

# HC-SE/TE Series



CE  
TÜV Rheinland  
Approved

Energy-Saving Servo Pump Series



HWA CHIN MACHINERY FACTORY CO., LTD.

# HC-SE/TE Series

Microcomputer plastics injection  
molding machine

## Characteristics

機械特點

### ■ Hybrid Servo System

1. It has the same features with all-electric machine that there is power consumption with machine running.  
Power supplies for machine action only without extra power waste so it absolutely reaches energy saving target.  
Hybrid servo system saves energy up to 40% than variable pump and up to 60% than fixed pump system.
2. Available high torque output hydraulic system pump driving with encoders of pressure and RPM feedback running through the operation sequences fully close looped.
3. There is fast response with less than 0.1 second and high repetition precision & linearity less than 0.1%.
4. Alternative air cool hydraulic radiator could be used for model less and including HC-350SE/TE.
5. Hybridizing and uniting hydraulic-mechanism-electric into mono driving system creating and performing unique stable precision of system pressure close loop control.  
The system reimbursing feature absolute away hydraulic driving varieties from the temperature factor.  
Hydraulic flow close loop control actuating desired machine functions through RPM controlled pump system and limited the hydraulic surge supplying during low speed functioning.
6. Saving Energy & Low Noise Fixed rotation speed output in accordance with actual flow requirement. Very low energy consumption while machine idles.  
Power saving is obvious without vain work. Oil temperature is not getting up and parts life become longer.



*The Best Choice- "HWA CHIN"*

**Plastic Injection Molding Machine.....**

**Your Choice for ENERGY SAVING ----- HC-SE/TE Series**



**HWA CHIN MACHINERY FACTORY CO., LTD.**

## Products' Features

### 機械特色

HWA CHIN CONTROL PUTS YOU ON THE FAST TRACK TO IMPROVE INJECTION MOLDING EFFICIENCY AND ACCURACY. THE POWERFUL CONTROLLER GIVES YOU THE LATEST ADVANCES IN MICROCOMPUTER CONTROL WITH A USER-FRIENDLY INTERFACE; THE CONTROL IS BUILT AROUND THE OPERATOR AND INTEGRATES MANY FINE FEATURES.



### FOUR CYLINDER INJECTION MECHANISM (Optional)

SPECIAL DESIGN FOR EXTRA HIGH INJECTION PRESSURE

1. PROVIDES EXTRA HIGH INJECTION PRESSURE UP TO 1.3 TIMES THAT OF A DOUBLE CYLINDER STRUCTURE.
  2. EXCELLENT FOR MOLDING VARIED PRODUCTS.
- PATENTED IN USA, CHINA, JAPAN, GERMANY AND TAIWAN, ETC.

SCA effici

### QUALITY PROVEN CONTROL CIRCUIT

1. ADOPTS MICROCOMPUTER CONTROL SYSTEM FOR SPECIAL PURPOSE PROVIDES ACCURACY AND STABILITY.
2. MOLDING DATA COULD BE SAVED TO USB FLASH DRIVES.
3. PID TEMPERATURE CONTROL MODULE ASSURES MAXIMUM STABILITY AND ACCURACY.
4. EQUIPPED WITH POSITION TRANSDUCERS PRECISELY SATISFY VARIOUS REQUIREMENTS.
5. CAN BE EXPANDED ONLINE FUNCTION WITH A PERSONAL COMPUTER IN ORDER TO REACH THE MANAGEMENT OF INJECTION MOLDING DATA FOR EACH MACHINE.



### HIGH EFFICIENT AND ACCURACY CLOSED LOOP ON INJECTION UNIT (Optional)

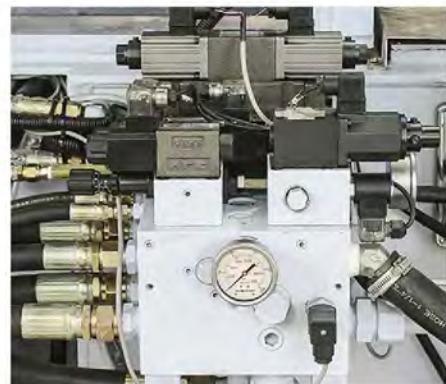
1. FITS FOR EXTRA THIN AND EXTRA PRECISE PRODUCT.
2. CLOSED LOOP CONTROL SYSTEM WITH ACCUMULATOR COMPLETES HIGH PRECISION AND STABLE OPERATION WHILE INJECTING AT VERY HIGH SPEED.
3. ACCUMULATOR WITH FOUR-CYLINDER INJECTION DECREASES THE RESISTANCE OF OIL RETURN IN ORDER TO INCREASE INJECTING SPEED.

#### AIR TYPE HYDRAULIC COOLER (Optional)

- 1.COOLING TOWER OR CHILLER ARE NOT REQUIRED FOR OIL TEMPERATURE COOLING.
- 2.EASY TO CLEAN, WITHOUT LIMESCALE PROBLEMS.
- 3.APPLICABLE TO BELOW 40°C OF INDOOR TEMPERATURE.



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**HONOR**

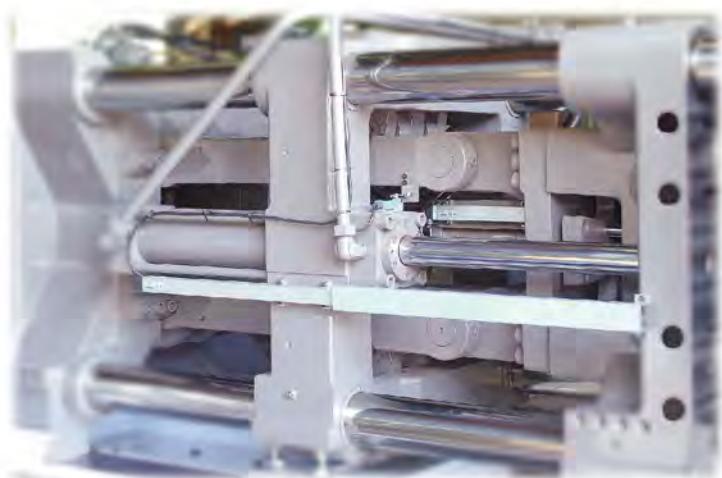


#### IMPROVED PERFORMANCE INJECTION UNIT

- 1.DIGITIZED SHOW THE SYSTEM PRESSURE, INJECTION PRESSURE, BACK PRESSURE, AND SO ON PRESSURE ON THE OPERATIONAL SCREEN.
- 2.CHOICE DIRECTIONAL PROPORTION VALVE FOR INJECTION SYSTEM COULD INCREASE THE PRECISION OF INJECTION. (OPTIONAL)

#### SUPPERIOR TOGGLE MECHANISM

- 1 . BOX TYPE OF MOVABLE PLATEN DECREASES DEFORMATION AND ENHANCES PRODUCT QUALITY REMARKABLY.
2. FRONT FITTING CLAMPING CYLINDER WHICH HAS SHORTENED MACHINE LENGTH SIGNIFICANTLY.
3. SUPERIOR OUTWARD BENDING TOGGLE FOR STABLE MOLD OPENING AND CLOSING WITH FAST SPEED AND BIGGER OPENING STROKE.



## Products' Features

機械特色



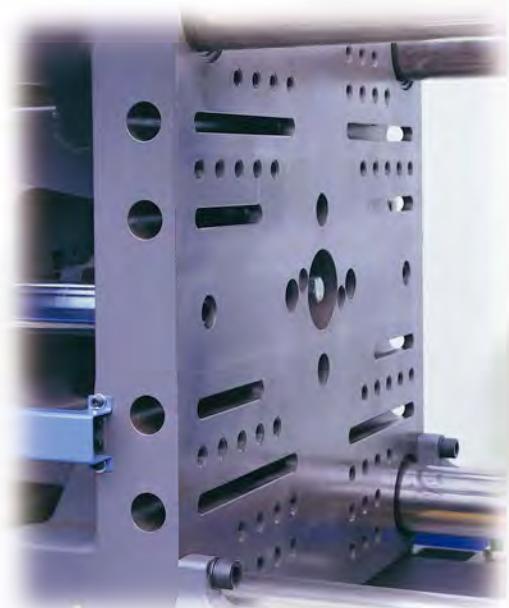
### HIGH ANTI-CORROSION AND ANTI-WEAR BIMETALLIC BARREL (Optional)

1. BIMETALLIC BARREL SUITS THE MATERIALS WITH PROPERTIES OF CORROSION AND WEAR.
2. IT EXTENDS THE OPERATION LIFE OF THE BARRELS.



