

HDC SERIES

Cold Chamber Die Casting Machine



180 - 8,800 tons

EUROPE



CASTING THE FUTURE

Ningbo Free Trade Zone Haitian Zhisheng Die Casting Equipment Co., Ltd.

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Haitian Die Casting MILESTONES

1966

Zhang Jingzhang
founded Haitian

1985

"Haitian" Trademark
was registered

2016

Haitian Die Casting was
officially established

Premiere of the HDC Series
with 300 tons clamping force
at that time

2017

Start of scale production
of HDC Series
from 180 to 1,300 tons

2019

Largest HDC Series so far with
4,500 tons was successfully
delivered

2020

Global Application Center
of Haitian Die Casting was
opened

2021

Grand Opening of the new
Haitian Die Casting Plant in the free
trade zone, Ningbo

2022

Global mold test
and application center
with an HDC 8800 established

Delivery of the so far largest HDC
machine with 8,800 tons

2023

Introduction of the new
Thixomolding HMG Series and Premier
of the HMG 3000 - probably largest
Thixomolding machine so far

Haitian Die Casting ABOUT US

Haitian Die Casting has in-depth knowledge of modern die casting technology and has been successful in the market with its cold-chamber die casting machines for many years. To meet the rapidly growing demand for high-pressure die casting manufacturing processes, a new plant with 139 hectares of production area was commissioned in 2021. In Beilun (Ningbo/China), cold-chamber die casting machines in clamping force classes from 180 to 8,800 tons, but also the new HMG Series for magnesium injection molding up to 3,000 tons, will be produced from

now on. The plant has a capacity of up to 4000 machines per year. Haitian Die Casting is one of six divisions of the globally positioned Haitian Group around Haitian International, the world's leading supplier of injection molding machines, CNC lines and smart solutions for intelligent manufacturing. Building on traditional roots and a sustainability-oriented value system, the Haitian Die Casting team can draw on around 60 years of experience in the development and manufacture of manufacturing equipment.



More than 50 years experience

CORE COMPONENT MANUFACTURING

More than 50 years of experience in research and development as well as in mechanical engineering means high competence in injection molding technology, drive concepts as well as mechanical engineering in the fields of CNC and die casting. Haitian Die Casting follows the Haitian Group's claim with highly automated production lines, efficient working methods and state-of-the-art equipment. This enables us to flexibly meet the changing demands of the markets and to fulfill the requirements of our customers with proven quality.

Since the beginning Haitian Die Casting has been working with first class manufacturers such as Mitsubishi Heavy Industries, SHW (8-axis linkage), WALDRICH, SKODA, Mauser, Niigata, Chincinnati, FADAC, Okuma or even Haitian Precision. This setup together with 500 employees and 10,000 sqm of production area, an extremely high vertical range of manufacture ensure seamless quality and short delivery times. Our 8+16 concept - 8 h for maintenance and material supply + 16 h automation - guarantees efficient production at reasonable costs.



HDC Series 180 – 8800t

TECHNOLOGY TO THE POINT

High-pressure die casting is frequently used in the automotive industry to produce small to medium-sized aluminum castings with simple geometry. A more recent application of the process is the production of large-format body parts with a shot weight of more than 200 kg, which are made from aluminum instead of steel. This technology offers numerous advantages such as lighter components, more compact production lines, lower as-

sembly costs and cost savings. Automotive manufacturers are increasingly gaining experience in this field. Test trials on what is currently the largest HDC machine with a clamping force of 8,800 tons have so far been very promising. Under the demanding specification of **TECHNOLOGY TO THE POINT**: state-of-the-art machinery with advantageous pricing

HIGH QUALITY & EFFICIENCY

Real-time closed-loop system

It is equipped with fast meter-in servo valve + fast meter-out servo valve + intensification meter-out servo valve to realize dual closed-loop control of pressure and speed.

19-21 MPA

High system pressure
Powerful accumulators deliver 19-21 Mpa and provide acceleration of up to 45 G.



FAST RESPONSE TIME

ENERGY SAVING



High performance servo system

The high performance servo system of Haitian is adopted to save energy significantly. Configured with oil cooling mode with high efficiency and stability.

HIGH PRECISION

Mold open/close control

The large flow proportional valve is used to control mold opening and closing, making the reaction faster and the position more accurate.

FAST PROGRAMME

Latest KEBA control system

Equipped with the whole-machine clamping force display, injection curve, online intelligent quality and three different sizes of vertical touch screen (12, 15 and 18-inch), the system has powerful functions, stable performance, good scalability, and long service life.

HDC Series 180 – 8800t

APPLICATION VARIETY WITH HIGH FLEXIBILITY

Around 80 % of the installed HDC machines produce for the rapidly changing automotive industry. Demand in the 5G electronics industry is also growing strongly. Intelligent aluminum die casting solutions for the production of lightweight components are also indispensable in many other industries, such as the aerospace industry, the construction industry, and various consumer goods sectors such as computers or white goods.

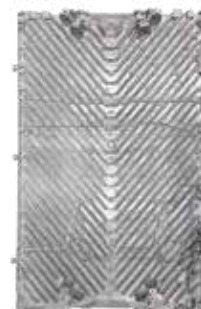
The advantage of the die casting process lies in its ability to produce complex shapes with high accuracy and repeatability. It enables the production of large quantities of parts with low tolerances and a smooth surface. In addition, various surface treatments such as painting, coating or polishing can be applied to the die-cast part.



5G TELEKOM



3C PRODUCTS



WHITE GOODS



HOUSEHOLD | CONSUMER GOODS
HDC 700-850 tons



MOBILE PARTS



STRUCTURAL PARTS | MOBILE PARTS
HDC 350 tons



AUTOMOTIVE



AUTOMOTIVE FUNCTIONAL PARTS
HDC 2,500 - 3,500 tons



AUTOMOTIVE



STRUCTURAL PARTS | AUTOMOTIVE
HDC 7,000 - 8,800 tons



AUTOMOTIVE



E-MOBILITY PARTS
HDC 7,000 - 8,800 tons



Smart Support

GLOBAL APPLICATION CENTER

The 5,500 sqm application center is equipped with an HDM2500 ton, an HDC *m+* with 3,500 ton clamping force and a complete manufacturing cell. Process components such as aluminum alloy furnaces, high vacuum equipment, mold temperature detection, control systems, robotics, automation and high-end spray systems. In the development laboratory, application

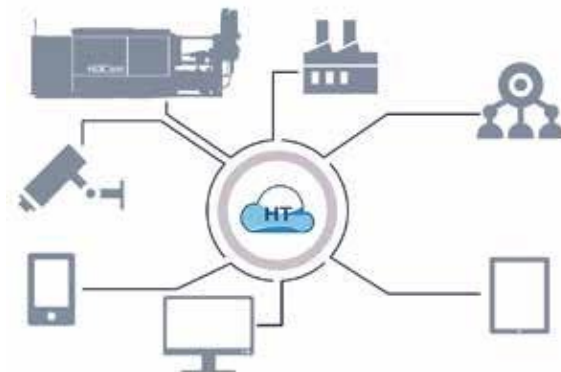
tests are carried out using X-Ray for new materials, functional tests, among others. New processes and technologies are investigated, so that in the future customers with high-end applications can be comprehensively advised in terms of equipment and tool selection up to support for the entire manufacturing process and production planning.



Smart Solutions

INTELLIGENT & EFFICIENT PRODUCTION

The customizable cloud system of Haitian Die Casting is a set of production information management systems for workshops of manufacturing enterprises. It can provide enterprises with functional modules including manufacturing data management, planning and scheduling management, production scheduling management, personnel call management, quality management, equipment life management, tooling management, maintenance management, project display management, production process control, data integration and analysis, etc. It provides decision support for enterprise management and creates a digital intelligent manufacturing collaborative management platform for enterprises.



High Performance Option

m+

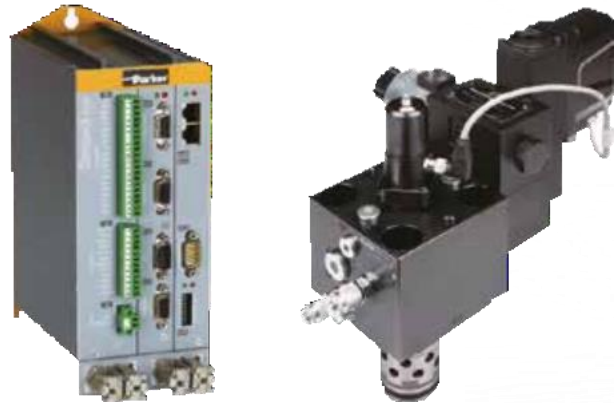
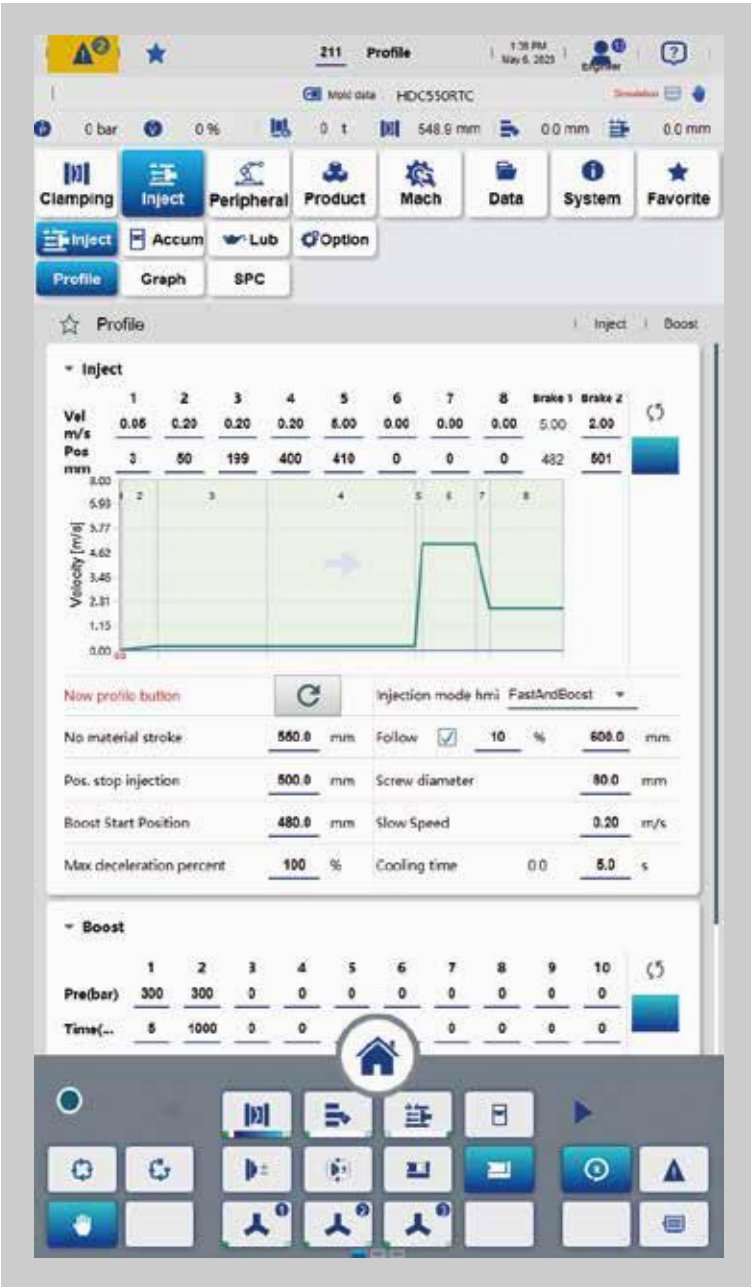
Haitian Motion Plus with real-time closed-loop control

