

70 Global Service Centers



富強鑫集團 FCS Group



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新一代高效節能注塑機

Advanced Servo Hydraulic Toggle Injection Molding Machine

FA SERIES

FA Series

高效率 - 生產效率提升15~20%
高性能 - 射出速度提升20%以上
高標準 - 符合CE、GB、ANSI規範

High Efficiency - Increasing production efficiency 15~20%.
High Performance - Improving injection speed by 20% ↑.
Energy Saving - Complying with CE, GB, and ANSI standard.

FCS五十餘年技術結晶與積累，創造了多樣性的產品及穩定的性能品質，同時也針對各行業不同產品特性，提供差異化技術整合與服務。**FA系列**為FCS全新發表之高性能曲肘油壓伺服節能機種，不僅規格升級，設計也更加優化，外觀造型仍堅持美學與人因工程兼備之要求，更整合高階電控系統優勢，可充分結合FCS工業4.0解決方案，是一款集性能、效能與智能於一體的智能化注塑機，可廣泛應用於家用民生、文具、汽車、3C等產業，鞏固客戶競爭優勢。

With over 50 years of technological developments and innovations, FCS offers a new and optimized design with increased performance and reliability for a wide variety of industries.

The new **FA Series** delivers unmatched efficiency with its energy-saving servo hydraulic toggle system. The clamp and injection unit specifications have also been increased to allow our customers more flexibility in the range of molds they can run in the machine. The outside appearance of the machine was developed with friendly ergonomics to make working in and around the machine easy, comfortable and safe for the operator. The KEBA control now offers an enhanced capability to integrate the FCS iMF 4.0 system to assist in making your facility a Smart Injection Molding Machine Plant. Overall, these new enhancements to the FA Series will help our customers increase their competitiveness in the industry and propel them to the next stage in new machine technology.

集 捷超凡
域廣無涯



Exceptional performance
Enormous capability



家用五金製品
Housewares



電子產品外殼
Electronic
product casings



厚件容器
Thick-wall



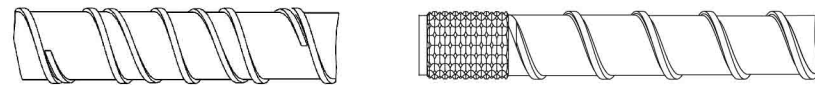
建築管件
PVC fittings



汽車部件
Automotive parts

精準的射出單元 Accurate Injection Unit

高混練螺桿
High mixing screw



高混練螺桿 (選配)

提升L/D比，滿足高射量產品。
(250 ton以上機型增加D螺桿)

High mixing screw (optional)

Improve L/D ratio and meet high injection volume products (and add D-screw choice for models above 250 ton).

