

 **CHEN HSONG**

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DM III

Gen-3 Multi-Mat Solution

168-568 Ton

CHEN HSONG

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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
200+ Patented technologies
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



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

65
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



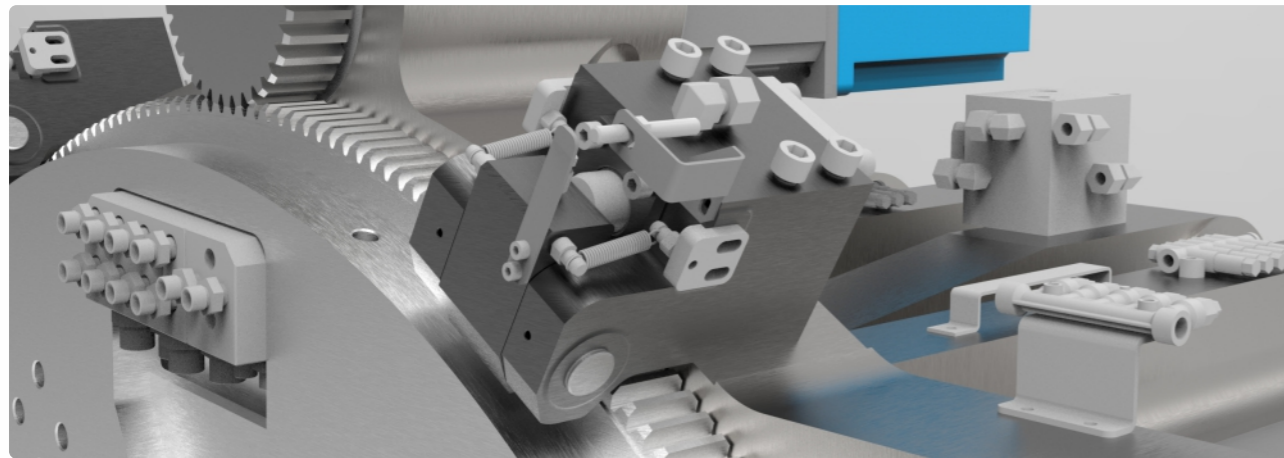
65 years of focusing on nothing but injection moulding technology – professionalism and technical capabilities you can trust.

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

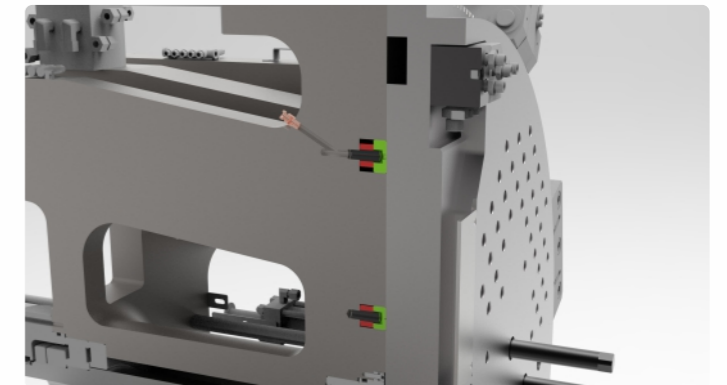
Under normal operations, the turntable of a multi-mat machine is under constant downward stress from the weight of the moulds, which always threatens to increase friction to turntable components, increasing wear and reducing precision over time, unless alleviated by proprietary support structures such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