The Haitian real-time closed-loop control system is a state-of-the-art technology that offers precise control and flexibility in injection molding processes. With a control cycle of 0.25ms, the system provides precision for control and monitoring of the complete molding process. A uniform acceleration function ensures a consistent and stable and stepless adjustment of the injection speed from 0.05m/s to 8m/s. Means an excellent ac-

celeration performance of up to 45G and on the other hand an ultra-low speed squeezing function. The system employs closed-loop control of pressure buildup, resulting in short buildup time and improved process stability. Slow and high-speed injection provides good repeatability, an end brake function enables no flash injection by improving the product quality and a shock-free start ensures smooth and reliable operation.

m+ High Performance Option

- Control cycle 0.25ms
- Acceleration $\geq 45G$
- Injection speed 0.05m/s - 8m/s
- Pressure building $\leq 20ms$
- Low speed accuracy $\leq \pm 0.02m/s$
- High speed accuracy $\leq \pm 2\%$
- Intensify accuracy $\pm 1bar$



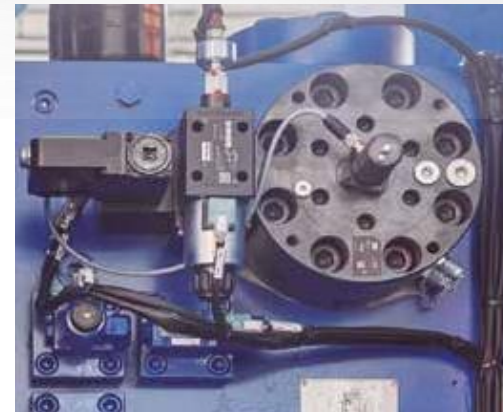
For servo valves and the control CPU we use certain models from our exclusive partner Parker



Intelligent KEBA control
Configurable ten-stage injection speed and six-stage intensification pressure and wider process adjustment range.



1 - Meter-in servo valve



2 - Intensification servo valve



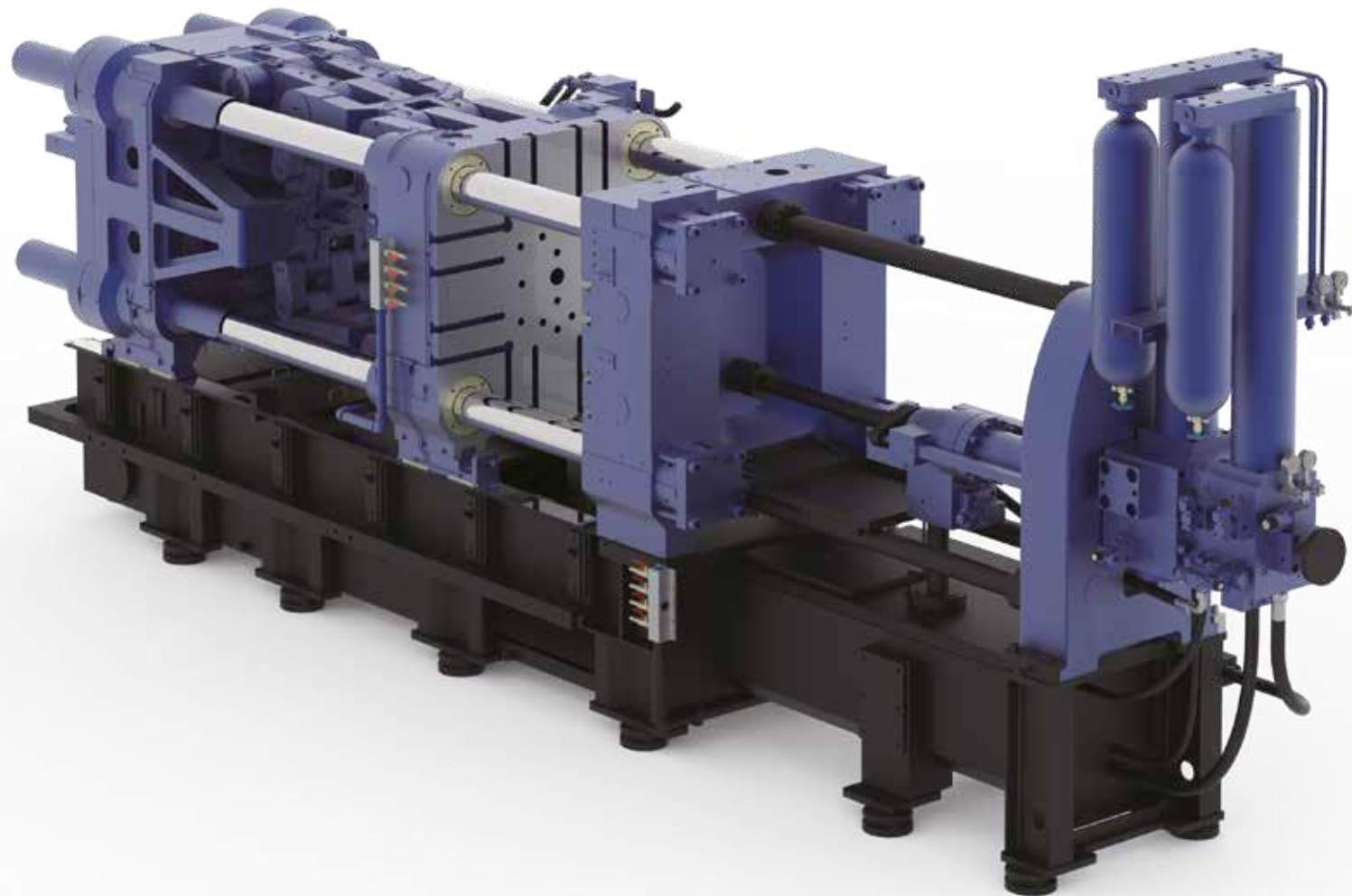
3 - Meter-out servo valve

HDC Series 180 – 8800t

ROBUST AND RELIABLE CLAMPING UNIT

The clamping unit of the HDC series is processed with high-quality materials and therefore has a stable design that minimizes vibrations during operation, ensures precise mold movement and uniform distribution of clamping pressure. The 3-platen principle promises easy operation and quick access to wear parts,

lubrication points and hydraulic components. An intelligent algorithm provides responsive and precise mold movements on the clamping side. The powerful Haitian servo system generates high energy savings and the oil cooling is configured with high efficiency and stability.



Special tie bar

The tie bar is made of special materials developed by the Haitian Materials Research Institute, with an enlarged diameter, good stress and strong rigidity. After years of practical use, it can significantly extend the service life of the pull rod.



Auxiliary template

The mold surface of the movable and fixed plate is equipped with P20 mold steel (auxiliary template), which completely solves the long-term problem of mold surface depression in the industry, and also improves the rigidity of the template.



High performance lock shaft

The lock shaft is made of 38CrMoAl material and is nitridated, with a large diameter, high strength, good toughness and long service life.



Adjustment nut

The adjustment nut is made of inner pouring aluminum bronze, which has higher mechanical properties, wear resistance, corrosion resistance, cold resistance, heat resistance and no ferromagnetism; it has good antifriction, good elongation and long service life; it can ensure smooth mold adjustment, effectively prevent mold adjustment from not moving, and protect pull rod thread.



Mold open/close control

The large flow proportional valve is used to control mold opening and closing, making the reaction faster and the position more accurate.

HDC Series 180 – 8800t

HIGH PERFORMANCE INJECTION UNIT

The injection unit of a high performance die casting machine must deliver top performance. Only then it enables high quality production and meet the requirements of various die casting applications. Thanks to our latest generation real-time closed loop control „m+“ (Motion Plus), the speed, pressure and volume of the liquid metal can be precisely controlled, enabling accurate

mold filling and helping to avoid defects such as air pockets or cold runs. Effective temperature control keeps the liquid material constant during the injection process, guaranteeing uniform solidification and ensuring consistent mechanical properties of the parts.



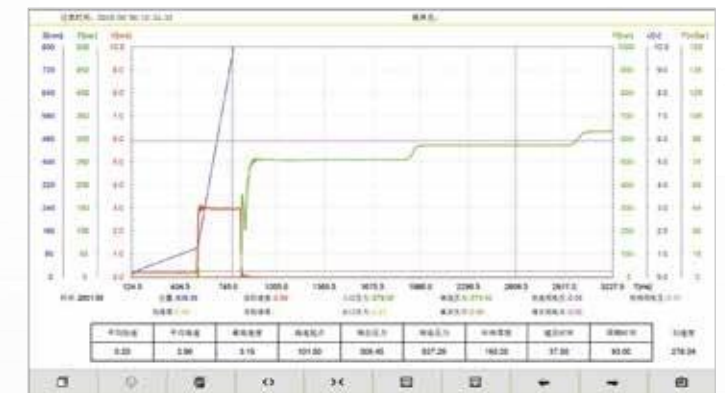
Inject cylinder piston

The exclusive rigid welding structure can reduce the friction resistance in the process of movement, reduce the energy loss, especially effectively avoid the internal leakage caused by the pulling of the injection cylinder and prolong the service life of the seal.



High pressure

The pressure of the system can reach 19-21Mpa, the reaction speed of the whole machine is faster and the performance is better.



High performance injection system

Due to the dual closed loop real time control there is no shot start impact. The average acceleration can reach $\geq 45G$ and the intensification pressure $\pm 1bar$.

