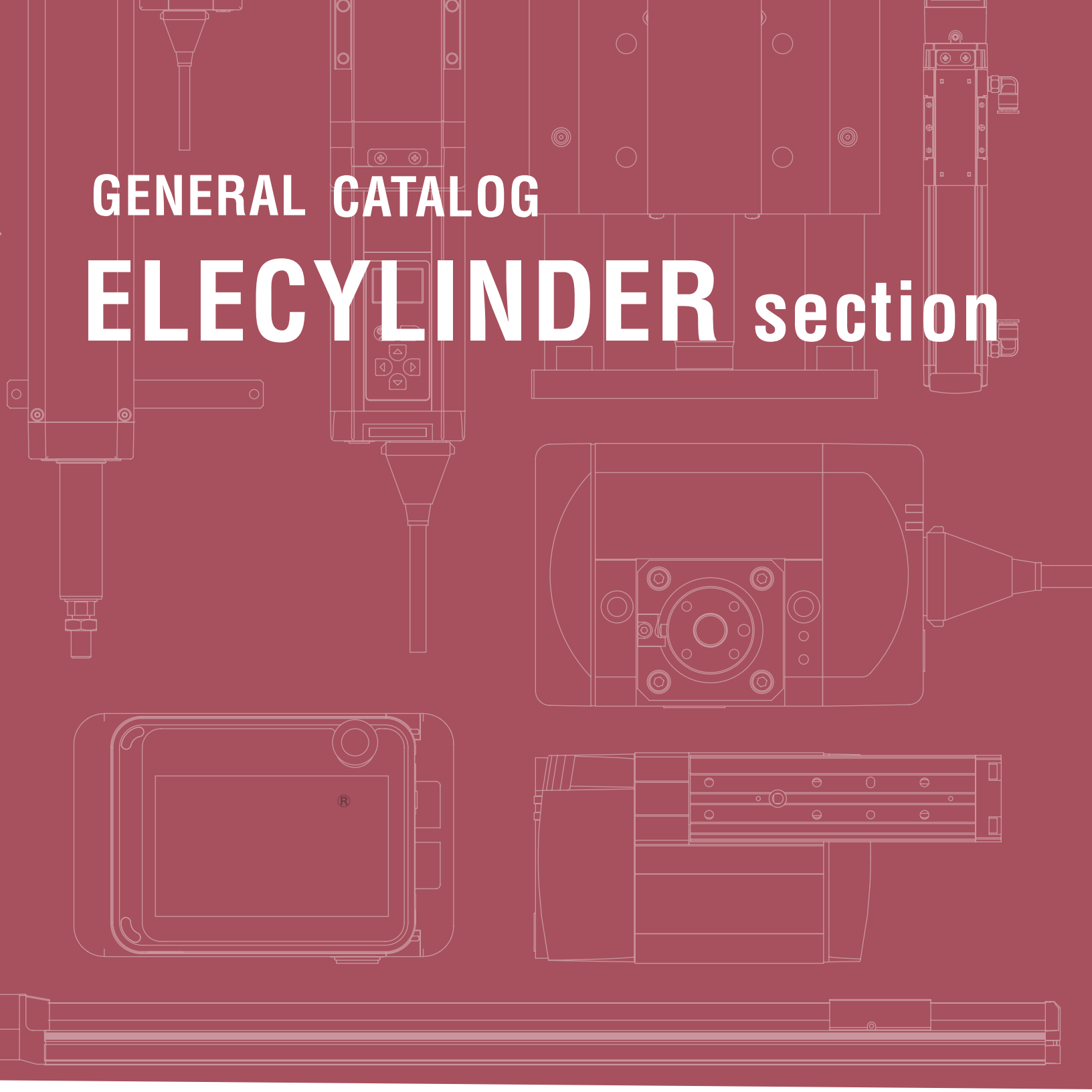
GENERAL CATALOG

ELECYLINDER section



IAI
Quality and Innovation

www.iai-automation.com

Slider

EC-(D)S/(D)WS Series

Simple Dust-proof | Battery-less Absolute * Optional | Straight Motor | 24V Stepper Motor

EC-S3 2 95



EC-S4 2 101



EC-S6 2 107



EC-S7 2 113



EC-WS10 2 131



EC-WS12 2 135



With digital speed controller

EC-DS3 2 95



EC-DS4 2 101



EC-DS6 2 107



EC-DS7 2 113



EC-DWS10 2 131



EC-DWS12 2 135



ELECYLINDER® and external connections

ELECYLINDER® is equipped with a built-in controller

I/O connection

Use a power I/O cable 2 391



Use a terminal block connector 2 391



Connect to a field network

Connect **ELECYLINDER®** only 2 405

REC



Mixed connection with ROBO Cylinder and single axis robot 2 405

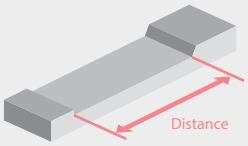
RCON

RCON gateway unit
+
RCON-EC



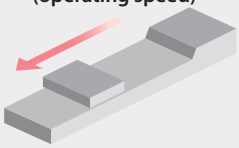
Reading the table and finding reference pages

1 Stroke



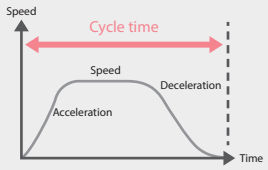
* The length of the band indicates the selectable stroke.
Example) S3 can be selected from 50 ~ 300mm

2 Max. speed (operating speed)



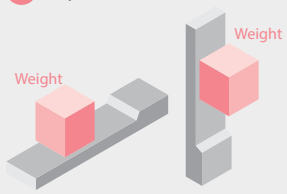
*The maximum speed varies depending on the stroke.
Example) For an S3 lead of 6mm and a stroke of 300mm, the maximum speed would be 150mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed and maximum acceleration/deceleration.
*Values not at maximum payload.

4 Payload



*The payload varies depending on the acceleration/deceleration and installation position.

Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
S3 / DS3	H-	6	50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800: 420 300 210 150 — 2.107 sec	3.5	1.5	2 95
	M-	4	280 200 140 100 — 3.099 sec	6	2.5	
	L-	2	140 100 70 50 — 6.072 sec	9	3.5	
S4 / DS4	S-	16	800 760 540 — 0.71 sec	7	1.5	2 101
	H-	10	700 470 320 — 1.065 sec	12	2.5	
	M-	5	350 240 160 — 1.999 sec	15	5	
	L-	2.5	175 <150> 120 85 — 3.621 sec	18	6.5	
S6 / DS6	S-	20	800 727 566 — 0.865 sec	15	1	2 107
	H-	12	700 521 392 305 — 1.437 sec	26	2.5	
	M-	6	450 371 265 199 155 — 2.68 sec	32	6	
	L-	3	225 188 134 100 78 — 5.205 sec	40	12.5	
S7 / DS7	S-	24	860 774 619 506 — 1.139 sec	37	3	2 113
	H-	16	700 631 492 395 323 — 1.676 sec	46	8	
	M-	8	420 322 251 200 164 — 3.149 sec	51	16	
	L-	4	210 <175> 163 126 101 83 — 6.103 sec	51	19	
WS10 / DWS10	S-	20	900 800 700 600 480 — 1.189 sec	4	-	2 131
	H-	12	640 560 480 400 320 280 — 1.907 sec	15	-	
	M-	6	400 <360> 360 270 210 180 140 120 — 4.265 sec	25	4	
	L-	3	160 135 110 80 70 60 — 8.410 sec	44	7	
WS12 / DWS12	S-	24	1000 900 800 700 580 500 460 400 360 — 2.355 sec	10	-	2 135
	H-	16	720 640 580 500 420 360 320 280 240 220 200 — 4.108 sec	20	-	
	M-	8	420 <360> 360 280 250 220 190 170 150 130 110 90 85 — 8.976 sec	40	8	
	L-	4	210 180 140 125 110 95 85 75 65 55 50 45 — 17.844 sec	62	13.5	

Slider

EC-(D)S□R Series

Simple Dust-proof | Battery-less Absolute * | Side-mounted Motor | 24V Stepper Motor

* Option

EC-S3□R 2 171



EC-S4□R 2 175



EC-S6□R 2 179



EC-S7□R 2 185



With digital speed controller

EC-DS3□R 2 171



EC-DS4□R 2 175



EC-DS6□R 2 179



EC-DS7□R 2 185



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

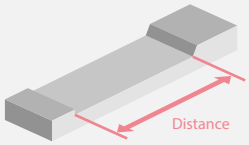
RCON

RCON gateway unit
+
RCON-EC



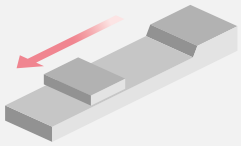
Reading the table and finding reference pages

1 Stroke



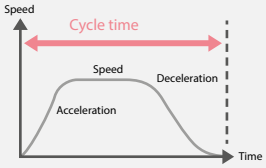
* The length of the band indicate the selectable stroke.
Example) S3 can be selected from 50 ~ 300mm.

2 Max. speed (operating speed)



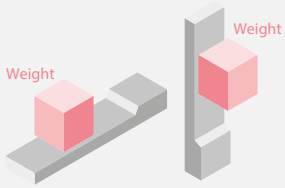
* The max. speed varies depending on the stroke.
Example) The max. speed of S3 of 6mm lead and 300mm stroke is 150mm/s.
(Note) Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum accelaration/deceleratation.
* Values not at the maximum payload.

4 Payload



* The Payload varies depending on the acceleration/deceleration and installation position.

Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500			
S3□R / DS3□R	H-	6	360 / 300 / 210 / 150 / 2.107 sec	3.5	1.5	2 171
	M-	4	240 / 200 / 140 / 100 / 3.099 sec	6	2.5	
	L-	2	120 / 100 / 70 / 50 / 6.072 sec	9	3.5	
S4□R / DS4□R	S-	16	800 / 760 / 540 / 0.71 sec	7	1.5	2 175
	H-	10	700 <600> / 470 / 320 / 1.065 sec	12	2.5	
	M-	5	350 / 240 / 160 / 1.985 sec	15	5	
	L-	2.5	175 <150> / 120 / 85 / 3.621 sec	18	6.5	
S6□R / DS6□R	S-	20	800 / 727 / 566 / 0.865 sec	15	1	2 179
	H-	12	700 / 521 / 392 / 305 / 1.487 sec	26	2.5	
	M-	6	450 <400> / 371 / 265 / 199 / 155 / 2.68 sec	32	6	
	L-	3	225 / 188 / 134 / 100 / 78 / 5.205 sec	40	12.5	
S7□R / DS7□R	S-	24	860 / 774 / 619 / 506 / 1.139 sec	37	3	2 185
	H-	16	700 / 631 / 492 / 395 / 323 / 1.676 sec	46	8	
	M-	8	420 <350> / 322 / 251 / 200 / 164 / 3.149 sec	51	16	
	L-	4	190 <175> / 163 / 126 / 101 / 83 / 1.676 sec	51	19	

High Rigidity sliders

EC-(D)S□AH/(D)S□AHR Series

Simple Dust-proof | Battery-less Absolute * Optional | Straight Motor | Side-mounted Motor | 24v Stepper Motor

EC-S6□AH 2 119 EC-S6□AHR 2 191



EC-S7□AH 2 125 EC-S7□AHR 2 197



With digital speed controller

EC-DS6□AH 2 119 EC-DS6□AHR 2 191



EC-DS7□AH 2 125 EC-DS7□AHR 2 197



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

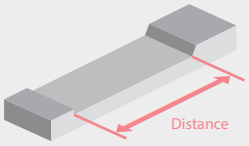
RCON

RCON gateway unit
+
RCON-EC



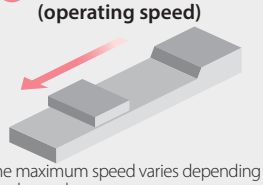
Reading the table and finding reference pages

1 Stroke



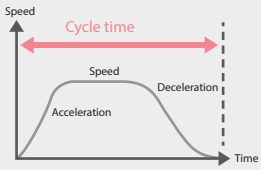
* The length of the band indicates the selectable stroke.
Example) S6□AH can be selected from 50 ~ 800 mm

2 Max. speed (operating speed)



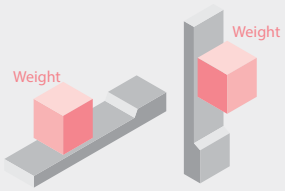
*The maximum speed varies depending on the stroke.
Example) For an S6□AH lead of 20 mm and a stroke of 800 mm, the maximum speed would be 560 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
*Values not at maximum payload.

4 Payload



*The payload varies depending on the acceleration/deceleration and installation position.

Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically										Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50 ~ 400	450	500	550	600	650	700	750	800				
S6□AH / DS6□AH	S-	20	1,440 <1280>		1280	1090	940	815	715	630	560	1.585 sec	15	1	2 119
	H-	12	900	845	705	585	515	445	390	345	315	2.666 sec	26	2.5	
	M-	6	450	415	350	295	255	220	190	170	140	5.809 sec	32	6	
	L-	3	225	205	170	145	125	110	95	85	70	11.501 sec	40	16	
S6□AHR / DS6□AHR	S-	20	1120			1090	940	815	715	630	560	1.585 sec	15	1	2 191
	H-	12	900 <800>	845 <800>	705	585	515	445	390	345	315	2.666 sec	26	2.5	
	M-	6	450 <400>	415 <400>	350	295	255	220	190	170	140	5.83 sec	32	6	
	L-	3	225	205	170	145	125	110	95	85	70	11.511 sec	40	16	
S7□AH / DS7□AH	S-	24	1230					1080	950	840	750	1.245 sec	37	3	2 125
	H-	16	980 <840>			955 <840>	820	715	625	555	495	1.765 sec	46	8	
	M-	8	420				405	350	310	275	245	3.381 sec	51	16	
	L-	4	210 <175>				195 <175>	175	150	135	120	6.757 sec	51	25	
S7□AHR / DS7□AHR	S-	24	1,080 <860>						950	840	750	1.245 sec	37	3	2 197
	H-	16	840 <700>				820 <700>	715 <700>	625	555	495	1.765 sec	46	8	
	M-	8	420 <350>				405 <350>	350	310	275	245	3.381 sec	51	16	
	L-	4	190 <175>					175	150	135	120	6.757 sec	51	25	

Sliders

EC-(D)B Series

Simple Dust-proof | Battery-less Absolute * Optional | Straight Motor | 24V Stepper Motor | Belt Type

With digital speed controller

EC-B6 2 139



EC-B7 2 143



EC-DB6 2 139



EC-DB7 2 143



EC-S10(X)/S13(X)/S15(X)

±10µm Standard | Battery-less Absolute | Straight Motor | 200V AC Servo Motor | Mid-support * S10X/S13X/S15X only

EC-S10 2 147

EC-S10X 2 151



EC-S13 2 155

EC-S13X 2 159



EC-S15 2 163

EC-S15X 2 167



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller. The "PSA-200" motor power unit is required to operate S10(X)/S13(X)/S15(X).

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

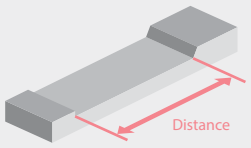
RCON

RCON gateway unit
+
RCON-EC



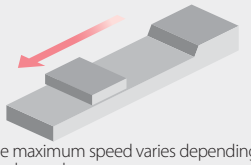
Reading the table and finding reference pages

1 Stroke



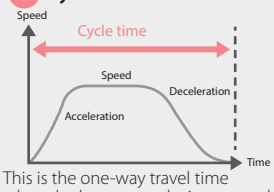
* The length of the band indicates the selectable stroke.
Example) S13 can be selected from 100 ~ 1100 mm

2 Max. speed (operating speed)



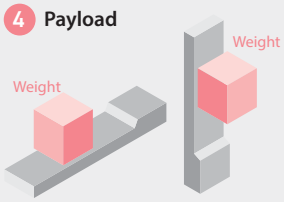
*The maximum speed varies depending on the stroke.
Example) For an S13 lead of 30 mm and a stroke of 1100 mm, the maximum speed would be 663 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
*Values not at maximum payload.

4 Payload



*The payload varies depending on the acceleration/deceleration and installation position.

Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
B6 / DB6	S-	48 equivalent	300: 890 / 400: 1070 / 500: 1220 / 600: 1340 / 700: 1400 / 800: 1440 / 900: 1500 / 1000 - 2600: 2.55 sec	11	–	2 139
B7 / DB7	S-	48 equivalent	300: 890 / 400: 1070 / 500: 1220 / 600: 1340 / 700: 1450 / 800: 1520 / 900: 1550 / 1000: 1600 / 1100 - 2600: 2.455 sec	20	–	2 143
			100 - 650 / 700 / 750 / 800 / 850 / 900 / 950 / 1000 / 1050 / 1100 / 1150 / 1200 / 1250 / 1300			
S10	S-	30	1500 / 1328 / 1187 / 1068 / 965 / 877 / 800 / 733 / 674 / 1.885 sec	17	2	2 147
	H-	20	1000 / 886 / 792 / 712 / 644 / 585 / 533 / 489 / 449 / 2.691 sec	30	5	
	M-	10	500 / 443 / 396 / 356 / 322 / 292 / 267 / 244 / 225 / 5.159 sec	65	11	
	L-	5	250 / 221 / 198 / 178 / 161 / 146 / 133 / 122 / 112 / 10.138 sec	85	21	
S13	S-	30	1500 / 1458 / 1297 / 1161 / 1045 / 946 / 860 / 785 / 720 / 663 / 1.878 sec	27	5.4	2 155
	H-	20	1000 / 972 / 865 / 774 / 697 / 630 / 573 / 524 / 480 / 442 / 2.652 sec	40.5	9	
	M-	10	500 / 486 / 432 / 387 / 348 / 315 / 287 / 262 / 240 / 221 / 5.138 sec	81	18	
	L-	5	250 / 243 / 216 / 193 / 174 / 158 / 143 / 131 / 120 / 110 / 10.131 sec	90	30.6	
S15	H-	40	2000 / 1922 / 1736 / 1575 / 1436 / 1315 / 1208 / 1114 / 1030 / 955 / 889 / 829 / 1.806 sec	36	9	2 163
	M-	20	1000 / 961 / 868 / 788 / 718 / 657 / 604 / 557 / 515 / 478 / 444 / 414 / 3.327 sec	81	18	
	L-	10	500 / 481 / 434 / 394 / 359 / 329 / 302 / 278 / 258 / 239 / 222 / 207 / 6.437 sec	108	36	
			700 - 1250 / 1300 / 1350 / 1400 / 1450 / 1500 / 1550 / 1600 / 1650 / 1700 / 1750 / 1800 / 1850 / 1900 / 1950 / 2000			
S10X	S-	30	1500 / 1429 / 1328 / 1236 / 1154 / 1080 / 1013 / 952 / 896 / 845 / 798 / 755 / 715 / 679 / 645 / 614 / 3.545 sec	17	2	2 151
	H-	20	1000 / 953 / 885 / 824 / 770 / 720 / 675 / 634 / 597 / 563 / 532 / 503 / 477 / 453 / 430 / 409 / 5.185 sec	30	5	
	M-	10	500 / 476 / 443 / 412 / 385 / 360 / 338 / 317 / 299 / 282 / 266 / 252 / 238 / 226 / 215 / 205 / 10.155 sec	65	11	
	L-	5	250 / 238 / 221 / 206 / 192 / 180 / 169 / 159 / 149 / 141 / 133 / 126 / 119 / 113 / 107 / 102 / 20.129 sec	85	21	
S13X	S-	30	1500 / 1450 / 1380 / 1314 / 1254 / 1197 / 1144 / 1095 / 1049 / 1005 / 964 / 2.297 sec	27	5.4	2 159
	H-	20	1000 / 966 / 920 / 876 / 836 / 798 / 763 / 730 / 699 / 670 / 643 / 3.298 sec	40.5	9	
	M-	10	500 / 483 / 460 / 438 / 418 / 399 / 381 / 365 / 350 / 335 / 321 / 6.386 sec	8.1	18	
	L-	5	250 / 242 / 230 / 219 / 209 / 200 / 191 / 182 / 175 / 168 / 161 / 12.549 sec	90	30.6	
			1000 - 1750 / 1800 / 1850 / 1900 / 1950 / 2000 / 2050 / 2100 / 2150 / 2200 / 2250 / 2300 / 2350 / 2400 / 2450 / 2500			
S15X	H-	40	1500 / 1486 / 1431 / 1378 / 1329 / 1282 / 1237 / 1195 / 1155 / 2.407 sec	36	9	2 167
	M-	20	1000 / 991 / 948 / 909 / 871 / 836 / 803 / 772 / 743 / 715 / 689 / 664 / 641 / 619 / 598 / 578 / 4.505 sec	81	18	
	L-	10	500 / 495 / 474 / 454 / 436 / 418 / 402 / 386 / 371 / 358 / 345 / 332 / 320 / 309 / 299 / 289 / 8.80 sec	108	36	

Rods

EC-(D)R Series

Battery-less Absolute | Straight Motor | 24V Stepper Motor

* Optional

EC-R6
2 205



EC-R7
2 209



With digital speed controller

EC-DR6
2 205



EC-DR7
2 209



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 391



Use a terminal block connector
2 391



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

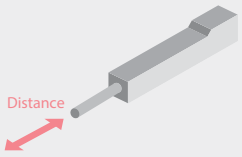
RCON

RCON gateway unit
+
RCON-EC



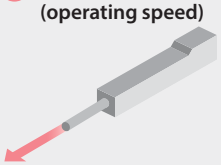
Reading the table and finding reference pages

1 Stroke



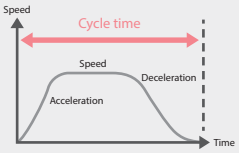
* The length of the band indicates the selectable stroke.
Example) R6 can be selected from 50 ~ 300 mm

2 Max. speed (operating speed)



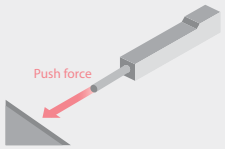
* The maximum speed varies depending on the stroke.
Example) For an R6 lead of 12 mm and a stroke of 300 mm, the maximum speed would be 547 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



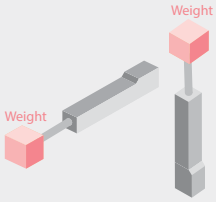
* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
Values not at maximum payload.

4 Max. push force



* The push forces listed are only reference values. Please refer to P. 1-269 for details

5 Payload



* The payload varies depending on the acceleration and installation position.

Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically							Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50	100	150	200	250	300					
R6 / DR6	S-	20	800						0.635 sec	67	6	1.5	2 205
	H-	12	700					547	0.75 sec	112	25	4	
	M-	6	450				376	268	1.239 sec	224	40	10	
	L-	3	225				186	133	2.35 sec	449	60	12.5	
R7 / DR7	S-	24	860 <640>						0.585 sec	182	20	3	2 209
	H-	16	700 <560>						0.693 sec	273	50	8	
	M-	8	350						0.999 sec	547	60	18	
	L-	4	175						1.844 sec	1094	80	19	

Radial Cylinder®

EC-(D)RR Series

Radial Load Specification
Radial Cylinder®

Battery-less Absolute | Straight Motor | Side-mounted Motor | 24V Stepper Motor

* Optional

EC-RR3 2 213 EC-RR3□R 2 249 EC-RR4 2 219 EC-RR4□R 2 253 EC-RR6 2 225 EC-RR6□R 2 257 EC-RR7 2 229 EC-RR7□R 2 261



With digital speed controller

EC-DRR3 2 213 EC-DRR3□R 2 249 EC-DRR4 2 219 EC-DRR4□R 2 253 EC-DRR6 2 225 EC-DRR6□R 2 257 EC-DRR7 2 229 EC-DRR7□R 2 261



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

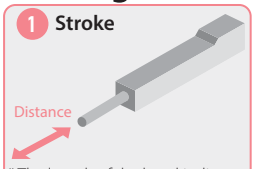
RCON

RCON gateway unit
+
RCON-EC



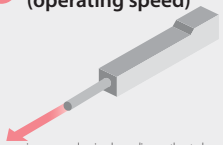
Reading the table and finding reference pages

1 Stroke



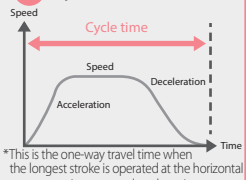
* The length of the band indicates the selectable stroke.
Example) RR3 can be selected from 50 ~ 300 mm

2 Max. speed (operating speed)



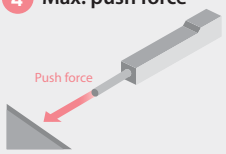
* The maximum speed varies depending on the stroke.
Example) For an RR3 lead of 6 mm and a stroke of 300 mm, the maximum speed would be 150 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



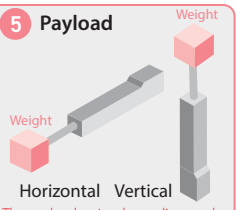
*This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
Values not at maximum payload.

4 Max. push force



* The push forces listed are only reference values.
Please refer to P. 1-269 for details.

5 Payload



* The payload varies depending on the acceleration and installation position.

Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically							Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50	100	150	200	250	300					
RR3/ DRR3	H-	6	420			300	210	150	2.107 sec	45	9	1.5	2 213
	M-	4	280			200	140	100	3.099 sec	68	14	2.5	
	L-	2	140			100	70	50	6.072 sec	136	18	3.5	
RR3□R/ DRR3□R	H-	6	360			300	210	150	2.107 sec	45	9	1.5	2 249
	M-	4	240			200	140	100	3.049 sec	68	14	2.5	
	L-	2	120			100	70	50	6.072 sec	136	18	3.5	
RR4/ DRR4	S-	16	800				600	440	0.825 sec	41	7	1.5	2 219
	H-	10	700			570	390	290	1.158 sec	66	16	2.5	
	M-	5	350			280	190	140	2.247 sec	132	25	5	
	L-	2.5	175 <150>			135	90	70	4.369 sec	263	35	6.5	
RR4□R/ DRR4□R	S-	16	800				600	440	0.825 sec	39	7	1.5	2 253
	H-	10	600			570	390	290	1.158 sec	62	16	2.5	
	M-	5	350			280	190	140	2.247 sec	124	25	5	
	L-	2.5	175 <150>			135	90	70	4.369 sec	263	35	6.5	
			65	115	165	215	265	315					
RR6/ DRR6	S-	20	800						0.642 sec	67	6	1.5	2 225
	H-	12	700				660	480	0.804 sec	112	25	4	
	M-	6	450				325	235	1.455 sec	224	40	10	
	L-	3	225				160	115	2.829 sec	449	60	12.5	
RR6□R/ DRR6□R	S-	20	800						0.642 sec	67	6	1.5	2 257
	H-	12	700				660	480	0.804 sec	112	25	4	
	M-	6	450				325	235	1.455 sec	224	40	10	
	L-	3	225				160	115	2.829 sec	449	60	12.5	
RR7/ DRR7	S-	24	860 <640>						0.604 sec	182	20	3	2 229
	H-	16	700 <560>						0.72 sec	273	50	8	
	M-	8	350						1.041 sec	547	60	18	
	L-	4	175						1.929 sec	1094	80	19	
RR7□R/ DRR7□R	S-	24	860 <640>						0.604 sec	182	20	3	2 261
	H-	16	700 <560>						0.72 sec	273	50	8	
	M-	8	320 <280>						1.165 sec	547	60	18	
	L-	4	160 <140>						2.093 sec	1094	80	19	

High Rigidity Radial Cylinder®

EC-(D)RR□AH/(D)RR□X□AH Series

Radial Load Specification
Radial Cylinder®

Battery-less Absolute* | Straight Motor | Side-mounted Motor | 24V Stepper Motor | Inter-mediate support*

* Optional

* (D)RR6X□AH/(D)RR7X□AH only

EC-RR6□AH 2 233 | EC-RR6X□AH 2 237 | EC-RR6□AHR 2 265 | EC-RR7□AH 2 241 | EC-RR7X□AH 2 245 | EC-RR7□AHR 2 269



With digital speed controller

EC-DRR6□AH 2 233 | EC-DRR6X□AH 2 237 | EC-DRR6□AHR 2 265 | EC-DRR7□AH 2 241 | EC-DRR7X□AH 2 245 | EC-DRR7□AHR 2 269



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

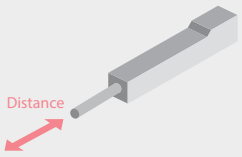
RCON

RCON gateway unit
+
RCON-EC



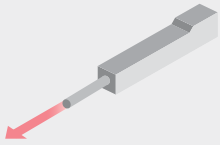
Reading the table and finding reference pages

1 Stroke



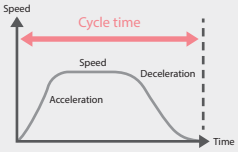
* The length of the band indicates the selectable stroke. Example) RR6□AH can be selected from 50 ~ 400 mm

2 Max. speed (operating speed)



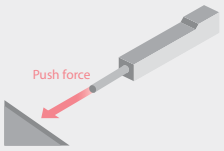
* Values in brackets < > are for vertical use.

3 Cycle time



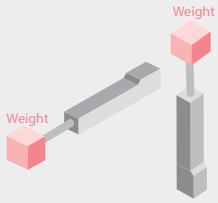
* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration. Values not at maximum payload.

4 Max. push force



* The push forces listed are only reference values. Please refer to P. 1-269 for details.

5 Payload



* The payload varies depending on the acceleration and installation position.

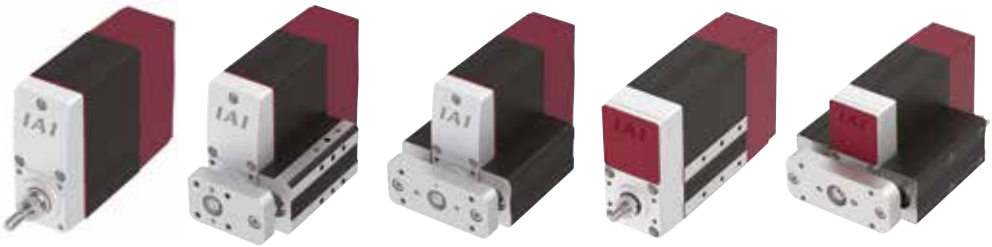
Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically	Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
RR6□AH/ DRR6□AH	S-	20	50~350: 800 (0.748 sec)	67	6	1.5	2 233
	H-	12	50~350: 700 (0.799 sec)	112	25	4	
	M-	6	50~350: 450 (1.065 sec)	224	40	10	
	L-	3	50~350: 225 (3.31 sec)	449	60	20	
RR6X□AH/ DRR6X□AH	S-	20	550~1000: 800 (1.498 sec)	67	6	1.5	2 237
	H-	12	550~1000: 700 (1.657 sec)	112	25	4	
	M-	6	550~1000: 330 (3.159 sec)	224	40	10	
	L-	3	550~1000: 145 (6.992 sec)	449	60	20	
RR6□AHR/ DRR6□AHR	S-	20	50~350: 800 (0.748 sec)	67	6	1.5	2 265
	H-	12	50~350: 700 (0.799 sec)	112	25	4	
	M-	6	50~350: 450 (1.065 sec)	224	40	10	
	L-	3	50~350: 225 (1.925 sec)	449	60	20	
RR7□AH/ DRR7□AH	S-	24	50~350: 860<640> (0.835 sec)	182	20	3	2 241
	H-	16	50~350: 700<560> (1.05 sec)	273	50	8	
	M-	8	50~350: 350 (1.57 sec)	547	60	18	
	L-	4	50~350: 175 (2.987 sec)	1094	80	28	
RR7X□AH/ DRR7X□AH	S-	24	550~1000: 860 (1.498 sec)	182	20	3	2 245
	H-	16	550~1000: 700 (1.739 sec)	273	50	8	
	M-	8	550~1000: 350 (3.012 sec)	547	60	18	
	L-	4	550~1000: 175 (5.843 sec)	1094	80	28	
RR7□AHR/ DRR7□AHR	S-	24	50~350: 860<640> (0.835 sec)	182	20	3	2 269
	H-	16	50~350: 640<560> (1.050 sec)	273	50	8	
	M-	8	50~350: 320<280> (1.743 sec)	547	60	18	
	L-	4	50~350: 150<140> (3.454 sec)	1094	80	28	

Mini Type Rod

EC-RP/GS/GD Series

Mini | Battery-less Absolute * Optional | Side-mounted Motor | 24V Stepper Motor

EC-RP4 2 273
EC-GS4 2 279
EC-GD4 2 281
EC-RP5 2 275
EC-GD5 2 283

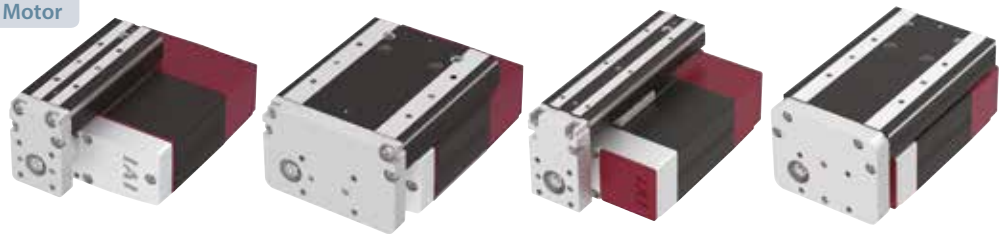


Mini Type Table

EC-TC/TW Series

Mini | Battery-less Absolute * Optional | Side-mounted Motor | 24V Stepper Motor

EC-TC4 2 287
EC-TW4 2 293
EC-TC5 2 289
EC-TW5 2 295



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 391



Use a terminal block connector
2 391



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

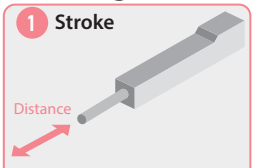
RCON

RCON gateway unit
+
RCON-EC



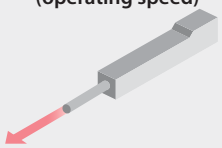
Reading the table and finding reference pages

1 Stroke

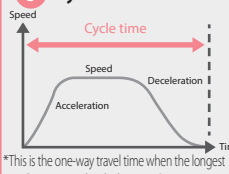


* The length of the band indicates the selectable stroke.
Example) RP4 can be selected from 30 or 50 mm

2 Max. speed (operating speed)

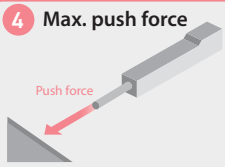


3 Cycle time



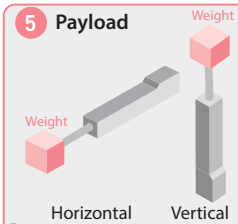
*This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration. Values not at maximum payload.

4 Max. push force



* The push forces listed are only reference values.
Please refer to P. 1-269 for details.

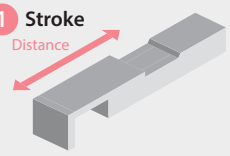
5 Payload



* The payload varies depending on the acceleration and installation position.

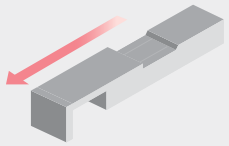
Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically	Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			30 / 50 / 70~150				
RP4	H-	6	300 0.291 sec	30	2.5	1	2 273
	M-	4	200 0.359 sec	45	4	1.5	
	L-	2	100 0.599 sec	90	8	2.5	
GS4	H-	6	300 0.291 sec	30	2.5	1	2 279
	M-	4	200 0.359 sec	45	4	1.5	
	L-	2	100 0.599 sec	90	8	2.5	
GD4	H-	6	300 0.291 sec	30	2.5	1	2 281
	M-	4	200 0.359 sec	45	4	1.5	
	L-	2	100 0.599 sec	90	8	2.5	
RP5	S-	16	800 0.371 sec	46	6.5	1.5	2 275
	H-	10	600 0.412 sec	73	16	2.5	
	M-	5	300 0.644 sec	150	25	6.5	
	L-	2.5	150<135> 1.120 sec	310	35	6.5	
GD5	S-	16	800 0.371 sec	46	6.5	1.5	2 283
	H-	10	600 0.412 sec	73	16	2.5	
	M-	5	300 0.644 sec	150	25	6.5	
	L-	2.5	150<135> 1.120 sec	310	35	6.5	

1 Stroke

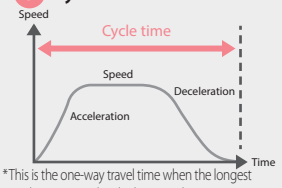


* The length of the band indicates the selectable stroke.
Example) TC4 can be selected from 30 mm or 50 mm

2 Max. speed (operating speed)

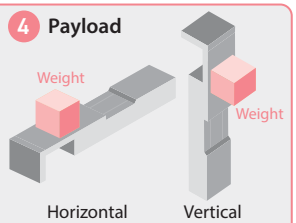


3 Cycle time



*This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration. Values not at maximum payload.

4 Payload



* The payload varies depending on the acceleration and installation position.

Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically	Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			30 / 50 / 100 / 150				
TC4	H-	6	300 0.291 sec	30	2.5	1	2 287
	M-	4	200 0.359 sec	45	4	1.5	
	L-	2	100 0.599 sec	90	8	2.5	
TW4	H-	6	300 0.291 sec	30	2.5	1	2 293
	M-	4	200 0.359 sec	45	4	1.5	
	L-	2	100 0.599 sec	90	8	2.5	
TC5	S-	16	420<280> 700<560> 800<700> 0.371 sec	46	6.5	1.5	2 289
	H-	10	435<350> 600<525> 0.439 sec	73	12.5	2.5	
	M-	5	300<260> 0.644 sec	150	12.5	5	
	L-	2.5	150<135> 1.120 sec	310	12.5	6.5	
TW5	S-	16	420<280> 700<560> 0.387 sec	46	6.5	1.5	2 295
	H-	10	435<350> 525<435> 0.455 sec	73	16	2.5	
	M-	5	300<260> 0.674 sec	150	20	5	
	L-	2.5	135 1.225 sec	310	20	6.5	

Gripper

EC-GRB Series

Battery-less Absolute | Slide | 24V Stepper Motor

* Optional
(Not available for EC-GRB8)

EC-GRB8
2 301



EC-GRB10
2 305



EC-GRB13
2 309



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 391



Use a terminal block connector
2 391



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

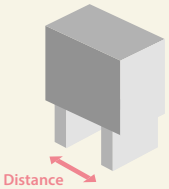
RCON

RCON gateway unit
+
RCON-EC



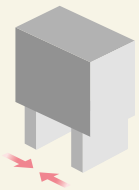
Reading the table and finding reference pages

1 Stroke (both sides)

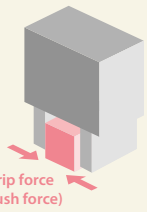


* The length of the band indicate the selectable stroke.
Example) GRB8 can select 20mm.

2 Max. speed (one side)



3 Max. grip force (both sides)



Type	Lead	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.			Max. grip force (both sides) (N)	Reference page
		20	30	40		
GRB8	M-	45			28	2 301
GRB10	M-		95		100	2 305
GRB13	M-			120	150	2 309
GRB13	L-			60	360	2 309

Rotaries

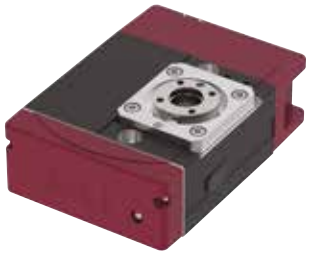
EC-RTC Series

Battery-less Absolute * Optional | Hollow | 24V Stepper Motor

EC-RTC9
2 313



EC-RTC12
2 317



Stopper Cylinders

EC-ST Series

Battery-less Absolute * Optional | Side-mounted Motor | 24V Stepper Motor

EC-ST15
2 321



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 391



Use a terminal block connector
2 391



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

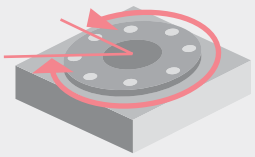
RCON

RCON gateway unit
+
RCON-EC



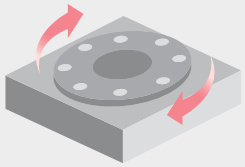
Reading the table and finding reference pages

1 Oscillation angle

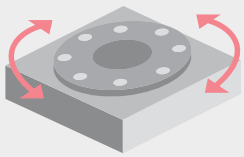


* The length of the band indicates the operable oscillation angle.

2 Max. speed (rotation speed)



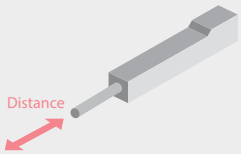
3 Allowable moment of inertia



* The allowable moment of inertia varies depending on the rotation speed.

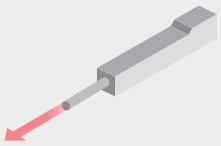
Type	Oscillation angle (°) and maximum speed (degrees/s) * Length of band = Oscillation angle, * Numbers in band = Maximum speed 330	Max. torque (N·m)	Allowable inertia moment (kg·m²)	Reference page
RTC9M	600	1.5	0.02	2 313
RTC12M	600	8.0	0.13	2 317

1 Stroke

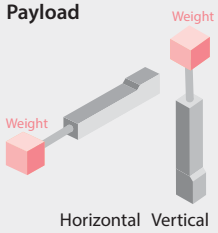


* The length of the band indicates the selectable stroke.
Example) ST15 can be selected from 50 mm only

2 Max. speed (operating speed)



3 Payload



* The payload varies depending on the acceleration and installation position.

Type	Lead		Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke 50	Payload (kg)		Reference page
	Model	mm		Horizontal	Vertical	
ST15	L-	3	200	5 (*)	3 (*)	2 321

(*) With speed of 200 mm/s and acceleration/deceleration of 0.5G.

Slider/Clean room specifications

EC-(D)S□CR Series

Clean specification | Battery-less Absolute | Straight Motor | 24V Stepper Motor

* Optional

EC-S3□CR 2 325



EC-S4□CR 2 331



EC-S6□CR 2 337



EC-S7□CR 2 341



With digital speed controller

EC-DS3□CR 2 325



EC-DS4□CR 2 331



EC-DS6□CR 2 337



EC-DS7□CR 2 341



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable

2 391



Use a terminal block connector

2 391



Connect to a field network

Connect ELECYLINDER® only

2 405

REC



Mixed connection with ROBO Cylinder and single axis robot

2 405

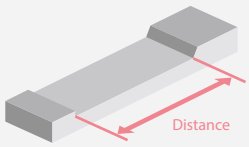
RCON

RCON gateway unit
+
RCON-EC



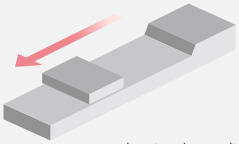
Reading the table and finding reference pages

1 Stroke



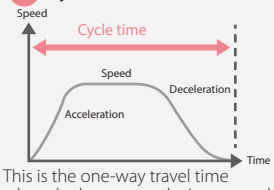
* The length of the band indicates the selectable stroke.
Example) S3 can be selected from 50 ~ 300 mm

2 Max. speed (operating speed)



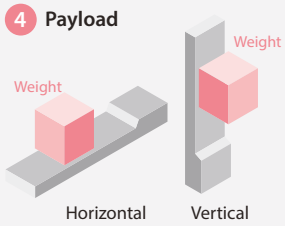
*The maximum speed varies depending on the stroke.
Example) For an S3 lead of 6mm and a stroke of 300 mm, the maximum speed would be 150 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
*Values not at maximum payload.

4 Payload



*The payload varies depending on the acceleration/deceleration and installation position.

Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.											Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50	100	150	200	250	300	350	400	450	500				
S3□CR / DS3□CR	H-	6	420			300	210	150	2.107 sec					3.5	1.5	2 325
	M-	4	280			200	140	100	3.099 sec					6	2.5	
	L-	2	140			100	70	50	6.072 sec					9	3.5	
S4□CR / DS4□CR	S-	16	800				760	540	0.71 sec					7	1.5	2 331
	H-	10	700				470	320	1.065 sec					12	2.5	
	M-	5	350				240	160	1.999 sec					15	5	
	L-	2.5	175 <150>				120	85	3.621 sec					18	6.5	
S6□CR / DS6□CR	S-	20	800						727	566	0.865 sec			15	1	2 337
	H-	12	700					521	392	305	1.437 sec			26	2.5	
	M-	6	450				371	265	199	155	2.68 sec			32	6	
	L-	3	225				188	134	100	78	5.205 sec			40	12.5	
S7□CR / DS7□CR	S-	24	860							774	619	506	1.139 sec	37	3	2 341
	H-	16	700						631	492	395	323	1.676 sec	46	8	
	M-	8	420						322	251	200	164	3.149 sec	51	16	
	L-	4	210<175>						163	126	101	83	6.103 sec	51	19	

High rigidity slider/Clean room specification

EC-(D)S□AHCR Series

Clean specification | Battery-less Absolute * Optional | Straight Motor | 24V Stepper Motor

EC-S6□AHCR
2 345



EC-S7□AHCR
2 349



With digital speed controller

EC-DS6□AHCR
2 345



EC-DS7□AHCR
2 349



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 391



Use a terminal block connector
2 391



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

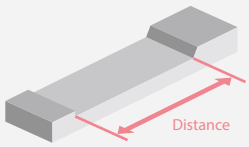
RCON

RCON gateway unit
+
RCON-EC



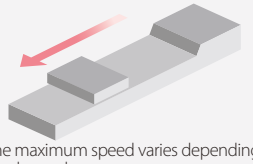
Reading the table and finding reference pages

1 Stroke



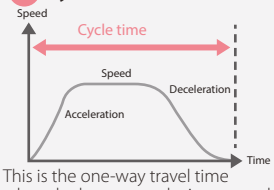
* The length of the band indicates the selectable stroke.
Example) S6□AH can be selected from 50 ~ 800 mm

2 Max. speed (operating speed)



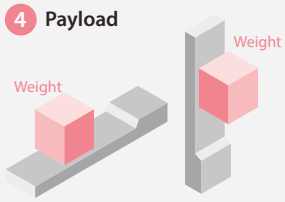
*The maximum speed varies depending on the stroke.
Example) For an S6□AH lead of 20mm and a stroke of 800 mm, the maximum speed would be 560 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
*Values not at maximum payload.

4 Payload



*The payload varies depending on the acceleration/deceleration and installation position.

Type	Lead Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = stroke * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically.										Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50~400	450	500	550	600	650	700	750	800				
S6□AHCR / DS6□AHCR	S-	20	1350<1120>		1280<1080>	1090	940	815	715	630	560	1.585 sec	15	1	2 345
	H-	12	900	845	705	585	515	445	390	345	315	2.666 sec	26	2.5	
	M-	6	450	415	350	295	255	220	190	170	140	5.809 sec	32	6	
	L-	3	225	205	170	145	125	110	95	85	70	11.501 sec	40	16	
S7□AHCR / DS7□AHCR	S-	24	1230<1080>					1080	950	840	750	1.245 sec	37	3	2 349
	H-	16	980<840>			955<840>	820	715	625	555	495	1.765 sec	46	8	
	M-	8	420				405	350	310	275	245	3.381 sec	51	16	
	L-	4	210<175>				195<175>	175	150	135	120	6.757 sec	51	25	

Rods/Radial Cylinder®/ Dust-proof/splash-proof Specification

EC-R□W Series

Dust/ Splash-proof Spec | Battery-less Absolute * Optional | Straight Motor | 24V Stepper Motor

EC-R6□W
2 357



EC-R7□W
2 361



EC-RR□W Series

Radial Load Specification
Radial Cylinder®

Dust/ Splash-proof Spec | Battery-less Absolute * Optional | Straight Motor | 24V Stepper Motor

EC-RR6□W
2 365



EC-RR7□W
2 369



ELECYLINDER® and external connections

ELECYLINDER® contains a built-in controller.

