



MOLD

高精密射出模具

High Precision Injection Mold

模具暨營業技術支援服務

Mold & Product Technical Support Service

富強鑫集團(FCS)為臺灣射出成型機製造業的領導品牌，且為業界第一家通過CE與ISO-9001認證與股票公開發行的射出機製造廠。為了提供全方位的服務，從多年前開始協助客戶設計生產精密塑膠模具，並持續深耕各種相關技術(CAD / CAM / CAE / FMS / FMC)，目前為止更成功推出各種專用成型系統的整合與銷售，成效卓著，已然成為顧客高度認同與信賴的射出成型解決方案提供者。

FCS成立專責模具開發及成型系統整合的營業技術單位，多年來專注在如多模穴PET瓶胚/採血管、IML薄型容器、精密光學元件，以及智慧製造等高技術含量的產品類別上，透過系統性的整合與整廠規劃，完美提供全面的成型解決方案，滿足客戶一站購足、完整服務的需求。

Fu Chun Shin Machinery Manufacture Co., Ltd., also known as FCS, is the leading brand in the field of plastic injection molding industry in Taiwan, and also the first manufacturer to acquire CE and ISO 9001 certification, and went public on the stock market of Taiwan in IMM industry. For many years, it offers molds for the clients in addition to machinery manufacturing, and has been investigating in injection molding technology; (means / tools to be used for analysis are CAD, CAM, CAE, FMS, FMC, etc.) It also conducts integration and sales on various fields of injection molding and the most suitable products were worked out and have been adopted in the industry. FCS has become the most dependable provider of injection molding solution.

FCS established its product technical support team which specializes in multi-cavity PET preforms, and vacuum blood tubes, IML thin-wall containers, precise optical unit molds, and also intelligent manufacturing consultation. With factory planning & systematic coordination, it provides a one-stop shopping and complete service experience, a "Total solution" to the clients.

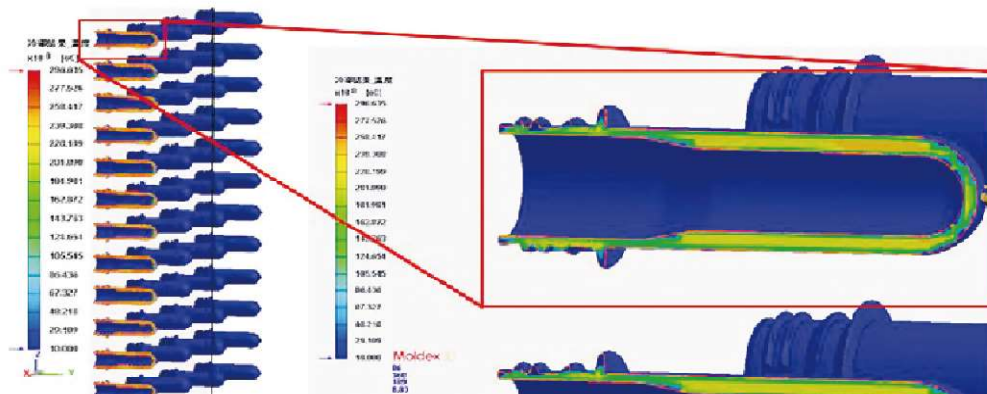
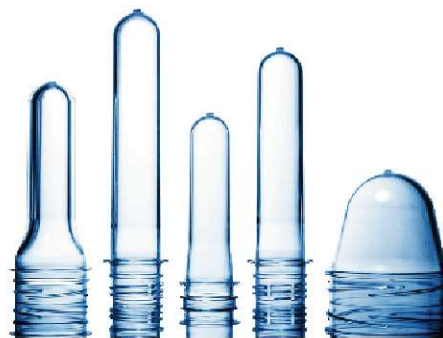


設備介紹 Production Instruments

設計分析軟體 Software for Design & Analysis	精密加工設備 Processing Equipments	精密量測設備 Inspecting & Measuring Instruments
 <ul style="list-style-type: none"> POWER SHAPE POWER MILL PRO/ENGINEER ZW CAD 	<ul style="list-style-type: none"> 模具立式加工機 CNC銑床 CNC放電加工機 平面磨床 成型研磨機 傳統車床 立式鑽床 Machining centers (vertical spindles) CNC milling machines CNC EDM Surface grinding machines Universal grinding machines Traditional lathes machines Vertical drilling machines 	<ul style="list-style-type: none"> 三次元量床 光學投影機 應力分析儀 表面粗度計 高度規 精密電子天秤 熱顯像儀 Coordinate measuring machines Profile projectors Residual stress analyzer Surface roughness instruments Height gauge Precise electronic balance Thermal Imager

