

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

# FANUC

## ROBOSHOT $\alpha$ -SiA series



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

# FANUC ROBOSHOT $\alpha$ -SiA series

Applying the latest  
CNC & servo  
technology



## High-Performance of Molding

Precision and stable molding

Highly-Rigid and Low-Friction Mechanism

Additional Servo Axis Control

Good combination  
with FANUC Robot



## High-Sustainability

High-Reliability

Minimize Downtime

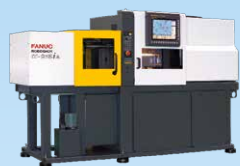
**ROBOSHOT-LINK*i***

## Ease of Use

Fully Enclosed Cover Style

Conformity to Safety Standards

Robot System



$\alpha$ -S15*iA*

$\alpha$ -S30*iA*

$\alpha$ -S50*iA*

$\alpha$ -S100*iA*

$\alpha$ -S130*iA*

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-LINK*i* 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



α-S300iA



α-S450iA



α-S150iA



α-S220iA



α-S250iA

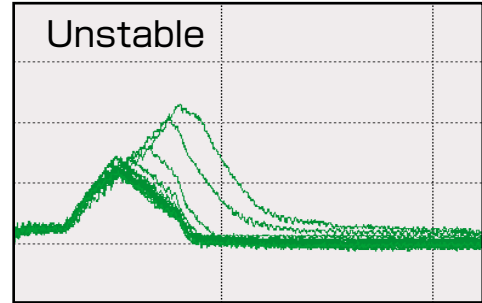
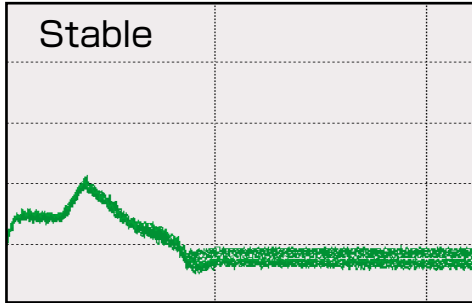
The outer view and operation differ in specifications.

# High-Performance of Molding

## FANUC standard CNC achieves superior molding repeatability

### Backflow monitor

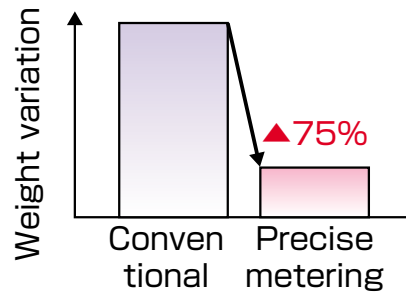
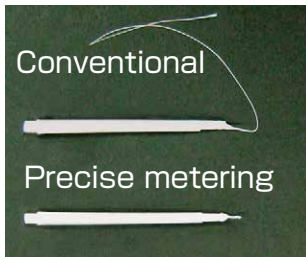
- Detects backflow precisely at injection start, Displays injection repeatability in graph



Backflow monitor screen

### 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



Precise connector  
Resin : PA66

## Highly-rigid and low-friction mechanism achieves precision molding

### Clamping unit

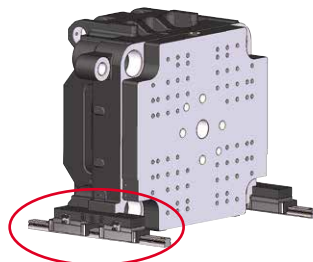
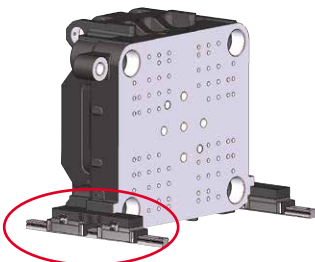
- Selectable two types of moving platen\*
- Low-friction linear guided support\*

### Injection unit

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

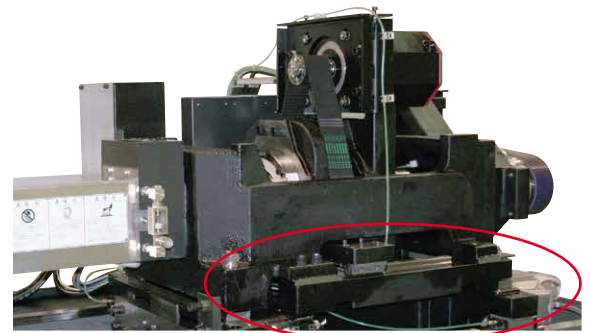
[Single platen]  
Expands mold area

[Double platen]  
Pursuits high rigidity



Magnetic clamping system  
Three plates mold etc.

