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The Finest Solution
Universal Solution



砂輪頭 (B 軸)

- 萬用砂輪頭可在一次夾持下進行直進式、斜進式外徑研磨、內徑研磨。
- 渦桿渦輪分度盤，使用伺服馬達自動旋轉
 - 自動旋轉角度：逆時針 35°~ 順時針 195°
 - B 軸伺服馬達輸出功率 2.7kw
 - 外研磨主軸輸出功率 5HP (選購：7.5HP)
 - 高頻內藏式內研磨主軸
 - 標準砂輪尺寸 (左) $\text{Ø}455 \times 50 \times \text{Ø}127\text{mm}$
 - 標準砂輪尺寸 (右) $\text{Ø}355 \times 38 \times \text{Ø}127\text{mm}$
 - X 軸 Fanuc 伺服馬達輸出功率 1.6kw (B Type 2.7kw)
 - 液動壓潤滑系統
 - 砂輪安全罩設計
 - 預設程式控制砂輪主軸速度，確保砂輪線速度穩定



POWERMASTER:

主新德 POWERMASTER (PMG) CNC 系列的設計主要是研磨大量或大量生產的圓形 (A TYPE) 和異形 (B TYPE) 且複雜的工件，兩頂心間距離 600mm 和 1000mm，工作台最大旋徑 360mm，砂輪頭配置自動旋轉分度盤 (B 軸)，PMG CNC 系列可執行直進式外徑研磨、端面 / 肩部研磨、錐度研磨，在一次設定下，內徑主軸可進行內徑研磨。除此之外，B TYPE 的 C 軸和 X 軸可根據 CNC 程式同時移動，以研磨異形工件如偏心軸、曲軸或多角形零件。此系列適用於汽機車零件、工具機零件、航空 / 油壓 / 氣壓 / 電子馬達等製造業。強化肋箱形設計本台以米漢納鑄鐵鑄造確保機台高剛性與穩定性。滑道為一 “V” — “平” 軌道結構，液動壓潤滑系統，Turcite-B 可延長使用壽命。

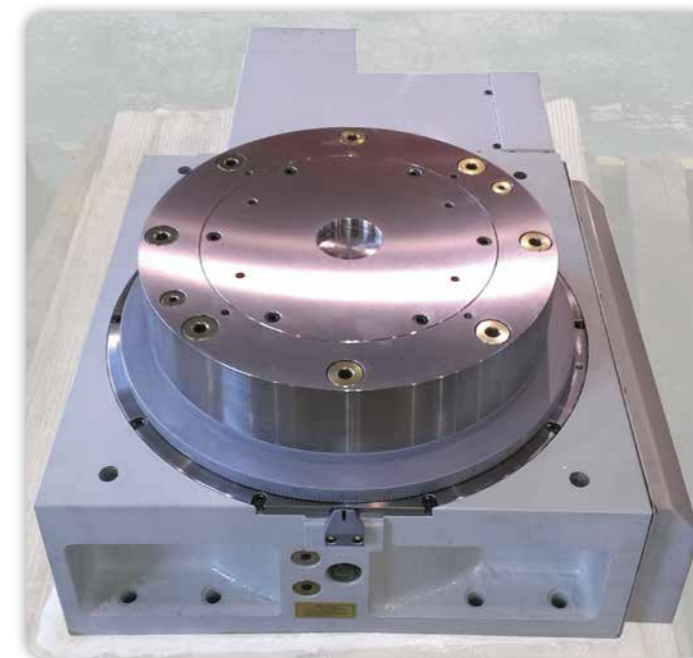
ID spindle allows for accurate ID grinding during the same set-up. The Fanuc CNC control on the B TYPE allows the grinder to move the C-axis and X-axis simultaneously in order to grind non-round workpieces such as eccentric shafts, cams or polygonal parts. These machines are especially suitable for the automotive, machine tool, and aerospace, hydraulic, pneumatic and electric motor industries. The reinforced ribbed box-type base is made of Meehanite cast-iron to ensure high rigidity and stability of the machine. A combination of high precision hand scraped Turcite-B coated V and flat guideways, and a Hydrodynamic lubrication system guarantee a long lifetime of accuracy and dependability.

