation with an increased temperature strength

Comparison of carbide substrate hardness
(Internal evaluation)

(Internal evaluation)



Edge condition comparison
(Internal evaluation)



Cutting conditions : $V_c = 300$ m/min
 $a_p = 1.0$ mm, $f = 0.4$ mm/rev
Dry, Workpiece : SCM435

3

A large variety of chipbreakers cover a wide range of machining applications and conditions

New lineup with expanded PMG chipbreakers for medium machining to roughing
Covers a wide area from finishing to roughing

Negative type

Smart chipbreaker P series for steel machining

PP

For finishing
Low resistance



PQ

For finishing-medium
Sharpness and strength



PMG NEW

For medium-roughing
Covers a wide range of machining areas



PG

For medium-roughing
Stability-oriented

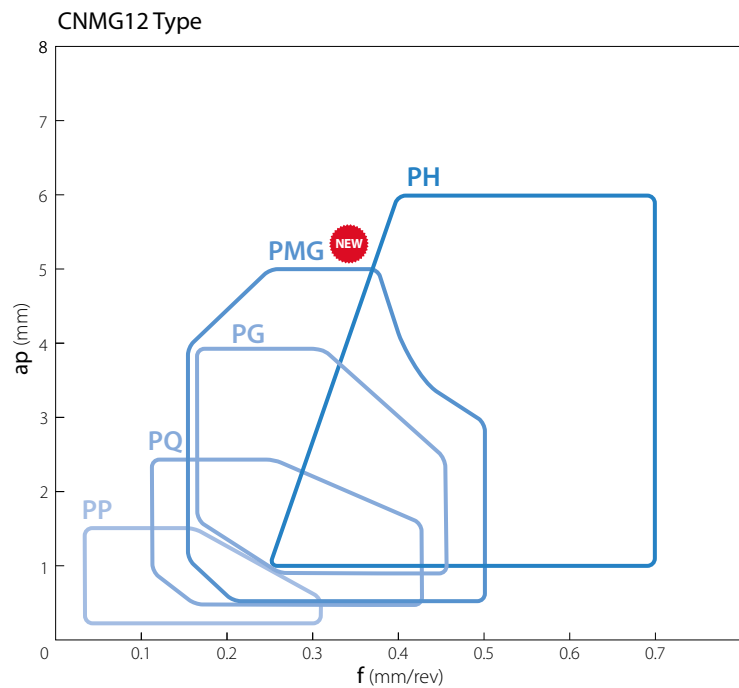


PH

For roughing
Tough edge design



Applicable chipbreaker range (ap indicates radius)



Positive type

For finishing

PP

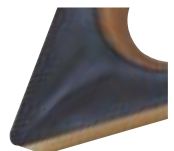
High reliability
Improving the productivity of finishing



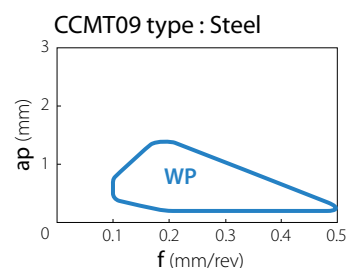
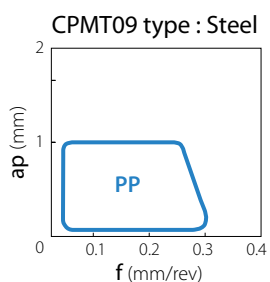
Wiper insert

WP

Newly designed wiper edge geometry
High productivity



Applicable chipbreaker range (ap indicates radius)



For medium-roughing

PMG chipbreaker

Covers a wide range of machining applications from medium machining to roughing

Excellent wear resistance with low cutting force design

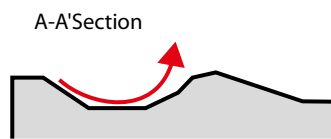
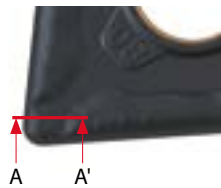
Reduces chip shape inconsistencies and improves tool life

Step breaker structure

Suppresses chip entanglement during large D.O.C. machining with a gently rising surface

