



since1986

美立固精機廠股份有限公司

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RIGID
ACCURATE
EFFICIENT

高剛性 高精度 高效率



美立固[®]
PARA MILL
Since 1986



NC

DOUBLE SIDED
MILLING MACHINE
數控雙側式銑床

一次自動感光，四面自動量測加工完成
ONE AUTOMATED SENSING, FOR 4 SIDES AUTOMATED
MEASUREMENT AND MACHINING

INDEX

P.3

HM-400NC



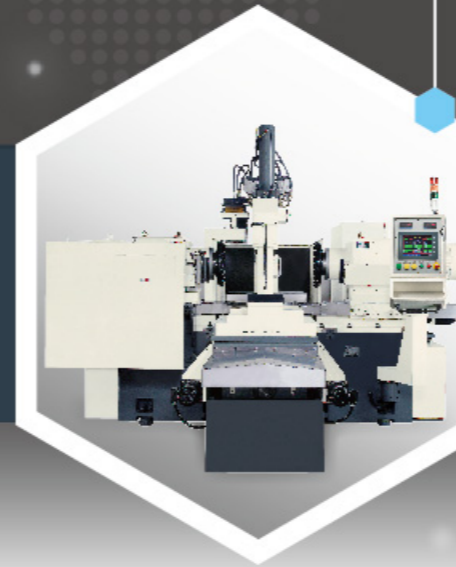
P.4

HM-1500DS-500



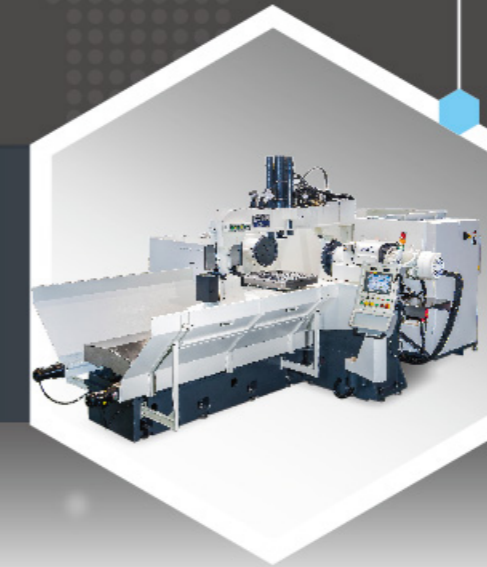
P.5

HM-2250DS6-1000



P.6

HM-2250DS6-1200



P.7

HM-2250DS6-SA



P.8.9.10

FEATURES AND
APPLICATIONS
特色及應用

NC 數控雙側式銑床

機種最齊全 高效率四面銑削新利器

創立於 1986 年的美立固精機廠股份有限公司，專業設計製造 NC 雙側式銑床。歷經 30 年來的技術經驗累積，以及不斷開發的公司信念，美立固擁有最齊全的機種系列，為客戶提供最廣泛的機型選擇。

美立固機器除了在台灣市場享有相當高的市占率。在海外市場，也已累積了數百台以上的銷售實績。主要市場涵蓋德國、韓國、新加坡、印尼、馬來西亞、泰國等。中國模架製造廠更大量採購使用。無論品質與機器性能，均廣受海內外使用廠商一致的肯定好評。

P.11.12

SPECIFICATIONS
規格表

卓越客製化能力

美立固秉持 30 年的技術背景，可依據客戶的加工需求，提供最合適的機型。我們的技術團隊仔細分析客戶的加工條件，再提出最佳的加工解決方案，徹底滿足客戶對加工能力與效率之期許。

NC DOUBLE-SIDED MILLING MACHINE

The Most Comprehensive Range of Models
A Cutting Edge in 4-Side Milling

Established in 1986, Para Mill Precision Machinery Co., Ltd. specializes in design and manufacturing of NC double-sided milling machine. With 30 years of technical experience in combination with the company's concept of constant development, Para Mill offers the most comprehensive range of machine models, providing customers with the most flexible choice.

In addition to a considerable market share in Taiwan, Para Mill machines also reached a sales amount of hundreds units in overseas markets. Our major markets cover Germany, Korea, Singapore, Indonesia, Malaysia and Thailand, etc. In particular, China's mold frame manufacturers have purchased Para Mill machines. Regardless of quality and machine performance, Para Mill machines have been fully recognized and praised by domestic and foreign customers.

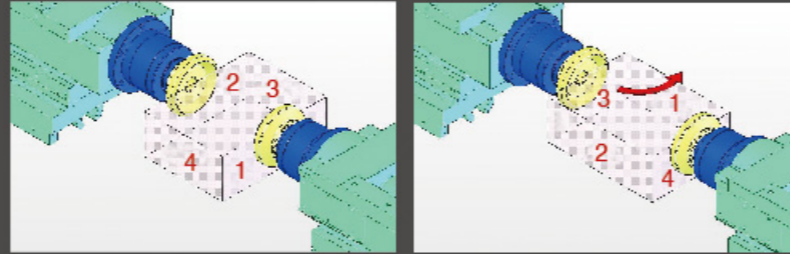
Outstanding Customized Manufacturing Capabilities

Based on 30 years of technical background, Para Mill is able to offer the most suitable machines that fully meet customers' machining requirements. Our technical team can conduct detailed analysis for customers' machining conditions, and offer the optimal machining solutions that satisfy customers expectations in machining capacity and efficiency.

