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DM III

Gen-3 Multi-Mat Solution

168-568 Ton



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 66 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.

66 Years of Excellence
Since 1958

20+
Software IP

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

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



Global Reach

AEQUS[®]
ecosystems of efficiency

arçelik

BYD

beko

CHINT

CHANGHONG 长虹

DAIKIN

ONLIN

FOXCONN

福耀玻璃
FUYUO GLASS

GREE 格力

三菱重工

TTI

TAKATA

vtech

中国一汽

The above rankings are in no particular order

DM III

Your Professional Multi-Mat Solution



The DM III is the third iteration of Chen Hsong's DM-series of multi-material injection moulding machines – a product line with a long and vibrant history. This new, third generation contains modularised upgrades on most technical aspects of the successful DM-series, giving it more power, larger specs, higher speed, better precision, more stability, higher reliability, easier operation and more versatility than ever before.

25 years
Experience in Multi-Mat

4
Core technologies

2
Professional Multi-Mat
Control Systems

5
Professional Precision
Components

66
Over half a century of
applications experience
and technical expertise.

Professional Solution for Multi-Mat

Uniquely addresses industry pain points

Gather the world's top technical talents

High-end technology from Mitsubishi partnership

Best-practice lean manufacturing processes

Gen I

1997: DM I launched – the first turntable multi-mat product line



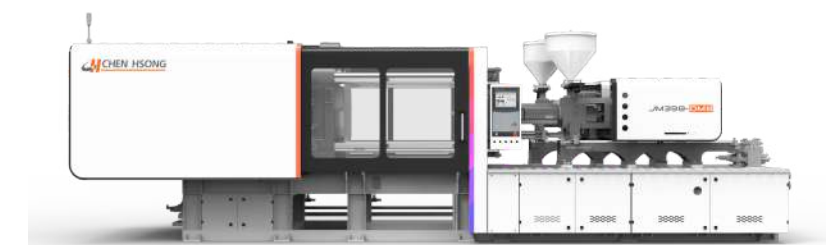
Gen II

2011: DM II – upgraded with servo-driven precision



Gen III

2022: DM III – advanced all-digital control systems



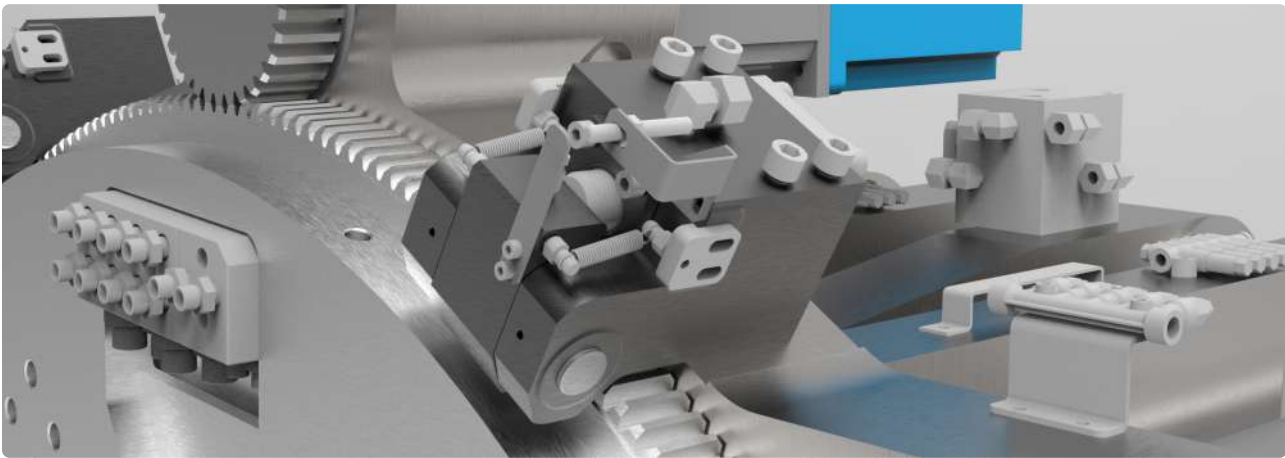
65 years of focusing on nothing but injection moulding technology – professionalism and technical capabilities you can trust.

Stability At The Core

Four core patented technologies

01 Patented Turntable Tightening Mechanism

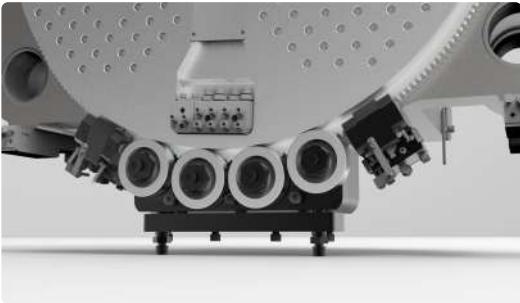
Oversized and heavy moulds are particularly threatening to the turntable mechanism because of the additional stresses they caused, if not appropriately and efficiently compensated by advanced dynamic adaptive technology such as in the DM III which effectively enhances part quality and mould protection as well as preserves turntable precision.