### PRECISION AND STABLE INJECTION SLIDEWAY

1. LINEAR GUIDE RAIL FOR INJECTION UNIT
2. PRECISION AND STABLE INJECTION UNIT ENSURES THE STABILITY OF THE SCREW ROTATION AND INJECTION.



### STRUCTURE OF MOLD FIXING

1. O SLACK INCREASES THE STRENGTH OF PLATEN INSTEAD OF T SLACK EASY TO FIX MOLD AND PROTECT SLACK FROM DAMAGE (BELOW HC-600SE/TE)
- PATENTED IN GERMANY, JAPAN, CHINA... ETC.

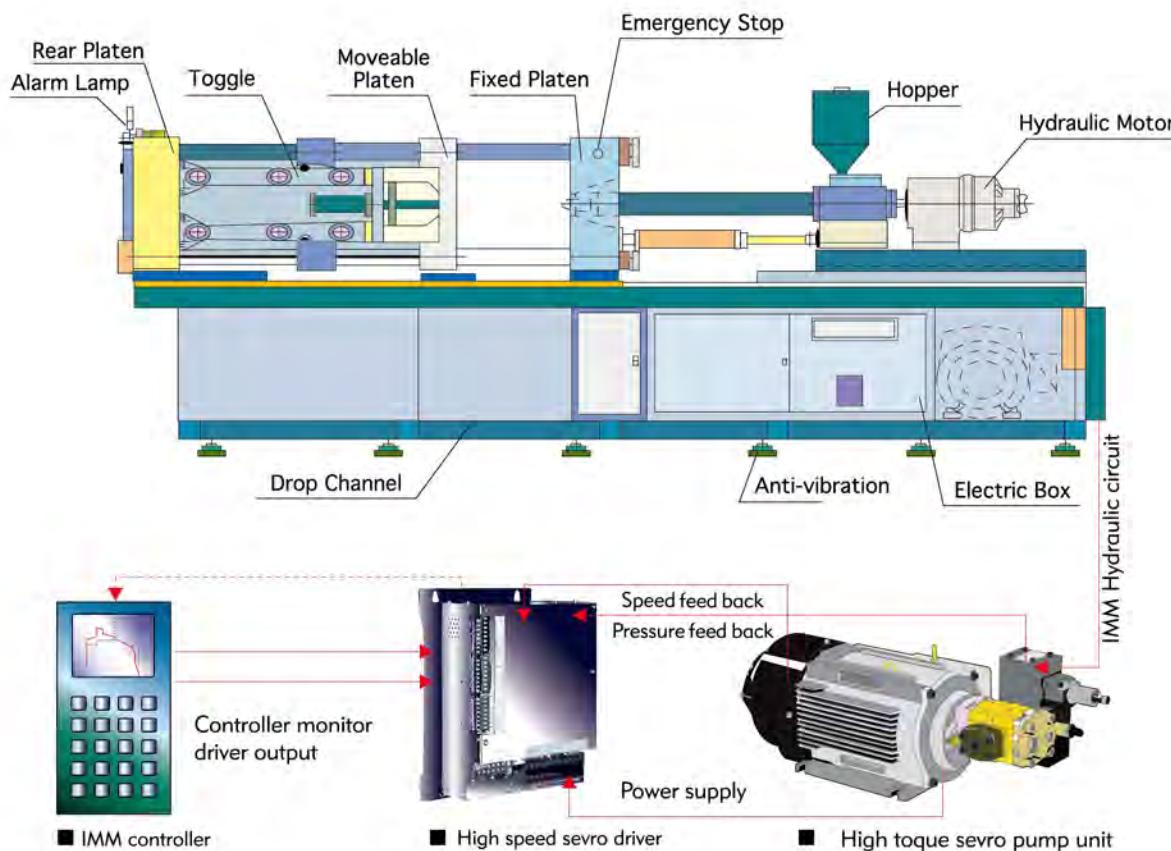


### SEMICIRCLE STRUCTURE OF TOGGLE

1. COAXIAL MACHINING ON THOSE PLATEN, HOLES OF TOGGLE PIN AND TIE BAR CONDUCTING INCREASE GREAT PRECISION.
2. TOGGLE PINS ARE FIXED BY SCREWS. IT MAKES ASSEMBLY EASIER AND FASTER.
- PATENTED IN USA, GERMANY, JAPAN, CHINA, TAIWAN...ETC.

# HC-SE/TE Specification

HC-SE/TE 系列規格表



SYSTEM	ITEMS	CLAMPING FORCE	HC-80SE/TE			HC-100SE/TE			HC-125SE/TE			HC-160SE/TE			HC-210SE/TE					
			S	M	L	S	M	L	S	M	L	S	M	L	S	M	L			
INJECTION SYSTEM	SCREW DIAMETER	unit	28	32	38	32	38	42	32	38	42	38	42	48	42	48	55	48	55	60
		mm	28	32	38	32	38	42	32	38	42	38	42	48	42	48	55	48	55	60
	INJECTION PRESSURE	kg/cm <sup>2</sup>	2670	2044	1450	2044	1450	1187	2044	1450	1187	1755	1440	1100	1905	1460	1110	1945	1481	1244
	INJECTION PRESSURE(FOUR)	kg/cm <sup>2</sup>	***	2657	1885	2657	1885	1543	2657	1885	1543	2281	1872	1430	2476	1898	1430	2528	1925	1617
	THEORETICAL SHOT VOLUME	cm <sup>3</sup>	108	142	200	142	200	245	142	200	245	226	276	361	276	361	474	425	558	664
	SHOT WEIGHT(PS)	g	96	127	180	127	180	220	127	180	220	204	248	325	248	325	426	382	502	597
		oz	3.4	4.5	6.3	4.5	6.3	7.7	4.5	6.3	7.7	7.2	8.7	11.4	8.7	11.4	15.0	13.4	17.7	21.0
	INJECTION RATE	cm <sup>3</sup> /sec	67	88	124	88	124	152	143	202	247	167	204	267	237	310	407	233	306	364
CLAMPING SYSTEM	INJECTION RATE(FOUR)	cm <sup>3</sup> /sec	***	68	97	68	97	118	111	157	192	129	157	205	178	232	304	176	231	275
	SCREW REVOLVING SPEED	rpm	0-310	0-258		0-258			0-420			0-315			0-323			0-242		
	CLAMPING STROKE	mm	345			380			450			500			550			600		
	SPACE BETWEEN TIE BARS(HxV)	mm	330x330			360x360			410x400			460x450			510x500			560x550		
ELECTRICAL SYSTEM	MOLD PLATEN DIMENSIONS(HxV)	mm	485x485			515x515			580x580			660x660			735x735			810x810		
	RANGE OF MOLD HEIGHT	mm	80-350			100-375			125-425			150-500			150-550			180-600		
	HYDRAULIC EJECTOR STROKE	mm	110			110			110			130			150			160		
	PUMP MOTOR	kW	11-16			11-16			15-24			15-24			22-36			22-36		
MECHANICAL DIMENSIONS	HEATER CAPACITY(220V)	kW	4.2	5.8	5.8	5.8	8.2	8.2	5.8	8.2	8.2	7.5	10.0	10.0	9.3	12.3	12.3	11.2	16	16
	ALLOWABLE MAXIMUM PUMP PRESSURE	kg/cm <sup>2</sup>	140			140			140			140			140			140		
MECHANICAL DIMENSIONS	MACHINE SIZE	M	3.45x1.1x1.7			3.8x1.2x1.7			4.0x1.2x1.75			4.5x1.2x1.85			4.9x1.4x1.9			5.4x1.5x2.0		
	NET WEIGHT	ton	3.3			3.6			4.3			5.3			6.8			8.5		

1. Shot weight for PS. (Screw cross section) X (Injection stroke) X (Injection efficiency) X (g/cm<sup>3</sup>)

2. Design and specification are subject to change without prior notice.

3. kW of pump motor is subject to different brand. This value is for maximum loading, not for energy consumption.

