



## World of Metal

**HDC Series Cold Chamber Die Casting Machine**  
**HDC180T-HDC4000T**

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# 50 Years of Experience



**1966**  
ESTABLISHMENT  
OF HAITIAN

**1974**  
DELIVERY OF THE FIRST  
INJECTION MOLDING MACHINE

**1985**  
REGISTRATION OF  
THE BRAND NAME  
"HAITIAN"

**1994**  
HAITIAN BECOMES THE NO.1  
FOR SALES VOLUME WOR-  
LDWIDE, AND STILL HOLDS  
THIS POSITION TODAY

**2002**  
ESTABLISHMENT OF  
HAITIAN PRECISION

**2005**  
ESTABLISHMENT  
OF HAITIAN DRIVE  
SYSTEMS

**2006**  
HAITIAN INTERNATIONAL  
HOLDINGS LTD. IS LISTED IN  
HONG KONG STOCK EXCHANGE  
(STOCK CODE: 01882)

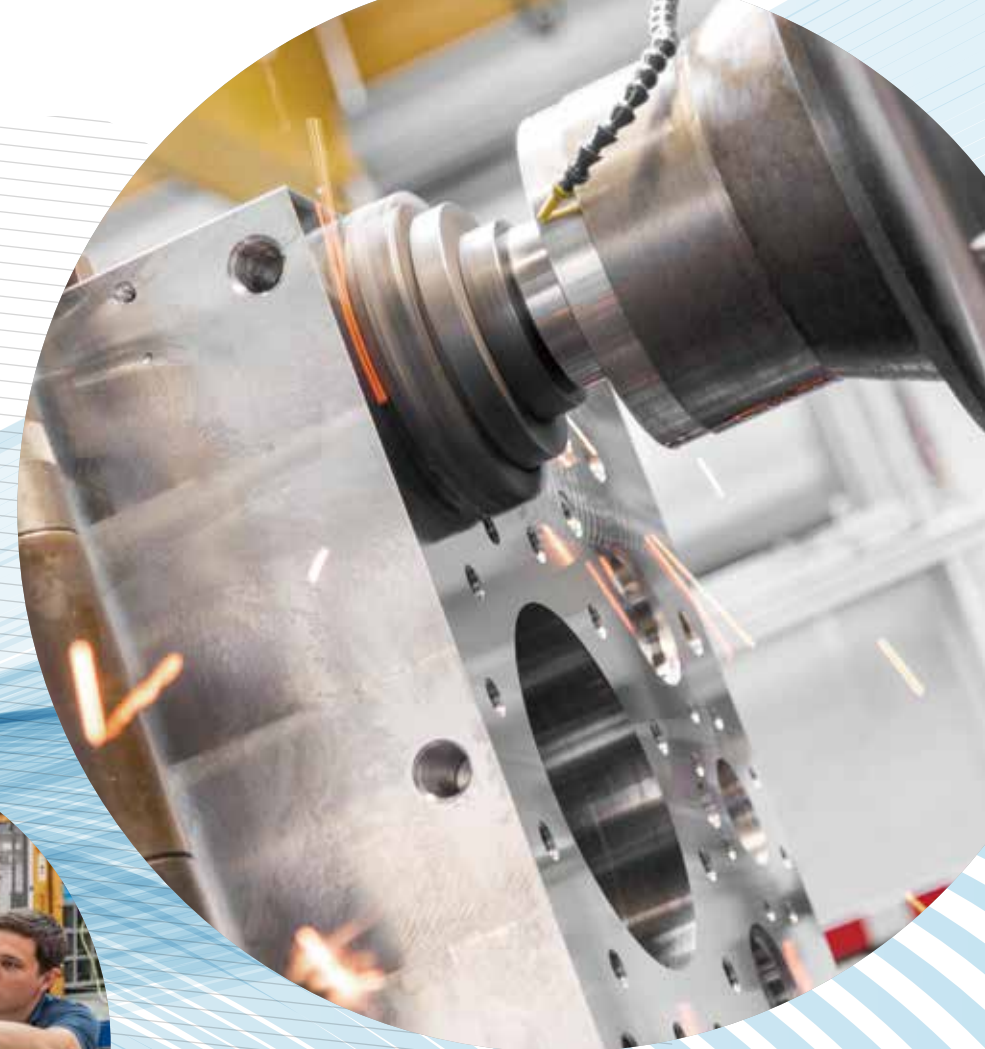
**2016**  
HAITIAN PRECISION IS  
LISTED IN SHANGHAI  
STOCK EXCHANGE  
(STOCK CODE: 601882)

**2016**  
ESTABLISHMENT OF  
HAITIAN DIE CASTING

**2016**  
50 YEARS ANNIVERSARY  
OF HAITIAN



# Manufacturing Power



Part Manufacturing Workshop

Part Manufacturing Workshop

Automatic Production Workshop

Platen Manufacturing Workshop

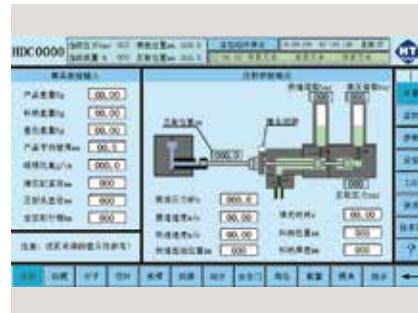
Heat Treatment Workshop

Boring Machine Workshop



# 180-800T

## HDC Series Cold Chamber Die Casting Machine



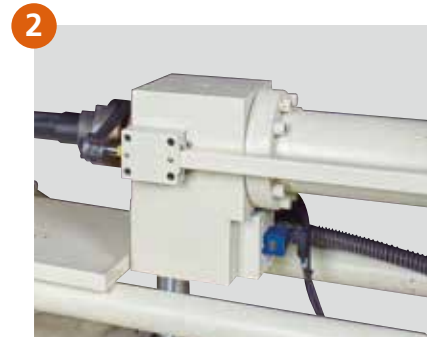
Auxiliary calculating program for shot specifications to save time of process adjustment.



The optimum design of die height adjustment mechanism better guarantees the quality stability of products, with stretchable pin shaft and self-locking function of the die height adjustment motor, which can effectively address the problem of reduction in locking force due to backward movement of the closing unit.



The fast closing mechanism uses overflow valve and slope control to realize faster and more smooth die opening and close. It also enables high precision extraction of parts at any position along die opening.



The one-piece platen design reduces the risk of oil leakage under high pressure.



Thickened platen and tie bar design better guarantee maintenance of the injection concentricity during long term operation.



Enlarged capacity of the cooler guarantees the reliable operation of the machine under the best oil temperature and prolong the service life of the oil and hydraulic parts.



Universal beam structure with high rigidity. The intensity of tension and rigidity has been greatly improved to ensure the overall precision of the machine throughout long-term operation.



The Haitian patented prefill valve has been adopted in the core structure of the non-floating piston shot unit, with fast response and addressing the issue of unstable pressure and long time for pressure buildup.



Sensor accumulator, for higher precision of accumulation, accumulator automatic calculating, intensification failure inspection and automatic unloading functions are also available.

Enlarged accumulator and nitrogen cylinder, providing sufficient energy, stronger and more stable injection with lower pressure fall.

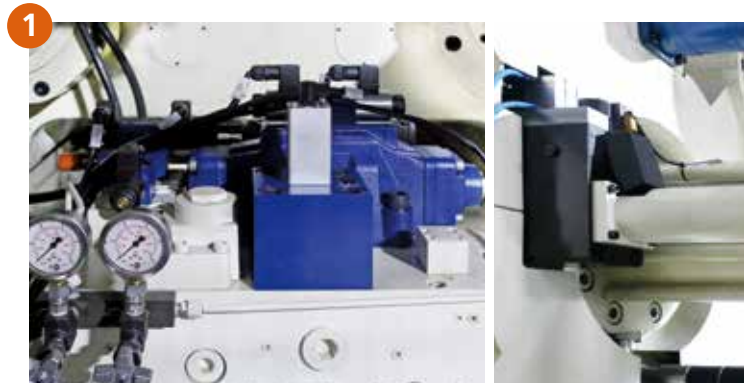
Magnetic sensor control on injection stroke, precise and stable position control, dual rod guide structure to avoid rotation of the injection part or broken of the connection platen for injection.





