

Heartful Technology

Yushin



Servo Traverse Robot
RCII
series

Yushin Precision Equipment Co., Ltd.

Speed, Reliability, and Savings are

Speed *Elevating Productivity to New Heights*

A Stock Unit that Does High-Speed Take-Out

Fully upgraded vertical and kick axis units provide a huge jump in part extraction speed!

Take-Out Time Comparison

- Target molding machine clamping force 150-ton class **13%** faster
- Target molding machine clamping force 400-ton class **12%** faster
- Target molding machine clamping force 800-ton class **14%** faster
- Target molding machine clamping force 1300-ton class **14%** faster

**Much Shorter
Take-Out Times**

*As compared to previous model line under controlled conditions.

Savings *Lower Running Costs*

ECO Vacuum PAT. P Compressed Air Economizing Tool

Monitors air pressure while robot suction-grips parts and only turns on air lines when necessary.

Lowers Electricity Cost for Air Compressors

Reduces Equipment Cost

Helps Protect the Environment

(Real-Life Results)



<Test Conditions>

Take-Out Robot	150-ton class
Test Interval	24 hours
Molding Cycle	15 seconds (Where take-out time [the interval from part take-out through to part placement] is 25% of the total cycle, ECO Vacuum is activated for 75% of the cycle.)
Air Usage (for 1 Vacuum Line)	18 NI/cycle (without ECO Vacuum) 4.75 NI/cycle (with ECO Vacuum)
Air Compressor Output	2,300 NI/minute
Compressor Motor Power	16kW
Air Usage Reduction due to ECO Vac	75%

*Test occurred under controlled conditions. Results may vary between different part shapes and suction cup types.

Standard Equipment

Reliability *Boost your Production Floor Efficiency*

Vibration-free, Precise Picking and Placing of Products

The RCII series features even more rigid, robust construction and new arm-end vibration suppression!

Easy-to-Use *E-Touch II Controller*



Large, Highly Visible Monitor

- 10.4 inch, full-color touch panel

Extra Tough Construction

- Rubber shock panels on each side of the controller help cushion accidental drops.
- IP44* Rating for Dust and Moisture Resistance

Easy Operation

- Directional pad makes navigating easy.
- Settings and menus are icon-based.
- Audio Guidance gives vocal cues to support complex operations.

* International IP (Ingress Protection) Rating

Solids Rating: 4 (protection from tools, small wires, etc. with a diameter or thickness greater than 1.0mm)
Moisture Rating: 4 (all-around protection from splashed water)

Easy Operation

- Operator "Easy Screen" allows simple standard operation.
- Lead Through Teaching allows the operator to add or modify positions, timers, or speeds with ease.
- Robot Simulator Screen enables the user to simulate and check newly-programmed motions on a 3D screen on the controller or another PC.

Teaching is a Breeze

- New Motion Chart Screen combines position, speed, and timer settings into one intuitive 3D interface.

Improved Safety

- Operator may easily set additional motion prohibit zones.

Other Features

- Troubleshooting Mode enables users to personally track down problems.
- Auto Slow-down Mode decreases motion speed just before part placement to ensure a vibration-free release.



Operator "Easy Screen"