Circle dot

Control chips during small D.O.C. machining



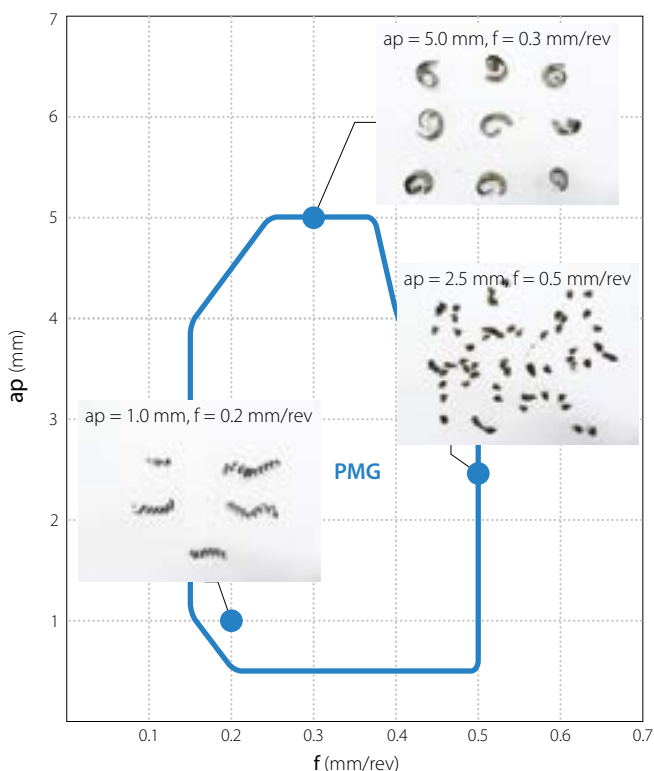
High rake perimeter

Low resistance design suppresses rake face temperature rise
Reduces chipbreakers wear and chip shape changes

Excellent chip control

Good chip control in a wide range of machining areas

Applicable chipbreaker range



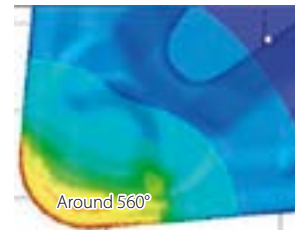
Cutting conditions: $V_c = 300$ m/min, $a_p = 0.5 \sim 5.0$ mm, $f = 0.1 \sim 0.5$ mm/rev
Workpiece: SCR420 CNMG120408PMG

Achieves longer tool life

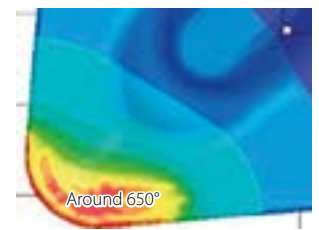
Suppresses rise in rake face temperature. Reduces crater wear

Edge temperature simulation comparison (Internal evaluation)

PMG chipbreaker



Conventional B



Cutting conditions: $V_c = 270$ m/min, $a_p = 1.5$ mm, $f = 0.3$ mm/rev
Workpiece: SCM430

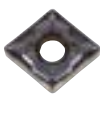
Consistent, small, and even chip shapes

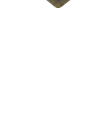
Chip shape

PMG chipbreaker		Conventional B	
Initial machining		Initial machining	
After 27.2 min machining		After 25.0 min machining	

Cutting conditions: $V_c = 300$ m/min, $a_p = 1.5$ mm, $f = 0.3$ mm/rev
Wet (External coolant) Workpiece: SCM435 WNMG080408PMG

Negative type inserts

Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Wiper Edge		120404WF	12.70	4.76	5.16	0.4	●	●
		120408WF				0.8	●	●
Wiper Edge		120404WP	12.70	4.76	5.16	0.4	●	●
		120408WP				0.8	●	●
Wiper Edge		120404WE	12.70	4.76	5.16	0.4	●	●
		120408WE				0.8	●	●
		120412WE				1.2	●	●
Wiper Edge		120404WQ	12.70	4.76	5.16	0.4	●	●
		120408WQ				0.8	●	●
		120412WQ				1.2	●	●
Finishing		120402PP	12.70	4.76	5.16	0.2	●	●
		120404PP				0.4	●	●
		120408PP				0.8	●	●
		120412PP				1.2	●	●
Finishing		120402GP	12.70	4.76	5.16	0.2	●	●
		120404GP				0.4	●	●
		120408GP				0.8	●	●
Finishing-Medium		120404PQ	12.70	4.76	5.16	0.4	●	●
		120408PQ				0.8	●	●
		120412PQ				1.2	●	●
Finishing-Medium		090404HQ	9.525	4.76	3.81	0.4	●	●
		090408HQ				0.8	●	●
		120404HQ	12.70	4.76	5.16	0.4	●	●
		120408HQ				0.8	●	●
		120412HQ				1.2	●	●
Finishing-Medium / Up Facing		120404CQ	12.70	4.76	5.16	0.4	●	●
		120408CQ				0.8	●	●
		120412CQ				1.2	●	●
		160608CQ	15.875	6.35	6.35	0.8	●	●
		160612CQ				1.2	●	●
Finishing-Medium / Up Facing		120408CJ	12.70	4.76	5.16	0.8	●	●
		120412CJ				1.2	●	●
		160612CJ	15.875	6.35	6.35	1.2	●	●
		160616CJ				1.6	●	●
Medium-Roughing		120404PMG	12.70	4.76	5.16	0.4	●	●
		120408PMG				0.8	●	●
		120412PMG				1.2	●	●
		120416PMG				1.6	●	●
		160608PMG	15.875	6.35	6.35	0.8	●	●
		160612PMG				1.2	●	●
		160616PMG				1.6	●	●
Medium-Roughing (Continuous)		090404GS	9.525	4.76	3.81	0.4	●	●
		090408GS				0.8	●	●

Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Medium-Roughing (Intermittent)		120404PG	12.70	4.76	5.16	0.4	●	●
		120408PG				0.8	●	●
		120412PG				1.2	●	●
		120416PG				1.6	●	●
Roughing		120404	12.70	4.76	5.16	0.4	●	●
		120408				0.8	●	●
		120412				1.2	●	●
		160608	15.875	6.35	6.35	0.8	●	●
		160612				1.2	●	●
		190612	19.05	6.35	7.94	1.2	●	●
		190616				1.6	●	●
		120408PH	12.70	4.76	5.16	0.8	●	●
		120412PH				1.2	●	●
		120416PH				1.6	●	●
Roughing		160608PH	15.875	6.35	6.35	0.8	●	●
		160612PH				1.2	●	●
		160616PH				1.6	●	●
		190608PH	19.05	6.35	7.94	0.8	●	●
		190612PH				1.2	●	●
		190616PH				1.6	●	●
		190624PH				2.4	●	●
		120408PX	12.70	4.76	5.16	0.8	●	●
		120412PX				1.2	●	●
		120416PX				1.6	●	●
		160608PX	15.875	6.35	6.35	0.8	●	●
		160612PX				1.2	●	●
		160616PX				1.6	●	●
Single-Sided Roughing / High Feed		190608PX	19.05	6.35	7.94	0.8	●	●
		190612PX				1.2	●	●
		190616PX				1.6	●	●
		190624PX				2.4	●	●
		120408PX	12.70	4.76	5.16	0.8	●	●
Low Carbon Steel		120404XP	12.70	4.76	5.16	0.4	●	●
		120408XP				0.8	●	●
Low Carbon Steel		120404XQ	12.70	4.76	5.16	0.4	●	●
		120408XQ				0.8	●	●
Low Carbon Steel		120408XS	12.70	4.76	5.16	0.8	●	●

● : Available

Negative type inserts

Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Wiper Edge		150404WF	12.70	4.76	5.16	0.4	●	●
		DNMX 150408WF				0.8	●	●
		150412WF				1.2	●	●
		150604WF	12.70	6.35	5.16	0.4	●	●
		DNMX 150608WF				0.8	●	●
		150612WF				1.2	●	●
Finishing		150402PP	12.70	4.76	5.16	0.2	●	●
		150404PP				0.4	●	●
		150408PP				0.8	●	●
		150412PP				1.2	●	●
		150602PP	12.70	6.35	5.16	0.2	●	●
		150604PP				0.4	●	●
		150608PP				0.8	●	●
		150612PP				1.2	●	●
		110404GP	9.525	4.76	3.81	0.4	●	●
		110408GP				0.8	●	●
		150402GP	12.70	4.76	5.16	0.2	●	●
		DNMX 150404GP				0.4	●	●
		150408GP				0.8	●	●
Finishing-Medium		150404PQ	12.70	4.76	5.16	0.4	●	●
		DNMX 150408PQ				0.8	●	●
		150412PQ				1.2	●	●
		150604PQ	12.70	6.35	5.16	0.4	●	●
		DNMX 150608PQ				0.8	●	●
		150612PQ				1.2	●	●
Finishing-Medium		110402HQ	9.525	4.76	3.81	0.2	●	●
		110404HQ				0.4	●	●
		150404HQ	12.70	4.76	5.16	0.4	●	●
		DNMX 150408HQ				0.8	●	●
		150412HQ				1.2	●	●
		150604HQ	12.70	6.35	5.16	0.4	●	●
		DNMX 150608HQ				0.8	●	●
		150612HQ				1.2	●	●
		150404CQ	12.70	4.76	5.16	0.4	●	●
		DNMX 150408CQ				0.8	●	●
		150412CQ				1.2	●	●
		150604CQ	12.70	6.35	5.16	0.4	●	●
		DNMX 150608CQ				0.8	●	●
		150612CQ				1.2	●	●
Finishing-Medium / Up Facing		150408CJ	12.70	4.76	5.16	0.8	●	●
		150412CJ				1.2	●	●
		150608CJ	12.70	6.35	5.16	0.8	●	●
		150612CJ				1.2	●	●

Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Medium-Roughing		150404PMG	12.70	4.76	5.16	0.4	●	●
		150408PMG				0.8	●	●
		150412PMG				1.2	●	●
		150416PMG				1.6	●	●
		150604PMG	12.70	6.35	5.16	0.4	●	●
		150608PMG				0.8	●	●
		150612PMG				1.2	●	●
		150616PMG				1.6	●	●
		110404GS	9.525	4.76	3.81	0.4	●	●
		110408GS				0.8	●	●
		150404PG	12.70	4.76	5.16	0.4	●	●
		150408PG				0.8	●	●
		150412PG				1.2	●	●
		150416PG				1.6	●	●
Medium-Roughing (Interruption)		150404PG	12.70	4.76	5.16	0.4	●	●
		150408PG				0.8	●	●
		150412PG				1.2	●	●
		150416PG				1.6	●	●
		150604PG	12.70	6.35	5.16	0.4	●	●
		150608PG				0.8	●	●
		150612PG				1.2	●	●
		150616PG				1.6	●	●
		150404	12.70	4.76	5.16	0.4	●	●
		150408				0.8	●	●
		150608	12.70	6.35	5.16	0.8	●	●
		150612				1.2	●	●
Roughing		150408PH	12.70	4.76	5.16	0.8	●	●
		150412PH				1.2	●	●
		150416PH				1.6	●	●
		150608PH	12.70	6.35	5.16	0.8	●	●
		150612PH				1.2	●	●
		150616PH				1.6	●	●
Single-Sided Roughing / High Feed		150408PX	12.70	4.76	5.16	0.8	●	●
		150412PX				1.2	●	●
		150416PX				1.6	●	●
		150608PX	12.70	6.35	5.16	0.8	●	●
		150612PX				1.2	●	●
		150616PX				1.6	●	●
Low Carbon Steel		150404XP	12.70	4.76	5.16	0.4	●	●
		150408XP				0.8	●	●
Low Carbon Steel		150404XQ	12.70	4.76	5.16	0.4	●	●
		150408XQ				0.8	●	●
Low Carbon Steel		150408XS	12.70	4.76	5.16	0.8	●	●

