

High-Reliability and High-Performance
Electric Injection Molding Machine

FANUC

ROBOSHOT α -SiB series



FANUC standard CNC and servo system installed
Electric injection molding machine achieves high-quality, high-

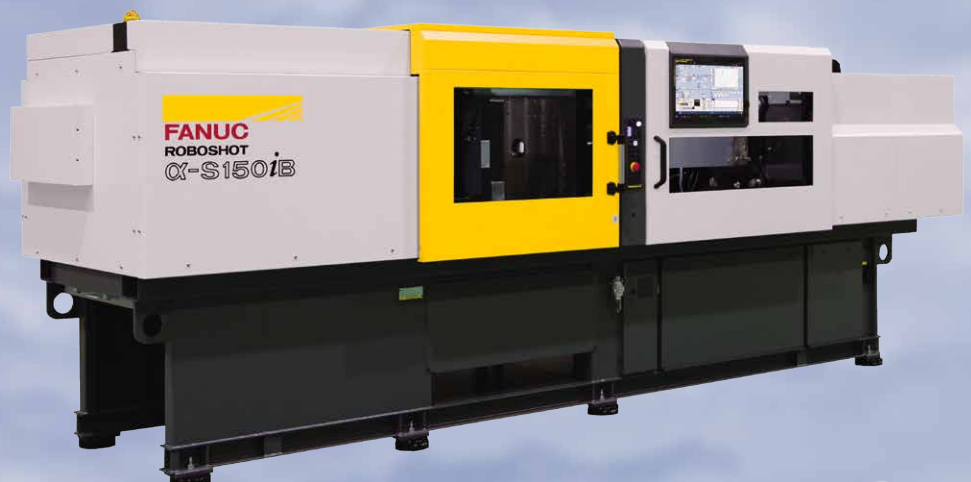
FANUC ROBOSHOT α -SiB series



ROBOSHOT α -S50iB



ROBOSHOT α -S100iB



ROBOSHOT α -S150iB

reliability and high-productivity



High-Performance of Molding

FANUC standard CNC achieves superior molding repeatability
High-rigidity and low-friction mechanism achieve precision molding
Additional servo axis control and second injection unit achieves extra value in molding

Maximizing Uptime

FANUC standard servo system achieves high-reliability and lower energy consumption
High-precision AI protection minimizes downtime
Network capability to support molding plant IoT

Ease of Use

21.5 inch large display unit achieves superior operability
Conformity to safety standards supports molding plant globalization
Robot system to promote automation of molding plant



Vertical second injection unit
ROBOSHOT SI-20A



Horizontal second injection unit
ROBOSHOT SI-300HA



Production and quality information management tool
ROBOSHOT-LINKi2



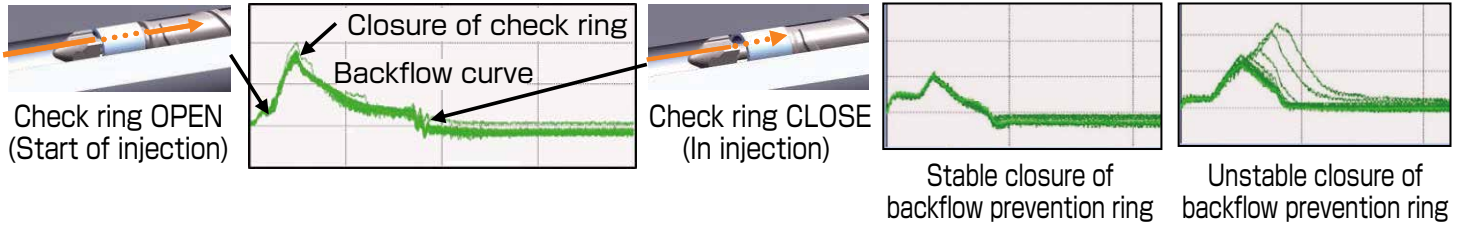
ROBOSHOT Robot package

High-Performance of Molding

FANUC standard CNC achieves superior molding repeatability

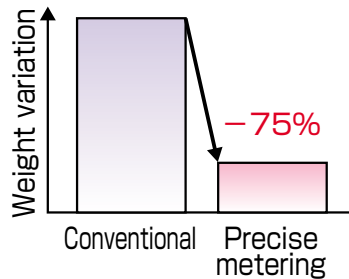
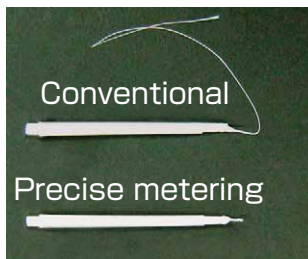
Backflow monitor