服務項目 Range of Service

- 各式精密塑膠射出模具設計開發
Design & development for diversified precise molds
- 模流分析與最佳化模具設計方案
Mold flow analysis & optimized solution for mold design
- 專用成型系統整合與銷售 (PET / IML / MED等)
Specialized molding system: Sale & Integration (PET/IML/Medical series)
- 整廠規劃與技術移轉 (含教育訓練)
Turnkey solution planning & technology transferring (operators' training included)



各式模具設計/製造/整合/客製化

Diversified Molds Design / Manufacture / Automation / Customization

PET 瓶胚模具

PET Preform

特性：採用進口熱澆道元件與溫控單位，各穴溫度在 $\pm 1^{\circ}\text{C}$ 之間。

特殊冷卻水路設計，系統整合後，成型週期短，高效率生產。

材料：模蕊材質為STAVAX，HRC50°，不變形耐衝擊，保證一佰萬模次以上。

穴數：8, 16, 24, 32, 48, 64, 72

Highlights:

Imported hot runner parts & temp. control unit; temperature varies within $\pm 1^{\circ}\text{C}$.

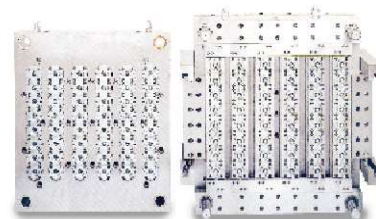
Typical cooling flow design reduces cycle time and enhance the productive efficiency.

Mold steel:

STAVAX, HRC50° as core; transform-resisting & impact-proof;

warranty for 1-million shots.

Number of cavity: 8, 16, 24, 32, 48, 64, 72



PET 48

醫療器材模具

Disposable Medical Products

特性：採用進口熱澆道元件與溫控單位，各穴溫度在 $\pm 1^{\circ}\text{C}$ 之間。

特殊冷卻水路設計，系統整合後，成型週期可達7秒內(以32穴採血管為例)。

材料：模蕊材質為STAVAX，HRC50°，不變形耐衝擊，保證一佰萬模次以上。

穴數：16, 24, 32, 48

Highlights:

Imported hot runner parts & temp. control unit; temperature varies within $\pm 1^{\circ}\text{C}$.

Typical cooling flow design makes cycle time as low as 9 seconds (32 cavities).

Mold steel:

STAVAX, HRC50° as core; transform-resisting & impact-proof;

warranty for 1-million shots.

Number of cavity : 16, 24, 32, 48



民生五金

Houseware

特性：良好的結構設計,使用者保養方便。

材料：NAK80等進口鋼材。

穴數：單穴或多模穴。

Highlights:

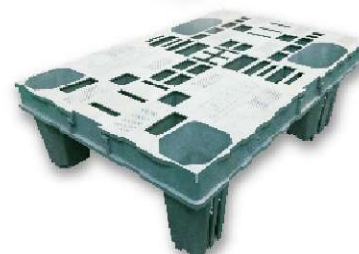
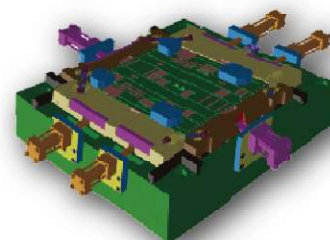
Superb structure and design, easy for maintenance.

Mold steel:

Made with imported steel, such as NAK80.

Number of cavity:

Single or multi-cavity.



薄型容器模具

Thin wall Container

特性：採用進口熱澆道元件與溫控單位，各穴溫度在 $\pm 1^{\circ}\text{C}$ 之間。

特殊冷卻水路設計，系統整合後，成型週期可達5~6秒內(以4穴220cc 水杯 / 厚度0.5 mm為例)。

材料：模蕊材質為STAVAX，HRC50°，不變形耐衝擊，保證一佰萬模次以上。

穴數：1, 2, 4, 8

Highlights:

Imported hot runner parts & temp. control unit; temperature varies within $\pm 1^{\circ}\text{C}$. Typical cooling flow design makes cycle time as low as 5~6 seconds (4 cavities / 220cc / thickness 0.5 mm cup).

Mold steel:

STAVAX, HRC50° as core; transform-resisting & impact-proof; warranty for 1-million shots.

Number of cavity: 1, 2, 4, 8



汽車零件模具

Automotive Parts

特性：完美的流道設計,容易獲得良好的成品外觀。

材料：依成品材料選用。

穴數：單穴或多模穴。

Highlights:

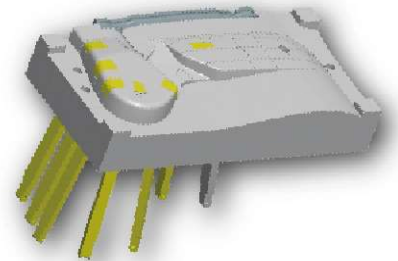
Innovative hot runner design for better product appearances.

