

外圓磨床 / 中心孔磨床
CNC Cylindrical Grinder / Center Hole Grinder



PRU 直進式 CNC 外圓磨床

PLUNGE CNC CYLINDRICAL GRINDER

420

620

兩頂心間最大距離
Max. Distance Between Centers

Ø200

工作台最大旋徑
Max. Swing Over Table

Ø190

研磨最大外徑
Max. Grinding Diameter



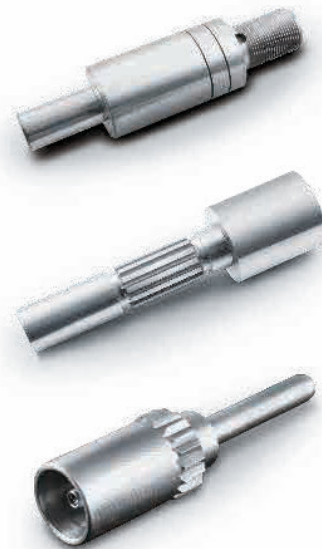
真圓度
Roundness

0.8 μm

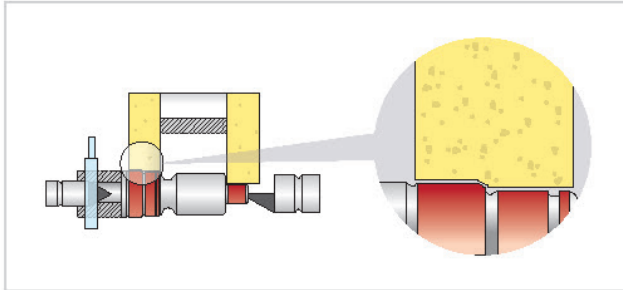
定位精度
Positioning Accuracy

1 μm

- 砂輪主軸採用高剛性、低溫昇的非接觸式靜壓軸承設計，主軸迴轉精度高達 0.001 mm
- 工件主軸：
 - ▶ 工件主軸採用伺服馬達驅動，可提供更精準的轉速設定
 - ▶ 主軸可帶心轉或不帶心轉，滿足多樣化的加工需求
 - ▶ 選配內徑研磨砂輪，提供本系列更高的使用彈性
- The grinding wheel spindle designs by high rigidity, low temperature raise and non-contact hydro-static bearing which makes accuracy less than 0.001 mm.
- Spindle Head:
 - ▶ Spindle head is driven by servo motor which provides variable speed change.
 - ▶ Both fixed type and non fixed type spindles are available to meet various applications.
 - ▶ Optional I.D. grinding wheel provides more flexible applications.



■ 直進式研磨示意圖 Plunge Grinding Examples



■ 機械規格 Machine Specifications

重要諸元 Capacity	PRU-2040	PRU-2060
兩頂心間最大距離 Distance between centers	420 mm	620 mm
工作台最大旋徑 Max. swing over table	Ø200 mm	
兩頂心間最大承受重量 Max. load between centers	80 kg	
研磨最大外徑 Max. external grinding diameter	Ø190 mm	
真圓度 Roundness	0.8 μm	
機械定位精度 Machine positioning accuracy	1 μm	
砂輪主軸 Wheel spindle		
旋轉角度 Swivel angle	±30°	
砂輪尺寸外徑 x 寬 x 內徑 Wheel O.D. x width x I.D.	Ø405 x Max. 80 x Ø127 mm	
砂輪主軸行程 Wheel spindle travel	180 mm	
最大行程 Max. travel	180 mm	
最小設定單位 Min. setting unit	0.001 mm	
快速進給速率 Max. rapid traverse speed	8 m/min.	
研磨進給速率 Grinding feed rate	0.0001 - 6,000 mm/min.	
工作台 Work table		
旋轉角度 Swivel angle	-3° ~ +12°	
最大行程 Max. travel	420 mm	620 mm
快速進給速率 Max. rapid traverse speed	10 m/min.	
最小設定單位 Min. setting unit	0.001 mm	
研磨進給速率 Grinding feed rate	0.0001 - 8,000 mm/min.	

工件主軸 Work-piece spindle		PRU-2040	PRU-2060
主軸驅動 Spindle motor		伺服馬達 SERVO MOTOR	
旋轉角度 Swivel angle		+90° ~ -30°	
頂針 Center taper		MT#3	
尾座 Tailstock			
行程 Travel		20 mm	
頂針 Center taper		MT#3	
馬達 Motor			
軸向驅動馬達 Axes drive motor		X-axis 1 kW	
		Z-axis 1.5 kW	
砂輪主軸馬達 Wheel spindle		5 HP	
工件主軸伺服馬達 Work-piece spindle		0.75 kW	
油壓泵浦 Hydraulic pump		2 HP	
冷卻液泵浦 Coolant pump		1/4 HP	
其它 General			
機械尺寸 (mm) Dimensions		2,500 x 1,900 x 1,800	2,500 x 1,900 x 1,800
淨重 Net weight		3,150 kg	3,500 kg

本型錄之規格如有變更，恕不另行通知
Specifications are subject to change without notice.