POWERMASTER:

The Supertec POWERMASTER (PMG) CNC series is designed for grinding round (A TYPE) and non-round (B TYPE) complex parts in a single setup as well as small and large batch production. Distances of 600mm and 1000mm between centers with a swing of 360mm are offered. PMG CNC models come equipped with an automatic swiveling B-axis on the wheelhead and can perform OD, Plunge, OD traverse, shoulder taper, and end-face grinding. A separate



P1



TURRET WHEEL HEAD (B-axis)

- The universal wheel head has been designed for OD plunge, OD angular and ID grinding in a single clamping.
- Roller Worm Gear Index Table, and automatic swiveling by /servo motor
 - Automatic swiveling in any position range from 35°CCW to 195°CW
 - B-axis servo motor output 2.7 kw
 - OD spindle motor output 5HP (opt. 7.5HP)
 - High-Frequency Built-In ID Spindle
 - Grinding wheel (LH) $\text{Ø}455 \times 50 \times \text{Ø}127\text{mm}$
 - Grinding wheel (RH) $\text{Ø}355 \times 38 \times \text{Ø}127\text{mm}$
 - X-axis Fanuc servo motor output 1.6 kw (2.7 kw for B TYPE)
 - Hydrodynamic lubrication system
 - Safety Wheel Guards design
 - Variable wheel spindle speed controlled by default program, ensure constant peripheral speed of grinding wheel

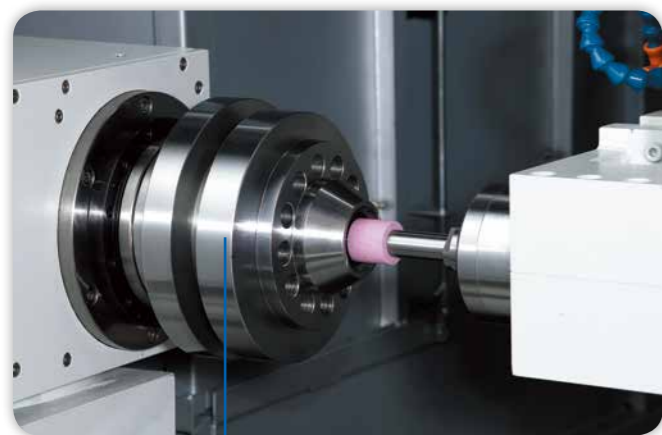
P2

● 高頻內研磨主軸 (選配)

PMG 系列磨床的內研磨主軸採用水冷式高頻內藏式主軸，高扭力、低共振，並可讓砂輪頭設計更為輕巧。

● HIGH-FREQUENCY ID SPINDLE (Optional)

The PMG series incorporates a water-cooled high-frequency spindle with a built-in motor for higher torque and lower resonance performance. This design also allows for a more compact wheelhead design.



● 主輪台

- 主軸速度 (程式控制): 30~350 rpm
- C 軸 (B TYPE)
- 頂針 MT4 (選購 MT5)
- 伺服馬達輸出功率 1.5kw (B TYPE: 3kw)

● WORK HEAD

- Variable Spindle speed (controlled by program) range from 30 to 350 rpm
- Center taper MT4 (opt. MT5)
- C-axis Interpolation (B TYPE)
- Servo motor output 1.5 kw (3 kw for B TYPE)

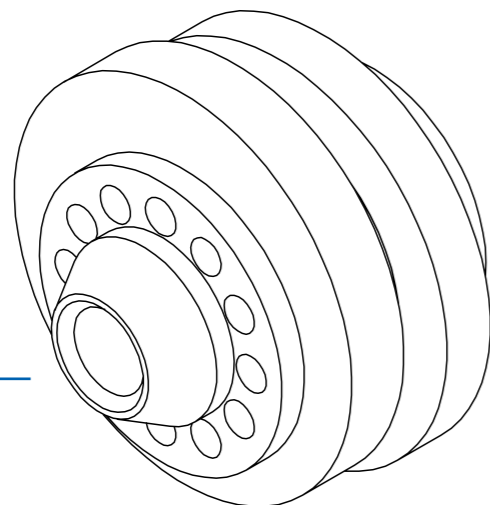


● C 軸 (B TYPE)

