

EC-S8 ACR

Clean

Coupled Motor

Body width
90 mm

24v
Stepper motor

Model specification items

| | | | | | | | |
|-----------|-------------|-------------------------------------|-------------------|----------------------------|---|---|---------------------------------|
| EC | - S8 | | A | CR | | | |
| Series | Type | Lead | Specification | Specification | Stroke | Power · I/O cable length | Option |
| | | S 30mm H 20mm M 10mm L 5mm | A For long stroke | CR Cleanroom specification | 350 ~ 1100 350mm ~ 1100mm (every 50mm) | Refer to the Power · I/O cable length table below | Refer to the Option table below |



Horizontal

Vertical

Side

Ceiling

Table of strokes

| Stroke (mm) | Stroke (mm) |
|-------------|-------------|
| 350 | 750 |
| 400 | 800 |
| 450 | 850 |
| 500 | 900 |
| 550 | 950 |
| 600 | 1000 |
| 650 | 1050 |
| 700 | 1100 |

Table of Options

| Name | Option code |
|---|-------------|
| RCON-EC connection specification (Note 1) | ACR |
| Brake | B |
| Non-motor end homing specification | NM |
| PNP specification | PN |
| Twin power specification | TMD2 |
| vacuum tube joint on opposite side (mirror image) | VR |
| Battery-less absolute encoder specification | WA |
| Wireless communication specification | WL |
| Wireless axis operation specification | WL2 |

(Note 1) When selecting RCON-EC connection specification (ACR), PNP specification (PN) and Twin power specification (TMD2) cannot be selected.



- Selection Notes**
- (1) Longer strokes may decrease the maximum speed due to the resonance of the ball screw. Check the stroke maximum speed required in the "Stroke and Max. Speed" table.
 - (2) "Main Specifications" displays the payload's maximum value. Refer to the "Table of Payload by Speed and Acceleration" for details.
 - (3) If performing push-motion operations, refer to the "Correlation between Push force and Current Limit" diagram. The push force is only for a reference value. Contact IAI for precautions.
 - (4) Depending on the ambient operating temperature, the duty ratio may be limited. Contact IAI for details.
 - (5) Pay close attention to the installation orientation. Contact IAI for the overhang load length.
 - (6) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions. Contact IAI for the overhang load length.
 - (7) The center of gravity of the attached object should be less than 1/2 of the overhang distance. Even when the overhang distance and load moment are within the allowable range, the operating conditions should be moderated if some abnormal vibration or noise is observed.
 - (8) There are limitations on connections when RCON-EC connection specification (ACR) is connected to EC connection unit (RCON-EC-4). Please contact IAI for details.

Power · I/O cable length

Standard connector cable

| Cable code | Cable length | User wiring specification (flying leads) | RCON-EC connection specification (Note 3) (With connectors on both end) |
|---------------|--------------|--|---|
| | | CB-EC-PWBIO□□□-RB supplied | CB-REC-PWBIO□□□-RB supplied |
| 0 | No cable | ✓ (Note 2) | ✓ |
| 1 ~ 3 | 1 ~ 3m | ✓ | ✓ |
| 4 ~ 5 | 4 ~ 5m | ✓ | ✓ |
| 6 ~ 7 | 6 ~ 7m | ✓ | ✓ |
| 8 ~ 10 | 8 ~ 10m | ✓ | ✓ |

(Note 2) Only a terminal connector is supplied. Contact IAI for details.
 (Note 3) In case an optional RCON-EC connection specification (ACR) is selected.
 (Note) Robot cable

4-directional connector cable

| Cable code | Cable length | User wiring specification (flying leads) | RCON-EC connection specification (Note 4) (With connectors on both end) |
|-----------------|--------------|--|---|
| | | CB-EC2-PWBIO□□□-RB supplied | CB-REC2-PWBIO□□□-RB supplied |
| S1 ~ S3 | 1 ~ 3m | ✓ | ✓ |
| S4 ~ S5 | 4 ~ 5m | ✓ | ✓ |
| S6 ~ S7 | 6 ~ 7m | ✓ | ✓ |
| S8 ~ S10 | 8 ~ 10m | ✓ | ✓ |

(Note 4) In case an optional RCON-EC connection specification (ACR) is selected.
 (Note) Robot cable

