

Large Diameter Hollow
Rotary Type RoboCylinder

RCS2-RTC



SIGNIFICANT INCREASE IN ACCURACY/SPEED/TORQUE

Adoption of the hollow structure provides a large diameter hollow rotary series with improved usability

RTC12L

RTC10L

RTC8L (RTC8HL)

1 . Hollow Construction

Large-diameter hollow structure, allows installation of rotating wires and laying of pipes easier.

2 . High Precision

Hypoid gear with high resolution (0.0015 to 0.0007 deg/pulse) encoder allows high accuracy ± 0.005 degree. Can be used as a high precision table.

3 . Multi-turn Operation

The operating range is up to ± 9999 degrees* from home. It is also possible to rotate indefinitely in the same direction.

*Depending upon the model

4 . High Rigidity

To achieve high rigidity, cross-roller bearings are used in the large diameter spindle and table. Available in small, medium, and large body sizes.

5 . No Return to Home

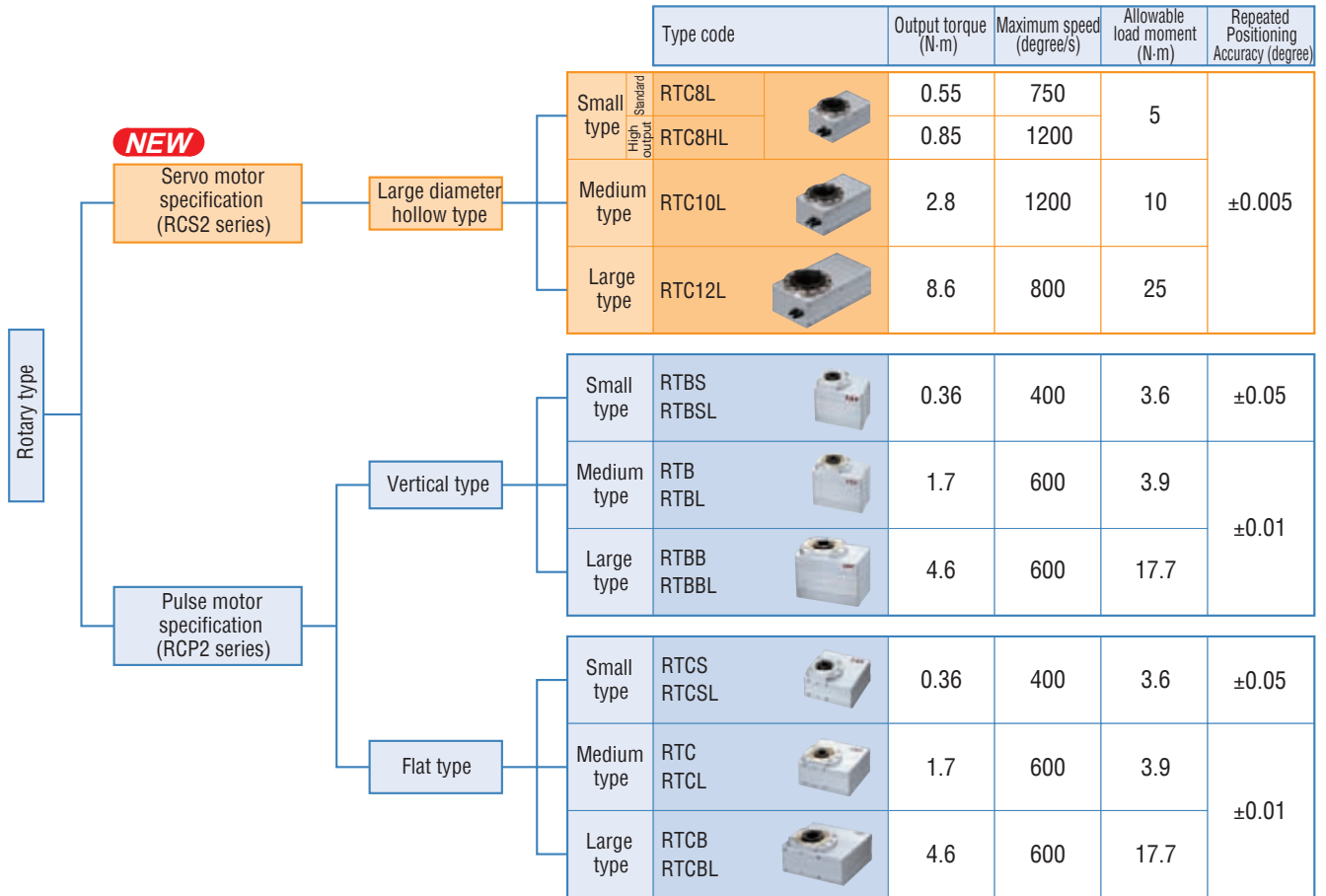
Homing is not required with the absolute encoder type. In the case of an emergency stop, work can resume from the last stopped position.

