

DYADIC SMART ROBOT

# DSR02-400

Truly safe robot

MOVE WITH EVERYBODY

## COLLABORATIVE ROBOT



Since this product uses a servo motor with a motor rating of 80W or less that is excluded from industrial robots, it conforms to the items required by ISO10218-1:2011 regarding industrial robots that require safety fences when used as collaborative robots to ensure further safety.

· Method 4: Power and force limiting

# One-of-a-kind cute pink round robot Get everyone's friends Let's work and do our best

A collaborative robot that is so simple and easy to use for anyone. A tool useful for supporting labor shortage and improving work efficiency.

### Easy to use

1. Turn on the robot and tablet
2. Hold and directly teach the arm of the robot
3. Lastly, confirm the operation and do fine adjustments using the tablet

Maximum weight capacity: 2kg  
Operation radius: 400mm



Various ends corresponding to the effector  
Suction pad    Gripper    Electric screwdriver etc.

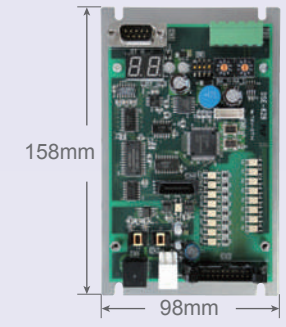
Electric screwdriver that passes through the arm A mountable 3-axis specification can also be used.

### All-in-one structure

You can carry it!  
(Body weight: 14kg)

### Built-in controller

Palm-sized small controller



Simple controller  
**CTC-77** ※  
Maximum number of control axes: 8 axes

### Air hose piping/built-in solenoid valve

An air hose is piped to the tip of the arm. In addition, it can be used if air is supplied from the back panel since it has a built-in solenoid valve.

※For details of CTC-77, refer to the general catalog or website.

Mountable hand made by Myotoku

**CONVUM**

ROBOT HAND KIT  
ROBOT HAND KIT

KDP Type

1 vacuum pad    2 vacuum pads    3 vacuum pads

※Not sold directly by Dyadic Systems.

For inquiries  
Robot Hand Kit HP  
MYOTOKU Ltd. <https://www.convum.co.jp/robot-hand-kit/>

# Moving the robot

## 1 Register the arm stop position

Teaching

Hold the arm and move it to the approximate position

Do fine adjustments with the software

Fill in with numbers

Positioning point completed

## 2 Create a series of movements for the robot

Programming

Once a positioning point is created by teaching, you can create the robot's actions using the program software CTC Tool R. The basic operation is just dragging and dropping the icon to the process.

Icon

Icon placement area

Move arm to (positioning point number)

### Icon Functions

**Action**  
(Icons that make the robot move)

Icons for interacting with robot joints

**Flow**  
(Icons that make the program flow)

- Start program execution
- Delay timer
- "Input" I/O signal from outside
- "Output" I/O signal from outside
- Return to specified process
- Jump to subprogram
- Execute next process at the same time
- End program execution

End the program

It can be programmed like a game because it does not use a special programming language.

Process	Point	Operation axis	Operation axis	Operation axis	Operation axis	PFIN	IN	TIME	OUT	END	Return	Jump	Comment
00	0												Move axis J3 to "Point 0"
01	0	J1	J2	J3	J4								Move axes J1, J2, J4 at the same time to "Point 0"
02	1	J1	J2	J3	J4								Move axes J1, J2, J4 at the same time to "Point 0"
03	1			J3									Move axis J3 to "Point 1"
04	0								OUT				"Suction" to the built-in solenoid valve
05	0								Delay				Stop at specified time
06	0			J3									Move axis J3 to "Point 0"
07	2	J1	J2	J3	J4								Move axes J1, J2, J4 to "Point 2"
08	2			J3									Move axis J3 to "Point 2"
09	0								OUT				"Release" the built-in solenoid valve
10	0								Delay				Stop at specified time
11	0			J3					Loop				Move axis J3 to "Point 0" and then return to Process 02
12	0	J1	J2	J3	J4								Move axes J1, J2, J4 to "Point 0"
13	0												
14	0												

