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Quality and Innovation

Servo Press Compatible
ROBO Cylinder®with Load Cell

RCS3

Series Added

RA4R   **RA15R**   **RA20R**
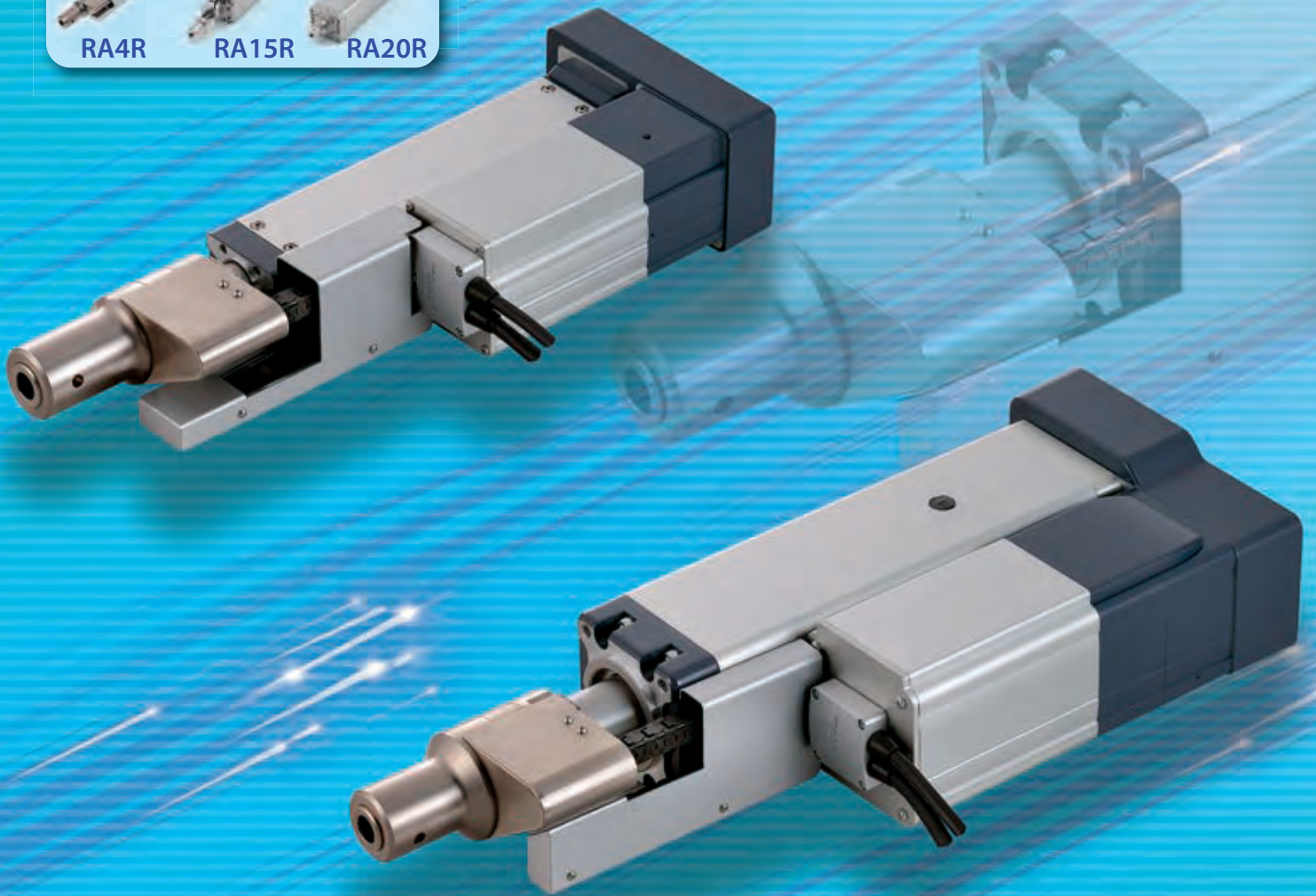
Compact and low-thrust rod type actuator that can even be used for simple pressing.
The high-precision position control enables easy adjustment of the push force and the position control, which is typically difficult for oil-hydraulic equipment.