# 1300-4000T

## HDC Series Cold Chamber Die Casting Machine



Haitian Die Casting's exclusive die opening and close mechanism with big-flow reversing valve ensures faster response and more smooth operation. Hydraulic safety valve and safety lock ensures the safe locking.



The main cabinet adopts aviation connector and with cooling air-conditioning, lamp and socket.



Die opening and close stroke is controlled by displacement transducer, with strong immunity from interference.



MTS sensor from Japan and proximity switch are applied on the ejector pin, easy to switch.



High performance Haitian servo motor, with low energy consumption and fast response; efficient and stable oil cooling is applied in the servo system.



Separate pump driven hydraulic oil cooling system provides more reliable cooling.



# 1300-4000T

## HDC Series Cold Chamber Die Casting Machine



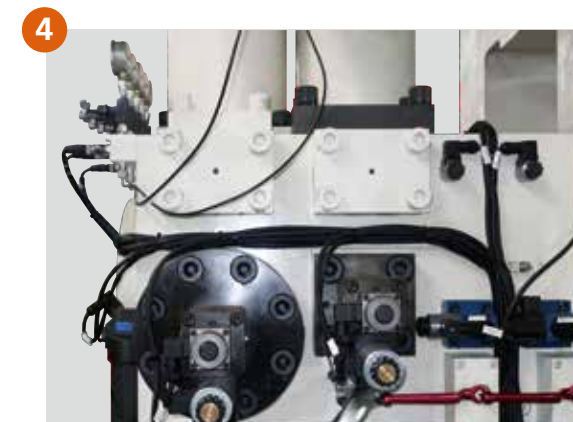
1 Overstress protection mechanism on the nut of the tie bar of the front platen, protecting the tie bar under uneven force.



2 The one-piece platen with lubricating oil pipes has high rigidity and efficiently prevents oil leak, providing higher injection speed and stability.



3 Tie bar extraction device available on the upper operation side, and another installation position for such tie bar extraction device is reserved at the back side for option.



4 Proportional control over phase one, phase two of the injection and intensification speed; automatic detection over the phase two and intensification accumulation through pressure sensor.



5 The safety door is driven by the servo motor and linear guide is applied for smooth and reliable operation.



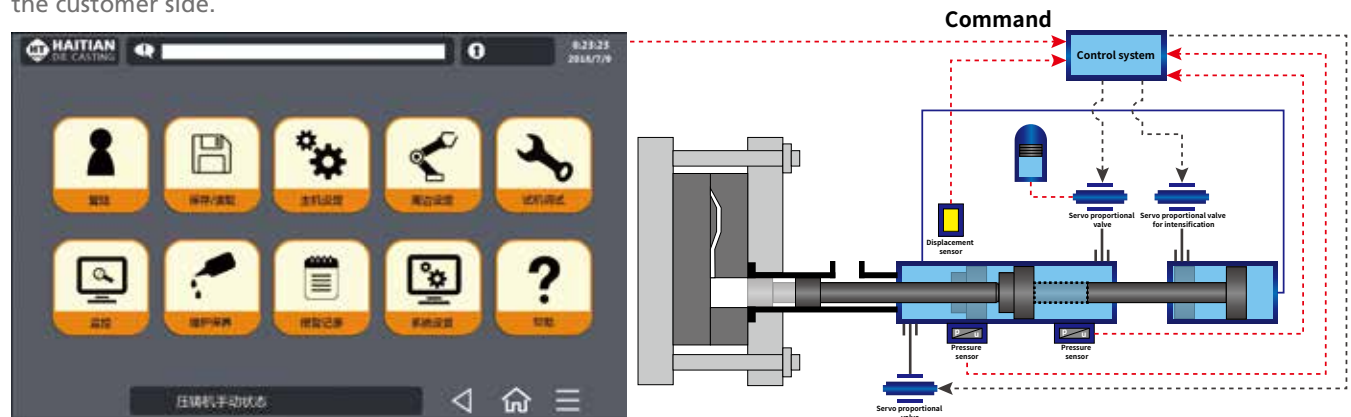
6 Functions such as stable core holding and further push on partial areas to ensure the core holding; automatic pressure relief are available.



# Dual Closed-loop and Full Real-time Control Shot System (Option)

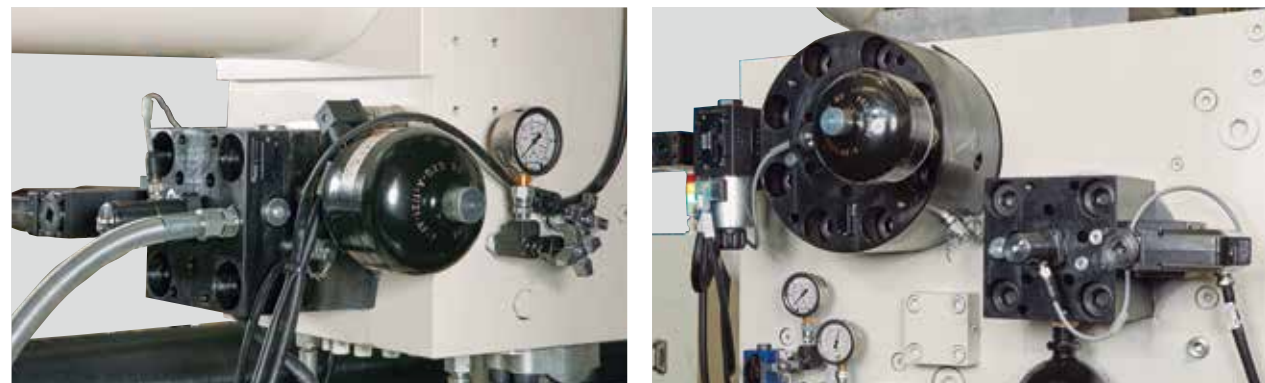
## HDC Series Cold Chamber Die Casting Machine

Haitian Die Casting has developed a new-generation of dual closed-loop and full real-time control shot system. This system adopts Siemens control system to achieve closed loop control over the casting pressure, shot speed, intensification and pressure build-up time. The intensification pressure can be set in six phases. It can ensure high quality and highly stable shot process, which further guarantees the high precision and quality of the casting parts on the customer side.



## Performance of dual closed-loop full real-time control shot system

- 0.5ms real-time control cycle
- Constant acceleration
- 10-phase shot speed, 6-phase intensification, wider range of process adjustment
- Real-time control of intensification, with repeatability precision of intensification  $\pm 1\text{bar}$
- Acceleration  $\geq 45\text{G}$
- Shot speed of 0.05m/s-8m/s, ultra-low speed extrusion
- Closed-loop control of pressure buildup time  $\leq 20\text{ms}$
- High-speed repeatability precision  $\leq \pm 2\%$
- Slow-speed repeatability precision  $\leq \pm 0.02\text{m/s}$
- Brake at the end of shot for non-flash injection
- Stable start-up without undesirable impact



