



CA115P/CA125P

CVD Coated Carbide for Steel



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



Next Generation 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 & 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

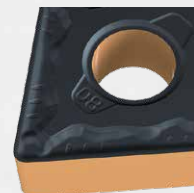


New Chipbreaker Design

PMG Chipbreaker for Medium-Roughing

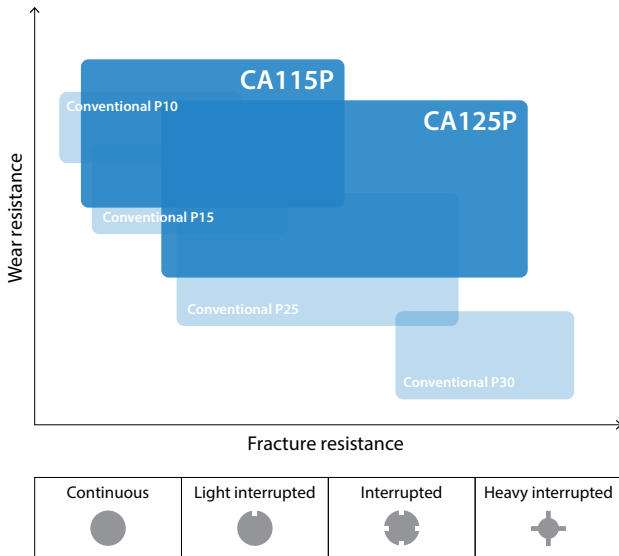
Unique design covers a wide range of machining applications

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-efficiency machining
with wear and chipping resistance

CA125P

Continuous-heavy interrupted steel machining
First recommendation for steel machining
High versatility

New Solutions

Long tool life in various machining environments from roughing to finishing

1 Shaft 1043



CA125P maintained stability and achieved less wear than competitor A.

Edge condition



CA125P



Competitor A

Cutting Conditions :
Vc = 660 sfm, D.O.C. = 0.020"
f = 0.012 ipr, Wet DNMG 432PP
Tool life : 150 pcs/edge

(User evaluation)

Edge condition



2 Sleeve HMM45



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

Number of parts

CA115P 200 pcs/edge

Competitor B 100 pcs/edge

Cutting Conditions :
Vc = 690 sfm, D.O.C. = 0.020"
f = 0.014 ipr, Wet DNMG 432PQ

(User evaluation)

Tool life



3 Automotive parts 4118H



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

Edge condition



CA125P



Competitor C

Cutting Conditions :
Vc = 520 sfm, D.O.C. = 0.039"
f = 0.013 ipr, Wet CNMG 433PG
Tool life : 100 pcs/edge

(User evaluation)

Edge condition



4 Automotive parts Non-tempered steel



CA125P shows 1.4 times longer tool life than competitor D.

Number of parts

CA125P 80 pcs/edge

Competitor D 55 pcs/edge

Cutting Conditions :
Vc = 520 sfm, D.O.C. = 0.008"
f = 0.013 ipr, Wet CNMG 432PG

(User evaluation)

Tool life





Tool life

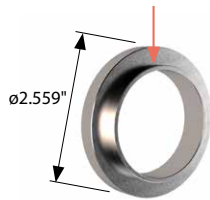
2x

5 Nut 1045

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/edge

Competitor E 360 pcs/edge

Cutting Conditions :
Vc = 620 sfm, D.O.C. = 0.051"
f = 0.008 ipr, Wet CNMG 432PMG

(User evaluation)

6 Gear 1035



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

Number of parts

CA125P 200 pcs/edge

Competitor F 100 pcs/edge

Cutting Conditions :
Vc = 850 sfm, D.O.C. = 0.059"
f = 0.012 ipr, Wet CNMG 433PMG

(User evaluation)

7 Bearing 4118

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 = 890 sfm, D.O.C. = 0.051"
f = 0.010 ipr, Wet WNMG 432PMG
Tool life: 300 pcs/edge

(User evaluation)

8 Yoke 1045



CA125P shows 2 times longer tool life than competitor H.

Number of parts

CA125P 100 pcs/edge

Competitor H 50 pcs/edge

Cutting Conditions :
Vc = 520 sfm, D.O.C. = 0.039"
f = 0.015 ipr, Wet WNMG 432PMG

(User evaluation)

9 Bolt 4140H

Edge condition

Good

CA125P has better chipping resistance against competitor I.



Edge condition



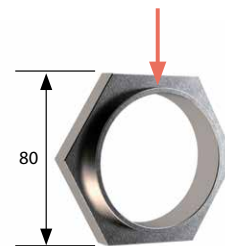
CA125P

Competitor I

Cutting Conditions :
Vc = 660 sfm, D.O.C. = 0.079"
f = 0.012 ipr, Wet TNMG 332PMG
Tool life : 130 pcs/edge

(User evaluation)

10 Nut 1045



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

Number of parts

CA125P 720 pcs/edge

Competitor J 360 pcs/edge

Cutting Conditions :
Vc = 660 sfm, D.O.C. = 0.087"
f = 0.008 ipr, Wet WNMG 432PMG

(User evaluation)



2

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

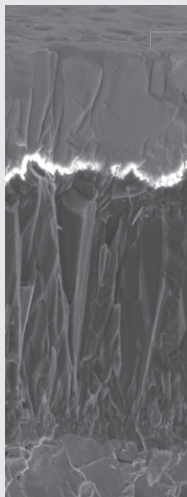
Optimized coating properties on rake and flank faces provide wear resistance and fracture resistance