Multi cavities  
Thin wall molding etc.



Low-friction linear guides

Standard for  $\alpha$ -S15iA/ $\alpha$ -S30iA/ $\alpha$ -S50iA/ $\alpha$ -S100iA/ $\alpha$ -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]

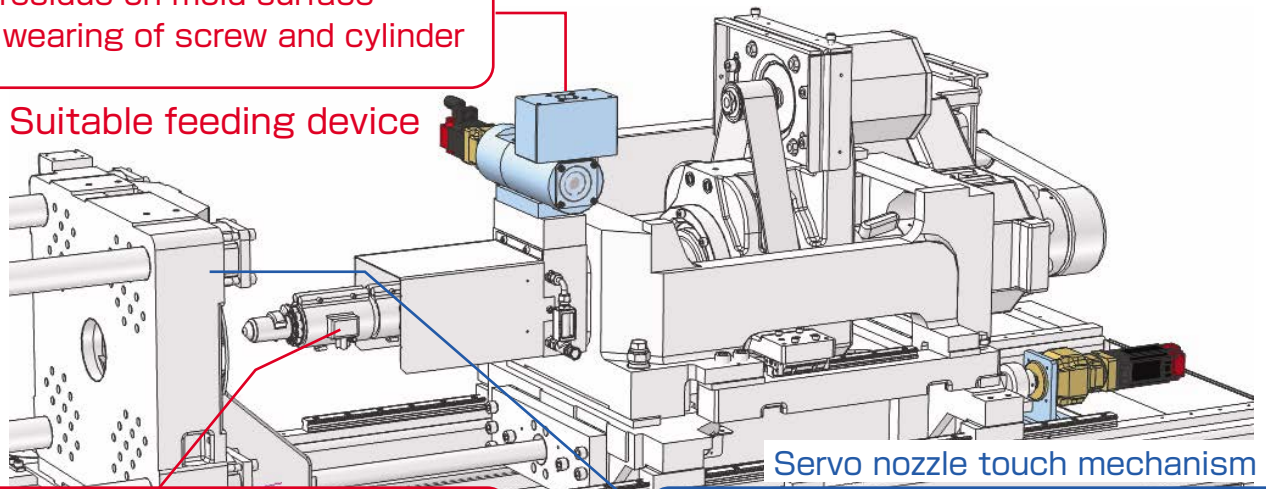
- Achieves optimal amount of resin supply by feedback control, Achieves long term molding repeatability

#### [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

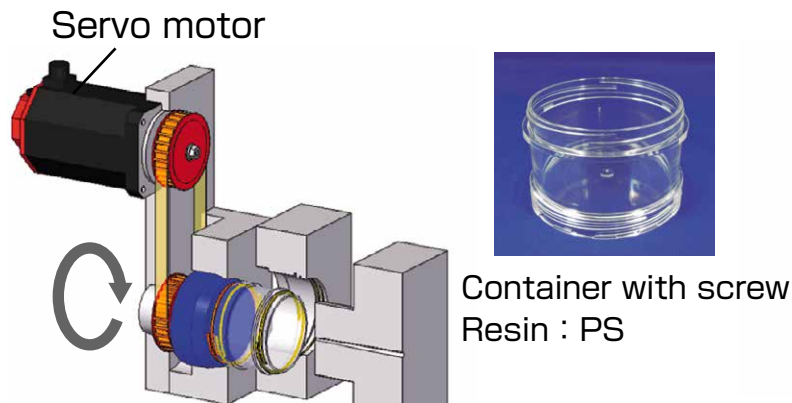
#### Servo nozzle touch mechanism

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

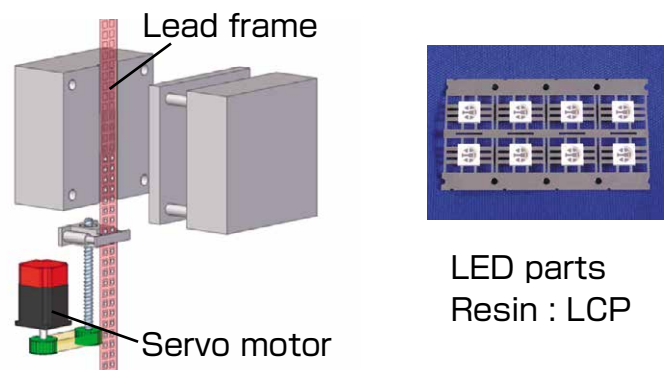
### Additional servo axis control achieves versatile applications\*

