

New CVD coated carbide grade for steel

CA115P/CA125P

NEW

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

Releasing
June 2023

Continuous to light interrupted machining
Highly-efficient machining

CA125P

Continuous to heavy interrupted machining
General purpose



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

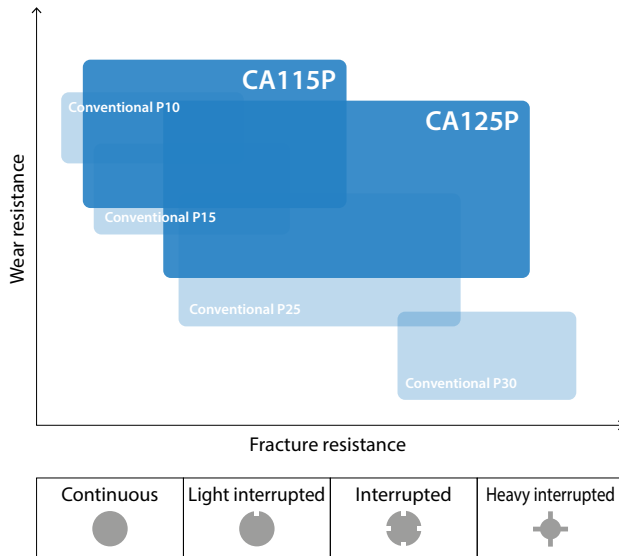
Unique design covers a wide range of machining applications
Maintains excellent chip control



1

Extended tool life in a wide variety of applications

Application map



CA115P

Releasing
June 2023

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)

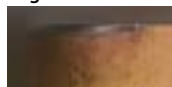
3 Automotive parts SCM420H



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

Good
Edge condition

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)

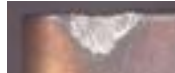
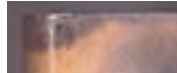
9 Bolt SCM440H

Good
Edge condition

CA125P has better chipping resistance against competitor I.



Edge condition



CA125P

Competitor I

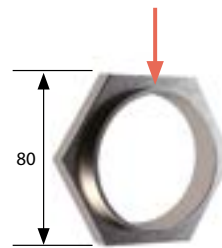
Cutting conditions :
Vc = 200 m/min, ap = 2.0 mm
f = 0.3 mm/rev, Wet TNMG160408PMG
Tool life : 130 pcs/corner

(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

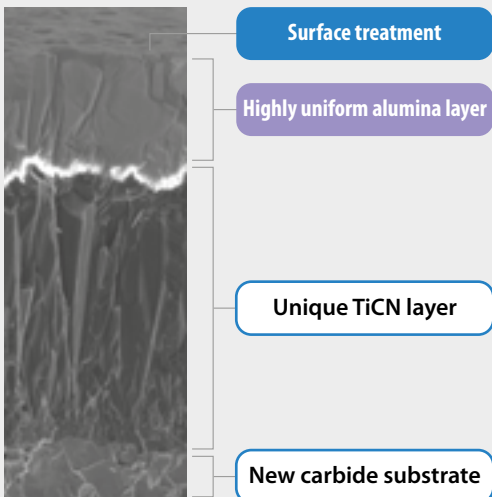
*March 2023, by Kyocera research

Black & Gold

Rake face

Suppresses crater wear and fracturing

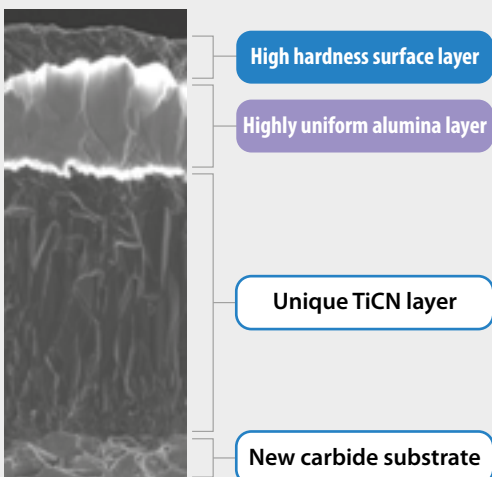
- New surface treatment technology improves fracture resistance
- Highly uniform alumina layer reduces wear



