

THE NEW VALUE FRONTIER



Insert grade for machining
hardened material

PR015S
for milling

PR015S for milling



Provides long tool life and stable machining hardened material

Excellent thermal properties reduce notch wear

Improved wear resistance with MEGACOAT HARD coating

Stable machining with tough edge GH chipbreaker

High-Efficiency 90°milling cutter

MEW



LOMU10/15 type

High-Efficiency 45°milling cutter

MFPN45



PNMU12 type

Low cutting force 90° milling cutter

MFWN



WNNMU08 type

Highly efficient cutter with a 66°cutting edge angle

MFPN66



PNMU09 type

Highly efficient cutter with a 88°cutting edge angle

MFSN88



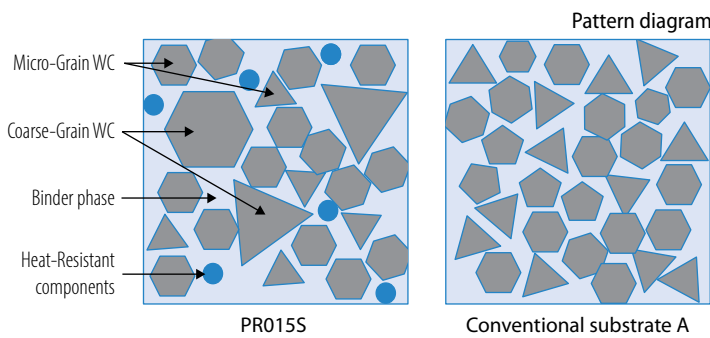
SNMU13 type

Insert grade for machining hardened material

PR015S for milling

Provides long tool life and stable machining in hardened material. Excellent thermal properties and improved wear resistance with MEGACOAT HARD coating.

1 Improved thermal properties reduce sudden fracturing and decreased notch wear

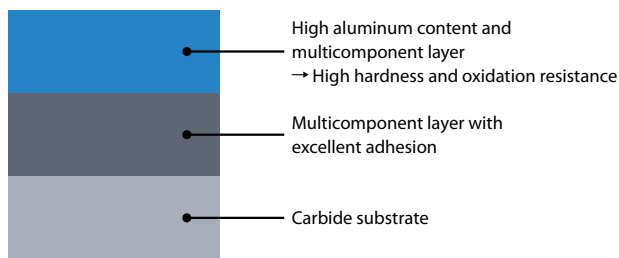


Improved thermal conductivity by optimum distribution of WC coarse grains

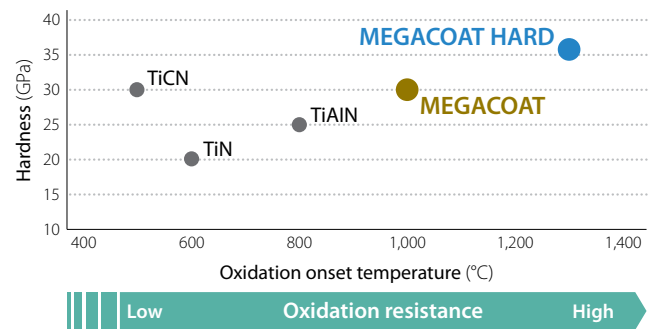
Resists heat concentration at the cutting edge to promote stable machining

2 Improved wear resistance with MEGACOAT HARD coating

MEGACOAT HARD: High hardness and high heat-resistant PVD layer



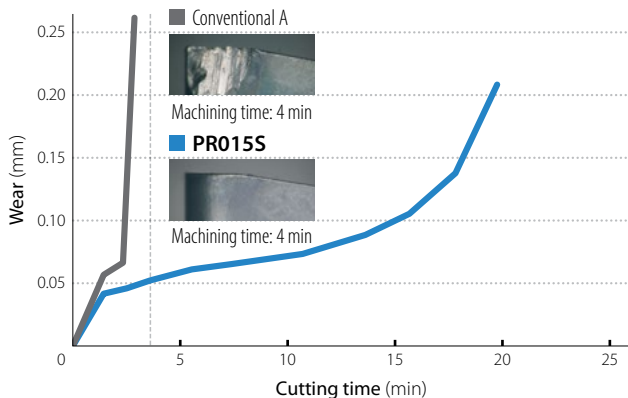
Coating film property (Internal evaluation)



Excellent wear resistance with high-hardness and resists boundary damage with improved thermal properties

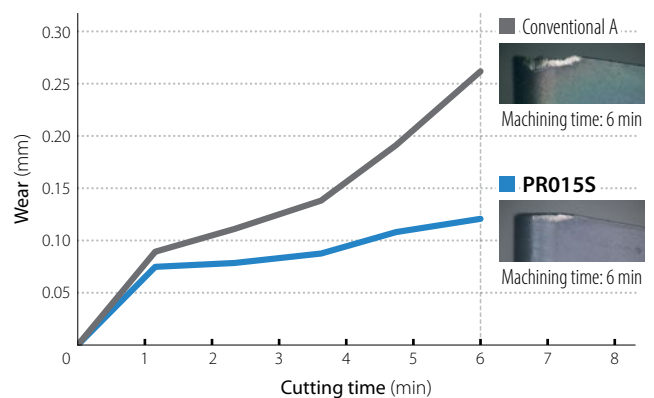
Wear resistance comparison (Internal evaluation)