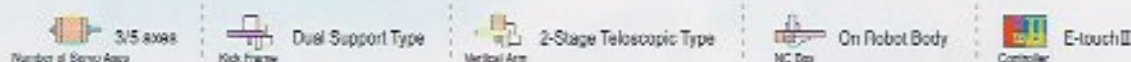
Take-Out Robot Simulator Screen



Motion Chart Screen

RCII-100/150/250/400

Clamping Force of Compatible
Molding Machines
70 - 550 tons

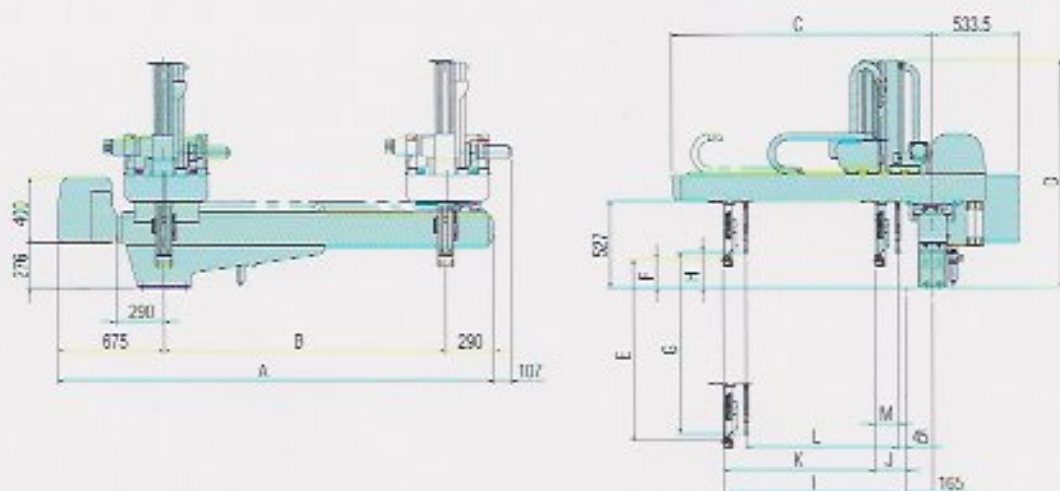
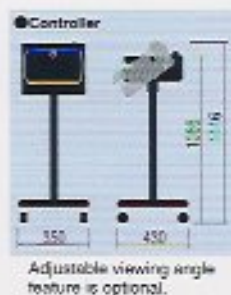


● Specification and Dimensions (mm)

Power Source	Max. Power Consumption		Drive Method	Control Method	Air Pressure	Max. Air Pressure	Wrist Flip Angle
	S	D					
AC200V 50/60Hz	3 Phase AC200V 7.6A	3 Phase AC200V 10.4A	Digital Servo Motor 3/5 axes	Micro Computer Control	0.49MPa	0.79MPa	90°

Model	Transverse Stroke				Vertical Stroke Main Arm		Vertical Stroke Sub Arm			Kick Stroke Main Arm		Kick Stroke Sub Arm		Air Consumption (liters/cycle)	Max. Payload (incl. EOM)	Main Unit Weight (kg)		
	A	B	C	D	E	F	G	H	I	J	K	L	M					
RCII-100S	2065	1100		1180	700					117	583			6	5kg *11kg	385		
RCII-100D				<1255>	<850>		700	<850>	335	700	177	523	523				132	415
RCII-150S	[2465]										117	583					410	
RCII-150D	[2665]			1255	<1305>	850	<950>	300	850	<950>	335	523	523				132	440
RCII-250S	[2865]	1500									117	733					414	
RCII-250D	[3165]			1325	<1380>		<1100>				177	673	673				132	445
RCII-400S	[3465]			1305	<1480>	950	<1300>			850	177	673	673	132	433			
RCII-400D				<1605>	<1550>		<1550>				122	978		8	10kg *13kg	465		
RCII-4000	2665	1700		1575	1380	1100		176	1100		215	1100	182	918	918	137	465	

S: Equipped with main arm only; for 2-plate molds. D: Equipped with main and sub arms, compatible with 3-plate molds.
* Equipped with increased payload option. Higher payloads possible, depending on take-out settings and speeds. []: extended transverse stroke. < >: extended vertical stroke.
B: Stanchion is standard equipment for 2200mm or longer transverse stroke.



