ERC3-RA4C

Controller-Integrated, Rod Type, Actuator Width 45mm, Pulse Motor, Straight Type

Model Specification Items: **ERC3** – **RA4C** – **I** – **42P** – ☐ – ☐ – ☐ – ☐ – ☐ – ☐ – ☐

- Series: ERC3
- Type: RA4C
- Encoder type: I: Incremental
- Motor type: 42☐: Pulse motor
- Lead: 20: 20mm, 12: 12mm, 6: 6mm, 3: 3mm
- Stroke: 50: 50mm ~ 300: 300mm (50mm pitch increments)
- I/O type: NP: PIO (NPN) type, PN: PIO (PNP) type, SE: SIO type, PLN: pulse-train (NPN) type, PLP: pulse-train (PNP) type
- Cable length: N: None, P: 1m, S: 3m, M: 5m, X☐☐: Custom length
- Controller Type: CN: CON type, MC: MEC type
- Options: B: Brake, NM: Non-motor end, ABU: Simple absolute specification, FL: Flange, FT: Foot bracket

* See page Pre-47 for details on the model descriptions.

RoHS

Technical References → Appendix P.5

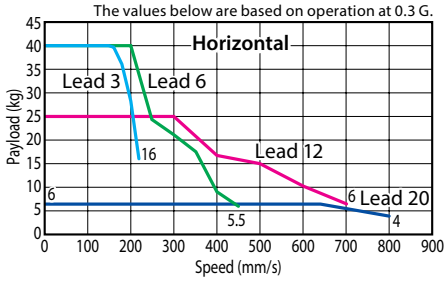
POINT Notes on Selection

(1) If the high-output setting is enabled (factory default), the duty must be limited. (Refer to page A-95.) If the high-output setting is disabled, the payload and maximum speed become lower, but the actuator can be used at a duty of 100%. Refer to the operation manual for information on how to change the high-output setting.
(2) Refer to page A-99 for the payload at each speed/acceleration when the high-output setting is enabled.
(3) The value for the horizontal load capacity is with an external guide.
(4) See page A-71 for details on push motion.

Speed vs. Load Capacity

Due to the characteristics of the pulse motor, the ERC3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.

The values below are based on operation at 0.3 G.



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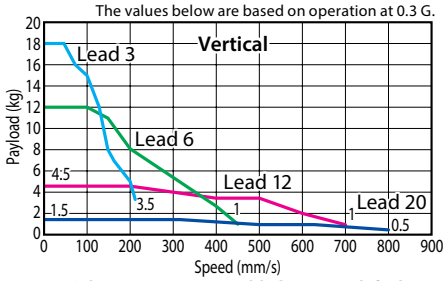


High-output setting enabled (Factory default)

Actuator Specifications (High-output Setting Enabled)

Leads and Payloads

(Note 1) Please note that the maximum load capacity decreases as the speed increases.

Model number	Lead (mm)	Maximum payload (Note 1) Horizontal (kg)	Maximum payload (Note 1) Vertical (kg)	Maximum push force (N)	Stroke (mm)
ERC3-RA4C-I-42P-20-①-②-③-④	20	6	1.5	56	50 to 300 (every 50mm)
ERC3-RA4C-I-42P-12-①-②-③-④	12	25	4.5	93	
ERC3-RA4C-I-42P-6-①-②-③-④	6	40	12	185	
ERC3-RA4C-I-42P-3-①-②-③-④	3	40	18	370	

Stroke and Maximum Speed

Lead \ Stroke	50~200 (every 50mm)	250 (mm)	300 (mm)
20	800		
12	700	695	485
6	450	345	240
3	225	170	120

(Unit: mm/s)

Legend ① Stroke ② I/O type ③ Cable length ④ Options *See page A-71 for details on push motion.

①Stroke

Stroke (mm)	Standard price
50	—
100	—
150	—
200	—
250	—
300	—

③Cable Length

Type	Cable symbol	Standard price
Standard (Robot Cables)	**P** (1m)	—
	S (3m)	—
	M (5m)	—
Special length	**X06** (6m) ~ **X10** (10m)	—

* See page 586 for cables for maintenance.

④Options

Name	Option code	Page	Standard Price
Brake	**B**	→ A-42	—
Simple absolute specification	**ABU**	→ A-42	— (*)
Flange	**FL**	→ A-45	—
Foot bracket	**FT**	→ A-48	—
Non-motor end specification	**NM**	→ A-52	—

(*) If the simple absolute specification is selected, SE (SIO type) I/O type and the separately sold PIO converter with simple absolute specification (with battery) are required.

