

ROBO Cylinder
High-Speed Ball Screw Type

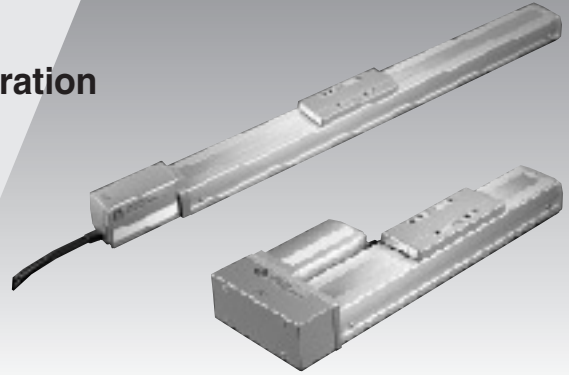
RCP2-HSM/HSMR

RCP2CR-HSM

ROBO Cylinder
High-Speed Ball Screw Type
Clean Room Specification

ROBO Cylinders employing a high-speed ball screw are now available!
The ball screw drive achieves high-speed operation at a maximum speed of 1200 mm/sec!

- Combination of the RCP2-SM/SMR actuator with a high-lead ball screw and a high-output motor achieved high accuracy (positioning repeatability of ± 0.02 mm) and high-speed operation (maximum speed of 1200 mm/sec).
- A motor-reversed short type is available as an option. A model conforming to cleanliness class 10 (RCP2CR) is also available.



Model

Actuator Model

RCP2 - HSM - I - PM - 30 - 1000 - P1 - M - NM

Series	Type code	Encoder type	Motor type	Gear ratio	Stroke	Applicable controller	Cable length	Options
RCP2: Standard specification RCP2CR: Clean room specification	HSM: Actuator width 80mm (motor in-line type) HSM: Actuator width 80mm (Motor-reversed)	I: Incremental	PM: Pulse motor	30: Lead 30	100-1000mm	P1: RCP2-CF	N: No cable P: 1m S: 3m M: 5m X: Specified length R: Robot cable	Option B: Brake NM: Reversed-home specification SR: Roller slider VR: Suction pipe joint R/L: reversed

Controller Model

RCP2 - CF - HSM - I - PM - 0 - P

Series	Type	Actuator type	Power-supply voltage	Input signal pattern
RCP2	CF: Built-in drive-power cutoff relay, high output type	Actuator's (type code) - (encoder type) - (motor type)	0: 24VDC	(Blank) : NPN P : PNP

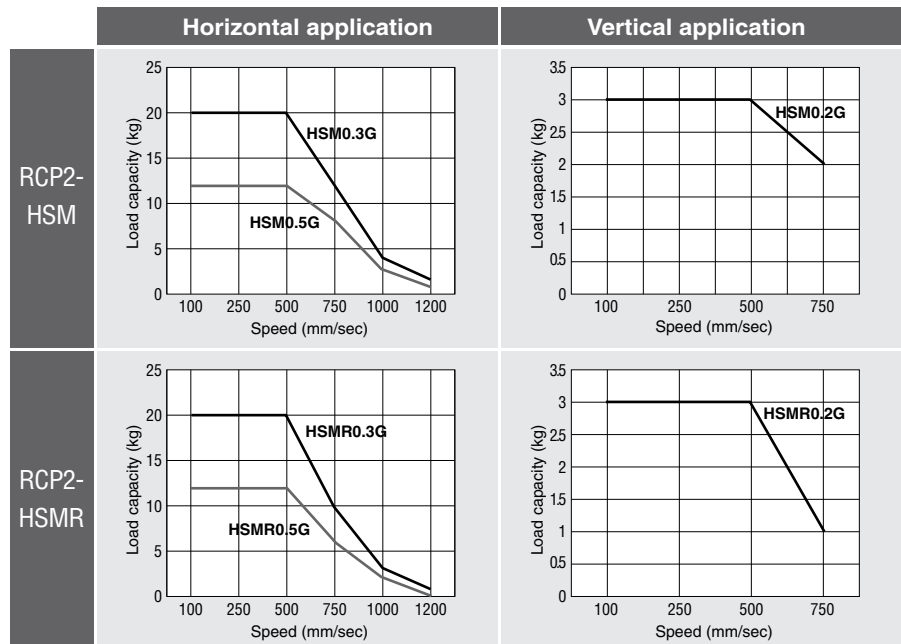
* This field can be left blank unless the PNP specification is required.

