Insert Grade for Machining Hardened Material

PR015S

Provides Long Tool Life and Stable Machining in 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

WNMU08 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

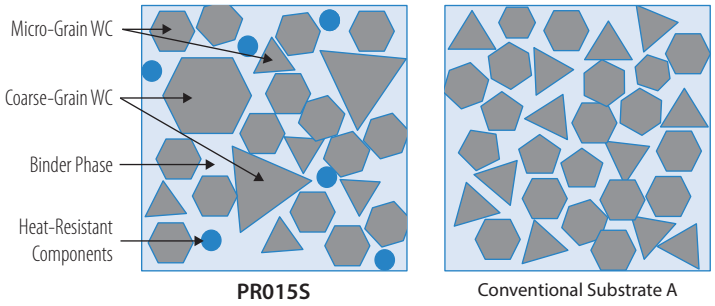
Insert Grade for Machining Hardened Material

PR015S

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

(Pattern Diagram)

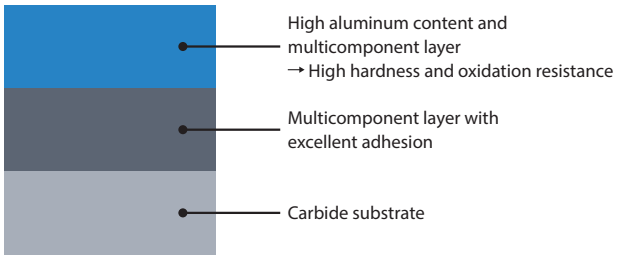


Improved thermal conductivity by optimum distribution of WC coarse grains

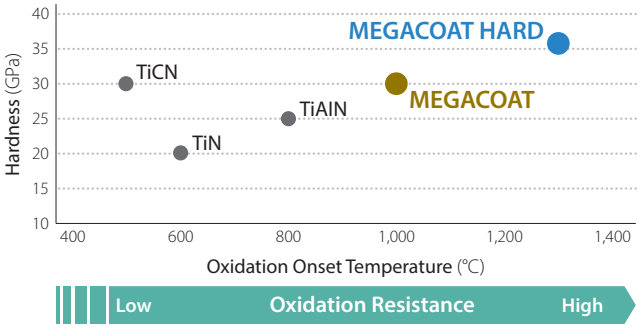
Resists heat concentration at the cutting edge to promote stable machining

2 Improved wear resistance with MEGACOAT HARD coating

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



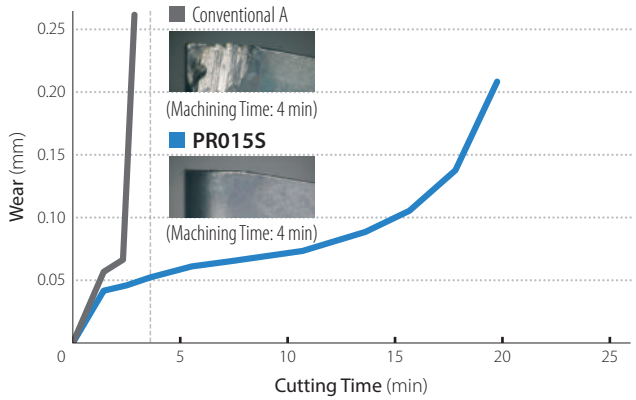
Coating Film Property (Internal Evaluation)



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

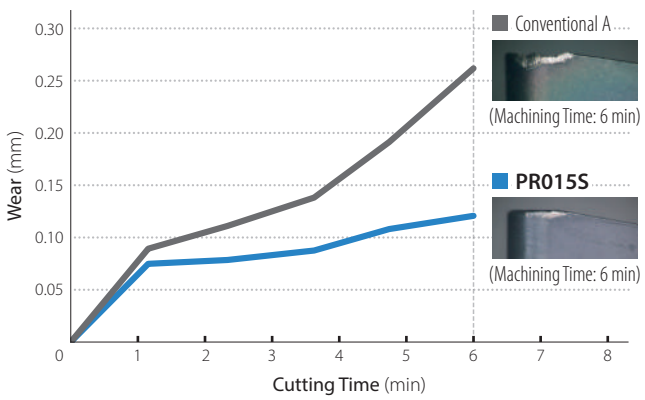
Wear Resistance Comparison (Internal Evaluation)

Workpiece : SKD61H (53HRC)



Cutting Conditions : Vc=100m/min, ap x ae= 1.0mm x 45mm, fz=0.2mm/t, Dry

Workpiece : SKD11H (60HRC)



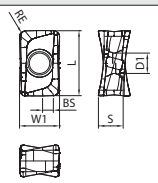
Cutting Conditions : Vc=100m/min, ap x ae= 1.0mm x 10mm, fz=0.05mm/t, Dry

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

Stock Items

Shape		Description	Dimensions (mm)						Grade	Applicable Toolholders
			W1	S	D1	L	BS	RE	PR015S	
		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-…

● : Standard Stock

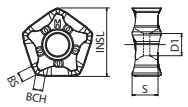
Face mills : ø32~ø80
End mills : ø16~ø50

Highly Efficient Cutter with a 66°Cutting Edge Angle

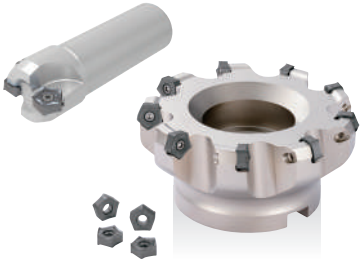
MFPN66

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

Stock Items

Shape		Description	Dimensions (mm)					Grade	Applicable Toolholders
			INSL	S	D1	BCH	BS	PR015S	
		PNMU 0905XNER-GH	14.6	5.56	4.7	2.0	2.0	●	MFPN66…

● : Standard Stock



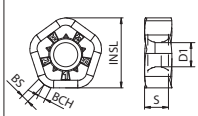
Face mills : ø50~ø160
End mills : ø32, ø40

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

Stock Items

Shape		Description	Dimensions (mm)					Grade	Applicable Toolholders
			INSL	S	D1	BCH	BS	PR015S	
		PNMU 1205ANER-GH	17.98	6.17	6.2	2.0	2.0	●	MFPN45…

● : Standard Stock

Face mills : ø63~ø315
End mills : ø50, ø63, ø80

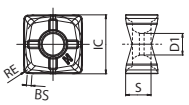
For more details on toolholders, see the KYOCERA general product catalog or product brochures

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

Stock Items

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…

● : Standard Stock

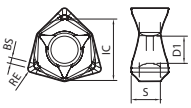
Face mills : ø50~ø160
End mills : ø32, ø40

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

Stock Items

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…

● : Standard Stock

Face mills : ø63~ø250
End mills : ø50, ø63, ø80

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

Recommended Cutting Conditions

(60HRC 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

CP453