HM-400NC

- One-piece fabricated base is massive and highly rigid, featuring maximum stability in heavy cutting.
- Equipped with extra powerful spindles for performing heavy cutting.
- Automatic workpiece measuring system.
- Reduce workpiece setup time while dramatically upgrading machining efficiency and accuracy.
- Available to select various controllers. Each controller is easy to operate and learn.
- Twin milling heads perform machining simultaneously with high efficiency.

- 一體成型底座，穩重、高剛性。重切削時穩定性優異。
- 搭載強力主軸，重切削能力佳。
- 工件自動量測系統。
- 減少工件設定時間，大幅提升加工效率與精度。
- 多種控制器選擇。操控簡單，易懂易學。
- 雙銑頭同時加工，效率高。

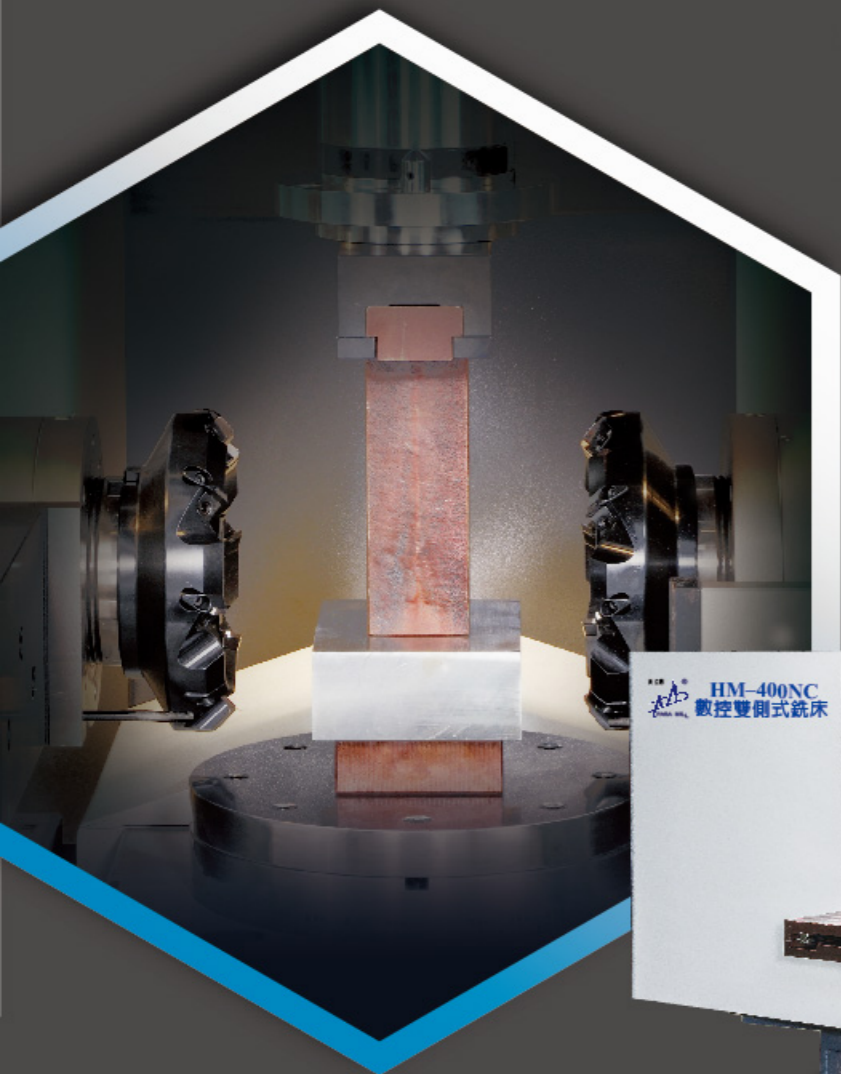


Applicable Parts Machining

- Precise mold bases
- Manifold blocks
- Precise block shaped parts (square and rectangular shape)

適用加工工件

- 精密模座
- 油路塊
- 精密塊狀工件(正方體、長方體)