Main specifications

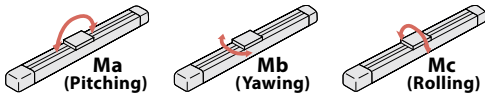
| Item | | Description | | | | |
|-------------------------|-------------------------------------|---|------|------|------|-----|
| Lead | Ball screw lead (mm) | 30 | 20 | 10 | 5 | |
| | Horizontal | Max. payload (kg) | 23 | 35 | 70 | 80 |
| | | Min. speed (mm/s) | 1200 | 975 | 450 | 225 |
| | | Min. speed (mm/s) | 38 | 25 | 13 | 7 |
| | | Rated acceleration/deceleration (G) | 0.3 | 0.3 | 0.3 | 0.3 |
| Vertical | Max. acceleration/deceleration (G) | 1 | 1 | 0.5 | 0.3 | |
| | Max. payload (kg) | 2 | 4 | 25 | 55 | |
| | Max. speed (mm/s) | 850 | 650 | 450 | 225 | |
| | Min. speed (mm/s) | 38 | 25 | 13 | 7 | |
| Push | Rated acceleration/deceleration (G) | 0.3 | 0.3 | 0.3 | 0.3 | |
| | Max. acceleration/deceleration (G) | 0.5 | 0.5 | 0.5 | 0.3 | |
| | Max. push force (N) | 78 | 103 | 235 | 470 | |
| | Max. push speed (mm/s) | 38 | 25 | 20 | 20 | |
| Cleanroom specification | Suction volume (NL/min.) (Note 5) | 115 | 85 | 75 | 30 | |
| | Brake specification | Non-excitation actuating solenoid brake | | | | |
| Brake | Brake holding force (kgf) | 2 | 4 | 25 | 55 | |
| | Min. stroke (mm) | 350 | 350 | 350 | 350 | |
| | Stroke pitch (mm) | 1100 | 1100 | 1100 | 1100 | |
| Stroke | Max. stroke (mm) | 50 | 50 | 50 | 50 | |
| | Stroke pitch (mm) | 50 | 50 | 50 | 50 | |

(Note 5) Guideline for suction volume at the maximum speed.

| Item | Description |
|---|---|
| Driving system | Ball screw, ϕ 16mm, rolled C10 |
| Positioning repeatability | \pm 0.05mm |
| Lost motion | (two-point positioning function; cannot be represented) |
| Base | Dedicated aluminum extruded material (A6063SS-T6 equivalent), black alumite treatment |
| Linear guide | Linear motion infinite circulating type |
| Static allowable moment | Ma: 173 N·m |
| | Mb: 173 N·m Mc: 271 N·m |
| Dynamic allowable moment (Note 6) | Ma: 61 N·m |
| | Mb: 61 N·m Mc: 116 N·m |
| Cleanliness | ISO Class 3 (ISO 14644-1 standard) |
| Ambient operating temperature, humidity | 0 - 40°C, 85%RH or less (Non-condensing) |
| Degree of protection | IP20 |
| Vibration/shock resistance | 4.9m/s ² |
| Overseas standards | CE marking, RoHS directive |
| Motor type | Stepper motor (L56SP) (Power capacity: max. 6A) |
| Encoder type | Incremental/battery-less absolute |
| Number of encoder pulses | 800 pulse/rev |

(Note 6) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Contact IAI to confirm operational life span.

Slider type moment direction



Payload by speed and acceleration

The unit for payload is kg. If blank, operation is not possible.

Lead 30

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|----|-----|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 23 | 16 | 13 | 12 | 2 | 1 | |
| 200 | 23 | 16 | 13 | 12 | 2 | 1 | |
| 450 | 20 | 16 | 13 | 11 | 1 | 1 | |
| 650 | 18 | 15 | 12 | 8 | 1 | 1 | |
| 850 | 14 | 10 | 7 | 5 | 1 | 1 | |
| 1000 | 8 | 6 | 3 | 2 | | | |
| 1200 | 4 | 2 | 1 | | | | |

Lead 20

| Orientation | Horizontal | | | | | Vertical | |
|--------------|------------------|-----|-----|----|-----|----------|--|
| | Acceleration (G) | | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.7 | 1 | 0.3 | 0.5 | |
| 0 | 35 | 30 | 25 | 25 | 4 | 4 | |
| 200 | 35 | 30 | 25 | 25 | 4 | 4 | |
| 300 | 35 | 30 | 25 | 23 | 4 | 4 | |
| 400 | 35 | 30 | 23 | 20 | 1 | 1 | |
| 650 | 18 | 15 | 8 | 6 | 1 | 1 | |
| 800 | 10 | 6 | 2 | 1 | | | |
| 900 | 7 | 3 | | | | | |
| 975 | 4 | 1 | | | | | |

