

70 Global Service Centers

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## 富強鑫集團 FCS Group

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# HN SERIES

## 曲手式精密節能注塑機

Toggle Clamping Energy-Saving Injection Molding Machine

# HN 系列產品定位

HN SERIES Product Position



富強鑫以優勢技術，創造多樣化的產品設計，能滿足各類產業不同的成型條件需求。為了便於客戶之選購及正確搭配，以達到最佳的價格性能比，以下根據射出速度條件及精密成型性能，說明富強鑫公司HN系列機種的產品特色及定位。伴隨著社會經濟的發展，產品競爭與成本壓力的日漸加劇，富強鑫HN系列注塑機將是您最理想的選擇！

Cutting edge technology, diversified product design to satisfy molding conditions demanded by various industries, FCS future described features and marketplace each of the following of new product series based on injection speed conditions and precision molding performance to help our clients in the purchase of our products with the correct attachments for achieving the optimal price performance ratio. with the development of social economy, the competition of the products and the pressure of the cost are aggravation, HN series injection molding machine will be your first choice.

## ● HN系列

本系列為標準泛用機種，應用範圍廣泛、如一般家用五金製品、電子資訊產品外殼、汽車部件、一般鏡片、框架等。該系列機種融合了富強鑫公司成熟穩定的技術特長，搭配以高品質專用伺服電機系統與泵切換控制技術，與傳統普通電機搭配定量泵注塑機相比，節省能源可達 70%以上，同時整機形成閉環控制，成型精度及穩定性將獲得大幅提升，實現了節能度更高、性能更優越、精度更準確。

## ● HN Series

HN Series Related to the standard universal types that give wide range of applications including domestic hardware, electronic information product casings, automobile arts, lens, and frames. The series adopts high-efficient professional servo motor and driver system. It can save 70% more power than ordinary fixed pump injection molding machine. At the same time, closed loop was formed, so the precious and stability were improved.

# 曲手式精密節能注塑機

Toggle Clamping Energy-saving Injection Molding Machine

## ● 模組化

機構、油路、配線模組化，更替容易

## ● 簡單

射座改良，射嘴校正容易  
使用免潤材料，保養容易

## ● 耐用

車壁剛性強化，模具不變形

## ● 淨潔

射出座採二硫化鉬  
塗佈襯套，永久免潤滑

## ● 精密

選購半閉迴路，成型控制更精密

## ● 省能源

再生迴路設計，可節省回油耗損

## ● 穩穩

可配置半閉迴路與高效率冷卻器  
成型更穩定

## ● 快速

射速提高，空循環時間減短

## ● User Friendly

Easy nozzle alignment after injection carriage improved.  
Easy care and Maintenance.

## ● Durable

Thicker Platens to add strength, free from deforming molds.

## ● Clean

Molybdenum Disulfide coated bushing free from grease & oil maintenance.  
Bearing & IHI Auto Lube system.

## ● Modularized

Modularized power, hydraulic, mechanical components, easy care.

HN  
SERIES



# 優越特點

Specific Feature



## 無給油軸承

曲手及車壁活動部位均採用無給油軸承，減少潤滑油使用，降低保養成本並可減少油污，提升機台清潔度。

## Oiliness bearing

Using oiliness bearing on the moving parts of platen and toggle, also saving maintenance cost of oil consumption for more clean advancing.

## KEBA (FCS-6500S)

全新FCS-6500S型控制器，可搭配半閉及全閉迴路油壓系統，加上人性化圖形操作介面、線上曲線監測功能及中央網路連線管理，使HN系列如虎添翼。



## FCS-6500S Control System

Intelligent through applying the new series of FCS-6500S controller capacitate with semi-close loop or close loop, personality graphic operation interface, in line curving detecting and manage by centralized web link.

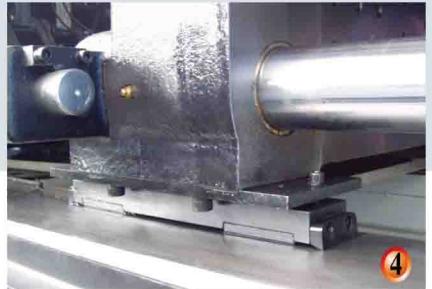


## 自動潤滑分配系統

循環式電動注油系統，油量分配平均，潤滑效率高，增長曲手壽命。

## Auto Lubrication system

Circulatory lubrication system can distribute oil equally and achieve high efficiency of lubrication to enhance toggle lifetime.



## 活動壁滑腳

採用德製B+S高分子耐磨材，低摩擦係數，潔淨免潤滑，可調整高低、支撐平均！

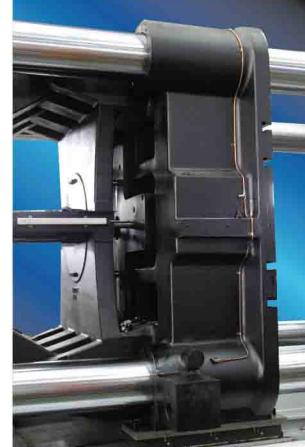
## Moveable platen skates

Adopting Germany made B+S polymer wear-resistance material and thus to achieve low friction, clean and need not lubricate.



## 箱型活動壁結構

採用高剛性連體結構，低變形量，確保大柱壽命。



## Box movable platen structure

Adopted high rigid unity structure to reduce the stress affect and to assure the tie bar life.



## New Injection Sliding Structure

The new pillar guiding plate structure yields shortened span to avoid inclination forward of the barrel and the deformation due to drop of the guide plate; use of molybdenum disulfide coated sleeve to pay small resistance, faster movement, permanent lubrication free and high cleanliness.

## 高剛性夾模系統

新一代曲手鎖模機構，採用箱型活動壁及高剛性固定壁結構，經有限元素分析高強度且耐疲勞。

## High Rigid Clamping Unit

The new generation of toggle clamping structure, adopting box movable platen and high rigid fixed platen structure, can achieve high strength and weary-resistance through FEA analysis.



## 新式調模機構

調模機構與調模整體式設計，使四支大柱受力均勻，免除調整螺母鬆緊之誤差。



## New mold adjusting mechanism:

Integrated design for the adjusting mechanism and the adjusting platen for the tie bar to be subject to evenly distributed force, and the adjustment of the error of torque of mounting the nut is not required.

## 高速曲手夾模結構

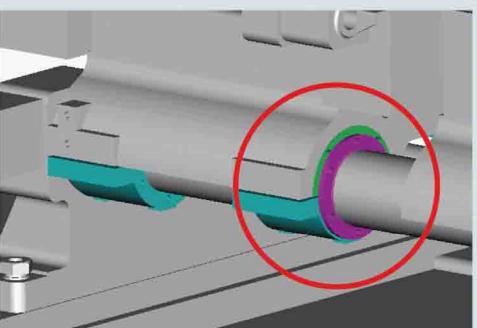
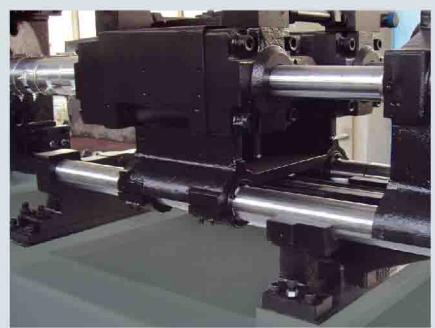
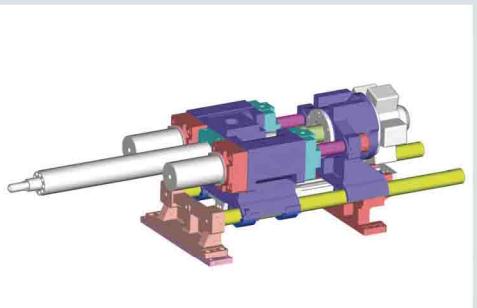
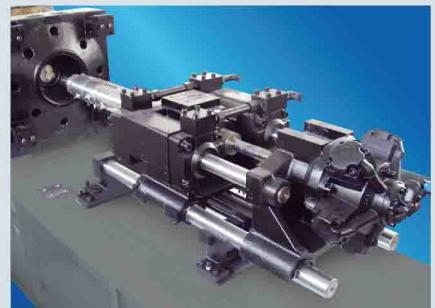
開關模速度比傳統夾模結構及二板式快一倍以上。

## Hi-speed toggle clamping structure

Model open/close speed twice faster than the conventional clamping structure and double plate type.

# 新型導柱式射座結構

New Carriage Structure



- 再生迴路、提升射速射壓
- 新式導柱射座、維修保養容易
- 免潤材料使用、潔淨環保美觀
- Regeneration loop to upgrade injection speed and pressure
- New pillar guiding plate injection stand allowing easy service
- Lubrication free materials used to guarantee clean environment

射出導柱使用專利二硫化鉬塗佈襯套，永久免潤滑，使射出部位保持潔淨

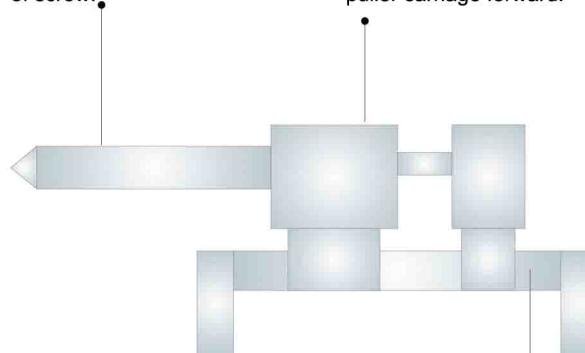
Injection pillar guiding plate adapted with patented molybdenum disulfide coating for permanent lubrication free and helping maintain cleanliness of the injection parts.

## 【傳統導柱式】

Conventional Guide Plate

料管前端下垂，導致螺桿磨損。  
Barrel front end drops resulting to accelerate the tear and wear of screw.

雙缸前拉座進造成作業干擾。  
Interference to the operation from double cylinder pre-puller carriage forward.



固定座跨距大  
導柱易下垂彎曲變形。  
Guide plate dropped, bent or deformed due to larger stand span.

## 【FCS新型導柱式】

FCS Newly Developed Guide Plate

導柱孔與導柱沒有間隙，  
料管不下垂。

No gap between the guide plate hole and the guide plate to prevent drop of the barrel.



二硫化鉬皮膜處理  
無間隙、無磨耗、免潤滑。  
Molybdenum disulfide film treated for free of gap, corrosion, and lubrication.

下方單缸座進作業不干擾。  
No interference to operation with only single cylinder forward below.