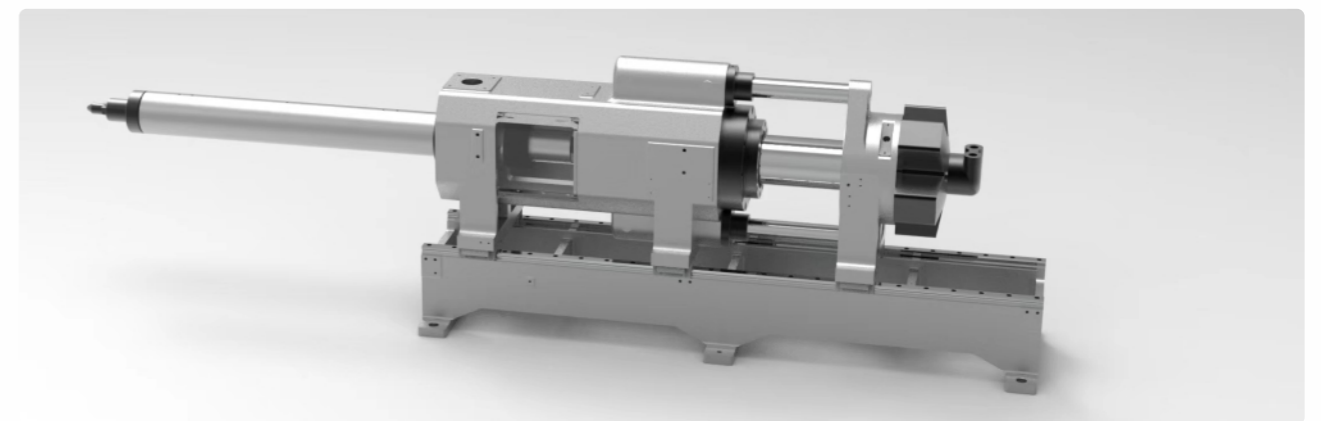


Proprietary technology that works:

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.

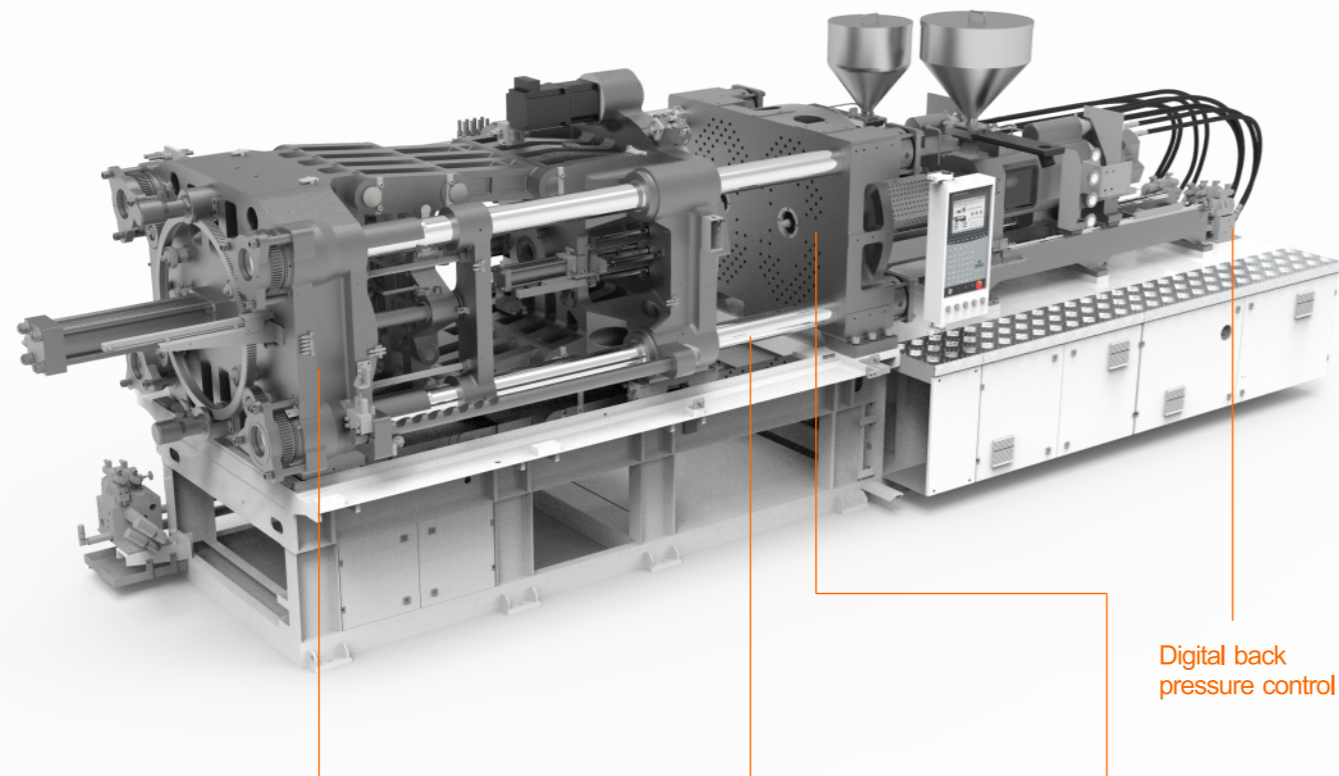


	DM III	Competition A	Competition B
Injection Cylinders	Patented relief mechanism	Regular design	Regular design
Pros/Cons	No oil leaks, higher precision, higher yields	Tough tolerances, easy oil leaks	Tough tolerances, easy leaks

Reliability at the core

Five professional components

01 Professional Specification Upgrades



Strengthened tail platen and enhanced toggle design

Enlarged space between tie bars (268T)

Enlarged maximum mould thickness (168-268T)

Digital back pressure control

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.

