MITSUBISHI MATERIALS

TOOL NEWS B210A-F

PVD Coated Cemented Carbide Grade for Carbon Steel

MS6015

New Product

PVD Coated Cemented Carbide Grade for Carbon Steel

MS6015

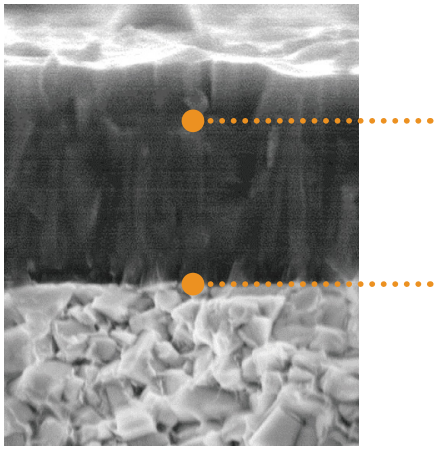
Engineered specifically for precision turning of low carbon steels and pure iron where stable surface finishes, roundness and dimensional accuracy are required.

Features 1

A fine compatible collaboration of a special carbide substrate and a new PVD coating that greatly improves wear resistance.

	MS6015	Conventional
Coating	TiCN Multi-layer	TiAlN
Hardness (HV)	3000	2800
Wear Coefficient (Carbon Steel)	Low	High
Base Material Hardness (HRA)	92.0	92.0
T.R.S (GPa)	2.0	2.0

Ti-C-N Multi-layer Coating



Superior wear and welding resistance and demonstrating the best possible results for carbon steel.

Minute multi-layers remarkably improve welding.

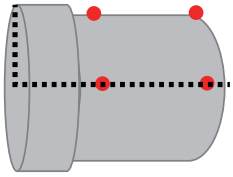
Excellent chip discharge with a reduced coefficient of friction creates a stabilized turning surface.

Cutting Performance

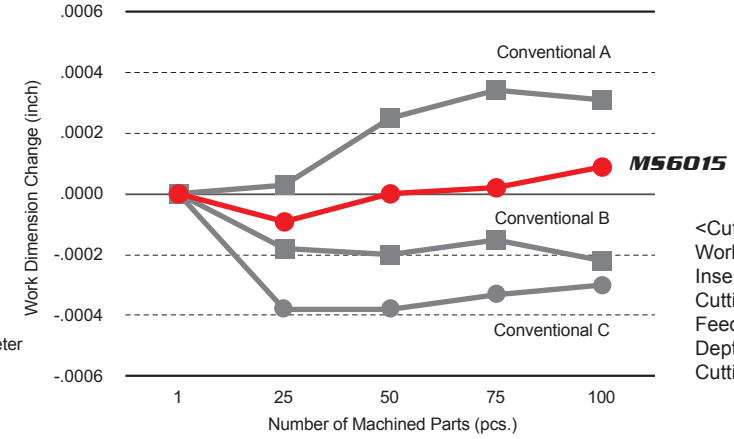
MS6015 has superior chip discharge welding of cutting edges compared with conventional products as well as minimal changes in exterior diameter dimensions.

Diagram

Average measurement of 4 positions



Processing the above and the workpiece diameter measuring of each prescribed number of items.



<Cutting Conditions>
Work Material : AISI 1020
Insert : DCGT32.50.5○○
Cutting Speed : 330 SFM
Feed Rate : .002 IPR
Depth of Cut : .039 inch
Cutting Mode : Wet Cutting

Features 2

Set the corner radius to a minus tolerance.

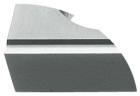
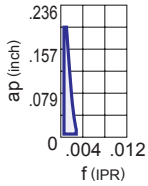
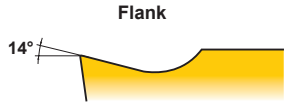
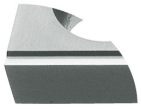
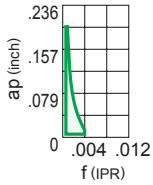
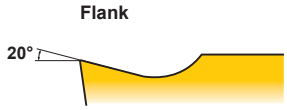
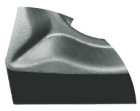
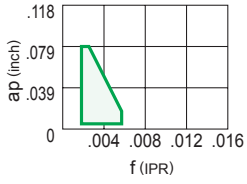
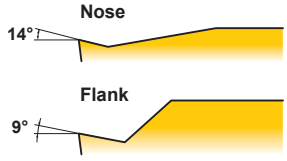
Order Number

DCGT32.5 0.5M RSN
DCGT32.5 1M SMG

→

0.5M R.007 inch (R.006 – R.008 inch)
1M R.015 inch (R.014 – R.016 inch)

Breaker System

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	G	R SS 	**Light cutting of Swiss type lathe machining** The parallel chip breaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel  
Medium Cutting	G	R SN 	**Medium cutting of Swiss type lathe machining** The parallel chip breaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel  
	G	SMG 	**Medium cutting of Swiss type lathe machining** 3D molded chip breaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	Carbon Steel • Alloy Steel  

