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CHEN HSONG

TP-SMART

About Chen Hsong

Chen Hsong, established in 1958, is one of the largest manufacturers of injection moulding machines in the world, with annual sales exceeding 20,000 sets.

For over 65 years, Chen Hsong sold to more than 85 countries across the globe, supplying injection moulding machines with clamping force from 20 tons to 6,500 tons. In 1991, Chen Hsong became listed on the Hong Kong Stock Exchange (stock code: 00057). Headquartered in Hong Kong, Chen Hsong operates numerous manufacturing and research facilities in China, including Shenzhen, Shunde, Ningbo and Taiwan, as well as in Japan.

Since 2011 when Chen Hsong and Mitsubishi Plastics Technology of Japan entered into a worldwide strategic partnership, Chen Hsong has been progressively upgrading its internal management, production and quality systems with industry best practices, including TPS (lean manufacturing), M-System (Mitsubishi quality system) and a Japanese “perfect quality” focus towards all R&D, procurement and production activities. For over a decade since then, and leveraging its superior supply chain and production capabilities, Chen Hsong also supplied Mitsubishi, as OEM, with world-renowned “MMX” large-tonnage two-platen injection moulding machines (up to 3,500 tons).

To provide customers with even better peace-of-mind, Chen Hsong insists on being the only fully vertically-integrated maker of injection moulding machines globally, starting from basic ductile iron casting to high-end fabrication and machining, and all major production steps until the completed assembly of each machine. Only through absolute control of each fine step of the manufacturing process would customers be best served with professionalism, quality and perfection.

65 **Years of Excellence**
Since 1958

300+
Patented technologies

20+
Software IP

20,000 **Sets / year**
One of the largest producers of injection moulding machines in the world

Operates **800,000**m²
Production facilities with global presence

Global Customers

AEQUS ecosystems of efficiency
arçelik
BYD
beko

CHINT
CHANGHONG 长虹
DAIKIN
ONLIN

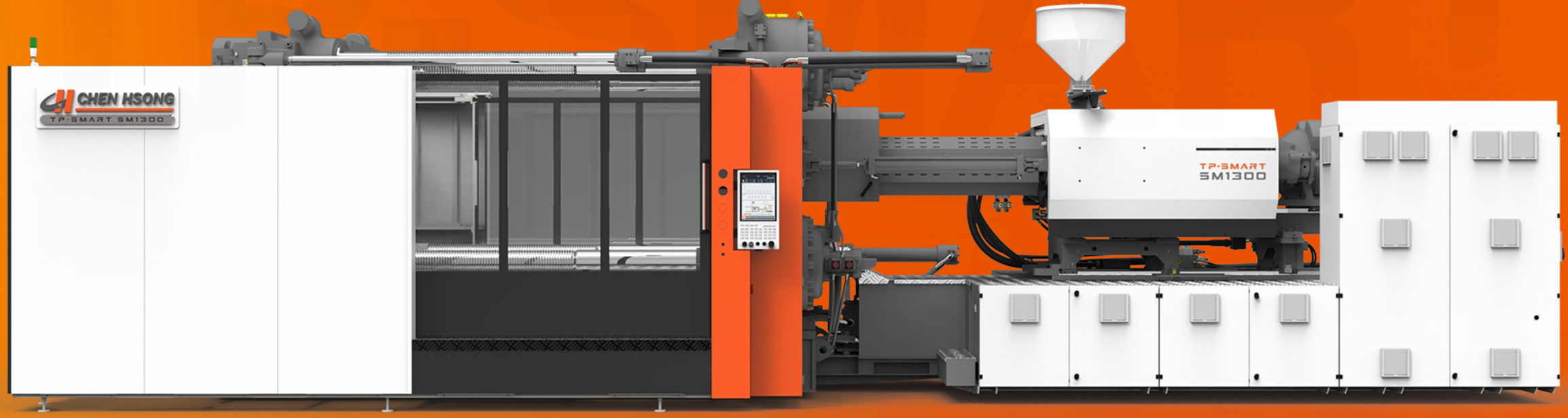
FOXCONN
福耀玻璃 Fuyao Glass
GREE 格力
三菱重工

TTI
TAKATA
vtech
中国一汽

The above rankings are in no particular order

Smarter, Stronger, Better…

The TP-SMART has evolved to be smarter beyond your expectations



Photos are for reference only

Smart Beyond Expectations

The TP-SMART is an evolutionary upgrade to the popular TP series of advanced two-platen machines from Chen Hsong, which was originally developed as part of Chen Hsong's worldwide strategic partnership with Mitsubishi. For this iteration, teams of Chinese, Japanese and European engineers listened to global industry experts and a wide cross-section of customers, seeking to smartly and effectively address all major pain-points on operating two-platen machines in a single attempt.