- Detects backflow precisely at injection start, Displays injection repeatability in graph
- Enables to decide replacing time of check ring and verifying stability of precise metering control

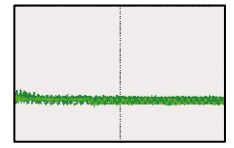


Precise metering

- 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



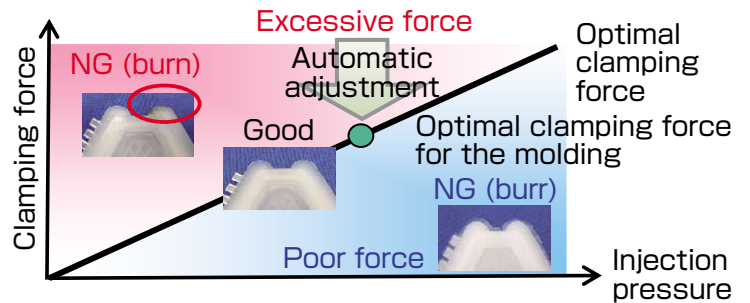
Resin : PA66



Control technology achieves high-quality and stable molding

Precision clamping force control

- Adjusts clamping force automatically to be optimal for the molding by clamping force sensor
- Prevents molding defects such as burn and burr, Reduces frequency of mold maintenance

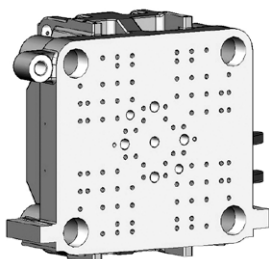


High-rigidity and low-friction mechanism achieves precision molding

Clamping unit

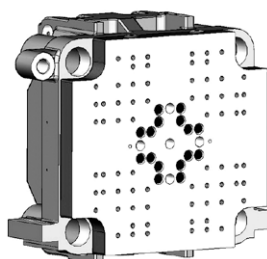
- Selectable two types of moving platen
- Low-friction linear guided support*

[Single platen]
Expands mold area



Magnetic clamping system
Three plates mold etc.

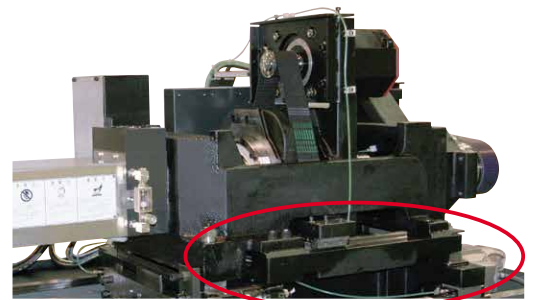
[Double platen]
Pursuits high rigidity



Multi cavities
Thin wall molding etc.

Injection unit

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



Low-friction linear guides

Standard for α -S50iB/ α -S100iB/ α -S130iB

*Optional. Available options differ in region and model.

Additional servo axis control and second injection unit achieves extra value in molding (Option)

Second injection unit

- FANUC standard CNC achieves accuracy and repeatability as same level as ROBOSHOT
- Integrated control into ROBOSHOT operation screen
(Second injection unit, Rotary table, Integrated hot runner controller)*

[Vertical second injection unit]

ROBOSHOT SI-20A*1



Mechanical unit
Control unit

*1 Available for models with ROBOSHOT S-2000iB series or later and clamping force of 50 tons or more

[Horizontal second injection unit]

ROBOSHOT SI-300HA*2



Built-in control unit

*2 Available for models with ROBOSHOT α -SiA series or later and clamping force of 100 tons or more

