



Founded in Taiwan in 1988, Fortworth, also known as Chung Sing Machinery Co., Ltd., is a leading manufacturer of high-precision boring and milling machines, and CNC horizontal boring machines.

Fortworth focuses on developing state-of-the-art mechanical engineering by continuously innovating our own unique products to fulfill the ever-changing needs of our customers.

## 臥式搪銑床

### Horizontal Boring & Milling Machine

#### HBM-110 / HBM-110L



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臥式搪銑床

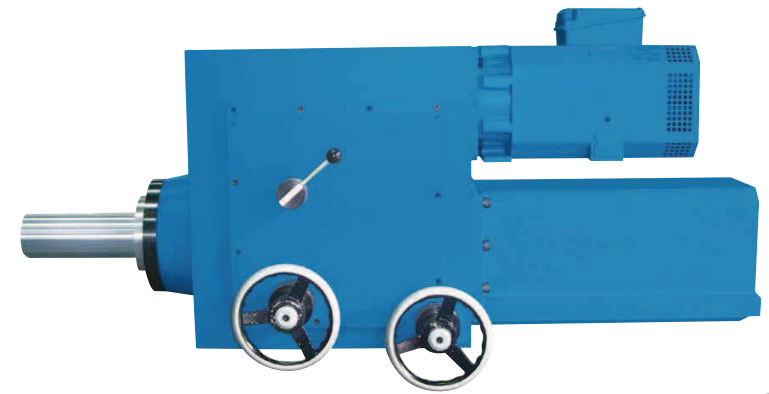
# HBM-110

Horizontal Boring & Milling Machine



## 主軸 MAIN SPINDLE (ISO50)

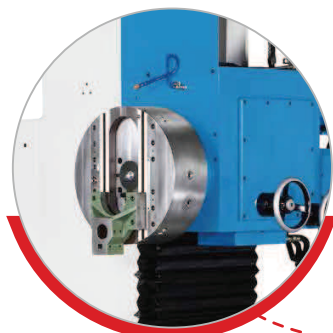
- 主軸配用斜角滾柱高精密軸承，剛性佳適合重切削。
  - 主軸外徑110mm，行程(W軸)400mm，全齒式強力型齒輪二段變速傳動，配有循環油潤滑噪音低壽命長。
  - 強力型主軸馬達15kW，二段變速傳動最高轉速1000rpm，扭力輸出大，加工適用範圍廣。
  - 附氣壓動力刀具鎖緊及鬆脫裝置，上下刀具快速簡便。
- 
- Working spindle quill is mounted on high precision tapered roller bearing, available for heavy duty machining.
  - Working spindle diameter is 110mm, with 2-steps geared box for the speed ranges variable.
  - Working spindle stroke (W-axis travel) is 400mm.
  - With powerful spindle motor 20HP.
  - With air power draw bar for tool clamping / unclamping.



臥式搪銑床

# HBM-110L

Horizontal Boring &amp; Milling Machine

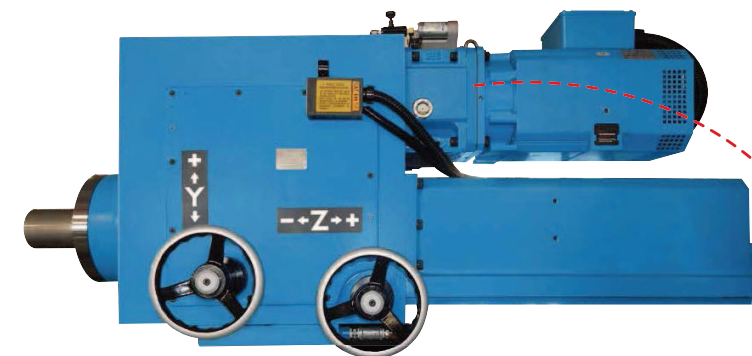


展刀頭 (選配)  
Facing Head (Option)



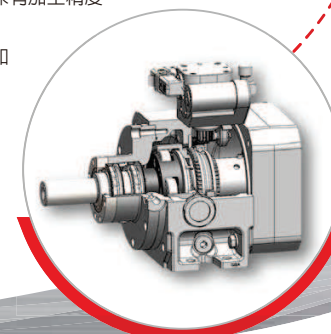
## 主軸 MAIN SPINDLE (ISO50)

- 主軸配用斜角滾珠高精密軸承。
- 主軸外徑110mm，行程(W軸)550mm，配有循環油潤滑噪音低壽命長，搭配二段式減速機，加大扭力，適合重切削。
- 強力型主軸馬達15kW，二段變速傳動最高轉速1500rpm，扭力輸出大，加工適用範圍廣。
- 附氣壓動力刀具鎖緊及鬆脫裝置，上下刀具快速簡便。
- Working spindle quill is mounted on high precision angular contact ball bearing, available for heavy duty machining.
- Working spindle diameter is 110mm, with 2-steps geared box for the speed ranges variable.
- Working spindle stroke (W-axis travel) is 550mm.
- With powerful spindle motor 20HP.
- With air power draw bar for tool clamping / unclamping.