The result is the TP-SMART – full of patented and proprietary technologies that will forever change your perception of the two-platen.

Wide Adaptability – A Machine for All Seasons

Automotive

Electronics

Logistics

Construction

Smart Performance

TP-SMART

Cutting-Edge
State-of-the-art two-platen technology from Mitsubishi cooperation

Modern
Pleasing on the eyes and the wallet

Ergonomic
User-friendly, easy to operate

Ultra Precise
Designed for high quality parts

Highly Adaptable
Professional advanced controller

Ultra Stable
Fault-tolerant design

Smart Designs

High-precision hydraulic mould height adjustment
Simple and accurate

Weld-less conduits
Clean, reliable, no maintenance

Dual injection carriage cylinders
Perfect balance and longer life for components

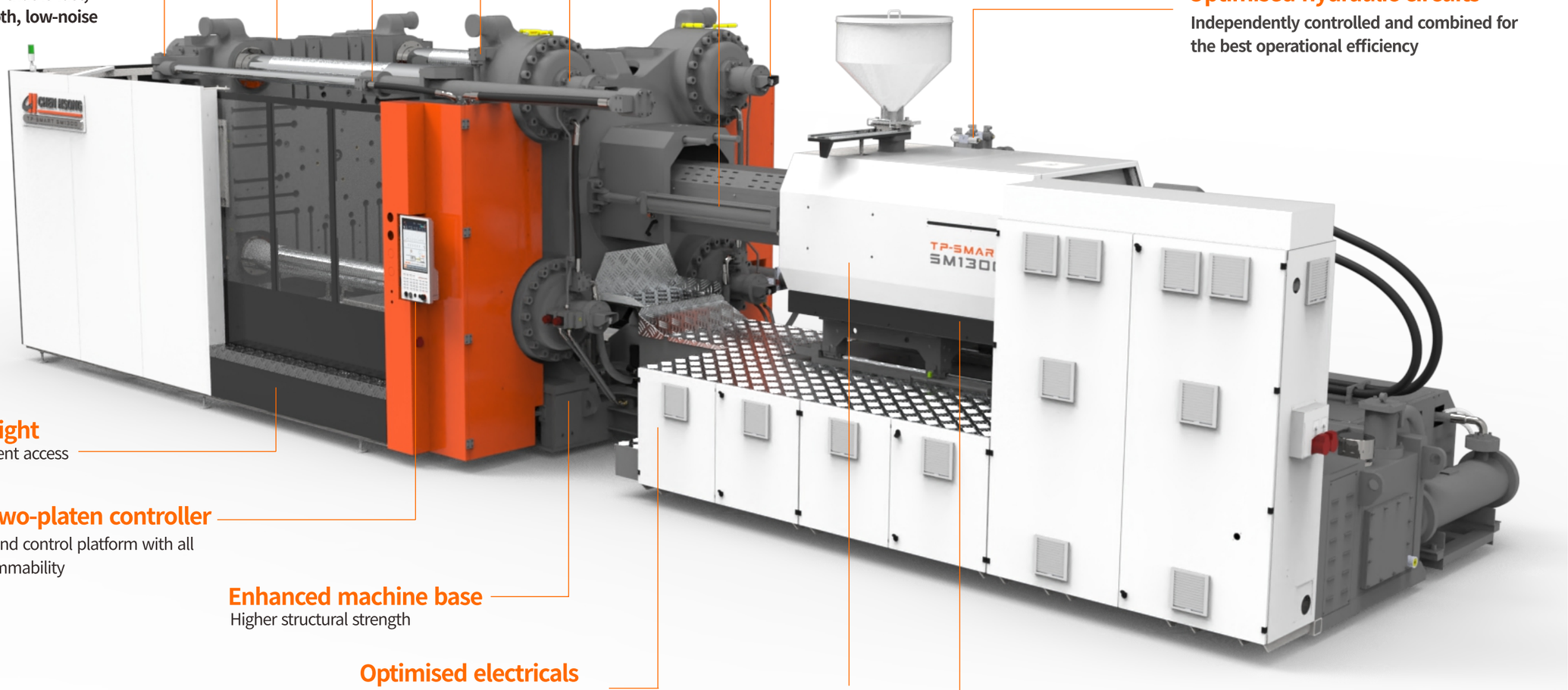
Diagonal clamping cylinders
Better ergonomics and operational convenience