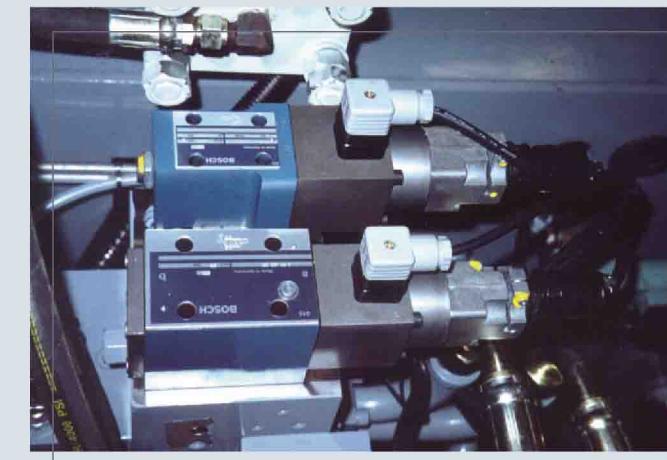
Reduced stand span to prevent the guide plate from being bent or deformed.

# 射出單元

Injection Unit



新式射移結構  
New Injection Sliding Structure

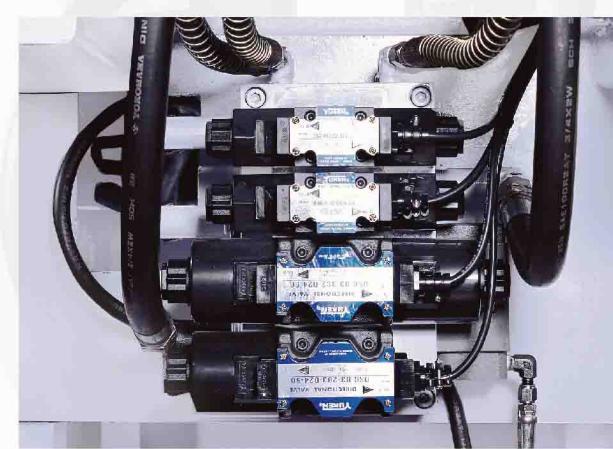


半閉迴路系統  
Semi-close loop system

HN系列配歐美「半閉迴路」系統，亦即在射出機的油路系統上，採用具有LVDT（可變壓差線性變化裝置）的壓力流量比例閥，因此機器每個動作的壓力及速度均有信號回饋，可自我檢出定點位置是否正確，再加以補正，所以比較不受油溫變化而影響壓力及流量的穩定性，大幅提高機台抗干擾程度。

HN series equipped with Germany made (or USA made) semi-close loop system which uses Linear Variable Displacement Transducer (LVDT) added proportional valves to know the spool position.

The output signal from the LVDT was fed back to gain the difference between supposed and actual position of the spool. The output to the coil was therefore changed in accordance with the feed back in an effort to achieve the desired output.



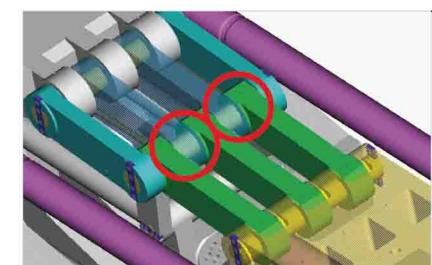
# 鎖模單元

Clamping Unit



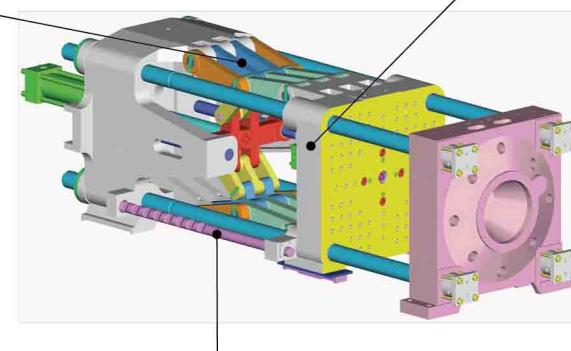
- Extended mechanical specification and wider application range of mold accommodation
- Enhanced rigidity reinforced to protect tie bar and mold
- Lubrication free materials used for clean environment and attractive appearance

HN series feature ultra large mold space and extra long stroke designed square platen accommodation space, distance between tie bars and mold opening stroke have been specially enlarged for an even wider application range, workable with more comprehensive sizes of mold and various types of molding operation. New frame structure further permits ultra large falling space for the finished product, increased flexibility in the use of space to include other peripheral equipment, and multi-direction delivery adapted with conveyer system as required to achieve the purpose of a turn-key plant automation. Newly developed non-adjusting safety bar mechanism and advanced LP mold close protection loop are directly set up from the screen- fast, easy and sensitivity protection for assured safety of mold and operators.



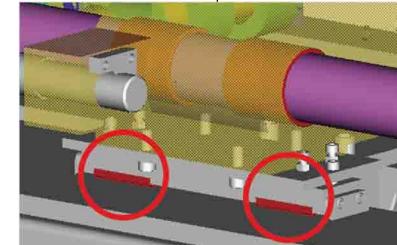
曲手襯套使用無給油軸承，搭配自動潤滑分配系統，潤滑確實、使用油量少。

Oiliness bearings used for the toggle sleeve adapted with auto lubrication system to warrant reliable lubrication and minimum oil consumption.



活動壁襯套使用自潤套鋼，大柱不易刮傷，永久免潤滑，使成型區十分潔淨。

Movable platen sleeve also use German B+S high-density material prevents tie bar from being vulnerable to scratches, permanent lubrication free to help maintain the molding area extremely clean.



活動壁滑腳使用德國B+S高分子耐磨材，永久免潤滑，使成型區十分潔淨。

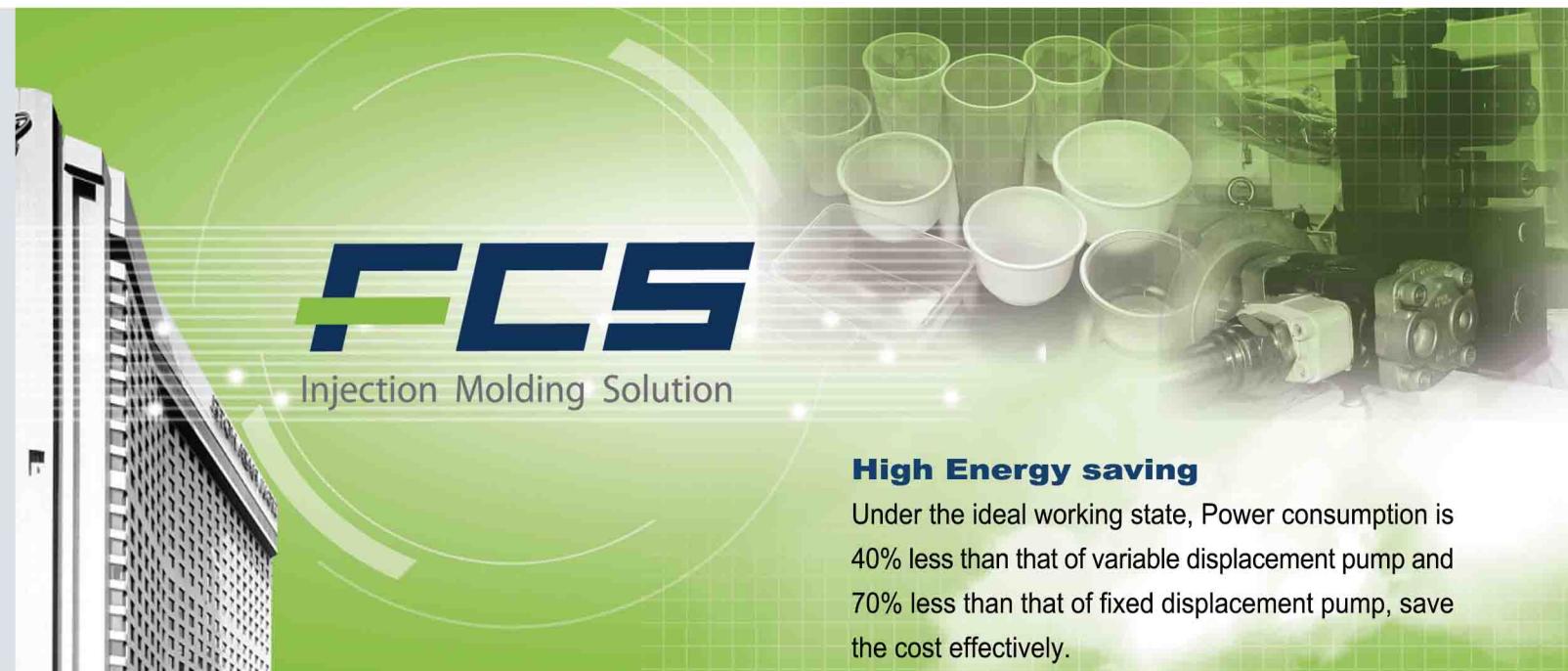
Movable platen skates use German B+S high-density wear resistance material, permanent lubrication free to help maintain the molding area extremely clean.

- 機械規格加大、容模範圍更廣泛
- 車壁剛性強化、保護大柱及模具
- 免潤材料使用、潔淨環保且美觀

HN系列採超大容模空間及超長行程之四方模板設計，其大柱內距及開模行程均特別加大，使本機型適用範圍更廣，可使用於更廣泛的模具尺寸及各類成型作業。搭配新型機架結構，成品落下空間特大，增加彈性運用空間，可放置其他週邊設備，亦可視實際需求搭配輸送設備多向輸送，以達整廠自動化之目的。新型免調整安全桿機構，及先進的低壓關模保護迴路，直接由螢幕設定，快速簡便且保護靈敏，確保模具及操作人員之安全。

# 伺服節能系統

Servo power saving Systems



## High Energy saving

Under the ideal working state, Power consumption is 40% less than that of variable displacement pump and 70% less than that of fixed displacement pump, save the cost effectively.

## High precision

Precise control of low pressure & low flow, repeating precision is less than 0.5%. Weight error of the products is 0.4%~0.7%, with semi-close loop system nearly.

## Fast response

With Steady capability, Servo gearshift dynamical control system has equipped with pressure feedback device with high precision and sensitivity, which forms close-loop precision control, cycle time effectively shortened and improving production efficiency.

## Low noise

Different from ordinary fixed pump injection molding machine, servo power-saving injection molding machine is working only when work to need.

And working noise ≤ 70dB, will be much quieter for your working area.