Correlation Diagrams of Speed and Load Capacity

The maximum speed of the RCP2 Series will vary depending on the weight of the load installed on the slider.

When selecting an optimal model, use the graphs on the right to check if the desired performance specification can be achieved.

* The rated acceleration of the RCP2 Series is 0.3 G (horizontal)/0.2 G (vertical). With the high-speed ball screw type, the rated acceleration can be raised to up to 0.5 G only in a horizontal application.



Type / Slider (width: 80 mm) Stroke / 100~1000mm Load capacity / 20 kg (horizontal)/ 3 kg (vertical)

Model specification items Series Type Encoder type Motor Lead Stroke Applicable controller Cable length Option
 (Example) RCP2 -HSM - I - PM - 30 - 1000 - P1 - M - NM



* The maximum speed of the RCP2 Series will vary depending on the weight of the load installed on the slider (rod). Refer to the graphs on the cover page for the relationship of speed and load capacity.

Model / Specifications

Model	Encoder type	Motor	Lead (mm)	Stroke (50-mm increments) (mm)	Speed (Note 1) (mm/s)	Load capacity (Note 2)		Suction volume (N ℓ /min)
						Horizontal (kg)	Vertical (kg)	
RCP2-HSM-I-PM-30-①-P1-②-③	Incremental	Pulse motor	30	100~1000	10~1200<750>	20~2	3~2	-
RCP2CR-HSM-I-PM-30-①-P1-②-③								180

①, ② and ③ in the model numbers shown above respectively indicate the stroke, cable length and applicable option(s).

Options

Name	Code	Page
Brake	B	-
Reversed-home specification	NM	-
Roller slider	SR	-
Suction-pipe joint R/L-reversed	VR	-

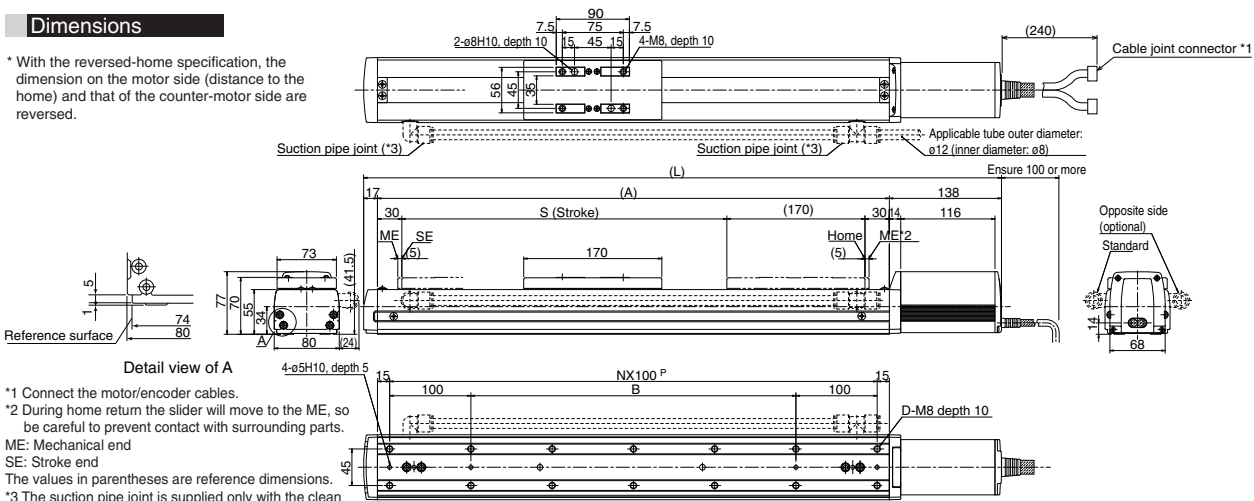
(*) The ROBO Cylinder clean room specification comes standard with a roller slider.