Contactless digital potentiometers
High precision positional control

Vertical lock-nut toggle mechanism
More balance and better synchronisation

Optimised hydraulic circuits
Independently controlled and combined for the best operational efficiency

Patented lock-nut design
Proprietary motion profile that is fast, precise, reliable and smooth, low-noise and zero shocks.



Lower height
More convenient access

Professional two-platen controller
High-end compute and control platform with all features and programmability

Enhanced machine base
Higher structural strength

Optimised electricals
Modularised for easier maintenance

Swivel injection unit
A snap to change screw

Linear guide rails for injection
Low friction, high speed, high precision

Smart Technologies

Cutting-edge two-platen technology from Mitsubishi Cooperation

Japanese Design

Advanced two-platen design provides the largest stroke and daylight into the smallest foot print possible

Chen Hsong and Mitsubishi joined forces in a global partnership to create state-of-the-art two-platen technology with unprecedented value proposition.

Non-Stop™

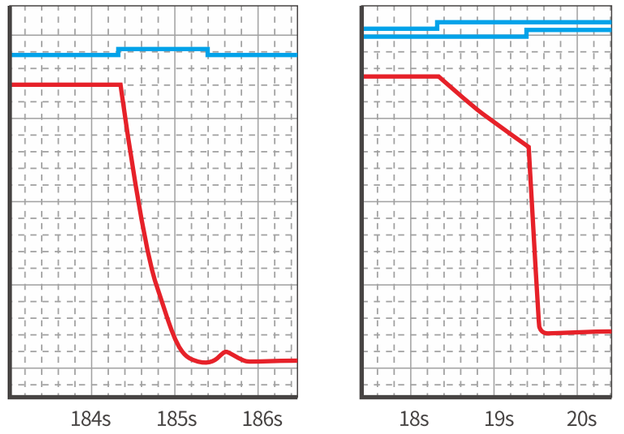
Advanced fault-tolerant technology.
Annual Down-Time as Low as 0.5%!

Precision Hydraulic™

A team of Japanese and European technical experts took the time-tested hydraulic circuits in our machinery and relentlessly fine-tuned/optimised them to perfection, aided by the latest fluid dynamics simulation software.

Gen-4 Servosystem

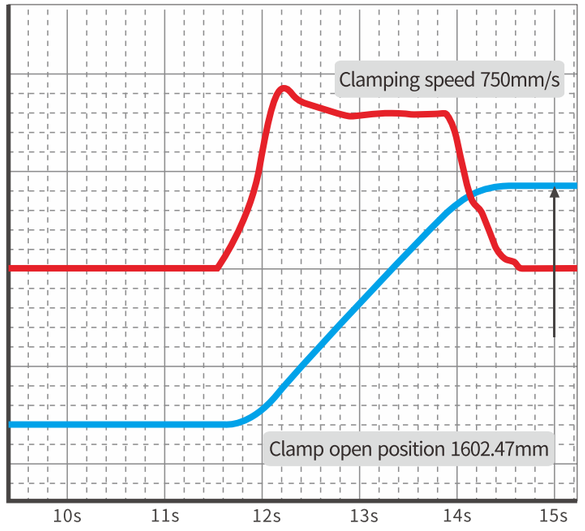
Reduce impact, protect mould and machine