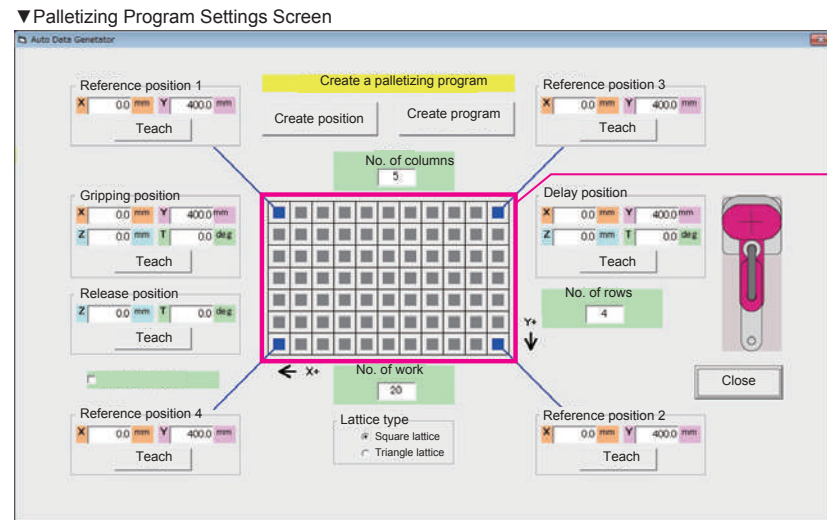
Double clicking the placed icon leads to the settings screen, where the value can be amended.



# Useful functions

## Creating a palletizing program

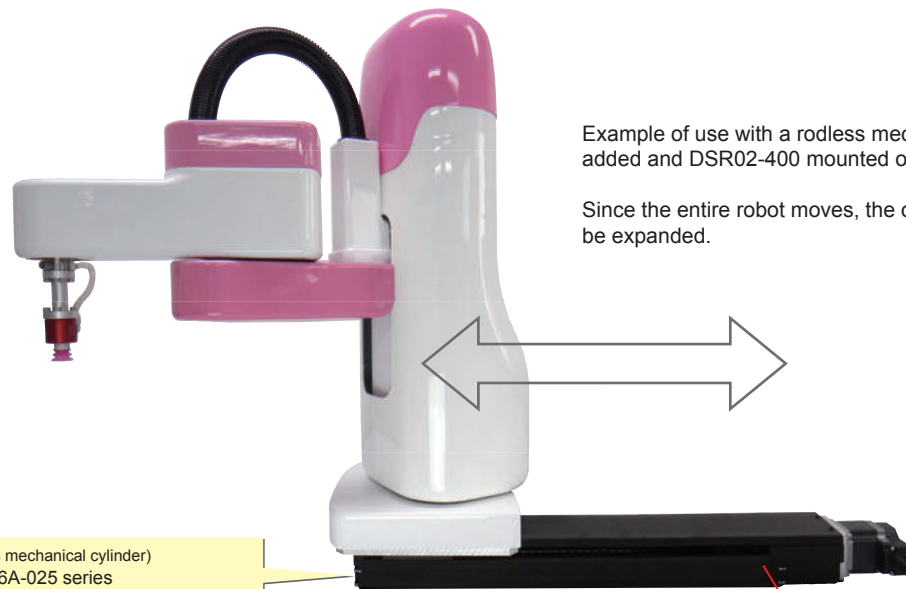
In the case of palletizing operations such as boxing work, a program is automatically created simply by entering the required items on the dedicated input screen.



Pallet image

## Adding a mechanical cylinder

Mechanical cylinders and servo motors from 1 to 4 axes can be added to DSR02-400 as additional axes.

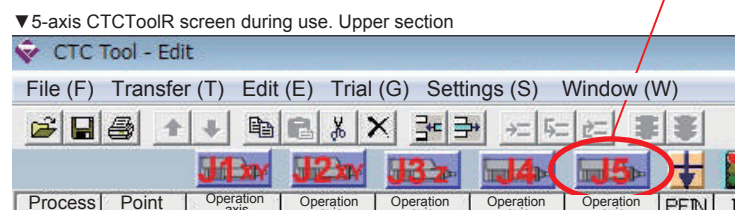


Example of use with a rodless mechanical cylinder added and DSR02-400 mounted on it.

Since the entire robot moves, the operating range can be expanded.

(Rodless mechanical cylinder)  
SCKR6A-025 series  
Stroke: 200mm – 1400mm  
Maximum weight capacity: 60kg<sup>(H)</sup> Horizontal

Additional axis



# Mechanical cylinder/servo motor model list

All models can be used as additional axis

## Rod-type mechanical cylinder



Model	Maximum thrust (N) / (kgf) : typ value		Stroke (mm)	Fastest speed (mm/sec)
	Maximum	Push time		
SCN3 series	40/4	30/3	~50	400
SCN5 series	~200/10.4	~140/14	~300	~400
SCN6 series	~650/66.3	~450/45.9	~300	~200
SCN6-080Q series	800/81.6	450/45.9	100	100