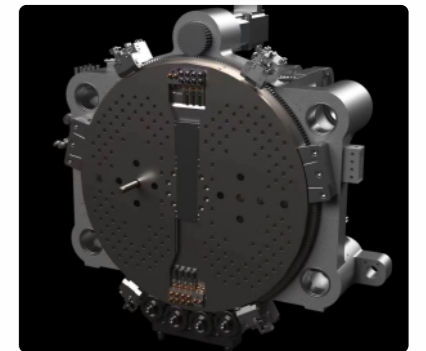


Model	JM168-DM III	JM268-DMIII	JM398-DM III	JM568-DM III	Competition
Cooling Channels	1 in 1 out	1 in 1 out	2 in 2 out	4 in 4 out	1 in 1 out
Diameter	DN10	DN10	DN10	DN10	DN15
Material	Steel-meshed high-temperature Teflon				Regular rubber, not resistant to high temperature

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

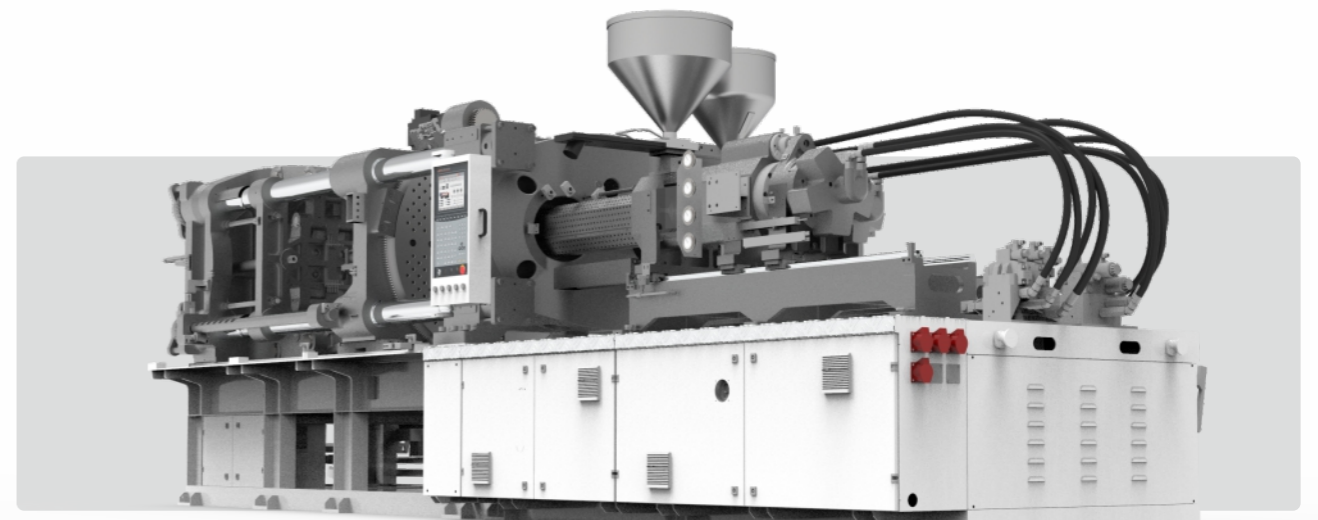
Fast – low friction enables higher speeds and better control

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

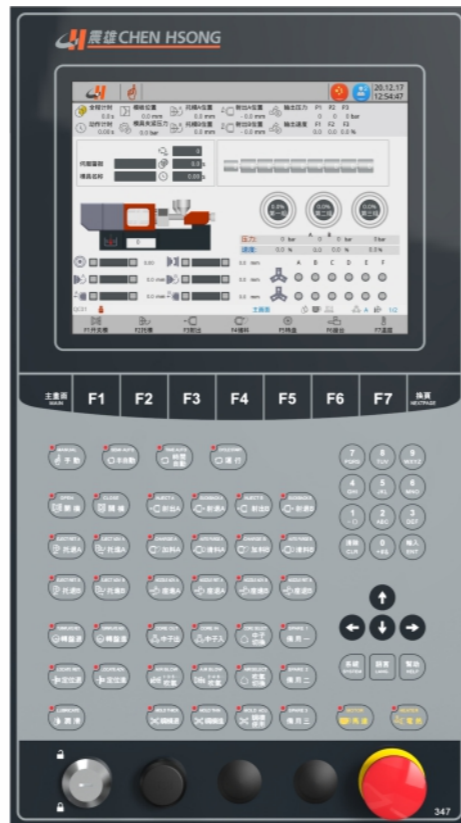
01 Gen-3 Proprietary Multi-Mat Advanced Controller