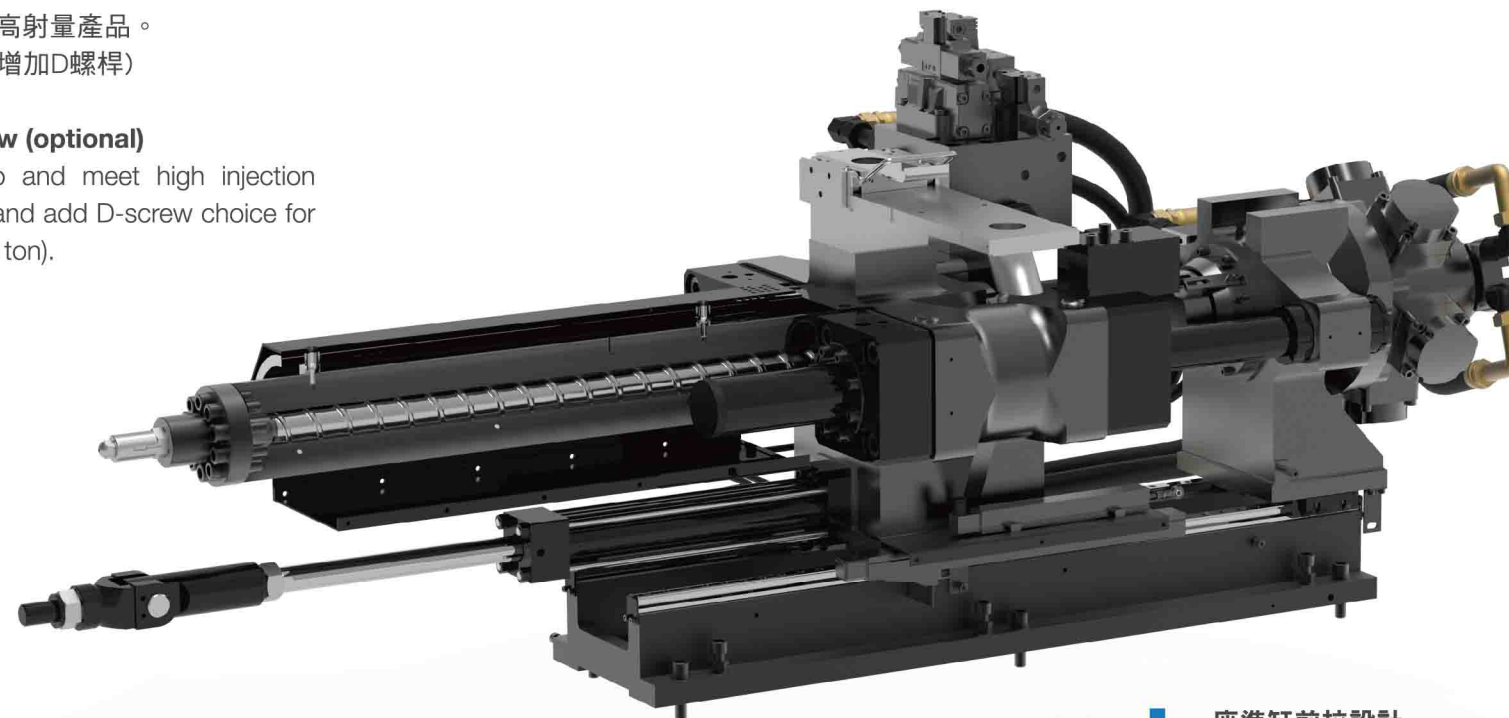


系統壓力提升

射出油路板與油缸整合優化，提升射出響應速度，擴大產品應用範圍。

System pressure improvement

The integrated and optimized hydraulic manifold and cylinder, improve the injection response, and expand the product application range.



射座線性滑軌

- 負荷輕、減少磨耗，射出控制精準穩定。
- 儲料背壓阻力低，減少熔膠溢流。

Linear guide for the injection carriage

- Lighter load and less abrasion which ensures precise and stable injection.
- Basic charging back pressure to reduce the melt overflow.

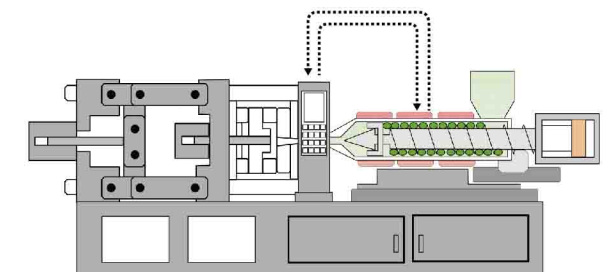
座進缸前拉設計

減少機架受力，降低變形量，保持穩定射出力。

Injection carriage forward pull design

Reduce the frame deflection, and maintain a stable injection force.

全閉迴路系統 Closed-loop system



回授螺桿位置於控制器
Screw position feedback to the controller.

伺服射出全閉迴路

精準控制每模射速，射出時間穩定性 >99.9%，成型品重量穩定性佳。

Servo injection closed-loop system

Accurately controls the injection speed, injection time and shot weight.

模組化規格選型

提供高速款規格，彈性化滿足食品包裝、薄壁容器等產業需求。

Optional modular specification

High-speed option is available for food packaging industry and thin-walled product molding requirements.