JM168-DM III, JM268-DM III: 2 sets JM398-DM III, JM568-DM III: 4 sets

02 Patented Turntable Support Mechanism

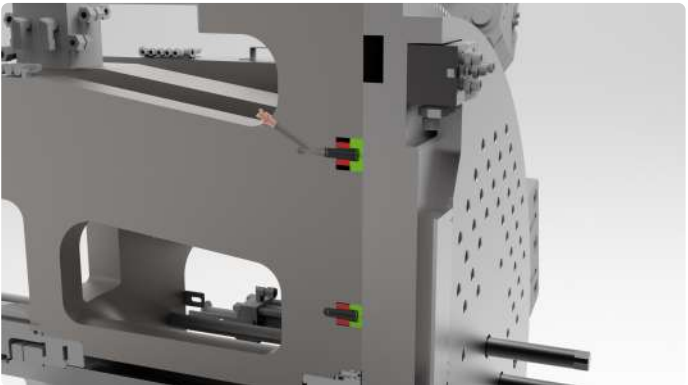
Under normal operations, the turntable of a multi-mat machine is under constant downward stress from the weight of the moulds, which always threatens to increase friction to turntable components, increasing wear and reducing precision over time, unless alleviated by proprietary support structures such as in the DM III.



	DM III	Competition A	Competition B
Support Mechanism	Integrated with adjustments	Separated pieces	Single-point
Pros/Cons	Easy adjustment, no loosening, higher yields	Difficult to adjust, easy for misalignment	Difficult to adjust, easy for misalignment

03 Patented Turntable Ejection Mechanism

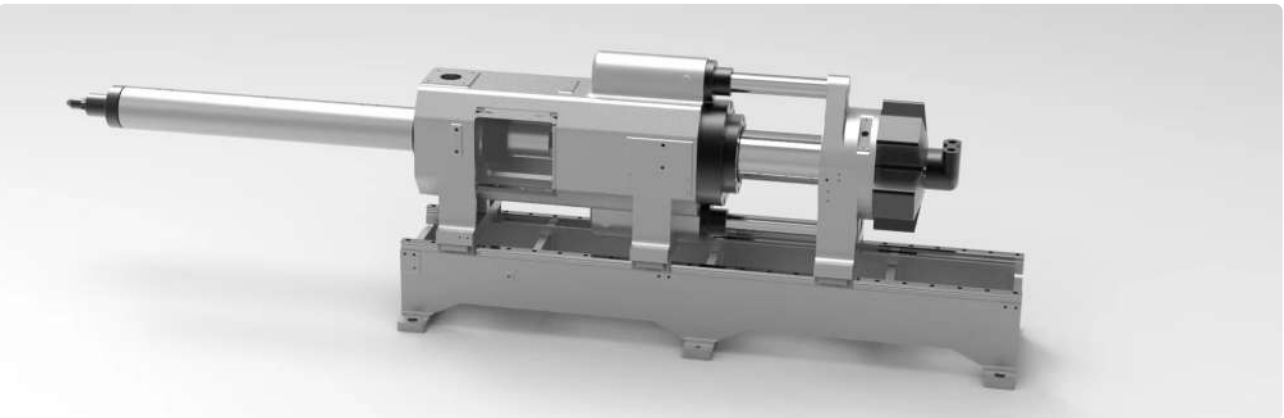
The turntable, when rotating, is separated from the moving platen using a proprietary mechanism for friction-free motion, greatly extending usage life and maintaining mechanical precision.



- Proprietary technology that works:
- 1. Simple design; easy maintenance
 - 2. Even stress distribution during ejection preserves turntable precision
 - 3. Low friction, long usage life
 - 4. High positional precision for higher part yields

04 Patented Injection Relief Mechanism

Proprietary relief mechanism on the injection units prevents rotational motion on the injection cylinders, effectively maintaining precision and increasing part yield.