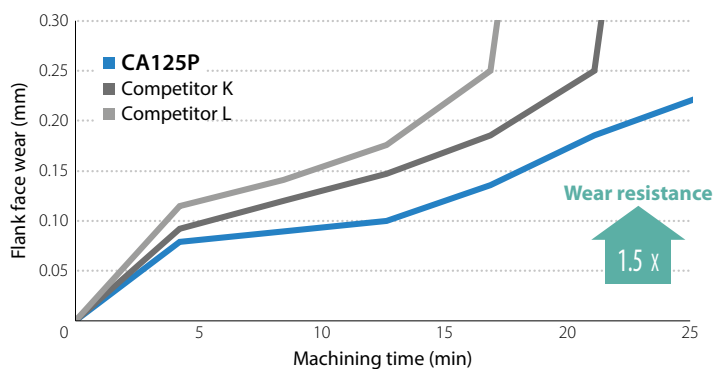
Flank face

Improved wear resistance

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

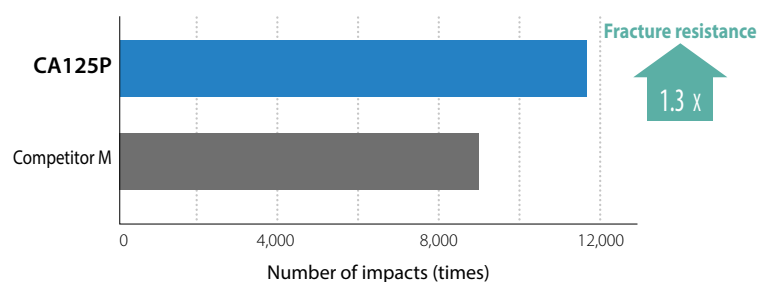


Wear resistance comparison (Internal evaluation)



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

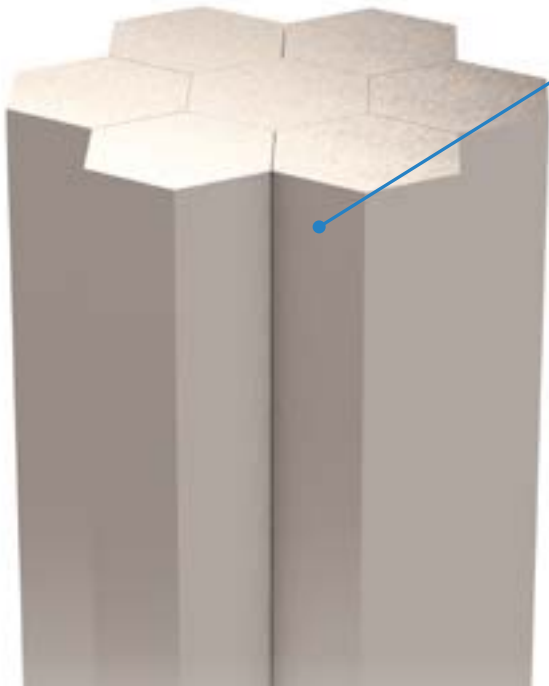
Fracture resistance comparison (Internal evaluation) Interrupted machining n = 3 mean



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

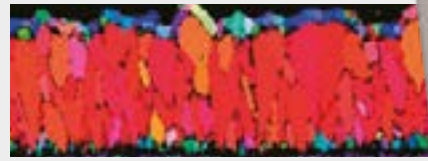


Uniform crystal direction



(CG image)

Conventional A



Nonuniform crystal orientation



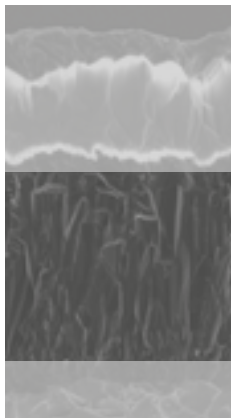
(CG image)

Unique TiCN layer

Proper TiCN particle size with proprietary crystal control technology

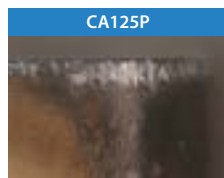
Greatly improved chipping resistance

TiCN layer (CA125P)



Edge condition comparison (Internal evaluation)

After machining 70 mm



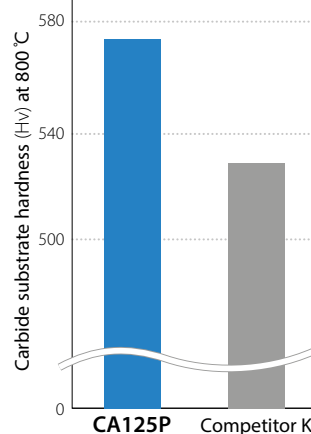
Cutting conditions : $V_c = 250$ m/min
 $a_p = 1.0$ mm, $f = 0.4$ mm/rev
 $L = 1.0$ mm, Wet, Workpiece : SUJ2