6 . Internal Brake (Optional)

Since the brake specification can be selected, the actuator can be powered off but still hold position of the table during an emergency stop.

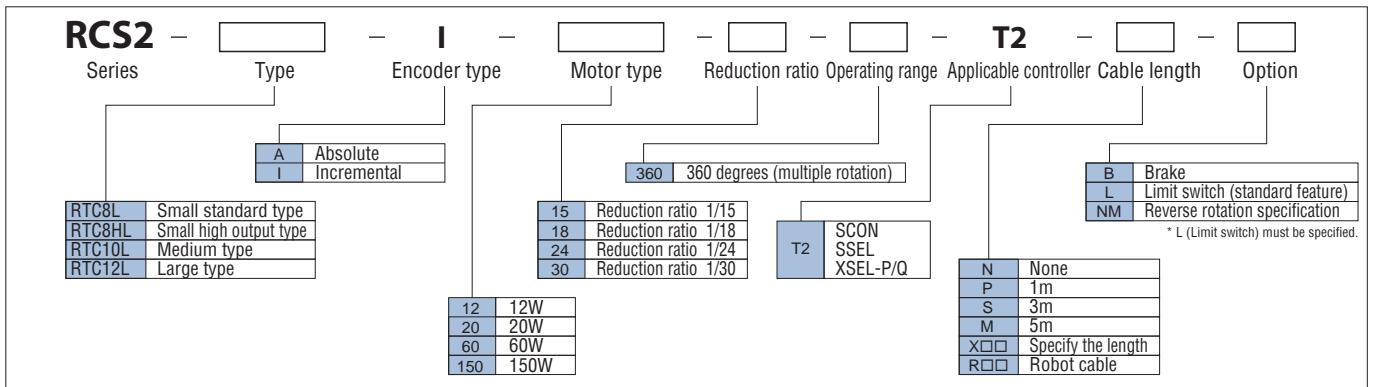


Rotary product system



* Please note that the product cannot be operated when both the output torque and maximum speed values are simultaneously at the settings given in the above table.

Type



Type

| Type | Model |
|------------------------|---|
| Small standard type | Absolute type RCS2-RTC8L-A-12-24-360-T2 |
| | Incremental type RCS2-RTC8L-I-12-24-360-T2 |
| Small high output type | Absolute type RCS2-RTC8HL-A-20-15(24)-360-T2 |
| | Incremental type RCS2-RTC8HL-I-20-15(24)-360-T2 |
| Medium type | Absolute type RCS2-RTC10L-A-60-15(24)-360-T2 |
| | Incremental type RCS2-RTC10L-I-60-15(24)-360-T2 |
| Large type | Absolute type RCS2-RTC12L-A-150-18(30)-360-T2 |
| | Incremental type RCS2-RTC12L-I-150-18(30)-360-T2 |

* The value in the brackets shows an alternative reduction ratio that can be selected.