Lead 10

| Orientation | Horizontal | | | | Vertical | |
|--------------|------------------|-----|-----|-----|----------|--|
| | Acceleration (G) | | | | | |
| Speed (mm/s) | 0.3 | 0.5 | 0.3 | 0.5 | | |
| 0 | 70 | 70 | 25 | 25 | | |
| 100 | 70 | 70 | 25 | 25 | | |
| 200 | 65 | 50 | 20 | 20 | | |
| 300 | 60 | 30 | 9 | 9 | | |
| 400 | 25 | 15 | 3 | 2 | | |
| 450 | 25 | 15 | 3 | | | |

Lead 5

| Orientation | Horizontal | | Vertical | |
|--------------|------------------|-----|----------|-----|
| | Acceleration (G) | | | |
| Speed (mm/s) | 0.3 | 0.3 | 0.3 | 0.3 |
| 0 | 80 | 80 | 55 | 55 |
| 50 | 80 | 80 | 55 | 55 |
| 75 | 80 | 80 | 30 | 30 |
| 135 | 80 | 80 | 18 | 18 |
| 175 | 70 | 70 | 12 | 12 |
| 200 | 50 | 50 | 6 | 6 |
| 225 | 20 | 20 | 1 | 1 |

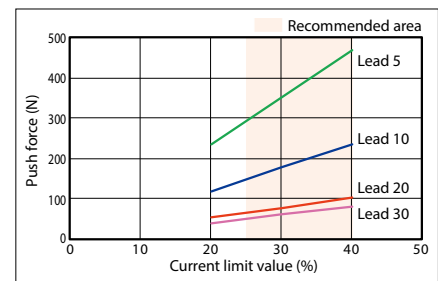
Stroke and maximum speed

| Lead (mm) | 350-700 (every 50mm) | 750 (mm) | 800 (mm) | 850 (mm) | 900 (mm) | 950 (mm) | 1000 (mm) | 1050 (mm) | 1100 (mm) |
|-----------|----------------------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|
| 30 | 1200<850> | 1160<850> | 1040<850> | 940<850> | 860<850> | 780 | 720 | 660 | 660 |
| 20 | 975<650> | 880<650> | 780<650> | 700<650> | 640 | 580 | 530 | 480 | 440 |
| 10 | 450 | 430 | 380 | 340 | 310 | 280 | 260 | 240 | 220 |
| 5 | 225 | 215 | 190 | 170 | 150 | 140 | 130 | 115 | 110 |

(Note) Values in brackets <> are for vertical use.

