THE NEW VALUE FRONTIER

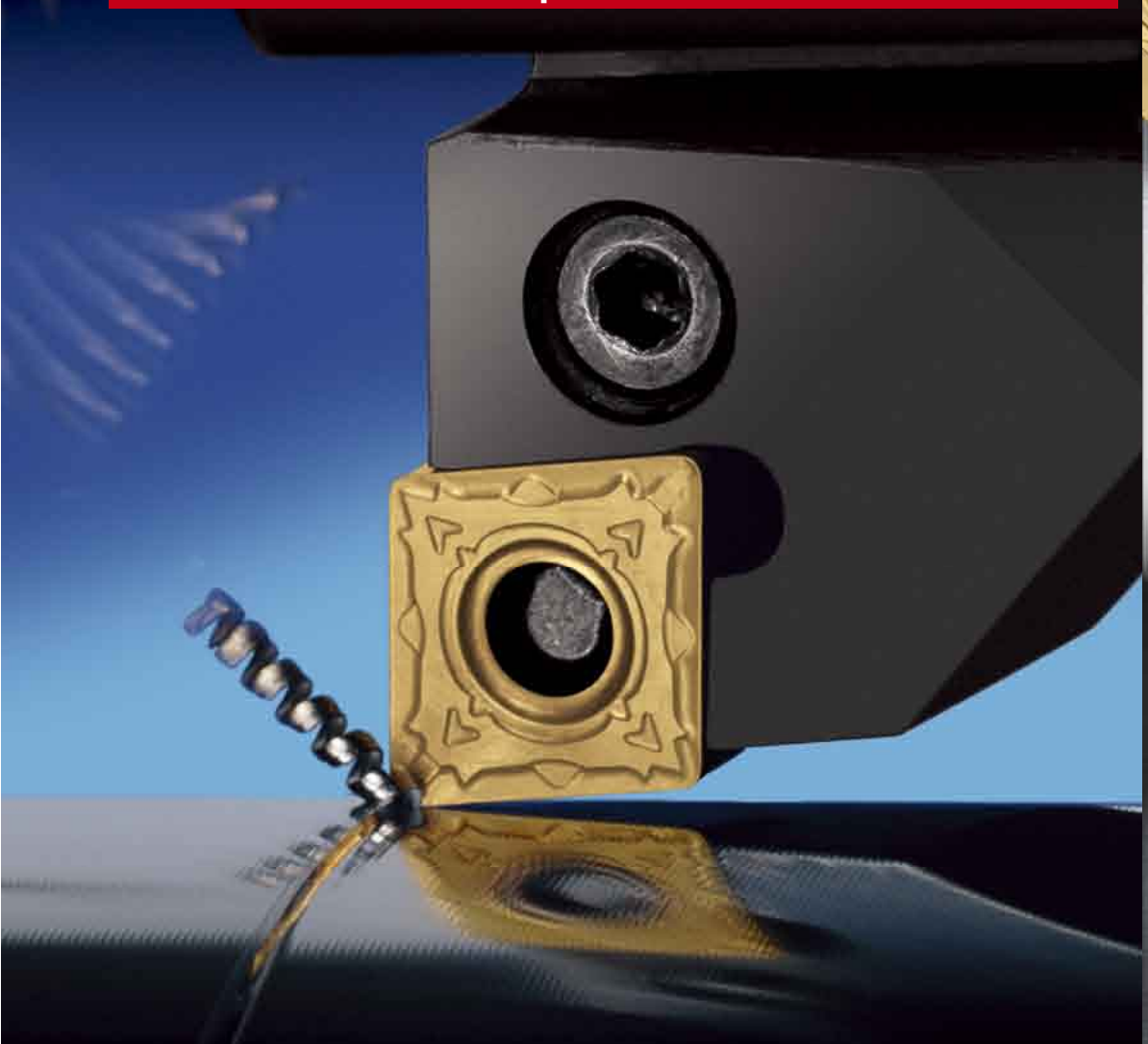
KYOCERA

CERATIP®
KYOCERA Cutting Tools

CP168-E

WP/WQ Chipberaker

Wiper Insert



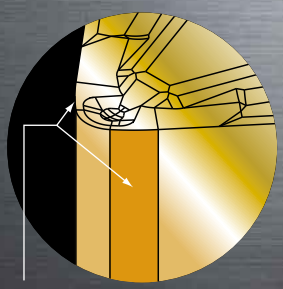
for Finishing WP

for Middle to Roughing WQ

Improvement of Efficiency and Surface Roughness

Machining Efficiency UP!