# Intelligent Quality Management Function (Option)

## HDC Series Cold Chamber Die Casting Machine

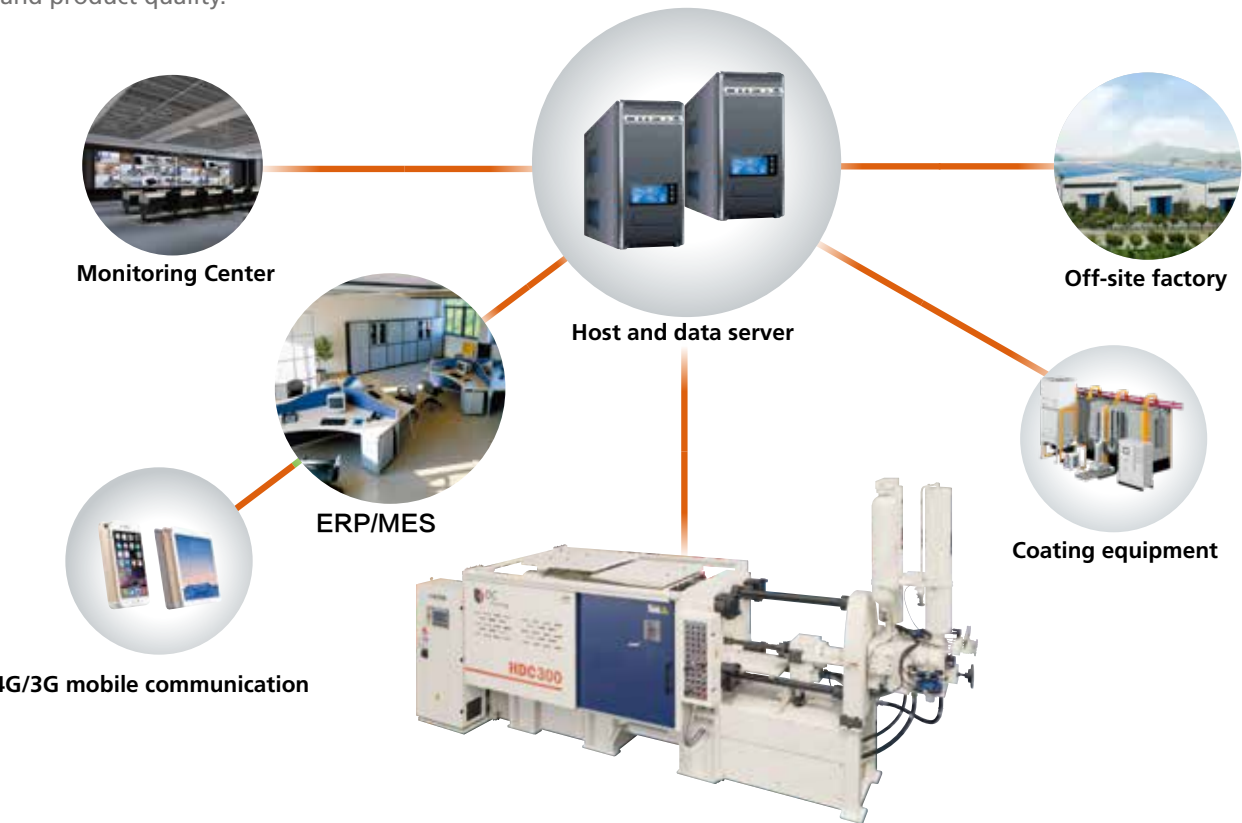
## Intelligent Quality Management Function (Option)

- Qualified product: The detected value between the upper and lower limit is considered qualified.
- Treatment: The machine will handle the situations accordingly when unqualified products are found.
- Cycle stop: The machine automatically stops when the number of unqualified products reaches the set limit.



## Networked Remote Control (Option)

HDC Series cold chamber die casting machine can be networked, so that users may have real-time monitoring over the machine's parameters and manufacturing process parameters. It facilitates the better control over the production site and product quality.





# HDC180-800 Specifications



		HDC180	HDC300	HDC400	HDC500	HDC650	HDC800
Clamping force	kN	1800	3000	4000	5000	6500	8000
Die close stroke	mm	380	460	550	580	670	760
Ejector force	kN	108	150	200	250	315	315
Ejector stroke	mm	85	110	130	150	160	180
Die thickness (min. to max.)	mm	250~600	250~700	300~750	350~850	350~900	400~950
Dimension of die space	mm	710x710	910x910	1050x1050	1200x1200	1380x1380	1470x1470
Tie bar distance (L*W)	mm	460x460	570x570	650x650	755x755	860x860	930x930
Tie bar diameter	mm	Ø90	Ø120	Ø140	Ø150	Ø180	Ø190
Injection force (intensification)	kN	280	365	380	470	610	695
Injection stroke	mm	350	410	510	600	650	760
Plunger diameter	mm	40/50/60	50/60/70	60/70/80	70/80/90	70/80/90	80/90/100
Shot weight (aluminum)	kg	0.8/1.3/1.9	1.5/2.2/3.0	2.7/3.7/4.8	4.3/5.7/7.2	4.7/6.1/7.7	7.2/9.1/11.2
Casting pressure	MPa	223/143/99	186/129/95	134/99/76	122/94/74	159/121/96	138/109/89
Casting area	cm <sup>2</sup>	80/125/180	160/230/315	300/405/530	410/535/675	410/535/680	580/730/905
Maxing casting area under 40 MPa	cm <sup>2</sup>	450	750	1000	1250	1625	2000
Shot position	mm	-140	-125/-140	-175	-175	-250	0,-250
Plunger penetration	mm	135	152	210	270	280	300
Diameter of pressure chamber flange	mm	101.6	101.6	101.6	165	165	200
Height of pressure chamber flange	mm	12	12	12	15	15	20
Hydraulic working pressure	MPa	16	16	16	16	16	16
Capacity of servo motor	kW	15/19.8	22/39	30/49	37/58.8	45/57	45/57
Oil tank capacity	L	520	700	800	1200	1200	1600
Machine weight	T	6.7	11.8	16.5	21.4	32	37.5
Machine Dimension(LxWxH)	mm	5700x1670x2700	6400x1700x2900	7060x2040x3010	7800x2170x3110	8900x2350x3150	9600x2350x3500

