

Ideal for high efficiency machining of moulds!

Unique 4 flute ball nose geometry offers precision and high efficiency machining!



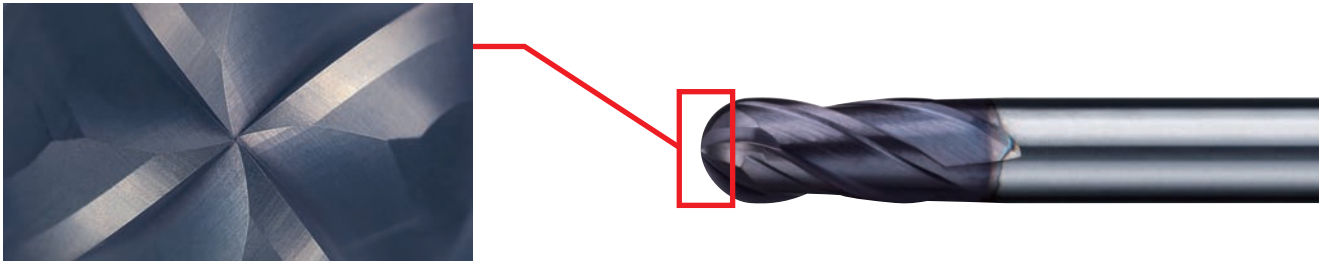
IMPACT MIRACLE end mill series

4 flute Impact Miracle ball nose end mill (M)

VF4MB

Features

- The full 4 flute end mill geometry ensures high feed, high precision profiling.



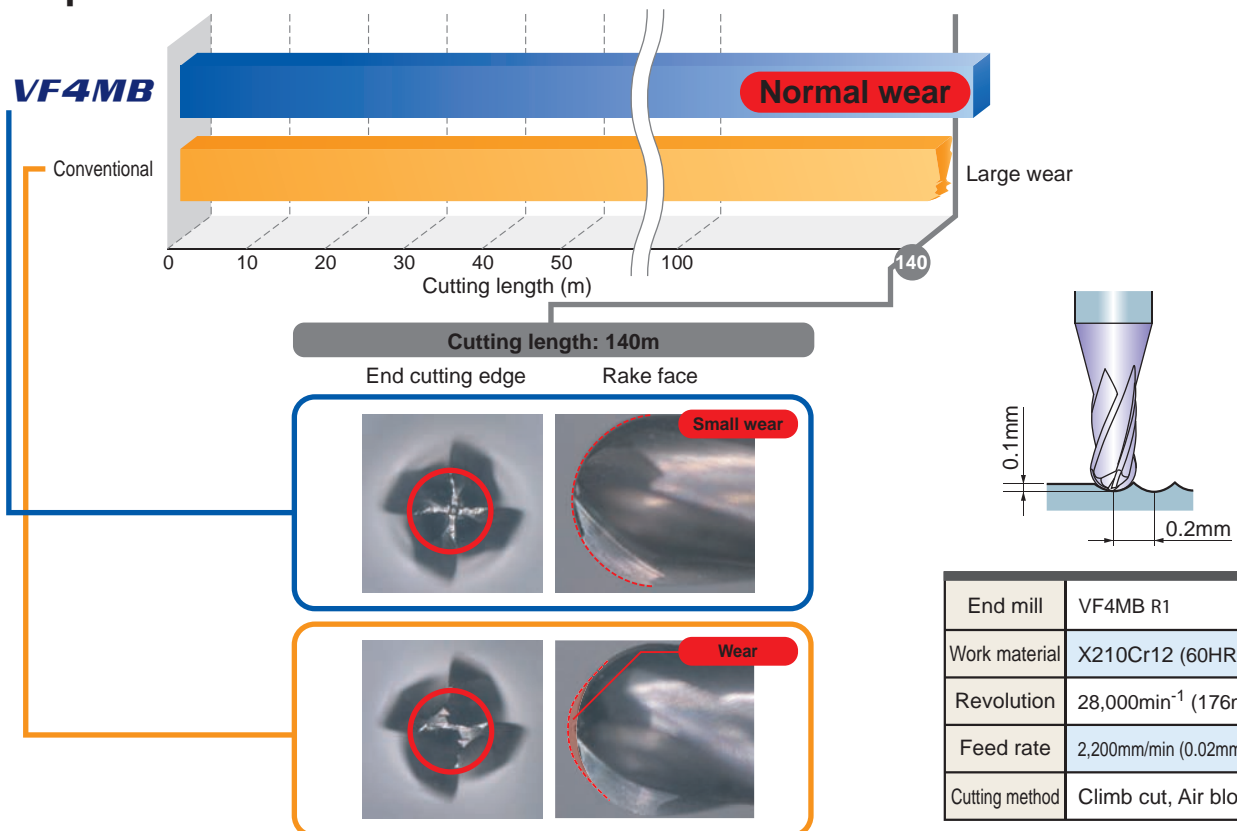
- Impact Miracle coating with superior heat resistance is used, enabling the machining of materials from hardened steels over 60HRC through to pre-hardened and general steels.