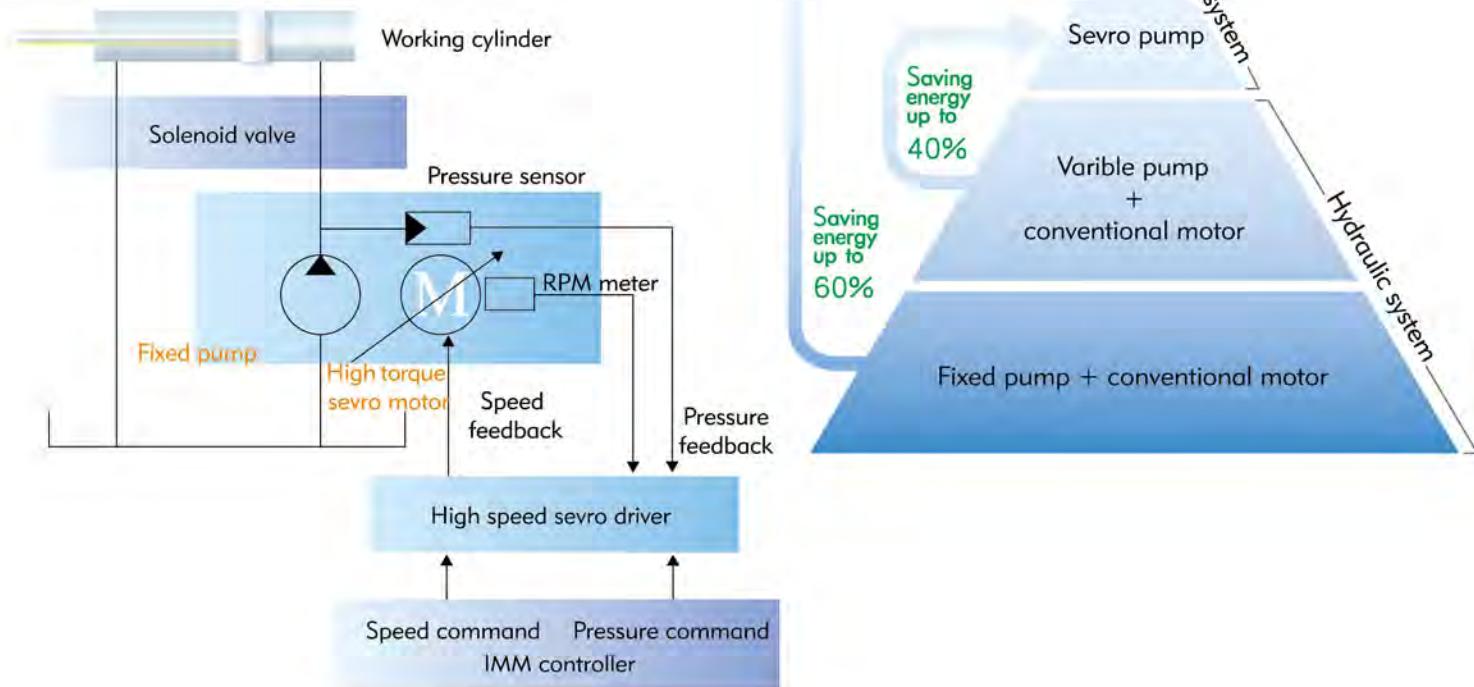
4. SE series are equipped with Japan made servo pump system.

TE series are equipped with Taiwan made servo pump system.

# HC-SE/TE System Structure

HC-SE/TE 伺服油壓系統架構

## ■ Specifications system



SYSTEM	ITEMS	CLAMPING FORCE	HC-300SE/TE			HC-350SE/TE			HC-400SE/TE			HC-450SE/TE			HC-600SE/TE		
			S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
INJECTION SYSTEM	SCREW DIAMETER	unit	55	60	65	60	65	70	65	70	75	70	75	80	75	80	90
		mm	55	60	65	60	65	70	65	70	75	70	75	80	75	80	90
	INJECTION PRESSURE	kg/cm <sup>2</sup>	1629	1360	1160	1860	1590	1370	1723	1485	1294	1823	1588	1395	1910	1680	1327
	INJECTION PRESSURE(FOUR)	kg/cm <sup>2</sup>	2117	1768	1508	2418	2067	1781	2239	1930	1682	2381	2064	1813	2483	2184	1725
	THEORETICAL SHOT VOLUME	cm <sup>3</sup>	617	734	861	848	994	1153	1128	1307	1501	1539	1767	2010	1943	2210	2797
	SHOT WEIGHT(PS)	g	555	660	775	763	894	1037	1015	1176	1350	1385	1590	1809	1748	1989	2517
		oz	19.5	23.2	27.3	26.9	31.5	36.5	35.8	41.4	47.5	48.8	56.0	63.7	61.6	70.0	88.7
	INJECTION RATE	cm <sup>3</sup> /sec	361	430	504	315	370	429	433	502	576	409	470	535	461	525	665
CLAMPING SYSTEM	INJECTION RATE(FOUR)	cm <sup>3</sup> /sec	279	332	390	240	282	327	336	389	447	314	360	410	351	399	505
	SCREW REVOLVING SPEED	rpm	0-252			0-210			0-228			0-128			0-135		
ELECTRICAL SYSTEM	CLAMPING STROKE	mm	650			710			765			900			970		
	SPACE BETWEEN TIE BARS(HxV)	mm	610x600			655x650			705x700			780x780			880x880		
	MOLD PLATEN DIMENSIONS(HxV)	mm	880x880			960x960			1035x1035			1160x1160			1300x1300		
	RANGE OF MOLD HEIGHT	mm	180-650			180-700			200-750			250-870			275-1020		
	HYDRAULIC EJECTOR STROKE	mm	180			180			200			240			300		
MECHANICAL DIMENSIONS	PUMP MOTOR	kW	30-48			30-48			37-60			37-60			44-72		
	HEATER CAPACITY(220V)	kW	12.5	18.5	18.5	16.2	19.8	19.8	19.9	27.1	27.1	27.4	31	31	31.4		
MECHANICAL DIMENSIONS	ALLOWABLE MAXIMUM PUMP PRESSURE	kg/cm <sup>2</sup>	140			140			140			140			140		
	MACHINE SIZE	M	6.1x1.6x2.1			6.4x1.7x2.2			7.0x1.9x2.1			7.8x2.0x2.2			8.4x2.2x2.3		
	NET WEIGHT	ton	10.5			12.5			16.5			21			27		

1. Shot weight for PS. (Screw cross section) X (Injection stroke) X (Injection efficiency) X (g/cm<sup>3</sup>)

2. Design and specification are subject to change without prior notice.

3. kW of pump motor is subject to different brand. This value is for maximum loading, not for energy consumption.

4. SE series are equipped with Japan made servo pump system.

TE series are equipped with Taiwan made servo pump system.