● : Available

Negative type inserts

Shape		Description	Dimensions (mm)				CA11SP	CA12SP		
			I.C.	S	D1	RE				
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 120408PMG	12.70	4.76	5.16	0.8	●	●		
		120412PMG				1.2	●	●		
		120416PMG				1.6	●	●		
Medium		SNMG 120408PG	12.70	4.76	5.16	0.8	●	●		
		120412PG				1.2	●	●		
		120416PG				1.6	●	●		
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	●	●		
		120408PH				0.8	●	●		
Roughing		SNMG 120412PH	12.70	4.76	5.16	1.2	●	●		
		120416PH				1.6	●	●		
		150612PH				1.2	●	●		
		SNMG 150616PH	15.875	6.35	6.35	1.6	●	●		
		190612PH				1.2	●	●		
		SNMG 190616PH	19.05	6.35	7.94	1.6	●	●		
		120408PX				0.8	●	●		
		Single Sided Roughing / High Feed		SNMM 120412PX	12.70	4.76	5.16	1.2	●	●
120416PX	1.6			●				●		
150612PX	1.2			●				●		
SNMM 150616PX	15.875			6.35	6.35	1.6	●	●		
190612PX						1.2	●	●		
SNMM 190616PX	19.05			6.35	7.94	1.6	●	●		
190624PX						2.4	●	●		
Low Carbon Steel							SNMG 120408XP	12.70	4.76	5.16
Low Carbon Steel				SNMG 120408XQ	12.70	4.76	5.16	0.8	●	●
Low Carbon Steel				SNMG 120408XS	12.70	4.76	5.16	0.8	●	●

Shape		Description	Dimensions (mm)				CA11SP	CA12SP
			I.C.	S	D1	RE		
Wiper Edge		160404WF	9.525	4.76	3.81	0.4	●	●
		TNMX 160408WF				0.8	●	●
		160412WF				1.2	●	●
Finishing								
Finishing		160402PP	9.525	4.76	3.81	0.2	●	●
		160404PP				0.4	●	●
		160408PP				0.8	●	●
		160412PP				1.2	●	●
Finishing		160402GP	9.525	4.76	3.81	0.2	●	●
		160404GP				0.4	●	●
		160408GP				0.8	●	●
Finishing-Medium		160404PQ	9.525	4.76	3.81	0.4	●	●
		160408PQ				0.8	●	●
		160412PQ				1.2	●	●
Finishing-Medium		110404HQ	6.35	4.76	2.26	0.4	●	●
		110408HQ				0.8	●	●
		160404HQ	9.525	4.76	3.81	0.4	●	●
		160408HQ				0.8	●	●
		160412HQ				1.2	●	●
Finishing-Medium / Up Facing		160404CQ	9.525	4.76	3.81	0.4	●	●
		160408CQ				0.8	●	●
		160412CQ				1.2	●	●
		220408CQ	12.70	4.76	5.16	0.8	●	●
		220412CQ				1.2	●	●
Medium-Roughing		160404PMG	9.525	4.76	3.81	0.4	●	●
		160408PMG				0.8	●	●
		160412PMG				1.2	●	●
		220404PMG	12.70	4.76	5.16	0.4	●	●
		220408PMG				0.8	●	●
		220412PMG				1.2	●	●
		220416PMG				1.6	●	●
Medium (Continued)		110404GS	6.35	4.76	2.26	0.4	●	●
		110408GS				0.8	●	●
Medium-Roughing (Interpolation)		160404PG	9.525	4.76	3.81	0.4	●	●
		160408PG				0.8	●	●
		160412PG				1.2	●	●
Roughing		160404	9.525	4.76	3.81	0.4	●	●
		160408				0.8	●	●
		160412				1.2	●	●
		220408	12.70	4.76	5.16	0.8	●	●
		220412				1.2	●	●