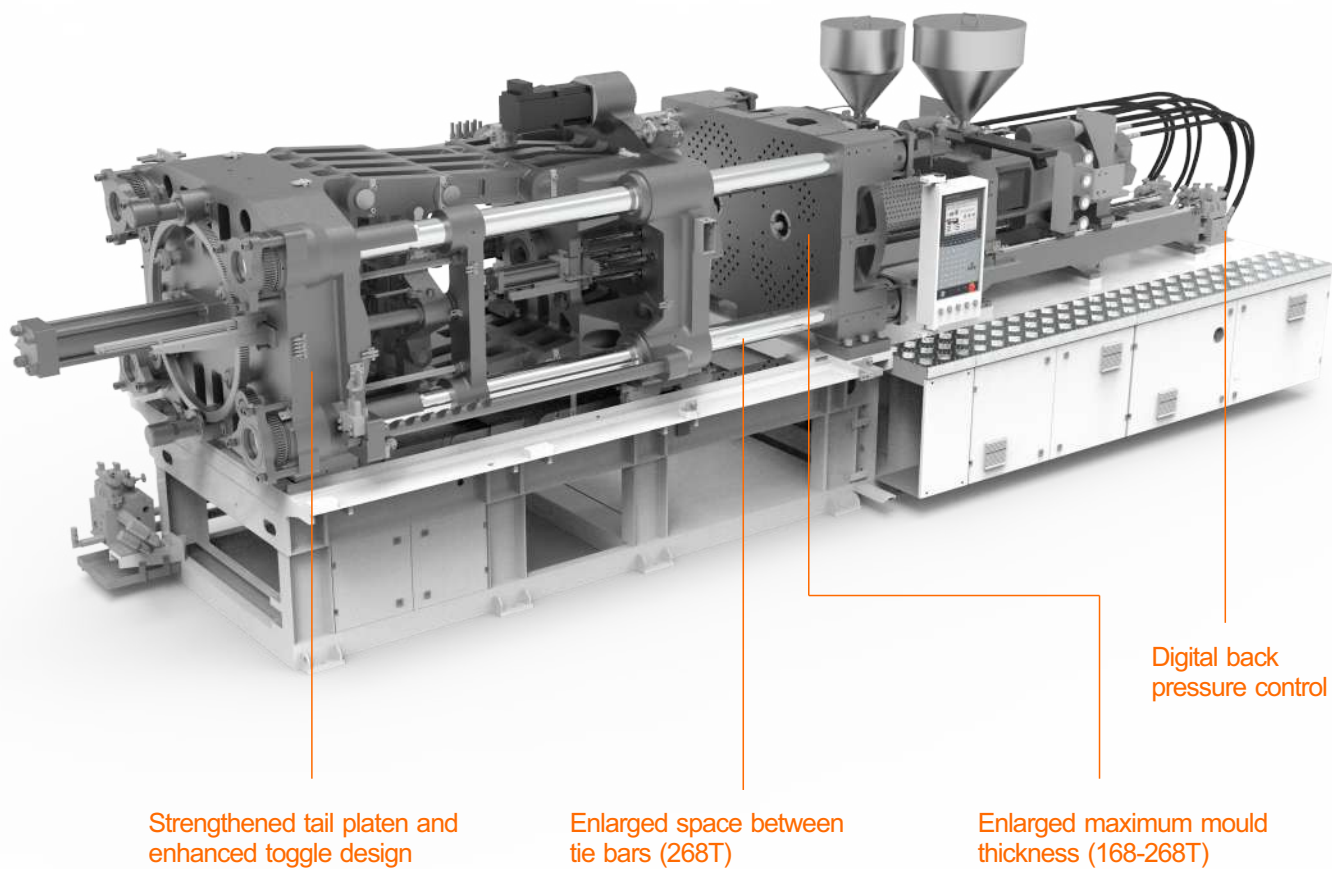


	DM III	Competition A	Competition B
Injection Cylinders	Patented relief mechanism	Regular design	Regular design
Pros/Cons	No oil leaks, higher precision, higher yields	Tough tolerances, easy oil leaks	Tough tolerances, easy leaks

Reliability at the core

Five professional components

01 Professional Specification Upgrades



02 Professional Turntable Cooling Structure

Good cooling performance is vital towards multi-mat production and high yields. The DM III boasts the best cooling structure in the industry with Teflon piping that can withstand temperatures from -50°C to 160°C.



Model	JM168-DM III	JM268-DMIII	JM398-DM III	JM568-DM III	Competition
Cooling Channels	1 in 1 out	1 in 1 out	2 in 2 out	4 in 4 out	1 in 1 out
Diameter	DN10	DN10	DN10	DN10	DN15
Material	Steel-meshed high-temperature Teflon				Regular rubber, not resistant to high temperature

03 Professional Turntable Fixing Mechanism

Quality (and yield) of a multi-mat part is only as good as the precision and repeatability of turntable positional control. The DM III, with its unique mechanical + hydraulic fixing mechanism, ensures perfect alignment during every cycle. That's precision you can count on.

	DM III	Competition A
Mounting	Behind turntable	Side of turntable
Pros/Cons	No adjustments needed. Does not obstruct turntable	Regular adjustments needed. Obstructs turntable surface



04 Professional Linear Guide Rails

- Silky-smooth** – low friction
- Precision** – better control and accuracy leads to higher precision
- Fast** – low friction enables higher speeds and better control
- Reliable** – longer usage life
- Stable** – higher positional accuracy for higher yields

05 High-Strength Machine Base

Improved structural stability, reduced deformation and enhanced torsion resistance from thicker and stronger I-beams that make up the machine base, plus an optimised design created through high-end computer stress simulations of various loading conditions.



Smart And Intelligent Professional controllers

01 Gen-3 Proprietary Multi-Mat Advanced Controller

Rotational and related auxiliary motions of the turntable are controlled by a professional, multi-mat-dedicated controller on the DM III, with proprietary advanced algorithms and real-time dynamic adjustments to yield unparalleled repeatability and positional precision.

- 01 Smoother motion
- 02 Higher positional precision
- 03 Higher yields



	DM III	Competition A	Competition B
Mechanism	Servomotor	Hydraulic + mechanical	Hydraulic + mechanical
Pros/Cons	Fast, precise, reliable, easy	Less reliable, lower precision	Less reliable, lower precision
Controller	1. Easy custom programming 2. Built-in networking port (RS232 & Ethernet) 3. Support CAN & EtherCAT protocols 4. 64xDO, 48xDI, 8xAI, 8xAO with room for expansion	1. Difficult to program and enhance 2. Similar to DM III	1. Difficult to program and enhance 2. Similar to DM III 3. 56xDO, 48xDI, 6xAI, 8xAO

02 Gen-3 Multi-Mat Advanced Control System

Featureful, Expandable, Professional

Professional features:

- 01 Dedicated buttons for multi-mat operations
- 02 Ample input/output channels for most application needs
- 03 Professional E502 modules for high-precision and stable temperature control

