



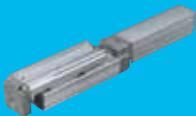
Table Type/Arm Type Flat Type

RCP3

RCA2

RCA

RCS2



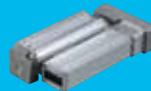
RCP3/RCA2
-TA3C



RCP3/RCA2
-TA5C



RCP3/RCA2
-TA7C



RCP3/RCA2
-TA3R



RCP3/RCA2
-TA5R



RCP3/RCA2
-TA7R



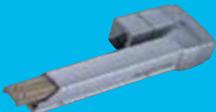
RCA2-TC3N



RCA2-TW3N



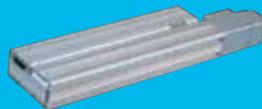
RCA2-TF3N



RCA/RCS2
-A4R



RCA/RCS2
-A6R



RCS2-F5D

RCP3 series Pulse Motor Type	Table Type	Inline Motor	36mm Width	RCP3-TA3C	269
			40mm Width	RCP3-TA4C	271
			55mm Width	RCP3-TA5C	273
			65mm Width	RCP3-TA6C	275
			75mm Width	RCP3-TA7C	277
	Side-Mounted Motor	36mm Width	RCP3-TA3R	279	
		40mm Width	RCP3-TA4R	281	
		55mm Width	RCP3-TA5R	283	
		65mm Width	RCP3-TA6R	285	
		75mm Width	RCP3-TA7R	287	

RCA2 series 24V Servo Motor Type	Table Type	Short-Length Compact Model	32mm Width	RCA2-TC3N	289
			36mm Width	RCA2-TC4N	291
		Short-Length Wide Model	50mm Width	RCA2-TW3N	293
			58mm Width	RCA2-TW4N	295
		Short-Length Flat Model	61mm Width	RCA2-TF3N	297
			71mm Width	RCA2-TF4N	299
	Inline Motor	40mm Width	RCA2-TA4C	301	
		55mm Width	RCA2-TA5C	303	
		65mm Width	RCA2-TA6C	305	
		75mm Width	RCA2-TA7C	307	
	Side-Mounted Motor	40mm Width	RCA2-TA4R	309	
		55mm Width	RCA2-TA5R	311	
		65mm Width	RCA2-TA6R	313	
		75mm Width	RCA2-TA7R	315	

RCA series 24V Servo Motor Type	Arm Type	40mm Width	RCA-A4R	317
		52mm Width	RCA-A5R	319
		58mm Width	RCA-A6R	321

RCS2 series 200V Servo Motor Type	Arm Type	40mm Width	RCS2-A4R	323
		52mm Width	RCS2-A5R	325
		58mm Width	RCS2-A6R	327
	Flat Type	55mm Width	RCS2-F5D	329

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

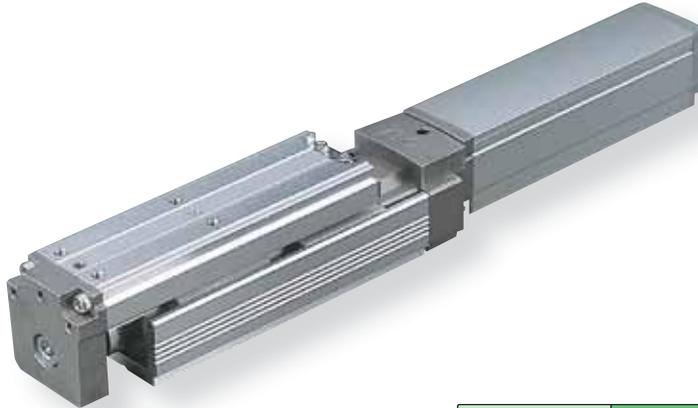
RCP3-TA3C

ROBO Cylinder Mini Table Type Motor Unit Coupled 36mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA3C** — **I** — **20P** — — — — —

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
		I: Incremental * The simple absolute encoder is also considered type "I".	20P: Pulse motor 20 □ size	6: 6mm 4: 4mm 2: 2mm	20: 20mm ↓ 100: 100mm (10mm pitch increments)	P1: PCON RPCON PSEL P3: PMEC PSEP	N: None P: 1m S: 3m M: 5m X □ □ : Custom	See Options below

* See page Pre-35 for an explanation of the naming convention.



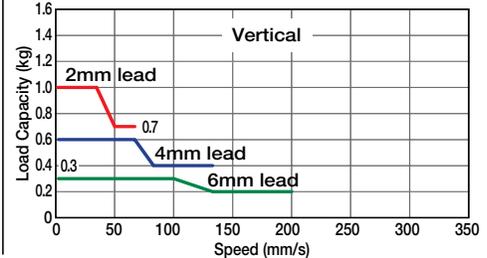
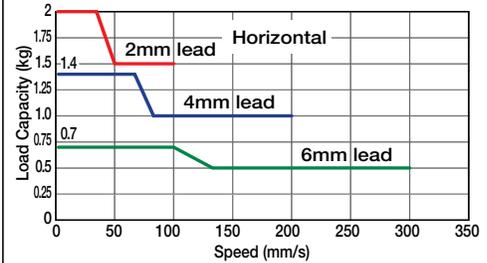
Technical References P. A-5

POINT
Notes on Selection

(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

Speed vs. Load Capacity

Due to the characteristics of the Pulse Motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications

Lead and Load Capacity

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

Stroke and Maximum Speed

Model	Feed Screw	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N) (Note 2)	Positioning Repeatability (mm)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)			
RCP3-TA3C-I-20P-6-①-②-③-④	Ball Screw	6	~ 0.7	~ 0.3	9	±0.02	20~100 (10mm increments)
RCP3-TA3C-I-20P-4-①-②-③-④		4	~ 1.4	~ 0.6	14		
RCP3-TA3C-I-20P-2-①-②-③-④		2	~ 2	~ 1	28		

Lead	Stroke	
	20 ~ 100 (mm)	200 ~ 300 (mm)
Ball Screw	6	300 <200>
	4	200 <133>
	2	100 <67>

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

(Note 2) See page A-66 for pushing force graphs.

* The values enclosed in "<" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCP3 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note 3)	Ma: 3.2 N·m Mb: 4.6 N·m Mc: 5.1 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(Note 3) Based on a 5,000km service life.

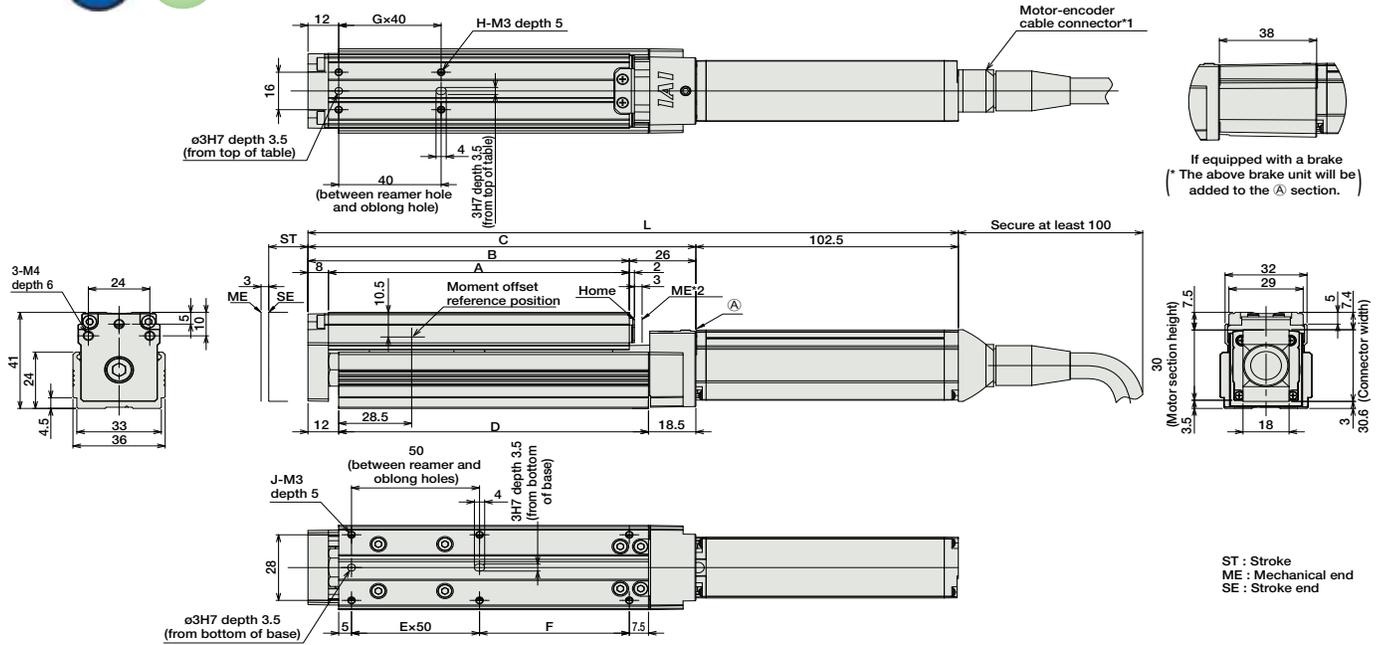
Directions of Allowable Load Moments



Dimensions

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

For Special Orders P. A-9



ST : Stroke
ME : Mechanical end
SE : Stroke end

- *1 The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
- *2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

■ Dimensions/Weight by Stroke * Adding a brake will increase the actuator's weight by 0.1kg.

Stroke	20	30	40	50	60	70	80	90	100	
L	No Brake	224	234	244	254	264	274	284	294	304
	Brake-equipped	262	272	282	292	302	312	322	332	342
A	87.5	97.5	107.5	117.5	127.5	137.5	147.5	157.5	167.5	
B	95.5	105.5	115.5	125.5	135.5	145.5	155.5	165.5	175.5	
C	121.5	131.5	141.5	151.5	161.5	171.5	181.5	191.5	201.5	
D	91	101	111	121	131	141	151	161	171	
E	1	1	1	1	2	2	2	2	2	
F	28.5	38.5	48.5	58.5	68.5	78.5	88.5	98.5	108.5	
G	1	1	1	1	2	2	2	2	2	
H	4	4	4	4	6	6	6	6	6	
J	6	6	6	6	8	8	8	8	8	
Weight (kg)	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-20PI-NP-2-0	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
	Splash-Proof Solenoid Valve Type		PSEP-CW-20PI-NP-2-0					
Positioner Type		PCON-C-20PI-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	2A max.	-	→ P525
Safety-Compliant Positioner Type		PCON-CG-20PI-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		PCON-PL-20PI-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	2A max.	-	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-20PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-20PI-N-0-0	Dedicated to serial communication	64 points	DC24V	2A max.	-	→ P503
Field Network Type		RPCON-20P	Dedicated to field network	768 points				
Program Control Type		PSEL-C-1-20PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points	DC24V	2A max.	-	→ P557

* This is for the single-axis PSEL.
* ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA4C

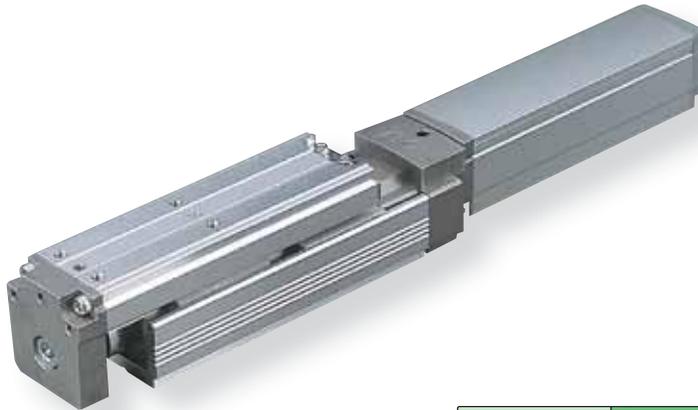
ROBO Cylinder Mini Table Type Motor Unit Coupled 40mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA4C** — **I** — **28P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental * The simple absolute encoder is also considered type "I".
 28P: Pulse motor 28 □ size
 6: 6mm
 4: 4mm
 2: 2mm
 20: 20mm
 100: 100mm (10mm pitch increments)
 P1: PCON
 RPCON
 PSEL
 P3: PMEC
 PSEP
 N: None
 P: 1m
 S: 3m
 M: 5m
 X □ □: Custom
 See Options below

* See page Pre-35 for an explanation of the naming convention.

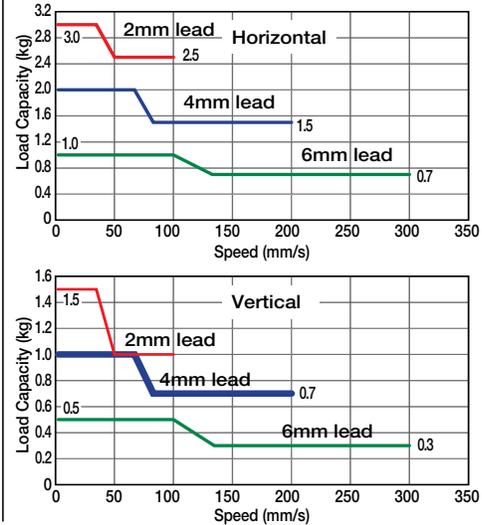


Technical References P. A-5

POINT Notes on Selection

(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

■ Speed vs. Load Capacity
 Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications						
■ Lead and Load Capacity				■ Stroke and Maximum Speed		
(Note 1) Please note that the maximum load capacity decreases as the speed increases.						
Model	Feed Screw	Lead (mm)	Max. Load Capacity (Note 1) Horizontal (kg) Vertical (kg)	Maximum Push Force (N) (Note 2)	Positioning Repeatability (mm)	Stroke (mm)
RCP3-TA4C-I-28P-6-①-②-③-④	Ball Screw	6	~ 1 ~ 0.5	15	±0.02	20~100 (10mm increments)
RCP3-TA4C-I-28P-4-①-②-③-④		4	~ 2 ~ 1	22		
RCP3-TA4C-I-28P-2-①-②-③-④		2	~ 3 ~ 1.5	44		
Legend ① Stroke ② Compatible controller ③ Cable length ④ Options (Note 2) See page A-66 for pushing force graphs. (Unit: mm/s)						

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCP3 comes standard with a robot cable.
 * See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR		
Cable exit direction (Left)	CJL		
Cable exit direction (Bottom)	CJB		
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note 3)	Ma: 4.2 N·m Mb: 6 N·m Mc: 8.2 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

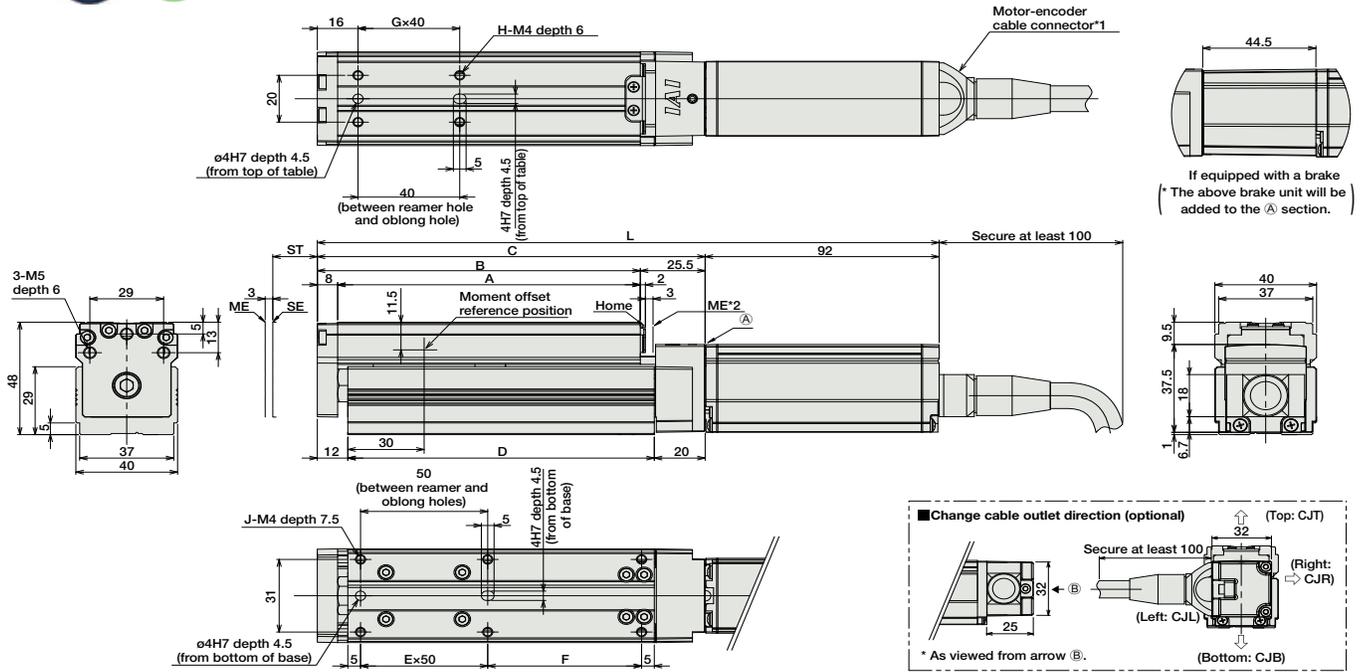
(Note 3) Based on a 5,000km service life.



Dimensions

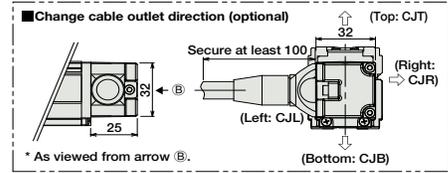
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

For Special Orders P. A-9



- *1 The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
- *2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

ST : Stroke
ME : Mechanical end
SE : Stroke end



■ Dimensions/Weight by Stroke * Adding a brake will increase the actuator's weight by 0.2kg.

Stroke	20	30	40	50	60	70	80	90	100	
L	No Brake	214.5	224.5	234.5	244.5	254.5	264.5	274.5	284.5	294.5
	Brake-equipped	259	269	279	289	299	309	319	329	339
A	89	99	109	119	129	139	149	159	169	
B	97	107	117	127	137	147	157	167	177	
C	122.5	132.5	142.5	152.5	162.5	172.5	182.5	192.5	202.5	
D	90.5	100.5	110.5	120.5	130.5	140.5	150.5	160.5	170.5	
E	1	1	1	1	2	2	2	2	2	
F	30.5	40.5	50.5	60.5	20.5	30.5	40.5	50.5	60.5	
G	1	1	1	1	2	2	2	2	2	
H	4	4	4	4	6	6	6	6	6	
J	6	6	6	6	8	8	8	8	8	
Weight (kg)	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-28PI-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
	Splash-Proof Solenoid Valve Type		PSEP-C-28PI-NP-2-0					
Positioner Type			PCON-C-28PI-NP-2-0	Positioning is possible for up to 512 points	512 points	-	-	-
	Safety-Compliant Positioner Type		PCON-CG-28PI-NP-2-0					
Pulse Train Input Type (Differential Line Driver)		PCON-PL-28PI-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	2A max.	-	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-28PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-28PI-N-0-0	Dedicated to serial communication	64 points	-	-	-	-
Field Network Type		RCON-28P	Dedicated to field network	768 points	-	-	-	→ P503
Program Control Type		PSEL-C-1-28PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points	-	-	-	→ P557

* This is for the single-axis PSEL.
* ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA5C

ROBO Cylinder Table Type Motor Unit Coupled 55mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA5C** — **I** — **35P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

35P: Pulse motor 10: 10mm
35 size 5: 5mm
2.5: 2.5mm

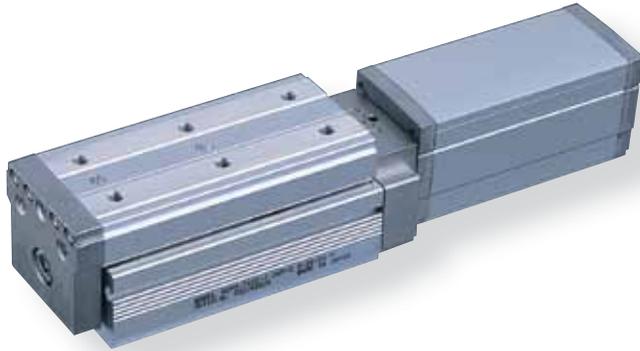
10: 10mm
25: 25mm
100: 100mm (25mm pitch increments)

P1: PCON
RPCON
PSEL
P3: PMEC
PSEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

See Options below

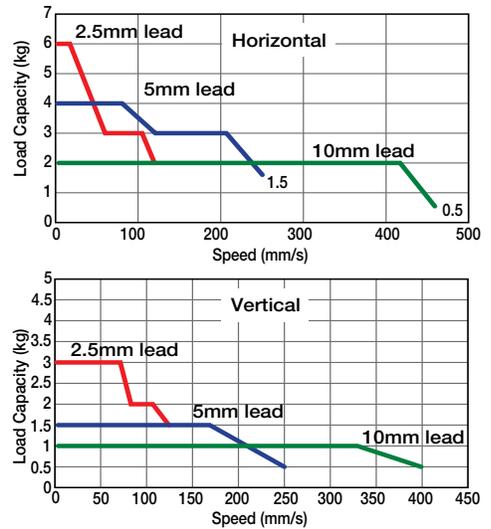
* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

- POINT**
Notes on Selection
- (1) Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph to see if your desired speed and load capacity are supported.
 - (2) Please note that the maximum speed is different when used horizontally versus vertically.
 - (3) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2.5mm-lead model, or when used vertically). This is the upper limit of the acceleration.

■ Speed vs. Load Capacity
Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications					
■ Lead and Load Capacity			■ Stroke and Maximum Speed		
Model	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N) (Note 2)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
	RCP3-TA5C-I-35P-10-①-②-③-④	10	~ 2	~ 1	
RCP3-TA5C-I-35P-5-①-②-③-④	5	~ 4	~ 1.5	68	
RCP3-TA5C-I-35P-2.5-①-②-③-④	2.5	~ 6	~ 3	136	
Legend ① Stroke ② Compatible controller ③ Cable length ④ Options (Note 2) See page A-66 for pushing force factors. (Unit: mm/s)					

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

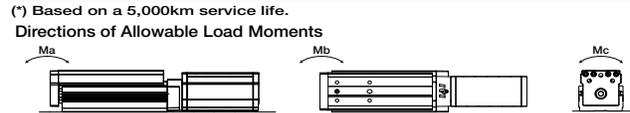
* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

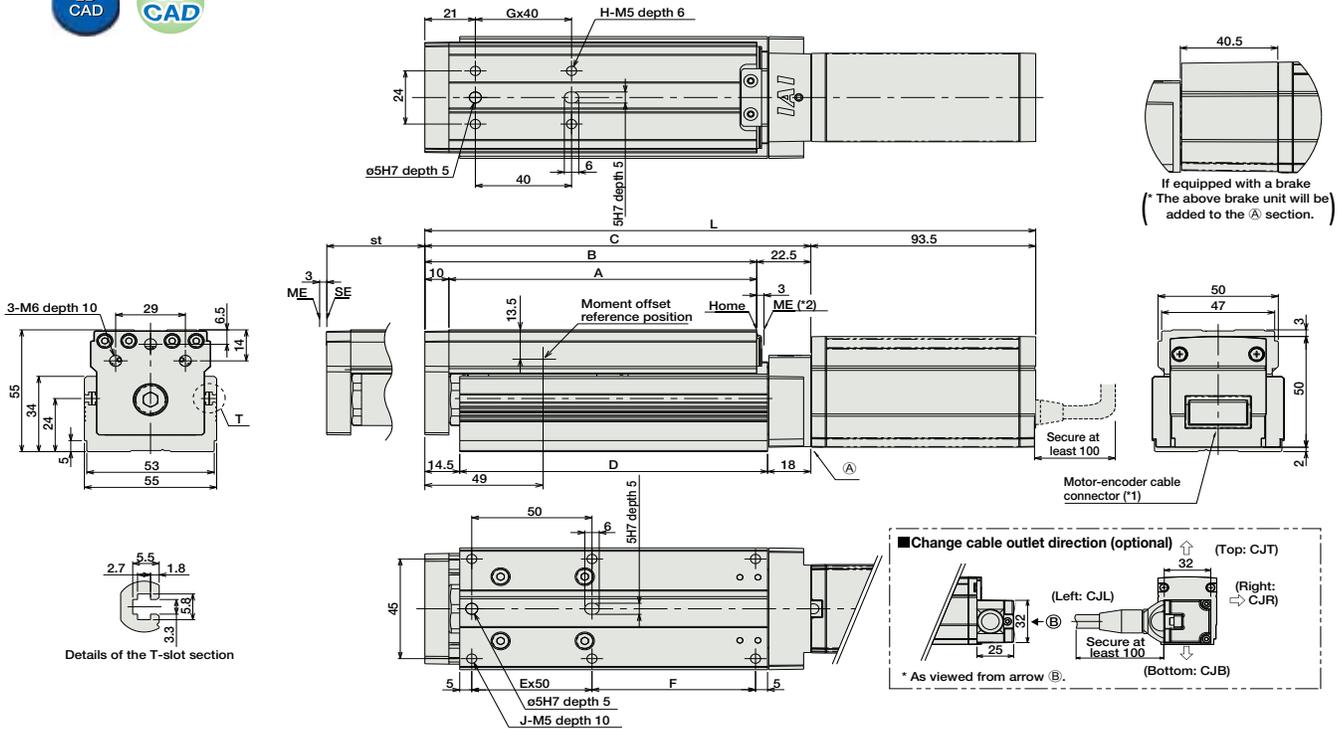
Item	Description
Drive System	Ball screw ø8mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 25.5 N·m Mb: 36.5 N·m Mc: 56.1 N·m
Allowable Dynamic Moment (*)	Ma: 6.57 N·m Mb: 9.32 N·m Mc: 14.32 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)



Dimensions

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

For Special Orders P. A-9



(*1) The motor-encoder cable (integrated) is connected. (See page A-39 for details on cables.)
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

■ Dimensions/Weight by Stroke * Adding a brake will increase the actuator's weight by 0.3kg.

Stroke	25				50				75				100			
	No Brake		Brake-Equipped		No Brake		Brake-Equipped		No Brake		Brake-Equipped		No Brake		Brake-Equipped	
L	229	269.5	254	294.5	279	319.5	304	344.5								
A	103	103	128	128	153	153	178	178								
B	113	113	138	138	163	163	188	188								
C	135.5	135.5	160.5	160.5	185.5	185.5	210.5	210.5								
D	103	103	128	128	153	153	178	178								
E	1	1	1	1	2	2	2	2								
F	43	43	68	68	43	43	68	68								
G	1	1	1	1	2	2	2	2								
H	4	4	4	4	6	6	6	6								
J	6	6	6	6	8	8	8	8								
Weight (kg)	1.2	1.2	1.4	1.4	1.5	1.5	1.7	1.7								

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page					
Solenoid Valve Type		PMEC-C-35PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	DC24V	2A max.	-	→ P477					
	Splash-Proof Solenoid Valve Type		PSEP-C-35PI-NP-2-0						Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				
Positioner Type			PCON-C-35PI-NP-2-0	Positioning is possible for up to 512 points					512 points				
	Safety-Compliant Positioner Type		PCON-CG-35PI-NP-2-0										
Pulse Train Input Type (Differential Line Driver)		PCON-PL-35PI-NP-2-0	Pulse train input type with differential line driver support	(-)								→ P525	
Pulse Train Input Type (Open Collector)		PCON-PO-35PI-NP-2-0	Pulse train input type with open collector support										
Serial Communication Type		PCON-SE-35PI-N-0-0	Dedicated to serial communication	64 points									
Field Network Type		RPCON-35P	Dedicated to field network	768 points									→ P503
Program Control Type		PSEL-C-1-35PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points									→ P557

* This is for the single-axis PSEL.
 * ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

RCP3-TA6C

ROBO Cylinder Table Type Motor Unit Coupled 65mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA6C** — **I** — **42P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

42P: Pulse motor
42 size

12: 12mm
6: 6mm
3: 3mm

25: 25mm
150: 150mm (25mm pitch increments)

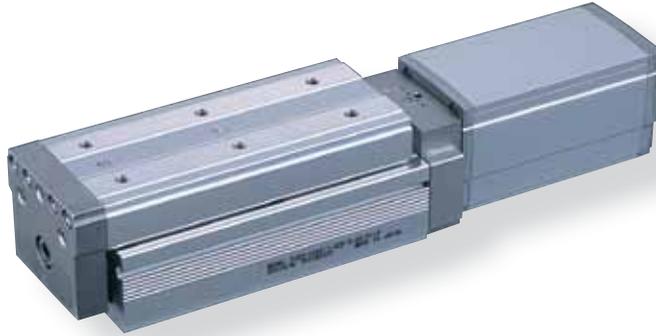
P1: PCON
RPCON
PSEL

P3: PMEC
PSEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

See Options below

* See page Pre-35 for an explanation of the naming convention.

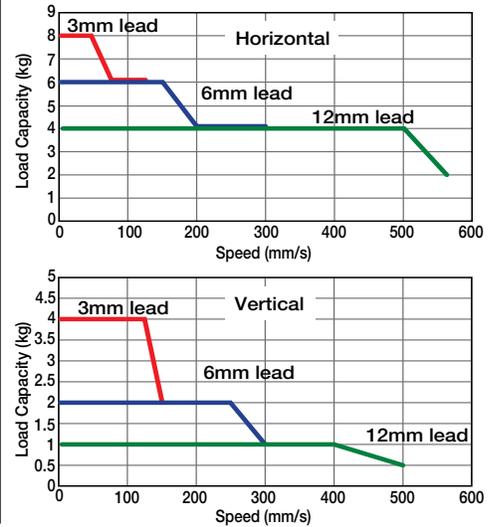


Technical References P. A-5

- POINT**
Notes on Selection
- Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph to see if your desired speed and load capacity are supported.
 - Please note that the maximum speed is different when used horizontally versus vertically.
 - The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Speed vs. Load Capacity

Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications

Lead and Load Capacity

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

Model	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N)(Note 2)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP3-TA6C-I-42P-12-①-②-③-④	12	~ 4	~ 1	47	25~150 (25mm increments)
RCP3-TA6C-I-42P-6-①-②-③-④	6	~ 6	~ 2	95	
RCP3-TA6C-I-42P-3-①-②-③-④	3	~ 8	~ 4	189	

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

(Note 2) See page A-66 for pushing force factors.

Stroke and Maximum Speed

Stroke / Lead	25 ~ 150 (25mm increments)	
	12	560 <500>
6	300	
3	150	

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The standard cable is the motor-encoder integrated robot cable.

* See page A-39 for cables for maintenance.

④ Option List

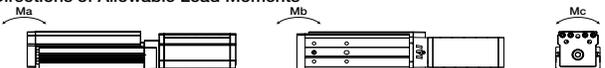
Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ϕ 10mm C10 grade
Positioning Repeatability	\pm 0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 29.4 N·m Mb: 42.0 N·m Mc: 74.1 N·m
Allowable Dynamic Moment (*)	Ma: 7.26 N·m Mb: 10.3 N·m Mc: 18.25 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

Directions of Allowable Load Moments



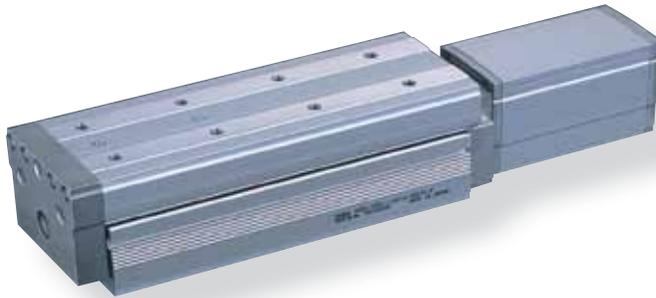
RCP3-TA7C

ROBO Cylinder Table Type Motor Unit Coupled 75mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3-TA7C-I-42P**

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
RCP3	TA7C	I	42P					
		I: Incremental * The simple absolute encoder is also considered type "I".	42P: Pulse motor 42 □ size	12: 12mm 6: 6mm 3: 3mm	25: 25mm 200: 200mm (25mm pitch increments)	P1: PCON RPCON PSEL P3: PMEC PSEP	N : None P : 1m S : 3m M : 5m X □ □ : Custom	See Options below

* See page Pre-35 for an explanation of the naming convention.

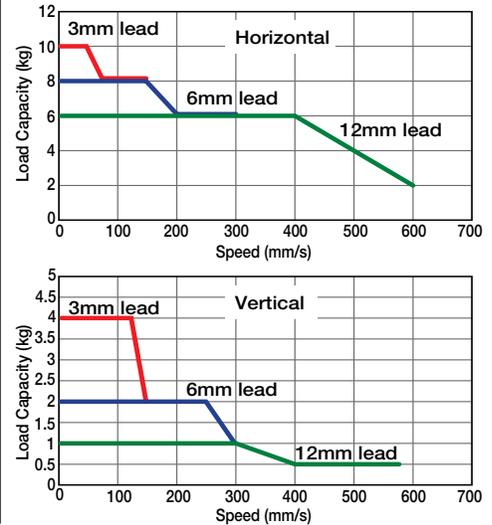


Technical References P. A-5

- POINT**
Notes on Selection
- (1) Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph below to see if your desired speed and load capacity are supported.
 - (2) Please note that the maximum speed is different when used horizontally versus vertically.
 - (3) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Speed vs. Load Capacity

Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications

Lead and Load Capacity

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

Stroke and Maximum Speed

Model	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N) (Note 2)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP3-TA7C-I-42P-12-①-②-③-④	12	~ 6	~ 1	47	25~200 (25mm increments)
RCP3-TA7C-I-42P-6-①-②-③-④	6	~ 8	~ 2	95	
RCP3-TA7C-I-42P-3-①-②-③-④	3	~ 10	~ 4	189	

Stroke / Lead	25 ~ 200 (25mm increments)	
	12	600 <580>
6	300	
3	150	

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

(Note 2) See page A-66 for pushing force graphs.

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-
175	-
200	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The standard cable is the motor-encoder integrated robot cable.

* See page A-39 for cables for maintenance.