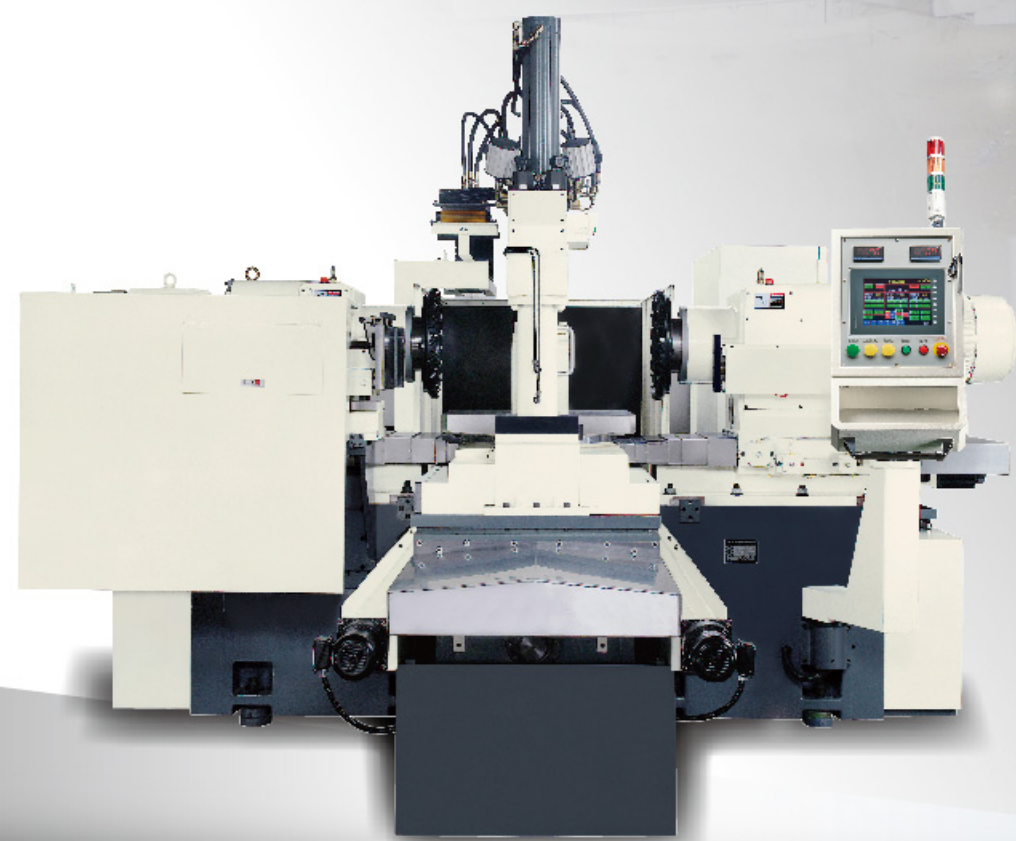


UNIQUE MACHINE DESIGN FOR HIGH RIGIDITY, EFFICIENCY, PRECISION AND RELIABLE PERFORMANCE
高剛性，高效率，高精確度及高可靠性之特殊機台設計

HM-1500DS-500

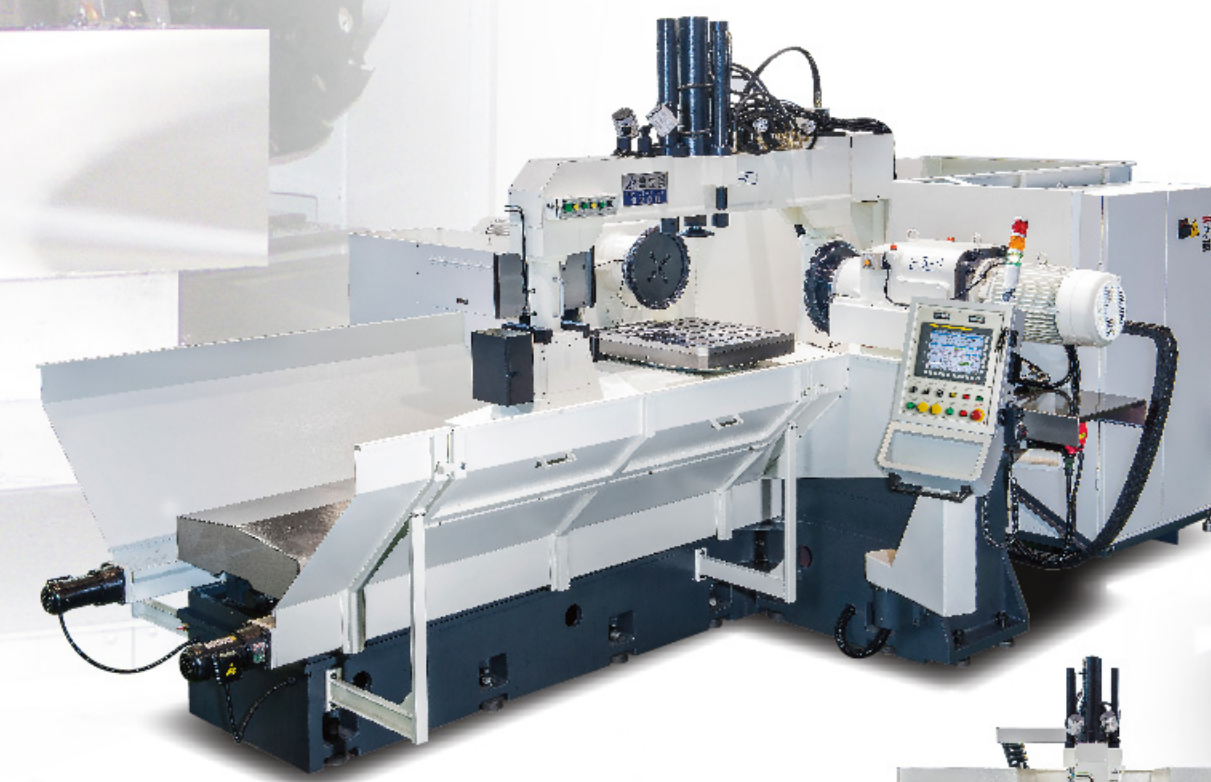
- Cutting range: 75mm×75mm~550mm×550mm
- Max. Cutting thickness:250mm
- Vertical hydraulic clamping with one main cylinder
- 加工範圍:75mm×75mm~550mm×550mm
- 最大加工厚度:250mm
- 垂直油壓夾持，一個主油壓缸

