



SUMITOMO ALL-ELECTRIC INJECTION MOLDING MACHINE for PRECISE MICRO PARTS



◆ Sumitomo Heavy Industries, Ltd.

INNOVATION

The most advanced technology for compact molding systems is realized by the Sumitomo All-Electric Molding Machine for Precise Micro Parts.



Most micro parts require extremely high quality, where product mass consistency of less than 1mg and dimension tolerance of just a few microns. Higher yields and high productivity with multiple cavitation are also required. To meet these needs, Sumitomo recommends the new SE7M, the machine dedicated for these applications.

SE7M

C12

The Second Generation Direct Drive (DD) Mechanism Patent Standard Equipment

The injection unit with the second-generation DD developed for the SE-D series is combined with the improved servo control system, ensuring super-high precision and high response required for molding of most micro parts.

The improved screw of small diameter (ϕ 14) design with proven results realized super-high precision and highly stable plasticizing.





Micro Part advances to

The SE7M model develop molding of micro parts featu design and mechanism to e high accuracy and high stabil



SF7

Super-high

Precision Molding

Examples of LCP-molded small electronic parts (0.5g-weight)



High Precision Center Press Platen (CPP) Patent Standard Equipment

The compact machine with enhanced frame rigidity has its platen parallelism improved by 2 times that of conventional compact machines. The CPP developed for the SE-D series has been improved to meet the size of small molds.



s Molding d a New Era.

ed for the most advanced res the servo control, screw ensure super-high precision, ity of molding.





Fast Cycle Mold Clamp Unit

The industry's highest platen speed of 1000mm/sec. reduces the mold opening/closing time to less than 1 sec. at full stroke.





Wide Platen



Standard Equipment

Optional Equipment

Standard Equipment

The tie bar space designed to load larger molds and the Daylight (300mm) to meet the needs of 3-plate molds provide a potential to handle multi-cavity moldings.





USB interface

- SE7M can store 200 molding conditions in machine. Moreover you can store molding conditions by USB memory.
- •You can save screen copy, logging data, setting list and so on in USB memory. You can make reports more easily.
- You can take print-outs of screen, logging data, setting list and so on by using USB printer^{*}. (*PCL3 control code is required.)



Molding process

iii-System Standard Edition [Intelligent Information for Injection]

- Operating status indication Overview of the operating status of molding machines
- Quality monitoring Check on the quality of molding machines
- Control of molding conditions Control of the preset molding conditions
- History of molding conditions Logging of changes of molding conditions
- History of alarms Logging of alarm symptoms in molding machines

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%iii-System can communicate with 50 machines by LAN.

Standard Components (for Molding of Micro Parts)

Inj	ection	Unit

Wear & corrosion resistant screw assembly II
Zone I high capacity heater
Temperature controlier for nozzle
Water cooling jacket temperature control device
Synchro-plast control
Flash Speed Mode
SK-control
High efficiency nozzle contact
Filling mode
High resolution of displayed and setting for fill time
Pressure control during plasticizing delay

Mold Clamp Unit

Pneumatic ejector
Ejector plate retun signal (Input signal for molding machine) Connecting by metal concent
Multi-toggle
Ejector protrusion during mold closing
Multi-action ejector
Supervising Unit and Others
Heater band burnout monitor
Purging temperature
Nozzle heater delay control
Temperature lowering timer
Temperature control screen

Standard Components

Injection Unit
Protective purge shield (with limit switch)
Pull back delay control
Water cooling jacket temperature control device
Mold Clamp Unit
Ejector remote control (speed, stroke and pressure)
Moving platen support (Sliding type)

Automatic centralized greasing device

Interlock for ejector (In manual operation, only the mold open limit is available)

Supervising device and Others
Product quality control device, production quantity control
Printer connection circuit
Take-out robot connection circuit
USB connection circuit (printer, memory)
All-in-one setting screen
Signal output for machine condition (1ch)
Automatic centralized greasing device

Options

Monitoring device and Other

Injection Unit
High-temperature screw assembly (Max. temp. 450°C)
Connector-use screw assembly
SK screw tip (Material : STD, MK, TiN)
3-point connector-use screw tips
FTC I nozzle
LCP-dedicated nozzle
High capacity heater
Heating cylinder cover with heat insulator
Standard type hopper
V/P switchover by mold cavity pressure
FTC nozzle electric control circuit
High temperature heater control circuit (Max. temp. 499°C)
Plating resin inlet of cooling water jacket
Mold Clamp Unit
Temporary stop of mold opening/closing
Electric circuit for connection ejected product sensor
Product chute
High precision heat insulating plate (5mm)
Mold close and mold opening signals (Spear control signal) No-voltage dry contact
60ϕ attachment metal fitting correspondence