High pressure release speed
2x

High pressure duration (max.)
2x

Clamping Unit



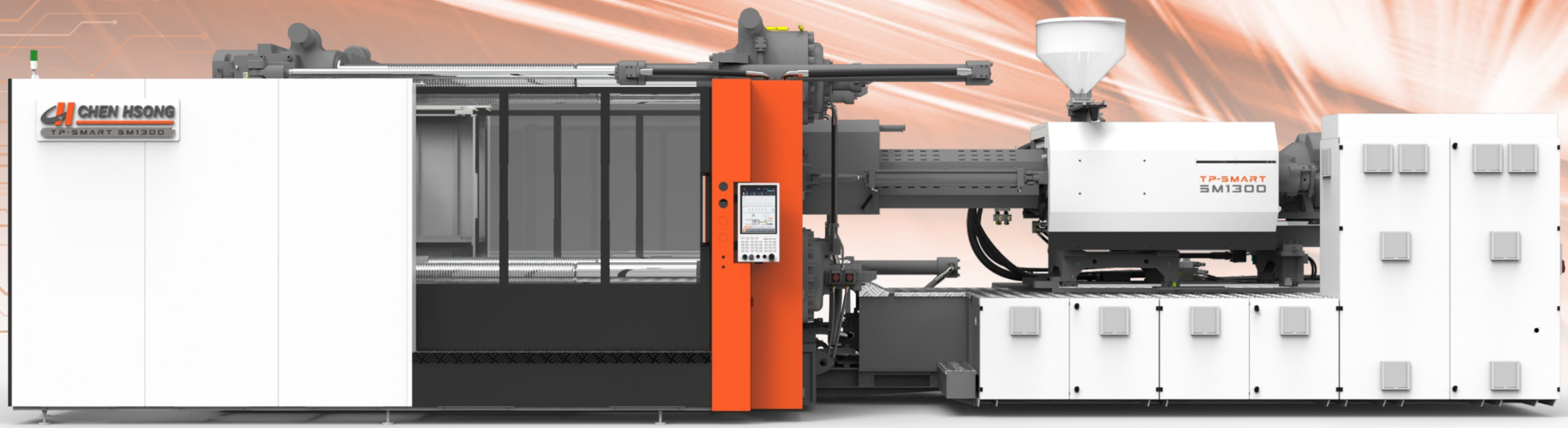
Clamp open position precision
+60%

Sample	1	2	3	4	5	6	7	8	9	10	Average
Position	1602.6	1602.6	1602.6	1602.6	1602.1	1602.6	1602.5	1602.1	1602.4	1602.6	1602.47

Smart Control

High-end professional computer controller

A perfect match between advanced software, optimised hydraulics and superb hardware design.



15” touch-screen HMI

Smart
Packed full of intelligent automation features

Strong
High-performance Cortex-M4 CPU

Safe
Isolated I/O’s for additional fault tolerance

Fast
204MHz CPU clock enables <200uS closed-loop response

Reliable
Modularised power supply channels for electrical stability

Precise
Digital main bus with unlimited expandability

Fluid
512MB DDR3 RAM and 8GB EMMC Flash memory provide ample system resources for smooth operation and data storage

Easy
All-digital controls for easy settings

Efficient
User-friendly, simple-to-use HMI with little training required

Standard Features

Injection Unit

1. 10-stage injection speed/pressure	2. Digital back pressure control	3. Nozzle guard
4. Central lubrication points	5. Barrel guards	6. Screw RPM display
7. Linear transducer for injection	8. Ceramic heater bands	9. Nitrided screw and barrel
10. Injection barrel support mount	11. Swivel injection unit	12. Dual injection carriage cylinders

Clamping Unit

1. Automatic mould thickness adjustment	2. High-tensile steel tie-bars	3. Proprietary moving platen slider mechanism
4. High-end ductile casted platens	5. Motorised guard doors	6. Contactless potentiometers for positional control
7. High-end potentiometers for ejector control	8. T-slots	9. Safety platform
10. Hydraulic core pulls on moving platen (2 sets)	11. Water manifold (D12, 8 channels each on moving and stationary platens)	12. Multi-stage clamping speed and pressure control
13. Advanced low-pressure mould protection	14. Standard-conforming hydraulic/ electrical safety interlocks	15. Euromap 13 ejector/core pull interface

Controller

1. 15” intelligent panel	2. Rapid-response servosystem	3. PID temperature control
4. Tri-color status indicator	5. Real-time monitoring	6. I/O signals monitor
7. PLC step monitor	8. Broken thermocouple detection	9. Cold-start prevention
10. Blocked nozzle and leakage detection	11. Auto-purge	12. Robot interface (non-Euromap)
13. Emergency stop switches on both guard doors	14. Pre-wired core pull slot on moving platen	