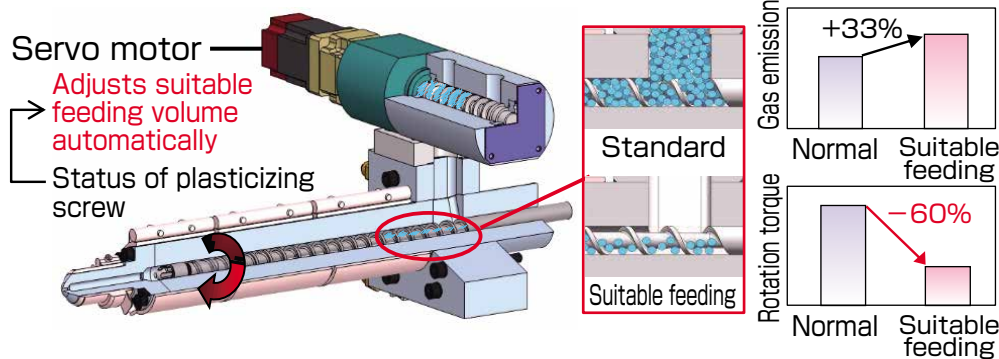
Injection unit	Item	Unit	SI-20A					SI-300HA			
			14	16	18	20	22	26	28	32	36
	Screw diameter	mm	14	16	18	20	22	26	28	32	36
	Maximum injection volume	cm ³	9	11	19	24	29	50	58	103	147
	Maximum injection pressure (High pressure filling mode)	MPa	--	--	--	--	--	340	320	270	220
	Maximum injection pressure	MPa	200	180	140	130	120	260	240	220	190
	Maximum pack pressure	MPa	180	160	120	110	100	260	220	200	170
	Maximum injection speed	mm/s	300					330			
	Maximum screw rotation speed	min ⁻¹	250					450			

Note : Molding conditions may be restricted depending on the screw diameters. For details, see the attached specification list.

Additional servo axis control advances ROBOSHOT further*

[Suitable feeding device]

- Achieves optimal amount of resin supply by feedback control, Achieves long term molding repeatability



Promotes gas ventilation

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

Reduces shear heating

- Prevents molding defects such as burn

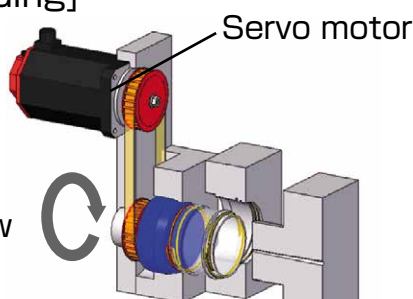
Additional axis control achieves versatile applications*

- High-speed and accurate positioning by FANUC servo technology
- No additional control equipment required, Integrated into ROBOSHOT operation

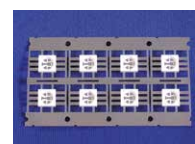
[Unscrewing molding]



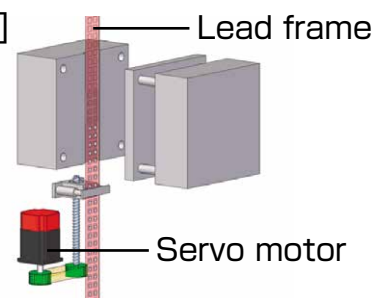
Container with screw
Resin : PS



[Hoop molding]



LED parts
Resin : LCP



*Only additional servo system will be offered

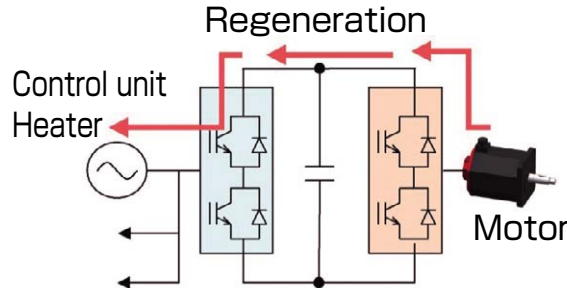
Maximizing Uptime

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

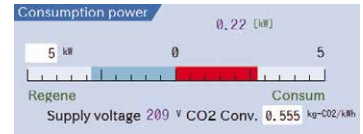
- High-efficiency servo system reuses regenerated power during deceleration of motors, Excellent energy saving performance
- Displays consumption power and regenerated power on operation screen
- Monitors power consumption including auxiliary equipment*



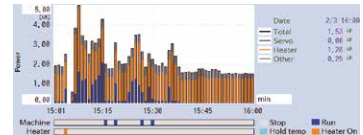
High-performance servo motors and servo amplifiers αi series



Energy saving by power source regeneration



Real-time display of consumption power and regenerated power



Consumption power history and machine status can be displayed.