We reserve the right to make changes as a result of further technical advantages



# HDC1300-4000 Specifications



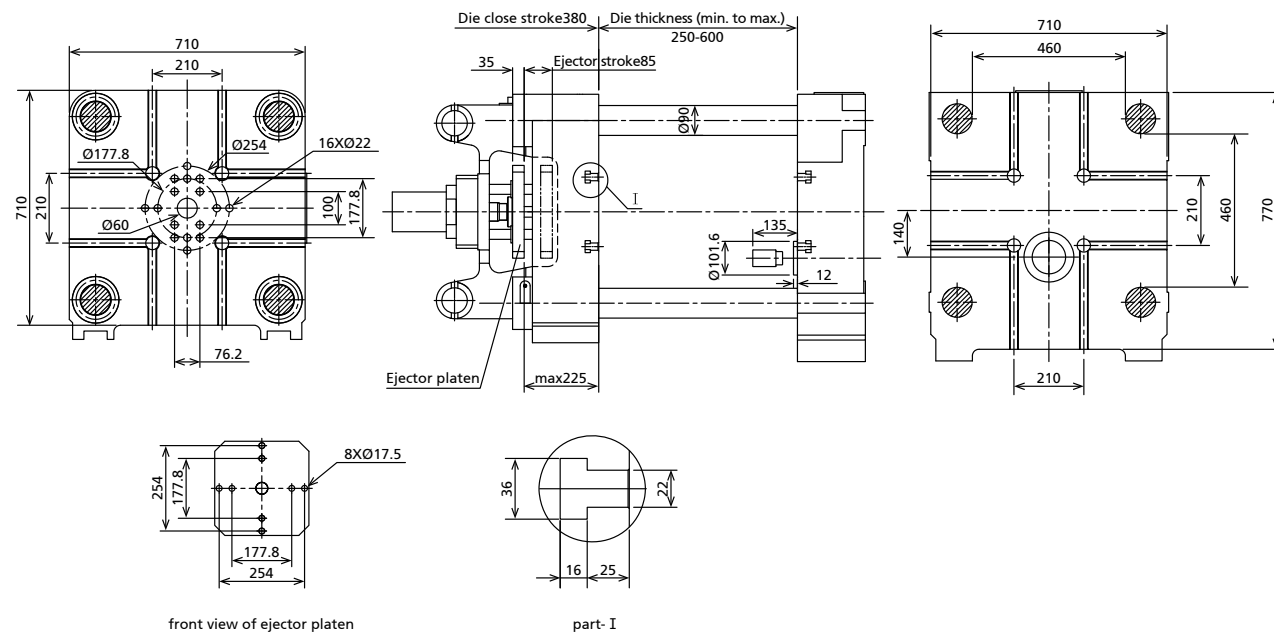
		HDC1300	HDC1650	HDC2000	HDC2500	HDC3200	HDC3500	HDC4000
Clamping force	kN	13000	16500	20000	25000	32000	35000	40000
Die close stroke	mm	1000	1200	1400	1500	1600	1600	1800
Ejector force	kN	560	570	650	750	900	900	1000
Ejector stroke	mm	210	250	300	300	300	300	360
Die thickness (min. to max.)	mm	450-1200	500-1400	600-1600	750-1800	800-2000	800-2000	1000-2100
Dimension of die space	mm	1800x1800	2090x2090	2350x2250	2500x2400	2800x2700	2800x2700	3100x3000
Tie bar distance (L*W)	mm	1100x1100	1250x1250	1450x1350	1600x1500	1750x1650	1750x1650	1900x1800
Tie bar diameter	mm	Ø240	Ø260	Ø290	Ø330	Ø350	Ø350	Ø400
Injection force (intensification)	kN	1125	1295	1500	1700	2410	2410	2410
Injection stroke	mm	910	970	1050	1100	1200	1400	1400
Plunger diameter	mm	100-140	110-150	130-170	140-180	150-190	160-200	160-200
Shot weight (aluminum)	kg	13.4-26.3	17.3-32.1	26.1-44.7	31.7-52.5	39.8-63.5	52.8-82.5	52.8-82.5
Casting pressure	MPa	143-73	136-73	113-66	110-67	136-85	120-77	120-77
Casting area	cm <sup>2</sup>	910-1780	1210-2260	1770-3030	2270-3730	2353-3765	2915-4545	3330-5195
Maxing casting area under 40 MPa	cm <sup>2</sup>	3250	4125	5000	6250	8000	8750	10000
Shot position	mm	-160,-320	-175,-350	-175,-350	-200,-400	-250,-560	-300,-600	-300,-600
Plunger penetration	mm	355	400	450	450	600	600	600
Diameter of pressure chamber flange	mm	240	260	260	280	320	320	320
Height of pressure chamber flange	mm	25	25	30	30	35	35	35
Hydraulic working pressure	MPa	16	19	19	19	19	19	19
Capacity of servo motor	kW	85	69.5+69.5	85+85	110+110	110+110	110+110	110+110
Oil tank capacity	L	2800	3000	3000	3500	4500	4500	4500
Machine weight	T	80	105	130	160	210	210	280
Machine Dimension(LxWxH)	mm	11150x4470x4020	12000x4600x4650	13000x4800x4800	14000x5100x5100	15800x5400x5300	15800x5400x5300	17000x5600x5400