Ultra-uniform alumina film reduces crater wear

Rake face

Suppresses crater wear and fracturing

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

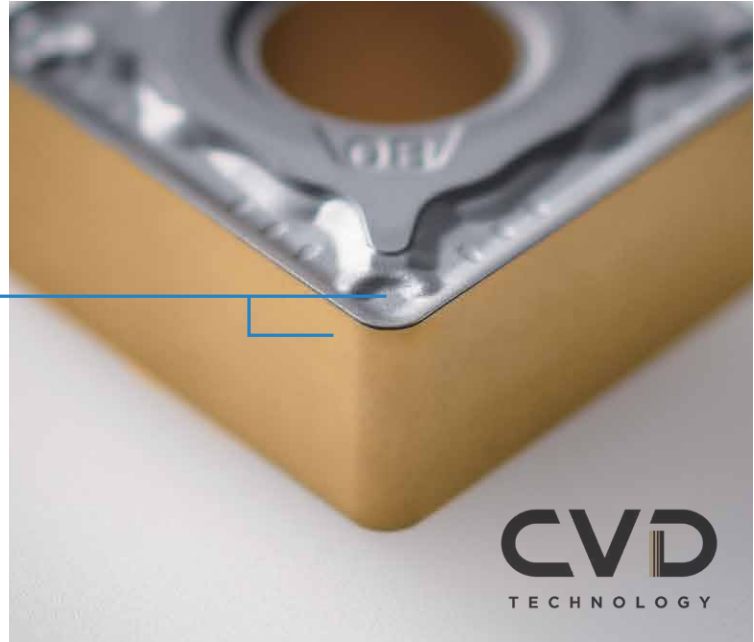


Surface treatment

Highly uniform alumina layer

Unique TiCN layer

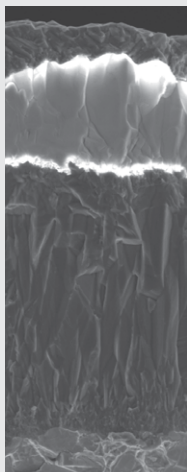
New carbide substrate



Flank face

Improved wear resistance

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



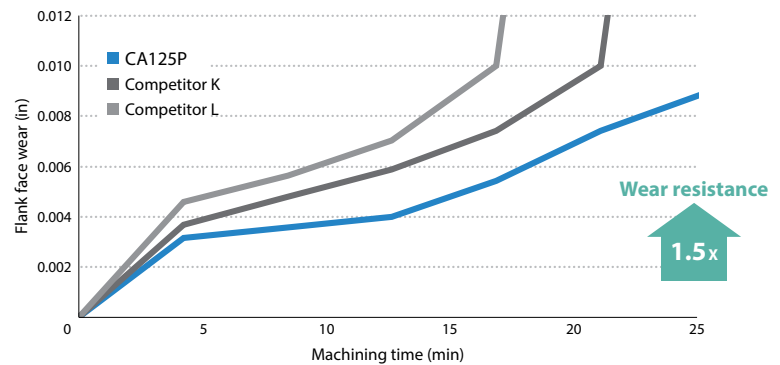
High hardness surface layer

Highly uniform alumina layer

Unique TiCN layer

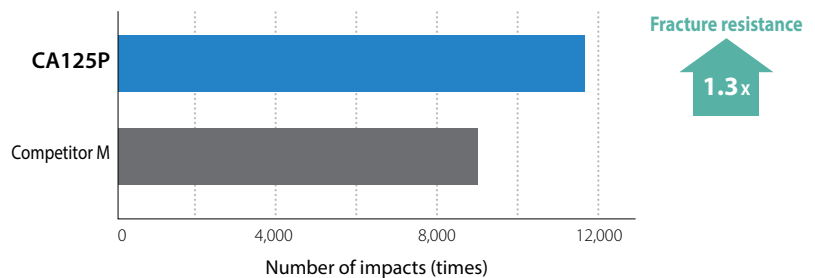
New carbide substrate

Wear resistance comparison (Internal evaluation)



Cutting Conditions : $V_c = 980$ sfm, D.O.C. = 0.059", $f = 0.012$ ipr, Wet Workpiece : 4137

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



Cutting Conditions : $V_c = 980$ sfm, D.O.C. = 0.059", $f = 0.014$ ipr, Wet Workpiece : 1045 (4 grooves)

Alumina film crystal structure (CG image)

Uniform crystal orientation

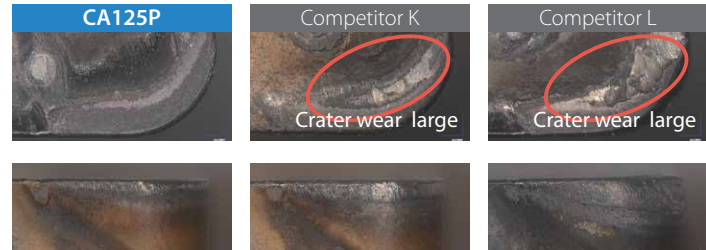
New crystal control technology provides industry-leading Al_2O_3 orientation

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 : $V_c = 980$ sfm, D.O.C. = 0.059", $f = 0.012$ ipr, Wet Workpiece : 4137

Crystal orientation analysis (EBSD pattern)

A higher percentage of red indicates a more uniform growth pattern

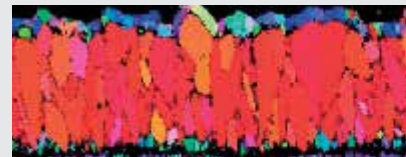
CA125P



Uniform crystal direction

(CG image)

Conventional A



Nonuniform crystal orientation

(CG image)

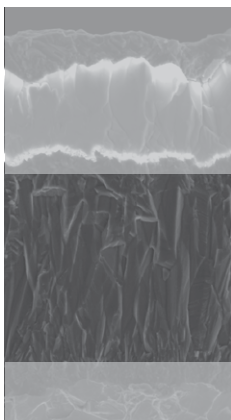
Unique TiCN layer

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



Large Substrate Exposure

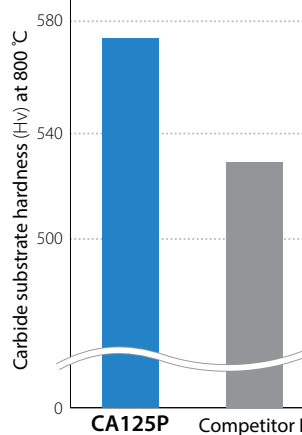
Cutting Conditions : $V_c = 820$ sfm
D.O.C. = 0.039", $f = 0.016$ ipr
L = 0.039", Wet, Workpiece : 52100

New carbide substrate

Improved resistance to plastic deformation with an increased temperature strength

Comparison of carbide substrate hardness

(Internal evaluation)



Edge condition comparison

(Internal evaluation)



Film detachment occurred

Cutting Conditions : $V_c = 980$ sfm
D.O.C. = 0.039", $f = 0.016$ ipr
Dry, Workpiece : 4137

3

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

New lineup covers a wide range from finishing to roughing

New PMG Chipbreakers for medium machining to roughing

Negative Inserts

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

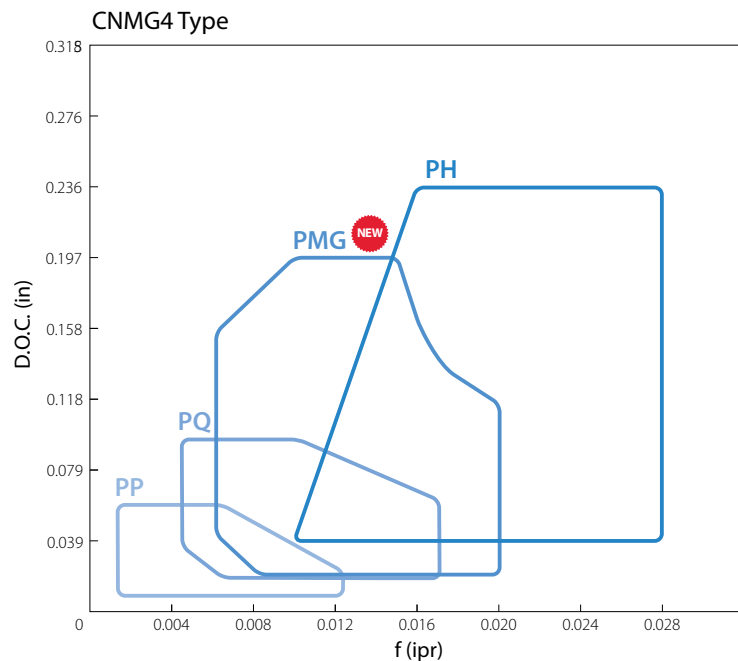


PH

For roughing
Tough edge design



Applicable Chipbreaker Range (D.O.C. indicates radial depth of cut)



Positive Inserts

For finishing

PP

High reliability
Improving the productivity of finishing



Wiper insert

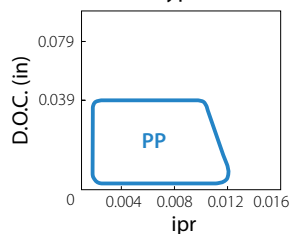
WP

Newly designed wiper edge geometry
High productivity

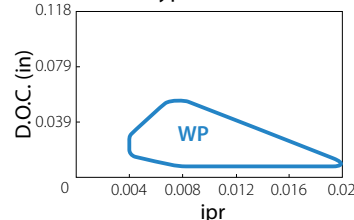


Applicable Chipbreaker Range (D.O.C. indicates radial depth of cut)