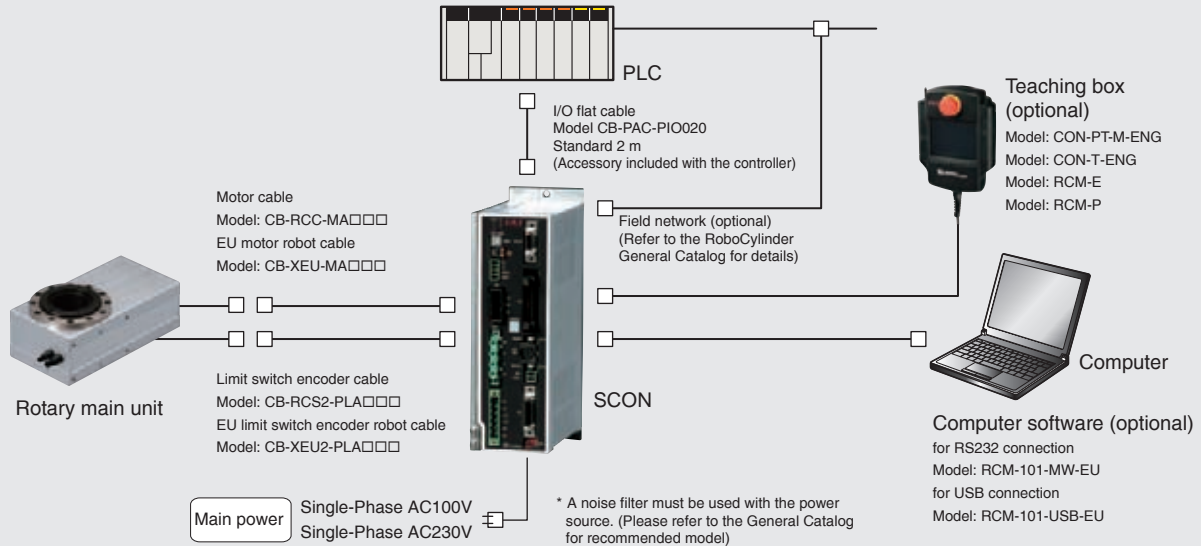
Cable

| Name | Cable symbol |
|----------------|-------------------|
| Standard type | P (1m) |
| | S (3m) |
| | M (5m) |
| Special length | X06(6m)~X10(10m) |
| | X11(11m)~X15(15m) |
| | X16(16m)~X20(20m) |
| Robot cable | R01(1m)~R03(3m) |
| | R04(4m)~R05(5m) |
| | R06(6m)~R10(10m) |
| | R11(11m)~R15(15m) |
| | R16(16m)~R20(20m) |
| | |

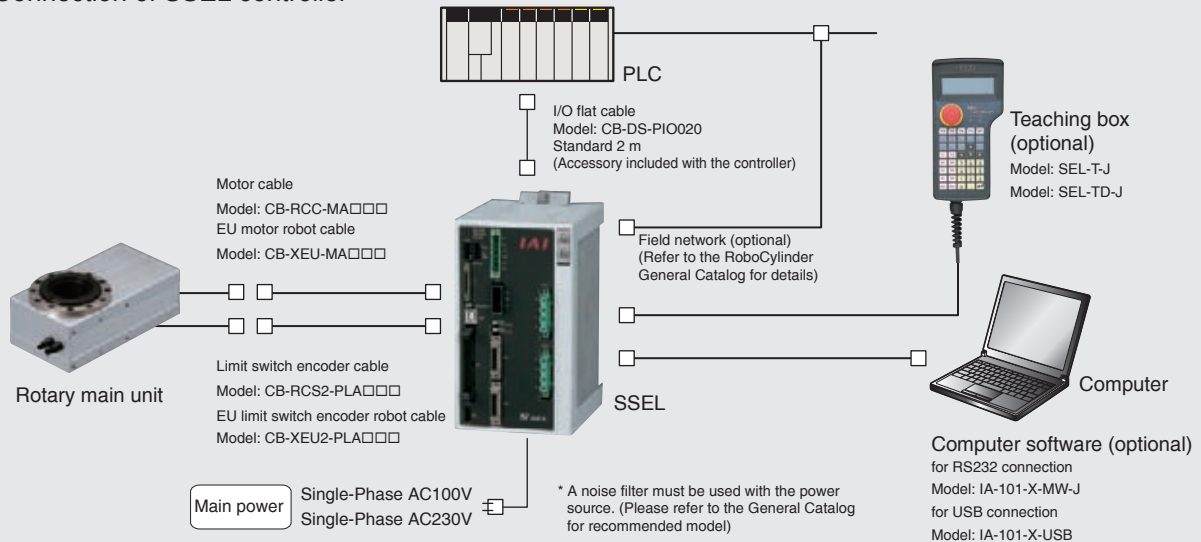
Actuator option

| Name | Option code |
|---------------------------------|-------------|
| Brake | B |
| Limit switch (standard feature) | L |
| Reverse rotation specification | NM |