④ Option List

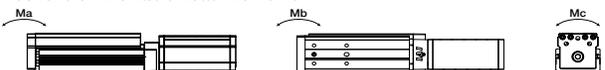
Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 42.6 N·m Mb: 60.8 N·m Mc: 123.2 N·m
Allowable Dynamic Moment (*)	Ma: 9.91 N·m Mb: 14.13 N·m Mc: 28.65 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

Directions of Allowable Load Moments

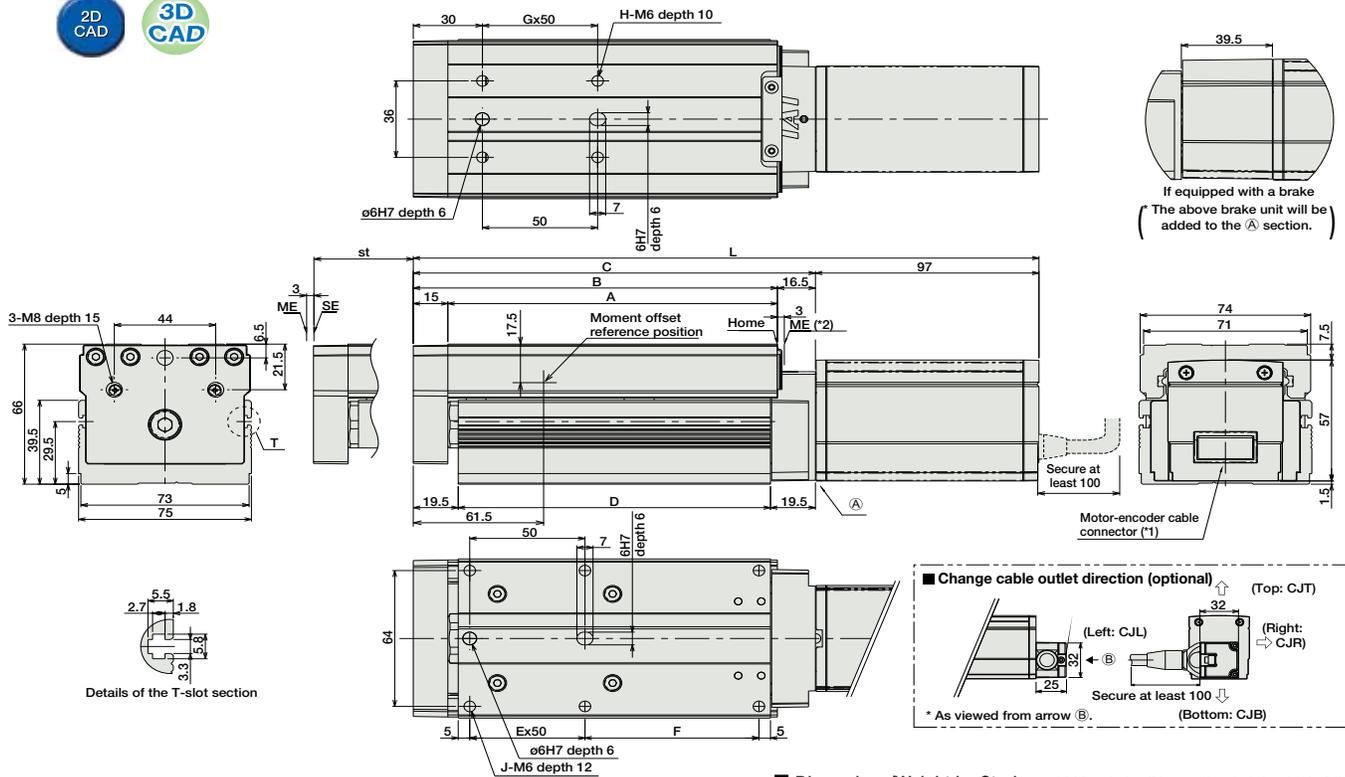


Dimensions

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



For Special Orders P. A-9



(*1) The motor-encoder cable (integrated) is connected. (See page A-39 for details on cables.)
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

■ Dimensions/Weight by Stroke * Adding a brake will increase the actuator's weight by 0.4kg.

Stroke	L								
	25	50	75	100	125	150	175	200	
L	No Brake	246.5	271.5	296.5	321.5	346.5	371.5	396.5	421.5
	Brake-Equipped	286	311	336	361	386	411	436	461
A	118	143	168	193	218	243	268	293	
B	133	158	183	208	233	258	283	308	
C	149.5	174.5	199.5	224.5	249.5	274.5	299.5	324.5	
D	110.5	135.5	160.5	185.5	210.5	235.5	260.5	285.5	
E	1	1	2	2	3	3	4	4	
F	50.5	75.5	50.5	75.5	50.5	75.5	50.5	75.5	
G	1	1	2	2	3	3	4	4	
H	4	4	6	6	8	8	10	10	
J	6	6	8	8	10	10	12	12	
Weight (kg)	2.1	2.3	2.5	2.8	3	3.2	3.4	3.6	

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-42PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
		PSEP-C-42PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		PSEP-CW-42PI-NP-2-0						→ P487
Positioner Type		PCON-C-42PI-NP-2-0	Positioning is possible for up to 512 points	512 points			-	
Safety-Compliant Positioner Type		PCON-CG-42PI-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		PCON-PL-42PI-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	2A max.	-	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-42PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-42PI-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RPCON-42P	Dedicated to field network	768 points				→ P503
Program Control Type		PSEL-C-1-42PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P557

* This is for the single-axis PSEL.
 * ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA3R

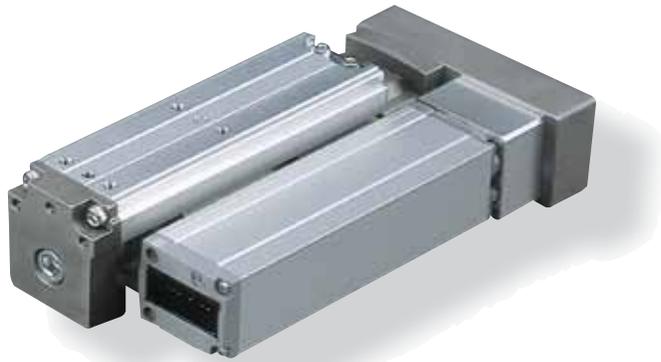
ROBO Cylinder Mini Table Type Side-Mounted Motor 36mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA3R** — **I** — **20P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental * The simple absolute encoder is also considered type "I".
 20P: Pulse motor 20 size
 6: 6mm
 4: 4mm
 2: 2mm
 20: 20mm
 100: 100mm (10mm pitch increments)
 P1: PCON
 RPCON
 PSEL
 P3: PMEC
 PSEP
 N: None
 P: 1m
 S: 3m
 M: 5m
 X : Custom
 See Options below * Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



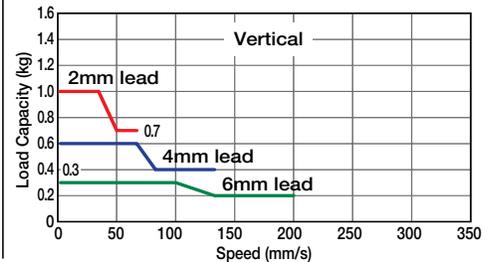
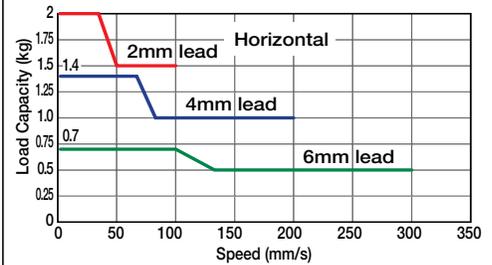
Pictured: Left-mounted motor model (ML).

Technical References P. A-5

POINT
Notes on Selection

(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

■ Speed vs. Load Capacity
 Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications							
■ Lead and Load Capacity				■ Stroke and Maximum Speed			
Model	Feed Screw	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N) (Note 2)	Positioning Repeatability (mm)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)			
RCP3-TA3R-I-20P-6-①-②-③-④	Ball Screw	6	~ 0.7	~ 0.3	9	±0.02	20~100 (10mm increments)
RCP3-TA3R-I-20P-4-①-②-③-④		4	~ 1.4	~ 0.6	14		
RCP3-TA3R-I-20P-2-①-②-③-④		2	~ 2	~ 1	28		

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options (Note 2) See page A-66 for pushing force graphs. * The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCP3 comes standard with a robot cable.
 * See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Left-Mounted Motor (Standard)	ML	→ A-33	-
Right-Mounted Motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note 3)	Ma: 3.2 N·m Mb: 4.6 N·m Mc: 5.1 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(Note 3) Based on a 5,000km service life.



Dimensions

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

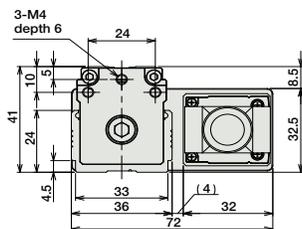
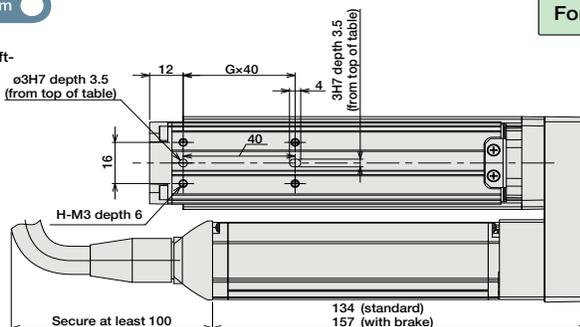
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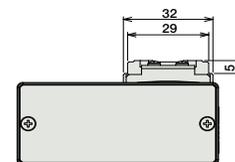
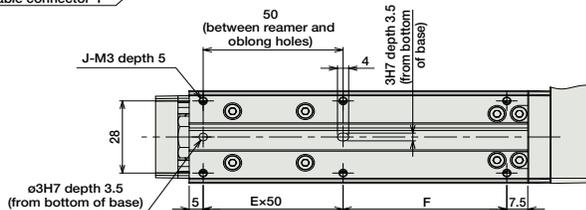
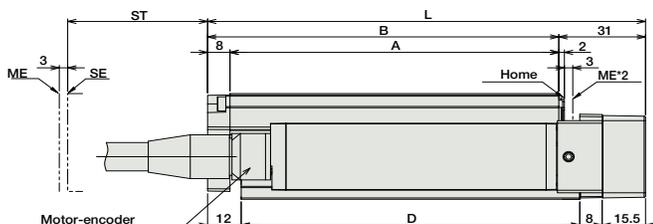
* Below is a drawing of the left-mounted motor model.



If brake-equipped:
(See right for dimensions)



The offset reference position of the moment is the same as TA3C (P270).



ST : Stroke
ME : Mechanical end
SE : Stroke end

- *1 The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
- *2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

■ Dimensions/Weight by Stroke

* Adding a brake will increase the actuator's weight by 0.1kg.

Stroke	20	30	40	50	60	70	80	90	100
L	126.5	136.5	146.5	156.5	166.5	176.5	186.5	196.5	206.5
A	87.5	97.5	107.5	117.5	127.5	137.5	147.5	157.5	167.5
B	95.5	105.5	115.5	125.5	135.5	145.5	155.5	165.5	175.5
D	91	101	111	121	131	141	151	161	171
E	1	1	1	1	2	2	2	2	2
F	28.5	38.5	48.5	58.5	68.5	78.5	88.5	98.5	108.5
G	1	1	1	1	2	2	2	2	2
H	4	4	4	4	6	6	6	6	6
J	6	6	6	6	8	8	8	8	8
Weight (kg)	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-20PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
		PSEP-C-20PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		PSEP-CW-20PI-NP-2-0						
Positioner Type		PCON-C-20PI-NP-2-0	Positioning is possible for up to 512 points	512 points			-	
Safety-Compliant Positioner Type		PCON-CG-20PI-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		PCON-PL-20PI-NP-2-0	Pulse train input type with different line driver support	(-)	DC24V	2A max.	-	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-20PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-20PI-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RPCON-20P	Dedicated to field network	768 points				→ P503
Program Control Type		PSEL-C-1-20PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P557

* This is for the single-axis PSEL.

* ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

RCP3-TA4R

ROBO Cylinder Mini Table Type Side-Mounted Motor 40mm Width Pulse Motor Ball Screw

Configuration: RCP3 — TA4R — I — 28P — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
 * The simple absolute encoder is also considered type "I".

28P: Pulse motor
 28 size

Lead: 6 : 6mm
 4 : 4mm
 2 : 2mm

Stroke: 20: 20mm
 100: 100mm (10mm pitch increments)

Compatible Controllers: P1: PCON, RPCON, PSEL, P3: PMEC, PSEP

Cable Length: N : None, P : 1m, S : 3m, M : 5m, X : Custom

Option: See Options below
 * Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



Pictured: TA4R with left-mounted motor (ML).

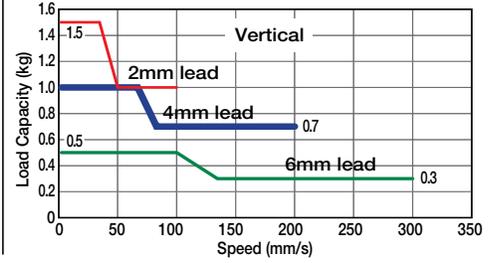
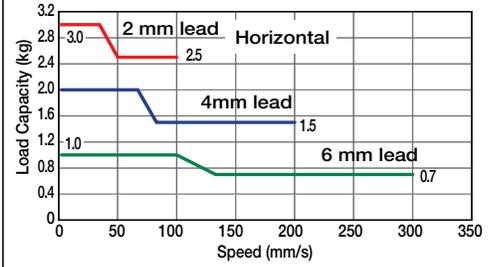
Technical References P. A-5



(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

Speed vs. Load Capacity

Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications

Lead and Load Capacity

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

Stroke and Maximum Speed

Model	Feed Screw	Lead (mm)	Max. Load Capacity (Note 1)		Maximum Push Force (N) (Note 2)	Positioning Repeatability (mm)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)			
RCP3-TA4R-I-28P-6-①-②-③-④	Ball Screw	6	~ 1	~ 0.5	15	±0.02	20~100 (10mm increments)
RCP3-TA4R-I-28P-4-①-②-③-④		4	~ 2	~ 1	22		
RCP3-TA4R-I-28P-2-①-②-③-④		2	~ 3	~ 1.5	44		

Lead	Stroke	20 ~ 100 (mm)
	Ball Screw	6
4		200
2		100

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

(Note 2) See page A-66 for pushing force graphs.

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCP3 comes standard with a robot cable.
 * See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Outside)	CJO		
Cable exit direction (Bottom)	CJB		
Cable exit direction (Standard)	ML		
Left-Mounted Motor	ML	→ A-33	-
Right-Mounted Motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note 3)	Ma: 4.2 N·m Mb: 6 N·m Mc: 8.2 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(Note 3) Based on a 5,000km service life.

Directions of Allowable Load Moments



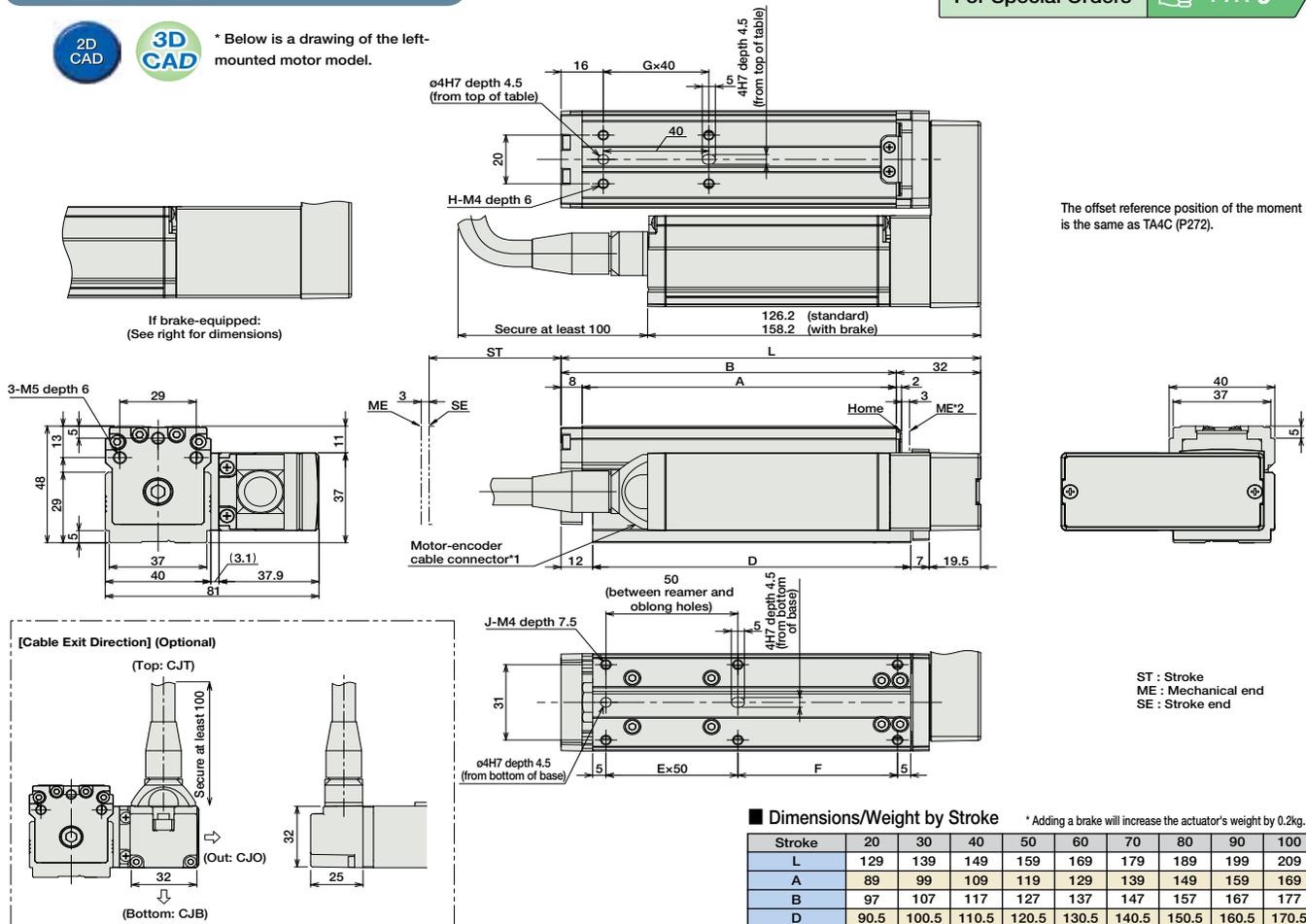
Dimensions

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



* Below is a drawing of the left-mounted motor model.

For Special Orders P. A-9



The offset reference position of the moment is the same as TA4C (P272).

ST : Stroke
ME : Mechanical end
SE : Stroke end

■ Dimensions/Weight by Stroke * Adding a brake will increase the actuator's weight by 0.2kg.

Stroke	20	30	40	50	60	70	80	90	100
L	129	139	149	159	169	179	189	199	209
A	89	99	109	119	129	139	149	159	169
B	97	107	117	127	137	147	157	167	177
D	90.5	100.5	110.5	120.5	130.5	140.5	150.5	160.5	170.5
E	1	1	1	1	2	2	2	2	2
F	30.5	40.5	50.5	60.5	20.5	30.5	40.5	50.5	60.5
G	1	1	1	1	2	2	2	2	2
H	4	4	4	4	6	6	6	6	6
J	6	6	6	6	8	8	8	8	8
Weight (kg)	0.7	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0

*1 The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
*2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-28PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
		PSEP-C-28PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		PSEP-CW-28PI-NP-2-0					-	
Positioner Type		PCON-C-28PI-NP-2-0	Positioning is possible for up to 512 points	512 points			-	
Safety-Compliant Positioner Type		PCON-CG-28PI-NP-2-0		-				
Pulse Train Input Type (Differential Line Driver)		PCON-PL-28PI-NP-2-0	Pulse train input type with different line driver support	(-)	DC24V	2A max.	-	→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-28PI-NP-2-0	Pulse train input type with open collector support				-	
Serial Communication Type		PCON-SE-28PI-N-0-0	Dedicated to serial communication	64 points			-	
Field Network Type		RPCON-28P	Dedicated to field network	768 points			-	→ P503
Program Control Type		PSEL-C-1-28PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points			-	→ P557

* This is for the single-axis PSEL.
* ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA5R

ROBO Cylinder Table Type Side-Mounted Motor 55mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA5R** — **I** — **35P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

35P: Pulse motor
35 size

10: 10mm
5: 5mm
2.5: 2.5mm

25: 25mm
100: 100mm (25mm pitch increments)

P1: PCON
RPCON
PSEL
P3: PMEC
PSEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

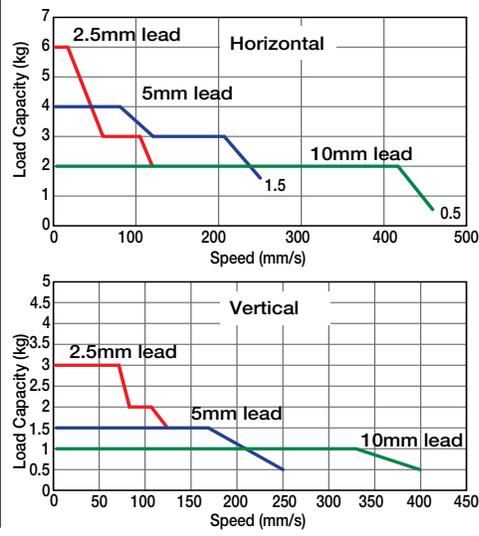


Technical References P. A-5



- (1) Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph to see if your desired speed and load capacity are supported.
- (2) Please note that the maximum speed is different when used horizontally versus vertically.
- (3) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2.5mm-lead model, or when used vertically). This is the upper limit of the acceleration.

■ Speed vs. Load Capacity
Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications					
■ Lead and Load Capacity			■ Stroke and Maximum Speed		
Model	Lead (mm)	Max. Load Capacity		Maximum Push Force (N)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP3-TA5R-I-35P-10-①-②-③-④	10	~ 2	~ 1	34	25~100 (25mm increments)
RCP3-TA5R-I-35P-5-①-②-③-④	5	~ 4	~ 1.5	68	
RCP3-TA5R-I-35P-2.5-①-②-③-④	2.5	~ 6	~ 3	136	

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

Stroke / Lead	25 ~ 100 (25mm increments)
10	465 <400>
5	250
2.5	125

* The values enclosed in "< >" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

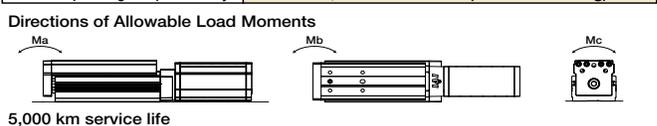
* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT		
Cable exit direction (Outside)	CJO	→ A-25	-
Cable exit direction (Bottom)	CJB		
Left-Mounted Motor (Standard)	ML	→ A-33	-
Right-Mounted Motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø8mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 25.5 N·m Mb: 36.5 N·m Mc: 56.1 N·m
Allowable Dynamic Load Moment	Ma: 6.57 N·m Mb: 9.32 N·m Mc: 14.32 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)



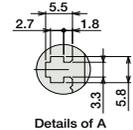
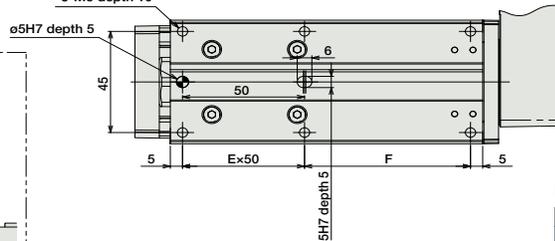
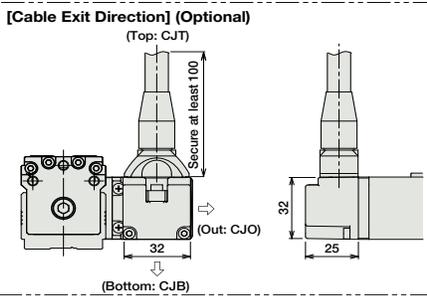
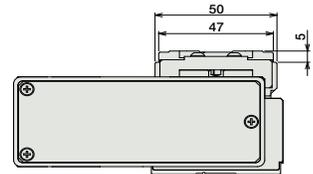
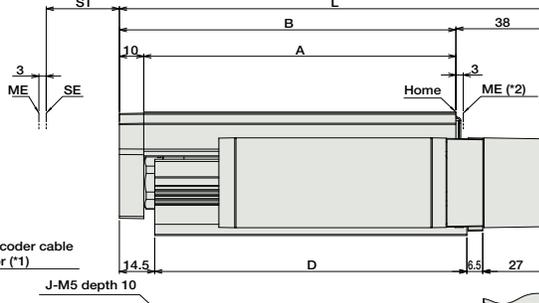
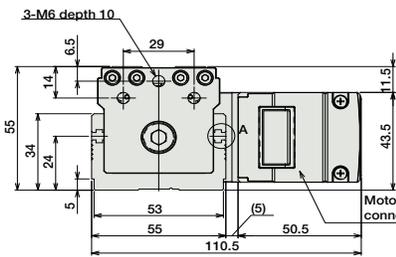
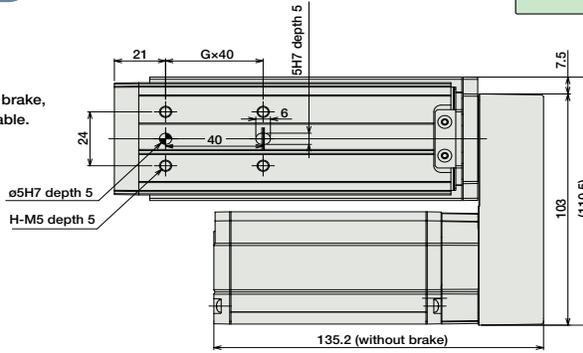
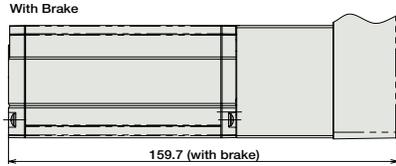
Dimensions

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

For Special Orders P. A-9



* Please note that, for 25mm-stroke model with brake, the motor unit protrudes from the end of the table.



■ Dimensions/Weight by Stroke * Adding a brake will increase the weight by 0.3kg.

Stroke	25	50	75	100
L	151	176	201	226
A	103	128	153	178
B	113	138	163	188
D	103	128	153	178
E	1	1	2	2
F	43	68	43	68
G	1	1	2	2
H	4	4	6	6
J	6	6	8	8
Weight (kg)	1.4	1.6	1.7	1.9

(*1) The motor-encoder cable is provided as an integrated cable. (see page A-39)
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-35PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481	-	→ P477
		PSEP-C-35PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					→ P487
Splash-Proof Solenoid Valve Type		PSEP-CW-35PI-NP-2-0						
Positioner Type		PCON-C-35PI-NP-2-0	Positioning is possible for up to 512 points	512 points				
Safety-Compliant Positioner Type		PCON-CG-35PI-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		PCON-PL-35PI-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	2A max.		→ P525
Pulse Train Input Type (Open Collector)		PCON-PO-35PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-35PI-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RPCON-35P	Dedicated to field network	768 points				→ P503
Program Control Type		PSEL-C-1-35PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P557

* This is for the single-axis PSEL.
 * ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA6R

ROBO Cylinder Table Type Side-Mounted Motor 65mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA6R** — **I** — **42P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

42P: Pulse motor
42 size

12: 12mm
6: 6mm
3: 3mm

25: 25mm
150: 150mm (25mm pitch increments)

P1: PCON
RCON
PSEL
P3: PMEC
PSEP

N : None
P : 1m
S : 3m
M : 5m
X : Custom

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



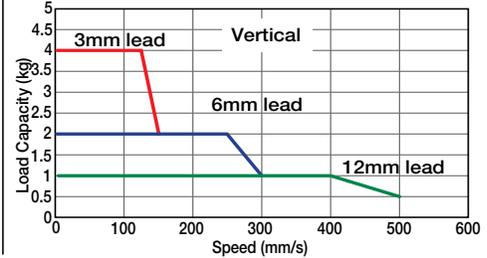
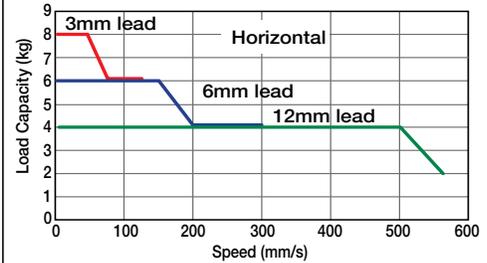
Technical References P. A-5



- (1) Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph to see if your desired speed and load capacity are supported.
- (2) Please note that the maximum speed is different when used horizontally versus vertically.
- (3) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Speed vs. Load Capacity

Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications

Lead and Load Capacity

Model	Lead (mm)	Max. Load Capacity		Maximum Push Force (N)	Stroke (mm)
		Horizontal (kg)	Vertical (kg)		
RCP3-TA6R-I-42P-12-①-②-③-④	12	~ 4	~ 1	47	25~150 (25mm increments)
RCP3-TA6R-I-42P-6-①-②-③-④	6	~ 6	~ 2	95	
RCP3-TA6R-I-42P-3-①-②-③-④	3	~ 8	~ 4	189	

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

Stroke and Maximum Speed

Stroke / Lead	25 ~ 150 (25mm increments)	
	12	560 <500>
6	300	
3	150	

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The standard cable is the motor-encoder integrated robot cable.

* See page A-39 for cables for maintenance.

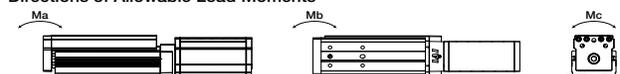
④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT		
Cable exit direction (Outside)	CJO	→ A-25	-
Cable exit direction (Bottom)	CJB		
Left-Mounted Motor (Standard)	ML	→ A-33	-
Right-Mounted Motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 29.4 N·m Mb: 42.0 N·m Mc: 74.1 N·m
Allowable Dynamic Load Moment	Ma: 7.26 N·m Mb: 10.3 N·m Mc: 18.25 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

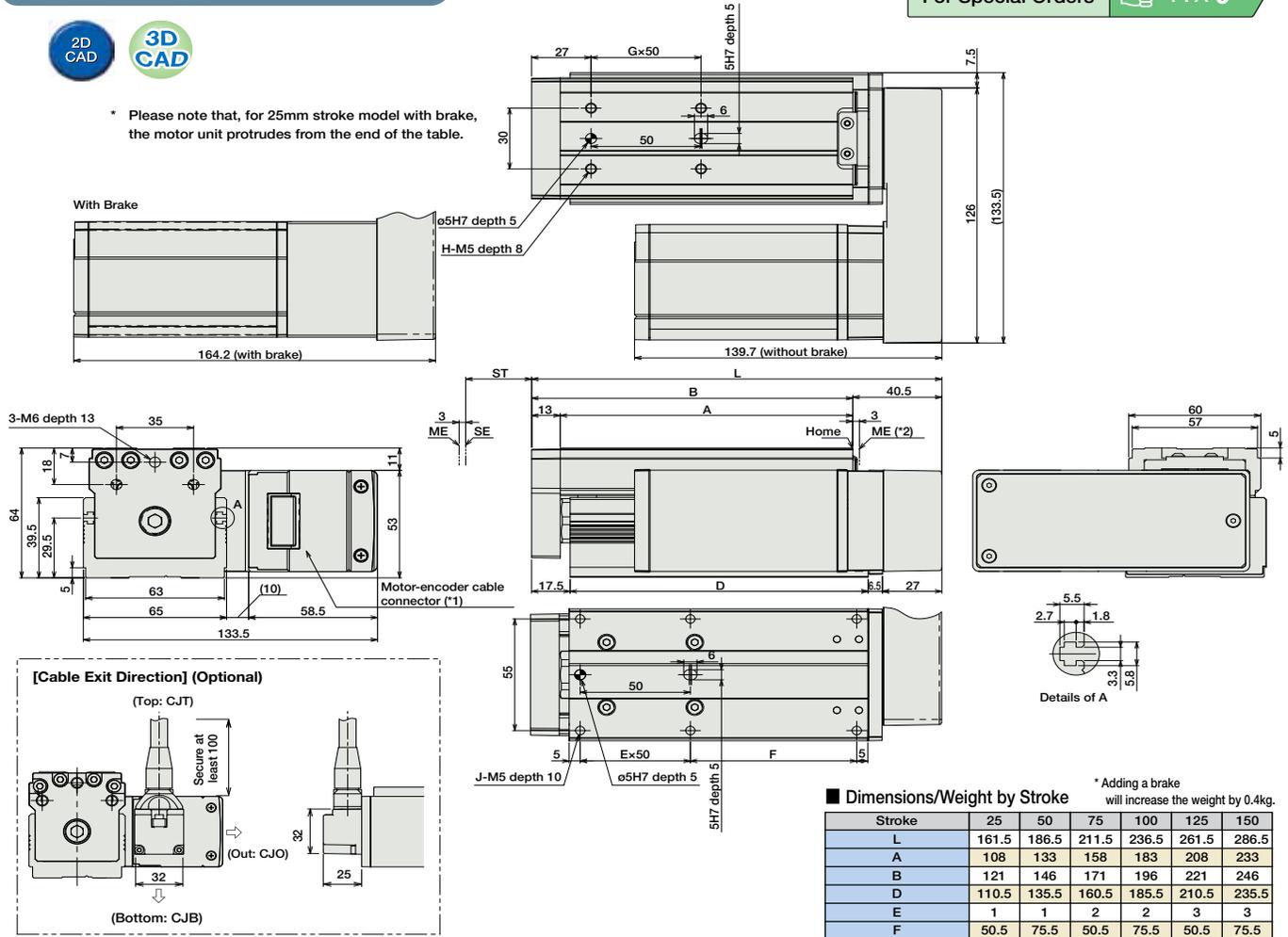
Dimensions

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



* Please note that, for 25mm stroke model with brake, the motor unit protrudes from the end of the table.

For Special Orders P. A-9



■ Dimensions/Weight by Stroke

* Adding a brake will increase the weight by 0.4kg.