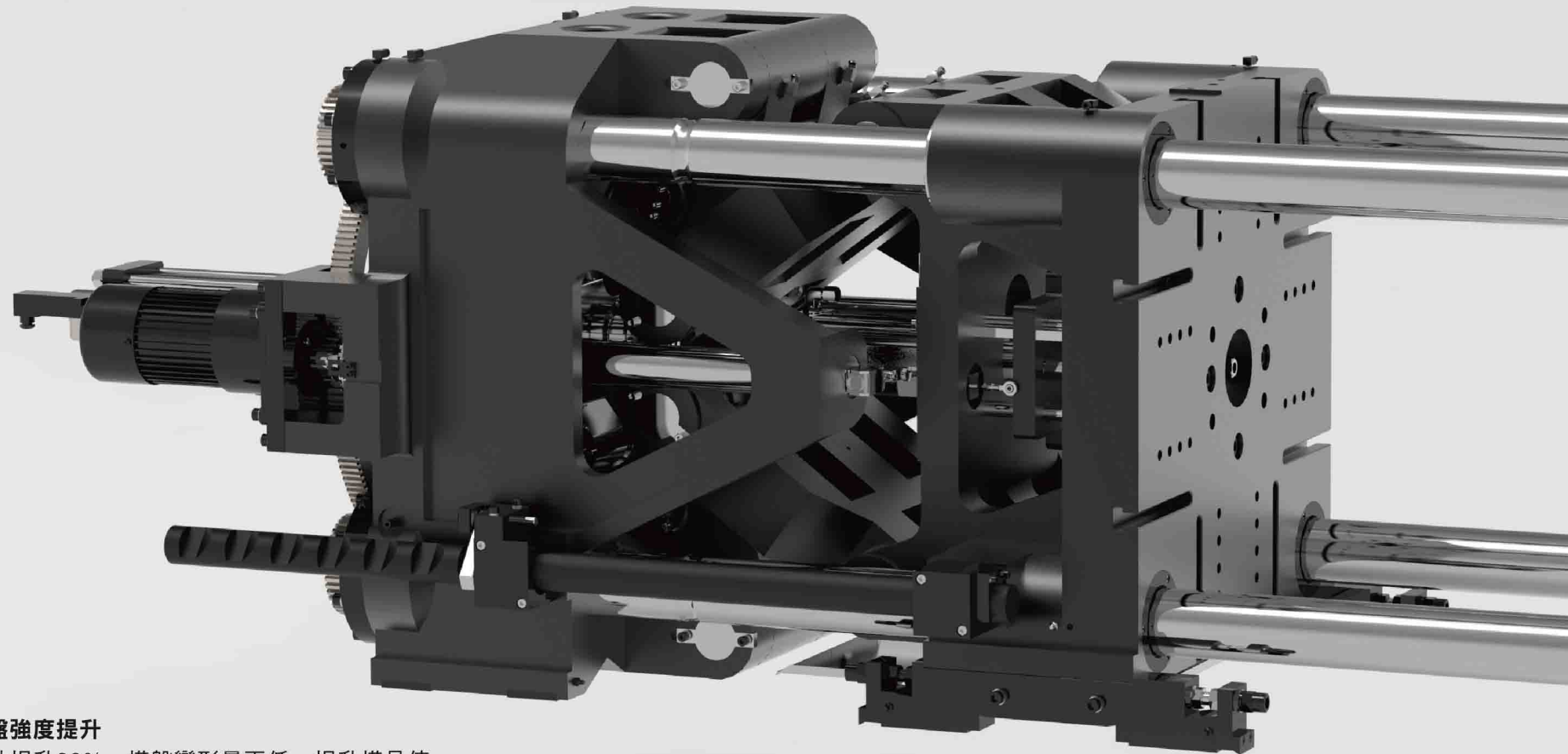
優化的夾模單元 Optimized Clamping Unit

調模電動馬達

具煞車型電動馬達，調模位置控制穩定。

Mold adjusting via electric motor

New electric motor with brake for stable position control of Die Height.

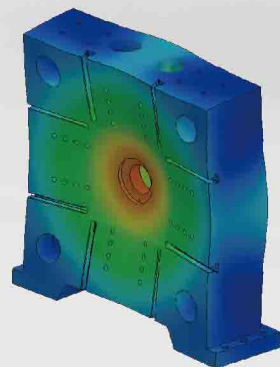


模盤強度提升

剛性提升30%，模盤變形量更低，提升模具使用壽命。

Platen strength improvement

Increase rigidity by 30%, lower deflection of mold plate, and improve the mold lifetime.

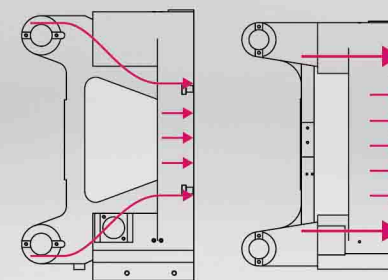


活動壁設計優化

- 力流線朝模盤中心集中，可減少模具變形。
- 具強制頂針退回設計功能，滿足模具產品特殊需求。

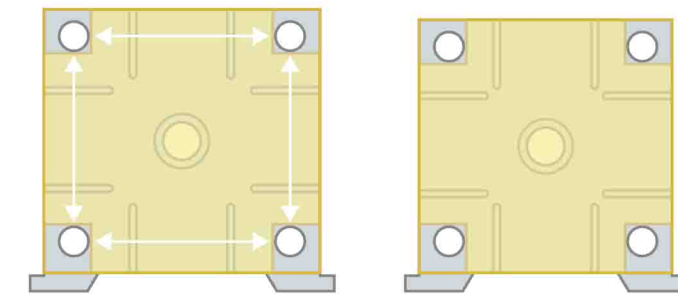
Moving platen optimization

- The clamping force flows through the center of the moving platen to help reduce mold wear.
- With mandatory ejector retracting design which meets the needs for special products.



FA Series

HT Series



FA Series

HT Series

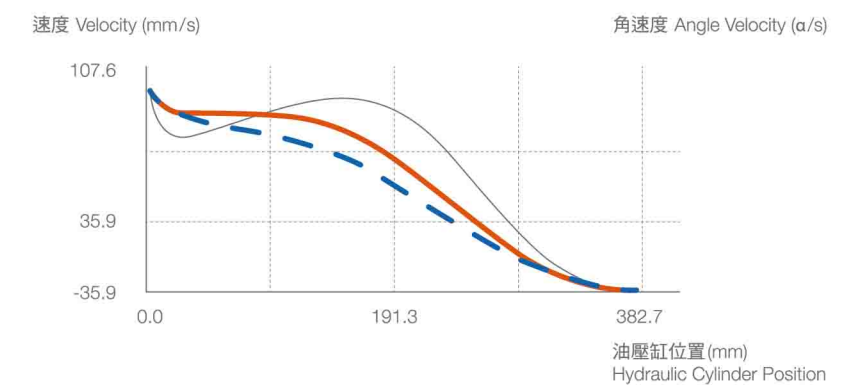
柱內距加大

模具應用彈性高。

Tie bar spacing increase

More flexible choices for mold application.

— 一般曲線 General curve
— 模擬曲線 Simulated curve
- - - 實測曲線 Measured curve



開關模平順性控制

關模速度曲線設計平滑化，導入S曲線速度命令，減少機台震動。

Precise control on clamp opening and closing speeds

S curve speed control allows for smooth transition with clamp speeds and reduces machine vibration.