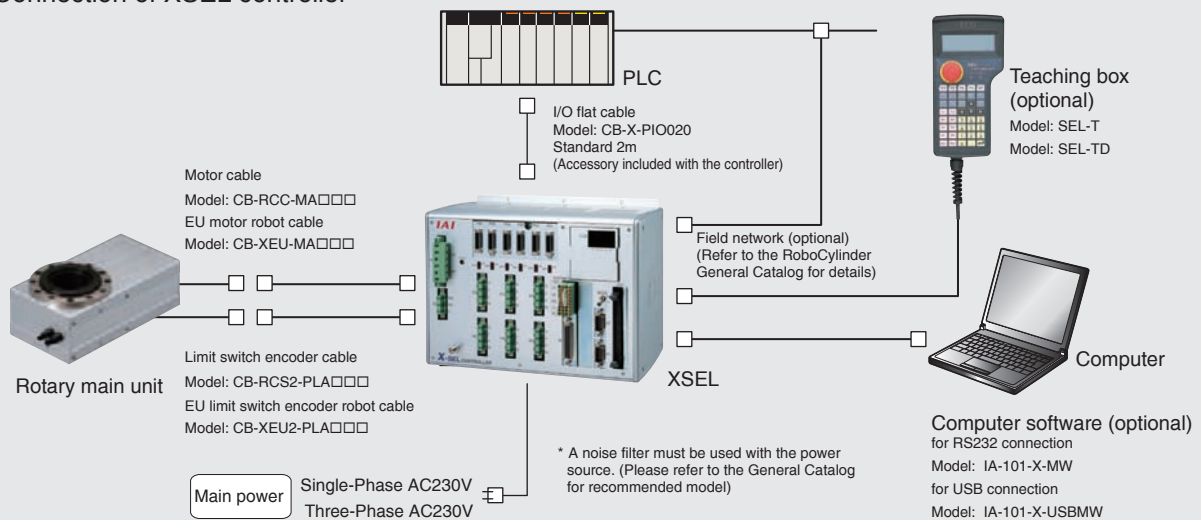
■ Connection of the SCON controller



■ Connection of SSEL controller



■ Connection of XSEL controller



Specification

| Name of type | | Small standard type | Small high output type | | Medium type | | Large type | | |
|---|-------------------|--|------------------------|-----------|-------------|-----------|------------|------------|--|
| Model | | RTC8L | RTC8HL | | RTC10L | | RTC12L | | |
| Speed reduction ratio | | 1/24 | 1/15 | 1/24 | 1/15 | 1/24 | 1/18 | 1/30 | |
| Operating range | Degree | ±360 (Note 1) | | | | | | | |
| Motor output | W | 12 | 20 | | 60 | | 150 | | |
| Output torque | N·m | 0.55 | 0.53 | 0.85 | 1.7 | 2.8 | 5.2 | 8.6 | |
| Maximum operation speed | Degree/s | 750 | 1200 | 750 | 1200 | 750 | 800 | 600 | |
| Positioning repeatability | Degree | ±0.005 | | | | | | | |
| Backlash | Degree | ±0.05 or lower | | | | | | | |
| Allowable inertial moment | kg·m ² | 0.011 | 0.01 | 0.017 | 0.033 | 0.054 | 0.1 | 0.17 | |
| Allowable thrust load | N | 400 | | | 600 | | 800 | | |
| Allowable load moment | N·m | 5 | | | 10 | | 25 | | |
| Home detection method | | Optical encoder (Incremental type/Absolute type) | | | | | | | |
| Origin point detection method | | Proximity sensor method | | | | | | | |
| Brake retention torque | N·m | 0.42 | | | 0.45 | | 1.0 | | |
| Operational environment | | Temperature 0 - 40°C, humidity 20 to 85%RH or less (no condensation) | | | | | | | |
| Inside diameter of hollow shaft | mm | ø30 | | | ø40 | | ø54 | | |
| Outer dimensions of the main body (WxLxH) | mm | 85×135×77 | | 85×150×77 | | 99×171×86 | | 123×233×92 | |
| Weight of the main body | kg | 2.3 | | 2.4 | | 3.5 | | 6.5 | |

(Note 1) Operation range is up to ±9999 degrees.