I/O connection

Use a power I/O cable
2 392



Use a terminal block connector
2 392



Connect to a field network

Connect ELECYLINDER® only
2 405

REC



Mixed connection with ROBO Cylinder and single axis robot
2 405

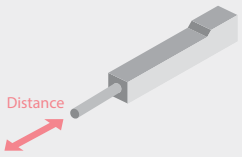
RCON

RCON gateway unit
+
RCON-EC



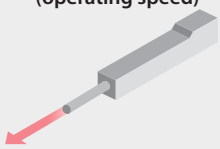
Reading the table and finding reference pages

1 Stroke



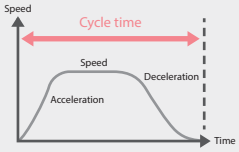
* The length of the band indicates the selectable stroke.
Example) R6□W can be selected from 50 ~ 300 mm

2 Max. speed (operating speed)



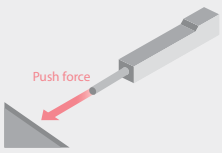
* The maximum speed varies depending on the stroke.
Example) For an R6□W lead of 12 mm and a stroke of 300 mm, the maximum speed would be 547 mm/s
* Values in brackets < > are for vertical use.

3 Cycle time



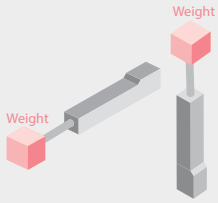
* This is the one-way travel time when the longest stroke is operated at the horizontal mount, maximum speed, and maximum acceleration/deceleration.
Values not at maximum payload.

4 Max. push force



* The push forces listed are only reference values. Please refer to P. 1-269 for details.

5 Payload



* The payload varies depending on the acceleration and installation position.

Type	Model	Lead mm	Stroke (mm) and max. speed (mm/s) * Length of band = Stroke, * Numbers in band = Maximum speed by stroke, Numbers in < > are when used vertically							Max. push force (N)	Payload (kg) Horizontal	Payload (kg) Vertical	Reference page
			50	100	150	200	250	300					
R6□W	S-	20	800						0.635 sec	67	6	1.5	2 357
	H-	12	700					547	0.75 sec	112	25	4	
	M-	6	450				376	268	1.239 sec	224	40	10	
	L-	3	225				186	133	2.35 sec	449	60	12.5	
R7□W	S-	24	860 <640>						0.585 sec	182	20	3	2 361
	H-	16	700 <560>						0.639 sec	273	50	8	
	M-	8	350						0.999 sec	547	60	18	
	L-	4	175						1.844 sec	1094	80	19	
			65	115	165	215	265	315					
RR6□W	S-	20	800						0.642 sec	67	6	1.5	2 365
	H-	12	700				660	480	0.804 sec	112	25	4	
	M-	6	450				325	235	1.455 sec	224	40	10	
	L-	3	225				160	115	2.829 sec	449	60	12.5	
RR7□W	S-	24	860 <640>						0.604 sec	182	20	3	2 369
	H-	16	700 <560>						0.72 sec	273	50	8	
	M-	8	350						1.041 sec	547	60	18	
	L-	4	175						1.929 sec	1094	80	19	

How to Read Product Specification Reference Pages

The product specification reference pages mainly contain the following items.

Please refer to P. 2-78 ~ 79 for detailed information on each item.

EC ELECYLINDER®

EC-RR6
EC-DRR6 <With digital speed controller>

Straight Motor | Body Width 60 mm | 24V Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	RR6	Standard	S	20mm	65	65mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR6	Digital speed controller	H	12mm	↓	↓		
			M	6mm	315	315mm (Every 50mm)		
			L	3mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

1

Stroke

Stroke (mm)	RR6	DRR6	Stroke (mm)	RR6	DRR6
65	○	○	215	○	○
115	○	○	265	○	○
165	○	○	315	○	○

Options

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Tip adapter (flange)	FFA	2-375
Flange (front)	FL	2-376
Foot bracket	FT	2-377
Specified grease specification	G5	2-381
Tip adapter (internal thread)	NFA	2-382
Knuckle joint (Note 2)	NJ	2-383
Knuckle joint + oscillation receiving bracket (Note 2)	NJPB	2-384
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
Clevis bracket (Note 2)	QR	2-385
Clevis bracket + oscillation receiving bracket (Note 2)	QRPB	2-386
split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please refer to P. 1-295 for details on the radial load applied to rods.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature. Please refer to P. 1-280 for details.
(6) Pay close attention to the installation orientation. Please refer to P. 1-261 for details.

Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item		Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 6)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal			Vertical	
Speed (mm/s)	Acceleration (G)				
	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

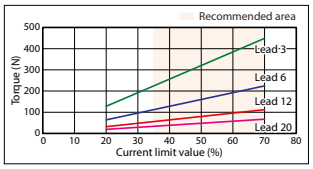
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max Speed

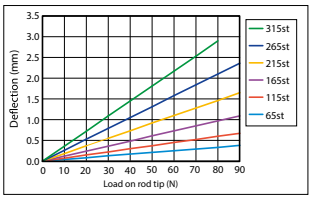
Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)



2 3 4 5 6

How to Read Product Specification Reference Pages

The product specification reference pages mainly contain the following items.

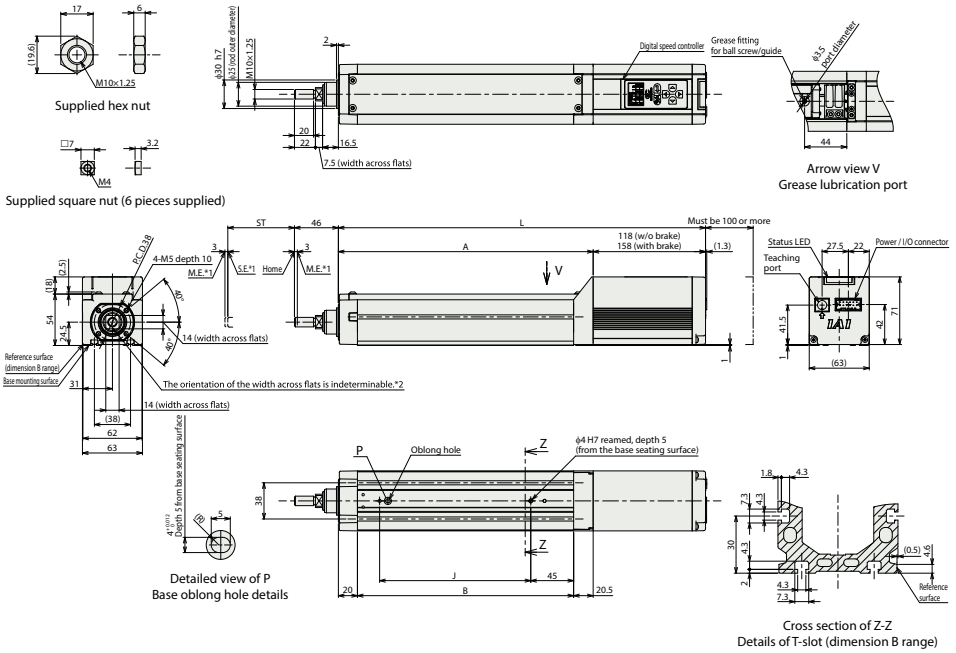
Please refer to P. 2-78 ~ 79 for detailed information on each item.

7

■ EC-DRR6 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	335.5	385.5	435.5	485.5	535.5	585.5
	With brake	375.5	425.5	475.5	525.5	575.5	625.5
A		217.5	267.5	317.5	367.5	417.5	467.5
B		177	227	277	327	377	427
J		100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	1.8	2.1	2.3	2.6	2.8	3.1
	With brake	2.1	2.4	2.6	2.9	3.1	3.4

8

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

1 Strokes, Options and Cables

Stroke

Lists actuator stroke.

Option

Lists options that can be selected for actuators.
Please see the reference pages listed in the table for descriptions of each option.

Power / I/O Cable

Lists cables for connecting actuator control power and PLC I/O signals.

2 Main Specifications

When selecting an actuator, you will need to check the body rigidity and operation life in addition to operation performance.

3 Table of Payload by Speed/Acceleration

The maximum speed will vary depending on the weight of the transported object.
Please make sure to check that your selected model meets your speed and payload requirements.
If multiple leads satisfy your conditions, either could be selected.
However, a larger lead will provide a higher maximum speed and smaller payload than a smaller lead.

4 Stroke and Max Speed

Longer strokes may cause the maximum speed to decrease due to the resonance of the ball screw. Please make sure to check the "Stroke and Max Speed" table to ensure that your selected model meets your maximum speed requirements.
* Please note that the maximum speed may not be reached if the moving distance is short.

How to Read Product Specification Reference Pages

5 Correlation between Torque and Current Limit

The torque during a push-motion operation can be changed by changing the current limit value of the controller to be between 20% and 70%.
The lower and upper limits of current values that can be set differ depending on the model.
Please refer to the "Correlation between Torque and Current Limit" diagrams on each production specification page for details.

6 Rod Deflection

This graph shows the amount of deflection measured in the rod when a load is applied to the rod tip with the rod placed horizontally.
Since the radial cylinder is equipped with a built-in guide, a certain load can be applied to the rod without external guides.

7 Dimensions

This lists the dimensions for the listed model(s).
The actuator slider, rod, or table position is the position when home return is complete.
It is indicated on the upper right of the drawings whether 2D CAD or 3D CAD data is available (CAD data may be downloaded from the IAI website).

8 Applicable Controllers

EC Series products are equipped with a built-in controller. For details on built-in controllers, please refer to P. 2-291.

Explanation of Model Specification Items

The model names for each series of ELECYLINDER generally contain the following information.
Please refer to the following explanation for details.
The selectable encoder types and selection range (lead, stroke, etc.) vary by model.
Please refer to the pages for each model for details.

ELECYLINDER® Explanation of item descriptions

(Example)

EC – DS7S(R) – 200 – 1 – B

1 Series　2 Type　3 Specification　4 Stroke　5 Power / I/O cable length　6 Options

1 Series

ELECYLINDER® Series

2 Type

The type (e.g. slider), body width (e.g. 60 mm wide), and ball screw lead are indicated as follows.

(Example) **D S 7 S**

Shape ▼ Slider　Body width ▼ 70mm　Ball screw lead ▼ 24mm

* The ball screw lead (the distance the slider moves when the ball screw turns once) is indicated using a letter. The lead indicated by each letter varies by model. Please refer to each product specification page for details.

Digital speed controller	
Blank	Standard
D	Digital speed controller

Type			
S	Slider	GD	Mini type rod with double guide
WS	Wide slider	TC	Table (compact type)
B	Belt driven	TW	Table (wide type)
R	Rod	GRB	Gripper
RR	Radial cylinder	RTC	Rotary
RP	Mini type rod	ST	Stopper cylinder
GS	Mini type rod with single guide		

Body width			
3	Approx. 30 mm	9	Approx. 90 mm
4	Approx. 40 mm	10	Approx. 100 mm
5	Approx. 50 mm	12	Approx. 120 mm
6	Approx. 60 mm	13	Approx. 130 mm
7	Approx. 70 mm	15	Approx. 150 mm
8	Approx. 80 mm		

Lead
L
M
H
S

3 Specification

The type (slider, rod, etc.), rigidity, motor coupling method (side-mounted), and environment (clean room, waterproof) are indicated as follows.

Blank	Slider type, rod type, radial cylinder type, table type	AH	High rigidity slider type, high rigidity radial cylinder type	R	Side-mounted motor specification	CR	Clean room specification	W	Waterproof type
---	---	---	---	---	---	---	---	---	---

4 Stroke

Indicates the actuator stroke (operation range) (unit: mm).

5 Power / I/O cable length

This is for the cable used to connect power and PLC I/O signals.
This indicates the cable length (1 to 10 m) or indicates whether only a connector is supplied.

■ Standard connector cable

0	Terminal block connector supplied
1	Power / I/O cable length specification: 1 m
:	:
10	Power / I/O cable length specification: 10 m

■ Four-way connector cable

S1	Power / I/O cable length specification: 1 m
:	:
S10	Power / I/O cable length specification: 10 m

* The motor power cable length can also be selected for S10, S13 and S15. Refer to "Model Specification Items" on each product specification page for details.
* Supplied cables will vary depending on whether the RCON-EC connection specification (ACR) is selected. Refer to P. 2-396 and 2-404 for details.

6 Options

Indicates options installed to the actuator.

Blank	Incremental encoder specification NPN specification, no options
AC5	Actuator cable length: 5 m
ACF2/ ACF5	Actuator cable length change 2 m/5 m (fluoro-rubber covering specification)
ACR	RCON-EC connection specification
B	Brake
CS	Air cylinder interchangeable mounting plate
DL	Mount orientation of digital speed controller (left side)
DR	Mount orientation of digital speed controller (right side)
FFA	Tip adapter (flange)
FL	Flange (front)
FST	Cable fixing bracket (front side)
FT	Foot bracket (bolting from top)
G1/G5	Designated grease specification
GT2	Guide right mount / table right mount
GT3	Guide bottom mount / table bottom mount

GT4	Guide left mount / table left mount
ML	Motor side-mounted to left (standard)
MR	Motor side-mounted to right
MOB	Motor mounting direction changed (bottom)
MOL	Motor mounting direction changed (left)
MOR	Motor mounting direction changed (right)
MOT	Motor mounting direction changed (top)
NFA	Tip adapter (internal thread)
NJ	Knuckle joint
NJPB	Knuckle joint + oscillation receiving bracket
NM	Non-motor end specification

PN	PNP specification
QR	Clevis bracket
QRPB	Clevis bracket + oscillation receiving bracket
SA	Shaft adapter
SLF	Fluoro-rubber seal specification
SR	Slider part roller specification
TA	Table adapter
TMD2	Split motor and controller power supply specification
TST	Cable fixing bracket (upper side)
VR	Suction joint on the opposite side
W	Double slider specification
WA	Battery-less absolute encoder specification
WL	Wireless communication specification
WL2	Wireless axis operation specification



IAI GENERAL CATALOG

2

Precautions

Please be sure to read these Safety Precautions carefully before selecting a model or using a product, to ensure the proper use of the product.
The cautions listed below are meant to ensure that the product is used safely and correctly, and to prevent injury to the user, injury to others, and damage to property.
Make sure also to comply with JIS B 8433 (Manipulating industrial robots - Safety) safety regulations.

Designated items are classified into one of several danger levels based on the degree of injury or harm they could cause: "Danger," "Warning," "Caution," and "Request."

⚠ **Danger**	This indicates a hazardous situation where improper handling would result in danger leading to death or serious injury.
⚠ **Warning**	This indicates a situation where improper handling could result in death or serious injury.
⚠ **Caution**	This indicates a situation where improper handling could result in injury or property damage.
! **Request**	This does not indicate any possibility of injury, but indicates an instruction that should be followed to ensure the product is used appropriately.

Products are designed and manufactured as general industrial machine parts.

Products must be handled by someone with sufficient knowledge and experience (such as the system designer or other individual responsible for selecting and handling the device), only after that individual has read the "Catalog" and "Instruction Manual" (specifically, the included "Safety Guide"). It is dangerous to handle products incorrectly.
Make sure to read the instruction manuals for all devices that will be used, such as the product itself and controller.
It is the customer's responsibility to use a product only after verifying and determining that the product is compatible with applicable systems.
After reading the "Catalog" and "Instruction Manual," store them in a safe place so that the individual using the product can refer to them at any time.
If transferring ownership or lending a product to someone else, be sure to attach the applicable "Catalog" and "Instruction Manual" to the product itself in such a way that it is noticeable, to ensure that the product is used safely and correctly by the new owner/user.
The danger/warning/caution items listed in this section do not cover all situations. Make sure to read the "Catalog" and "Instruction Manual" for each individual device to ensure that it is handled safely and correctly.

⚠ Danger

General

- Do not use for the following applications.
  1. Medical instruments used to maintain, control, or otherwise affect human life or physical health
  2. Mechanisms and machinery designed for the purpose of moving or transporting people
  3. Machinery components essential for safety

These products are not planned or designed for applications requiring an especially high level of safety.
These products cannot guarantee safety in applications involving risk to human life.
Warranties apply only to the product that is delivered.

Installation

- Do not use in locations with dangerous substances such as incendiary, ignitable, or explosive materials. Doing so could cause a fire, ignition, or explosion.
  Install safety measures (such as a safety fence) to prevent individuals from entering the mobile range of the robot during operation or when the robot is in a state where it could operate. Making contact with the robot during operation could cause death or serious injury.
- When installing a product, make sure to use reliable supports and mounts (including for the part). If the product tips over, falls, or otherwise operates abnormally, it could result in injury or could damage the product or part.
- Avoid use in locations where the product itself or controller will be exposed to liquids such as water or oil droplets.
- Never cut and reconnect a cable to extend or shorten the product cabling. Doing so could cause a fire.

Operation

- Do not enter the mobile range of the machine when operating the product or when the product is in a state where it could operate.
  The actuator could move or otherwise operate suddenly, resulting in injury.
- Individuals with pacemakers or other similar medical devices must stay at least 1 meter away from the product (at least 30 cm for linear servo actuators).
  Products contain powerful magnets that could cause pacemakers to malfunction.
- Only splash-proof specification products may be exposed to water. Exposing a product to water, cleaning it, or using it in water could cause a malfunction, which could cause an accident such as injury, electric shock, or a fire.

Maintenance, inspection, repair

- Never modify the product. Doing so could cause a malfunction, which could cause an accident such as injury, electric shock, or a fire.
- Do not disassemble or assemble the product inappropriately with regard to its basic structure, performance, or functions. Doing so could cause an accident such as injury, electric shock, or a fire.

⚠ Warning

General

- Do not use outside of the product specifications. Use outside of specifications could cause product failure, function stoppage, or damage.
  It could also drastically reduce operation life. Be especially careful to operate within the maximum weight, maximum speed, and maximum acceleration/deceleration.

Installation

- Design a safety circuit or safety measures to prevent damage to the system or an accident resulting in injury or death if the machine stops during a system malfunction (such as an emergency stop or power outage).
- Be sure to install class D grounding (formerly referred to as class 3 grounding, with grounding resistance of 100 Ω or less) on actuators and controllers, in order to prevent electric shock, prevent electrostatic charging, improve noise resistance performance, and suppress unnecessary electromagnetic radiation. Electrical leaks could cause electric shock or a malfunction.
- Be sure to confirm safety within the operation range of the device prior to supplying power to the product or operating it.
  Supplying power suddenly could result in electric shock or injury caused by contact with moving parts.
- When wiring the product, refer to the "Instruction Manual" to ensure wiring is connected correctly. Ensure that cables and connectors are connected tightly without any looseness. Otherwise, the product could malfunction and cause a fire.

Operation

- Do not touch the terminal block or any of the setting switches with the power turned on.
  Doing so could cause electric shock or a malfunction.
- When moving the moving parts of the product by hand (such as during manual positioning), first confirm that the servo is turned off (using the teaching pendant).
  Doing otherwise may cause injury.
- Do not damage the cables. Damaging cables, bending them excessively, pulling them, wrapping them, placing them under heavy objects, or stuffing them into narrow spaces could result in electrical leaking or conduction defects, which could cause accidents such as fire, electric shock, or a malfunction.
- Turn the power off during power outages. Otherwise, the product could start suddenly when power is restored, resulting in injury or damage to the product. Implement some means of preventing parts from being dropped in such a situation.
- If the product is generating abnormal heat, smoke, or odors, turn the power off immediately.
  Continuing use could damage the product or cause a fire.
- If the product is making abnormal noises or vibrates excessively, stop operation immediately.
  Continuing use could damage the product or cause a malfunction or other accident resulting in injury.
- If a product protection system (alarm) operates, turn the power off immediately.
  Otherwise, the product could malfunction and cause injury, the product could be damaged, or injury may occur.
  After turning the power off, investigate the cause of the issue, resolve the issue, and then turn the power back on.
- If the product LEDs do not turn on even after turning the power on, turn the power off immediately.
- Do not climb on the product, stand on it, or place objects on it.
  Doing so could cause the product to tip over or fall and cause injury, the product could be damaged, or the product could malfunction and cause injury.
- Do not use if parameters related to motor output, maximum speed, maximum acceleration/deceleration, or encoder pulses have been modified. Doing so could damage actuator components.

Maintenance, inspection, repair

- Make sure to completely shut down power supplied to the product prior to performing a maintenance inspection, servicing the product, or replacing parts.
  Follow the instructions below when doing this work.
  1. Post a sign ("Work in progress, do not turn power on") or other indication in a highly visible area while working, to ensure that someone does not inadvertently turn the power on.
  2. When multiple workers are performing a maintenance inspection, first clarify who is the main worker and who are the assistants.
     When turning the power on and off or moving an axis, always call out to indicate what is being done and check for safety.

Disposal

- Do not throw the product into a fire. The product could crack and release toxic gas.

Precautions

⚠ Caution

Installation

- Do not use in locations exposed to radiant heat from large heat sources, or in locations with an ambient temperature outside of the range of 0 to 40°C. Doing so could reduce the operation life of the product.
- Do not use in locations exposed to direct sunlight (ultraviolet light), salty environments, highly humid environments, or in environments that contain organic solvents or phosphate ester-based hydraulic oils. Doing so could result in short-term loss of functionality or could cause a sudden reduction in performance or reduction to operation life.
  It could also cause the product to malfunction.
- Do not use in environments containing corrosive gases or similar substances (such as sulfuric acid or hydrochloric acid). Doing so could create rust, which could cause significant deterioration.
- Provide sufficient shielding measures during use in the following locations. Doing otherwise could result in malfunction.
  1. Locations subject to high currents or strong magnetic fields
  2. Welding stations and other locations subject to arc discharge
  3. Locations in which noise is generated due to static electricity, etc.
  4. Locations which could be exposed to radiation
- Install the product body and controller in a location with minimal dirt and dust that is free from iron powder. Installing in a dirty or dusty location, or in a location with iron powder, could cause a malfunction.
- Do not install in locations subject to major vibration or shocks (4.9 m/s^2 or greater). Major vibration or shocks could cause a malfunction.
- Install an emergency stop system in an easily accessible location so that the product can be stopped immediately if there is a risk of danger. Doing otherwise may cause injury.
- Install the product so that there is sufficient space to perform maintenance work.
  If not enough space is provided, it could prevent work such as daily inspections and maintenance from being performed, which could result in system stoppages, damage to the product, or injury while working.
- When transporting or installing the product, use caution to ensure the safety of workers, such as using reliable lifts and supports or having this work performed by multiple individuals.
- When using a crane or other similar equipment, never attach a load that exceeds the rated load of the equipment.
- Use hoisting accessories that are appropriate for the load. Ensure that the cutting load and other parameters of hoisting accessories are safe.
  Confirm that hoisting accessories are not damaged.
- Do not hold the product by its moving parts or cables when installing it. Doing so may cause injury.
- Use only genuine IAI cables between actuators and controllers.
  Use only genuine IAI parts for components such as actuators, controllers, and teaching tools.
- The braking mechanism is meant to prevent parts such as the slider and rod from dropping when the vertical axis is turned off.
  Do not use it as a safety brake or for any other purpose (for braking).
- When performing work such as installation and adjustment, display a sign ("Work in progress, do not turn power on") or other indication to ensure that the power is not inadvertently turned on.
  If the power is inadvertently turned on, the actuator could operate suddenly and cause injury.

Operation

- When turning the power on, do so in order from higher devices downward. Otherwise, the product could start suddenly, resulting in injury or damage to the product.
- Do not insert your fingers or any objects into the openings on the product. Doing so may cause fire, electric shock, or injury.
- Do not bring magnetic media such as magnetic cards within 1 meter of the product.
  Internal magnets may erase data stored on the magnetic card.

Maintenance, inspection, repair

- Wear protective glasses when adding grease to actuators.
  Grease could fly off and enter your eyes, causing inflammation.
- If any grease enters your eyes, immediately seek appropriate treatment from a doctor.
- When turning the power off and opening the product to replace the battery or perform a similar task, do not touch any terminals connected to capacitors in the product (for 30 seconds) after turning the power off.
  Doing so may result in electric shock due to residual voltage.
- When performing an insulation resistance test, do not touch the terminals. Doing so may result in electric shock.
  (Do not perform dielectric strength voltage tests on products that use DC power.)

! Request

General

- If you are considering using this product under conditions or in an environment not listed in the "Catalog" or "Instruction Manual," or for an application that requires a specific level of safety such as aviation facilities, combustion equipment, amusement machines, operation in a clean-room, safety devices, or other situations that could have a significant impact on human life or property, carefully consider whether product ratings and performance are sufficient for the application, as well as appropriate safety measures such as fail-safes. Make sure to contact an IAI sales representative for confirmation.

Request

Installation

- Do not place any obstructions around the controller that could prevent ventilation. Doing so may damage the controller.
- When using the product installed vertically, ensure that it used with a brake.
- Use a protective cover or similar means to isolate the moving parts of the machinery and equipment to prevent direct contact with the human body.
- Do not configure controls that would cause the part to drop during a power outage. Configure controls that prevent parts such as the slider, rod, and part from dropping when there is a power outage or the machinery and system are stopped in an emergency.
- Take the following instructions into consideration to improve the straightforward accuracy of parts such as the slider and table, and to ensure that the ball screw and linear guide operate smoothly.

  1. Process the installation surface of the product body to within a flatness of 0.05 mm.
  2. Ensure that the installation surface will provide sufficient actuator rigidity.

- Select an environment that meets the following conditions to install the actuator/controller.
  - · Must not be exposed to direct sunlight.
  - · The machine body must not be exposed to radiant heat from a large heat source such as a heat-treating furnace.
  - · Ambient temperature of 0 to 40°C.
  - · Humidity of 85% or less with no condensation.
  - · No corrosive gas or combustible gas.
  - · Must be a standard assembly work environment with minimal dirt and dust. (Does not apply to dust-proof/splash-proof specification products.)
  - · Must not be exposed to oil mist or cutting fluid.
  - · Must be free from excessive electromagnetic waves, ultraviolet light, and radiation.
  - · These products were not designed with chemical resistance in mind.

  The installation environment must be one in which workers can generally work without protective gear or protective clothing.
- Do not remove the manufacturing number sticker attached to the product. You will need this information when contacting IAI.

Storage

- Ensure that no condensation will occur during long term storage. Condensation could create rust which could cause a malfunction.
- Although the product can withstand storage temperatures up to 60°C over a short period of time, it can only be stored in temperatures up to 50°C when stored for one month or longer. Changes in the composition of grease could cause a malfunction or reduce the operation life of the product.
- Store the product horizontal on a flat surface. When storing it boxed, follow any orientation indications provided. Otherwise, the product shape may deform.

Installation, operation, maintenance

- When handling the product, wear protective gear such as protective gloves, protective glasses, and safety shoes as required, to ensure safety.
- When performing maintenance, use only specified grease on ball screws. Be especially cautious of mixing fluorine-based and lithium-based grease, as this may reduce the functionality of the grease and could damage machinery.
- Actuators must be lubricated to function sufficiently.
  Insufficient lubrication can increase wear around rolling parts and could cause premature damage.
  Lubricate regularly based on the following guidelines.
  Grease lubrication guidelines
  - · These guidelines assume 8 hours of operation per day.
  - · Lubricate more often if used in a high workload environment, such as continuous operation during the day and night.
  - · Lubricate when the operation distance or number of operation months is reached, whichever is sooner.

Usage speed (mm/sec)	Lubrication guidelines	
	Operation distance	Number of months
From more than 0 to 750	1,250km	12 months
From more than 750 to 1500	2,500km	

(Note) The values above will vary depending on the actuator. Refer to the instruction manual for details.

Warranty

- The warranty period lasts until either of the following is reached, whichever is sooner.
  - · 18 months after shipment from IAI
  - · 12 months after delivery to the specified location
  - · 2500 operation hours

  Any failures that occur under appropriate usage conditions during this period or any failures that are clearly the responsibility of IAI will be repaired at no charge. However, this warranty does not cover issues caused through use under conditions or in environments not described in the catalog/instruction manual. This warranty covers only the product supplied by IAI, and any ancillary damage caused by failures in supplied products is not covered by this warranty. Repairs will be performed on-site.
  Refer to the instruction manual for details.

Disposal

- If the product can no longer be used or will no longer be used, dispose of it properly as industrial waste.

Precautions

Wireless axis operation precautions

Touch Panel Teaching Pendant TB-03 (V2.30 or later) can be used to operate **ELECYLINDER®** (optional model: WL2) wirelessly.
When doing so, confirm safety as described below before use.

- When connected wirelessly, **the stop switch of this system will not work.** Prepare a device/circuit to stop the system if an emergency stop is required.



- **ELECYLINDER®** operation tests (forward end/backward end movement, jog, and inching) can be conducted during wireless **ELECYLINDER®** operation. **This function is not meant to perform automatic operation.** Construct the machine system based on the risks in the usage environment.
- **Conduct a risk assessment based on the requirement standards for the embedded machine.** Dangerous operations, such as having to automatically stop when control signals are not received (including situations where communication is interrupted) are not permitted.
- Stop operations performed via wireless axis operation cannot be used as safety functions according to EN ISO 13849-1:2015. They also are not compatible with Safety Category B or 1 to 4 in EN ISO 13849-1:2015.

Precautions when installing and operating a digital speed controller

Digital speed controller ("DS" hereafter) operation assumes that setup changes will be performed ① during equipment start-up or ② during system operation, and also assumes that work will be done within a safety fence. A worker could become injured if part of his or her body touches a moving part or transported object.
Follow the precautions below when operating a DS during use.

1. Identify the operation range to prevent anyone from touching a moving part or transported object, and allow only workers who have received safety training (in Japan, special training as defined by safety and hygiene regulations) to operate.
2. If a wired/wireless teaching pendant or PC is connected, "Tool connected" will be displayed on the DS display screen and you will no longer be able to operate the DS.
   When confirming the display, identify the operation range and stand a sufficient distance away to ensure that part of your body does not touch a moving part or transported object.
3. Before operating, stand away from the DS operation area, moving parts, and transported objects, setup a light curtain or other type of area sensor, and confirm that parts of your body such as your fingers or hands will not be pulled in.
4. The DS is set to a low speed of 250 mm/s or less when shipped to ensure safe operation. If the speed will be set higher than 250 mm/s, keep safety in mind and increase the set speed one level at a time while confirming operation.
5. Perform work with at least two people, including a supervisor other than the DS operator.
   Construct an appropriate safety circuit and install an emergency stop button and enable switch with three positions. In the case of an emergency, the supervisor should stop the equipment from operating and confirm that the operator is safe.
6. Construct a safety circuit to ensure that it cannot be started simply by having the power turned on or recovering from a power outage.

Precautions when installing and operating a digital speed controller

7. Install actuators with a DS in locations that are accessible and visible, so that an awkward stance is not required when operating the DS. Doing otherwise could cause lower back, neck, or wrist injury.
8. Confirm that the safety circuit and DS itself are operating normally before beginning to operate the DS. If there is anything out of the ordinary, take appropriate actions before operating it.
9. Create "work standards" required to ensure safety, and allow operation only by those who have received training based on these standards and who understand these standards (i.e. workers who have received safety training).
10. When working within a safety fence, make sure to post a sign ("Work in progress within safety fence") in a location where it is visible from outside the safety fence.
11. Wear a helmet, protective gloves, protective glasses, and safety shoes as required, to ensure safety.
12. Conduct a risk assessment and take measures to reduce the level of risk to a permissible level.

The precautions above are for when installing and operating a DS. These are also non-DS general precautions, and they may overlap with "IAI Product Safety Precautions."

Other

- IAI is not to be held responsible if all Safety Precautions are not followed.
- Please contact your nearest IAI sales office for any inquiries on products or repair requests.

Product Handling Precautions[All Models]

Contents

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1. Speed

Speed refers to the speed set when moving the slider (or rod, arm, or output shaft) on the actuator. The slider accelerates from a stationary state until the set speed is reached. Once the desired speed is reached, the slider will continue at that rate until immediately before reaching the target position (specified position), where the slider will then decelerate to a stop.

Important notes

❶ The maximum speed for stepper motor mounted models (all models other than EC-S13/S13X/S15/S15X) will vary depending on the weight of the transported object.
When selecting a model, please refer to "Correlation Diagrams of Speed and Payload" (found on the reference page for each model).
❷ If moving a short distance, the product may not reach the set speed. This is true for axes with short strokes as well as axes with long strokes.
❸ Longer strokes may cause the maximum speed to decrease due to the critical rotational speed. For details, please refer to the "Stroke and Max Speed" table on the reference page for each model.
❹ Belt types (EC-(D)B6/(D)B7) may cause vibration or resonance during low-speed operation. These products should only be used at a speed of 100 mm/sec or greater.
❺ When calculating the movement time, you will need to consider the time for acceleration, deceleration, and convergence in addition to the movement time for the set speed. The detailed movement time can be calculated using the Cycle Time Calculator software. (The Cycle Time Calculator software can be downloaded from: http://www.iai-robot.co.jp/download).

2. Acceleration/deceleration

Acceleration refers to the rate at which the speed increases from a stationary state until the set speed is reached. Deceleration refers to the rate at which the speed decreases from the set speed until the part comes to a stop. Both are specified as "G" in programs (1G≈9807 mm/s^2).

* For rotaries, 1G≈9807 deg/s^2

Important notes

● Increasing the acceleration (deceleration) value will result in faster acceleration (deceleration) and a shorter movement time. However, be sure to set the value to the acceleration/deceleration that matches the payload or lower.
● Please refer to the reference page of each model for the rated acceleration (deceleration).

3. Duty ratio

Duty ratio is the percentage of the actuator's active operation time in each cycle. If the duty ratio is too high for the load on the actuator, the speed, or the acceleration, it could cause an overload error. The product should only be used within the duty ratio range based on the conditions of use.

$$\text{Duty ratio} = \frac{\text{Operating time}}{\text{Operating time + stationary time}} \%$$

The duty ratio for each ELECYLINDER® type is limited. Please refer to P. 1-280 for details.

4. Home

Home refers to a coordinate reference point used when positioning. If the home is misaligned, the position will also be misaligned an equivalent amount.

Important notes

❶ During home return motion, the moving part moves until it reaches the mechanical end (or stopper for a rotary) before reversing its direction. Please take caution and prevent contact from any surrounding objects.
❷ The reference for the home is on the motor side (the opening side for a gripper or the left rotation side looking from above for the output shaft). The home can also be reversed (non-motor side) as an option.
However, please note that you may need to return the product to IAI for adjustment to change the home direction after delivery.
❸ Please note that "non-motor end specification" can only be selected for models with "non-motor end specification" (code NM) as an option. This specification cannot be selected for other models.
❹ The home for the home return motion is determined with the mechanical end as reference. It could therefore become misaligned by an amount equal to the distance obstructed from the mechanical end, if the operation cannot be performed due to some external factor during home return motion.

5. Encoder type

There are two types of encoders installed in actuators.

■Incremental type — This type of encoder does not retain home position data and therefore must perform a home return motion each time it is turned on.

■Battery-less absolute type — A battery-less absolute encoder (patent applied) retains home position data even if the power is turned off, so there is no need to perform a home return motion when turning the power on. This type of encoder also does not require any battery to retain home position data.

6. Number of encoder pulses

The number of encoder pulses will vary depending on the actuator. Refer to the following table for the pulse count for each actuator.

Series	Type	Number of encoder pulses
EC	S10, S10X, S13/S13X/S15/S15X	16384
	Other models	800

7. Motor

Series	Type	Mounted motor
EC	S10, S10X, S13/S13X/S15/S15X	200 VAC servo motor
	Other models	Stepper motor

Important notes

Stepper motors may cause vibration when the servo is first turned on after turning the power on.

8. Mounting orientation

The mounting orientation varies depending on the model.

9. Positioning repeatability/lost motion

Positioning repeatability refers to the accuracy of repeated movements to a predetermined position. This is not the same as "absolute positioning accuracy."

<Positioning repeatability>
Variation in stop position accuracy when positioning is performed repeatedly from the same point in the same direction.

<Absolute positioning accuracy>
The difference between the coordinate value and actual measurement when positioning is performed at a given positioning point specified as a coordinate value.



Important notes

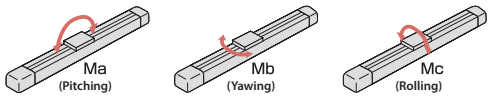
The accuracy of "positioning repeatability" is not guaranteed under the following conditions.
❶ The power is shut down while repeating an operation, and then the home is reacquired.
❷ The ambient temperature changes drastically.
❸ The temperature of the actuator body changes.
❹ The load conditions change during operation.

10. Static allowable moment/dynamic allowable moment (Ma, Mb, Mc)

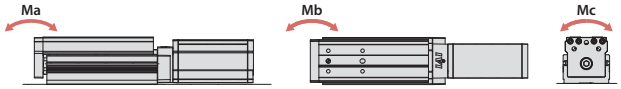
Static allowable moment is the value of the temporarily allowable moment while the actuator is stopped. Dynamic allowable moment is the value of the allowable moment when the operation life of the actuator is set to 5,000 km or 10,000 km*.
Please refer to Reference Data on P. 1-243 for details.

* The set operation life varies depending on the model. Please refer to the reference page of each model for details.

<Slider type moment direction>

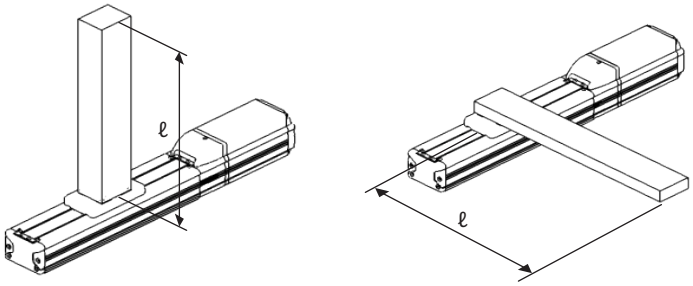


<Table type moment direction>



11. Overhang load length (ℓ)

This is the approximate offset at which the actuator can operate smoothly even when the part or bracket is offset from the slider. Vibration or other factors could cause failure if the approximate length is greatly exceeded. The product should therefore be used within the approximate length. Please refer to the reference page of each model for detailed figures.

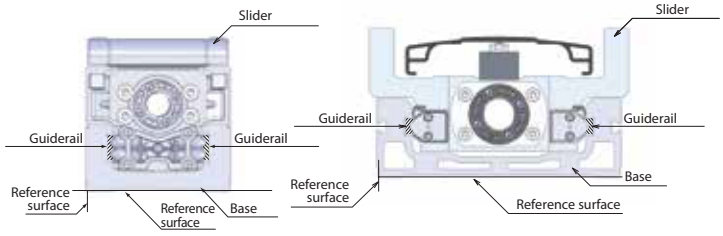


12. Operation life

The operation life of an actuator is the same as the operation life of its component parts (such as the guide, ball screw, and motor). The operation life of a part will vary drastically depending on its usage conditions.
For example, a guide will have a certain set allowable dynamic load moment (see P. 1-243). If this guide is used with a moment half that of the allowable dynamic load moment, the operation life will increase eight times over the set operation life.
If used well within its usage conditions, a product could continue to be used for 10 years or longer. We therefore recommend selecting a model that is well within your requirements.

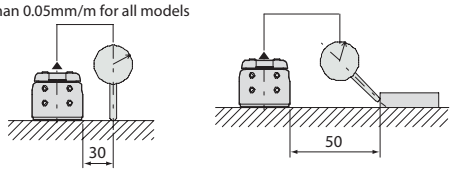
13. Precision of the main body

The precision of the main body of the slider type is shown below. The side and the bottom surfaces of the main body are reference surfaces for slider travels. They can be used for a reference of parallelization during installation.



S7□AH sectional view　　S15 sectional view

Parallelization of the installed frame
(when mounted on the smoot surface*1)
Less than 0.05mm/m for all models



Conditions: * The above values are based on 20°C.
* In case the actuator is installed with its reference surface pushed against the base reference surface.
* Refer to the operation manual of the actuator for details.

*1: Degree of parallelization 0.05 mm or less

14. Rod types (rod tip runout)

Guideless rod types do not consider rod tip runout and withstand load (the rod non-rotation precision listed in the actuator specification is the factory default value, so the guide amount will increase with motion). If you need to limit the amount of rod runout, require a certain level of rod non-rotational precision, or if force will be applied from a direction other than straight forward, either use a guided type or use the product with an external guide.

Guided rod type: (D)RR/(D)RR□AH/(D)RR□X□AH

Important notes

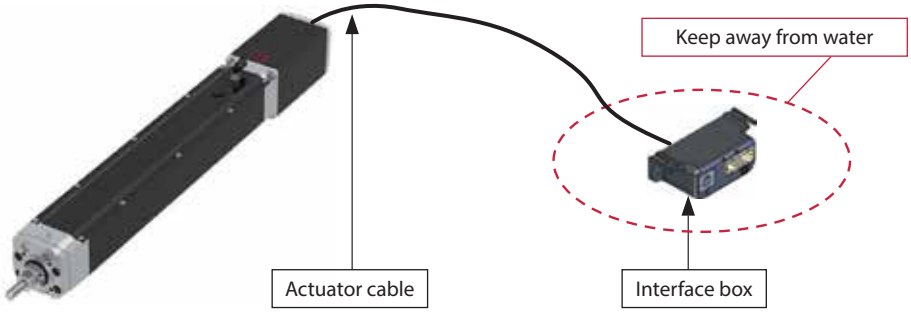
We recommend using a floating joint to secure the product to a radial cylinder type external guide, and a rigid for guideless rod types (rotation stop rod types).
Please refer to "Notes on use with rod type guides" on P. 1-246 for details.

15. Vertical usage

If you will be using an actuator mounted vertically, be sure to specify a brake (option) to prevent the moving parts from dropping and damaging the equipment when the power is turned off or stopped during an emergency. However, please note that moving parts will not operate unless a brake release signal is input and the brake is released for types with brakes.

16. Splash-proof specification actuators

The interface box is not dust-proof/splash-proof. It should be installed away from water.



17. Compliance with overseas standards

Please refer to "RoHS Directive/CE Mark/UL Overseas standards table" on P. 1-353 for products that comply with overseas standards. Products that comply with overseas standards are also indicated with an icon on the reference page of each model for reference.

<Overseas standard icons>　CE Standard　c UL us UL Standard　RoHS 10 RoHS Directive

18. Handling precautions for wireless connections

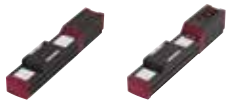
The touch panel teaching pendant (V2.30 or later) can be used to operate ELECYLINDER® (optional model: WL2) wirelessly.

- This product uses radio waves in the 2.4 GHz band (wireless frequency from 2,400 to 2483.5 MHz, wireless output of +5 dBm), called the ISM band.
- This frequency band is also used by a wide range of devices including microwave ovens and wireless LAN devices, which may block radio waves and prevent communication.
- Use of this product is permitted only in the following countries (regions). Use in other countries (regions) requires obtaining permission based on the laws and regulations of the applicable country (region):
  Japan, USA, Canada, member countries of the EU, China, South Korea, Thailand, Mexico

Slider

Stepper motors

Sliders	EC-S3/DS3	**2-95**
	EC-S4/DS4	**2-101**
	EC-S6/DS6	**2-107**
	EC-S7/DS7	**2-113**
High rigidity sliders	EC-S6□AH/DS6□AH	**2-119**
	EC-S7□AH/DS7□AH	**2-125**
Wide slider	EC-WS10/DWS10	**2-131**
	EC-WS12/DWS12	**2-135**
Belt driven types	EC-B6S/B6SU/DB6S/DB6SU	**2-139**
	EC-B7S/B7SU/DB7S/DB7SU	**2-143**
Sliders [side-mounted type]	EC-S3□R/DS3□R	**2-171**
	EC-S4□R/DS4□R	**2-175**
	EC-S6□R/DS6□R	**2-179**
	EC-S7□R/DS7□R	**2-185**
High rigidity sliders [side-mounted type]	EC-S6□AHR/DS6□AHR	**2-191**
	EC-S7□AHR/DS7□AHR	**2-197**



200VAC servo motors

Sliders	EC-S10	**2-147**
	EC-S10X [with intermediate support]	**2-151**
	EC-S13	**2-155**
	EC-S13X [with intermediate support]	**2-159**
	EC-S15	**2-163**
	EC-S15X [with intermediate support]	**2-167**



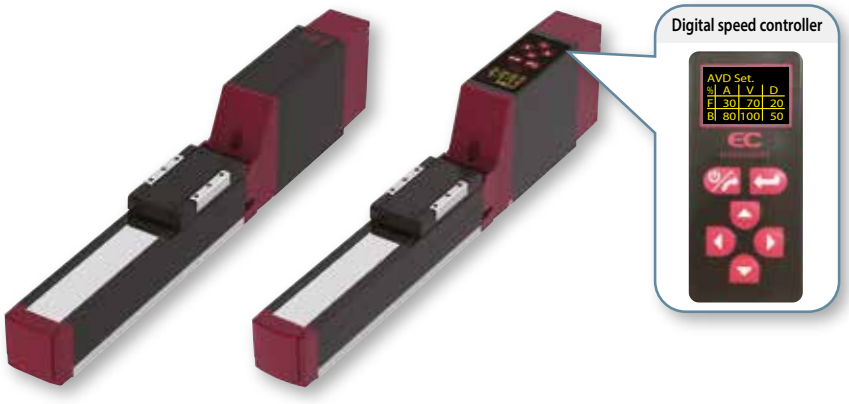
EC-S3
EC-DS3

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
		S3 Standard	H 6mm		50 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below
		DS3 Digital speed controller	M 4mm		↕ ↕				
			L 2mm		300 300mm (Every 50mm)				



Horizontal | Vertical | Side | Ceiling

(Note) The photos above are for motor installed on top (MOT).

■ Stroke

Stroke (mm)	S3	DS3	Stroke (mm)	S3	DS3
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification	**G1/G5**	2-381
Motor mounting direction changed (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction changed (left) (Note 2)	**MOL**	2-381
Motor mounting direction changed (right) (Note 2)	**MOR**	2-381
Motor mounting direction changed (up) (Note 2)	**MOT**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a code in the "Options" field in "Model Specification Items."

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions.
(5) 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.

■ Power / I/O Cable Length

■ Standard connector cables

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	3.5	6	9
	Speed / acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ6mm rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 9.5N·m
	Mb: 13.5N·m
	Mc: 15.1N·m
Dynamic allowable moment (Note 6)	Ma: 3.8N·m
	Mb: 5.4N·m
	Mc: 6.1N·m
Ambient operating temperature/humidity	0~40°C, 85% RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
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.