Fully Automatic / 全自動
HM-2250DS6-1000



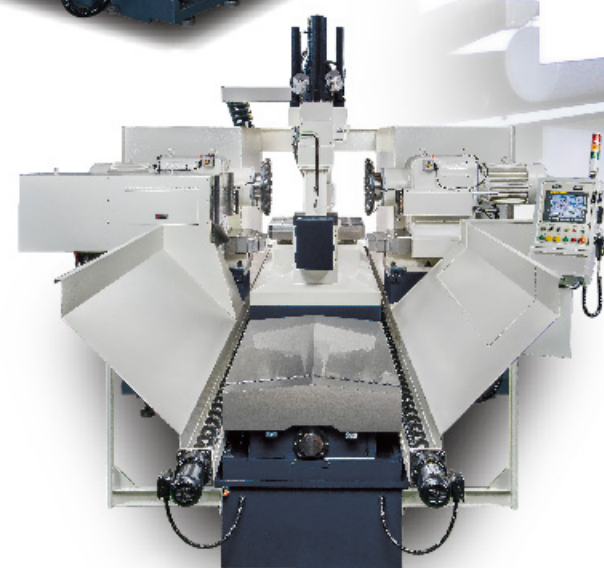
- Cutting range: 500mmx500mm~1000mmx1000mm
- Max. Cutting thickness: 425mm
- Vertical hydraulic clamping with one main cylinder and two auxiliary cylinders
- 加工範圍: 500mmx500mm~1000mmx1000mm
- 最大加工厚度: 425mm
- 垂直油壓夾持，一個主油壓缸，兩個副油壓缸

ONE SETUP FOR 4 SIDES MILLING
一次設定4面加工完成



Fully Automatic / 全自動
HM-2250DS6-1200

- Cutting width range: 400mm~1200mm
- Max. Cutting thickness: 425mm
- Special jig fixture design



- 加工寬度範圍: 400mm~1200mm
- 最大加工厚度: 425mm
- 特殊設計夾治具



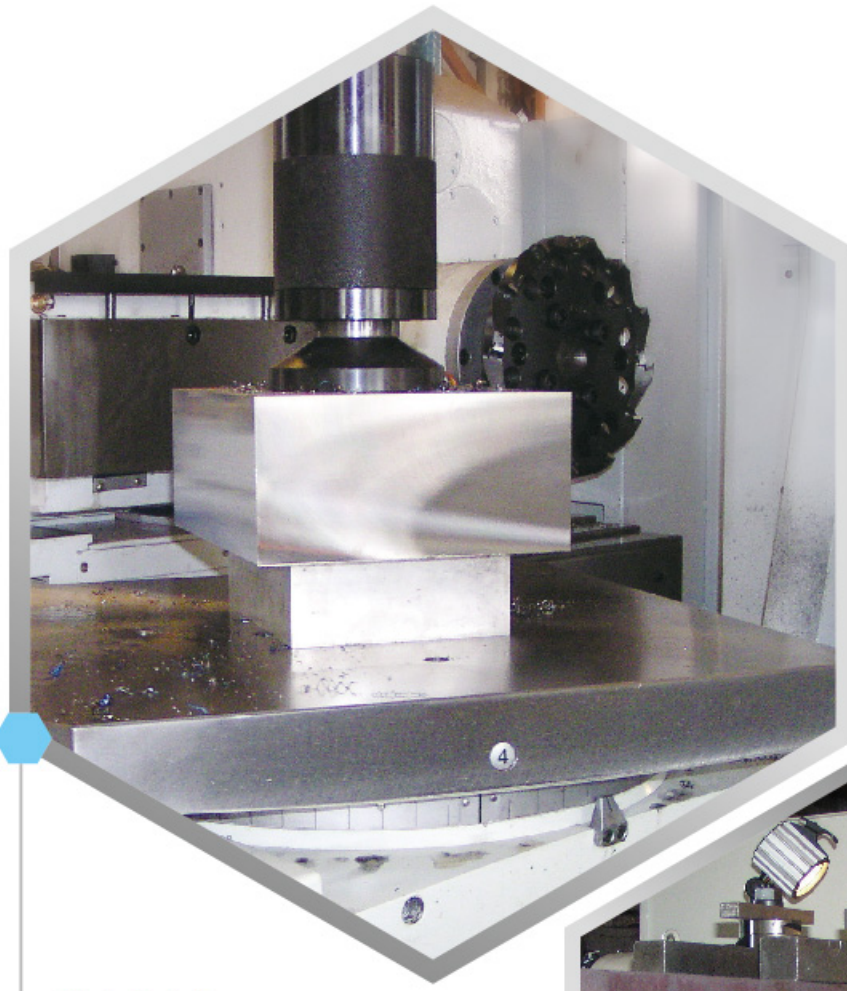
Semi-Automatic / 半自動
HM-2250DS6-SA

- Cutting width range: 100mm~500mm
- Max. Cutting length: 1500mm
- Max. Cutting thickness: 425mm
- Special jig fixture design
- 加工寬度範圍: 100mm~500mm
- 最大加工長度: 1500mm
- 最大加工厚度: 425mm
- 特殊設計夾治具

ONE SETUP FOR 2 SIDES MILLING
一次設定2面加工完成

FEATURES AND APPLICATIONS OF NC DOUBLE SIDED MILLING MACHINE

NC 雙側式銑床的特色及應用



精密分度盤

ACCURATE INDEX TABLE

The interior consists of three pieces of gear plate for indexing and positioning. These plates provide high index accuracy within $\pm 3''$ allowing heavy-duty cutting tolerance, rigidity and to ensure the machining squareness and parallelism.