Applicable Controller

| Name | Model |
|--|------------------------|
| Positioner type (Absolute) | SCON-C-□A-NP-2-□ |
| Positioner type (Incremental) | SCON-C-□I-NP-2-□ |
| Program control, 1 axis type (Absolute) | SSEL-C-1-□A-NP-2-□ |
| Program control, 1 axis type (Incremental) | SSEL-C-1-□I-NP-2-□ |
| Program control, multi-axis type (Absolute) | XSEL-□-□-□A-N1-EEE-2-□ |
| Program control, multi-axis type (Incremental) | XSEL-□-□-□I-N1-EEE-2-□ |

* Controller models vary according to the motor output of the rotary and the model/power-supply voltage of the controller. Please refer to the Controller page in the RoboCylinder General Catalog for details.

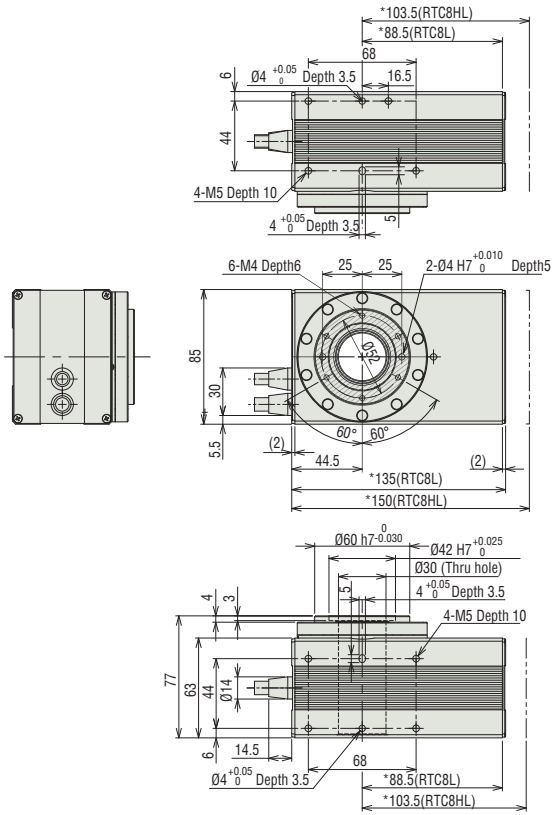
Options

| Supported controllers | | Feature | Model |
|---|-------------------|--|----------------|
| For position controller (PCON, ACON, SCON, ROBONET, PSEP, ASEP, ERC2) | Teaching box | Easy operation type provided with a touch panel | CON-PT-M-ENG |
| | | IP54-compliant standard type | CON-T-ENG |
| | | Affordable basic type | RCM-E |
| | | Solely dedicated to data entry with no movement feature | RCM-P |
| | Computer software | RS232C connection type | RCM-101-MW-EU |
| | | USB port connection type | RCM-101-USB-EU |
| For program controller (PSEL,ASEL,SSEL, XSEL) | Teaching box | IP54-compliant standard type (for XSEL controller) | SEL-T |
| | | IP54-compliant standard type (for PSEL/ASEL/SSEL controller) | SEL-T-J |
| | | 3-Position Enable Switch type (for XSEL controller) | SEL-TD |
| | | 3-Position Enable Switch type (for PSEL/ASEL/SSEL controller) | SEL-TD-J |
| | Computer software | RS232C connection type(for XSEL controller) | IA-101-X-MW |
| | | RS232C connection type (for PSEL/ASEL/SSEL controller) | IA-101-X-MW-J |
| | | USB port connection type(for PSEL/ASEL/SSEL controller) | IA-101-X-USB |
| | | USB port connection type with an emergency stop switch (for XSEL controller) | IA-101-X-USBMW |

■ Small type

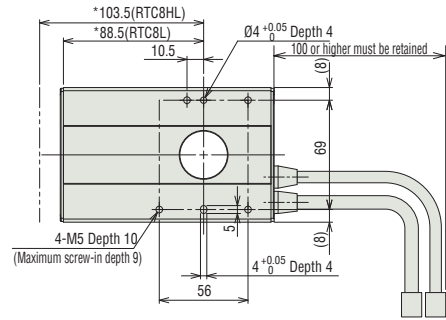
RCS2-RTC8L (Small standard type)