1 The Servo Press Specifcation Available

The servo press specification has been expanded. With the load cell equipped as standard feature, force control is possible.

What Is the Push-motion Operation?

Similar to an air cylinder, push-motion operation is the function of keeping the rod and slider pushed to the work, etc.
Servo press provides superior stop stability during pressing, which makes them optimal for push-motion operation.
Also, servo press can be used in a wide variety of applications because they can be used in work operations that require strong push force, such as press fitting and riveting work.
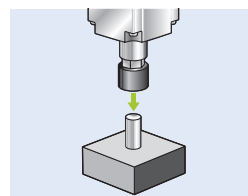
What Is the Force Control?

A function that can perform high-precision push control output using the feedback data from the dedicated load cell installed in the actuator.
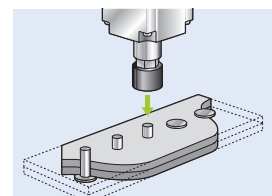
What Is the Servo Press Specification?

The specification which can perform various push-motion operations by using the press program. For details, please refer to P. 3.

<Application Examples>

Press-fitting a pin	Riveting work

●Accurate push force can be managed
●Detailed push force setting can be set for each product

2 High-precision Load Control

By attaching a dedicated load cell to the rod tip, the actual load applied to the press target can be detected. This allows for high-precision load control with a loading repeatability of ±0.5% F.S. (full scale).
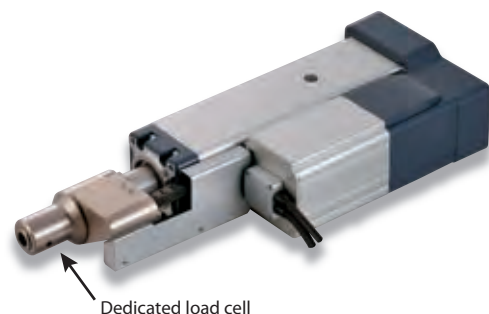
💡 **Points**

F.S. : Full Scale
   Maximum measurable value

B.C. : Rated Capacity
   Same as the rated load. The maximum load measured while the load cell maintains its specification.

Dedicated load cell

3 Increased Product Offerings

RCS3 side-mounted motor rod types have been added, allowing you to select from a 200N to 50000N range. The development of a large variety of models allows you to pick models that suit your applications.

Product Lineup

	RCS3-RA4R	RCS3-RA6R	RCS3-RA7R	RCS3-RA8R
Stroke (mm)	110~410	115~415	120~520	100~500
Motor (W)	30	60	100	200
Lead (mm)	2.5	1.5	2	2.5
Max. Push Force (N)	200	600	1200	2000
Max. Payload (kg) — Horizontal	3	10	10	10
Max. Payload (kg) — Vertical	3	10	10	10
Max. Speed (mm/sec)	125	75	100	125

	RCS3-RA10R	RCS2-RA13R 1t Type	RCS2-RA13R 2t Type	RCS3-RA15R	RCS3-RA20R
Stroke (mm)	100~500	50~200		100~500	100~500
Motor (W)	400	750		3300	3000
Lead (mm)	2.5	2.5	1.25	3.6	4
Max. Push Force (N)	6000	9800	19600	30000	50000
Max. Payload (kg) — Horizontal	15	15	15	15	15
Max. Payload (kg) — Vertical	15	15	15	15	15
Max. Speed (mm/sec)	125	125	62	240	220

4 Connectivity with External Equipment

It's possible to perform analog output of load data (4-20mA).