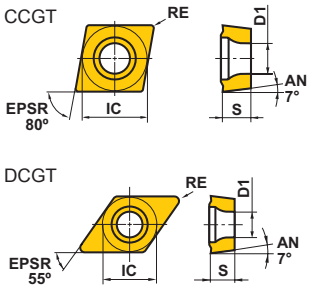
Recommended Cutting Conditions

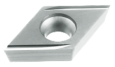
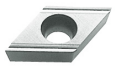
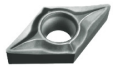
	Work Material	Grade	Cutting Speed (SFM)	Feed Rate (IPR)
P	Carbon Steel · Alloy Steel	**MS6015**	330 (165—490)	.0031 (.0004—.0059)
P	Pure Iron · Free Cutting Steel	**MS6015**	490 (165—820)	.0031 (.0004—.0059)
M	Stainless Steel	**MS6015**	260 (165—395)	.0024 (.0006—.0039)

MS6015

7° Positive Inserts (With Hole)

G Class



Light	Medium	Medium
R-SS	R-SN	SMG
		
Light	Medium	Medium
R-SS	R-SN	SMG
		

(inch)

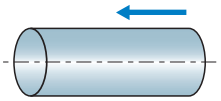
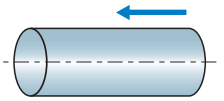
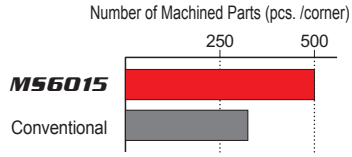
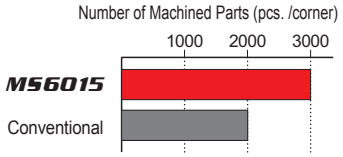
Order Number	Cutting Area	Stock MS6015 (NEW)		IC	S	RE *1	D1
NEW CCGT21.50.2MRSS	L	●		.250	.094	.004	.110
NEW CCGT21.50.5MRSS	L	●		.250	.094	.008	.110
NEW CCGT32.50.2MRSS	L	●		.375	.156	.004	.173
NEW CCGT32.50.5MRSS	L	●		.375	.156	.008	.173
NEW CCGT32.51MRSS	L	●		.375	.156	.016	.173
NEW CCGT21.50.2MRSN	M	●		.250	.094	.004	.110
NEW CCGT21.50.5MRSN	M	●		.250	.094	.008	.110
NEW CCGT32.50.2MRSN	M	●		.375	.156	.004	.173
NEW CCGT32.50.5MRSN	M	●		.375	.156	.008	.173
NEW CCGT32.51MRSN	M	●		.375	.156	.016	.173
NEW CCGT21.50.2MSMG	M	●		.250	.094	.004	.110
CCGT21.50.5MSMG	M	●		.250	.094	.008	.110
CCGT21.51MSMG	M	●		.250	.094	.016	.110
NEW CCGT32.50.2MSMG	M	●		.375	.156	.004	.173
NEW CCGT32.50.5MSMG	M	●		.375	.156	.008	.173
NEW CCGT32.51MSMG	M	●		.375	.156	.016	.173

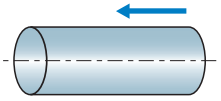
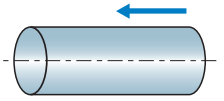
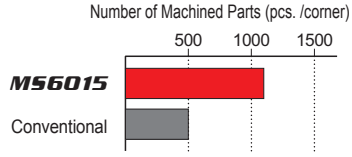
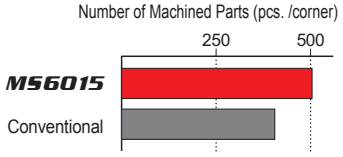
Order Number	Cutting Area	Stock MS6015 (NEW)		IC	S	RE *1	D1
NEW DCGT21.50.2MRSS	L	●		.250	.094	.004	.110
NEW DCGT21.50.5MRSS	L	●		.250	.094	.008	.110
NEW DCGT32.50.2MRSS	L	●		.375	.156	.004	.173
NEW DCGT32.50.5MRSS	L	●		.375	.156	.008	.173
NEW DCGT32.51MRSS	L	●		.375	.156	.016	.173
NEW DCGT21.50.2MRSN	M	●		.250	.094	.004	.110
NEW DCGT21.50.5MRSN	M	●		.250	.094	.008	.110
NEW DCGT32.50.2MRSN	M	●		.375	.156	.004	.173
NEW DCGT32.50.5MRSN	M	●		.375	.156	.008	.173
NEW DCGT32.51MRSN	M	●		.375	.156	.016	.173
NEW DCGT21.50.2MSMG	M	●		.250	.094	.004	.110
DCGT21.50.5MSMG	M	●		.250	.094	.008	.110
DCGT21.51MSMG	M	●		.250	.094	.016	.110
NEW DCGT32.50.2MSMG	M	●		.375	.156	.004	.173
DCGT32.50.5MSMG	M	●		.375	.156	.008	.173
DCGT32.51MSMG	M	●		.375	.156	.016	.173

*1 RE = Dimension tolerance of minus type.