RCS2-RTC8HL (Small high output type)



Caution

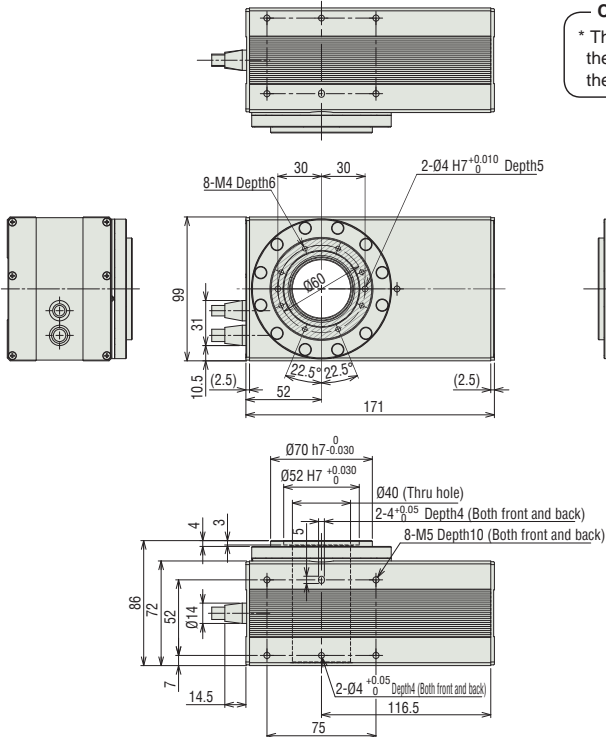
* The shaded area in the top view shows the rotation area.



■ Medium type

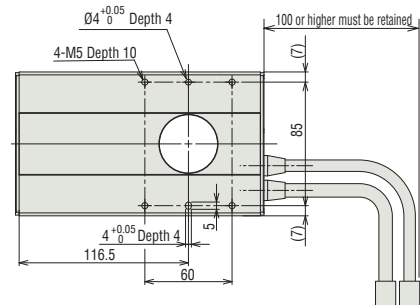
RCS2-RTC10L

(Dimensions of mounting holes on the side are bilaterally symmetric)



Caution

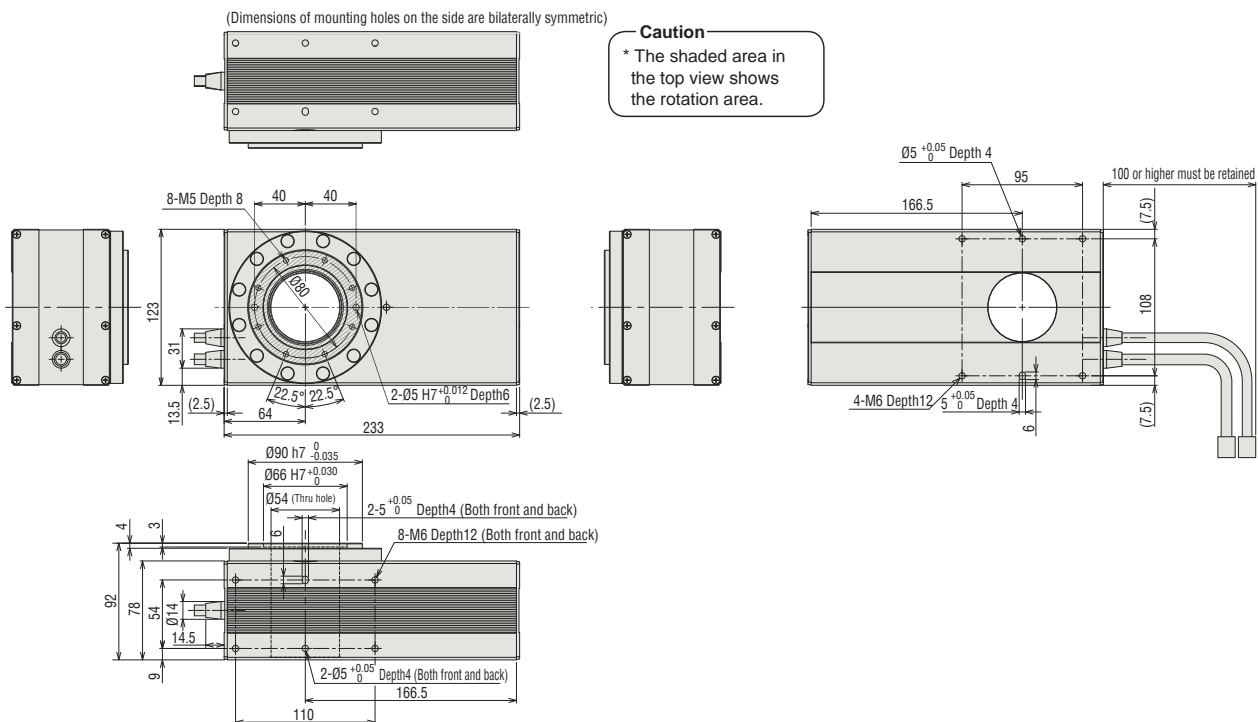
* The shaded area in the top view shows the rotation area.



