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Micro Cylinder RCD

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New Ultra-Compact Motorized Cylinder with 12mm Cross-Section

RCD actuators

DCON-CB controller

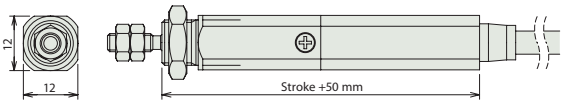
MCON controller

Features

1. Ultra-compact size enables it to replace compact air cylinders

Ultra-compact size has been achieved, with a cross-section of only 12 mm with a body length as short as 60 mm.

The Micro Cylinder RCD is small enough to replace compact air cylinders used for short-stroke travel, pressing, hoisting, etc.

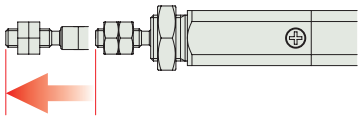


Slim actuator

2. High-speed performance with maximum acceleration/deceleration of 1 G and maximum speed of 300 mm/s

The Micro Cylinder RCD incorporates a newly developed brushless DC motor that generates sufficient torque despite its compact size.

Its high-speed performance with maximum accelleration/decelera-tion of 1 G and maximum speed of 300 mm/s is highly effective in reducing cycle time in a variety of systems.

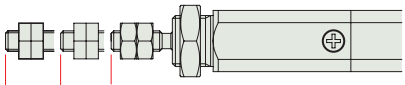


High-speed travel

3. Capable of 3-/512-point positioning, acceleration rate adjustment, and pressing

The Micro Cylinder RCD easily achieves 3-point (by DSEP) or 512-point (by DCON-CA) positioning and acceleration/deceleration rate adjustments, which are difficult to achieve using air cylinders.

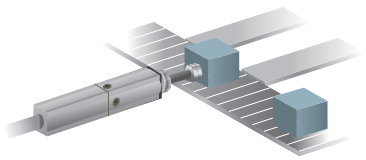
Push-motion operation similar to that available with air cylinders is also possible, and the force exerted during a push-motion operation is adjustable.



③ Tip in retracted position
② Intermediate position
① Tip in extended position

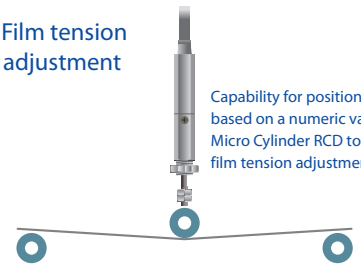
Application Examples

1. Part push-out



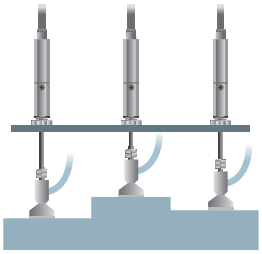
Setting the appropriate acceleration/deceleration rate enables the Micro Cylinder RCD to push out a workpiece without impact.

2. Film tension adjustment



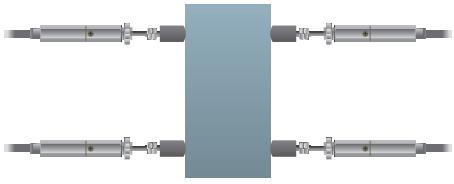
Capability for position adjustment based on a numeric value allows the Micro Cylinder RCD to achieve precise film tension adjustment.

3. Suction pads for height adjustment



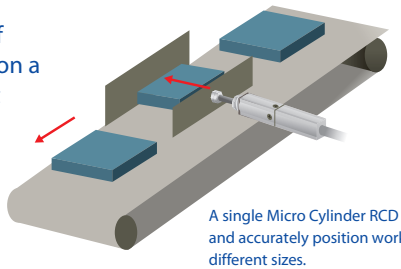
Three-point positioning enables the Micro Cylinder RCD to handle a workpiece with variable height dimensions.

4. Workpiece positioning



Multiple Micro Cylinder RCDs can be used to position a workpiece precisely by pushing it from both sides.

5. Positioning workpieces of varying sizes on a conveyor belt



A single Micro Cylinder RCD can push and accurately position workpieces of different sizes.

Actuator Model Description

RCD (Series) — **RA1D** (Type) — **I** (Encoder) — **3** (Motor) — **2** (Screw lead) — [ ] (Stroke) — **D3** (Compatible controller) — [ ] (Cable length)