RCII-800/1300

Clamping Force of Compatible
Molding Machines
550 - 1600 tons



● Specification and Dimensions (mm)

Power Source	Max. Power Consumption		Drive Method	Control Method	Air Pressure	Max. Air Pressure	Wrist Flip Angle
	S	D					
AC200V 50/60Hz	3 Phase AC200V 7.6A	3 Phase AC200V 10.4A	Digital Servo Motor 3/5 axes	Micro Computer Control	0.49MPa	0.79MPa	90°

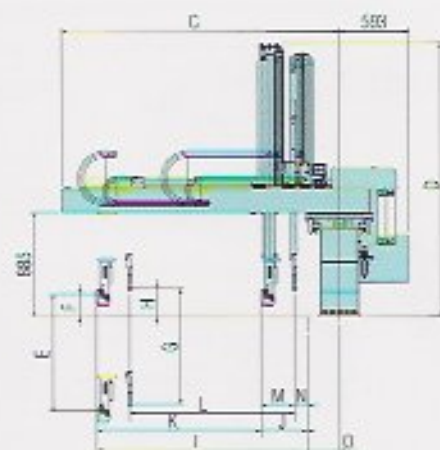
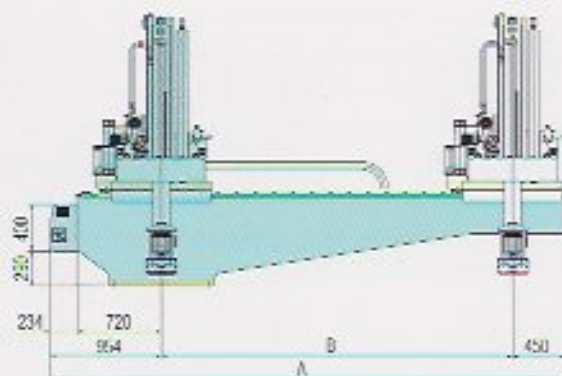
Model	Transverse Stroke				Vertical Stroke Main Arm		Vertical Stroke Sub Arm		Kick Stroke Main Arm	Kick Stroke Sub Arm	M	N	O	Air Consumption (l/cycle)	Max. Payload (incl. 10A)	Main Unit Weight (kg)		
	A	B	C	D	E	F	G	H										
RCII-800S	3404	[3904]	2000	[2500]	1895	2205	1550	<2330	330	—	—	—	—	330	44	25kg	1209	
RCII-800D	[4104]	[4404]	—	[3000]	—	—	<2330	<2480	1550	<1800	385	330	970	970	275	55	*35kg	1309
RCII-1300S	[4904]	[5904]	—	[3500]	—	—	<2480	<2680	—	<2100	—	—	—	—	—	—	—	1455
RCII-1300D	4104	3000	2330	2330	1800	185	1800	2500	1000	240	395	1405	1405	285	110	58	35kg	1528

S: Equipped with main arm only; for 2-plate molds D: Equipped with main and sub arms; compatible with 3-plate molds

* Equipped with increased payload option. Higher payloads possible, depending on take-out settings and speeds. [] = extended transverse stroke < > = extended vertical stroke



Adjustable viewing angle feature is optional.



Options A Full Lineup of Value-Adding Features

NC Servo Wrist Flips and Rotates End-of-Arm Tools

- Servo-powered axes means the EOAT may be flipped or rotated to precise user-set angles.
- Equipped with this wrist unit, a take-out robot can have as many as 7 total numerically-controlled axes, giving it a range of motion comparable to an articulated robot.
- Motions for undercut molds and fixed platen take-out may be programmed quickly just by teaching.



Robot Compatibility

Small Models (100/150/250)
Medium Model (400)

Flip Range:
max. 184° (Medium Model: max. 188°)

Rotation Range:
max. 320°

Now 20% more compact!
(compared to previous model)



Robot Compatibility

Large Models (800/1300)

Flip Range:
max. 200°

Rotation Range:
max. 330°

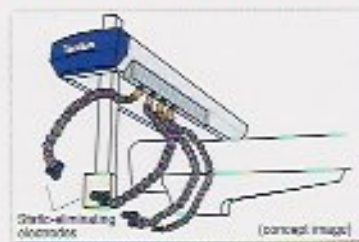
EOAT Quick-Change Unit



Greatly reduces set-up times by allowing instant attachment/detachment of end-of-arm tool and its pneumatic and wiring connections.