## Rodless-type mechanical cylinder



Model	Maximum thrust (N) / (kgf) : typ value	Maximum weight capacity (horizontal) (kgf) : typ value	Stroke (mm)	Fastest speed (mm/sec)
SCLG5 series	100/10.2	10	~300	300
SCLG6 series	~300/30.6	20	~1000	~300
SCLT4 series	~300/30	~10	~500	~700
SCLT6 series	~500/50	~30	~700	~600
SCKSF4 series	180/18	8	~900	~500
SCKSF6 series	~300/30	~22	~1300	~1400
SCKR6 series	300/30	~60	~1450	~600

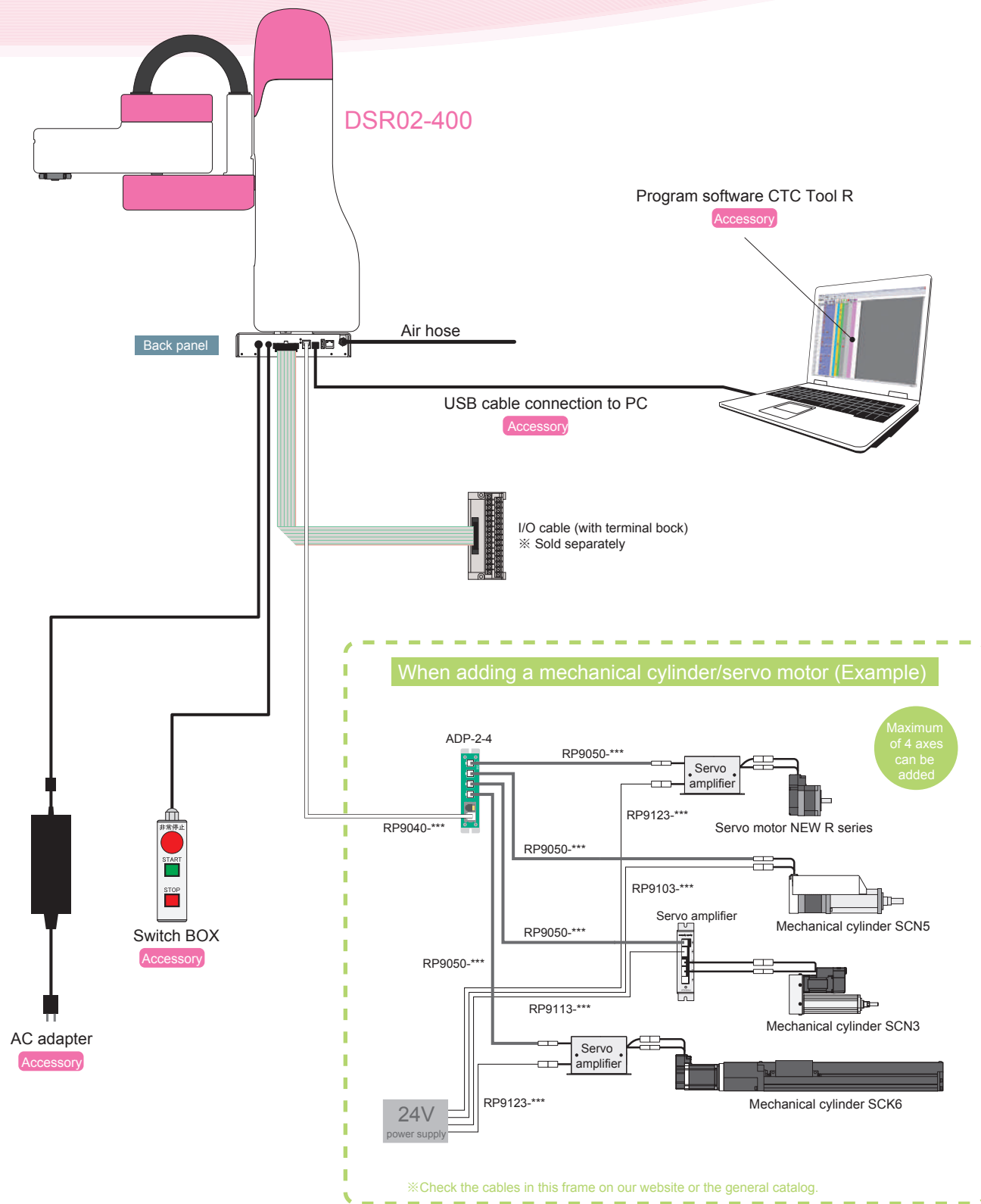
## Servo motor



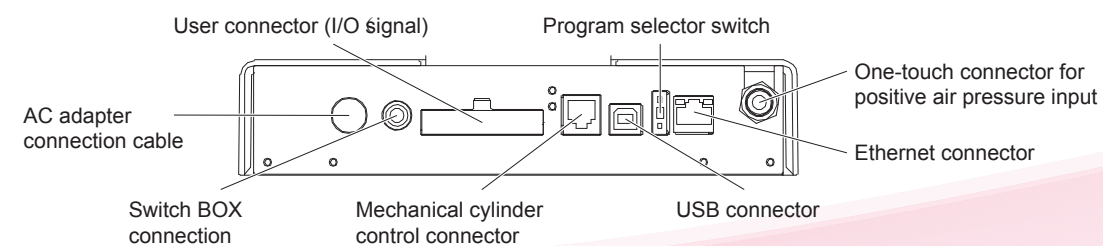
Model	With/without gear	Reduction ratio	Maximum rotations (r/min)	Largest torque (N · m)
RSA0211	With gear	—	4500	0.11
RCB041			4500	0.3
RSA0411			4500	0.3
RSA0611			4500	0.6
RSA0911			3500	0.9
RSA1211-0101			4500	1.2
RSA1611			4500	1.6
RSA0611-G1	With gear	1/5	600	1.5
RSA0611-G2		1/10	300	2.5
RSA0211-G5-10-0101	With high precision gear	1/10	450	0.8
RCB0411-G5-06-02		1/6	750	1.4
RSA0411-G5-06-0201		1/6	750	1.4
RSA0611-G8-05-0201		1/5	850	3.0
RSA1211-G8-05-0201		1/5	850	5.0

Please see the general catalog or home page for the details of the mechanical cylinders and servo motors.

# System Configuration



## Back Panel



## Accessories

User manual



Program software CTC Tool R



Switch BOX



USB cable connection to PC



AC adapter



Bolts for fixing the body M8-20



## Optional cables (Sold separately)

Product name	Cable length	Model
I/O cable (with terminal block)	30cm	RP9171-003
	50cm	RP9171-005
	1m	RP9171-010
I/O cable (with terminal block)	2m	RP9171-020
	1m	RP9172-010 R
	3m	RP9172-030 R
I/O cable (with terminal block)	5m	RP9172-050 R
	2m	RP9250-020
Power cable with connector	2m	RP9220-020