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

#### [Unscrewing molding]



#### [Hoop molding]



\*Only additional servo system is offered

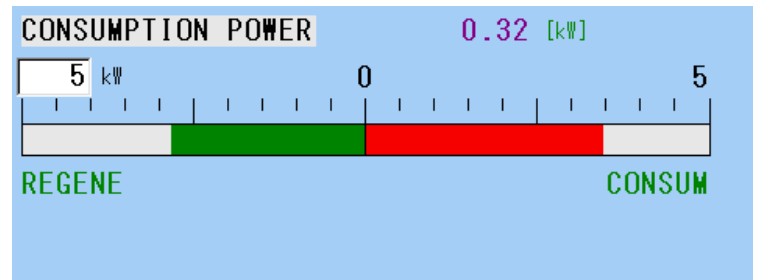
# High-Sustainability

## 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\*



High-performance servo motors and amplifiers  $\alpha i$  series



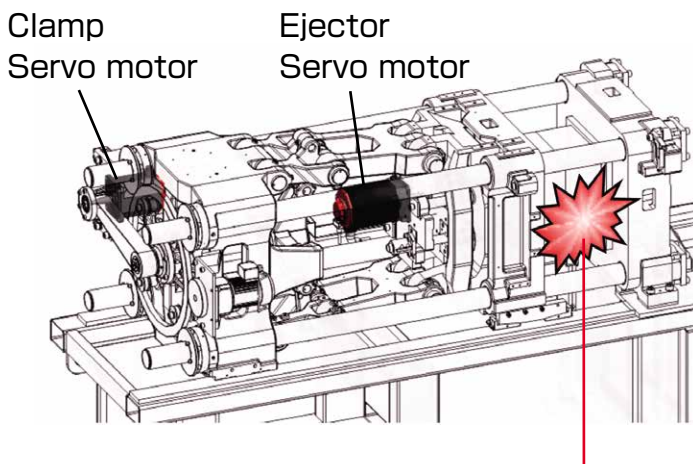
Consumption power monitor screen

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

## High-precision AI protect function 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



Experimental example of AI mold protection by using paper cup



AI mold protection ON



AI mold protection OFF

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

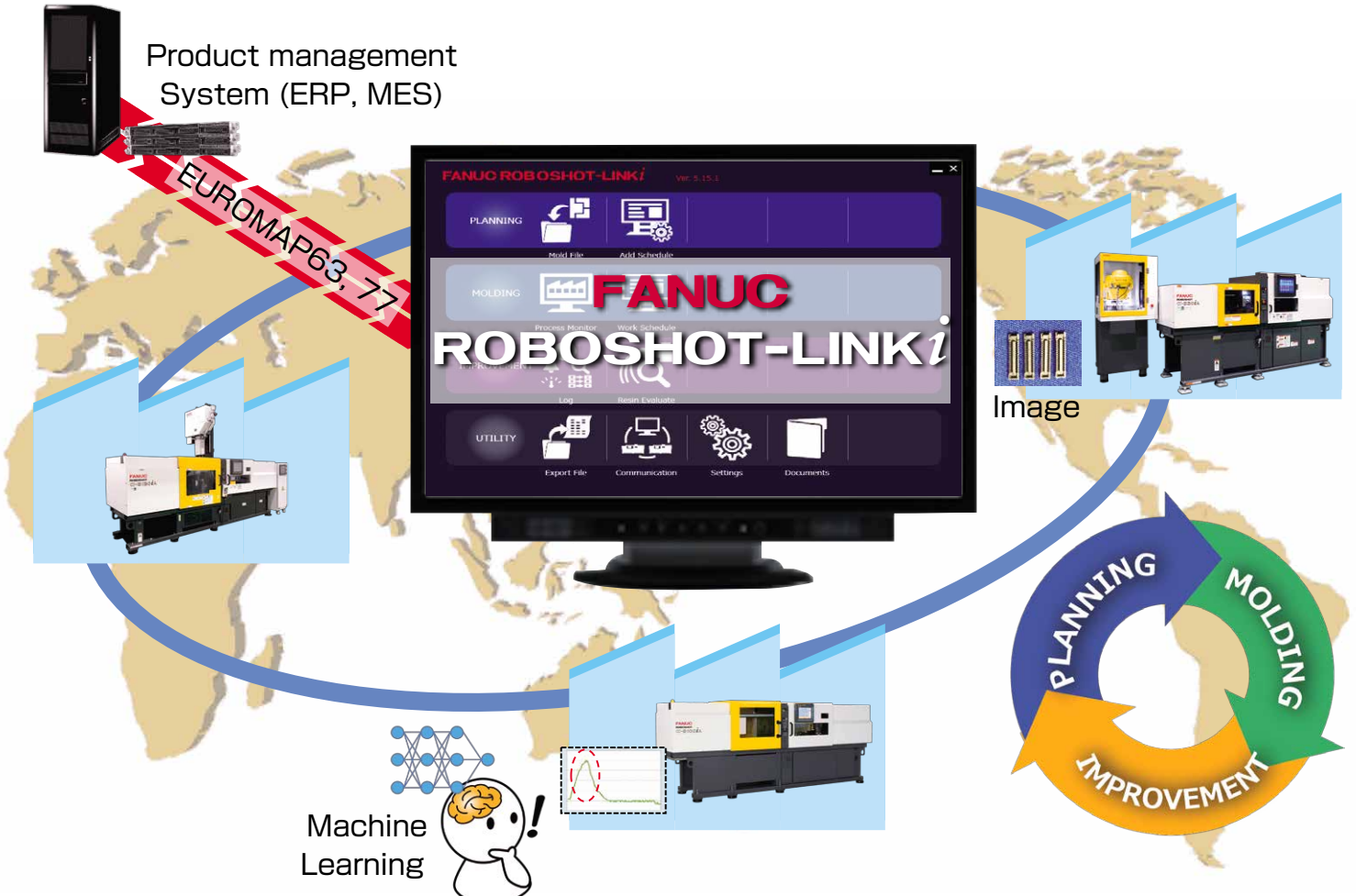
**2. Problem detection**  
Detects load deviation precisely caused by remaining molded products etc.

**3. Protection**  
Interrupts clamp and ejector motion immediately

# ROBOSHOT-LINK*i*

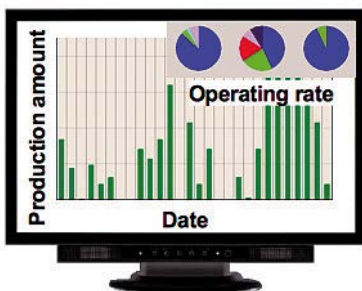
**ROBOSHOT-LINK*i*** manages product and quality information (Optional)

- 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



## Product information management

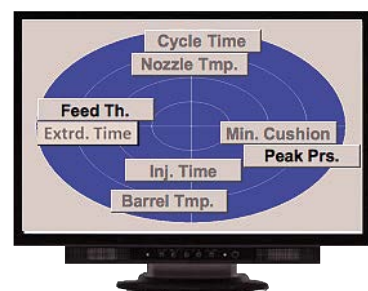
- Achieves lower cost and higher operation rate
- Monitors consumption power including auxiliary equipments



Visualization of production amount and operating time

## Quality information management

- Achieves traceability and advanced quality
- Investigates cause of failure and molding repeatability