Stroke	25	50	75	100	125	150
L	161.5	186.5	211.5	236.5	261.5	286.5
A	108	133	158	183	208	233
B	121	146	171	196	221	246
D	110.5	135.5	160.5	185.5	210.5	235.5
E	1	1	2	2	3	3
F	50.5	75.5	50.5	75.5	50.5	75.5
G	1	1	2	2	3	3
H	4	4	6	6	8	8
J	6	6	8	8	10	10
Weight (kg)	2.1	2.3	2.5	2.7	2.9	3.1

(*1) The motor-encoder cable is provided as an integrated cable. (see page A-39)
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end SE: Stroke end

② Compatible Controllers

The RCP3 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		PMEC-C-42PI-NP-2-①	Easy-to-use controller, even for beginners	3 points	AC100V AC200V	See P481		→ P477
Splash-Proof Solenoid Valve Type		PSEP-C-42PI-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Positioner Type		PCON-C-42PI-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	2A max.		→ P525
Safety-Compliant Positioner Type		PCON-CG-42PI-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		PCON-PL-42PI-NP-2-0	Pulse train input type with different line driver support	(-)				
Pulse Train Input Type (Open Collector)		PCON-PO-42PI-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		PCON-SE-42PI-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RPCON-42P	Dedicated to field network	768 points				→ P503
Program Control Type		PSEL-C-1-42PI-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P557

* This is for the single-axis PSEL.
 * ① is a placeholder for the power supply voltage (1: 100V, 2: 100~240V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCP3-TA7R

ROBO Cylinder Table Type Side-Mounted Motor 75mm Width Pulse Motor Ball Screw

■ Configuration: **RCP3** — **TA7R** — **I** — **42P** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

42P: Pulse motor
42 size

12 : 12mm
6 : 6mm
3 : 3mm

25: 25mm
↓
200: 200mm (25mm pitch increments)

P1: PCON
RCON
PSEL
P3: PMEC
PSEP

N : None
P : 1m
S : 3m
M : 5m
X : Custom

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

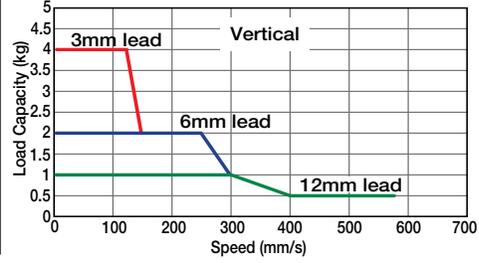
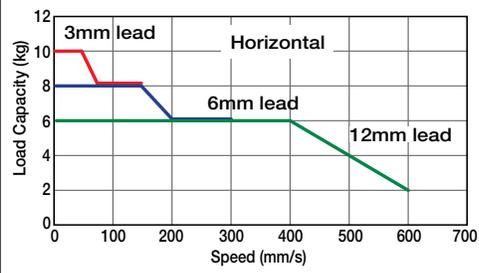


Technical References P. A-5



- (1) Since the RCP3 series use a pulse motor, the load capacity decreases at high speeds. Check in the Speed vs. Load Capacity graph below to see if your desired speed and load capacity are supported.
- (2) Please note that the maximum speed is different when used horizontally versus vertically.
- (3) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

■ Speed vs. Load Capacity
Due to the characteristics of the Pulse motor, the RCP3 series' load capacity decreases at high speeds. In the table below, check if your desired speed and load capacity are supported.



Actuator Specifications					Stroke and Maximum Speed	
■ Lead and Load Capacity					25 ~ 200 (25mm increments)	
Model	Lead (mm)	Max. Load Capacity Horizontal (kg)	Max. Load Capacity Vertical (kg)	Maximum Push Force (N)	Stroke (mm)	Lead
RCP3-TA7R-I-42P-12-①-②-③-④	12	~ 6	~ 1	47	25 ~ 200 (25mm increments)	12
RCP3-TA7R-I-42P-6-①-②-③-④	6	~ 8	~ 2	95		6
RCP3-TA7R-I-42P-3-①-②-③-④	3	~ 10	~ 4	189		3

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

* The values enclosed in "< >" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-
175	-
200	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

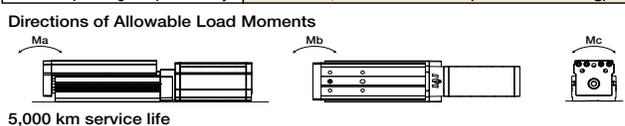
* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT		
Cable exit direction (Outside)	CJO	→ A-25	-
Cable exit direction (Bottom)	CJB		
Left-Mounted Motor (Standard)	ML	→ A-33	-
Right-Mounted Motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 42.6 N·m Mb: 60.8 N·m Mc: 123.2 N·m
Allowable Dynamic Load Moment	Ma: 9.91 N·m Mb: 14.13 N·m Mc: 28.65 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)



RCA2-TCA3N

ROBO Cylinder Mini Table Type Short-Length Compact Model 32mm Width
24V Servo Motor Lead Screw

■ Configuration: **RCA2** — **TCA3N** — **I** — **10** — **30** — **A1** — **N** — **K2**

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

10: 10W Servo motor

4S: 4mm lead screw
2S: 2mm lead screw
1S: 1mm lead screw

30: 30mm

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N: None
P: 1m
S: 3m
M: 5m
X □ □ : Custom

K2: Connector cable exit direction
LA: Power-saving

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5

POINT
Notes on Selection

- (1) The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.
- (2) This model uses a Lead screw, therefore please ensure that your usage is appropriate for its characteristics. (See page Pre-42 for more information.)

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TCA3N-I-10-4S-30-①-②-③	10	Lead screw	4	0.25	0.125	25.1	±0.05	30 (Fixed)
RCA2-TCA3N-I-10-2S-30-①-②-③			2	0.5	0.25	50.3		
RCA2-TCA3N-I-10-1S-30-①-②-③			1	1	0.5	100.5		

Legend ① Compatible controller ② Cable length ③ Options

■ Stroke and Maximum Speed

Lead	Stroke	
	4 (mm)	30 (mm)
Lead screw	4	200
	2	100
	1	50

(Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price
30	—

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special Lengths	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	—
Power-saving	LA	→ A-32	—

Actuator Specifications

Item	Description
Drive System	Lead screw ø4mm C10 grade
Lost Motion	0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N·m Mb: 9.9 N·m Mc: 3.3 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

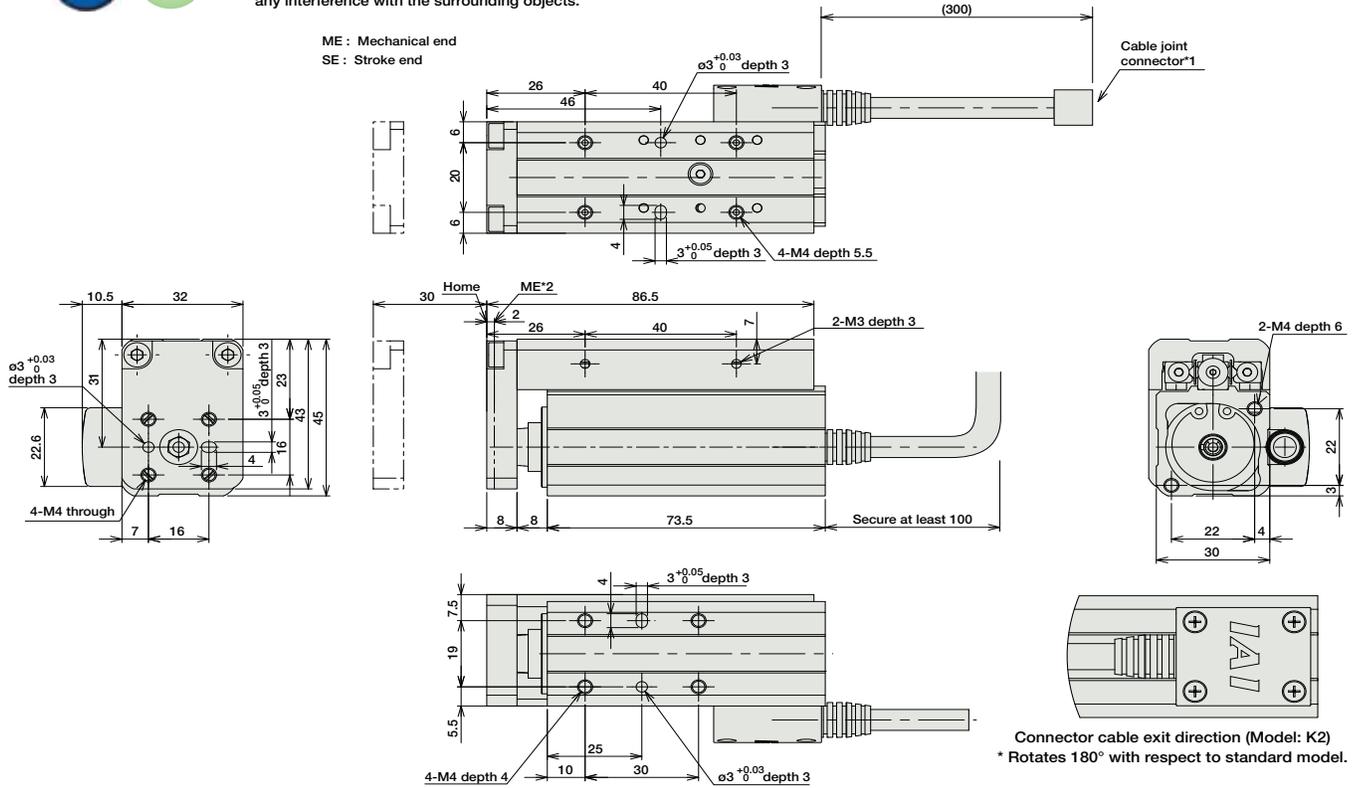
Dimensions

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

For Special Orders P. A-9



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.



■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.37

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-10①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
Splash-Proof Solenoid Valve Type		ASEP-C-10①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				-	→ P487
Positioner Type		ACON-C-10①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	
Safety-Compliant Positioner Type		ACON-CG-10①-NP-2-0					-	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-10①-NP-2-0	Pulse train input type with open collector support				-	
Serial Communication Type		ACON-SE-10①-N-0-0	Dedicated to serial communication	64 points			-	
Field Network Type		RACON-10①	Dedicated to field network	768 points			-	→ P503
Program Control Type		ASEL-C-1-10①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points			-	→ P567

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TCA4N

ROBO Cylinder Mini Table Type Short-Length Compact Model 36mm Width
24V Servo Motor Ball Screw/Lead Screw Models

■ Configuration: **RCA2** — **TCA4N** — **I** — **20** — — **30** — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

20: 20W Servo motor

6: 6mm ball screw
4: 4mm ball screw
2: 2mm ball screw
6S: 6mm lead screw
4S: 4mm lead screw
2S: 2mm lead screw

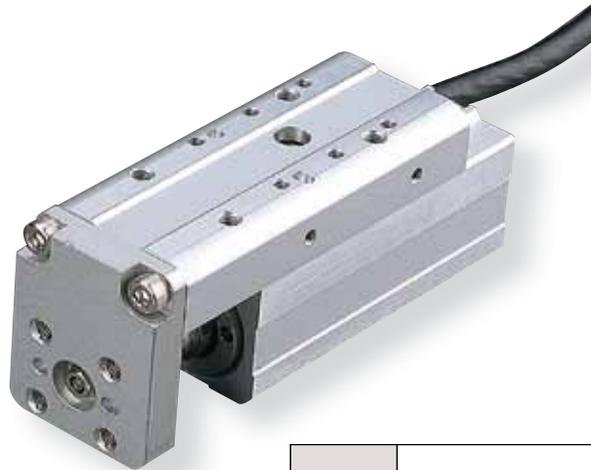
A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

K2: Connector cable exit direction
LA: Power-saving

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5

POINT
Notes on Selection

- (1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). This is the upper limit of the acceleration.
- (2) When using the Lead screw model, please ensure that your usage is appropriate for its characteristics. (See page Pre-42 for more information.)

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TCA4N-I-20-6-30-①-②-③	20	Ball screw	6	2	0.5	33.8	±0.02	30 (Fixed)
RCA2-TCA4N-I-20-4-30-①-②-③			4	3	0.75	50.7		
RCA2-TCA4N-I-20-2-30-①-②-③			2	6	1.5	101.5		
RCA2-TCA4N-I-20-6S-30-①-②-③	20	Lead screw	6	0.25	0.125	19.9	±0.05	30 (Fixed)
RCA2-TCA4N-I-20-4S-30-①-②-③			4	0.5	0.25	29.8		
RCA2-TCA4N-I-20-2S-30-①-②-③			2	1	0.5	59.7		

Legend ① Compatible controller ② Cable length ③ Options

Stroke and Maximum Speed

Lead	Stroke (mm)	
	6	30
Ball screw	6	270 <220>
	4	200
	2	100
Lead screw	6	220
	4	200
	2	100

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price	
	Feed Screw	
	Ball Screw Model	Lead Screw Model
30	-	-

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	-
Power-saving	LA	→ A-32	-

Actuator Specifications

Item	Description
Drive System	Ball screw/Lead screw ø6mm C10 grade
Lost Motion	Ball screw: 0.1mm or less/Lead screw: 0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N·m Mb: 9.9 N·m Mc: 3.3 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life Lead Screw Model	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

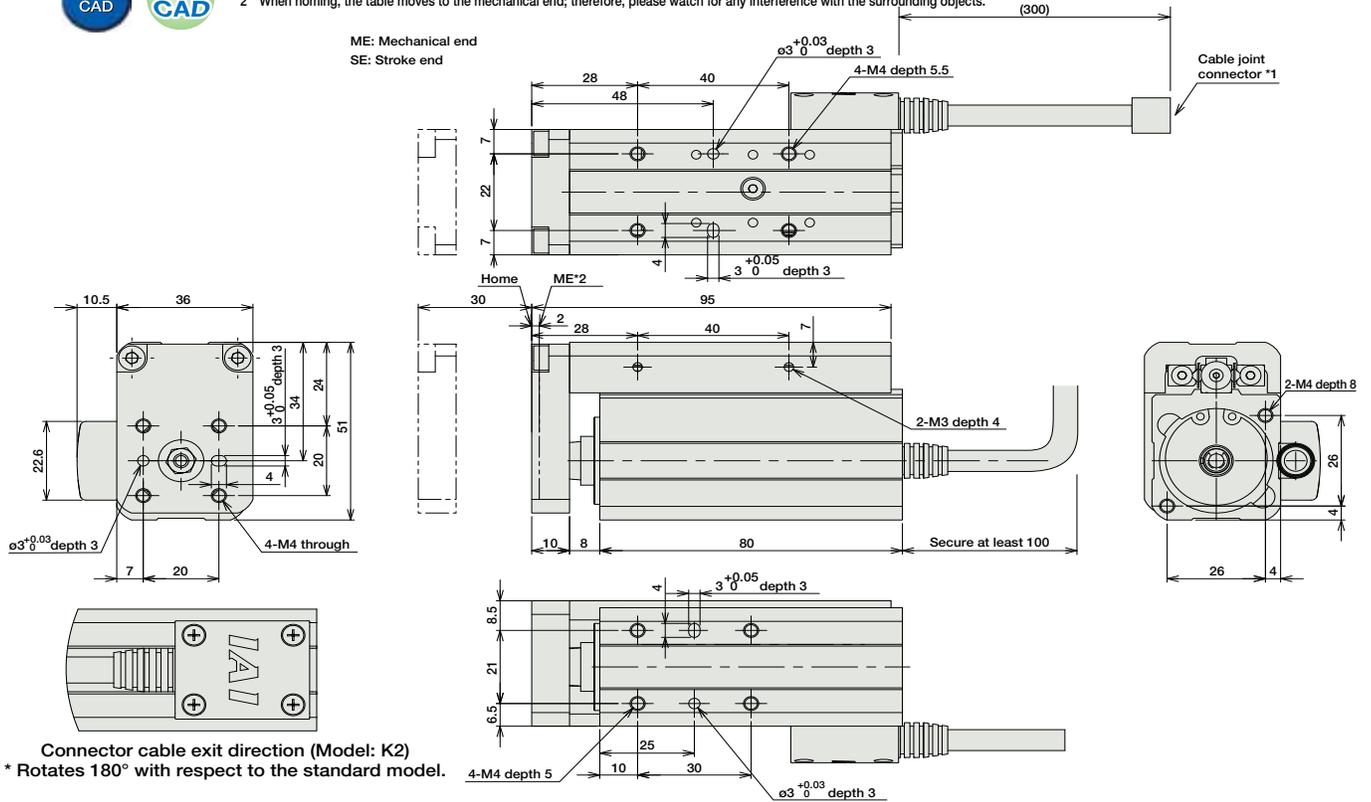
Dimensions

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

For Special Orders P. A-9



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.



■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.48

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-201①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
Splash-Proof Solenoid Valve Type		ASEP-C-201①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				-	→ P487
Positioner Type		ACON-C-201①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max.	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-201①-NP-2-0					-	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-201①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Power-saving) 1.3A rated 2.5A max.	-	→ P503
Pulse Train Input Type (Open Collector)		ACON-PO-201①-NP-2-0	Pulse train input type with open collector support				-	
Serial Communication Type		ACON-SE-201①-N-0-0	Dedicated to serial communication	64 points	-	-	-	-
Field Network Type		RACON-20①	Dedicated to field network	768 points	-	-	-	→ P503
Program Control Type		ASEL-C-1-201①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points	-	-	-	→ P567

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

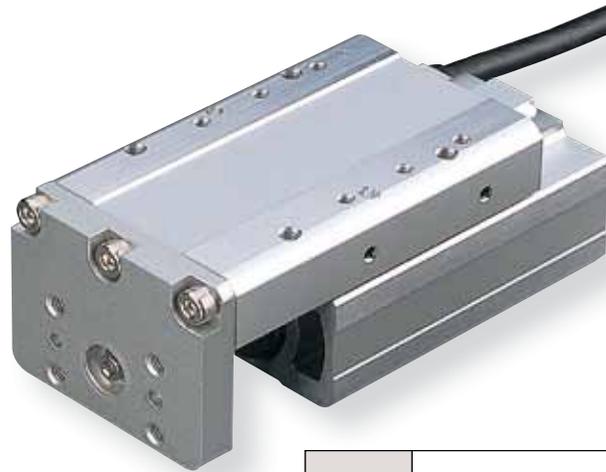
RCA2-TWA3N

ROBO Cylinder Mini Table Type Short-Length Wide Model 50mm Width
24V Servo Motor Lead Screw Model

■ Configuration: **RCA2** — **TWA3N** — **I** — **10** — **30** — **A1** — **N** — **K2**

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
		I: Incremental * The simple absolute encoder is also considered type "I".	10: 10W Servo motor	4S: 4mm lead screw 2S: 2mm lead screw 1S: 1mm lead screw	30: 30mm	A1: ACON RACON ASEL A3: AMEC ASEP	N: None P: 1m S: 3m M: 5m X □ □: Custom	K2: Connector cable exit direction LA: Power-saving

* See page Pre-35 for an explanation of the naming convention.



Power-saving

Technical References P. A-5

POINT
Notes on Selection

- (1) The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.
- (2) This model uses a Lead screw, therefore please ensure that your usage is appropriate for its characteristics. (See page Pre-42 for more information.)

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TWA3N-I-10-4S-30-①-②-③	10	Lead screw	4	0.25	0.125	25.1	±0.05	30 (Fixed)
RCA2-TWA3N-I-10-2S-30-①-②-③			2	0.5	0.25	50.3		
RCA2-TWA3N-I-10-1S-30-①-②-③			1	1	0.5	100.5		

Legend ① Compatible controller ② Cable length ③ Options

■ Stroke and Maximum Speed

Lead	Stroke	
	4 (mm)	30 (mm)
Lead screw	4	200
	2	100
	1	50

(Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price
30	—

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special Lengths	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	—
Power-saving	LA	→ A-32	—

Actuator Specifications

Item	Description
Drive System	Lead screw ø4mm C10 grade
Lost Motion	0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N·m Mb: 9.9 N·m Mc: 9.4 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

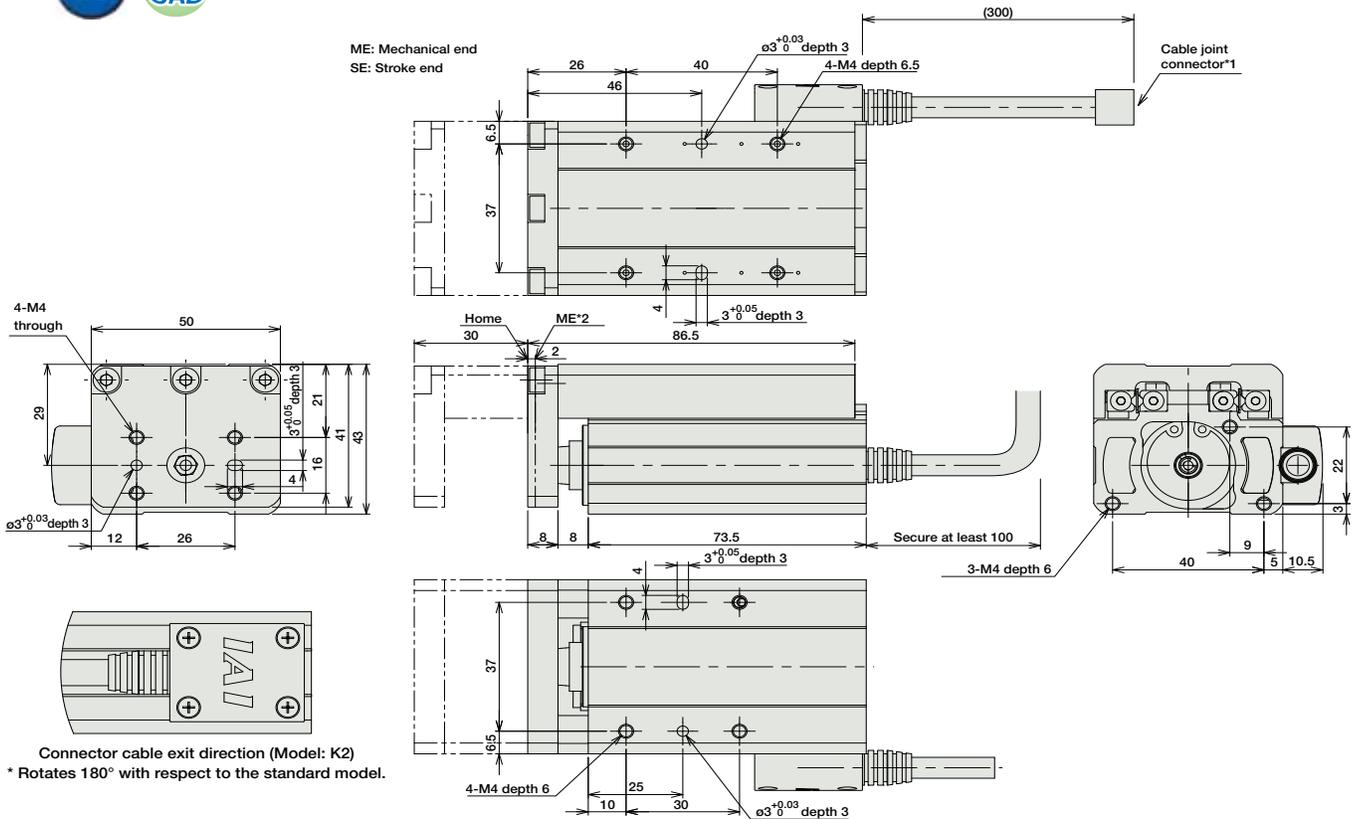
Dimensions

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

For Special Orders P. A-9



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.



Connector cable exit direction (Model: K2)
* Rotates 180° with respect to the standard model.

■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.52

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-10①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
Splash-Proof Solenoid Valve Type		ASEP-C-10①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				-	→ P487
Positioner Type		ACON-C-10①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-10①-NP-2-0		-				
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-10①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-10①-N-0-0	Dedicated to serial communication	64 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P503
Field Network Type		RACON-10①	Dedicated to field network	768 points				
Program Control Type		ASEL-C-1-10①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P567

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TWA4N

ROBO Cylinder Mini Table Type Short-Length Wide Model 58mm Width
24V Servo Motor Ball Screw/Lead Screw Models

■ Configuration: **RCA2** — **TWA4N** — **I** — **20** — **30** — **30** — **30** — **30** — **30**

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

20: 20W Servo motor

6 : 6mm ball screw
4 : 4mm ball screw
2 : 2mm ball screw
6S : 6mm lead screw
4S : 4mm lead screw
2S : 2mm lead screw

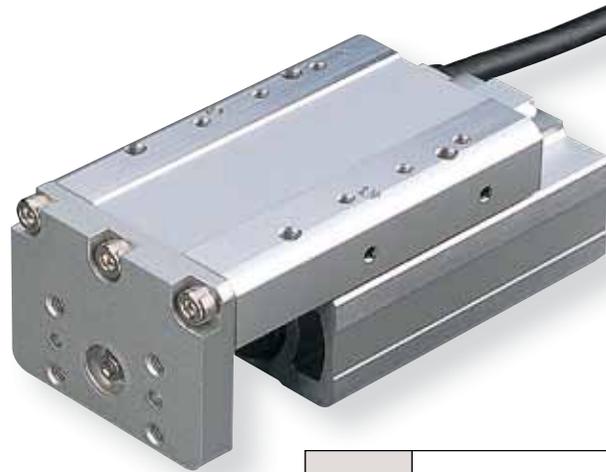
30: 30mm

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N : None
P : 1m
S : 3m
M : 5m
X □ □ : Custom

K2 : Connector cable exit direction
LA : Power-saving

* See page Pre-35 for an explanation of the naming convention.



Power-saving

Technical References P. A-5

POINT
Notes on Selection

- (1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). This is the upper limit of the acceleration.
- (2) When using the Lead screw model, please ensure that your usage is appropriate for its characteristics. (See Pre-42 for more information.)

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TWA4N-I-20-6-30-①-②-③	20	Ball screw	6	2	0.5	33.8	±0.02	30 (Fixed)
RCA2-TWA4N-I-20-4-30-①-②-③			4	3	0.75	50.7		
RCA2-TWA4N-I-20-2-30-①-②-③			2	6	1.5	101.5		
RCA2-TWA4N-I-20-6S-30-①-②-③	20	Lead screw	6	0.25	0.125	19.9	±0.05	30 (Fixed)
RCA2-TWA4N-I-20-4S-30-①-②-③			4	0.5	0.25	29.8		
RCA2-TWA4N-I-20-2S-30-①-②-③			2	1	0.5	59.7		

Legend ① Compatible controller ② Cable length ③ Options

Stroke and Maximum Speed

Lead	Stroke	
	6 (mm)	30 (mm)
Ball screw	6	270 <220>
	4	200
	2	100
Lead screw	6	220
	4	200
	2	100

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price	
	Feed Screw	
	Ball Screw Model	Lead Screw Model
30	-	-

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
	-	-

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	-
Power-saving	LA	→ A-32	-

Actuator Specifications

Item	Description
Drive System	Ball screw/Lead screw ø6mm C10 grade
Lost Motion	Ball screw: 0.1mm or less/Lead screw: 0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N-m Mb: 9.9 N-m Mc: 12.2 N-m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life Lead Screw Model	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

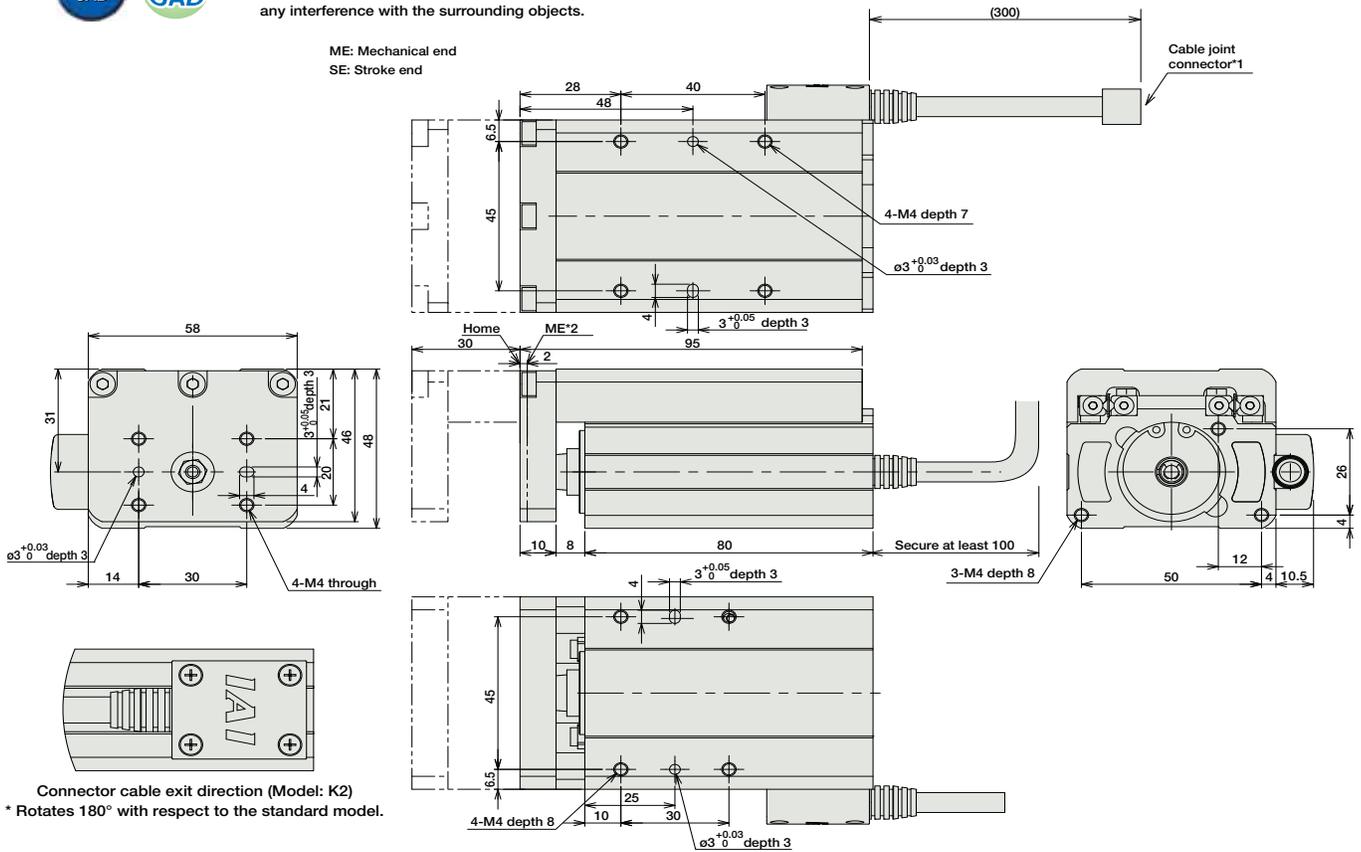
Dimensions

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



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

For Special Orders P. A-9



■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.65

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page					
Solenoid Valve Type		AMEC-C-201①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477					
		ASEP-C-201①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.						→ P487				
Splash-Proof Solenoid Valve Type		ASEP-CW-201①-NP-2-0											
Positioner Type		ACON-C-201①-NP-2-0	Positioning is possible for up to 512 points	512 points				DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-			
Safety-Compliant Positioner Type		ACON-CG-201①-NP-2-0											
Pulse Train Input Type (Differential Line Driver)		ACON-PL-201①-NP-2-0	Pulse train input type with differential line driver support	(-)									→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-201①-NP-2-0	Pulse train input type with open collector support										
Serial Communication Type		ACON-SE-201①-N-0-0	Dedicated to serial communication	64 points									
Field Network Type		RACON-20①	Dedicated to field network	768 points									→ P503
Program Control Type		ASEL-C-1-201①-NP-2-0	Programmed operation is possible Operation is possible on up to 2 axes	1500 points			→ P567						

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TFA3N

ROBO Cylinder Mini Table Type Short-Length Flat Model 61mm Width
24V Servo Motor Lead Screw Model

■ Configuration: **RCA2** — **TFA3N** — **I** — **10** — — **30** — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

10: 10W Servo motor

4S: 4mm lead screw
2S: 2mm lead screw
1S: 1mm lead screw

30: 30mm

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

K2: Connector cable exit direction
LA: Power-saving

* See page Pre-35 for an explanation of the naming convention.



Power-saving

Technical References P. A-5

POINT
Notes on Selection

- (1) The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.
- (2) This model uses a Lead screw, therefore please ensure that your usage is appropriate for its characteristics. (See page Pre-42 for more information.)