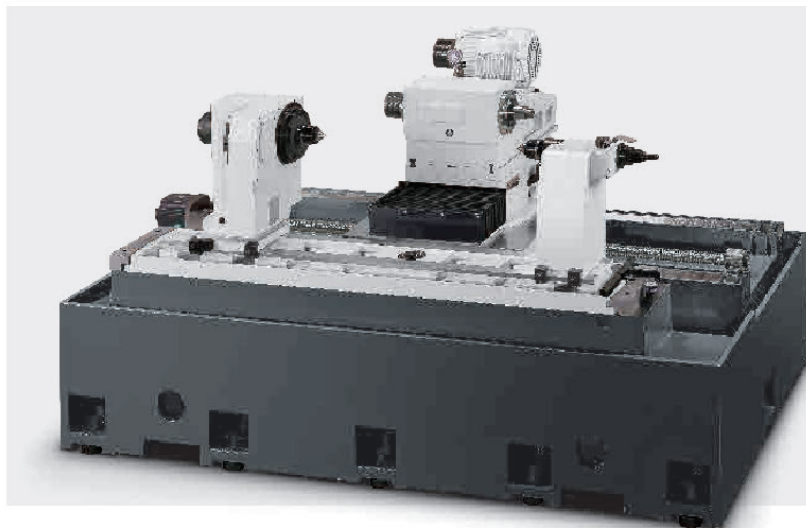
先進的結構設計 ADVANCED CONSTRUCTION DESIGN

- X 軸採用大跨距「V」型軌道設計，並經精密手工鏟花程序，可確保進給系統最佳的動態精度與均衡負載。^{*1}
- 經熱處理及精密研磨之 C1 等級（X 軸）/ C3 等級（Z 軸）滾珠導螺桿確保最高的精度與耐用度。除此之外，各軸均有預拉設計，能使變位量降至最少，大幅提高加工精度。
- X-axis with hand scraping extra large V type guide way to ensure the best dynamic accuracy and balance loading.
- C1 class (X-axis) / C3 class (Z-axis) hardened precision ground ball screws ensure the highest accuracy and durability possible. Plus, pretension on all axes minimizes thermal distortion.



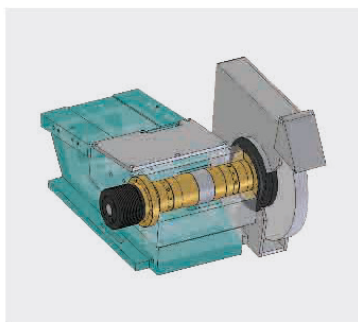
(PRW 系列高剛性結構 PRW series super rigidity construction)

^{*1} PRW 系列 X 軸及 Z 軸均為「V」型軌道設計
X & Z axes are all V type guide way design on PRW series.



具高效能加強肋之箱型結構床台不僅是一體鑄造成型，而且採用高張力米漢納鑄鐵，並加上熱流平衡設計，能滿足長年加工使用之需求。

Built to endure years and years of rigorous high production grinding, the heavily ribbed, one-piece thermally balanced bed and casting components are of MEEHANIT casting.

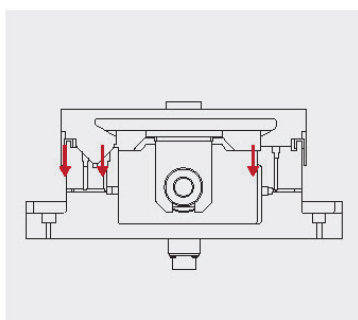


砂輪主軸之靜壓軸承

砂輪主軸採用鎳鉬鉻合金鋼（SNCM-220）精密加工而成。結合高剛性、低溫昇之靜壓軸承，滿足各種長時間的精密研磨需求。

Grinding Wheel Spindle Supported by Hydro-static Bearing

The grinding wheel spindle is precision machined from Nickel Chromolybedenum alloy steel (SNCM-220). It is supported by hydro-static bearing, which greatly upgrades the spindle running stability while reducing temperature growth to a minimum.



X、Z 軸軌道之靜壓自動潤滑

砂輪主軸之 X 軸及 Z 軸軌道，採用靜壓油膜自動潤滑設計。可確保砂輪主軸進給平順無遲滯現象，提供極致的研磨精度。

Hydro-static Lubrication on X、Z axes Slideways

The cross and longitudinal slideways for the grinding wheel head are lubricated by a hydro-static automatic lubrication system. This outstanding lubrication system allows for extremely smooth movement of the grinding wheel head, accurate feed and ensures high grinding accuracy.