● : Available

Negative type inserts

Shape Handed insert shows Right-hand		Description	Dimensions (mm)				CA115P	CA125P
			I.C.	S	D1	RE		
Roughing		160408PH	9.525	4.76	3.81	0.8	●	●
		TNMG 160412PH				1.2	●	●
		220408PH	12.70	4.76	5.16	0.8	●	●
		TNMG 220412PH				1.2	●	●
		220416PH				1.6	●	●
Single-Edge Roughing / High Feed		160408PX	9.525	4.76	3.81	0.8	●	●
		TNMM 160412PX				1.2	●	●
		220408PX	12.70	4.76	5.16	0.8	●	●
		TNMM 220412PX				1.2	●	●
		220416PX				1.6	●	●
Low Carbon Steel		160404XP	9.525	4.76	3.81	0.4	●	●
		TNMG 160408XP				0.8	●	●
Low Carbon Steel		160404XQ	9.525	4.76	3.81	0.4	●	●
		TNMG 160408XQ				0.8	●	●
Low Carbon Steel		TNMG 160408XS	9.525	4.76	3.81	0.8	●	●
Medium-Roughing		TNMG 160404R/L-ST	9.525	4.76	3.81	0.4	●	●
		160408R/L-ST				0.8	●	●

Shape Handed insert shows Right-hand		Description	Dimensions (mm)				CA115P	CA125P
			I.C.	S	D1	RE		
Finishing		160402PP	9.525	4.76	3.81	0.2	●	●
		VNMG 160404PP				0.4	●	●
		160408PP				0.8	●	●
		160412PP				1.2	●	●
Finishing		160402GP	9.525	4.76	3.81	0.2	●	●
		VNMG 160404GP				0.4	●	●
		160408GP				0.8	●	●
Finishing-Medium		160404R/L-VC	9.525	4.76	3.81	0.4	●	●
		VNMG 160408R/L-VC				0.8	●	●
		160412R/L-VC				1.2	●	●
Finishing-Medium		160404VF	9.525	4.76	3.81	0.4	●	●
		VNMG 160408VF				0.8	●	●
		160412VF				1.2	●	●
Finishing-Medium		160404PQ	9.525	4.76	3.81	0.4	●	●
		VNMG 160408PQ				0.8	●	●
		160412PQ				1.2	●	●
Finishing-Medium		160404HQ	9.525	4.76	3.81	0.4	●	●
		VNMG 160408HQ				0.8	●	●
		160412HQ				1.2	●	●
Roughing		160404	9.525	4.76	3.81	0.4	●	●
		VNMG 160408				0.8	●	●

● : Available

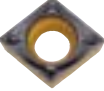
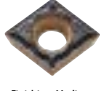
Negative type inserts

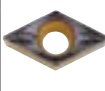
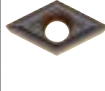
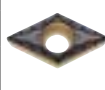
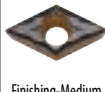
Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Wiper Edge		080404WF	12.70	4.76	5.16	0.4	●	●
		080408WF				0.8	●	●
Wiper Edge		080404WP	12.70	4.76	5.16	0.4	●	●
		080408WP				0.8	●	●
Wiper Edge		080404WE	12.70	4.76	5.16	0.4	●	●
		080408WE				0.8	●	●
		080412WE				1.2	●	●
Wiper Edge		080404WQ	12.70	4.76	5.16	0.4	●	●
		080408WQ				0.8	●	●
		080412WQ				1.2	●	●
Finishing		080402PP	12.70	4.76	5.16	0.2	●	●
		080404PP				0.4	●	●
		080408PP				0.8	●	●
		080412PP				1.2	●	●
Finishing-Medium		080404PQ	12.70	4.76	5.16	0.4	●	●
		080408PQ				0.8	●	●
		080412PQ				1.2	●	●
Finishing-Medium		06T304HQ	9.525	3.97	3.81	0.4	●	●
		06T308HQ				0.8	●	●
		060404HQ	9.525	4.76	3.81	0.4	●	●
		060408HQ				0.8	●	●
Finishing-Medium		080404HQ	12.70	4.76	5.16	0.4	●	●
		080408HQ				0.8	●	●
		080412HQ				1.2	●	●
Finishing-Medium / Up Facing		080404CQ	12.70	4.76	5.16	0.4	●	●
		080408CQ				0.8	●	●
		080412CQ				1.2	●	●
Finishing-Medium / Up Facing		080408CJ	12.70	4.76	5.16	0.8	●	●
		080412CJ				1.2	●	●

Shape		Description	Dimensions (mm)				CA15P	CA125P
			I.C.	S	D1	RE		
Medium-Roughing		080404PMG	12.70	4.76	5.16	0.4	●	●
		080408PMG				0.8	●	●
		080412PMG				1.2	●	●
		080416PMG				1.6	●	●
Medium-Roughing (Continuous)		060404GS	9.525	4.76	3.81	0.4	●	●
		060408GS				0.8	●	●
Medium-Roughing (Interrupted)		080404PG	12.70	4.76	5.16	0.4	●	●
		080408PG				0.8	●	●
		080412PG				1.2	●	●
		080416PG				1.6	●	●
Roughing		080404	12.70	4.76	5.16	0.4	●	●
		080408				0.8	●	●
		080412				1.2	●	●
Roughing		080408PH	12.70	4.76	5.16	0.8	●	●
		080412PH				1.2	●	●
Low Carbon Steel		080404XP	12.70	4.76	5.16	0.4	●	●
		080408XP				0.8	●	●
Low Carbon Steel		080404XQ	12.70	4.76	5.16	0.4	●	●
		080408XQ				0.8	●	●
Low Carbon Steel		080408XS	12.70	4.76	5.16	0.8	●	●