■ Slider type moment direction

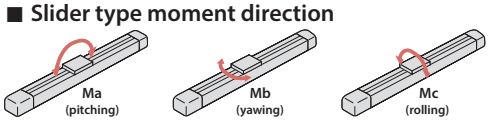


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	3.5	3	1.5
120	3.5	3	1.5
210	3.5	3	1.5
255	3.5	3	1.5
315	3.5	3	1.5
360	3.5	3	1.5
420	3	2.5	1

Lead 4

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	6	2.5
80	6	2.5
140	6	2.5
170	6	2.5
210	6	2.5
240	5.5	2.5
280	4.5	2

Lead 2

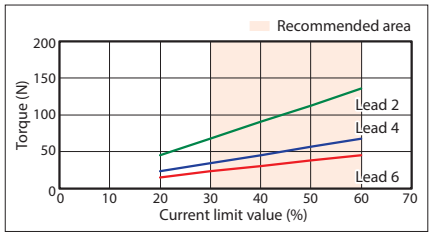
Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	9	3.5
40	9	3.5
70	9	3.5
85	9	3.5
105	9	3.5
120	9	3
140	8	2.5

Stroke and Max Speed

Lead (mm)	50~150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
6	420	300	210	150
4	280	200	140	100
2	140	100	70	50

(Unit: mm/s)

Correlation between Torque and Current Limit

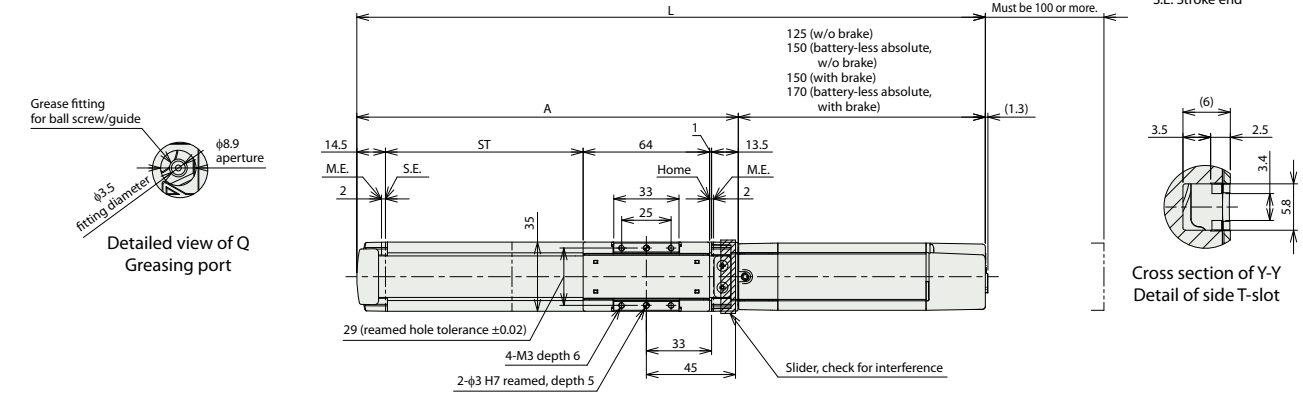


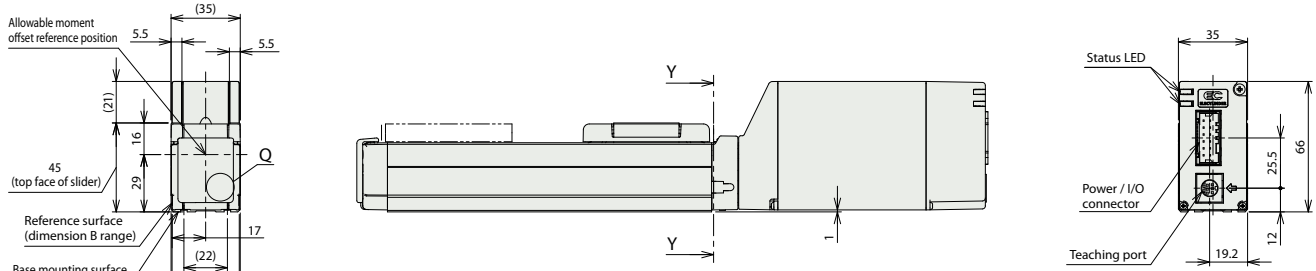
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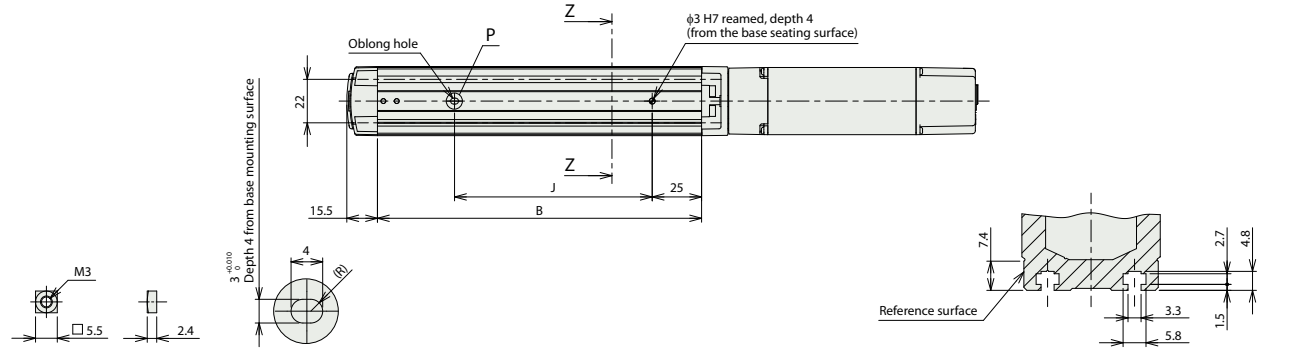
EC-S3

(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) The figures below are for motor installed on top (MOT).

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







Supplied square nut
(6 pieces supplied)

Detailed view of P
Details of base oblong hole

Cross section of Z-Z
Details of T-slot (dimension B range)

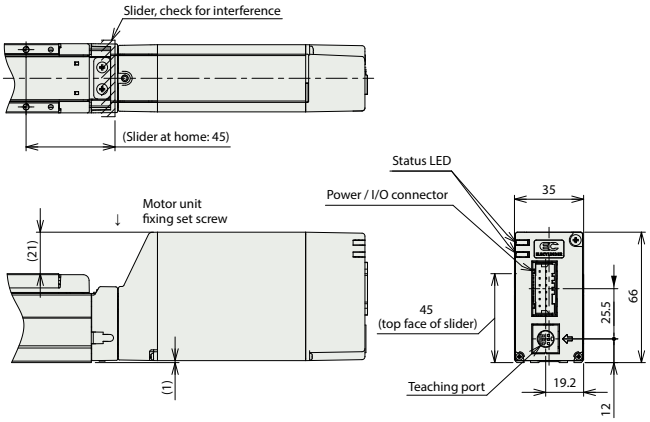
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

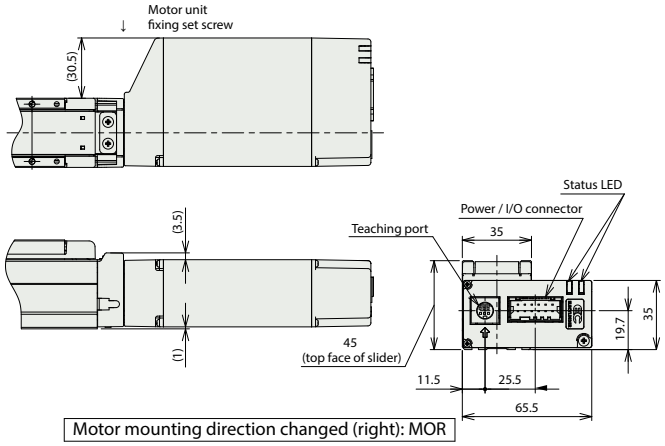
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.7	0.8	0.9	1.0	1.1	1.2
	With brake	0.8	0.9	1.0	1.1	1.2	1.3

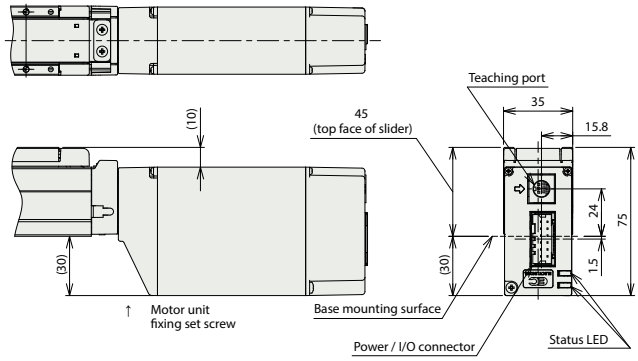
■ Motor mounting direction changed (option)



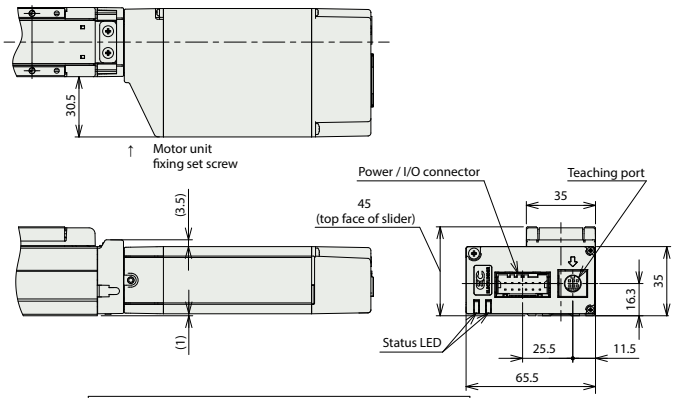
Motor mounting direction changed (up): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB

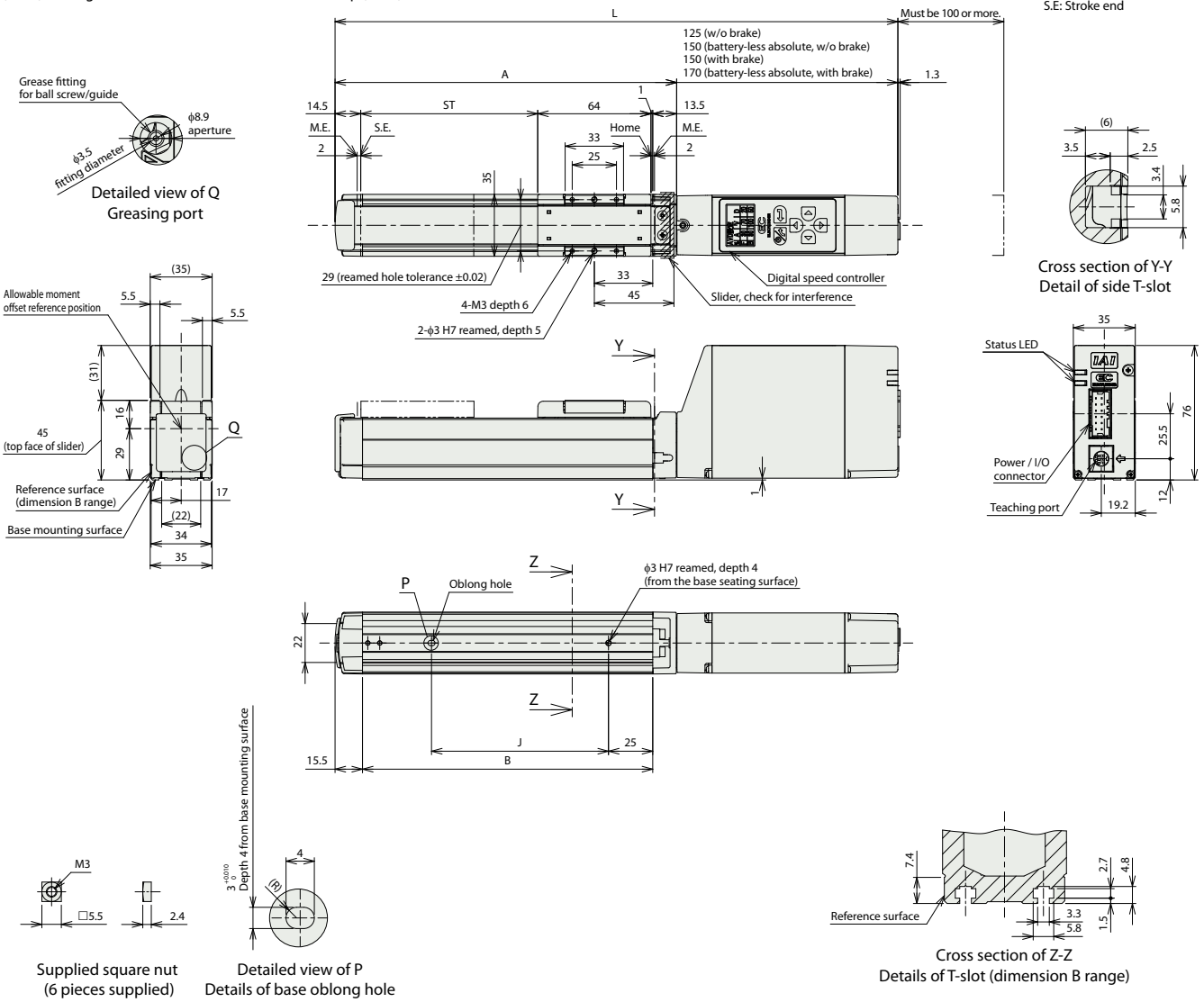


Motor mounting direction changed (left): MOL

EC-DS3 <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



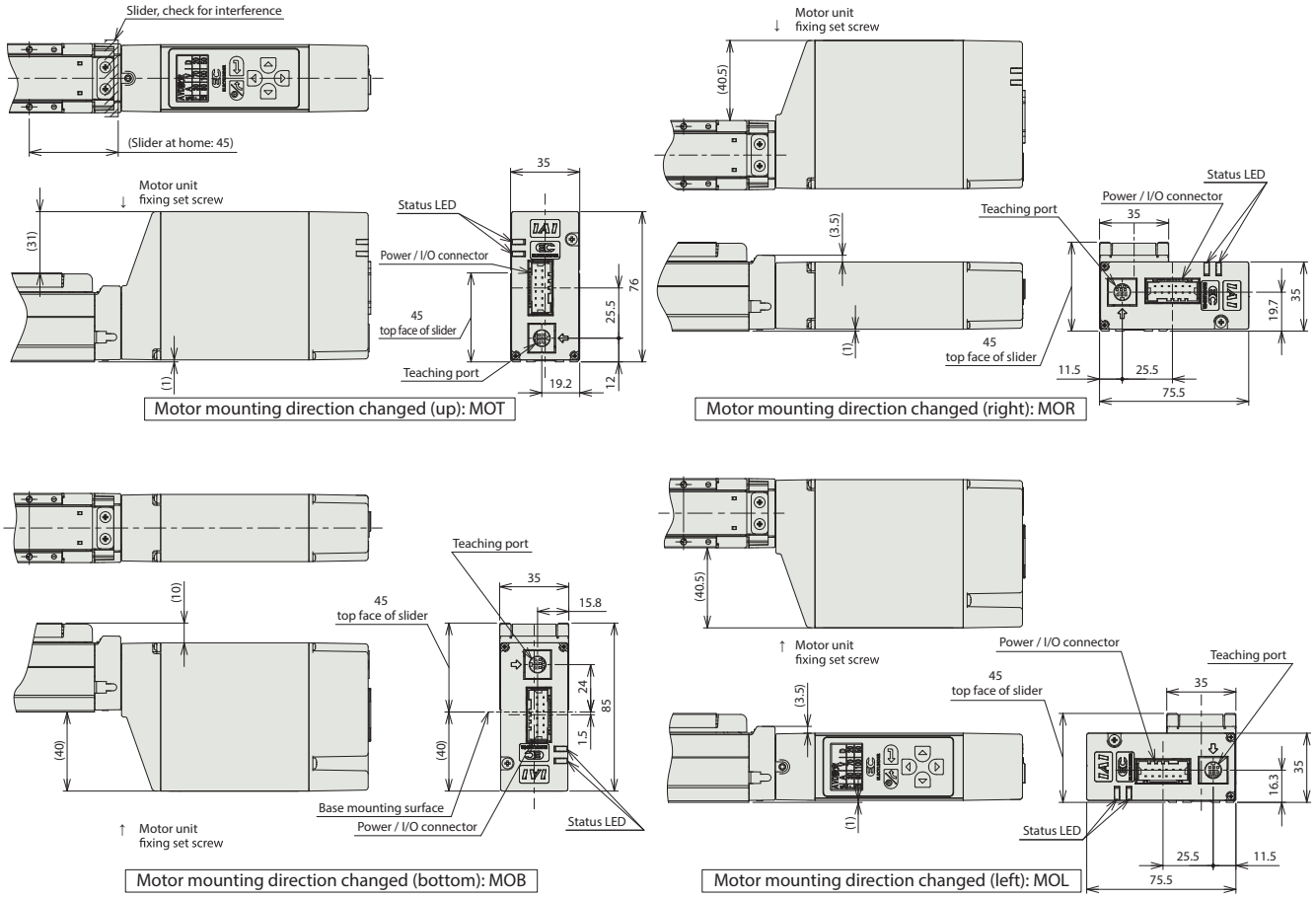
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.8	0.9	1.0	1.1	1.2	1.3
	With brake	0.9	1.0	1.1	1.2	1.3	1.4

■ Motor mounting direction changed (option)



■ Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S4
EC-DS4
<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	S4	Standard	S	16mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DS4	Digital speed controller	H	10mm	↕	↕		
			M	5mm	300	300mm (Every 50mm)		
			L	2.5mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The photos above are for motor installed on top (MOT).

■ Stroke

Stroke (mm)	EC-S4	EC-DS4	Stroke (mm)	EC-S4	EC-DS4
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification	**G1/G5**	2-381
Motor mounting direction changed (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction changed (left) (Note 2)	**MOL**	2-381
Motor mounting direction changed (right) (Note 2)	**MOR**	2-381
Motor mounting direction changed (up) (Note 2)	**MOT**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a code in the "Options" field in "Model Specification Items."

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions.
(5) 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.

■ Power / I/O Cable Length

■ Standard connector cables

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	41	66	132	263
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13.0N·m
	Mb: 18.6N·m
	Mc: 25.3N·m
Dynamic allowable moment (Note 6)	Ma: 5.0N·m
	Mb: 7.1N·m
	Mc: 9.7N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
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.

■ Slider type moment direction

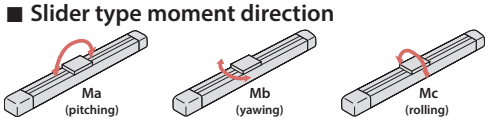


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	7	6	6	5	1.5	1.25
140	7	6	6	5	1.5	1.25
280	7	6	6	5	1.5	1.25
420	7	6	6	5	1.5	1.25
560	7	6	5.5	5	1.5	1.25
700	6	5	4.5	4	1.5	1.25
800		4	3.5	3		1

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	12	11	10	10	2.5	2
175	12	11	10	10	2.5	2
350	12	11	10	9	2.5	2
435	12	11	9	8	2.5	2
525	11	9	7	6	2	2
600	10	7	5	4.5	2	1.5
700		4	2.5	2.5		1

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	15	14	5	4.5
85	15	14	5	4.5
130	15	14	5	4.5
215	15	14	5	4.5
260	15	14	5	4.5
300	15	14	4.5	4
350	13	12	4	3.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	18	6.5
40	18	6.5
85	18	6.5
105	18	6.5
135	18	6.5
150	18	6
175	18	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	4	3.5	1
140	4	3.5	1
280	4	3.5	1
420	4	3.5	1
560	4	3	1
700	3	2	
800		1	

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	8	2
175	10	8	2
350	9	6	2
435	7	5	1.5
525	5	2.5	1

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12	4.5
85	12	4.5
130	12	4
215	10	4
260	9	2.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	14	6.5
40	14	6.5
85	14	6.5
105	14	6.5
135	14	5

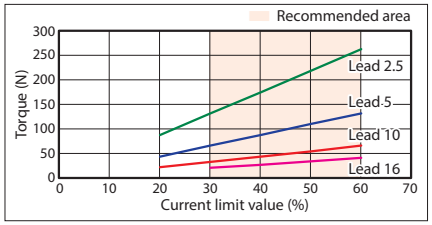
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)
16	Disabled	800	760	540
	Enabled	800 <560>	760 <560>	540
10	Disabled	700	470	320
	Enabled	525	470	320
5	Disabled	350	240	160
	Enabled	260	240	160
2.5	Disabled	175 <150>	120	85
	Enabled	135	120	85

(Unit: mm/s)

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

Correlation between Torque and Current Limit

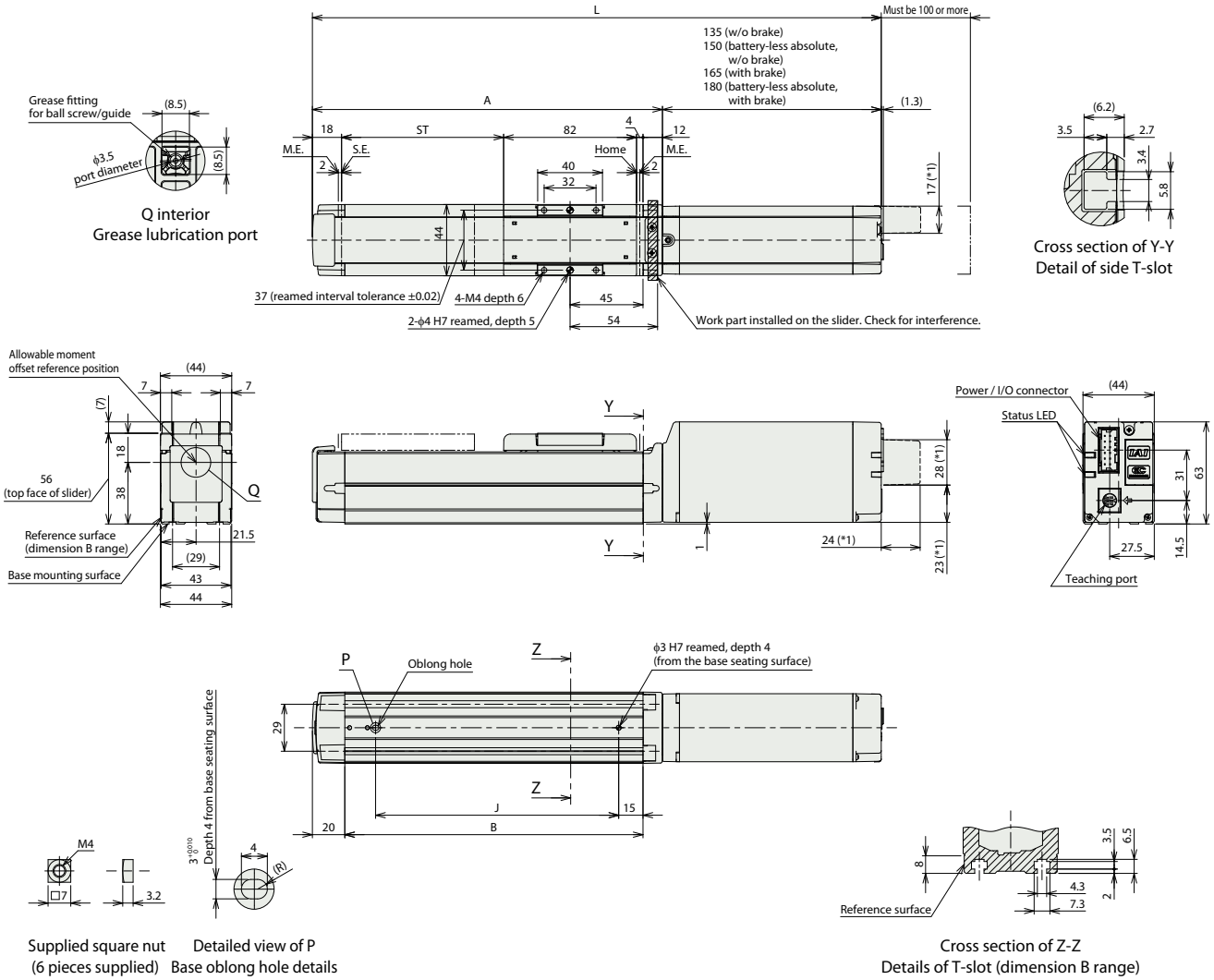


CAD drawings can be downloaded from our website.
www.iai-automation.com

EC-S4

*1 Dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(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) The figures below are for motor installed on top (MOT).

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



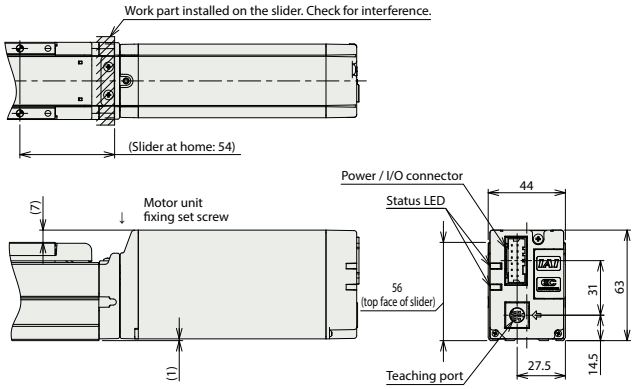
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	301	351	401	451	501	551
		With brake	331	381	431	481	531	581
	Battery-less absolute	Without brake	316	366	416	466	516	566
		With brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

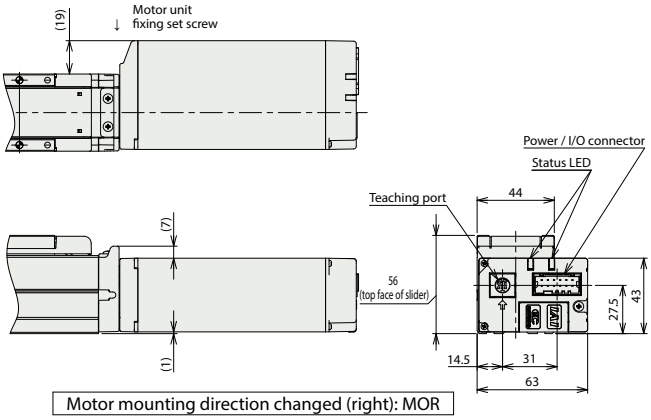
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.3	1.5	1.6	1.8	1.9	2.1

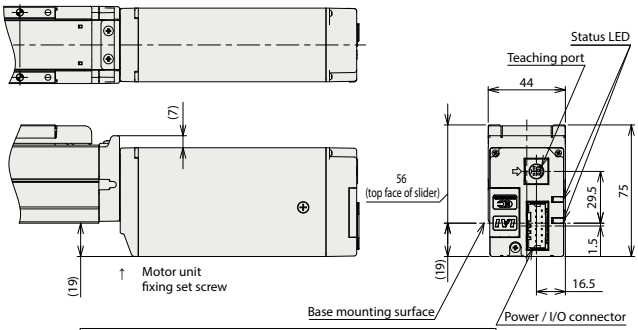
■Motor mounting direction changed (option)



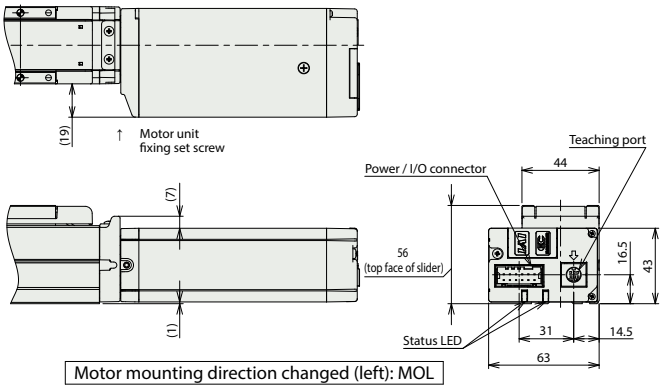
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB

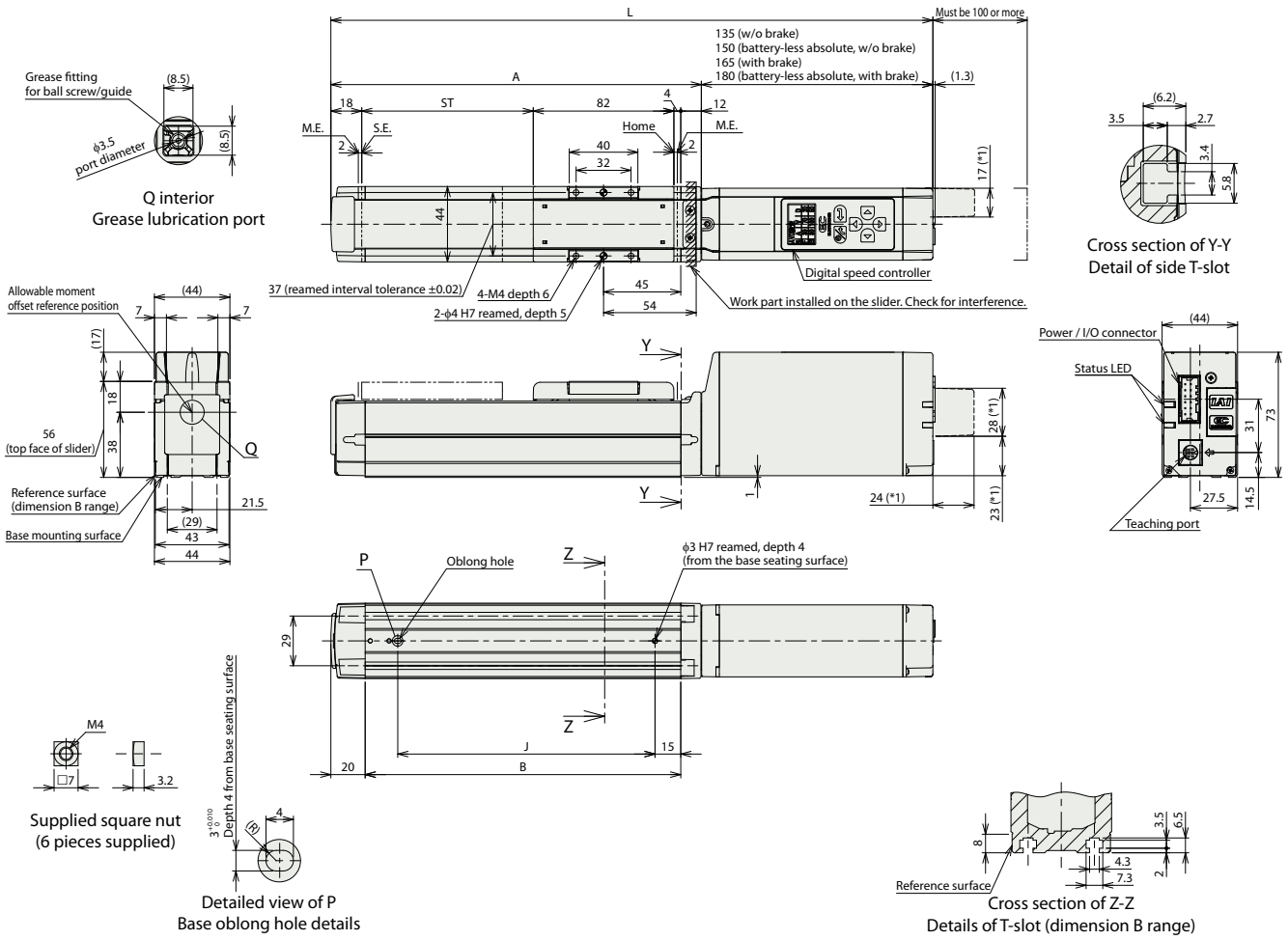


Motor mounting direction changed (left): MOL

EC-DS4 <with digital speed controller>

*1 Dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



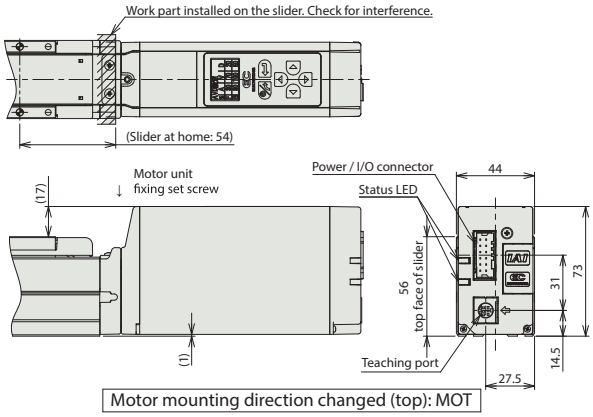
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	301	351	401	451	501	551
		With brake	331	381	431	481	531	581
	Battery-less absolute	Without brake	316	366	416	466	516	566
		With brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

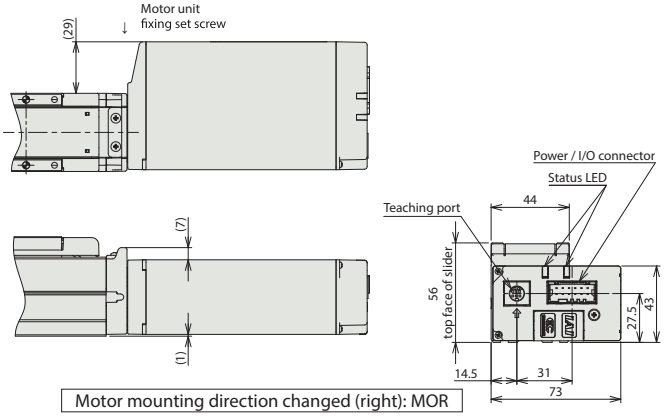
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.4	1.5	1.7	1.8	2.0	2.1

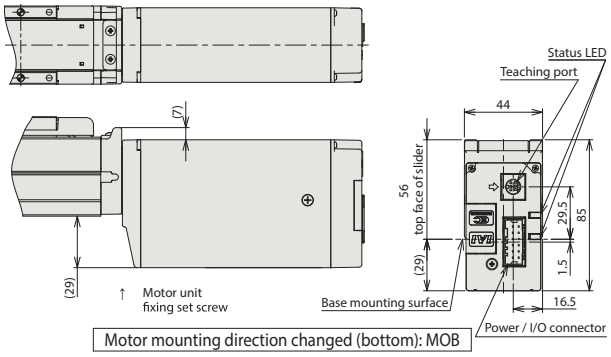
■ Motor mounting direction changed (option)



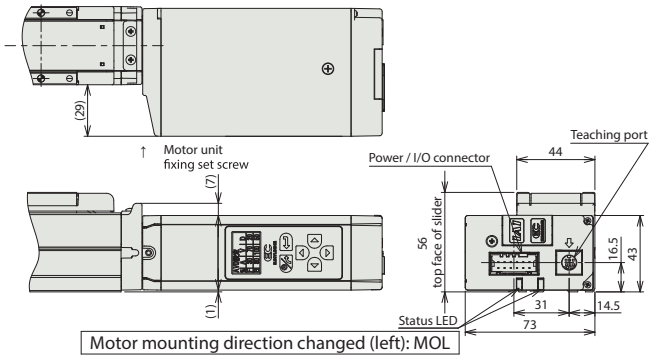
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB



Motor mounting direction changed (left): MOL

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6
EC-DS6

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	S6	Standard	S	20mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DS6	Digital speed controller	H	12mm	≀	≀		
			M	6mm	400	400mm (Every 50mm)		
			L	3mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	S6	DS6	Stroke (mm)	S6	DS6
50	○	○	**250**	○	○
100	○	○	**300**	○	○
150	○	○	**350**	○	○
200	○	○	**400**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification (Note 2)	**G1/G5**	2-381
Foot bracket	**FT**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 3)	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 3) (Note 4)	**W**	2-111
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W) and specified grease specification (G1/G5) cannot be used together.
(Note 3) When the slider part roller specification (SR) and double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 4) There are some non-selectable leads. See P. 2-111 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 220mm (under 440mm for double slider specification) in the direction of Ma, Mb and Mc.
(6) 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, operating conditions should be moderated if some abnormal vibration or noise is observed.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 97.1N·m
Dynamic allowable moment (Note 8)	Ma: 11.6N·m
	Mb: 16.6N·m
	Mc: 23.3N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

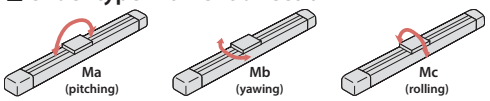


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

Lead 3

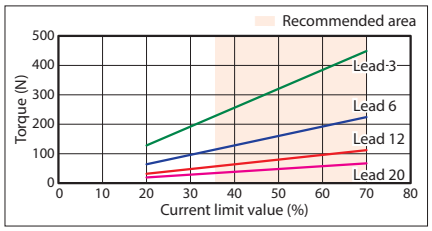
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
20	Disabled	800			727	566
	Enabled	800			727	566
12	Disabled	700		521	392	305
	Enabled	680		521	392	305
6	Disabled	450	371	265	199	155
	Enabled	340		265	199	155
3	Disabled	225	188	134	100	78
	Enabled	170		134	100	78

(Unit: mm/s)

Correlation between Torque and Current Limit

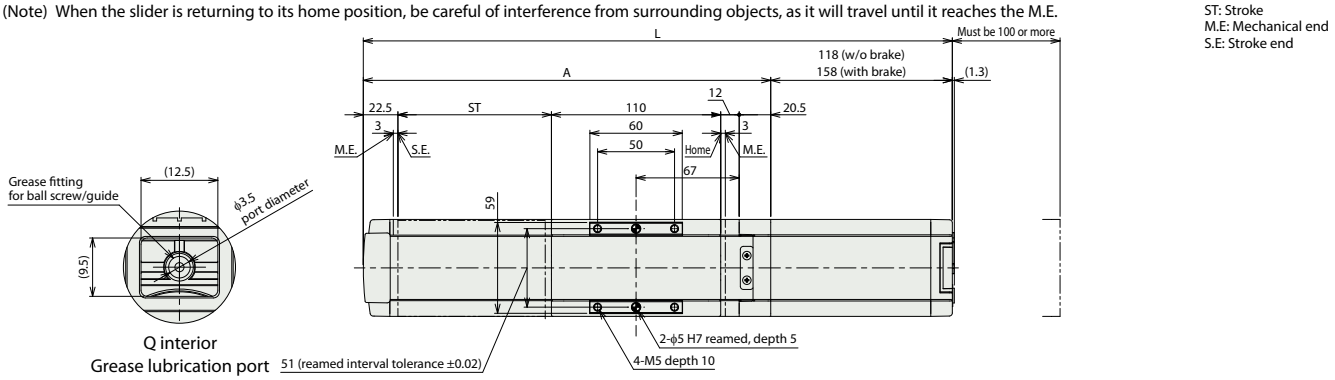


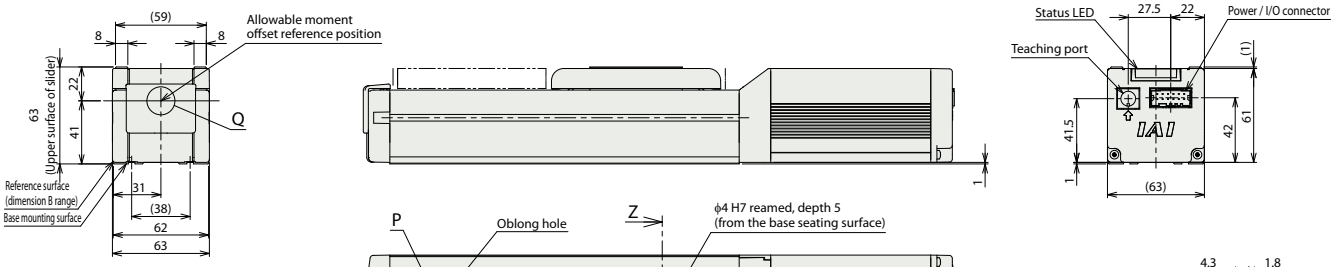
CAD drawings can be downloaded from our website.
www.iai-automation.com

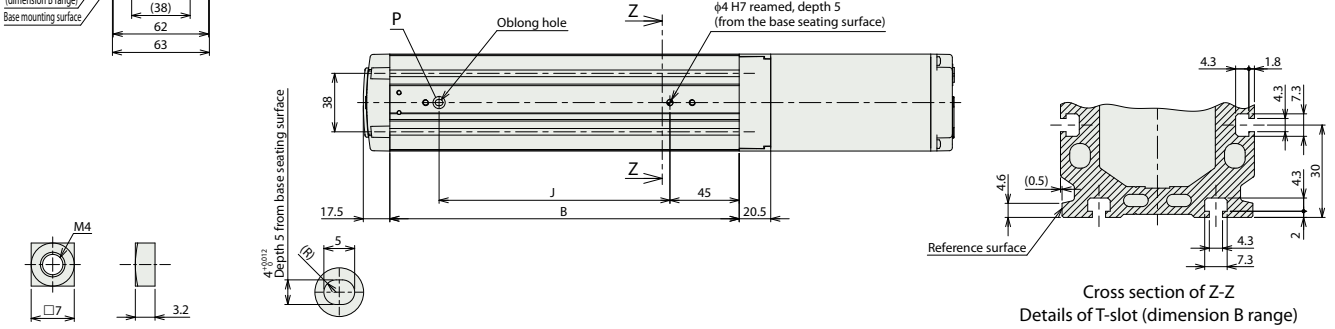
EC-S6

(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.

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







Supplied square nut
(6 pieces supplied)

Detailed view of P
Base oblong hole details

Cross section of Z-Z
Details of T-slot (dimension B range)

Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

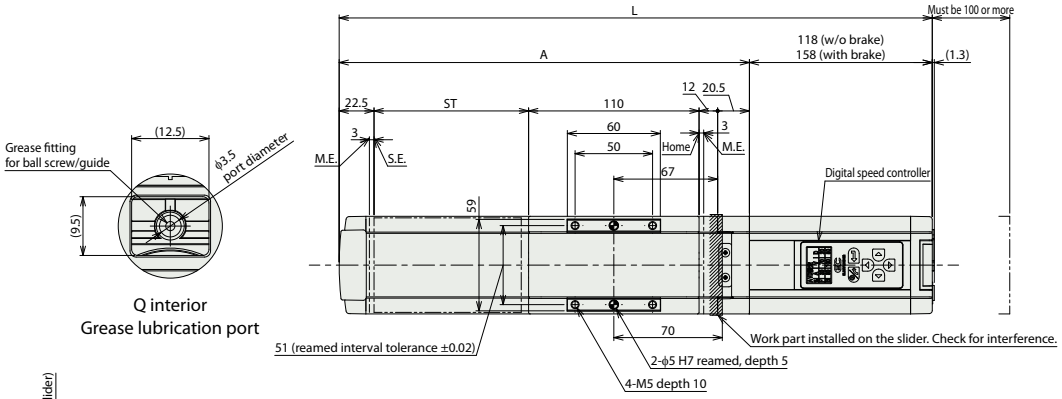
Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4

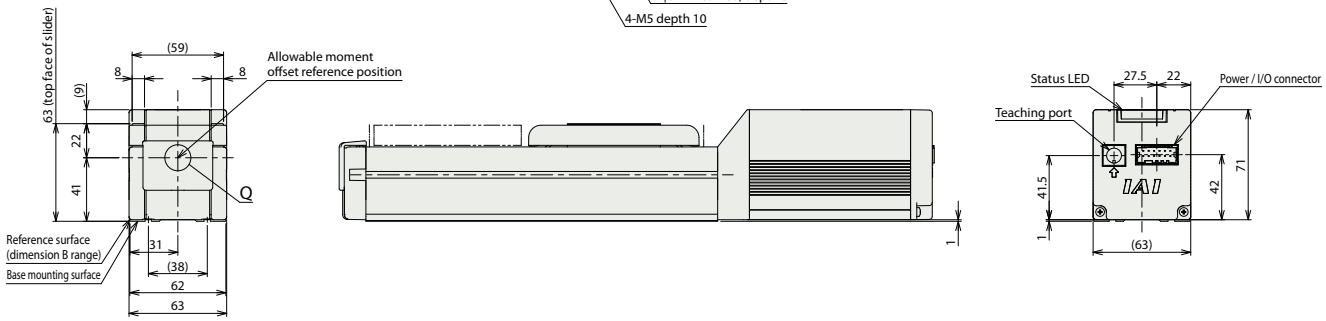
■EC-DS6 <with digital speed controller>

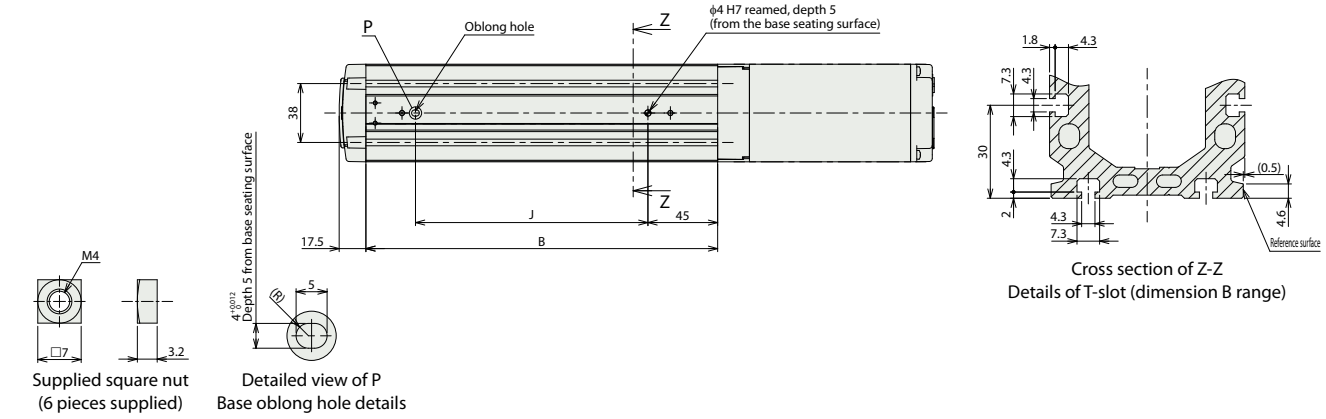
(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



Q interior
Grease lubrication port





Supplied square nut
(6 pieces supplied)

Detailed view of P
Base oblong hole details

Cross section of Z-Z
Details of T-slot (dimension B range)

■Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

■Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	24	30	38
		Max. payload (kg) (energy-saving enabled)	12	18	23
	Speed / acceleration/ deceleration	Max. speed (mm/s)	700	450	225
		Min. speed (mm/s)	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	—	4	10
		Max. payload (kg) (energy-saving enabled)	—	3	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	—	340	200
		Min. speed (mm/s)	—	8	4
		Rated acceleration/deceleration (G)	—	0.3	0.3
		Max. acceleration/deceleration (G)	—	0.5	0.5
Push		Max. push force (N)	112	224	449
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	2.5	6	12.5
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	400	400	400
		Max. effective stroke (mm)	250	250	250
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 12 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 364N·m
	Mb: 520N·m
	Mc: 129N·m
Dynamic allowable moment (Note 9)	Ma: 106N·m
	Mb: 152N·m
	Mc: 37.9N·m
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 (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 9) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P. 1-244.

Slider type moment direction

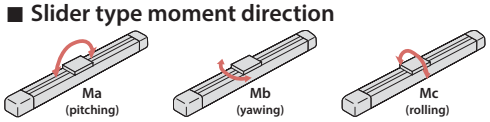


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	24	16	14	12		
80	24	16	14	12		
200	24	16	14	12		
320	24	16	10	8		
440	20	12	8	6		
560	12	6	4	2		
700	5	1				

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	30	24	22	18	4	4
40	30	24	22	18	4	4
100	30	24	22	18	4	4
160	30	24	22	18	4	4
220	30	24	20	16	4	4
280	28	22	18	10	3	3
340	20	12	10	6	1	1
400	6	4	1			
450	1					

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	38	33	33	33	10	10
50	38	33	33	33	10	10
80	38	33	33	28	10	10
110	38	33	33	28	10	10
140	38	33	30	26	10	10
170	36	28	26	20	8	8
200	30	22	14	9	3	2
225	15	4	1			

Energy-saving setting enabled (The unit for payload is kg.)