CPMT3 Type : Steel



CCMT3 Type : Steel



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

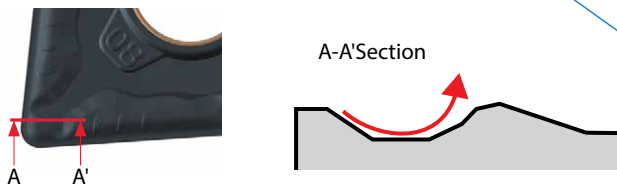
Reduces chip shape inconsistencies and improves tool life

Step breaker structure

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

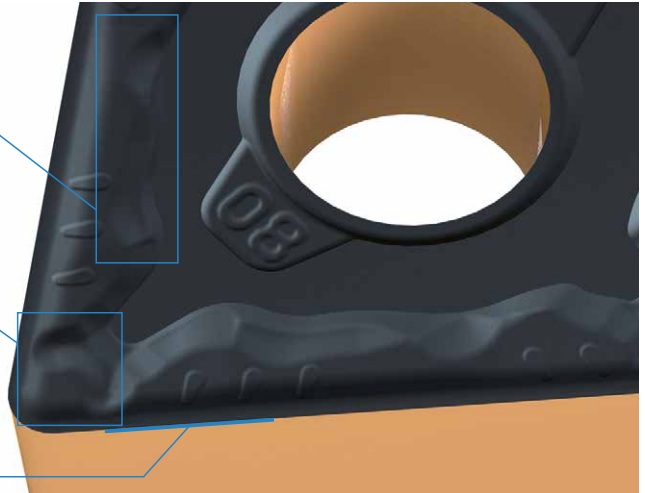
Circular Dot

Control chips during small D.O.C. machining



High Rake Perimeter

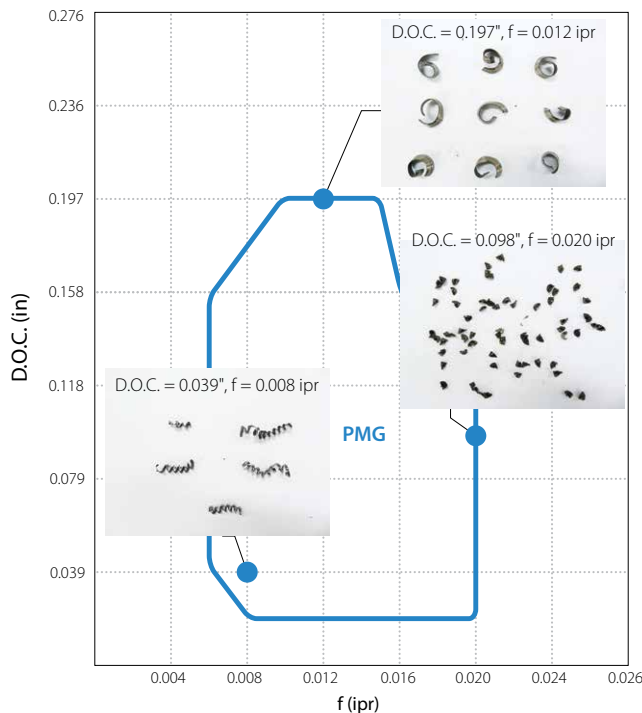
Low resistance design suppresses rake face temperature rise
Reduces chipbreakers wear and chip shape changes



Excellent chip control

Good chip control in a wide range of machining areas

Applicable Chipbreaker Range

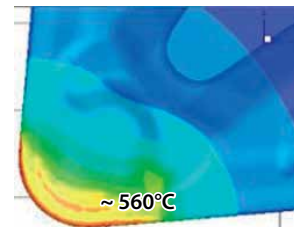


Cutting Conditions $V_c = 980$, D.O.C. = 0.020"~0.197", $f = 0.004$ ~0.020 ipr
Workpiece 5120 CNMG432PMG

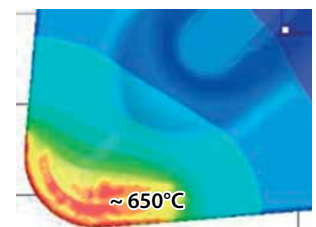
Achieves longer tool life

Suppresses rise in rake face temperature and reduces crater wear
Edge temperature simulation comparison (Internal evaluation)

PMG Chipbreaker



Conventional B



Cutting Conditions $V_c = 890$ sfm, D.O.C. = 0.059", $f = 0.012$ ipr
Workpiece 4131

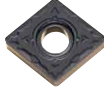
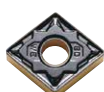
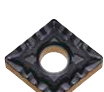
Consistent, small, and even chip shapes

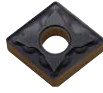
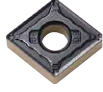
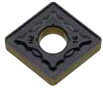
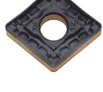
Chip shape

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

Cutting Conditions $V_c = 980$, D.O.C. = 0.059", $f = 0.012$ ipr
Wet (External coolant) Workpiece: 4137 WNMG432PMG

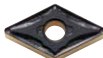
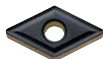
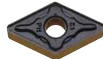
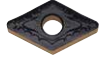
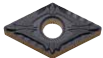
Negative Inserts

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Wiper Edge		CNMG 431WF	1/2	3/16	0.203	1/64	●	●
		432WF				1/32	●	●
Wiper Edge		CNMG 431WP	1/2	3/16	0.203	1/64	●	●
		432WP				1/32	●	●
Wiper Edge		CNMG 431WE	1/2	3/16	0.203	1/64	●	●
		432WE				1/32	●	●
		433WE				3/64	●	●
Wiper Edge		CNMG 431WQ	1/2	3/16	0.203	1/64	●	●
		432WQ				1/32	●	●
		433WQ				3/64	●	●
Finishing		CNMG 4305PP	1/2	3/16	0.203	0.008	●	●
		431PP				1/64	●	●
		432PP				1/32	●	●
		433PP				3/64	●	●
Finishing		CNMG 4305GP	1/2	3/16	0.203	0.008	●	●
		431GP				1/64	●	●
		432GP				1/32	●	●
Finishing-Medium		CNMG 431PQ	1/2	3/16	0.203	1/64	●	●
		432PQ				1/32	●	●
		433PQ				3/64	●	●
Finishing-Medium		CNMG 331HQ	3/8	3/16	0.150	1/64	●	●
		332HQ				1/32	●	●
		CNMG 431HQ	1/2	3/16	0.203	1/64	●	●
		432HQ				1/32	●	●
Finishing-Medium Up Facing		CNMG 431CQ	1/2	3/16	0.203	1/64	●	●
		432CQ				1/32	●	●
		433CQ				3/64	●	●
		CNMG 542CQ	5/8	1/4	0.250	1/32	●	●
Finishing-Medium Up Facing		543CQ				3/64	●	●
		CNMG 432CJ	1/2	3/16	0.203	1/32	●	●
		433CJ				3/64	●	●
		CNMG 543CJ	5/8	1/4	0.250	3/64	●	●
Medium-Roughing		544CJ				1/16	●	●
		CNMG 431PMG	1/2	3/16	0.203	1/64	●	●
		432PMG				1/32	●	●
		433PMG				3/64	●	●
		434PMG				1/16	●	●
		CNMG 542PMG	5/8	1/4	0.250	1/32	●	●
		543PMG				3/64	●	●
		544PMG				1/16	●	●