直覺式操作介面

- 全新設計畫面風格與圖示，操作更為便利。
- 具多階密碼保護功能，記錄與限制各階使用者參數修改。
- 提供統計製程控制及射出波形圖，提高生產品質與效率。
- USB資料存取介面，模具參數、顯示畫面存取便利。
- 採多重通訊介面 (USB、串行接口、Ethernet、EtherCAT、Sercos III)。
- 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。
- 多種語言可供客戶選擇。

Intuitive HMI

- New control is designed for easy operator interface.
- The multi-level password protection function is used to record and limit the parameters modification from various levels of users.
- Provide statistical process control and injection waveforms to improve production quality and efficiency.
- Convenient access to USB data, mold parameters and display screens.
- Multiple communication interfaces (USB, serial interface, Ethernet, EtherCAT, Sercos III).
- Control supports OPC protocol and has a modular design to easily maintain the software and hardware.
- Multiple languages are available for users.

控制精度

- 加熱控制精度0.1°C並有效分段控制，以提升塑化能力。
- 位置控制精度0.1mm，可準確控制動作行程。

Control Precision

- Barrel heat zones are accurate to 0.1 degree C to ensure stable material plasticizing.
- Screw position is controlled with in 0.1mm to precisely control shot size and cushion position.



iMF 4.0 智能製造工廠

intelligent ManuFactory



遠端監控&工業4.0

- 生產品質記錄。
- 模具資料上傳及下載。
- 機台稼動率及產能統計。
- 機台停機狀態顯示及記錄。
- 可將資訊匯出以進行看板管理。(選配)

Remote Control & Industry 4.0

- Production quality recording.
- Mold information upload and download.
- Machine utilization rate and production capacity statistics.
- Machine downtime status display and recording.
- Information can be exported for visual management. (Optional)

控制器 Control	FCS 6500S	FCS 6500 (Optional)
螢幕尺寸 Screen Size	10"	12"
操作方式 Operation Method	按鍵 Button	按鍵&觸控 Button & Touch
反應時間 Reaction Time	2ms	1ms
螢幕顯示 Screen Display	• 800x600 像素 • 800x600 pixel	• 1600 萬色真彩顯示 • 16 million color palettes

規格表 Specifications

射出單元 Injection unit	夾模單元 Mold clamping unit										
	FA-60	FA-100	FA-125	FA-160	FA-200	FA-250	FA-300	FA-350	FA-400	FA-470	FA-530
130	★										
300		★									
400			★								
600				★							
850					★						
1050						★					
1400							★				
1700								★			
2350									★		
3550										★	
4850											★

• 射出單元規格可依產品需求選配。
• Injection units can be selected according to product requirements.

• ★星號為標準組合。
• ★ Star area means standard type.

ITEMS		UNIT	FA-60		FA-100			FA-125			FA-160			FA-200			FA-250			
射出單元 Injection unit	類型	Type	-	130		300			400			600			850			1050		
	螺桿直徑	Screw diameter	mm	24	28	32	36	40	36	40	45	40	45	50	45	50	55	50	55	60
	射出行程	Screw stroke	mm	115		160			180			200			220			240		
	理論射出容積	Theoretical shot volume	cm ³	52	71	129	163	201	183	226	286	251	318	393	350	432	522	471	570	678
	理論射出量	Shot weight of injection (PS)	gram	47	64	117	148	183	167	206	260	229	289	357	318	393	475	429	519	617
	射出壓力	Injection pressure	kgf/cm ²	2667	1959	2344	1852	1500	2241	1815	1434	2405	1900	1539	2430	1968	1626	2253	1862	1564
	射出速度	Injection speed	mm/sec	160		100			100			100			100			89		
射出率	Injection rate	cm ³ /sec	66	89	73	93	114	93	114	145	114	145	179	145	179	216	159	192	228	
夾模單元 Mold clamping unit	閉模力	Mold clamping force	kN (tonf)	600 (60)		1000 (100)			1250 (125)			1600 (160)			2000 (200)			2500 (250)		
	夾模行程	Mold clamping stroke	mm	270		320			360			430			490			540		
	模厚	Mold thickness	mm	120~330		150~400			150~460			180~530			200~650			220~680		
	建議最小模具尺寸	Suggested min. mold dim. (HxV)	mm	210x210		240x240			275x275			310x310			345x345			380x380		
	大柱內距	Tie bar spacing (HxV)	mm	320x320		370x370			420x420			470x470			530x530			580x580		
	模盤尺寸	Mold platen (HxV)	mm	470x470		560x560			625x625			705x705			790x790			870x870		
	頂出行程	Ejector stroke	mm	70		100			120			140			140			150		
頂出力	Ejector force	kN (tonf)	25 (2.5)		35 (3.5)			35 (3.5)			35 (3.5)			65 (6.5)			65 (6.5)			
電氣單元 Electrical equipment	最大油泵動力	Max. pump driving motor	kW (380V)	13		13			13			18			22			22		
	溫度控制器	Temperature controller	set	4		5			5			5			5			5		
	電熱容量	Heater capacity	kW	4.8		7.8			9.7			13.3			15.7			19.5		
其他 Others	機械尺寸	Machine dimensions (LxWxH)	mm	4150x1380x1650		4540x1340x1735			4760x1380x1805			5290x1450x1895			5890x1530x1975			6400x1720x2080		
	油箱容量	Oil tank capacity	liter	170		170			220			280			280			350		
	機械重量	Machine weight	ton	3		4.6			5.5			7			8.9			11.3		
	最高系統壓力	Max. system pressure	kgf/cm ²	160		160			160			160			160			160		