ITEMS	CLAMPING FORCE	1060			1360			1480			1680			2200			2700			3200		
SCREW DIAMETER	unit	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
	mm	100	110	120	110	120	130	120	130	140	130	140	150	150	160	170	150	160	170	150	160	170
INJECTION PRESSURE	kg/cm <sup>2</sup>	2082	1721	1446	1721	1446	1232	1736	1480	1276	1704	1470	1281	1673	1470	1302	1673	1470	1302	1844	1645	1476
INJECTION PRESSURE(FOUR)	kg/cm <sup>2</sup>	2706	2237	1879	2237	1879	1605	2308	1968	1697	2210	1910	1660	2174	1911	1692	2174	1911	1692	2380	2120	1900
THEORETICAL SHOT VOLUME	cm <sup>3</sup>	4710	5700	6785	5700	6785	7963	7464	8760	10160	10220	11853	13607	15021	17090	19293	15021	17090	19293	20428	22902	25518
SHOT WEIGHT(PS)	g	4239	5130	6106	5130	6106	7135	6818	8002	9281	9198	10667	12246	13519	15381	17363	13519	15381	17363	18385	20611	22966
	OZ	149.4	180.8	215.2	180.8	215.2	251.7	240.3	282.0	327.1	324.1	375.9	431.5	476.4	542	611.9	476.4	542	611.9	649.6	728.3	811.5
INJECTION RATE	cm <sup>3</sup> /sec	706	854	1016	854	1016	1193	951	1116	1294	969	1123	1290	1529	1739	1964	1529	1739	1964	1717	1925	2145
INJECTION RATE(FOUR)	cm <sup>3</sup> /sec	542	655	779	655	779	916	711	834	967	750	869	998	1174	1335	1508	1174	1335	1508	1332	1494	1664
SCREW REVOLVING SPEED	rpm	0-116			0-116			0-104			0-104			0-95			0-95			0-74		
CLAMPING STROKE	mm	1260			1500			1500			1700			1900			2100			2200		
SPACE BETWEEN TIE BARS(HxV)	mm	1120x1120			1220x1120			1350x1220			1520x1400			1800x1600			2000x1700			2200x1800		
MOLD PLATEN DIMENSIONS(HxV)	mm	1630x1630			1770x1670			1900x1770			2090x1970			2450x2250			2750x2450			3020x2620		
RANGE OF MOLD HEIGHT	mm	300-1200			300-1400			300-1400			500-1500			600-1700			700-1800			800-2000		
HYDRAULIC EJECTOR STROKE	mm	320			320			320			320			350			350			350		
PUMP MOTOR	kW	74-120			74-120			81-134			81-134			125-204			125-204			154-252		
HEATER CAPACITY(220V)	kW	57.7			57.7			69.1			74			88			109.7			109.7		
ALLOWABLE MAXIMUM PUMP PRESSURE	kg/cm <sup>2</sup>	140			140			140			140			140			140			140		
MACHINE SIZE	M	11.6x2.6x2.7			12.3x2.8x2.9			12.7x2.9x3.2			14.9x3.2x3.4			15.5x3.0x3.1			16.5x3.2x3.3			17.0x3.6x3.4		
NET WEIGHT	ton	56			66			70			93			164			193			223		

## OPTIONAL EQUIPMENT

- ① FOUR-CYLINDER INJECTION    ② CLOSED LOOP INJECTION    ③ ACCUMULATOR    ④ SPRING SHUT OFF NOZZLE    ⑤ AUTO LOADER
- ⑥ UNSCREWING DEVICE    ⑦ RIGID PVC PROCESSING UNIT    ⑧ HOPPER DRYER    ⑨ MICROPROCESSOR REMOTE CONTROLLED    ⑩ DATA LOCK

# Machine Appearance

HC-SE/TE 系列規格表



## STANDARD EQUIPMENT

INJECTION UNIT	CLAMPING UNIT	CONTROL SYSTEM	OTHERS
COLD START PROTECTION	FIVE MOLD CLOSING SPEED/PRESSURE STEPS	STORAGE FOR 120 SET OF MOLDING DATA	HYDRAULIC SYSTEM WITH LUMPED CIRCUIT
•	•	•	•
FOUR INJECTION SPEED/PRESSURE STEPS	FOUR MOLD OPENING SPEED/PRESSURE STEPS	ONE WEEK TIMER FOR AUTOMATIC START AND HEATING	WATER DISTRIBUTOR
•	•	•	•
THREE HOLDING PRESSURE STEPS	LOW-PRESSURE MOLD PROTECTION	MONITOR WITH POWER SAVING FUNCTION	VIBRATION ABSORBING MOUNTS
•	•	•	•
PID TEMPERATURE CONTROLLED	ELECTRIC SAFETY DEVICE	MALFUNCTION DIAGNOSTIC WITH ALARM MESSAGE	•
•	•	•	•
SCREW DECOMPRESSION WITH OPEN NOZZLE	DOUBLE SIDE SAFETY GUARDS	REAL-TIME CYCLE DISPLAY	•
•	•	•	•
INJECTION CARRIER WITH LUBRICATION FREE SLIDEWAY	AUTO MOLD-THICKNESS ADJUSTMENT	QUALITY CONTROL SYSTEM ACCORDING TO SHOT WEIGHT	•
•	•	•	•
	CORE PULL CONTROL	TEMPERATURE AND INJECTION POSITION CUSHION DISPLAY	•
	•	•	•
	AIR EJECTION	SPECIAL FUNCTION ON REQUESTED	
	•	•	
	5 POINTS VIBRATING HYDRAULIC EJECTOR		
	•		
	POWERED SAFETY GATE (ABOVE HC-400SE/TE)		
	•		
	AUTO LUBRICATION DEVICE		

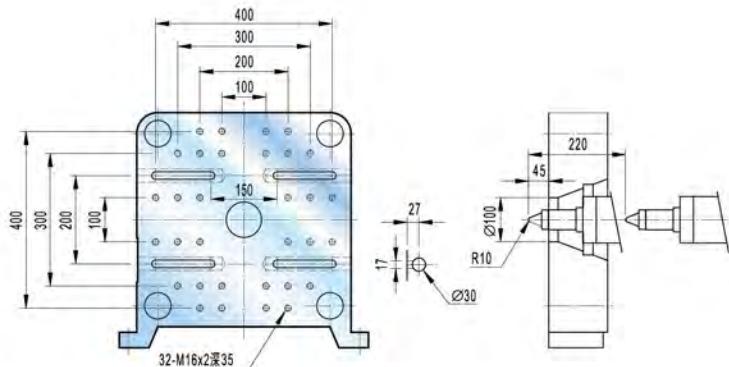
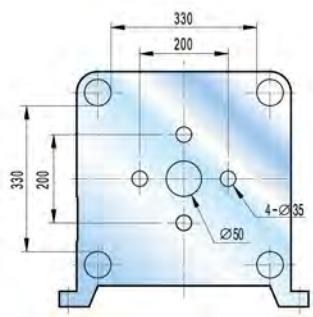
## SPARE AND ATTACHED PARTS

① . FUSE .....	2 PCS	② . SCREW TIP .....	1 SET	③ . SOLID STATE RELAY .....	2PCS	④ . NOZZLE(SHORT) .....	1 PC
⑤ . OIL SEAL .....	1 SET	⑥ . LIMITED SWITCH .....	1 PC	⑦ . MOLD CLAMP .....	8SETS	⑧ . LEVEL PAD .....	1 SET
⑨ . TOOLS KIT .....	1 SET	⑩ . THERMOCOUPLE .....	2SETS	⑪ . HEATER FOR NOZZLE .....	2PCS	⑫ . HYDRAULIC EJECTOR ROD .....	1 SET
⑬ . PROXIMITY SWITCH .....	1 PC	⑭ . HEATER FOR BARREL .....	1 PC				

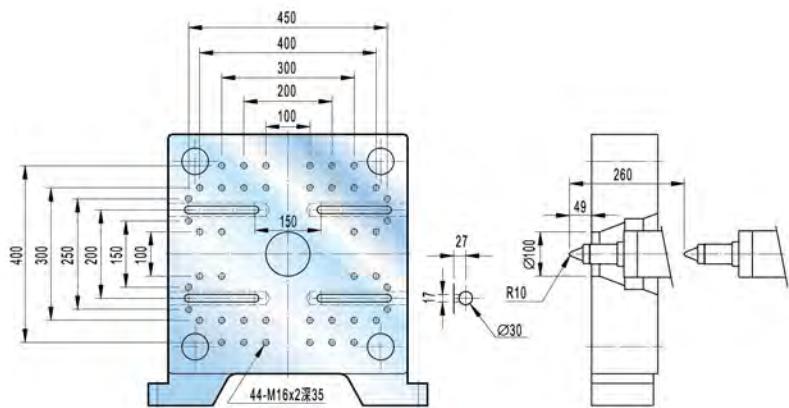
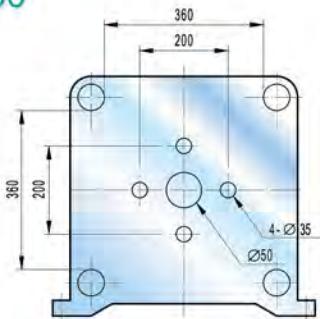
## Mold Platen Dimensions