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Medium-Roughing (Continuous)		CNMG 331GS	3/8	3/16	0.150	1/64	●	●
		332GS				1/32	●	●
Medium-Roughing (Interruption)		CNMG 431PG	1/2	3/16	0.203	1/64	●	●
		432PG				1/32	●	●
		433PG				3/64	●	●
		434PG				1/16	●	●
Roughing		CNMG 431	1/2	3/16	0.203	1/64	●	●
		432				1/32	●	●
		433				3/64	●	●
		CNMG 542	5/8	1/4	0.250	1/32	●	●
		543				3/64	●	●
		CNMG 643	3/4	1/4	0.313	3/64	●	●
Roughing		644				1/16	●	●
		CNMG 432PH	1/2	3/16	0.203	1/32	●	●
		433PH				3/64	●	●
		434PH				1/16	●	●
		CNMG 542PH	5/8	1/4	0.250	1/32	●	●
		543PH				3/64	●	●
Single Sided Roughing / High Feed		544PH				1/16	●	●
		CNMG 642PH	3/4	1/4	0.313	1/32	●	●
		643PH				3/64	●	●
		644PH				1/16	●	●
		646PH	1/2	3/16	0.203	3/32	●	●
		CNMM 432PX				1/32	●	●
Low Carbon Steel		433PX				3/64	●	●
		434PX				1/16	●	●
		CNMM 542PX	5/8	1/4	0.250	1/32	●	●
		543PX				3/64	●	●
		544PX				1/16	●	●
		CNMM 642PX	3/4	1/4	0.313	1/32	●	●
Low Carbon Steel		643PX				3/64	●	●
		644PX				1/16	●	●
		646PX				3/32	●	●
		CNMG 431XP	1/2	3/16	0.203	1/64	●	●
		432XP				1/32	●	●
Low Carbon Steel		CNMG 431XQ	1/2	3/16	0.203	1/64	●	●
		432XQ				1/32	●	●
Low Carbon Steel		CNMG 432XS	1/2	3/16	0.203	1/32	●	●

● : Standard Stock

Negative Inserts

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Wiper Edge		DNMX 431WF	1/2	3/16	0.203	1/64	●	●
		432WF				1/32	●	●
		433WF				3/64	●	●
		DNMX 441WF	1/2	1/4	0.203	1/64	●	●
		442WF				1/32	●	●
		443WF				3/64	●	●
Finishing		DNMG 4305PP	1/2	3/16	0.203	0.008	●	●
		431PP				1/64	●	●
		432PP				1/32	●	●
		433PP				3/64	●	●
		DNMG 4405PP	1/2	1/4	0.203	0.008	●	●
		441PP				1/64	●	●
		442PP				1/32	●	●
		443PP				3/64	●	●
		DNMG 331GP	3/8	3/16	0.150	1/64	●	●
		332GP				1/32	●	●
		DNMG 4305GP	1/2	3/16	0.203	0.008	●	●
		431GP				1/64	●	●
Finishing-Medium		DNMG 431PQ	1/2	3/16	0.203	1/64	●	●
		432PQ				1/32	●	●
		433PQ				3/64	●	●
		DNMG 441PQ	1/2	1/4	0.203	1/64	●	●
		442PQ				1/32	●	●
		443PQ				3/64	●	●
Finishing-Medium		DNMG 3305HQ	3/8	3/16	0.150	0.008	●	●
		331HQ				1/64	●	●
		DNMG 431HQ	1/2	3/16	0.203	1/64	●	●
		432HQ				1/32	●	●
		433HQ				3/64	●	●
		DNMG 441HQ	1/2	1/4	0.203	1/64	●	●
		442HQ				1/32	●	●
		443HQ				3/64	●	●
		DNMG 431CQ	1/2	3/16	0.203	1/64	●	●
		432CQ				1/32	●	●
		433CQ				3/64	●	●
Finishing-Medium Up Facing		DNMG 441CQ	1/2	1/4	0.203	1/64	●	●
		442CQ				1/32	●	●
		443CQ				3/64	●	●
		DNMG 432CJ	1/2	3/16	0.203	1/32	●	●
		433CJ				3/64	●	●
		DNMG 442CJ	1/2	1/4	0.203	1/32	●	●
		443CJ				3/64	●	●
Medium-Roughing		DNMG 431PMG	1/2	3/16	0.203	1/64	●	●
		432PMG				1/32	●	●
		433PMG				3/64	●	●
		434PMG				1/16	●	●
		DNMG 441PMG	1/2	1/4	0.203	1/64	●	●
		442PMG				1/32	●	●
		443PMG				3/64	●	●
		444PMG				1/16	●	●
		DNMG 331GS	3/8	3/16	0.150	1/64	●	●
		332GS				1/32	●	●
		DNMG 431PG	1/2	3/16	0.203	1/64	●	●
		432PG				1/32	●	●
		433PG				3/64	●	●
		434PG				1/16	●	●
Medium-Roughing (Continuous)		DNMG 331GS	3/8	3/16	0.150	1/64	●	●
		332GS				1/32	●	●
		DNMG 431PG	1/2	3/16	0.203	1/64	●	●
		432PG				1/32	●	●
		433PG				3/64	●	●
		434PG				1/16	●	●
Medium-Roughing (Interruption)		DNMG 441PG	1/2	1/4	0.203	1/64	●	●
		442PG				1/32	●	●
		443PG				3/64	●	●
		444PG				1/16	●	●
		DNMG 431	1/2	3/16	0.203	1/64	●	●
		432				1/32	●	●
Roughing		DNMG 442	1/2	1/4	0.203	1/32	●	●
		443				3/64	●	●
		DNMG 432PH	1/2	3/16	0.203	1/32	●	●
		433PH				3/64	●	●
		434PH				1/16	●	●
		DNMG 442PH	1/2	1/4	0.203	1/32	●	●
Roughing		443PH				3/64	●	●
		444PH				1/16	●	●
		DNMM 432PX	1/2	3/16	0.203	1/32	●	●
		433PX				3/64	●	●
		434PX				1/16	●	●
		DNMM 442PX	1/2	1/4	0.203	1/32	●	●
Single-Sided Roughing High Feed		443PX				3/64	●	●
		444PX				1/16	●	●
		DNMG 431XP	1/2	3/16	0.203	1/64	●	●
		432XP				1/32	●	●
		DNMG 431XQ	1/2	3/16	0.203	1/64	●	●
		432XQ				1/32	●	●
Low Carbon Steel		DNMG 431XP	1/2	3/16	0.203	1/64	●	●
		432XP				1/32	●	●
Low Carbon Steel		DNMG 431XQ	1/2	3/16	0.203	1/64	●	●
		432XQ				1/32	●	●
Low Carbon Steel		DNMG 432XS	1/2	3/16	0.203	1/32	●	●

● Standard Stock

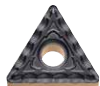
Negative Inserts

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Medium-Roughing		RNMG 32	3/8	1/8	0.150	-	●	●
		RNMG 43	1/2	3/16	0.203	-	●	●
		RNMG 54	5/8	1/4	0.250	-	●	●
Finishing-Medium		SNMG 431PQ	1/2	3/16	0.203	1/64	●	●
		432PQ				1/32	●	●
		433PQ				3/64	●	●
Finishing-Medium		SNMG 431HQ	1/2	3/16	0.203	1/64	●	●
		432HQ				1/32	●	●
		433HQ				3/64	●	●
Medium-Roughing		SNMG 432PMG	1/2	3/16	0.203	1/32	●	●
		433PMG				3/64	●	●
		434PMG				1/16	●	●
Medium-Roughing (Interruption)		SNMG 432PG	1/2	3/16	0.203	1/32	●	●
		433PG				3/64	●	●
		434PG				1/16	●	●
Roughing		SNMG 321	3/8	1/8	0.150	1/64	●	●
		322				1/32	●	●
		SNMG 432	1/2	3/16	0.203	1/32	●	●
		433				3/64	●	●
Roughing		SNMG 432PH	1/2	3/16	0.203	1/32	●	●
		433PH				3/64	●	●
		434PH				1/16	●	●
		SNMG 543PH	5/8	1/4	0.250	3/64	●	●
		544PH				1/16	●	●
		SNMG 643PH	3/4	1/4	0.313	3/64	●	●
Single Sided Roughing / High Feed		644PH				1/16	●	●
		SNMM 432PX	1/2	3/16	0.203	1/32	●	●
		433PX				3/64	●	●
		434PX				1/16	●	●
		SNMM 543PX	5/8	1/4	0.250	3/64	●	●
		544PX				1/16	●	●
Low Carbon Steel		SNMM 643PX	3/4	1/4	0.313	3/64	●	●
		644PX				1/16	●	●
		646PX				3/32	●	●
		SNMG 432XP	1/2	3/16	0.203	1/32	●	●
Low Carbon Steel		Finishing	1/2	3/16	0.203	1/32	●	●
Low Carbon Steel		Medium	1/2	3/16	0.203	1/32	●	●
Low Carbon Steel		Roughing	1/2	3/16	0.203	1/32	●	●