Surface Roughness DOWN!!



Large Radiused Wiper Edge

Features

Surface Finish ••• Excellent Surface Finish due to Wiper Edge Effect

Chip Control ••• Complete Chip Control Range with WP+WQ Chipbreaker

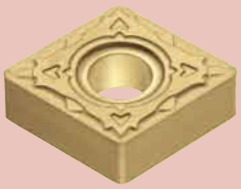
Time ••• Machining Time Shortening by High Feed Rate Cutting

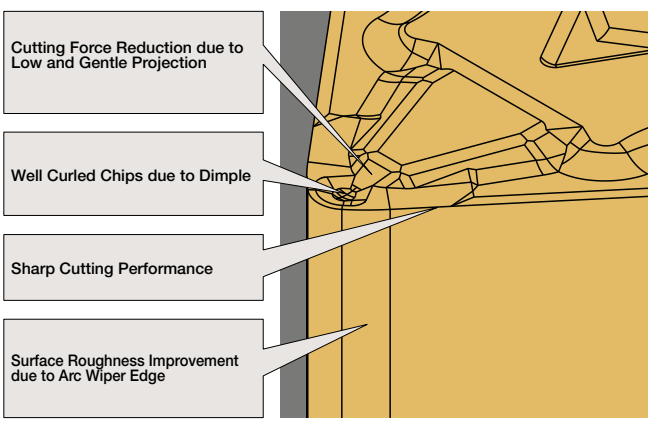
Tool Life ••• Tool Life Extension by Shortened Machining Time

Chipbreaker Design

for Finishing

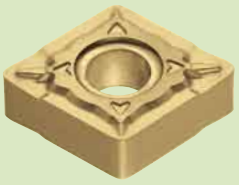
WP Chipbreaker

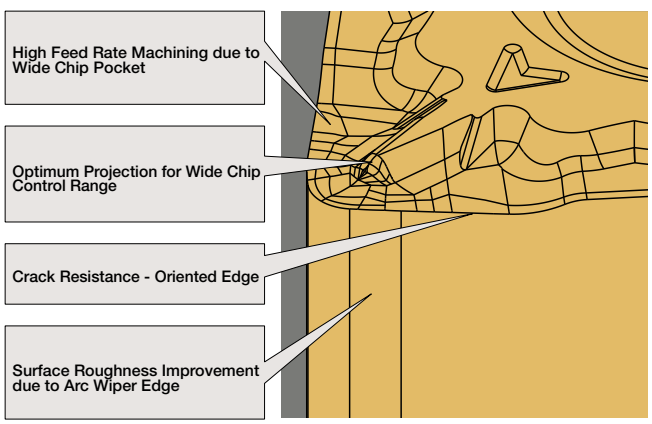




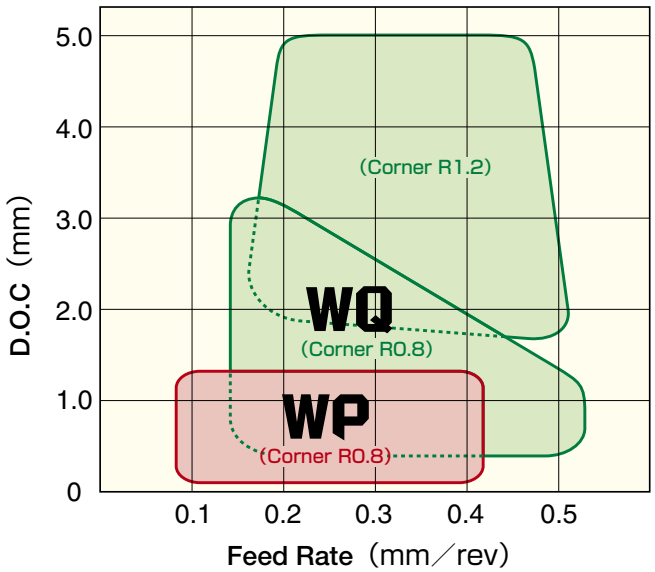
for Middle to Roughing

WQ Chipbreaker





Chip Control Range

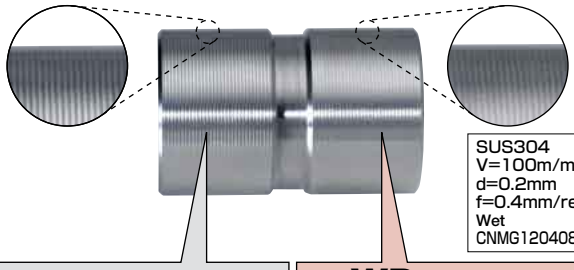


Cutting Conditions
SCM435 (φ70)
V=200m/min
Wet
CNMG120408WP
CNMG120408WQ
CNMG120412WQ
PCLNL2525M-12