HDC Series

TECHNICAL PARAMETERS

		HDC180	HDC350	HDC450	HDC550	HDC700	HDC850	HDC1000
Clamping force	kN	1800	3500	4500	5500	7000	8500	10000
Die close stroke	mm	380	460	550	580	670	760	880
Ejection force	kN	125	180	200	250	360	360	500
Ejection stroke	mm	85	110	130	150	160	180	200
Mold thickness (minimum-maximum)	mm	250-600	250-700	300-750	350-850	350-900	400-950	450-1150
Platen size (horizontal × vertical)	mm	710×710	910×910	1050×1050	1200×1200	1380×1380	1470×1470	1680×1680
Tie bar spacing (horizontal × vertical)	mm	460×460	570×570	650×650	755×755	860×860	930×930	1030×1030
Tie bar diameter	mm	Ø 90	Ø120	Ø140	Ø 150	Ø 180	Ø 190	Ø 200
Injection force (intensification)	kN	300	380	476	580	605	695	885
Injection stroke	mm	350	410	510	600	650	760	800
Plunger tip diameter	mm	40/50/60	50/60/70	60/70/80	70/80/90	70/80/90	80/90/100	90-120
Injection amount (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	9.5-17
Casting pressure (intensification)	MPa	239/153/106	194/135/99	168/124/95	151/115/92	157/120/95	138/109/89	139-78
Casting area	cm ²	75/117/170	180/259/353	268/363/474	364/478/601	446/583/737	616/780/955	719-1278
Maximum casting area (40MPa)	cm ²	450	875	1125	1375	1750	2125	2500
Injection position	mm	0,-90,-180	0,-90,-180	0,-100,-200	0~ -270	0~ -300	0~ -400	0,-300
Plunger tip protrusion	mm	147	152	210	270	280	300	300
Shot sleeve holder diameter	mm	110	110	110	165	165	200	240
Shot sleeve holder protrusion to fixed platen	mm	10	10	10	15	15	20	20
System working pressure	MPa	16	16	16	16	16	16	19
Servo motor power	kW	18.5	31.4	42.5	53	63.5	63.5	60.5
Hydraulic oil charging volume	L	400	660	750	950	1100	1200	1900
Lifting reference weight	T	6.8	11.5	16.3	21.9	32.3	36.2	60
Overall dimension (length × width × height)	mm	5950×1650×2700	6210×1825×2530	7340×1975×2850	8300×2200×2900	8835×2300×2920	9470×2470×3230	9800×3770×3060

The Company reserves the right to modify the technical specifications

High performance option *m** available

HDC Series

TECHNICAL PARAMETERS

		HDC1300	HDC1650	HDC2000	HDC2500	HDC3000	HDC3500	HDC4000
Clamping force	kN	13000	16500	20000	25000	30000	35000	40000
Die close stroke	mm	1000	1200	1400	1500	1550	1600	1800
Ejection force	kN	560	570	650	750	900	900	1000
Ejection stroke	mm	210	250	300	300	300	300	350
Mold thickness (minimum-maximum)	mm	450-1200	500-1400	600-1600	750-1800	800-2000	800-2000	900-2100
Platen size (horizontal × vertical)	mm	1730x1730	2000x2000	2350x2250	2500x2500	2650x2650	2800x2700	2960x2900
Tie bar spacing (horizontal × vertical)	mm	1100x1100	1250x1250	1450x1350	1600x1500	1650x1650	1750x1650	1850x1850
Tie bar diameter	mm	Ø 230	Ø 260	Ø 290	Ø 320	Ø 340	Ø 350	Ø 390
Injection force (intensification)	kN	1170	1295	1700	1700	2110	2410	2500
Injection stroke	mm	910	970	1050	1100	1250	1400	1600
Plunger tip diameter	mm	100-140	110-150	130-170	140-180	150-190	160-200	160-200
Injection amount (aluminum)	kg	13.4-26.3	17.3-32.1	26.1-44.7	31.7-52.5	41.4-66.4	52.8-82.5	60.3-94.2
Casting pressure (intensification)	MPa	143-73	136-73	128-75	110-67	119-74	120-77	124-80
Casting area	cm ²	910-1780	1210-2260	1562-2670	2270-3730	2510-4030	2915-4545	3217-5027
Maximum casting area (40MPa)	cm ²	3250	4125	5000	6250	7500	8750	10000
Injection position	mm	-160,-320	-175,-350	-175,-350	-200,-400	-250,-450	-300,-600	-300,-600
Plunger tip protrusion	mm	355	400	440	450	550	600	745
Shot sleeve holder diameter	mm	240	260	260	280	280	320	320
Shot sleeve holder protrusion to fixed platen	mm	25	25	30	30	30	35	35
System working pressure	MPa	21	21	21	21	21	21	21
Motor power/servo motor power	kW	53.5x2	53.5x2	53.5x3	53.5x3	53.5x3	53.5x4	53.5x4
Hydraulic oil charging volume	L	2100	2100	3300	3300	3400	3600	3700
Lifting reference weight	T	80	105	130	160	180	210	280
Overall dimension (length × width × height)	mm	12100x4400x4200	13000x4500x4200	14500x4800x4400	14900x5400x4400	15600x5500x4500	16500x5800x4500	17800x5800x4800

The Company reserves the right to modify the technical specifications

HDC Series

TECHNICAL PARAMETERS

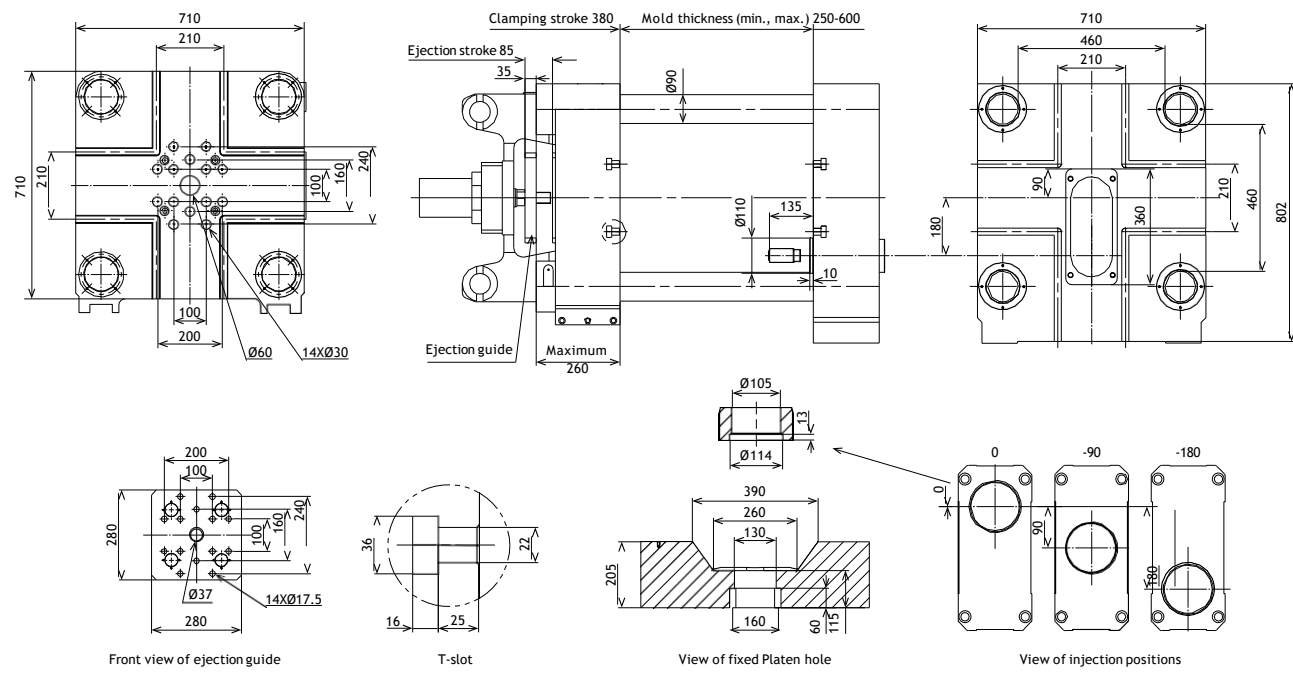
		HDC4500	HDC7000	HDC8800
Clamping force	kN	45000	70000	88000
Die close stroke	mm	1900	2200	2400
Ejection force	kN	1000	2000	2000
Ejection stroke	mm	400	500	500
Mold thickness (minimum-maximum)	mm	900-2200	1600-2400	1600-3000
Platen size (horizontal × vertical)	mm	3100×3000	3640×3640	4100×4100
Tie bar spacing (horizontal × vertical)	mm	1965×1865	2400×2400	2500×2500
Tie bar diameter	mm	Ø 410	Ø 480	Ø 550
Injection force (intensification)	kN	2500	3800	4400
Injection stroke	mm	1600	2000	2000
Plunger tip diameter	mm	180-220	240-280	240-360
Injection amount (aluminum)	kg	76.3-114	170-230	170-382
Casting pressure (intensification)	MPa	98-66	84-62	97-43
Casting area	cm ²	4580-6842	8333-11343	9048-20358
Maximum casting area (40MPa)	cm ²	11250	17500	22000
Injection position	mm	-300,-600	-300,-800	0,-1000
Plunger tip protrusion	mm	700	970	850
Shot sleeve holder diameter	mm	340	self-prepare	self-prepare
Shot sleeve holder protrusion to fixed platen	mm	35	self-prepare	self-prepare
System working pressure	MPa	21	21	21
Motor power/servo motor power	kW	53.5x4	3×62.5+3×89.5	3×62.5+3×89.5
Hydraulic oil charging volume	L	3700	5200	5200
Lifting reference weight	T	300	600	700
Overall dimension (length × width × height)	mm	18200×6000×5200	21000×6600×5500	22500×7000×6000