● : Available

Negative type inserts

Shape	Description	Dimensions (mm)				Relief Angle	CA15P	CA125P
		I.C.	S	D1	RE			
Wiper Edge		060202WP	6.35	2.38	2.8	0.2	7°	●
		CCMT 060204WP				0.4		
		060208WP				0.8		
	Finishing	09T302WP	9.525	3.97	4.4	0.2	7°	●
		CCMT 09T304WP				0.4		
		09T308WP				0.8		
Finishing		060202PP	6.35	2.38	2.8	0.2	7°	●
		CCMT 060204PP				0.4		
		09T302PP	9.525	3.97	4.4	0.2	7°	●
		CCMT 09T304PP				0.4		
		09T308PP				0.8		
	Finishing-Medium	060202GK	6.35	2.38	2.8	0.2	7°	●
		CCMT 060204GK				0.4		
		09T302GK	9.525	3.97	4.4	0.2	7°	●
		CCMT 09T304GK				0.4		
		120404GK	12.70	4.76	5.5	0.4	7°	●
		CCMT 120408GK				0.8		
		120412GK				1.2		
Finishing-Medium		060202HQ	6.35	2.38	2.8	0.2	7°	●
		CCMT 060204HQ				0.4		
		09T302HQ	9.525	3.97	4.4	0.2	7°	●
		CCMT 09T304HQ				0.4		
		09T308HQ				0.8		
	Medium	09T308	9.525	3.97	4.4	0.8	7°	●
		CCMT 09T308				0.8		
		09T308				0.8		
Finishing		080202PP	7.94	2.38	3.3	0.2	11°	●
		CPMT 080204PP				0.4		
		090302PP	9.525	3.18	4.4	0.2	11°	●
		CPMT 090304PP				0.4		
		090308PP				0.8		
	Finishing	080204GP	7.94	2.38	3.3	0.4	11°	●
		CPMT 090304GP				0.4		
		090308GP				0.8		
Finishing-Medium		080204HQ	7.94	2.38	3.5	0.4	11°	●
		CPMH 080208HQ				0.8		
		090304HQ	9.525	3.18	4.5	0.4	11°	●
		CPMH 090308HQ				0.8		
	Medium	080204	7.94	2.38	3.5	0.4	11°	●
		CPMH 080208				0.8		
		090304	9.525	3.18	4.5	0.4	11°	●
		CPMH 090308				0.8		
Low Carbon Steel		080204XP	7.94	2.38	3.3	0.4	11°	●
		CPMT 090304XP				0.4		
		090308XP				0.8		
	Finishing	090304XQ	9.525	3.18	4.4	0.4	11°	●
		CPMT 090308XQ				0.8		
		090308XQ				0.8		
Low Carbon Steel		090304XQ	9.525	3.18	4.4	0.4	11°	●
		CPMT 090308XQ				0.8		
		090308XQ				0.8		
	Finishing-Medium	090304XQ	9.525	3.18	4.4	0.4	11°	●
		CPMT 090308XQ				0.8		
		090308XQ				0.8		

Shape	Description	Dimensions (mm)				Relief Angle	CA15P	CA125P
		I.C.	S	D1	RE			
Wiper Edge		070202WP	6.35	2.38	2.8	0.2	7°	●
		DCMX 070204WP				0.4		
		070208WP				0.8		
	Finishing	11T302WP	9.525	3.97	4.4	0.2	7°	●
		DCMX 11T304WP				0.4		
		11T308WP				0.8		
Finishing		070202PP	6.35	2.38	2.8	0.2	7°	●
		DCMT 070204PP				0.4		
		11T302PP	9.525	3.97	4.4	0.2	7°	●
		DCMT 11T304PP				0.4		
		11T308PP				0.8		
	Finishing-Medium	070202GP	6.35	2.38	2.8	0.2	7°	●
		DCMT 070204GP				0.4		
		11T304GP	9.525	3.97	4.4	0.4	7°	●
		DCMT 11T308GP				0.8		
	Finishing-Medium	070202GK	6.35	2.38	2.8	0.2	7°	●
		DCMT 070204GK				0.4		
		070208GK				0.8		
Finishing-Medium		11T302GK	9.525	3.97	4.4	0.2	7°	●
		DCMT 11T304GK				0.4		
		11T308GK				0.8		
	Finishing-Medium	070202HQ	6.35	2.38	2.8	0.2	7°	●
		DCMT 070204HQ				0.4		
		070208HQ				0.8		
Low Carbon Steel		11T302HQ	9.525	3.97	4.4	0.2	7°	●
		DCMT 11T304HQ				0.4		
		11T308HQ				0.8		
	Finishing	070204XP	6.35	2.38	2.8	0.4	7°	●
		DCMT 11T302XP				0.2		
		11T304XP				0.4		
Low Carbon Steel		11T308XP	9.525	3.97	4.4	0.8	7°	●
		11T304XQ				0.4	7°	●
		DCMT 11T308XQ				0.8		
	Finishing-Medium	11T304XQ	9.525	3.97	4.4	0.4		
		DCMT 11T308XQ				0.8		
		11T308XQ				0.8		