Common Specifications

Drive system	Ball screw: ϕ 16 mm, rolled C10
Positioning repeatability	\pm 0.02mm
Backlash	0.05 mm or less
Grease (Note 3)	Low-dust grease (for both ball screw and guide)
Guide	Integrated with the base
Allowable load moments (Note 4)	Ma: 36.3N \cdot m Mb: 36.3N \cdot m Mc: 77.4N \cdot m
Overhang load length	Ma \cdot Mb \cdot Mc directions: 450mm or less
Base	Material: special alloy steel
Cable length (Note 5)	N: No cable, P: 1 m, S: 3 m, M: 5 m, X□: Specified length, R□: Robot cable
Cleanliness class (Note 3)	Class 10 (0.1 μ m)
Suction pipe joint (Note 3)	Quick-connector joint, applicable tube size ϕ 8

Dimensions

* With the reversed-home specification, the dimension on the motor side (distance to the home) and that of the counter-motor side are reversed.



*1 Connect the motor/encoder cables.

*2 During home return the slider will move to the ME, so be careful to prevent contact with surrounding parts.

ME: Mechanical end

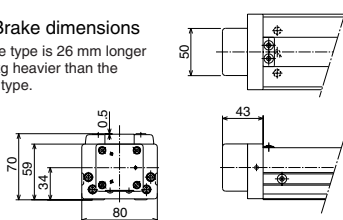
SE: Stroke end

The values in parentheses are reference dimensions.

*3 The suction pipe joint is supplied only with the clean room specification.

Brake dimensions

* The brake type is 26 mm longer and 0.5 kg heavier than the standard type.



* The brake cable is wired inside the actuator and connected to the motor cable.

Dimension, Weight and Maximum Speed by Stroke (Note 1)

Stroke	100	200	300	400	500	600	700	800	900	1000
L	485	585	685	785	885	985	1085	1185	1285	1385
A	330	430	530	630	730	830	930	1030	1130	1230
B	100	200	300	400	500	600	700	800	900	1000
D	8	10	12	14	16	18	20	22	24	26
N	3	4	5	6	7	8	9	10	11	12
Weight (kg)	7.5	8.5	9.6	10.6	11.7	12.7	13.8	14.9	15.9	17.0
Maximum speed (mm/s)	Lead 30		1200 <750>					1000 <750>		800 <750>

* Will vary depending on the stroke

Applicable Controller Specification

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Power-supply voltage	Page
RCP2-CF-HSM	1 axis	Incremental	Positioner	24VDC	Back cover

Caution
 (Note 1) When the stroke increases, the maximum speed will drop in order to prevent the ball screw from reaching a dangerous speed. (Refer to the table above for the maximum speed at each stroke.) The figures in < > apply to a vertical application.
 (Note 2) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G in the case of a vertical application).
 (Note 3) Applicable to the clean room type (RCP2CR).
 (Note 4) Based on a traveling life of 10,000 km.
 (Note 5) The maximum cable length is 15 m for the absolute specification and 20 m for the incremental specification. Specify the desired length in meters (e.g., X08 = 08 m).

RCP2-HSMR

www.actuator.ru TEL: (495) 662-87-56 e-mail: iai@actuator.ru
 ROBO Cylinder high-speed ball screw type, actuator width: 80 mm, Pulse motor, Motor-reversed shape



Type / Slider (width: 80 mm) Stroke / 100~1000mm Load capacity / 20 kg (horizontal) / 3 kg (vertical)

Model specification items Series Type Encoder type Motor Lead Stroke Applicable controller Cable length Option

(Example) RCP2 -HSMR - I - PM - 30 - 1000 - P1 - M - NM

* The maximum speed of the RCP2 Series will vary depending on the weight of the load installed on the slider (rod). Refer to the graphs on the cover page for the relationship of speed and load capacity.

Model / Specifications

Model	Encoder type	Motor	Lead (mm)	Stroke (50-mm increments) (mm)	Speed (Note 1) (mm/s)	Load capacity (Note 2)	
						Horizontal (kg)	Vertical (kg)
RCP2-HSMR-I-PM-30-①-P1-②-③	Incremental	Pulse motor	30	100~1000	10~1200<750>	20~1	3~1

* ①, ② and ③ in the model numbers shown above respectively indicate the stroke, cable length and applicable option(s).

