

Face milling cutter for high speed finishing of aluminum alloy

V10000

High speed and good accuracy.

**Offering high speed,
high accuracy
machining with
lightweight
alumi-body.**



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Features

Outer diameter of the cutting edge

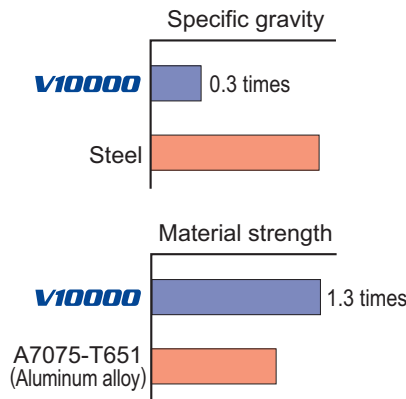
ø63, ø80, ø100, ø125

Application

Face milling for high speed finishing of aluminum alloy

Lightweight, very strong cutter body made of aluminum alloy

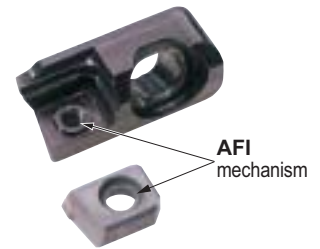
- Lightweight (specific gravity = 1/3 of steel) but very strong special aluminum alloy is employed for the cutter body.
- Due to the special treatment applied to the body surface, is highly corrosion and wear resistant.



Suitable for high revolution milling

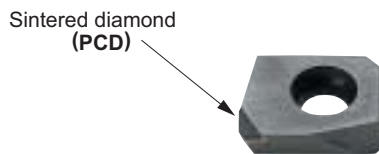
- For secure high speed milling, two different clamp screws are used for each cartridge and Mitsubishi's proprietary Anti-Fly Insert (AFI) mechanism is employed.

Anti-Fly Insert (AFI) mechanism



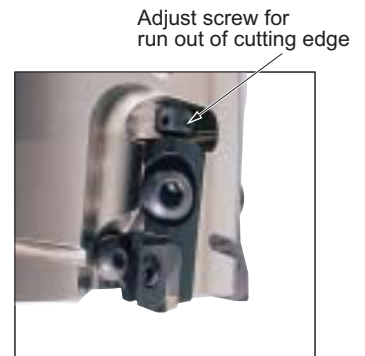
Economical indexable inserts

- The insert grade is highly wear and welding resistant sintered diamond (PCD=Polycrystalline Diamond). As for the insert geometry, New Petit Cut type to emphasize economy is standardized.
- Due to the employment of indexable inserts, tedious rebalancing work is not necessary.

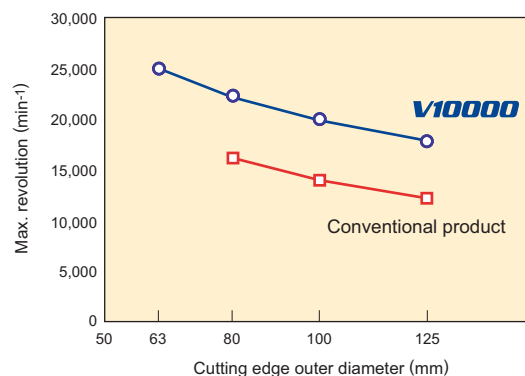


High accuracy

- To achieve secure milling, balance of the cutter body is set at balance quality grade G6.3 based on ISO 1940/1 at the time of shipping.
- The runout-adjust screw for cutting edge allows highly accurate top edge positioning.

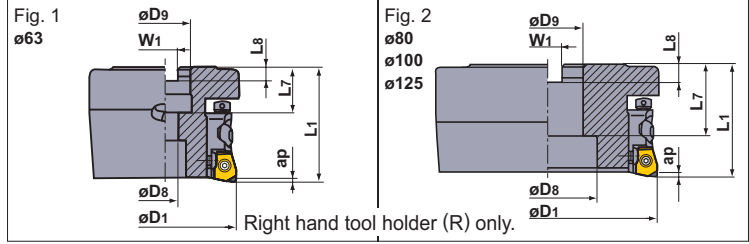


Maximum revolution significantly increased — 40% higher than conventional products!



(Based on ISO/DIS 15641)

V10000



Light alloy	Cast iron	General steel	Stainless steel	Hardened steel

Order number	Stock	Number of teeth	Dimensions (mm)							Weight (kg)	Max. depth of cut ap	Max. revolution (min ⁻¹)	Figure
			D1	L1	D9	L7	D8	W1	L8				
V10000-063A04R	●	4	63	50	22	20	11	10.4	6.3	0.5	1.5	25,000	Fig. 1
R0305C	●	5	80	50	25.4	26	38	9.5	6	0.6	1.5	22,300	Fig. 2
R0406D	●	6	100	50	31.75	32	45	12.7	8	0.9	1.5	20,000	Fig. 2
R0508E	●	8	125	63	38.1	35	60	15.9	10	1.8	1.5	17,800	Fig. 2