By using a display panel manufactured by a third party, it is possible to display 2D graphs of the displacement vs. load cell output and judge them. Also, connecting a pulse counter allows you to check the feedback pulses.
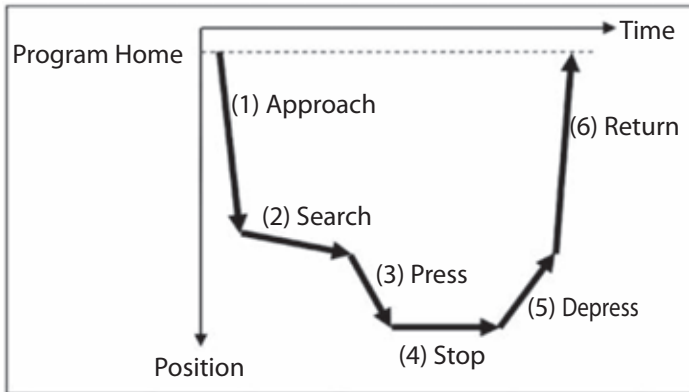
Analog output feedback pulses
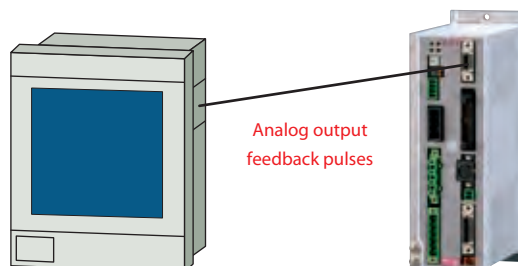
Dedicated Software: Press Program

With this Press Program, one of two control methods, "Speed Control" or "Force Control", can be selected.

In addition, one of four stop conditions, "Position", "Distance", "Load", or "Incremental Load", can be selected as the method for stopping.

By utilizing a total of eight types of press methods, it is possible to handle a variety of press operations.
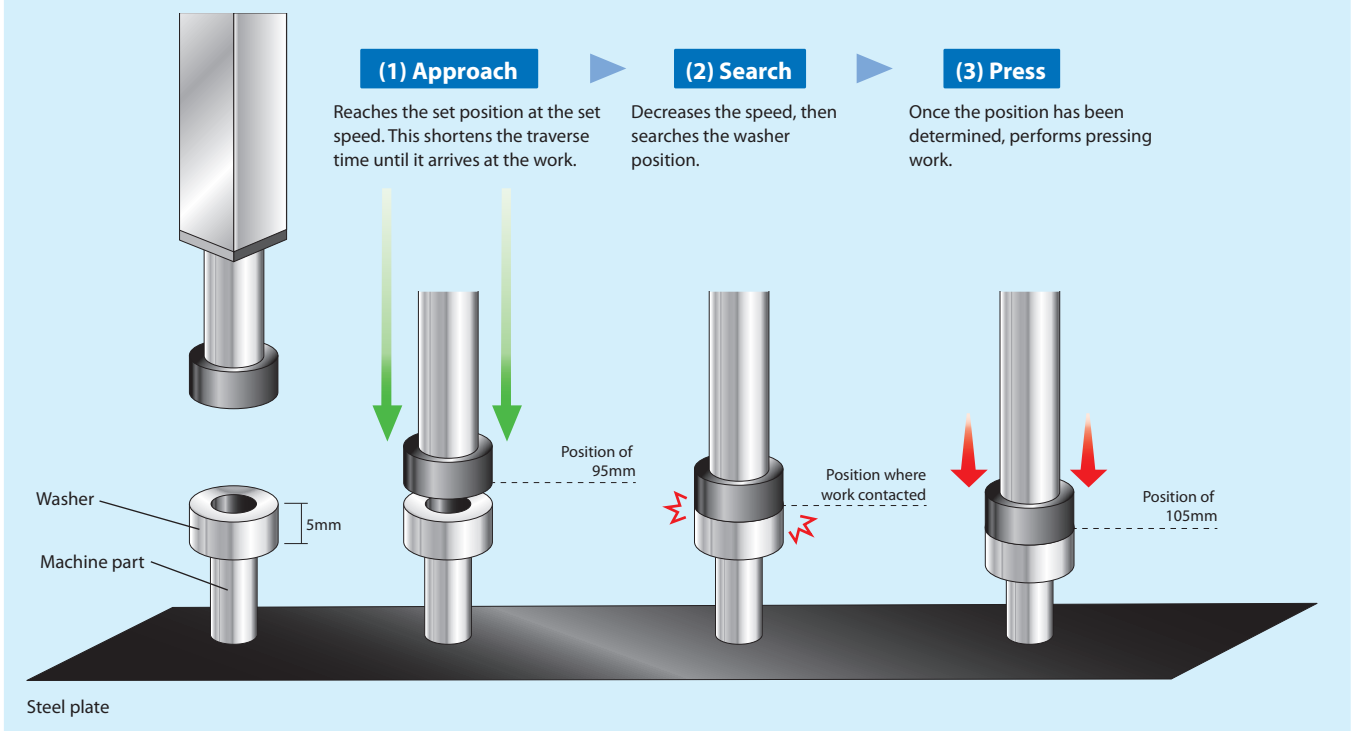
Explanation of Operation