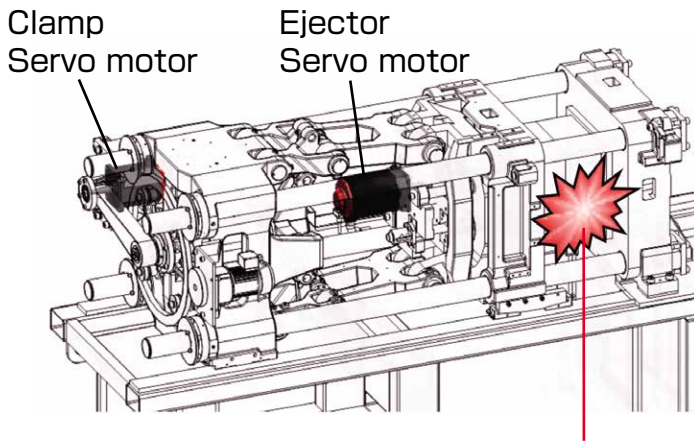
Consumption power monitor screen

*Optional. Available options differ with region and model.

High-precision AI protection minimizes downtime

AI 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
- The load deviation during mold closing and opening can be detected, automatic setting of monitoring width is available



Experimental example of AI mold protection by paper cup



AI mold protection ON



AI mold protection OFF

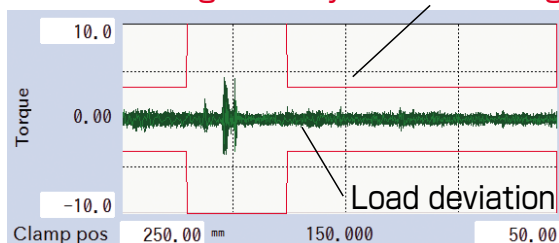
1. Realtime monitoring
Monitors load of servo motors in every cycle

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

3. Protection
Interrupts clamp and ejector motion immediately

[Manual setting of monitoring width]

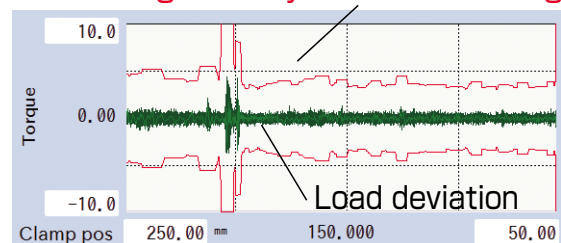
Monitoring width by manual setting



6 Depends on the experience of the operator

[Automatic setting of monitoring width]

Monitoring width by automatic setting



Optimal setting with easy operation

Network capability to support molding plant IoT

ROBOSHOT-LINKi2*

- Production and quality information management tool supports larger-scale and globalization of molding plant
- Supports Web browsers and can be displayed on various devices such as PC and tablet
- Supports communication standards (EUROMAP63, EUROMAP77) for production management system (ERP, MES)
- Display on ROBOSHOT screen (α -SiB series)

*Option



IoT of molding cell (Network between injection molding machine and peripheral devices, VNC)

VNC (Virtual Network Computing)