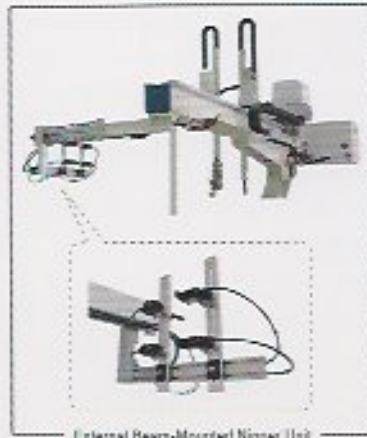
- Connect pneumatics and control wiring at the touch of a button!
- Eliminates need for hand tools.
- Check valve (on robot arm side) guards against air leaks.

E-Force Static Electricity Eliminator



Piezoelectric transforming ionizer greatly reduces or eliminates static electricity, even within the mold, without using forced air. Now redesigned with a bracket that allows easy relocation of unit or its electrodes!

- No tools needed for adjustments
- Additional electrodes may be installed with ease
- Suitable for a variety of molded part sizes and shapes



Option List

Options	Explanation of each option
Additional Analog Vacuum Circuit (w/ECO Vacuum)	Up to 3 additional ECO Vacuum-equipped analog vacuum circuits may be added to the single, standard-equipped circuit.
Additional Part Chuck Pressure Circuit	1 or 3 additional pressure circuits may be added to the single, standard-equipped part gripper circuit.
Additional Sprue Chuck Circuit	Allows the timing of the sprue release to be set via mode selection. 1 or more additional circuits may be added to the single, standard-equipped circuit.
Pitch Revise Circuit	Allows operator to specify pitch of parts gripped by the end-of-arm tool.
Sprue Cut Circuit	Allows nippers on board the end-of-arm tool to cut sprues. May not be equipped together with EOAT Gate Cut Circuit option.
EOAT Gate Cut Circuit	Enables cutter within end-of-arm tool to approach the gate of a part and cut it. May not be equipped together with Sprue Cut Circuit option.
Chuck Soft Grip Circuit	A pressure reducing valve is added to adjust chuck grip and prevent deformation of molded products.
Vertical Wrist Rotation Unit (incl. detection function)	Adding this unit to the wrist-tilt mechanism allows the orientation of released products to be changed. See p.6
Horizontal Wrist Rotation Unit	Adding this unit to the main arm wrist allows the orientation of released products to be changed. See p.6
NC Servo Wrist Flip Mechanism	Adds 2 servo-powered axes of motion to the arm wrist, enabling precision control and motion comparable to an articulated 6-axis robot. See p.6
EOAT Quick-Change Unit	Allows for instant attachment/detachment of end-of-arm tool and its pneumatic and wiring connections. See p.6
EOAT One-Touch Quick-Release Fitting	Allows for fast manual attachment/detachment of end-of-arm tool. See p.6
Signal Light / Signal Tower	Colored lights indicate status of the robot.
External Beam-Mounted Nipper Unit	After removal from the mold, gated products may be inserted into this beam-mounted external nipper unit which separates the gate from the products. See p.6
Maintenance Steps	A ladder and stage for maintenance work can be installed on the robot.
E-Force Static Electricity Eliminator	Eliminates the static electricity charge of plastic parts, helping repel dust and particulates. See p.6
Ascent Limit Product Verification	After product take-out, product presence is verified at the ascent limit position by a remote-mounted limit switch. See p.6
Increased Maximum Payload	Power along the vertical axis is increased, enabling the robot to handle heavier payloads.
Increased Wrist Flip Torque	1.4 times more wrist flip torque, for applications where the end-of-arm tool is heavy or attached off-center.
8-Pin Stacker Unit Connector	Metal connector which allows robot to interface with Yushin-made stacker unit.
Reject Circuit	After receiving a "defect product" signal from the molding machine, robot releases the defective part at a position separate from the ordinary parts.
Initial Shots Discharge Motion	At the start of auto operation, for a set number of shots the robot automatically places parts at a position separate from the ordinary parts.
Wait on Traverse	While the mold is closed, if the robot is unable to wait above the mold (due to obstacles, etc), a second wait position may be designated at another point along the traverse axis.
High-Cycle Motion	Traverse and flip motions may be performed simultaneously in order to shorten cycle time.