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	12	8	
80	12	8	
200	12	8	
320	12	8	
440	9	3	
560	2		

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	12	3
40	18	12	3
100	18	12	3
160	18	12	3
220	14	12	2
280	8	4	
340	1		

Lead 3

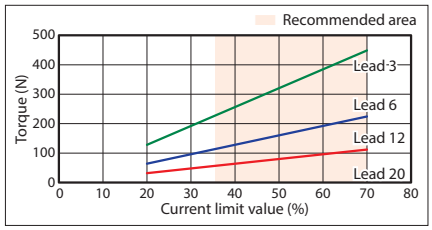
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	23	20	8
20	23	20	8
50	23	20	8
80	23	20	8
110	18	12	6
140	12	8	3
170	8	4	1

Stroke and Max Speed (double slider specification)

Lead	Nominal stroke	200	250	300	350	400
	Effective stroke	50	100	150	200	250
(mm)	Energy-saving setting	(mm)	(mm)	(mm)	(mm)	(mm)
12	Disabled	700				
	Enabled	560				
6	Disabled	450<340>				371<340>
	Enabled	340<220>				
3	Disabled	225<200>				188
	Enabled	170				

(Note) Values in brackets < > are for vertical use. (Unit: mm/s)
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between Torque and Current Limit (double slider specification)



(Note) Same values as single slider specification.

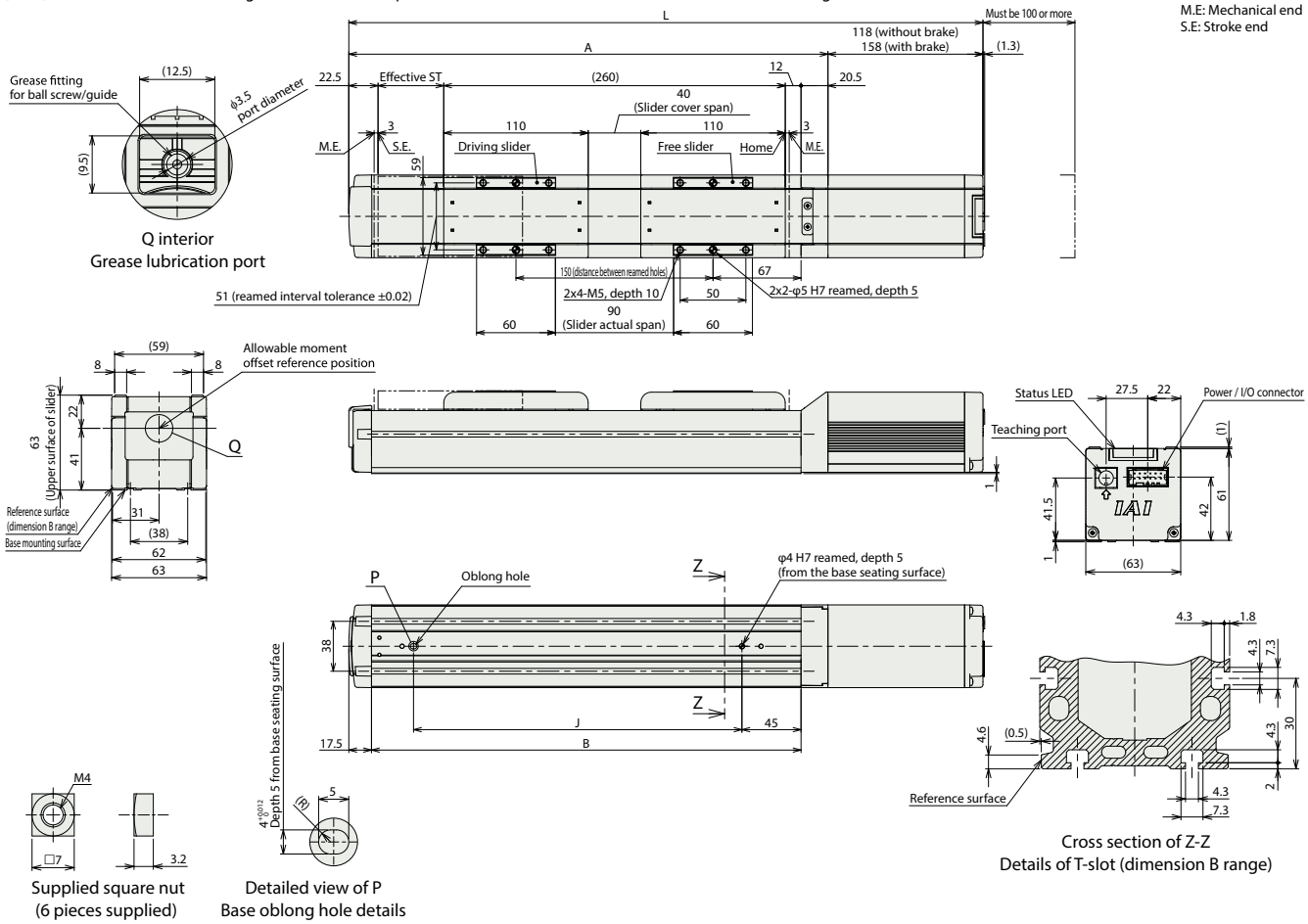
Dimensions (double slider specification)

■ EC-(D)S6 (double slider specification)

CAD drawings can be downloaded from our website.
www.iai-automation.com

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■ Dimensions by stroke

	Nominal stroke	200	250	300	350	400
	Effective stroke	50	100	150	200	250
L	Without brake	483	533	583	633	683
	With brake	523	573	623	673	723
A		365	415	465	515	565
B		327	377	427	477	527
J		250	300	350	400	450

■ Mass by stroke

	Nominal stroke		200	250	300	350	400
	Effective stroke		50	100	150	200	250
Mass (kg)	Without digital speed controller	Without brake	2.67	2.87	3.07	3.27	3.47
		With brake	2.87	3.07	3.27	3.47	3.67
	With digital speed controller	Without brake	2.67	2.87	3.07	3.27	3.47
		With brake	2.97	3.17	3.37	3.57	3.77

(Note) Mass is added by 0.27kg of additional slider to the single slider specification.

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7
EC-DS7

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	S7	Standard	S	24mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DS7	Digital speed controller	H	16mm	≀	≀		
			M	8mm	500	500mm (Every 50mm)		
			L	4mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	S7	DS7	Stroke (mm)	S7	DS7
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification (Note 2)	**G1/G5**	2-381
Foot bracket	**FT**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 3)	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 3) (Note 4)	**W**	2-117
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W) and specified grease specification (G1/G5) cannot be used together.
(Note 3) When the slider part roller specification (SR) and double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 4) There are some non-selectable leads. See P. 2-117 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 280mm (under 560mm for double slider specification) in the direction of Ma, Mb and Mc.
(6) 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, operating conditions should be moderated if some abnormal vibration or noise is observed.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79.7N·m
	Mb: 114N·m
	Mc: 157N·m
Dynamic allowable moment (Note 8)	Ma: 17.7N·m
	Mb: 25.3N·m
	Mc: 34.9N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

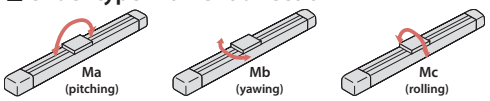


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

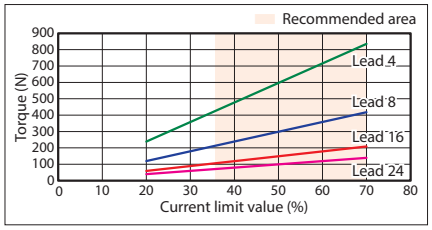
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 300 (Every 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	Disabled	860		774	619	506
	Enabled	800		774	619	506
16	Disabled	700	631	492	395	323
	Enabled	560		492	395	323
8	Disabled	420	322	251	200	164
	Enabled	280		251	200	164
4	Disabled	210 <175>	163	126	101	83
	Enabled	140		126	101	83

(Unit: mm/s)

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

Correlation between Torque and Current Limit

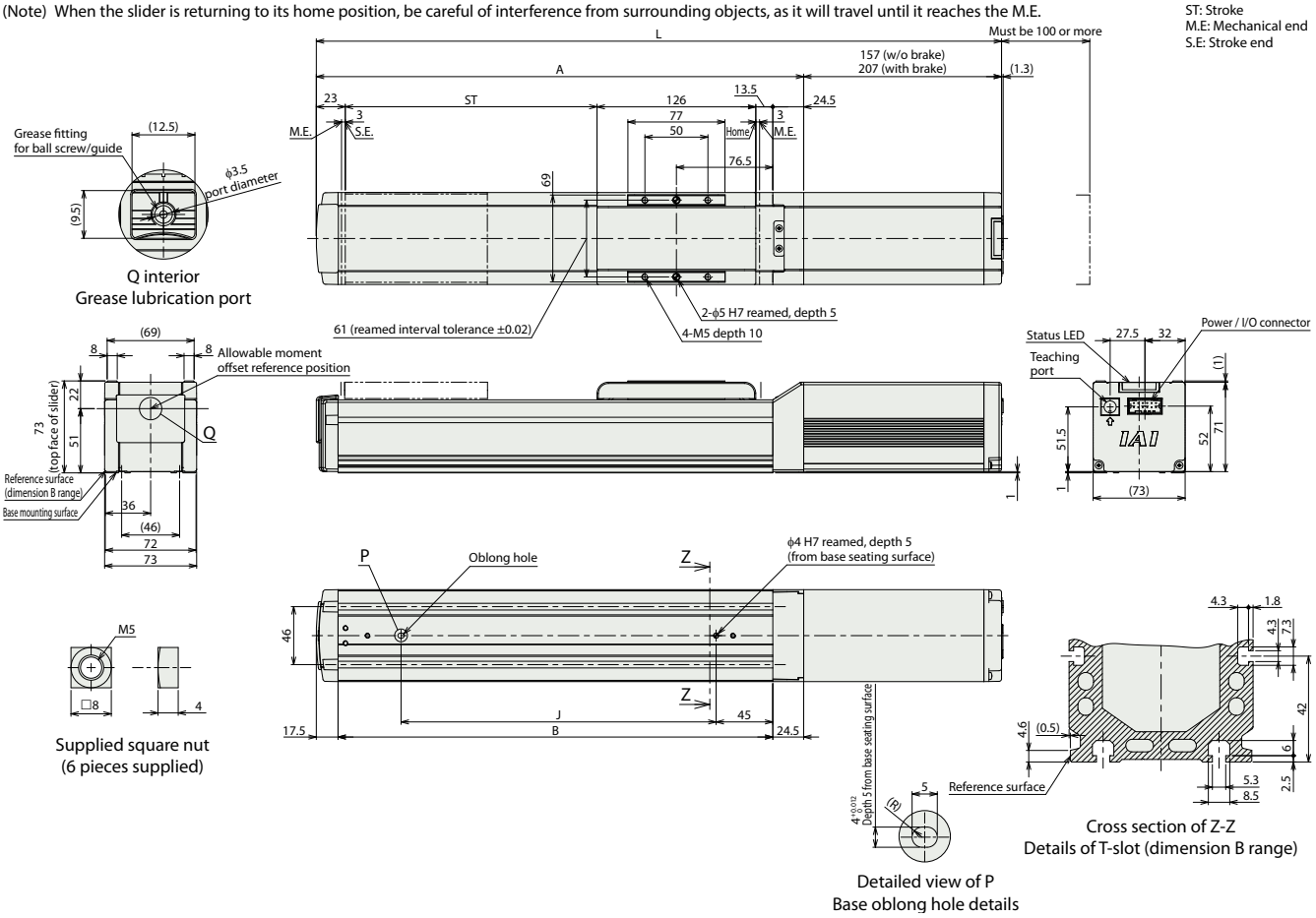


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EC-S7

(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.

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



Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

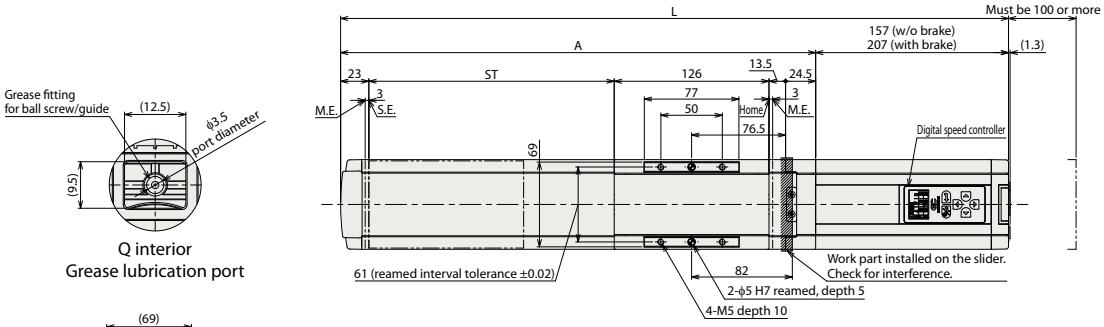
Mass by stroke

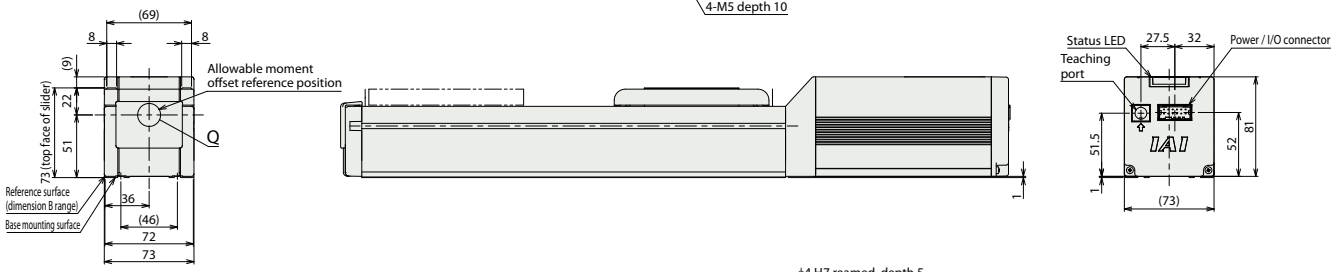
Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.4	3.6	3.9	4.2	4.4	4.7	5.0	5.2	5.5	5.8
	With brake	3.8	4.1	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2

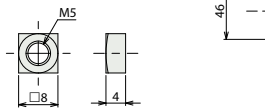
EC-DS7 <with digital speed controller>

(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.

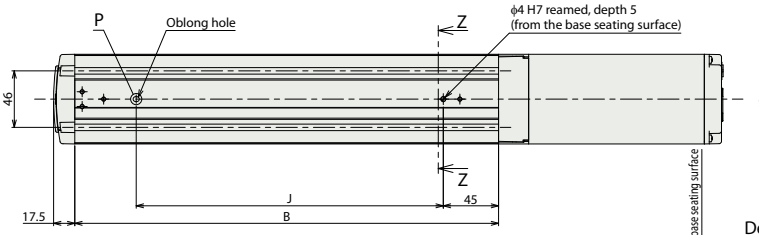
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

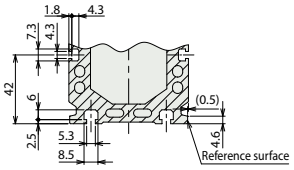




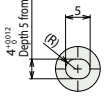


Supplied square nut
(6 pieces supplied)





Cross section of Z-Z
Details of T-slot (dimension B range)



Detailed view of P
Base oblong hole details

Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.5	3.7	4.0	4.3	4.5	4.8	5.1	5.3	5.6	5.9
	With brake	4.1	4.3	4.6	4.9	5.1	5.4	5.7	5.9	6.2	6.5

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	44	49	49
		Max. payload (kg) (energy-saving enabled)	33	38	38
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	420	175
		Min. speed (mm/s)	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	—	14	17
		Max. payload (kg) (energy-saving enabled)	—	8	13
	Speed / acceleration/ deceleration	Max. speed (mm/s)	—	350	175
		Min. speed (mm/s)	—	10	5
		Rated acceleration/deceleration (G)	—	0.3	0.3
		Max. acceleration/deceleration (G)	—	0.5	0.5
Push		Max. push force (N)	209	418	836
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	8	16	19
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	500	500	500
		Max. effective stroke (mm)	350	350	350
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 16 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 441N·m
	Mb: 630N·m
	Mc: 209N·m
Dynamic allowable moment (Note 9)	Ma: 119N·m
	Mb: 171N·m
	Mc: 56.7N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 9) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

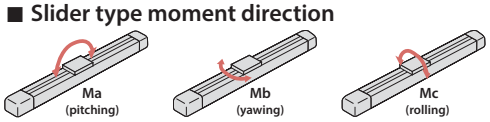


Table of Payload by Speed/Acceleration (double slider specification)

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	44	33	26	25		
140	44	33	26	25		
280	44	32	22	20		
420	30	20	10	6		
560	10	6	4	2		

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	14	14
70	49	43	38	38	14	14
140	49	38	36	33	14	14
210	49	33	28	20	8	7
280	36	24	16	10	5	4
350	14	4	1		1	
420	3					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	17	17
35	49	43	38	38	17	17
70	49	43	38	38	17	17
105	49	43	38	33	17	17
140	40	30	25	20	9	7
175	25	8			4	1

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	33	18	
140	33	18	
280	23	10	
420	10	3	

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	23	8
70	38	23	8
140	38	23	5
210	20	10	2
280	5		

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	28	13
35	38	28	13
70	38	28	13
105	36	26	4
140	6		

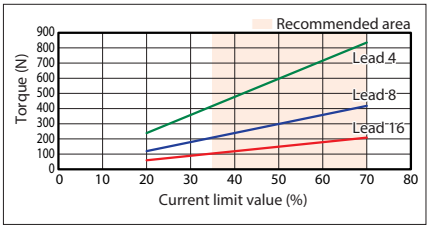
Stroke and Max Speed (double slider specification)

Lead	Nominal stroke	200~300	350	400	450	500
	Effective stroke	50~150	200	250	300	350
(mm)	Energy-saving setting	(Every 50mm)	(mm)	(mm)	(mm)	(mm)
16	Disabled	560				
	Enabled	420				
8	Disabled	420<350>				322
	Enabled	280<210>				
4	Disabled	175				163
	Enabled	140<105>				

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between Torque and Current Limit (double slider specification)



(Note) Same values as single slider specification.

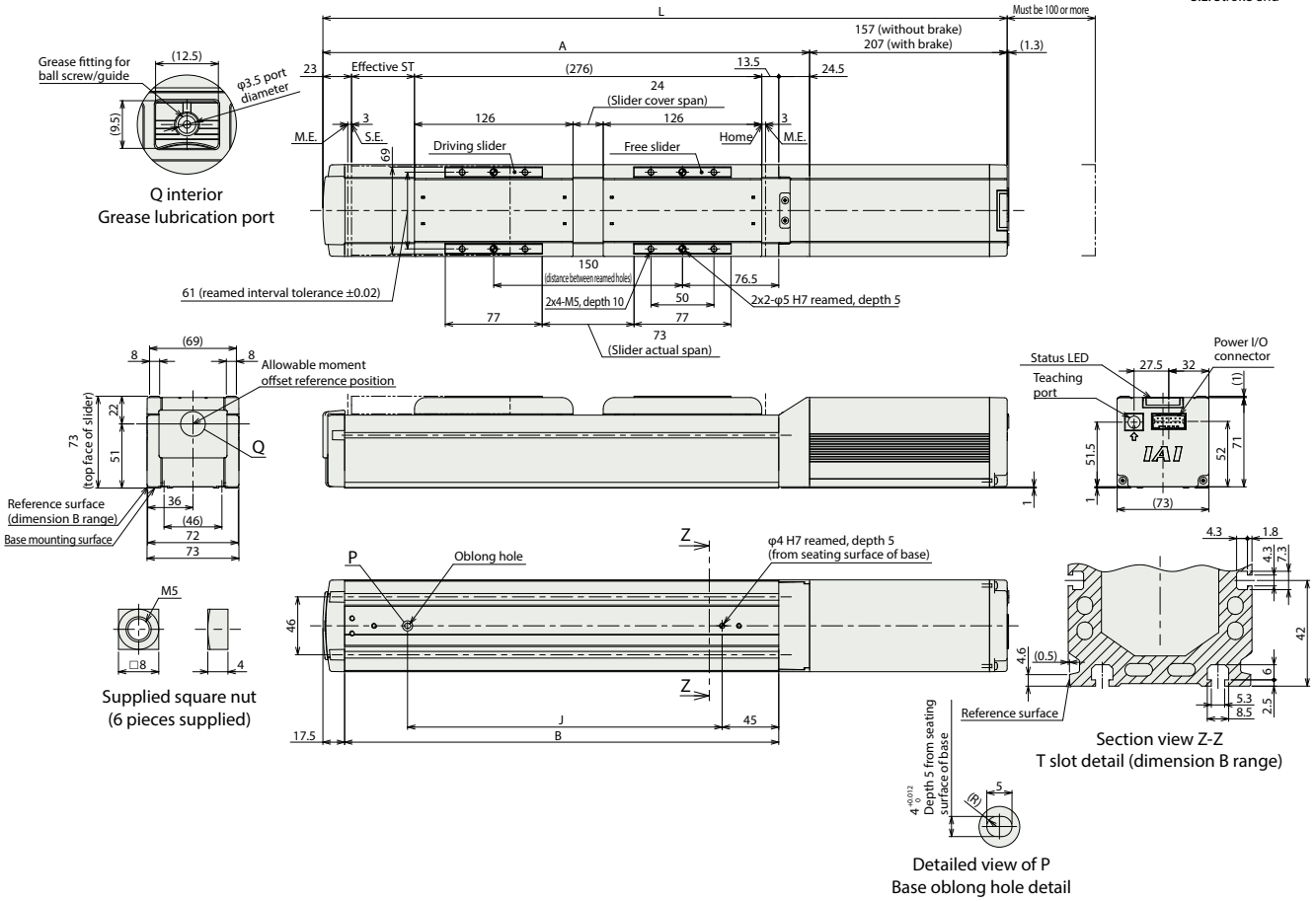
Dimensions (double slider specification)

■ EC-(D)S7 (double slider specification)

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2D CAD 3D CAD

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■ Dimensions by stroke

Nominal stroke		200	250	300	350	400	450	500
Effective stroke		50	100	150	200	250	300	350
L	Without brake	544	594	644	694	744	794	844
	With brake	594	644	694	744	794	844	894
A		387	437	487	537	587	637	687
B		345	395	445	495	545	595	645
J		250	300	350	400	450	500	550

■ Mass by stroke

Nominal stroke			200	250	300	350	400	450	500
Effective stroke			50	100	150	200	250	300	350
Mass (kg)	Without digital speed controller	Without brake	4.65	4.85	5.15	5.45	5.65	5.95	6.25
		With brake	5.05	5.35	5.65	5.85	6.15	6.45	6.65
	With digital speed controller	Without brake	4.75	4.95	5.25	5.55	5.75	6.05	6.35
		With brake	5.35	5.55	5.85	6.15	6.35	6.65	6.95

(Note) Mass is added by 0.45kg of additional slider to the single slider specification.

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6□AH
EC-DS6□AH

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Series] - [Type] [Lead] - AH - [Specifications] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type	
S6	Standard
DS6	Digital speed controller

Lead	
S	20mm
H	12mm
M	6mm
L	3mm

Specifications	
AH	High rigidity

Stroke	
50	50mm
~	~
800	800mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	S6□AH	DS6□AH	Stroke (mm)	S6□AH	DS6□AH
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification (Note 2) (Note 3)	**G1/G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 4)	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 3) (Note 4) (Note 5)	**W**	2-123
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The maximum speed and payload of the specified grease specification (G1) option are the same as the speed and payload by acceleration/deceleration of the clean room specification.
(Note 3) Double slider specification (W) and specified grease specification (G1/G5) cannot be used together.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) There are some non-selectable leads. See P. 2-123 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm (under 600mm for double slider specification) in the direction of Ma, Mb and Mc.
(6) 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, operating conditions should be moderated if some abnormal vibration or noise is observed.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 6) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 8) (with connectors on both ends)
		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 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1440	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1280	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±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: 48.5N·m
	Mb: 69.3N·m
	Mc: 103N·m
Dynamic allowable moment (Note 9)	Ma: 33.7N·m
	Mb: 40.2N·m
	Mc: 55.3N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 9) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

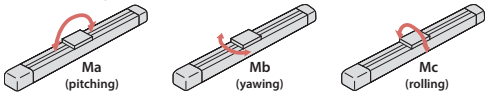


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1
960	8	5	3.5	1.5	1	1
1120	5	3	2	1	0.5	0.5
1280		1	1	0.5		0.5
1440		1	0.5			

(Note) Refer to the caution below when "G5" option is selected.

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1
800	9	5	2	1	1.5	1
900	5	3	1	1	0.5	0.5

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

(Note) Refer to the caution below when "G5" option is selected.

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 20: 800mm/s or less
* Lead 12: 440mm/s or less
* Lead 6: 220mm/s or less
* Lead 3: 110mm/s or less

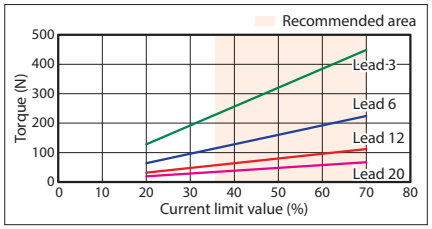
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1440 <1280>		1280	1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900	845	705	585	515	445	390	345	315
	Enabled	680			585	515	445	390	345	315
6	Disabled	450	415	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Unit: mm/s)

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

Correlation between Torque and Current Limit

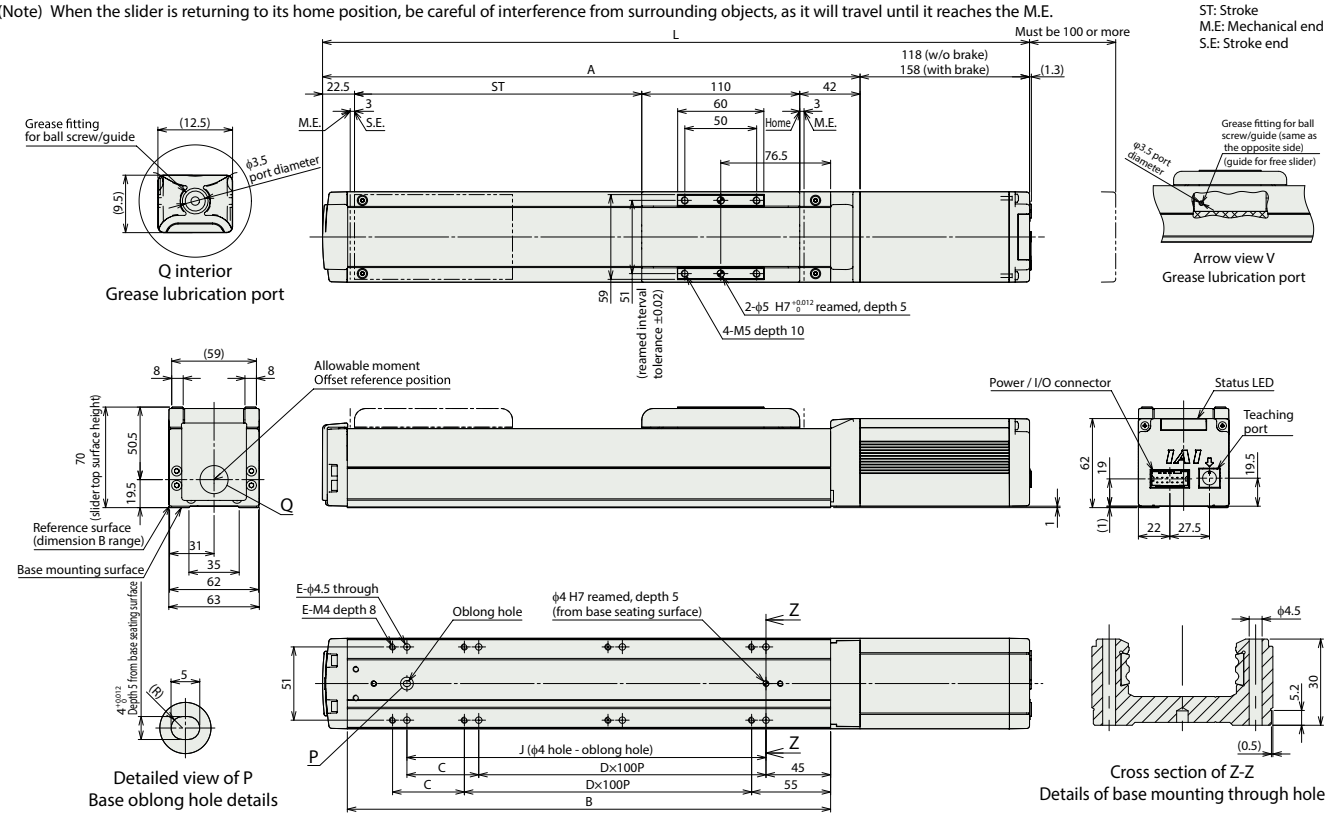


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■ EC-S6□AH

(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.

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



■ Dimensions by stroke

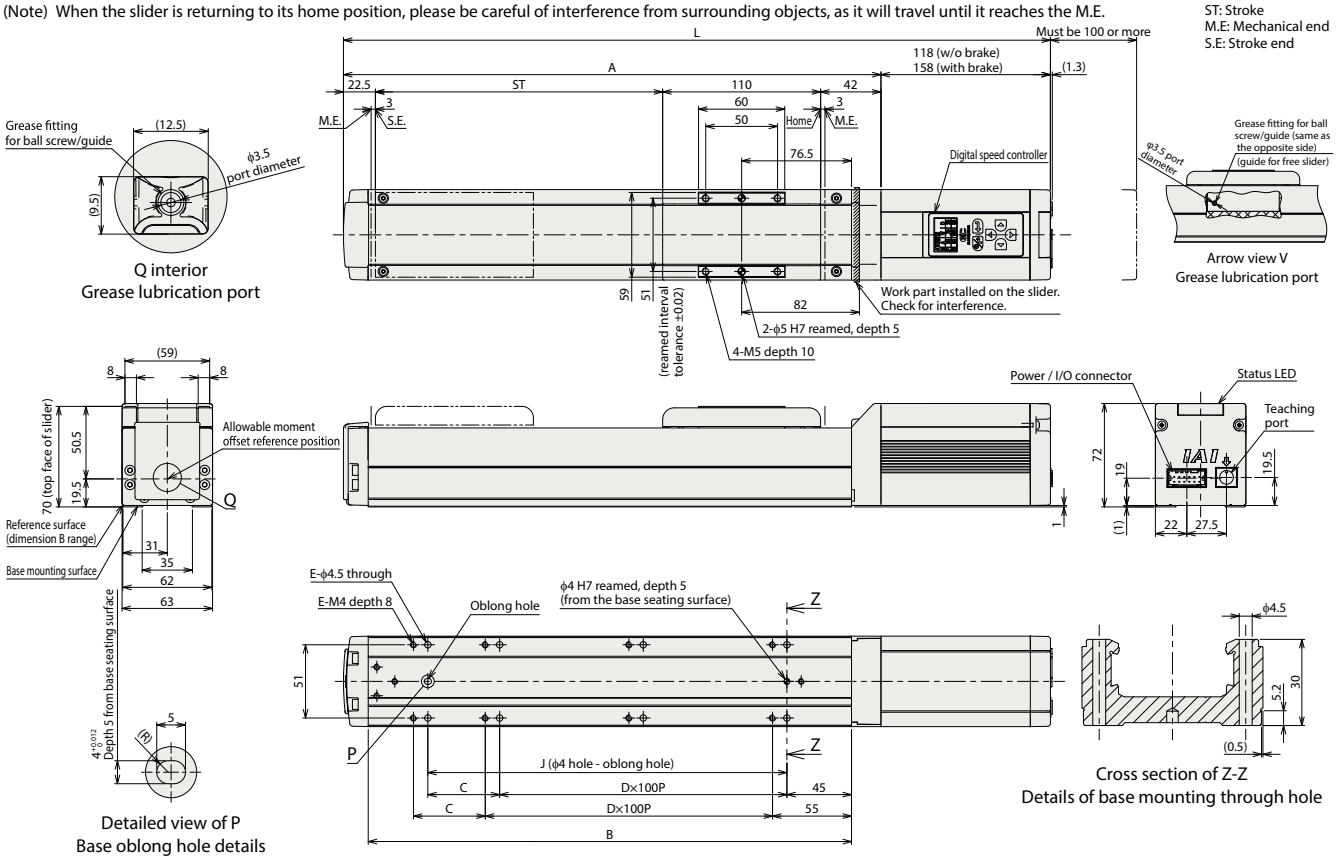
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5	5.2	5.4	5.6

■ EC-DS6□AH <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	24	30	38
		Max. payload (kg) (energy-saving enabled)	12	18	23
	Speed / acceleration/ deceleration	Max. speed (mm/s)	700	450	225
		Min. speed (mm/s)	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	—	4	14
		Max. payload (kg) (energy-saving enabled)	—	3	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	—	340	200
		Min. speed (mm/s)	—	8	4
		Rated acceleration/deceleration (G)	—	0.3	0.3
		Max. acceleration/deceleration (G)	—	0.5	0.5
Push		Max. push force (N)	112	224	449
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	2.5	6	16
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	800	400	800
		Max. effective stroke (mm)	650	250	650
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 12 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 546N·m
	Mb: 779N·m
	Mc: 205N·m
Dynamic allowable moment (Note 10)	Ma: 167N·m
	Mb: 199N·m
	Mc: 89.8N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

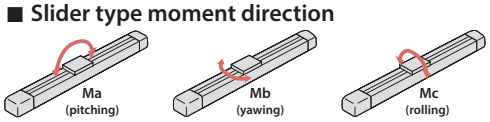


Table of Payload by Speed/Acceleration (double slider specification)

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	24	16	14	12		
80	24	16	14	12		
200	24	16	14	12		
320	24	16	10	8		
440	20	12	8	6		
560	12	6	4	2		
700	5	1				

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	30	24	22	18	4	4
40	30	24	22	18	4	4
100	30	24	22	18	4	4
160	30	24	22	18	4	4
220	30	24	20	16	4	4
280	28	22	18	10	3	3
340	20	12	10	6	1	1
400	6	4	1			
450	1					

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	38	33	33	33	14	14
50	38	33	33	33	14	14
80	38	33	33	28	14	14
110	38	33	33	28	14	14
140	38	33	30	26	13	12
170	36	28	26	20	10	8
200	30	22	14	9	3	2
225	15	4	1			

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	12	8	
80	12	8	
200	12	8	
320	12	8	
440	9	3	
560	2		

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	12	3
40	18	12	3
100	18	12	3
160	18	12	3
220	14	12	2
280	8	4	
340	1		

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	23	20	8
20	23	20	8
50	23	20	8
80	23	20	8
110	18	12	6
140	12	8	3
170	8	4	1

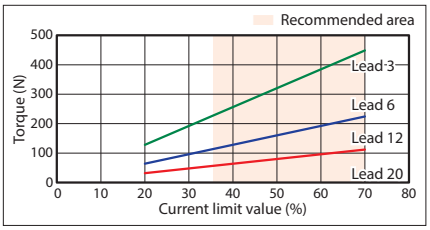
Stroke and Max Speed (double slider specification)

Lead (mm)	Nominal stroke / Effective stroke / Energy-saving setting	200~400 / 50~250 / (Every 50mm)	450 / 300 / (mm)	500 / 350 / (mm)	550 / 400 / (mm)	600 / 450 / (mm)	650 / 500 / (mm)	700 / 550 / (mm)	750 / 600 / (mm)	800 / 650 / (mm)
12	Disabled	700			585	515	445	390	345	315
	Enabled	560				515	445	390	345	315
6	Disabled	450 <340>	415 <340>	350 <340>	295	255	220	190	170	140
	Enabled	340＜220＞			295 <220>	255 <220>	220	190	170	140
3	Disabled	225 <200>	205 <200>	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between Torque and Current Limit (double slider specification)



(Note) Same values as single slider specification.

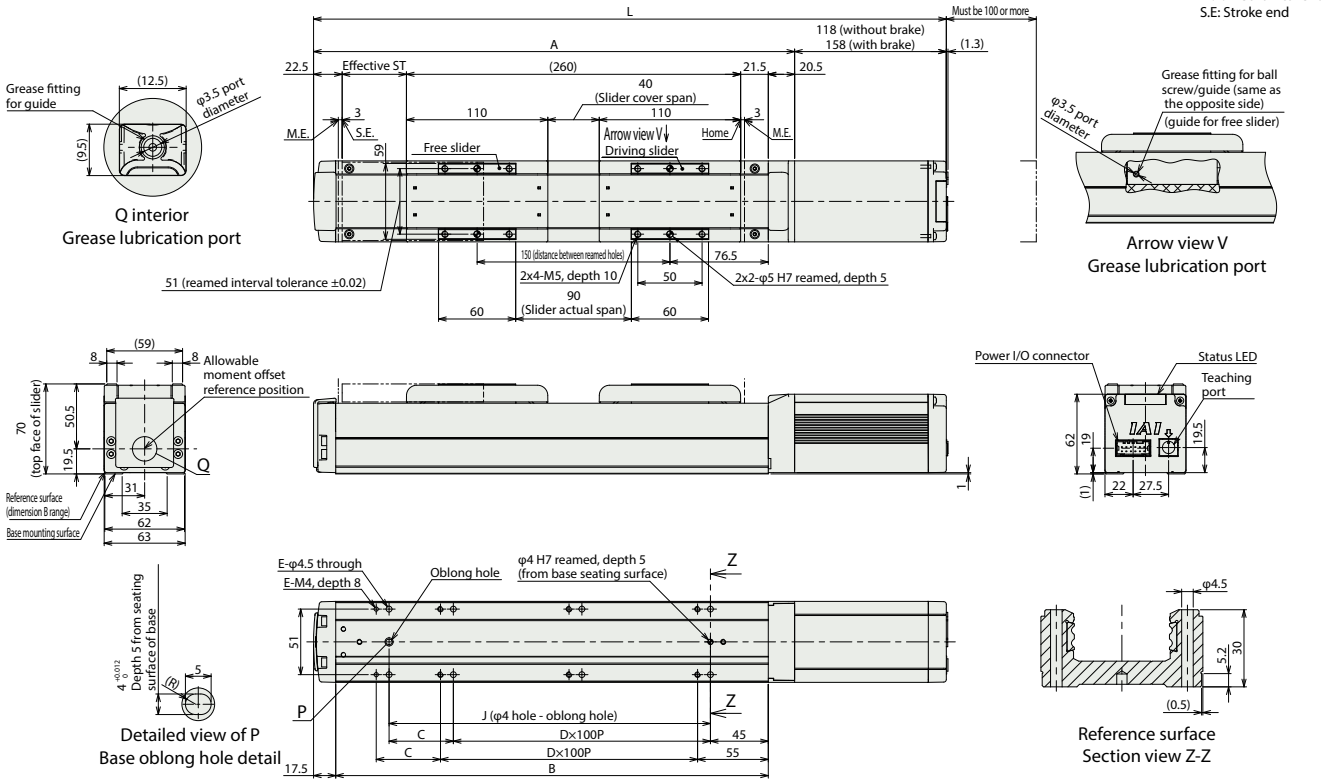
Dimensions (double slider specification)

■ EC-(D)S6□AH (double slider specification)

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(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■ Dimensions by stroke

Nominal stroke		200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650
L	Without brake	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50
D		2	3	3	4	4	5	5	6	6	7	7	8	8
E		8	8	10	10	12	12	14	14	16	16	18	18	20
J		250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Nominal stroke			200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke			50	100	150	200	250	300	350	400	450	500	550	600	650
Mass (kg)	Without digital speed controller	Without brake	3.03	3.33	3.53	3.73	3.93	4.23	4.43	4.63	4.83	5.13	5.33	5.53	5.73
		With brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83	6.03
	With digital speed controller	Without brake	3.03	3.33	3.53	3.73	3.93	4.23	4.43	4.63	4.83	5.13	5.33	5.53	5.73
		With brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83	6.03

(Note) Mass is added by 0.43kg of additional slider to the single slider specification.

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7□AH
EC-DS7□AH

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Series] - [Type] [Lead] - AH - [Specifications] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type	
S7	Standard
DS7	Digital speed controller

Lead	
S	24mm
H	16mm
M	8mm
L	4mm

Specifications	
AH	High rigidity

Stroke	
50	50mm
↓	↓
800	800mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	S7□AH	DS7□AH	Stroke (mm)	S7□AH	DS7□AH
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification (Note 2) (Note 3)	**G1/G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 4)	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 3) (Note 4) (Note 5)	**W**	2-129
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The maximum speed and payload of the specified grease specification (G1) option are the same as the speed and payload by acceleration/deceleration of the clean room specification.
(Note 3) Double slider specification (W) and specified grease specification (G1/G5) cannot be used together.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) There are some non-selectable leads. See P. 2-123 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm (under 600mm for double slider specification) in the direction of Ma, Mb and Mc.
(6) 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, operating conditions should be moderated if some abnormal vibration or noise is observed.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 6) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 8) (with connectors on both ends)
		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 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1230	980	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1230	840	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±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: 115N·m
	Mb: 115N·m
	Mc: 229N·m
Dynamic allowable moment (Note 9)	Ma: 75.5N·m
	Mb: 90.0N·m
	Mc: 134N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 9) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

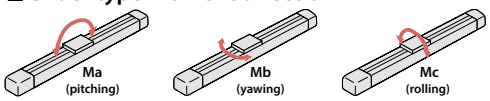


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5
1080	8	4.5	3	1.5	1	0.5
1230	3	1.5	1	0.5	0.5	

(Note) Refer to the caution below when "G5" option is selected.

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2
840	7	4	2		0.5	
980	4					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	35	20	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 24: 860mm/s or less
* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

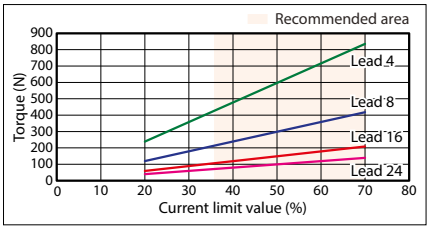
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 500 (Every 50mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1230			1080	950	840	750
	Enabled	800						750
16	Disabled	980 <840>	955 <840>	820	715	625	555	495
	Enabled	560					555	495
8	Disabled	420		405	350	310	275	245
	Enabled	280					275	245
4	Disabled	210 <175>		195 <175>	175	150	135	120
	Enabled	140					135	120

(Unit: mm/s)

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

Correlation between Torque and Current Limit

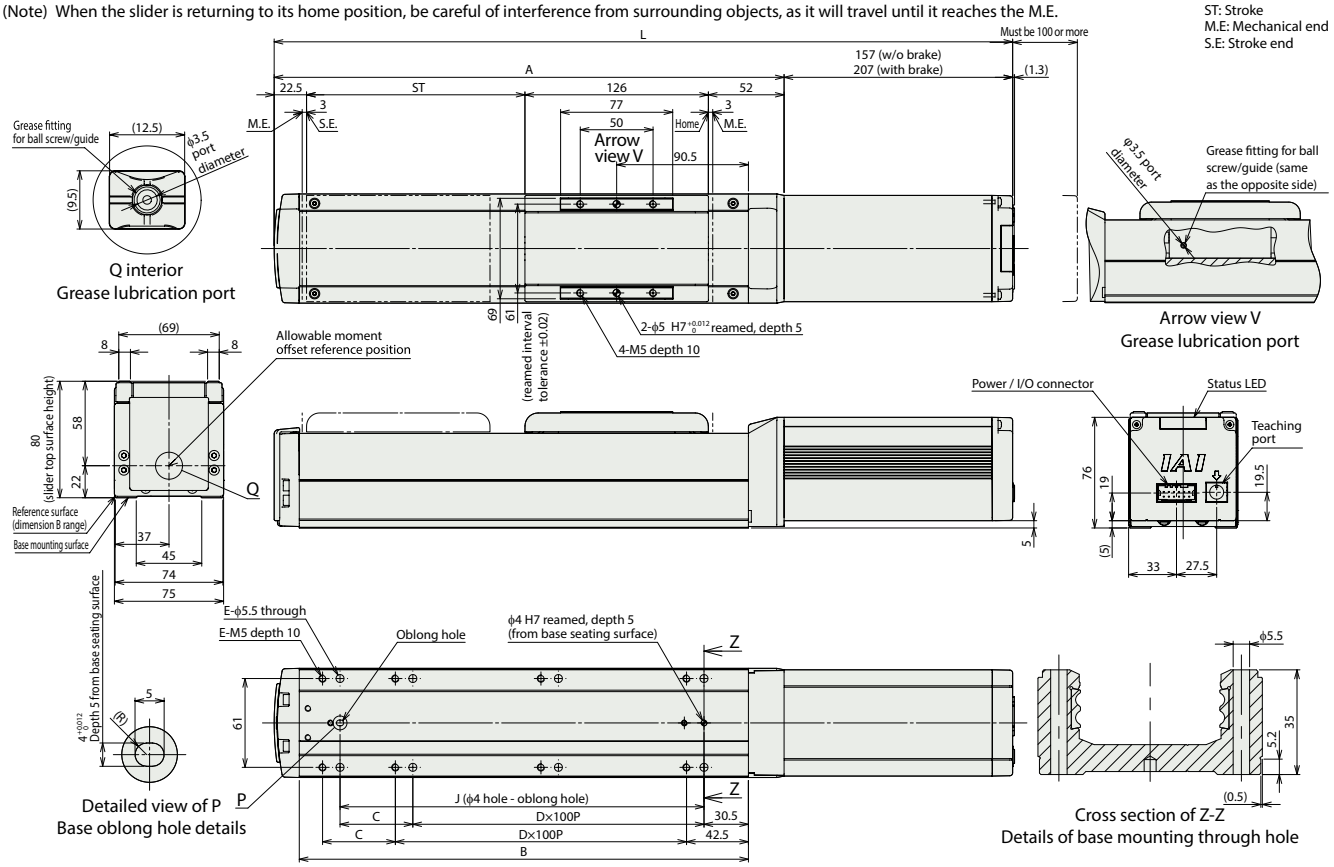


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■ EC-S7□AH

(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.