ITEMS		UNIT	FA-300			FA-350			FA-400			FA-470			FA-530			
射出單元 Injection unit	類型	Type	1400		1700			2350			3550			4850				
	螺桿直徑	Screw diameter	mm	55	60	65	60	65	70	65	70	75	70	80	85	80	85	90
	射出行程	Screw stroke	mm	260		280			330			380			450			
	理論射出容積	Theoretical shot volume	cm ³	617	735	862	791	929	1077	1094	1269	1457	1462	1909	2155	2261	2552	2861
	理論射出量	Shot weight of injection (PS)	gram	562	669	785	720	845	980	996	1155	1326	1330	1737	1961	2057	2323	2604
	射出壓力	Injection pressure	kgf/cm ²	2285	1920	1636	2153	1835	1582	2187	1886	1643	2429	1860	1648	2156	1910	1704
	射出速度	Injection speed	mm/sec	90		100			100			90			90			
射出率	Injection rate	cm ³ /sec	195	233	273	257	301	349	303	352	404	315	411	464	410	463	519	
夾模單元 Mold clamping unit	閉模力	Mold clamping force	kN (tonf)	3000 (300)		3500 (350)			4000 (400)			4700 (470)			5300 (530)			
	夾模行程	Mold clamping stroke	mm	590		640			700			780			850			
	模厚	Mold thickness	mm	230~730		250~760			280~800			320~820			350~860			
	建議最小模具尺寸	Suggested min. mold dim. (HxV)	mm	430x410		470x445			500x480			540x530			560x540			
	大柱內距	Tie bar spacing (HxV)	mm	660x630		720x680			760x730			830x810			860x830			
	模盤尺寸	Mold platen (HxV)	mm	975x945		1065x1025			1115x1085			1215x1195			1270x1240			
	頂出行程	Ejector stroke	mm	150		160			180			200			220			
頂出力	Ejector force	kN (tonf)	65 (6.5)		65 (6.5)			110 (11)			110 (11)			160 (16)				
電氣單元 Electrical equipment	最大油泵動力	Max. pump driving motor	kW (380V)	26		30			45			52			52			
	溫度控制器	Temperature controller	set	5		5			6			6			7			
	電熱容量	Heater capacity	kW	22		26			30			35.9			40.5			
其他 Others	機械尺寸	Machine dimensions (LxWxH)	mm	6930x1930x2215		7400x2060x2290			7980x2100x2370			8735x2350x2250			9860x2200x2410			
	油箱容量	Oil tank capacity	liter	440		550			550			785			830			
	機械重量	Machine weight	ton	12		15.5			19.2			24.2			30.2			
	最高系統壓力	Max. system pressure	kgf/cm ²	160		160			160			160			160			

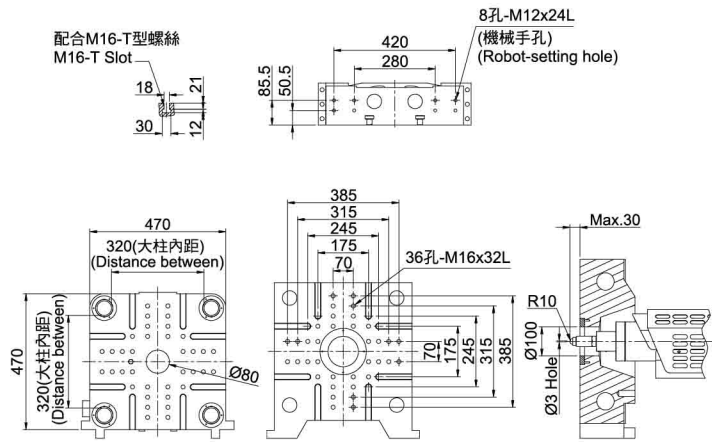
• 本資料僅供參考。因產品不斷研究改良，設計變更時恕不另作通知。
• FA-250~530，D螺桿僅限用於高流動性塑料，例如PP、LDPE等。

The features are for your reference only. Due to continuous improvements, we reserve the right to amend any of the above specifications without prior notice.
FA-250~530, D screw will be only applicable to high MI value resin, for example PP, LDPE.