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

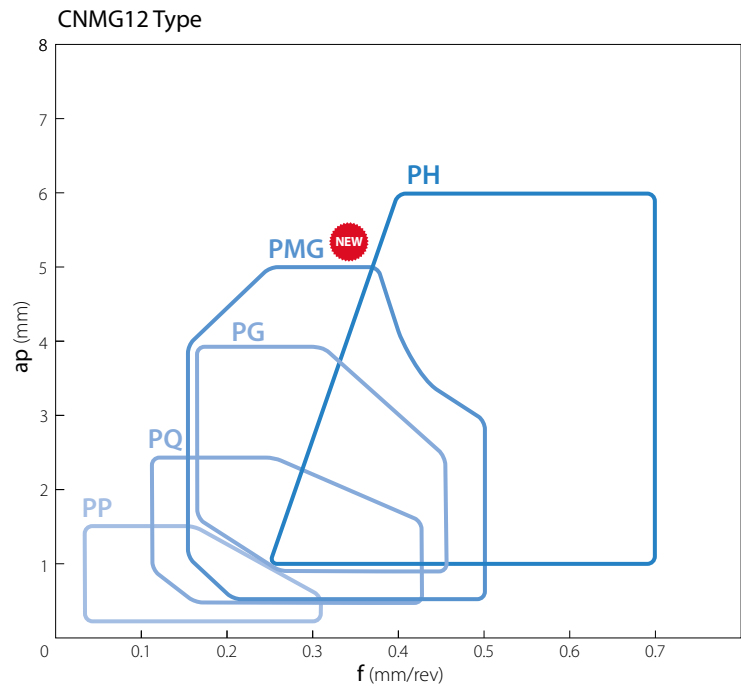


PH

For roughing
Tough edge design



Applicable chipbreaker range (ap indicates radius)



Positive type

For finishing

PP

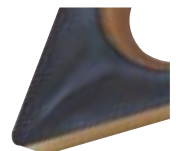
High reliability
Improving the productivity of finishing



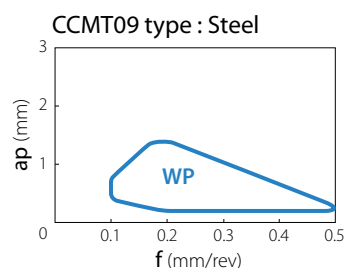
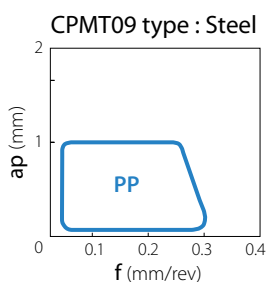
Wiper insert

WP

Newly designed wiper edge geometry
High productivity



Applicable chipbreaker range (ap indicates radius)



For medium-roughing

PMG chipbreaker NEW

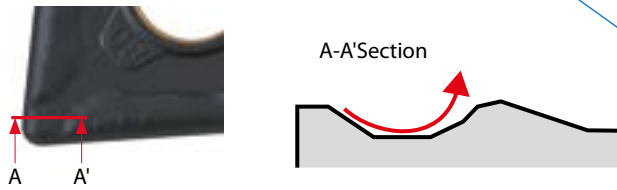
Covers a wide range of machining applications from medium machining to roughing
 Excellent wear resistance with low cutting force design
 Reduces chip shape inconsistencies and improves tool life

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

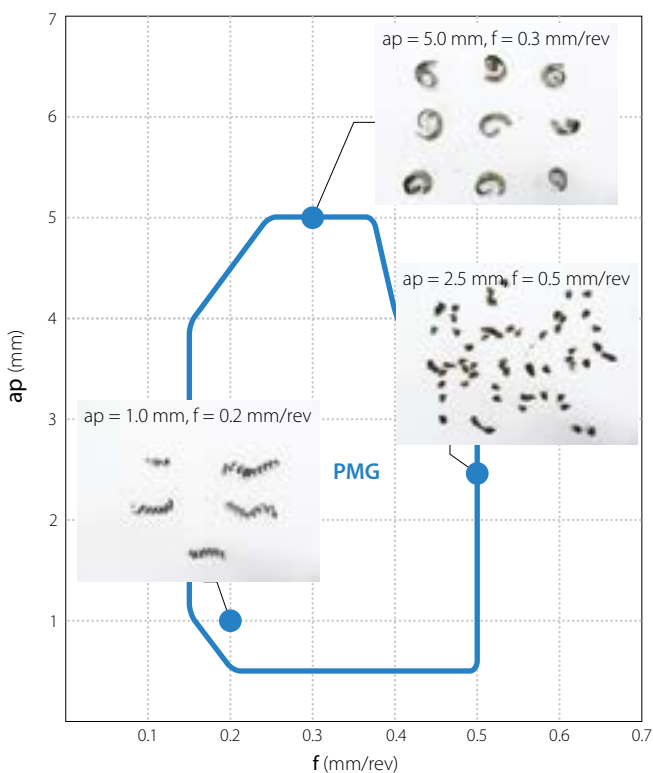
Low resistance design suppresses rake face temperature rise
 Reduces chipbreakers wear and chip shape changes