## Oil temperature rise slowly

The system can restrain arising of oil temperature, so smaller oil cooling system can be used in the machine.

## PQ control

Control pressure and flow simply by inputting simulated voltage of pressure (P) & flow (Q) into the computer.

# 功率消耗節能測試

Test of Energy Efficiency



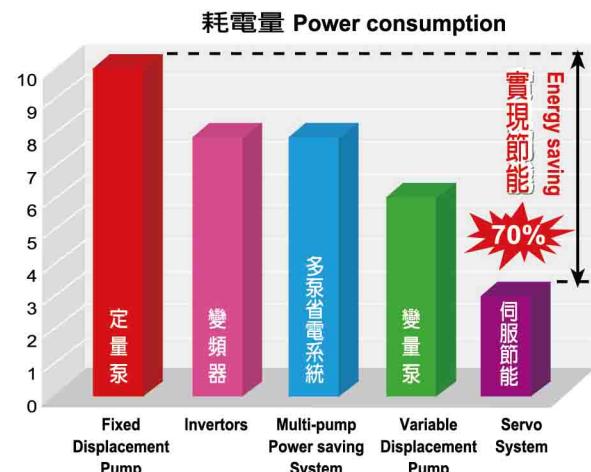
## ● 節能效果比較

Test of Power-saving

根據產品、成型條件的不同，伺服節能注塑機比傳統定量泵注塑機相比，最高節能可達70%，相比變量泵注塑機節能可達40%。

According to different products and molding conditions, FCS servo power-saving injection molding machine can save 70% more power than ordinary fixed pump injection molding machine, and 40% than variable pump injection molding machine.

## ● 耗電量比較 Comparison



**註**  
使用左述各項節能系統的最佳條件：保壓時間長、冷卻時間長、一分鐘2~3模以內的產品、厚件產品等，上述各種方法的節能效果才能顯著。

Remark: To achieve best performance of those power saving system, production should under the conditions: Long hold pressure time, long cooling time, and production speed slower than 2~3 cycles under one minute, thick wall products. These power saving systems will have outstanding efficiency.

## ● 節能效果檢測 Test of Power-saving

原料 Material: 聚苯乙烯 (PS) 模具 Mold: 標準圓盤(disc) 檢測模數 Total shots: 50模  
密度 Density: 1.05g/cm<sup>3</sup> 熔體指數 MI: 5.5 環境溫度 Temperature: 18°C

項目 ITEMS	單位 UNIT	HN-100	HN-125	HN-150	HN-350	HN-850	
產品總重量	Total weight	gram	1732.82	4976.3	5026.62	14173.1	41517.2
總耗電量	Total power consumption	Kw.h	0.5765	1.4606	1.3711	3.9916	12.5
檢測結果	Test results	Kw.h/kg	0.33	0.29	0.27	0.28	0.30
能耗等級	Energy level		一級 LEVEL 1				

● 經國家塑機產品質量監督檢驗中心檢驗，本系列機台能耗等級符合國家塑機「一級」節能標準；即生產每千克產品每小時耗電小於0.4kw。

After being inspected by Nation Quality Supervision and Inspection Center Of Plastic Machinery, energy consumption level of this series of machine conforms to "LEVEL 1" energy efficiency standard, namely, the power consumption per kilo of specified product < 0.4kw.h

# 整廠規劃服務

Turnkey Solution Service

顧客的滿意一向是富強鑫努力的目標，富強鑫以顧客滿意為前提，在機台銷售世界之前，我們的服務總是先一步達到全球的每一個角落。

為提升顧客的競爭力，滿足顧客需求，提供顧客更完善的服務，富強鑫以30多年的經驗，除提供顧客優質的產品及服務之外，我們也提供一系列「整廠規劃的知識密集加值服務」，由富強鑫的專業團隊，以豐富的專業知識及經驗，針對各個客戶的需求及多樣化的產品特性予以整合規劃，提供顧客整合性的解決方案，在中國、南非、越南、美國等世界各地，富強鑫都有顯著的成果。

服務內容包括「投資評估」、「設備標準」，「工廠佈局及設計」，「生產能力」等項目，都是我們服務的範圍。

Customers' satisfaction is always the goal that Fu Chun Shin working for. We treat customers' satisfaction as a prerequisite guideline for our service providing policy. Base on the guideline, Fu Chun Shin's service always reaches every corner of the world where customers' need before we sold machine there.

Facing the competitors from the world, to maintain the efficiency and competitiveness is very important to plastic products manufacturers. In order to promote the competitive advantage of customers and satisfy customers' need, Fu Chun Shin provides not just machines and service but also "Knowledge Based Turnkey Solution". It is provided by a professional team of Fu Chun Shin based on the rich plastic molding knowledge and experience. Fu Chun Shin will integrate customers' need and products characteristics to provide a complete turnkey solution. After running this service for years, we have remarkable achievements in China, South Africa, America, Vietnam and Iran. This service includes "investment evaluating", "equipment needed", "factory layout and design", "production capability", etc.



# 機械規格 : HN

## Machine Specifications : HN

項目	ITEMS	UNIT	HN-100	HN-125	HN-150	HN-200	HN-250
射出單元 Injection unit	類型 Type	-	260	410	550	760	1200
	螺桿直徑 Screw diameter	mm	30	34	40	44	40
	射出行程 Injection stroke	mm	150	180	200	225	240
	理論射出容積 Theoretical shot volume	cm³	106	136	188	163	226
	理論射出量 Shot weight of injection (PS)	g	96	124	171	149	206
	射出壓力 Injection pressure	kgf/cm²	2481	1932	1396	2471	1785
	射出速度 Injection speed	mm/s	122	120	97	102	87
	射出率 Injection rate	g/s	79	101	140	99	137
夾模單元 Mold Clamping Unit	閉模力 Mold clamping force	tonf	100	125	150	200	250
	夾模行程 Mold clamping stroke	mm	350	410	460	510	550
	模厚 Mold Thickness	mm	120~430	120~490	130~550	200~610	200~670
	建議最小模具尺寸 Suggested minimum mold dim. (H x V)	mm	234x234	267x267	299x299	332x332	364x364
	大柱內距 Distance between tie bars	mm	355x355	405x405	462x462	505x505	555x555
	模盤尺寸 Mold platen	mm	525x525	600x600	670x670	745x745	820x820
	頂出行程 Ejector stroke	mm	90	100	110	130	150
	頂出力 Ejector force	tonf	2.7	2.7	4.0	4.0	5.4
電氣單元 Electrical equipment	最大油泵動力 Max. Pump driving motor	kW	18	18	18	30.9	35.2
	溫度控制器 Temperature controller	set	5	5	5	6	6
	電熱容量 Heater capacity	kW	7.0	9.0	11.6	14.2	16.7
其他 Others	機械尺寸 Machine dimensions (L x W x H)	mm	4830x1200x1580	5060x1260x1645	5450x1320x1626	6063x1442x1725	6615x1480x1830
	油箱容量 Oil tank capacity	liter	310	320	325	423	480
	機械重量 Machine weight	ton	3.5	4.5	5.5	7.5	11
	最高系統壓力 Max. system pressure	kgf/cm²	140	140	140	140	140

項目	ITEMS	UNIT	HN-530	HN-600	HN-750	HN-850
射出單元 Injection unit	類型 Type	-	4600	4600	5900	7000
	螺桿直徑 Screw diameter	mm	75	85	95	110
	射出行程 Injection stroke	mm	420	420	430	450
	理論射出容積 Theoretical shot volume	cm³	1855	2382	2976	3533
	理論射出量 Shot weight of injection (PS)	g	1688	2168	2708	3215
	射出壓力 Injection pressure	kgf/cm²	2466	1920	1537	1640
	射出速度 Injection speed	mm/s	89	89	87	86
	射出率 Injection rate	g/s	392	503	629	744
夾模單元 Mold Clamping Unit	閉模力 Mold clamping force	tonf	530	600	750	850
	夾模行程 Mold clamping stroke	mm	800	900	1000	1000
	模厚 Mold Thickness	mm	350~900	350~1100	350~1100	350~1200
	建議最小模具尺寸 Suggested minimum mold dim. (H x V)	mm	525x525	560x560	625x625	625x625
	大柱內距 Distance between tie bars	mm	840x830	880x880	980x980	1060x1010
	模盤尺寸 Mold platen	mm	1240x1220	1310x1310	1440x1440	1460x1460
	頂出行程 Ejector stroke	mm	220	220	240	260
	頂出力 Ejector force	tonf	15.8	15.8	15.8	17.2
電氣單元 Electrical equipment	最大油泵動力 Max. Pump driving motor	kW	36.7+36.7	36.7+36.7	45+36.7	45+45
	溫度控制器 Temperature controller	set	8	8	8	8
	電熱容量 Heater capacity	kW	37.55	37.55	43.77	46.3
其他 Others	機械尺寸 Machine dimensions (L x W x H)	mm	8910x2230x2055	9670x2230x2145	9840x2425x2150	11920x2710x2210
	油箱容量 Oil tank capacity	liter	1050	1180	1390	1350
	機械重量 Machine weight	ton	26.5	29.5	35	41
	最高系統壓力 Max. system pressure	kgf/cm²	140	140	140	140

項目	ITEMS	UNIT	HN-300	HN-350	HN-400	HN-470
射出單元 Injection unit	類型 Type	-	1600	2200	2200	3000
	螺桿直徑 Screw diameter	mm	54	62	68	80
	射出行程 Injection stroke	mm	280	306	306	340
	理論射出容積 Theoretical shot volume	cm³	641	845	1016	1708
	理論射出量 Shot weight of injection (PS)	g	583	769	925	1554
	射出壓力 Injection pressure	kgf/cm²	2497	1894	1574	2387
	射出速度 Injection speed	mm/s	94	93	93	83
	射出率 Injection rate	g/s	196	258	310	379
夾模單元 Mold Clamping Unit	閉模力 Mold clamping force	tonf	300	350	400	470
	夾模行程 Mold clamping stroke	mm	610	645	660	730
	模厚 Mold Thickness	mm	200~730	200~790	250~800	250~800
	建議最小模具尺寸 Suggested minimum mold dim. (H x V)	mm	397x397	429x429	475x475	475x475
	大柱內距 Distance between tie bars	mm	605x605	680x680	730x730	820x800
	模盤尺寸 Mold platen	mm	894x894	969x969	1080x1080	1200x1185
	頂出行程 Ejector stroke	mm	185	200	200	215
	頂出力 Ejector force	tonf	8.9	11.0	11.0	12.1
電氣單元 Electrical equipment	最大油泵動力 Max. Pump driving motor	kW	35.2	51.3	51.3	71.9
	溫度控制器 Temperature controller	set	6	6	6	7
	電熱容量 Heater capacity	kW	19.9	23.2	23.2	28.6
其他 Others	機械尺寸 Machine dimensions (L x W x H)	mm	7135x1738x1900	7836x1805x1970	7836x1900x2063	7960x2040x2210
	油箱容量 Oil tank capacity	liter	580	686	686	900
	機械重量 Machine weight	ton	12	14	16.5	20
	最高系統壓力 Max. system pressure	kgf/cm²	140	140	140	140