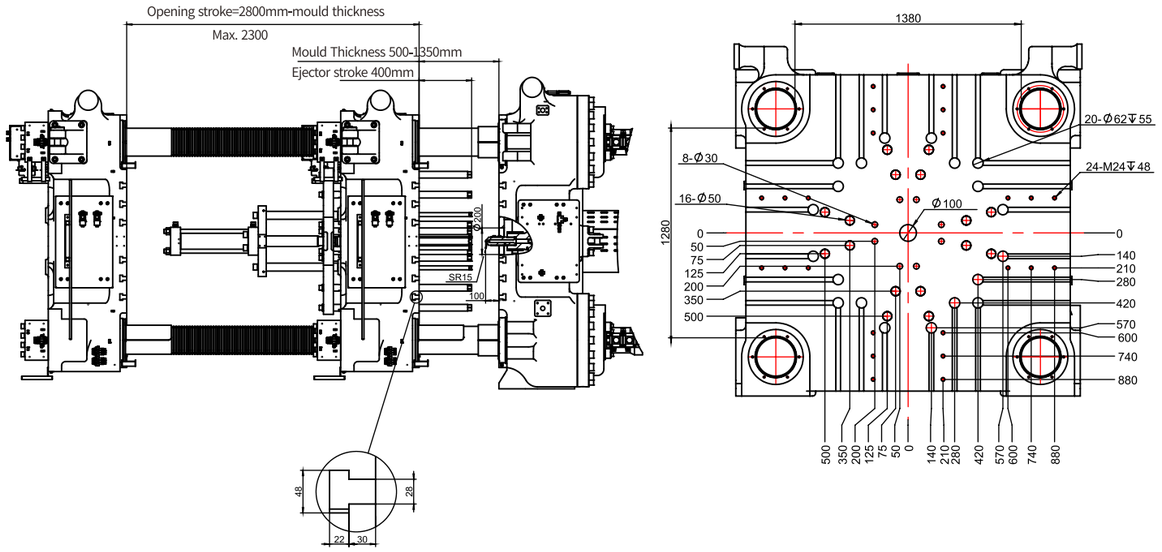
Hydraulic System

1. Internal gear pump	2. Proportional valve for clamping	3. Ejector-on-fly / core-pull-on-fly
4. Clamping force transducer	5. Boost-mode fast clamp open	6. Hydraulic oil level indicator
7. Multiple sets of hydraulics are independently controlled and combined for optimal output requirements and power efficiency		
8. Internal inlet oil filter	9. External return oil filter	10. Core pulls on moving platen (2 sets)