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TFA3N-I-10-4S-30-①-②-③	10	Lead screw	4	0.25	0.125	25.1	±0.05	30 (Fixed)
RCA2-TFA3N-I-10-2S-30-①-②-③			2	0.5	0.25	50.3		
RCA2-TFA3N-I-10-1S-30-①-②-③			1	1	0.5	100.5		

Legend ① Compatible controller ② Cable length ③ Options

Stroke and Maximum Speed

Lead	Stroke	
	4 (mm)	30 (mm)
Lead screw	4	200
	2	100
	1	50

(Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price
30	-

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	-
Power-saving	LA	→ A-32	-

Actuator Specifications

Item	Description
Drive System	Lead screw ø4mm C10 grade
Lost Motion	0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N·m Mb: 9.9 N·m Mc: 3.3 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

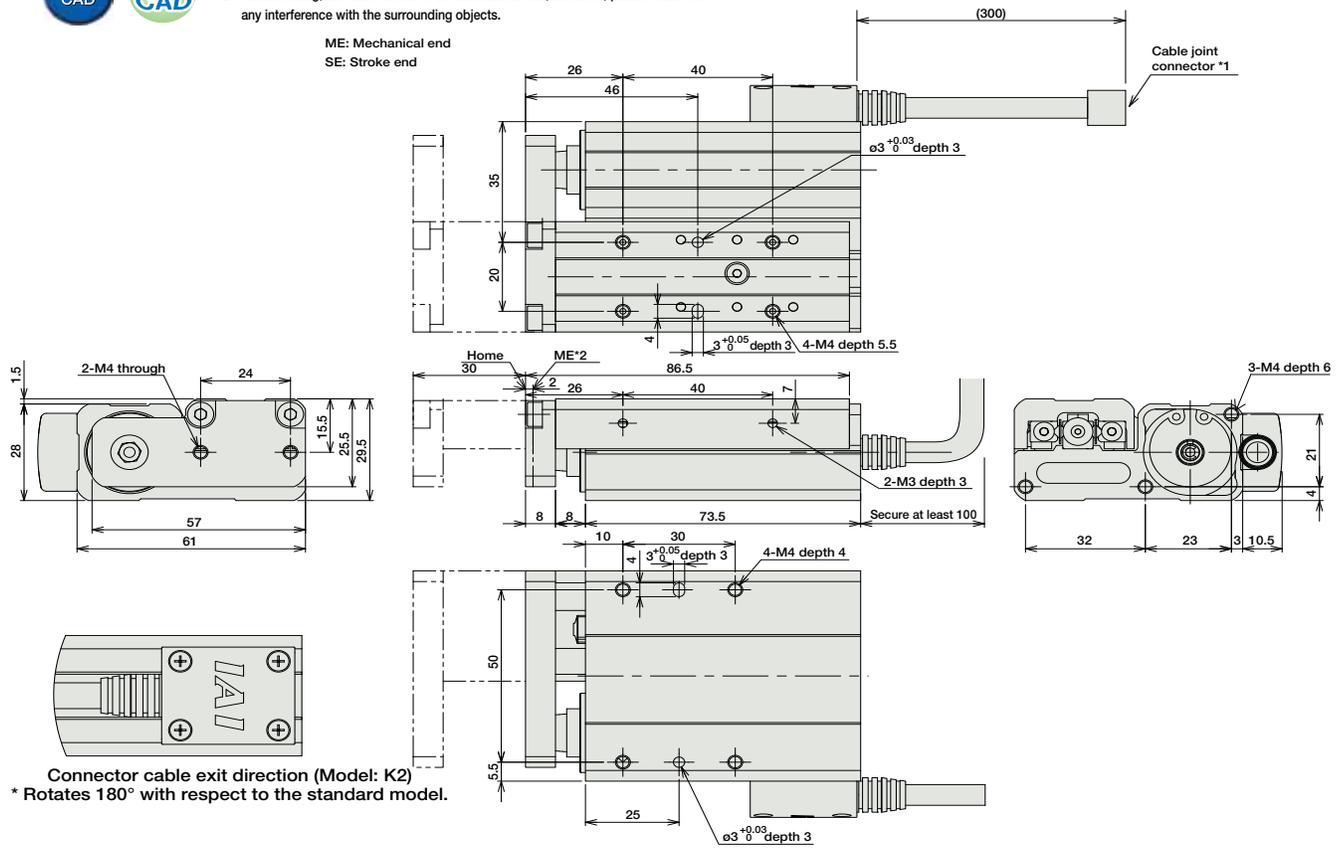
Dimensions

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



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

For Special Orders P. A-9



■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.4

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page	
Solenoid Valve Type		AMEC-C-101①-NP-2-1	Easy-to-use controller, even for beginners	3 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P477	
	Splash-Proof Solenoid Valve Type		ASEP-C-101①-NP-2-0				Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.	-	→ P487
Positioner Type			ACON-C-101①-NP-2-0	Positioning is possible for up to 512 points			512 points	-	→ P535
	Safety-Compliant Positioner Type		ACON-CG-101①-NP-2-0					-	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-101①-NP-2-0	Pulse train input type with differential line driver support	(-)			-		
Pulse Train Input Type (Open Collector)		ACON-PO-101①-NP-2-0	Pulse train input type with open collector support				-		
Serial Communication Type		ACON-SE-101①-N-0-0	Dedicated to serial communication	64 points			-		
Field Network Type		RACON-101①	Dedicated to field network	768 points			-	→ P503	
Program Control Type		ASEL-C-1-101①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points			-	→ P567	

* This is for the single-axis ASEL.

* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TFA4N

ROBO Cylinder Mini Table Type Short-Length Flat Model 71mm Width
24V Servo Motor Ball Screw/Lead Screw Models

■ Configuration: **RCA2** — **TFA4N** — **I** — **20** — — **30** — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

20: 20W Servo motor

6: 6mm ball screw
4: 4mm ball screw
2: 2mm ball screw
6S: 6mm lead screw
4S: 4mm lead screw
2S: 2mm lead screw

30: 30mm

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N: None
P: 1m
S: 3m
M: 5m
X : Custom

K2: Connector cable exit direction
LA: Power-saving

* See page Pre-35 for an explanation of the naming convention.



Power-saving

Technical References P. A-5

- POINT**
Notes on Selection
- (1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). This is the upper limit of the acceleration.
 - (2) When using the Lead screw model, please ensure that your usage is appropriate for its characteristics. (See page Pre-42 for more information.)

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TFA4N-I-20-6-30-①-②-③	20	Ball screw	6	2	0.5	33.8	±0.02	30 (Fixed)
RCA2-TFA4N-I-20-4-30-①-②-③			4	3	0.75	50.7		
RCA2-TFA4N-I-20-2-30-①-②-③			2	6	1.5	101.5		
RCA2-TFA4N-I-20-6S-30-①-②-③	20	Lead screw	6	0.25	0.125	19.9	±0.05	30 (Fixed)
RCA2-TFA4N-I-20-4S-30-①-②-③			4	0.5	0.25	29.8		
RCA2-TFA4N-I-20-2S-30-①-②-③			2	1	0.5	59.7		

Legend ① Compatible controller ② Cable length ③ Options

Stroke and Maximum Speed

Lead	Stroke	
	6 (mm)	30 (mm)
Ball screw	6	270 <220>
	4	200
	2	100
Lead screw	6	220
	4	200
	2	100

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

Stroke List

Stroke (mm)	Standard Price	
	Feed Screw	
	Ball Screw Model	Lead Screw Model
30	-	-

② Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
	-	-

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

③ Option List

Name	Option Code	See Page	Standard Price
Connector cable exit direction	K2	→ A-32	-
Power-saving	LA	→ A-32	-

Actuator Specifications

Item	Description
Drive System	Ball screw/Lead screw ø6mm C10 grade
Lost Motion	Ball screw: 0.1mm or less/Lead screw: 0.3mm or less (initial value)
Frame	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 9.9 N-m Mb: 9.9 N-m Mc: 3.3 N-m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)
Service Life Lead Screw Model	Horizontal: 10 million cycles Vertical: 5 million cycles

(Note) Based on a 5,000 km service life set for the guide.

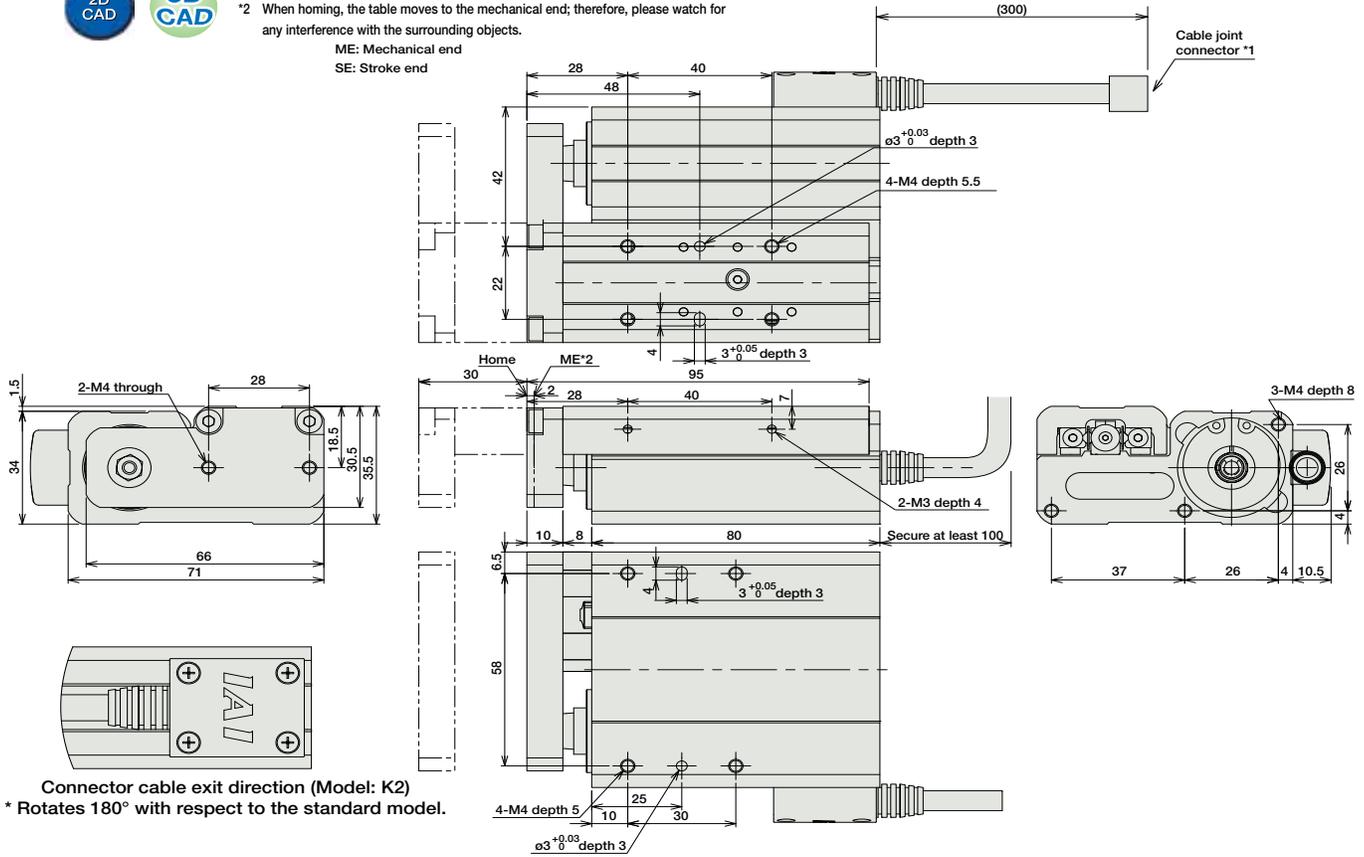
Dimensions

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

For Special Orders P. A-9



- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
 - *2 When homing, the table moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.
- ME: Mechanical end
SE: Stroke end



Connector cable exit direction (Model: K2)
* Rotates 180° with respect to the standard model.

■ Dimensions/Weight by Stroke

Stroke	30
Weight (kg)	0.6

① Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-201①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
		ASEP-C-201①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				-	→ P487
Splash-Proof Solenoid Valve Type		ASEP-CW-201①-NP-2-0					-	
Positioner Type		ACON-C-201①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-201①-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-201①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Standard) 1.3A rated 4.4A max. (Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-201①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-201①-N-0-0	Dedicated to serial communication	64 points			-	
Field Network Type		RACON-20①	Dedicated to field network	768 points			-	→ P503
Program Control Type		ASEL-C-1-201①-NP-2-0	Programmed operation is possible Operation is possible on up to 2 axes	1500 points			-	→ P567

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA" if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TA4C

ROBO Cylinder Mini Table Type Motor Unit Coupled 40mm Width
24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA4C** — **I** — **10** — [] — [] — [] — [] — []

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

10: 10W Servo motor

6 : 6mm
4 : 4mm
2 : 2mm

20: 20mm
↓
100: 100mm (10mm pitch increments)

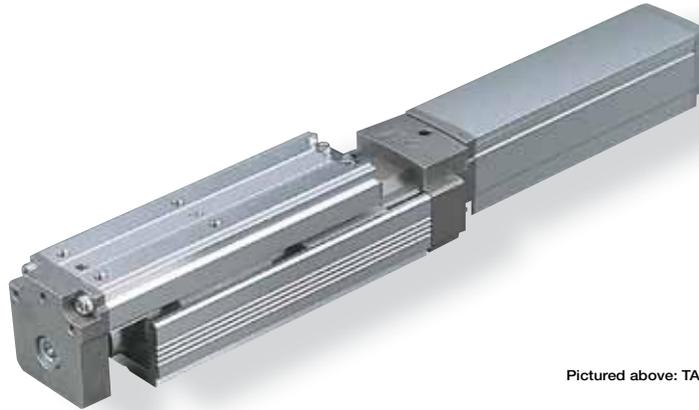
A1 : ACON
RACON
ASEL
A3 : AMEC
ASEP

N : None
P : 1m
S : 3m
M : 5m
X [] [] : Custom

K2 : Connector cable exit direction
LA : Power-saving

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Pictured above: TA3C

Technical References P. A-5

POINT
Notes on Selection

(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TA4C-I-10-6-①-②-③-④	10	Ball screw	6	1	0.5	28	±0.02	20~100 (10mm increments)
RCA2-TA4C-I-10-4-①-②-③-④			4	2	1	43		
RCA2-TA4C-I-10-2-①-②-③-④			2	3	1.5	85		

Legend ① Stroke ② Compatible controller ③ Cable length ④ Options

■ Stroke and Maximum Speed

Lead	Stroke	20 ~ 100 (10mm increments)
	Ball screw	6
4		200
2		100

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The RCA2 comes standard with a robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR		
Cable exit direction (Left)	CJL		
Cable exit direction (Bottom)	CJB		
Power-saving	LA	→ A-32	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 4.2 N·m Mb: 6 N·m Mc: 8.2 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(Note) Based on a 5,000km service life.

Directions of Allowable Load Moments



RCA2-TA5C

ROBO Cylinder Table Type Motor Unit Coupled 55mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA5C** — **I** — **20** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

20: 20W Servo motor

10 : 10mm
5 : 5mm
2.5 : 2.5mm

25: 25mm
100: 100mm (25mm pitch increments)

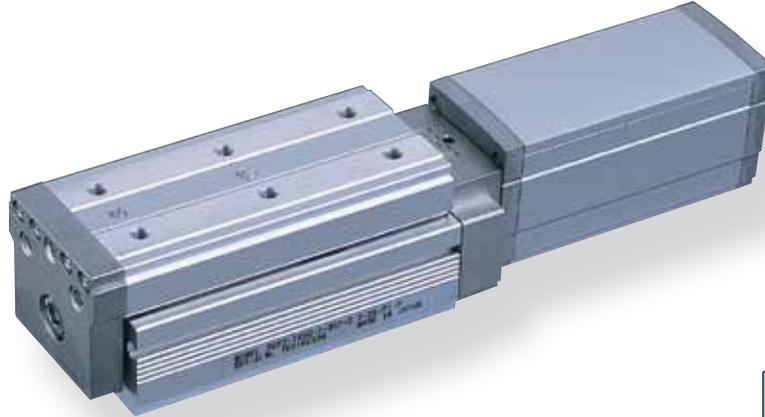
A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N : None
P : 1m
S : 3m
M : 5m
X : Custom

See Options below

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5

POINT
Notes on Selection

- Please note that the maximum speed is different when used horizontally versus vertically.
- The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2.5mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA5C-I-20-10-①-②-③-④	20	10	2	1	34	25~100 (25mm increments)
RCA2-TA5C-I-20-5-①-②-③-④		5	3.5	2	68	
RCA2-TA5C-I-20-2.5-①-②-③-④		2.5	5	3	137	

■ Stroke and Maximum Speed

Stroke / Lead	25 ~ 100 (25mm increments)	
	10	465 <400>
5	250	
2.5	125	

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The RCA2 comes standard with a robot cable.
* See page A-39 for cables for maintenance.

④ Options List

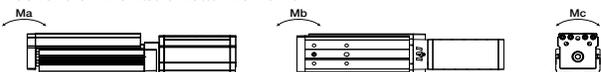
Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Power-saving	LA	→ A-32	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø8mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 25.5 N·m Mb: 36.5 N·m Mc: 56.1 N·m
Allowable Dynamic Moment (*)	Ma: 6.57 N·m Mb: 9.32 N·m Mc: 14.32 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

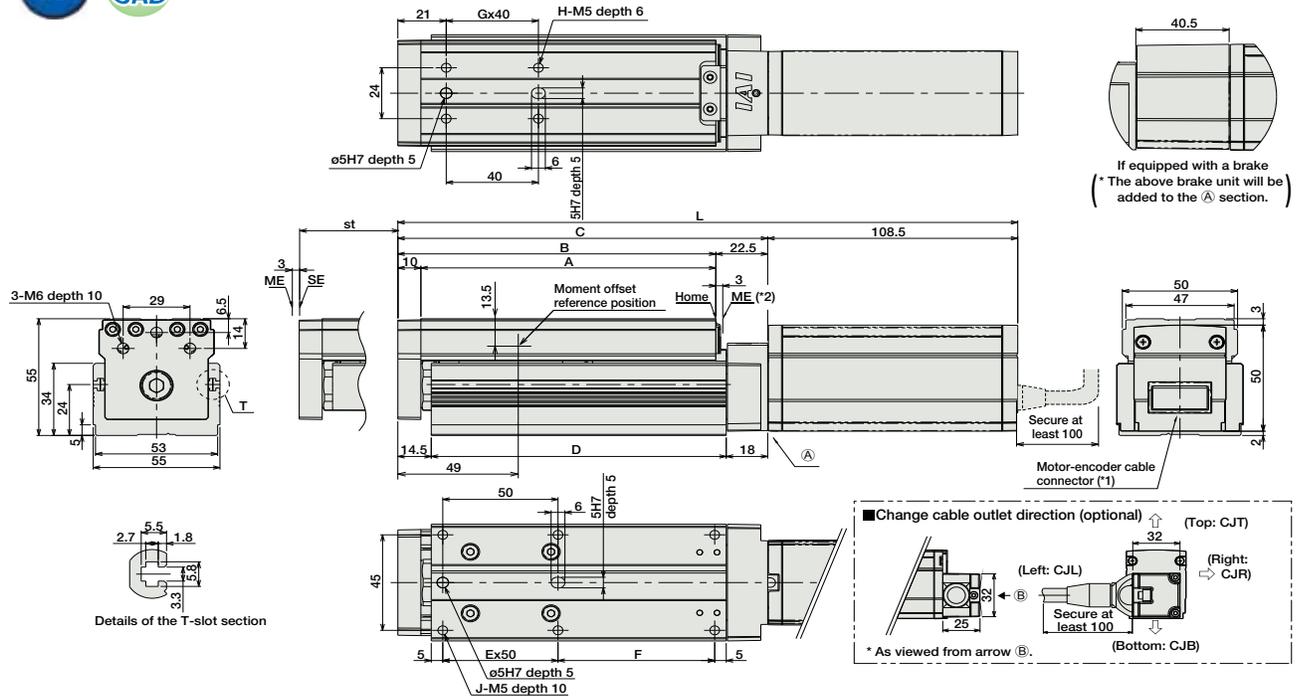
Directions of Allowable Load Moments



Dimensions

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

For Special Order P. A-9



■ Dimensions and Weight by Stroke * Adding a brake will increase the actuator's weight by 0.3kg.

Stroke	25				50				75				100										
	L		A		B		C		D		E		F		G		H		J		Weight (kg)		
L	No brake		244		269		294		319		344		369		394		419		444		1.2		
	Brake-equipped		284.5		309.5		334.5		359.5		384.5		409.5		434.5		459.5		484.5		1.4		
A	103		128		153		178		203		228		253		278		303		328		1.7		
B	113		138		163		188		213		238		263		288		313		338		1.8		
C	135.5		160.5		185.5		210.5		235.5		260.5		285.5		310.5		335.5		360.5		210.5		
D	103		128		153		178		203		228		253		278		303		328		1.78		
E	1		1		2		2		3		3		4		4		5		5		2		
F	43		68		93		118		143		168		193		218		243		268		68		
G	1		1		2		2		3		3		4		4		5		5		2		
H	4		4		6		6		8		8		10		10		12		12		6		
J	6		6		8		8		10		10		12		12		14		14		8		
Weight (kg)		1.2		1.4		1.5		1.7		1.8		2.0		2.2		2.4		2.6		2.8		1.7	

(*1) The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

② Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-20Si①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
		ASEP-C-20Si①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		ASEP-CW-20Si①-NP-2-0						→ P487
Positioner Type		ACON-C-20Si①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max.	-	
Safety-Compliant Positioner Type		ACON-CG-20Si①-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20Si①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-20Si①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-20Si①-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RACON-20S①	Dedicated to field network	768 points				→ P503
Program Control Type		ASEL-C-1-20Si①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P567

* This is for the single-axis ASEL.
 * ① is a placeholder for the code "LA", if the power-saving option is specified.

RCA2-TA6C

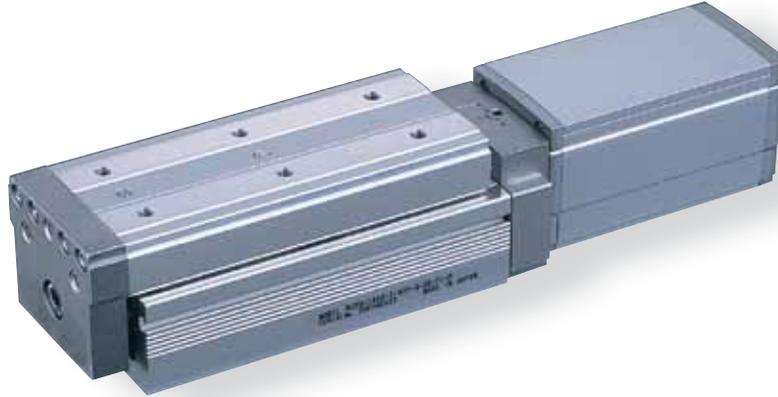
ROBO Cylinder Table Type Motor Unit Coupled 65mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA6C** — **I** — **20** — — — — —

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
		I: Incremental * The simple absolute encoder is also considered type "I".	20: 20W Servo motor	12: 12mm 6: 6mm 3: 3mm	25: 25mm 150: 150mm (25mm pitch increments)	A1: ACON RACON ASEL A3: AMEC ASEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> : Custom	See Options below

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5

POINT
Notes on Selection

- Please note that the maximum speed is different when used horizontally versus vertically.
- The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA6C-I-20-12-①-②-③-④	20	12	2	0.5	17	25~150 (25mm increments)
RCA2-TA6C-I-20-6-①-②-③-④		6	4	1.5	34	
RCA2-TA6C-I-20-3-①-②-③-④		3	6	3	68	

■ Stroke and Maximum Speed

Stroke / Lead	25 ~ 150 (25mm increments)	
	12	560 <500>
6	300	
3	150	

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

* The values enclosed in "< >" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCA2 comes standard with a robot cable.
* See page A-39 for cables for maintenance.

④ Options List

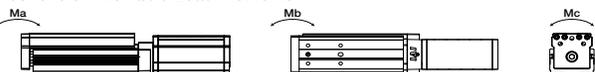
Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Power-saving	LA	→ A-32	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 29.4 N·m Mb: 42.0 N·m Mc: 74.1 N·m
Allowable Dynamic Moment (*)	Ma: 7.26 N·m Mb: 10.3 N·m Mc: 18.25 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

Directions of Allowable Load Moments



RCA2-TA7C

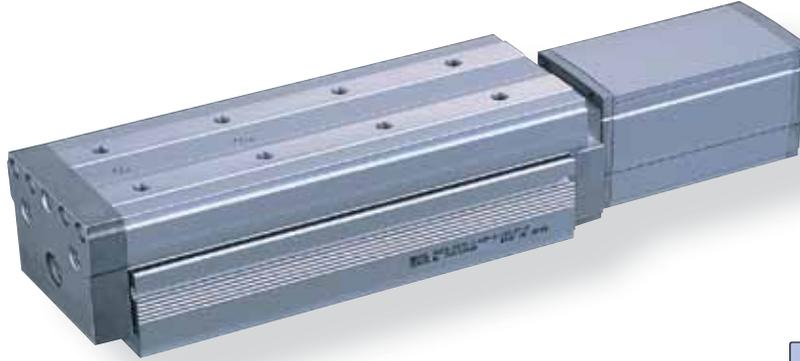
ROBO Cylinder Table Type Motor Unit Coupled 75mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA7C** — **I** — **30** — — — — —

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
		I: Incremental * The simple absolute encoder is also considered type "I".	30: 30W Servo motor	12: 12mm 6: 6mm 3: 3mm	25: 25mm ↓ 200: 200mm (25mm pitch increments)	A1: ACON RACON ASEL A3: AMEC ASEP	N: None P: 1m S: 3m M: 5m X <input type="checkbox"/> <input type="checkbox"/> : Custom	See Options below

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5

POINT
Notes on Selection

- Please note that the maximum speed is different when used horizontally versus vertically.
- The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA7C-I-30-12- <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/>	30	12	4	1	26	25~200 (25mm increments)
RCA2-TA7C-I-30-6- <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/>		6	6	2.5	53	
RCA2-TA7C-I-30-3- <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/>		3	8	4	105	

Stroke and Maximum Speed

Stroke Lead	25 ~ 200 (25mm increments)	
	12	600 <580>
6	300	
3	150	

Legend: Stroke Compatible controller Cable length Options

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-
175	-
200	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The RCA2 comes standard with a robot cable.

* See page A-39 for cables for maintenance.

④ Options List

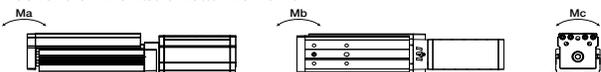
Name	Option Code	Standard Price	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Right)	CJR	→ A-25	-
Cable exit direction (Left)	CJL	→ A-25	-
Cable exit direction (Bottom)	CJB	→ A-25	-
Power-saving	LA	→ A-32	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Moment	Ma: 42.6 N·m Mb: 60.8 N·m Mc: 123.2 N·m
Allowable Dynamic Moment (*)	Ma: 9.91 N·m Mb: 14.13 N·m Mc: 28.65 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

Directions of Allowable Load Moments



RCA2-TA4R

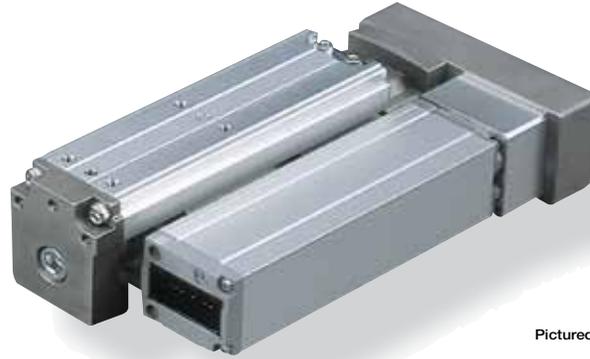
ROBO Cylinder Mini Table Type Side-Mounted Motor 40mm Width 24V Servo Motor
Ball Screw

■ Configuration: **RCA2** — **TA4R** — **I** — **10** — — — — —

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
RCA2	TA4R	I: Incremental * The simple absolute encoder is also considered type "I".	10: 10W Servo motor	6 : 6mm 4 : 4mm 2 : 2mm	20: 20mm ↓ 100: 100mm (10mm pitch increments)	A1 : ACON RACON ASEL A3 : AMEC ASEP	N : None P : 1m S : 3m M : 5m X <input type="checkbox"/> : Custom	See Options below * Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Pictured: TA3R with left-mounted motor (ML).

Technical References P. A-5

POINT Notes on Selection

(1) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2mm-lead model, or when used vertically). 0.3G (0.2G for 2mm lead) is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Feed Screw	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Positioning Repeatability (mm)	Stroke (mm)
				Horizontal (kg)	Vertical (kg)			
RCA2-TA4R-I-10-6-①-②-③-④	10	Ball screw	6	1	0.5	28	±0.02	20~100 (10mm increments)
RCA2-TA4R-I-10-4-①-②-③-④			4	2	1	43		
RCA2-TA4R-I-10-2-①-②-③-④			2	3	1.5	85		

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

■ Stroke and Maximum Speed

Lead	Stroke	
	6	20 ~ 100 (10mm increments)
Ball screw	6	300
	4	200
	2	100

(Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
20	-
30	-
40	-
50	-
60	-
70	-
80	-
90	-
100	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-

* The RCA2 comes standard with a robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Outside)	CJO		
Cable exit direction (Bottom)	CJB		
Power-saving	LA	→ A-32	-
Left-mounted Motor (Standard)	ML	→ A-33	-
Right-mounted motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (Note)	Ma: 4.2 N·m Mb: 6 N·m Mc: 8.2 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

(Note) Based on a 5,000km service life.

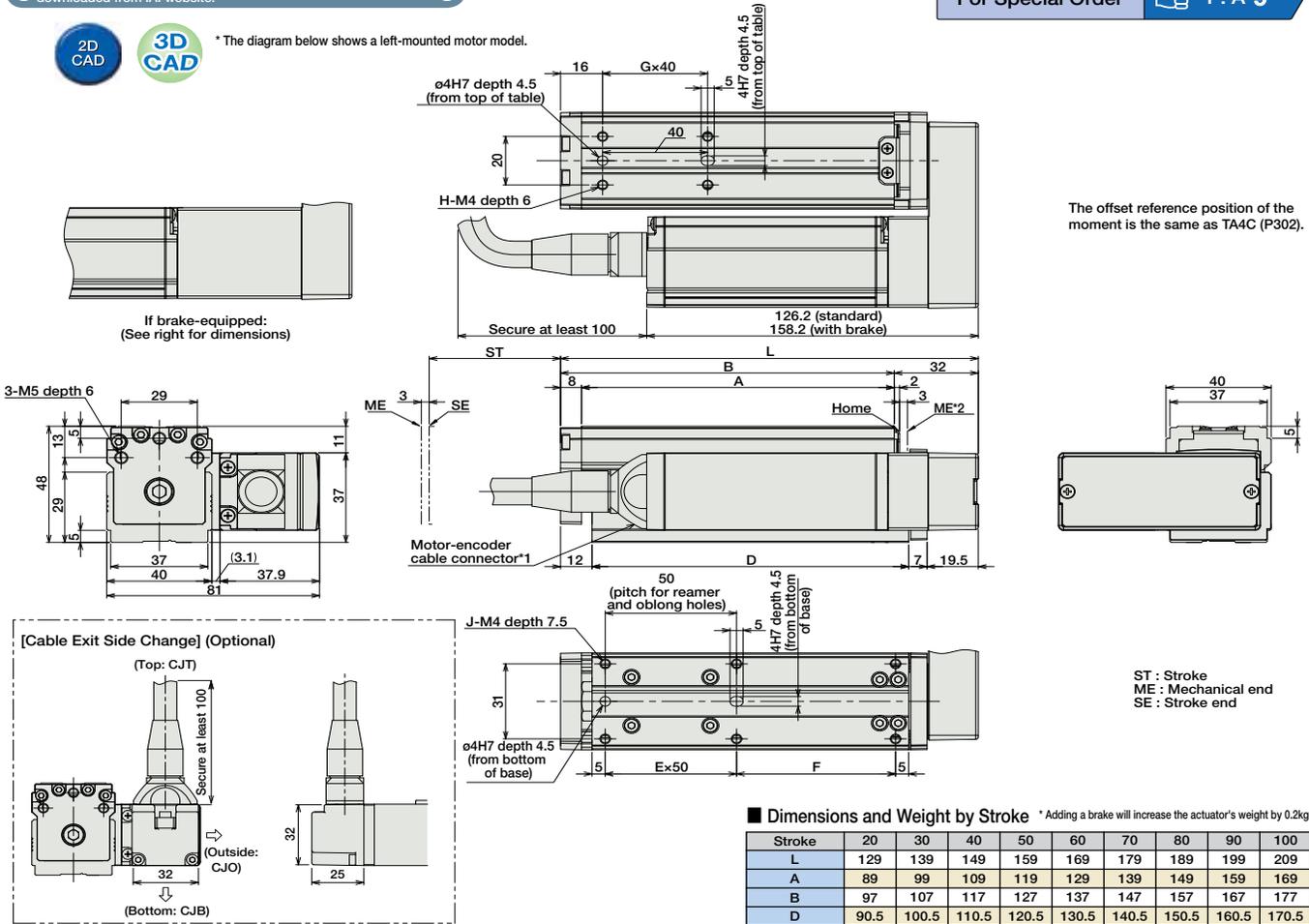
Dimensions

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

For Special Order P. A-9



* The diagram below shows a left-mounted motor model.



The offset reference position of the moment is the same as TA4C (P302).

ST : Stroke
ME : Mechanical end
SE : Stroke end

■ Dimensions and Weight by Stroke * Adding a brake will increase the actuator's weight by 0.2kg.

Stroke	20	30	40	50	60	70	80	90	100
L	129	139	149	159	169	179	189	199	209
A	89	99	109	119	129	139	149	159	169
B	97	107	117	127	137	147	157	167	177
D	90.5	100.5	110.5	120.5	130.5	140.5	150.5	160.5	170.5
E	1	1	1	1	2	2	2	2	2
F	30.5	40.5	50.5	60.5	20.5	30.5	40.5	50.5	60.5
G	1	1	1	1	2	2	2	2	2
H	4	4	4	4	6	6	6	6	6
J	6	6	6	6	8	8	8	8	8
Weight (kg)	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1

*1 The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
*2 When homing, the slider moves to the mechanical end; therefore, please watch for any interference with the surrounding objects.

② Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-10①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
		ASEP-C-10①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		ASEP-CW-10①-NP-2-0						→ P487
Positioner Type		ACON-C-10①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max.	-	
Safety-Compliant Positioner Type		ACON-CG-10①-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-10①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-10①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-10①-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RACON-10①	Dedicated to field network	768 points				→ P503
Program Control Type		ASEL-C-1-10①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P567

* This is for the single-axis ASEL.
* ① is a placeholder for the code "LA", if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Controllers Integrated
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TA5R

ROBO Cylinder Table Type Side-Mounted Motor 55mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA5R** — **I** — **20** — — — — —

Series	Type	Encoder	Motor	Lead	Stroke	Compatible Controllers	Cable Length	Option
		I: Incremental * The simple absolute encoder is also considered type "I".	20: 20W Servo motor	10 : 10mm 5 : 5mm 2.5 : 2.5mm	25: 25mm ↓ 100: 100mm (25mm pitch increments)	A1: ACON RACON ASEL A3: AMEC ASEP	N : None P : 1m S : 3m M : 5m X <input type="checkbox"/> <input type="checkbox"/> : Custom	See Options below * Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5



- (1) Please note that the maximum speed is different when used horizontally versus vertically.
- (2) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 2.5mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA5R-I-20-10-①-②-③-④	20	10	2	1	34	25~100 (25mm increments)
RCA2-TA5R-I-20-5-①-②-③-④		5	3.5	2	68	
RCA2-TA5R-I-20-2.5-①-②-③-④		2.5	5	3	137	

■ Stroke and Maximum Speed

Stroke Lead	25 ~ 100 (25mm increments)	
	10	465 <400>
5	250	
2.5	125	

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	—
50	—
75	—
100	—

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	—
	S (3m)	—
	M (5m)	—
Special Lengths	X06 (6m) ~ X10 (10m)	—
	X11 (11m) ~ X15 (15m)	—
	X16 (16m) ~ X20 (20m)	—
		—

* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	—
Cable exit direction (Top)	CJT	→ A-25	—
Cable exit direction (Outside)	CJO		
Cable exit direction (Bottom)	CJB		
Power-saving	LA	→ A-32	—
Left-mounted Motor (Standard)	ML	→ A-33	—
Right-mounted motor	MR	→ A-33	—
Reversed-home	NM	→ A-33	—

Actuator Specifications

Item	Description
Drive System	Ball screw ø8mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 25.5 N·m Mb: 36.5 N·m Mc: 56.1 N·m
Allowable Dynamic Load Moment	Ma: 6.57 N·m Mb: 9.32 N·m Mc: 14.32 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

RCA2-TA6R

ROBO Cylinder Table Type Side-Mounted Motor 65mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA6R** — **I** — **20** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

20: 20W Servo motor

12 : 12mm
6 : 6mm
3 : 3mm

25: 25mm
150: 150mm (25mm pitch increments)

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N : None
P : 1m
S : 3m
M : 5m
X : Custom

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5



- (1) Please note that the maximum speed is different when used horizontally versus vertically.
- (2) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA6R-I-20-12-①-②-③-④	20	12	2	0.5	17	25~150 (25mm increments)
RCA2-TA6R-I-20-6-①-②-③-④		6	4	1.5	34	
RCA2-TA6R-I-20-3-①-②-③-④		3	6	3	68	

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

■ Stroke and Maximum Speed

Stroke / Lead	25 ~ 150 (25mm increments)	
	12	560 <500>
6	300	
3	150	

* The values enclosed in "<" ">" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT	→ A-25	-
Cable exit direction (Outside)	CJO		
Cable exit direction (Bottom)	CJB		
Power-saving	LA	→ A-32	-
Left-mounted Motor (Standard)	ML	→ A-33	-
Right-mounted motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 29.4 N·m Mb: 42.0 N·m Mc: 74.1 N·m
Allowable Dynamic Load Moment	Ma: 7.26 N·m Mb: 10.3 N·m Mc: 18.25 N·m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

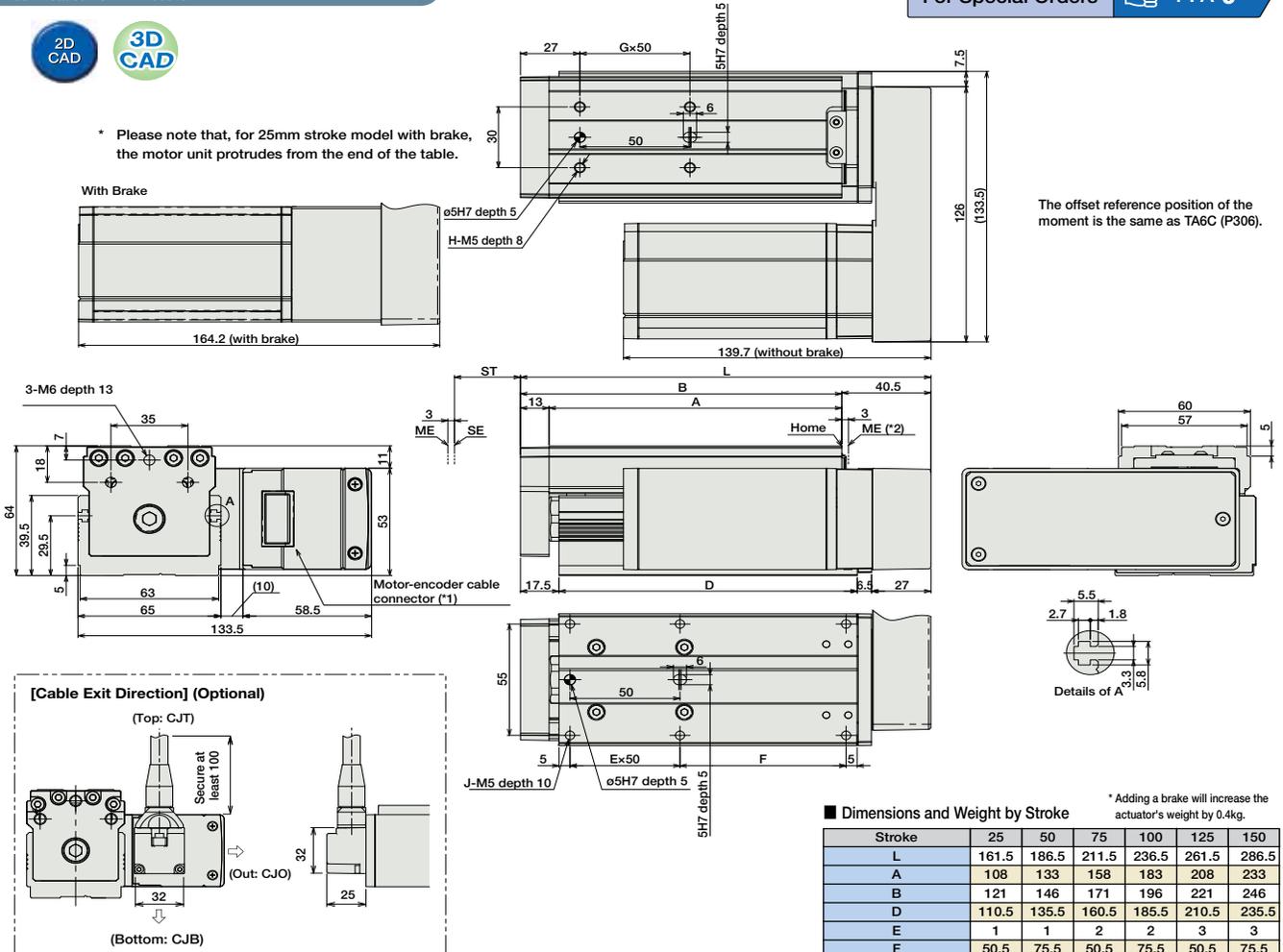
Dimensions

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



For Special Orders P. A-9

* Please note that, for 25mm stroke model with brake, the motor unit protrudes from the end of the table.



■ Dimensions and Weight by Stroke

* Adding a brake will increase the actuator's weight by 0.4kg.

Stroke	25	50	75	100	125	150
L	161.5	186.5	211.5	236.5	261.5	286.5
A	108	133	158	183	208	233
B	121	146	171	196	221	246
D	110.5	135.5	160.5	185.5	210.5	235.5
E	1	1	2	2	3	3
F	50.5	75.5	50.5	75.5	50.5	75.5
G	1	1	2	2	3	3
H	4	4	6	6	8	8
J	6	6	8	8	10	10
Weight (kg)	2.1	2.3	2.5	2.7	2.9	3.1

(*1) The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

② Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-20①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
		ASEP-C-20①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Splash-Proof Solenoid Valve Type		ASEP-CW-20①-NP-2-0						→ P487
Positioner Type		ACON-C-20①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.4A max.	-	
Safety-Compliant Positioner Type		ACON-CG-20①-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Power-saving) 1.3A rated 2.5A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-20①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-20①-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RACON-20①	Dedicated to field network	768 points				→ P503
Program Control Type		ASEL-C-1-20①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P567

* This is for the single-axis ASEL.
 * ① is a placeholder for the code "LA", if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA2-TA7R

ROBO Cylinder Table Type Side-Mounted Motor 75mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA2** — **TA7R** — **I** — **30** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I: Incremental
* The simple absolute encoder is also considered type "I".

30: 30W Servo motor

12 : 12mm
6 : 6mm
3 : 3mm

25: 25mm
200: 200mm (25mm pitch increments)

A1: ACON
RACON
ASEL
A3: AMEC
ASEP

N : None
P : 1m
S : 3m
M : 5m
X : Custom

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.

Power-saving



Technical References P. A-5



- Please note that the maximum speed is different when used horizontally versus vertically.
- The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 3mm-lead model, or when used vertically). This is the upper limit of the acceleration.

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA2-TA7R-I-30-12-①-②-③-④	30	12	4	1	26	25~200 (25mm increments)
RCA2-TA7R-I-30-6-①-②-③-④		6	6	2.5	53	
RCA2-TA7R-I-30-3-①-②-③-④		3	8	4	105	

Legend: ① Stroke ② Compatible controller ③ Cable length ④ Options

Stroke and Maximum Speed

Stroke Lead	25 ~ 200 (25mm increments)	
	12	600 <580>
6	300	
3	150	

* The values enclosed in "<" apply to vertical usage. (Unit: mm/s)

① Stroke List

Stroke (mm)	Standard Price
25	-
50	-
75	-
100	-
125	-
150	-
175	-
200	-

③ Cable List

Type	Cable Symbol	Standard Price
Standard Type (Robot Cables)	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	X06 (6m) ~ X10 (10m)	-
	X11 (11m) ~ X15 (15m)	-
	X16 (16m) ~ X20 (20m)	-
		-

* The standard cable is the motor-encoder integrated robot cable.
* See page A-39 for cables for maintenance.

④ Option List

Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Cable exit direction (Top)	CJT		
Cable exit direction (Outside)	CJO	→ A-25	-
Cable exit direction (Bottom)	CJB		
Power-saving	LA	→ A-32	-
Left-mounted Motor (Standard)	ML	→ A-33	-
Right-mounted motor	MR	→ A-33	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ϕ 10mm C10 grade
Positioning Repeatability	\pm 0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (special alumite treated)
Allowable Static Load Moment	Ma: 42.6 N-m Mb: 60.8 N-m Mc: 123.2 N-m
Allowable Dynamic Load Moment	Ma: 9.91 N-m Mb: 14.13 N-m Mc: 28.65 N-m
Overhang Load Length	Within the load moment range
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



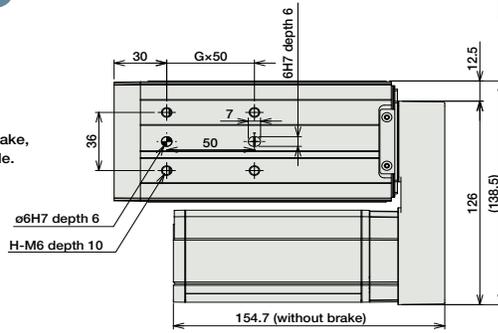
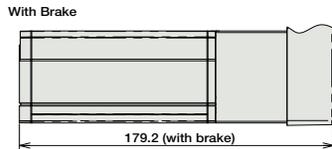
5,000 km service life

Dimensions

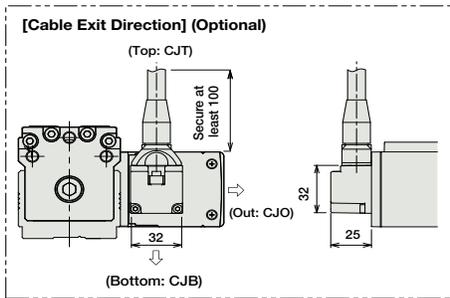
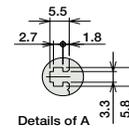
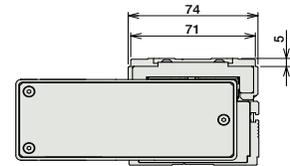
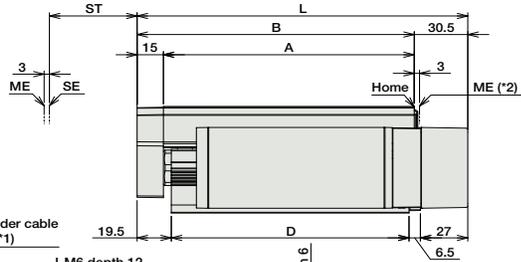
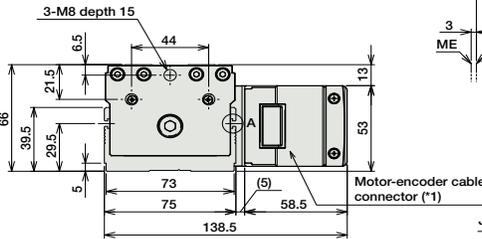
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com



* Please note that, for 25mm stroke model with brake, the motor unit protrudes from the end of the table.



The offset reference position of the moment is the same as TA7C (P308).



(*1) The motor-encoder cable is connected directly to the motor cover of the actuator. See page A-39 for details on cables.
 (*2) After homing, the slider moves to the ME; therefore, please watch for any interference with the surrounding objects.
 ME: Mechanical end
 SE: Stroke end

■ Dimensions and Weight by Stroke

* Adding a brake will increase the actuator's weight by 0.4kg.

Stroke	25	50	75	100	125	150	175	200
L	163.5	188.5	213.5	238.5	263.5	288.5	313.5	338.5
A	118	143	168	193	218	243	268	293
B	133	158	183	208	233	258	283	308
D	110.5	135.5	160.5	185.5	210.5	235.5	260.5	285.5
E	1	1	2	2	3	3	4	4
F	50.5	75.5	50.5	75.5	50.5	75.5	50.5	75.5
G	1	1	2	2	3	3	4	4
H	4	4	6	6	8	8	10	10
J	6	6	8	8	10	10	12	12
Weight (kg)	2.4	2.6	2.8	3.1	3.3	3.5	3.7	3.9

② Compatible Controllers

The RCA2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-30①-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
		ASEP-C-30①-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					→ P487
Splash-Proof Solenoid Valve Type		ASEP-CW-30①-NP-2-0						
Positioner Type		ACON-C-30①-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	(Standard) 1.3A rated 4.0A max. (Power-saving) 1.3A rated 2.2A max.	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-30①-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-30①-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	(Standard) 1.3A rated 4.0A max. (Power-saving) 1.3A rated 2.2A max.	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-30①-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-30①-N-0-0	Dedicated to serial communication	64 points				
Field Network Type		RACON-30①	Dedicated to field network	768 points				→ P503
Program Control Type		ASEL-C-1-30①-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P567

* This is for the single-axis ASEL.
 * ① is a placeholder for the code "LA", if the power-saving option is specified.

Dimensions

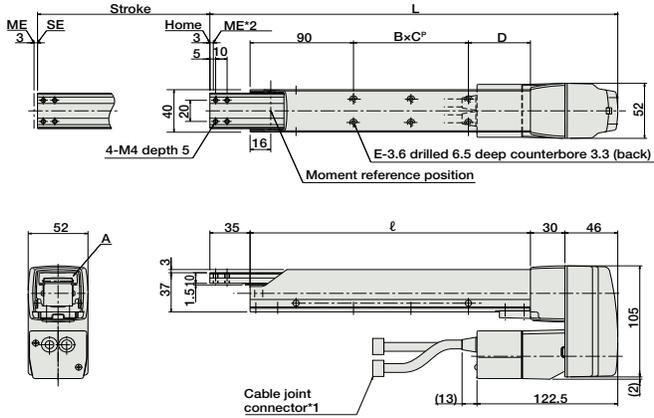
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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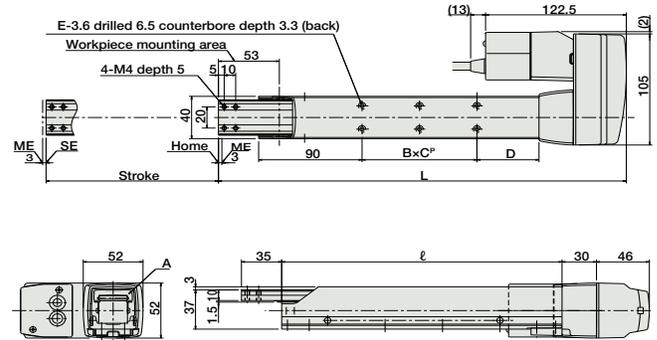


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical end SE: Stroke end

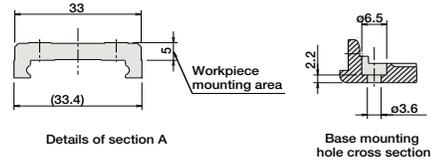
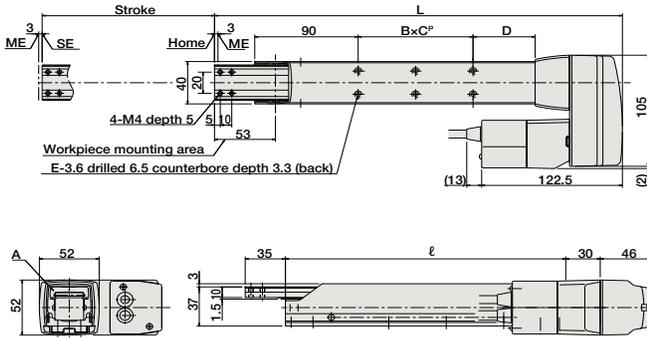
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	255	305	355	405
l	144	194	244	294
BxC*	1x19	1x50	2x50	2x50
D	35	54	54	104
E	4	4	6	6
Weight (kg)	1.7	1.8	2.0	2.1

③ Compatible Controllers

The RCA series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-20I②-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
Splash-Proof Solenoid Valve Type		ASEP-C-20I②-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.				-	→ P487
Positioner Type		ACON-C-20I②-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.3A rated 4.4A peak	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-20I②-NP-2-0					-	
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20I②-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	1.3A rated 4.4A peak	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-20I②-NP-2-0	Pulse train input type with open collector support				-	
Serial Communication Type		ACON-SE-20I②-N-0-0	Dedicated to serial communication	64 points	-	-	-	-
Field Network Type		RACON-20②	Dedicated to field network	768 points	-	-	-	→ P503
Program Control Type		ASEL-C-1-20①②-NP-2-0	Programmed operation is possible Operation is possible on up to 2 axes	1500 points	-	-	-	→ P567

* This is for the single-axis ASEL.
 * ① is a placeholder for the encoder type (I: incremental, A: absolute).
 * ② is a placeholder for the code "LA", if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

Dimensions

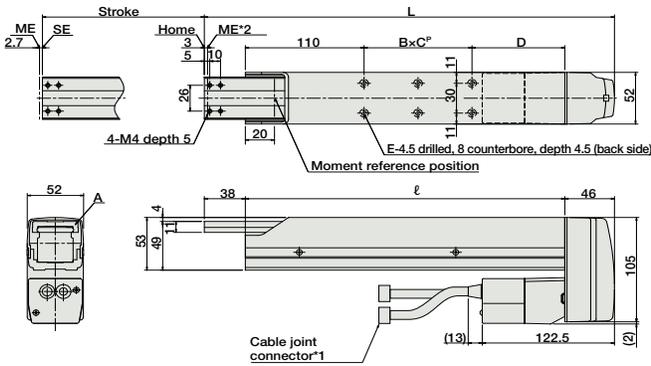
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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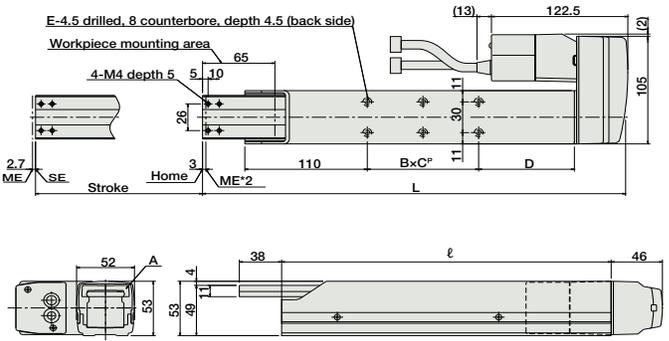


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical end SE: Stroke end

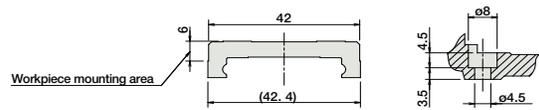
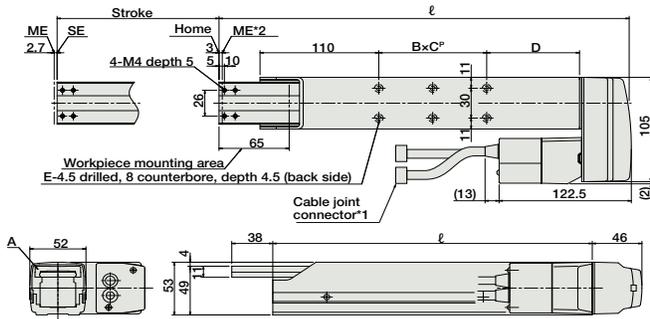
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



■ Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	280	330	380	430
ℓ	196	246	296	346
BxC*	1x30	1x50	2x50	2x50
D	56	86	86	136
E	4	4	6	6
Weight (kg)	2.2	2.4	2.6	2.8

Note: The 50mm stroke model is only available with a right- or left-mounted motor. Please note that there is no 50mm stroke configuration for the standard model.

③ Compatible Controllers

The RCA series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page			
Solenoid Valve Type		AMEC-C-20I②-NP-2-1	Easy-to-use controller, even for beginners	3 points	DC24V	1.3A rated 4.4A peak	-	→ P477			
		ASEP-C-20I②-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					→ P487			
Splash-Proof Solenoid Valve Type		ASEP-CW-20I②-NP-2-0									
Positioner Type		ACON-C-20I②-NP-2-0	Positioning is possible for up to 512 points	512 points							
Safety-Compliant Positioner Type		ACON-CG-20I②-NP-2-0									
Pulse Train Input Type (Differential Line Driver)		ACON-PL-20I②-NP-2-0	Pulse train input type with differential line driver support	(-)							→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-20I②-NP-2-0	Pulse train input type with open collector support								
Serial Communication Type		ACON-SE-20I②-N-0-0	Dedicated to serial communication	64 points							
Field Network Type		RACON-20②	Dedicated to field network	768 points							→ P503
Program Control Type		ASEL-C-1-20I①②-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points				→ P567			

* This is for the single-axis ASEL.
 * ① is a placeholder for the encoder type (I: incremental, A: absolute).
 * ② is a placeholder for the code "LA", if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCA-A6R

ROBO Cylinder Arm Type Side-Mounted Motor 58mm Width 24V Servo Motor Ball Screw

■ Configuration: **RCA** — **A6R** — — **30** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I : Incremental 30 : 30W servo 12 : 12mm 50 : 50mm A1: ACON
 A : Absolute motor 6 : 6mm 200: 200mm A2: RACON
 (50mm pitch ASEL
 increments) A3: AMEC
 ASEP

N : None
 P : 1m
 S : 3m
 M : 5m
 X : Custom
 R : Robot cable

See Options below
 * Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.
 * ASEL can only be used as the absolute encoder. Simple absolute encoders are considered incremental.

Power-saving



Technical References P. A-5

- POINT**
Notes on Selection
- When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
 - The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCA-A6R-①-30-12-②-③-④-B-⑤	30	12	-	3	48.4	50~200 (50mm increments)
RCA-A6R-①-30-6-②-③-④-B-⑤		6	-	6	96.8	

■ Stroke and Maximum Speed

Stroke Lead	50 ~ 200 (50mm increments)	
	12	400
6	200	

Legend: ① Encoder ② Stroke ③ Compatible controller ④ Cable length ⑤ Options

(Unit: mm/s)

Encoder & Stroke List

② Stroke (mm)	Standard Price	
	① Encoder	
	Incremental	Absolute
50	-	-
100	-	-
150	-	-
200	-	-

④ Cable List

Type	Cable Symbol	Standard Price
Standard Type	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	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)	-

* See page A-39 for cables for maintenance.

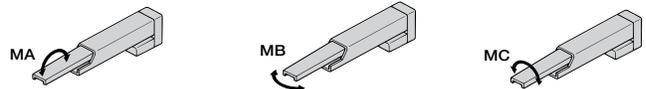
⑤ Option List

Name	Option Code	See Page	Standard Price
Brake (standard)	B	→ A-25	-
Power-saving	LA	→ A-32	
Bottom-mounted motor	MB	→ A-33	
Right-mounted motor	MR	→ A-33	
Left-mounted motor	ML	→ A-33	
Reversed-home	NM	→ A-33	

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade (ball screw speed reduced by 1/2 by timing belt)
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Load Moment	Ma: 8.1 N·m Mb: 10.0 N·m Mc: 6.5 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

Dimensions

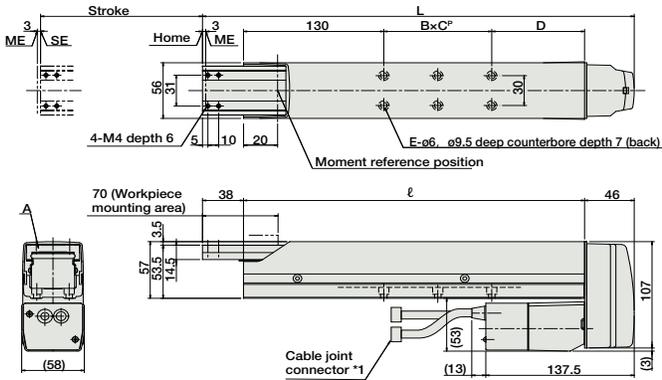
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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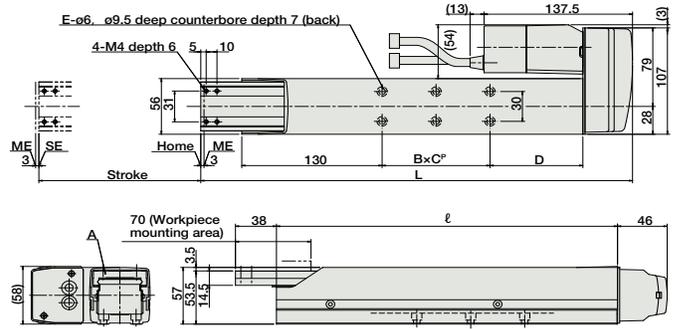


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical end SE: Stroke end

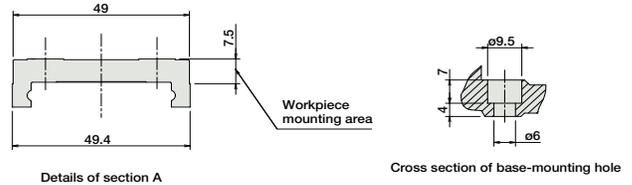
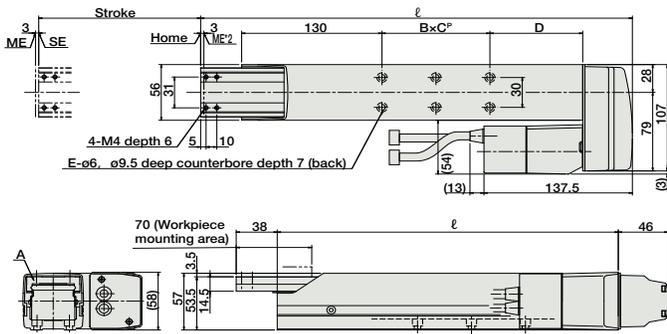
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	300	350	400	450
ℓ	216	266	316	366
BxC*	1x30	1x50	2x50	2x50
D	56	86	86	136
E	4	4	6	6
Weight (kg)	3.0	3.3	3.6	3.9

Note: The 50mm stroke model is only available with a right- or left-mounted motor. Please note that there is no 50mm stroke configuration for the standard model.

③ Compatible Controllers

The RCA series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Solenoid Valve Type		AMEC-C-30I②-NP-2-1	Easy-to-use controller, even for beginners	3 points	AC100V	2.4A rated	-	→ P477
Splash-Proof Solenoid Valve Type		ASEP-C-30I②-NP-2-0	Operable with same signal as solenoid valve. Supports both single and double solenoid types. No homing necessary with simple absolute type.					
Positioner Type		ACON-C-30I②-NP-2-0	Positioning is possible for up to 512 points	512 points	DC24V	1.3A rated 4.4A peak	-	→ P535
Safety-Compliant Positioner Type		ACON-CG-30I②-NP-2-0						
Pulse Train Input Type (Differential Line Driver)		ACON-PL-30I②-NP-2-0	Pulse train input type with differential line driver support	(-)	DC24V	1.3A rated 4.4A peak	-	→ P535
Pulse Train Input Type (Open Collector)		ACON-PO-30I②-NP-2-0	Pulse train input type with open collector support					
Serial Communication Type		ACON-SE-30I②-N-0-0	Dedicated to serial communication	64 points	DC24V	1.3A rated 4.4A peak	-	→ P503
Field Network Type		RACON-30②	Dedicated to field network	768 points				
Program Control Type		ASEL-C-1-30I①②-NP-2-0	Programmed operation is possible. Operation is possible on up to 2 axes	1500 points	DC24V	1.3A rated 4.4A peak	-	→ P567

* This is for the single-axis ASEL.
 * ① is a placeholder for the encoder type (I: incremental, A: absolute).
 * ② is a placeholder for the code "LA", if the power-saving option is specified.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCS2-A4R

ROBO Cylinder Arm Type Side-Mounted Motor 40mm Width 200V Servo Motor Ball Screw

■ Configuration: **RCS2** — **A4R** — — **20** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I : Incremental
A : Absolute

20 : 20W Servo motor

10 : 10mm
5 : 5mm

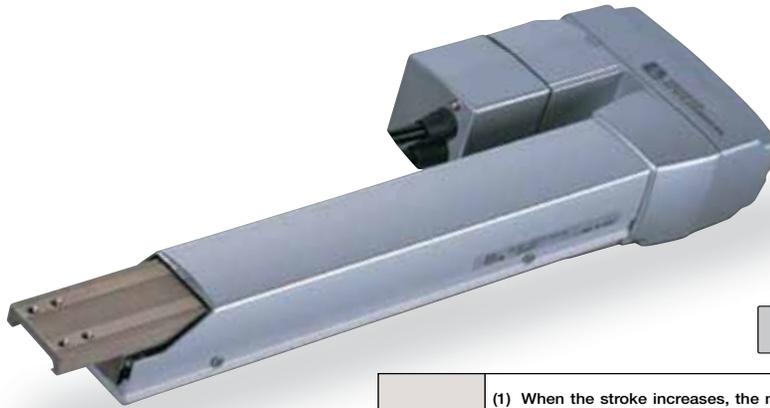
50: 50mm
200: 200mm (50mm pitch increments)

T1: XSEL-J/K
T2: SCON
SSEL
XSEL-P/Q

N : None
P : 1m
S : 3m
M : 5m
X : Custom
R : Robot cable

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

- POINT**
Notes on Selection
- When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
 - The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.

Actuator Specifications

■ Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCS2-A4R-①-20-10-②-③-④-B-⑤	20	10	-	2.5	39.2	50~200 (50mm increments)
RCS2-A4R-①-20-5-②-③-④-B-⑤		5	-	4.5	78.4	

Legend: ① Encoder ② Stroke ③ Compatible controller ④ Cable length ⑤ Options

■ Stroke and Maximum Speed

Stroke Lead	50 ~ 200 (50mm increments)	
	10	330
5	165	

(Unit: mm/s)

Encoder & Stroke List

② Stroke (mm)	Standard Price	
	① Encoder	
	Incremental	Absolute
50	-	-
100	-	-
150	-	-
200	-	-

④ Cable List

Type	Cable Symbol	Standard Price
Standard Type	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	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)	-

* See page A-39 for cables for maintenance.

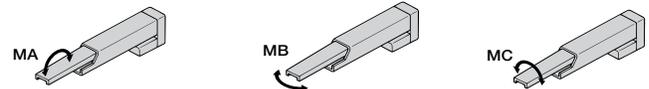
⑤ Option List

Name	Option Code	See Page	Standard Price
Brake (standard)	B	→ A-25	-
Bottom-mounted motor	MB	→ A-33	
Right-mounted motor	MR	→ A-33	
Left-mounted motor	ML	→ A-33	
Reversed-home	NM	→ A-33	

Actuator Specifications

Item	Description
Drive System	Ball screw ø8mm C10 grade (ball screw speed reduced by 1/2 by timing belt)
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Load Moment	Ma: 2.7 N·m Mb: 3.1 N·m Mc: 2.9 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



Dimensions

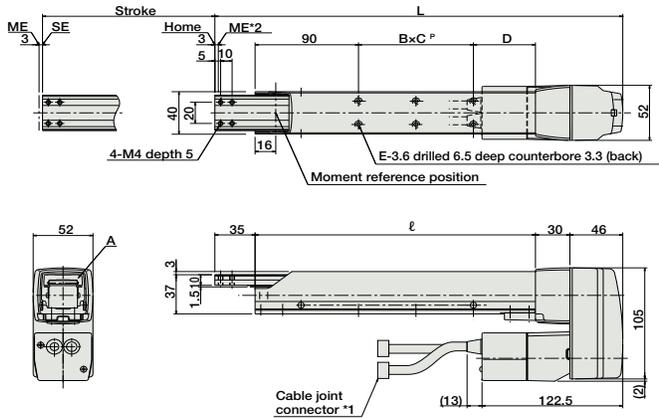
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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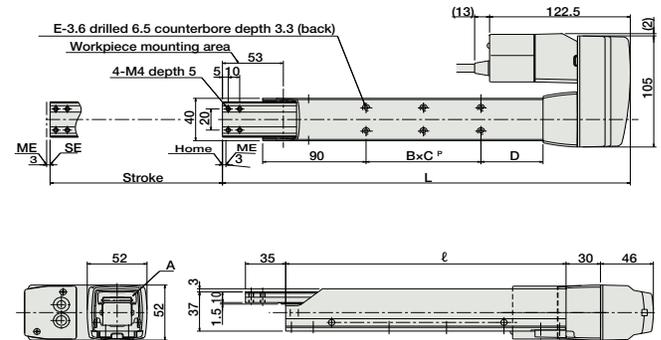


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
- *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
ME: Mechanical end SE: Stroke end

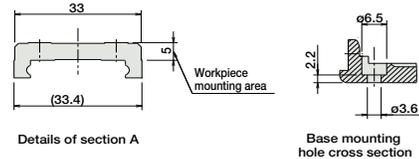
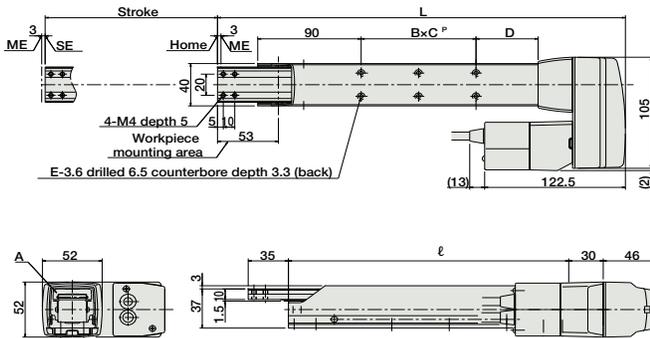
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



■ Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	255	305	355	405
l	144	194	244	294
BxC ^P	1x19	1x50	2x50	2x50
D	35	54	54	104
E	4	4	6	6
Weight (kg)	1.7	1.8	2.0	2.1

③ Compatible Controllers

The RCS2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Positioner Mode		SCON-C-20①-NP-2-②	Positioning is possible for up to 512 points	512 points	Single-phase AC100V Single-phase AC200V Three-phase AC200V (XSEL-P/Q only)	360VA max. * When operating a 150W single-axis model	-	→ P547
Solenoid Valve Mode			Operable with the same controls as the solenoid valve	7 points				
Serial Communication Type			Dedicated to serial communication	64 points				
Pulse Train Input Control Type			Dedicated to pulse train input	(-)				
Program Control 1-2 Axes Type		SSEL-C-1-20①-NP-2-②	Programmed operation is possible Operation is possible on up to 2 axes	20000 points			-	→ P577
Program Control 1-6 Axes Type		XSEL-③-1-20①-N1-EEE-2-④	Programmed operation is possible Operation is possible on up to 6 axes	20000 points			-	→ P587

- * For SSEL and XSEL, only applicable to the single-axis model.
- * ① is a placeholder for the encoder type (1: incremental, A: absolute).
- * ② is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V).
- * ③ is a placeholder for the XSEL type name ("J", "K", "P", or "Q").
- * ④ is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V, or 3: three-phase 200V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCS2-A5R

ROBO Cylinder Arm Type Side-Mounted Motor 52mm Width 200V Servo Motor Ball Screw

■ Configuration: **RCS2** — **A5R** — — **20** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I : Incremental
A : Absolute

20 : 20W Servo motor

12 : 12mm
6 : 6mm

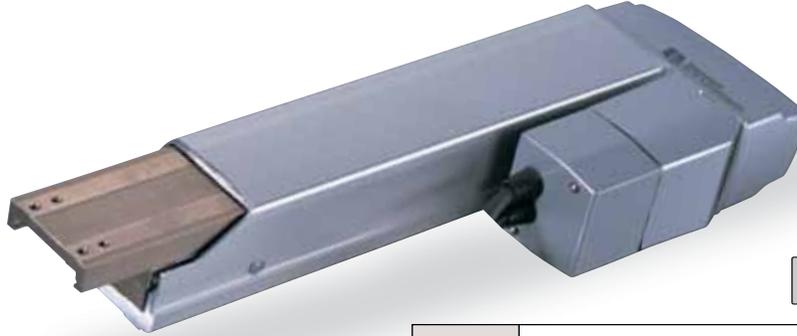
50 : 50mm
200 : 200mm (50mm pitch increments)

T1 : XSEL-J/K
T2 : SCON
SSEL
XSEL-P/Q

N : None
P : 1m
S : 3m
M : 5m
X : Custom
R : Robot cable

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

- POINT**
Notes on Selection
- When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
 - The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCS2-A5R-①-20-12-②-③-④-B-⑤	20	12	-	2	33.3	50~200 (50mm increments)
RCS2-A5R-①-20-6-②-③-④-B-⑤		6	-	4	65.7	

Legend: ① Encoder ② Stroke ③ Compatible controller ④ Cable length ⑤ Options

Stroke and Maximum Speed

Stroke Lead	50 ~ 200 (50mm increments)	
	12	400
6	200	

(Unit: mm/s)

Encoder & Stroke List

② Stroke (mm)	Standard Price	
	① Encoder	
	Incremental	Absolute
50	-	-
100	-	-
150	-	-
200	-	-

④ Cable List

Type	Cable Symbol	Standard Price
Standard Type	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	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)	-

* See page A-39 for cables for maintenance.