Advantages:

- 01 Ultra-fast CPU scan time (<0.5ms), barrel temperature < ±1°C (heat up overshoots < 3°C)
- 02 Separate isolation between independent electrical components ensures operational stability and precision
- 03 Freely-remappable input/output channels
- 04 High-speed digital control bus for fast responses, high precision and easy expandability
- 05 User-friendly HMI with easy-to-use UI

Easy, Versatile, Standard

- 01 Ease of Setup
CANbus expandability makes it a snap to connect and control auxiliary equipment
- 02 Multi-Mode
A wide range of injection modes to satisfy most application needs
- 03 Industry-Standard EtherCAT
High-speed high-precision all-digital control bus

High-speed high-precision all-digital control bus



Injection Modes:

- 01 A-only
- 02 B-only
- 03 A+B
- 04 A then A+B
- 05 B then A+B
- 06 A then B
- 07 B then A



Ejection Modes:

- 01 A-only
- 02 B-only
- 03 A+B
- 04 A then B
- 05 B then A

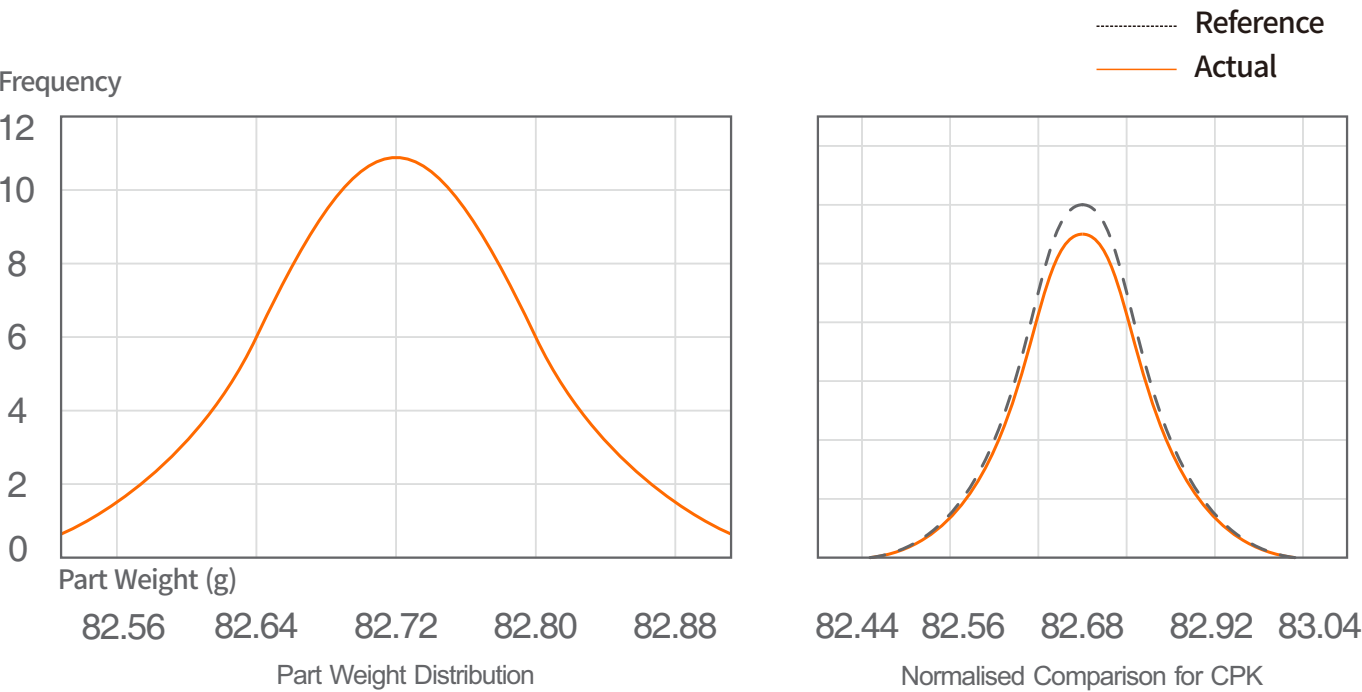
Higher Yields at Your Fingertips

High-precision injection control enabled by EtherCAT control bus



Part: Lighter Enclosure
Resins: ABS + TPE
Cavities: 2
Part Weight (g): 82.7g
Part Specs: 240mmX37mm Wall thickness 3mm

Highly Responsive Dynamic Injection Control (±2%)



Wide Adaptability – A Machine for All Seasons

Perfect for all applications in diverse industries, meets all needs

Automotive

Electronics

Optics

Home Appliances

Standard Feature

Injection Unit		
1 Patented single-cylinder injection mechanism	2 Integral injection table support and linear guide rail	
3 Low speed and high torque hydraulic motor	4 Single injection cylinder	5 Nitrided barrel and screw
6 Nozzle guard and high temperature resistant closed barrel cover		7 Safety guard
8 Centralized lubrication of the injection table		