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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Difficult to program and enhance 2. Similar to DM III 	<ol style="list-style-type: none"> 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

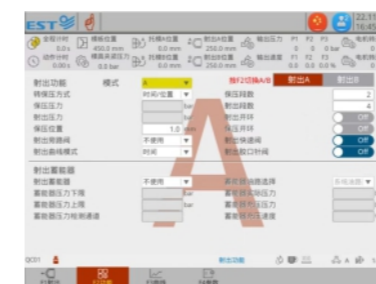
Advantages:

- 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

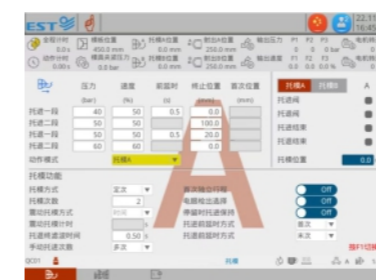
- 01 **Ease of Setup**
CANbus expandability makes it a snap to connect and control auxiliary equipment
- 02 **Multi-Mode**
A wide range of injection modes to satisfy most application needs
- 03 **Industry-Standard EtherCAT**
High-speed high-precision all-digital control bus

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

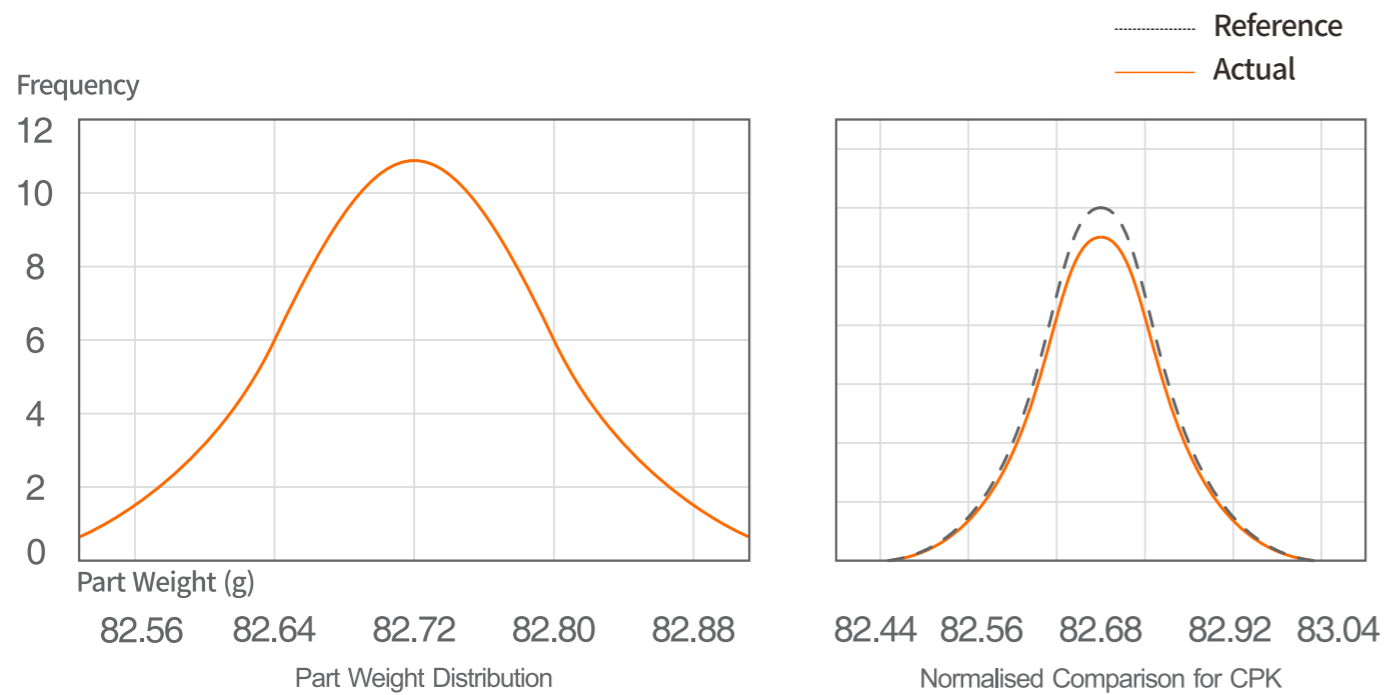
Resins: ABS + TPE

Cavities: 2

Part Weight (g): 82.7g

Part Specs: 240mmX37mm Wall thickness 3mm

Highly Responsive Dynamic Injection Control ($\pm 2\%$)