- Remote display and operation of the screen

Parts picker

ROBOSHOT-LINKi2

- Production and quality information management



Product image

FANUC Robot

- Remote operation from ROBOSHOT
- *iR*Vision image collection

Sensors Measuring device
Analog input
 • Input voltage or current

Mold temperature controller
 Material dryer
 Hot-runner controller

SPI OPC UA
Auxiliary communication
 • Total management of the setting value

Ease of Use

21.5 inch large display unit achieves superior operability

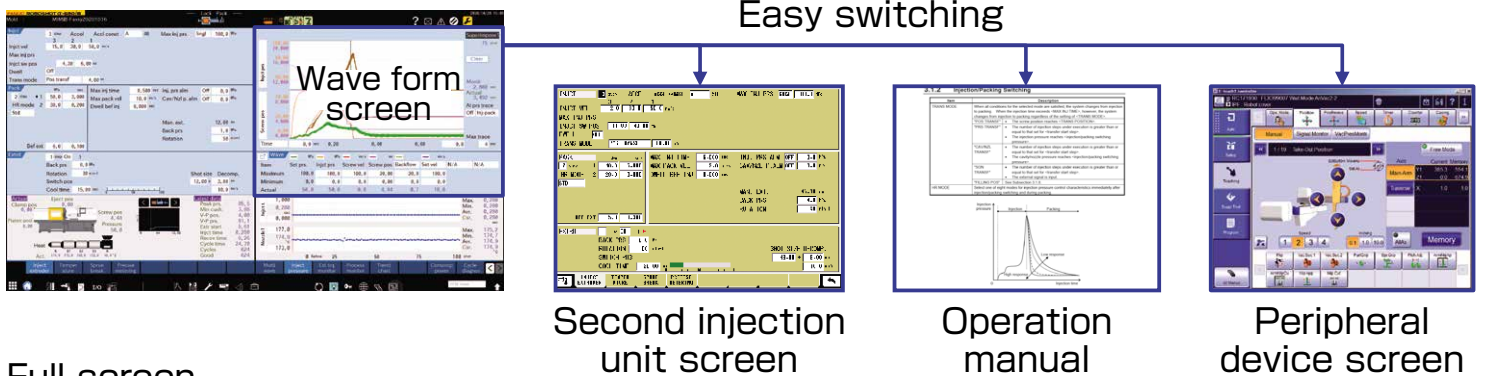
FANUC PANEL *iH* Pro with the latest 21.5 inch display unit

- Achieves doubled display area by full HD high-definition display screen
- Intuitive operation by swiping and multi-touch



Divided screen

- Selectable from various screens
- The horizontally arranged two screens provide easy sight line motion, superior visibility and operability.



Full screen

- **ROBOSHOT-LINKi2** displayed in full screen



Conformity to safety standards supports molding plant globalization

Conform to ISO 20430, the international safety standard for injection molding machines

- Fully enclosed cover style inhibits operator from contacting moving part and high temperature part with high-level safety
- Electromagnetic lock is installed on the safety door as standard equipment
- Cylinder heat encover with improved safety



ISO20430 (International safety standard for injection molding machines)

Multiple languages support

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

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

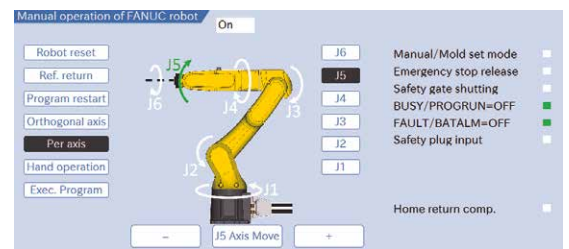
Robot system to promote automation of molding plant

Easy connection between ROBOSHOT and FANUC Robot by FL-net

- ROBOSHOT (α-SiB series) and FANUC Robot can be connected by single Ethernet cable
- Remote operation of FANUC robot on ROBOSHOT screen is available



FL-net

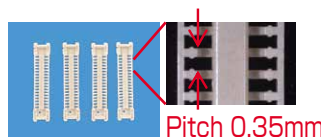


Robot operation screen of ROBOSHOT

ROBOSHOT Robot package

- Package product of fundamental elements of Robot system to start automatization
- Compact design, Easy installation, Easy setting and Easy operation

Automatic inspection and alignment process by delta robot



Precise connector
Resin : LCP

Automatic insert and taking out process by LR Mate



Water pump rotor
Resin : Phenol

Application to a range of molding fields

Precision lens

Moving platen support by linear guides*

- Prevents sink marks and warpage, Achieves uniformed thickness distribution

Screw and cylinder for lens molding

- Optimized screw design and surface treatment achieves high-quality molding



Camera lens for smart phone
Resin : COC

Precision 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



Precise fine-pitch connector
Resin : LCP

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



Automotive connector
Resin : PBT

Medical parts

Medical package*

- Package options suitable for medical parts molding

Suitable feeding device*

- Prevents burn and carbonization, Suitable for molding with transparent resin



Syringe
Resin : COP

Multi-components molding

Second injection unit (Vertical, Horizontal)*

- FANUC CNC installed, operation from ROBOSHOT screen

Additional servo axis control*

- Integrated into ROBOSHOT operation, Achieves high-speed and accurate positioning of rotary table