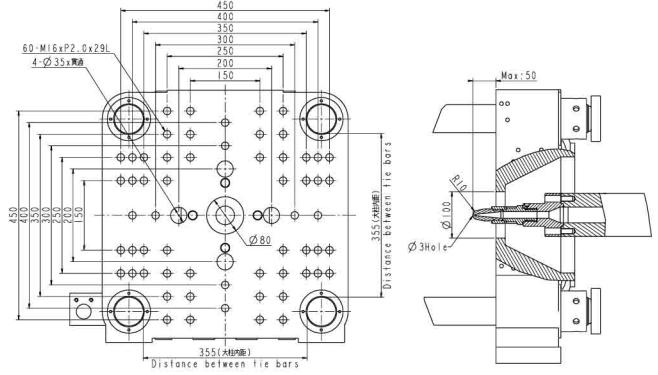
項目	ITEMS	UNIT	HN-1000	HN-1250	HN-1420	HN-1600
射出單元 Injection unit	類型 Type	-	8200	10300	13500	13500
	螺桿直徑 Screw diameter	mm	100	110	120	140
	射出行程 Injection stroke	mm	495	540	585	585
	理論射出容積 Theoretical shot volume	cm³	3886	4702	5595	9001
	理論射出量 Shot weight of injection (PS)	g	3536	4279	5092	6613
	射出壓力 Injection pressure	kgf/cm²	2117	1749	1470	1509
	射出速度 Injection speed	mm/s	81	79	87	87
	射出率 Injection rate	g/s	577	698	831	1214
夾模單元 Mold Clamping Unit	閉模力 Mold clamping force	tonf	1000	1250	1420	1600
	夾模行程 Mold clamping stroke	mm	1100	1275	1450	1450
	模厚 Mold Thickness	mm	400~1300	450~1400	500~1500	700~1600
	建議最小模具尺寸 Suggested minimum mold dim. (H x V)	mm	770x690	880x790	930x845	1050x950
	大柱內距 Distance between tie bars	mm	1260x1130	1360x1210	1450x1320	1530x1380
	模盤尺寸 Mold platen	mm	1730x1600	1840x1740	2110x1980	2190x2040
	頂出行程 Ejector stroke	mm	300	320	340	400
	頂出力 Ejector force	tonf	21.5	21.5	24.7	24.7
電氣單元 Electrical equipment	最大油泵動力 Max. Pump driving motor	kW	45+45	36.7x		