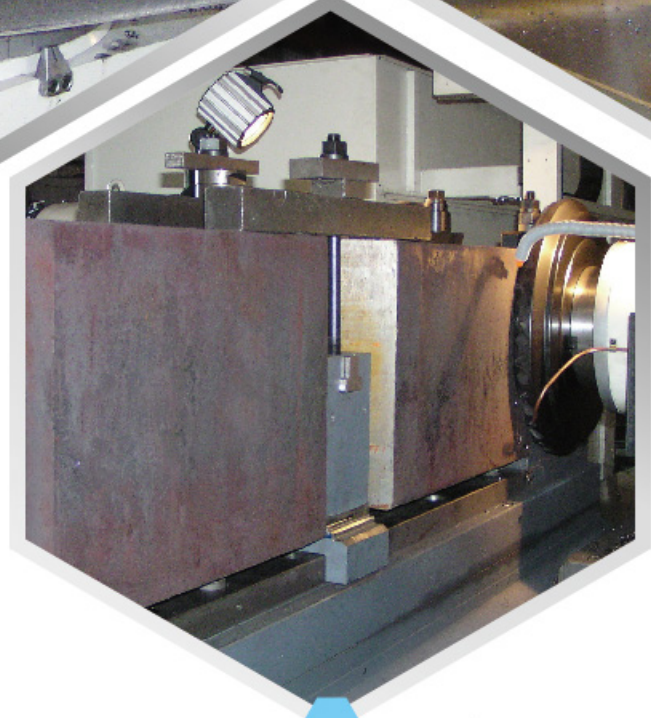
特殊夾治具，一次可放二個工作

MORE THAN TWO PIECES OF WORKPIECE MACHINING SIMULTANEOUSLY WITH SPECIAL JIG FIXTURE.

強力立式油壓缸夾持

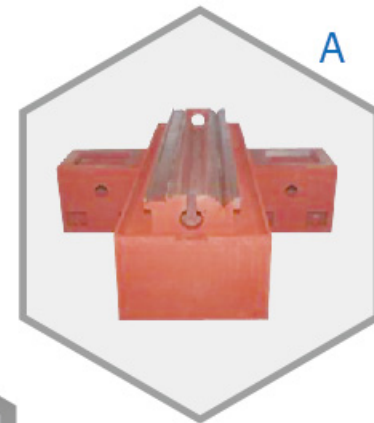
POWERFUL VERTICAL HYDRAULIC CLAMP

The powerful hydraulic clamp ensures machining accuracy.

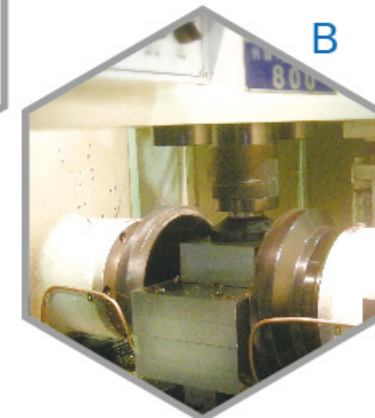


2組 強力型主軸

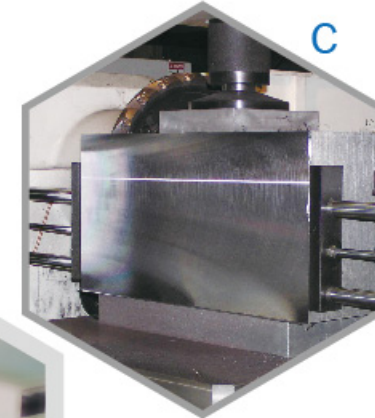
2 SETS OF RIGID POWERFUL MILLING SPINDLE



