Energy Saving, Highly Performed, Most Reliable AI Electric Injection Molding Machine

FANUC ROBOSSHOT S-2000i

5A/15A/30A/50A
100A/150A/250A/300A
50AR/100AR
Energy Saving, Highly Performed, Most Reliable
AI Electric Injection Molding Machine

FANUC ROBOSHOT S-2000i series

The FANUC ROBOSHOT S-2000i series is the AI electric injection molding machine for the 21st century that incorporates the new injection unit as well as the advanced control with dedicated servo system, so as to extend performance in precision molding.

New Injection Unit
- **High response injection**
  - High-response injection through the advanced mechanical unit with the up-to-date servo system
- **Optimal screw cylinder**
  - Optimum screw cylinder selection for a variety of molding materials
- **High precision temperature control**
  - Temperature variations within 0.2°C

Advanced Control
- **High precision molding with high-speed injection control**
- **Superior operation**
  - 12.1-inch large-size display with new MDI

Integration with the Molding Part Unloader SR Mate S-2000i50AR/100AR
- **Integration with the ROBOSHOT**
  - Transport as a single unit/Back up settings with Roboshot settings
- **High-speed unloading**
  - Use of the double-speed mechanism on the upper or lower axis
- **Outstanding operability**
  - Special operator’s panel using a touch panel

Intelligence
- **Stable molding with molding knowhows**

Robotization
- **Systematization of the molding process**

Networking
- **Information and communication**

Expertise at FANUC
- Over 300 patents on electric injection molding machine

Excellence of Reliability
- Rigid mechanical structure
- Controlled by the FANUC Series 180i-IB
- Servo control system exclusively developed

Superior Safety
- Conformance on the most safety standards for Japan, North America and Europe

Outperformed Energy Saving
- Significant energy saving

Management Conformance
- ISO9001 certified
- ISO14001 certified

The 16th MITI award on superior energy saving
Advanced intelligence

**AI mold protection**
Upon detecting an abnormal load during clamping, this function brings clamping to an abrupt stop, thereby protecting the mold from breakage. With its three mold protection detection levels, this function can be applied to the detection of mold guide pins and slide core failures, in addition to the detection of remaining moldings.

**AI ejector**
This function detects the molding parts separation force at ejected, and brings instant stop of the ejection in the circumstance error. In addition to protecting the eject pin from breakage, it can be used to monitor the quality of moldings.

**AI pressure profile trace control**
AI pressure profile trace control features to control injection packing process by tracing the recorded pressure profile on optimal molded piece. The exact profile tracing closer to the best profile realizes stable production of pieces under the same technical conditions. The pressure profile edit allows directly to edit pressure profile visually to modify molding conditions through the ROBOSHOT screen.

**AI metering control**
The AI metering control stabilizes transferring resin with optimal metering through control of screw speed to enable smooth resin flow and to avoid excess pressure. The AI metering control together with the AI pressure profile trace control gives further stabilization on mold pieces.

SR Mate is an all axes servo driven unloader which is integrated in the ROBOSHOT. This unit is built into the ROBOSHOT before shipment, so mounting, wiring, and positioning are not required during installation of the unit.
- Height of the mechanical unit is minimized. SR Mate can be used at low ceiling place.
- Parts can be transferred to ROBOSHOT operation side.
- The double step acceleration mechanism at part unloading arm achieved high speed unload motion in the die.
- Exclusive teach pendant with touch panel is available. Communicative interface with graphical drawings enables easy setup.
- SR Mate operational settings and ROBOSHOT molding conditions can be collectively saved on a memory card.
New Injection Unit

To meet the needs for higher precision of moldings, FANUC has considerably improved the performance of the injection unit. The new injection unit offers the highest molding performance through the advanced mechanical unit as well as the advanced control system with dedicated servo system.

High-response and high precision injection

Low-inertia injection mechanism

In the injection unit, FANUC’s compact, high-output, and advanced servo motor i series has been adopted. The new injection mechanism that reduces the inertia to half that of conventional ones has also been adopted. Quick response, combined with excellent stability from low-speed to high-speed range, ensures the highest performance in a wide variety of molding fields.