# 模壁圖

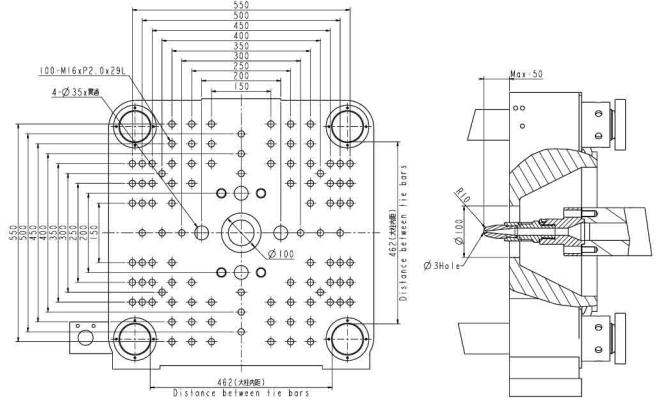
Mold Platen Dimensions

**HN** SERIES

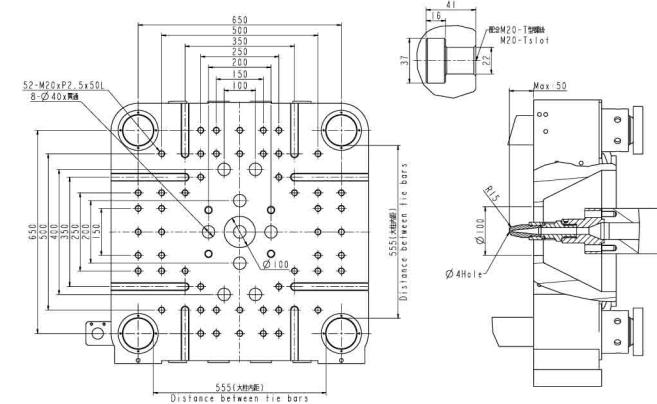
**HN-100**



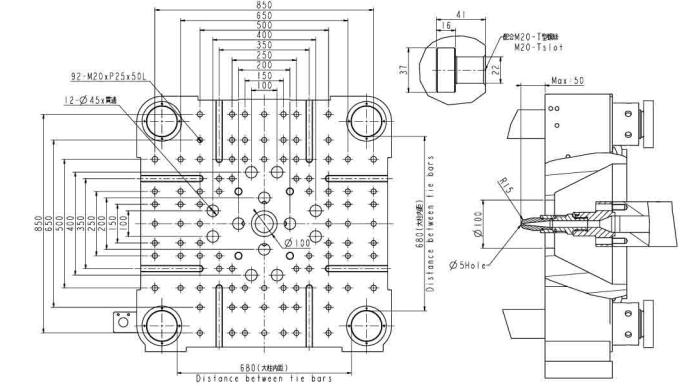
**HN-150**



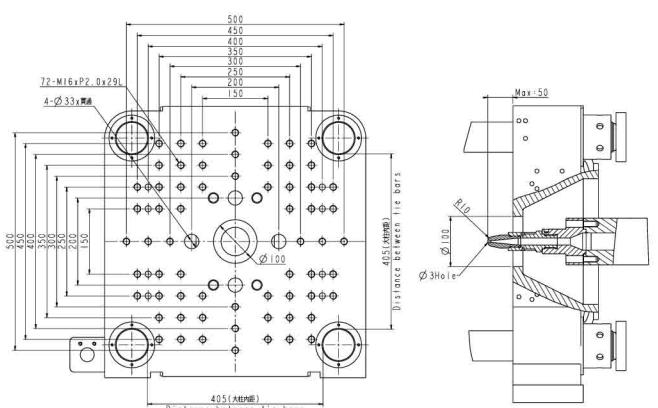
**HN-250**



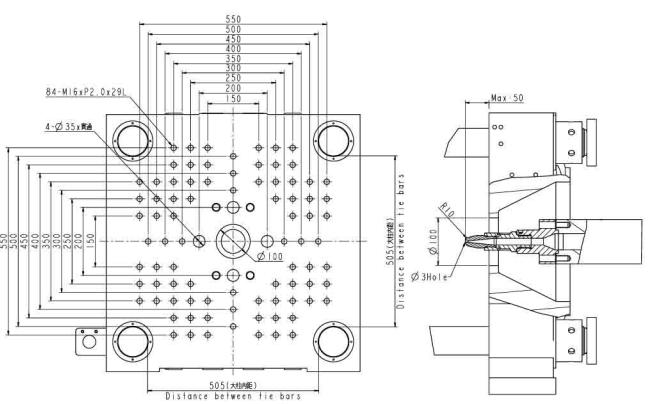
**HN-350**



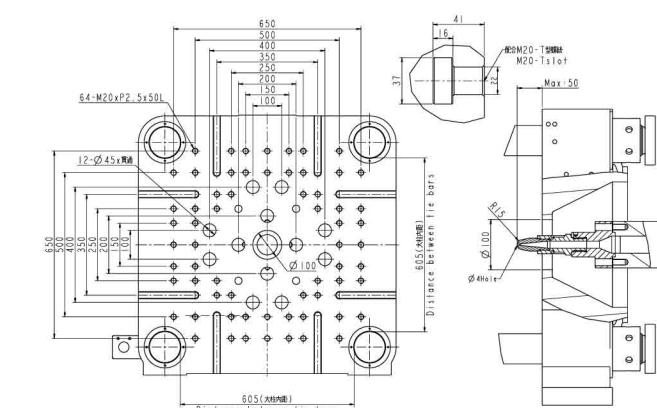
**HN-125**



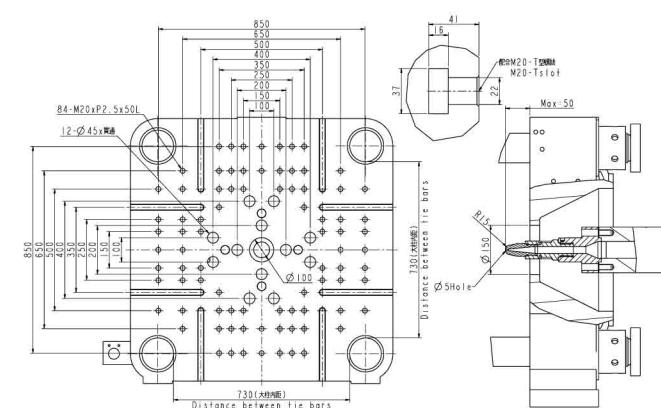
**HN-200**



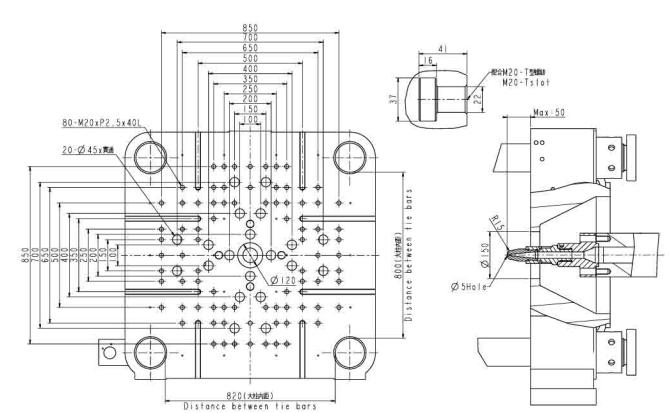
**HN-300**



**HN-400**



**HN-470**

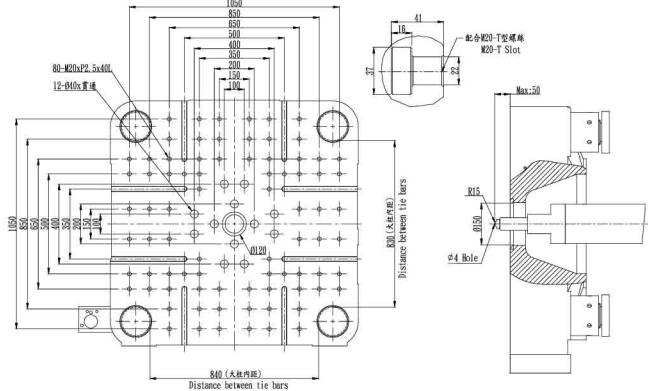


# 模壁圖

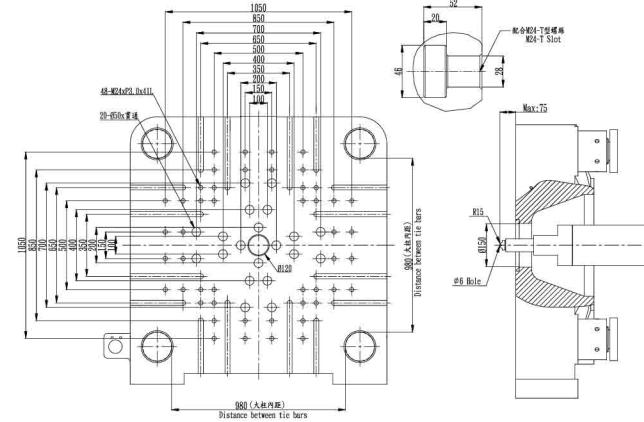
Mold Platen Dimensions

**HN** SERIES

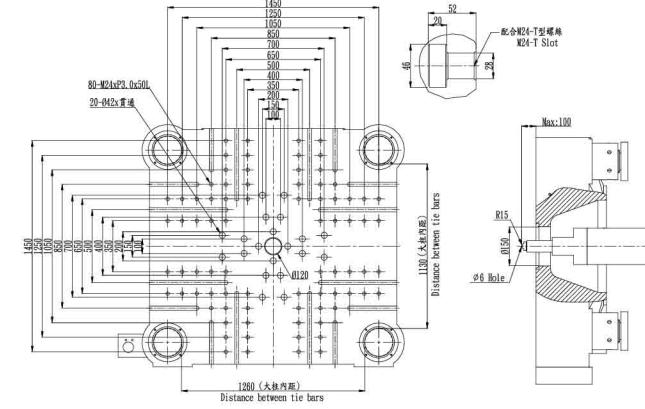
**HN-530**



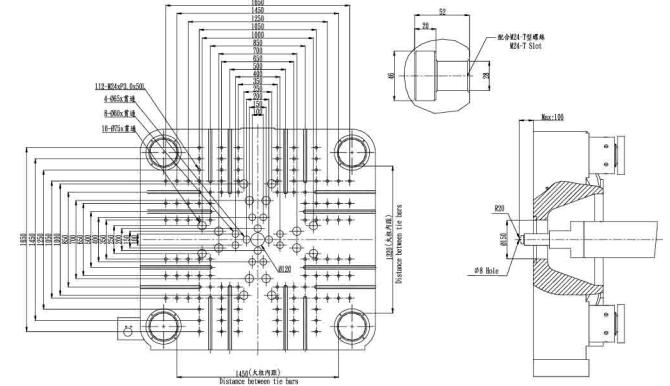
**HN-750**



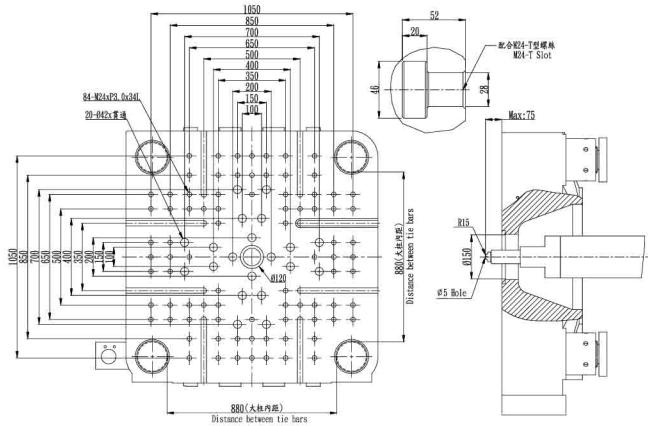
**HN-1000**



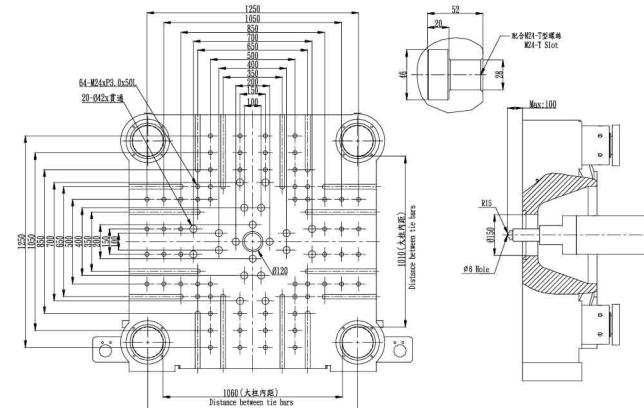
**HN-1420**



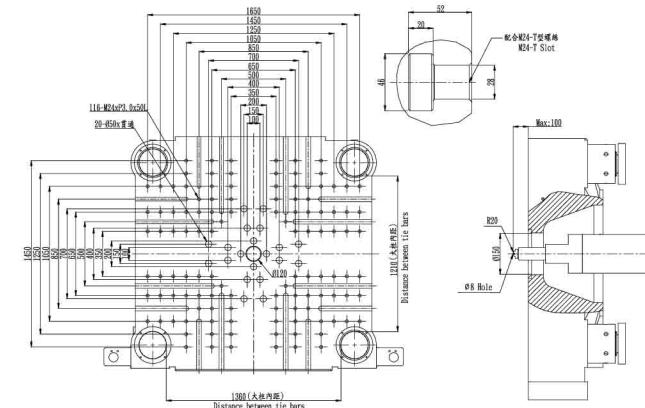
**HN-600**



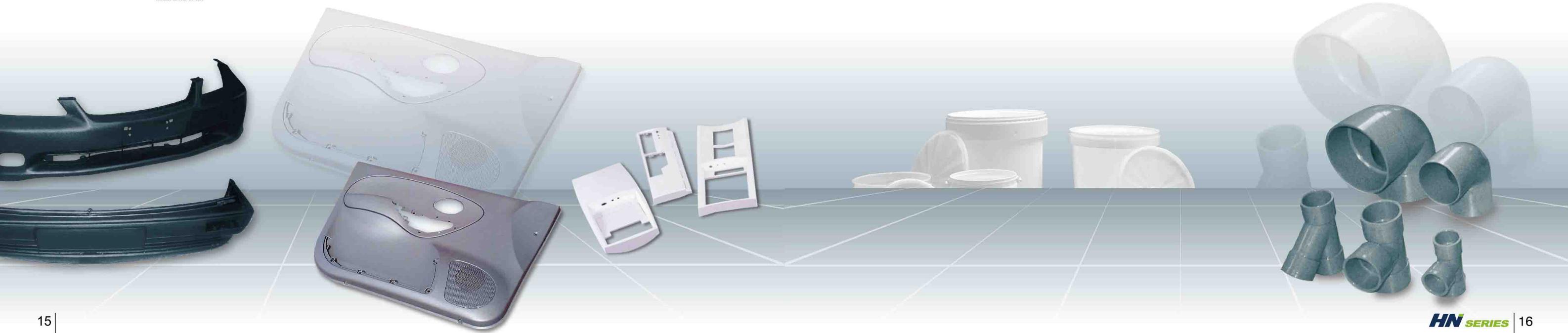
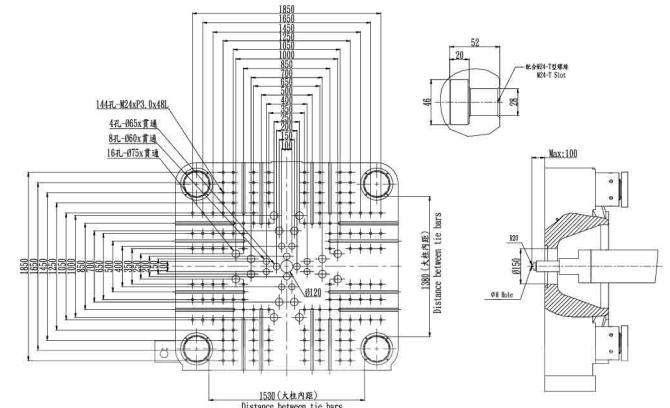
**HN-850**