Waterproof connector
Resin : PBT+Silicone

Various molding materials

Screw and cylinder suitable for various molding materials

- Standard machine equipped with dedicated screw and cylinder enables various moldings

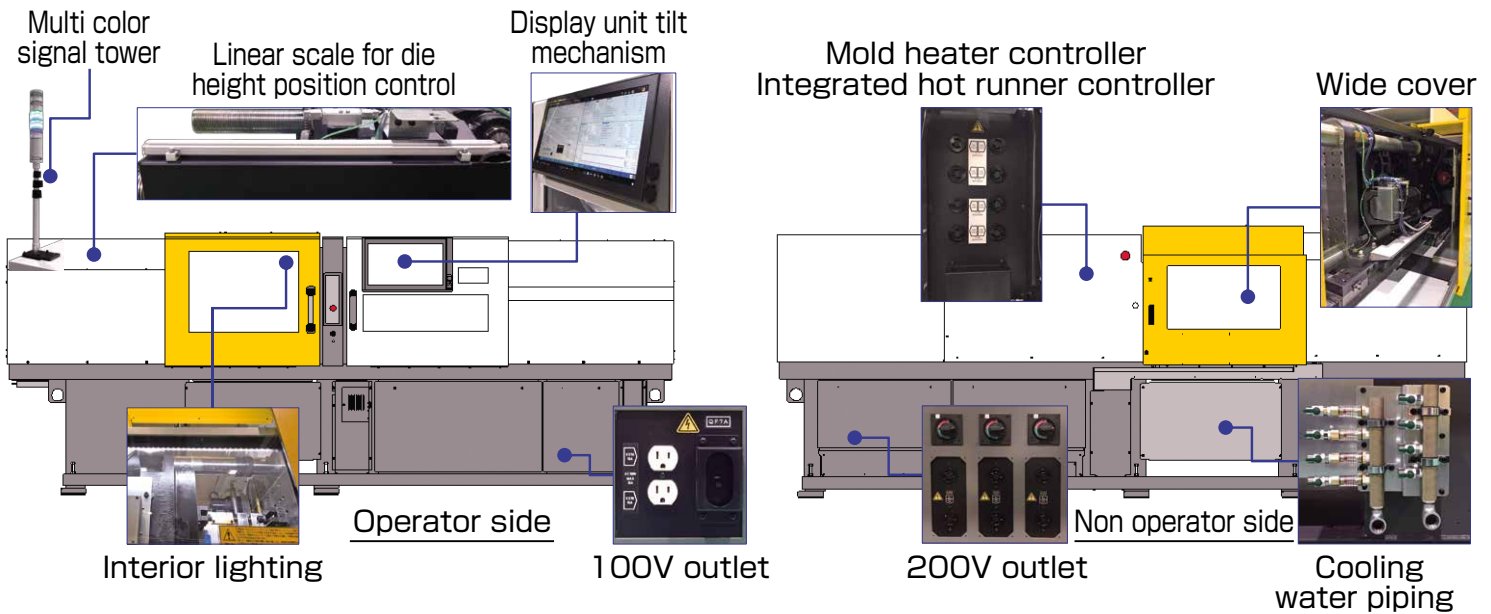
Various molding materials are available

- Silicone, MIM, CIM, Thermoset resin, carbon fiber reinforced resin, etc.



Endoscopic forceps
Resin : PP+Metal powder

Options



ROBOSHOT α -S150iB Medical package

[Tiebarbushless clamping specification]

[Options for medical parts molding]
(Individual order is available)

Tiebarbushless design
Reinforced bearing
Linear guide
Reinforced base frame



- (1) White painted cover or Stainless cover
- (2) Plated platen
- (3) Anti-rust linear guide
- (4) Food grade grease
- (5) High rigidity mount

Optional. Available options differ with region and model.
Refer to the attached "specification list" for the details on the options.

Service & Support

Excellent Maintenance Services

FANUC service team delivers customer trust and confidence based on direction of service "Maximizing Uptime", "Global Service" and "Lifetime maintenance".

Service First

Conforming to the spirit of "Service First", FANUC provides lifetime maintenance to its products for as long as they are used by customers, through more than 270 service locations supporting more than 100 countries and regions throughout the world.

Maximizing Uptime



FANUC ACADEMY

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