We reserve the right to make changes as a result of further technical advantages

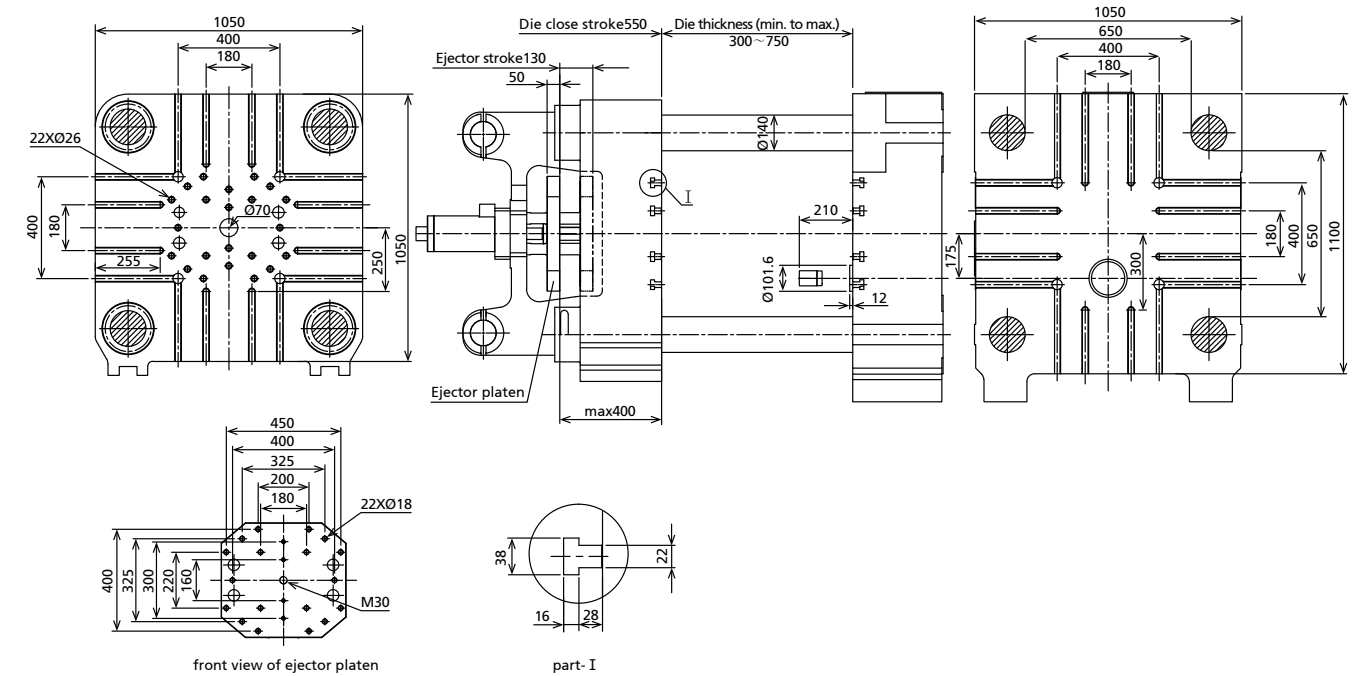


# HDC180-500 Platen Dimensions

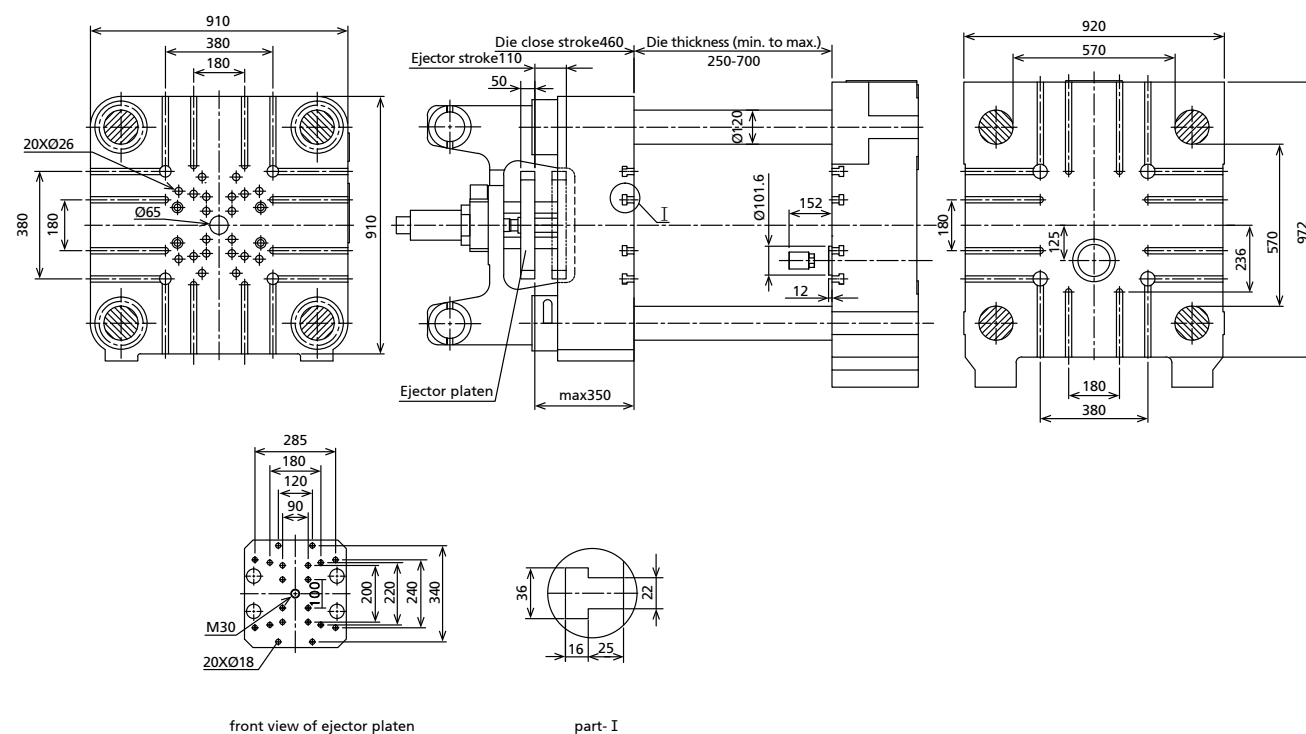
## HDC180



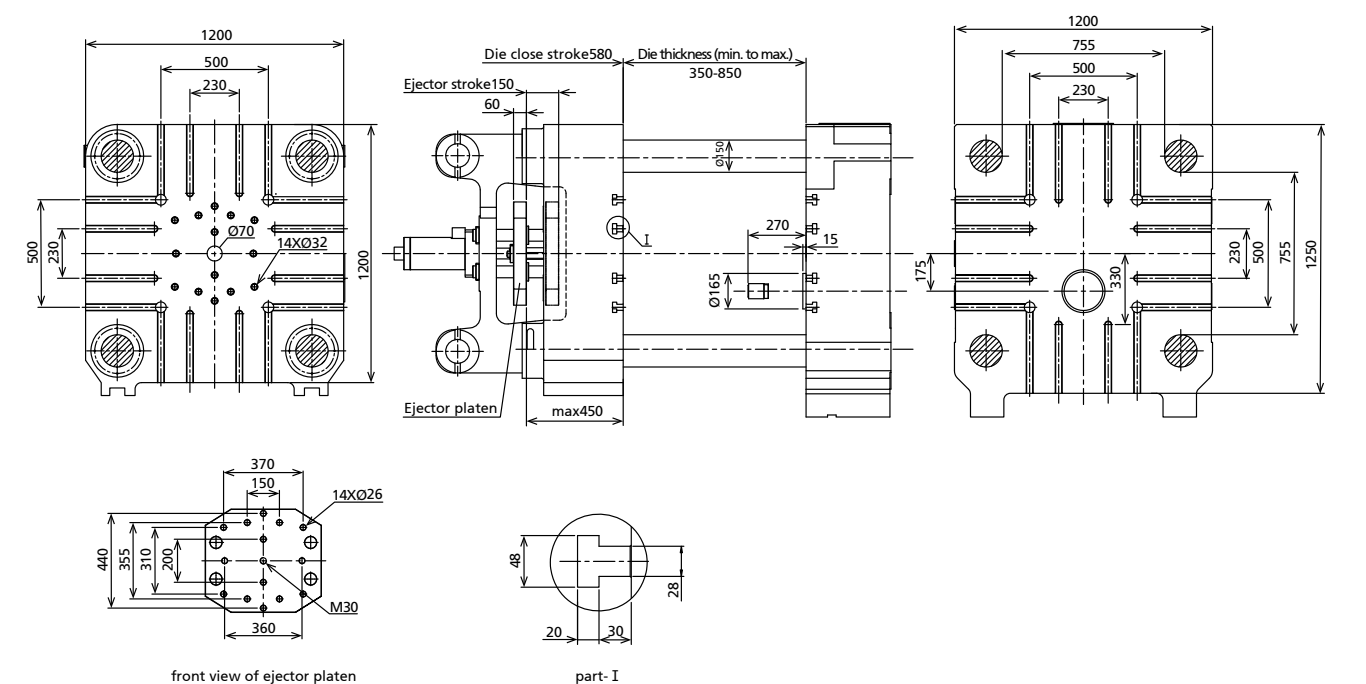
## HDC400



## HDC300



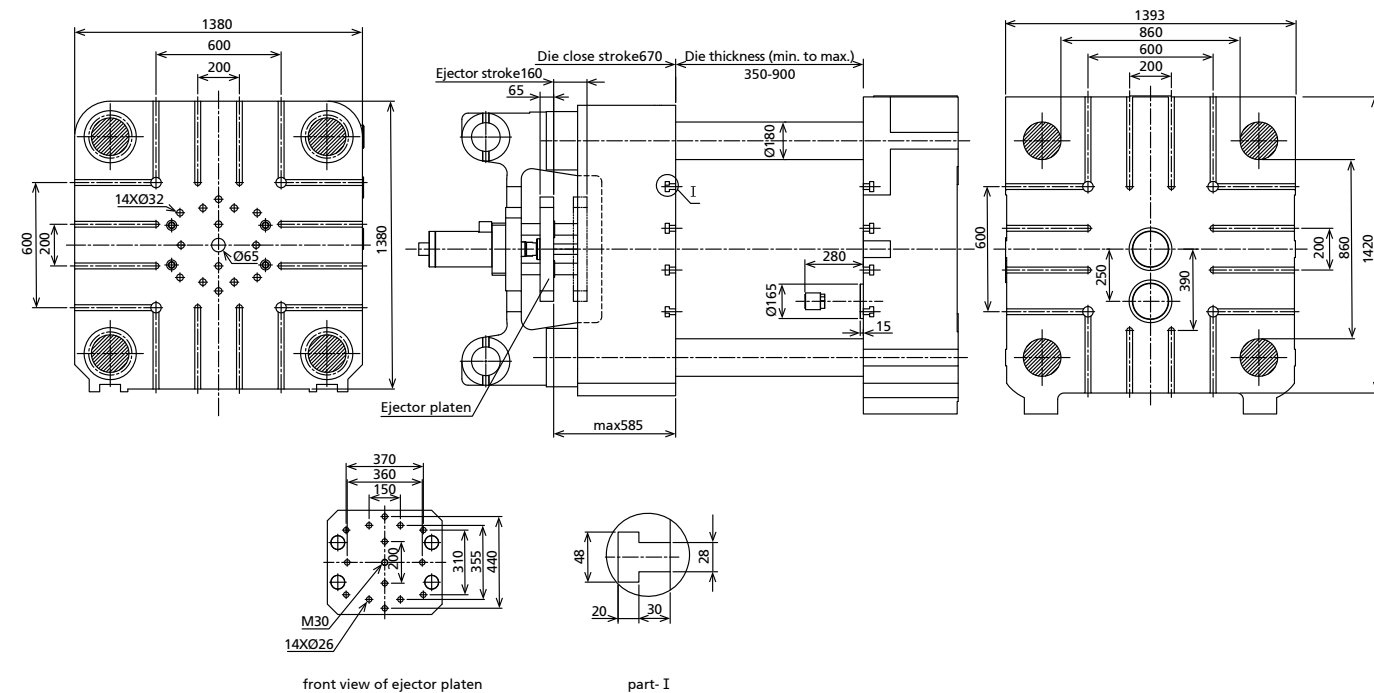
## HDC500



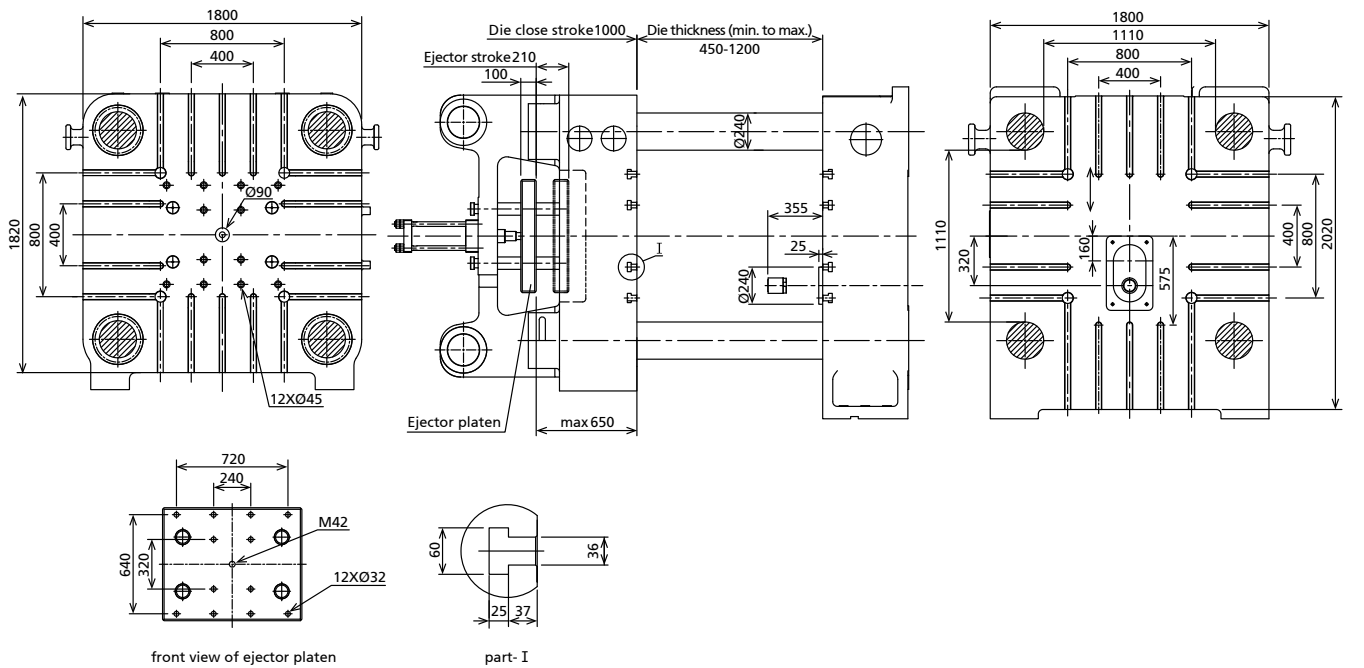


# HDC650-1650 Platen Dimensions

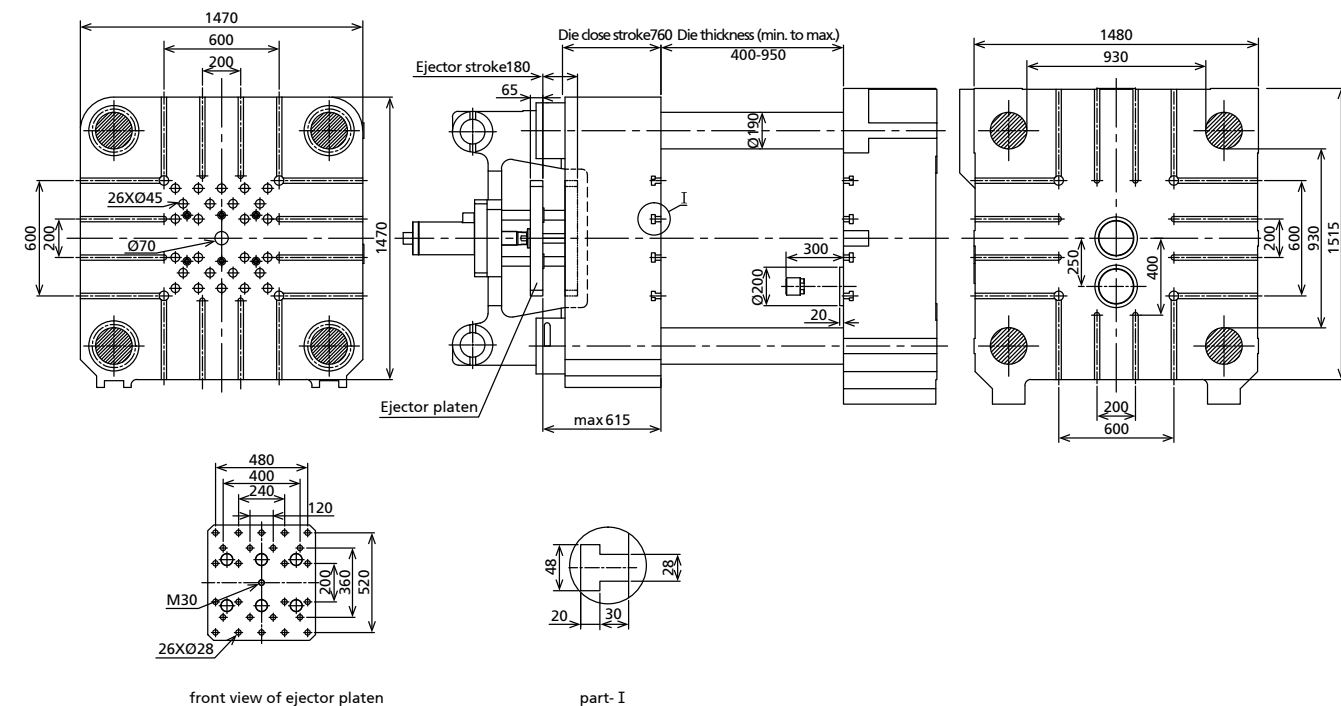
## HDC650



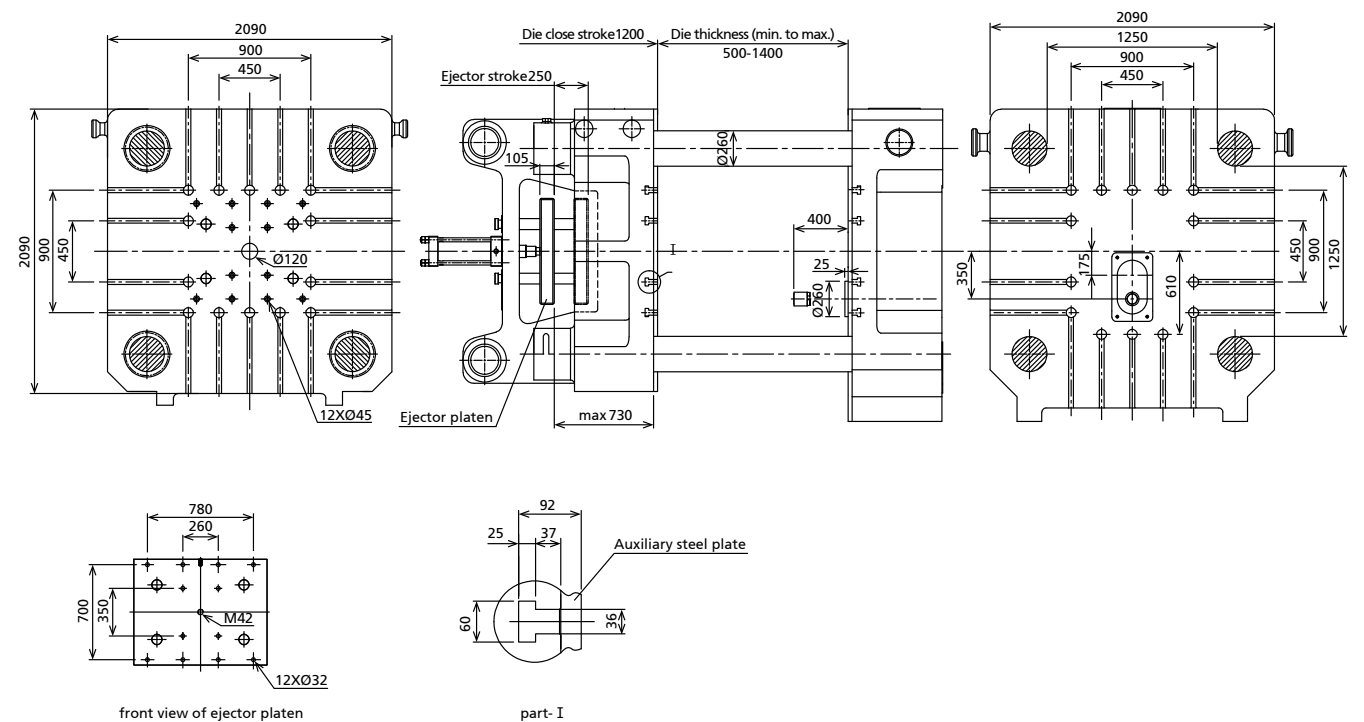
## HDC1300



## HDC800



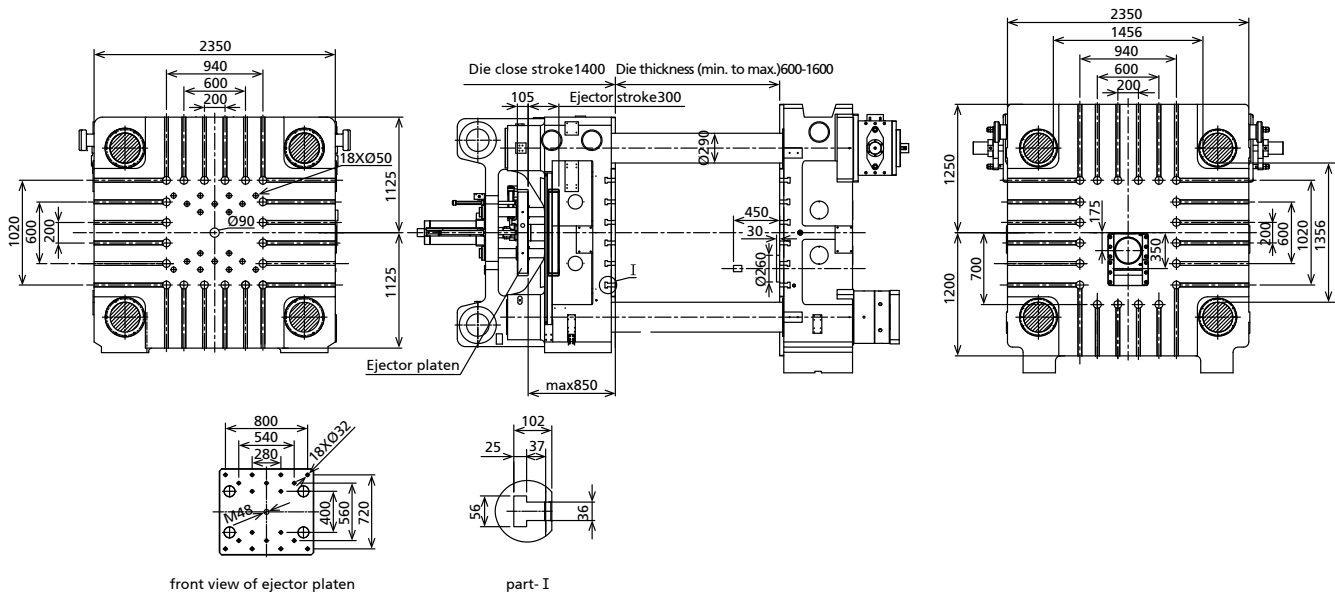
## HDC1650



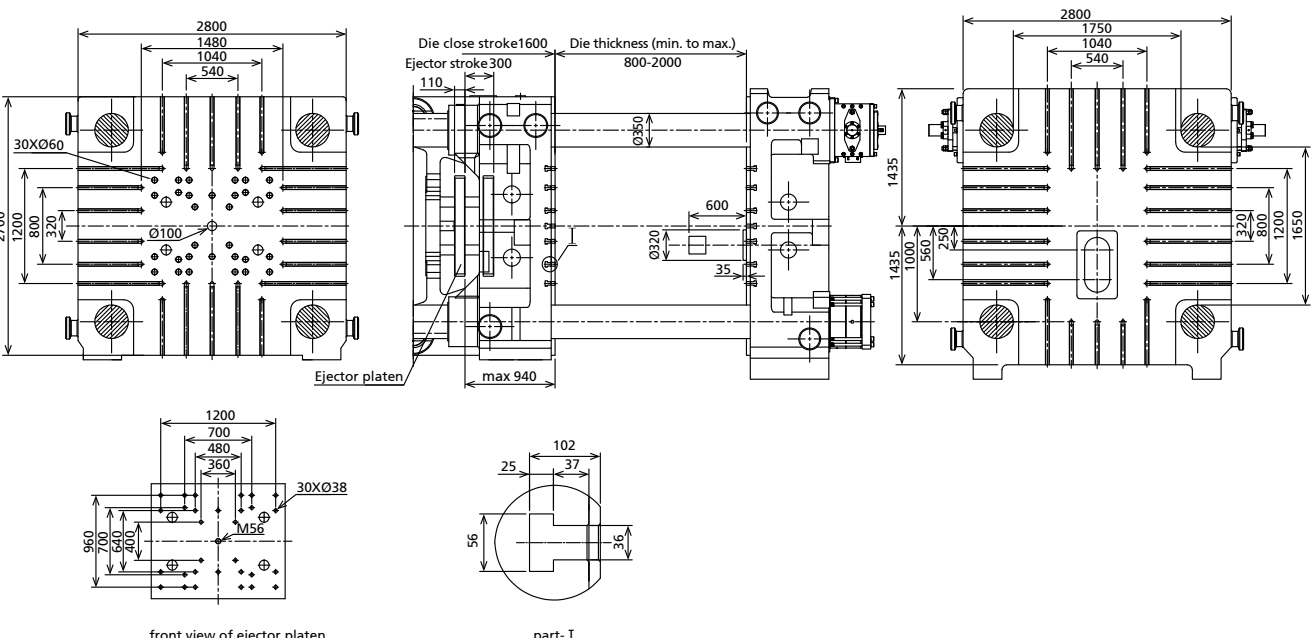


# HDC2000-3500 Platen Dimensions

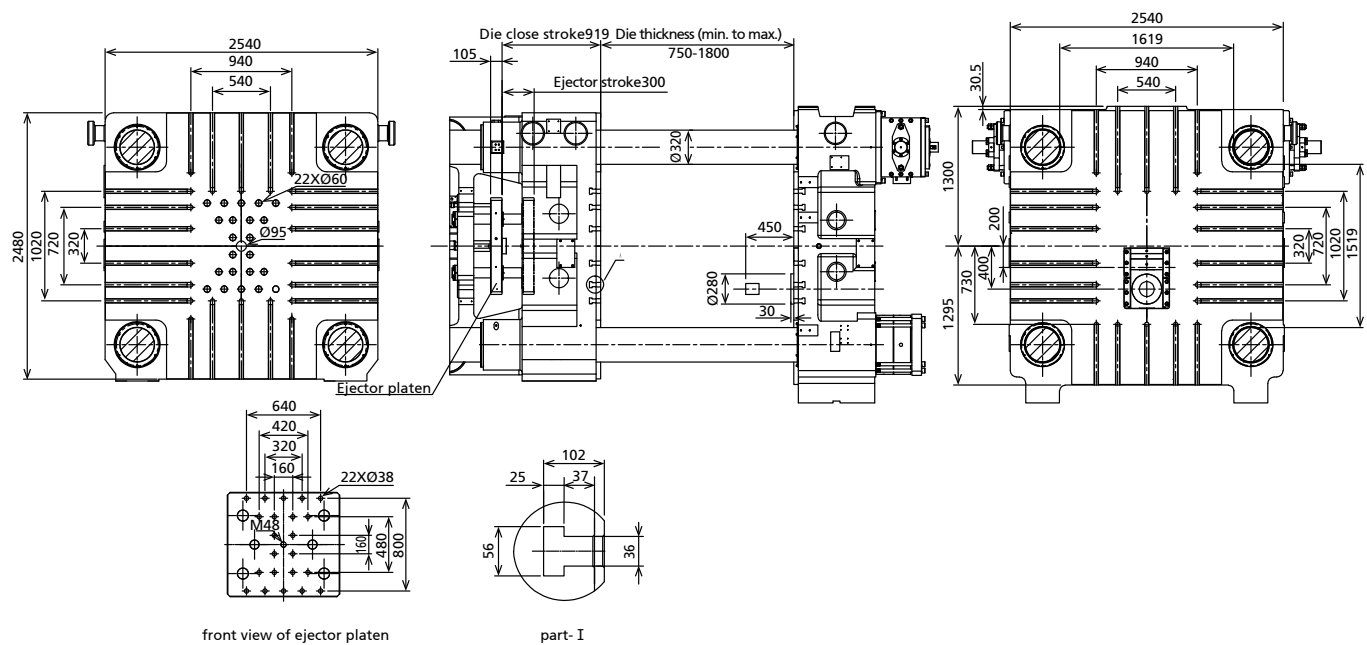
## HDC2000



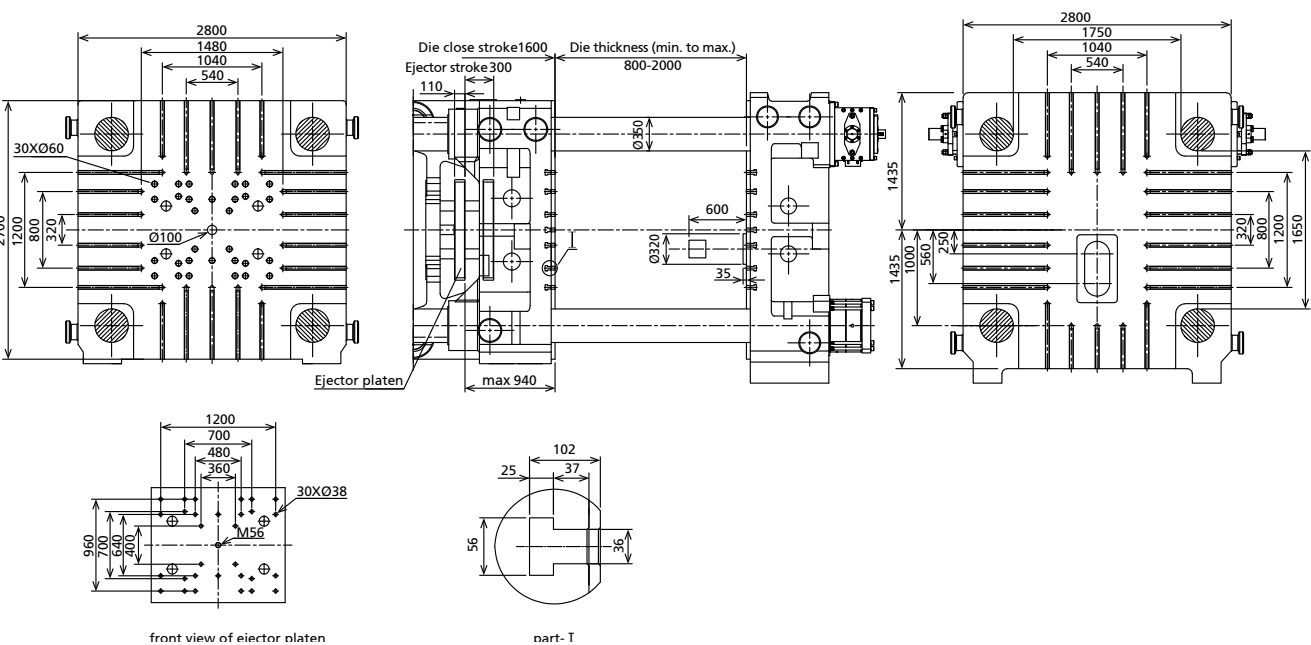
## HDC3200



## HDC2500



## HDC3500



# Common ancillary facilities

## HDC Series Cold Chamber Die Casting Machine



- ① **Dual-servo cold chamber 5-rod lading machine**
  - 5-rod structure provides ideal movement path.
  - Both the arm of the machine and the container of molten metal are driven by advanced servo motors for high precision and stable operation.
  - Digitized setting of the amount of the molten metal and the position of the container, fast operation speed and smooth braking to facilitate the equipment testing, thus reduce the adjustment time and labor intensity and further improve the efficiency.
  - The speed reducer is an imported brand, to ensure stable operation and accurate positioning.