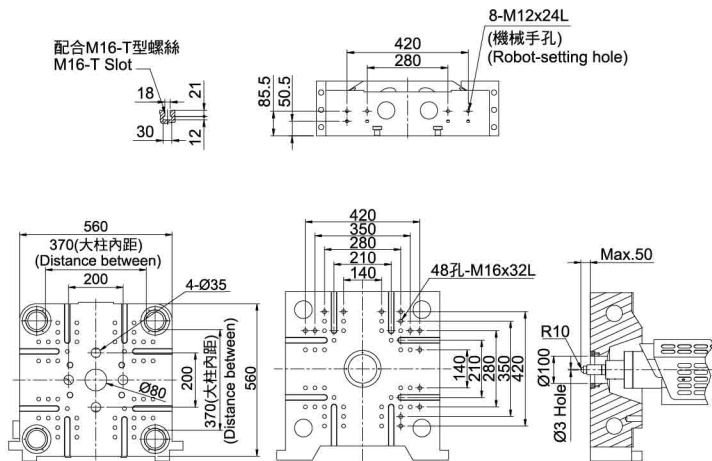
模壁尺寸圖 Mold Platen Dimension

機械手孔位圖 Robot Mounting Hole

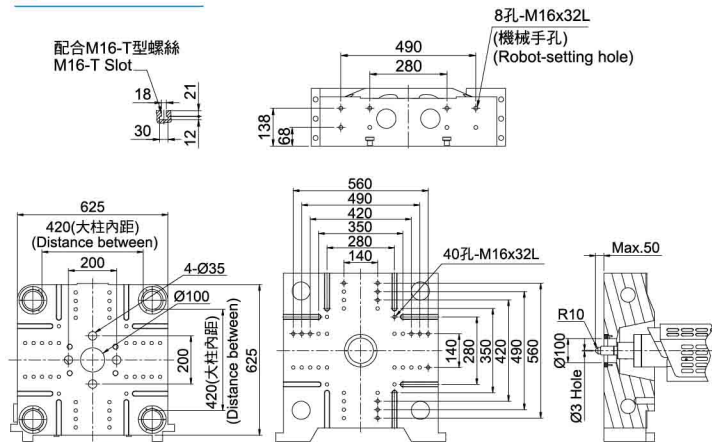
FA-60



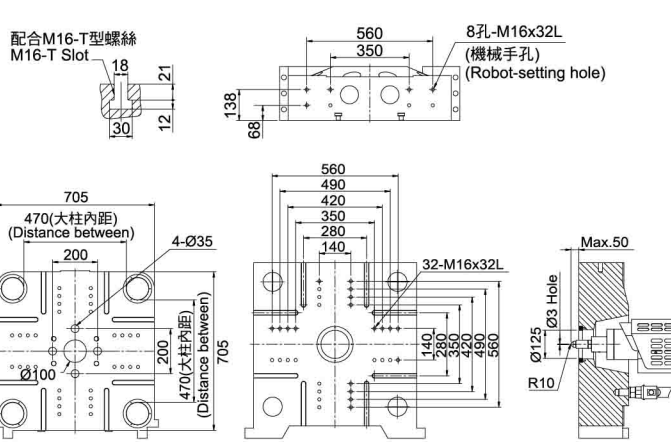
FA-100



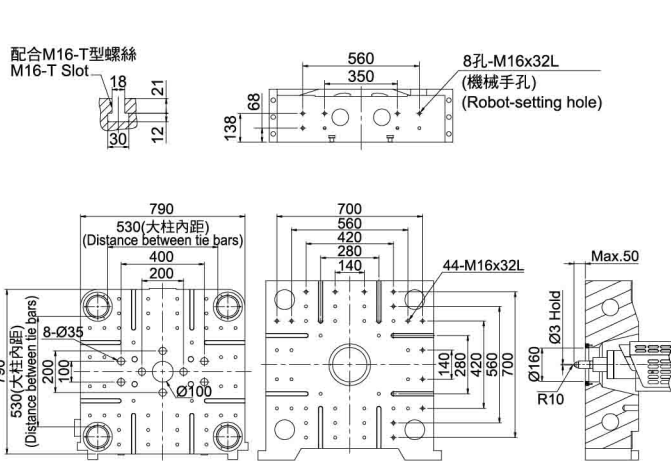
FA-125



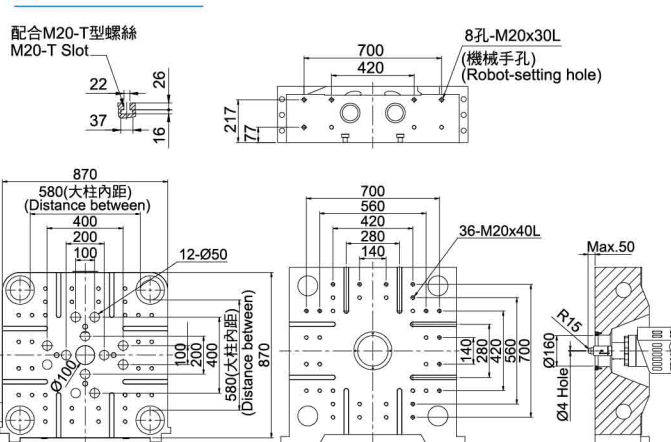
FA-160



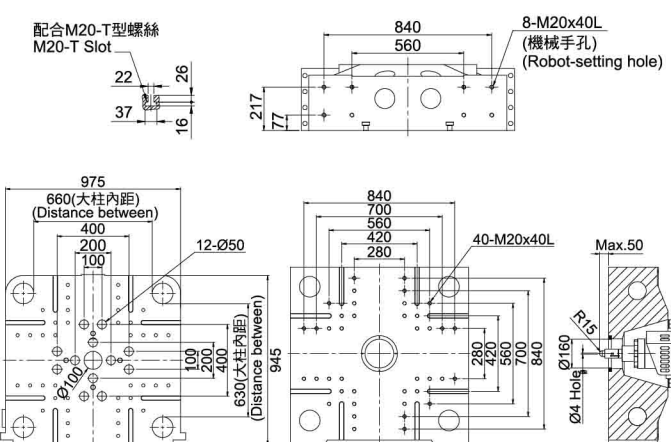
FA-200



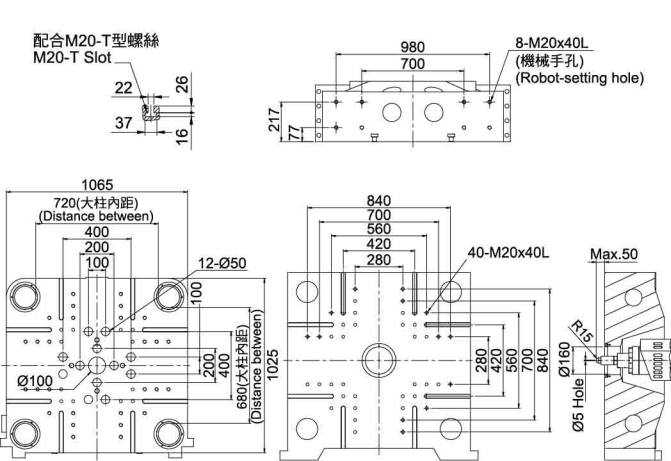
FA-250



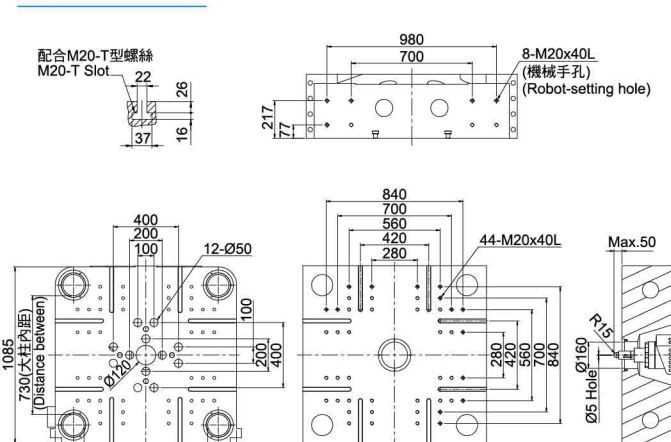
FA-300



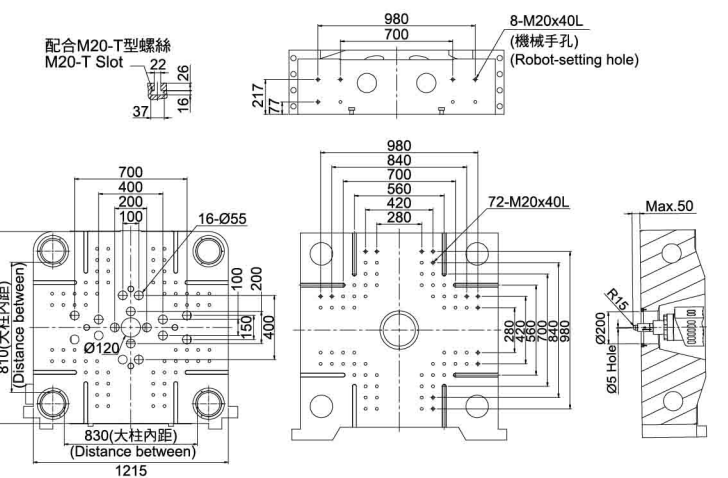
FA-350



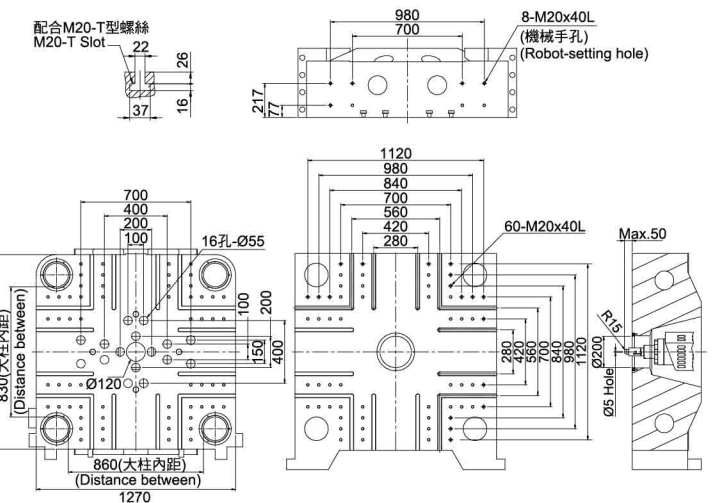
FA-400



FA-470



FA-530



標準與選購配備 Standard & Optional Accessories

配備項目	ITEM	FA-60	FA-100	FA-125	FA-160	FA-200	FA-250	FA-300	FA-350	FA-400	FA-470	FA-530
射出安全護罩	Safety cover for injection	●	●	●	●	●	●	●	●	●	●	●
射出止逆裝置	Shot-off Nozzle	○	○	○	○	○	○	○	○	○	○	○
PVC、PC、壓克力、尼龍專用螺桿組	Special Screw for PC/PMMA/PA/PVC...	○	○	○	○	○	○	○	○	○	○	○
雙合金螺桿、料管	Bi-alloy Screw/Barrel	○	○	○	○	○	○	○	○	○	○	○
托拉式落料裝置	Sliding material feeding device	●	●	●	●	●	●	●	●	●	●	●
曲手：無給油軸承	Oiliness bearing (Toggle)	●	●	●	●	●	●	●	●	●	●	●
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)	●	●	●	●	●	●	●	●	●	●	●
成品落下口	Article Collecting Channel	●	●	●	●	●	●	●	●	●	●	—
電動安全門	Automatic safety gate (Electric type)	—	—	—	—	—	○	○	○	○	○	○
機械安全桿保護裝置	Mechanical Safety bar Protection device	○	○	○	○	○	○	○	○	○	○	○
水流分佈器8入8出(銅製)	Water manifold - 8 in & 8 out (copper)	●	●	●	●	●	●	●	●	●	●	●