Excellent chip control

Good chip control in a wide range of machining areas

Applicable chipbreaker range



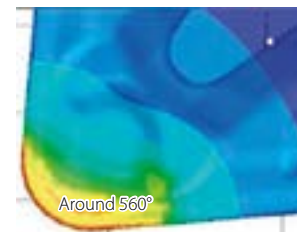
Cutting conditions: $V_c = 300$ m/min, $a_p = 0.5 \sim 5.0$ mm, $f = 0.1 \sim 0.5$ mm/rev
 Workpiece: SCr420 CNMG120408PMG

Achieves longer tool life

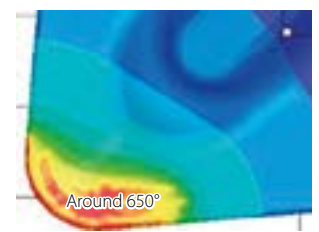
Suppresses rise in rake face temperature. Reduces crater wear

Edge temperature simulation comparison (Internal evaluation)

PMG chipbreaker



Conventional B







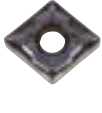





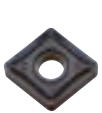

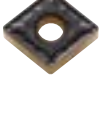
Cutting conditions: $V_c = 270$ m/min, $a_p = 1.5$ mm, $f = 0.3$ mm/rev
 Workpiece: SCM430


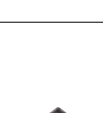

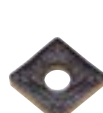


Consistent, small, and even chip shapes

Chip shape

	PMG chipbreaker	Conventional B
Initial machining		
After 27.2 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

	Shape	Description	Dimensions (mm)				CA115P	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	●	●			
Finishing-Medium		120412HQ	12.70	4.76	5.16	1.2	●	●			
		120404CQ				12.70	4.76	5.16	0.4	●	●
		120408CQ							0.8	●	●
		120412CQ							1.2	●	●
Finishing-Medium / Up Facing		160608CQ	15.875	6.35	6.35	0.8	●	●			
		160612CQ				1.2	●	●			
		120408CJ	12.70	4.76	5.16	0.8	●	●			
		120412CJ				1.2	●	●			
Finishing-Medium / Up Facing		160616CJ	15.875	6.35	6.35	1.6	●	●			
		120404PMG				12.70	4.76	5.16	0.4	●	●
		120408PMG							0.8	●	●
120412PMG	1.2	●	●								
120416PMG	1.6	●	●								
Medium-Roughing		160608PMG	15.875	6.35	6.35	0.8	●	●			
		160612PMG				1.2	●	●			
		160616PMG	15.875	6.35	6.35	1.6	●	●			
		160608PMG				0.8	●	●			
Medium-Roughing (Continuous)		090404GS	9.525	4.76	3.81	0.4	●	●			
		090408GS				0.8	●	●			

	Shape	Description	Dimensions (mm)				CA115P	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
		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	19.05	6.35	7.94	2.4	●	●
		120408PX				12.70	4.76	5.16
120412PX	1.2	●	●					
120416PX	1.6	●	●					
Single-Sided Roughing / High Feed		160608PX	15.875	6.35	6.35	0.8	●	●
		160612PX				1.2	●	●
		160616PX				1.6	●	●
		190608PX	19.05	6.35	7.94	0.8	●	●
		190612PX				1.2	●	●
		190616PX				1.6	●	●
190624PX	19.05	6.35	7.94	2.4	●	●		
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		120404XS	12.70	4.76	5.16	0.4	●	●
120408XS		0.8				●	●	