  - NSK bearings to ensure high precision and long service life of alternating load bearing parts.
  - OMRON PLC, HMI interface and servo driven.
  - Multiple standby modes: automatic or manual mode.
- ② **Servo cold-chamber extractor**
  - Acting independently, or acting in automatic production together with die casting machine, spraying machine, metal lading machine and punching machine.
  - Multiple take-out modes, with accurate, fast and stable action to achieve automatic production.
  - PLC control loop with fault code display function for easier maintenance.
  - All pneumatic components are imported from Japan with improved durability.
  - Servo drive, HMI interface.
  - Automatic lubrication, precise clamping.
- ③ **Servo cold chamber biaxial spraying machine**
  - The HMI interface can display fault alarms.
  - All drive parts are servo-controlled.
  - Accurate positioning of all spraying points.
  - Optional for either traditional centralized nozzle or high-precision servo nozzle.
  - With high-speed drive, users may set the number of times of re-spraying.
- ④ **7-axis extracting and spraying linear robot**
  - Use of integrated design of 7-axis full-servo extracting and spraying robot, which is the first among the die casting industry
  - Robot control system, with integration of intelligence, efficiency and stability
  - Imported linear guide, servo motor, speed reducer
  - Availability of 3-axis, 4-axis and 7-axis linkage for fast running speed, high production efficiency