The Company reserves the right to modify the technical specifications

Platen Dimensions 180T – 550T

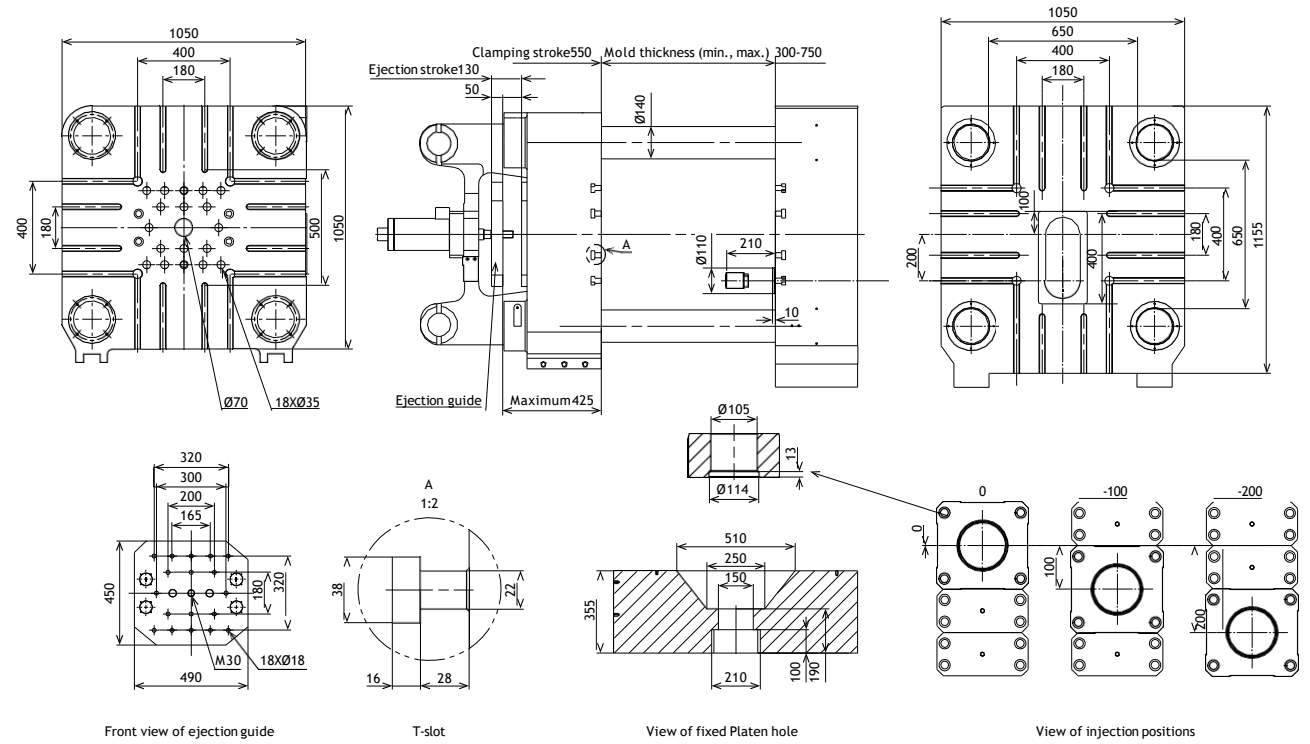
HDC180

EU Standard*



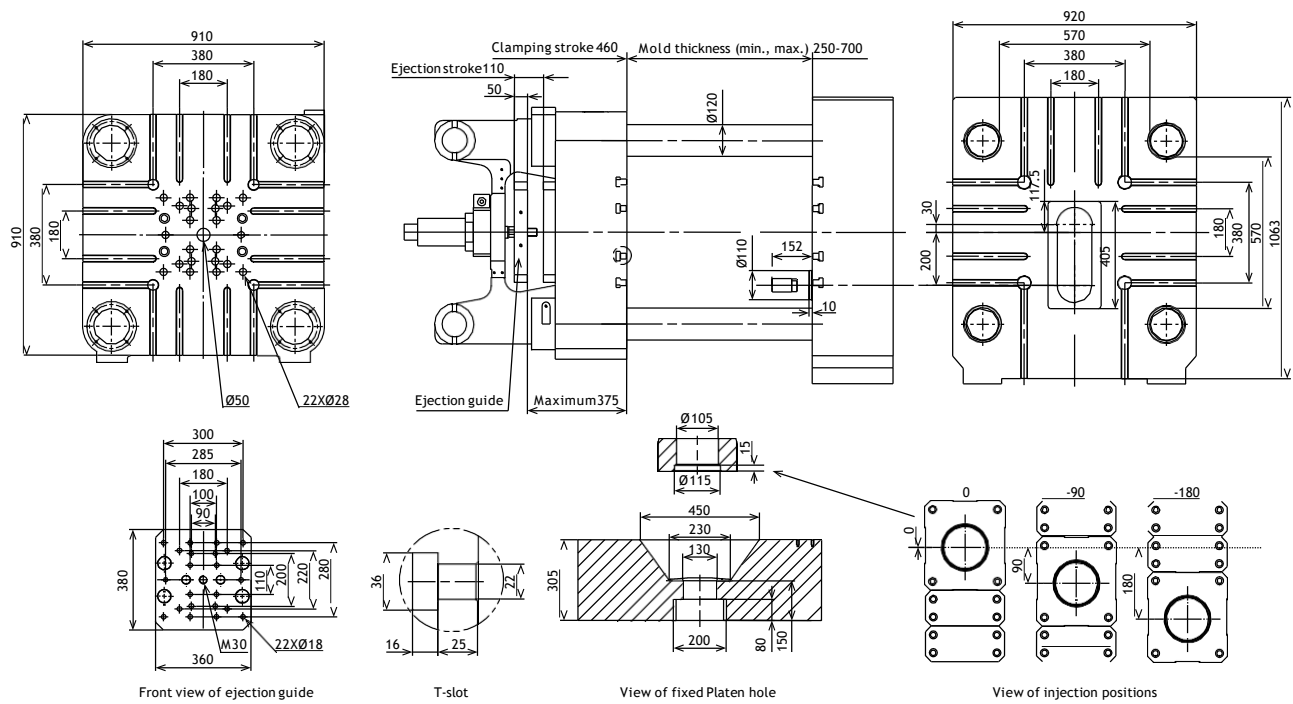
HDC450

EU Standard*



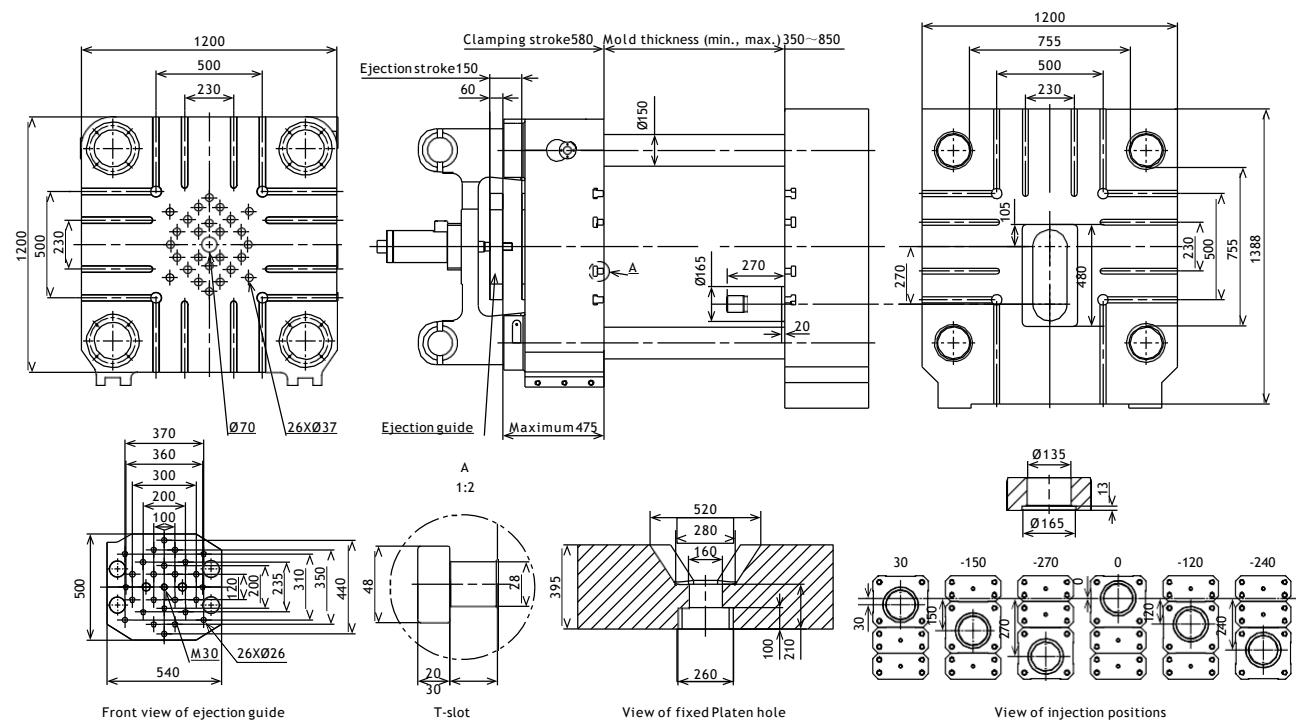
HDC350

EU Standard*



HDC550

EU Standard*



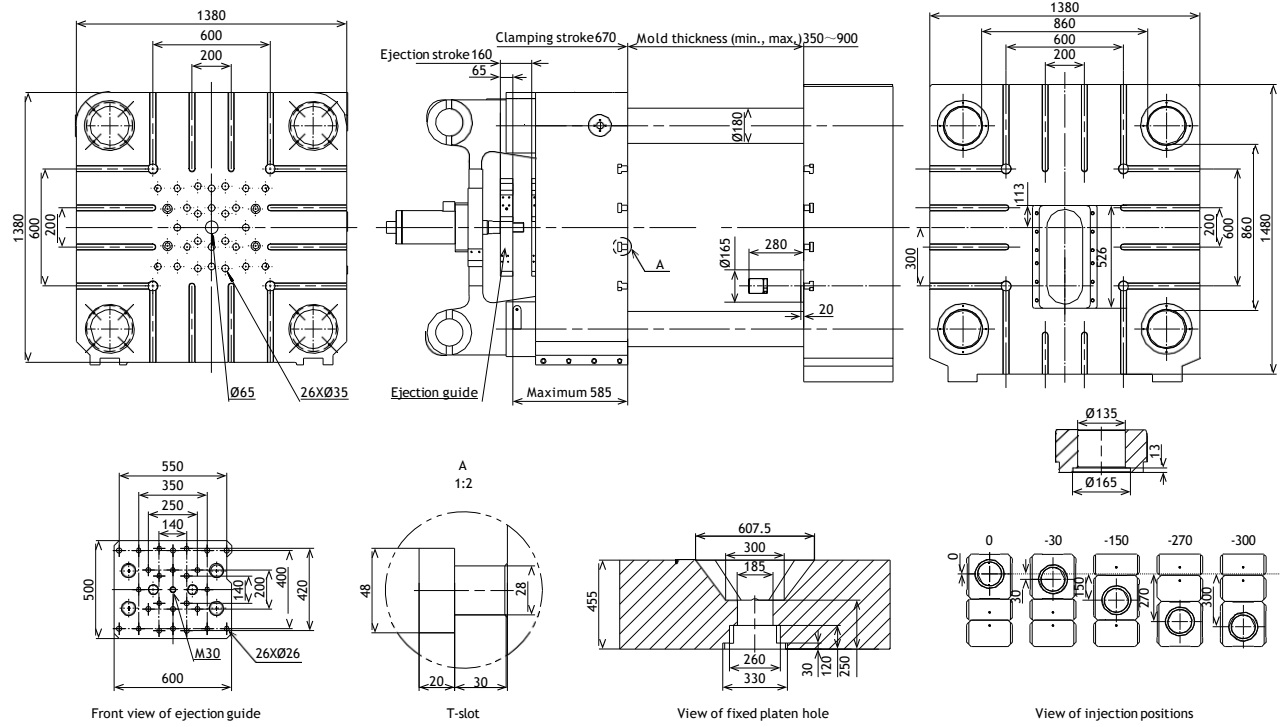
*) These are standard platen for European market with CE certificate requirement