Mold steel:

Depending on the final product.

Number of cavity:

Single or multi-cavity.



PVC 管件類模具

PVC Fittings

特性：各類管件模具設計製造,精湛的加工手法及超前的設計理念。

材料：模芯材質為2316 HRC32°，耐腐蝕、耐磨耗。

Highlights:

Molds are designed with state of art technique.

Mold steel:

Core material: 2316 HRC32°, corrosion and wear resistant.



模流分析與最佳化模具設計方案

Mold Flow Analysis & Optimized Solution for Mold Design

優勢能力

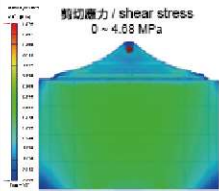
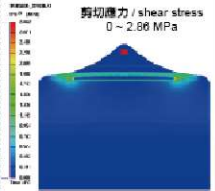
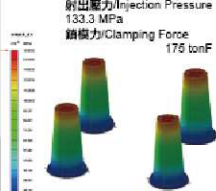
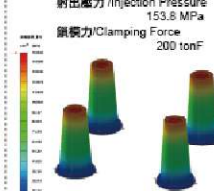
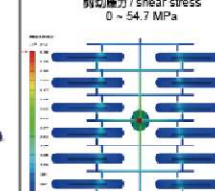
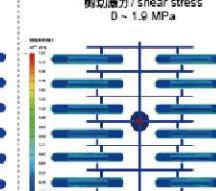
- 各類型產品之冷卻水路/流道系統優化分析。
- 光學元件充填分析與光彈模擬。
- 雙色/氣輔等特殊成型方案評估。
- 品質實驗設計與成型參數改善方案建議。
- 週邊自動化機器手整合模具測試。

Advantages of Mold Development

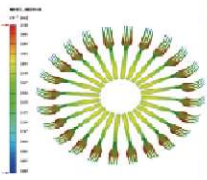
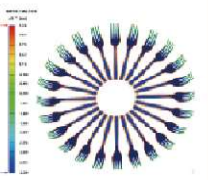
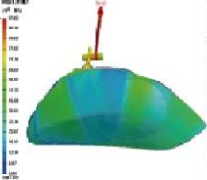

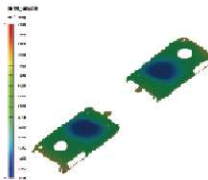
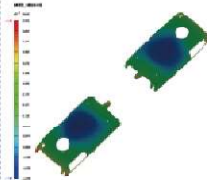
- Optimal analysis & design of cooling channels & runner systems.
- Mold flow analysis & photoelasticity simulation for optical parts.
- Multi-component products & gas-assisted items molding solutions.
- Design of quality experiment & molding parameter improvement.
- Test with automatic robot integrated.

高速精密成型與薄件成型類

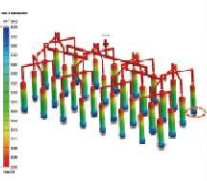
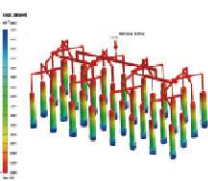
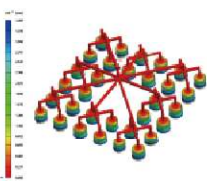
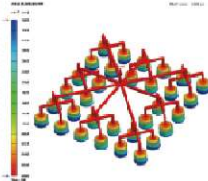
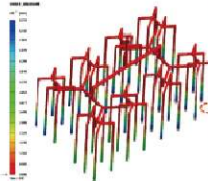
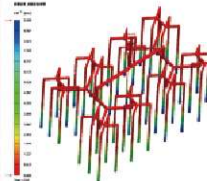
High-Speed, Precise & Thin-Wall Product Moldings