  - Precise high-torque speed reducer is adopted for rotating parts of the gripper
  - High degree of safety, desirable for long-running operation of the die casting machine
  - Can be directly installed on the fixed platen without occupying production site and with total height lower than the conventional machine
  - Modular spraying control system, nozzles are extendable in left, right and downward directions, with separate module control
  - Multiple standby modes: handheld HMI interface with touch screen to facilitate remote control and test
- ⑤ **Conveyor**
  - Elegant and rigid machine bed, long service life
  - Imported speed regulator to adjust the conveyor speed according to the production cycle of the die casting machine
  - Speed reducer with precise motor makes the machine operable in the environment of high temperature or humidity
  - High-power fan allows quick processing and greatly reduces the turnover time of products and improve the production efficiency
  - Solid and durable casters to save time of carrying the machine and reducing the labor intensity
  - Height adjustment mechanism to adjust the height or angle for different models of machines, reducing the cost
- ⑥ **Industrial robot**
  - The robot monitors its own motion and load status and optimizes the service requirements through the built-in Service Information System (SIS)
  - ABB's unique motion control technology is adopted to optimize the robot acceleration/ deceleration performance and reduce the robot cycle time
  - Each process can be customized through the upper arm extender with big-inertia, high-torque and different wrist modules
  - The robot can be bent backwards to apply to larger scope of work and can be easily installed in a concentrated production line
- ⑦ **Hydraulic punch**
  - Built-in fast cylinder, with fast idling speed and high production efficiency
  - Parallel operation, with easy stroke adjustment
  - High-rigidity alloy steel with hard chrome plating and good wear resistance
  - The moveable work station provides fast idling speed and high production efficiency
  - Pressure and stroke can be adjusted according to the process requirement
  - Infrared ray protection mechanism for safer operation
- ⑧ **Release agent mixing machine**
  - The dilution ratio can be freely adjusted between 40 and 200 times depending on the customer's requirement, easy to operate.
  - One machine allows the production of multiple die casting machines at the same time, providing high cost performance
  - To improve the quality of castings, to extend the service life of the mold, and to save the energy, materials and labor costs
  - Automatic detection of original liquid's loss and pressure of incoming water and mixed liquid
  - International-brand components for better quality and longer service life of the machine
  - Automatic and continuous production transportation, with accurate dilution ratio and detection of the liquid level, no sediment