Outer Dimensions

Large type

RCS2-RTC12L



Precautions for Use

Carrier Load

Guidelines for Offset Distance

The more the work part's center of gravity separates from the center of the rotary shaft, the more it vibrates. Design the tool with reference to the following table.

| Model | Offset distance (m) |
|--------|---------------------|
| RTC8L | 0.10 |
| RTC8HL | 0.12 |
| RTC10L | 0.15 |
| RTC12L | 0.20 |

Brake

- The brake is provided for retention purposes. It should not be used for braking or emergency stop purposes.
- Use the brake switch on the controller to manually unlock the brake.
There is no brake unlock switch on the robot side.
- * Allowable inertia and allowable brake torque do not function simultaneously. You must check the retention torque.

Please refer to the Specification Sheet for the values and details of the specifications.

Acceleration

- Please set between 0.1 and 0.3G.

Speed

- Maximum speed that the actuator can achieve is shown.
- It depends on the operational conditions (acceleration, operational range)

Operational range

- Please note that the operational range can vary with the speed reduction ratio.

Torque

- The torque specified on the specification is rated torque. Up to three times the torque may be reached momentarily.

Allowable load

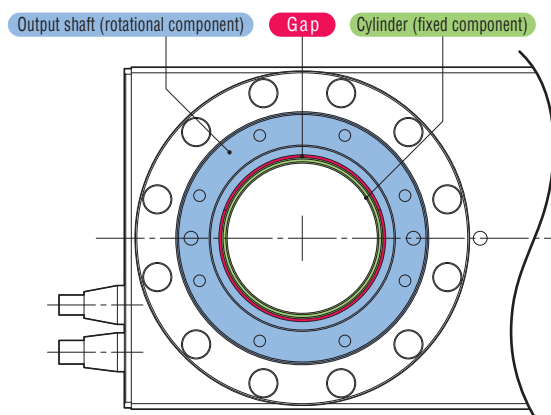
There are three items as shown below.

Values over the specified load may shorten the product lifetime or cause damage. Loads must be set at the allowable value or lower.