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



■ Dimensions by stroke

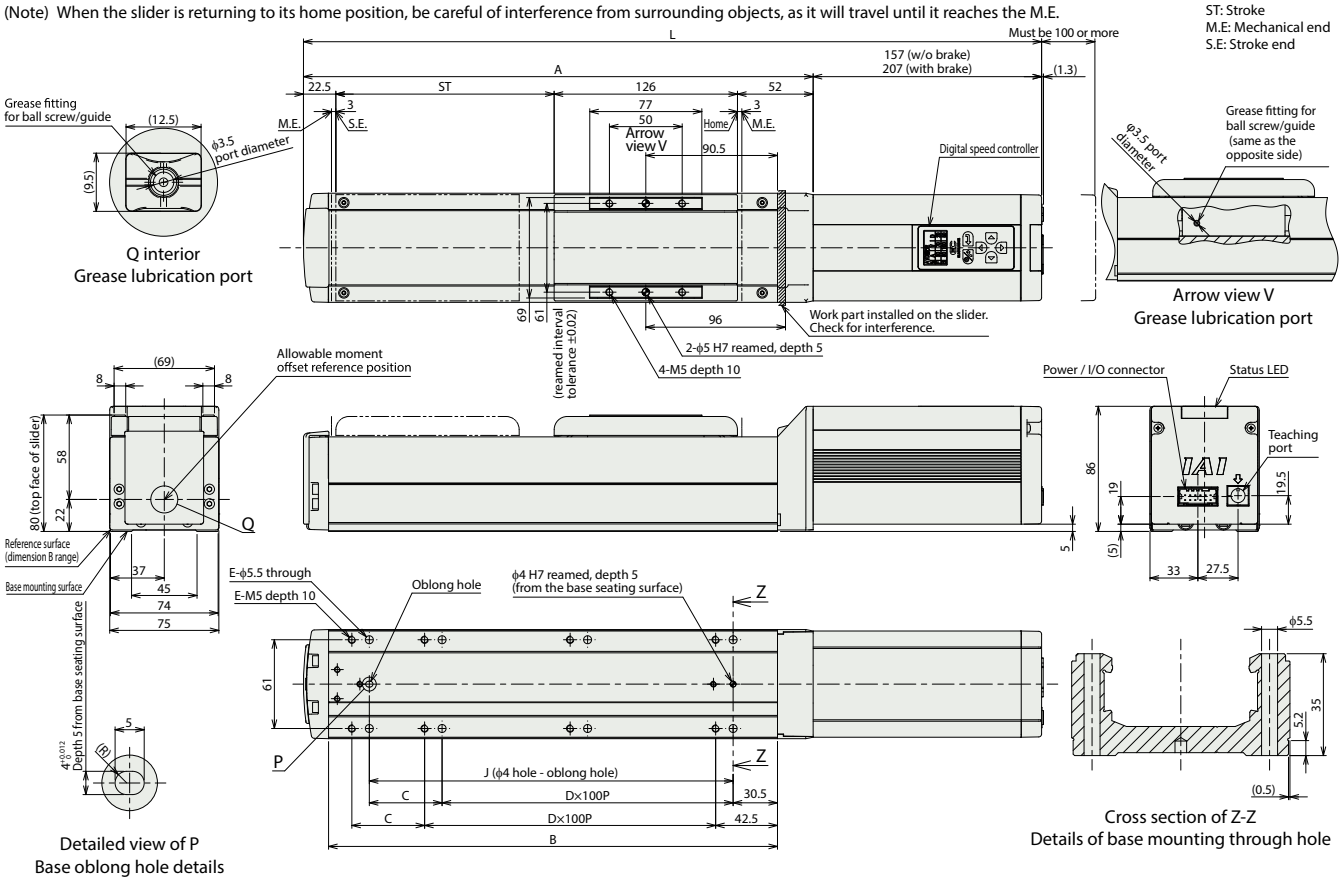
Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.9	4.1	4.4	4.7	4.9	5.2	5.5	5.7	6	6.3	6.5	6.8	7.1	7.3	7.6	7.9
	With brake	4.4	4.6	4.9	5.2	5.4	5.7	6	6.2	6.5	6.8	7	7.3	7.6	7.8	8.1	8.4

■ EC-DS7□AH <with digital speed controller>

(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.



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.0	4.2	4.5	4.8	5.0	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.2	7.4	7.7	8.0
	With brake	4.6	4.8	5.1	5.4	5.6	5.9	6.2	6.4	6.7	7.0	7.2	7.5	7.8	8.0	8.3	8.6

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	44	49	49
		Max. payload (kg) (energy-saving enabled)	33	38	38
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	420	175
		Min. speed (mm/s)	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	—	14	23
		Max. payload (kg) (energy-saving enabled)	—	8	13
	Speed / acceleration/ deceleration	Max. speed (mm/s)	—	350	175
		Min. speed (mm/s)	—	10	5
		Rated acceleration/deceleration (G)	—	0.3	0.3
		Max. acceleration/deceleration (G)	—	0.5	0.5
Push		Max. push force (N)	209	418	836
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	8	16	25
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	800	800	800
		Max. effective stroke (mm)	650	650	650
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 16 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 900N·m
	Mb: 900N·m
	Mc: 458N·m
Dynamic allowable moment (Note 10)	Ma: 316N·m
	Mb: 376N·m
	Mc: 218N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

Slider type moment direction

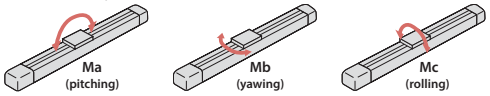


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	44	33	26	25		
140	44	33	26	25		
280	44	32	22	20		
420	30	20	10	6		
560	10	6	4	2		

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	14	14
70	49	43	38	38	14	14
140	49	38	36	33	14	14
210	49	33	28	20	8	7
280	36	24	16	10	5	4
350	14	4	1		1	
420	3					

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	23	23
35	49	43	38	38	23	23
70	49	43	38	38	23	23
105	49	43	38	33	18	17
140	40	30	25	20	9	7
175	25	8			4	1

Energy-saving setting enabled (The unit for payload is kg.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	33	18	
140	33	18	
280	23	10	
420	10	3	

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	23	8
70	38	23	8
140	38	23	5
210	20	10	2
280	5		

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	28	13
35	38	28	13
70	38	28	13
105	36	26	4
140	6		

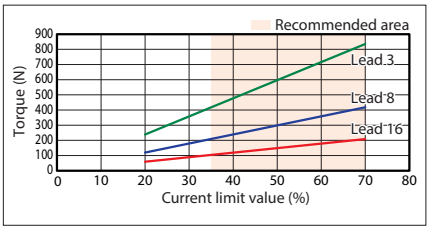
Stroke and Max Speed (double slider specification)

Lead (mm)	Nominal stroke / Effective stroke / Energy-saving setting	200~550 / 50~400 / (Every 50mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
16	Disabled	560				555	495
	Enabled	420					
8	Disabled	420<350>	405<350>	350	310	275	245
	Enabled	280<210>				275<210>	245<210>
4	Disabled	175			150	135	120
	Enabled	140<105>				135<105>	120<105>

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between Torque and Current Limit (double slider specification)



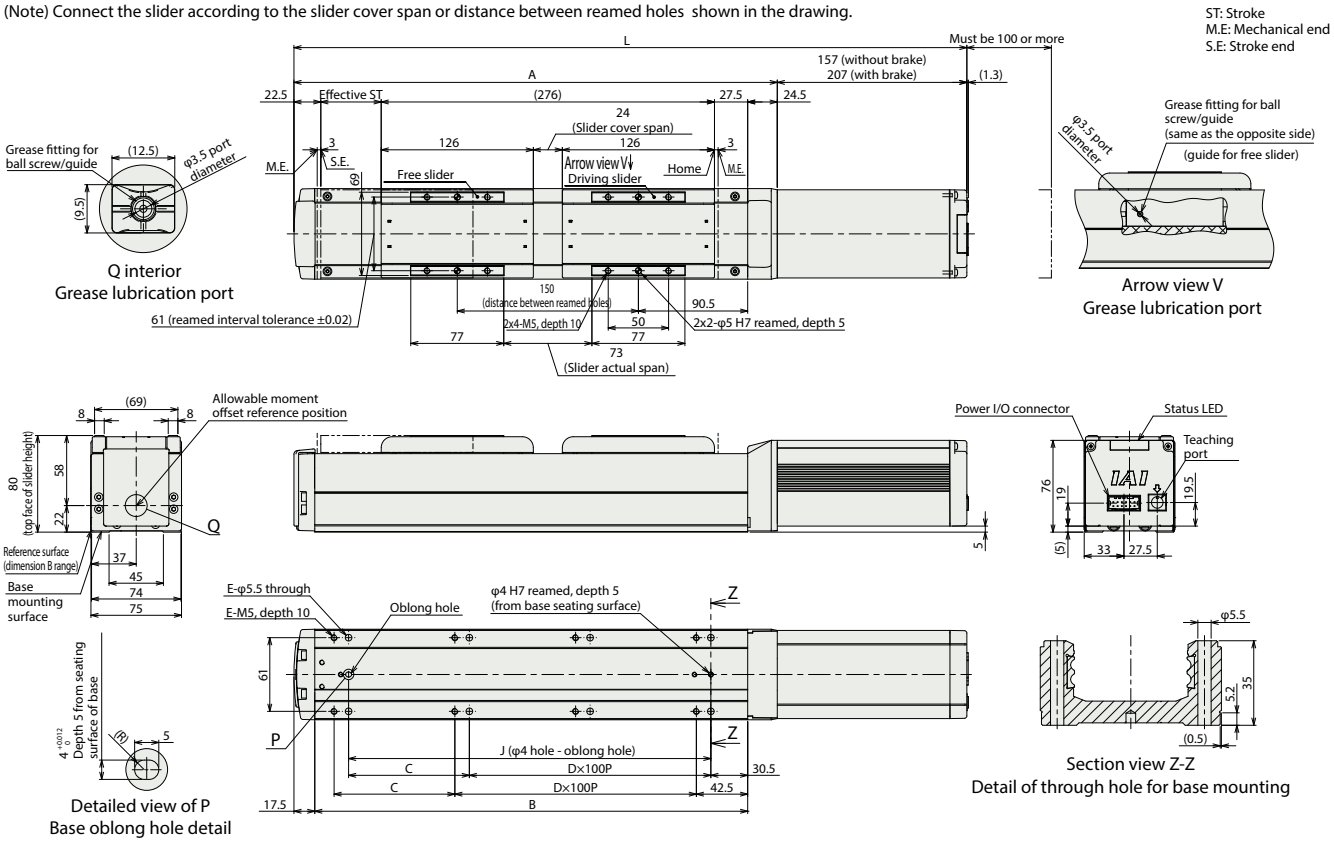
(Note) Same values as single slider specification.

Dimensions (double slider specification)

■ EC-(D)S7□AH (double slider specification)

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(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.



■ Dimensions by stroke

Nominal stroke		200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650
L	Without brake	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0
D		3	3	4	4	5	5	6	6	7	7	8	8	9
E		8	10	10	12	12	14	14	16	16	18	18	20	20
J		300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Nominal stroke			200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke			50	100	150	200	250	300	350	400	450	500	550	600	650
Mass (kg)	Without digital speed controller	Without brake	5.43	5.63	5.93	6.23	6.43	6.73	7.03	7.23	7.53	7.83	8.03	8.33	8.63
		With brake	5.93	6.13	6.43	6.73	6.93	7.23	7.53	7.73	8.03	8.33	8.53	8.83	9.13
	Without digital speed controller	Without brake	5.53	5.73	6.03	6.33	6.53	6.83	7.13	7.33	7.63	7.93	8.13	8.43	8.73
		With brake	6.13	6.33	6.63	6.93	7.13	7.43	7.73	7.93	8.23	8.53	8.73	9.03	9.33

(Note) Mass is added by 0.73kg of additional slider to the single slider specification.

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-WS10
EC-DWS10

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 100 mm | 24V Stepper Motor

Model Specification Items

EC -		-		-		-	
Series	Type	Lead	Stroke	Power / I/O cable length	Options
	WS10 Standard DWS10 Digital speed controller	S 20mm H 12mm M 6mm L 3mm	50 50mm ↕ ↕ 500 500mm (Every 50mm)	See power / I/O cable length below	See options below



Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	WS10	DWS10	Stroke (mm)	WS10	DWS10
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Air cylinder mounting plate	**CS**	2-373
Digital speed controller installation direction (left) (Note 2)	**DL**	2-374
Digital speed controller installation direction (right) (Note 2)	**DR**	2-374
Designated grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Available only for DWS10. Be sure to enter a model in the options section of the model number.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 400mm in the Ma, Mb, and Mc directions.
(5) 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.
(6) The "H" and "S" leads cannot be vertically mounted.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	4	15	25	44
		Max. payload (kg) (energy-saving enabled)	4	15	25	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	900	640	400	160
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	-	4	7
		Max. payload (kg) (energy-saving enabled)	-	-	4	7
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	-	360	160
		Min. speed (mm/s)	-	-	8	4
		Rated acceleration/deceleration (G)	-	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	-	0.5	0.3
Push		Max. push force (N)	34	57	114	228
		Max. push speed (mm/s)	25	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	-	-	4	7
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, φ10mm, rolled C10
Positioning repeatability	±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: 172N•m
	Mb: 172N•m
	Mc:4 36N•m
Dynamic allowable moment (Note 6)	Ma: 44.7N•m
	Mb: 44.7N•m
	Mc: 113N•m
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 (□35)
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.

Slider type moment direction

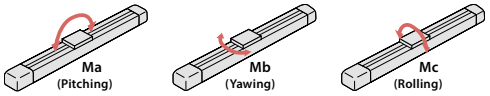


Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	4	3.5	3	2
320	4	3.5	3	2
480	4	3.5	3	2
600	4	3.5	3	2
700	4	2.5	2	1.5
800	3	2	1.5	1
900		1	1	

Lead 12

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	15	11	9	6
160	15	11	9	6
280	15	11	9	6
320	15	10	8	5
400	12	8	6	4
480	10	6.5	5	3
560	8	5	4	2
640	6	4	2	

Lead 6

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	20	4	3.5
140	25	20	4	3.5
180	25	20	4	3.5
220	25	20	4	3.5
270	20	15	4	3
320	15	9	3	2
360	11	6	2	1
400	7	3		

Lead 3

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	44	7
60	44	7
80	44	7
110	40	7
135	37	7
160	30	2

Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	4	3
320	4	3
480	4	3
600	4	2
700	2.5	1
800	1	

Lead 12

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	15	7
160	15	7
280	13	6
320	11	5
400	8	3.5
480	5	2
560	3	

Lead 6

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	25	4
140	25	4
180	20	4
220	15	3
270	10	1.5
320	4	

Lead 3

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	40	7
60	40	7
80	40	7
110	35	4.5
135	25	1.5

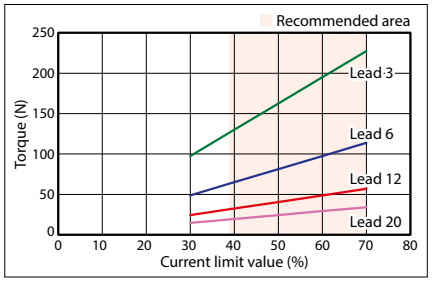
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
20	Disabled	900			800	700	600	480
	Enabled	800				700	600	480
12	Disabled	640		560	480	400	320	280
	Enabled	560			480	400	320	280
6	Disabled	400 <360>	360	270	210	180	140	120
	Enabled	320 <270>		270	210	180	140	120
3	Disabled	160		135	110	80	70	60
	Enabled	135			110	80	70	60

(Unit: mm/s)

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

Correlation between torque and current limit



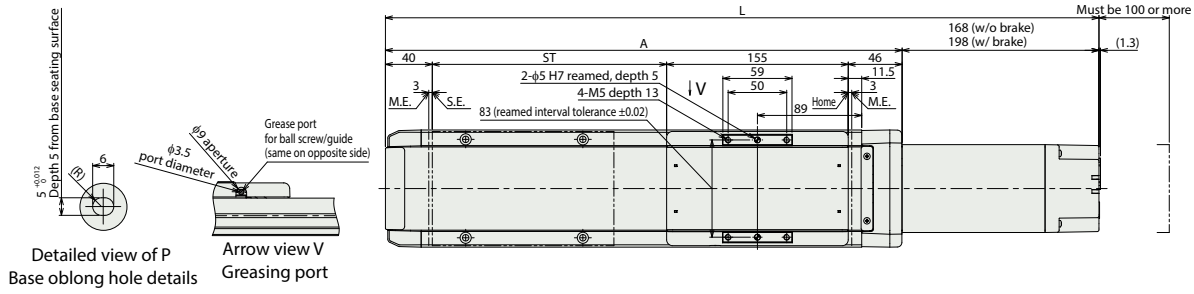
Dimensions

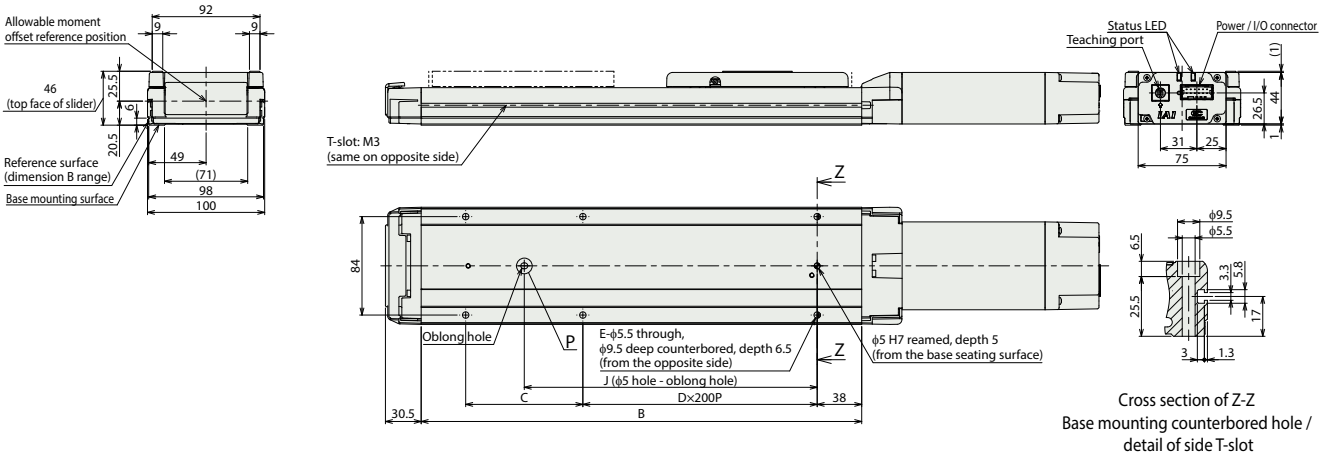
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EC-WS10

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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





Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	459	509	559	609	659	709	759	809	859	909
	With brake	489	539	589	639	689	739	789	839	889	939
A		291	341	391	441	491	541	591	641	691	741
B		226	276	326	376	426	476	526	576	626	676
C		150	200	50	100	150	200	50	100	150	200
D		0	0	1	1	1	1	2	2	2	2
E		4	4	6	6	6	6	8	8	8	8
J		100	150	200	250	300	350	400	450	500	550

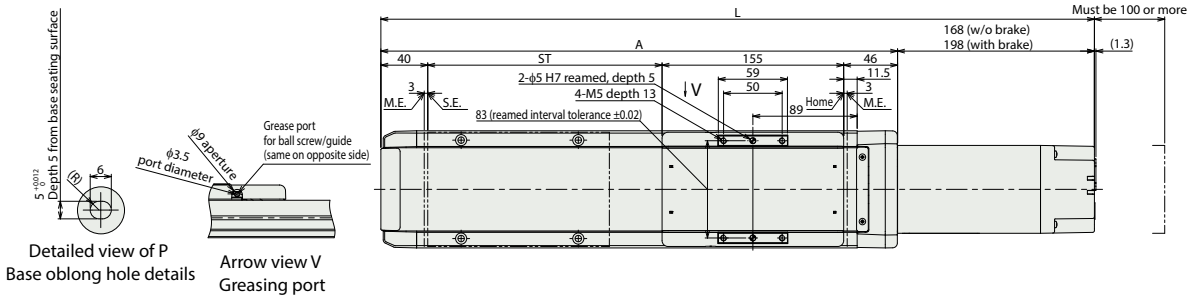
Mass by stroke

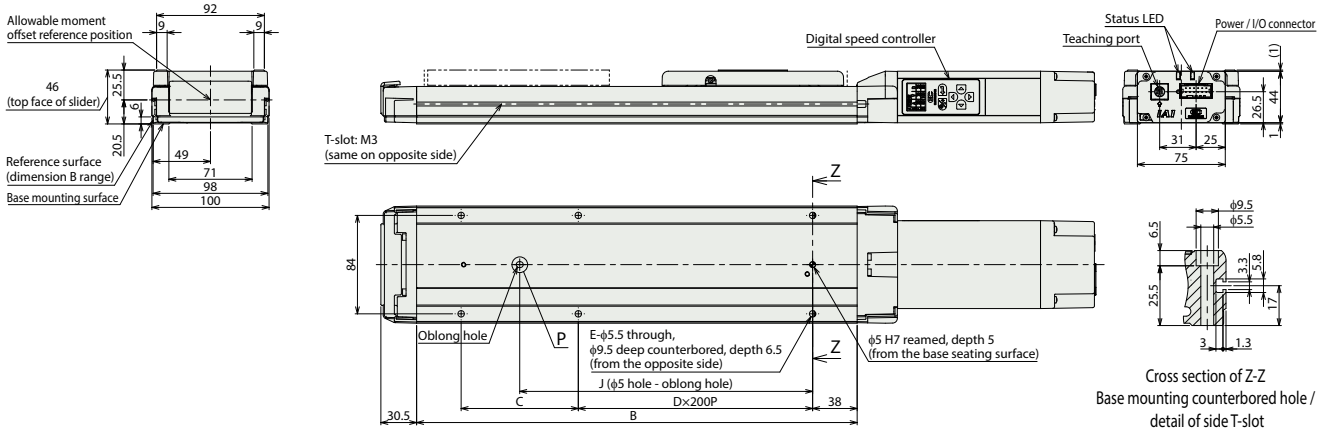
Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
	With brake	2.8	3.1	3.3	3.5	3.8	4.1	4.3	4.5	4.8	5.0

■EC-DWS10 <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for digital speed controller installation direction left (DL). These would be reversed for digital speed controller installation direction right (DR).

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





■Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	459	509	559	609	659	709	759	809	859	909
	With brake	489	539	589	639	689	739	789	839	889	939
A		291	341	391	441	491	541	591	641	691	741
B		226	276	326	376	426	476	526	576	626	676
C		150	200	50	100	150	200	50	100	150	200
D		0	0	1	1	1	1	2	2	2	2
E		4	4	6	6	6	6	8	8	8	8
J		100	150	200	250	300	350	400	450	500	550

■Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
	With brake	2.8	3.1	3.3	3.5	3.8	4.1	4.3	4.5	4.8	5.0

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-WS12
EC-DWS12

<With digital speed controller>

Simple Dust-proof | Straight Motor | Body Width 120 mm | 24v Stepper Motor

Model Specification Items

EC -		-		-		-	
Series	Type	Lead	Stroke	Power / I/O cable length	Options
	WS12 Standard DWS12 Digital speed controller	S 24mm H 16mm M 8mm L 4mm	50 50mm ↕ 800 800mm (Every 50mm)	See power / I/O cable length below	See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	WS12	DWS12	Stroke (mm)	WS12	DWS12
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Air cylinder mounting plate	**CS**	2-373
Digital speed controller installation direction (left) (Note 2)	**DL**	2-374
Digital speed controller installation direction (right) (Note 2)	**DR**	2-374
Designated grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Available only for DWS12. Be sure to enter a model in the options section of the model number.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 500mm in the Ma, Mb, and Mc directions.
(6) 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.
(7) The "H" and "S" leads cannot be vertically mounted.
(8) Push-motion operations are unavailable for the "S" lead.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

4-way connector cable

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

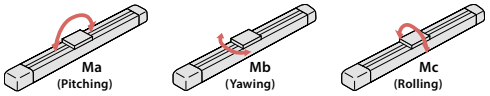
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	10	20	40	62
		Max. payload (kg) (energy-saving enabled)	8	15	30	50
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1000	720	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	-	8	13.5
		Max. payload (kg) (energy-saving enabled)	-	-	8	13.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	-	360	210
		Min. speed (mm/s)	-	-	10	5
		Rated acceleration/deceleration (G)	-	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	-	0.5	0.3
Push		Max. push force (N)	-	84	168	337
		Max. push speed (mm/s)	-	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	-	-	8	13.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±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: 328N•m
	Mb: 328N•m
	Mc: 751N•m
Dynamic allowable moment (Note 6)	Ma: 77.0N•m
	Mb: 77.0N•m
	Mc: 176N•m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

■Slider type moment direction



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

Table of Payload by Speed/Acceleration

■Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	10	8	6	4
360	10	8	6	4
460	10	8	6	3.5
500	10	7.5	5.5	3.5
580	10	6.5	4.5	3
640	10	6	4	2.5
700	9	5	3.5	2
800	7.5	4.5	3	1.5
900	6	3	2	
1000		1.5		

Lead 16

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	20	14	9	7
280	20	14	9	7
320	20	14	9	6
360	20	14	8.5	5.5
420	20	12	7	5
460	18	11	6.5	4.5
500	16	10	6	4
580	13	8	4.5	3
640	11	6	3.5	2
720	7	4	2	

Lead 8

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	40	30	8	7.5
140	40	30	8	7.5
160	40	30	8	7.5
190	40	30	8	7.5
220	40	25	7	6
250	35	20	6	5
280	30	16	5	4
320	22	12	4	3
360	15	9	3	2
420	8	5		

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	62	13.5
65	62	13.5
75	62	13.5
95	62	13.5
110	62	13.5
125	55	13.5
140	50	11
160	42	9
180	35	7
210	20	3

■Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	8	5
360	8	5
460	8	4
500	7.5	3.5
580	6.5	3
640	5	2.5
700	4	1.5
800	1.5	

Lead 16

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	15	7
280	15	7
320	15	7
360	13	6
420	11	5
460	10	4.5
500	8	3
580	5	1.5
640	3	

Lead 8

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	30	8
140	30	8
160	30	8
190	25	6.5
220	20	4.5
250	16	3
280	12	2
320	8	

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	50	13.5
65	50	13.5
75	50	13.5
95	50	11
110	40	8
125	32	6
140	25	4
160	15	2

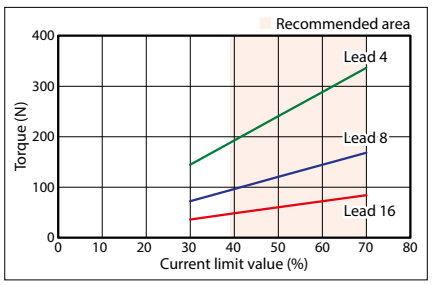
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 250 (Every 50mm)	300 (mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1000				900	800	700	580	500	460	400	360
	Enabled	800						700	580	500	460	400	360
16	Disabled	720		640	580	500	420	360	320	280	240	220	200
	Enabled	640			580	500	420	360	320	280	240	220	200
8	Disabled	420 <360>	360	280	250	220	190	170	150	130	110	90	85
	Enabled	320 <280>		280	250	220	190	170	150	130	110	90	85
4	Disabled	210	180	140	125	110	95	85	75	65	55	50	45
	Enabled	160		140	125	110	95	85	75	65	55	50	45

(Unit: mm/s)

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

Correlation between torque and current limit

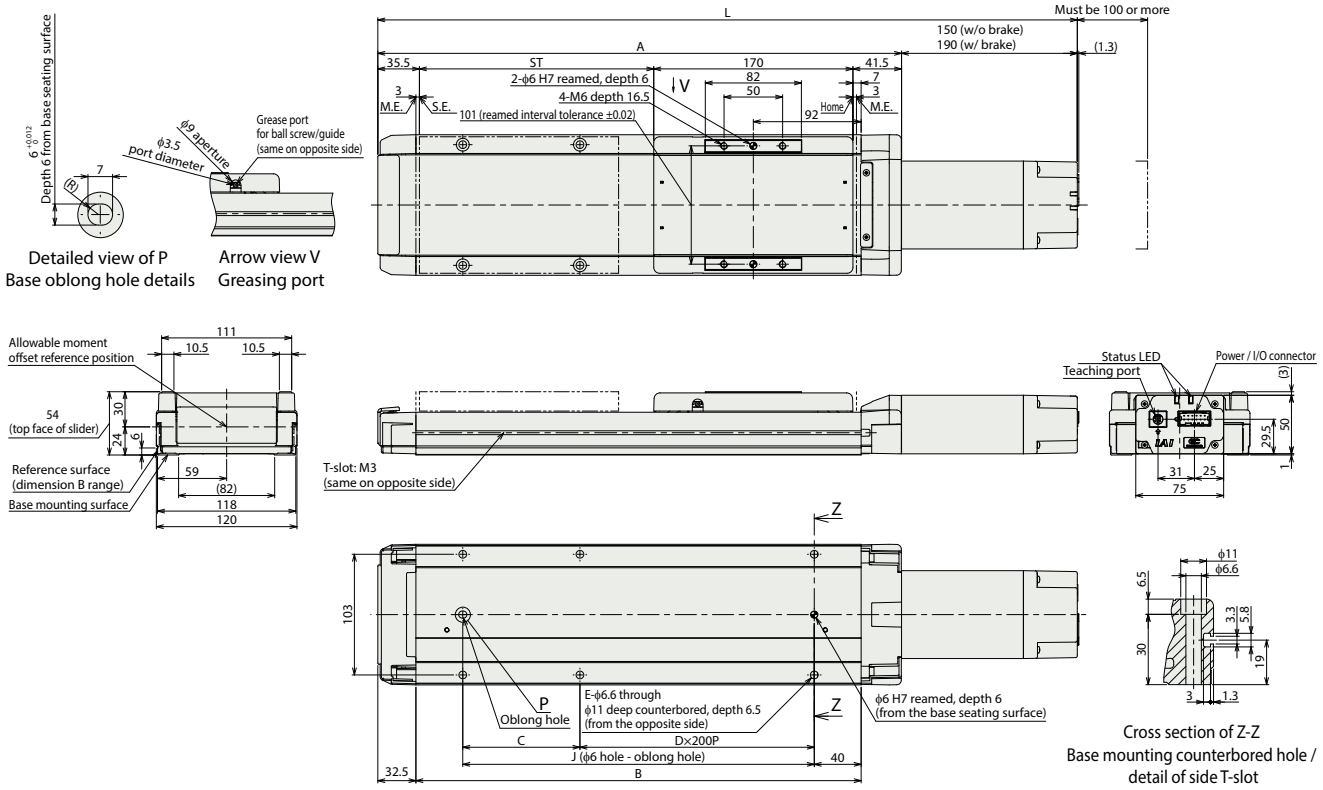


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www.iai-automation.com

■EC-WS12

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■Dimensions by stroke

	Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197
	With brake	487	537	587	637	687	737	787	837	887	937	987	1037	1087	1137	1187	1237
A		297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047
B		230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
C		150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
D		0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4
E		4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

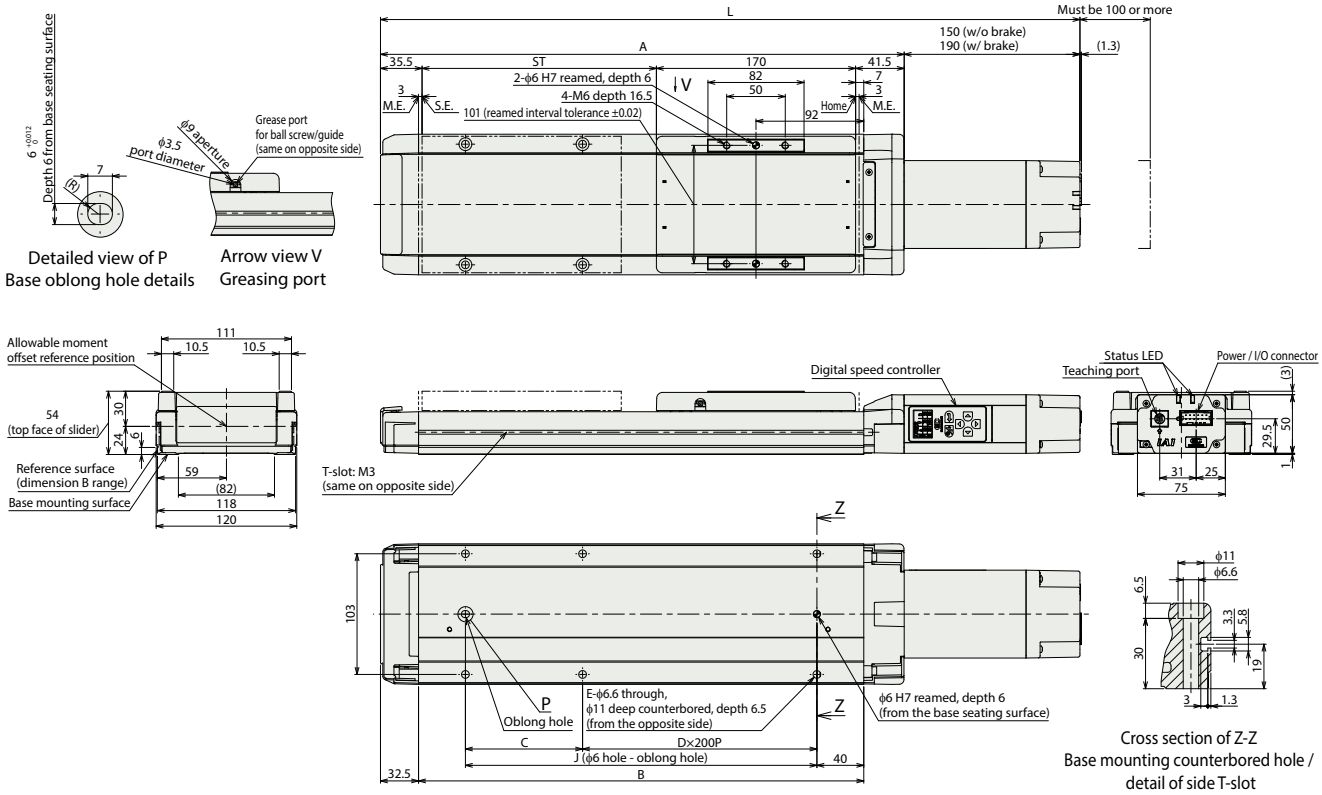
■Mass by stroke

	Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.4	3.7	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.4	8.7
	With brake	3.7	4.0	4.4	4.7	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.6	7.9	8.3	8.6	9.0

■EC-DWS12 <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for digital speed controller installation direction left (DL). These would be reversed for digital speed controller installation direction right (DR).

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



■Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197
	With brake	487	537	587	637	687	737	787	837	887	937	987	1037	1087	1137	1187	1237
A		297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047
B		230	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980
C		150	200	50	100	150	200	50	100	150	200	50	100	150	200	50	100
D		0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4
E		4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.4	3.7	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.4	8.7
	With brake	3.7	4.0	4.4	4.7	5.1	5.5	5.8	6.2	6.5	6.9	7.2	7.6	7.9	8.3	8.6	9.0

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

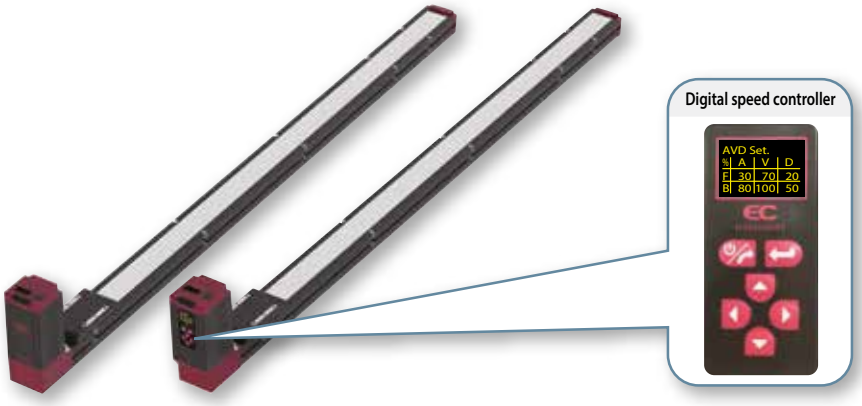
EC-B6S/B6SU
EC-DB6S/DB6SU

Simple Dust-proof | Straight Motor | Body Width 60 mm | 24v Stepper Motor | Belt Type

■ Model Specification Items

EC - [ ] S [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
	B6	Standard	S	48mm	Blank	Upward facing motor	300 ~ 2600	300mm ~ 2600mm (Every 100mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DB6	Digital speed controller			U	Downward facing motor				



CE RoHS 10

Horizontal | Side | Ceiling | Vertical

(Note) Photo above shows upward facing motor specification.

■ Stroke

Stroke (mm)	EC-B6/DB6	Stroke (mm)	EC-B6/DB6
300	○	1500	○
400	○	1600	○
500	○	1700	○
600	○	1800	○
700	○	1900	○
800	○	2000	○
900	○	2100	○
1000	○	2200	○
1100	○	2300	○
1200	○	2400	○
1300	○	2500	○
1400	○	2600	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification	G5	2-381
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The belt type may cause vibration or noise during low-speed operation, so set the moving speed to 100mm/s or more.
(2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(3) Push-motion operation cannot be performed.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions.
(6) 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.

■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	11
		Max. payload (kg) (energy-saving enabled)	3
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500
		Min. speed (mm/s)	100
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	1.0
Brake		Brake specification	Non-excitation actuating solenoid brake
		Brake holding force (kgf)	1.3
Stroke		Min. stroke (mm)	300
		Max. stroke (mm)	2600
		Stroke pitch (mm)	100

Item	Description
Driving system	Timing belt, width 9mm, pitch 3mm, lead 48mm equivalent
Positioning repeatability	±0.08mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 97.1N·m
Dynamic allowable moment (Note 5)	Ma: 11.6N·m
	Mb: 16.6N·m
	Mc: 23.3N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

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

■ Slider type moment direction

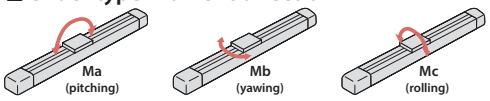


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg.)

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	11	10	8	7
200	11	10	8	7
300	11	8.5	7	6
600	7	5	4	3
1000	4	3	2	1
1200	3	2	1	0.5
1400	2	1	1	0.5
1500	2	1	1	0.5

■ Energy-saving setting enabled (The unit for payload is kg.)

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	3	2
800	3	2
1400	0.5	0.5

Stroke and Max Speed

Energy-saving setting	300 (mm)	400 (mm)	500 (mm)	600 (mm)	700 (mm)	800 (mm)	900 ~ 2600 (Every 100mm)
Disabled	890	1070	1220	1340	1400	1440	1500
Enabled	890	1070	1220	1300	1350	1400	

(Unit: mm/s)

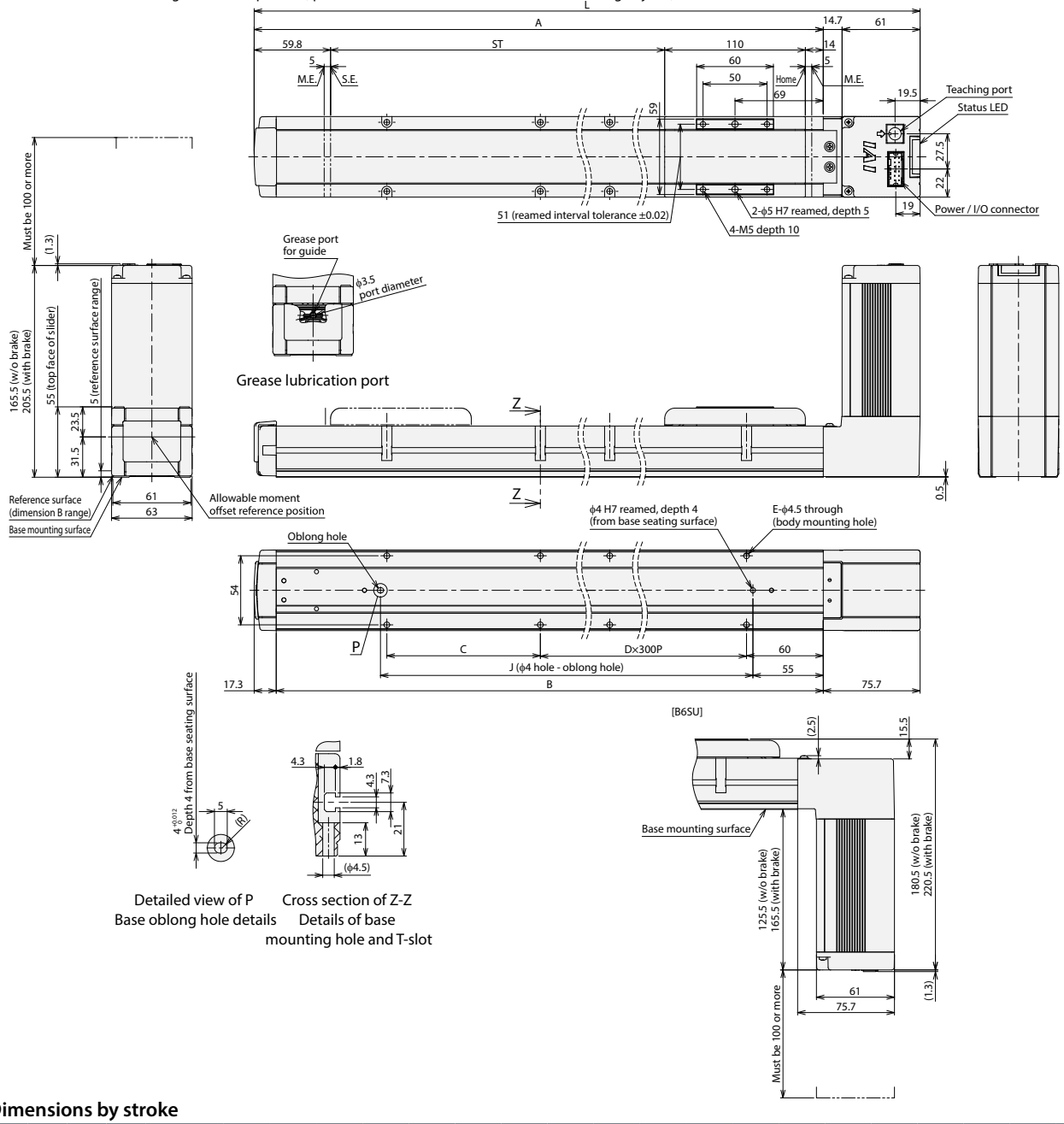
Dimensions

CAD drawings can be downloaded from our website.
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■EC-B6S/B6SU

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

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



Detailed view of P
Base oblong hole details

Cross section of Z-Z
Details of base
mounting hole and T-slot

■ Dimensions by stroke

Stroke	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
L	559.5	659.5	759.5	859.5	959.5	1059.5	1159.5	1259.5	1359.5	1459.5	1559.5	1659.5	1759.5	1859.5	1959.5	2059.5	2159.5	2259.5	2359.5	2459.5	2559.5	2659.5	2759.5	2859.5
A	483.8	583.8	683.8	783.8	883.8	983.8	1083.8	1183.8	1283.8	1383.8	1483.8	1583.8	1683.8	1783.8	1883.8	1983.8	2083.8	2183.8	2283.8	2383.8	2483.8	2583.8	2683.8	2783.8
B	466.5	566.5	666.5	766.5	866.5	966.5	1066.5	1166.5	1266.5	1366.5	1466.5	1566.5	1666.5	1766.5	1866.5	1966.5	2066.5	2166.5	2266.5	2366.5	2466.5	2566.5	2666.5	2766.5
C	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220
D	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8
E	4	6	6	6	8	8	8	10	10	10	12	12	12	14	14	14	16	16	16	18	18	18	20	20
J	330	430	530	630	730	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430	2530	2630

■ Mass by stroke

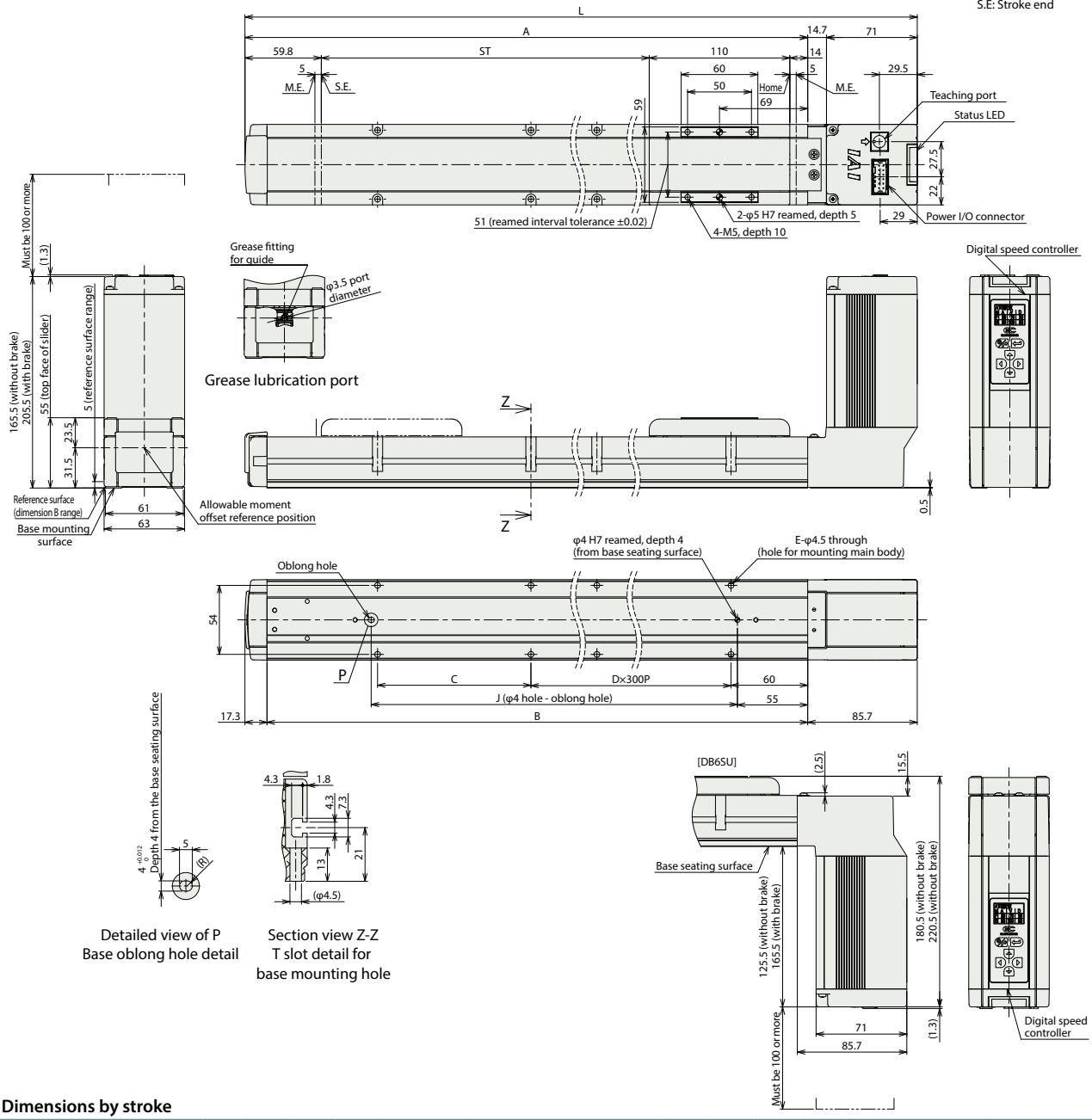
Stroke		300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
Mass (kg)	Without brake	2.7	3.0	3.4	3.7	4.0	4.3	4.7	5.0	5.3	5.6	5.9	6.3	6.6	6.9	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.8	10.2
	With brake	3.0	3.3	3.7	4.0	4.3	4.6	5.0	5.3	5.6	5.9	6.2	6.6	6.9	7.2	7.5	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.1	10.5

(Note) B6SU also has the same mass.

■EC-DB6S/DB6SU <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The orientation of the digital speed controller cannot be changed from the drawings below.