● : Available

Shape	Description	Dimensions (mm)				CA115P	CA125P		
		I.C.	S	D1	RE				
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	●	●	
	DNMG	110404GP	9.525	4.76	3.81	0.4	●	●	
		110408GP				0.8	●	●	
		DNMG	150402GP	12.70	4.76	5.16	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	●	●	
	DNMG	150604HQ	12.70	6.35	5.16	0.4	●	●	
		150608HQ				0.8	●	●	
		150612HQ				1.2	●	●	
		150612HQ				1.2	●	●	
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				●	●		
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	●	●	







Shape	Description	Dimensions (mm)				CA115P	CA125P	
		I.C.	S	D1	RE			
Medium-Roughing	DNMG	150404PMG	12.70	4.76	5.16	0.4	●	●
		150408PMG				0.8	●	●
		150412PMG				1.2	●	●
		150416PMG				1.6	●	●
	DNMG	150604PMG	12.70	6.35	5.16	0.4	●	●
		150608PMG				0.8	●	●
150612PMG		1.2				●	●	
Medium	DNMG	110404GS	9.525	4.76	3.81	0.4	●	●
		110408GS				0.8	●	●
Medium-Roughing (Interruption)	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	●	●
150608PG		0.8				●	●	
150612PG		1.2				●	●	
Roughing	DNMG	150404	12.70	4.76	5.16	0.4	●	●
		150408				0.8	●	●
Roughing	DNMG	150608	12.70	6.35	5.16	0.8	●	●
		150612				1.2	●	●
		150612				1.2	●	●
Roughing	DNMG	150408PH	12.70	4.76	5.16	0.8	●	●
		150412PH				1.2	●	●
		150416PH				1.6	●	●
		150608PH				0.8	●	●
Single-Sided Roughing / High Feed	DNMM	150412PX	12.70	4.76	5.16	1.2	●	●
		150416PX				1.6	●	●
	DNMM	150608PX	12.70	6.35	5.16	0.8	●	●
		150612PX				1.2	●	●
Low Carbon Steel	DNMG	150404XP	12.70	4.76	5.16	0.4	●	●
		150408XP				0.8	●	●
Low Carbon Steel	DNMG	150404XQ	12.70	4.76	5.16	0.4	●	●
		150408XQ				0.8	●	●
Low Carbon Steel	DNMG	150408XS	12.70	4.76	5.16	0.8	●	●
		150408XS				0.8	●	●








● : Available

	Shape	Description	Dimensions (mm)				CA115P	CA125P
			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		120404PQ	12.70	4.76	5.16	0.4	●	●
		SNMG 120408PQ				0.8	●	●
		120412PQ				1.2	●	●
Finishing-Medium		120404HQ	12.70	4.76	5.16	0.4	●	●
		SNMG 120408HQ				0.8	●	●
		120412HQ				1.2	●	●
Medium-Roughing		120408PMG	12.70	4.76	5.16	0.8	●	●
		SNMG 120412PMG				1.2	●	●
		120416PMG				1.6	●	●
Medium		120408PG	12.70	4.76	5.16	0.8	●	●
		SNMG 120412PG				1.2	●	●
		120416PG				1.6	●	●
Roughing		090304	9.525	3.18	3.81	0.4	●	●
		SNMG 090308				0.8	●	●
		120408	12.70	4.76	5.16	0.8	●	●
		SNMG 120412				1.2	●	●
		120416				1.6	●	●
Roughing		120408PH	12.70	4.76	5.16	0.8	●	●
		SNMG 120412PH				1.2	●	●
		120416PH				1.6	●	●
		150612PH	15.875	6.35	6.35	1.2	●	●
		SNMG 150616PH				1.6	●	●
Single Sided Roughing / High Feed		120408PX	12.70	4.76	5.16	0.8	●	●
		SNMM 120412PX				1.2	●	●
		120416PX				1.6	●	●
		150612PX	15.875	6.35	6.35	1.2	●	●
		SNMM 150616PX				1.6	●	●
190612PX	19.05	6.35	7.94	1.2	●	●		
SNMM 190616PX				1.6	●	●		
190624PX	2.4	●	●					
Low Carbon Steel		SNMG 120408XP	12.70	4.76	5.16	0.8	●	●
Low Carbon Steel	Finishing	SNMG 120408XQ	12.70	4.76	5.16	0.8	●	●
Low Carbon Steel	Medium						●	●
Low Carbon Steel		SNMG 120408XS	12.70	4.76	5.16	0.8	●	●
Low Carbon Steel	Roughing							










