

mitsubishi

MITSUBISHI CARBIDE

TOOLS NEWS

B037G

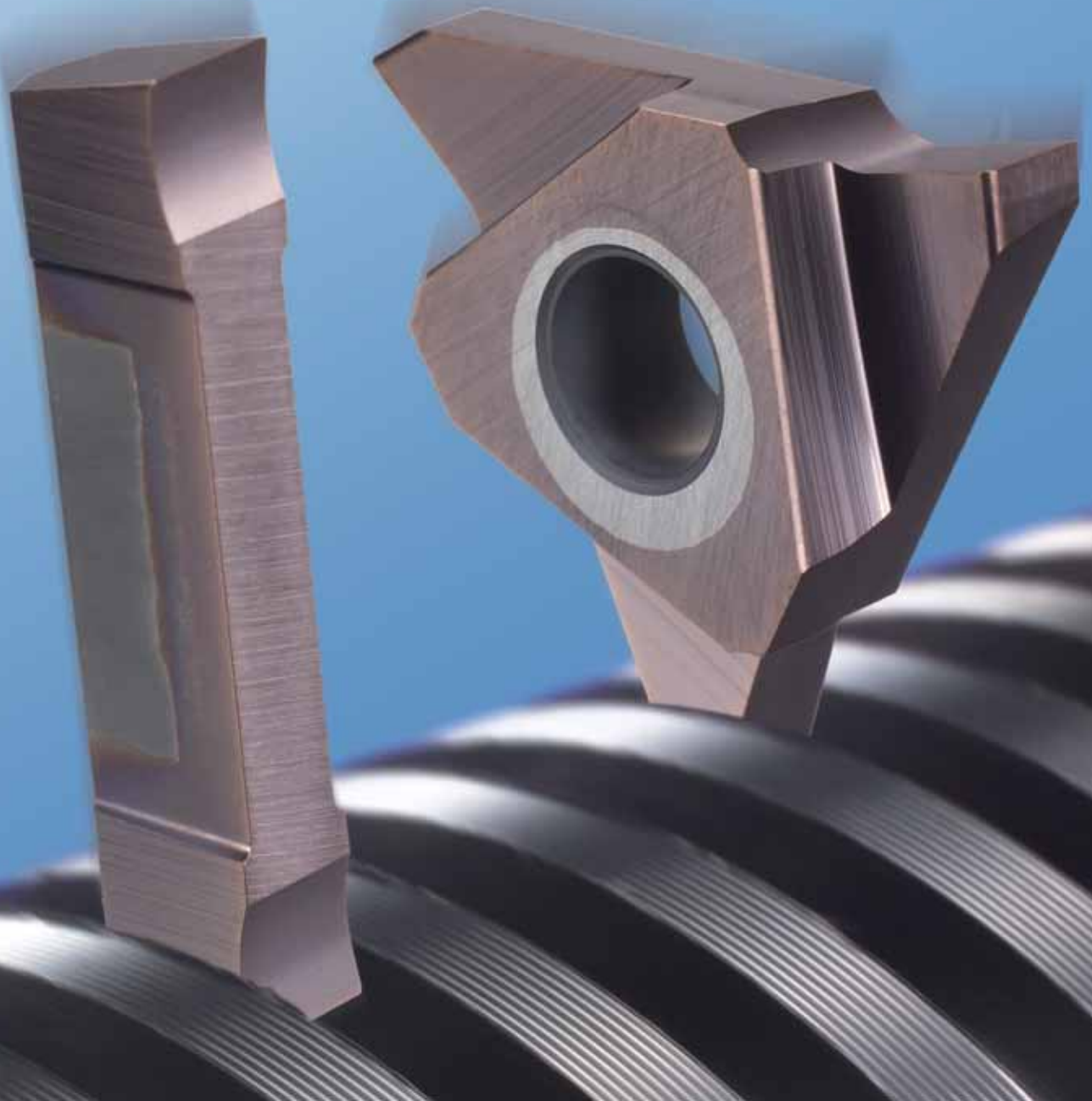
PVD coated grade for grooving

VP20MIF

MIRACLE Coating

A perfect "MIRACLE" coating and micro-grain carbide combination

**Lengthens tool life in
grooving of a variety
of materials**



PDV coated grade for grooving

MIRACLE Coating

VP20MF

Features

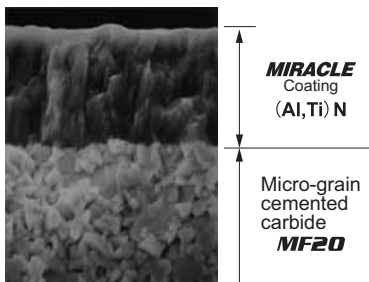
VP20MF employs highly functional PVD coating "**MIRACLE** Coating", and newly developed micro-grain cemented carbide, "**MF20**". This very best combination achieves very long tool life when grooving of general steel, stainless steel, and cast iron.