Clamping Unit		
1 High strength ductile cast iron	2 Fully coded mold hole template (Eu2)	3 Servo motor turntable
4 Turntable clamping device	5 Carousel support device	6 Turntable ejector
7 Turntable mechanical positioning	8 Automatic lubrication system for machine hinge	
9 Manual lubrication pump for mold setting	10 Bamboo type mechanical safety lock	
11 Hydraulically driven gear mold setting	12 Automatic mold thickness adjustment	13 Self-lubricating graphite sleeve
14 Two sets of independent control ejectors	15 Vibrating ejector function	16 Robot mounting holes
17 Turntable water transportation (168-268T in 1 outlet, reserved 1 in 1 outlet, 398T 2 in 2 out, reserved 2 in 2 out, 568T 4 in 4 out)		

Hydraulic/Frame Unit		
① Rigid reinforced frame configuration	② Internal gear servo oil pump	
③ Optimization of mold opening and closing oil circuit	④ Differential fast mold clamping	
⑤ Low pressure mold protection function	⑥ Numerically controlled back pressure	
⑦ Core extraction (turntable side) 168-398T 2 groups reserved, 568T 2 groups core extraction, 2 groups reserved		
⑧ Oil level display	⑨ High efficiency built-in cooler	⑩ High efficiency built-in cooler
⑪ Water drain (6 inlet and 6 outlet for 168-568T2 groups)		

Electric Unit		
① 10-inch dual-color machine computer	② High response servo drive	③ Temperature PID control system
④ 10 stages of injection and pressure control	⑤ Melting screw speed display	⑥ Thermal wire break detection
⑦ Automatic cleaning function	⑧ Cold material start protection	⑨ I/O signal monitoring
⑩ Emergency stop switch for front and rear safety doors		⑪ Three-color alarm light
⑫ Input and output inspection function	⑬ Automatic heat preservation and automatic heating setting function	
⑭ Multiple operating languages	⑮ U disk program update and upgrade	⑯ Process parameter lock function
⑰ Communication interface (RS232/RS485/CAN)		⑱ Dynamic templates equipped with extracted core wiring
⑲ Socket (168T2 group three-phase 16A, 1 group single-phase, 268-398T2 group three-phase 32A, 2 groups three-phase 16A, 1 group single-phase, 568T4 group three-phase 32A, 2 groups single-phase)		

Other Unit
1 Adjustable shock-absorbing feet

Optional Feature

Injection Unit		
① Cylinder energy-saving device (infrared heating ring)	② Extended nozzle	③ Enlarged oil motor
④ Solenoid valve control for cylinder cooling	⑤ Increase the power of heating coil	
⑥ Specialized tube set (plating, alloy, PC, TPE, TPU, etc.)	⑦ Hopper	⑧ Hopper moving chute
⑨ Modular combination of shooting table	⑩ Optional center distance of injection table	
⑪ Multi-color molding with three or more colors		

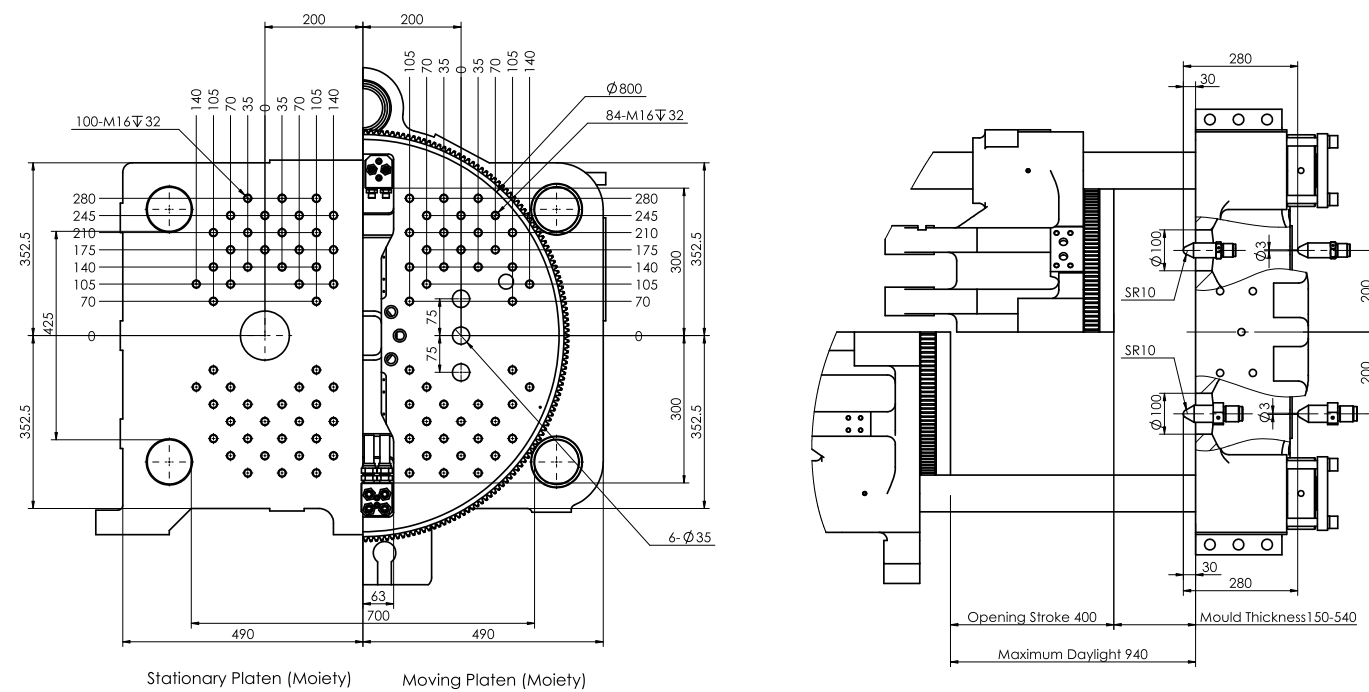
Clamping Unit		
1 Magnetic mold plate	2 Increase ejector force and ejector stroke	3 Installation of mold heat insulation plate
4 Increase mold capacity	5 Turntable center distance optional	