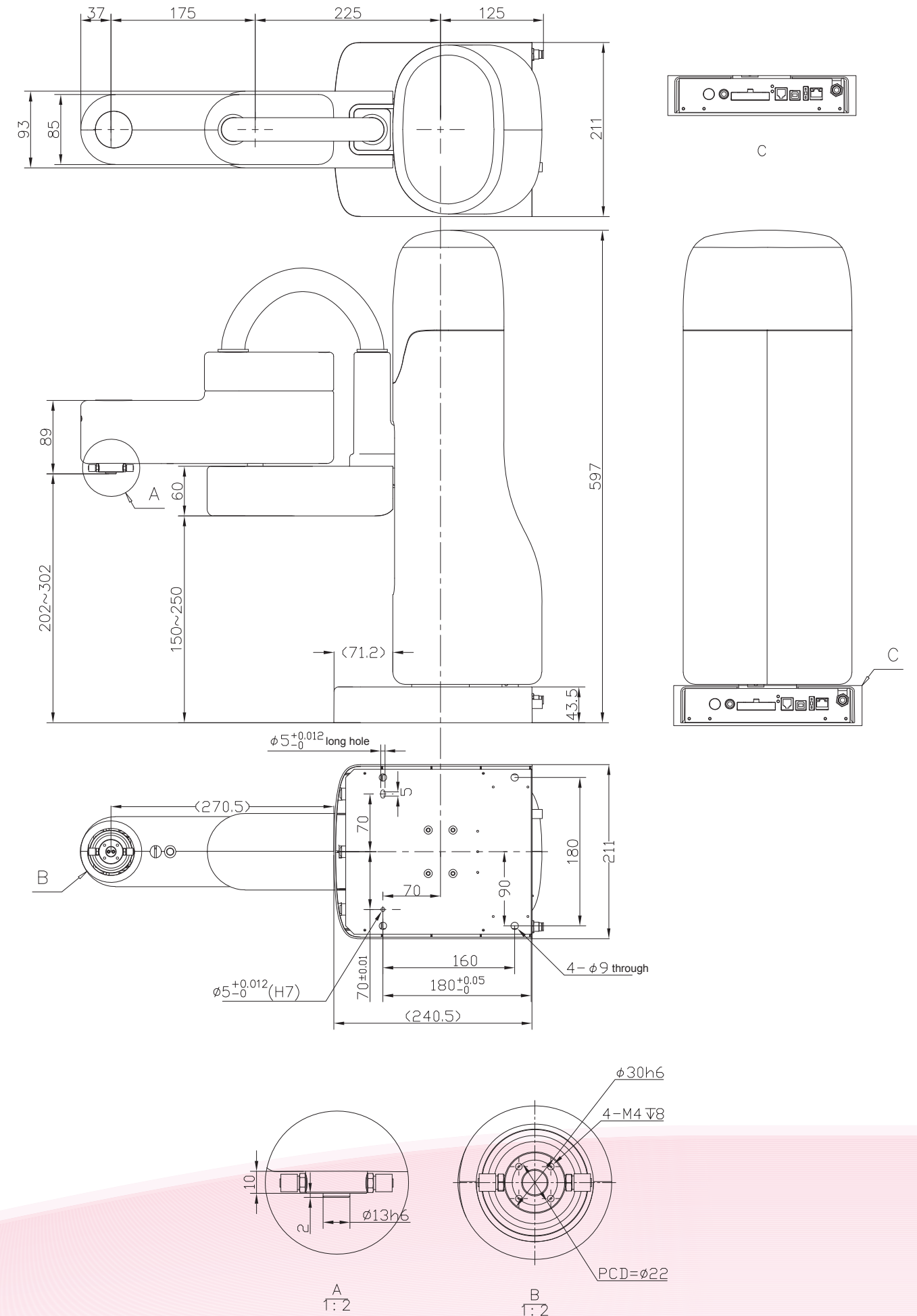


# Application examples

The application examples are:

- Grading:** Sorting items into categories A, B, and C based on dimensions.
- Conveyor input after inspection:** Picking items from a conveyor after they have been inspected.
- Boxing:** Placing items into a box.
- Boxing:** Picking items from a conveyor and placing them into a box.
- Inspection camera positioning:** Adjusting the position of an inspection camera.
- Reagent filling:** Filling a container with reagents from a machine and then tightening the cap.
- Pallet-to-press loading:** Loading items from a pallet onto a press machine.
- Conveyor input after screw tightening:** Picking items from a conveyor after they have been processed by an automatic screw tightening machine.
- Conveyor input from reusable shipping box:** Picking items from a reusable shipping box onto a conveyor.
- Placing labels in packing boxes:** Placing labels into packing boxes.
- Packing multiple parts:** Packing multiple parts into a container.
- Button inspection of electronic equipment:** Inspecting buttons on electronic equipment.

## Dimensions

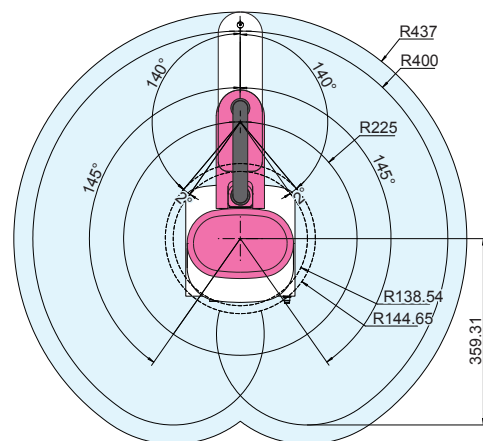