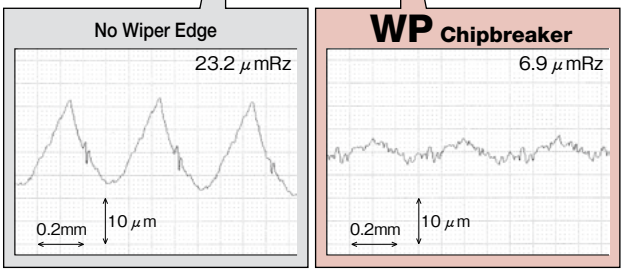
WP and WQ cover the range from Finishing to Roughing

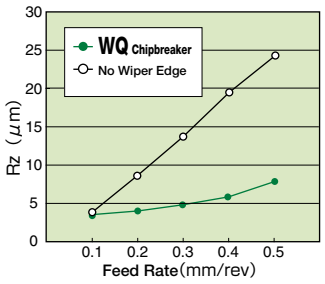
POINT 1

Surface Finish



SUS304
V=100m/min
d=0.2mm
f=0.4mm/rev
Wet
CNMG120408





SCM435 V=200m/min d=1.0mm
Wet CNMG120408

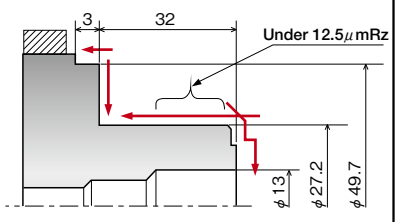
● Surface Roughness Comparison

Feed Rate (mm/rev)	Corner R 0.4		0.8		1.2	
	No Wiper	Wiper	No Wiper	Wiper	No Wiper	Wiper
0.10	3.0	0.4	1.6	0.3	1.0	0.2
0.15	5.7	0.9	3.5	0.6	2.4	0.5
0.20	8.7	1.7	5.9	1.0	4.2	0.8
0.25	11.9	2.6	8.6	1.6	6.4	1.3
0.30	15.2	3.8	11.4	2.3	8.9	1.9
0.35	18.6	5.1	14.4	3.1	11.5	2.6
0.40	22.0	6.7	17.4	4.0	14.3	3.3
0.45	25.5	8.5	20.6	5.1	17.1	4.2
0.50	29.1	10.4	23.8	6.3	20.1	5.2

※The Table shows the theoretical surface roughness

S10C

- Core Stator
- V=200m/min
- d=0.5~1.3mm
- f=0.16mm/rev
- Wet
- CNMG120408WP (PV7020)



WP's surface roughness was stabler than competitor even at double feed rate.
Chip Control was better too.

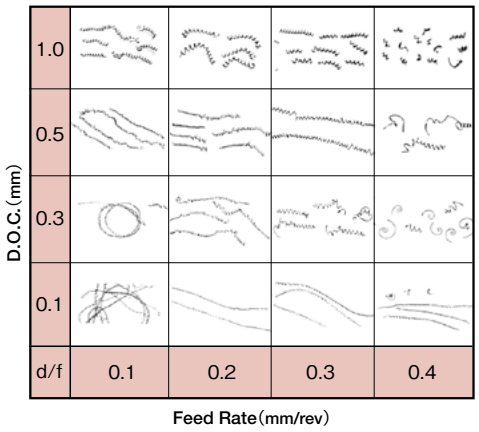
	Comp. (No Wiper)	WP Chipbreaker
Feed Rate	0.08mm/rev	0.15mm/rev
Roughness	8~10μmRz	4~8μmRz