Optional Features

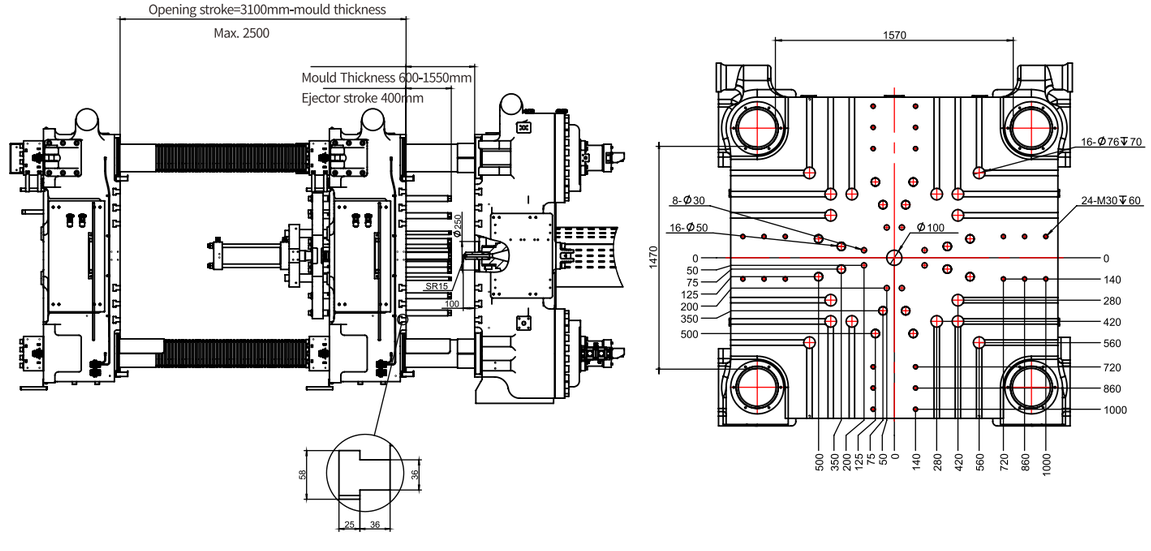
1. Larger injection screw	2. Professional screw & barrel designs (e.g. for PC/ABS/PVC)
3. Automatic lubrication system for injection unit	4. Longer nozzle (50/100/150/200mm)
5. Cooling ring with temperature control	6. eDrive – servo-driven recovery
7. Loading platform	8. Hydraulic oil temperature control
9. Additional power sockets (4/6/8 sets)	10. Core-pull-on-fly/ejector-on-fly
11. Hot-runner control (8/16/24/32/40/48 channels)	12. Enlarged oil cooler
13. Hydraulic valve gates control (5/10/12/16 channels)	14. Additional core pulls on moving platen (3/4 sets)
15. Water manifold (8/16 channels)	16. Closed-loop injection
17. Bimetallic screw & barrel	18. Additional core pull interface on moving platen (Euromap 13)
19. Recovery-on-fly	20. Hydraulic oil pre-heat
21. Enlarged recovery motor	22. Core pulls on stationary platen (1/2/3/4 sets)
23. E67/E12 interface	24. Hopper slider

SM1300TP-SMART



Clamping Unit			**Injection Unit**			
Mould Clamping Force	ton	1300	Shot Weight (PS)	g	4754	5658
Opening Force	ton	125	Swept Volume	cm^3	5224	6217
Opening Stroke	mm	1450-2300	Screw Diameter	mm	110	120
Space Between Tie Bar (H×V)	mm	1380x1280	Injection Pressure	Mpa	184	155
Mould Thickness (Min.-Max.)	mm	500-1350	Injection Rate	mm	550	
Maximum Daylight	mm	2800	Screw Rotation Speed (Max.)	rpm	115	
Clamp Closing Speed (Max.)	m/min	45	Injection Rate	cm^3/s	855	1053
Clamp Opening Speed (Max.)	m/min	45	Screw L/D Ratio	L/D	22	20.2
Ejector Force	ton	22	Nozzle Contact Force	ton	21	
Ejector Stroke	mm	400	**Others**			
Mould Register Hole	mm	200	Machine Dimensions (LxWxH)	m	11.2x3.5x3	
Power Pack			Machine Weight (Approx.)	ton	50	
System Pressure	kgf/cm^2	175				
Servo Motor Power	kW	120				
Electrial Heating Power	kW	50				
Temperature Heating Zone		7				
Oil Tank Capacity	L	1250				

SM1700TP-SMART



Clamping Unit			**Injection Unit**			
Mould Clamping Force	ton	1700	Shot Weight (PS)	g	7847	9101
Opening Force	ton	165	Swept Volume	cm^3	8623	10001
Opening Stroke	mm	1550-2500	Screw Diameter	mm	130	140
Space Between Tie Bar (H×V)	mm	1570x1470	Injection Pressure	Mpa	180	155
Mould Thickness (Min.-Max.)	mm	600-1550	Injection Rate	mm	650	
Maximum Daylight	mm	3100	Screw Rotation Speed (Max.)	rpm	100	
Clamp Closing Speed (Max.)	m/min	45	Injection Rate		1215	1409
Clamp Opening Speed (Max.)	m/min	45	Screw L/D Ratio	L/D	22	20.4
Ejector Force	ton	35	Nozzle Contact Force	ton	21	
Ejector Stroke	mm	400	**Others**			
Mould Register Hole	mm	250	Machine Dimensions (LxWxH)	m	12.5x4.9x3.3	
Power Pack			Machine Weight (Approx.)	ton	68	
System Pressure	kgf/cm^2	175				
Servo Motor Power	kW	180				
Electrial Heating Power	kW	80				
Temperature Heating Zone		7				
Oil Tank Capacity	L	1650				