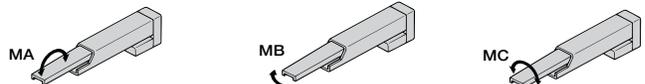
⑤ Option List

Name	Option Code	See Page	Standard Price
Brake (standard)	B	→ A-25	-
Bottom-mounted motor	MB	→ A-33	
Right-mounted motor	MR	→ A-33	
Left-mounted motor	ML	→ A-33	
Reversed-home	NM	→ A-33	

Actuator Specifications

Item	Description
Drive System	Ball screw ø6mm C10 grade (ball screw speed reduced by 1/2 by timing belt)
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Load Moment	Ma: 4.5 N·m Mb: 5.4 N·m Mc: 4.1 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

Dimensions

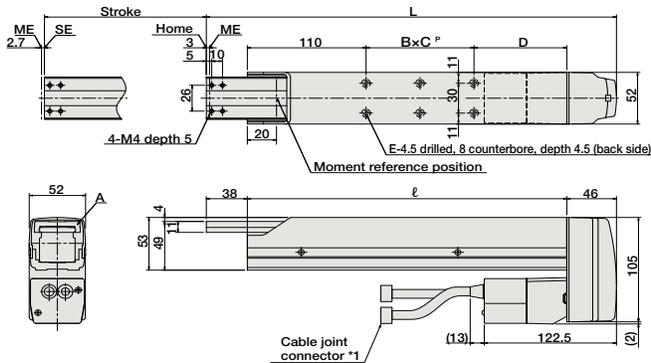
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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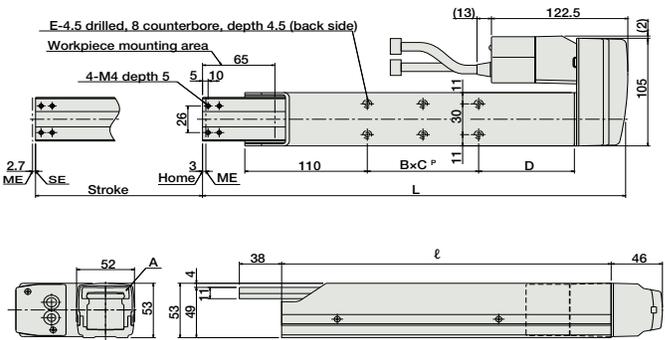


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
 - *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
- ME: Mechanical end SE: Stroke end

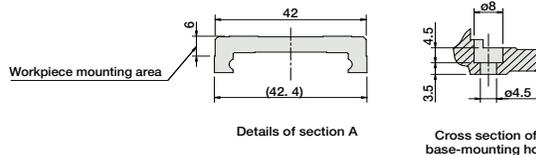
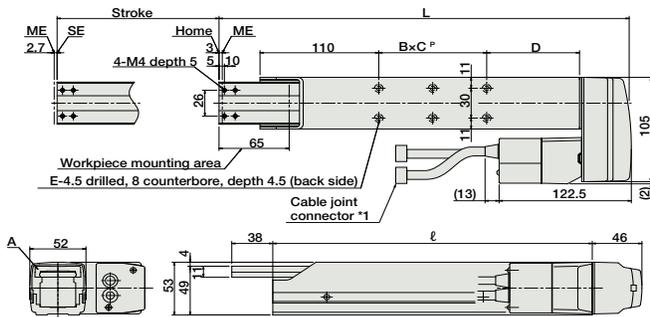
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



■ Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	280	330	380	430
ℓ	196	246	296	346
BxC*	1×30	1×50	2×50	2×50
D	56	86	86	136
E	4	4	6	6
Weight (kg)	2.2	2.4	2.6	2.8

Note: The 50mm stroke model is only available with a right- or left-mounted motor. Please note that there is no 50mm stroke configuration for the standard model.

③ Compatible Controllers

The RCS2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Positioner Mode		SCON-C-20①-NP-2-②	Positioning is possible for up to 512 points	512 points	Single-phase AC100V Single-phase AC200V Three-phase AC200V (XSEL-P/Q only)	360VA max. * When operating a 150W single-axis model	-	→ P547
Solenoid Valve Mode			Operable with the same controls as the solenoid valve	7 points				
Serial Communication Type			Dedicated to serial communication	64 points				
Pulse Train Input Control Type			Dedicated to pulse train input	(-)				
Program Control 1-2 Axes Type		SSEL-C-1-20①-NP-2-②	Programmed operation is possible. Operation is possible on up to 2 axes	20000 points			-	→ P577
Program Control 1-6 Axes Type		XSEL-③-1-20①-N1-EEE-2-④	Programmed operation is possible. Operation is possible on up to 6 axes	20000 points			-	→ P587

- * For SSEL and XSEL, only applicable to the single-axis model.
- * ① is a placeholder for the encoder type (I: incremental, A: absolute).
- * ② is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V).
- * ③ is a placeholder for the XSEL type name ("J", "K", "P", or "Q").
- * ④ is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V, or 3: three-phase 200V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCS2-A6R

ROBO Cylinder Arm Type Side-Mounted Motor 58mm Width 200V Servo Motor Ball Screw

■ Configuration: **RCS2** — **A6R** — — **30** — — — — —

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I : Incremental
A : Absolute

30 : 30W Servo motor

12 : 12mm
6 : 6mm

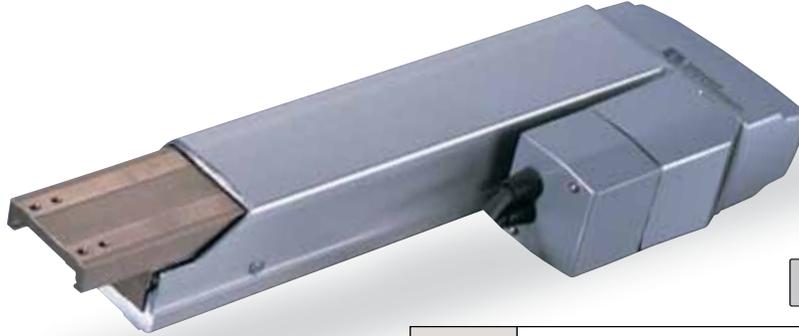
50 : 50mm
200 : 200mm (50mm pitch increments)

T1 : XSEL-J/K
T2 : SCON
SSEL
XSEL-P/Q

N : None
P : 1m
S : 3m
M : 5m
X : Custom
R : Robot cable

See Options below
* Be sure to specify which side the motor is to be mounted (ML/MR).

* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

- POINT**
Notes on Selection
- When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
 - The load capacity is based on operation at an acceleration of 0.2G. This is the upper limit of the acceleration.

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCS2-A6R-①-30-12-②-③-④-B-⑤	30	12	-	3	48.4	50~200 (50mm increments)
RCS2-A6R-①-30-6-②-③-④-B-⑤		6	-	6	96.8	

Legend: ① Encoder ② Stroke ③ Compatible controller ④ Cable length ⑤ Options

Stroke and Maximum Speed

Stroke Lead	50 ~ 200 (50mm increments)	
	12	400
6	200	

(Unit: mm/s)

Encoder & Stroke List

② Stroke (mm)	Standard Price	
	① Encoder	
	Incremental	Absolute
50	-	-
100	-	-
150	-	-
200	-	-

④ Cable List

Type	Cable Symbol	Standard Price
Standard Type	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	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)	-

* See page A-39 for cables for maintenance.

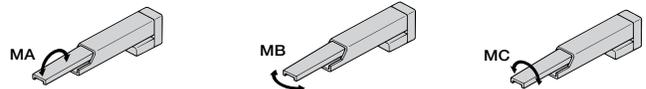
⑤ Option List

Name	Option Code	See Page	Standard Price
Brake (standard)	B	→ A-25	-
Bottom-mounted motor	MB	→ A-33	
Right-mounted motor	MR	→ A-33	
Left-mounted motor	ML	→ A-33	
Reversed-home	NM	→ A-33	

Actuator Specifications

Item	Description
Drive System	Ball screw ø10mm C10 grade (ball screw speed reduced by 1/2 by timing belt)
Positioning Repeatability	±0.02mm
Lost Motion	0.1mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Load Moment	Ma: 8.1 N·m Mb: 10.0 N·m Mc: 6.5 N·m
Ambient Operating Temp./Humidity	0~40°C, 85% RH or less (non-condensing)

Directions of Allowable Load Moments



5,000 km service life

Dimensions

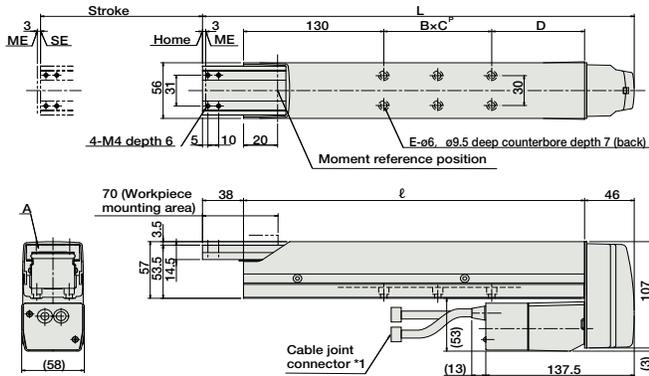
CAD drawings can be downloaded from IAI website. www.intelligentactuator.com

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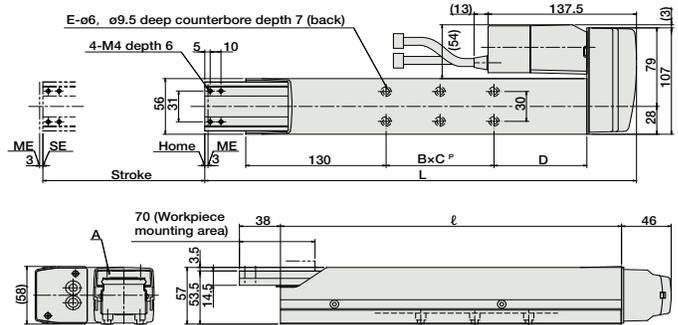


- *1 The motor-encoder cable is connected here. See page A-39 for details on cables.
 - *2 When homing, the rod moves to the ME; therefore, please watch for any interference with the surrounding objects.
- ME: Mechanical end SE: Stroke end

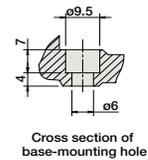
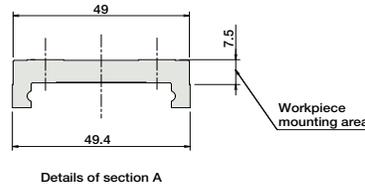
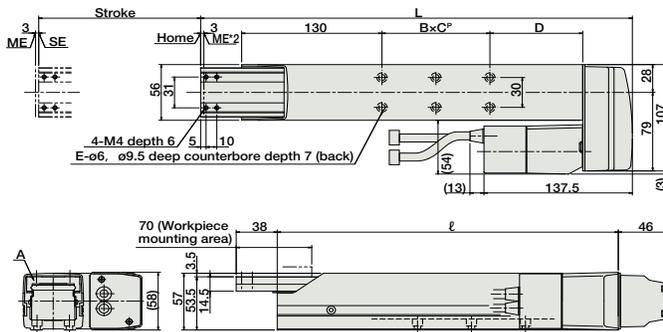
Bottom-mounted motor (option code: MB)



Right-mounted motor (option code: MR)



Left-mounted motor (option code: ML)



Dimensions and Weight by Stroke

Stroke	50	100	150	200
L	300	350	400	450
ℓ	216	266	316	366
BxC*	1x30	1x50	2x50	2x50
D	56	86	86	136
E	4	4	6	6
Weight (kg)	3.0	3.3	3.6	3.9

Note: The 50mm stroke model is only available with a right- or left-mounted motor. Please note that there is no 50mm stroke configuration for the standard model.

3 Compatible Controllers

The RCS2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Positioner Mode		SCON-C-30D①-NP-2-②	Positioning is possible for up to 512 points	512 points	Single-phase AC100V Single-phase AC200V Three-phase AC200V (XSEL-P/Q only)	360VA max. * When operating a 150W single-axis model	-	→ P547
Solenoid Valve Mode			Operable with the same controls as the solenoid valve	7 points				
Serial Communication Type			Dedicated to serial communication	64 points				
Pulse Train Input Control Type			Dedicated to pulse train input	(-)				
Program Control 1-2 Axes Type		SSEL-C-1-30D①-NP-2-②	Programmed operation is possible Operation is possible on up to 2 axes	20000 points			-	→ P577
Program Control 1-6 Axes Type		XSEL-③-1-30D①-N1-EEE-2-④	Programmed operation is possible Operation is possible on up to 6 axes	20000 points			-	→ P587

- * For SSEL and XSEL, only applicable to the single-axis model.
- ① is a placeholder for the encoder type (I: incremental, A: absolute).
- ② is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V).
- ③ is a placeholder for the XSEL type name ("J", "K", "P", or "Q").
- ④ is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V, or 3: three-phase 200V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

RCS2-F5D

ROBO Cylinder Flat Type Built-In (Direct-Coupled) Motor 55mm Width 200V Servo Motor Ball Screw

■ Configuration: **RCS2** — **F5D** — [] — [] — [] — [] — [] — [] — []

Series — Type — Encoder — Motor — Lead — Stroke — Compatible Controllers — Cable Length — Option

I : Incremental
A : Absolute

60 : 60W servo motor
100 : 100W servo motor

16 : 16mm
8 : 8mm
4 : 4mm

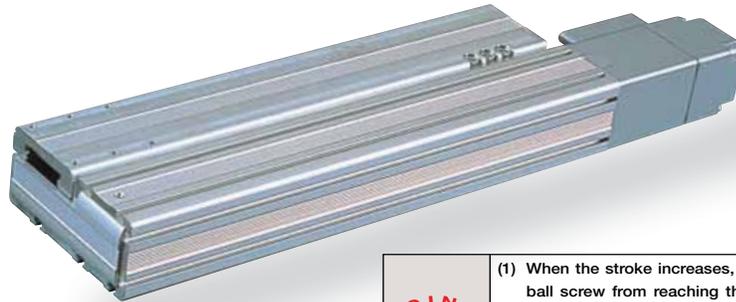
50 : 50mm
300 : 300mm (50mm pitch increments)

T1 : XSEL-J/K
T2 : SCON
SSEL
XSEL-P/Q

N : None
P : 1m
S : 3m
M : 5m
X [] : Custom
R [] : Robot cable

B : Brake
NM : Reversed-home

* See page Pre-35 for an explanation of the naming convention.



Technical References P. A-5

- POINT**
Notes on Selection
- (1) When the stroke increases, the maximum speed will drop to prevent the ball screw from reaching the critical rotational speed. Use the actuator specification table below to check the maximum speed at the stroke you desire.
 - (2) The load capacity is based on operation at an acceleration of 0.3G (0.2G for the 4mm-lead model). This is the upper limit of the acceleration.

Actuator Specifications

Lead and Load Capacity

Model	Motor Output (W)	Lead (mm)	Max. Load Capacity		Rated Thrust (N)	Stroke (mm)
			Horizontal (kg)	Vertical (kg)		
RCS2-F5D-①-60-16-②-③-④-⑤	60	16	See page A-88	2.0	63.8	50 ~ 300 (50mm increments)
RCS2-F5D-①-60-8-②-③-④-⑤		8		5.0	127.5	
RCS2-F5D-①-60-4-②-③-④-⑤		4		11.5	255.1	
RCS2-F5D-①-100-16-②-③-④-⑤	100	16		3.5	105.8	
RCS2-F5D-①-100-8-②-③-④-⑤		8		9.0	212.7	
RCS2-F5D-①-100-4-②-③-④-⑤		4		18.0	424.3	

Legend: ① Encoder ② Stroke ③ Compatible controller ④ Cable length ⑤ Options

Stroke and Maximum Speed

Stroke Lead	50 ~ 300 (50mm increments)	
	Stroke (mm)	Maximum Speed (mm/s)
16	800	
8	400	
4	200	

(Unit: mm/s)

Encoder & Stroke List

② Stroke (mm)	Standard Price			
	① Encoder			
	Incremental		Absolute	
	Motor Output (W)		Motor Output (W)	
	60W	100W	60W	100W
50	-	-	-	-
100	-	-	-	-
150	-	-	-	-
200	-	-	-	-
250	-	-	-	-
300	-	-	-	-

④ Cable List

Type	Cable Symbol	Standard Price
Standard Type	P (1m)	-
	S (3m)	-
	M (5m)	-
Special Lengths	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)	-

* See page A-39 for cables for maintenance.

⑤ Option List

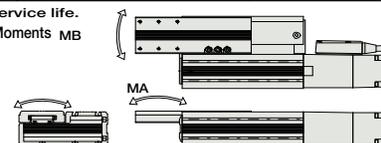
Name	Option Code	See Page	Standard Price
Brake	B	→ A-25	-
Reversed-home	NM	→ A-33	-

Actuator Specifications

Item	Description
Drive System	Ball screw ø12mm C10 grade
Positioning Repeatability	±0.02mm
Lost Motion	0.05mm or less
Base	Material: Aluminum (white alumite treated)
Allowable Dynamic Moment (*)	Ma: 4.5 N·m Mb: 5.4 N·m Mc: 4.1 N·m
Ambient Operating Temp./Humidity	0 ~ 40°C, 85% RH or less (non-condensing)

(*) Based on a 5,000km service life.

Directions of Allowable Load Moments MB



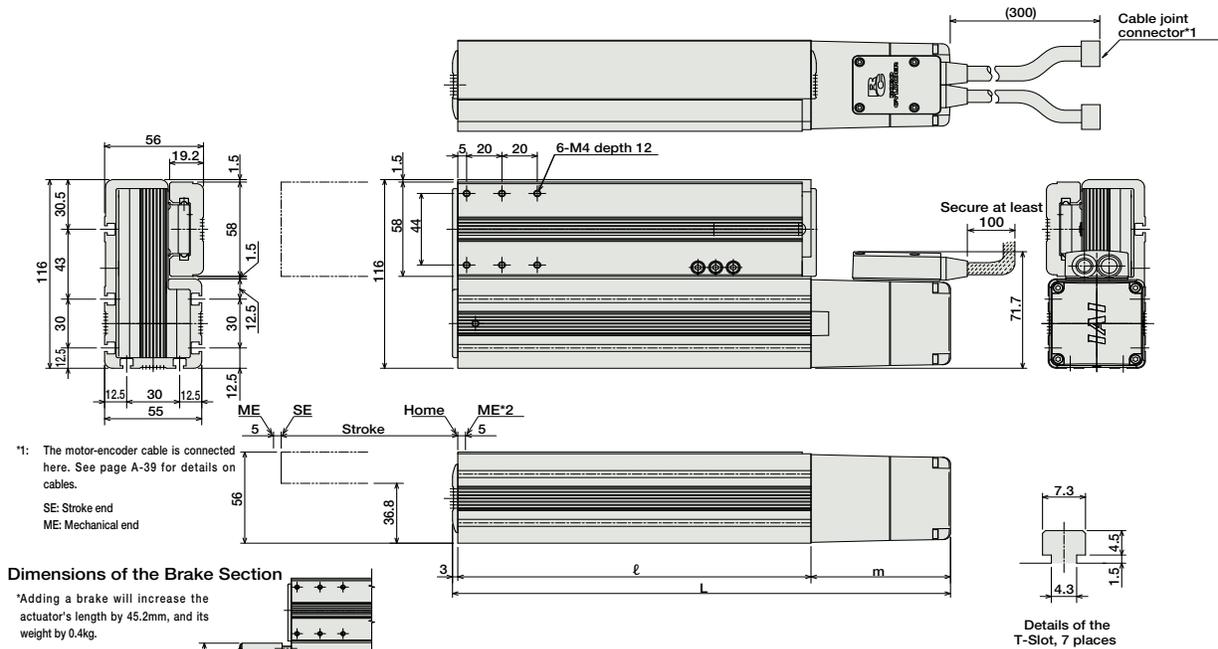
Dimensions

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

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* To change the direction of the home position, arrangements must be made to send in the product. Please make a note of it.



■ Dimensions and Weight by Stroke

Stroke	Stroke						
	50	100	150	200	250	300	
L	60W	232	282	332	382	432	482
	100W	250	300	350	400	450	500
l	150	200	250	300	350	400	
m	79						
	97						
Weight (kg)	60W	2.1	2.5	3	3.4	3.9	4.3
	100W	2.3	2.7	3.2	3.6	4.1	4.5

③ Compatible Controllers

The RCS2 series actuators can operate with the controllers below. Select the controller according to your usage.

Name	External View	Model	Description	Max. Positioning Points	Input Voltage	Power Supply Capacity	Standard Price	See Page
Positioner Mode		SCON-C-60 ①-NP-2-② SCON-C-100 ①-NP-2-②	Positioning is possible for up to 512 points	512 points	Single-phase AC100V Single-phase AC200V Three-phase AC200V (XSEL-P/Q only)	360VA max. * Single-axis model operated at 150W	-	→ P547
Solenoid Valve Mode			Operable with the same controls as the solenoid valve	7 points				
Serial Communication Type			Dedicated to serial communication	64 points				
Pulse Train Input Control Type			Dedicated to pulse train input	(-)				
Program Control 1-2 Axes Type		SSEL-C-1-60 ①-NP-2-② SSEL-C-1-100 ①-NP-2-②	Programmed operation is possible Operation is possible on up to 2 axes	20000 points			-	→ P577
Program Control 1-6 Axes Type		XSEL-③-1-60 ①-N1-EEE-2-④ XSEL-③-1-100 ①-N1-EEE-2-④	Programmed operation is possible Operation is possible on up to 6 axes	20000 points			-	→ P587

* For SSEL and XSEL, only applicable to the single-axis model.
 * ① is a placeholder for the encoder type (I: incremental, A: absolute).
 * ② is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V).
 * ③ is a placeholder for the XSEL type name ("J", "K", "P", or "Q").
 * ④ is a placeholder for the power supply voltage (1: 100V, 2: single-phase 200V, or 3: three-phase 200V).

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

■ Notes on Specifications in this Catalog (All Models)

1. Speed

This refers to the set speed when moving the slider (or rod, arm, output axis) of the actuator. The slider accelerates from rest to the specified speed, and continues to move at that speed until it decelerates to a stop at the specified target position.

<Note>

- ① For models equipped with a pulse motor (ERC2, RCP3, and RCP2), the maximum speed changes with the weight of the load being transported.
When selecting an actuator, refer to the "Speed vs. Load Capacity" (on each product page).
- ② If the axis has a short stroke, or if it has a long stroke but the travel distance is short, the specified speed may not be reached.
- ③ As the stroke becomes longer, the maximum speed decreases, due to hazardous RPMs.
For details, see "■ Stroke vs. Maximum Speed" on each product page.
- ④ For the RCP2 high-speed slider type (HS8C/HS8R) and belt type, vibration and/or resonance may occur when operated at low speeds. Therefore, use these models at 100mm/s or faster.
- ⑤ For PMEC/AMEC controllers, a minimum speed is set for each actuator.
See the instructions manual for the PMEC/AMEC controllers.
- ⑥ When calculating the time travelled, take into account the time taken to accelerate, decelerate, and converge, as opposed to only the time travelled at the specific speed.

2. Acceleration/Deceleration

Acceleration is the rate of change in speed from rest until a specified speed is reached.

Deceleration is the rate of change in speed from the specified speed to a state of rest.

Both are specified in "G" in programs ($0.3G = 2940\text{mm/sec}^2$).

* For rotary type, $0.3G = 2940 \text{ degrees/sec}^2$

<Note>

- ① Increasing the acceleration (deceleration) speeds up acceleration (deceleration), shortening the travel time.
However, caution should be exercised, as excessively high acceleration/deceleration may cause an error or a malfunction.
- ② The rated acceleration (deceleration) is 0.3G (2.0G, if the lead is 2.5, 3, or 4, or if used vertically)
With the exception of the high-acceleration/deceleration model, use the actuators at or below the rated acceleration.
- ③ For models such as RCS2-SRA7 and RCS2-RA13R, use the actuator at or below the acceleration (deceleration) mentioned in "Notes on Selection" on the respective product page.

3. Duty

IAI's actuators should be used at a duty of 50% or below.

If used at over 50% duty, an excessive load error may occur depending on the load, speed, or acceleration.

4. Positioning Repeatability

A JIS B6192-compliant method for evaluating performance.

In this method, a positioning operation (stopping of the actuator at target point) is repeated seven times from the same direction, each time measuring the end position. Then the difference between the maximum and minimum values is calculated.

By using this measuring method for both end-points and the mid-point of the maximum stroke, the largest calculated value is multiplied by 1/2 and expressed with a \pm .

5. Lead Screw

When using a lead screw type actuator, note the following:

<Note>

- ❶ This type is suited for applications with low frequency of use. (As a point of reference, one motion per 10 seconds, 24 hours per day, 240 days per year = approximately 5 years)
- ❷ This is suited for applications in which the load capacity and load requirements are low. (1kg or less)
- ❸ Use for applications that do not require a positioning repeatability smaller than $\pm 0.05\text{mm}$.
- ❹ Set up in a place that allows for easy maintenance.

6. Home Position

The home position is the reference point from which the actuator determines the target position.

Note that if the home position becomes misaligned, the target position also shifts by the same amount.

<Note>

- ❶ Actuators with an incremental encoder must be homed upon power-on.
- ❷ During homing operation, the slider (rod, table) moves to actuator's mechanical end, and then reverses. Therefore, watch for any interference with its surroundings.
- ❸ By default, the home position is on the motor-side (i.e. the open side on the gripper type, or the left side on the rotary type (looking down at the output shaft.)) Optionally, the home position can be moved to the opposite side (i.e. away from the motor). To change the home position after the actuator has been delivered, it must be sent back to IAI for adjustment.
- ❹ Models without the option code "NM" do not support reversed home position.

7. Encoder Type (Incremental/Absolute/Simple Absolute)

There are two types of encoders that can be used in an actuator, "incremental" and "absolute" encoders.

Incremental encoderWhen an incremental encoder is powered off, its coordinate data is erased. Therefore, homing is necessary each time it is powered back on.

Absolute encoderWhen an absolute encoder is powered off, it uses a battery to store its coordinate data. Therefore, homing is not necessary when it is powered back on. However, note that it cannot be operated once the battery for storing data runs out.

<Note>

In addition to the above two types of encoders, there is the "simple absolute" type, which is an incremental encoder with a dedicated simple absolute unit connected to the actuator's controller, for storing its coordinate data. This eliminates the need for homing upon power-on. Note that the simple absolute actuators (encoders) fall under the incremental type and not the absolute type.

8. Encoder Pulse Number

The pulse number of the encoder varies depending on the actuator. See the table below for the pulse number of each actuator.

Series	Type	Encoder Pulse Number	Series	Type	Encoder Pulse Number
RCP3	All models	800	RCA	All models	800
RCP2	All models	800	SA1L/RA1L		715
RCA2	RN□N/RP□N/GS□N/ GD□N/SD□N/TCA□N/ TWA□N/TFA□N	1048	SA2L/RA2L		855
			SA3L/RA3L		1145
	All other models	800	SRA7BD		3072
			All other models		16384

9. Motor

Different motors are used depending on the series.

- ERC2/RCP2 (CR)/RCP3: Pulse motor
- RCA (CR)/RCA2: Servo motor (24V)
- RCS2 (CR): Servo motor (230V)

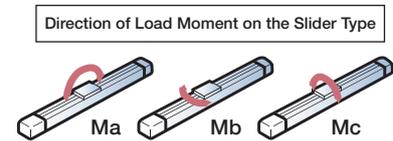
Pulse motors and 24V servo motors may exhibit slight vibration when the motor is excited while the servo is on.

RoboCylinder Series Cautionary Notes

■ Notes on Specifications in this Catalog (All Models)

10. Allowable Load Moment (Ma, Mb, Mc)

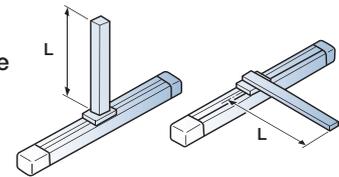
Models with a built-in linear guide have static and dynamic allowable moments. Please note that using the guide with a load moment that exceeds specification will result in shorter service life of the guide.
(See page A-5 for details on load moment and its calculation method)



11. Overhang Load Length (L)

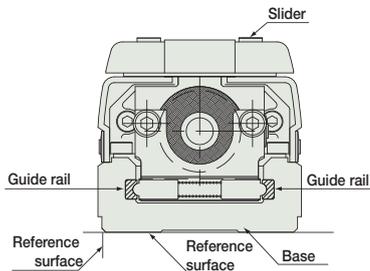
When mounting a workpiece or a bracket at an offset distance from the center of actuator/slider, the overhang load length indicates the maximum offset at which the actuator can operate smoothly.

Please make sure to keep the overhang load length within the allowable value, as exceeding the allowable value for for each model may cause vibration or shorten the service life .



12. Actuator Body Precision

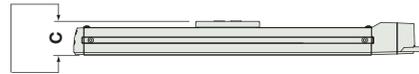
Below are the measures of precision for the body of the slider-type RoboCylinder. Moreover, the side and bottom surfaces of the actuator's base provide references for the run of the slider, and hence can be used as a guide to ensure parallel mounting of the actuator.



* Parallelism does not apply to RCP2W-SA16C, due to its sliding guide.

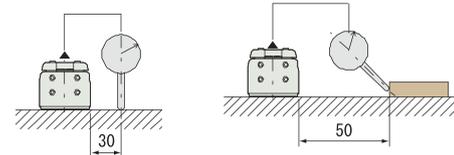
Parallelism: Base Underside & Load Surface (Top Side)

ERC2: $\leq \pm 0.1\text{mm/m}$
RCP2/RCA/RCS2: $\leq \pm 0.05\text{mm/m}$



Parallelism When Mounted onto a Frame (Fixed onto a Smooth Surface*1)

ERC2: $\leq \pm 0.1\text{mm/m}$
RCP2/RCA/RCS2: $\leq \pm 0.05\text{mm/m}$



Condition: The above values were measured at 20°C. *1: 0.05mm or less deviation from flatness.

13. Rod Type (Rod End vibration)

The standard rod-type actuators do not take into account any vibration or load resistance (The non-rotational accuracy values documented in the actuator specifications are initial values, and the backlash will increase with operation). If the rod vibrates or if the non-rotational accuracy fluctuates, or if there is a force being applied from any direction other than the actuator's linear movement, use the guide-equipped actuator type, or use an external guide.

14. Vertical Setup and Use

When using the actuator in a vertical setup, add the optional brake to prevent the slider (or rod) from falling and breaking the machine when the power is turned off or an emergency stop is activated.

However, when mounting a brake-equipped RoboCylinder, be aware that the slider (or rod) will not move unless it is connected to the controller and the brake is released.

15. Moving the Slider Manually

For ball screws with a low (1, 2.5, 3, 4) lead, the actuator's slider cannot be moved by hand, even if the power and/or servo is off, due to high sliding resistance.

To move the slider on a low-lead actuator, use the teaching box or the JOG function of the computer software.

16. Actuator Cable

The actuator cable is the cable that extends from the rear of the actuator's motor.

Secure the actuator cable in place so that it does not move, as any force exerted on the actuator cable may cause a malfunction. If the cable must support bending motion, use a motor-encoder cable, designed for robots.