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Wiper Edge		TNMX 331WF	3/8	3/16	0.150	1/64	●	●
		332WF				1/32	●	●
		333WF				3/64	●	●
Finishing		TNMG 3305PP	3/8	3/16	0.150	0.008	●	●
		331PP				1/64	●	●
		332PP				1/32	●	●
Finishing		333PP	3/8	3/16	0.150	3/64	●	●
		TNMG 3305GP				0.008	●	●
		331GP				1/64	●	●
Finishing-Medium		332GP	3/8	3/16	0.150	1/32	●	●
		TNMG 331PQ				1/64	●	●
		332PQ				1/32	●	●
Finishing-Medium		333PQ	3/8	3/16	0.150	3/64	●	●
		TNMG 231HQ				1/64	●	●
		232HQ				1/32	●	●
Finishing-Medium		TNMG 331HQ	3/8	3/16	0.150	1/64	●	●
		332HQ				1/32	●	●
		333HQ				3/64	●	●
Finishing-Medium / Up Facing		TNMG 331CQ	3/8	3/16	0.150	1/64	●	●
		332CQ				1/32	●	●
		333CQ				3/64	●	●
Medium-Roughing		TNMG 432CQ	1/2	3/16	0.203	1/32	●	●
		433CQ				3/64	●	●
		TNMG 331PMG	3/8	3/16	0.150	1/64	●	●
Medium-Roughing		332PMG				1/32	●	●
		333PMG				3/64	●	●
Medium-Roughing		TNMG 431PMG	1/2	3/16	0.203	1/64	●	●
		432PMG				1/32	●	●
		433PMG				3/64	●	●
Medium-Roughing (Continuous)		434PMG	1/2	3/16	0.203	1/16	●	●
		TNMG 231GS				1/64	●	●
		232GS				1/32	●	●
Medium-Roughing (Interruption)		TNMG 331PG	3/8	3/16	0.150	1/64	●	●
		332PG				1/32	●	●
		333PG				3/64	●	●
Roughing		TNMG 331	3/8	3/16	0.150	1/64	●	●
		332				1/32	●	●
		333				3/64	●	●
Roughing		TNMG 432	1/2	3/16	0.203	1/32	●	●
		433				3/64	●	●
		TNMG 432				3/64	●	●

●: Standard Stock

Negative Inserts

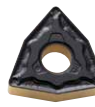
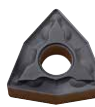
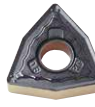
Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Roughing		TNMG 332PH	3/8	3/16	0.150	1/32	●	●
		333PH				3/64	●	●
		TNMG 432PH	1/2	3/16	0.203	1/32	●	●
		433PH				3/64	●	●
		434PH				1/16	●	●
Single Sided Roughing / High Feed		TNMM 332PX	3/8	3/16	0.150	1/32	●	●
		333PX				3/64	●	●
		TNMM 432PX	1/2	3/16	0.203	1/32	●	●
		433PX				3/64	●	●
		434PX				1/16	●	●
Low Carbon Steel		TNMG 331XP	3/8	3/16	0.150	1/64	●	●
		332XP				1/32	●	●
Low Carbon Steel		TNMG 331XQ	3/8	3/16	0.150	1/64	●	●
		332XQ				1/32	●	●
Low Carbon Steel		TNMG 332XS	3/8	3/16	0.150	1/32	●	●
Medium-Roughing		TNMG 331R/L-ST	3/8	3/16	0.150	1/64	●	●
		332R/L-ST					●	●

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Finishing		VNMG 3305PP	3/8	3/16	0.150	0.008	●	●
		331PP				1/64	●	●
		332PP				1/32	●	●
		333PP				3/64	●	●
Finishing		VNMG 3305GP	3/8	3/16	0.150	0.008	●	●
		331GP				1/64	●	●
		332GP				1/32	●	●
Finishing-Medium		VNMG 331R/L-VC	3/8	3/16	0.150	1/64	●	●
		332R/L-VC				1/32	●	●
		333R/L-VC				3/64	●	●
Finishing-Medium		VNMG 331VF	3/8	3/16	0.150	1/64	●	●
		332VF				1/32	●	●
		333VF				3/64	●	●
Finishing-Medium		VNMG 331PQ	3/8	3/16	0.150	1/64	●	●
		332PQ				1/32	●	●
		333PQ				3/64	●	●
Finishing-Medium		VNMG 331HQ	3/8	3/16	0.150	1/64	●	●
		332HQ				1/32	●	●
		333HQ				3/64	●	●
Roughing		VNMG 331	3/8	3/16	0.150	1/64	●	●
		332				1/32	●	●

●: Standard Stock

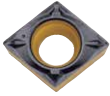
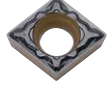
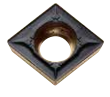
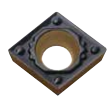
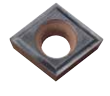
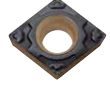
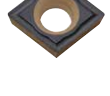
Negative Inserts

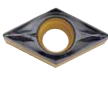
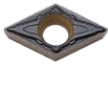
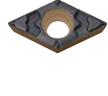
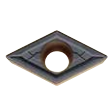
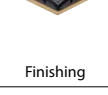
Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Wiper Edge		WNMG 431WF	1/2	3/16	0.203	1/64	●	●
		432WF				1/32	●	●
Wiper Edge		WNMG 431WP	1/2	3/16	0.203	1/64	●	●
		432WP				1/32	●	●
Wiper Edge		WNMG 431WE	1/2	3/16	0.203	1/64	●	●
		432WE				1/32	●	●
		433WE				3/64	●	●
Wiper Edge		WNMG 431WQ	1/2	3/16	0.203	1/64	●	●
		432WQ				1/32	●	●
		433WQ				3/64	●	●
Finishing		WNMG 4305PP	1/2	3/16	0.203	0.008	●	●
		431PP				1/64	●	●
		432PP				1/32	●	●
		433PP				3/64	●	●
Finishing-Medium		WNMG 431PQ	1/2	3/16	0.203	1/64	●	●
		432PQ				1/32	●	●
		433PQ				3/64	●	●
Finishing-Medium		WNMG 3251HQ	3/8	5/32	0.150	1/64	●	●
		3252HQ				1/32	●	●
		WNMG 331HQ	3/8	3/16	0.150	1/64	●	●
		332HQ				1/32	●	●
		WNMG 431HQ	1/2	3/16	0.203	1/64	●	●
		432HQ				1/32	●	●
		433HQ				3/64	●	●
Finishing-Medium / Up Facing		WNMG 431CQ	1/2	3/16	0.203	1/64	●	●
		432CQ				1/32	●	●
		433CQ				3/64	●	●
Finishing-Medium / Up Facing		WNMG 432CJ	1/2	3/16	0.203	1/32	●	●
		433CJ				3/64	●	●