模具固定螺孔位置

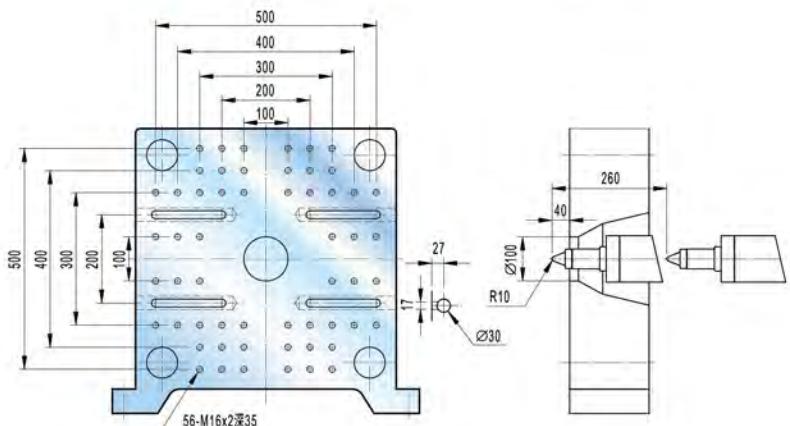
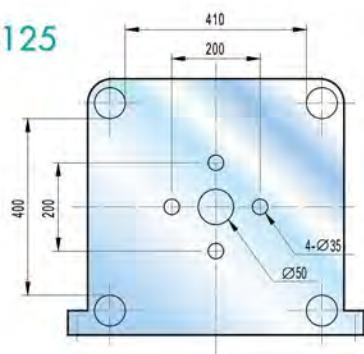
HC-80



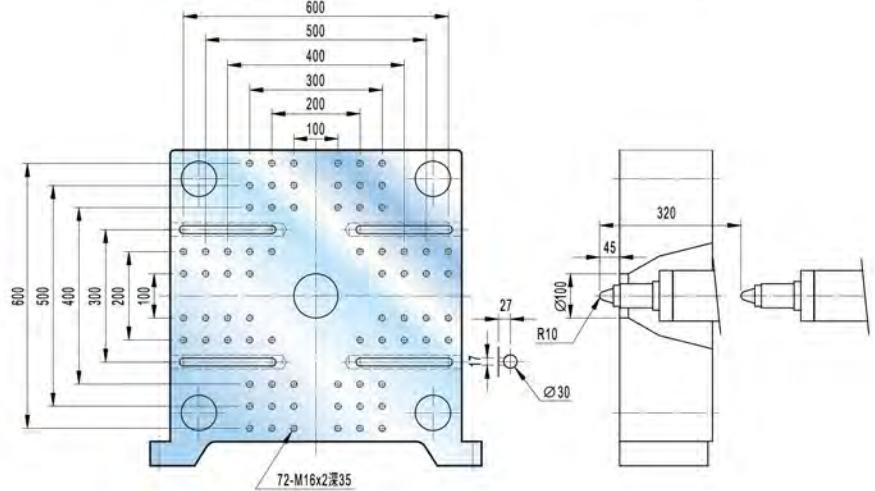
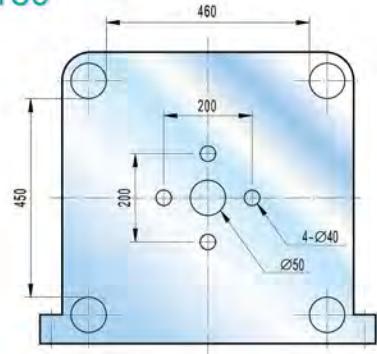
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HC-125



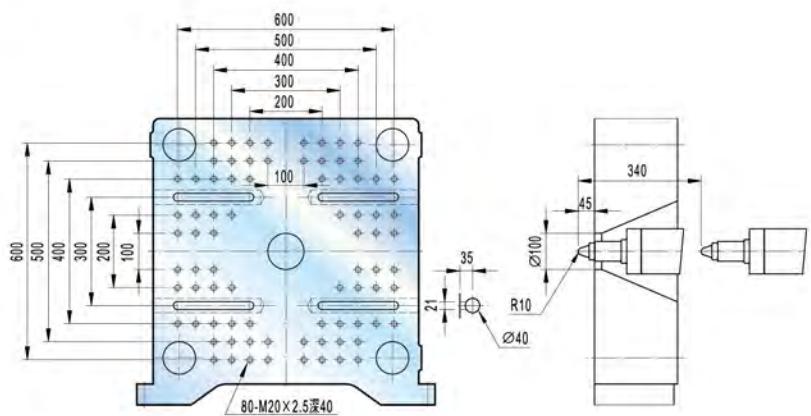
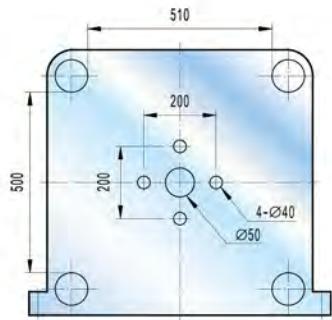
HC-160



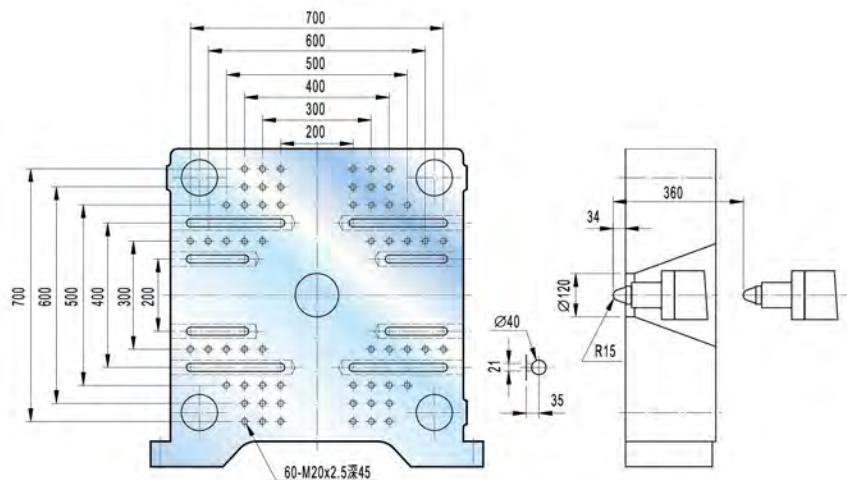
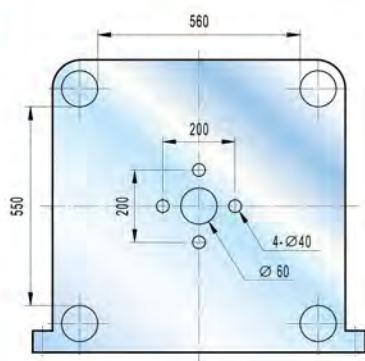
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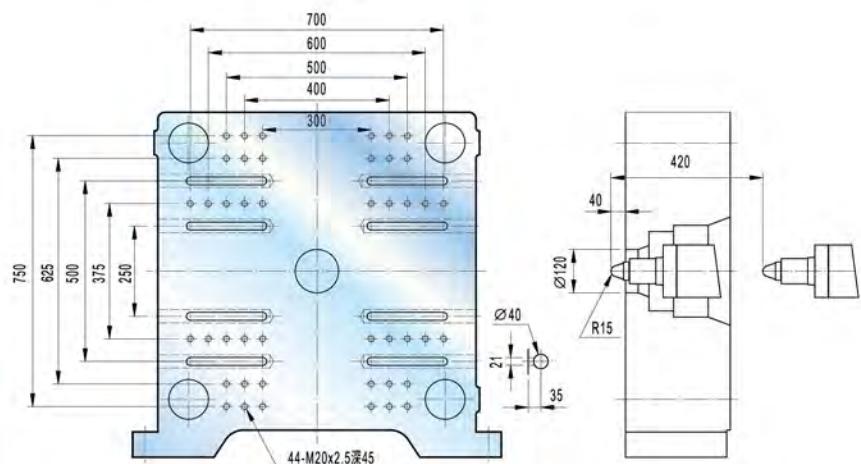
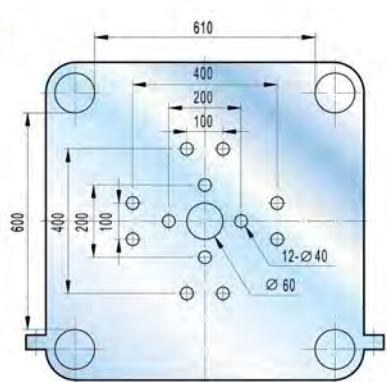
HC-210



