SE7M
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.

SE7M

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.
Micro Parts Molding advances to a New Era.

The SE7M model developed for the most advanced molding of micro parts features the servo control, screw design and mechanism to ensure super-high precision, high accuracy and high stability of molding.

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

High Precision Center Press Platen (CPP)

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.

Fast Cycle Mold Clamping 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

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.

Three-directional Take-out

The super-compact 34-electric molding machine is designed to have a molded product drop space and three-directional take-out outlet. The machine is also designed to allow the peripheral equipment such as a mold temperature controller and a conveyor to be built in.

Variety of Applications

Main standard specifications
- Synchronous plasticizing
- Flash mode
- SK control software
- High-performance nozzle touch
- Filling mode
- Main options
  - Connector-use screw assembly
  - 3-point SK screw tips
  - FTC nozzle
  - LCP-dedicated nozzle

Man-machine Interface

The newly developed man-machine controller is configured as an easy-to-operate control system based on the most up-to-date technology and integrated in a 10.4-inch touch-panel LCD.

- One-touch changeover of language display
- The 3-language, Japanese, English and Chinese, selection for display is a standard.
- Memory card interface (SD/SDHC)
- The optional interface is available for storage of additional molding conditions in addition to the standard internal memory (500 sets of conditions).
- Compatibility with PX
- The machine is provided with the Ethernet interface as a standard function, allowing easy connection to the i-system (production quality control system).
Standard Components for Molding of Micro Parts

Injection Unit
- Corrosion and wear resistant 2 screw assembly
- High-capacity Zone 1 heater
- Temperature control for water-cooling cylinder
- Temperature control for cooling water

Injection Mechanism
- Independent temperature control for nozzle assembly
- Injection and mold temperature

Injection Characteristics
- Nozzle temperature
- Nozzle heat-up delay

Mold Clamping Unit
- Air ejector
- Mold plate retent confirmation
- Multi-touch
- Ejection operation during mold clamping
- Multi-electrodes

Supervision and Others
- Abnormality supervising unit (heater break)
- Abnormality supervising unit (mold temperature)
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Standard Components

Automatic pressing unit
Ejection unit
Non-operation side emergency stop pushbutton
Reinforcing Screw, Oil-Chute
Molded product supervision function and automatic production stop
Primer connection circuit
Overall screen
Molding machine condition output function (one-channel output)

Options

Injection Unit
- High temperature specified screw assembly
- Connector-use screw assembly
- 3-point SK screw tips
- 3-point connector-use screw tips
- FTC 1 nozzle
- LCP dedicated nozzle
- High-capacity heater
- Heating cylinder cover with heat insulator
- Standard-type hopper
- VIP changeover (mold internal pressure)
- Electric control circuit for FTC nozzle
- High temperature heater control circuit

Reinforcing Screw, Oil-Chute
- Hopper mini plunger

Electrical Facilities
- Ejector (remote control of speed and stroke)
- Connection circuit for product take-out unit
- Moving plate support mechanism

Monitoring device and Others
- Monitor (Leakage detected)
- Monitor (Mold temperature)
- Monitor (Fire detector)
- Monitor (Auxiliary device)
- Oscillograph analog output circuit
- Production control unit (shuttle load signal)
- Production control unit (2-Direction Chute)
- Automatic mold temperature controller
- Automatic mold temperature controller
- Relieving alarm light
- 2-color signal indicator
- Space II id unit
- Closed circuit type 4-loop cooling water connection
- Process control interface circuit
- Spare power socket
- Tool power socket
- Cooling water with stop valve and filter
- Key switch to prohibit change of settings
- Flow measuring/valve (for closed circuit type 2-loop cooling water connection)
- Molding machine status output function (3-channel)

Foundation Plan

Mold Mounting Diagrams

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

PTC nozzle
- With its unique design, material ejection and the shorter cooling time can be realized and nicks, line cracking and molding stability resulted.

Main Specifications

Clamping Unit
- Mold clamping system: Double-stage system
- Maximum mold clamping force: 350 (kN)
- Tie-bar dimension (W1 x L1): 120 x 180
- Platen dimension (W x D): 275 x 265
- Daylight: 300
- Mold opening stroke: 150
- Mold spacing (Min. - Max.): 150 - 170
- Ejector type: Electric type (1 point)
- Ejector ejection force: 5 (kN)
- Ejector speed: 200 max.
- Ejector stroke: 20

Injection Unit
- Screw diameter: 14
- Maximum injection pressure: 196 (MPa)
- Maximum mold temperature: 190 (°C)
- Theoretical injection volume: 6.2
- Injection weight (SPS): 5.0
- Plasticizing capacity: 3.3
- Injection speed: 300
- Screw rotation speed: 300
- Screw rotation angle: 360

Dimensions
- Machine (L x W x H): 1967 x 742 x 1482
- Weight: 10