Shape		Part Number	Dimensions (in)				CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)		
Medium-Roughing		WNMG 431PMG	1/2	3/16	0.203	1/64	●	●
		432PMG				1/32	●	●
		433PMG				3/64	●	●
		434PMG				1/16	●	●
Medium-Roughing (Continuous)		WNMG 331GS	3/8	3/16	0.150	1/64	●	●
		332GS				1/32	●	●
Medium-Roughing (Interruption)		WNMG 431PG	1/2	3/16	0.203	1/64	●	●
		432PG				1/32	●	●
		433PG				3/64	●	●
		434PG				1/16	●	●
Roughing		WNMG 431	1/2	3/16	0.203	1/64	●	●
		432				1/32	●	●
		433				3/64	●	●
Roughing		WNMG 432PH	1/2	3/16	0.203	1/32	●	●
		433PH				3/64	●	●
Low Carbon Steel		WNMG 431XP	1/2	3/16	0.203	1/64	●	●
		432XP				1/32	●	●
Low Carbon Steel		WNMG 431XQ	1/2	3/16	0.203	1/64	●	●
		432XQ				1/32	●	●
Low Carbon Steel		WNMG 432XS	1/2	3/16	0.203	1/32	●	●

● : Standard Stock

Positive Inserts

Shape		Part Number	Dimensions (in)				Relief Angle	CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)			
Wiper Edge		CCMT 21505WP	1/4	3/32	0.110	0.008	7°	●	●
		2151WP				1/64		●	●
		2152WP				1/32		●	●
		CCMT 32505WP	3/8	5/32	0.173	0.008	7°	●	●
		3251WP				1/64		●	●
		3252WP				1/32		●	●
Finishing		CCMT 21505PP	1/4	3/32	0.110	0.008	7°	●	●
		2151PP				1/64		●	●
		CCMT 32505PP	3/8	5/32	0.173	0.008	7°	●	●
		3251PP				1/64		●	●
		3252PP				1/32		●	●
		CCMT 431GK	1/2	3/16	0.217	1/64	7°	●	●
Finishing-Medium		432GK				1/32		●	●
		433GK				3/64		●	●
Finishing-Medium		CCMT 21505HQ	1/4	3/32	0.110	0.008	7°	●	●
		2151HQ				1/64		●	●
		CCMT 32505HQ	3/8	5/32	0.173	0.008	7°	●	●
		3251HQ				1/64		●	●
		3252HQ				1/32		●	●
Medium		CCMT 3252	3/8	5/32	0.173	1/32	7°	●	●
Finishing		CPMT 251505PP	5/16	3/32	0.130	0.008	11°	●	●
		25151PP				1/64		●	●
		CPMT 3205PP	3/8	1/8	0.173	0.008	11°	●	●
		321PP				1/64		●	●
Finishing		322PP				1/32		●	●
Finishing		CPMT 25151GP	5/16	3/32	0.130	1/64	11°	●	●
		CPMT 321GP	3/8	1/8	0.173	1/64	11°	●	●
		322GP				1/32		●	●
Finishing-Medium		CPMH 25151HQ	5/16	3/32	0.138	1/64	11°	●	●
		25152HQ				1/32		●	●
		CPMH 321HQ	3/8	1/8	0.177	1/64	11°	●	●
		322HQ				1/32		●	●
Medium		CPMH 25151	5/16	3/32	0.138	1/64	11°	●	●
		25152				1/32		●	●
		CPMH 321	3/8	1/8	0.177	1/64	11°	●	●
		322				1/32		●	●

Shape		Part Number	Dimensions (in)				Relief Angle	CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)			
Low Carbon Steel		CPMT 25151XP	5/16	3/32	0.130	1/64	11°	●	●
		321XP	3/8	1/8	0.173	1/64	11°	●	●
		322XP				1/32		●	●
Low Carbon Steel		CPMT 321XQ	3/8	1/8	0.173	1/64	11°	●	●
		322XQ				1/32		●	●
Wiper Edge		DCMX 21505WP	1/4	3/32	0.110	0.008	7°	●	●
		2151WP				1/64		●	●
		2152WP				1/32		●	●
		DCMX 32505WP	3/8	5/32	0.173	0.008	7°	●	●
		3251WP				1/64		●	●
		3252WP				1/32		●	●
Finishing		DCMT 21505PP	1/4	3/32	0.110	0.008	7°	●	●
		2151PP				1/64		●	●
		DCMT 32505PP	3/8	5/32	0.173	0.008	7°	●	●
		3251PP				1/64		●	●
Finishing		3252PP				1/32		●	●
Finishing		DCMT 21505GP	1/4	3/32	0.110	0.008	7°	●	●
		2151GP				1/64		●	●
		DCMT 3251GP	3/8	5/32	0.173	1/64	7°	●	●
		3252GP				1/32		●	●
Finishing-Medium		DCMT 21505GK	1/4	3/32	0.110	0.008	7°	●	●
		2151GK				1/64		●	●
		2152GK				1/32		●	●
		DCMT 32505GK	3/8	5/32	0.173	0.008	7°	●	●
Finishing-Medium		3251GK				1/64		●	●
		3252GK				1/32		●	●
Finishing-Medium		DCMT 21505HQ	1/4	3/32	0.110	0.008	7°	●	●
		2151HQ				1/64		●	●
		2152HQ				1/32		●	●
		DCMT 32505HQ	3/8	5/32	0.173	0.008	7°	●	●
Low Carbon Steel		3251HQ				1/64		●	●
		3252HQ				1/32		●	●
Low Carbon Steel		DCMT 2151XP	1/4	3/32	0.110	1/64	7°	●	●
		DCMT 32505XP	3/8	5/32	0.173	0.008	7°	●	●
		3251XP				1/64		●	●
		3252XP				1/32		●	●
Low Carbon Steel		DCMT 3251XQ	3/8	5/32	0.173	1/64	7°	●	●
		3252XQ				1/32		●	●

● : Standard Stock

Positive Inserts

Shape		Part Number	Dimensions (in)				Relief Angle	CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)			
Medium		RCMX 1003M0	0.394	1/8	0.142	-	7°	●	●
		RCMX 1204M0	0.472	3/16	0.165	-		●	●
Finishing-Medium		SCMT 3251HQ	3/8	5/32	0.173	1/64	7°	●	●
		3252HQ				1/32		●	●
Medium		SPMR 321	3/8	1/8	-	1/64	11°	●	●
		322				1/32		●	●
		SPMR 421	1/2	1/8	-	1/64	11°	●	●
		422				1/32		●	●
Finishing		TBMT 1210SDP	5/32	1/16	0.091	0.008	5°	●	●
		1211DP				1/64		●	●
Wiper Edge		TCMX 18151WP	7/32	3/32	0.098	1/64	7°	●	●
		2151WP	1/4	3/32	0.110	1/64	7°	●	●
Finishing-Medium		TCMT 2151HQ	1/4	3/32	0.110	1/64	7°	●	●
		2152HQ				1/32		●	●
Wiper Edge		TPMX 181505WPP	7/32	3/32	0.110	0.008	11°	●	●
		18151WPP				1/64		●	●
		18152WPP				1/32		●	●
		TPMX 2205WPP	1/4	1/8	0.130	0.008	11°	●	●
Finishing		221WPP				1/64		●	●
		222WPP				1/32		●	●
Finishing		TPMT 181505PP	7/32	3/32	0.110	0.008	11°	●	●
		18151PP				1/64		●	●
		TPMT 2205PP				0.008		●	●
		221PP	1/4	1/8	0.130	1/64	11°	●	●
Finishing		222PP				1/32		●	●
Finishing		TPMT 18151GP	7/32	3/32	0.110	1/64	11°	●	●
		TPMT 221GP	1/4	1/8	0.130	1/64	11°	●	●
		222GP				1/32		●	●
		TPMT 321GP	3/8	1/8	0.173	1/64	11°	●	●