Workpiece: X 40 CrMoV 5-1 (53HRC)



Cutting conditions: $V_c = 100$ m/min, $a_p \times a_e = 1.0$ mm x 45 mm, $f_z = 0.2$ mm/t, dry

Workpiece: X 153 CrMoV 12 (60HRC)



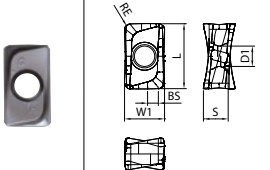
Cutting conditions: $V_c = 100$ m/min, $a_p \times a_e = 1.0$ mm x 10 mm, $f_z = 0.05$ mm/t, dry

90° Milling with double sided 4-edge inserts

MEW

- Low cutting forces equivalent to positive inserts with chattering resistance for excellent surface finish
- Economical 4-edge insert
- Improved toolholder durability and insert installation accuracy

Inserts

Shape	Description	Dimensions (mm)						Grade	Applicable toolholders
		W1	S	D1	L	BS	RE		
	LOMU 100408ER-GH	6.6	4.0	3.4	10.9	1.7	0.8	●	MEW... -10-...
	LOMU 150508ER-GH	9.2	5.6	4.8	15.7	1.8	0.8	●	MEW... -15-...

● : Available



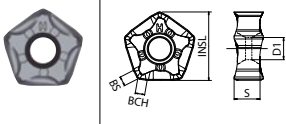
Face mills: $\phi 32 \sim \phi 80$
End mills: $\phi 16 \sim \phi 50$

Highly efficient cutter with a 66° cutting edge angle

MFPN66

- Economical inserts with 10 cutting edges
- Reduces chattering with low cutting force design
- Reduces cutting costs when machining auto parts and other general purpose machining applications

Inserts

Shape	Description	Dimensions (mm)					Grade	Applicable toolholders
		INSL	S	D1	BCH	BS		
	PNMU 0905XNER-GH	14.6	5.56	4.7	2.0	2.0	●	MFPN66...

● : Available



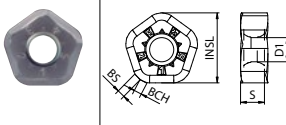
Face mills: $\phi 50 \sim \phi 160$
End mills: $\phi 32, \phi 40$

45° Milling with double sided 10-edge inserts

MFPN45

- Reduced chattering with low cutting force design and excellent fracture resistance
- Economical inserts with 10 cutting edges
- Suppresses fracturing with dual angle edge design

Inserts

Shape	Description	Dimensions (mm)					Grade	Applicable toolholders
		INSL	S	D1	BCH	BS		
	PNMU 1205ANER-GH	17.98	6.17	6.2	2.0	2.0	●	MFPN45...

● : Available



Face mills: $\phi 63 \sim \phi 315$
End mills: $\phi 50, \phi 63, \phi 80$


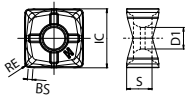
For more details on toolholders, see the KYOCERA general product catalog or product brochures

Highly efficient cutter with a 88° cutting edge angle

MFSN88

- Economical inserts with 8 cutting edges
- Reduces chattering with low cutting force design
- Suitable for shoulder roughing
- Cost reduction in approximately 90° corner cutting

Inserts

Shape		Description	Dimensions (mm)					Grade	Applicable toolholders
			IC	S	D1	BS	RE	PR015S	
		SNMU 130508EN-GH	13	5.51	4.7	1.0	0.8	●	MFSN88...

● : Available




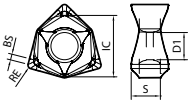
Face mills: $\phi 50 \sim \phi 160$
End mills: $\phi 32, \phi 40$

Double-sided 6-edge insert, low cutting force 90° cutter

MFWN

- Economical double-sided 6-edge insert
- Superior fracture resistance due to thick edge design
- Sharp cutting with lower cutting forces
- Resistant to chattering and applicable to long overhang

Inserts

Shape		Description	Dimensions (mm)					Grade	Applicable toolholders
			IC	S	D1	BS	RE	PR015S	
		WNMU 080608EN-GH	14.02	6.65	6.2	1.3	0.8	●	MFWN90...

● : Available

For more details on toolholders, see the KYOCERA general product catalog or product brochures



Face mills: $\phi 63 \sim \phi 250$
End mills: $\phi 50, \phi 63, \phi 80$

Recommended cutting conditions

60 HRC or less

Description	fz (mm/t)	Cutting Speed (Vc : m/min)
LOMU 100408ER-GH	0.06~0.08~0.12	80~120~160
LOMU 150508ER-GH	0.08~0.15~0.22	80~120~160
PNMU 0905XNER-GH	0.1~0.2~0.3	80~100~120
PNMU 1205ANER-GH	0.1~0.25~0.35	80~100~120
SNMU 130508EN-GH	0.1~0.2~0.3	80~100~120
WNMU 080608EN-GH	0.1~0.2~0.3	80~100~120