



LM SERIES

二板式精密射出機

Two-Platen Injection Molding Machine

小材大用 Your mini Giant

如何利用有限的資源做更有效率的生產，已成為新時代致勝的關鍵，富強鑫二板式射出機協助您使用**更小的空間、更少的能源**，達成您更大的目標。

Producing plastics products more efficiently has already become a key factor for winning the competition in the market, FCS two-platen injection molding machines are the best option for you, to help you decrease space usage and save energy to reach your goals.

- 開關模行程及容模量大，適用的產品更為廣泛，特別是深桶型產品。
- 鎖模機構短，可節省30%以上廠房空間。
- 閉模力設定簡單且精簡，可有效提升機器壽命。
- 射出時，加壓缸提供補壓，可持續提供準確穩定之閉模力。
- 伺服節能省電系統，平均節省40~70%能源。
- In comparison with conventional machinery, the LM has a larger mold clamping stroke and capacity, allowing for products with greater depth.
- Our proven two-platen-design saves up to 30% of your valuable floor space.
- The high-pressure clamping control is easy to set up and has higher precision.
- Accurate and stable mold closing force is achieved by continuously monitoring and controlling the pressure in each tonnage cylinder throughout the injection cycle.
- Servo motor technology allows customers to see an average power saving between 40%-70%.

二板式與三板式射出機之比較

Comparison of 2-platen and 3-platen type injection machine.

項目 Item	型式 Type	二板式 2-Platen	三板式 3-Platen	
			直壓式 Direct Clamping	曲肘式 Toggle
佔用空間 Footprint		最小 Smallest	中等 Common	最大 Largest
容模空間 Daylight		最大 Largest	中等 Common	最小 Smallest
調模時間 Die Height Adjustment		最短 Shortest	短 Short	長 Long
技術前瞻 Technique		最高 Highest	高 High	低 Common
潔淨度 Cleanliness		最高 Cleanest	中 Cleaner	低 Normal



成型實例

Product Applications

電控單元 Control Unit

應用功能

- 12吋超大TFT顯示螢幕、1600萬色真彩顯示及800x600像素分辨率，觸控式操作面板，為一操作簡易的控制器。
- 採用功能強大的CPU其時脈為1.1~1.6GHz，系統反應時間至快可達1ms。
- 採多重通訊介面(USB、串行接口、Ethernet EtherCAT、Sercos III)。
- 所有程序都儲存在CF卡，更換控制器及程式均相當便利。
- 該控制器支援OPC協定，且依據IEC-61131設計，其特點為模組化並易於軟硬體維護。
- 共有多種語言可供客戶選擇。
- 十二段PID料溫控制，採用SSR無接點溫控，精確度達 $\pm 0.1^{\circ}\text{C}$ ，並具溫度異常斷線警報及上下限設定功能，可精確掌控料溫。
- 具多階密碼保護功能、可依不同的授權等級更改設定，及資料硬體鎖功能，可防止成型參數被任意更改。
- 提供統計製程控制及射出波形圖，使成品有高效的品質保證以及提高生產效率。
- 模組化控制器，可快速擴充軟、硬體模組以連接更多週邊設備(如:閥澆口、快速換模系統...等)。



FCS-6500



Application

- A 12" TFT LCD screen display, with 16 million color palettes, 800x600 pixel resolution and a touchscreen panel ; User Friendly controller.
- Equipped with a powerful CPU (1.1GHz~1.6GHz). System reaction rate of 1ms promotes sensibility and stability of motion.
- Multiple communication interfaces (e.g. USB, RS232, Ethernet, EtherCAT, Sercos III)
- All software is stored on an exchangeable compact flash driver (CF Card), reducing downtime and providing ease of service.
- This controller also supports the open industry standard OPC. The controller was designed according to IEC-6113, featured together with a module, thus saving maintenance time.
- Multiple optional operation languages available for customers to choose from.
- The PID barrel temperature control, SSR temperature controller can reach precise levels with margins of $\pm 0.1^{\circ}\text{C}$. It has an irregular temperature detector, wiring disconnection alarm function, and a limit value setup function to control the barrel temperature accurately.
- A multi-level authorization with password protection to prevent anyone from randomly changing parameters.
- The operating system contains integrated softwares such as statistic process control (SPC) and injection graphs for efficient quality assurance and increased productivity.
- With modular controllers design, rapid expansion of software and hardware modules to connect more peripherals (valve gate quick mold change system...etc.)



優異特點 Specific Features

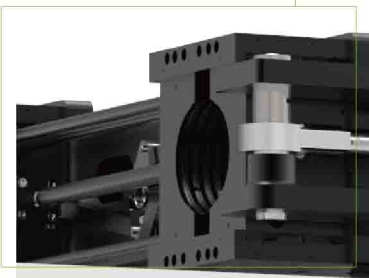


大柱可抽離單元(選配)

克服客戶廠房高度空間限制，解決模具安裝問題。

Tie-bar Puller (Optional)

To solve the height limit of the plant when the mold is not able to be installed from top of the machine.