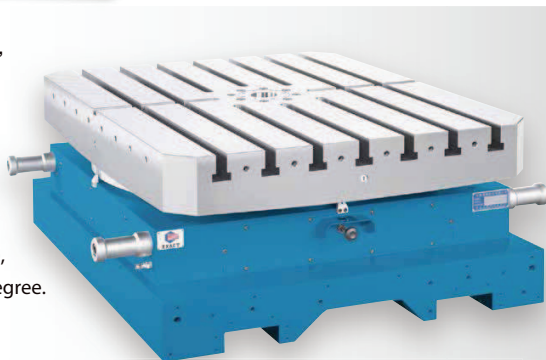
## 主軸高-低檔變速齒輪箱 GEARBOX FOR SPINDLE HIGH-LOW SPEED CHANGE

- 廣泛加工範圍：寬廣的速度範圍增加加工靈活性，且可保有加工精度。
- 增加加工扭矩：低速檔增加扭矩適合重切削加工。
- 加工材料範圍：可加工材料適範圍大，硬質材料用低速和高扭矩，軟材料用高速檔。
- Wide machining range: wide speed increases flexibility but has no influence on precision.
- Increased machining torque: increased torque via reduction ratio.
- Wide material range: low speed and high torque for hard material, and high speed for soft material.

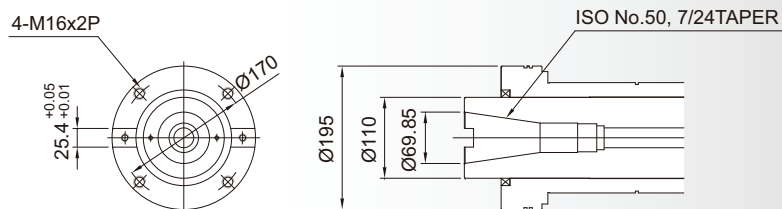


## 工作台 WORKING TABLE

- 空氣浮動高精度分度工作台可360度旋轉，最小分割角度1度。
- 工作台最大荷重達2500kg(HBM-110)/5000kg(HBM-110L)。
- 工作台有氣壓鎖緊裝置。
- Build-in index table 1000x800mm (HBM-110) / 1200x1400mm (HBM-110L), minimum indexing 1 degree, full 360 degree.
- Table load capacity maximum 2500kg (HBM-110) / 5000kg (HBM-110L).
- Table with pneumatic clamping system.



## 主軸端 SPINDLE NOSE (BT50, NT50, CAT50 are available)



## 機械結構 MACHINE STRUCTURE

- 機身及底座採用箱型結構及加強肋設計，整體構造堅強、穩重，適合重切削。
- 機體主要結構均採用高級強韌鑄鐵鑄造，經退火處理，確保材質穩定。
- 三軸滑軌皆經硬化處理，精密研磨，機械精度壽命長。
- X及Z軸滑軌面裝設有防屑伸縮鈹金，確保精密滑道壽命。
- 三軸採用油壓鎖緊裝置。
- XZ及W軸配用鋼珠螺桿，進給平穩快速。
- 主軸頭附平衡配重，使頭部移動平順確保精度穩定。
- Rigid box-type column and base features outstanding stability in heavy duty machining.
- All casting are made of high quality cast iron and are stress relieved.
- Hardened and precision grounded box way construction for X,Y and Z-axis.
- Telescopic covers for the cross and longitudinal traverses.
- X,Z and W-axis with ballscrew.
- Spindle headstock balance is accurately taken and a counter weight permits the head to travel smoothly and to retain its accuracy stability.