B 系列主輪台配置 C 軸 A2-5 主軸，具備異形工件 (如曲軸、凸輪等) 研磨功能。

● C-AXIS (B TYPE)

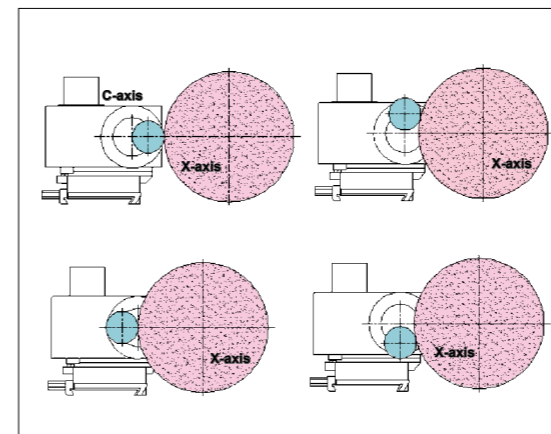
The B TYPE workhead is equipped with a "C" axis spindle (A2-5) which allows the operator to program and grind non-round workpieces such as CAM shafts or crank shafts.



異形工件
NON-ROUND WORKPIECE

● X 軸由高精度滾珠螺桿和伺服馬達驅動 (光學尺解析度 0.05μ) 可與轉動中的 C 軸同時移動，以研磨異形或偏心的部分，如下圖所示。

● X-axis is driven by high precision ballscrew and servo motor with close-loop system (Linear Scale with 0.05μ resolution), and it can be moved simultaneously with the rotation of the C-axis for grinding non-round or eccentric parts, shown in following illustrations.



● Fanuc 控制器可操控 3 軸 (A Type: X/Z/B) 或 4 軸 (B Type: X/Z/B/C)。
The Fanuc control operates 3 or 4 axes. A TYPE: X, Z, and B axes. B TYPE: X, Z, B, and C axes.

● 工件主軸中心距地面高僅有 1050mm，符合人體工學，讓作業人員進行工件更換或砂輪更換作業更加容易。
The distance from the floor to the workhead spindle centerline is 1050mm allowing the operator to easily load and unload the workpieces as well as change the grinding wheel.

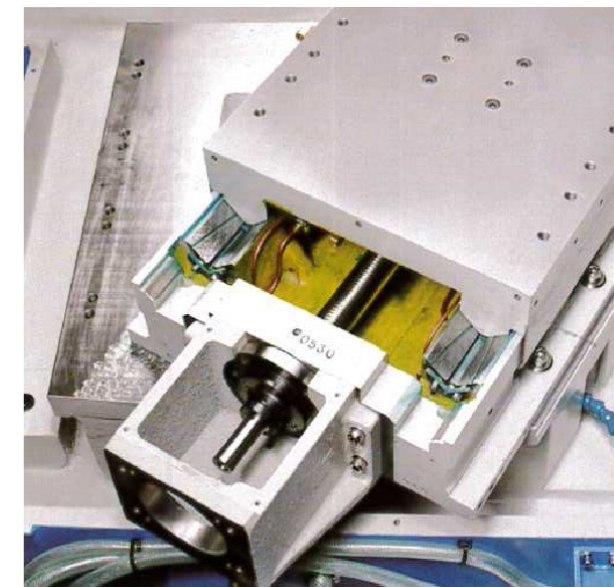


內孔磨擺臂式修砂座
(Swing Arm Dresser for ID)

● 光學尺與硬軌

砂輪頭進給之軌道為雙V形軌道，表面貼附 Turcite-B 耐磨片，再精密鏜花，並使用光學尺光學尺進行定位回饋，移動順暢、定位精準

● Linear scales are used on double V guide way (X-axis) for smoother movement and more accurate positioning.