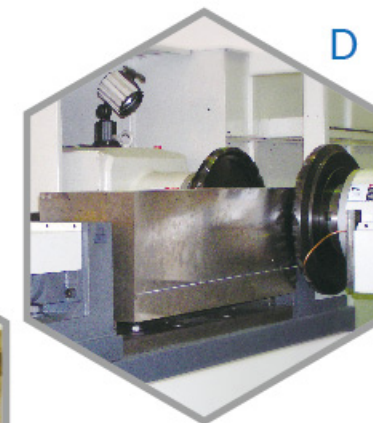
A



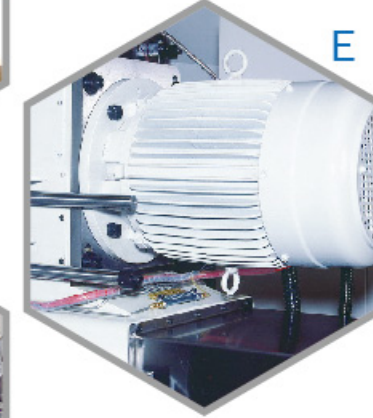
B



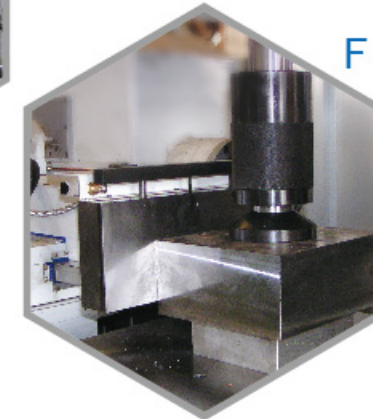
C



D



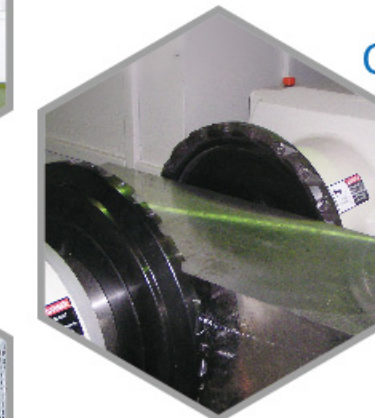
E



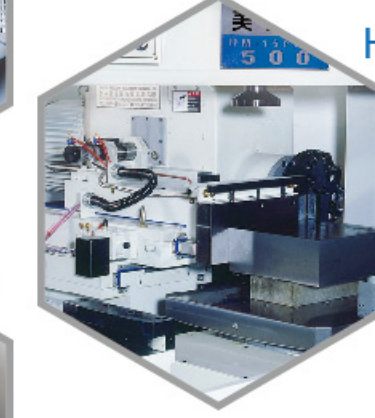
F



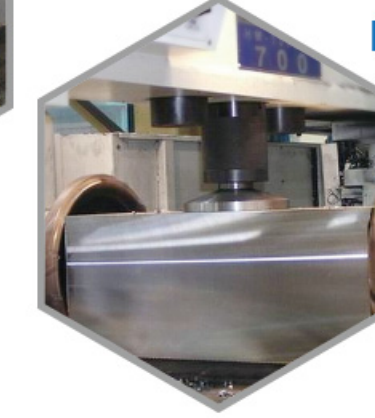
G



H



I



J

A

高剛性一體成型底座

SPECIAL ONE PIECE MACHINE BASE WITH HIGH GRADE CAST IRON

The structure and strength of the material utilized is designed not only to absorb cutting vibration, but also can retain its unique characteristics under high precision heavy cutting condition.

B

多件板材同時四面加工

MORE THAN 2 PIECES OF WORKPIECE MACHINING AT THE SAME TIME WITH SPECIAL JIG AND FIXTURE

C

加工前尺寸偵測

SIZE DETECTING BEFORE MACHINING

D

雙面銑及夾治具

DOUBLE-SIDED MILLING WITH JIG AND FIXTURE

E

強力型切削主軸

HEAVY DUTY MILLING SPINDLE

Special high-low gearbox with variable speed can be changed for a wide range of machining. The NT50 spindle can perform heavy duty milling jobs.

F

90度定位擋板

90 DEGREE STOPPER

Quickly and easily to set up the workpiece on a standard base without measuring tools.

G

雙銑頭同時加工

TWIN MILLING HEADS PERFORM MACHINING SIMULTANEOUSLY

H

旋轉式的上壓桁架

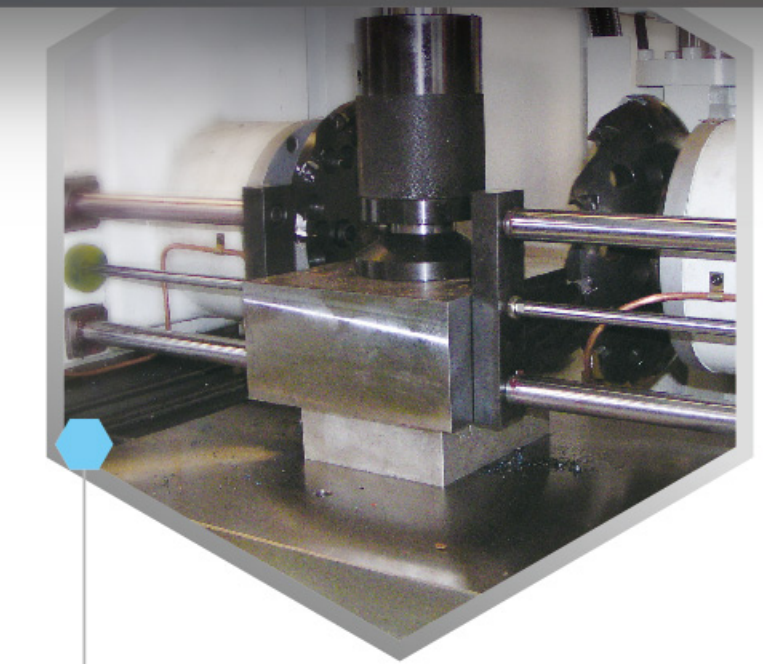
SWIVEL FRAME

Frame can be swiveled for easy loading and unloading of a workpiece on the table. Frame locks with a hydraulic cylinder lock pin.