## Specifications

Repeatability	XY plane	±0.05mm	
	Up-down	±0.01mm	
	Tip rotating part	±0.2deg	
Weight capacity	Maximum	2Kg	
Tip rotating part Allowable moment of inertia	Rated	0.002Kg m <sup>2</sup>	
	Maximum	0.01Kg m <sup>2</sup>	
Third joint (J3) push-in force	20N		
User wiring I/O	General purpose	Input 8 pts / Output 8 pts	
	Special purpose	Input	Sequence start, sequence stop, alarm reset, return to original point
		Output	Sequence complete, sequence in operation, alarm
Linear interpolation, circular interpolation	None		
Vision system support	None		
Action editing software	Simple software CTC Tool R (Japanese, English, Chinese)		
Teaching tool	Tablet PC or desktop PC (Provided by the user)		
Robot power supply voltage	+24V 8A ※ AC adapter (AC100-240V 50 Hz/60HzZ) included		
Collision detection function	Yes (Emergency stop at collision)		
Maximum power consumption	Less than 200W		
Body weight	14Kg		
	※Including controller and air piping parts. Does not include cable weight.		

## Operating Range Diagram

Maximum operating range	J1	±145deg (Arm length: 225mm)
	J2	±140deg (Arm length: 175mm)
	J3	Up-down 100mm
	J4	±180deg



※ Appearance and specifications are subject to change without notice.