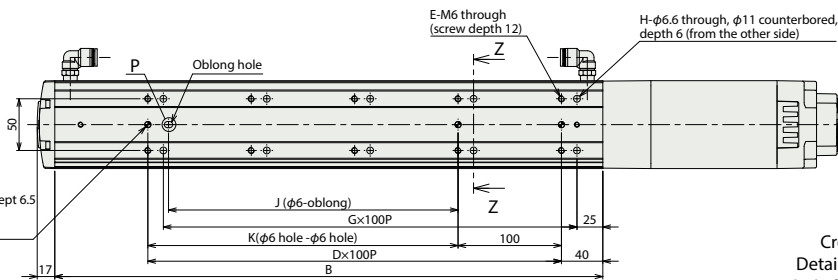
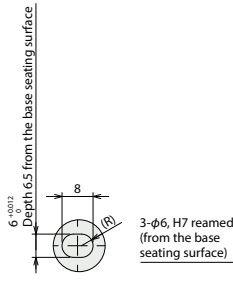
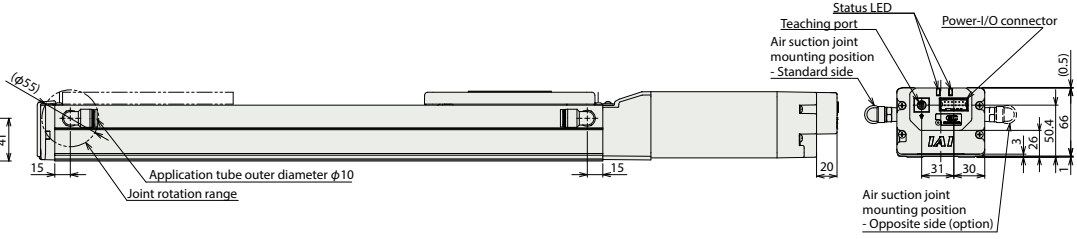
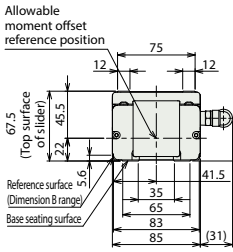
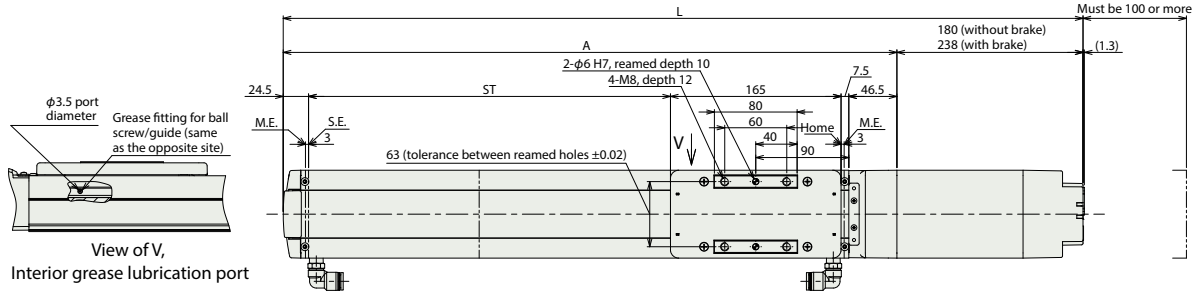
(Unit: mm/s)

Correlation between Push force and Current Limit



(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) To mount the actuator using the through holes on the base, it is necessary to remove the side cover and stainless sheet.

ST: Stroke
M.E.: Mechanical end
S.E.: Stroke end



■ Dimensions by stroke

| Stroke | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 | |
|--------|---------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| L | Without brake | 773.5 | 823.5 | 873.5 | 923.5 | 973.5 | 1023.5 | 1073.5 | 1123.5 | 1173.5 | 1223.5 | 1273.5 | 1323.5 | 1373.5 | 1423.5 | 1473.5 | 1523.5 |
| | With brake | 831.5 | 881.5 | 931.5 | 981.5 | 1031.5 | 1081.5 | 1131.5 | 1181.5 | 1231.5 | 1281.5 | 1331.5 | 1381.5 | 1431.5 | 1481.5 | 1531.5 | 1581.5 |
| A | 593.5 | 643.5 | 693.5 | 743.5 | 793.5 | 843.5 | 893.5 | 943.5 | 993.5 | 1043.5 | 1093.5 | 1143.5 | 1193.5 | 1243.5 | 1293.5 | 1343.5 | |
| B | 530 | 580 | 630 | 680 | 730 | 780 | 830 | 880 | 930 | 980 | 1030 | 1080 | 1130 | 1180 | 1230 | 1280 | |
| D | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | |
| E | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | |
| G | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | |
| H | 10 | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 | 20 | 22 | 22 | 24 | 24 | 26 | |
| J | 280 | 380 | 380 | 480 | 480 | 580 | 580 | 680 | 680 | 780 | 780 | 880 | 880 | 980 | 980 | 1080 | |
| K | 300 | 400 | 400 | 500 | 500 | 600 | 600 | 700 | 700 | 800 | 800 | 900 | 900 | 1000 | 1000 | 1100 | |

■ Mass by stroke

| Stroke | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 |
|-----------|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Mass (kg) | Without brake | 6.4 | 6.7 | 7.0 | 7.3 | 7.6 | 7.9 | 8.2 | 8.5 | 8.8 | 9.1 | 9.4 | 9.7 | 10.0 | 10.3 | 10.6 |
| | With brake | 6.7 | 7.0 | 7.3 | 7.6 | 7.9 | 8.2 | 8.5 | 8.8 | 9.1 | 9.4 | 9.7 | 10.0 | 10.3 | 10.6 | 10.9 |

Applicable controller

(Note) The EC series is equipped with a built-in controller. Contact IAI for more details about the built-in controller.