**選配 OPTIONS**



**主軸延伸襯套**  
Spindle extension sleeve



**90度銑頭**  
Right angle milling head



**萬向銑頭**  
Universal milling head



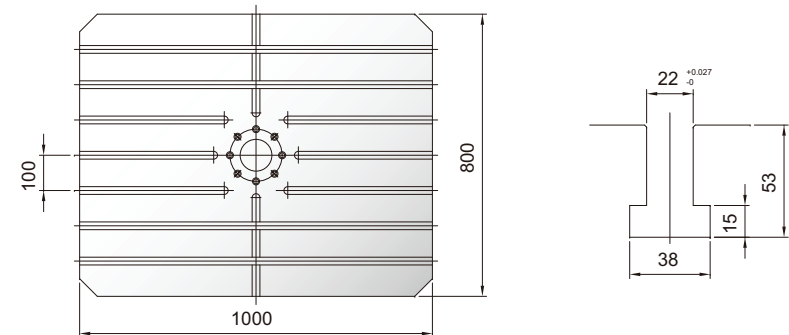
**展刀頭**  
Facing head  
O.D. 560mm



**主軸油冷卻裝置**  
Spindle Oil Cooler  
(For HBM-110)

**工作台規格 TABLE AND T-SLOT SIZE**

**HBM-110**



**操控面板 OPERATOR'S CONTROL PANEL**

整合式操控面板將各種操控功能集中，提供使用者更便利、更有效率的操控介面。  
All functions are integrated operator's control panel enhance operation efficiency.

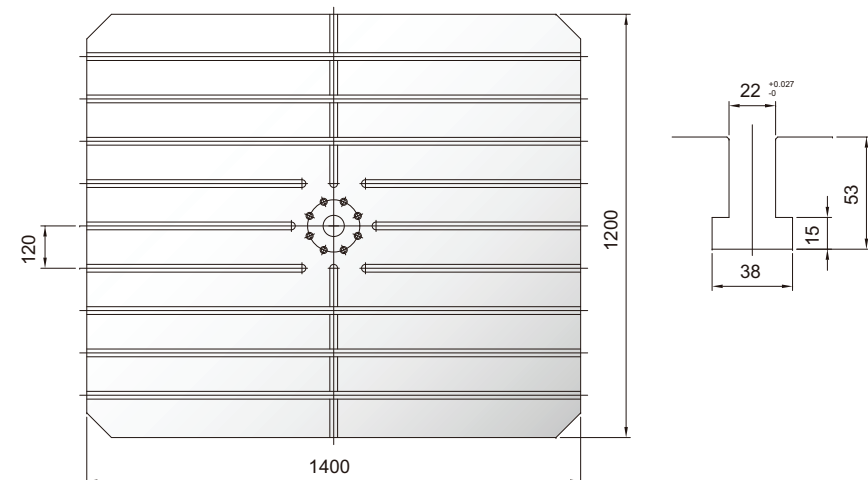


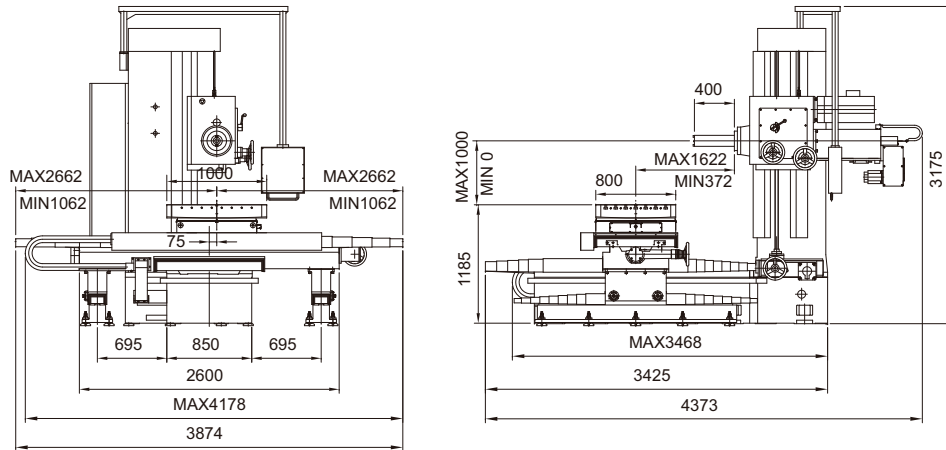
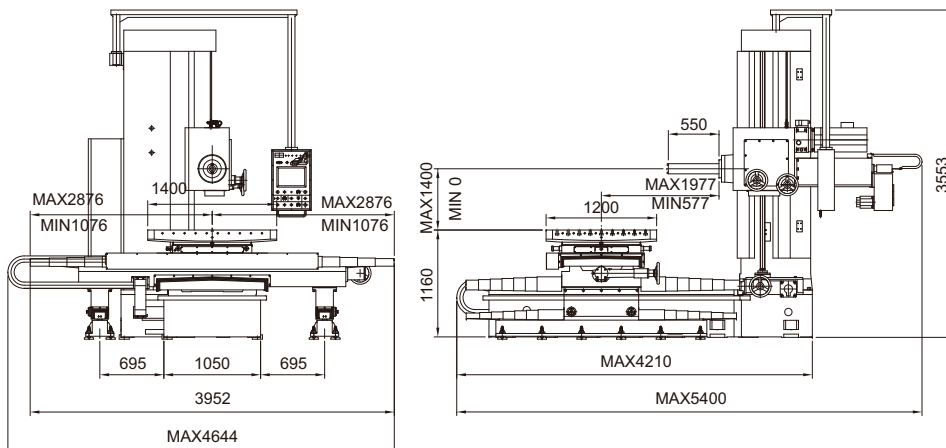
**A version**  
(For other brands of DRO)