(1) Approach (can be omitted)
Performs high-speed transfer until directly before contacting work

(2) Search (can be omitted)
Detects work contact

(3) Press (necessary)
Accelerates, then performs pressing work

(4) Stop (can be omitted when set to 0)
Stops at a fixed position or continues to push

(5) Depress (can be omitted)
Slowly separates from the work

(6) Return (can be omitted)
Returns to the home position at high speed

Program Screen

Example of press fitting a machine part into a washer

(1) Approach
Reaches the set position at the set speed. This shortens the traverse time until it arrives at the work.

(2) Search
Decreases the speed, then searches the washer position.

(3) Press
Once the position has been determined, performs pressing work.

Washer

5mm

Machine part

Position of 95mm

Position where work contacted

Position of 105mm

Steel plate

Mode		Internal control	Stop state	Applications
Speed control After arriving at the target position, stops while maintaining the position at the time of arrival.	Position stop Distance stop Load stop Incremental load stop	Positioning	Positioning stop	press fitting, riveting, squeezing, etc. (primarily metalworking)
Force control After arriving at the target position, stops while maintaining the force at the time of arrival.	Position stop Distance stop Load stop Incremental load stop	Pushing	Continuing push-motion operation	Compressive molding, etc. of powders

Position stop

Performs pressing work to the specified position.

Home

110mm

End position 110mm

Steel plate

Load stop

Performs pressing work that stops at the position at which the specified load was detected.

400N

The position at which 400N is measured.

Steel plate

Distance stop

Performs pressing work by moving a specified distance and then stopping. This is optimal in situations in which the press start position changes.

5mm

5mm

pushing
a distance of exactly 5mm

An uneven surface, such as an engine

Incremental load stop

Performs pressing work that stops at the position at which the load (sum of the press start load and the specified incremental load) has been detected.

*It is possible to perform the operation by linking two programs together.
For details, please refer to the instruction manual.

First press: 400N

The position at which 400N is measured.
The position at which 600N is measured.

Second press: +200N

Steel plate

Explanation of Operation

From the end of press to the end of the stop state, it is possible to perform position judgment and load judgment.

Load judgment range

Press end point (2)

Press end point (1)

Press end point (3)

Position judgment range

Press end point (4)

<Judgment Results>
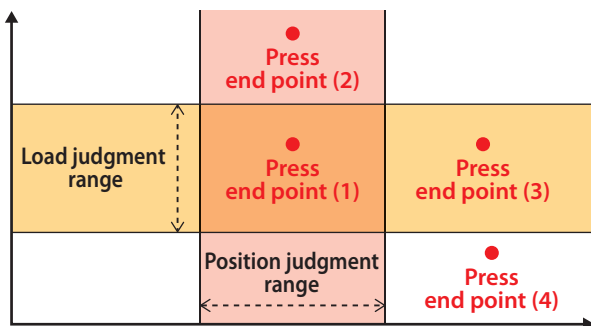
No.	Position	Load
(1)	OK	OK
(2)	OK	NG
(3)	NG	OK
(4)	NG	NG

● When a result of NG has been detected for either the position or load, the program ends abnormally

● It is also possible to set position only, load only, or neither

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ROBO CYLINDER

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