	IMPACT MIRACLE	(Al,Ti,Si)N	(Al,Ti)N
Hardness	3700HV	3200HV	2800HV
Adhesion	100N	80N	80N
Oxidation temperature	1300°C	1100°C	840°C
Coefficient of friction	0.48	0.53	0.58

Cutting Performance

Wear resistance comparison

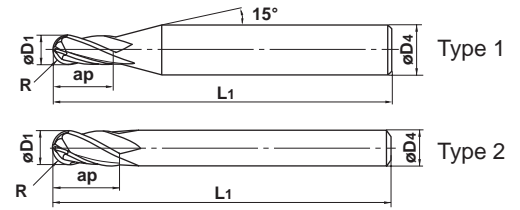
VF4MB delivers higher wear resistance and longer tool life in comparison to conventional end mills.



VF4MB

NEW

Ball nose, Medium cut length, 4 flute



● 4 flute ball nose end mill for high-speed machining of hardened steel.

Unit : mm

Order Number	Radius of ball nose R	Dia. D1	Length of Cut ap	Overall Length L1	Shank Dia. D4	No. of Flutes N	Stock	Type
VF4MBR0050	0.5	1	2.5	50	6	4	★	1
R0100	1	2	6	60	6	4	★	1
R0150	1.5	3	8	70	6	4	★	1
R0200	2	4	8	70	6	4	★	1
R0250	2.5	5	12	80	6	4	★	1
R0300	3	6	12	80	6	4	★	2
R0400	4	8	14	90	8	4	★	2
R0500	5	10	18	100	10	4	★	2
R0600	6	12	22	110	12	4	★	2

★ : Inventory maintained in Japan.

Work material	Hardened steel (55HRC) W.Nr. 1.2344(H13)					Hardened steel (55 62HRC) X210Cr12					Hardened steel (62 70HRC) S6-5-2				
	% < 15°		% > 15°		Depth of cut (mm)	% < 15°		% > 15°		Depth of cut (mm)	% < 15°		% > 15°		Depth of cut (mm)
	Revolution (min ⁻¹)	Feed rate (mm/min)	Revolution (min ⁻¹)	Feed rate (mm/min)		Revolution (min ⁻¹)	Feed rate (mm/min)	Revolution (min ⁻¹)	Feed rate (mm/min)		Revolution (min ⁻¹)	Feed rate (mm/min)	Revolution (min ⁻¹)	Feed rate (mm/min)	
R0.5	40,000	10,400	40,000	4,200	0.050	40,000	7,300	40,000	3,100	0.040	40,000	4,700	32,000	1,700	0.030
R1	40,000	12,500	39,000	6,100	0.090	40,000	10,400	24,000	3,100	0.080	24,000	5,000	16,000	1,200	0.060
R1.5	40,000	15,600	27,000	5,600	0.100	32,000	10,000	16,000	2,900	0.100	16,000	4,200	11,000	1,100	0.070
R2	32,000	14,100	20,000	4,700	0.120	24,000	8,100	12,000	2,500	0.100	12,000	3,100	8,000	1,000	0.080
R2.5	25,000	11,700	16,000	3,700	0.160	19,000	6,900	9,600	2,200	0.120	9,600	2,700	6,000	780	0.080
R3	21,000	10,900	13,000	3,400	0.200	16,000	6,200	8,000	2,100	0.160	8,000	2,300	5,000	780	0.090
R4	16,000	8,300	10,000	2,600	0.240	12,000	4,700	6,000	1,600	0.160	6,000	1,900	4,000	620	0.090
R5	13,000	6,800	8,000	2,300	0.400	10,000	4,200	4,800	1,200	0.160	4,800	1,500	3,000	550	0.100
R6	9,000	4,700	6,000	1,700	0.400	7,000	2,900	3,600	940	0.240	3,600	1,100	2,200	400	0.100

Depth of cut

Please select a pick feed based on the required surface finishes in reference to "Pitch Selection of Pick Feed" in the general catalogue.

<math>< 0.2R</math>

<math>< 0.2R</math>

Please refer to the list above for depth of cut.

R: Radius

- 1) If the rigidity of the machine or the workpiece installation is very low, or chattering and noise are generated, please reduce the revolution and the feed rate proportionately.
- 2) If the depth of cut is shallow, the revolution and feed rate can be increased.
When high machining accuracy is needed, we recommend lowering the feed rate.
- 3) % is the inclination of machining surface.