**HN-1250**



**HN-1600**

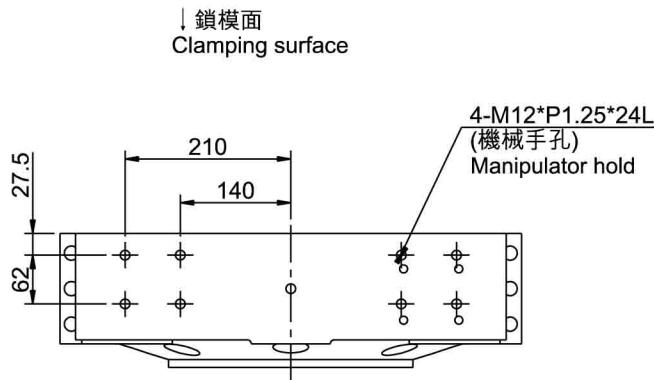


# 機械手孔位圖

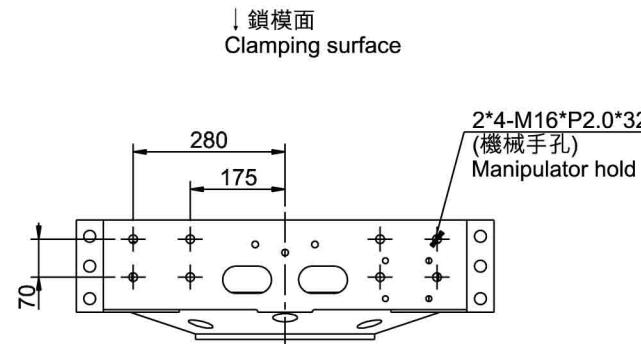
Robot mounting hole

**HN** SERIES

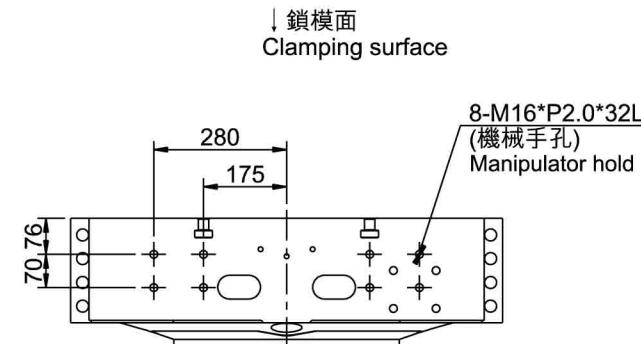
HN-100



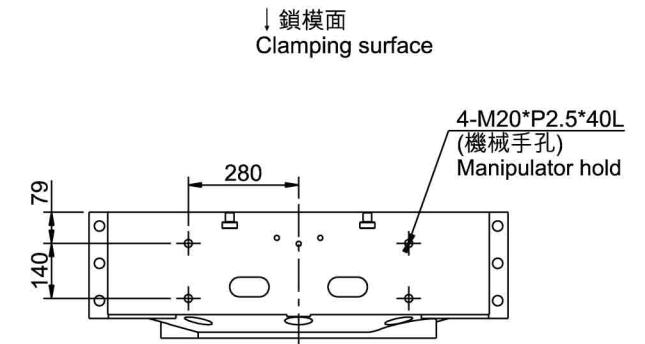
HN-150



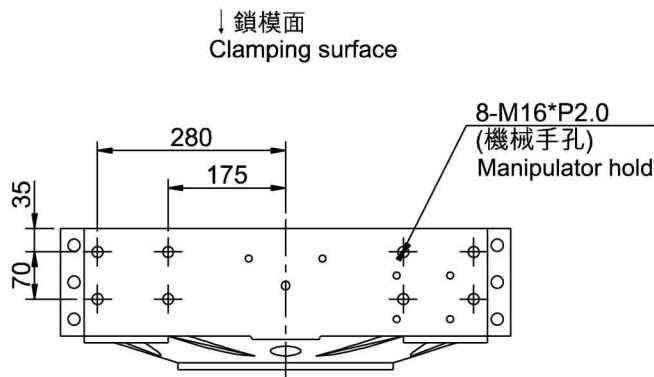
HN-250



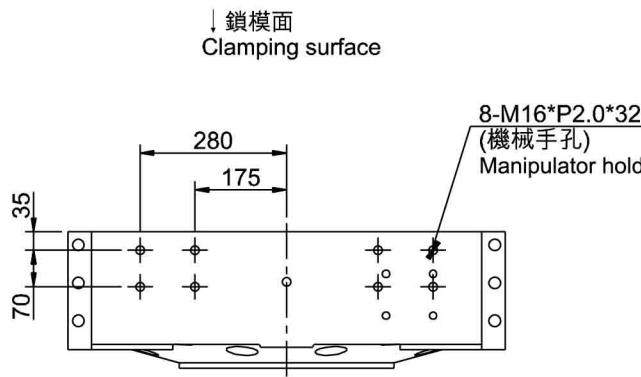
HN-350



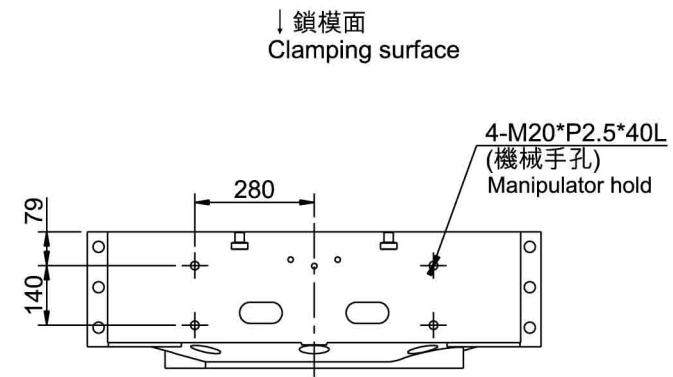
HN-125



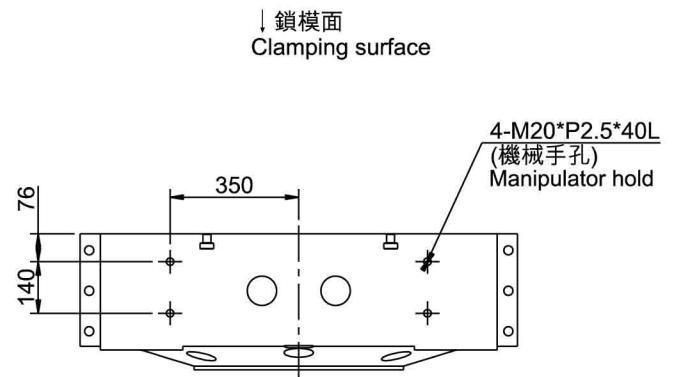
HN-200



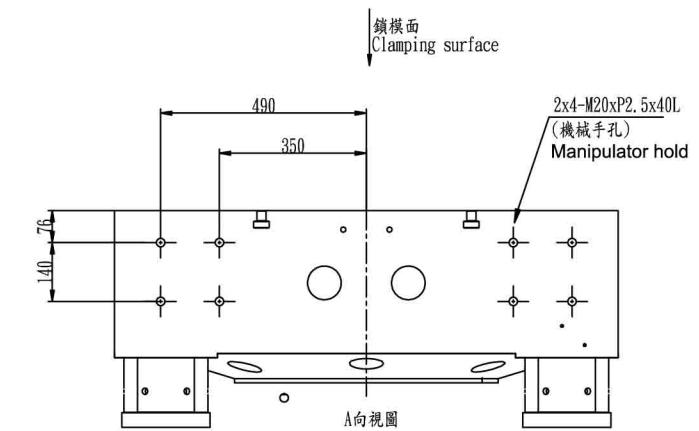
HN-300



HN-400



HN-470

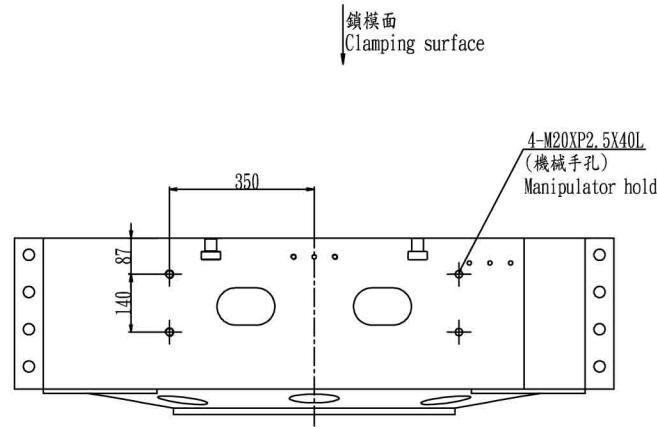


# 機械手孔位圖

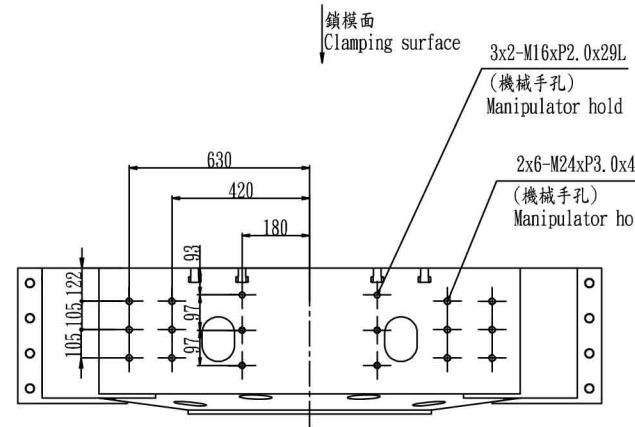
Robot mounting hole

**HN** SERIES

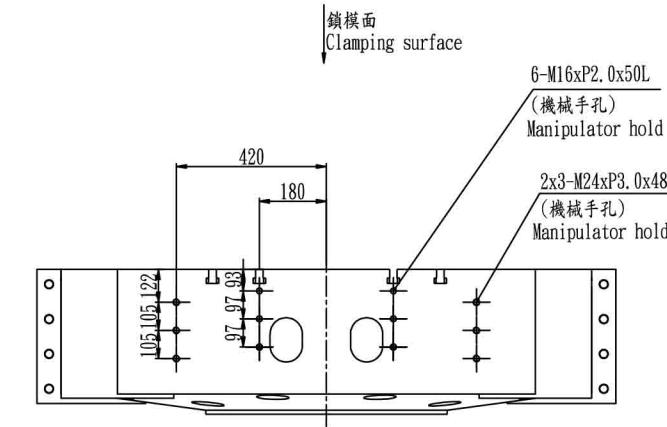
HN-530



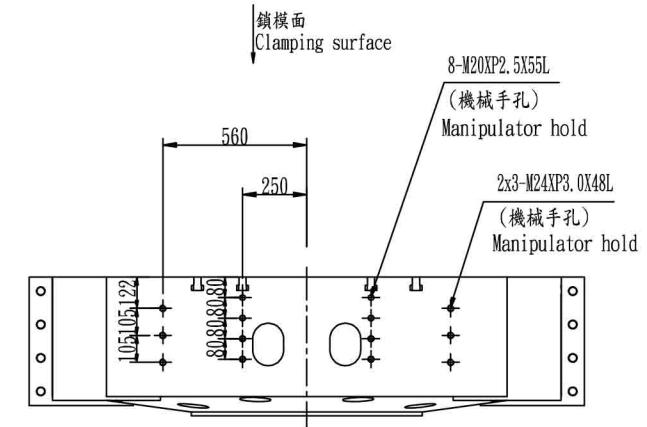
HN-750



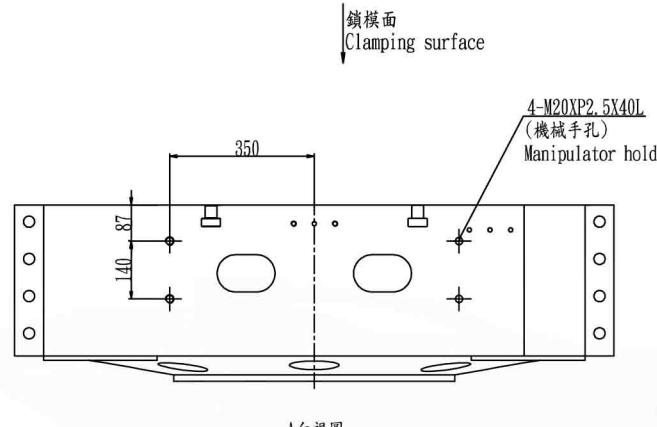
HN-1000



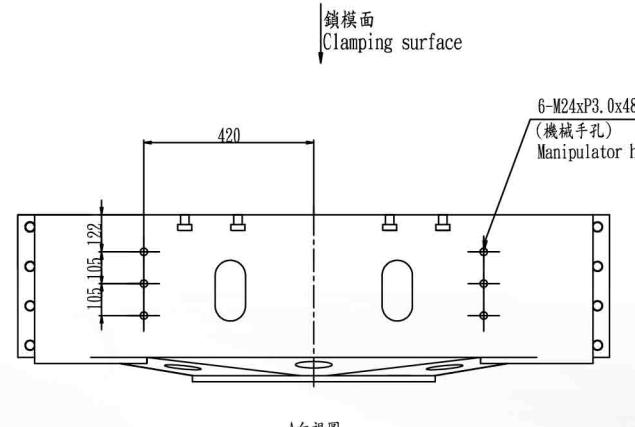
HN-1420



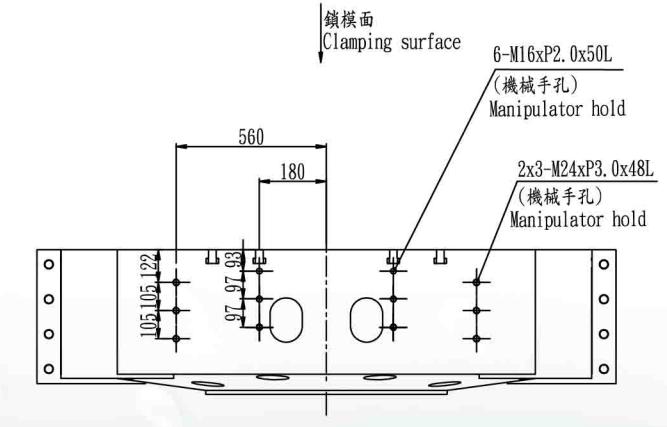
HN-600



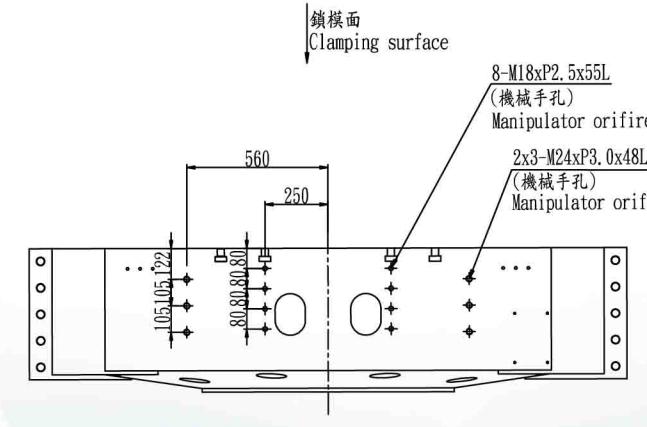
HN-850



HN-1250



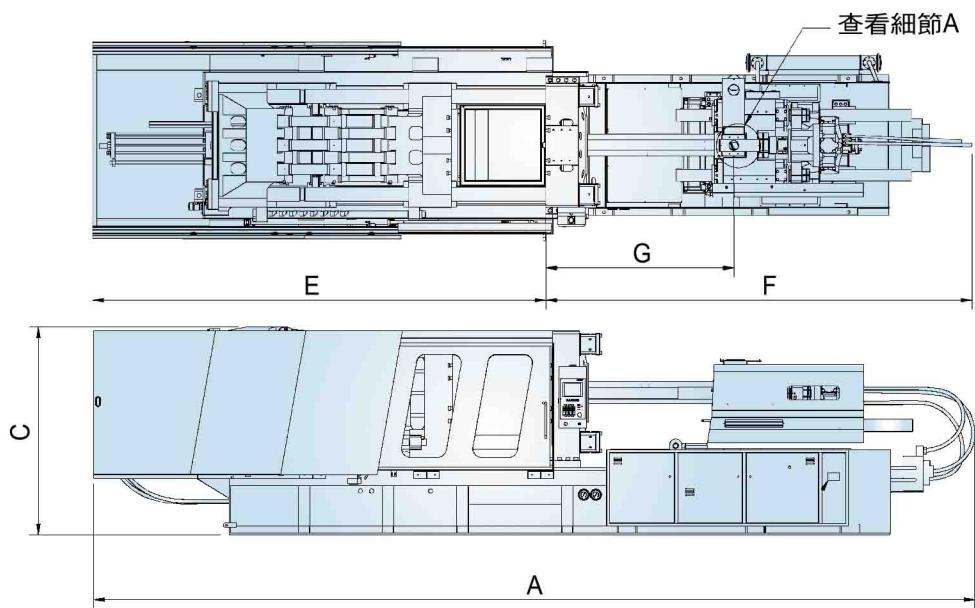
HN-1600



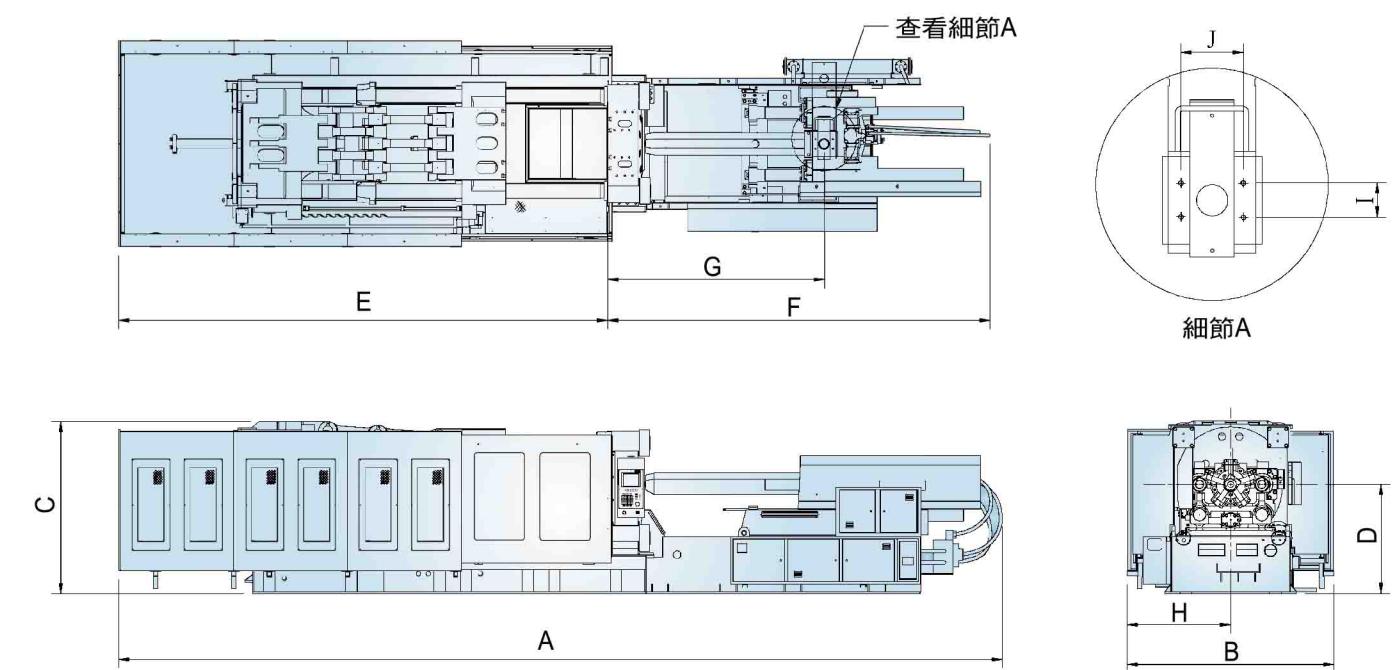
# HN SERIES

Toggle Clamping Injection Molding Machine

HN-100 ~ HN-470



HN-530 ~ HN-1600



A:長 B:寬 C:高 D:中心高 E:固定壁鎖模面到夾模尾部 F:固定壁鎖模面到射出尾部

MODEL	A	B	C	D	E	F	G	H	I	J
HN-100	4830	1200	1680	1216	2250	2580	820-1162	650	55	100
HN-125	5060	1260	1745	1270	2485	2580	966-1316	680	55	100