	Shape	Description	Dimensions (mm)				CA115P	CA125P
			I.C.	S	D1	RE		
Wiper Edge		160404WF	9.525	4.76	3.81	0.4	●	●
		TNMX 160408WF				0.8	●	●
		160412WF				1.2	●	●
Finishing		160402PP	9.525	4.76	3.81	0.2	●	●
		TNMG 160404PP				0.4	●	●
		160408PP				0.8	●	●
		160412PP				1.2	●	●
Finishing		160402GP	9.525	4.76	3.81	0.2	●	●
		TNMG 160404GP				0.4	●	●
		160408GP				0.8	●	●
Finishing-Medium		160404PQ	9.525	4.76	3.81	0.4	●	●
		TNMG 160408PQ				0.8	●	●
		160412PQ				1.2	●	●
Finishing-Medium		110404HQ	6.35	4.76	2.26	0.4	●	●
		TNMG 110408HQ				0.8	●	●
		160404HQ	9.525	4.76	3.81	0.4	●	●
		TNMG 160408HQ				0.8	●	●
160412HQ	1.2	●	●					
Finishing-Medium / Up Facing		160404CQ	9.525	4.76	3.81	0.4	●	●
		TNMG 160408CQ				0.8	●	●
		160412CQ				1.2	●	●
Finishing-Medium / Up Facing		220408CQ	12.70	4.76	5.16	0.8	●	●
		TNMG 220412CQ				1.2	●	●
		160404PMG	9.525	4.76	3.81	0.4	●	●
TNMG 160408PMG	0.8	●				●		
160412PMG	1.2	●	●					
Medium-Roughing		220404PMG	12.70	4.76	5.16	0.4	●	●
		TNMG 220408PMG				0.8	●	●
		220412PMG				1.2	●	●
		220416PMG				1.6	●	●
		110404GS				6.35	4.76	2.26
TNMG 110408GS	0.8	●	●					
Medium-Roughing (Interchangeable)		160404PG	9.525	4.76	3.81	0.4	●	●
		TNMG 160408PG				0.8	●	●
		160412PG				1.2	●	●
Roughing		160404	9.525	4.76	3.81	0.4	●	●
		TNMG 160408				0.8	●	●
		160412				1.2	●	●
		220408	12.70	4.76	5.16	0.8	●	●
		TNMG 220412				1.2	●	●









● : Available

Shape Handed insert shows Right-hand	Description	Dimensions (mm)				CA115P	CA125P
		I.C.	S	D1	RE		
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	●	●
	220416PH				1.6	●	●
Single-Edge Roughing / High Feed 	TNMM 160408PX	9.525	4.76	3.81	0.8	●	●
	160412PX				1.2	●	●
	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 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 	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 160404R/L-VC	9.525	4.76	3.81	0.4	●	●
	160408R/L-VC				0.8	●	●
	160412R/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

	Shape	Description	Dimensions (mm)				CA115P	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	●	●
		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)				CA115P	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

Shape	Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
		I.C.	S	D1	RE			
Wiper Edge	CCMT 060202WP 060204WP 060208WP	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing	CCMT 09T302WP 09T304WP 09T308WP	9.525	3.97	4.4	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing	CCMT 060202PP 060204PP 09T302PP 09T304PP 09T308PP	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	CCMT 060202GK 060204GK 09T302GK 09T304GK	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	CCMT 120404GK 120408GK 120412GK	12.70	4.76	5.5	0.4	7°	●	●
					0.8		●	●
					1.2		●	●
Finishing-Medium	CCMT 060202HQ 060204HQ 09T302HQ 09T304HQ 09T308HQ	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Medium	CCMT 09T308	9.525	3.97	4.4	0.8	7°	●	●
Finishing	CPMT 080202PP 080204PP 090302PP 090304PP 090308PP	7.94	2.38	3.3	0.2	11°	●	●
					0.4		●	●
					0.8		●	●
Finishing	CPMT 080204GP 090304GP 090308GP	7.94	2.38	3.3	0.4	11°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	CPMH 080204HQ 080208HQ 090304HQ 090308HQ	7.94	2.38	3.5	0.4	11°	●	●
					0.8		●	●
					0.8		●	●
Medium	CPMH 080204 080208 090304 090308	7.94	2.38	3.5	0.4	11°	●	●
					0.8		●	●
					0.8		●	●
Low Carbon Steel	CPMT 080204XP 090304XP 090308XP	7.94	2.38	3.3	0.4	11°	●	●
					0.4		●	●
					0.8		●	●
Low Carbon Steel	CPMT 090304XQ 090308XQ	9.525	3.18	4.4	0.4	11°	●	●
					0.8		●	●