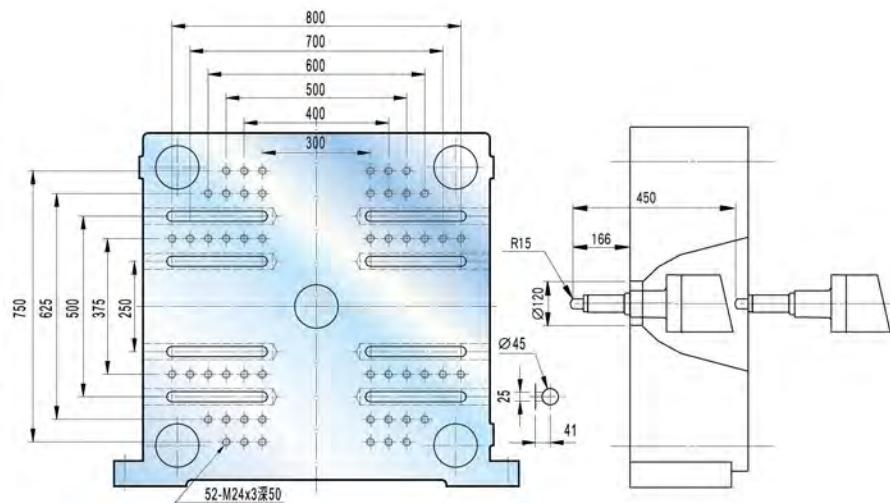
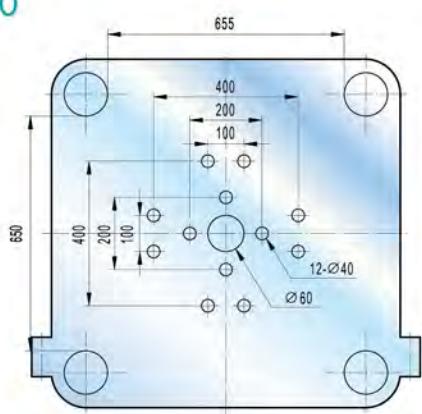
HC-250



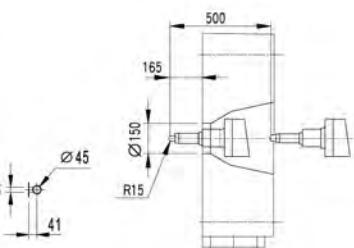
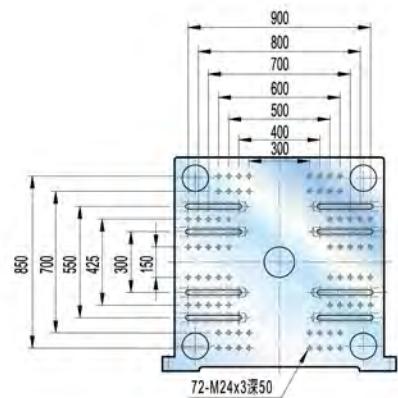
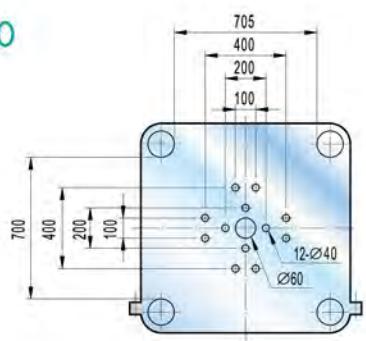
HC-300



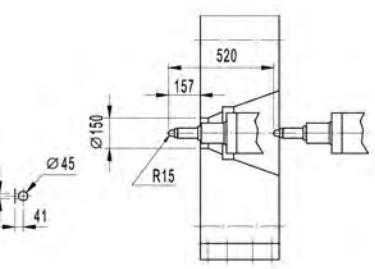
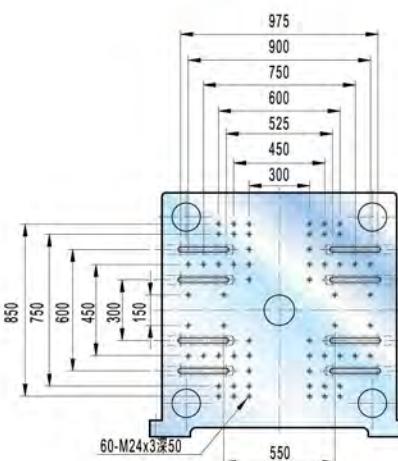
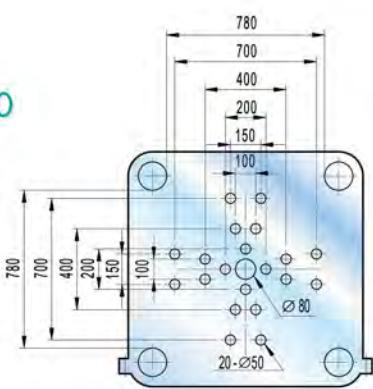
HC-350



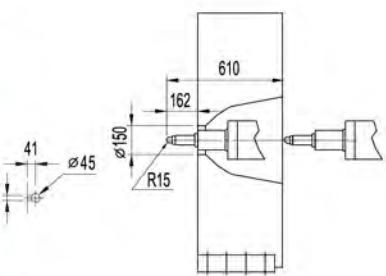
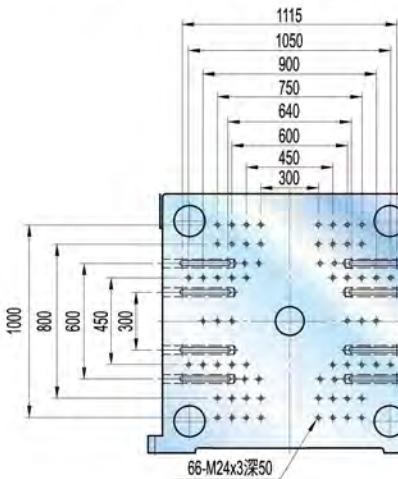
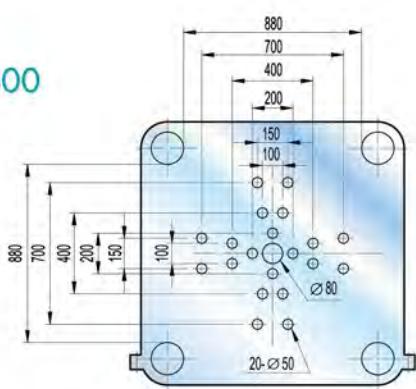
HC-400



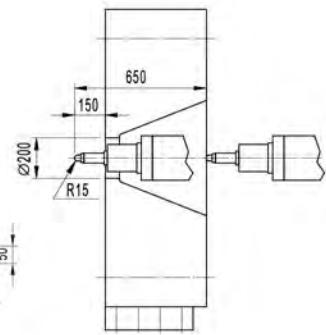
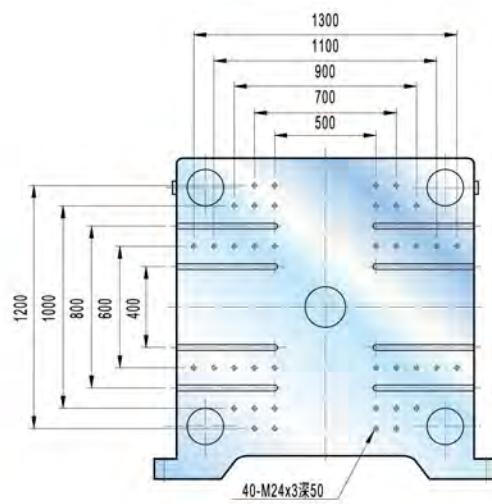
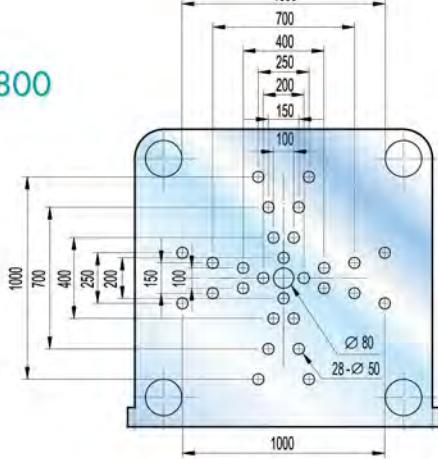
HC-450



