High-performance, high-reliability and high-productivity electric injection molding machine

FANUC

ROBOSHOT α-SiA series
High-Performance of Molding

- Precision and stable molding
- Highly-Rigid and Low-Friction Mechanism
- Additional Servo Axis Control

High-Sustainability

- High-Reliability
- Minimize Downtime

Ease of Use

- Fully Enclosed Cover Style
- Conformity to Safety Standards
- Robot System

Highly-Rigid and Low-Friction Mechanism
Additional Servo Axis Control
Precision and stable molding

Applying the latest CNC & servo technology

Good combination with FANUC Robot

Electric injection molding machine achieves high quality, high reliability, and high productivity.
High-Performance of Molding

- FANUC standard CNC achieves superior molding repeatability
- Highly-rigid and low-friction mechanism achieve precision molding
- Additional servo axis control achieves extra value in molding

High-Sustainability

- FANUC standard servo system achieves high-reliability and lower energy consumption
- High-precision AI protect function minimizes downtime
- ROBOSHOT-LINKi manages product and quality information

Ease of Use

- Fully enclosed cover style achieves both safety and accessibility
- Conformity to safety standards supports molding plant globalization
- Robot system with superior interoperability

The outer view and operation differ in specifications.
High-Performance of Molding

FANUC standard CNC achieves superior molding repeatability

Backflow monitor

- Detects backflow precisely at injection start, Displays injection repeatability in graph

![Backflow monitor screen](image)

Precise metering

- Controls screw movement during metering optimally, Prevents string and silver streaking

- Eliminates backflow of resin, Stabilizes injection volume and reduces weight variation of molded products

Highly-rigid and low-friction mechanism achieves precision molding

Clamping unit

- Selectable two types of moving platen*
- Low-friction linear guided support*

Injection unit

- Adopts low-friction linear guides, Achieves smooth injection and metering motion

*Only additional servo system is offered

Standard for α-S15iA/α-S30iA/α-S50iA/α-S100iA/α-S130iA

*:Optional. Available options differ in region and model.
Additional servo axis control achieves extra value in molding (Option)

Additional servo axis control advances ROBOSHOT further

[Suitable feeding device]
- Achieves optimal amount of resin supply by feedback control, Achieves long term molding repeatability

[Servo nozzle touch]
- Controls nozzle touch force during molding cycle optimally

Promotes gas ventilation
- Reduces residue on mold surface
- Prevents wearing of screw and cylinder

Suitable feeding device

Reduces shear heating
- Prevents molding defects such as burn

Superior platen parallelism
- Achieves precise molding and longer life of mold

Additional servo axis control achieves versatile applications*
- High-speed and accuracy positioning by FANUC servo technology
- No additional control equipment required, Integrated into ROBOSHOT operation

[Unscrewing molding]
- Servo motor
- Container with screw
  Resin: PS

[Hoop molding]
- Lead frame
  Servo motor
  Resin: LCP

*Only additional servo system is offered
High-Sustainability

FANUC standard servo system achieves high-reliability and lower energy consumption

- High-efficiency servo system reuses regenerated power during deceleration of motors, Excellent energy saving performance
- Displays consumption power and regenerated power on operation screen
- Monitors power consumption including auxiliary equipments*

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High-performance servo motors
and amplifiers αi series

Consumption power monitor screen

*:Optional. Available options differ in region and model.

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High-precision AI protect function minimizes downtime

Al mold protection

- Detects remaining molded products during mold closing or abnormal sliding core motion during mold opening with high-accuracy
- Interrupts motion immediately after abnormal status detected, Protects mold and ejector pin from damage

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1. Realtime monitoring
   Monitors load of servo motors in every cycle

2. Problem detection
   Detects load deviation precisely caused by remaining molded products etc.

3. Protection
   Intermits clamp and ejector motion immediately

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Experimental example of Al mold protection by using paper cup

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Al mold protection
ON

Al mold protection
OFF

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High-efficiency servo system reuses regenerated power during deceleration of motors, Excellent energy saving performance

- Displays consumption power and regenerated power on operation screen
- Monitors power consumption including auxiliary equipments*

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Consumption power monitor screen

**:Optional. Available options differ in region and model.
**ROBOSHOT-LINKi** manages product and quality information (Optional)

- Production and quality information management tool supports larger-scale and globalization of molding plant
- Realization of traceability by molding image
- Interfaces available for EUROMAP 63 and EUROMAP 77
- Realization of preventive maintenance on machine learning

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**Product information management**
- Achieves lower cost and higher operation rate
- Monitors consumption power including auxiliary equipments

**Quality information management**
- Achieves traceability and advanced quality
- Investigates cause of failure and molding repeatability

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Visualization of production amount and operating time

Visualization of cause of failure
Ease of Use

Fully enclosed cover style achieves both safety and accessibility

High-level safety
- Fully enclosed cover style prevents contact with moving part and high temperature part with high-level safety
- Achieves compact machine dimensions

Superior accessibility
- Wide opened hopper maintenance area, Enhances accessibility

Conformity to safety standards supports molding plant globalization

Regional safety standards and multiple languages support

Multiple languages support
- Japanese / English / Chinese simplified / Chinese traditional / Korean / Thai / Vietnamese
- Indonesian / German / French / Italian / Spanish (Mexican) / Portuguese / Czech / Finnish
- Dutch / Hungarian / Polish / Danish / Russian / Turkish / Swedish

Safety requirements differ in region
Please confirm the latest safety requirements of the region where ROBOSHOT is installed.