Hydraulic/Frame Unit		
1 Increase core pulling (turntable side, fixed mold side)	2 External oil filter	
3 Proportional directional valve for mold opening and closing	4 Enlarged cooler	
5 Oil temperature closed-loop control and detection	6 Oil temperature display	7 Enlarged servo oil pump motor
8 Pressure oil preheating	9 Increase the number of water drains	10 Adopt glass water drain

Electric Unit		
1 12-inch touch screen dual-color machine computer	2 Internal and external module expansion	
3 Increase the type and number of sockets	4 Manipulator interface U67/U12/National standard	
5 Hot runner interface	6 Blowing device	7 Change of power supply voltage
8 Motorized door (568T)		

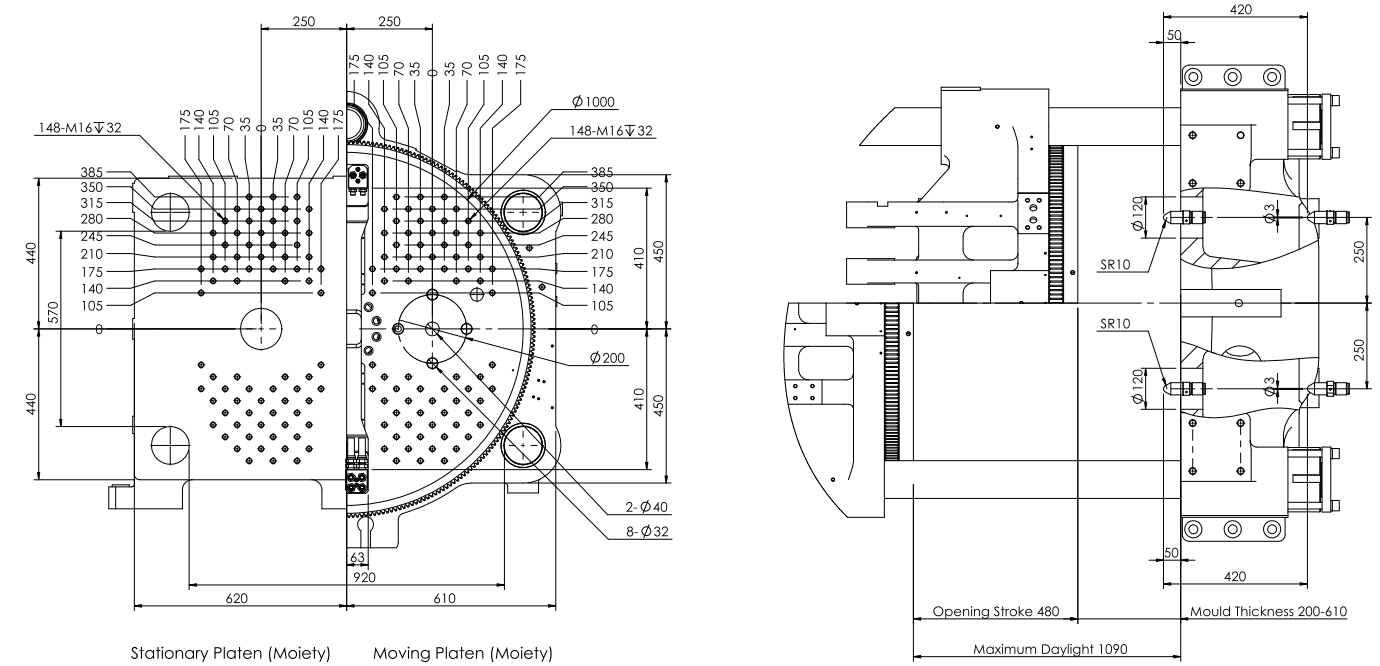
Other Unit		
1 Tool box and wearing parts	2 Dryer and other auxiliary machines	3 Mold platen