高性能 CNC 控制器

ADVANCED CNC CONTROLLER

- 可搭配 FANUC / MITSUBISHI / SIEMENS 等各式先進的 CNC 控制器
- MITSUBISHI 控制器配備教導式畫面，易學且操作方便
- 圖形化對話式編輯功能，可自動產生加工程式。大幅縮短前置作業時間，提升加工效率
- Available with FANUC / MITSUBISHI / SIEMENS controller.
- Conversational programming to allow operator can easy to learn and operate when equipped MITSUBISHI controller.
- Machining programs are automatically generated through graphic dialog. This greatly saves on preparation time while increasing efficiency.



排程研磨模式
Sequential grinding mode



單工程直進研磨模式
Single cycle plunge feed grinding mode



單工程直進橫移研磨模式
Single cycle plunge feed cross traverse grinding mode



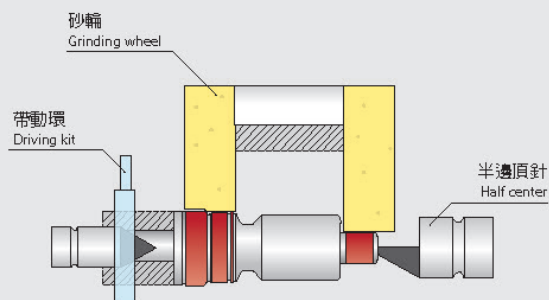
單工程斜進研磨模式 (PRA 系列)
Single cycle angular feed grinding mode



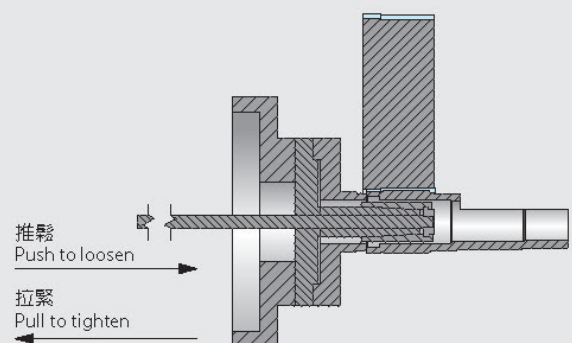
單工程斜進橫移研磨模式
Single cycle angular feed cross traverse grinding mode



單工程橫移研磨模式
Single cycle cross traverse grinding mode



多段差同時研磨
Multi-step simultaneous grinding



內脹式夾持研磨
Internal expansion clamping grinding

標準及選用配備

STANDARD & OPTIONAL ACCESSORIES



符合 CE 安全規範的電控系統 (標準)

- 採用高品級電氣元件。
- 具自我偵測功能，並附警示燈指示。
- 電控箱內部具防塵，防水特性。

Control System Meets European Standards

- The control system consists of top quality electronic components which comply with European safety requirements.
- The control system has a self-diagnostic function and warning light for clear identification.
- The interior of the control cabinet is dust-proof and fluid-proof.



外徑量測裝置 (選配)
Outside Diameter Measuring Device



端面量測裝置 (選配)
End Face Touch Probe

標準配備	Standard Accessories
砂輪及法蘭 x 1 組	Grinding wheel and flange x 1 set
砂輪修整座 x 1 組	Diamond tool holder x 1 set
頂針 x 2 支	Carbide center taper x 2 pcs
冷卻附件 x 1 組	Coolant equipment x 1 set
油壓幫浦及油箱 x 1 組	Hydraulic pump and oil tank x 1 set
工具箱 x 1 組	Tool box x 1set
工作燈 x 1 組	Work light x 1set
選購配備	Optional Accessories
內徑研磨裝置 (含三爪夾頭及一支選定 rpm 之主軸)	Internal grinding attachment (including 3-jaw chuck anode spindle)
內外徑通用修整座 (上掀式)	Diamond tool holder for internal and external grinding wheel dressing (upward open type)
內外徑通用修整座 (側掀式)	Diamond tool holder for internal and external grinding wheel dressing (sideward open type)
尾座修整座 (固定式)	Diamond tool holder (tailstock mounted type)
角度修整座	Angle trimming device
半徑修整座	Radius trimming device
凸輪式帶動環	Cam locked driving dogs
二端支持座	Work steady rest
二點式支持座	2-point steady rest
三點式中心架	3-point steady rest
三爪夾頭 (含法蘭板)	Adjustable 3-jaw scroll chuck
四爪夾頭 (含法蘭板)	Adjustable 4-lock chuck
電磁除屑機	Magnetic coolant separator
磁鐵 + 紙帶過濾機	Magnetic filter with paper
平衡台及心軸	Wheel balancing stand and arbor
端面量測裝置 (RENISHAW / MARPOSS)	End face touch probe (RENISHAW / MARPOSS)
外徑量測裝置 (MARPOSS / TOKYO SEIMITSU)	O.D. measuring device (MARPOSS / TOKYO SEIMITSU)



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