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



Detailed view of P
Base oblong hole detail

Section view Z-Z
T slot detail for
base mounting hole

■Dimensions by stroke

Stroke	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
L	569.5	669.5	769.5	869.5	969.5	1069.5	1169.5	1269.5	1369.5	1469.5	1569.5	1669.5	1769.5	1869.5	1969.5	2069.5	2169.5	2269.5	2369.5	2469.5	2569.5	2669.5	2769.5	2869.5
A	483.8	583.8	683.8	783.8	883.8	983.8	1083.8	1183.8	1283.8	1383.8	1483.8	1583.8	1683.8	1783.8	1883.8	1983.8	2083.8	2183.8	2283.8	2383.8	2483.8	2583.8	2683.8	2783.8
B	466.5	566.5	666.5	766.5	866.5	966.5	1066.5	1166.5	1266.5	1366.5	1466.5	1566.5	1666.5	1766.5	1866.5	1966.5	2066.5	2166.5	2266.5	2366.5	2466.5	2566.5	2666.5	2766.5
C	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220	320	120	220
D	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8
E	4	6	6	6	8	8	8	10	10	10	12	12	12	14	14	14	16	16	16	18	18	18	20	20
J	330	430	530	630	730	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430	2530	2630

■Mass by stroke

Stroke		300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
Mass (kg)	Without brake	2.7	3.0	3.4	3.7	4.0	4.3	4.7	5.0	5.3	5.6	5.9	6.3	6.6	6.9	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.8	10.2
	With brake	3.0	3.3	3.7	4.0	4.3	4.6	5.0	5.3	5.6	5.9	6.2	6.6	6.9	7.2	7.5	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.1	10.5

(Note) The mass for DB6SU is the same.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

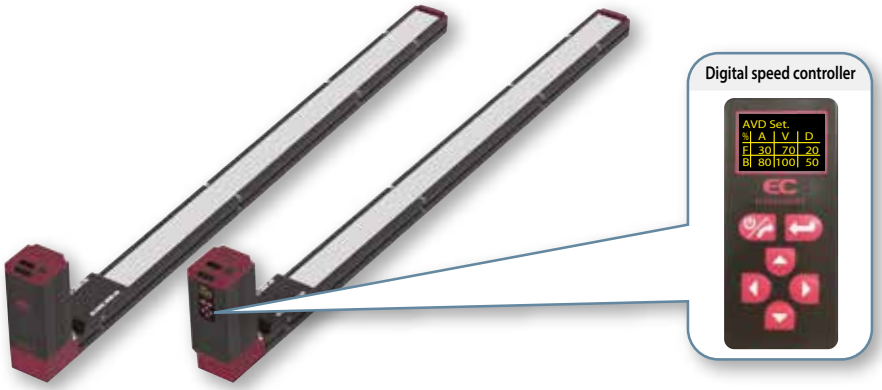
EC-B7S/B7SU
EC-DB7S/DB7SU

Simple Dust-proof | Straight Motor | Body Width 70 mm | 24v Stepper Motor | Belt Type

■ Model Specification Items

EC - [ ] S [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
	B7	Standard	S	48mm	Blank	Upward facing motor	300 ~ 2600	300mm ~ 2600mm (Every 100mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DB7	Digital speed controller			U	Downward facing motor				



Horizontal | Side | Ceiling | Vertical

(Note) Photo above shows upward facing motor specification.

■ Stroke

Stroke (mm)	EC-B7/DB7	Stroke (mm)	EC-B7/DB7
300	○	**1500**	○
400	○	**1600**	○
500	○	**1700**	○
600	○	**1800**	○
700	○	**1900**	○
800	○	**2000**	○
900	○	**2100**	○
1000	○	**2200**	○
1100	○	**2300**	○
1200	○	**2400**	○
1300	○	**2500**	○
1400	○	**2600**	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Designated grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The belt type may cause vibration or noise during low-speed operation, so set the moving speed to 100mm/s or more.
(2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(3) Push-motion operation cannot be performed.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions.
(6) 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.

■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20
		Max. payload (kg) (energy-saving enabled)	14
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1600
		Min. speed (mm/s)	100
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	1.0
Brake		Brake specification	Non-excitation actuating solenoid brake
		Brake holding force (kgf)	2.5
Stroke		Min. stroke (mm)	300
		Max. stroke (mm)	2600
		Stroke pitch (mm)	100

Item	Description
Driving system	Timing belt, width 9mm, pitch 3mm, lead 48mm equivalent
Positioning repeatability	±0.08mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79.7N·m
	Mb: 114N·m
	Mc: 157N·m
Dynamic allowable moment (Note 5)	Ma: 17.7N·m
	Mb: 25.3N·m
	Mc: 34.9N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

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

■ Slider type moment direction

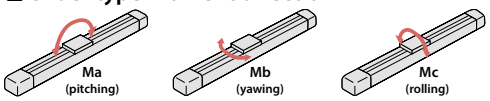


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg.)

Orientation	Horizontal			
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.7	1
0	20	20	18	16
100	20	20	18	16
200	20	20	17	15
300	19	17	15	13
600	11	9	8	7
1000	6	5	4	3
1400	3	2	1	0.5
1600	3	2	1	0.5

■ Energy-saving setting enabled (The unit for payload is kg.)

Orientation	Horizontal	
Speed (mm/s)	Acceleration (G)	
	0.3	0.7
0	14	12
100	14	12
400	10	8
800	5	3
1200	1	0.5

Stroke and Max Speed

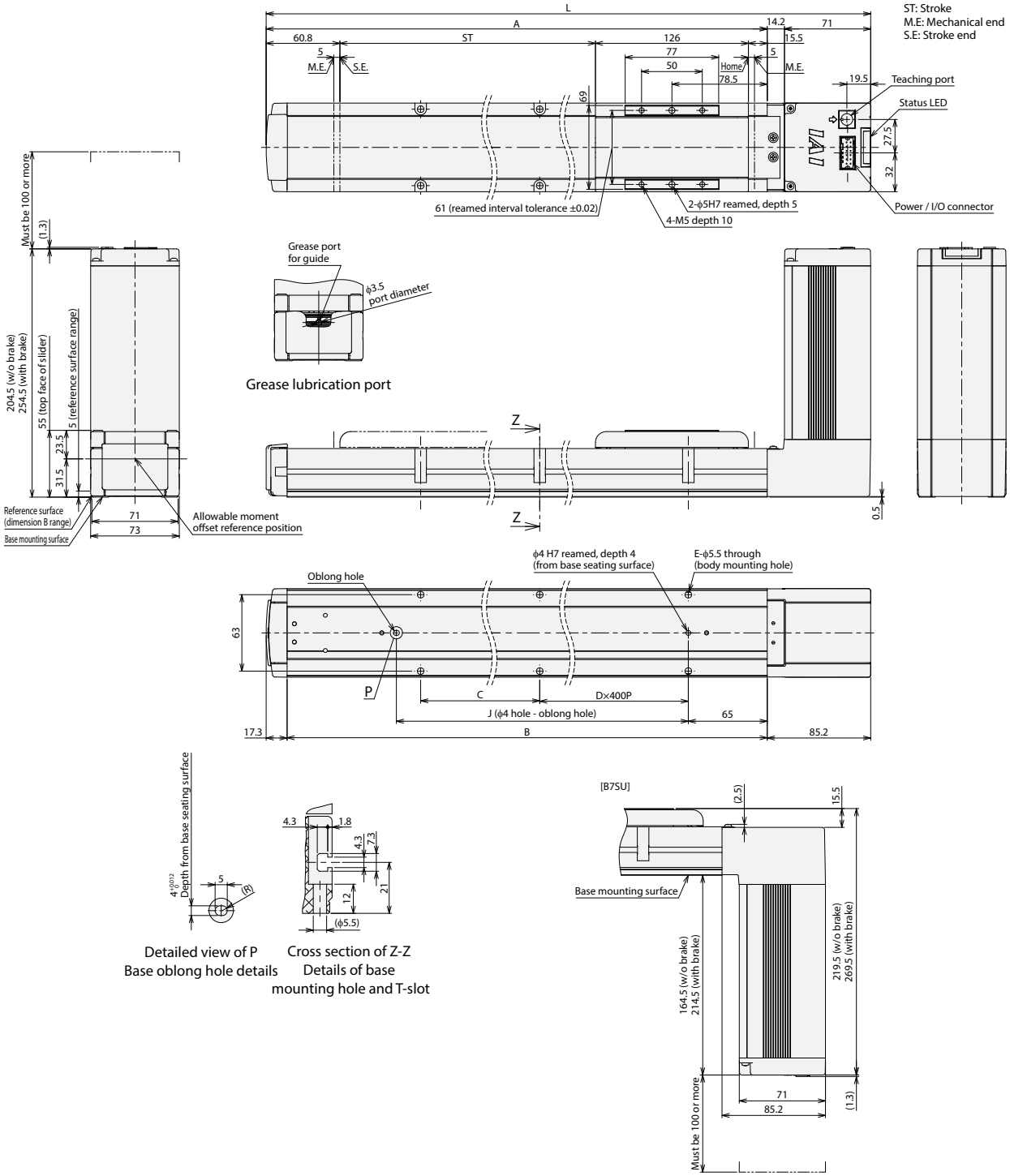
Energy-saving setting	300 (mm)	400 (mm)	500 (mm)	600 (mm)	700 (mm)	800 (mm)	900 (mm)	1000 ~ 2600 (Every 100mm)
Disabled	890	1070	1220	1340	1450	1520	1550	1600
Enabled	890	1070	1120			1200		

(Unit: mm/s)

CAD drawings can be downloaded from our website.
www.iai-automation.com

EC-B7S/B7SU

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.



Detailed view of P
Base oblong hole details

Cross section of Z-Z
Details of base
mounting hole and T-slot

Dimensions by stroke

Stroke	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
L	587.5	687.5	787.5	887.5	987.5	1087.5	1187.5	1287.5	1387.5	1487.5	1587.5	1687.5	1787.5	1887.5	1987.5	2087.5	2187.5	2287.5	2387.5	2487.5	2587.5	2687.5	2787.5	2887.5
A	502.3	602.3	702.3	802.3	902.3	1002.3	1102.3	1202.3	1302.3	1402.3	1502.3	1602.3	1702.3	1802.3	1902.3	2002.3	2102.3	2202.3	2302.3	2402.3	2502.3	2602.3	2702.3	2802.3
B	485	585	685	785	885	985	1085	1185	1285	1385	1485	1585	1685	1785	1885	1985	2085	2185	2285	2385	2485	2585	2685	2785
C	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
E	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
J	330	430	530	630	730	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430	2530	2630

Mass by stroke

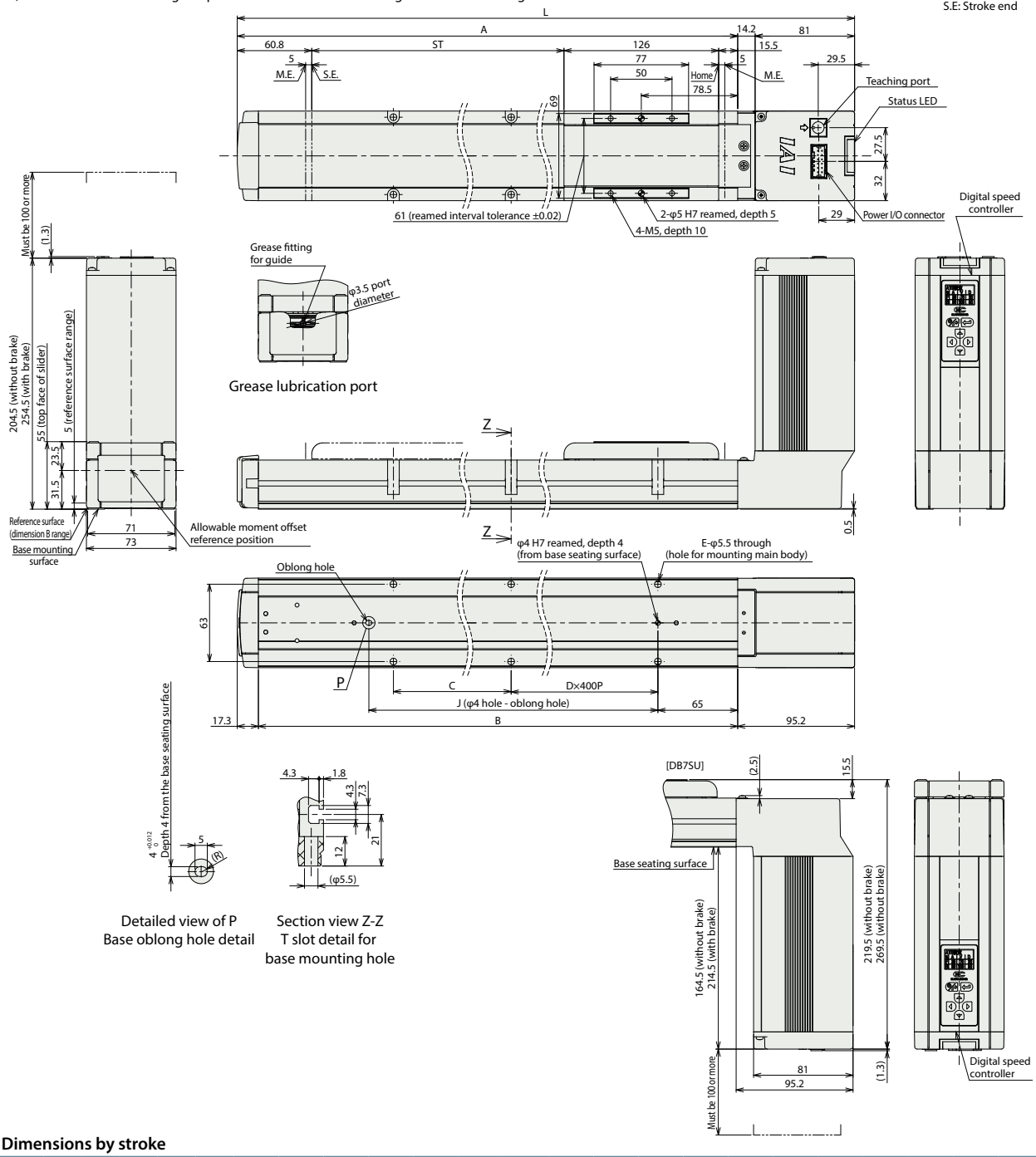
Stroke		300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
Mass (kg)	Without brake	4.6	4.9	5.2	5.6	5.9	6.2	6.5	6.8	7.1	7.5	7.8	8.1	8.4	8.7	9.1	9.4	9.7	10.0	10.3	10.7	11.0	11.3	11.6	12.0
	With brake	5.1	5.4	5.7	6.1	6.4	6.7	7.0	7.3	7.6	8.0	8.3	8.6	8.9	9.2	9.6	9.9	10.2	10.5	10.8	11.2	11.5	11.8	12.1	12.5

(Note) B7SU also has the same mass.

■EC-B7S/B7SU <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The orientation of the digital speed controller cannot be changed from the drawings below.

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



Detailed view of P
Base oblong hole detail

Section view Z-Z
T slot detail for
base mounting hole

■Dimensions by stroke

Stroke	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
L	597.5	697.5	797.5	897.5	997.5	1097.5	1197.5	1297.5	1397.5	1497.5	1597.5	1697.5	1797.5	1897.5	1997.5	2097.5	2197.5	2297.5	2397.5	2497.5	2597.5	2697.5	2797.5	2897.5
A	502.3	602.3	702.3	802.3	902.3	1002.3	1102.3	1202.3	1302.3	1402.3	1502.3	1602.3	1702.3	1802.3	1902.3	2002.3	2102.3	2202.3	2302.3	2402.3	2502.3	2602.3	2702.3	2802.3
B	485	585	685	785	885	985	1085	1185	1285	1385	1485	1585	1685	1785	1885	1985	2085	2185	2285	2385	2485	2585	2685	2785
C	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210	310	410	110	210
D	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6
E	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16
J	330	430	530	630	730	830	930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	2430	2530	2630

■Mass by stroke

Stroke		300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
Mass (kg)	Without brake	4.7	5.0	5.3	5.7	6.0	6.3	6.6	6.9	7.2	7.6	7.9	8.2	8.5	8.8	9.2	9.5	9.8	10.1	10.4	10.8	11.1	11.4	11.7	12.1
	With brake	5.2	5.5	5.8	6.2	6.5	6.8	7.1	7.4	7.7	8.1	8.4	8.7	9.0	9.3	9.7	10.0	10.3	10.6	10.9	11.3	11.6	11.9	12.2	12.6

(Note) The mass for DB7SU is the same.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S10

±10μm Standard | Battery-less Absolute | Straight Motor | Body Width 100 mm | 200V AC Servo Motor

Model items

EC - S10 - [Lead] - [Stroke] - [Power/IO cable length] - [Motor power cable length] - [Option]

Series	Type
EC	S10

Lead	
S	30mm
H	20mm
M	10mm
L	5mm

Stroke	
100	100mm
↕	↕
1100	1100mm
	(50-mm increments)

Power/IO cable length: Please see cable length table below.

Motor power cable length	
0	No cable
1	1m
↕	↕
10	10m

Option: Please see options table below.

CE RoHS 10

Horizontal | Vertical | Side | Ceiling



Stroke

Stroke (mm)	Stroke (mm)
100	650
150	700
200	750
250	800
300	850
350	900
400	950
450	1000
500	1050
550	1100
600	

POINT Selection Notes

(1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."

(2) For these actuators to operate the DC motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to P. 2-402.

(3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty ratio varies.

(4) Pay close attention to the installation orientation.

(5) Rough guide for overhang load length is 550 mm or less (780mm or less for double slider specification) in Ma/Mb/Mc directions.

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Specified grease application specification	G5	2-381
Reversed-home specification	NM	2-384
PNP specification (Note 1)	PN	2-384
Double power circuit specification (Note 1)	TMD2	2-384
Wireless communication specification	WL	2-388
Wireless axis operation compatible specification	WL2	2-388

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

Power/IO cable length

Cable code	Cable length	User wiring specification (discrete wiring) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors at both ends) 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 terminal block connector is supplied. For details, refer to P. 2-401..
(Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.
(Note) These are robot cables.

Motor power cable length

Cable code	Cable length
0	No cable
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item			Details			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Maximum payload (kg)	17	30	65	85
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	1	1	0.7	0.3
Vertical	Payload	Maximum payload (kg)	2	5	11	21
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	56.6	84.9	169.8	339.7
Brake		Brake specification	Non-excited operation electromagnetic brake			
		Brake retaining force (kgf)	2	5	11	21
Stroke		Minimum stroke (mm)	100	100	100	100
		Maximum stroke (mm)	1100	1100	1100	1100
		Stroke pitch (mm)	50	50	50	50

Item	Details
Drive method	Ball screw Φ16 mm rolled C10 equivalent
Positioning repeatability	±0.01mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma: 328 N•m {1770 N•m}
	Mb: 328 N•m {1770 N•m}
	Mc: 631 N•m {1260 N•m}
Dynamic allowable moment (Note 4)	Ma: 61.1 N•m {268 N•m}
	Mb: 61.1 N•m {268 N•m}
	Mc: 117 N•m {191 N•m}
Ambient operating air temperature, humidity	0 to 40°C, 85%RH max. (no condensation)
Protection class	-
Vibration resistance/ shock resistance	4.9m/s^2
Overseas standard compliance	CE Marking, RoHS Directive
Motor type	AC servo motor (200 V)
Rated motor capacity	100W
Encoder type	Battery-less absolute
Encoder pulse count	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

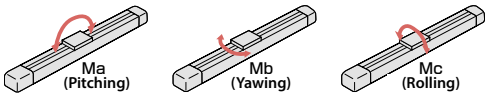


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 30

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	17	11	7.5	4.5	2	2	2
1500	17	11	7.5	4.5	2	2	2

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	30	19.5	12.5	7.5	5	4.5	3.5
1000	30	19.5	12.5	7.5	5	4.5	3.5

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	65	33	19	11	9
500	65	33	19	11	9

Lead 5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	85	21
250	85	21

Stroke and maximum speed

Lead(mm) \ Stroke	100 ~ 700 (50-mm increment)	750 (mm)	800 (mm)	850 (mm)	900 (mm)	950 (mm)	1000 (mm)	1050 (mm)	1100 (mm)
30	1500	1328	1187	1068	965	877	800	733	674
20	1000	886	792	712	644	585	533	489	449
10	500	443	396	356	322	292	267	244	225
5	250	221	198	178	161	146	133	122	112

(unit: mm/s)

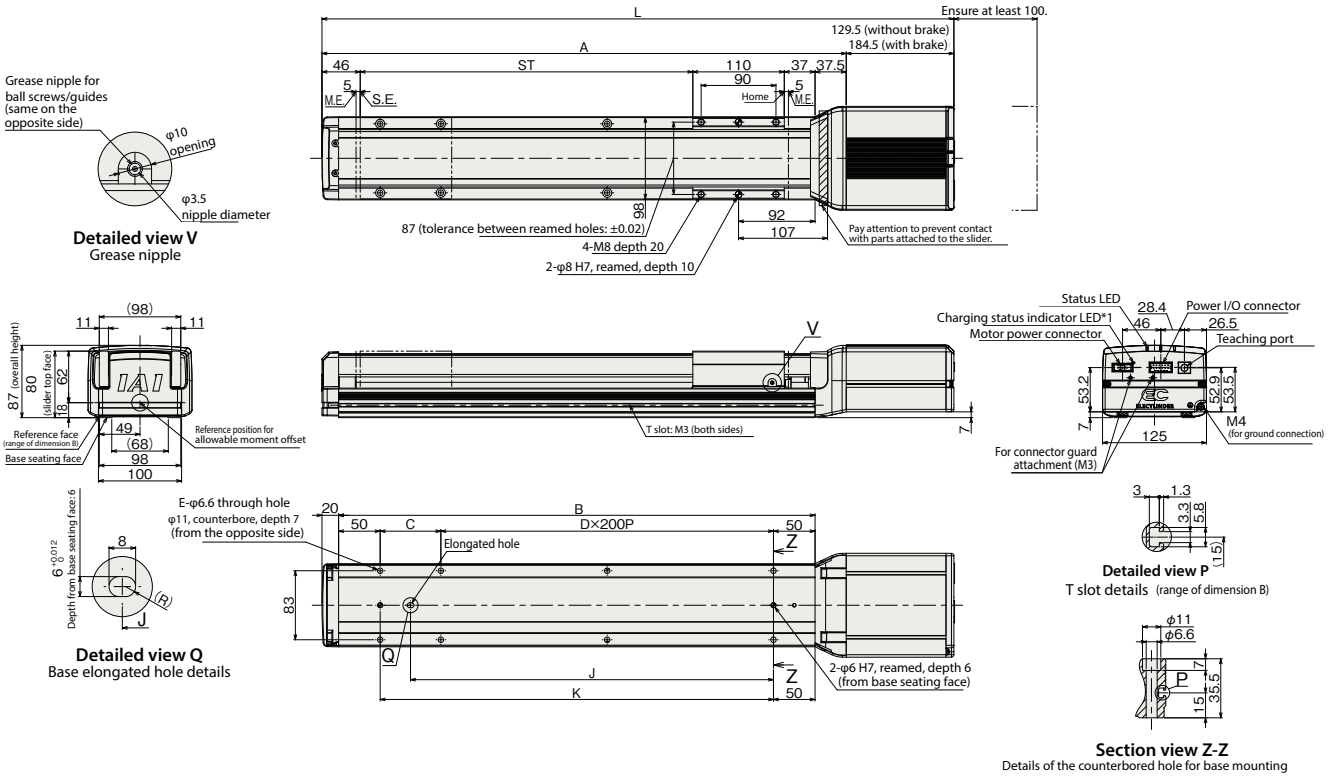
■ Dimensions

*1 While the charging status indicator LED is illuminated, the inside of controller is charged. Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.

(Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

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



■ Dimension by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	Without brake	460	510	560	610	660	710	760	810	860	910	960	1010	1060	1110	1160	1210	1260	1310	1360	1410	1460
	With brake	515	565	615	665	715	765	815	865	915	965	1015	1065	1115	1165	1215	1265	1315	1365	1415	1465	1515
A		330.5	380.5	430.5	480.5	530.5	580.5	630.5	680.5	730.5	780.5	830.5	880.5	930.5	980.5	1030.5	1080.5	1130.5	1180.5	1230.5	1280.5	1330.5
B		273	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173	1223	1273
C		173	223	273	123	173	223	73	123	173	223	73	123	173	223	73	123	173	223	73	123	173
D		0	0	0	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5
E		4	4	4	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14
J		86.5	111.5	136.5	261.5	286.5	311.5	436.5	461.5	486.5	511.5	636.5	661.5	686.5	711.5	836.5	861.5	886.5	911.5	1036.5	1061.5	1086.5
K		173	223	273	323	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123	1173

■ Weight by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)	Without brake	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	7.9	8.3	8.6	9.0	9.3	9.7	10.0	10.4	10.7	11.1	11.4
	With brake	5.1	5.4	5.8	6.1	6.5	6.8	7.2	7.5	7.9	8.2	8.5	8.9	9.2	9.6	9.9	10.3	10.6	11.0	11.3	11.7	12.0

■ Compatible controller

(Note) The EC series uses a built-in controller. For details about the built-in controller, refer to P. 2-399.
The "PSA-200" DC motor power unit is required for any ELECYLINDER that uses 200V servo motors. Refer to P. 2-402 for details about the PSA-200.

EC-S10X

±10μm Standard | Battery-less Absolute | Mid-support | Straight Motor | Body Width 100 mm | 200V AC Servo Motor

Model items

EC - S10X - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type	Lead		Stroke		Power/IO cable length	Motor power cable length		Option
		S	30mm	700	700mm	Please see cable length table below.	0	No cable	Please see options table below.
		H	20mm	↕	↕		1	1m	
		M	10mm	2000	2000mm		↕	↕	
		L	5mm		(50-mm increments)		10	10m	

CE RoHS 10

Horizontal | Vertical | Side | Ceiling



Stroke

Stroke (mm)	Stroke (mm)
700	**1400**
750	**1450**
800	**1500**
850	**1550**
900	**1600**
950	**1650**
1000	**1700**
1050	**1750**
1100	**1800**
1150	**1850**
1200	**1900**
1250	**1950**
1300	**2000**
1350	

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease application specification	**G5**	2-381
Reversed-home specification	**NM**	2-384
PNP specification (Note 1)	**PN**	2-384
Double power circuit specification (Note 1)	**TMD2**	2-387
Wireless communication specification	**WL**	2-388
Wireless axis operation compatible specification	**WL2**	2-388

(Note 1) When RCON-EC connection specification (ACR) is selected, PNP specification (PN) or double power circuit specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The payload of "main specification" shows the maximum value. For details, refer to the "table of payload by speed/acceleration."

(2) For these actuators to operate the DC motor drive power unit "PSA-200" is necessary. One "PSA-200" can supply power up to 6 axes. For details, refer to P. 2-402.

(3) Depending on the operation condition (payload, acceleration/deceleration), rough guide for available duty ratio varies.

(4) Pay close attention to the installation orientation.

(5) Rough guide for overhang load length is 550 mm or less (795mm or less for double slider specification) in Ma/Mb/Mc directions.

(6) The intermediate support type generates some collision noise while operation because of the supporting mechanism (There is no problem from the specification point of view).

Power/IO cable length

Cable code	Cable length	User wiring specification (discrete wiring)	RCON-EC connection specification (Note 3) (with connectors at both ends)
		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 terminal block connector is supplied. For details, refer to P. 2-401.
(Note 3) This applies when RCON-EC connection specification (ACR) is selected as an option.
(Note) These are robot cables.

Motor power cable length

Cable code	Cable length
0	No cable
1 ~ 3	1 ~ 3m
4 ~ 5	4 ~ 5m
6 ~10	6 ~ 10m

(Note) These are robot cables.

Main specifications

Item			Details			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Maximum payload (kg)	17	30	65	85
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	1	1	0.7	0.3
Vertical	Payload	Maximum payload (kg)	2	5	11	21
	Speed/ acceleration/ deceleration	Maximum speed (mm/s)	1500	1000	500	250
		Rated acceleration/ deceleration (G)	0.3	0.3	0.3	0.3
		Maximum acceleration/ deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	56.6	84.9	169.8	339.7
Brake		Brake specification	Non-excited operation electromagnetic brake			
		Brake retaining force (kgf)	2	5	11	21
Stroke		Minimum stroke (mm)	700	700	700	700
		Maximum stroke (mm)	2000	2000	2000	2000
		Stroke pitch (mm)	50	50	50	50

Item	Details
Drive method	Ball screw Φ16 mm rolled C10 equivalent
Positioning repeatability	±0.01mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated extruded aluminum (A6063SS-T6 equivalent), black alumite treatment
Linear guide	Linear motion endlessly circulating type
Static allowable moment	Ma: 328 N•m [1840 N•m]
	Mb: 328 N•m [1840 N•m]
	Mc: 631 N•m [1260 N•m]
Dynamic allowable moment (Note 4)	Ma: 61.1 N•m [279 N•m]
	Mb: 61.1 N•m [279 N•m]
	Mc: 117 N•m [191 N•m]
Ambient operating air temperature, humidity	0 to 40°C, 85%RH max. (no condensation)
Protection class	-
Vibration resistance/ shock resistance	4.9m/s²
Overseas standard compliance	CE Marking, RoHS Directive
Motor type	AC servo motor (200 V)
Rated motor capacity	100W
Encoder type	Battery-less absolute
Encoder pulse count	16384 pulse/rev

(Note 4) Based on the assumption of a standard rated life of 10,000 km. The traveling life varies depending on the operating conditions and installation conditions.

Slider type moment direction

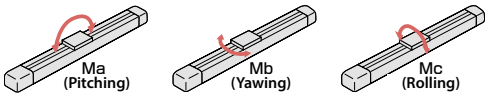


Table of payload by speed/acceleration

Payload shown in units of kg

Lead 30

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	17	11	7.5	4.5	2	2	2
1500	17	11	7.5	4.5	2	2	2

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	30	19.5	12.5	7.5	5	4.5	3.5
1000	30	19.5	12.5	7.5	5	4.5	3.5

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	65	33	19	11	9
500	65	33	19	11	9

Lead 5

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	85	21
250	85	21

Stroke and maximum speed

Lead(mm) \ Stroke	700 ~ 1250 (50-mm increment)	1300 (mm)	1350 (mm)	1400 (mm)	1450 (mm)	1500 (mm)	1550 (mm)	1600 (mm)	1650 (mm)	1700 (mm)	1750 (mm)	1800 (mm)	1850 (mm)	1900 (mm)	1950 (mm)	2000 (mm)
30	1500	1429	1328	1236	1154	1080	1013	952	896	845	798	755	715	679	645	614
20	1000	953	885	824	770	720	675	634	597	563	532	503	477	453	430	409
10	500	476	443	412	385	360	338	317	299	282	266	252	238	226	215	205
5	250	238	221	206	192	180	169	159	149	141	133	126	119	113	107	102

(unit: mm/s)

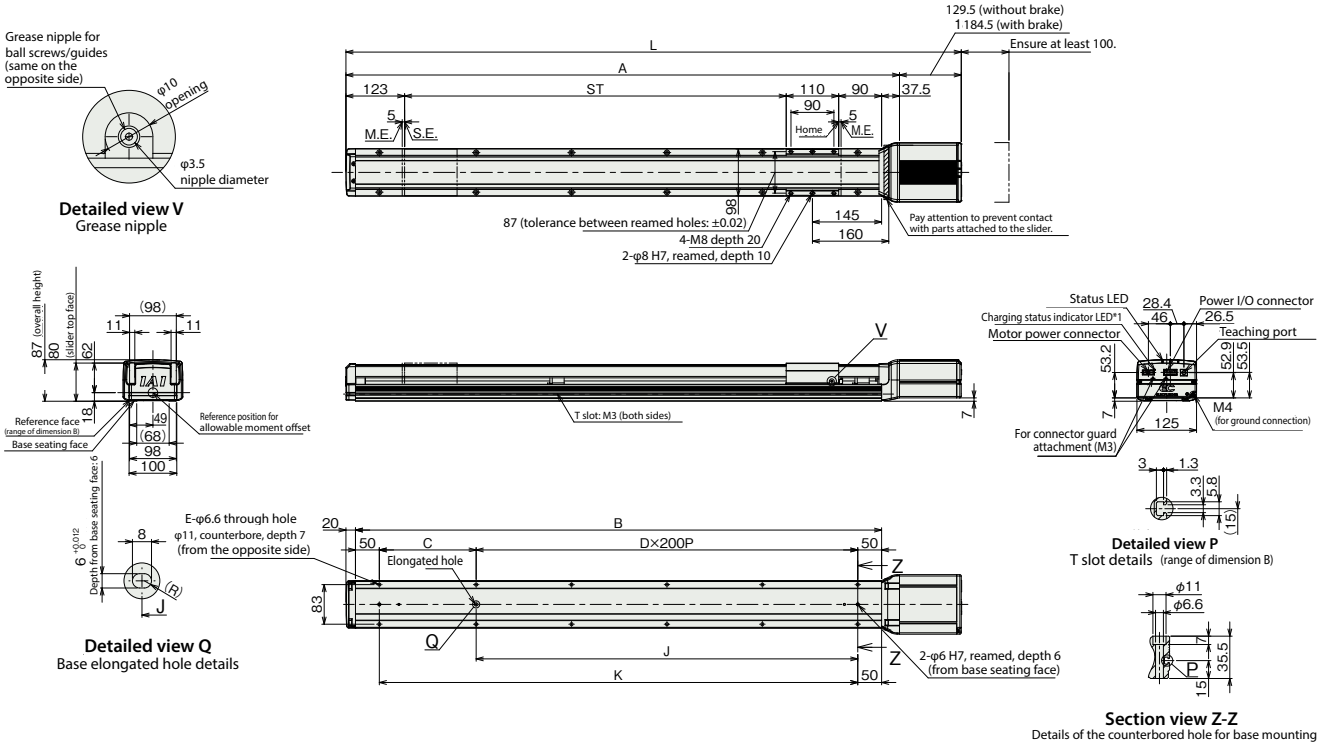
Dimensions

*1 While the charging status indicator LED is illuminated, the inside of controller is charged. Before starting wiring or inspection, make sure that the LED is not illuminated after the power is cut off to avoid an electrical shock.

(Note) The slider moves to the M.E. during home return. Pay attention to prevent contact between the slider and surrounding parts.

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2D CAD 3D CAD

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



Dimension by stroke

Stroke		700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
L	Without brake	1190	1240	1290	1340	1390	1440	1490	1540	1590	1640	1690	1740	1790	1840	1890	1940	1990	2040	2090	2140	2190	2240	2290	2340	2390	2440	2490
	With brake	1245	1295	1345	1395	1445	1495	1545	1595	1645	1695	1745	1795	1845	1895	1945	1995	2045	2095	2145	2195	2245	2295	2345	2395	2445	2495	2545
A		1060.5	1110.5	1160.5	1210.5	1260.5	1310.5	1360.5	1410.5	1460.5	1510.5	1560.5	1610.5	1660.5	1710.5	1760.5	1810.5	1860.5	1910.5	1960.5	2010.5	2060.5	2110.5	2160.5	2210.5	2260.5	2310.5	2360.5
B		1003	1053	1103	1153	1203	1253	1303	1353	1403	1453	1503	1553	1603	1653	1703	1753	1803	1853	1903	1953	2003	2053	2103	2153	2203	2253	2303
C		103	153	203	253	103	153	203	253	103	153	203	253	103	153	203	253	103	153	203	253	103	153	203	253	103	153	203
D		4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10
E		12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24
J		800	800	800	800	1000	1000	1000	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800	1800	1800	2000	2000	2000
K		903	953	1003	1053	1103	1153	1203	1253	1303	1353	1403	1453	1503	1553	1603	1653	1703	1753	1803	1853	1903	1953	2003	2053	2103	2153	2203

Weight by stroke

Stroke		700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
Weight (kg)	Without brake	10.3	10.6	11.0	11.3	11.7	12.0	12.4	12.8	13.1	13.5	13.8	14.2	14.5	14.9	15.2	15.6	15.9	16.3	16.7	17.0	17.4	17.7	18.1	18.4	18.8	19.1	19.5
	With brake	10.9	11.2	11.6	11.9	12.3	12.6	13.0	13.4	13.7	14.1	14.4	14.8	15.1	15.5	15.8	16.2	16.5	16.9	17.3	17.6	18.0	18.3	18.7	19.0	19.4	19.7	20.1

Compatible controller

(Note) The EC series uses a built-in controller. For details about the built-in controller, refer to P. 2-399.
The "PSA-200" DC motor power unit is required for any ELECYLINDER that uses 200V servo motors. Refer to P. 2-402 for details about the PSA-200.

EC-S13

±10μm Standard | Battery-less Absolute | Straight Motor | Body Width 130 mm | 200V AC Servo Motor

■ Model Specification Items

EC - S13 - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type	Lead	Stroke	Power / I/O cable length	Motor power supply cable length	Options
EC	S13	S 30mm H 20mm M 10mm L 5mm	100 100mm ~ ~ 1100 1100mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	0 No cable 1 1m ~ ~ 10 10m	Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-S13	Stroke (mm)	EC-S13
100	○	650	○
150	○	700	○
200	○	750	○
250	○	800	○
300	○	850	○
350	○	900	○
400	○	950	○
450	○	1000	○
500	○	1050	○
550	○	1100	○
600	○		

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The "PSA-200" motor drive power supply unit is required for operation. A single "PSA-200" unit can provide power for up to 6 axes. Please refer to P. 2-402 for details.
(3) Estimated allowable duty varies depending on operating conditions (payload and acceleration/deceleration).
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 600mm in the Ma, Mb, and Mc directions.

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Designated grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification (Note 1)	**PN**	2-384
split motor and controller power supply specification (Note 1)	**TMD2**	2-387
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-401 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Motor Power Supply Cable Length

Cable code	Cable length	CB-EC-PW□□□-RB supplied
0	No cable	○
1 ~ 3	1 ~ 3m	○
4 ~ 5	4 ~ 5m	○
6 ~ 10	6 ~ 10m	○

(Note) The robot cable is standard.

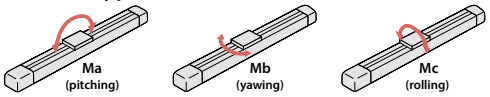
■ Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Max. payload (kg)	27	40.5	81	90
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500	250
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.7	0.5
Vertical	Payload	Max. payload (kg)	5.4	9	18	30.6
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500	250
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	113.9	170.9	341.8	683.6
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	5.4	9	18	30.6
Stroke		Min. stroke (mm)	100	100	100	100
		Max. stroke (mm)	1100	1100	1100	1100
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ16mm, rolled C10 equivalent
Positioning repeatability	±0.01mm
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: 518N·m
	Mb: 518N·m
	Mc: 1210N·m
Dynamic allowable moment (Note 4)	Ma: 107N·m
	Mb: 107N·m
	Mc: 250N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	AC servo motor (200V)
Motor rated capacity	200W
Encoder type	Battery-less absolute
Number of encoder pulses	16384 pulse/rev

(Note 4) Based on the standard rated operation life of 10,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction



■ Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 30

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	27	21.6	15.3	10.8	5.4	5	4.1
1500	27	21.6	15.3	10.8	5.4	5	4.1

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	40.5	31.5	20.7	13.5	9	7.7	6.3
1000	40.5	31.5	20.7	13.5	9	7.7	6.3

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	81	59.4	36	18	15.3
500	81	59.4	36	18	15.3

Lead 5

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	90	72	30.6
250	90	72	30.6

■ Stroke and Max Speed

Lead (mm) \ Stroke	100 ~ 650 (Every 50mm)	700 (mm)	750 (mm)	800 (mm)	850 (mm)	900 (mm)	950 (mm)	1000 (mm)	1050 (mm)	1100 (mm)
30	1500	1458	1297	1161	1045	946	860	785	720	663
20	1000	972	865	774	697	630	573	524	480	442
10	500	486	432	387	348	315	287	262	240	221
5	250	243	216	193	174	158	143	131	120	110

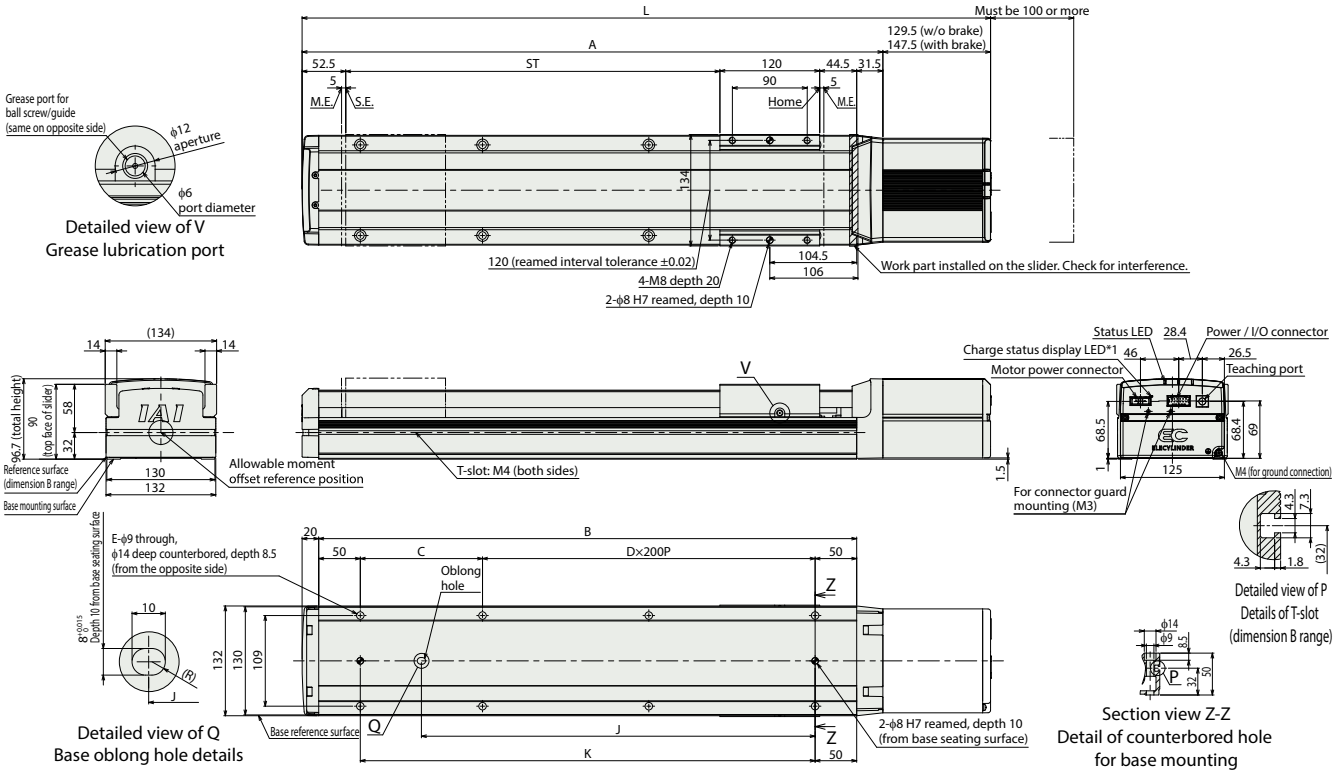
(Unit: mm/s)

■ Dimensions

CAD drawings can be downloaded from our website.
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*1 When the charge status display LED is on, it means that the controller is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.
(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.

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



■ Dimensions by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	Without brake	478	528	578	628	678	728	778	828	878	928	978	1028	1078	1128	1178	1228	1278	1328	1378	1428	1478
	With brake	496	546	596	646	696	746	796	846	896	946	996	1046	1096	1146	1196	1246	1296	1346	1396	1446	1496
A		348.5	398.5	448.5	498.5	548.5	598.5	648.5	698.5	748.5	798.5	848.5	898.5	948.5	998.5	1048.5	1098.5	1148.5	1198.5	1248.5	1298.5	1348.5
B		297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197	1247	1297
C		197	247	297	147	197	247	297	147	197	247	297	147	197	247	297	147	197	247	297	147	197
D		0	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
E		4	4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14
J		98.5	123.5	148.5	273.5	298.5	323.5	348.5	473.5	498.5	523.5	548.5	673.5	698.5	723.5	748.5	873.5	898.5	923.5	948.5	1073.5	1098.5
K		197	247	297	347	397	447	497	547	597	647	697	747	797	847	897	947	997	1047	1097	1147	1197

■ Mass by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Mass (kg)	Without brake	7.3	7.8	8.3	8.7	9.2	9.7	10.2	10.7	11.1	11.6	12.1	12.6	13.1	13.6	14.0	14.5	15.0	15.5	16.0	16.4	16.9
	With brake	7.8	8.3	8.8	9.3	9.8	10.3	10.7	11.2	11.7	12.2	12.7	13.1	13.6	14.1	14.6	15.1	15.5	16.0	16.5	17.0	17.5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-399 for details on built-in controllers.
The 200V motor power unit "PSA-200" is required for EC-S10/S10X/S13/S13X/S15/S15X models to operate. Please refer to P. 2-402 for details on "PSA-200."

EC-S13X

±10μm | Battery-less Absolute | Mid-support | Straight Motor | Body Width 130 mm | 200V AC Servo Motor

■ Model Specification Items

EC	-	S13X	-		-		-		-		-	
Series		Type		Lead		Stroke		Power / I/O cable length		Motor power supply cable length		Options
				S 30mm H 20mm M 10mm L 5mm		800 800mm ↕ ↕ 2000 2000mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		0 No cable 1 1m ↕ ↕ 10 10m		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-S13X	Stroke (mm)	EC-S13X
800	○	1450	○
850	○	1500	○
900	○	1550	○
950	○	1600	○
1000	○	1650	○
1050	○	1700	○
1100	○	1750	○
1150	○	1800	○
1200	○	1850	○
1250	○	1900	○
1300	○	1950	○
1350	○	2000	○
1400	○		

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The "PSA-200" motor drive power supply unit is required for operation. A single "PSA-200" unit can provide power for up to 6 axes. Please refer to P. 2-402 for details.
(3) Estimated allowable duty varies depending on operating conditions (payload and acceleration/deceleration).
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 600mm in the Ma, Mb, and Mc directions.
(6) The intermediate support type causes a collision noise during operation due to the structure of the support mechanism (this does not indicate a problem with specifications).

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification	G5	2-381
Non-motor end specification	NM	2-384
PNP specification (Note 1)	PN	2-384
split motor and controller power supply specification (Note 1)	TMD2	2-387
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-401 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Motor Power Supply Cable Length

Cable code	Cable length	CB-EC-PW□□□-RB supplied
0	No cable	○
1 ~ 3	1 ~ 3m	○
4 ~ 5	4 ~ 5m	○
6 ~ 10	6 ~ 10m	○

(Note) The robot cable is standard.