● 油壓尾座含腳踏控制器

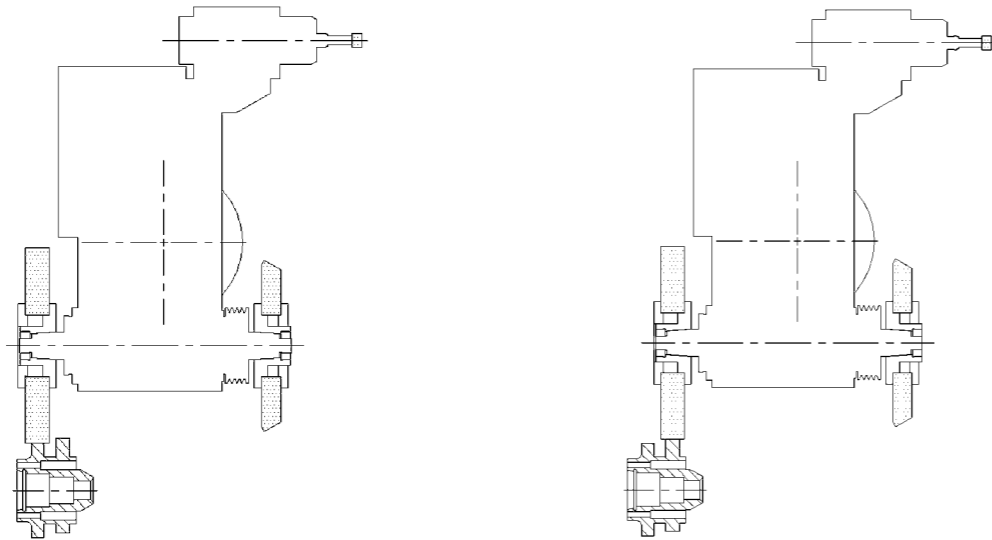
尾座採油壓控制加上腳踏控制器輔助上下料，操作者可用雙手安裝工件。

● HYDRAULIC TAILSTOCK WITH FOOT PEDAL

The hydraulic tailstock is operated by a foot pedal which allows the operator to use both hands when loading and unloading the workpiece.