I

四面加工，含上壓及精密轉盤

ONE SETUP FOR FOUR SIDES MACHINING WITH VERTICAL CLAMP AND PRECISION INDEX TABLE



工件自動量測系統

WORKPIECE AUTO MEASURING AND DETECTING SYSTEM

The system is apply for measuring a workpiece before machining and the data will be transferred to the control system directly. The measuring data is used for:

- Comparison with the set data, if the value is smaller than programmed size, an alarm message will show.
- To define the removal value for rough and finish milling.



發那科控制器觸控式螢幕及人機介面
FANUC CONTROL SYSTEM WITH H.M.I. AND TOUCH SCREEN



人性化操作控制面板
USER-FRIENDLY H.M.I. CONTROL SYSTEM ON THE CLEAR TFT SCREEN.
The control system includes a self-diagnostic function and alarm message conveniently displayed for on-screen troubleshooting. 15 sets of cutting data (R.P.M. Feed Rate) memory for storing different material machining conditions.

Model No.		HM-400NC	Model No.		HM-1500DS-500	HM-1500DS-700	HM-2000DS-800	HM-2250DS-800(1000)	HM-2250DS-1000	HM-1500DS6-700	HM-2250DS6-1000	HM-2500DS6-1200	HM-2250DS6-SA	
Cutting capacity 加工能力	Width x Length of workpiece 加工範圍	20x20 ~ 400x400 mm	Cutting capacity 加工能力	No. of control spindle 控制軸數	4	4	4	4	4	4	4	4	3	
	Max. thickness of workpiece 加工厚度	110 / 150 mm (Ø125/160 mm cutter)		Cutting size Min. / Max. 最小/大加工尺寸	75 / 550 mm	100 / 700 mm	250 / 800 mm	500 / 1000 mm	500 / 1000 mm	250 / 700 mm	500 / 1000 mm	400 / 1200mm	100 / 500 mm	
	Table loading capacity 工作台負載	250 kg		Max. cutting thickness(cutter) 最大加工厚度(刀盤)	250 mm	250 mm	300 mm	300 mm	300 mm	350 mm	425 mm	425mm	425 mm	
Travel & table 各軸行程&工作台	Travel of table Z-axis Z軸行程	600 mm	Spindle box & spindle 主軸箱及兩主軸	Max. cutting length 最大加工長度	--	--	--	--	--	--	--	--	1500 mm	
	Travel of head X / Y-axes X, Y主軸行程	210 mm		Distance between spindle nose 兩主軸鼻端距離	150~682 mm	230~850 mm	330~1000 mm	600~1200 mm	600~1200 mm	230~850 mm	600 ~ 1200 mm	520 ~ 1350mm	220 ~ 600 mm	
Feed speed 進給速度	Rapid feed speed Z-axis Z軸快速位移	15 m / min	Z-axis (Longitudinal, table) Z軸	Spindle motor 主軸馬達	15HP (11kw)	15HP (11kw)	20HP (15kw)	20HP (15kw)	20HP (15kw)	30HP (22kw)	35HP (22 / 26kw)	30HP or 35HP (22 / 26kw)	35HP (22 / 26kw)	
	Rapid feed speed X / Y-axes X, Y軸快速位移	15 m / min		Spindle taper 主軸錐度	NT-50									
	Manual feed speed 手動進給	1-1500 mm / min		Spindle speed variable speed 可變主軸轉速	50 ~ 900 rpm									
Spindle 主軸	Spindle (with oil circulating groove) 主軸(附油冷管路)	NT50 equivalent	X-axis (Right spindle) X軸(右主軸)	Max. longitudinal travel(Z-axis) 最大縱向行程(Z軸)	1000 mm	1500 mm	2000 mm	2250 mm	2250 mm	1500 mm	2250 mm	2500mm	2250 mm	
	Dimensions of spindle nose 主軸鼻端直徑	Ø40 ~ Ø125 mm / Ø160 mm cutter		Max. spindle travel(X,Y-axes) 最大主軸行程(X,Y軸)	265 mm	310 mm	310 mm	265 mm	265 mm	385 mm	385 mm	420mm	400 mm	
	Spindle speed 主軸轉速	200 ~ 1600 rpm		Servo motor (Z,W-axes) Z,W伺服馬達	2.9 kw / 2 kw	2.9 kw	2.9 kw	2.9 kw	2.9 kw	2.9 kw	4 kw	4kw	4 kw	
	Cutter diameter 刀具直徑	Ø160 mm (Ø125 mm)		Servo motor (X,Y-axes) X,Y伺服馬達	1.5 kw	1.5 kw	1.5 kw	2 kw	2 kw	2 kw	3 kw	3kw	3 kw (X,Y, no A axis)	
Motor 馬達	Spindle motor output 主軸馬達	20 HP (15 kw)	Y-axis (Left spindle) Y軸(左主軸)	Dia. of ball screw (Z-axis) Z軸滾珠螺桿直徑	ø50 P10	ø50 P10	ø50 P10	ø63 P12	ø63 P12	ø50 P10	ø63 P12	ø63 P20	ø63 P12	
	Feed motor Z-axis Z軸馬達	2 kw		Dia. of ball screw (X,Y-axes) X,Y軸滾珠螺桿直徑	ø40 P10	ø40 P10	ø40 P10	ø40 P10	ø40 P10	ø40 P10	ø50 P10	ø50 P10	ø50 P10	
	X / Y-axes X, Y軸馬達	1 kw x 2		Rapid feed (Z-axis) Z軸快速位移	6 m / min									
	W-axis Vertical clamp servo motor W軸垂直壓持馬達	2.9 kw		Rapid feed (X,Y-axes) X,Y軸快速位移	6 m / min									
Work table 工作台	A (index table) 分度盤	1 kw	Work table 工作台	Worktable area (mm) 工作台尺寸	600 x 2000	720 x 2000	800 x 2000	800 x 2300	920 x 2300	700 x 2000	920 x 2300	800 x 2500	600 x 2200	
	Indexing degree of table, dia. 250mm 盤面分度	0° / 45° / 90° / 135°		Index table 旋轉工作台	Dimensions (mm) 旋轉盤尺寸	500 x 500	600 x 600	700 x 700	700 x 700	800 x 800	600 x 600	800 x 800	700 x 700 or 800 x 800	--
				Oil tank capacity 油壓箱	Hydraulic unit 油壓單元	100L								
Others 其他	Machine weight 機械重量	6200 kg	Others 其他	Lubrication oil tank 潤滑油箱	2L x 3									
	Machine dimension W x L x H (mm) 機台尺寸	3450 x 2300 x 2300		Machine dimension W x L x H (mm) 機台尺寸	3600 x 4500 x 2300	3800 x 5500 x 2400	3800 x 6000 x 2400	4100 x 6500 x 2550	4100 x 6500 x 2550	3800 x 6000 x 2400	4100 x 6500 x 2550	4300 x 6700 x 2550	4000 x 6000 x 2300	
				N.W. 淨重	9 tons	11 tons	13.5 tons	15 tons	16 tons	14 tons	17.5 tons	20 tons	17 tons	