● : Available

Positive type inserts

Shape		Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
			I.C.	S	D1	RE			
Medium		RCMX 1003M0	10.0	3.18	3.6	-	7°	●	●
		RCMX 1204M0	12.0	4.76	4.2	-		●	●
Finishing-Medium		09T304HQ	9.525	3.97	4.4	0.4	7°	●	●
		09T308HQ				0.8		●	●
Medium		090304	9.525	3.18	-	0.4	11°	●	●
		090308				0.8		●	●
		120304	12.7	3.18	-	0.4	11°	●	●
		120308				0.8		●	●
Finishing		060102DP	3.97	1.59	2.3	0.2	5°	●	●
		060104DP				0.4		●	●
Wiper Edge		090204WP	5.56	2.38	2.5	0.4	7°	●	●
		110204WP	6.35	2.38	2.8	0.4	7°	●	●
Finishing-Medium		110204HQ	6.35	2.38	2.8	0.4	7°	●	●
		110208HQ				0.8		●	●
Wiper Edge		090202WP	5.56	2.38	2.8	0.2	11°	●	●
		090204WP				0.4		●	●
		090208WP				0.8		●	●
		110302WP	6.35	3.18	3.3	0.2	11°	●	●
		110304WP				0.4		●	●
		110308WP				0.8		●	●
Finishing		090202PP	5.56	2.38	2.8	0.2	11°	●	●
		090204PP				0.4		●	●
		110302PP				0.2	11°	●	●
		110304PP	6.35	3.18	3.3	0.4		●	●
		110308PP				0.8		●	●
		110308PP						●	●
Finishing		090204GP	5.56	2.38	2.8	0.4	11°	●	●
		110304GP	6.35	3.18	3.3	0.4	11°	●	●
		110308GP				0.8		●	●
		160304GP	9.525	3.18	4.4	0.4	11°	●	●

Shape		Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
			I.C.	S	D1	RE			
Finishing-Medium		090202HQ	5.56	2.38	2.8	0.2	11°	●	●
		090204HQ				0.4		●	●
		110302HQ	6.35	3.18	3.3	0.2	11°	●	●
		110304HQ				0.4		●	●
		110308HQ				0.8		●	●
		160304HQ	9.525	3.18	4.4	0.4	11°	●	●
Low Carbon Steel		160308HQ				0.8		●	●
		090204XP	5.56	2.38	2.8	0.4	11°	●	●
		110304XP	6.35	3.18	3.3	0.4	11°	●	●
		110308XP				0.8		●	●
		160304XP	9.525	3.18	4.4	0.4	11°	●	●
		160308XP				0.8		●	●
Low Carbon Steel		110304XQ	6.35	3.18	3.3	0.4	11°	●	●
		110308XQ				0.8		●	●
		160304XQ	9.525	3.18	4.4	0.4	11°	●	●
		160308XQ				0.8		●	●
Finishing		160304GP	9.525	3.18	-	0.4	11°	●	●
Finishing-Medium		110304HQ	6.35	3.18	-	0.4	11°	●	●
		110308HQ				0.8		●	●
		160304HQ	9.525	3.18	-	0.4	11°	●	●
		160308HQ				0.8		●	●
Medium		110304	6.35	3.18	-	0.4	11°	●	●
		110308				0.8		●	●
		160304	9.525	3.18	-	0.4	11°	●	●
		160308				0.8		●	●

● : Available

Positive type inserts

Shape		Description	Dimensions (mm)				Relief Angle	CA11SP	CA12SP		
			I.C.	S	D1	RE					
Finishing		110302PP	6.35	3.18	2.8	0.2	5°	●	●		
		VBMT 110304PP				0.4		●	●		
		110308PP				0.8		●	●		
		160404PP	9.525	4.76	4.4	0.4	5°	●	●		
		VBMT 160408PP				0.8		●	●		
		160412PP				1.2		●	●		
Finishing		VBMT 110304GP	6.35	3.18	2.8	0.4	5°	●	●		
		160404GP	9.525	4.76	4.4	0.4	5°	●	●		
		VBMT 160408GP				0.8		●	●		
Finishing		110302VF	6.35	3.18	2.8	0.2	5°	●	●		
		VBMT 110304VF				0.4		●	●		
		110308VF				0.8		●	●		
		160402VF	9.525	4.76	4.4	0.2	5°	●	●		
		VBMT 160404VF				0.4		●	●		
		160408VF				0.8		●	●		
		160412VF				1.2		●	●		
		Finishing-Medium		110304HQ	6.35	3.18	2.8	0.4	5°	●	●
				VBMT 110308HQ				0.8		●	●
160404HQ	9.525			4.76	4.4	0.4	5°	●	●		
VBMT 160408HQ						0.8		●	●		
160412HQ						1.2		●	●		