Shape	Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
		I.C.	S	D1	RE			
Wiper Edge	DCMX 070202WP 070204WP 070208WP	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing	DCMX 11T302WP 11T304WP 11T308WP	9.525	3.97	4.4	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing	DCMT 070202PP 070204PP 11T302PP 11T304PP 11T308PP	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing	DCMT 070202GP 070204GP 11T304GP 11T308GP	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	DCMT 070202GK 070204GK 070208GK	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	DCMT 11T302GK 11T304GK 11T308GK	9.525	3.97	4.4	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	DCMT 070202HQ 070204HQ 070208HQ	6.35	2.38	2.8	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Finishing-Medium	DCMT 11T302HQ 11T304HQ 11T308HQ	9.525	3.97	4.4	0.2	7°	●	●
					0.4		●	●
					0.8		●	●
Low Carbon Steel	DCMT 070204XP 11T302XP 11T304XP 11T308XP	6.35	2.38	2.8	0.4	7°	●	●
					0.4		●	●
					0.8		●	●
Low Carbon Steel	DCMT 11T304XQ 11T308XQ	9.525	3.97	4.4	0.4	7°	●	●
					0.8		●	●

● : Available

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		●	●
SPMR	 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°	●	●
	 090208WP				0.8		●	●
TPMX	 110302WP	6.35	3.18	3.3	0.2	11°	●	●
	 110304WP				0.4		●	●
Finishing	 110308WP	6.35	3.18	3.3	0.8	11°	●	●
	090202PP				0.2		●	●
TPMT	090204PP	5.56	2.38	2.8	0.4	11°	●	●
	110302PP				0.2		●	●
TPMT	110304PP	6.35	3.18	3.3	0.4	11°	●	●
	110308PP				0.8		●	●
Finishing	090204GP	5.56	2.38	2.8	0.4	11°	●	●
	110304GP	6.35	3.18	3.3	0.4	11°	●	●
TPMT	110308GP	6.35	3.18	3.3	0.8	11°	●	●
	160304GP				0.4		●	●
TPMT	160308GP	9.525	3.18	4.4	0.4	11°	●	●
	160304GP				0.4		●	●

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

● : Available

Shape	Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
		I.C.	S	D1	RE			
Finishing	VBMT	110302PP	6.35	3.18	2.8	0.2	●	●
		110304PP				0.4	●	●
		110308PP				0.8	●	●
	VBMT	160404PP	9.525	4.76	4.4	0.4	●	●
		160408PP				0.8	●	●
		160412PP				1.2	●	●
Finishing	VBMT	110304GP	6.35	3.18	2.8	0.4	●	●
		160404GP				0.4	●	●
	VBMT	160408GP	9.525	4.76	4.4	0.8	●	●
Finishing	VBMT	110302VF	6.35	3.18	2.8	0.2	●	●
		110304VF				0.4	●	●
		110308VF				0.8	●	●
	VBMT	160402VF	9.525	4.76	4.4	0.2	●	●
		160404VF				0.4	●	●
		160408VF				0.8	●	●
		160412VF				1.2	●	●
Finishing-Medium	VBMT	110304HQ	6.35	3.18	2.8	0.4	●	●
		110308HQ				0.8	●	●
	VBMT	160404HQ	9.525	4.76	4.4	0.4	●	●
		160408HQ				0.8	●	●
160412HQ	1.2	●	●					

Shape	Description	Dimensions (mm)				Relief Angle	CA115P	CA125P
		I.C.	S	D1	RE			
Finishing	VCMT	080202PP	4.76	2.38	2.3	0.2	●	●
		080204PP				0.4	●	●
	VCMT	160404PP	9.525	4.76	4.4	0.4	●	●
		160408PP				0.8	●	●
Finishing	VCMT	080202VF	4.76	2.38	2.3	0.2	●	●
		080204VF				0.4	●	●
Finishing-Medium	VCMT	080202HQ	4.76	2.38	2.3	0.2	●	●
		080204HQ				0.4	●	●
Finishing	WBMT	060102L-DP	3.97	1.59	2.3	0.2	L	L
		060104L-DP				0.4	L	L
	WBMT	080202L-DP	4.76	2.38	2.3	0.2	L	L
		080204L-DP				0.4	L	L
Finishing	WPMT	110204GP	6.35	2.38	2.8	0.4	●	●
		160304GP				9.525	3.18	4.4
Finishing-Medium	WPMT	110202HQ	6.35	2.38	2.8	0.2	●	●
		110204HQ				0.4	●	●
	WPMT	160304HQ	9.525	3.18	4.4	0.4	●	●
		160308HQ				0.8	●	●