● : **Inventory maintained.**

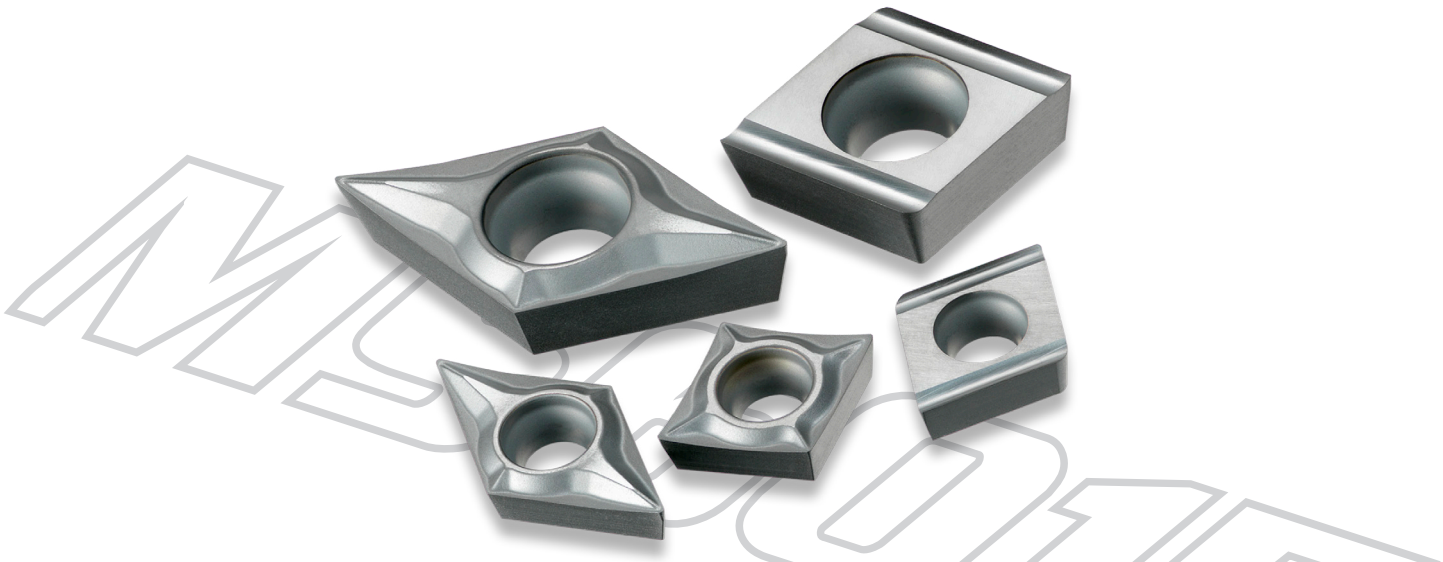
Application Examples

Insert		DCGT32.50.5MSMG (MS6015)	DCGT32.50.2MSMG (MS6015)
Workpiece		Pure Iron (ECLH2) 	Free Cutting Steels (AISI 12L14) 
Cutting Conditions	Cutting Speed (SFM)	645 (4500 min^{-1})	410 (5000 min^{-1})
	Feed Rate (IPR)	.0039	.0020
	Depth of Cut (inch)	.0039	.0118
Cutting Mode		Wet Cutting (oil)	Wet Cutting (oil)
Machine		CNC Swiss Type Lathes	CNC Swiss Type Lathes
Results		 An excellent finished surface and 1.4x longer life compared with conventional products. Stable SMG breaker and chip discharge management.	 MS6015 has minimal welding and maintains secure dimensional accuracy.

Insert		DCGT32.50.5MRSN (MS6015)	DCGT32.50.5MSMG (MS6015)
Workpiece		Carbon Steel (AISI 1045) 	Mild Steel (AISI 1015) 
Cutting Conditions	Cutting Speed (SFM)	370 (3000 min^{-1})	330 (1300 min^{-1})
	Feed Rate (IPR)	.0012	.0047
	Depth of Cut (inch)	.0394	.0512
Cutting Mode		Wet Cutting (oil)	Wet Cutting (oil)
Machine		CNC Swiss Type Lathes	CNC Swiss Type Lathes
Results		 MS6015 has superior wear resistance and achieves 2x longer life compared with conventional products.	 MS6015 has superior welding resistance and achieves 1.3x longer life compared with conventional products.

Memo

Memo



PVD Coated Cemented Carbide Grade for Carbon Steel

MS6015

For your safety
●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching inserts or spare parts, please use the attached wrench or driver. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

MITSUBISHI MATERIALS CORPORATION

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