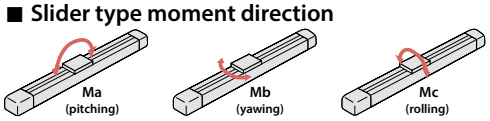
■ Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	30	20	10	5
Horizontal	Payload	Max. payload (kg)	27	40.5	81	90
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500	250
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.7	0.5
Vertical	Payload	Max. payload (kg)	5.4	9	18	30.6
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500	250
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.7	0.7	0.5	0.3
Thrust		Rated thrust (N)	113.9	170.9	341.8	683.6
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	5.4	9	18	30.6
Stroke		Min. stroke (mm)	800	800	800	800
		Max. stroke (mm)	2000	2000	2000	2000
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ16mm, rolled C10 equivalent
Positioning repeatability	±0.01mm
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: 518N·m
	Mb: 518N·m
	Mc: 1210N·m
Dynamic allowable moment (Note 4)	Ma: 107N·m
	Mb: 107N·m
	Mc: 250N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	AC servo motor (200V)
Motor rated capacity	200W
Encoder type	Battery-less absolute
Number of encoder pulses	16384 pulse/rev

(Note 4) Based on the standard rated operation life of 10,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction



■ Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 30

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	27	21.6	15.3	10.8	5.4	5	4.1
1500	27	21.6	15.3	10.8	5.4	5	4.1

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	40.5	31.5	20.7	13.5	9	7.7	6.3
1000	40.5	31.5	20.7	13.5	9	7.7	6.3

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	81	59.4	36	18	15.3
500	81	59.4	36	18	15.3

Lead 5

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	90	72	30.6
250	90	72	30.6

■ Stroke and Max Speed

Stroke / Lead (mm)	800 ~ 1500 (Every 50mm)	1550 (mm)	1600 (mm)	1650 (mm)	1700 (mm)	1750 (mm)	1800 (mm)	1850 (mm)	1900 (mm)	1950 (mm)	2000 (mm)
30	1500	1450	1380	1314	1254	1197	1144	1095	1049	1005	964
20	1000	966	920	876	836	798	763	730	699	670	643
10	500	483	460	438	418	399	381	365	350	335	321
5	250	242	230	219	209	200	191	182	175	168	161

(Unit: mm/s)

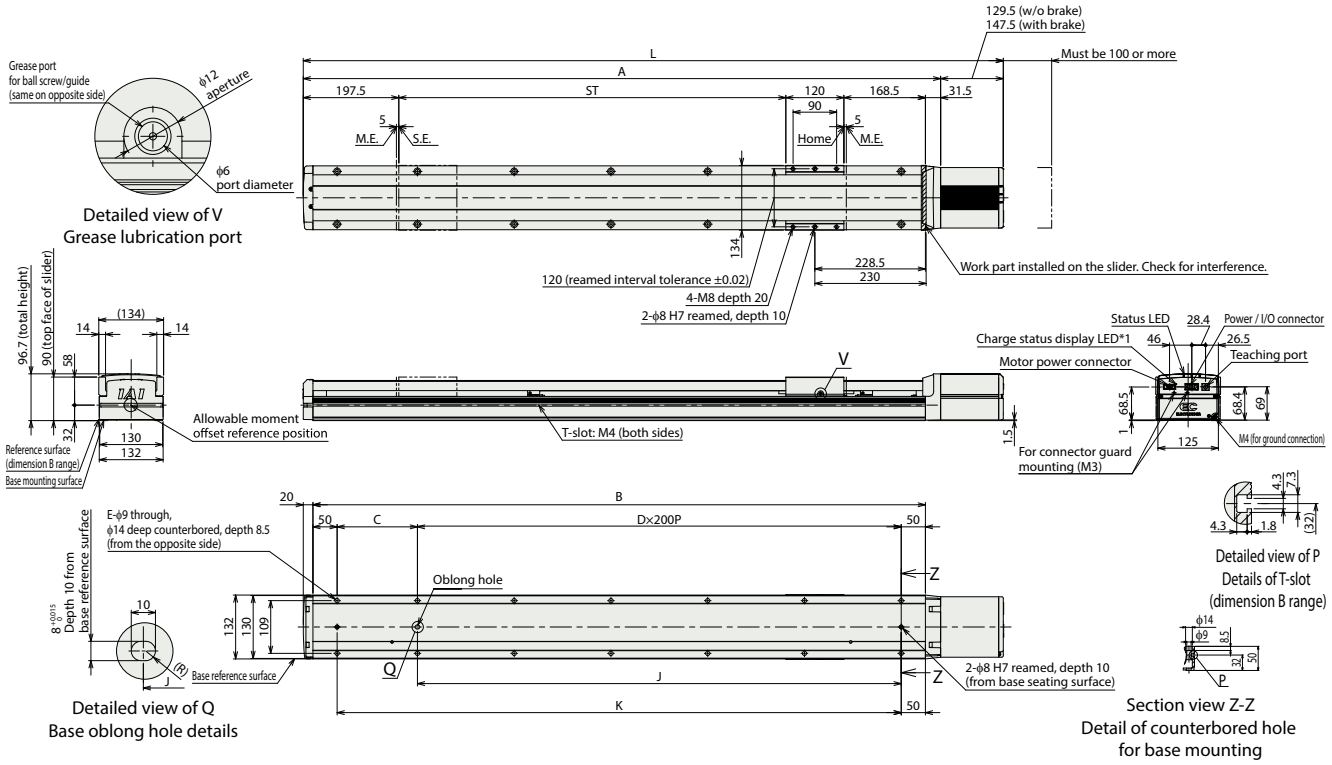
■ Dimensions

CAD drawings can be downloaded from our website.
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2D CAD 3D CAD

*1 When the charge status display LED is on, it means that the controller is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.
(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.

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



■ Dimensions by stroke

Stroke		800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
L	Without brake	1447	1497	1547	1597	1647	1697	1747	1797	1847	1897	1947	1997	2047	2097	2147	2197	2247	2297	2347	2397	2447	2497	2547	2597	2647
	With brake	1465	1515	1565	1615	1665	1715	1765	1815	1865	1915	1965	2015	2065	2115	2165	2215	2265	2315	2365	2415	2465	2515	2565	2615	2665
A		1317.5	1367.5	1417.5	1467.5	1517.5	1567.5	1617.5	1667.5	1717.5	1767.5	1817.5	1867.5	1917.5	1967.5	2017.5	2067.5	2117.5	2167.5	2217.5	2267.5	2317.5	2367.5	2417.5	2467.5	2517.5
B		1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116	2166	2216	2266	2316	2366	2416	2466
C		166	216	266	316	166	216	266	316	166	216	266	316	166	216	266	316	166	216	266	316	166	216	266	316	166
D		5	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11
E		14	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26
J		1000	1000	100	1000	1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800	1800	1800	2000	2000	2000	2000	2200
K		1166	1216	1266	1316	1366	1416	1466	1516	1566	1616	1666	1716	1766	1816	1866	1916	1966	2016	2066	2116	2166	2216	2266	2316	2366

■ Mass by stroke

Stroke		800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000
Mass (kg)	Without brake	17.5	18.0	18.5	19.0	19.5	20.6	21.1	21.6	22.1	22.6	23.1	23.6	24.1	24.6	25.1	25.6	26.1	26.6	27.1	27.6	28.1	28.6	29.1	29.6	30.1
	With brake	18.1	18.6	19.1	19.5	20.0	21.2	21.7	22.2	22.7	23.2	23.7	24.2	24.7	25.2	25.7	26.2	26.7	27.2	27.7	28.2	28.7	29.2	29.7	30.2	30.7

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-399 for details on built-in controllers.
The 200V motor power unit "PSA-200" is required for EC-S10/S10X/S13/S13X/S15/S15X models to operate. Please refer to P. 2-402 for details on "PSA-200."

EC-S15

±10μm Standard | Battery-less Absolute | Straight Motor | Body Width 160 mm | 200V AC Servo Motor

■ Model Specification Items

EC	-	S15	-		-		-		-		-	
Series		Type		Lead		Stroke		Power / I/O cable length		Motor power supply cable length		Options
				H 40mm M 20mm L 10mm		100 100mm ~ ~ 1300 1300mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		0 No cable 1 1m ~ ~ 10 10m		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-S15	Stroke (mm)	EC-S15
100	○	750	○
150	○	800	○
200	○	850	○
250	○	900	○
300	○	950	○
350	○	1000	○
400	○	1050	○
450	○	1100	○
500	○	1150	○
550	○	1200	○
600	○	1250	○
650	○	1300	○
700	○		

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The "PSA-200" motor drive power supply unit is required for operation. A single "PSA-200" unit can provide power for up to 6 axes. Please refer to P. 2-402 for details.
(3) Estimated allowable duty varies depending on operating conditions (payload and acceleration/deceleration).
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 750mm in the Ma, Mb, and Mc directions.

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification	G5	2-381
Non-motor end specification	NM	2-384
PNP specification (Note 1)	PN	2-384
split motor and controller power supply specification (Note 1)	TMD2	2-387
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-401 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Motor Power Supply Cable Length

Cable code	Cable length	CB-EC-PW□□□-RB supplied
0	No cable	○
1 ~ 3	1 ~ 3m	○
4 ~ 5	4 ~ 5m	○
6 ~ 10	6 ~ 10m	○

(Note) The robot cable is standard.

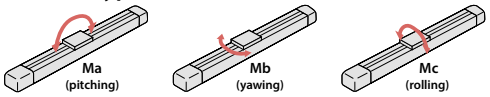
■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	40	20	10
Horizontal	Payload	Max. payload (kg)	36	81	108
	Speed / acceleration/ deceleration	Max. speed (mm/s)	2000	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.7
Vertical	Payload	Max. payload (kg)	9	18	36
	Speed / acceleration/ deceleration	Max. speed (mm/s)	2000	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.7	0.7	0.5
Thrust		Rated thrust (N)	169.6	339.1	678.3
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	9	18	36
Stroke		Min. stroke (mm)	100	100	100
		Max. stroke (mm)	1300	1300	1300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ20mm, rolled C10 equivalent
Positioning repeatability	±0.01mm
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: 852N·m
	Mb: 852N·m
	Mc: 2010N·m
Dynamic allowable moment (Note 4)	Ma: 162N·m
	Mb: 162N·m
	Mc: 384N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	AC servo motor (200V)
Motor rated capacity	400W
Encoder type	Battery-less absolute
Number of encoder pulses	16384 pulse/rev

(Note 4) Based on the standard rated operation life of 10,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction



■ Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 40

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	36	28.8	20.7	15.3	9	7.7	6.3
2000	36	28.8	20.7	15.3	9	7.7	6.3

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	81	63	42.3	27	18	15.3	12.6
1000	81	63	42.3	27	18	15.3	12.6

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	108	82.8	54	36	30.6
500	108	82.8	54	36	30.6

■ Stroke and Max Speed

Stroke / Lead (mm)	100 ~ 750 (Every 50mm)	800 (mm)	850 (mm)	900 (mm)	950 (mm)	1000 (mm)	1050 (mm)	1100 (mm)	1150 (mm)	1200 (mm)	1250 (mm)	1300 (mm)
40	2000	1922	1736	1575	1436	1315	1208	1114	1030	955	889	829
20	1000	961	868	788	718	657	604	557	515	478	444	414
10	500	481	434	394	359	329	302	278	258	239	222	207

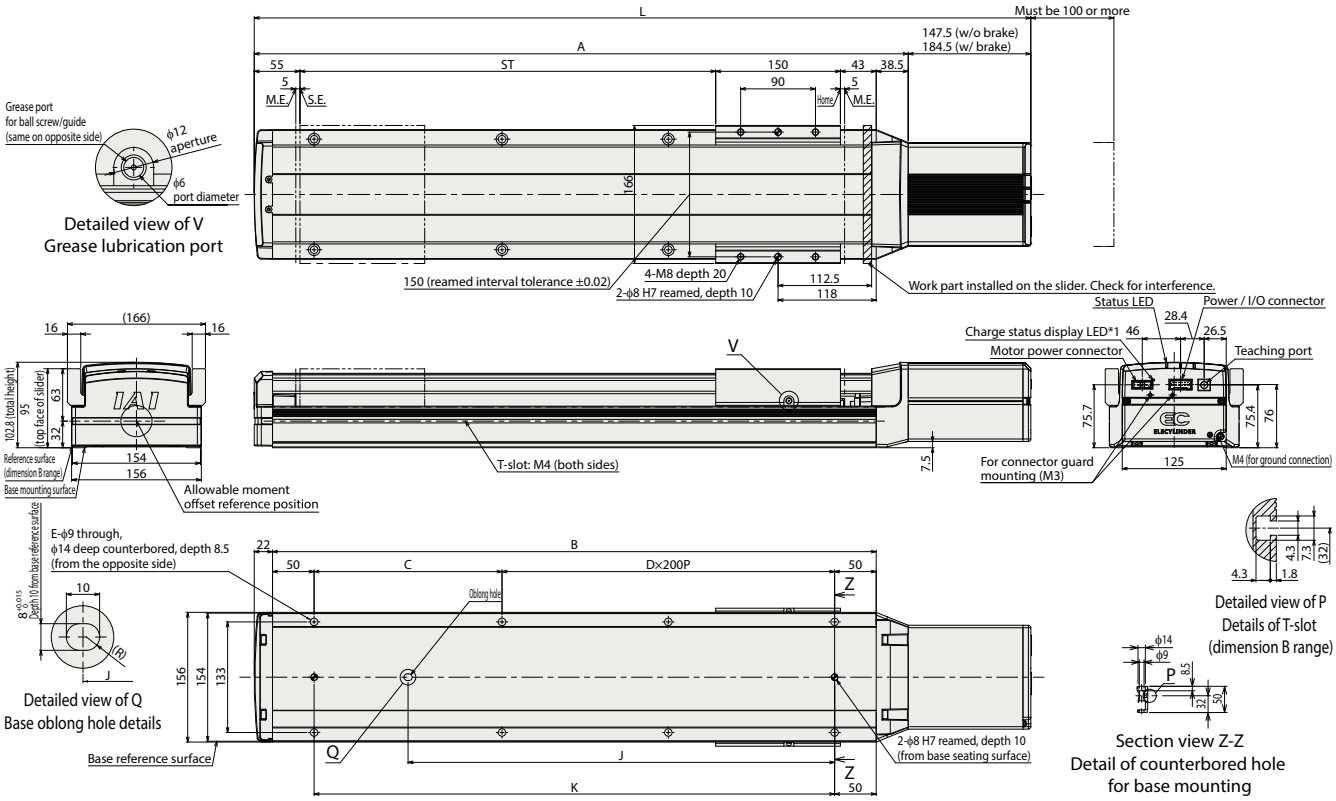
(Unit: mm/s)

■ Dimensions

CAD drawings can be downloaded from our website.
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*1 When the charge status display LED is on, it means that the controller is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.
(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.

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



■ Dimensions by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
L	Without brake	534	584	634	684	734	784	834	884	934	984	1034	1084	1134	1184	1234	1284	1334	1384	1434	1484	1534	1584	1634	1684	1734
	With brake	571	621	671	721	771	821	871	921	971	1021	1071	1121	1171	1221	1271	1321	1371	1421	1471	1521	1571	1621	1671	1721	1771
A		386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5	986.5	1036.5	1086.5	1136.5	1186.5	1236.5	1286.5	1336.5	1386.5	1436.5	1486.5	1536.5	1586.5
B		326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126	1176	1226	1276	1326	1376	1426	1476	1526
C		226	276	126	176	226	276	126	176	226	276	126	176	226	276	126	176	226	276	126	176	226	276	126	176	226
D		0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6
E		4	4	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14	16	16	16
J		113	138	263	288	313	338	463	488	513	538	663	688	713	738	863	888	913	938	1063	1088	1113	1138	1263	1288	1313
K		226	276	326	376	426	476	526	576	626	676	726	776	826	876	926	976	1026	1076	1126	1176	1226	1276	1326	1376	1426

■ Mass by stroke

Stroke		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300
Mass (kg)	Without brake	9.9	10.5	11.0	11.6	12.2	12.7	13.3	13.8	14.4	14.9	15.5	16.1	16.6	17.2	17.7	18.3	18.8	19.4	20.0	20.5	21.1	21.6	22.2	22.7	23.3
	With brake	10.5	11.1	11.7	12.2	12.8	13.3	13.9	14.4	15.0	15.6	16.1	16.7	17.2	17.8	18.3	18.9	19.5	20.0	20.6	21.1	21.7	22.2	22.8	23.4	23.9

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-399 for details on built-in controllers.
The 200V motor power unit "PSA-200" is required for EC-S10/S10X/S13/S13X/S15/S15X models to operate. Please refer to P. 2-402 for details on "PSA-200."

EC-S15X

±10μm Standard | Battery-less Absolute | Mid-support | Straight Motor | Body Width 160 mm | 200V AC Servo Motor

■ Model Specification Items

EC - S15X - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type	Lead	Stroke	Power / I/O cable length	Motor power supply cable length	Options
EC	S15X	H 40mm M 20mm L 10mm	1000 ~ 2500 1000mm ~ 2500mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	0 No cable 1 1m ~ 10 10m	Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-S15X	Stroke (mm)	EC-S15X
1000	○	**1800**	○
1050	○	**1850**	○
1100	○	**1900**	○
1150	○	**1950**	○
1200	○	**2000**	○
1250	○	**2050**	○
1300	○	**2100**	○
1350	○	**2150**	○
1400	○	**2200**	○
1450	○	**2250**	○
1500	○	**2300**	○
1550	○	**2350**	○
1600	○	**2400**	○
1650	○	**2450**	○
1700	○	**2500**	○
1750	○		

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) The "PSA-200" motor drive power supply unit is required for operation. A single "PSA-200" unit can provide power for up to 6 axes. Please refer to P. 2-402 for details.
(3) Estimated allowable duty varies depending on operating conditions (payload and acceleration/deceleration).
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 750mm in the Ma, Mb, and Mc directions.
(6) The intermediate support type causes a collision noise during operation due to the structure of the support mechanism (this does not indicate a problem with specifications).

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Hanging fixture	**EB**	2-374
Designated grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification (Note 1)	**PN**	2-384
split motor and controller power supply specification (Note 1)	**TMD2**	2-387
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-401 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Motor Power Supply Cable Length

Cable code	Cable length	CB-EC-PW□□□-RB supplied
0	No cable	○
1 ~ 3	1 ~ 3m	○
4 ~ 5	4 ~ 5m	○
6 ~ 10	6 ~ 10m	○

(Note) The robot cable is standard.

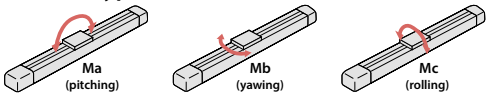
■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	40	20	10
Horizontal	Payload	Max. payload (kg)	36	81	108
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.7
Vertical	Payload	Max. payload (kg)	9	18	36
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1500	1000	500
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.7	0.7	0.5
Thrust		Rated thrust (N)	169.6	339.1	678.3
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	9	18	36
Stroke		Min. stroke (mm)	1000	1000	1000
		Max. stroke (mm)	2500	2500	2500
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ20mm, rolled C10 equivalent
Positioning repeatability	±0.01mm
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: 852N·m
	Mb: 852N·m
	Mc: 2010N·m
Dynamic allowable moment (Note 4)	Ma: 162N·m
	Mb: 162N·m
	Mc: 384N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	AC servo motor (200V)
Motor rated capacity	400W
Encoder type	Battery-less absolute
Number of encoder pulses	16384 pulse/rev

(Note 4) Based on the standard rated operation life of 10,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction



■ Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 40

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	36	28.8	20.7	15.3	9	7.7	6.3
1500	36	28.8	20.7	15.3	9	7.7	6.3

Lead 20

Orientation	Horizontal				Vertical		
Speed	Acceleration (G)						
(mm/s)	0.3	0.5	0.7	1.0	0.3	0.5	0.7
0	81	63	42.3	27	18	15.3	12.6
1000	81	63	42.3	27	18	15.3	12.6

Lead 10

Orientation	Horizontal			Vertical	
Speed	Acceleration (G)				
(mm/s)	0.3	0.5	0.7	0.3	0.5
0	108	82.8	54	36	30.6
500	108	82.8	54	36	30.6

■ Stroke and Max Speed

Lead (mm) \ Stroke	1000 ~ 1750 (Every 50mm)	1800 (mm)	1850 (mm)	1900 (mm)	1950 (mm)	2000 (mm)	2050 (mm)	2100 (mm)	2150 (mm)	2200 (mm)	2250 (mm)	2300 (mm)	2350 (mm)	2400 (mm)	2450 (mm)	2500 (mm)
40	1500								1486	1431	1378	1329	1282	1237	1195	1155
20	1000	991	948	909	871	836	803	772	743	715	689	664	641	619	598	578
10	500	495	474	454	436	418	402	386	371	358	345	332	320	309	299	289

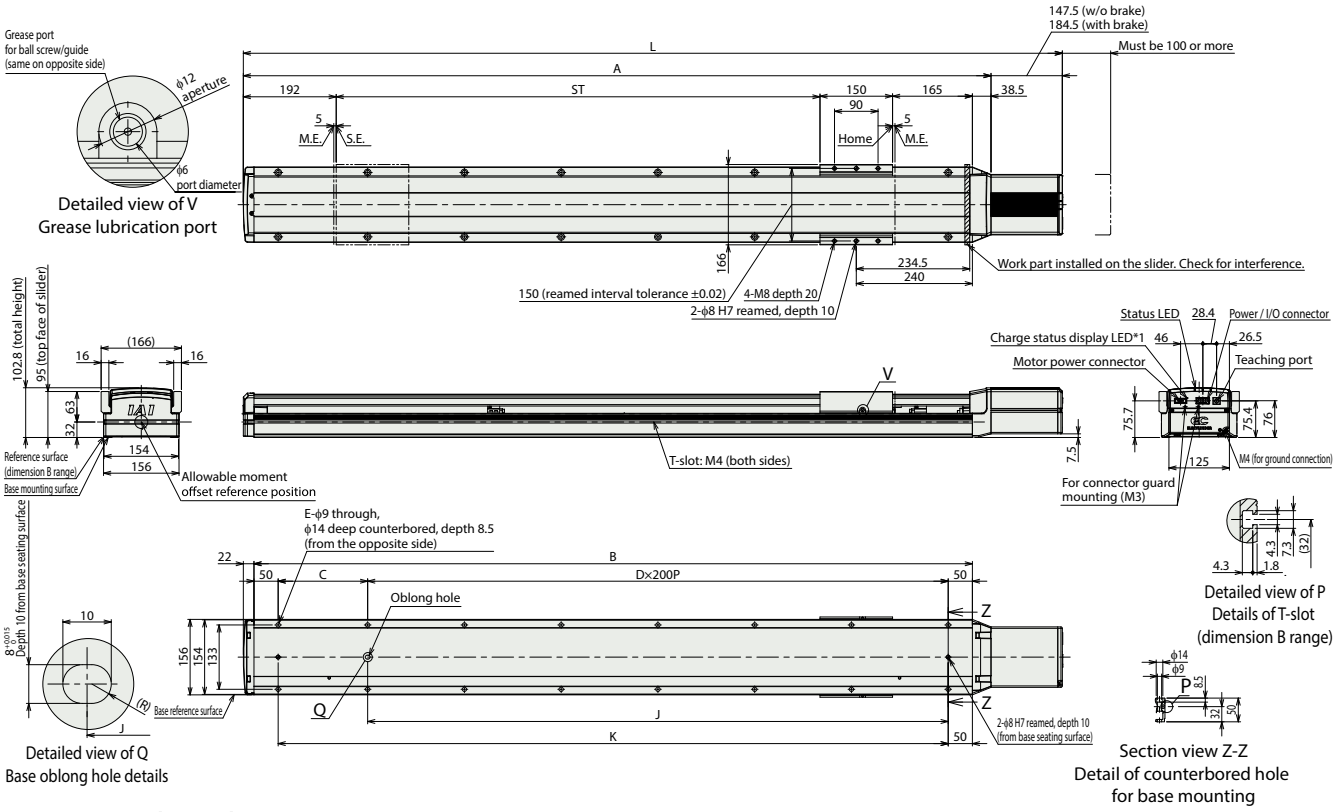
(Unit: mm/s)

■ Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

*1 When the charge status display LED is on, it means that the controller is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.
(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.

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



■ Dimensions by stroke

Stroke		1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
L	Without brake	1693	1743	1793	1843	1893	1943	1993	2043	2093	2143	2193	2243	2293	2343	2393	2443	2493	2543	2593	2643	2693	2743	2793	2843	2893	2943	2993	3043	3093	3143	3193
	With brake	1730	1780	1830	1880	1930	1980	2030	2080	2130	2180	2230	2280	2330	2380	2430	2480	2530	2580	2630	2680	2730	2780	2830	2880	2930	2980	3030	3080	3130	3180	3230
A		1545.5	1595.5	1645.5	1695.5	1745.5	1795.5	1845.5	1895.5	1945.5	1995.5	2045.5	2095.5	2145.5	2195.5	2245.5	2295.5	2345.5	2395.5	2445.5	2495.5	2545.5	2595.5	2645.5	2695.5	2745.5	2795.5	2845.5	2895.5	2945.5	2995.5	3045.5
B		1485	1535	1585	1635	1685	1735	1785	1835	1885	1935	1985	2035	2085	2135	2185	2235	2285	2335	2385	2435	2485	2535	2585	2635	2685	2735	2785	2835	2885	2935	2985
C		185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285	335	185	235	285
D		6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	13	13	13
E		16	16	16	16	18	18	18	18	20	20	20	20	22	22	22	22	24	24	24	24	26	26	26	26	28	28	28	28	30	30	30
J		1200	1200	1200	1200	1400	1400	1400	1400	1600	1600	1600	1600	1800	1800	1800	1800	2000	2000	2000	2000	2200	2200	2200	2200	2400	2400	2400	2400	2600	2600	2600
K		1385	1435	1485	1535	1585	1635	1685	1735	1785	1835	1885	1935	1985	2035	2085	2135	2185	2235	2285	2335	2385	2435	2485	2535	2585	2635	2685	2735	2785	2835	2885

■ Mass by stroke

Stroke		1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250	2300	2350	2400	2450	2500
Mass (kg)	Without brake	23.8	24.4	24.9	25.5	26.1	27.4	28.0	28.6	29.2	29.7	30.3	30.9	31.5	32.1	32.6	33.2	33.8	34.4	34.9	35.5	36.1	36.7	37.3	37.8	38.4	39.0	39.6	40.1	40.7	41.3	41.9
	With brake	24.4	25.0	25.6	26.1	26.7	28.0	28.6	29.2	29.8	30.4	30.9	31.5	32.1	32.7	33.2	33.8	34.4	35.0	35.6	36.1	36.7	37.3	37.9	38.5	39.0	39.6	40.2	40.8	41.3	41.9	42.5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-399 for details on built-in controllers.
The 200V motor power unit "PSA-200" is required for EC-S10/S10X/S13/S13X/S15/S15X models to operate. Please refer to P. 2-402 for details on "PSA-200."

EC-S3□R
EC-DS3□R

<With digital speed controller>

Simple Dust-proof | Side-mounted Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Series] - [Type] [Lead] - R - [Specifications] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type		Lead		Specifications	
S3	Standard	H	6mm	R	Side-mounted motor
DS3	Digital speed controller	M	4mm		
		L	2mm		

Stroke	
50 ~ 300	50mm ~ 300mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The figures above are for motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S3□R	DS3□R	Stroke (mm)	S3□R	DS3□R
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification	**G1/G5**	2-381
Motor side-mounted to left (Note 2)	**ML**	2-381
Motor side-mounted to right (Note 2)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Controller specification for slider	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a model in the "Options" field in "Model Specification Items."

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-39 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

POINT — Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions.
(5) 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.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	3.5	6	9
	Speed / acceleration/ deceleration	Max. speed (mm/s)	360	240	120
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	360	240	120
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 9.5N·m
	Mb: 13.5N·m
	Mc: 15.1N·m
Dynamic allowable moment (Note 6)	Ma: 3.8N·m
	Mb: 5.4N·m
	Mc: 6.1N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
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.

■ Slider type moment direction

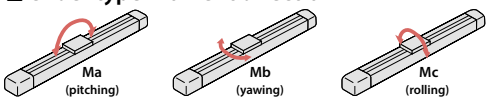


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.5	0.3
0	3.5	3	1.5
120	3.5	3	1.5
210	3.5	3	1.5
255	3.5	3	1.5
315	3.5	3	1.5
360	3.5	3	1.5

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	6	2.5
80	6	2.5
140	6	2.5
170	6	2.5
210	6	2.5
240	5.5	2.5

Lead 2

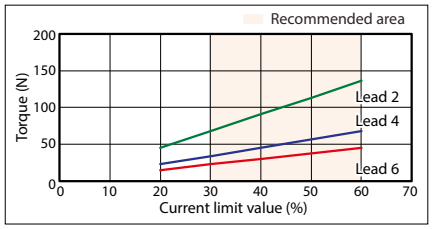
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	9	3.5
40	9	3.5
70	9	3.5
85	9	3.5
105	9	3.5
120	9	3

Stroke and Max Speed

Lead (mm)	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
6	360	300	210	150
4	240	200	140	100
2	120	100	70	50

(Unit: mm/s)

Correlation between Torque and Current Limit

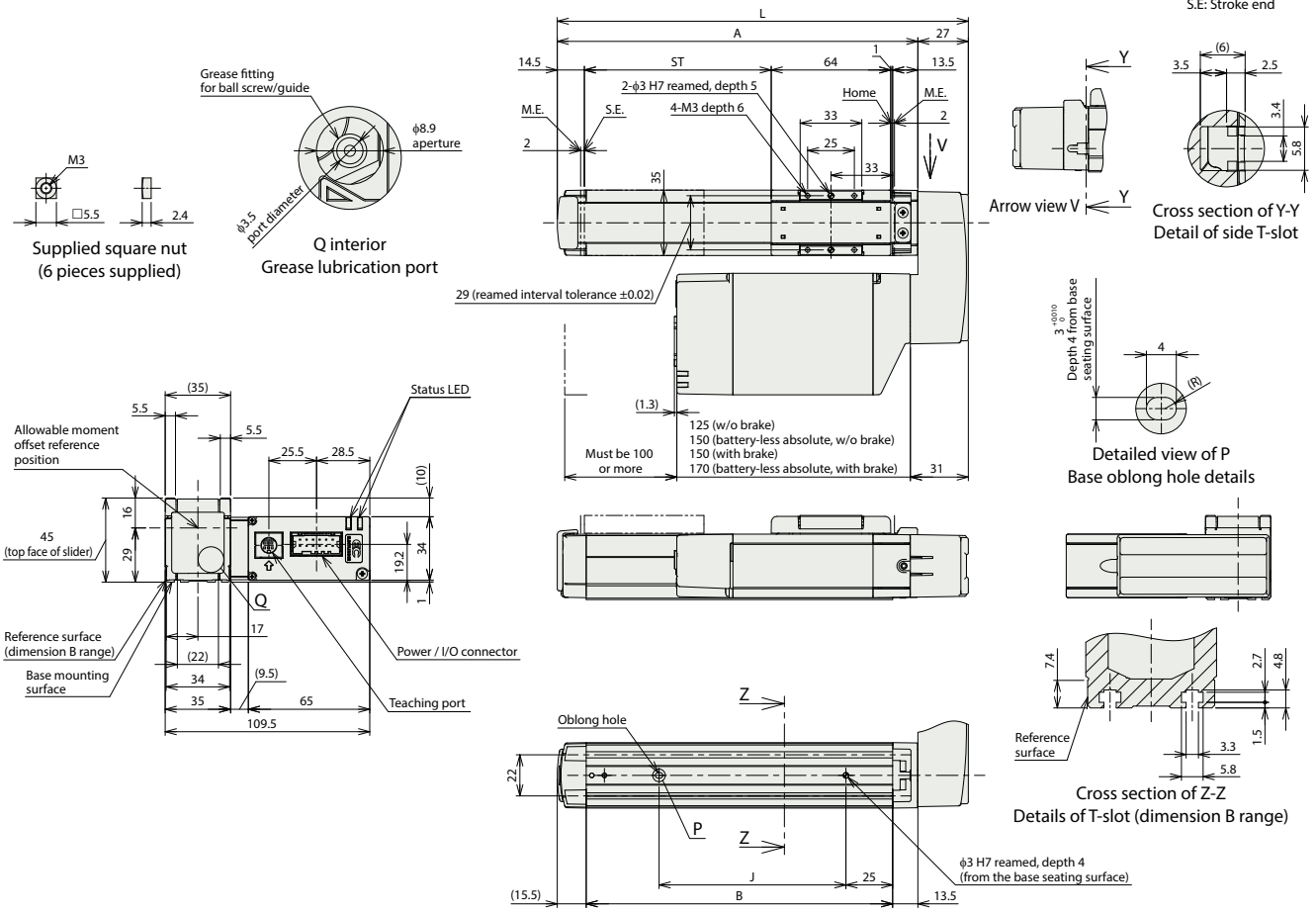


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■EC-S3□R

(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) The figures below are for motor side-mounted to left (ML).

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



■Dimensions by stroke

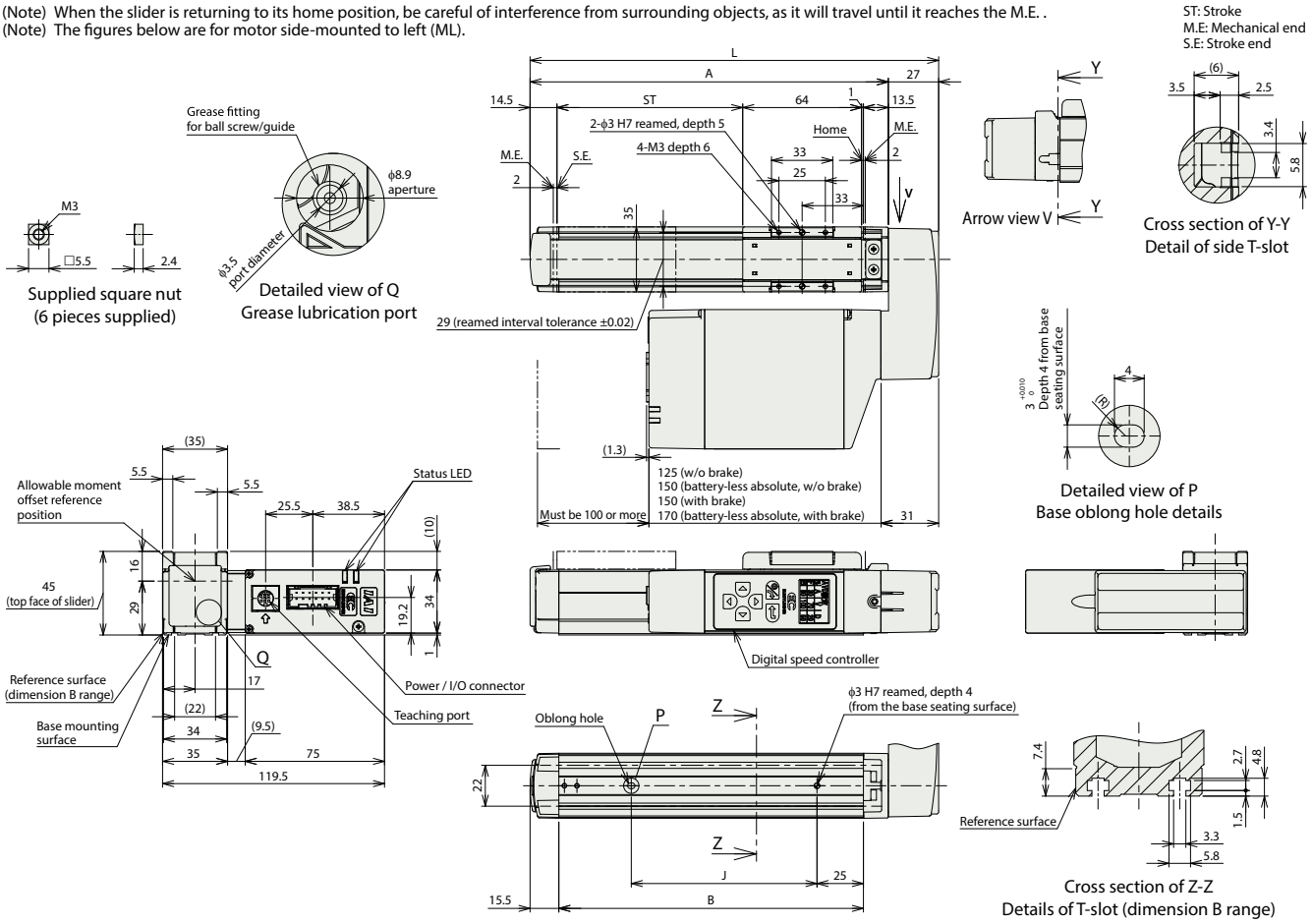
Stroke	50	100	150	200	250	300
L	170	220	270	320	370	420
A	143	193	243	293	343	393
B	114	164	214	264	314	364
J	50	100	150	200	250	300

■Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.8	0.9	1.0	1.1	1.2	1.3
	With brake	0.9	1.0	1.1	1.2	1.3	1.4

■ EC-DS3□R <with digital speed controller>

(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) The figures below are for motor side-mounted to left (ML).



■ Dimensions by stroke

Stroke	50	100	150	200	250	300
L	170	220	270	320	370	420
A	143	193	243	293	343	393
B	114	164	214	264	314	364
J	50	100	150	200	250	300

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.9	1.0	1.1	1.2	1.3	1.4
	With brake	1.0	1.1	1.2	1.3	1.4	1.5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S4□R
EC-DS4□R

<With digital speed controller>

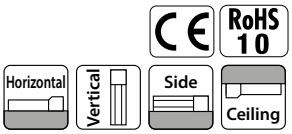
Simple Dust-proof | Side-mounted Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] R - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
	S4	Standard	S	16mm	R	Side-mounted motor	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DS4	Digital speed controller	H	10mm			↕	↕		
			M	5mm			300	300mm (Every 50mm)		
			L	2.5mm						





(Note) The figures above are for the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S4□R	DS4□R	Stroke (mm)	S4□R	DS4□R
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification	**G1/G5**	2-381
Motor side-mounted to left (Note 2)	**ML**	2-381
Motor side-mounted to right (Note 2)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Controller specification for slider	**SR**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a model in the "Options" field in "Model Specification Items."

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 150mm in the Ma, Mb, and Mc directions.
(6) 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.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	600	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	39	62	124	263
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13.0N·m
	Mb: 18.6N·m
	Mc: 25.3N·m
Dynamic allowable moment (Note 6)	Ma: 5.0N·m
	Mb: 7.1N·m
	Mc: 9.7N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
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.

■ Slider type moment direction

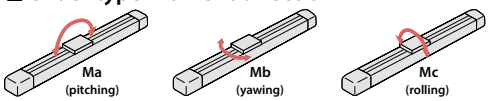


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	7	6	6	5	1.5	1.25
140	7	6	6	5	1.5	1.25
280	7	6	6	5	1.5	1.25
420	7	6	5	4	1.5	1.25
560	7	6	4.5	3	1.5	1.25
700	6	4	3.5	3	1.5	1.25
800		3	2.5	2		1

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	12	11	10	10	2.5	2
175	12	11	10	10	2.5	2
350	12	9	9	7	2.5	2
435	12	8	7	5	2.5	2
525	11	7	6	4	1.5	1.5
600	8	5	4	2	1	1
700		3	2	1		

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	15	14	5	4.5
85	15	14	5	4.5
130	15	14	5	4.5
215	15	14	5	4.5
260	15	14	5	4.5
300	15	14	4	4
350	13	10	2	2

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	18	6.5
40	18	6.5
85	18	6.5
105	18	6.5
135	18	6.5
150	18	6
175	18	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	4	3.5	1
140	4	3.5	1
280	4	3.5	1
420	4	3.5	1
560	4	3	1
700	3	2	
800		1	

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	8	2
175	10	8	2
350	9	6	2
435	7	3	1
525	4	1	

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12	4.5
85	12	4.5
130	12	4
215	10	4
260	9	2.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	14	6.5
40	14	6.5
85	14	6.5
105	14	4
135	14	2

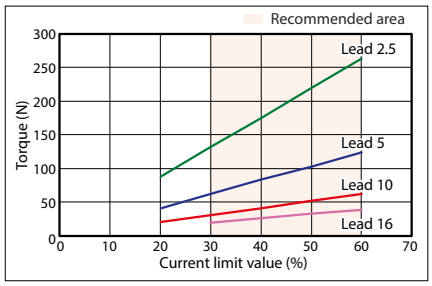
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)
16	Disabled	800	760	540
	Enabled	800 <560>	760 <560>	540
10	Disabled	700 <600>	470	320
	Enabled	525 <435>	470 <435>	320
5	Disabled	350	240	160
	Enabled	260	240	160
2.5	Disabled	175 <150>	120	85
	Enabled	135	120	85

(Unit: mm/s)

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

Correlation between Torque and Current Limit

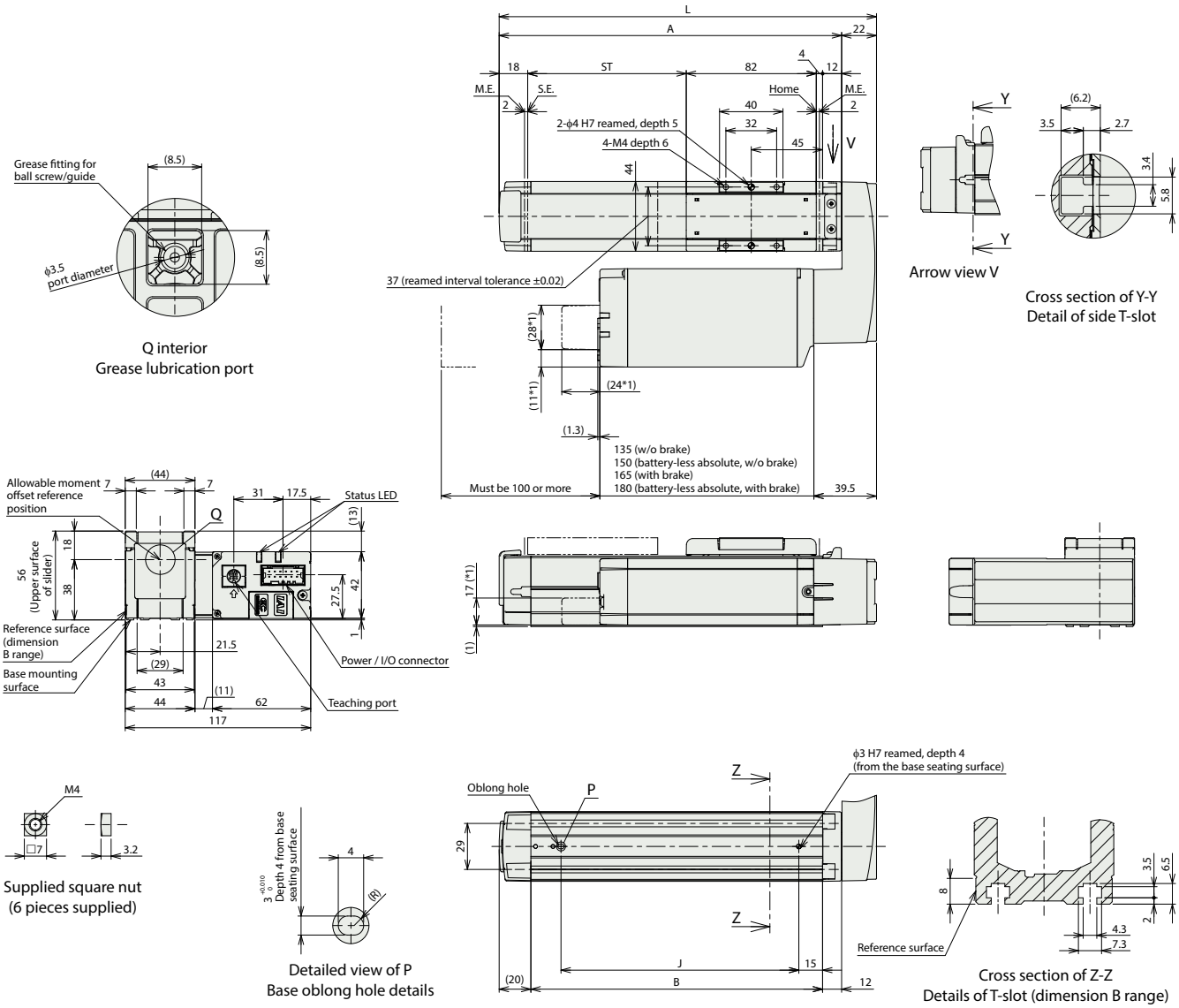


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■EC-S4□R

*1 Dimensions are applicable when WL/WL2 option is selected.
(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) The figures below are for motor side-mounted to left (ML).