MIRACLE Coating (Al,Ti)N

Compared with conventional coatings, Miracle Coating has greatly improved adhesion strength between the coating and the substrate, displaying excellent wear resistance for all kinds of workpiece materials.

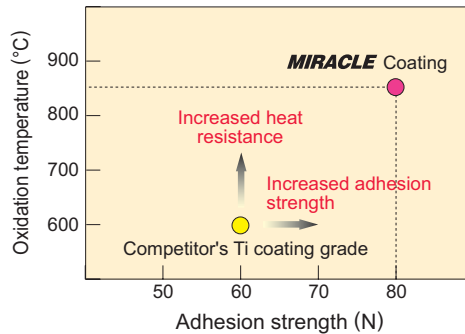
Micro-grain cemented carbide MF20

MF20 simultaneously possesses tensile resistance strength and hardness at a very high level. Leading to excellent wear resistance and high stability of the cutting edge.

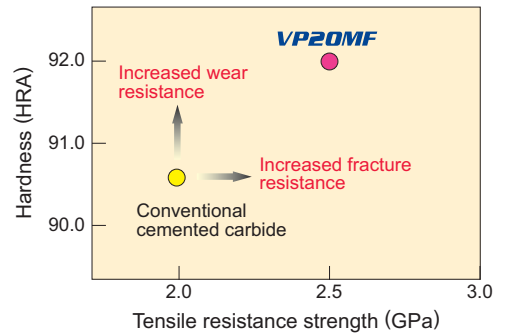


VP20MF

MIRACLE Coating features



VP20MF features



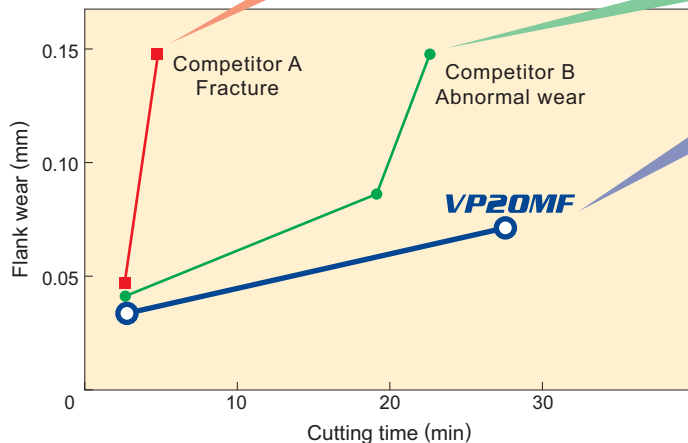
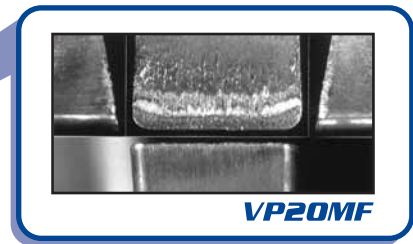
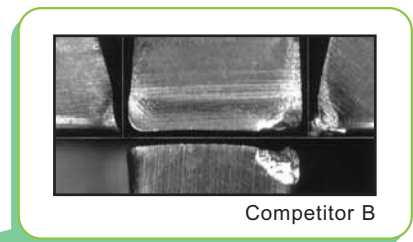
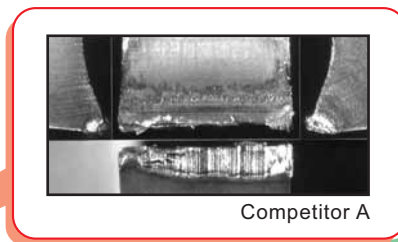
Cutting performance

Wear resistance

High wear resistance and long tool life

Alloy steel JIS SCM440(200HB)

Long tool life due to high fracture resistance





<Cutting conditions>

Insert : MGTR33200
 Tool : MGHR2020K3315
 Cutting speed : 150m/min
 Feed : 0.1mm/rev
 Depth of cut : 2mm
 Wet




MIRACLE Coating **VP20MF**




Insert for MG type holder

Shape	Groove width (mm)	Order Number	Stock	
			VP20MF	
			R	L
	1.25	MGTR/L33125	●	□
	1.45	33145	●	□
	1.5	33150	●	●
	1.75	33175	●	●
	2.0	33200	●	●
	2.3	33230	●	□
	2.5	33250	●	●
	2.7	33270	●	□
	2.8	33280	●	□
	3.0	33300	●	●
	3.2	33320	●	□
	3.3	33330	●	□
	3.5	33350	●	□
	4.0	33400	●	□
	4.7	33470	●	□
	1.25	43125	●	●
	1.45	43145	●	□
	1.5	43150	●	●
	1.75	43175	●	●

Shape	Groove width (mm)	Order Number	Stock	
			VP20MF	
			R	L
	2.0	MGTR/L43200	●	●
	2.3	43230	●	●
	2.5	43250	●	●
	2.6	43260	●	□
	2.7	43270	●	□
	2.8	43280	●	●
	3.0	43300	●	●
	3.2	43320	●	●
	3.3	43330	●	●
	3.5	43350	●	□
	4.0	43400	●	●
	4.2	43420	●	□
	4.3	43430	●	□
	4.5	43450	●	●
	4.7	43470	●	□
	5.0	44500	●	●
	5.5	44550	●	□
	6.0	44600	●	□