Wide Adaptability – A Machine for All Seasons

Perfect for all applications in diverse industries, meets all needs

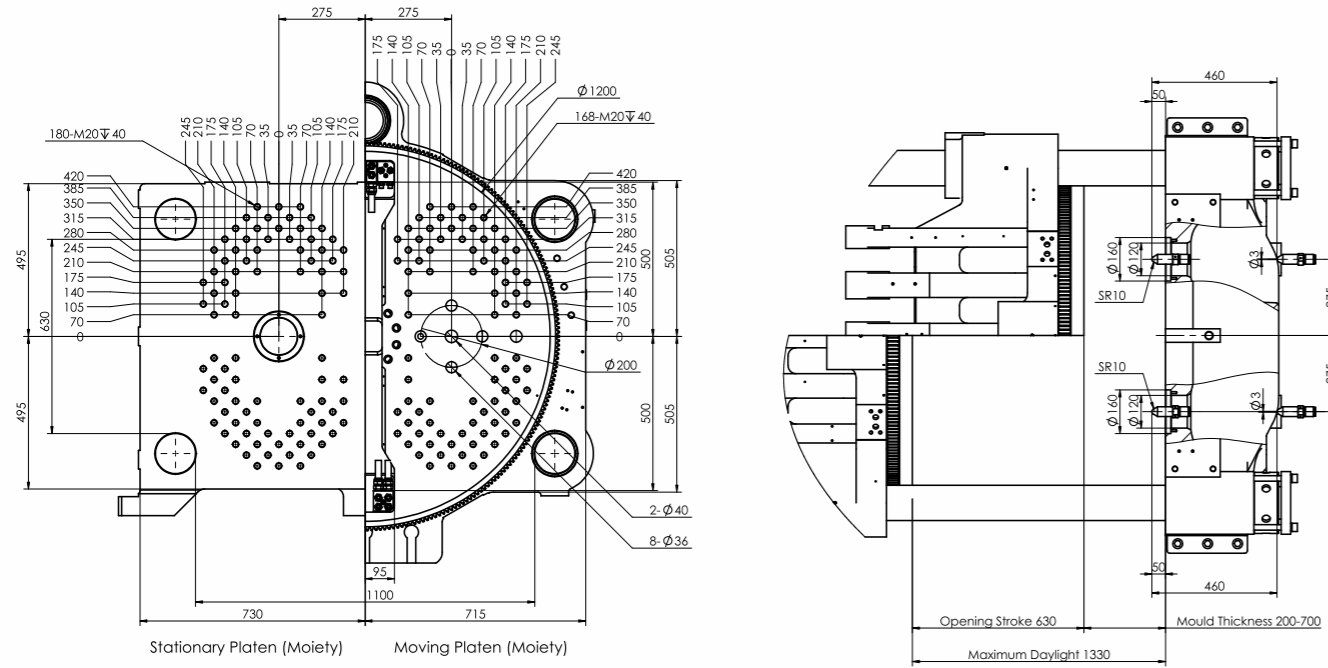
Automotive

Electronics

Optics

Home Appliances

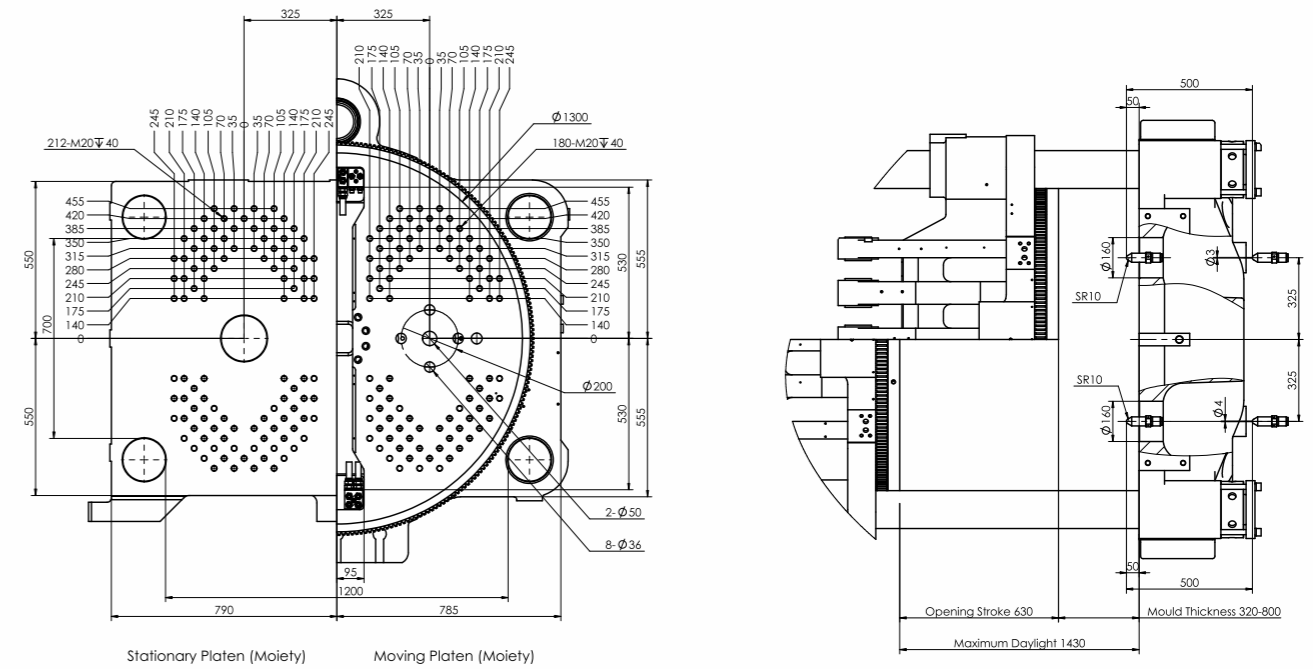
JM398-DMIII



Injection Unit	A	B	C	A	B	C	Clamping Unit		
Screw Diameter	mm	46	52	60	36	41	Clamping Force	t	398
Screw L/D Ratio	L/D	23.7	21	18.2	23.9	21	Opening Stroke	mm	630
Injection Pressure (Max.)	Mpa	251	197	148	275	212	Space Between Tie Bars	mm	1100x630
Shot Volume	cm ³	415	531	707	204	264	Maximum Daylight	mm	1330
Shot Weight (PS)	g	382	488	650	187	243	Mold Thickness (Min-Max.)	mm	200-700
Injection Rate	cm ³ /s	186	237	316	106	137	Ejector Stroke	mm	150
	g/s	171	218	291	91	126	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
							Distance Between Injection Points	mm	550
Power Pack							Others		
System Pressure	Mpa	17.5		17.5			Machine Dimensions	m	7.2x2.1x2.2
System Power	kW	29		19			Oil Tank Capacity	l	700
Heating Capacity	kW	16.6		10.3			Machine Weight	t	19
Temperature Control Zone		4		4					

*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	Clamping Force	t	568
Screw L/D Ratio	L/D	23.5	21	18.8	23.9	21	Opening Stroke	mm	630
Injection Pressure (Max.)	Mpa	249	200	159	275	212	Space Between Tie Bars	mm	1200x700
Shot Volume	cm ³	905	1128	1414	204	264	Maximum Daylight	mm	1430
Shot Weight (PS)	g	832	1038	1301	187	243	Mold Thickness (Min-Max.)	mm	320-800
Injection Rate	cm ³ /s	293	365	458	106	137	Ejector Stroke	mm	150
	g/s	270	336	421	91	126	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
							Distance Between Injection Points	mm	650
Power Pack							Others		
System Pressure	Mpa	17.5		17.5			Machine Dimensions	m	9.2x2.5x2.3
System Power	kW	57		19			Oil Tank Capacity	l	800
Heating Capacity	kW	26		10.3			Machine Weight	t	29
Temperature Control Zone		5		5					