17. Motor-Encoder Cable

The motor-encoder cable is the cable that connects the actuator and the controller.

Depending on the actuator type, some models use a motor-encoder cable that is split into a separate motor cable and an encoder cable, and other models use an integrated motor-encoder cable.

Moreover, there are two different specifications of this cable: The standard cable specification and the robot cable specification, which has an outstanding flex resistance.

To use in a cable track, be sure to use the robot cable, using caution not to bend beyond the minimum bend radius R for the cable. (The minimum bend radius R is specified for each cable on the respective pages.)

To check the cable type for each model, see "Table of Actuator-Controller Connection Cable Types" on page A-39.

18. About the Splash-Proof Actuator Cable

Although the scope of protective construction of the splash-proof type includes the cable, the connector at the end of the actuator cable is not splash proof. Therefore, secure the end of the actuator cable in a place that is not prone to water spills. (For this reason, the actuator cable for a splash-proof model is 2m long)

19. Service Life

The service life of the actuator is directly related to the service life of the components that make up the actuator (guide, ball screw, motor, etc.).

Moreover, the service life for these components changes significantly depending on the usage requirements. For example, each guide has an allowable load moment (see page A-5). If the guide is hypothetically used at half the moment of the allowable moment, its service life is eight times more than the specified service life.

If used conservatively, it can be used for 10 years or more.

Therefore, when selecting a model, it is recommended that you select a model with more head room.

20. Warranty

The warranty period expires upon elapse of one of the following periods, whichever occurs first.

- 18 months after shipment from IAI factory in Japan
- 12 months after delivery to the location specified
- 2500 hours after start of operation

IAI will repair free of charge any actuator defects due to craftsmanship or material that may occur during the above warranty period despite use under appropriate conditions. Note, however, that defects resulting from handling or use in any condition or environment not specified in the catalog, operation manual are excluded from the scope of warranty. The warranty covers only the actuator delivered by IAI or by IAI authorized distributors, and any secondary losses arising from a failure of the delivered product is excluded from the scope of warranty. The defective actuator must be sent in for repair.

Considerations when Switching from Air Cylinders

Air Cylinder and RoboCylinder

Air cylinders are devices used to push and grasp objects by means of supplying and releasing compressed air. Air cylinders are used widely in all industries, mainly for transfer equipment, assembly systems, various automation systems, etc.

Air cylinders generally have diameters of between 4mm and 320mm, and their lengths (strokes) can also be set in fine steps. There are several tens to hundreds of thousands of different air cylinder products, which makes it easy to select optimal models for a variety of applications. However, since product lines are overly complex, many with identical specs, it can be difficult to

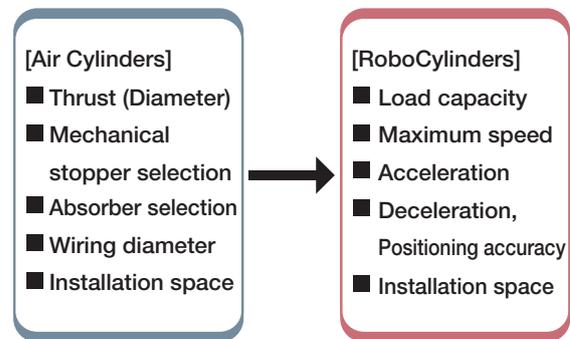
select the best model for your specifications. For this reason, there are many cases where air cylinders are selected largely out of past experience and familiarity. RoboCylinders are easy-to-use electric cylinders offering a variety of functions not achievable with air cylinders. The RoboCylinder product family makes it easy for you to select the model that best suits the needs of your application. However, the controls and configuration possibilities of RoboCylinders are completely different from air cylinders.

This section explains some of the key points to consider when switching from air cylinders to RoboCylinders.

Overview of Switching

The following explains the differences in the basic items to be checked when selecting RoboCylinders and air cylinders.

Since both are linear motion actuators, there are some common matters that must be taken into consideration. However, the different configurations and controls described above result in different designations for adjustments and check items between the two. A comparison of these various items is shown at right.



The above diagram shows that the two have different mechanical viewpoints to consider.

Installation Space

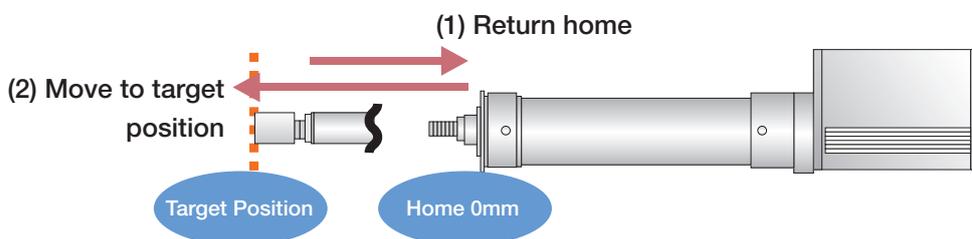
RoboCylinders are driven by a motor. Compared with air cylinders, simply from a size perspective, the RoboCylinder requires more attention paid to space requirements for installation.

Home Return

Unlike air cylinders, RoboCylinder operation is based on a “coordinates” concept. A home return operation is necessary at the beginning of operation because operations are controlled in movement quantities that are always referenced against a home point (0 point).

Specifically, in the case of incremental specifications, bear in mind that a pushing operation to the actuator stroke end will be performed as the initial operation when the power is turned ON.

- Incremental Specification: Return home operation after power is turned ON
- Absolute Specification : Absolute reset operation during initialization



Critical Rotating Speed

The ball screw inevitably deflects due to bending and its own deadweight. The RoboCylinder operates at high speeds causing the ball screw to rotate faster, and as the rotations increase the screw deflection also increases until the rotating axis is ultimately damaged. Hazardous rotational speeds that may damage the rotary axis are referred to as “critical speeds”, “whirling speeds” or “whipping speeds”.

Ball screw type RoboCylinders operate linearly as the ball screw is rotated with the end of the ball screw supported by a bearing. Although the maximum speed is specified for each RoboCylinder in accordance with the actuator type, some models with certain strokes have their maximum speed set in consideration of the aforementioned critical rotating speeds.

General Purpose (Types, Modes, Parameters)

RoboCylinders offer the “air-cylinder specification (or air cylinder mode)” that allows the RoboCylinder to be used just like an air cylinder. When using these, it is possible to operate the actuator by simple ON/OFF control by an external signal in exactly the same way as an air cylinder. This type or mode may be sufficient in the case of a simple swap-out, but a variety of types and parameters have been introduced for customers who desire higher value-added uses.

Feel free to contact IAI to discuss features to match your use conditions and needs when the equipment is actually installed.

Maintenance

The key maintenance points of air cylinders and RoboCylinders are compared.

Air cylinders require periodic maintenance performed according to the frequency and conditions of use. Although air cylinders offer a certain level of flexibility in that minor damage or malfunction can be ignored by means of increasing the source air pressure and moving the cylinder with a greater force, ignoring maintenance will inevitably shorten the service life of the air cylinder. On the other hand, RoboCylinders have a more complex structure and use a greater number of parts and are therefore seen as requiring cumbersome maintenance work. This is wrong. RoboCylinders are clearly easier to use and offer longer life than air

cylinders. Of course, RoboCylinders also require lubrication of sliding parts just as air cylinders do. However, RoboCylinders are equipped with a lubrication unit (AQ Seal) for ball screw and the sliding parts of the guides. This ensures a long maintenance-free period (5000 km of traveled distance, or three years). After 5000 km or travel or 3 years, greasing every 6 months to 1 year as instructed in the Operating Manual will vastly prolong the service life of the product. In addition, absolute type controllers are currently equipped with a position retention battery. Since this is a consumable part, it must be periodically replaced (for periods that vary with the product).

[Primary Maintenance Tasks]

[Air Cylinders]

- Lubricating sliding parts
- Replacing gasket
- Draining
- Replacing absorber

[RoboCylinders]

- Lubricating ball screw and guide (after AQ seals have worn out)
- Replacing battery (absolute encoder types only)

Operation

Air cylinders are generally operated with the use of a direction control valve to determine the direction of reciprocating motion, as well as a flow control valve (speed controller) to determine the speed. Immediately after their system is started up, many users operate the air cylinder at low speed by restricting the flow control valve.

The same procedure is also recommended for RoboCylinders after the system is started up. With RoboCylinders, “speed setting” replaces the flow control valve. Operate your RoboCylinder at speeds where safety is ensured, and then change to the desired speed after safety is confirmed.

Service Life and Moment

One of the main factors related to an actuator's service life is the "load rating".

There are two types of load rating: A static load is the weight of a load that leaves a small amount of indentation when the load is applied. A dynamic load is the weight of a load that maintains a constant survival probably of the guide when the load is applied while moving a constant distant.

Guide manufacturers rate dynamic load values to maintain a 90% survival rate at a travel distance of 50km. However, when taking account the speed of movement and work rate, the actual travel distance needs to be 5000 to 10000km. While the life of a guide is sufficiently long for radial loads, it is actually the moment load that is offset from the guide center that is most problematic to its service life.

The service life for IAI actuators as documented in this catalog shows the allowable dynamic moment based on a 5000 or 10000km service life.

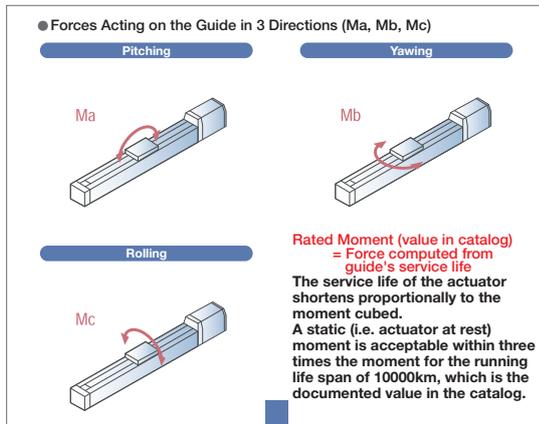
IAI uses the following equation calculate the service life: (for 10000km service life)

$$L_{10} = \left(\frac{C_{IA}}{P} \right)^3 \cdot 10000\text{km}$$

L_{10} : Service life (90% Survival Probability)
 C_{IA} : Allowable Dynamic Moment in IAI Catalog
 P : Moment used

Allowable Dynamic Moment

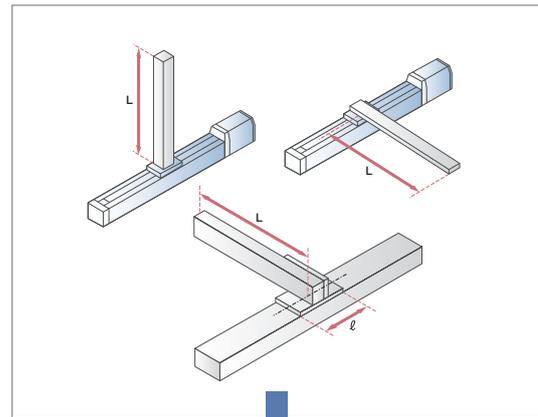
The allowable dynamic moment is the maximum offset load exerted on the slider, calculated from the guide service life. The direction in which force is exerted on the guide is categorized into 3 directions - M_a (pitch), M_b (yaw), M_c (roll) - the tolerance for each of which are set for each actuator. Applying a moment exceeding the allowable value will reduce the service life of the actuator. Use an auxiliary guide when working within or in excess of these tolerances.



The allowable dynamic moment is calculated from the service life of the guide.

Overhang load length

An overhang load length is specified for a slider-type actuator to indicate the length of overhang (offset) from the actuator. When the length of an object mounted to the slider actuator exceeds this length, it will generate vibration and increase the settling time. So, pay attention to the allowable overhang length as well as the allowable dynamic moment.



The allowable overhang load length is determined by the slider length.

An overhang that exceeds the allowable overhang length will generate vibration and increase settling time.

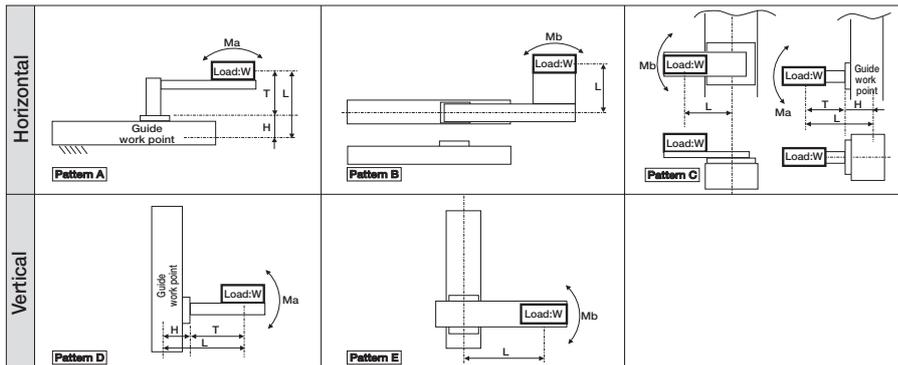
$L/l = 5$ or less

* Between 3 to 4 for a camera-equipped measuring machine.

● For example:
 $L/l = 1.2$ Mechanical machine
 $L/l = 3$ Measuring machine
 $L/l = 5$ Robot

How to calculate allowable dynamic moment

$$M_2 \text{ (N}\cdot\text{m)} = W \text{ (kg)} \times L \text{ (mm)} \times a \text{ (G)} \times 9.8/1000$$



- W : Load
- L : Distance from work point to the center of gravity of payload ($L=T+H$)
- T : Distance from top surface of slider to the center of gravity of payload
- H : Distance from guide work point to the top surface of slider
- a : Specified acceleration

Allowable Dynamic Moment and Allowable Static Moment

There are two types of moment that can be applied to the the guide: the allowable dynamic moment and the allowable static moment.

The allowable dynamic moment is calculated from the travel life (when flaking occurs) when moved with the moment load applied. In contrast, the static moment is calculated from the load that causes permanent deformation to the steel ball or its rolling surface (i.e. rated static moment), taking into account the rigidity and deformity of the base.

[Allowable Dynamic Moment]

IAI's catalog contains the allowable dynamic moments based on a load coefficient of 1.2 and 10000km or 5000km. This value is different from the so-called basic rated dynamic moment, which is based on a 50km travel life. To calculate the basic rated dynamic moment for a 50km travel life, use the following equation.

$$M_{50} = f_w \times M_S \div \left(\frac{50}{S}\right)^{\frac{1}{3}} \dots \dots \text{Equation 1}$$

M_S : Allowable dynamic moment at an assumed travel distance (catalog value)
 S : IAI catalog assumed travel life (5000km or 10000km)
 f_w : Load coefficient (=1.2)
 M_{50} : Basic rated dynamic moment (50km travel life)

The allowable dynamic moments mentioned in the catalog (10000km or 5000km life) are based on a load coefficient $f_w=1.2$. To calculate the service life of a guide with a different load coefficient, use Table 1 below to determine the load coefficient that matches your requirements.

Table 1: Load Coefficients

Operation and Load Requirements	Load Coefficient f_w
Slow operation with light vibration/shock (1500mm/s or less, 0.3G or less)	1.0~1.5
Moderate vibration/shock, abrupt braking and accelerating (2500mm/s or less, 1.0G or less)	1.5~2.0
Operation with abrupt acceleration/deceleration with heavy vibration/shock (2500mm/s or faster, 1.0G or faster)	2.0~3.5

$$L_{10} = \left(\frac{C_{IA}}{P} \cdot \frac{1.2}{f_w}\right)^3 \times S \dots \dots \text{Equation (2)}$$

L_{10} : Service life (90% Survival Probability)
 C_{IA} : Allowable dynamic moment in IAI Catalog (5000km or 10000km)
 P : Moment used ($\leq C_{IA}$)
 S : IAI catalog assumed travel life (5000km or 10000km)
 f_w : Load coefficient (from Table 1)

[Allowable Static Moment]

The maximum moment that can be applied to a slider at rest.

These values are calculated by taking the basic rated static moment of the slider and multiplying with the safety rate that takes into consideration any effects from the rigidity and deformity of the base.

Therefore, if a moment load is applied to the slider at rest, keep the moment within this allowable static moment. However, use caution to avoid adding any unexpected shock load from any inertia that reacts on the load.

[Basic Rated Static Moment]

The basic rated static moment is the moment value at which the sum of the permanent deformation at the center of contact between the rolling body (steel ball) and the rolling surface (rail) is 0.0001 times the diameter of the rolling body.

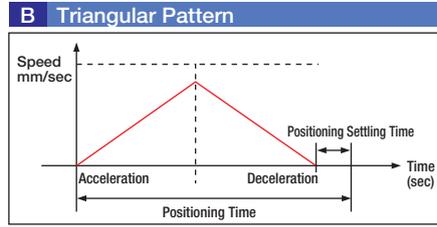
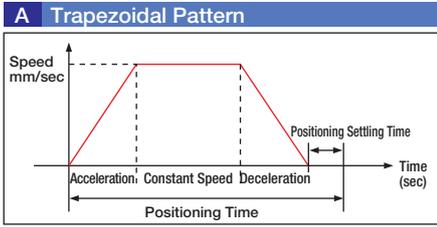
These values are simply calculated strictly from the permanent deformation done to the steel ball and its rolling surface. However, the actual moment value is restricted by the rigidity and deformation of the base. Hence, the allowable static moment the actual moment that can be applied statically, taking into account those factors.

Technical Information

How to calculate positioning time

The actuator positioning time can be found from an equation.

Depending on the distance to be moved and the amount of acceleration/deceleration to be applied, the positioning operation can follow one of two patterns, shown below:



First confirm the movement pattern as trapezoidal or triangular, then calculate the positioning time using the respective equation.

Confirming the Movement Pattern

Whether a movement pattern is trapezoidal or triangular can be determined by whether the peak speed reached after accelerating over a distance at a specified rate is greater than or less than the specified speed.

$$\text{Peak speed (Vmax)} = \sqrt{\text{Distance travelled S (mm)} \times \text{Specified acceleration}}$$

$$= \sqrt{\text{Smm} \times 9800 \text{mm/sec}^2 \times \text{Acceleration setting (G)}}$$

If $V_{max} > V$: Trapezoidal pattern

If $V_{max} < V$: Triangular pattern, where V_{max} is the peak speed reached and V is the speed that was specified.

Method of Calculating the Positioning Time

A Trapezoidal Pattern

$$\text{Positioning Time (T)} = \frac{\text{Distance (mm)}}{\text{Speed (mm/sec)}} + \frac{\text{Speed (mm/sec)}}{\text{Accel. (mm/sec}^2)} + \text{Positioning Settling Time}$$

B Triangular Pattern

$$\text{Positioning Time} = 2 \sqrt{\frac{\text{Distance (mm)}}{\text{Accel. (mm/sec}^2)}} + \text{Positioning Settling Time}$$

$$\text{Accel. Time} = \frac{\text{Speed* (mm/sec)}}{\text{Accel. (mm/sec}^2)}$$

$$\text{Distance Accelerated} = \frac{\text{Accel. (mm/sec}^2) \times (\text{Accel. Time (sec)})^2}{2}$$

* Here, "Speed" refers to the specified speed in the trapezoid pattern, and the peak speed in the triangle pattern.

Note

- The acceleration is calculated by the following: Acceleration setting in the controller (G) × 9800mm/sec². If the acceleration setting in the controller is 0.3G, then 0.3 × 9800mm/sec² = 2940mm/sec².
- The positioning settling time is the time required to determine the completion of movement to the target position, typically around 0.15sec for ball screw types and 0.2sec for belt types.

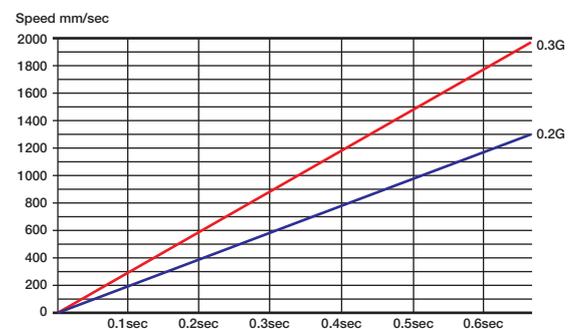
Positioning time (sec)

Accel. Setting	Specified Speed (mm/sec)	Distance Moved (mm)																		
		10	20	30	40	50	100	150	200	250	300	350	400	450	500	600	1000	1100	1300	1400
0.3G	100	0.13	0.23	0.33	0.43	0.53	1.03	1.53	2.03	2.53	3.03	3.53	4.03	4.53	5.03	6.03	10.03	11.03	13.03	14.03
	200	0.12	0.17	0.22	0.27	0.32	0.57	0.82	1.07	1.32	1.57	1.82	2.07	2.32	2.57	3.07	5.07	5.57	6.57	7.07
	300	0.12	0.16	0.2	0.24	0.27	0.44	0.6	0.77	0.94	1.1	1.27	1.44	1.6	1.77	2.1	3.44	3.77	4.44	4.77
	400	0.12	0.16	0.2	0.23	0.26	0.39	0.51	0.64	0.76	0.89	1.01	1.14	1.26	1.39	1.64	2.64	2.89	3.39	3.64
	500	0.12	0.16	0.2	0.23	0.26	0.37	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.37	2.17	2.37	2.77	2.97
	600	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.54	0.62	0.7	0.79	0.87	0.95	1.04	1.2	1.87	2.04	2.37	2.54
	700	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.6	0.67	0.74	0.81	0.88	0.95	1.1	1.67	1.81	2.1	2.24
	800	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.65	0.71	0.77	0.83	0.9	1.02	1.52	1.65	1.9	2.02
	900	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.7	0.75	0.81	0.86	0.97	1.42	1.53	1.75	1.86
	1000	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.79	0.84	0.94	1.34	1.44	1.64	1.74
1750	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.78	0.82	0.9	1.17	1.37	1.56	1.65	
2000	0.12	0.16	0.2	0.23	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74	0.78	0.82	0.9	1.17	1.22	1.33	1.48	

Note: Does not include the positioning settling time (0.15sec for ball screw, and 0.2sec for belt).

Triangular Pattern

Acceleration time

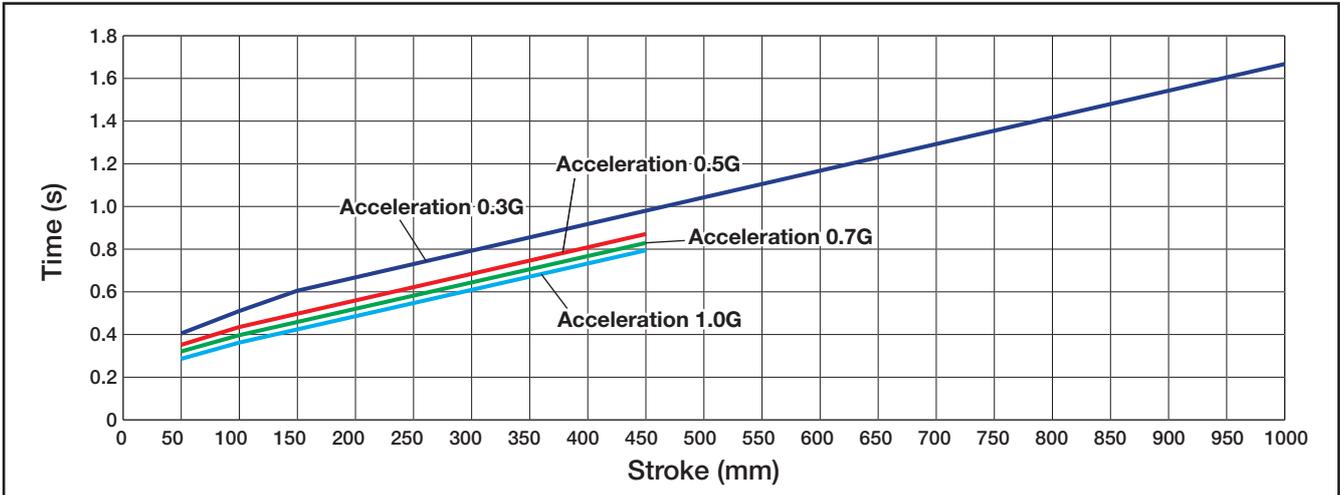


Reference Chart of Movement Time per Speed/Acceleration

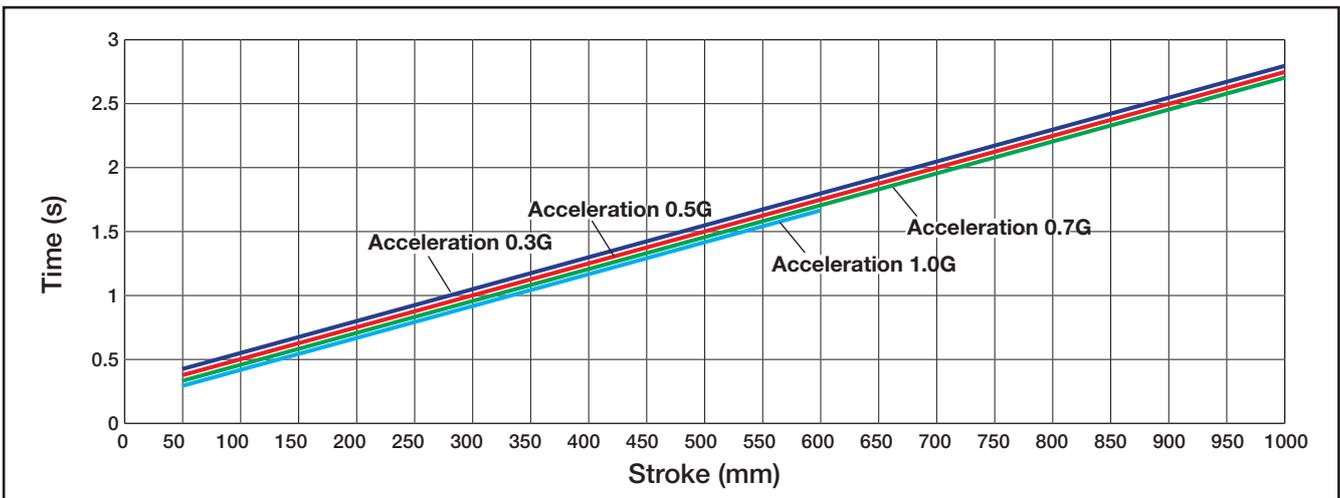
The charts below show the estimated time required for the movement per speed/acceleration. Please use it as a reference for cycle time.

(Note) Stroke indicates the one-sided and unidirectional movement distance. For RCP2, RCP3 and ERC2, please note that the maximum speed varies depending on load capacity.

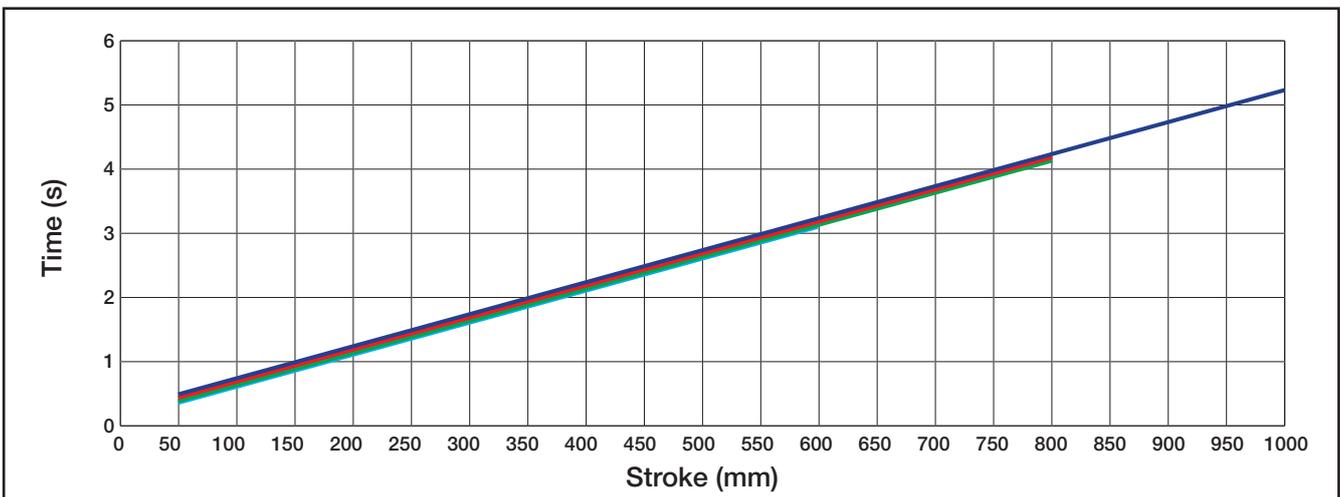
Speed 800mm/s



Speed 400mm/s



Speed 200mm/s



Explanation of Terms

(This terminology is related to IAI products, and so the definitions are more limited than usual.)

10,000km service life

Around 10000 hours are guaranteed for actual use in the field. When considering the speed, work ratio, etc, this translates to a distance of 5000 to 10000km. While the life of a guide is sufficiently long for radial loads, it is the uneven loads due to moment loads that are problematic to its service life.

For this reason, the 10000km service life is established by specifying the rated dynamic load moment that can guarantee 10000km of travel distance.

50km service life

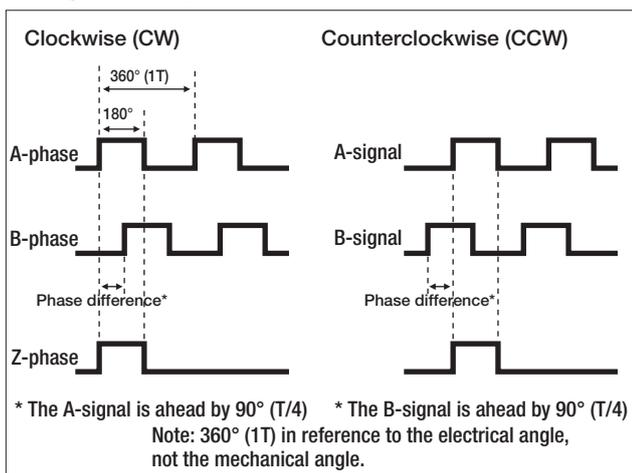
A way of expressing the allowable load capacity, submitted by the guide manufacturer. This is the value at which the probability of the guide not breaking (i.e. survival probability) when used with this allowable radial load (basic dynamic rated load) is 90%.

Calculating the actual distance of travel, considering the motion velocity and work rate, etc, an actual industrial equipment, it is necessary to ensure 5000km to 10000km of travel. From that viewpoint, this data is difficult to understand and difficult to utilize.

A-phase (signal) output / B-phase (signal) output

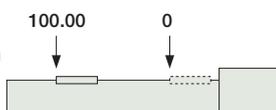
The direction of rotation (CW or CCW) of the axis is determined from the phase difference between the A-phase and the B-phase of the incremental encoder output, as shown in the diagram below. In a clockwise rotation, the A-phase is ahead of the B-phase.

■ Diagram of Output Modes



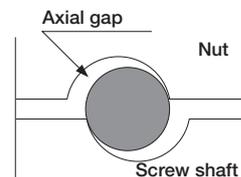
Absolute positioning accuracy

When positioning is performed to an arbitrary target point specified in coordinate values, the difference between the coordinate values and the actual measured values.



Backlash

As shown in the figure on the right, there is a gap between the nut and the ball (steel ball) and the screw shaft. Even if the screw shaft moves, the nut will not move the extent of the gap. The mechanical play in the



The direction of this slider movement is called the backlash. The measurement method used is to feed the slider, then use the reading for the slight amount of movement time shown on a test indicator as a standard. Also, in that condition, without using the feed device, move the slider in the same direction with a fixed load, then without the load. Then find the difference between the standard value and the time when the load was removed. This measurement is conducted at the midpoint of the distance of movement and at points nearly at the two ends. The maximum value obtained among the values is used as the measurement value.

Bellows

A cover to prevent the infiltration of dust or debris from outside.

Brake

Primarily used for the vertical axis to prevent the slider from dropping when the servo is turned off. The brake activates when the power is turned off.

C10

One of the grades of a ball screw. The lower the number, the higher the precision.

Grade C10 has a typical movement error of $\pm 0.21\text{mm}$ for a 300mm stroke.

CCW (Counterclockwise rotation)

Abbreviation for counterclockwise rotation.

It describes a rotation to the left, as viewed from above, i.e. opposite of the rotation of a clock's hands.

Explanation of Terms

Cleanliness

Grade of cleanliness for cleanrooms according to ISO standard. ISO class 4 (equivalent to US FED STD class 10) indicates an environment in which there are fewer than 10 pieces of debris 0.5µm or smaller per cubic foot.

Coupling

A component used as a joint to join a shaft to another shaft. e.g. The joint between the ball screw and the motor.

Creep sensor

An optional sensor to allow high-speed homing operation.

Critical speed

Ball screw resonance with slider speed (No. of ball screw rotations). The maximum physical speed limit that can be utilized.

CW (Clockwise rotation)

Abbreviation for clockwise rotation.

It describes a rotation to the right, as viewed from above, i.e. same as the rotation of a clock's hands.

Cycle time

The time taken by one process.

Dispenser

A device that controls the flow rate of a liquid. This is integrated into devices for applying adhesives, sealants, etc.

Duty

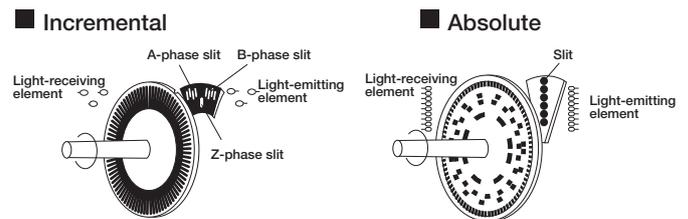
Indicates the work ratio in the equipment industry. (e.g. The time that the actuator operates in one cycle.)

Dynamic brake

A brake that uses the motor's regenerative energy.

Encoder

A device for recognizing the RPM and the direction of a rotation by shining a light onto a disc with slits, and using a sensor to detect whether the light is ON or OFF as the disc is rotated. (i.e. a device that converts rotation into pulses.) The controller uses this signal from the encoder to determine the position and speed of the slider.



An incremental encoder detects the rotational angle and the RPM of the axis from the number of output pulses. To detect the rotational angle and the RPM, a counter is needed to cumulatively add the number of output pulses. An incremental encoder allows you to electrically increase the resolution by using the rise and fall points on the pulse waveform to double or quadruple the pulse generation frequency.