High precision metering

Optimal screw cylinder

The optimum combination of screw cylinder material and shape can be selected in accordance with the resin characteristics and the molding application. High precision optical components with transparent polyolefine and a screw cylinder nozzle for molding precision connectors have been newly added.

High precision metering control

Suppresses variations of the resin pressure at the end of metering to stabilize the metering density. The control function is effective when metering is made at middle- or high-speed revolutions or when molding is performed using resin that is likely to cause metering variations.

High precision temperature control

High precision temperature control

A newly developed high precision temperature control board can reduces temperature deviations within ±0.2° or less. Strict temperature control improves molding stability.

Synchronous temperature rise function

This function prevents resin burning and hydrocarbon generation inside the nozzle during temperature rise by setting the temperature rise time for the heater zone in which temperature rise is likely to be completed soon, such as a nozzle. Improvement in temperature rise control has resulted in reduction in temperature rise time to 2/3 that of conventional machines.
Advanced Control

High precision molding with high-speed injection control

Advanced CNC Series 180iS

- High precision
  FANUC’s advanced CNC Series 180iS-IB realizes high speed and high precision control. Stability of molding performance is enhanced by reducing deviation of peak injection pressure.

- Various interfaces
  Interfaces for various peripheral devices come standard.
  - Memory card slot
  - Ethernet
  - USB*
  - RS232-C*
  * Not standard interfaces for the S-2000i5A.

Superior operation

12.1-inch large-size display

12.1-inch large-size LCD has been adopted. The soft background color and the clear Gothic character display improves the ease of viewing the screen. The quicker display four times over FANUC’s conventional LCDs prompts ease of see, with quick switching with a new MDI keyboard.

Support for high-precision molding

High rigid toggle mechanism

The low-inertia and high torque servo motor with superior response is equipped with the new unique 5-point toggle mechanism (RDP 5-point toggle). This configuration provides excellent performance for high cycle molding.

S-2000i100A High-speed injection model

The S-2000i100A high-speed injection specification model provides a maximum speed of 800 mm/s (2.4 times higher than conventional model) and an acceleration 1.7 times higher than conventional model. This model delivers the maximum performance in high-speed, high-pressure molding such as thin-walled molding when used with a high-pressure-resistant cylinder.

S-2000i50AP High precision clamping specification model

The S-2000i50AP is a model for high precision clamping specifications, which introduces a ball spline as the tie-bar of the clamping mechanism. By fully using state-of-the-art technologies such as a high-stiffness base frame and the nozzle touch bending prevention mechanism, the model realizes high precision die plate parallelism required for lens molding and other precise applications.

Recommended specifications for each molding type

- Recommended specifications for lens molding
  - Special screw cylinder (for PC, PMMA/for COP)
  - High precision temperature control
  - Synchronous temperature rise function
  - High precision clamping specifications

- Recommended specifications for connector molding
  - Special screw cylinder (for PA, PBT, PPS/for LCP)
  - High precision temperature control
  - Synchronous temperature rise function
  - High precision injection speed switching function
  - High precision metering control
  - Constant injection rise acceleration control
Resin Characteristics Evaluation System

- **Resin flow coefficient measurement**: Resin flow coefficient measurement is automatically performed in the sequence programmed in ROBOSHOT in advance.
- **Resin database**: In the resin database, data for resin quality control, such as resin flow coefficient and molding temperature can be stored, and know-how for resin can be accumulated. (MOLD 24i)
- **Comparison of data for resin lots**: Any variation in flow coefficient among resin can be confirmed in a graph displayed. As significant variations, the graph can be used for the index to adjust molding conditions. (MOLD 24i)
### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>S-2000i6A</th>
<th>S-2000i8A</th>
<th>S-2000i50A</th>
<th>S-2000i50A/80A+</th>
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<td>Ejector point Ejector stroke</td>
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<td>Screw diameter</td>
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Note1: Order the special cover option for the screw of 14.
Note2: 20 is available only with S-2000i50A.