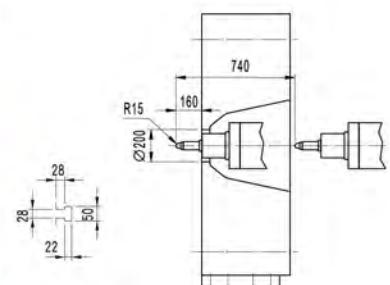
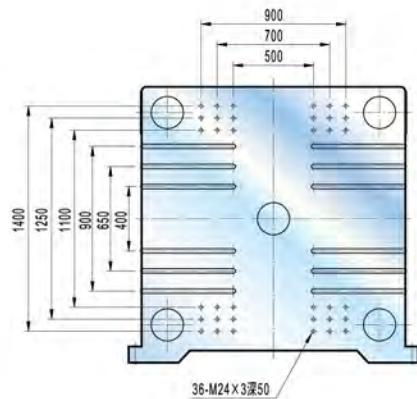
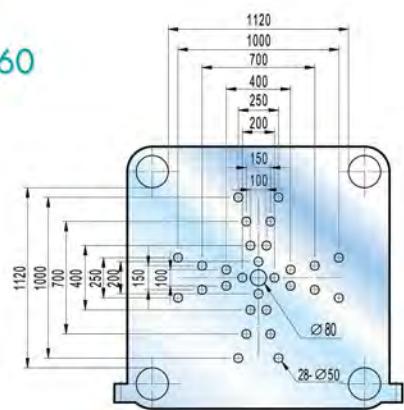
HC-600



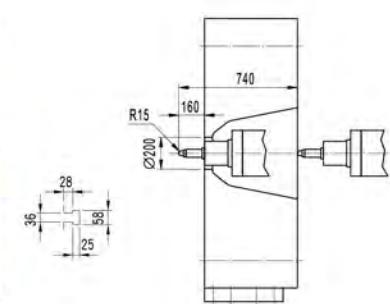
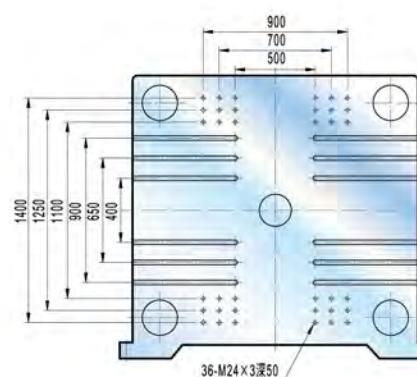
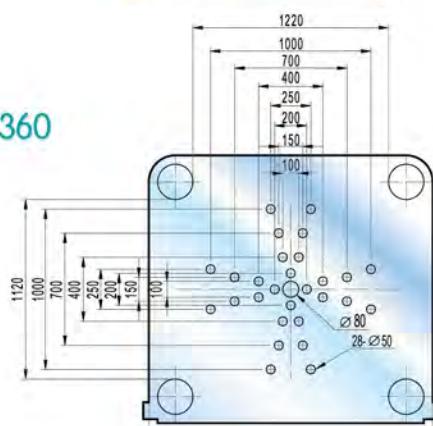
HC-800



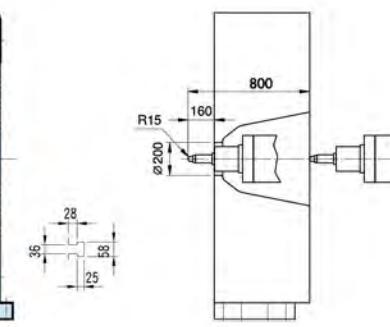
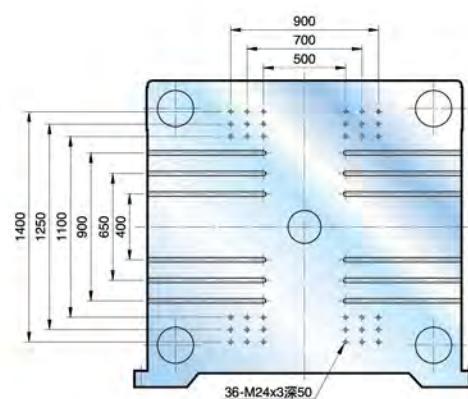
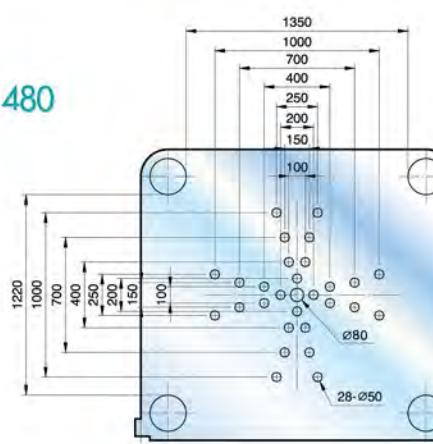
HC-1060



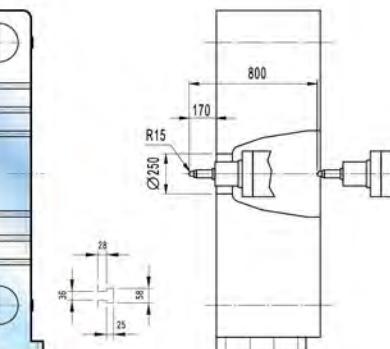
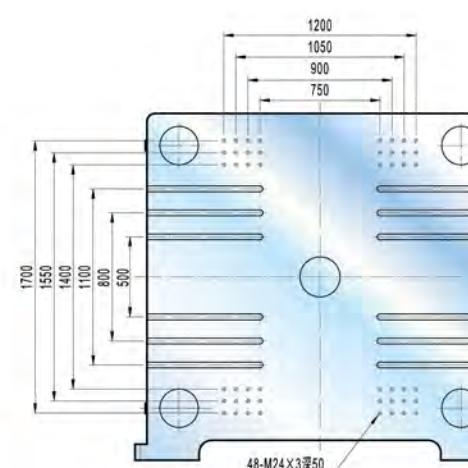
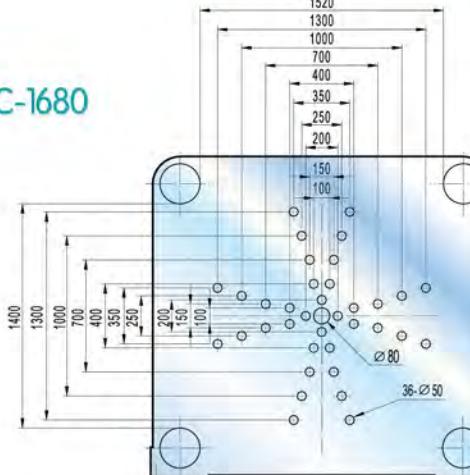
HC-1360