Spare parts

Order number								
	Cartridge	Cartridge clamp screw-A	Cartridge clamp screw-B	Insert clamp screw	Runout-adjust screw	Balance-adjust screw	Wrench	Wrench
V10000-063A04R V10000R0508E	VCT13R	HBH06016	HBH04008	CS350790T	KS1	HSS05005	HKY25R HKY40R	TKY10R

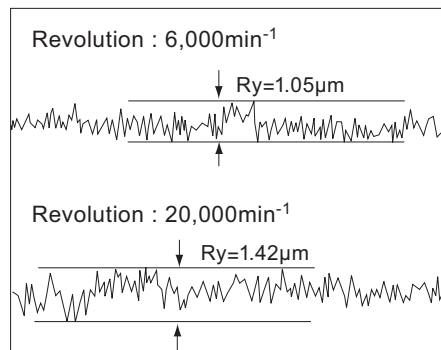
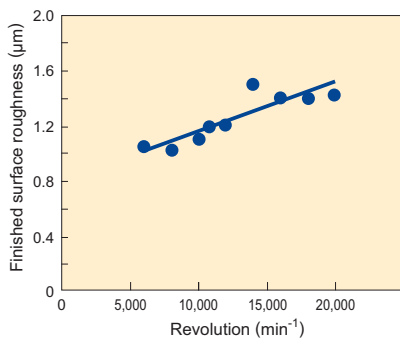
Insert

Geometry	Order number	Class	PCD
			MD220
	NP-GDCW1240PDR2	C	●

Recommended cutting conditions

Workpiece	Silicon (%)	Cutting speed (m/min)	Feed per tooth (mm/tooth)	Depth of cut (mm)
N Aluminum Alloy	≤ 16	- 6,500	- 0.2	- 0.5
	≥ 16	- 1,000		

Finished surface roughness



<Cutting conditions>
 Workpiece : A7075-T6
 Inset : NP-GDCW1240PDR2
 Grade : MD220
 Tool : V10000R0406D
 Feed : 0.2mm/tooth
 Depth of cut : 0.5mm
 Width of cut : 80mm
 Dry cutting

V10000

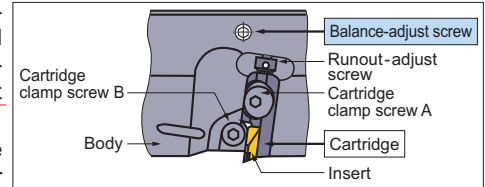
Operational guidance

Notes on using V10000 type

- If the cutter body is exposed to impact, be sure to dispose of it. Continued use may cause it to break into pieces during rotation.
- Ensure that the cutter operates under the maximum revolution.
- Cutting tools have sharp cutting edges and handling them with bare hands may cause injuries. Always wear protectors such as gloves in handling indexable inserts.

Notes on rotation balance

- At the time of shipping, the cutter body is balanced by using a special high accuracy master insert in order that it will conform to balance quality grade G6.3 based on ISO 1940/1 (approximate value at the maximum revolution for each cutter diameter). In order to keep good rotation balance, do not touch the balance-adjust screw (HSS05005) located on the outer surface of the body.
- Rotation balance will change after exchanging cartridges. If you use the cutter with the same revolution as that of the following table or higher, rebalancing is necessary after exchanging cartridges. Please contact Mitsubishi Materials to rebalance the cutter.



Note 1) If the revolution is the same as or lower than the value indicated above, the cutter can be used with a standard arbor on the market. (Do not use long shank type standard arbors or special arbors, as their overhang is large and therefore they are dangerous to use.)

Note 2) If the revolution is higher than the value indicated above, please set the balance as the following : (Arbor + cutter) ≤ G6.3

Cutter diameter (mm)	Revolution requiring rebalancing (min ⁻¹)
63	17,000
80	14,500
100	14,000
125	Rebalancing not necessary up to the max. revolution

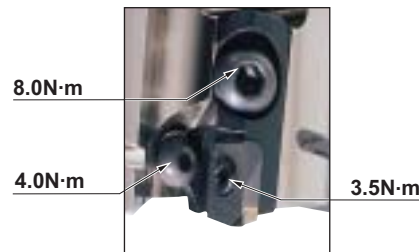
Notes on adjusting runout of cutting edges

- At the time of shipping, the runout of cutting edges is set within 5μm by using a special high accuracy master insert. If you readjust the runout at the installation of inserts to the body, please follow the next directions.

- Use only prescribed inserts and parts.
- Always apply the recommended clamp torque values shown in the following table. Not applying the recommended clamp torque may cause tool breakage at high revolution machining.

Recommended clamp torque

Clamp screw	Clamp torque	
	(N·m)	(Kgf·cm)
HBH06016	8	81.6
HBH04008	4	40.8
CS350790T	3.5	35.7



Recommended clamp torque values are also printed on the cutter body as shown above as a reminder.

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 chips or spare parts, please use the attached wrench or spanner. ● When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

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(Tools specifications subject to change without notice.)