HN-150	5450	1320	1626	1185	2770	2680	1040-1390	710	55	100
HN-200	6063	1442	1725	1255	3105	2958	1204-1554	770	80	120
HN-250	6615	1480	1830	1323	3490	3125	1291-1671	785	80	120
HN-300	7135	1738	1900	1365	3690	3445	1482-1883	951	80	150
HN-350	7836	1805	1970	1405	4060	3776	1644-2044	988	80	150
HN-400	7836	1900	2063	1455	4060	3776	1644-2044	1035	80	150
HN-470	7960	2040	2210	1541	4385	3575	1705-2195	1100	80	150

MODEL	A	B	C	D	E	F	G	H	I	J
HN-530	8910	2230	2055	1388	4780	4130	1950-2510	1160	80	150
HN-600	9670	2230	2145	1415	5390	4280	1950-2510	1160	100	190
HN-750	9840	2425	2150	1375	5530	4310	2175-2790	1180	100	190
HN-850	11920	2710	2210	1387	6432	5488	2250-2890	1355	100	190
HN-1000	12370	2840	2395	1485	6874	5496	2455-3135	1420	100	200
HN-1250	13550	3010	2565	1555	7460	6090	2665-3405	1505	100	200
HN-1420	13845	3274	2745	1630	7440	6405	2844-3584	1635	100	200
HN-1600	14300	3255	2775	1660	7875	6425	2870-3610	1540	100	200

\*如需其他規格尺寸，請洽業務人員。

\* If you need any other features, please contact to us.

\*因產品不斷研究改良，設計變更時，如不另作通知。 \*Due to continuous improvements, we reserve the right to amend any of the above specifications without prior notice.

## ■ 標準與選購配備 Standard & Optional accessories

- 機台模壁若加裝T型墊板或隔熱墊板，會使模厚及托模行程的規格改變。

- If clamping unit adopting T-slot board or insulator sheets, the "mould thickness" & "ejector stroke" dimensions will be different.