Actuator Specifications

Item	Description
Drive method	Ball screw, ø10mm, rolled C10
Positioning repeatability (*)	±0.02mm [±0.03mm]
Lost motion (*)	0.1mm or less [0.2mm or less]
Rod diameter	ø25mm
Rod non-rotation precision	±1.5 deg
Ambient operating temperature/humidity	0 to 40°C, 85% RH max. (Non-condensing)

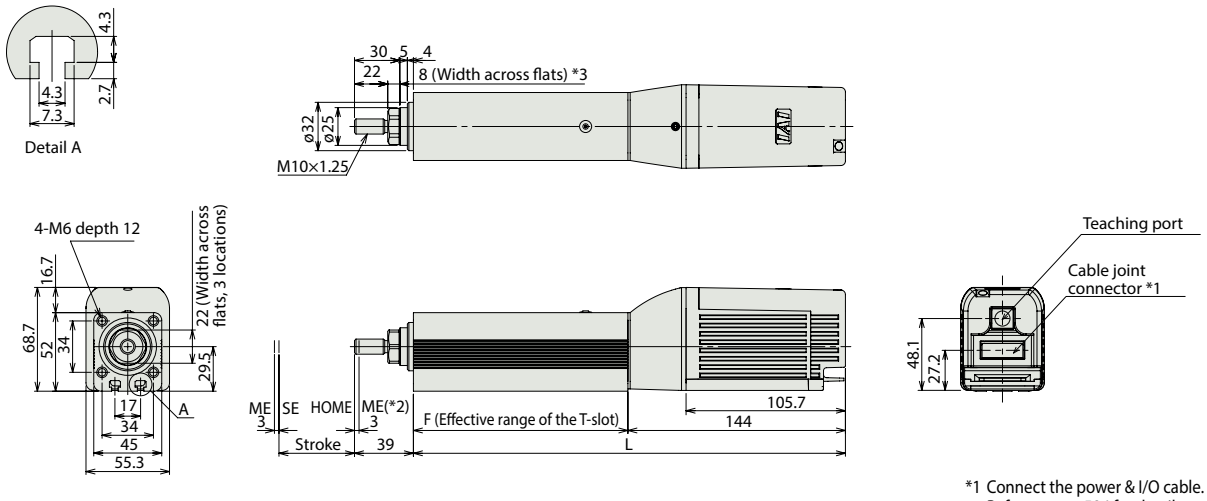
(*) The specification in [ ] applies when the lead is 20mm.

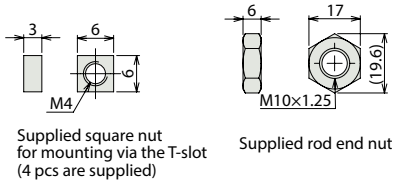
Dimensional Drawings

CAD drawings can be downloaded from the website. www.intelligentactuator.com

2D CAD 3D CAD

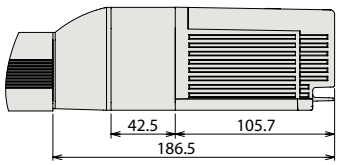
For Special Orders Appendix P.15





External view of the brake specification

The overall length of the brake specification is 42.5 mm longer than the standard specification and its mass is 0.4 kg heavier.



*1 Connect the power & I/O cable. Refer to page 586 for details on this cable
SE: Stroke End
ME: Mechanical End

*2 The rod moves to the ME during home return, so pay attention to possible contact with surroundingstructures.

*3 The orientation of the bolt will vary depending on the product.

■Dimensions and Mass by Stroke

Stroke	50	100	150	200	250	300
L	286	336	386	436	486	536
F	142	192	242	292	342	392
Weight (kg)	1.4	1.7	2.0	2.3	2.6	2.9

Controllers (Built into the Actuator)

②I/O type

With the ERC3 series, one of the following five types of built-in controllers can be selected depending on the external input/output (I/O) type. Select the type that meets your purpose.

Name	External view	Model number	Features	Maximum number of positioning points	Input power	Power-supply capacity	Standard price	Reference page
PIO type (NPN specification)		ERC3-RA4C-I-42P-□-□-NP-□-□	Simple control type accommodating up to 16 positioning points	16	DC24V	High-output setting enabled: 3.5A rated 4.2A max. High-output setting disabled: 2.2A	—	→ P577
PIO type (PNP specification)		ERC3-RA4C-I-42P-□-□-PN-□-□	I/O type supporting inputs/outputs of the PNP specification often used overseas	16				
SIO type		ERC3-RA4C-I-42P-□-□-SE-□-□	High-function type accommodating up to 512 positioning points (PIO converter is used)	512				
Pulse-train type (NPN specification)		ERC3-RA4C-I-42P-□-□-PLN-□-□	Pulse-train input type supporting the NPN specification	—				
Pulse-train type (PNP specification)		ERC3-RA4C-I-42P-□-□-PLP-□-□	Pulse-train input type supporting the PNP specification	—				