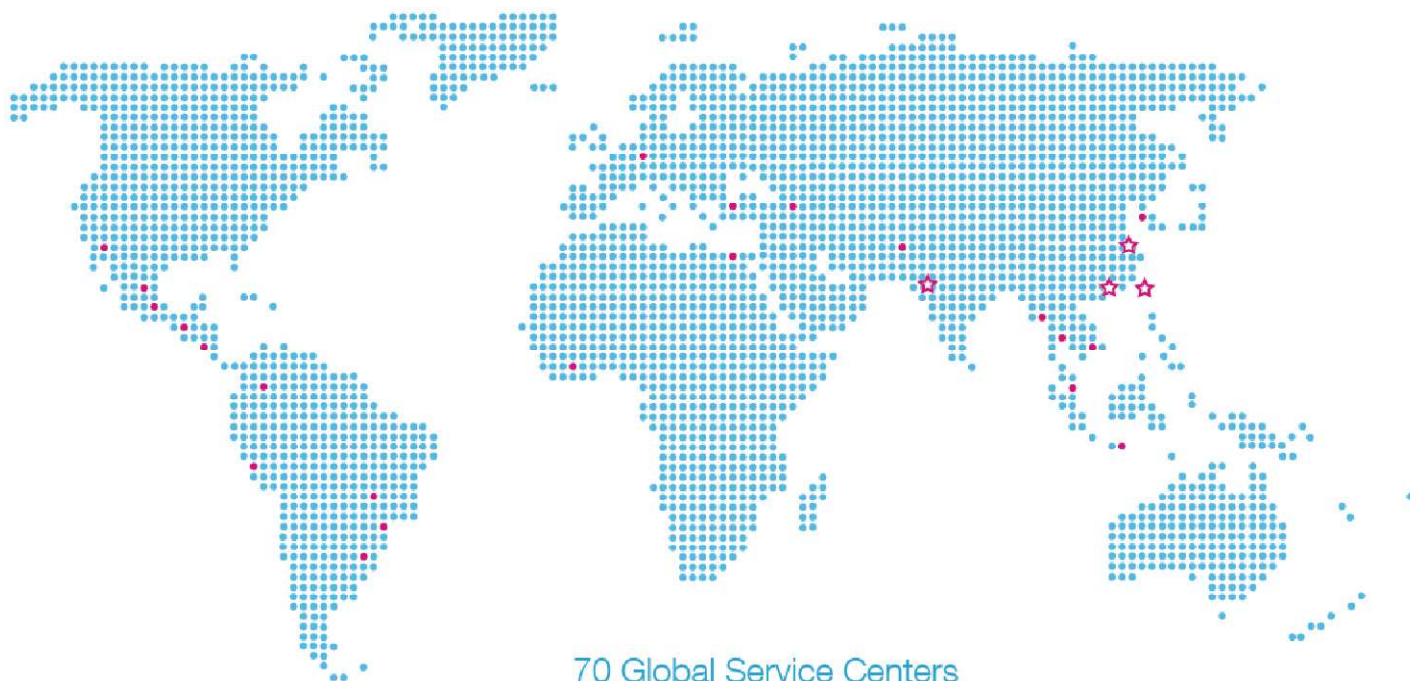
導光板 Light-Guide Plate		包裝容器 Container for Packaging		電池板 Battery Housing	
Before	After	Before	After	Before	After
 <p>剪切應力 / shear stress 0 ~ 4.68 MPa</p>	 <p>剪切應力 / shear stress 0 ~ 2.86 MPa</p>	 <p>射出壓力 / Injection Pressure 133.3 MPa 鎖模力 / Clamping Force 175 tonF</p>	 <p>射出壓力 / Injection Pressure 153.8 MPa 鎖模力 / Clamping Force 200 tonF</p>	 <p>剪切應力 / shear stress 0 ~ 54.7 MPa</p>	 <p>剪切應力 / shear stress 0 ~ 1.9 MPa</p>
澆口大小調整	降低成品剪切應力殘留位置均勻	調整產品肉厚	減少產品厚度，使其鎖模力需求在同樣範圍內	澆口尺寸調整	降低成品剪切應力及使應力殘留位置邊緣化
Sprue size adjusted.	Shear stress reduced and maintains it in the gate part.	Wall-thickness adjusted.	Uniform clamping force by reducing product thickness.	Sprue size adjusted.	Shear stress reduced and maintains it on the side of the product.

泛用成型類 Standard Product Moldings

食用餐具 Tableware		車燈 Car Lamps		手機殼 Shell of Mobile Phone	
Before	After	Before	After	Before	After
					
產品肉厚調整	改善成品翹曲變形現象	調整澆口尺寸	使殘留應力呈現於邊緣，不影響燈殼導光功用	流道設計變更	減少成品翹曲變形程度
Wall-thickness adjusted.	Improved warpage condition.	Gate size adjusted.	Maintains shear stress on the side of the product to avert effect on optical ability.	Sprue size adjusted.	Improved warpage condition.

多模穴成型類 Multi-Cavity Product Moldings

瓶胚 PET		瓶蓋 Cap		採血管 Blood Collection Tubes	
Before	After	Before	After	Before	After
					
熱流道設計調整	改善流動不平衡現象，進而達到高潔淨度的產品	熱流道設計調整	改善流動不平衡現象	熱流道設計調整	改善流動不平衡現象，獲得高潔淨度的成品
Hot runner design & adjusted.	Improve unbalanced filling condition for higher quality production.	Hot runner design & adjusted.	Improve the unbalanced filling condition.	Hot runner design & adjusted.	Improve unbalanced filling condition for higher quality production.



富強鑫集團 FCS Group



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