水流分佈器10入10出(銅製)	Water manifold - 10 in & 10 out (copper)	○	○	○	○	○	○	○	○	○	○	○
全罩式钣金	Whole machine housing	●	●	●	●	●	●	●	●	●	●	●
強制托退	Ejector pull back	○	○	○	○	○	○	○	○	○	○	○
電眼檢出	Photo cell drop-out checking device	○	○	○	○	○	○	○	○	○	○	—
成品落下板	Finished drop board	●	●	●	●	●	●	●	●	●	●	—
開模定位迴路	Mold opening positioning device	○	○	○	○	○	○	○	○	○	○	○
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(伺服閥)	Closed-loop control for injection (servo valve)	○	○	○	○	○	○	○	○	○	○	○
曲手電動注油器(1組)	Auto lubrication system for toggle (1 set)	●	●	●	●	●	●	●	●	●	●	●
車壁潤滑：電動注油器	Auto lubrication system(platen)	●	●	●	●	●	●	●	●	●	●	●
單中子+止逆(一公)	Single core pull device	●	●	●	●	●	●	●	●	●	●	—
雙中子+止逆(一公一母)	Double core pull device	○	○	○	○	○	○	○	○	○	○	●
轉牙裝置(計時/計次)	Unscrew device by timer or counter	○	○	○	○	○	○	○	○	○	○	○
自封式磁性吸油過濾器	With check valve magnetic suction filter	●	●	●	●	●	●	●	●	●	●	●
雙迴路(開模與托模同動)	Double loops system (mold open - ejector start)	○	○	○	○	○	○	○	○	○	○	○
雙迴路(開模與加料同動)	Double loops system (mold open - screw charge start)	○	○	○	○	○	○	○	○	○	○	○
三迴路(開模、托模與加料同動)	Parallel movement for material charging & mold ejecting during mold opening	○	○	○	○	○	○	○	○	○	○	○
伺服節能系統	Servo power-saving system	●	●	●	●	●	●	●	●	●	●	●
托模止逆閥	Non-return valve for ejector	○	○	○	○	○	○	○	○	○	○	○
射出壓力螢幕顯示	Injection pressure display on screen	○	○	○	○	○	○	○	○	○	○	○
射嘴獨立溫控	Temperature control of injection nozzle	●	●	●	●	●	●	●	●	●	●	●