Under-Cut Motion	Up to 3 additional teaching positions may be programmed in order to extract products from an under-cut mold.
Sampling Motion	During auto operation, the robot will place products at a Sample Release position once every set number of molding cycles.
Dropped Product Detection	After extracting products, robot continuously verifies its hold on the products until it finally releases them.
Take-out Failure Stop at Ascent Limit	While in auto operation, if the robot fails to extract products it immediately error-stops at its ascent limit. Without this option, the robot completes one full cycle before it error-stops.
Wait for Descent Order	When downstream machinery is not ready, the robot waits for a set interval for the Descent Order signal to turn ON. In the event it does not receive the Descent Order, the user may mode-select whether the robot immediately error-stops the line, or if it just continues on and releases parts.
Low Air Pressure Detection	The robot displays an error if air pressure drops below a set value.
Flying Cycle Start	The timing to output the Cycle Start signal to the molding machine is adjustable.
Communication with Molding Machine	The robot exchanges information such as mold numbers with the molding machine, which shortens set up time.
Centralized Manual Lubrication System	Delivers lubricant from manual pump to necessary areas. See p.6
Centralized Automatic Lubrication System	Delivers lubricant from electric pump to necessary areas.
Flexible Teaching	Software kit which allows users to create robot motion programs on their PC or on their E-touch II controller.
Multilingual Display	User may select one of nine languages to display on the controller: Japanese, English, Chinese, Korean, Spanish, Dutch, German, Portuguese, or Slovak.
Free Casing Setting	Up to 250 release positions may be designated per pallet.
3rd Party Program Installation	PC-compatible programs other than the robot control program may be installed and run on the E-touch II controller.
Integrated Exhaust Control	This option, intended for clean-room environments, greatly reduces the exposure of molded products to possible exhaust-borne particulates.
High-Cycle Traverse	Traverse axis is adapted to speedier, high-cycle use by installing a larger servo motor.
Traverse Beam Stanchion	Support stanchion is installed on the end of extended-length traverse beams or when extra precision is necessary when placing products. (Equipped as standard on robots with traverse beams 2200mm or longer.)
Custom Color	Robot body, frame caps, and control boxes will be painted with a color specified by the customer.
Protective Sheet for Touch Screen	A transparent cover sheet to protect the controller's touch screen.

Yushin Automation Equipment: Designed for Extra Productivity and Energy Savings



**Reel-style
Hoop Feeder**

Visual Inspection System

Teams robot with a visual inspection device to sort out defective products



G-CUTTER SC
Digital Control Gate-Cut System

In-Mold Labeling System



**Automatic Packing
Systems**

DRDIII

Optical Disk Take-Out Robot



DISPOLE

Optical Disk Stocker System



Safety information

- These products are industrial robots as defined in the labor safety rules. Always take great care when operating any robots.
- To improve visual clarity, these robots may be shown without the safety guards that are identified in the safety rules. Never operate the robots without all safety guards in place.
- Before using any product introduced in this literature, all operators must read and understand the instruction manual and other related documents for proper and safe equipment operation.

• The contents in this catalog are subject to change without notice.

World Technology

Yushin

Yushin Precision Equipment Co., Ltd.



Yushin is dedicated to the development of more eco-sensitive technologies through the application of eco-friendly principles.

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