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

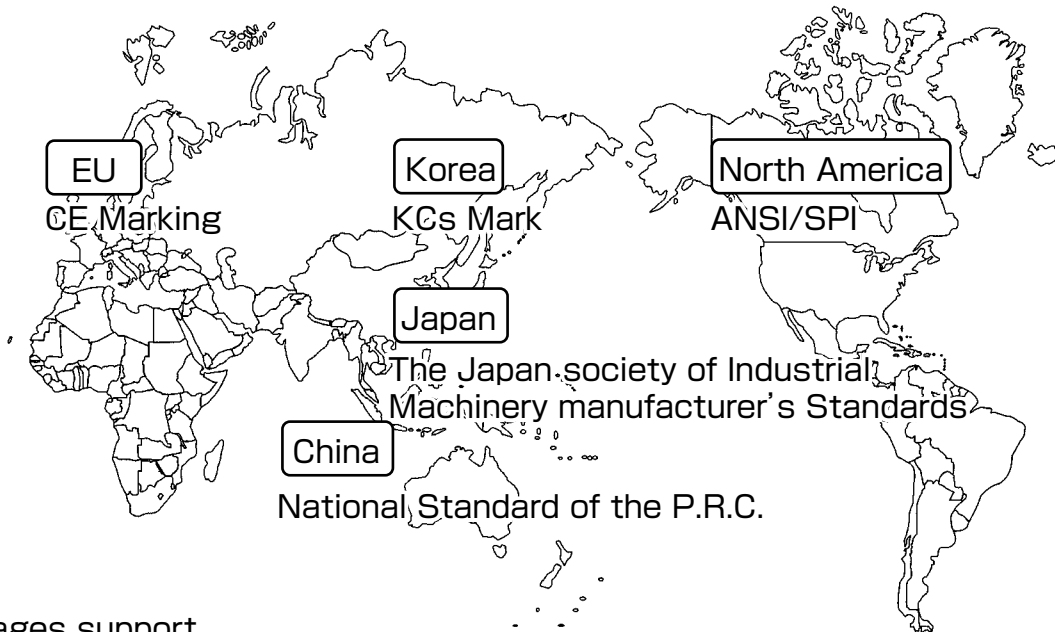
### Superior accessibility

- 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

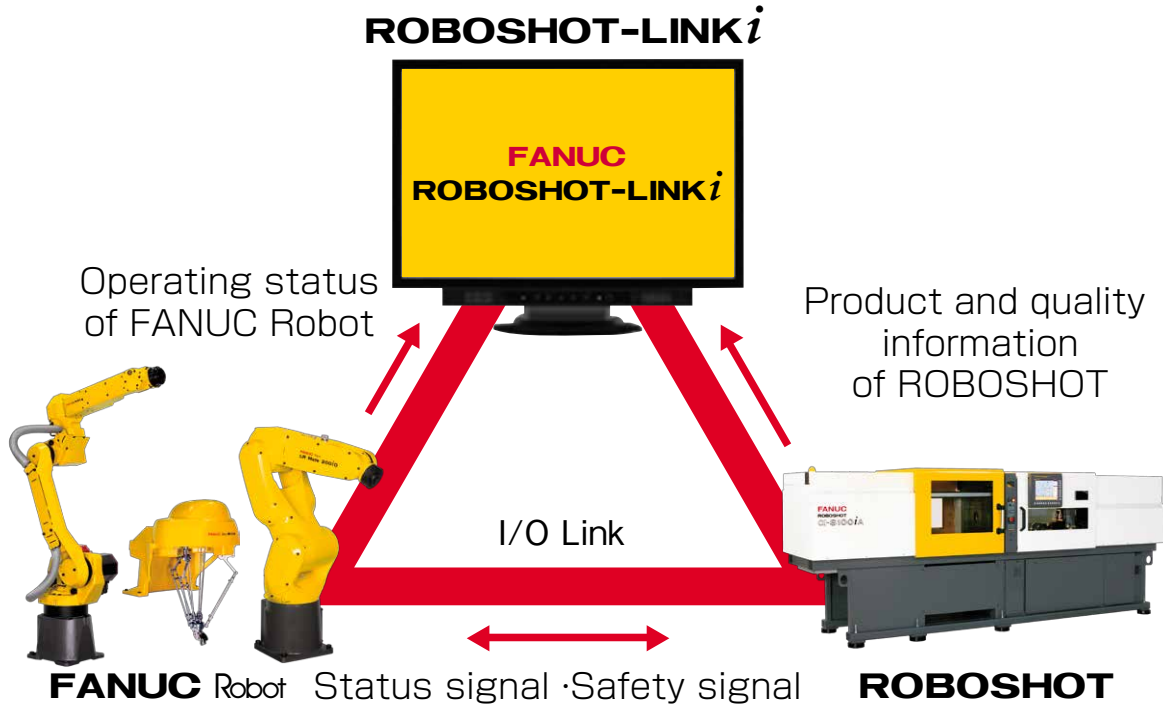
Please confirm the latest safety requirements of the region where ROBOSHOT is installed.