An absolute encoder detects the rotation angle of the axis from the state of the rotation slit, enabling you to know the absolute position at all times, even when the rotating slit is at rest. Consequently, the rotational position of the axis can always be checked even without a counter. In addition, since the home position of the input rotation axis is determined at the time it is assembled into the machine, the number of rotations from home can always be accurately expressed, even when turning the power ON during startup or after a power outage or an emergency stop.

Excess voltage

Voltage applied to motor that exceeds regulation value when commanded speed is too fast.

External operation mode

This is the operation mode started by a start signal from an external device (PLC, etc.). This is also called automatic operation.

Flexible hose

Tube for SCARA Robot MPG cable that the user passes wiring through.

Gain

The numeric value of an adjustment of the controller's reaction (response) when controlling the servo motor. Generally, the higher the gain the faster the response, and the lower it is the slower the response.

Gantry

A type of two-axis (X and Y) assembly in which a support guide is mounted to support the Y-axis, so that heavier objects can be carried on the Y-axis.

Grease

High-viscosity oil applied to contact surfaces to make the guide and the ball screw move smoothly.

Greasing

Injection or application of grease to sliding parts.

Guide

A mechanism for guiding (supporting) the slider of the actuator. A bearing mechanism that supports linear motions.

Guide module

An axis in a two-shaft assembly that is used in parallel with the X-shaft to support the end of the Y-shaft when the Y-shaft overhang is long. Typical models include the FS-12WO and FS-12NO.

Home

Reference point for actuator operation. The pulse counts are determined and recorded for all positions the actuator moves to / from home.

Home accuracy

The amount of variation among the positions when home return is performed (if home varies, all positions vary).

Key slotted

A rotary shaft or mounting component is machined with a slot for key mounting.

(Key: One means of preventing positional slip in the rotation direction of the rotary axis and the mounting component)

Lead

The lead of the feed screw is the distance moved after the motor (hence the feed screw) has rotated one turn.

Understanding lead value

The lead value changes the actuator speed and thrust.

- Speed: With an AC230V servo motor, the rated rpm is 3000rpm. In other words, this is 50 revolutions per second. In this case, with a 20mm screw lead, the speed is $50 \text{ revolutions/s} \times 20 \text{ mm/revolution} = 1000 \text{ mm/s}$.
- Thrust: If the lead is large, then the thrust is small; and vice-versa.

Load capacity (Payload)

The weight of objects that can be moved by the actuator's slider or rod.

Lost Motion [mm]

First, for one position, run with positioning straight in front and then measure that position. Next, make a movement in the same direction by issuing a command. Then, issue the same command for movement in a negative direction from the position. Conduct positioning in the negative direction and measure that position. Again, issue a command for a movement in the negative direction, and issue the same command for a positioning movement straight ahead from that position. Then measure that position.

Using this method, repeat measurement in positive and negative directions, seven times each. Conduct positioning for each and obtain the deviation from the average value for each stop position. Determine the position for the center of the movements in these measurements and positions nearly at both ends. The measurement value will be the maximum value among those obtained. (Complies with JIS B6201)

Mechanical end

Position where actuator slider comes to mechanical stop. Mechanical stopper. (Example: Urethane rubber)

Offline

A state in which the PC software is started without the RS232 cable connected to the controller.

Explanation of Terms

Offset

To shift from a position.

Online mode

The state in which the PC software is started with the RS232 cable connected to the controller.

Open collector output

A system with no overload resistance in the voltage output circuit, that outputs signals by sinking the load current. Since this circuit can turn the load current ON/OFF regardless of voltage potential to which the current is connected, it is useful for switching an external load and is widely used as a relay or ramp circuit or the like for switching external loads, etc.

Open loop system

A type of control system. This system only outputs commands and does not take feedback.

A typical example of this is the stepping motor. Since it does not compare each actual value against the commanded value, even if a loss of synchronization (i.e signal error) occurs, the controller would not be able to correct it.

Operation

Operation.

Overhang

The state in which the object that is mounted onto the actuator extends out to the front/rear, left/right, or above/below the axis of movement.

Overload check

A check for overload. (One of the protection functions)

Override

A setting for the percentage with respect to the running speed. (e.g. If VEL is set to 100mm/sec, an override setting of 30 will yield 30mm/sec)

Pitch error [pitch deviation or lead deviation]

Due to problems in the manufacturing, such as the heat treatment process used, the deviations of the ball screws, which are a key mechanical element of the actuator, are not always small when inspected closely. A JIS rating is used to indicate the qualitative accuracy of these items.

These items made for the market must meet tolerance values set as Class C10.

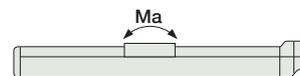
The accuracy required to meet the C10 standard is to be within a margin of error of $\pm 0.21\text{mm}$ for every 300mm of length. Generally the screw pitch error deviation accumulates in a plus or minus direction. One method of improving these items is to grind them in a finishing process.

[e.g.] When positioning 300mm from home:

The machine accepts a set position of 300 ± 0.21 . Supposing that the actual stop position is 300.21, if this position is repeatable and maintained at 300.21 ± 0.02 using a JIS6201-compliant method, then the repeatability standard for accuracy is met.

Pitching

Forward-backward motion along the axis of the slider's movement. (Direction of M_a)



PLC

Abbreviation for Programmable Logic Controller.

(Also referred to as sequencers or programmable controllers).

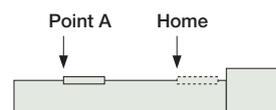
These are controllers that can be programmed to control production facilities and equipment.

Positioning band

The span within which a positioning operation is deemed as complete with respect to the target point. This is specified by a parameter. (PEND BAND)

Positioning repeatability

The variation in stop position accuracy for repeated positioning toward the same point.



Positioning settling time

The gap between the actual movement time and the ideal calculated value for movement. (Positioning operation time; processing time for internal controller operations.) The broader meaning includes the time for convergence of the mechanical swing.

Radial load

Load up to down in a direction 90° to horizontal slider.

Regenerative energy

Energy, generated by the motor's rotation. When the motor decelerates, this energy returns to the motor's driver (controller). This energy is called regenerative energy.

Regenerative resistance

The resistance that discharges the regenerative current. The regenerative resistance required for IAI's controllers is noted in the respective page of each controller.

Rolling

An angular movement around the axis of the slider's movement. (Mc direction)



SCARA

SCARA is an acronym for Selective Compliance Assembly Robot Arm, and refers to a robot that maintains compliance (tracking) in a specific direction (horizontal) only, and is highly rigid in the vertical direction.

Screw type

The types of screws for converting rotary motion of a motor to linear motion are summarized on the right.

IAI's single-axis robots and electric cylinders use rolled ball screws as a standard feature.

		Characteristics
Ball screw	Polished	Screws are polished for good precision, but expensive
	Rolled	Since the screws are rolled, they can be mass produced
Lead screw		Cheap, but poor precision and short life. Also not suitable for high-speed operation.

SEL language

The name of IAI's proprietary programming language, derived from an acronym for SHIMIZUKIDEN ECOLOGY LANGUAGE.

Semi-closed loop system

A system for controlling the position information or velocity information sent from the encoder with constant feedback to the controller.

Servo-free (servo OFF)

The state in which the motor power is OFF. The slider can be moved freely.

Servo-lock (servo ON)

The state in which, opposite to the above, the motor power is turned ON. The slider is continually held at a determined position.

Slider mounting weight [kg]

The maximum mounting weight of the slider when operating normally, without major distortion in the velocity waveform or current waveform, when operated at the specified acceleration/deceleration factor (factory settings).

Software limit

A limit in the software beyond which a given set stroke will not advance.

Stainless sheet

A dust-proof sheet used in slider types.

Stepper motor (Pulse motor)

A motor that performs angular positioning in proportion to an input pulse signal by means of open loop control.

Thrust load

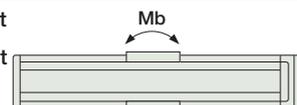
The load exerted in the axial direction.

Work rate

The ratio between the time during which the actuator is operating and the time during which it is stopped. This is also called duty.

Yawing

Motion at an angle in a left-right direction along slider movement axis. (Mb direction)



Along with pitching, laser angle measurement system is used for measurement, and the reading is the indication of maximum difference.

Z-phase

The phase (signal) that detects the incremental encoder reference point, used to detect the home position during homing operation.

Searching for the Z-phase signal for the reference during homing is called the "Z-phase search".

Cable exit direction

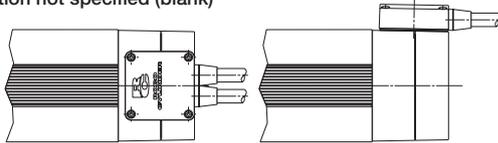
Models A1, A2, and A3

Applicable models RCP2 / RCP2W-RA10C RCS2-RA5C / RA5R / SRA7BD

Description Specify this option when you wish to change the direction from which the actuator cable is taken out.

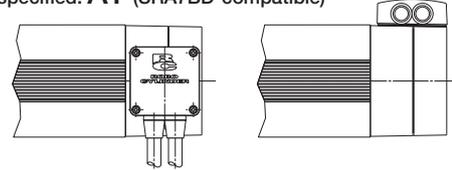
Actuator cable taken out from motor side (standard)

Option not specified (blank)



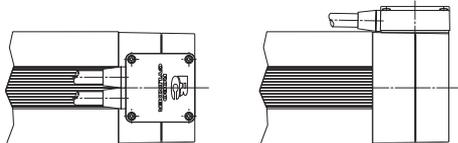
Actuator cable taken out from left

Option specified: **A1** (SRA7BD-compatible)



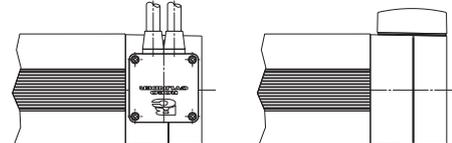
Actuator cable taken out from rod side

Option specified: **A2** (RA5C/RA5R/SRA7BD-compatible)



Actuator cable taken out from right

Option specified: **A3** (SRA7BD-compatible)



Brake

Models B, BE, BL and BR

Applicable models

All slider-type models (excluding RCP3-SA2A□ / SA2B□ and RCP2-BA6 / BA7)
 All rod-type models (excluding RCP2-RA2C / RA3C, RCA2-RN□N, RP□N, GS□N, GD□N, SD□N and RCA / RCS2 built-in types)
 All table-type models (excluding TCA□N, TWA□N and TFA□N)
 All arm-type and flat-type models (the arm type is a standard feature)
 Linear Motor Rod type
 All cleanroom type models
 Dust-proof / Splash-proof type (excluding RCP2W-SA16C, RCAW-RA3 / 4D and RCS2W-RA4D)

Description

A retention mechanism used on an actuator positioned vertically to prevent the slider from dropping and damaging the part, etc., when the power or servo is turned off.

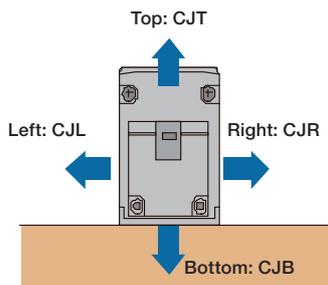
Cable exit direction

Models CJT, CJR, CJL, CJB and CJO

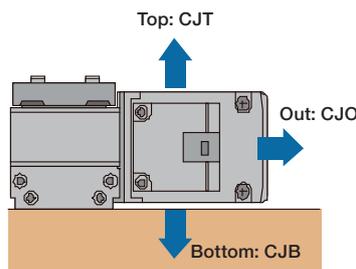
Applicable models RCP3 (RCA2)-SA3C / SA4C / SA5C / SA6C / SA3R / SA4R / SA5R / SA6R
 RCP3 (RCA2)-TA4C / TA5C / TA6C / TA7C / TA4R / TA5R / TA6R / TA7R

Description

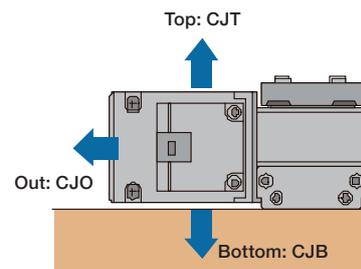
The direction of the motor-encoder cable mounted on the actuator can be changed vertically or horizontally.



Straight Type



Side-Mounted Motor Type
 Mounted on left side (ML)



Side-Mounted Motor Type
 Mounted on right side (MR)

Guide mounting direction (for single-guide type only)

■ Models GS2, GS3 and GS4

Applicable models	RCP2 (RCA)-SRGS4R RCS2-RGS5C / SRA7BD
Description	For the single-guide model, the mounting position of the rod can be selected from the right (GS2), bottom (GS3), or left side (GS4).

High acceleration/deceleration

■ Models HA

Applicable models	RCA-SA4C / SA5C / SA6C / RA3C / RA4C RCS2-SA4C / SA5C / SA6C / SA7C / RA4C / RA5C
Description	Option to increase to 1G the standard acceleration rate of 0.3G. An actuator with 1G of acceleration can be operated with the same load capacity as the 0.3G unit. The controller settings are different from the standard specification, so when operating with high acceleration, the controller also needs to be set to the high acceleration specification.

Home check sensor

■ Models HS

Applicable models	Slider Type	RCA (RCACR)-SA4C / SA5C / SA6C, RCS2 (RCS2CR)-SA4C / SA5C / SA6C
	Rod Type	RCA-SA4R / SA5R / SA6R and RCS2-SA4R / SA5R / SA6R RCA-RA3C / RA3D / RA3R / RA4C / RA4D / RA4R and RCS2-RA4C / RA4D / RA4R
Description	When an actuator is instructed to return home, this sensor checks to make sure that the slider moves to the home position. * This cannot be used with the reversed-home specification for rod types.	

Connector cable exit direction

■ Models K1, K2 and K3

Applicable models	RCA2-RN□NA / RP□NA / GS□NA / GD□NA / TCA□NA / TWA□NA / TFA□NA RCS2-RN5N / RP5N / GS5N / GD5N / SD5N / TCA5N / TWA5N / TFA5N
Description	Connector cable outlet direction can be changed to left (K1), from the front to the rear (K2) and to right (K3).

Limit switch

■ Models L

Applicable models	Rotary Type RCS2-RT6 / RT6R / RT7R
Description	When home return is performed, the home will be determined after the actuator reverses following contact with the mechanical end. This optional sensor is used to detect this reversing. (However, with the rotary type, all models will have the standard settings.)

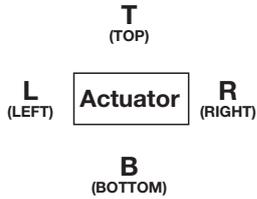
Low power compatible

■ Models LA

Applicable models	RCA / RCA2 / RCACR / RCA Series, all models
Description	This option decreases the power capacity of the controller. With the standard specification and high-speed acceleration specification, the maximum is 5.1A, but if the low-power specification is selected, the maximum decreases to 3.4A. (The maximum values differ for some models, so see the power capacities of the ACON/ASEL controllers for details.)

Side-Mounted Motor Orientation

■ Models MB, ML, MR and MT



Applicable models All side-mounted motor type models

Description These abbreviations specify the motor reversing direction of the motor reversing type. Viewed from the motor side, downward reversing is MB (arm type only), leftward reversing is ML (all models), rightward reversing is MR (all models), and upward reversing is MT (limited to RCS2-RA13R). The arm type is MB, but for other models, ML is standard. (MT has different criteria for RCS2-RA13R.)

No cover

■ Models NCO

Applicable models RCP3 (RCA2)-SA3C / SA4C / SA5C / SA6C / SA3R / SA4R / SA5R / SA6R

Description By removing the cover from the actuator, the cost reduction can be achieved and the maintainability can be enhanced.

Reversed-home specification

■ Models NM

Applicable models All slider-type models
 All rod-type, table-type, arm-type, and flat-type models
 (* excluding RCP2-RA2C / SRA4R / RA10C, RCA2-RN / RP / GS / GD / SD / TCA / TWA / TFA □N, RCA-SRA4R and RCS2-RA5C / RA5R / SRA7BD / RA13R)

Description The normal home position is set by the slider and rod on the motor side, but there is the option for the home position to be on the other side to accommodate variations in device layout, etc. (Note: Home position settings are factory settings. Changes to these settings after the product is delivered will require shipping the product back to IAI for re-setting.)

Selection Standard (Speed vs. Load Capacity Graph)

RCP3 Series

Table Type

Select horizontal or vertical use

From the device cycle time, select speed type

Use the graphs below to select a model for your purpose

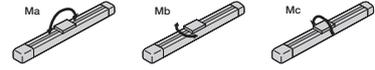


Cautionary Notes

When using a table type, if the overhang from the center of the object mounted on the slider is large, please consider the moment load and the overhang load length.

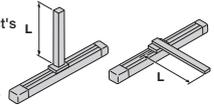
Moment load

Please ensure the moment loads are within the specified range for Ma, Mb, and Mc.



Overhang Load Length

The value when the mounted object's center of gravity is L/2. If the mounted object overhangs in the direction of Ma, Mb, or Mc, make sure that the length is within range.



Maximum Speed
600 mm/sec

300 mm/sec

150 mm/sec

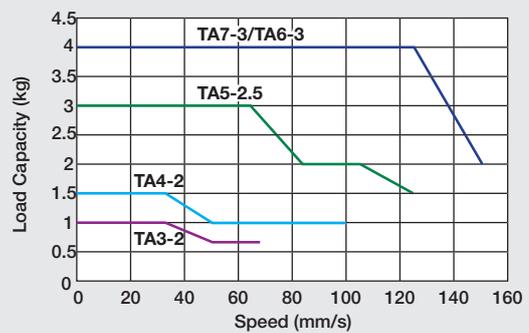
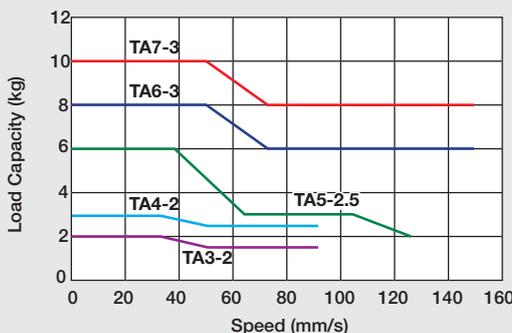
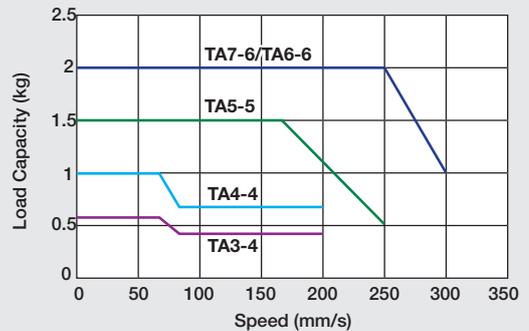
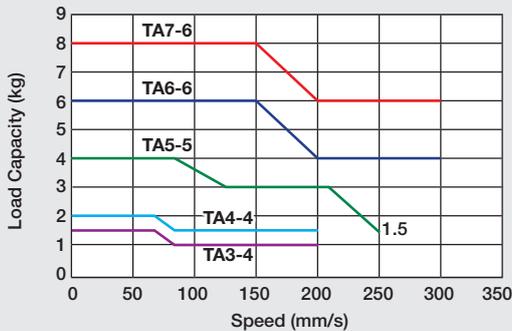
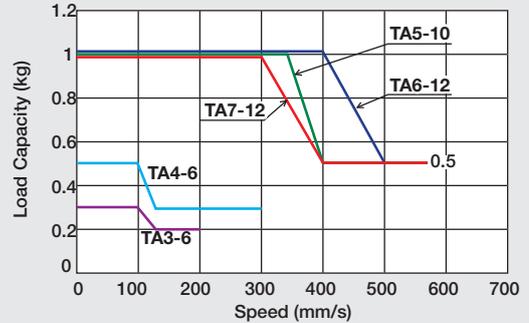
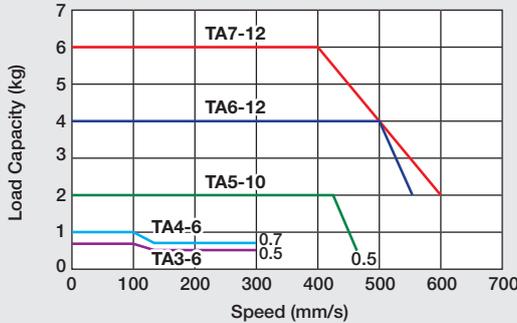
High-Speed Type

Medium-Speed Type

Low-Speed Type

Horizontal Setting

Vertical Setting

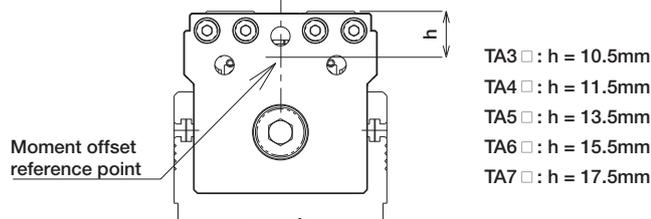


Note: In the graph above, the number after the type is the lead number.

RCP3 Series Table Type

When using a table type for the pressing operation, limit the pressing current to prevent anti-moment generated by the push force from exceeding 80% of the catalog spec rating for moment (Ma, Mb).

To calculate moment, use the guide moment action position shown in the figure below, and consider the amount of offset at the push force action position. Be aware that, if excess force above the rated moment is applied, the guide can be damaged and its use life can be shortened. Therefore, carefully set current with safety in mind.

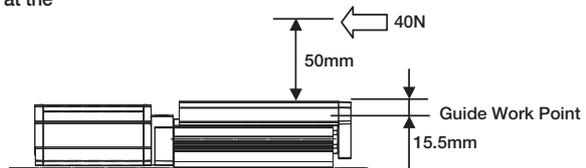


When using a table type for the pressing operation, use setting to ensure that anti-moment generated by the push force does not exceed **80% of catalog spec moment tolerance.**

Example of calculations:

With the RCP3-TA6C (Lead 12) type, using the position shown in the figure at the right, and pressing at 40N,

$$\begin{aligned} \text{the moment received by the guide is } Ma &= (15.5 + 50) \times 40 \\ &= 2620 \text{ (N}\cdot\text{mm)} \\ &= 2.62 \text{ (N}\cdot\text{m)}. \end{aligned}$$

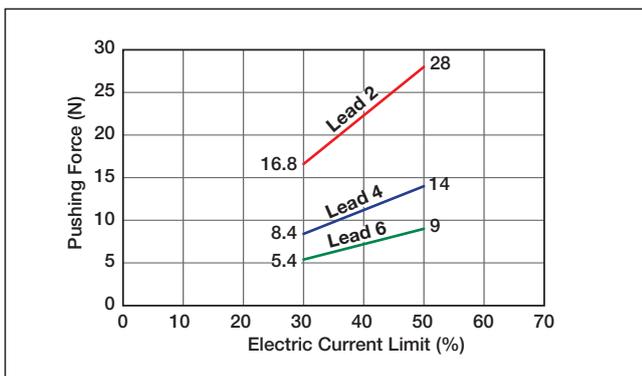


The TA6C allowable load moment (Ma) is 7.26(N•m), 80% of which is 5.968, which is greater than the actual moment load received by the guide (2.62). Therefore, it can be decided that this moment load can be used.

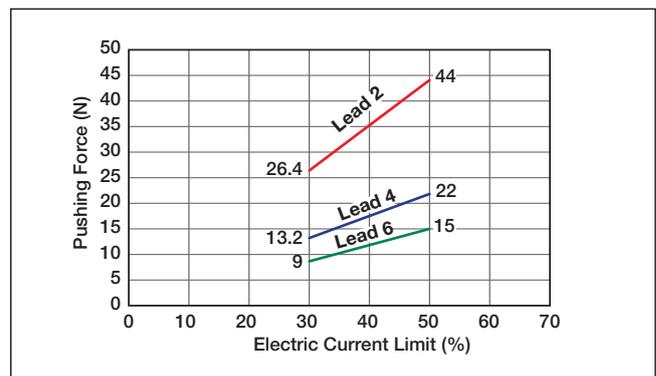
Push force and current limit correlation graph

* In the table below, standard figures are shown. Actual figures will differ slightly.

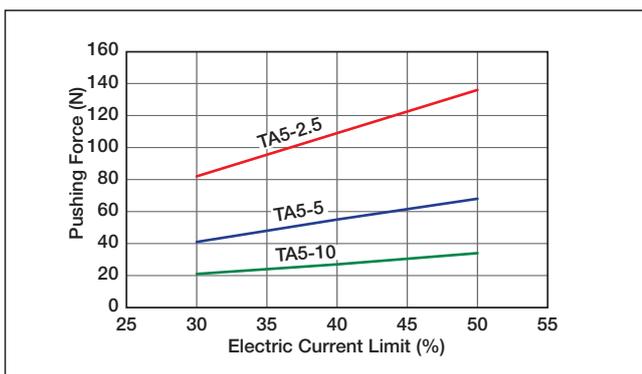
TA3C Type



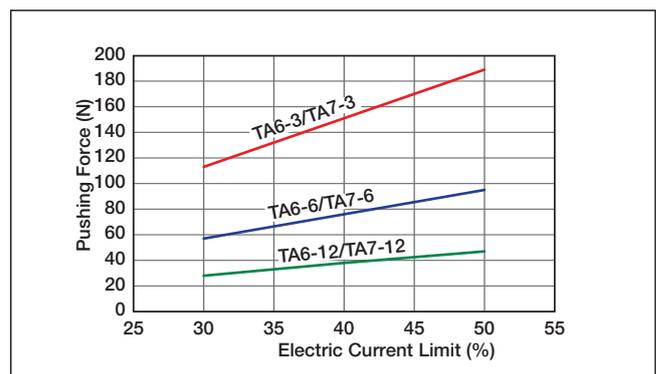
TA4C Type



TA5C Type



TA6C/TA7C Type



RCP3 Series

Mini Rod Type

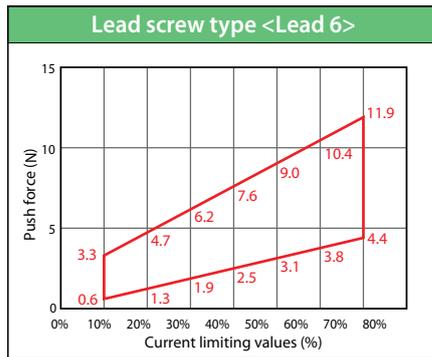
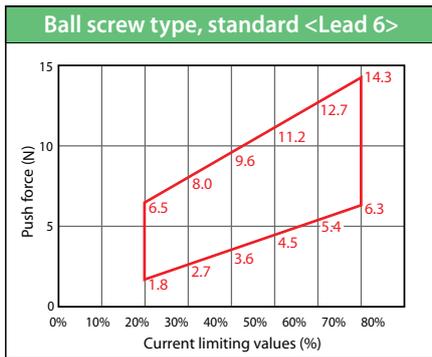
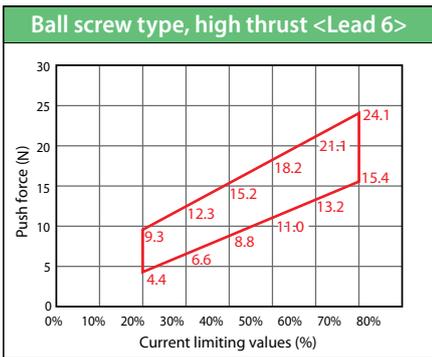
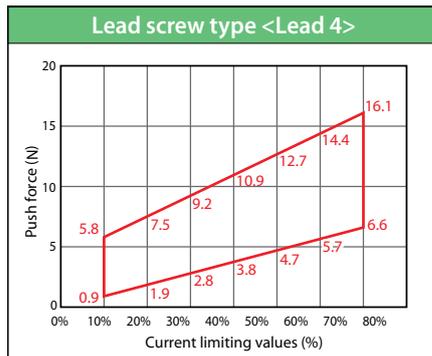
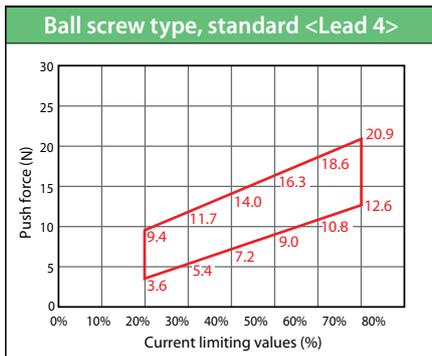
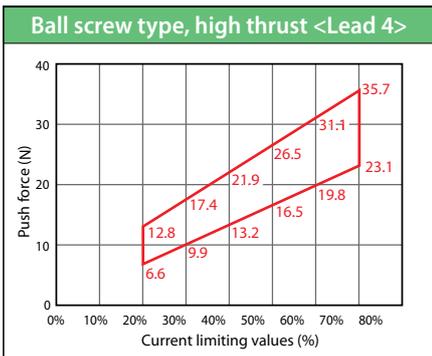
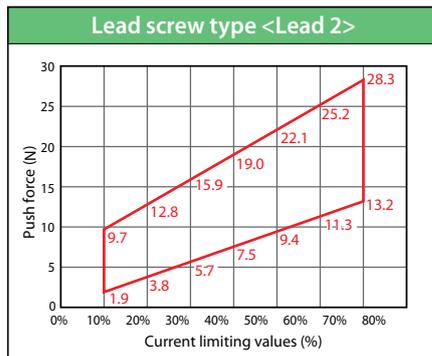
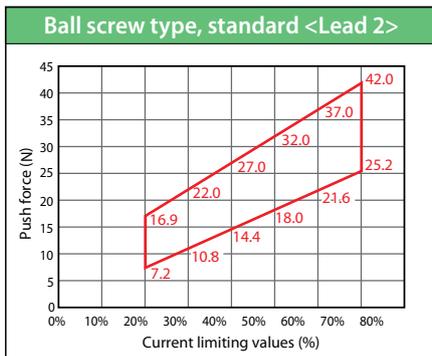
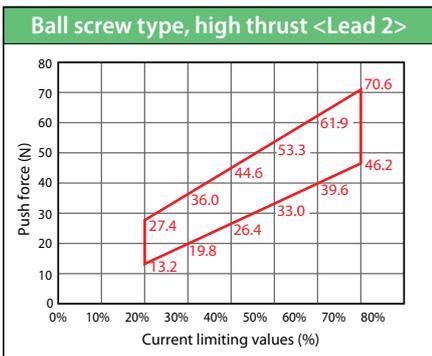
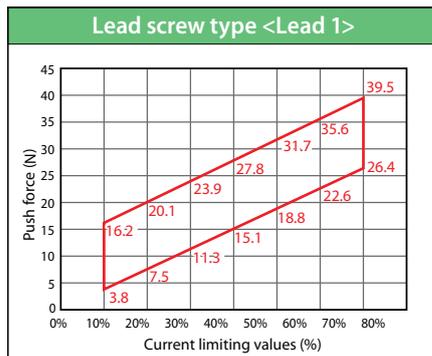
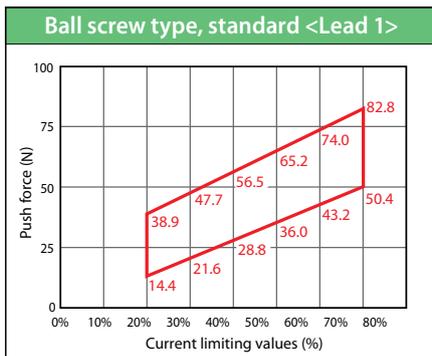
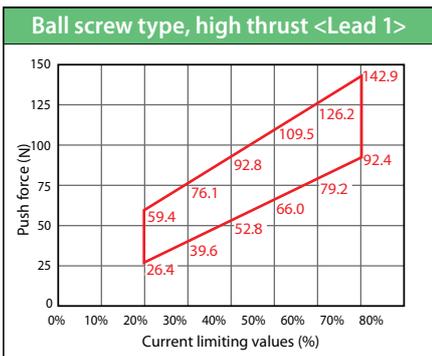
*The specification value is shown within an area indicated by a red line.

When performing a pressing operation, select a model which has desired push force within an area indicated by the red line in the graph below.

(The graph makes allowance for efficiency reduction due to change due to wear.)

Caution:

Movement speed during pressing operation is fixed at 5mm/s.

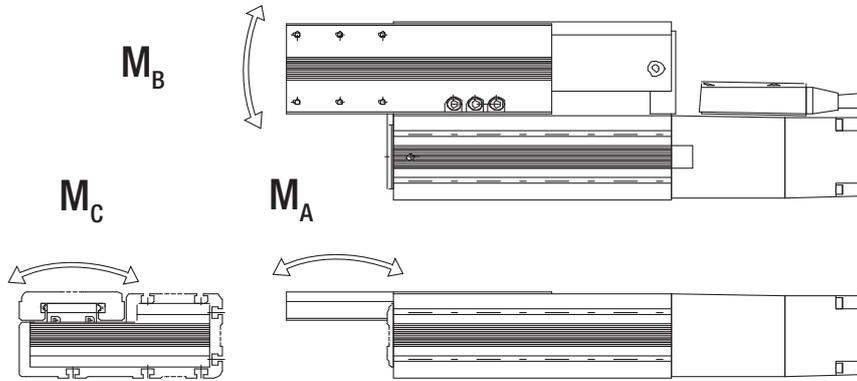


Lead 6 is for RA2BC/RA2BR only

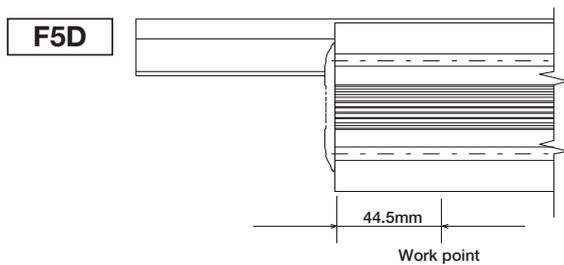
Flat Type F5D Technical Materials

Flat Type (F5D) Moment, load capacity

The direction of the moment in the flat type is as shown in the figure below.



The points of moment application in the Ma and Mb directions are as shown below.



Be careful that the load exerted on the plate tip does not exceed the Ma moment when using a flat type horizontally.

Refer to the table below for the allowable tip loads calculated from the Ma moment for each stroke.

Stroke	50	100	150	200	250	300	
F5D Type	Distance from point of action (m)	0.07	0.12	0.17	0.22	0.27	0.32
	Allowable tip load (N)	64.3	37.5	26.5	20.5	16.7	14.1
	Allowable weight-force (kgf)	6.56	3.83	2.70	2.09	1.70	1.43