Type	
RA1D	Width: 12 mm

Encoder	
I	Incremental

Motor	
3	Brushless, DC, 2.5 W

Screw lead	
2	Lead: 2 mm

Stroke	
10	10 mm
20	20 mm
30	30 mm

Compatible controller	
D3	DSEP
	DCON-CA

Cable length	
N	None
P	1m
S	3m
M	5m
X□□	Length
R□□	Robot cable

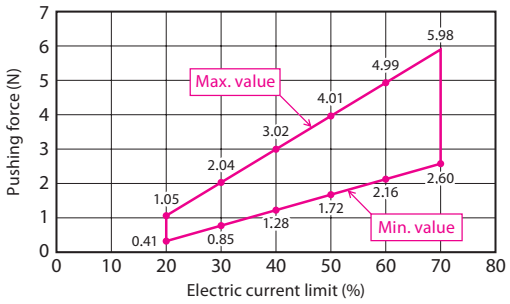
Actuator Specifications

Item		Description
Drive method	–	Lead screw with 3mm diameter and 2mm lead
Stroke	(mm)	10/20/30
Rated acceleration	(G)	1.0
Rated speed (Note 1)	(mm/s)	300
Rated thrust	(N)	4.2
Payload (Note 2)	(kg)	Horizontal 0.7, Vertical 0.3
Positioning repeatability (Notes 3, 4)	(mm)	±0.05
Encoder resolution	(pulses/rev)	400
Lost motion (Notes 3, 4)	(mm)	0.2 or smaller
Rod static allowable load moment	(Nm)	0.02
Rod non-rotating accuracy	(degrees)	±3
Service life	(cycles)	10 million cycles (for horizontal and vertical)
Ambient operating temperature; Humidity	–	0–40°C; 10%–85% RH or less

Note 1: The rated speed may not be achieved, depending on the stroke.
Note 2: When using an external guide and a free joint.
Note 3: Value shown is the initial value, which may change depending on usage conditions because a lead screw is used.
Note 4: If positioning repeatability is required, take lost motion into account and perform positioning from only one direction.

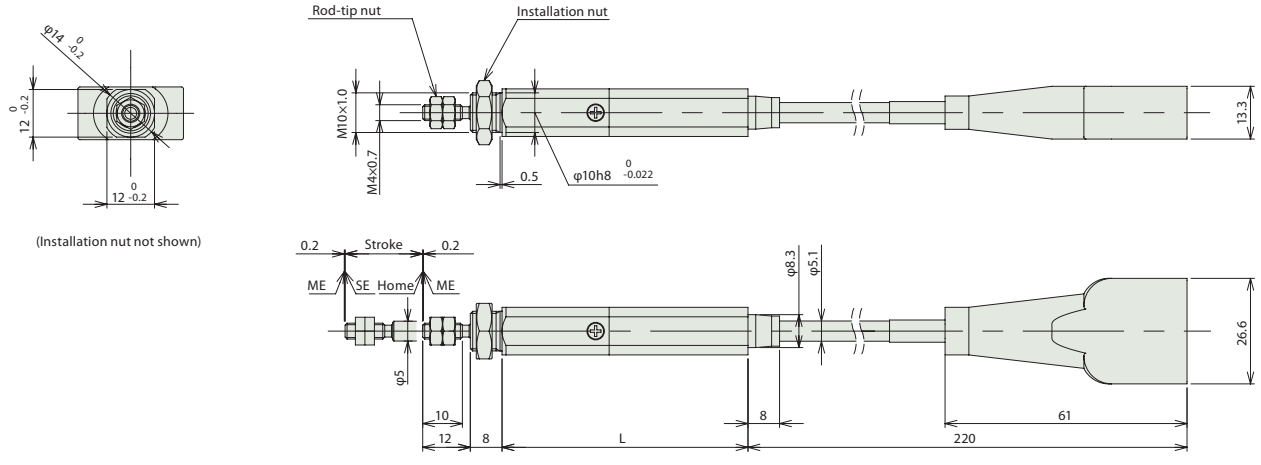
Electric Current Limit and Pushing Force

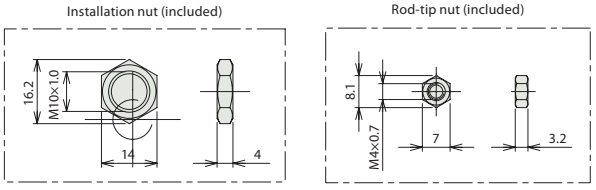
Electric current limit and pushing force | Push speed of 5 mm/sec



Note: The ranges shown in this graph take into account efficiency deterioration caused by wear on the lead screw. Always use the product within the maximum and minimum values.

Dimensions





ME: Mechanical end
SE: Stroke end

Stroke	10	20	30
L	52	62	72
Weight (g)	47	51	55

IAI Quality and Innovation

IAI America Inc.
USA Headquarters
2690 W 237t h Str., Torrance, CA 90505, USA
Tel.: +1-310-891-6015 Fax: +1-310-891-0815

IAI Industrieroboter GmbH
Europe Headquarters
Ober der Röth 4, D-65824 Schwalbach, Germany
Tel.: +49-6196-8895-0 Fax: +49-6196-8895-24

IAI CORPORATION
Japan Headquarters
645-1 Shimizu Hirose, Shizuoka 424-0102, Japan
Tel.: +81-543-64-5105 Fax: +81-543-64-5182