HC-1480



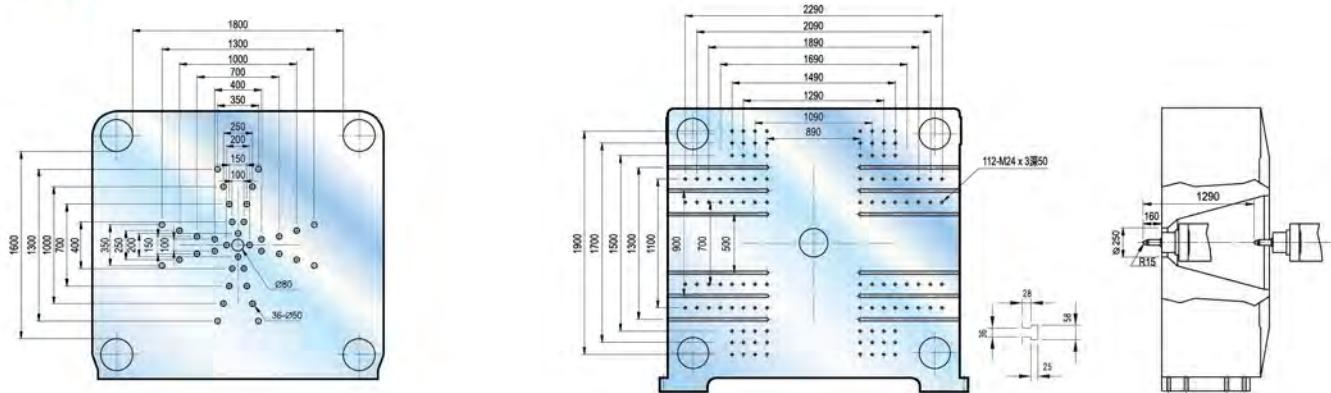
HC-1680



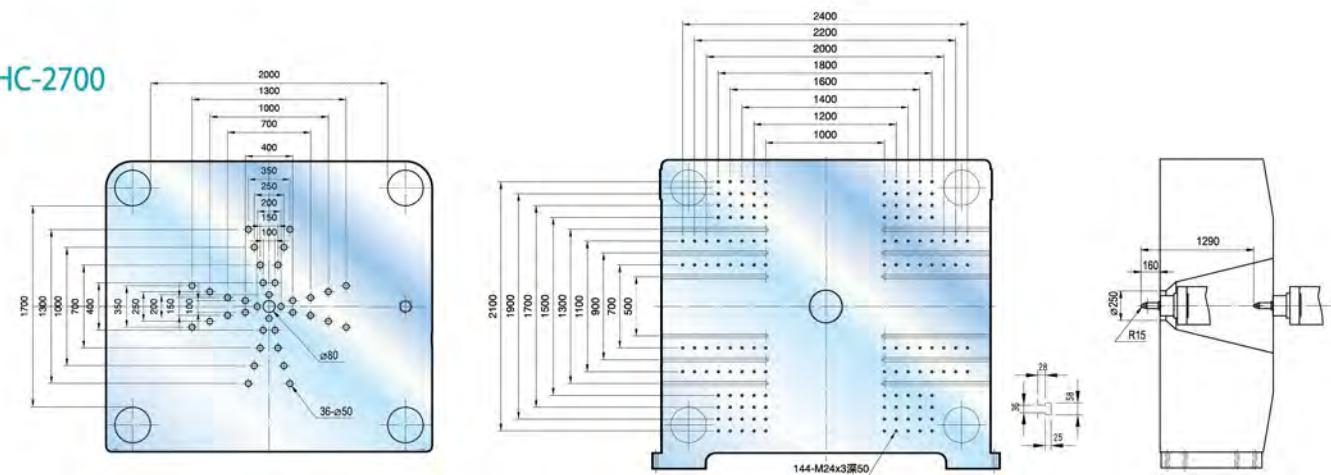
## Mold Platen Dimensions

模具固定螺孔位置

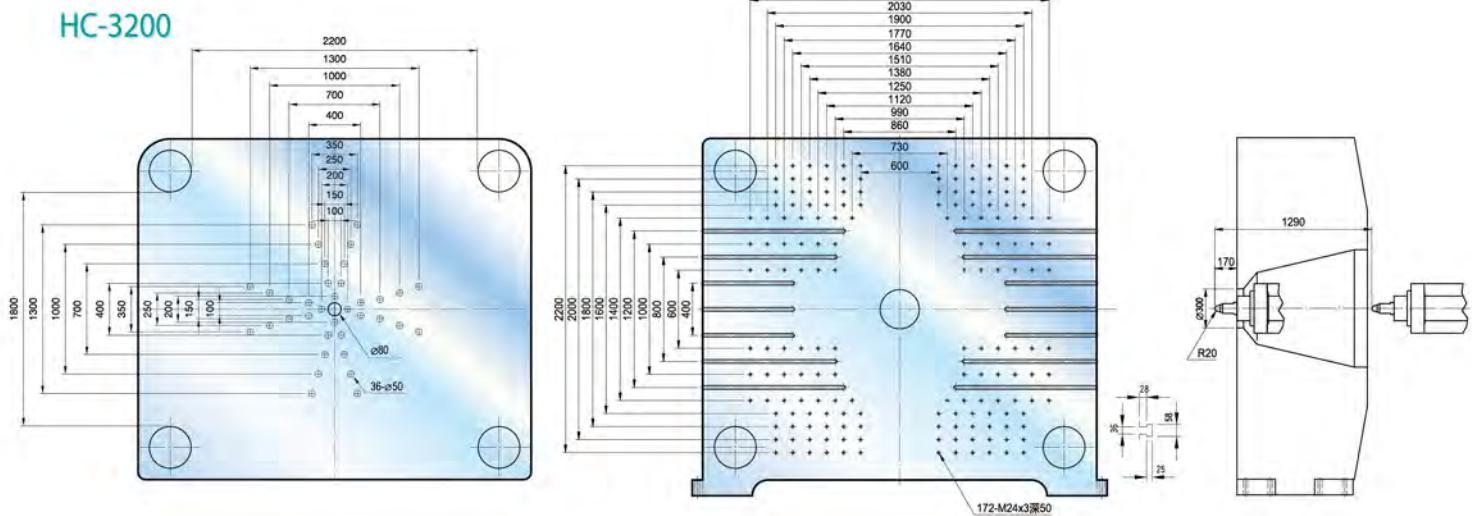
HC-2200



HC-2700

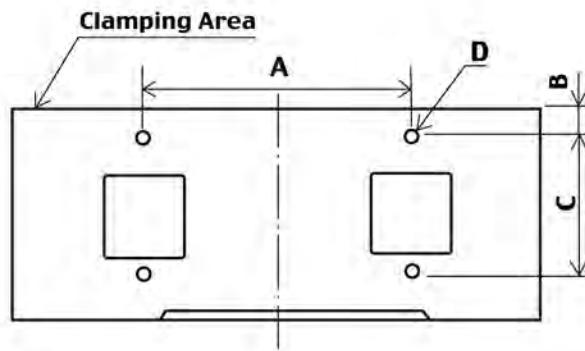


HC-3200

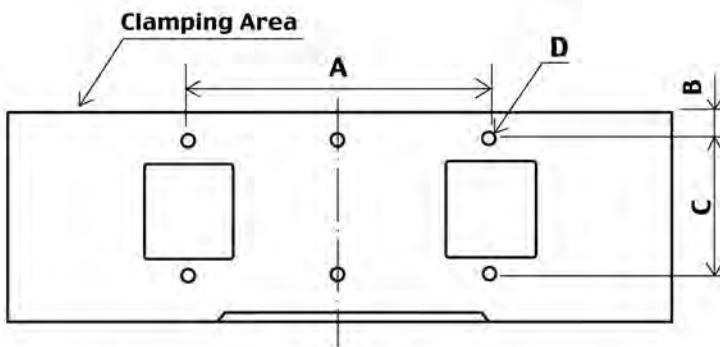


## Hole Pattern For Robot

設計與製作流程



Model \ Item	A	B	C	D
HC-80	218	25	80	4XM12 D25
HC-100	248	25	100	4XM12 D25
HC-125	300	35	130	4XM12 D25
HC-160	300	30	150	4XM16 D35
HC-210	300	30	170	4XM16 D40
HC-250	350	30	190	4XM16 D40
HC-300	350	40	210	4XM20 D40
HC-350	350	40	240	4XM20 D40
HC-400	400	40	240	4XM20 D40
HC-450	400	50	300	4XM24 D50



Model \ Item	A	B	C	D
HC-600	500	50	330	6XM24 D50
HC-800	550	50	380	6XM24 D50
HC-1060	600	50	430	6XM24 D50
HC-1360	1080	50	450	6XM24 D50
HC-1480	1080	50	450	6XM24 D50
HC-1680	1200	50	500	6XM24 D50
HC-2200	1600	50	550	6XM24 D50
HC-2700	1700	50	600	6XM24 D55
HC-3200	2000	50	650	6XM24 D55

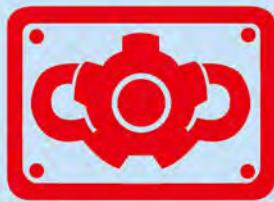
## Sales And Service

行銷與技術服務



*Based on the concept of sales and service integration, our service network covers the whole country. Many Factories trained independent distributors around the world stand ready to help customers solve various injection molding problems. Hwa Chin's Front line sales staffs have outstanding technical knowledge.*

*Our experienced service engineers in different locations often return to the main factory for on-going seminars and routine training to keep up with technical improvements. Our service engineers professional knowledge in various aspects including mechanical, hydraulic, electrical control solution to customers and to provide a competitive edge for injection molding jobs.*



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