Options

Name	Code	Page
Brake	B	-
Reversed-home specification	NM	-
Roller slider	SR	-

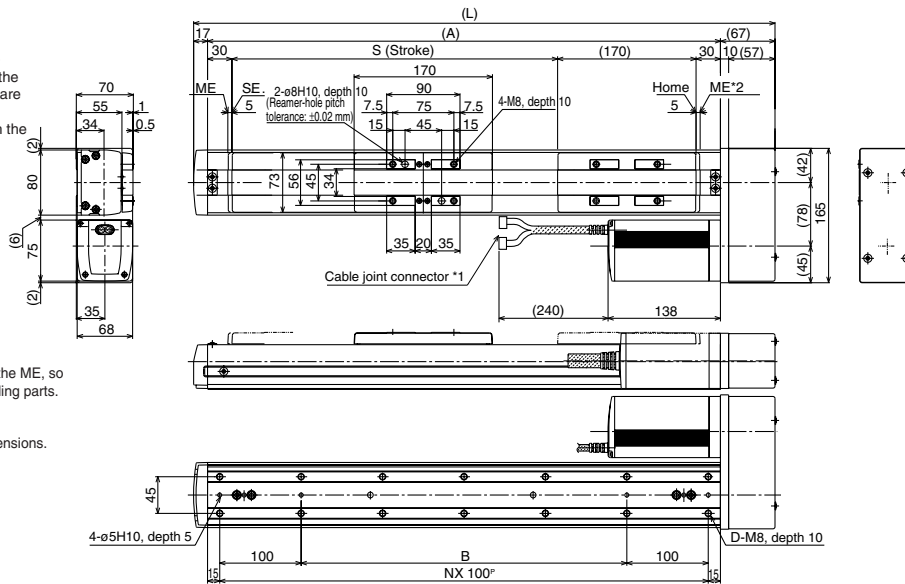
Common Specifications

Drive system	Ball screw: ø16 mm, rolled C10
Positioning repeatability	±0.02mm
Backlash	0.05 mm or less
Guide	Integrated with the base
Allowable load moments	Ma: 36.3N · m Mb: 36.3N · m Mc: 77.4N · m
Overhang load length	Ma · Mb · Mc directions: 450mm or less
Base	Material: Special alloy steel
Cable length (Note 3)	N: No cable, P: 1 m, S: 3 m, M: 5 m, X□□: Specified length, R□□: Robot cable
Operating temperature/humidity	0 to 40°C, 85%RH max. (non-condensing)

Dimensions

* With the reversed-home specification, the dimension on the motor side (distance to the home) and that of the counter-motor side are reversed.

* The reference surface is the same as with the HSM type.



*1 Connect the motor/encoder cables.

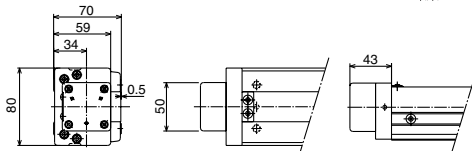
*2 During home return the slider will move to the ME, so be careful to prevent contact with surrounding parts.

ME: Mechanical end
SE: Stroke end

The values in parentheses are reference dimensions.

Brake dimensions

* The brake type is 26 mm longer and 0.5 kg heavier than the standard type.



* The brake cable is wired inside the actuator and connected to the motor cable.

Dimension, Weight and Maximum Speed by Stroke

Stroke	100	200	300	400	500	600	700	800	900	1000	
L	414	514	614	714	814	914	1014	1114	1214	1314	
A	330	430	530	630	730	830	930	1030	1130	1230	
B	100	200	300	400	500	600	700	800	900	1000	
D	8	10	12	14	16	18	20	22	24	26	
N	3	4	5	6	7	8	9	10	11	12	
Weight (kg)	7.9	9.0	10	11.1	12.1	13.2	14.3	15.3	16.4	17.4	
Maximum speed (mm/s)	Lead 30		1200<750>						1000<750>		800<750>

Maximum speed (mm/s)
* Will vary depending on the stroke.