Shape		Part Number	Dimensions (in)				Relief Angle	CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)			
Finishing-Medium		TPMT 181505HQ	7/32	3/32	0.110	0.008	11°	●	●
		18151HQ				1/64		●	●
		TPMT 2205HQ	1/4	1/8	0.130	0.008	11°	●	●
		221HQ				1/64		●	●
		222HQ				1/32		●	●
		TPMT 321HQ	3/8	1/8	0.173	1/64	11°	●	●
Low Carbon Steel		322HQ				1/32		●	●
		TPMT 18151XP	7/32	3/32	0.110	1/64	11°	●	●
		TPMT 221XP	1/4	1/8	0.130	1/64	11°	●	●
		222XP				1/32		●	●
		TPMT 321XP	3/8	1/8	0.173	1/64	11°	●	●
		322XP				1/32		●	●
Low Carbon Steel		TPMT 221XQ	1/4	1/8	0.130	1/64	11°	●	●
		222XQ				1/32		●	●
Finishing		TPMT 321XQ	3/8	1/8	0.173	1/64	11°	●	●
		322XQ				1/32		●	●
Finishing		TPMR 321GP	3/8	1/8	-	1/64	11°	●	●
Finishing-Medium		TPMR 221HQ	1/4	1/8	-	1/64	11°	●	●
		222HQ				1/32		●	●
		TPMR 321HQ	3/8	1/8	-	1/64	11°	●	●
		322HQ				1/32		●	●
Medium		TPMR 221	1/4	1/8	-	1/64	11°	●	●
		222				1/32		●	●
		TPMR 321	3/8	1/8	-	1/64	11°	●	●
		322				1/32		●	●

● : Standard Stock

Positive Inserts

Shape		Part Number	Dimensions (in)				Relief Angle	CA115P	CA125P
			I.C.	Thickness	Hole Dia.	Corner R (RE)			
Finishing		VBMT 2205PP	1/4	1/8	0.110	0.008	5°	●	●
		221PP				1/64		●	●
		222PP				1/32		●	●
		VBMT 331PP	3/8	3/16	0.173	1/64	5°	●	●
		332PP				1/32		●	●
		333PP				3/64		●	●
Finishing		VBMT 221GP	1/4	1/8	0.110	1/64	5°	●	●
		VBMT 331GP	3/8	3/16	0.173	1/64	5°	●	●
		332GP				1/32		●	●
Finishing		VBMT 2205VF	1/4	1/8	0.110	0.008	5°	●	●
		221VF				1/64		●	●
		222VF				1/32		●	●
		VBMT 3305VF	3/8	3/16	0.173	0.008	5°	●	●
		331VF				1/64		●	●
		332VF				1/32		●	●
		333VF				3/64		●	●
		VBMT 221HQ	1/4	1/8	0.110	1/64	5°	●	●
		222HQ				1/32		●	●
		VBMT 331HQ	3/8	3/16	0.173	1/64	5°	●	●
		332HQ				1/32		●	●
		333HQ				3/64		●	●
Finishing		VCMT 151505PP	3/16	3/32	0.091	0.008	7°	●	●
		15151PP				1/64		●	●
		VCMT 331PP	3/8	3/16	0.173	1/64	7°	●	●
		332PP				1/32		●	●
		VCMT 151505VF	3/16	3/32	0.091	0.008	7°	●	●
		15151VF				1/64		●	●
Finishing-Medium		VCMT 151505HQ	3/16	3/32	0.091	0.008	7°	●	●
		15151HQ				1/64		●	●
Finishing		WBMT 12105L-DP	5/32	1/16	0.091	0.008	5°	L	L
		1211L-DP				1/64		L	L
		WBMT 151505L-DP	3/16	3/32	0.091	0.008	5°	L	L
		15151L-DP				1/64		L	L
Finishing		WPMT 2151GP	1/4	3/32	0.110	1/64	11°	●	●
		WPMT 321GP	3/8	1/8	0.173	1/64	11°	●	●
Finishing-Medium		WPMT 21505HQ	1/4	3/32	0.110	0.008	11°	●	●
		2151HQ				1/64		●	●
		WPMT 321HQ	3/8	1/8	0.173	1/64	11°	●	●
		322HQ				1/32		●	●