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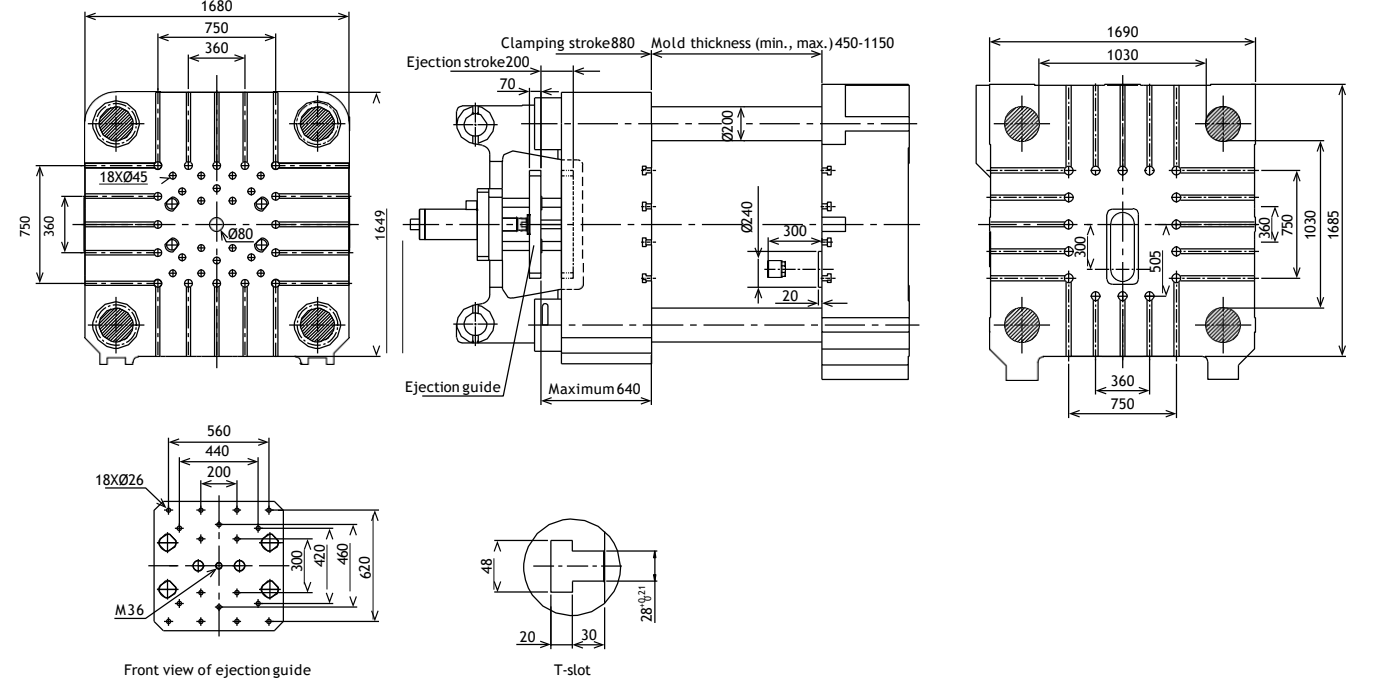
Platen Dimensions 700T – 1300T