Applicable Controller Specification

Applicable controller	Maximum number of controlled axes	Compatible encoder type	Program operation	Power-supply voltage	Page
RCP2-CF-HSMR	1 axis	Incremental	Positioner	24VDC	Back cover



(Note 1) When the stroke increases, the maximum speed will drop in order to prevent the ball screw from reaching a dangerous speed. (Refer to the table above for the maximum speed at each stroke.) The figures in < > apply to a vertical application.

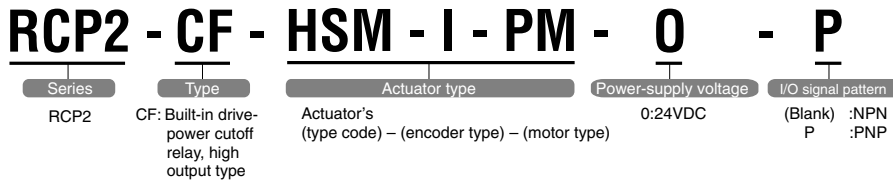
(Note 2) The load capacity is based on operation at an acceleration of 0.3 G (or 0.2 G in the case of a vertical application).

(Note 3) The maximum cable length is 15 m for the absolute specification and 20 m for the incremental specification. Specify the desired length in meters (e.g., X08 = 08 m).

Controller

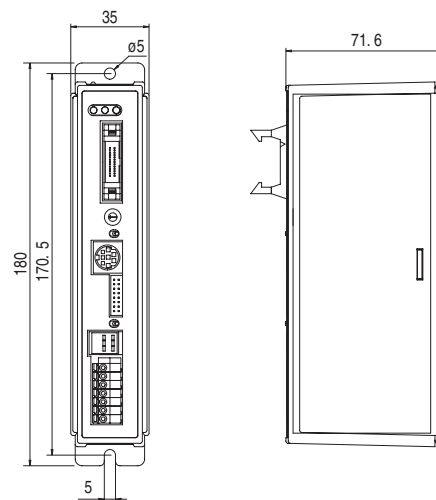
RCP2-CF-HSM/HSMR

Model / Specifications



External Dimensions

Unit: mm



Specification Table

Item	Specification
Controller series/type	RCP2-CF-HSM/HSMR
Connected actuator	RCP2-HSM/HSMR
Input power supply	24VDC ± 10%
Power-supply capacity	6 A max. (peak rush current :8A)
Number of controlled axes	1 axis
Control method	Field-weakening vector control (patent pending)
Positioning command	Position number specification
Position numbers	Standard 16 points, maximum 64 points
Backup memory	Storage of position number data and parameters in non-volatile memory. Serial E2PROM rewritable up to 100,000 times.
PIO	10 dedicated inputs / 10 dedicated outputs; selectable from 5 patterns
LED indicators	RDY (green), RUN (green), ALM (red)
I/F power supply	External power supply: 24 V ± 10%, 0.3 A; insulated
Communication	RS485, 1 channel (terminated externally)
Encoder interface	Incremental specification, conforming to EIA RS-422A/423A
Forced release of electromagnetic brake	Toggle switch on the front face of the enclosure
Cable length	Motor/encoder cables: 20 m max. PIO cable: 5 m max.
Withstand voltage	500VDC 10MΩ
Vibration resistance	10 ~ 57 Hz, 0.035 mm (continuous) or 0.075 mm (intermittent), non-reversed, in X/Y/Z directions
Operating temperature	0 ~ 40°C
Operating humidity	85%RH max. (non-condensing)
Operating ambience	Free from corrosive gases
International Protection code	IP20
Weight	300g
Accessory	PIO flat cable (2 m)

Options/Spare Parts

Item	Model
Teaching pendant	RCA-T
Teaching pendant (deadman specification)	RCA-TD
Simple teaching pendant	RCA-E
Data setting unit	RCA-P
PC software	RCB-101-MW
Motor cable	CB-RCP2-MA □□□□
Encoder cable	CB-RFA-PA □□□□
Encoder robot cable	CB-RFA-PA □□□□-RB

* The standard motor cable is a robot cable.
 * The prices of motor cable/encoder (robot) cable are based on lengths of 1 to 20 m.
 * Take note that the encoder cable of the high-speed ball screw type is different from that of the standard RCP2.