# Robot system with superior interoperability\*

## Superior interoperability

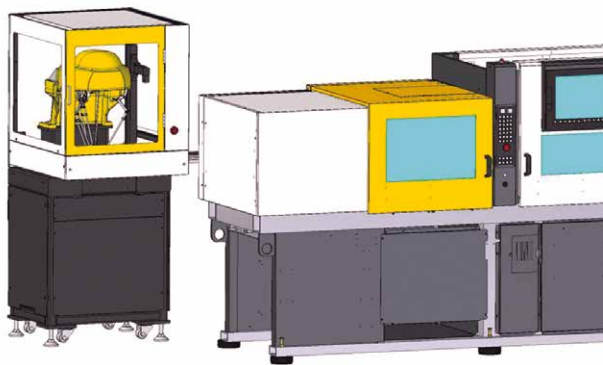
- Wire-saving connection by high speed and reliable I/O Link
- Allows principle robot operation on ROBOSHOT screen
- "Visualization" of molding plant by ROBOSHOT-LINK*i*



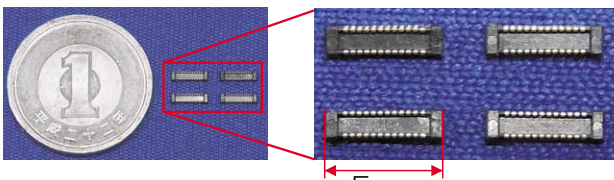
## Robot systemization example

[Automatized check · sort]

1. Precision and stable molding by ROBOSHOT



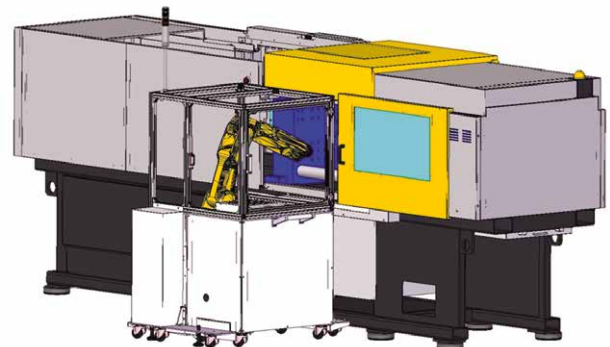
2. Automatic check and sort after parts detection by FANUC Robot



Precision connector  
Resin : LCP

[Automatized check · insert]