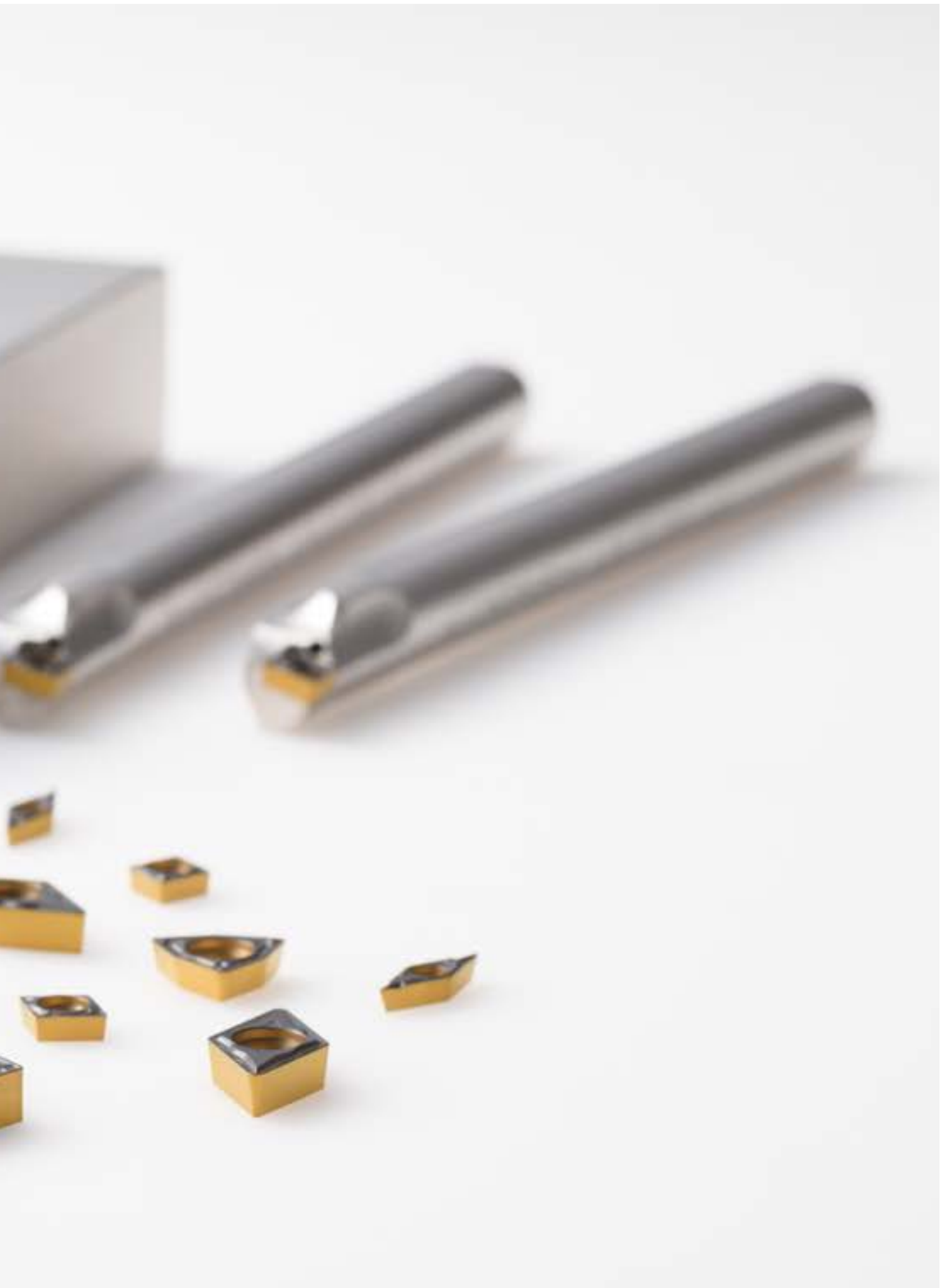
● : Available
L : Left-hand Only

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