Insert for DG type holder

Shape	Groove width (mm)	Order Number	Stock
			VP20MF
	3.0	DGJ30CE	●
	4.0	40CE	●
	5.0	50CE	●
	6.0	60CE	●
	7.0	70CE	●
	8.0	80CE	●
	5.0	DGJ50CT1	●
	3.0	DGJ30CFS	●
	3.0	30CF	●
	4.0	40CFS	●
	4.0	40CF	●

Shape	Groove width (mm)	Order Number	Stock
			VP20MF
	5.0	DGJ50CF	●
	6.0	60CF	●
	7.0	70CF	●
	8.0	80CF	●
	2.0	DGM20CE	●
	3.0	30CE	●
	3.0	DGM30CT	●
	4.0	40CT	●
	5.0	50CT	●

● To see the tool holders, please refer to our general catalogue (CJ007).
 MG type holder ; Page A264 DG type holder ; Page A234

MIRACLE Coating VP20MF

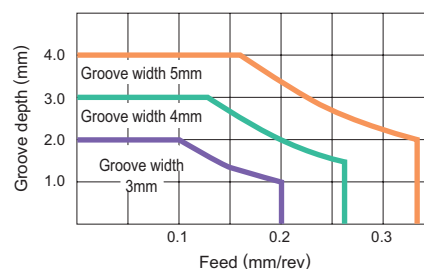
Recommended cutting conditions

MG TYPE HOLDER

Workpiece	Hardness (HB)	Cutting speed (m/min)	Feed (mm/rev)			
			Groove width 1.25~2.0mm	Groove width 2.3~3.0mm	Groove width 3.2~4.5mm	Groove width 4.5~6.0mm
P Carbon steel Alloy steel	≤180	160 (120-200)	0.08 (0.03-0.10)	0.10 (0.05-0.15)	0.15 (0.05-0.20)	0.18 (0.05-0.25)
	180-280	120 (100-140)	0.05 (0.03-0.08)	0.08 (0.05-0.10)	0.10 (0.05-0.15)	0.12 (0.05-0.18)
M Stainless steel	≤200	120 (100-140)	0.05 (0.03-0.08)	0.08 (0.05-0.10)	0.10 (0.05-0.15)	0.12 (0.05-0.18)
K Cast iron	—	120 (100-140)	0.05 (0.03-0.08)	0.08 (0.05-0.10)	0.10 (0.05-0.15)	0.12 (0.05-0.18)

DG TYPE HOLDER

Workpiece	Hardness (HB)	Cutting speed (m/min)	Feed (mm/rev)			
			Groove width 2mm	Groove width 3, 4mm	Groove width 5, 6mm	Groove width 7, 8mm
P Carbon steel Alloy steel	≤180	160 (120-200)	0.07 (0.03-0.10)	0.12 (0.05-0.20)	0.15 (0.10-0.25)	0.20 (0.10-0.25)
	180-280	120 (100-140)	0.05 (0.03-0.10)	0.10 (0.05-0.20)	0.15 (0.10-0.20)	0.15 (0.10-0.20)
M Stainless steel	≤200	120 (100-140)	0.05 (0.03-0.10)	0.10 (0.05-0.20)	0.15 (0.10-0.20)	0.15 (0.10-0.20)
K Cast iron	—	120 (100-140)	0.05 (0.03-0.10)	0.10 (0.05-0.20)	0.15 (0.10-0.20)	0.15 (0.10-0.20)



When crossfeed cutting with CT type insert, apply the cutting conditions (groove depth and feed) shown in the above chart or lower.

Application examples

Holder	MG type holder	MG type holder	DG type holder
Insert (Grade)	MGTR43250 (VP20MF)	MGTR43200 (VP20MF)	DGJ30CE (VP20MF)
Workpiece	Air bag parts (JIS S18C) 	Machine parts (JIS SUS303) 	Piston parts (JIS S45C)
Cutting conditions	Cutting speed (m/min)	200	110
	Feed (mm/rev)	0.05	0.08
	Groove depth (mm)	2	0.7
Coolant	Wet	Wet	Wet
Results	 Double the tool life. Excellent finished surface.	 1.5time longer tool life. No fracture.	 More than 2 time longer tool life.

For your safety

●Do not touch cutting or chips without wearing gloves. ●Use tools under recommended cutting conditions, and exchange tools before excessive wear occurs. ●Chips become extremely hot, scattered over and may be stretched. Ensure safety guards and goggles are used. ●In case of using non-water soluble oil, make sure to have a fire prevention countermeasure. ●Use the provided wrench spanner, and ensure the inserts and spare parts are damped securely.

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(Tools specifications subject to change without notice.)