● 標準配備 Standard

○選購配備 Optio

▲ 選附配備 Free Option

— 無 N/A

# KEBA (FCS-6500S)

## FCS-6500S Control System

為了追求更卓越的操控性能，並提升機械靈敏度及穩定性，富強鑫精心研發，推出全新FCS-6500S網路型控制器，搭載32位元高速中央處理器，可搭配半閉及全閉迴路油壓系統，加上人性化圖形操作介面、線上曲線監測功能及中央網路連線管理，絕對是您創造利潤的最佳利器。

For pursuing more excellent operating function, and promoting the flexibility and stability in the machine, FCS makes a lot of investment in R&D and puts the all-new FCS-6500S network controller on the market. The controller is adopting 32 bits high speed central processor and can capacitate Germany MOOG close loop hydraulic system, plus personality graphic operation interface, curve on-line inspection function and central network connection management. It is absolute the best tool to make profit.

### I 射出部份

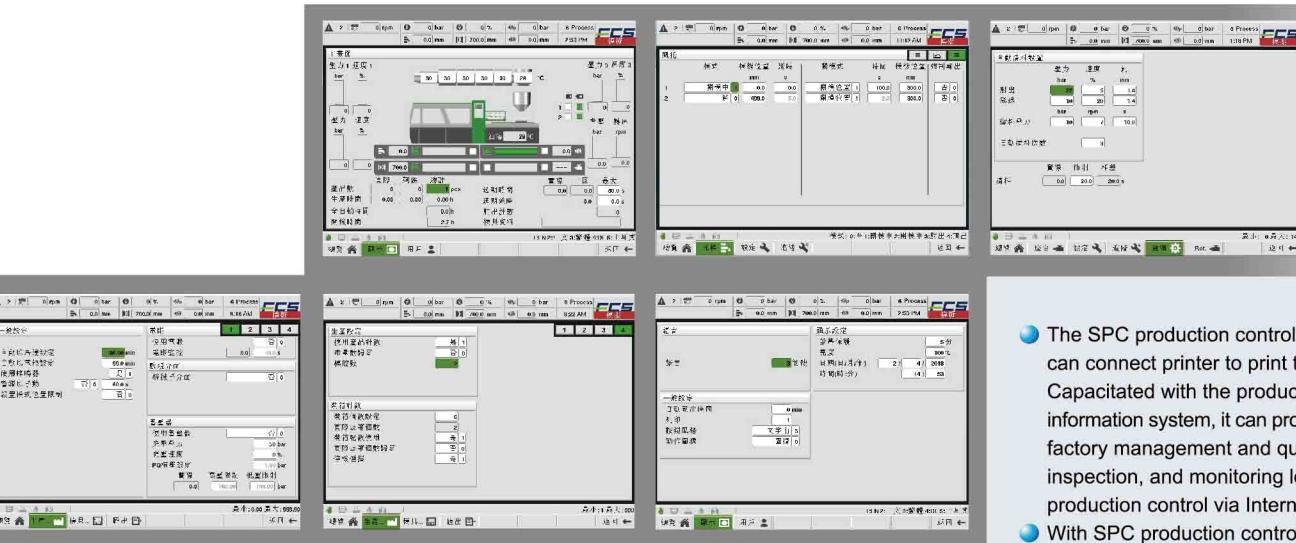
- 具備兩組四段射出、兩組三段保壓、兩組三段背壓、兩組一段鬆退，兩組座進退二段控制（選購）及兩組保壓位置切換控制等功能，更具有無段斜率保壓功能，使保壓動作平穩順暢。
- 精確之射出終點及保壓位置切換，實現高精密、高穩定之射出性能。
- 射出及座進退（選購）均採用線性電位計，精密度達0.1 mm，可準確控制射出及射座之行程。
- 可記錄並同時顯示360模之溫度曲線、射出壓力曲線（選購）、射出速度曲線、射出終點、保壓切換點、保壓完成點曲線，並有歷史曲線比對功能，精度達±0.1mm，系統穩定性看得見。
- 十二段PID溫控，採用SSR無接點溫控，精確度達+0.5°C，並具溫度異常斷線警報及上下限設定功能，可精確掌控料溫。
- 螺桿低溫啓動保護，防止螺桿意外損傷，並具有螺桿強制等待功能，確保料管內外無溫差，螺桿保護更確實。
- 一週定時預熱功能、定時保溫及料管自動加溫功能。
- 可直接設定及顯示螺桿轉速。
- 自動洗料功能，可任意設定清洗次數、距離及速度。

### II 關模部份

- 開關模四段控制，兩組托模二段控制。
- 夾模、托模均採用線性電位計，精密度達0.1mm，可準確控制夾模及托模行程。
- 托模可行震動托模、循環托模、托模定位、單一托模等功能，並可搭配電眼檢出，自動縮短托模時間。
- 具有低壓關模保護，直接由螢幕設定，低壓效果佳，保護靈敏，確保操作員安全並防止模具及機器損傷。
- 鎖模力可由螢幕設定，並具備10秒快速自動調模及鎖模力自動設定功能，調模設定極為快速方便且省時省力。
- 曲手採自動潤滑系統，注油設定可直接由面板操作及監控。

### III 一般部份

- 操控面板採用防塵、防油之彩色薄膜觸控面板，為PET材質，耐磨耗且不易破損。
- 10.4吋超大液晶LCD顯示幕，解析度640x480，表面採抗眩光處理，可視角度寬廣，並內建人性化圖形介面，一目瞭然操作容易。
- 可搭配三色警示燈，明確區分全自動運轉（綠）、手動及半自動完成（黃）、異常停機（紅）等，使機器狀況更為清晰。
- 具程式線上檢視及修改功能。
- 可搭配半閉、全閉及伺服迴路油壓系統，大幅提升機械穩定性及產品精密度。
- 可加裝穩壓器確保主機安全。
- 預留機械手標準介面及快速換模系統線路。



### I Injection Units

- 具備兩組四段射出、兩組三段保壓、兩組三段背壓、兩組一段鬆退，兩組座進退二段控制（選購）及兩組保壓位置切換控制等功能，更具有無段斜率保壓功能，使保壓動作平穩順暢。
- 精確之射出終點及保壓位置切換，實現高精密、高穩定之射出性能。
- 射出及座進退（選購）均採用線性電位計，精密度達0.1 mm，可準確控制射出及射座之行程。
- 可記錄並同時顯示360模之溫度曲線、射出壓力曲線（選購）、射出速度曲線、射出終點、保壓切換點、保壓完成點曲線，並有歷史曲線比對功能，精度達±0.1mm，系統穩定性看得見。
- 十二段PID溫控，採用SSR無接點溫控，精確度達+0.5°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。
- 螺桿低溫啓動保護，防止螺桿意外損傷，並具有螺桿強制等待功能，確保料管內外無溫差，螺桿保護更確實。
- 一週定時預熱功能、定時保溫及料管自動加溫功能。
- 可直接設定及顯示螺桿轉速。
- 自動洗料功能，可任意設定清洗次數、距離及速度。

### II Mold Clamping Units

- Mold opening & closing with 4 stages control, two sets of 3 stages holding pressure, two sets of 3 stages back pressure, two sets of 1 stages suck back, two sets of 2 stages carriage forward and backward (option) and two sets of holding pressure position switching control etc. Setup back pressure on the screen directly facilitates the setting and control(option). In addition, owing the function of none stage sloping ratio holding pressure makes the holding pressure motion stable and smooth. The charging system controlled by servo motor makes the charging in precious fixed position.
- Ejector have function of vibrating ejection, cycle ejection, fix ejection, single ejection, and is able to capacitate electric eye inspection, and shorten the ejection time automatically.
- Equipped with low pressure mold closing protection, it can be set up by monitor directly.
- The effect of low pressure is good, the protection is sensitive, insure the security of users and the life of machine efficiently.
- Clamping force can be set up on the screen directly, and have the 10 seconds fast auto mold adjust & clamping force auto setting function. The mold adjust setting is facile with time & force saving.
- Toggle is used by auto lubrication system, lubrication setting can be operated monitored on the panel directly.
- Adapting injection compression system of Germany made brand of MOOG, it eliminate remain stress of molding parts.

### III General Units

- Dust & oil-proof and colorful control slim film panel by touch-switch. Being with PET material, it is durable.
- 10.4" ultra big LCD display, analytic degree is 640x480, anti-light dazzling on the surface, you can see any angle and operate easily.
- Screw low temperature starting protection can prevent screw from damage accidentally, and owns the screw compelling waiting function. It insures no temperature difference between internal and external of the barrel, and certify the screw protection.
- Having the setting function of pressure and flow volume sloping ratio, it can set up the starting and stopping sloping ratio of each stage, and makes the machine motion smooth and noiseless.
- With setting value reference and on line operation assistance statement function, it facilitate data setting.
- It can save 96 abnormal alarm records and 32 amend records.

The SPC production control statistics function can connect printer to print the molding data. Capacitated with the production control information system, it can proceed central whole factory management and quality parameter inspection, and monitoring long distance production control via Internet.

With SPC production control statistics function and RS232 interface, and can connect printer to print the molding data. It is optional for RS422 interface, and can connect computer network.

Capacitating with production control information system, it can proceed central whole factory management and quality parameter inspection, and monitoring long distance production control via Internet..

Inferior goods inspection function, you can define the conditions of injection end, injection time, cycle time, the product weight to inspect the inferior goods automatically, it also has the continue inferior goods alarm function.

Output quantity and packing quantity preset, and owing the material cost trial calculation function, it can pre-estimate and update the production cost automatically.

Multi-stages code protection function can change the setting according to the different authority degree. With data hardware lock function, it can prevent operator from revising the molding parameter at will.

Screen protection and electricity saving function, if 3 minutes static, it will close the display automatically.

System self detection function facilitate the abnormal inspection.

Multi-choice for languages- Chinese, English, Portuguese, Vietnam, Spanish, Turkey, Norway. With hardware mold set design, it has 6 liner potentiometer and 2 encoder interface. It makes the function expended and flexible, and is able to equip with injection pressure sensor and molding cavity sensor, to control the molding condition accurately.

Input/ output point inspection and I/O on line on time simulate function can respond the machine operation situation.

It can capable of close loop, semi-close loop and servo hydraulic system advance the stability and precision on machine.

Molding set program design, development time is short, any new added function can be upgraded via BIOS, advance machine performance.

Three colors alarm light design makes the machine running situation clear. On line program inspection and revise function.

Equipped with power stabilizer insure the safety of main controller.(option)

Reserving robot standard interface and quick mold change system line