JM168-DMIII



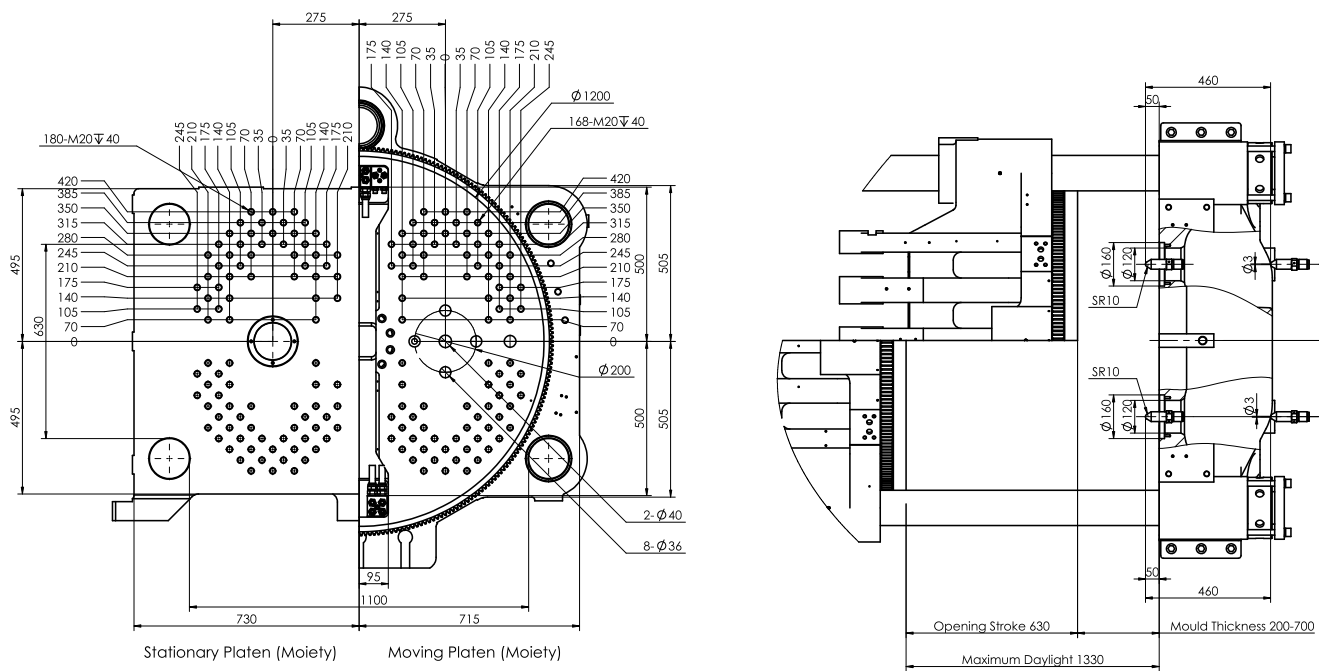
Injection Unit		A	B	C	A	B	C	Clamping Unit		
Screw Diameter	mm	31	36	41	25	28	31	Clamping Force	t	168
Screw L/D Ratio	L/D	24.4	21	18.4	23.3	20	18.2	Opening Stroke	mm	400
Injection Pressure (Max.)	Mpa	266	197	152	252	201	164	Space Between Tie Bars	mm	700x425
Shot Volume	cm³	121	163	211	64	80	98	Maximum Daylight	mm	940
Shot Weight (PS)	g	111	150	194	59	74	90	Mold Thickness (Min-Max.)	mm	150-540
Iniection Rate	cm³/s	88	118	153	58	73	89	Ejector Stroke	mm	90
	g/s	81	109	141	53	67	82	Ejector Force	kN	33
Injection Stroke	mm	160				130		No. Of Ejectors	3+3	
Injection Speed	mm/s	116				118		Turntable Diameter	mm	Φ800
Screw Rotation Speed	rpm	220				200		Max. Usable Turntable Diameter	mm	Φ830
Power Pack								Distance Between Injection Points	mm	400
System Pressure	Mpa	17.5				17.5		Others		
System Power	kW	16				13		Machine Dimensions	m	5.7x1.7x2.15
Heating Capacity	kW	8				5		Oil Tank Capacity	l	350
Temperature Control Zone		4				4		Machine Weight	t	8

JM268-DMIII



Injection Unit		A	B	C	A	B	C	Clamping Unit		
Screw Diameter	mm	41	46	52	31	36	41	Clamping Force	t	268
Screw L/D Ratio	L/D	23.6	21	18.6	24.4	21	18.4	Opening Stroke	mm	480
Injection Pressure (Max.)	Mpa	237	189	148	266	197	152	Space Between Tie Bars	mm	920x570
Shot Volume	cm³	264	332	425	136	183	238	Maximum Daylight	mm	1090
Shot Weight (PS)	g	243	306	391	125	169	219	Mold Thickness (Min-Max.)	mm	200-610
Injection Rate	cm³/s	155	195	249	88	118	153	Ejector Stroke	mm	120
	g/s	142	179	229	81	109	141	Ejector Force	kN	42
Injection Stroke	mm		200			180		No. Of Ejectors		5+5
Injection Speed	mm/s		117			116		Turntable Diameter	mm	Φ1000
Screw Rotation Speed	rpm		220			220		Max. Usable Turntable Diameter	mm	Φ1080
Power Pack								Distance Between Injection Points	mm	500
System	Mpa		17.5			17.5		Others		
System Power	kW		24.1			16		Machine Dimensions	m	6.8x2.05x2.35
Heating Capacity	kW		12			8		Oil Tank Capacity	l	450
Temperature Control Zone			4			4		Machine Weight	t	13