POINT 2

Chip Control

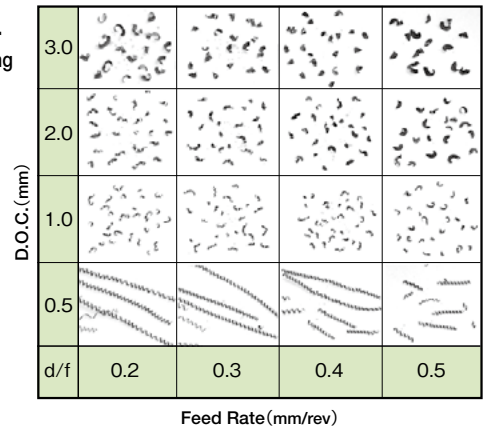
WP Chipbreaker for Finishing

SCM415
V=200m/min
Wet
CNMG120408WP
CR7015



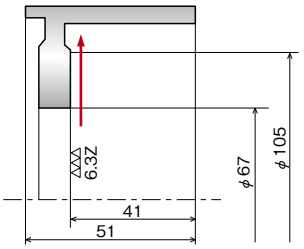
WQ Chipbreaker for Middle to Roughing

SCM435
V=200m/min
Wet
CNMG120408WQ
CA5025



S45C

- Cover Front
- V=240m/min
- d=0.3mm
- f=0.13mm/rev
- Wet
- WNMG080404WP (PV7020)



WNMG080404WP	150pcs/edge
Competitor	50pcs/edge

WP performed better chip control than competitor and tool life became 3times.

For Finishing

Cermet, PVD Cermet

WP Chipbreaker

For Chip Control

D.O.C. Under 1mm

WP Chipbreaker

D.O.C. 1mm and Over

WQ Chipbreaker

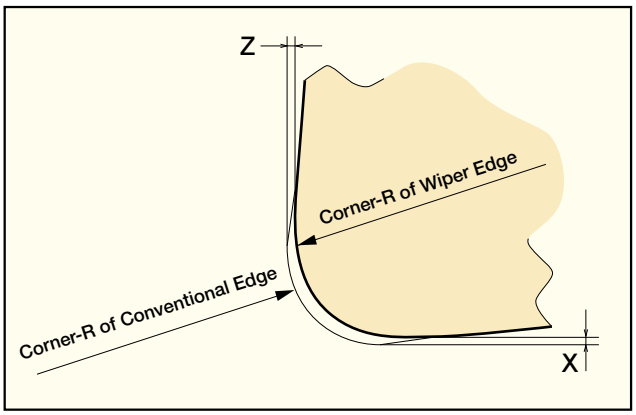
Note to Use Wiper Edge Insert

- Use the toolholder of Approach Angle 95° for CNMG...WP/WQ, WNMG...WP/WQ

Applicable Toolholder
CNMG1204○○WP/WQ ····· PCLN$^{R}_{L}$2525M-12、S32S-PCLN$^{R}_{L}$12-40
WNMG0804○○WP/WQ ····· PWLN$^{R}_{L}$2525M-08、S32S-PWLN$^{R}_{L}$08-40

- Index position of Wiper Edge Insert differs from that of no wiper insert, and Check the index position when it is replaced

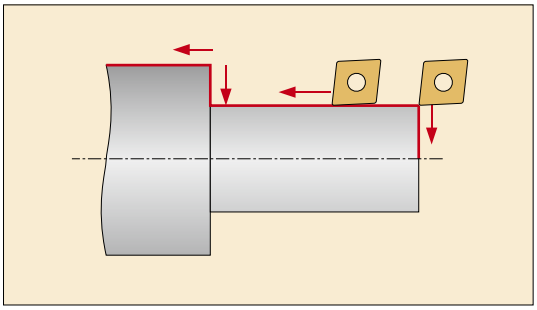
Index Position Differnce				
Chipbreaker	Corner-R	Description	X (mm)	Z (mm)
WP	0.4	**CNMG120404WP WNMG080404WP**	0.03	0.03
	0.8	**CNMG120408WP WNMG080408WP**	0.04	0.04
WQ	0.4	**CNMG120404WQ WNMG080404WQ**	0.05	0.05
	0.8	**CNMG120408WQ WNMG080408WQ**	0.06	0.06
	1.2	**CNMG120412WQ WNMG080412WQ**	0.05	0.05



- Effective & Ineffective Application for Wiper Edge Insert

○ Effective Application

- Straight cutting in parallel or perpendicular to work's center line



△ Ineffective Application

- Tapered or Curved Face Cutting