* All specifications in the catalogue are subject to change without prior notice / 目錄裡的所有規格如有更動，將不另行通知

* Cutting capacity can be modified according to customer's requirement / 加工能力可依客戶需求設計

STANDARD FEATURES

標準配備

- Machine base with rigid one-piece cast iron construction.
- Heavy duty cutting Spindle X and Y-axes with Taper NT50.
- Z-axis Precision scraped V and flat guide way for heavy duty cutting.
- All guides are TURCITE -B coated and precision scraped.
- Half of the Z-axis ball screw is soaked into the lubrication oil.
- Powerful vertical clamp hydraulic cylinder.
- HM-1500DS-500 with one main cylinder, the other models with one main cylinder and two auxiliary hydraulic cylinders.
- 4 axes control, Z, (longitude) X, Y (R and L cutting spindle); and A (precision index table).
- HMI user friendly touch screen, with dialogic data input, self alarm diagnosis and alarm message display.
- Electric Cabinet with air cooling system.
- Auto index table with servo control A axis.
- 90° align stopper for easy setup of the workpiece.
- Auto detecting device for measuring the workpiece before machining.
- Complete set of hydraulic system.
- Pneumatic system for air blow and detecting device.
- 2 sets of screw-type chip conveyors.
- Tool box with tools.
- Halogen work light.
- 3 colors working condition light.

- 高剛性一體成型底座。
- 高強度X和Y軸銑頭主軸，主軸鼻端 NT50#。
- Z軸是V型和平面滑槽，可承受重切削。
- 所有軸向皆有貼TURCITE -B“鐵弗龍及精密人工鑿花”。
- Z軸滾珠螺桿採“半浸式潤滑”。
- 強力油壓缸垂直夾持工件。
- HM-1500DS-500採用單支油壓主缸夾持，其他較大機型採用一支主缸及兩支副缸夾持工件。
- 四軸伺服控制Z軸(縱向)、X、Y軸(右、左主軸)、A軸(旋轉軸)。
- 容易操作、易學的人機介面，觸控式操控螢幕，可有自我偵錯診斷，錯誤訊息顯示功能。
- 電氣箱含空氣冷卻系統。
- A軸採用伺服馬達控制的旋轉盤。
- 90°對準定位板。
- 自動量測工件尺寸。
- 整組油壓系統。
- 整組氣壓系統，供給吹氣及自動量測。
- 兩組螺旋式自動清屑裝置。
- 一只工具箱及一組工具。
- 鹵素照明工作燈。
- 三色工作狀態顯示燈。

OPTIONAL EQUIPMENT

選擇配備

- FANUC Control System
- 10' (250mm)R&L Cutters
- CE Specification
- Spindle temperature compensation system
- Special jig fixture design for HM-2250DS6-SA

- 發那科控制器
- 左右銑刀盤
- CE規範
- 主軸溫度補償系統
- 特殊夾治具

FANUC OPTIONAL EQUIPMENT

發那科選擇配備

- Quick Response Code
- Automated measurement
- 掃描器
- 自動量測