1. Precision insert of parts by FANUC Robot



2. Precision and stable molding by ROBOSHOT



Automotive interior part  
Resin : ABS

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

# 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



Light guide panel for smartphone  
Resin : PC

## 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



Camera lens for smartphone  
Resin : COC

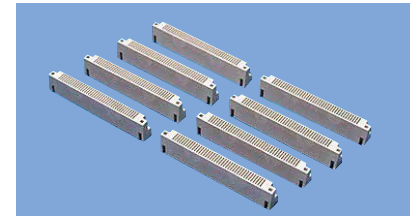
## Precise connector

### 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



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

### 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



Syringe  
Resin : COP

## Two components molding

### Second injection unit\*

- FANUC CNC installed, operate from ROBOSHOT screen

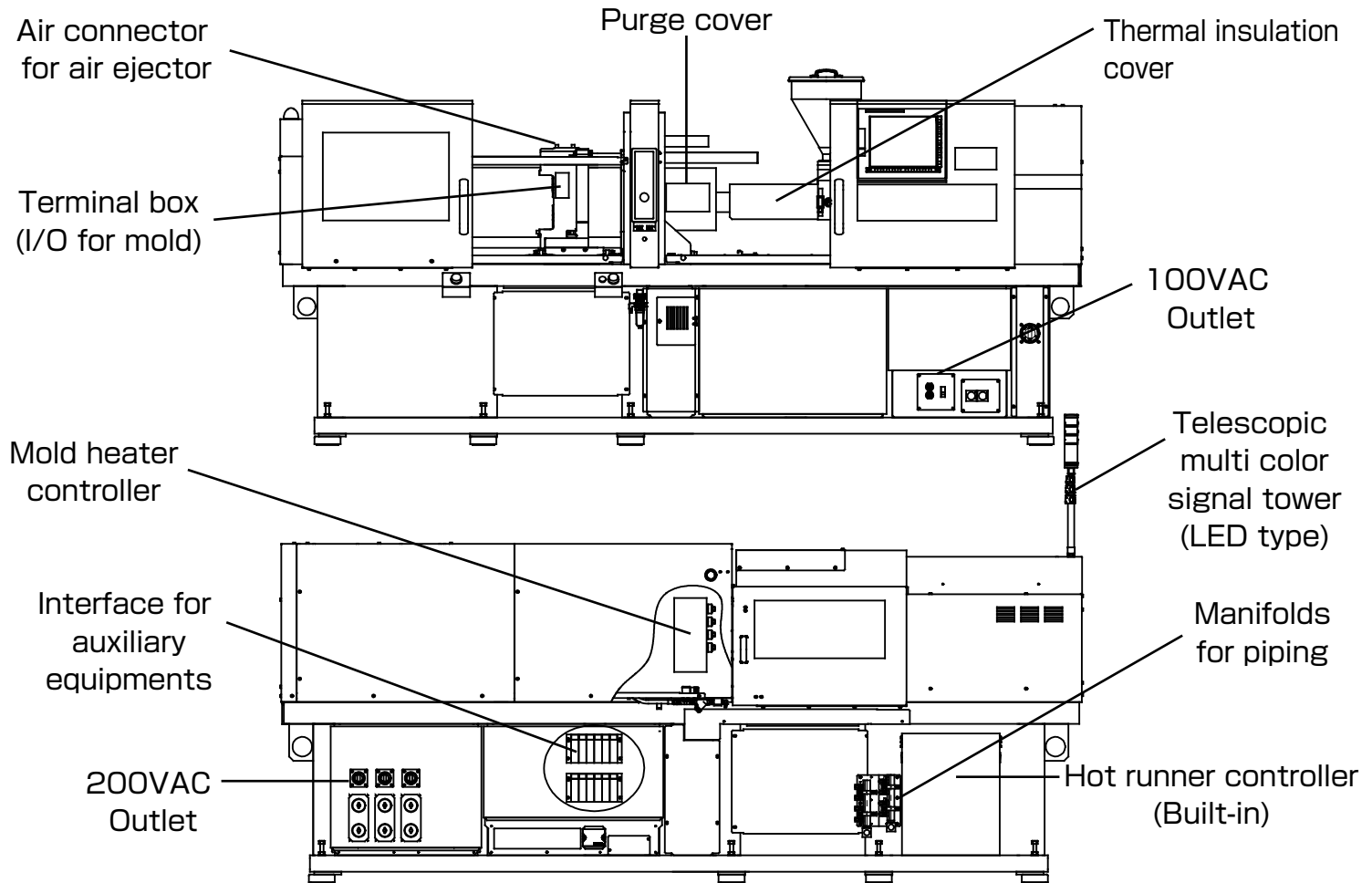
### Additional servo axis control\*

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



Automotive interior part  
Resin : ABS+PP

# Options



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

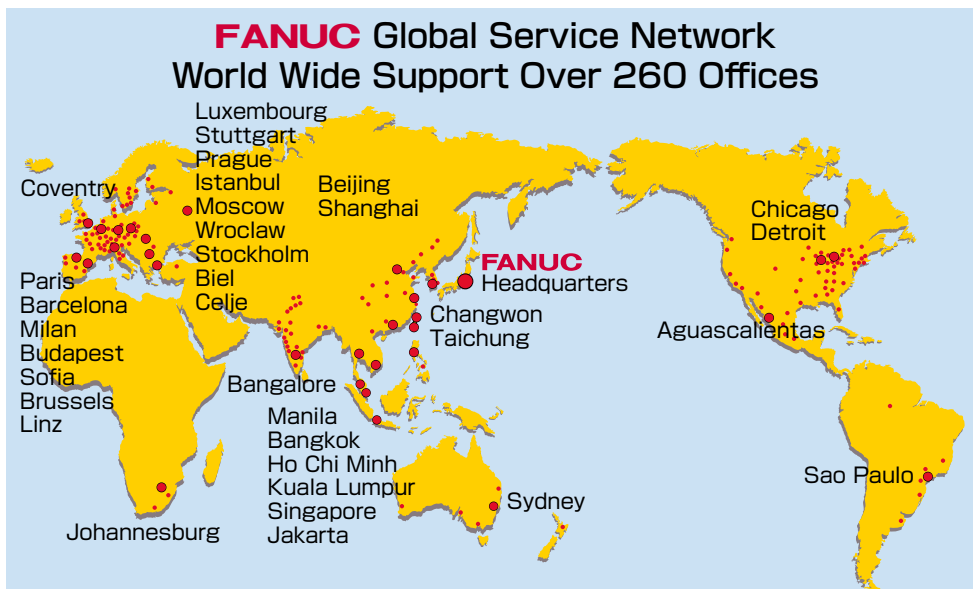
# Maintenance and customer support

## 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