落料口溫度顯示	Temperature display of feeding gate	●	●	●	●	●	●	●	●	●	●	●
落料口溫度控制	Temperature control of feeding gate	○	○	○	○	○	○	○	○	○	○	○
射出電阻尺	Linear potentiometer for injection	●	●	●	●	●	●	●	●	●	●	●
射座電阻尺	Linear potentiometer for injection carriage	○	○	○	○	○	○	○	○	○	○	○
夾模電阻尺	Linear potentiometer for clamping	●	●	●	●	●	●	●	●	●	●	●
托模電阻尺	Linear potentiometer for ejection	●	●	●	●	●	●	●	●	●	●	●
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-6500S微電腦控制器(彩色：KEBA)	FCS-6500S controller (color & key screen:KEBA)	●	●	●	●	●	●	●	●	●	●	●
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	○	○	○	○	○	○	○	○	○	○	○
資料保護鎖(硬體鎖)	Data lock function (key)	●	●	●	●	●	●	●	●	●	●	●
機械手電氣接口	Robot electrical interface	○	○	○	○	○	○	○	○	○	○	○
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	●	●	●	●	●	●	●	●	●	●	●
氣壓式閘澆口控制閥	Pneumatic type Valve Gate	○	○	○	○	○	○	○	○	○	○	○
不銹鋼漏斗	Stainless hopper	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
乾燥機	Hopper dryer	○	○	○	○	○	○	○	○	○	○	○
抽料機	Auto loader	○	○	○	○	○	○	○	○	○	○	○
模溫機	Mold temperature controller	○	○	○	○	○	○	○	○	○	○	○
乾燥機磁鐵	Magnet of hopper dryer	○	○	○	○	○	○	○	○	○	○	○
避震器	Anti-vibration mounting pad	●	●	●	●	●	●	●	●	●	●	●
工具箱組	Tool box	●	●	●	●	●	●	●	●	●	●	●
標準出車附件	Spare parts	●	●	●	●	●	●	●	●	●	●	●
外銷出車附件	Export accessories	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

● 標準配備 Standard ○ 選購配備 Option ▲ 選附配備 Free Option — 無 N/A