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Leak circuit breaker (AC200V, 220V 3Ø3W+E Japan and Asia only)
Mold temperature monitor 2 zone (without thermocouple and type K)
Auxiliary facility monitor
Analog circuit output for molding profile
Production control (Stocker feed signal)
Production control (2-direction rejection chute)
Mold temp. controller
Automatic starting system
Revolving alarm lamp
Multi fanction 3 colors LED alarm lamp
External memory card (SPACEII) molding conditions device (with 1 card)
4-Lines closed circuit cooling water piping connection (with flow detector, stop valve)
PC connection circuit (RS232C)
Electric power supply socket
Electric power supply socket for tools (with transformer)
Stop valve and filter for cooling water
Lock-up key-switch for data input
Flow indicator and stop valve (For closed-circuit type mold cooling water connection, 2 lines)
Signal output for machine condition (5ch)
iii-System Standard Edition

*Specifications subject to change without notice for performance improvements. *The export of this product for use for or in development and / or production of massive destruction arms and weapons (nuclear weapons, biological weapons, chemical weapons, missiles) or the export of this product to any person, party or corporation engaged or involved in the development and / or production of above described goods is subject to the authorization of the Japanese government pursuant to Foreign Exchange and Foreign Trade Control Law.



Connector-use Screw Assembly

The screw assembly is connector-use for long stability of molded products.



3-point SK screw tips Patent pending With SK control, plasticizing stability is enhanced and resin density compensation function ensured shot to shot consistency.



FTC I nozzle With its unique design, material saving and the shorter cooling time can be realized and hence, fast cycling and molding stability resulted.

Main Specifications

Clamping Unit			
Mold clamping system		Double-toggle system	
Maximum mold clamping force	kN {tf}	69 {7}	
Tie-bar interval (H x V)	mm	182×155	
Platen dimension (L x W)	mm	275×255	
Daylight	mm	300	
Mold open/close stroke	mm	130	
Mold space (Min Max.)	mm	110~170	
Ejector type		Electric type (1 point)	
Ejector ejection force	kN {tf}	5 {0.5}	
Ejector speed	mm/s	200 max.	
Ejector stroke	mm	30	
1. The maximum injection pressure and hold pressure are calculated values, which are the outputs of the machine, but not the resin pressures. 2. The maximum injection pressure and hold pressure are no pressures that can be generated continuously. 3. The injection capacity is a value with the SD screw installed. 4. The total length of the machine is the value measured up to the advance position of the injection unit with a smallest screw installed. 5. The value in (1) is given for reference. 6. Specifications subject to change without notice for performance improvement. 7. The dimensions are Japanese specification.			

Inie ction Unit Screw diameter 14 mm 196 {2000} Maximum injection pressure MPa {kgf/cm²} Maximum hold pressure MPa {kgf/cm²} 196 {2000} Theoretical injection volume 62 cm³ 5.9 q Injection weight (GPPS) ΟZ 0.2 Plasticizing capacity 3.3 kg/h Injection rate cm³/s 46 Injection speed mm/s 300 Screw rotation speed rpm 300 Mechanical Dimension & Weigh $Dimensions(L \times W \times H)$ 1973×742×1482 mm Weight 0.9 t