HDC700

EU Standard*

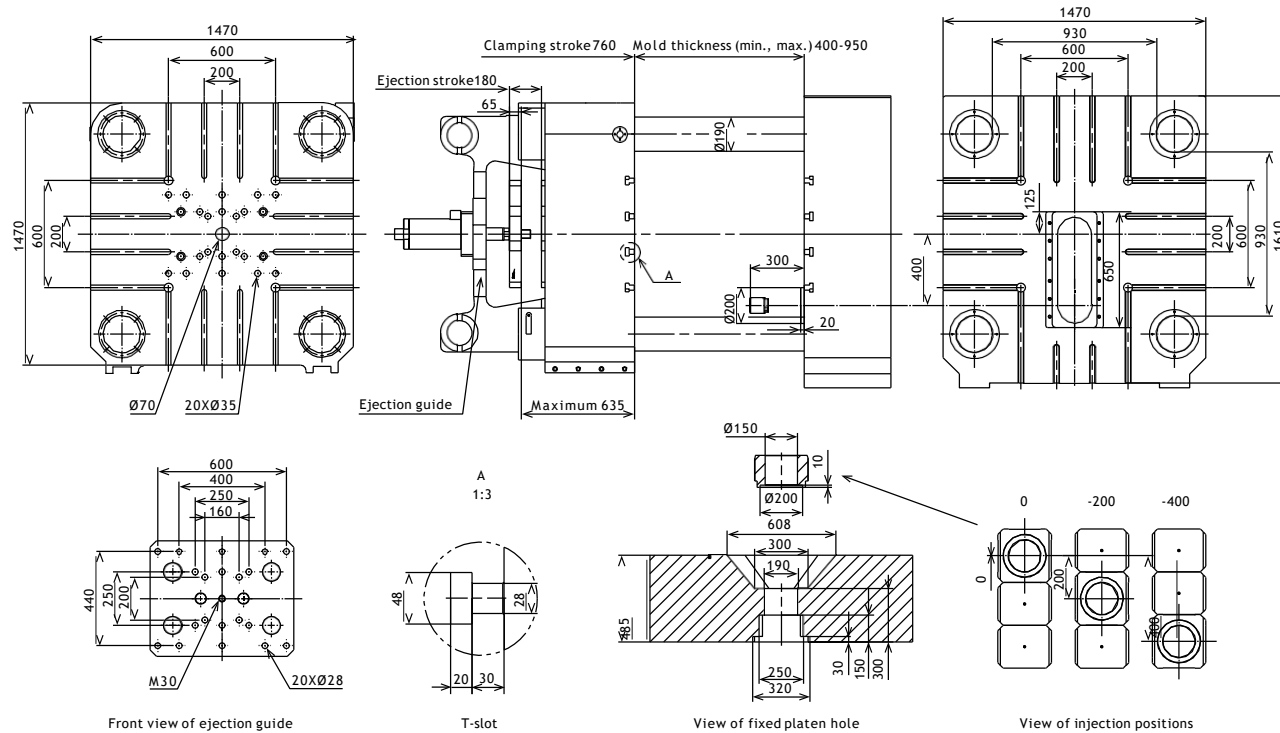


HDC1000

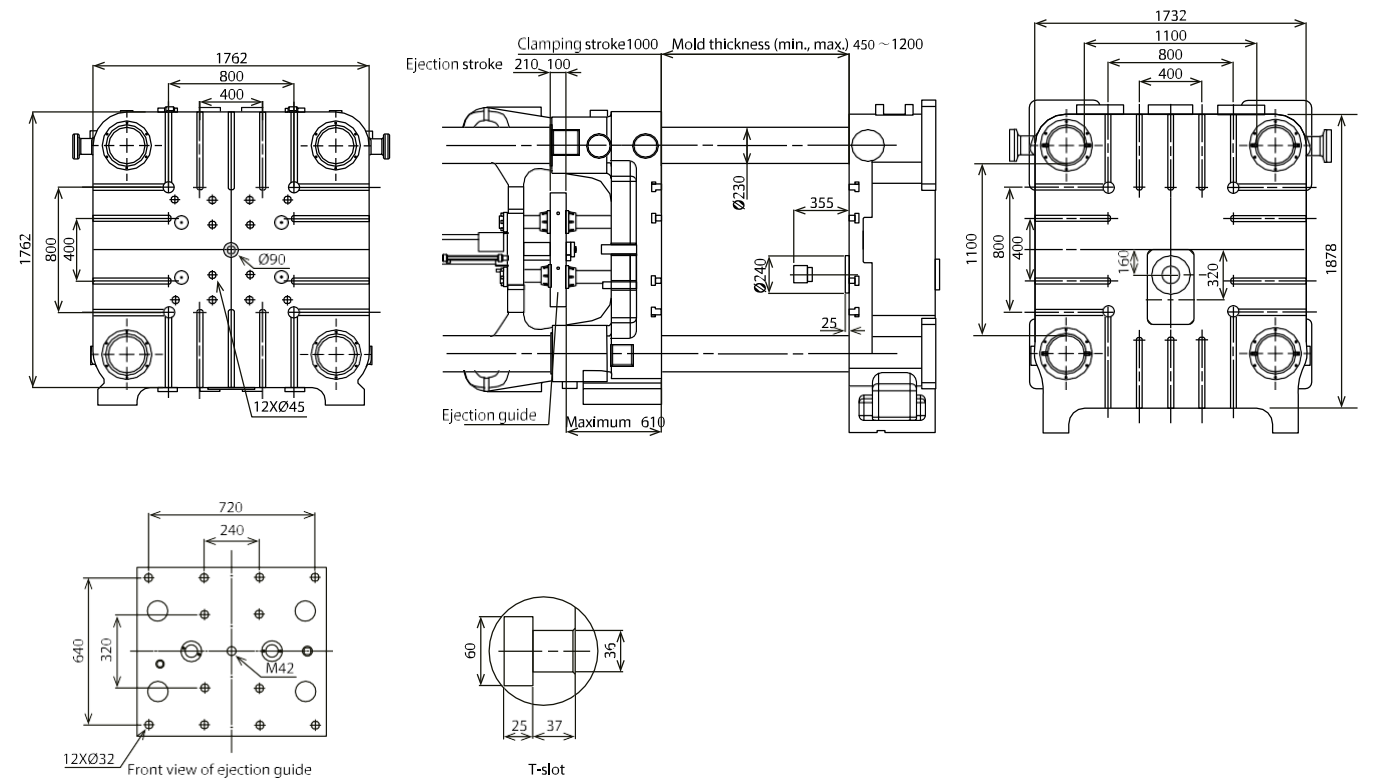


HDC850

EU Standard*



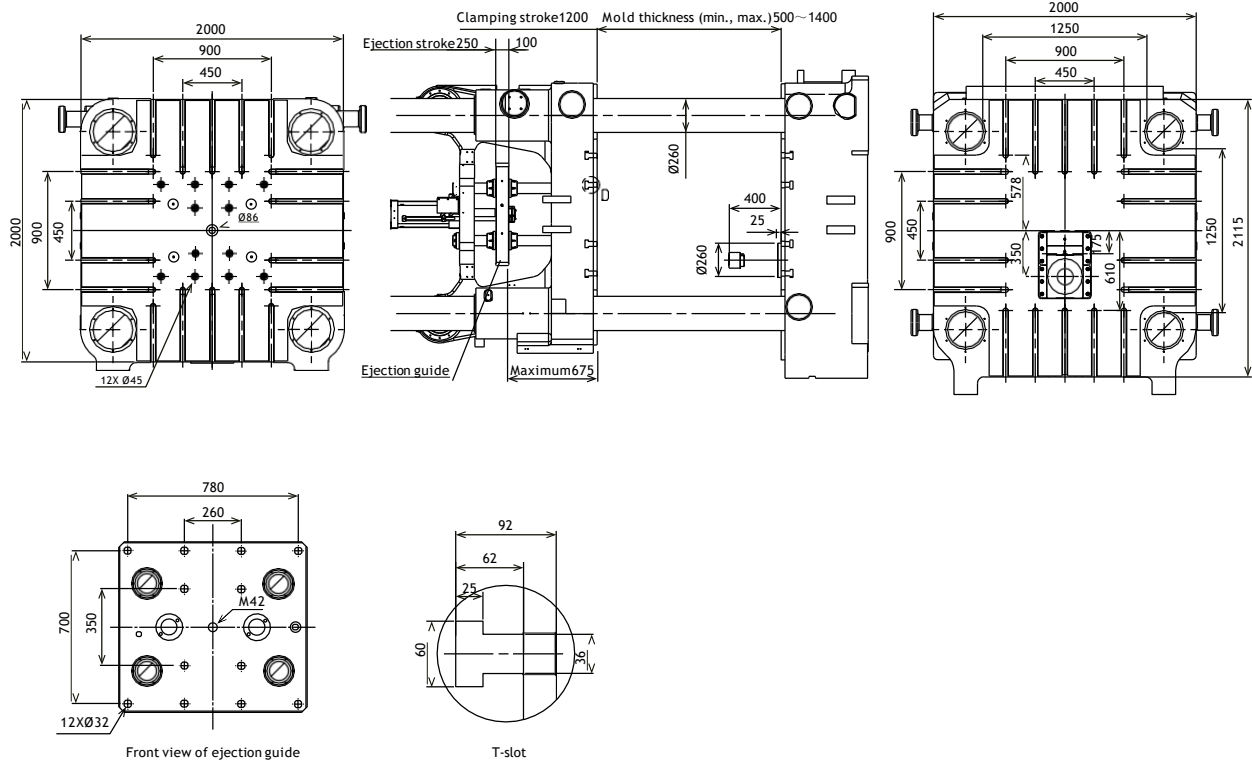
HDC1300



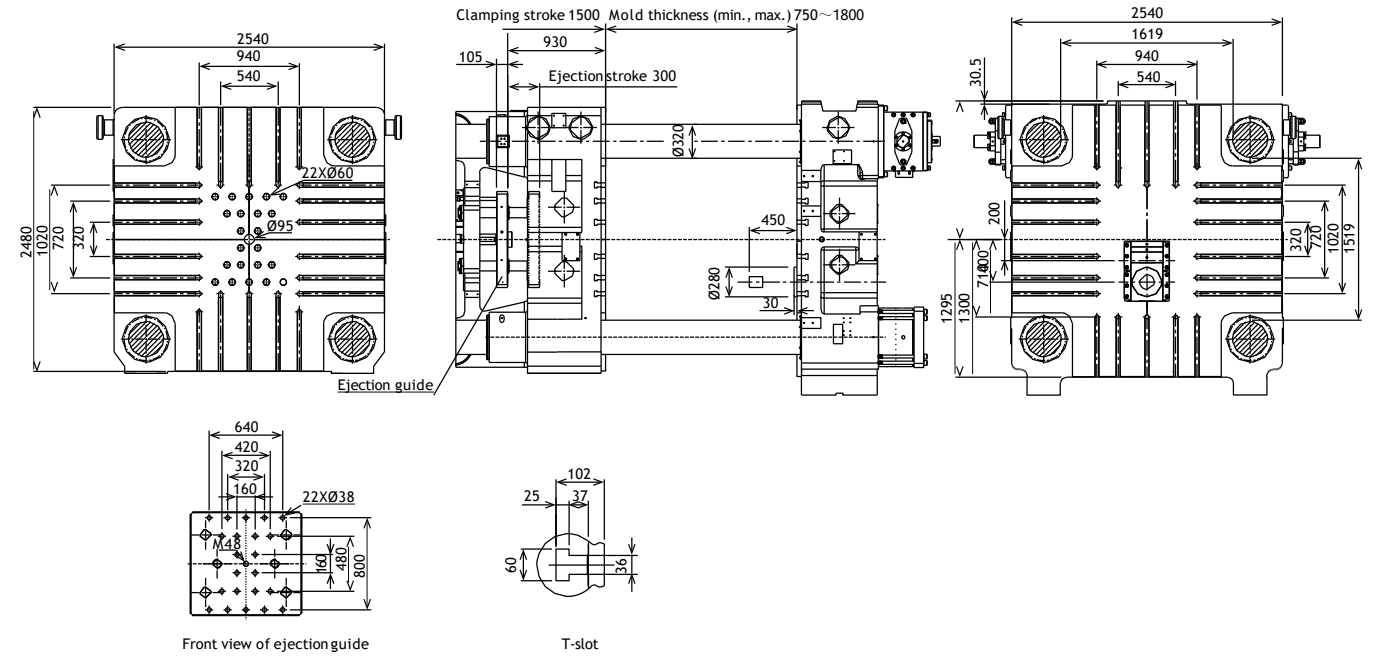
*) These are standard platens for European market with CE certificate requirement