Superior interoperability
- Wire-saving connection by high speed and reliable I/O Link
- Allows principle robot operation on ROBOSHOT screen
- “Visualization” of molding plant by ROBOSHOT-LINK

ROBOSHOT-LINK+
- Operating status of FANUC Robot Product
- Quality information of ROBOSHOT
- Status signal・Safety signal

Robot systemization example
[Automatized check・sort]
1. Precision and stable molding by ROBOSHOT
2. Automatic check and sort after parts detection by FANUC Robot

[Automatized check・insert]
1. Precision insert of parts by FANUC Robot
2. Precision and stable molding by ROBOSHOT

Precision connector
Resin : LCP

Automotive interior part
Resin : ABS

*:Optional. Available options differ in region and model.
Robot system with superior interoperability*

Superior interoperability
- Wire-saving connection by high speed and reliable I/O Link
- Allows principle robot operation on ROBOSHOT screen
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Robot systemization example

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*:Optional. Available options differ in region and model.

*：“Visualization” of molding plant by ROBOSHOT-LINK®
Application to a range of molding fields

**Thin wall light guide panel**
Decompression control at injection to packing (8 modes)
- Prevents sink marks and warpage, Achieves uniformed thickness distribution
High pressure resistance cylinder and High pressure filling mode*
- Achieves thinner wall molding by injection with ultra high pressure

**Precise lens**
Moving platen support by linear guides*
- Superior platen parallelism and straightness of clamp motion
Screw and cylinder for lens molding
- Optimized screw design and surface treatment achieves high-quality molding

**Precise connector**
Precise metering
- Reduces weight variation and eliminates stringy, Achieves long term molding repeatability
Nozzle for Liquid Crystal Polymer*
- Optimized nozzle and temperature control for LCP achieves high-quality molding, Prevents resin carbonization

**Automotive parts**
Single platen
- Expanded mold installation area, Supports magnetic clamping system
Hot runner controller (Built-in)*
- Integrated into ROBOSHOT operation, Achieves precise temperature control

**Medical parts**
Fully enclosed cover style
- Clean and quiet, Ideal for molding in clean room
Suitable feeding device*
- Prevents burn and carbonization, Suitable for molding with transparent resin

**Two components molding**
Second injection unit*
- FANUC CNC installed, operate from ROBOSHOT screen
Additional servo axis control*
- Integrated into ROBOSHOT operation, Achieves high-speed and accuracy positioning of rotary table

*Optional, Available options differ in region and model.
Decompression control at injection to packing (8 modes)
・Prevents sink marks and warpage, Achieves uniformed thickness distribution
High pressure resistance cylinder and High pressure filling mode*
・Achieves thinner wall molding by injection with ultra high pressure

Application to a range of molding fields

- Thin wall light guide panel
  - Light guide panel for smartphone
  - Resin : PC
- Precise lens
  - Camera lens for smartphone
  - Resin : COC
- Precise connector
  - Precise fine-pitch connector
  - Resin : LCP
- Automotive parts
  - Automotive connector
  - Resin : PBT
- Medical parts
  - Syringe
  - Resin : COP

*:Optional, Available options differ in region and model.
Optional, Available options differ in region and model. Refer to the “specification list” for details on the options.

Maintenance and customer support

Worldwide customer service and support
FANUC operates customer service and support system anywhere in the world through subsidiaries, affiliates and distributor partners. FANUC provides the highest quality service with the quickest response at the location nearest you.

FANUC ACADEMY
FANUC ACADEMY operates training programs on FANUC ROBOSHOT which focus on practical operations and molding know how and maintenance.

Inquiries : Oshino-mura, Yamanashi, Japan 401-0597
Phone : 81-555-84-6030   Fax : 81-555-84-5540
### Specifications

#### Clamping unit

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>150 (1tonf)</th>
<th>300 (5tonf)</th>
<th>500 (10tonf)</th>
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<tbody>
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<td>kN</td>
<td>150</td>
<td>300</td>
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<td>330/150</td>
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<td>Clamping stroke</td>
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<td>Platen size (H × V)</td>
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#### Injection unit

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<td>Screw diameter</td>
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<tr>
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### Note:
- When high filling mode is used, a special cylinder is needed. Molding conditions may be restricted depending on the screw diameter. For details, see a separate list of specifications.

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**FANUC CORPORATION**

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