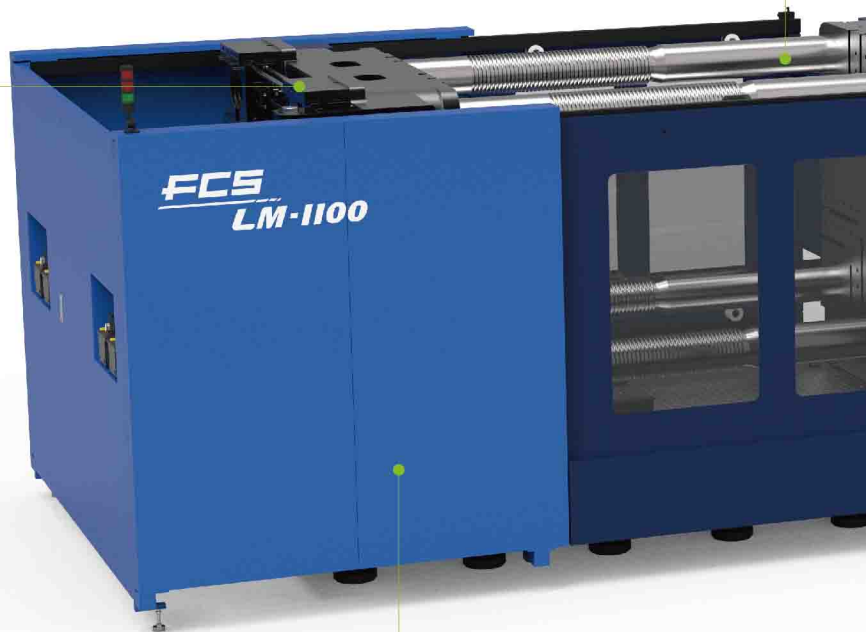


大柱夾持

精確大柱夾持結構，與大柱在正確位置抱合，確保足夠鎖模力。

Tie Bar Locking Mechanism

A tie bar locking system with split nut mechanism for accurate clamping force and position.



活動壁滑腳

二板機專用活動壁支撐結構，可確保車壁動作平行度及準確度。

Moving Platen Guide

Moving platen support with exact guiding design to ensure precise movements even when heavy molds are mounted.



高壓缸設計

高壓油缸設計，油壓閥，控制精準，確保大柱受力均勻，並可在射出過程中提供充足的鎖模力。

High Pressure Cylinder Design

The industry proven valves balance force across all four tie bars to minimize platen deflection.



射出單元

多軸式射出驅動機構，更精密，更穩固。

Injection Unit

An injection unit featured with a multi-axled driven mechanism for precision and stability.

節能油壓迴路

- 模具真空解除高壓開模迴路。
- 開模採高壓迴路設計，可加大開模力，確保開模動作順暢。
- 模具低壓保護，確保模具壽命。

Power Saving Hydraulic Loop

- High pressure to break mold vacuum.
- Low pressure protection to enhance the mold life.
- Mold clamping system with high-pressure design can increase the clamping force and ensures operational stability.

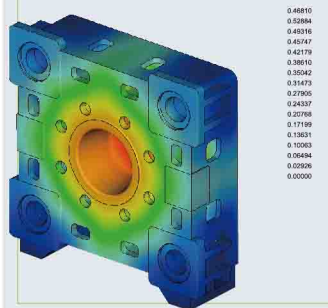


夾模單元

模盤採用有限元素分析協助設計，確保機台及模具受力均勻，延長使用壽命並提升產品品質。

Clamping Unit

Platens are designed with FEM analysis to ensure the machine and the mold sustaining force balance which extends the machine life and also increase product quality.



標準及選購配備 Standard & Optional Accessories

配備項目	ITEM
射出安全護罩	Safety cover for injection
雙合金螺桿、料管	Bi-alloy Screw/Barrel
托拉式落料裝置	Sliding material feeding device
模壁T型槽	T-slot platen
隔熱墊板	Insulator sheets
活動式模定位圈	Check ring of mold (Replaceable)
電動安全門	Automatic safety gate (Electric type)
安全踏板	Security Pad
多段數位背壓 (螢幕設定)	Multi-stage back pressure control(Screen set up)
多段數位背壓 (螢幕設定及顯示)	Multi-stage back pressure control(Screen set up and display)
射出閉迴路	Closed-loop control for injection
潤滑油品-黃油	Toggle lubrication - Grease
四中子 (二公二母)	Four core pulling device
轉牙裝置 (計時/計次)	Unscrew device by timer or counter
水流分佈器10入10出 (銅製)	Water manifold - 10 in & 10 out (copper)
水流分佈器20入20出 (銅製)	Water manifold - 20 in & 20 out (copper)
雙迴路 (開模與托模同動)	"Double loops system (mould open - ejector start)"
伺服節能系統	Servo power saving system
自封式磁性吸油過濾器	With check valve magnetic suction filter
開關模比例閥控制	Proportional valve for mould open and close
射嘴獨立溫控	Temperature control of injection nozzle
落料口溫度顯示	Temperature display of material feeding section
落料口溫度控制	Temperature control of material feeding section
射出電阻尺	Linear potentiometer for injection
夾模電阻尺	Linear potentiometer for clamping
托模電阻尺	Linear potentiometer for ejection
射座電阻尺	Linear potentiometer for injection carriage
兩個風托 (一公一母)	Air ejector sets
油溫顯示	Oil temperature display for hydraulic system
油溫顯示及控制	Oil temperature display & control
FCS-6500微電腦控制器 (彩色觸控：KEBA)	FCS-6500 controller(color & touch screen:KEBA)
電控穩壓器	Power stabilizer for controller
三色警示燈	Three-color alarm lamp
CE安全插座	CE safty socket
電源插座 (110V/220V)	Power socket (110V/220V)
主電源斷路器	Main power breaker
24H料管自動定時預熱	24 hours auto-preheat for barrel sets
資料保護鎖 (硬體鎖)	Data lock function(key)
機械手電器接口	Robot electrical interface
乾燥機	Hopper dryer
抽料機	Auto loader
乾燥機磁鐵	Magnet of hopper dryer
避震器	Anti-vibration mounting pad
填料台	Filling material stand
工具箱組	Tool box set
標準出車附件	Spare parts
外銷出車附件	Export accessories



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