Platen Dimensions 1650T – 3000T

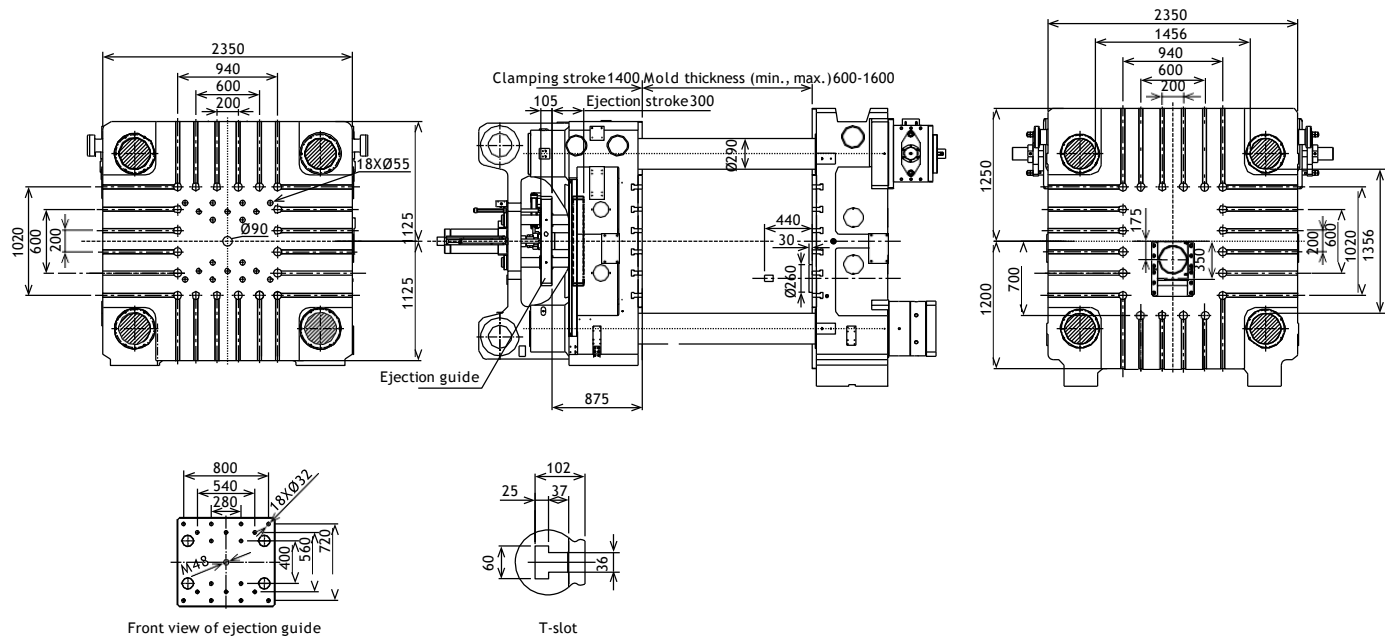
HDC1650



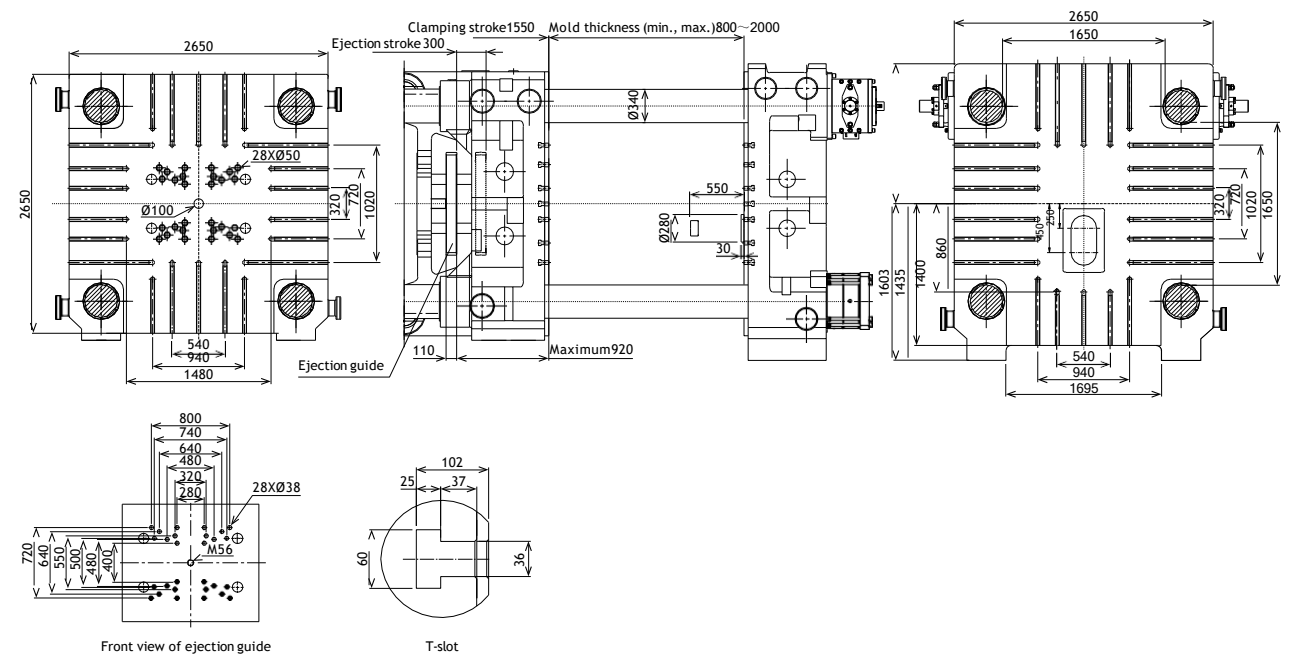
HDC2500



HDC2000

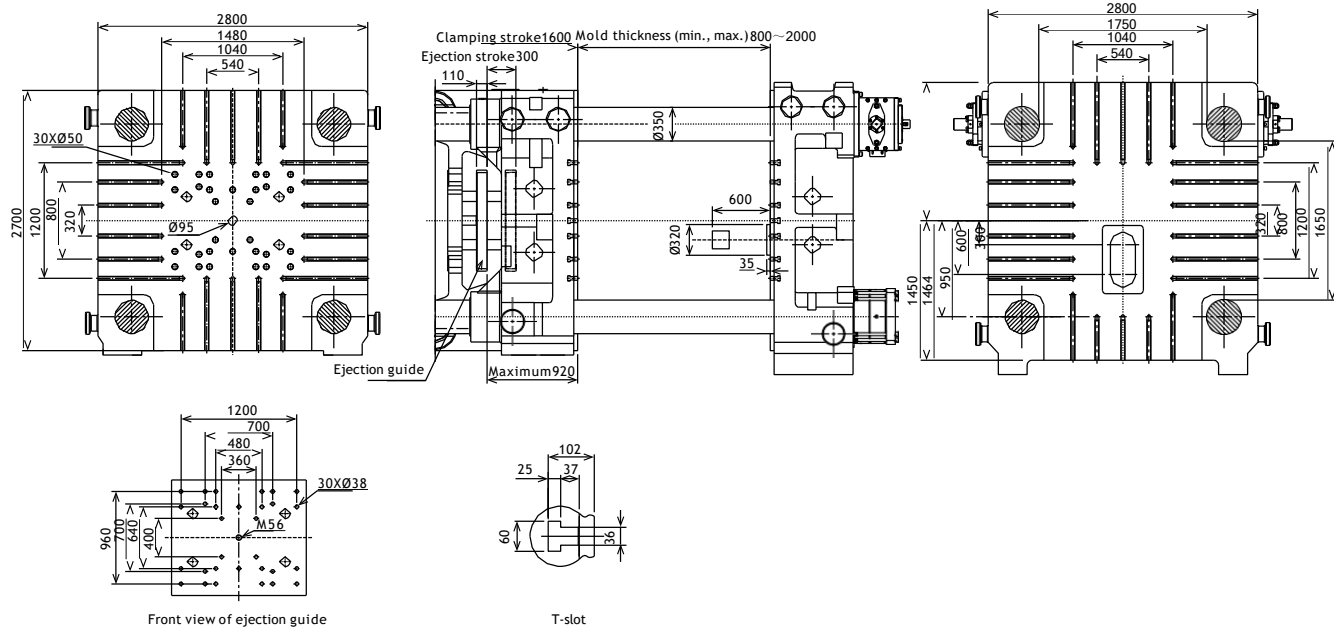


HDC3000

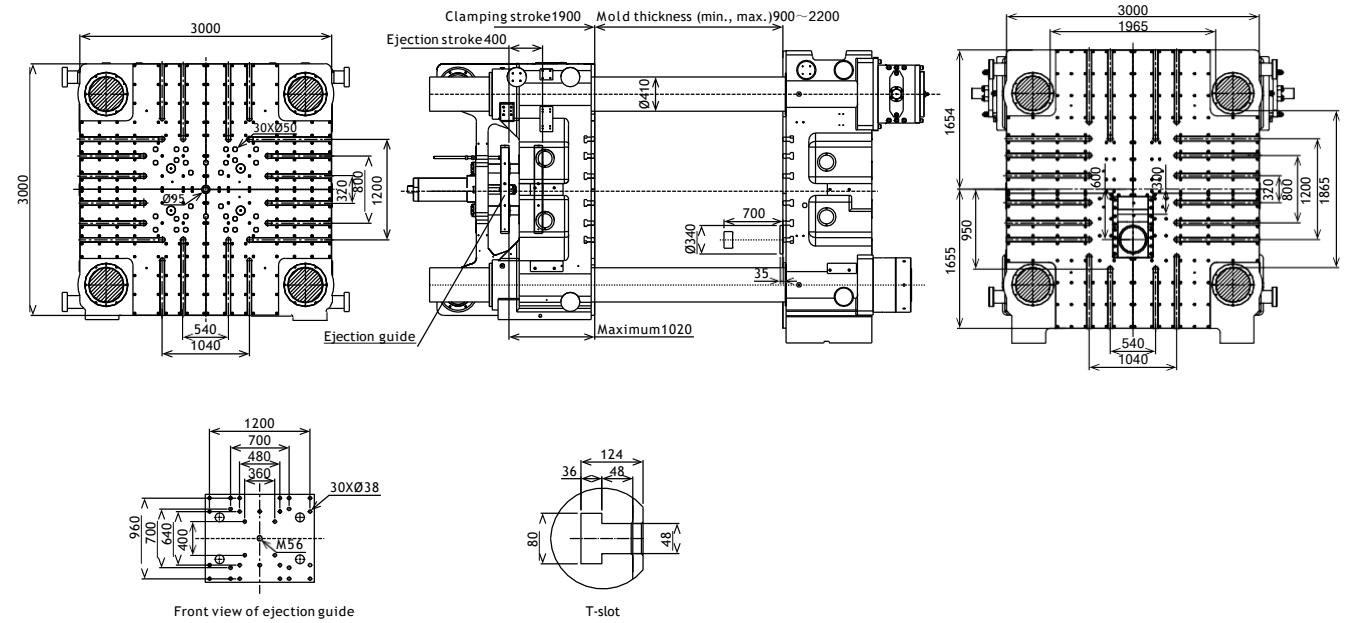


Platen Dimensions 3500T – 7000T

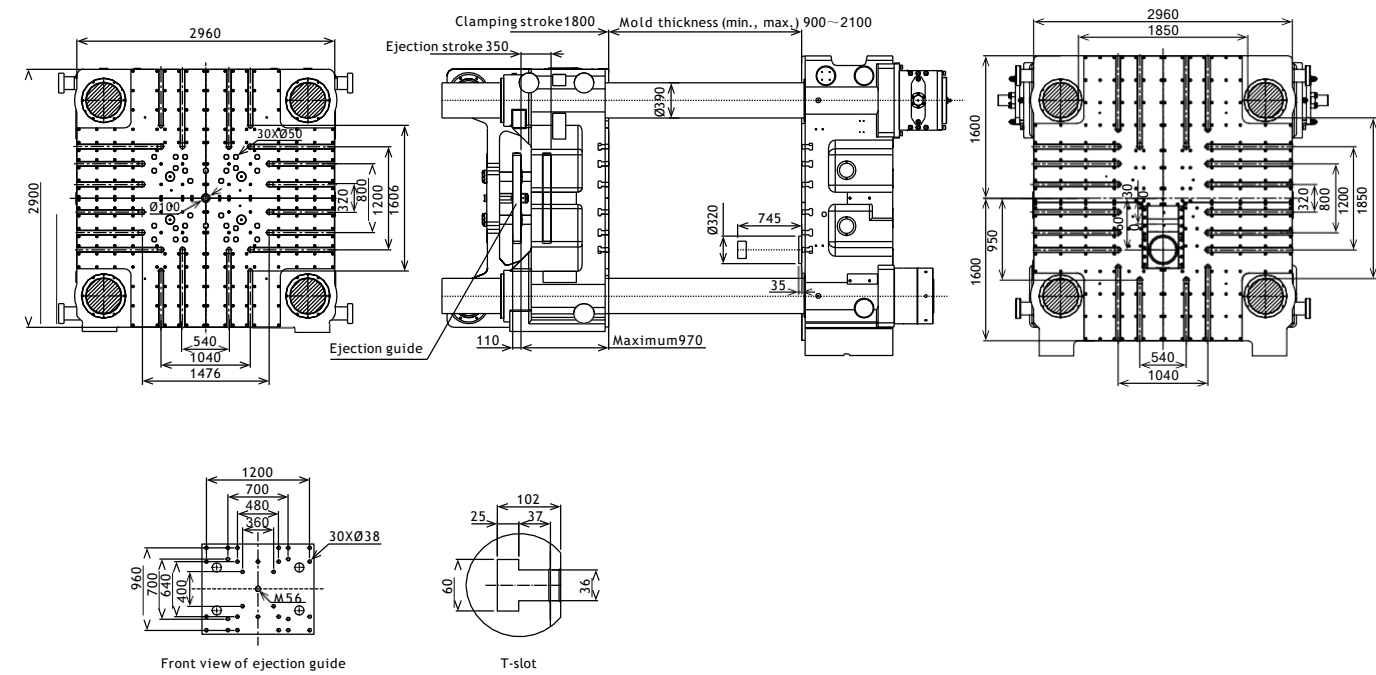
HDC3500



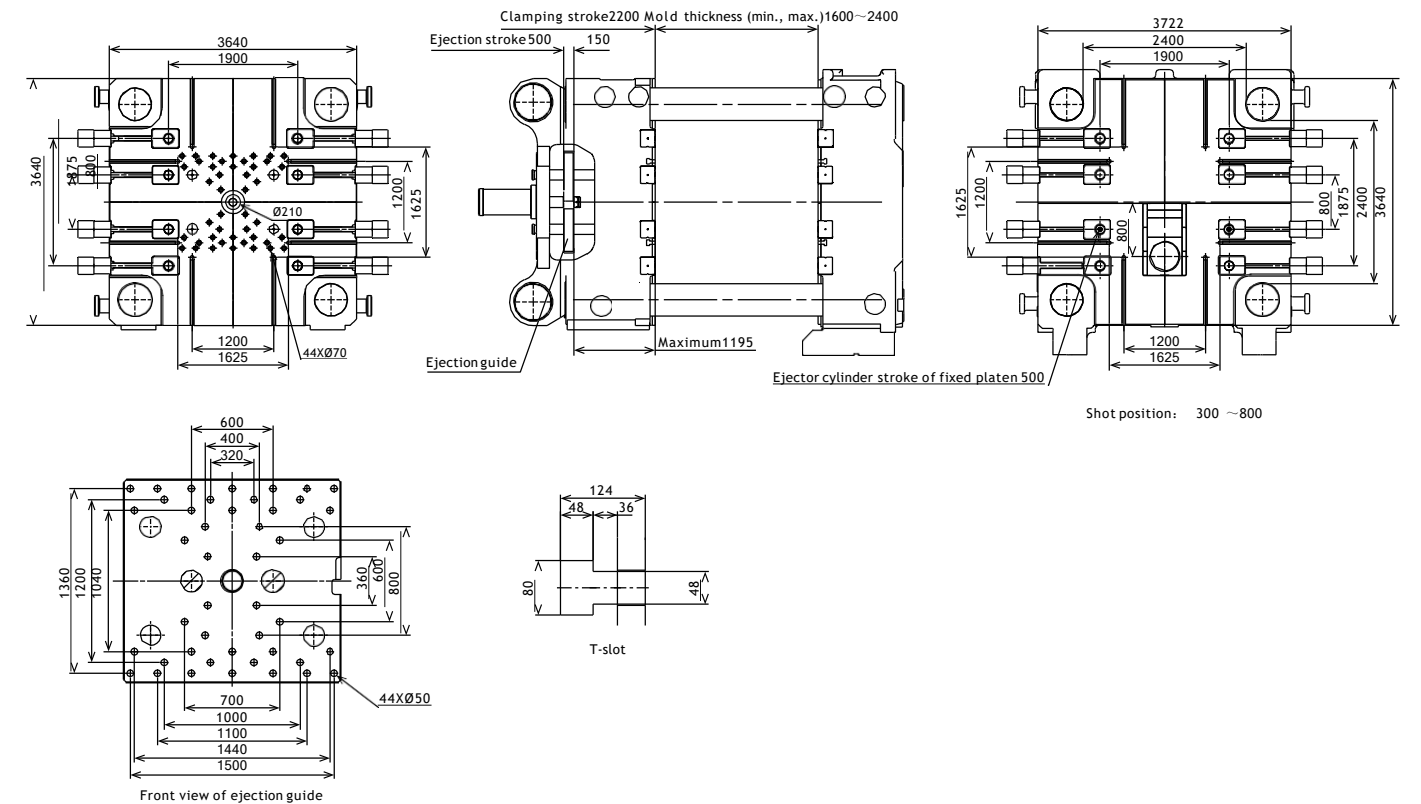
HDC4500



HDC4000

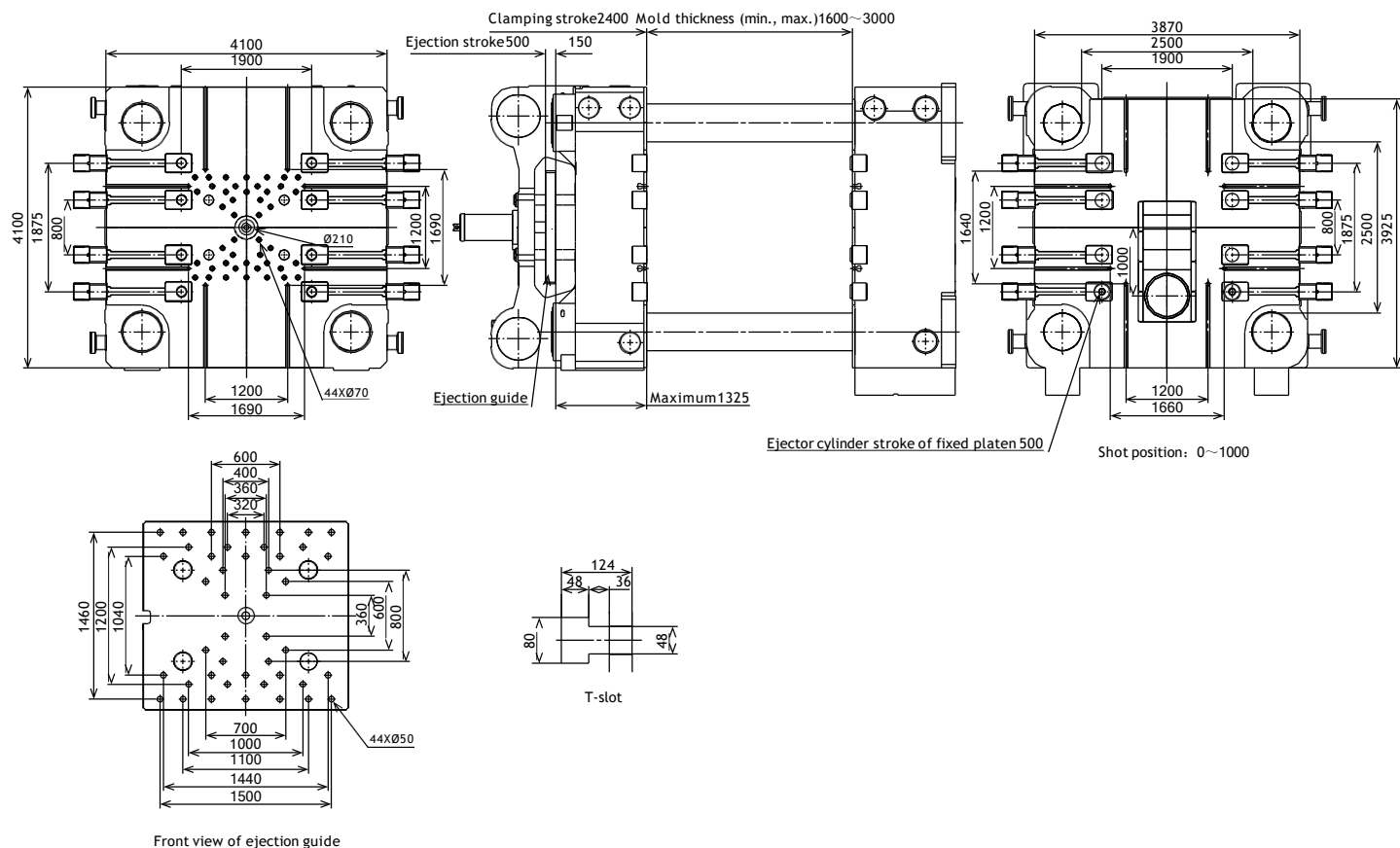


HDC7000

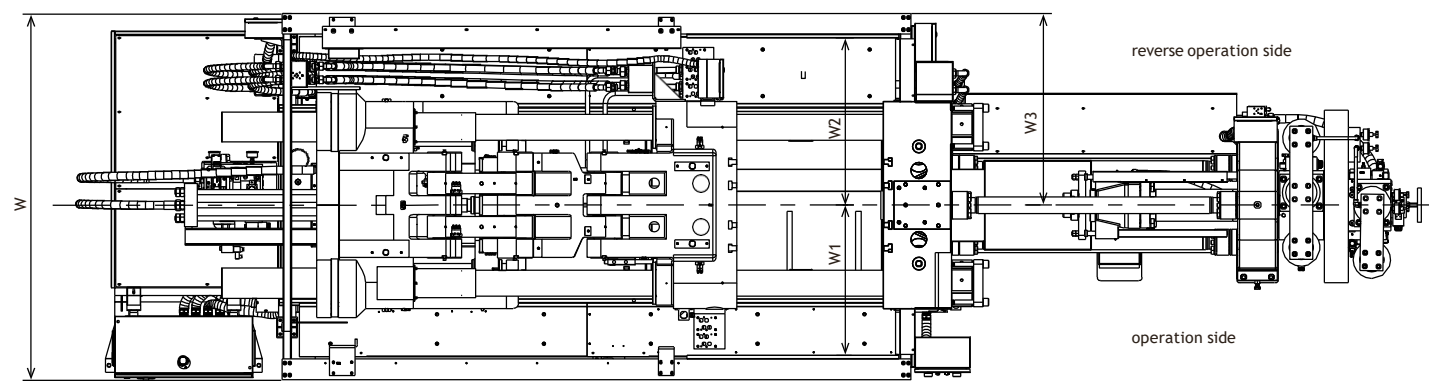


Platen Dimensions 8800T

HDC8800



Distance between front and rear safety doors



Model	HDC180	HDC350	HDC450	HDC550	HDC700	HDC850
Injection system <i>m+</i>	○	○	○/●	○/●	○/●	○/●
Overall width W (mm)	1650	1825	1975/2000	2200/2520	2300/2825	2470/2825
Inner distance W1 of safety door on operation side (mm)	740	760	870/770	920/1080	1010/1230	1070/1230
Inner distance W2 of safety door on reverse operation side (mm)	760	880	940/900	1000/1080	1090/1230	1210/1230
Maximum distance W3 (mm) of picker	790	915	975/1000	1050/1190	1140/1340	1260/1340

Model	HDC1000	HDC1300	HDC1650	HDC2000	HDC2500	HDC3000	HDC3500	HDC4000	HDC4500
Injection system <i>m+</i>	●	●	●	●	●	●	●	●	●
Overall width W (mm)	3770	4100	4100	5100	5350	5400	5600	5700	5800
Inner distance W1/W2 of safety door (mm)	1650	1850	1900	2350	2450	2500	2540	2640	2700

Note:
The standard width of single-side inner platform is 850 mm for HDC1000-HDC1650, and 1000 mm for HDC2000 and above.

○ Not available ○/● Option ● Standard

Haitian Die Casting
NOTES

A large grid of small dots for taking notes, covering most of the page below the header.