Shape		Description	Dimensions (mm)				Relief Angle	CA11 5P	CA12 5P
			I.C.	S	D1	RE			
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	L
		060104L-DP				0.4		L	L
		WBMT 080202L-DP	4.76	2.38	2.3	0.2	5°	L	L
		080204L-DP				0.4		L	L
Finishing		WPMT 110204GP	6.35	2.38	2.8	0.4	11°	●	●
		WPMT 160304GP	9.525	3.18	4.4	0.4	11°	●	●
FinisWing-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		●	●

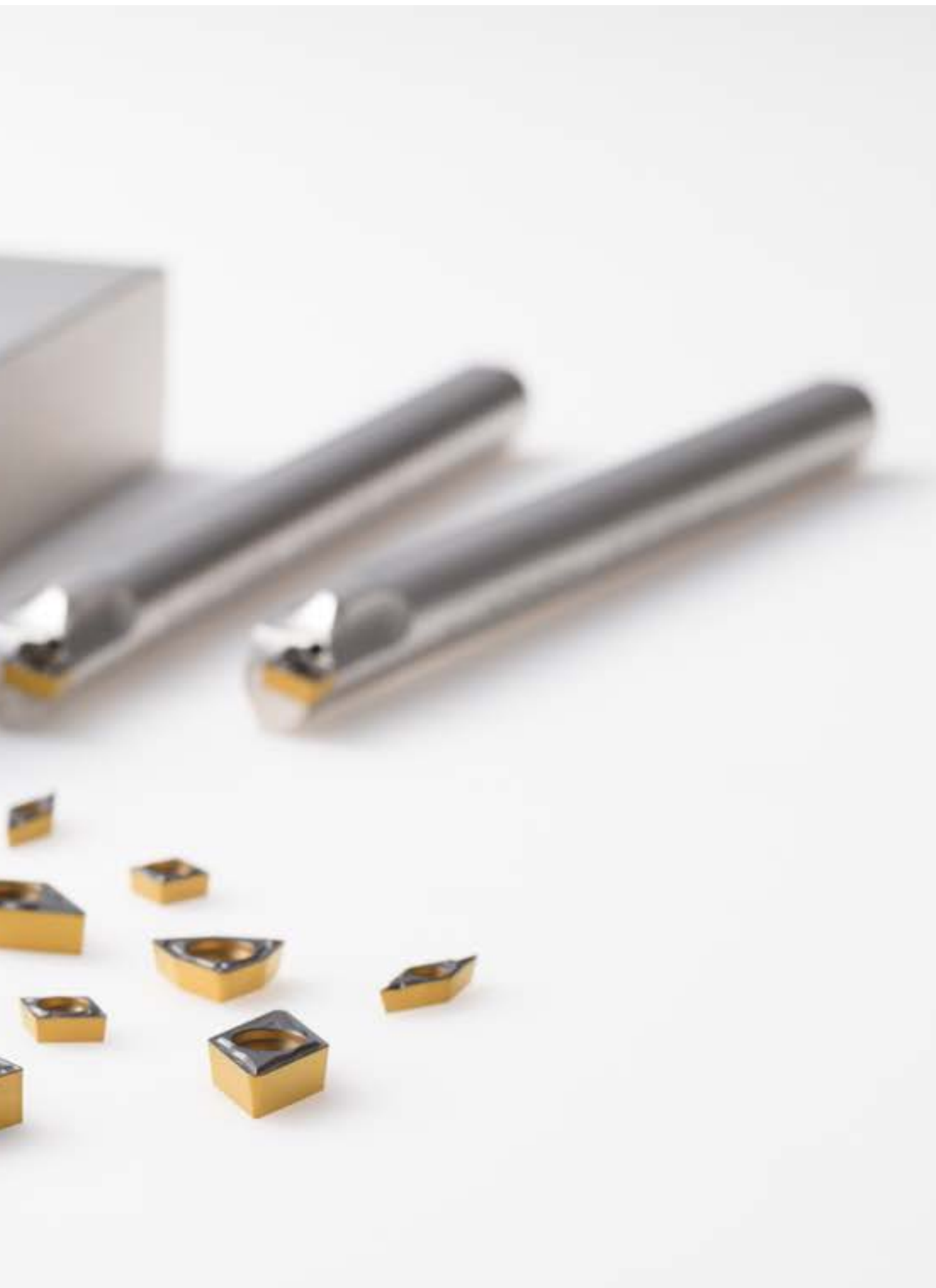
● : Available
L : Left-hand Only

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
CA115P	Negative	150 ~ 300 ~ 400		150 ~ 280 ~ 360
	Positive	120 ~ 240 ~ 320		110 ~ 220 ~ 290
CA125P	Negative	150 ~ 240 ~ 320		150 ~ 220 ~ 280
	Positive	120 ~ 190 ~ 260		110 ~ 170 ~ 230







Achieving Unprecedented Tool Life