0.0

Ejection start position

M8 screw depth17

Stroke

6- \$\phi 10H8 depth15

8-M6 screw depth12

7

6-ø10H8 depth15

70±0.02

80±0.02

B

8-M6 screw depth12

h

70±0.02

80±0.02

125 200

240

100±0.02

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Global N	letwork	
	Czech/Slovakia—	
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Sun Sun	muusines, Lu	J.
Indus	trial Machinery Segment, Plastics Machinery Di	v.
🔵 ΤΟΚΥΟ	Sumitomo Heavy Industries, Ltd. Industrial Machinery Segment, Plastics Ma	chinery Div., Global Sales Dept.
_		Tel:+81-3-6737-2576
CHIBA	Sumitomo Heavy Industries, Ltd. Chiba Works / Technology Center	Tel:+81-43-420-1471
U.S.A.	Sumitomo (SHI) Demag Plastics Machinery North America, Inc. Atlanta Office	e / Technology Center
	Construct (CUI) Down Diation Marking Mark Annuise Land Charles of C	lel:+1-//0-44/-5430
	Sumitomo (SHI) Demag Plastics Machinery North America, Inc. Cleveland Of	
	Sumitama (SHI) Damag Plactics Machinery North America, Inc., Chicago Offi	101.+1-440-670-6900
	Sumitomo (Shi) Demag Plastics Machinery North America, Inc. Chicago Oric	
	Sumitomo (SHI) Demag Plastics Machinery North America, Inc. Anabeim Off	ce / Training and Demo Center
	SHI Plastics Machinery de Mexico S & DE C V Monterrey Office	Tel:+52-81-8356-1714 -1720 -1726
	SHI Plastics Machinery de Mexico, S.A. DE, C.V. Homenerey Office	Tel:+52-477-179-1730
BRAZIL	Sumitomo (SHI) Demag do Brasil Comercio de Máguinas para Plásticos Ltda.	Tel:+55-11-4403-9286
GERMANY	Sumitomo (SHI) Demag Plastics Machinery GmbH (Schwaig)	Tel:+49-911-5061-0
	Sumitomo (SHI) Demag Plastics Machinery GmbH (Roßleben-Wiehe)	Tel:+49-34672-97-0
UNITED KINGDOM	Sumitomo (SHI) Demag Plastics Machinery (UK) Ltd.	Tel:+44-1296-739-500
FRANCE	Sumitomo (SHI) Demag Plastics Machinery (France) S.A.S.	Tel:+33-1-60-33-20-10
SPAIN / PORTUGAL	. Sumitomo (SHI) Demag Plastics Machinery España	Tel:+34-96-111-63-11
POLAND	Sumitomo (SHI) Demag Plastics Machinery Polska Sp. z o.o.	Tel:+48-34-370-95-40
AUSTRIA	Sumitomo (SHI) Demag Plastics Machinery GmbH (Branch Austria)	Tel:+43-664-2311357
HUNGARY	Sumitomo (SHI) Demag Plastics Machinery Hungária Kft	Tel:+36-70-332-7869
ITALY	Sumitomo (SHI) Demag Plastics Machinery (Italia)	Tel:+39-011-95-95-057
RUSSIA	JSC Sumitomo (SHI) Demag Plastics Machinery	Tel:+7-495-937-97-64
CZECH / SLOVAKIA	Sumitomo (SHI) Demag Plastics Machinery Česko spol. s.r.o.	Tel:+420-296-226-210
IRELAND	Sumitomo (SHI) Demag Plastics Machinery Ltd.	Tel:+353-86-8254731
SHANGHAI	SHI Plastics Machinery (Shanghai) Ltd.	Tel:+86-21-3462-7556
	SHI Plastics Machinery (Shanghai) Ltd. Dalian Office	Tel:+86-411-8764-8052
	SHI Plastics Machinery (Shanghai) Ltd. Tianjin Office	Tel:+86-22-5871-5537
	SHI Plastics Machinery (Shanghai) Ltd. Suzhou Office / Technical Center	Tel:+86-512-6632-1760
	Ningbo Sumiju Machinery, Ltd.	
	Dengguan SHI Plactics Machinery (Mingbo) Co., Ltd.	101 + 80 - 574 - 2090 - 0000
	SHI Plastics Machinery Ital	101 + 80 - 709 - 6000 - 7000
	SHI Plastics Machinery (Taiwan) Inc.	Tel:+886-4-2358-7334
	SHI Plastics Machinery (Karoa) Co. Ltd	Tel + 82-2-757-8656
KOREA	SHI Plastics Machinery (Korea) Co., Ltd. Southern Office	
SINGAPORF	SHI Plastics Machinery (S) Pteltd_/Technology Center	Tel:+65-6779-7544
	SHI Plastics Machinery (Thailand) Ltd. / Technology Center	Tel:+66-2-747-4053, -4054, -4055, -4056
	SHI Plastics Machinery (Thailand) Ltd. South Office	
MALAYSIA	SHI Plastics Machinery (Malaysia) SDN BHD	Tel:+60-3-7958-2079, -2081
	SHI Plastics Machinery (Malavsia) SDN BHD Penano Office	Tel:+60-4-604-397-5725
VIETNAM	SHI Plastics Machinery (Vietnam) LLC	Tel:+84-24-3728-0105
	SHI Plastics Machinery (Vietnam) LLC Ho Chi Minh Branch	Tel:+84-8-3514-6645
INDONESIA	PT. SHI Plastics Machinery (Indonesia)	Tel:+62-21-829-3872, -3873
PHILIPPINES	SHI Plastics Machinery (Phils) Inc.	Tel:+63-2-8845-0877, -8844-0632
INDIA	SHI Plastics Machinery (India) Private Ltd.	Tel:+91-124-2217056, -64
	SHI Plastics Machinery (India) Private Ltd. Chennai Office	Tel:+91-124-2217056, -64

The machines in this series have acquired IIS B 6711:2021 (equivalent to ISO 20430:2020) certification.

We support the enhancement of our customers' corporate value through providing high performance, high quality, and safe injection molding machines.

www.shi.co.jp/plastics/