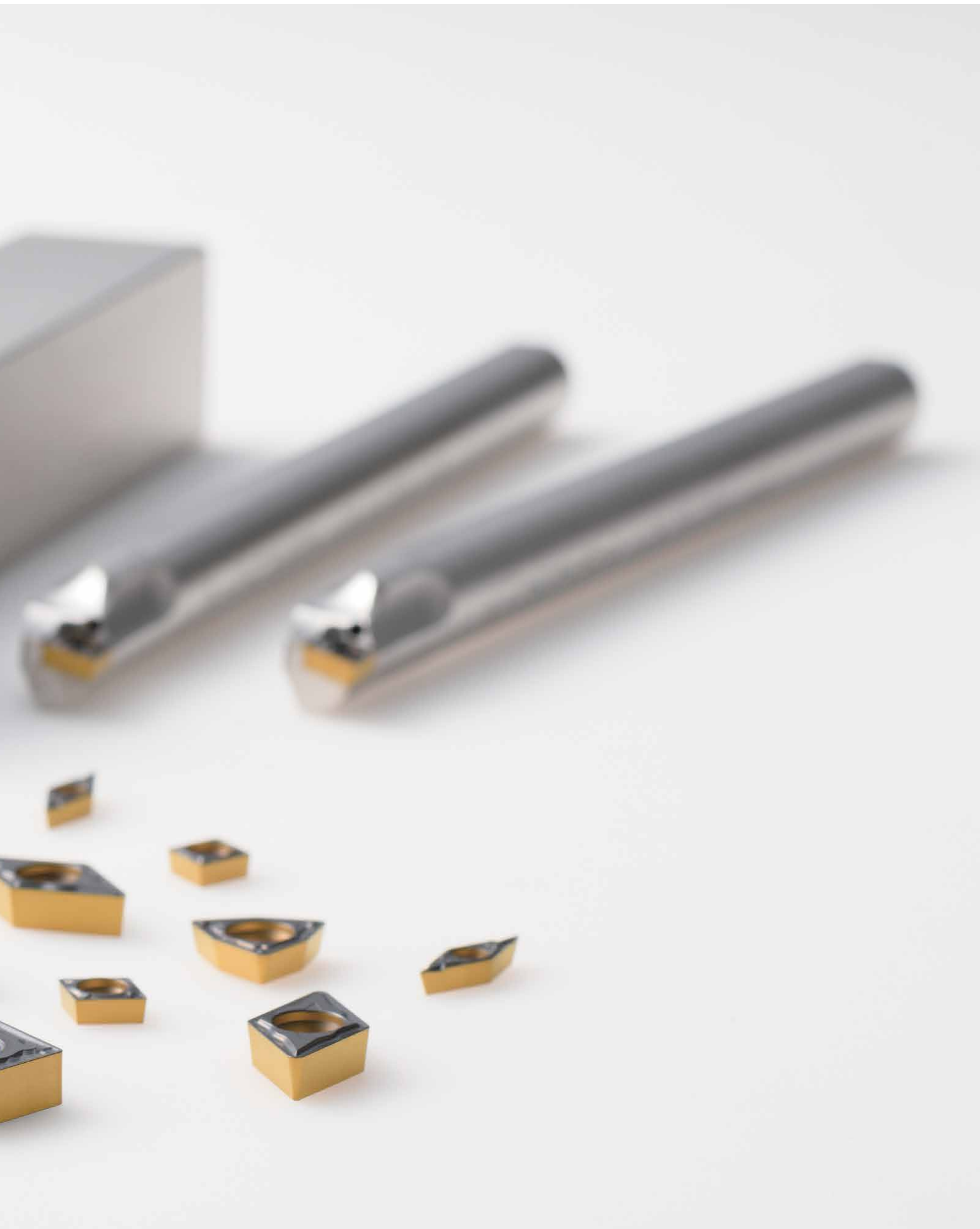
●: Standard Stock
L: Left-hand Only

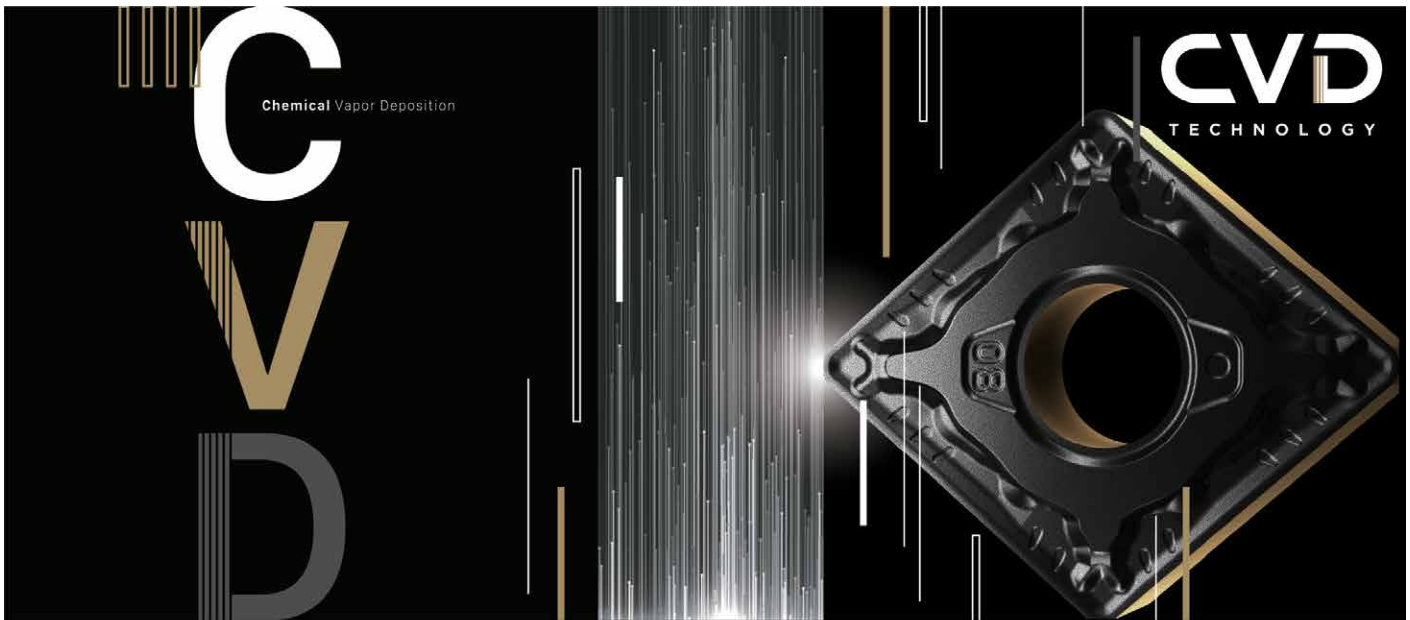
Recommended Cutting Conditions

Vc (sfm)

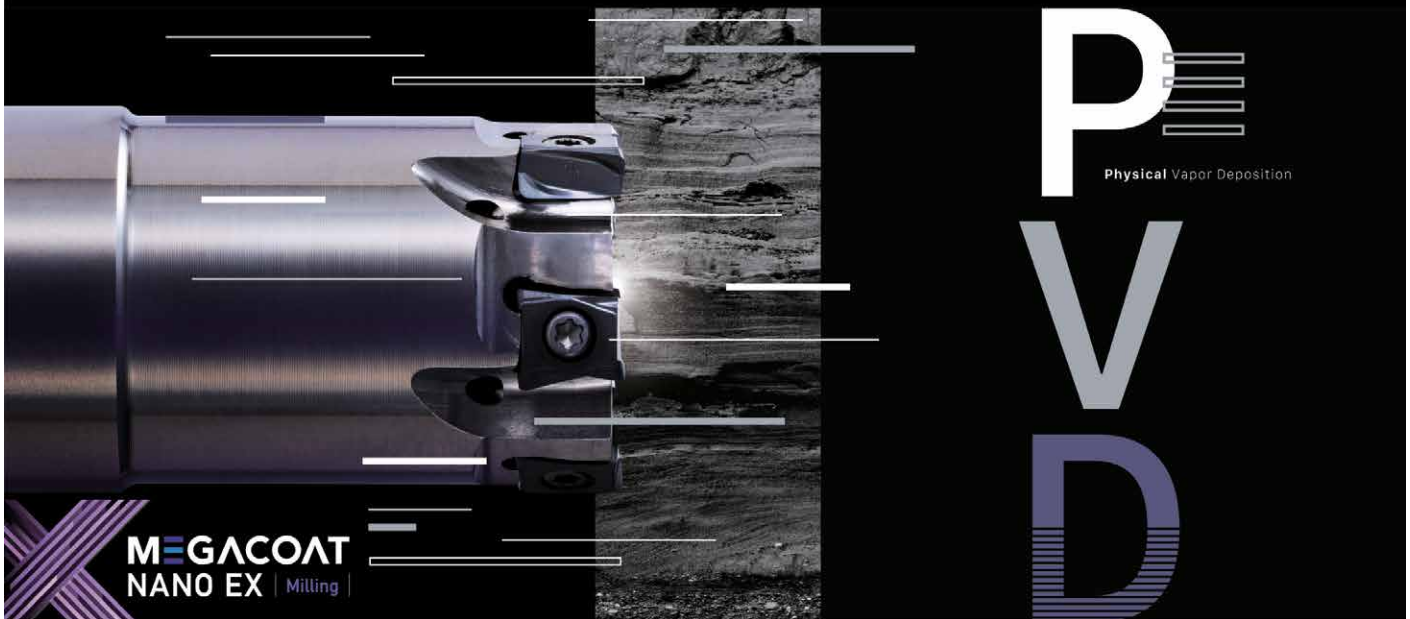
		Low Carbon Steel Low Carbon Alloy Steel	Medium Carbon Steel Medium Carbon Alloy Steel	High Carbon Alloy Steel
		Up to 25 HRC		Up to 32 HRC
CA115P	Negative	490 ~ 980 ~ 1310		490 ~ 920 ~ 1180
	Positive	390 ~ 790 ~ 1050		360 ~ 720 ~ 950
CA125P	Negative	490 ~ 790 ~ 1050		490 ~ 720 ~ 920
	Positive	390 ~ 620 ~ 850		360 ~ 560 ~ 750







Achieving Unprecedented Tool Life



KYOCERA Precision Tools

238 Marc Drive
Cuyahoga Falls, OH 44223
Customer Service | 800.823.7284 - Option 1
Technical Support | 800.823.7284 - Option 2



Official Website | www.kyoceraprecisiontools.com
Distributor Website | portal.kyoceraprecisiontools.com
Email | cuttingtools@kyocerapti.com

©KYOCERA Precision Tools
06/2023