- Allowable inertial moment
- Allowable thrust load
- Allowable load moment

Others

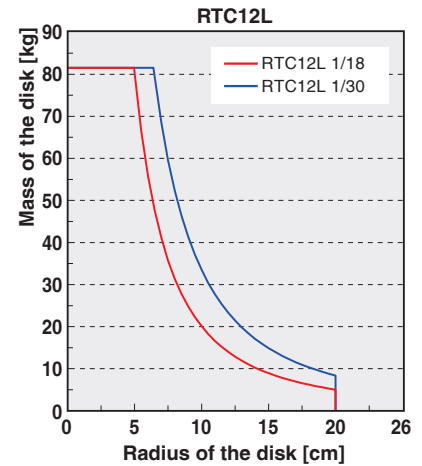
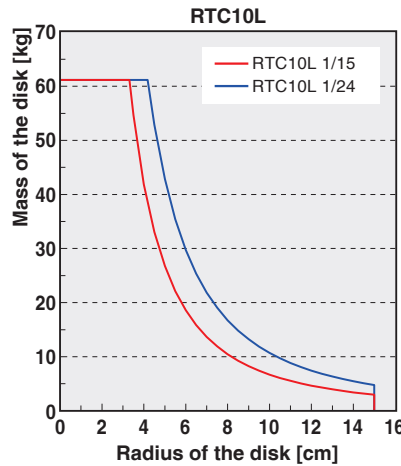
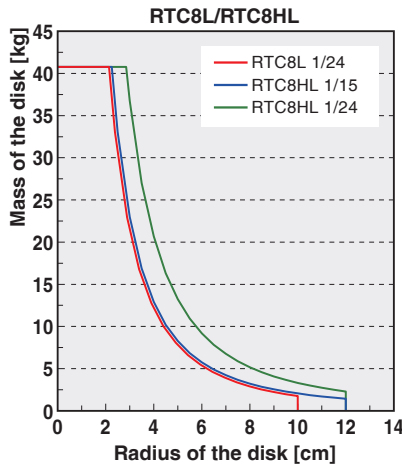
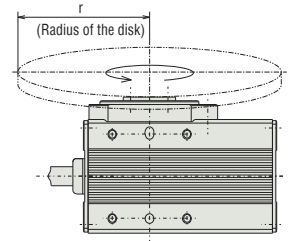
- There is a 1mm gap between the output shaft (rotational component) and the cylinder (fixed component). (See the diagram below)
- Please prevent foreign matter from getting into the unit as this may cause trouble or malfunction.



Guidelines for selecting model: Please refer to the following figures to select the model according to the shape and mass of the objects mounted on the output shaft.

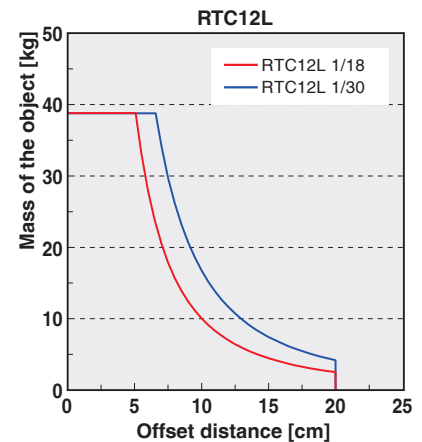
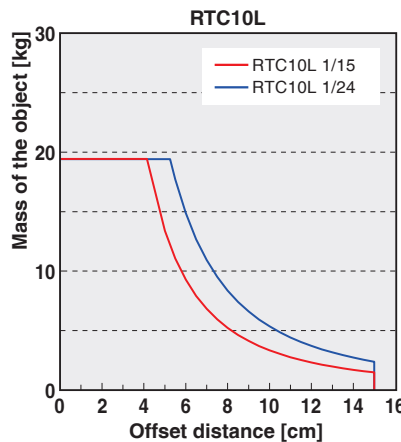
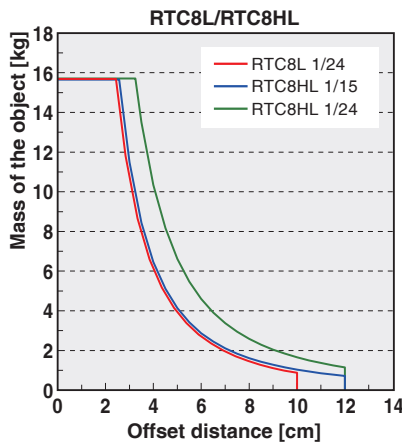
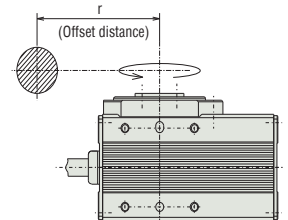
A Disk-shaped object mounted at the center of the output shaft

For disk shaped objects having their center positioned at the center of the rotary's output shaft, please refer to the following graphs to find the model that meets both the mass and radius of the disk.



B Object mounted offset from center of output shaft

For objects offset from the rotary's output shaft, please refer to the following graphs to select the model that meets both the mass and offset distance of the object.



*When using a rotation shaft in the horizontal direction, gravitational loading torque is generated when an object's center of the gravity is located away from the center of rotation. Either decrease the rotational velocity or reduce the mounted weight.