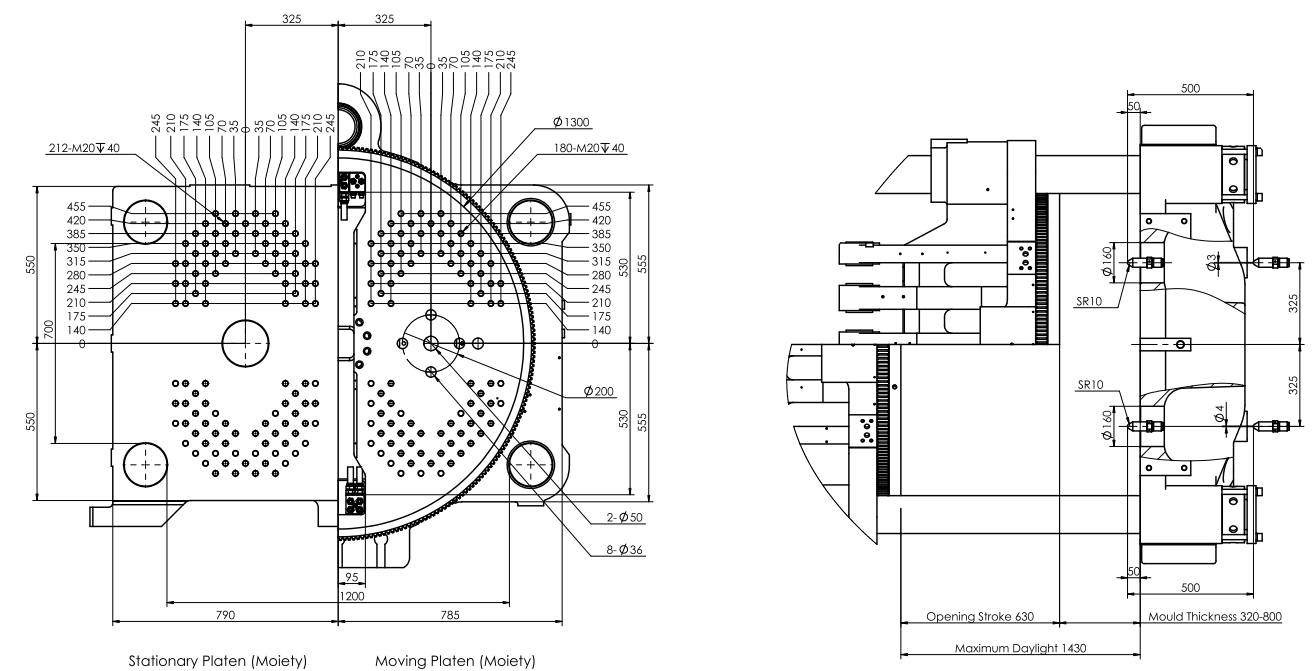
JM398-DMIII



Injection Unit		A	B	C	A	B	C	Clamping Unit		
Screw Diameter	mm	46	52	60	36	41	46	Clamping Force	t	398
Screw L/D Ratio	L/D	23.7	21	18.2	23.9	21	18.7	Opening Stroke	mm	630
Injection Pressure (Max.)	Mpa	251	197	148	275	212	169	Space Between Tie Bars	mm	1100x630
Shot Volume	cm³	415	531	707	204	264	332	Maximum Daylight	mm	1330
Shot Weight (PS)	g	382	488	650	187	243	306	Mold Thickness (Min-Max.)	mm	200-700
Iniection Rate	cm³/s	186	237	316	106	137	173	Ejector Stroke	mm	150
	g/s	171	218	291	91	126	159	Ejector Force	kN	67
Injection Stroke	mm		250			200		No. Of Ejectors		5+5
Injection Speed	mm/s		112			104		Turntable Diameter	mm	Φ1200
Screw Rotation Speed	rpm		200			220		Max. Usable Turntable Diameter	mm	Φ1260
Power Pack								Distance Between Injection Points	mm	550
System Pressure	Mpa		17.5			17.5		Others		
System Power	kW		35.6			18		Machine Dimensions	m	7.9x2.3x2.55
Heating Capacity	kW		17.5			11.3		Oil Tank Capacity	l	700
Temperature Control Zone			4			4		Machine Weight	t	19

*The technical parameters above are for reference only and discrepancies may arise in different circumstances. The company keeps upgrading the products and reserves the right to change the product specifications and parameters without prior notice. The final interpretation to the above specifications and parameters belongs to the company.

JM568-DMIII



Injection Unit		A	B	C	A	B	C	Clamping Unit		
Screw Diameter	mm	60	67	75	36	41	46	Clamping Force	t	568
Screw L/D Ratio	L/D	23.5	21	18.8	23.9	21	18.7	Opening Stroke	mm	630
Injection Pressure (Max.)	Mpa	249	200	159	275	212	169	Space Between Tie Bars	mm	1200x700
Shot Volume	cm3	905	1128	1414	204	264	332	Maximum Daylight	mm	1430
Shot Weight (PS)	g	832	1038	1301	187	243	306	Mold Thickness (Min-Max.)	mm	320-800
Iniection Rate	cm3/s	293	365	458	106	137	173	Ejector Stroke	mm	150
	g/s	270	336	421	91	126	159	Ejector Force	kN	110
Injection Stroke	mm		320			200		No. Of Ejectors		5+5
Injection Speed	mm/s		104			104		Turntable Diameter	mm	Φ1300
Screw Rotation Speed	rpm		190			220		Max. Usable Turntable Diameter	mm	Φ1350
Power Pack								Distance Between Injection Points	mm	650
System Pressure	Mpa		17.5			17.5		Others		
System Power	kW		59.7			18		Machine Dimensions	m	9.2x2.6x2.6
Heating Capacity	kW		26.5			11.3		Oil Tank Capacity	l	800
Temperature Control Zone			5			5		Machine Weight	t	29