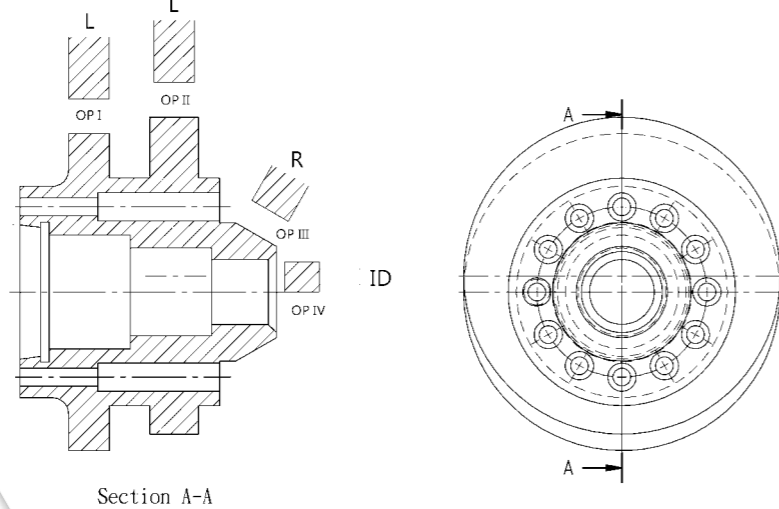
●作業 I - 外徑研磨 / OPI-OD GRINDING

●作業 II - 偏心圓研磨 / OPII-CAM GRINDING



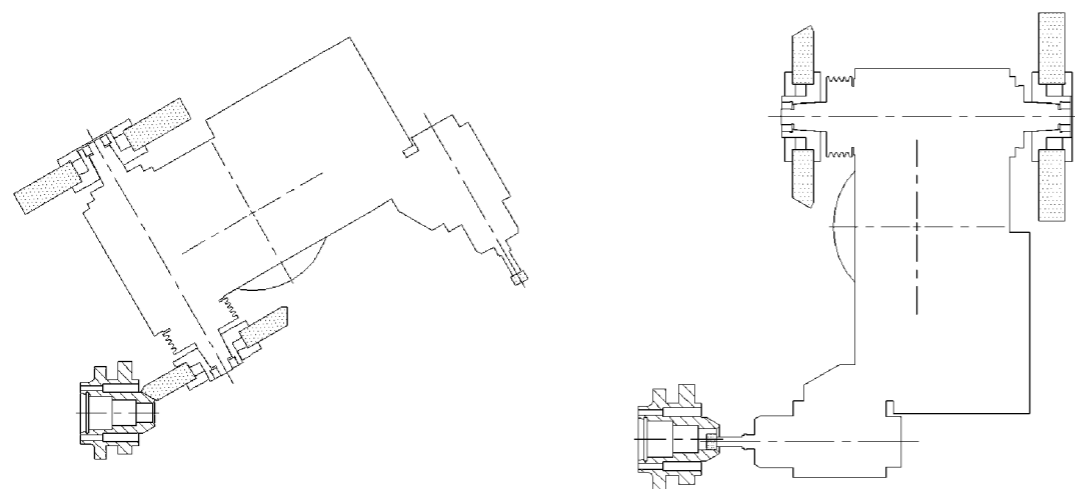
●異形工件研磨範例

NON-ROUND WORKPIECE GRINDING OPERATIONS



●作業 III - 錐度研磨 / OPIII-TAPER GRINDING

●作業 IV - 內孔研磨 / OPIV-ID GRINDING



ITEM 項目		MODEL 機型		PMG-60/100CNC(A)		PMG-60/100CNC(B)	
CAPACITY 加工能力	Swing Over Table 工作台最大旋徑	Ø360mm					
	Distance between Centers 兩頂心間距	600mm	1000mm	600mm	1000mm		
	Max. Grinding Length 最大研磨長度	500mm	800mm	500mm	800mm		
	Max. Grinding Diameter 最大研磨直徑	Ø300mm					
	Max. Weight between Centers 工件最大重量	150 kg					
WHEEL HEAD 砂輪頭	Wheel Size-LH 砂輪尺寸 - 左 (D x W x B)	Ø455 x 50 x 127mm					
	Wheel Size-RH 砂輪尺寸 - 右 (D x W x B)	Ø355 x 38 x 127mm					
	OD Spindle Speed 外圓主軸轉速 (50/60Hz)	1575/1795 rpm					
	Wheel Peripheral Speed 外圓砂輪最大線速度	33M/sec					
	ID Spindle Speed 內圓主軸轉數	20000rpm (Belt type) 皮帶式 ID主軸 Opt. 24000 rpm (High-Frequency Built-in 高頻內藏式)					
	Feed Angel 鞍座進給角度	90°					
	Max. Traverse Speed 最大進給速度	6m/min (236in/min)					
	Min. Programmable Increment 進給最小設定單位	Ø0.001mm					
	Total Stroke 進給總行程	250mm					
	WORKHEAD 主輪台	Spindle Speed (Variable) 主輪台主軸轉速 (可變)	30~350rpm				
Center Taper 頂心		MT4 (opt. MT5)					
TAILSTOCK 尾座	Quill Stroke 滑筒行程	50mm					
	Center Taper 頂心	MT4 (opt. MT5)					
TABLE 工作台	Swiveling Angle (CCW) 旋轉角度 (逆時針)	5°	3°	5°	3°		
	Max. Traverse Speed 快速移動速度	10m/min (393in/min)					
	Min. Feed Unit Set 進給最小單位	0.001mm					
MOTORS 馬達	Controller 控制器	Oi-TF (Opt 選配 :31i)					
	OD Spindle Motor 砂輪主軸馬達	5HP (Opt 選配 : 7.5HP)					
	B-axis Servo Motor 砂輪頭旋轉伺服馬達	1.6 kw					
	Workhead Spindle Motor 主輪台主軸伺服馬達	1.5 kw		3 kw			
	ID belt type Spindle Motor 直徑主軸馬達	3 HP					
	Hydraulic Motor 油壓馬達	1HP(4P)					
	Coolant Pump 冷卻液馬達	1/2HP(4P)					
	X-axis Feed Servo Motor X 軸進給伺服馬達	1.6 kw		2.7 kw			
Z-axis Feed Servo Motor Z 軸進給伺服馬達	1.6 kw						
MACHINE 機台	Packing Dimensions 包裝尺寸 (LxWxH)	4663 (100CNC: 5273) x 2225 x 2134mm					
	Machine Net Weight 機台淨重	5600kgs	6200kgs	5700kgs	6300kgs		

Note: Factory reserves the rights to change design/specifications/mechanisms to improve machine performance without prior notice.