**B version**  
(For DRO brand: NEWALL & FAGOR)

**HBM-110L**



**外觀尺寸 EXTERNAL DIMENSIONS**
**HBM-110**

**HBM-110L**

**規格表 SPECIFICATIONS**

型號 MODEL		HBM-110		HBM-110L	
<b>工作台 Working Table</b>		unit			
工作台尺寸	Working table size	mm	1000x800	1400x1200	
分割角度	Table indexing (360 degree)	deg	1 degree/division	1 degree/division	
T型槽	T-Slot (width x no. x pitch)	mm	22H8x7x100	22H8x9x120	
最大負載	Max. load capacity	kg	2500	5000	
<b>容量 Capacity</b>					
X軸行程	X axis (Table longitudinal)	mm	1600	1800	
Y軸行程	Y axis (Spindle vertical)	mm	1000	1400	
Z軸行程	Z axis (Table cross)	mm	1250	1400	
W軸行程	W axis (Spindle axial)	mm	400	550	
主軸中心至工作台面距離	Spindle center to table top	mm	0~1000	0~1400	
主軸鼻端至工作台面中心距離	Spindle end to table center	mm	372~1622	577~1977	
<b>主軸 Main Spindle</b>					
主軸鼻端	Spindle nose	mm	ISO R297 No.50	ISO R297 No.50	
主軸外徑	Spindle diameter	mm	110	110	
轉速/齒輪二段轉換	Spindle speed (2 ranges, variable)	rpm	20~1000	20~1500	
<b>進給速率 Feed / Rapid</b>					
X,Y,Z軸快速移動速率	X,Y,Z, rapid	mm/min	2800	2800	
W軸快速移動速率	W rapid	mm/min	1200	1200	
X,Y,Z軸進給速率	X,Y,Z feed	mm/min	3~950	3~950	
W軸進給速率	W feed	mm/min	3~400	3~400	
進給段數	Change of feeds	-	無段/Ininitely variable	無段/Ininitely variable	
<b>馬達 Motors</b>					
主軸馬達	Spindle motor	kW	AC15	AC15	
X/Y/Z軸伺服馬達	Feed motor for X,Y,Z axis (Servo)	kW	2.9	2.9	
W軸伺服馬達	Feed motor for W axis (Servo)	kW	1.3	1.3	
主軸頭循環潤滑馬達	Lube pump for headstock	kW	AC0.2-4P	-	
油冷機	Oil cooler	W	-	678	
軌道自動潤滑馬達	Lube pump for slideway	W	AC3.5-2P	AC3.5-2P	
切削冷卻液裝置	Coolant pump	-	AC1/6HP (0.12kW-2P)	AC1/6HP (0.12kW-2P)	
油壓馬達	Hydraulic pump for axis clamp	-	AC2HP (1.5kW-4P)	AC2HP (1.5kW-4P)	
<b>機械一般規格 Machine Size</b>					
佔地面積	Floor area	mm	3874 x 4373	4644 x 5400	
機械重量(約)	Machine weight (Approx.)	kg	12500	16000	
機械標準色	Standard color	-	Blue & White (藍&白)	Blue & White (藍&白)	

■ 本公司保留產品規格、外觀及配備等變更之權利。 Designs and specifications are subject to change without prior notice.

**標準附件 STANDARD ACCESSORIES**

- 自動潤滑裝置 Automatic lubrication system
- 切削冷卻液裝置 Coolant system
- 氣動鑽刀裝置 Air power draw-bar
- X, Z及W軸配以滾珠螺桿 X, Z & W-axis with ballscrew
- 主軸正反轉攻牙功能 Tapping function
- X, Y及Z軸油壓鎖緊裝置 X, Y & Z-axis with hydraulic clamp
- 工具箱及調整工具 Tool box with adjustment tools
- 水平調整螺絲及墊塊 Leveling blocks and bolts

**選配附件 OPTIONS ACCESSORIES**

- 90度銑頭 Right angle milling head
- 萬向銑頭 Universal milling head
- 主軸延伸襯套 Spindle extension sleeve
- 光學尺數顯 Digital read out
- 變壓器 Transformer for other than 220/3/60
- 展刀頭 Facing head
- 主軸油冷卻裝置 Spindle Oil Cooler (For HBM-110)