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



■Dimensions by stroke

Stroke	50	100	150	200	250	300
L	188	238	288	338	388	438
A	166	216	266	316	366	416
B	134	184	234	284	334	384
J	100	150	200	250	300	350

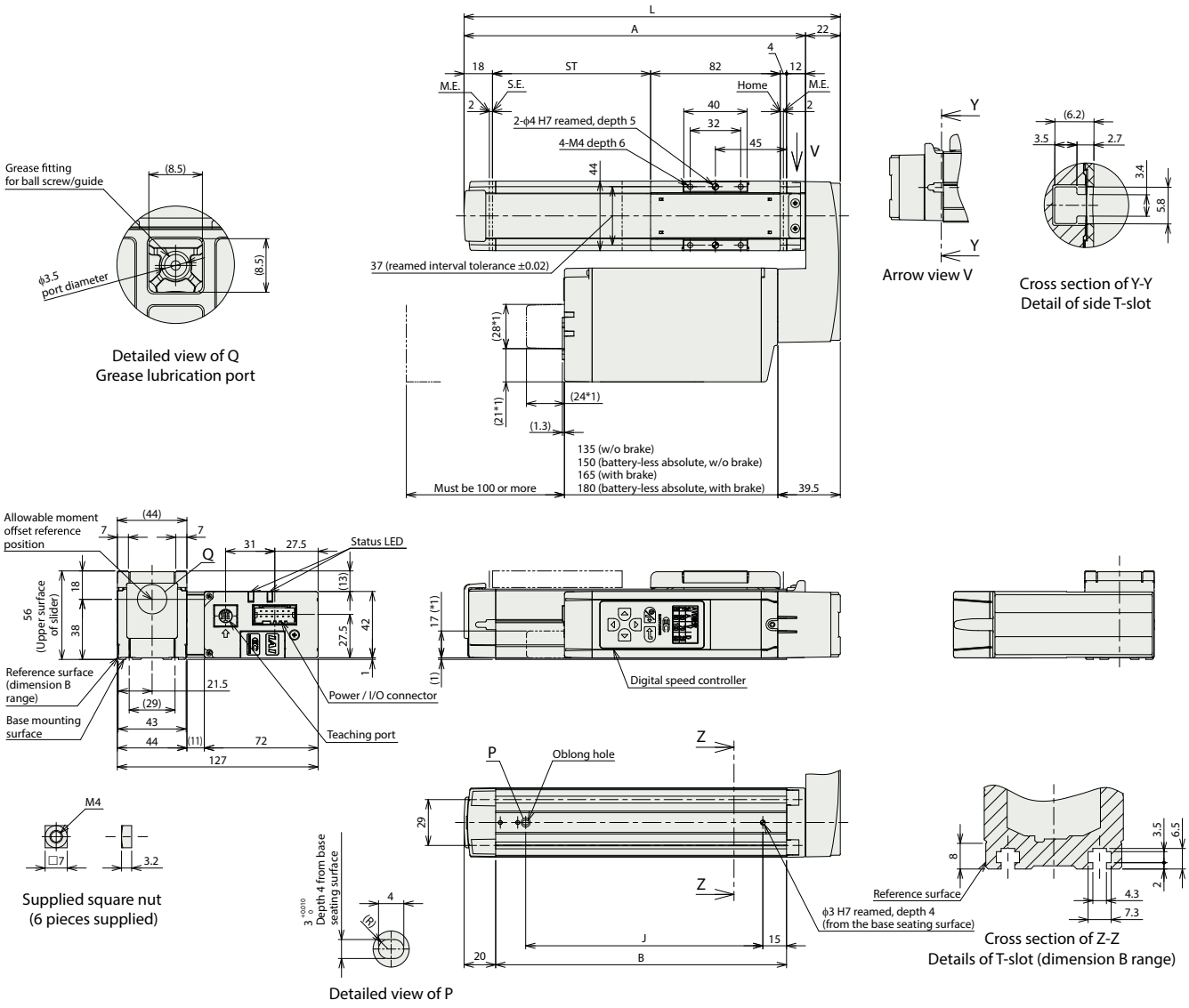
■Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.3	1.4	1.6	1.7	1.9	2.0
	With brake	1.4	1.6	1.7	1.9	2.0	2.2

■ EC-DS4□R <with digital speed controller>

*1 Dimensions are applicable when WL/WL2 option is selected.
(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) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300
L	188	238	288	338	388	438
A	166	216	266	316	366	416
B	134	184	234	284	334	384
J	100	150	200	250	300	350

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.4	1.5	1.6	1.8	1.9	2.1
	With brake	1.6	1.7	1.8	2.0	2.1	2.3

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6□R
EC-DS6□R

<With digital speed controller>

Simple Dust-proof | Side-mounted Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Series] - [Type] - [Lead] - R - [Specifications] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type	
S6	Standard
DS6	Digital speed controller

Lead	
S	20mm
H	12mm
M	6mm
L	3mm

Specifications	
R	Side-mounted motor

Stroke	
50	50mm
↓	↓
400	400mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



Horizontal | Vertical | Side | Ceiling

(Note) The figures above are for motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S6□R	DS6□R	Stroke (mm)	S6□R	DS6□R
50	○	○	**250**	○	○
100	○	○	**300**	○	○
150	○	○	**350**	○	○
200	○	○	**400**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification (Note 2	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Controller specification for slider (Note 4)	**SR**	2-386
Slider spacer (Note 2) (Note 5)	**SS**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 4) (Note 6)	**W**	2-183
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W), specified grease specification (G5) and slider space (SS) cannot be used together.
(Note 3) Specify either model code in the option column of the model specification items.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) Only DS6□R can be selected.
(Note 6) Some leads are not selectable. Refer to P. 2-183 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions (under 440mm for double slider specification).
(6) 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.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 7) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 9) (with connectors on both ends)
		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 9) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	400	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 97.1N·m
Dynamic allowable moment (Note 10)	Ma: 11.6N·m
	Mb: 16.6N·m
	Mc: 23.3N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less(Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

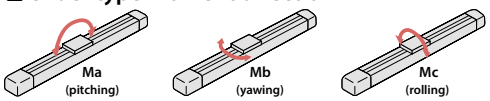


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	6.5	6	5	1	1
800	9	5	4	3	1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	9	2.5	2.5
560	18	12	7	5	2.5	2.5
700	10	5	4	3	1.5	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	18	15	6	5.5
340	25	14	12	9	4	3.5
400	15	8	8	5	2.5	2
450	10	5				

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	9	8
200	35	20	15	12	6	4
225	18	10			3	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	2		

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	8	1	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	5	2

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 12: 440mm/s or less
* Lead 6: 220mm/s or less
* Lead 3: 110mm/s or less

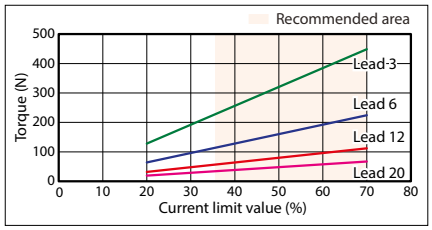
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
20	Disabled	800			727	566
	Enabled	800			727	566
12	Disabled	700		521	392	305
	Enabled	680 <560>		521	392	305
6	Disabled	450 <400>	371	265	199	155
	Enabled	340		265	199	155
3	Disabled	225	188	134	100	78
	Enabled	170		134	100	78

(Unit: mm/s)

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

Correlation between Torque and Current Limit

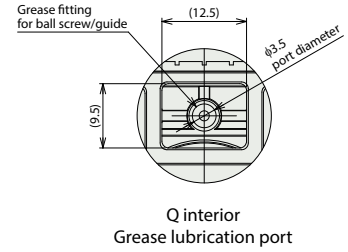


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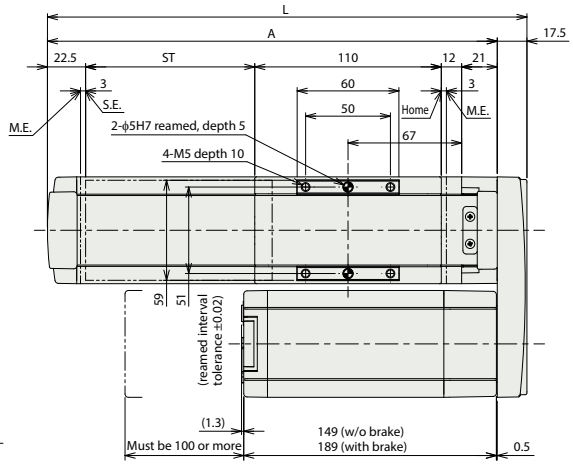
EC-S6□R

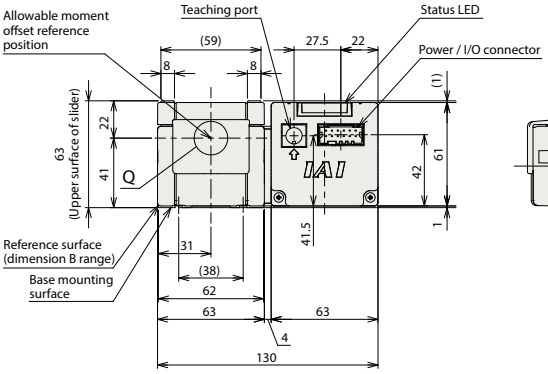
(Note) When the slider is returning to its home position, be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor side-mounted to left (ML).

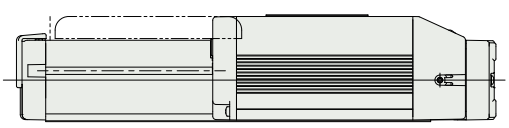
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

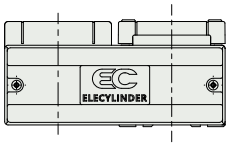


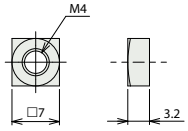
Q interior
Grease lubrication port



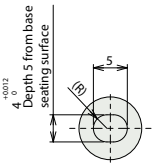




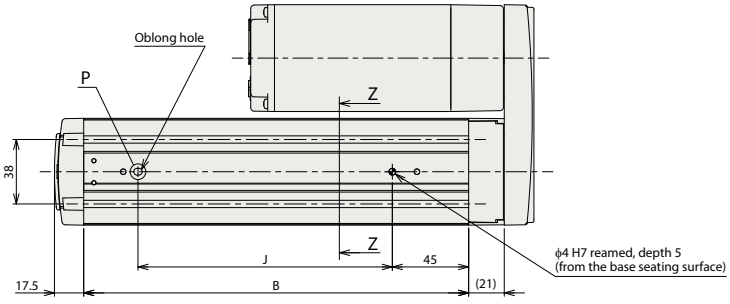


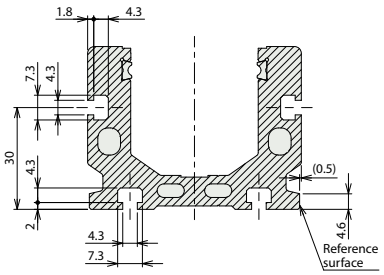


Supplied square nut
(6 pieces supplied)



Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	233	283	333	383	433	483	533	583
A	215.5	265.5	315.5	365.5	415.5	465.5	515.5	565.5
B	177	227	277	327	377	427	477	527
J	100	150	200	250	300	350	400	450

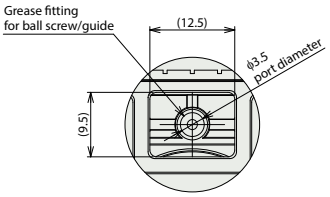
Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6
	With brake	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8

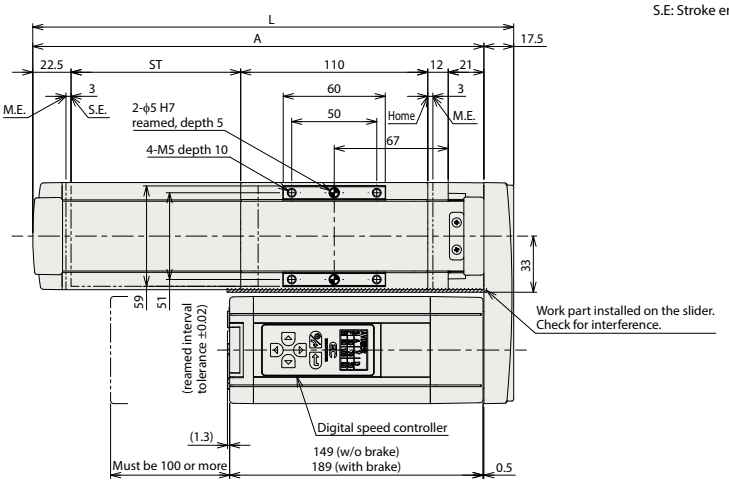
■EC-DS6□R <with digital speed controller>

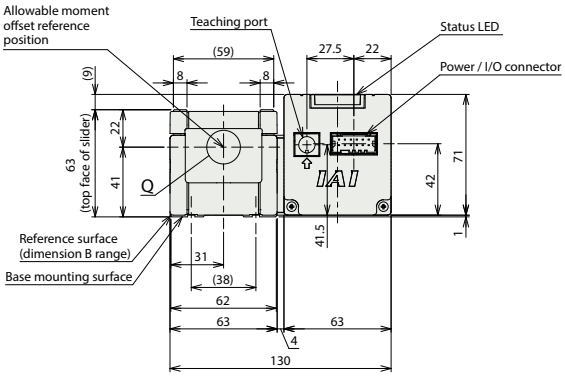
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor side-mounted to left (ML).

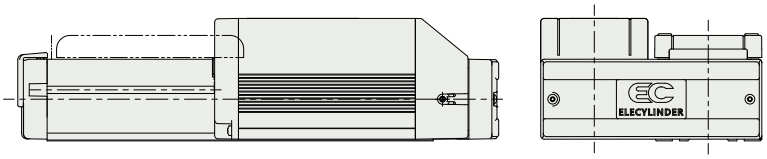
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S.E: Stroke end

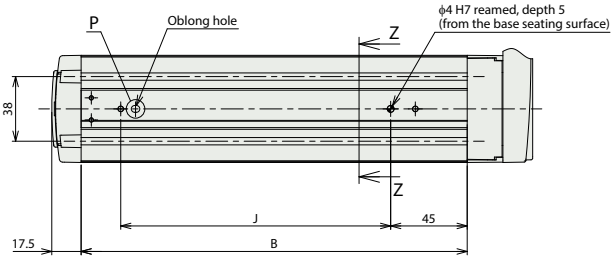


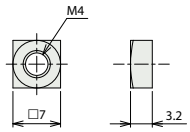
Q interior
Grease lubrication port



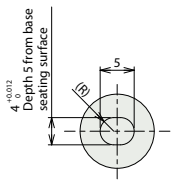




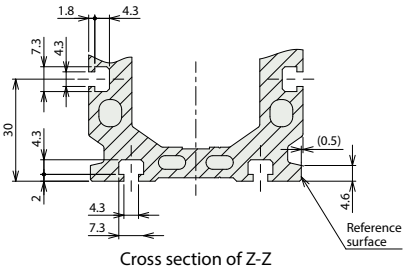




Supplied square nut
(6 pieces supplied)



Detailed view of P
Base oblong hole details



Cross section of Z-Z
Details of T-slot (dimension B range)

■Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	233	283	333	383	433	483	533	583
A	215.5	265.5	315.5	365.5	415.5	465.5	515.5	565.5
B	177	227	277	327	377	427	477	527
J	100	150	200	250	300	350	400	450

■Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
	With brake	2.5	2.7	2.9	3.1	3.3	3.5	3.7	3.9

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	24	30	38
		Max. payload (kg) (energy-saving enabled)	12	18	23
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	340	200
		Min. speed (mm/s)	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	4	10
		Max. payload (kg) (energy-saving enabled)	-	3	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	280	170
		Min. speed (mm/s)	-	8	4
		Rated acceleration/deceleration (G)	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	0.5	0.5
Push		Max. push force (N)	112	224	449
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	2.5	6	12.5
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	400	400	400
		Max. effective stroke (mm)	250	250	250
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 12 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 364N•m
	Mb: 520N•m
	Mc: 129N•m
Dynamic allowable moment (Note 11)	Ma: 106N•m
	Mb: 152N•m
	Mc: 37.9N•m
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 (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 11) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

Slider type moment direction

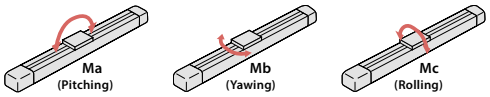


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	24	16	14	12		
80	24	16	14	12		
200	24	16	14	12		
320	24	16	10	8		
440	18	10	5	3		
560	7	4				

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	30	24	22	18	4	4
40	30	24	22	18	4	4
100	30	24	22	18	4	4
160	30	24	22	18	4	4
220	28	22	18	14	2	2
280	26	20	3	1	2	1
340	6					

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	38	33	33	33	10	10
50	38	33	33	33	10	10
80	38	33	33	28	10	10
110	38	33	33	28	10	10
140	36	31	28	24	8	8
170	34	26	17	12	2.5	2
200	18	5				

Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	12	8	
80	12	8	
200	12	8	
320	12	6	
440	7	1	

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	12	3
40	18	12	3
100	18	12	3
160	18	12	3
220	12	10	1
280	6	2	

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	23	20	8
20	23	20	8
50	23	20	8
80	23	20	8
110	18	12	6
140	10	6	1
170	6		

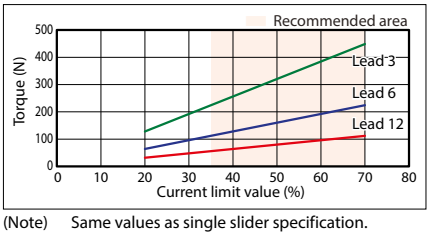
Stroke and Max Speed (double slider specification)

Lead (mm)	Nominal stroke / Effective stroke / Energy-saving setting	200 (mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
12	Disabled	560				
	Enabled	440				
6	Disabled	340 <280>				
	Enabled	280 <220>				
3	Disabled	200 <170>				188 <170>
	Enabled	170 <140>				

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between torque and current limit (double slider specification)



(Note) Same values as single slider specification.

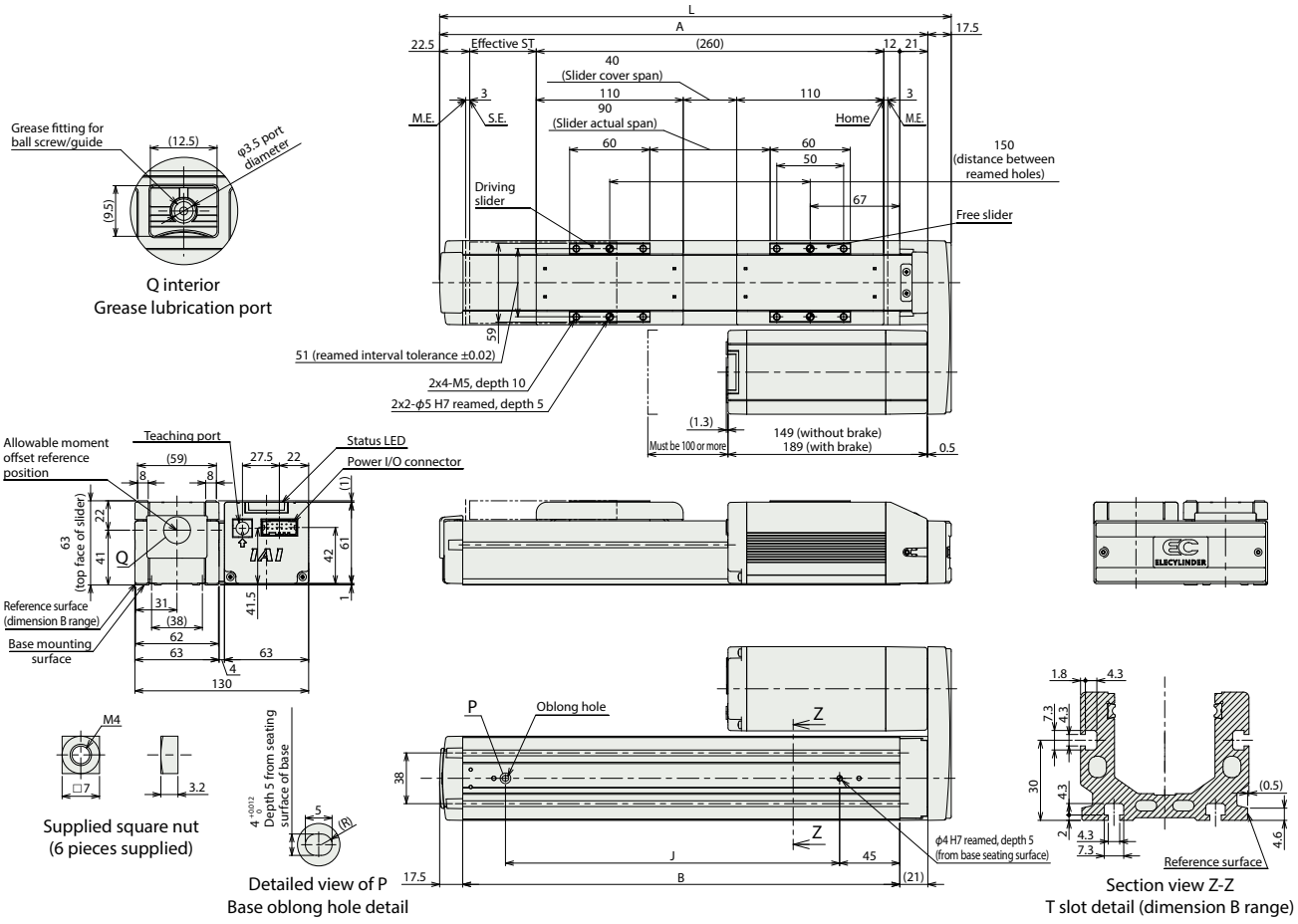
Dimensions (double slider specification)

CAD drawings can be downloaded from our website.
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■EC-(D) S6□R <double slider specification>

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■Dimensions by stroke

Nominal stroke	200	250	300	350	400
Effective stroke	50	100	150	200	250
L	383	433	483	533	583
A	365.5	415.5	465.5	515.5	565.5
B	327	377	427	477	527
J	250	300	350	400	450

■Mass by stroke

Nominal stroke			200	250	300	350	400
Effective stroke			50	100	150	200	250
Mass (kg)	Without digital speed controller	Without brake	3.07	3.27	3.47	3.67	3.87
		With brake	3.27	3.47	3.67	3.87	4.07
	With digital speed controller	Without brake	3.07	3.27	3.47	3.67	3.87
		With brake	3.37	3.57	3.77	3.97	4.17

(Note) Mass is added by 0.27kg of additional slider to the single slider specification.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7□R
EC-DS7□R

<With digital speed controller>

Simple Dust-proof | Side-mounted Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Series] - [Type] - [Lead] - R - [Specifications] - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type	
S7	Standard
DS7	Digital speed controller

Lead	
S	24mm
H	16mm
M	8mm
L	4mm

Specifications	
R	Side-mounted motor

Stroke	
50	50mm
↓	↓
500	500mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The figures above are the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S7□R	DS7□R	Stroke (mm)	S7□R	DS7□R
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification (Note 2)	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 4)	**SR**	2-386
Slider spacer (Note 2) (Note 5)	**SS**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 4) (Note 6)	**W**	2-189
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W), specified grease specification (G5) and slider space (SS) cannot be used together.
(Note 3) Specify either one of model code in the option column the model specification item.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) Only DS7□R can be selected.
(Note 6) There are some non-selectable leads. See P. 2-189 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions (under 560mm for double slider specification).
(6) 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.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 7) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 9) (with connectors on both ends)
		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 9) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	420	190
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79.7N·m
	Mb: 114N·m
	Mc: 157N·m
Dynamic allowable moment (Note 10)	Ma: 17.7N·m
	Mb: 25.3N·m
	Mc: 34.9N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

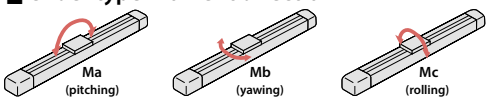


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	18	13	9	7.5	3	3
860	9	6	4	3	1.5	1

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	14	8	6	3	2.5
700	10	5	3	1	1.5	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	36	20	15	15	8	7
350	20	5	4		3	2
420	2					

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	12.5	12
175	30	16			5	4
190	5					

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
500	7.5	1.5	0.5
560	2		

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	5		0.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
120	15	6	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

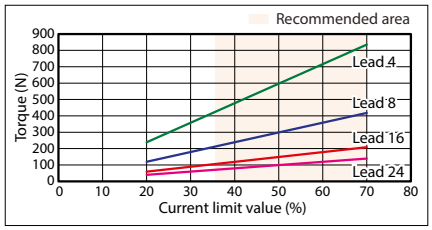
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 300 (Every 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	Disabled	860		774	619	506
	Enabled	800 <640>		774 <640>	619	506
16	Disabled	700	631	492	395	323
	Enabled	560 <500>		492	395	323
8	Disabled	420 <350>	322	251	200	164
	Enabled	280		251	200	164
4	Disabled	190 <175>	163	126	101	83
	Enabled	120			101	83

(Unit: mm/s)

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

Correlation between Torque and Current Limit

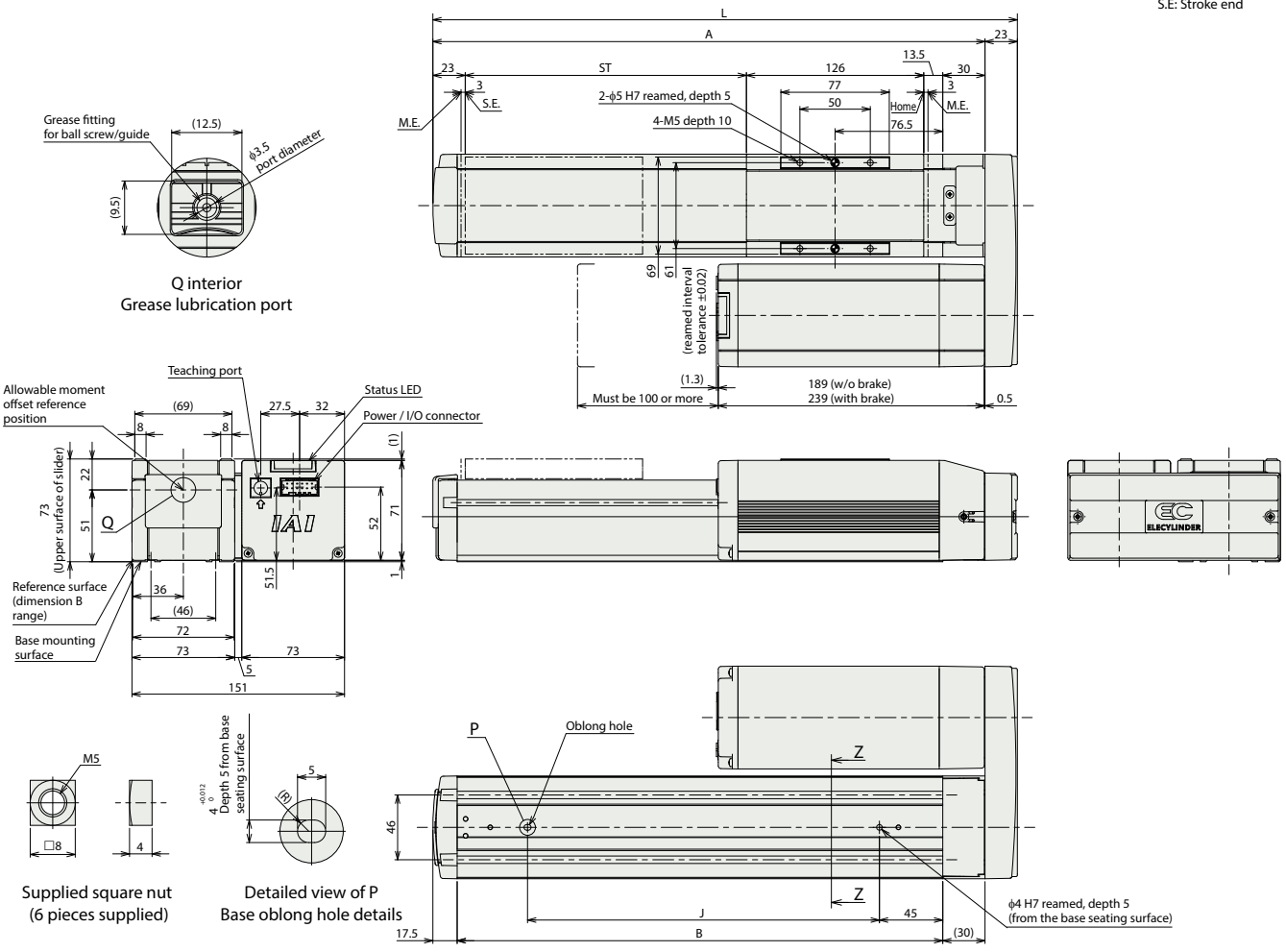


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2D CAD 3D CAD

■EC-S7□R

(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) The figures below are for motor side-mounted to left (ML).

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



■Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	265.5	315.5	365.5	415.5	465.5	515.5	565.5	615.5	665.5	715.5
A	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5
B	195	245	295	345	395	445	495	545	595	645
J	100	150	200	250	300	350	400	450	500	550

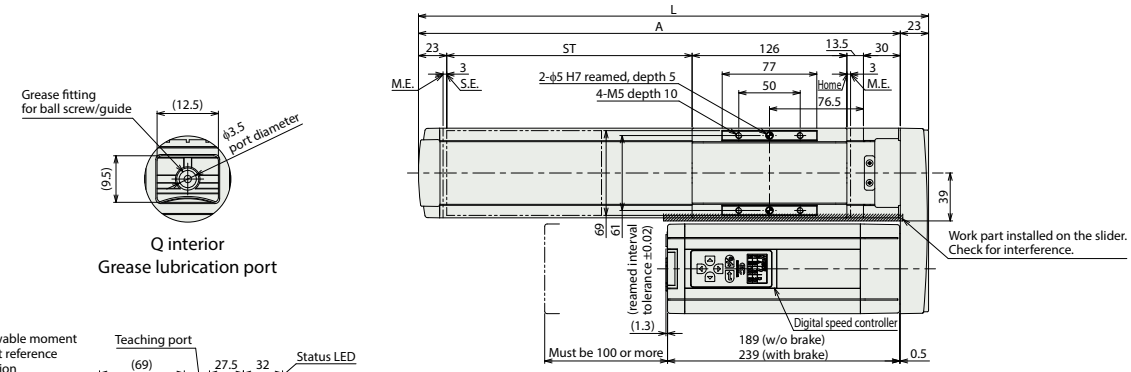
■Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	4.2	4.4	4.7	4.9	5.2	5.4	5.7	5.9	6.2	6.4
	With brake	4.7	4.9	5.2	5.4	5.7	5.9	6.2	6.4	6.7	6.9

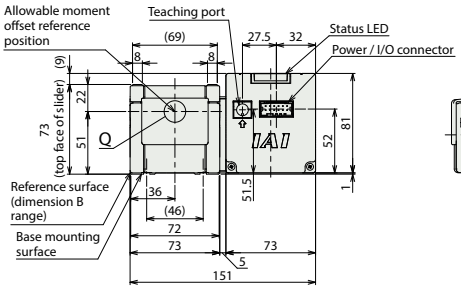
■EC-DS7□R <with digital speed controller>

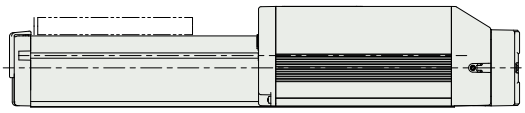
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor side-mounted to left (ML).

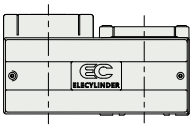
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

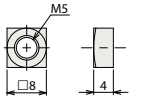


Q interior
Grease lubrication port

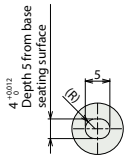




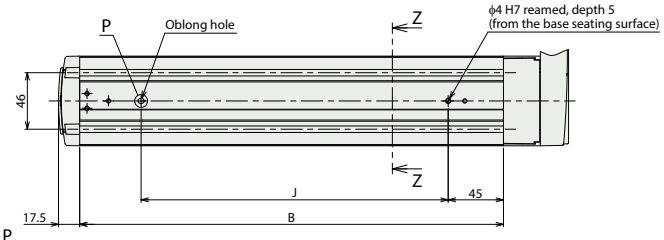


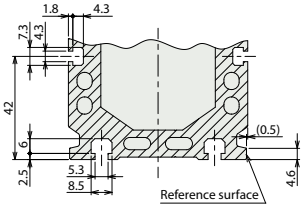


Supplied square nut
(6 pieces supplied)



Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

■Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	265.5	315.5	365.5	415.5	465.5	515.5	565.5	615.5	665.5	715.5
A	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5
B	195	245	295	345	395	445	495	545	595	645
J	100	150	200	250	300	350	400	450	500	550

■Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	4.3	4.5	4.8	5.0	5.3	5.5	5.8	6.0	6.3	6.5
	With brake	4.9	5.1	5.4	5.6	5.9	6.1	6.4	6.6	6.9	7.1

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	44	49	49
		Max. payload (kg) (energy-saving enabled)	33	38	38
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	280	175
		Min. speed (mm/s)	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	14	17
		Max. payload (kg) (energy-saving enabled)	-	8	13
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	210	140
		Min. speed (mm/s)	-	10	5
		Rated acceleration/deceleration (G)	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	0.5	0.5
Push		Max. push force (N)	209	418	836
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	8	16	19
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	500	500	500
		Max. effective stroke (mm)	350	350	350
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 16 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 441N•m
	Mb: 630N•m
	Mc: 309N•m
Dynamic allowable moment (Note 11)	Ma: 119N•m
	Mb: 171N•m
	Mc: 56.7N•m
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 (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 11) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P.1-244.

Slider type moment direction

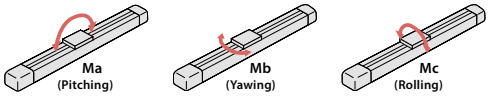


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	44	33	26	25		
140	44	33	26	25		
280	44	32	22	20		
420	22	15	8	6		
560	5	3				

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	14	14
70	49	43	38	38	14	14
140	49	38	36	33	14	14
210	47	31	26	18	5	3.5
280	29	14	9	5.5		

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	17	17
35	49	43	38	38	17	17
70	49	43	38	38	17	17
105	49	43	38	33	15	15
140	38	28	23	18	5.5	3
175	15					

Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	33	18	
140	33	18	
280	23	10	
420	8	1	

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	23	8
70	38	23	8
140	38	23	5
210	18	8	

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	28	13
35	38	28	13
70	38	28	13
105	36	26	4
120	4		

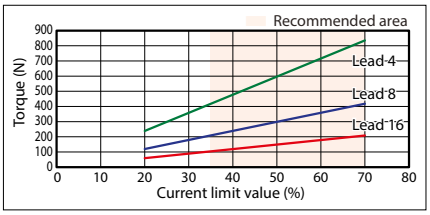
Stroke and Max Speed (double slider specification)

Lead	Nominal stroke	200~300	350	400	450	500
	Effective stroke	50Z150	200	250	300	350
(mm)	Energy-saving setting	(Every 50mm)	(mm)	(mm)	(mm)	(mm)
16	Disabled	560				
	Enabled	420				
8	Disabled	280 <210>				
	Enabled	210 <140>				
4	Disabled	175 <140>				163 <140>
	Enabled	120 <105>				

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between torque and current limit (double slider specification)



(Note) Same values as single slider specification.

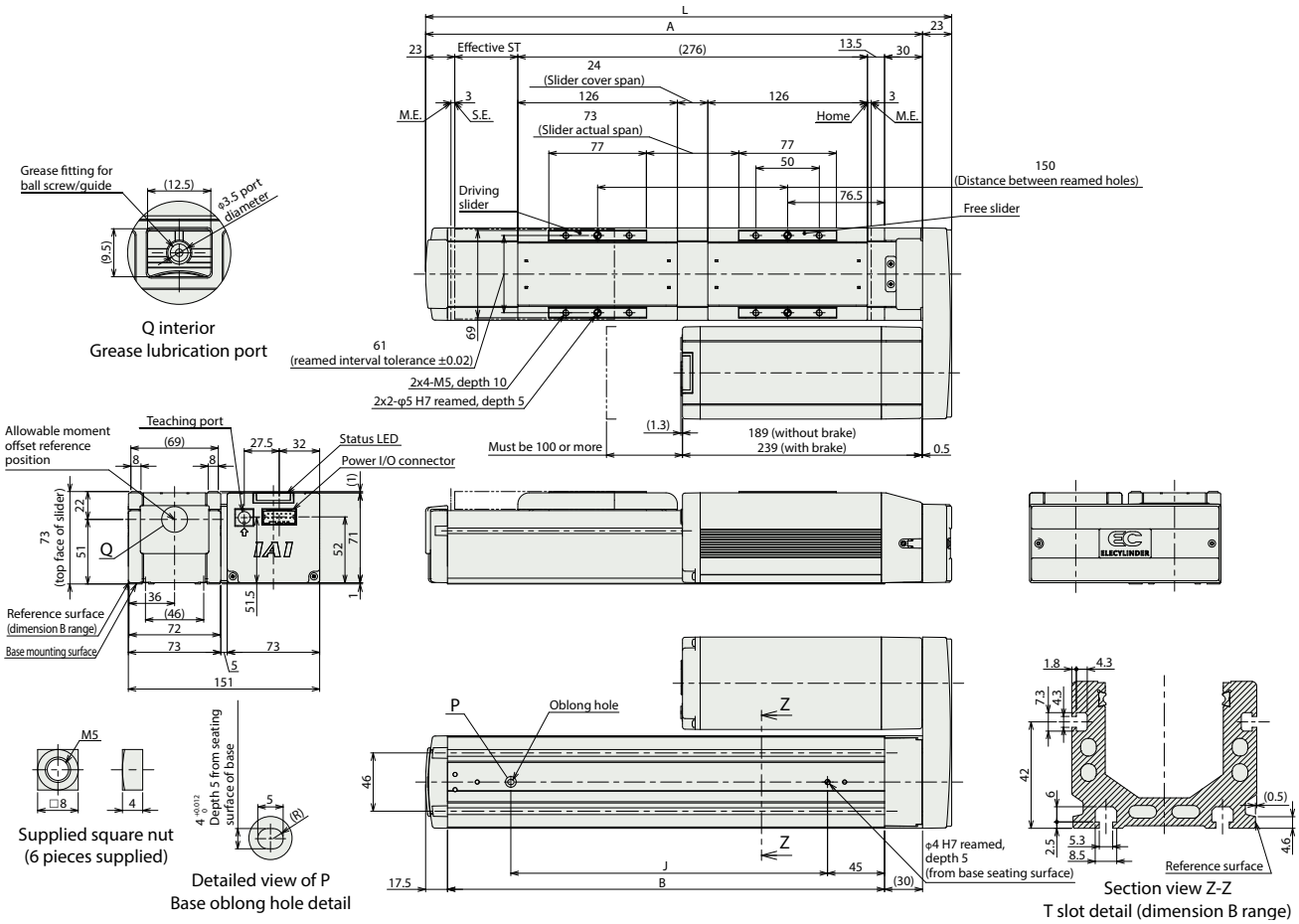
Dimensions (double slider specification)

CAD drawings can be downloaded from our website.
www.iai-automation.com

■EC-(D) S6□R <double slider specification>

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■Dimensions by stroke

Nominal stroke	200	250	300	350	400	450	500
Effective stroke	50	100	150	200	250	300	350
L	415.5	465.5	515.5	565.5	615.5	665.5	715.5
A	392.5	442.5	492.5	542.5	592.5	642.5	692.5
B	345	395	445	495	545	595	645
J	250	300	350	400	450	500	550

■Mass by stroke

Nominal stroke			200	250	300	350	400	450	500
Effective stroke			50	100	150	200	250	300	350
Mass (kg)	Without digital speed controller	Without brake	5.35	5.65	5.85	6.15	6.35	6.65	6.85
		With brake	5.85	6.15	6.35	6.65	6.85	7.15	7.35
	With digital speed controller	Without brake	5.45	5.75	5.95	6.25	6.45	6.75	6.95
		With brake	6.05	6.35	6.55	6.85	7.05	7.35	7.55

(Note) Mass is added by 0.45kg of additional slider to the single slider specification.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6□AHR
EC-DS6□AHR

<With digital speed controller>

Simple Dust-proof | Side-mounted Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] AHR - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
	S6	Standard	S	20mm	AHR	High rigidity side-mounted	50 ~ 800	50mm ~ 800mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DS6	Digital speed controller	H	12mm						
			M	6mm						
			L	3mm						



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The figures above are for motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S6□AHR	DS6□AHR	Stroke (mm)	S6□AHR	DS6□AHR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification (Note 2)	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 4)	**SR**	2-386
Slider spacer (Note 2) (Note 5)	**SS**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 4) (Note 6)	**W**	2-189
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W), specified grease specification (G5) and slider space (SS) cannot be used together.
(Note 3) Specify either one of model code in the option column the model specification item.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) Only DS6□AHR can be selected.
(Note 6) There are some non-selectable leads. See P. 2-195 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions (under 600mm for double slider specification).
(6) 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.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 7) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 9) (with connectors on both ends)
		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 9) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1120	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1120	800	400	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±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: 48.5N·m
	Mb: 69.3N·m
	Mc: 103N·m
Dynamic allowable moment (Note 10)	Ma: 33.7N·m
	Mb: 40.2N·m
	Mc: 55.3N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

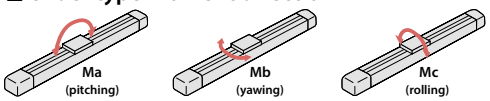


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	6.5	6	5	1	1
800	9	5	4	3	1	1
960	7	4	3	1.5	0.75	0.5
1120	5	2.5	1.5		0.5	

(Note) Refer to the caution below when "G5" option is selected.

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	9	2.5	2.5
560	17.5	12	7	5	2.5	2.5
700	10	5	3.5	2	1	0.5
800	6	3	1		0.5	
900	3					

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	18	15	6	5.5
340	25	14	12	9	4	3.5
400	15	8	8	5	2	2
450	10	5				

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	25	20	9	8
200	28	20	15	8	6	4
225	18	5			2	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	2		

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	8	1	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	5	2

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 20: 800mm/s or less
* Lead 12: 440mm/s or less
* Lead 6: 220mm/s or less
* Lead 3: 110mm/s or less

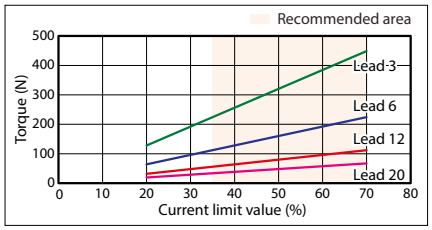
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1120			1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900 <800>	845 <800>	705	585	515	445	390	345	315
	Enabled	680 <560>			585 <560>	515	445	390	345	315
6	Disabled	450 <400>	415 <400>	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Unit: mm/s)

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

Correlation between Torque and Current Limit

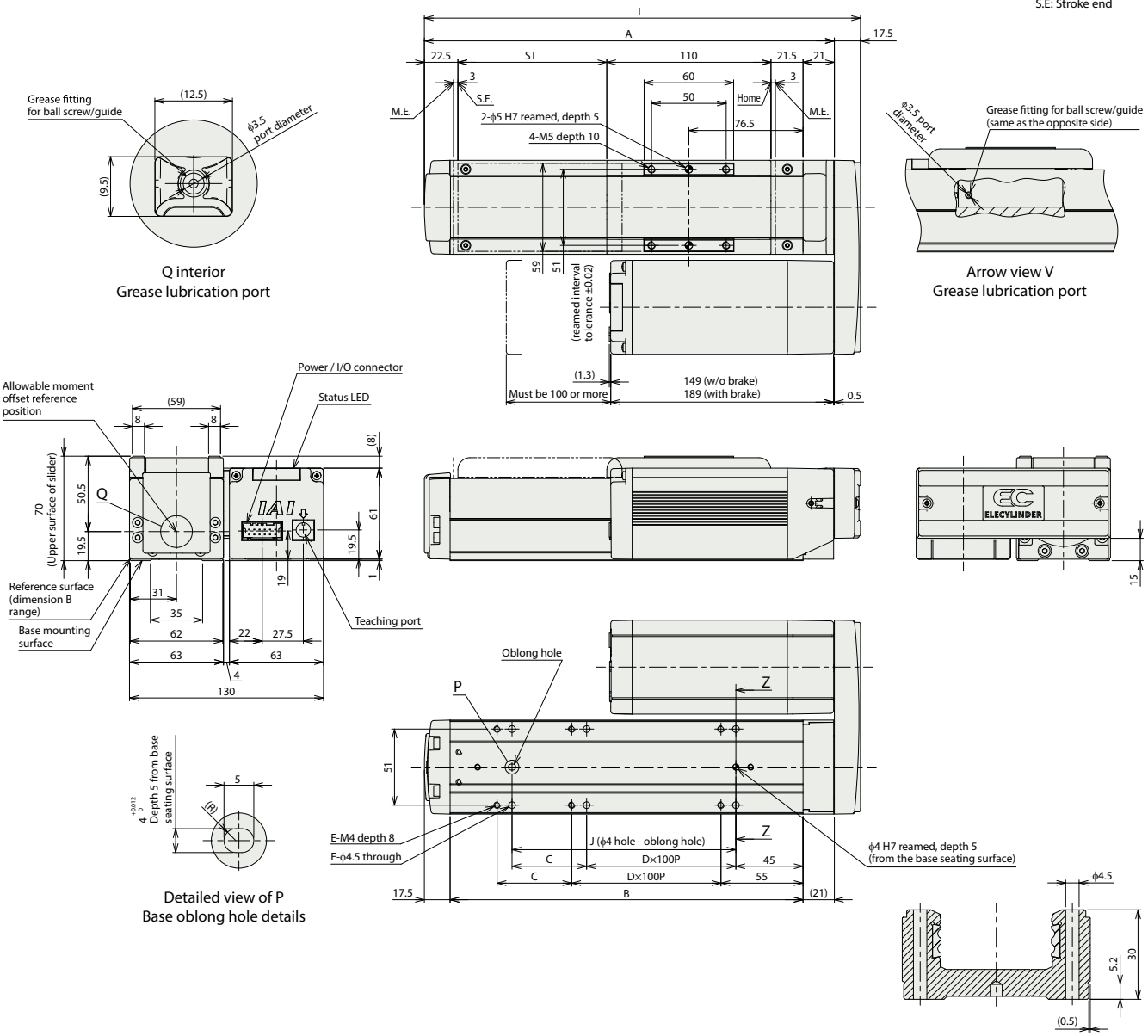


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■ EC-S6□AHR

(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) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5
A	225	275	325	375	425	475	525	575	625	675	725	775	825	875	925	975
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

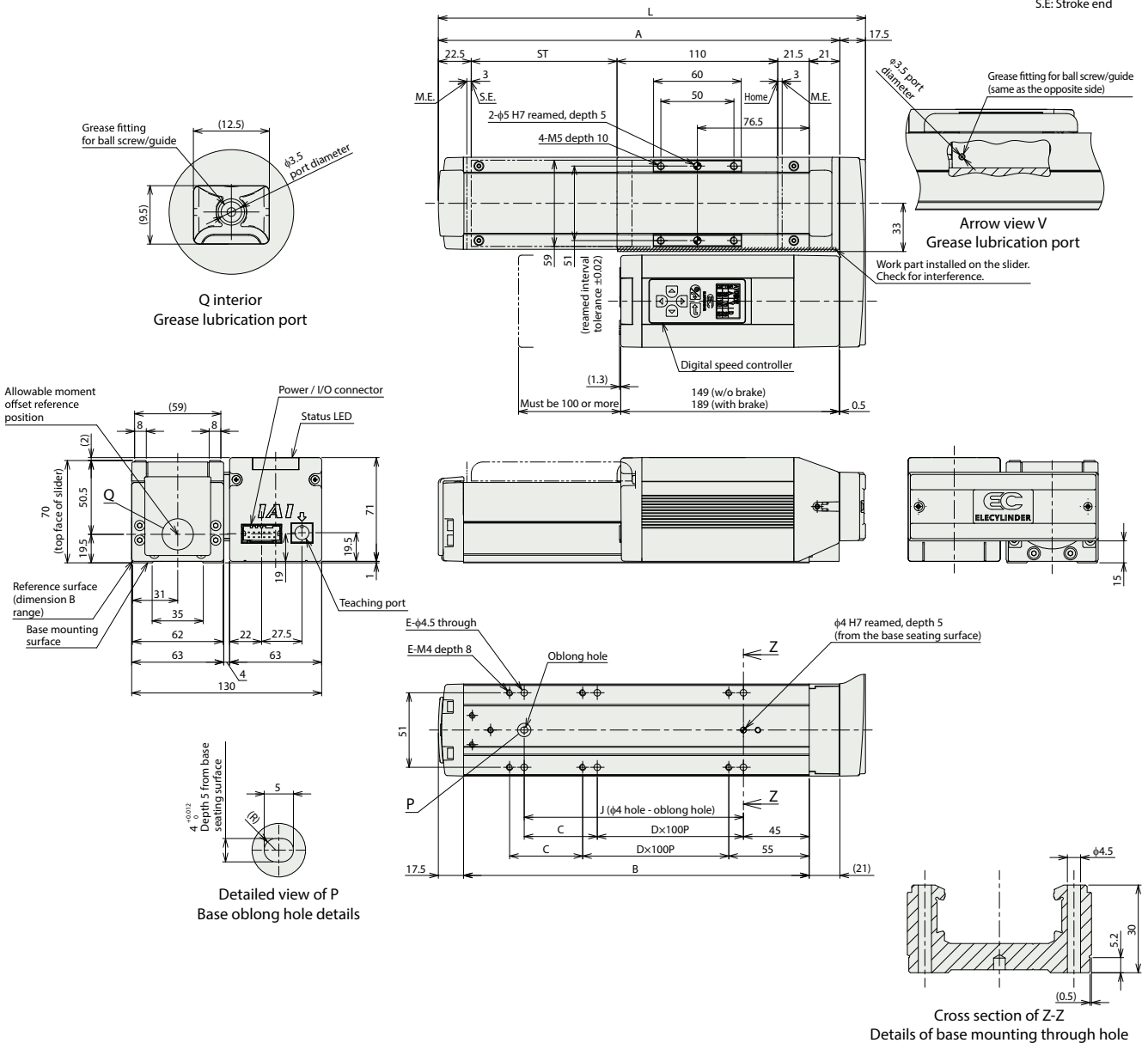
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5	5.2	5.4	5.6
	With brake	2.6	2.8	3	3.2	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5	5.3	5.5	5.7	5.9

■ EC-DS6□AHR <with digital speed controller>

(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) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	242.5	292.5	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5
A	225	275	325	375	425	475	525	575	625	675	725	775	825	875	925	975
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E	4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6
	With brake	2.6	2.8	3.0	3.2	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5.0	5.3	5.5	5.7	5.9

Main Specifications (double slider specification)

Item			Description		
Lead		Ball screw lead (mm)	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	24	30	38
		Max. payload (kg) (energy-saving enabled)	12	18	23
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	340	200
		Min. speed (mm/s)	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	4	14
		Max. payload (kg) (energy-saving enabled)	-	3	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	280	170
		Min. speed (mm/s)	-	8	4
		Rated acceleration/deceleration (G)	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	0.5	0.5
Push		Max. push force (N)	112	224	449
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	2.5	6	16
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	800	800	800
		Max. effective stroke (mm)	650	650	650
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 16 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±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: 546N•m
	Mb: 779N•m
	Mc: 205N•m
Dynamic allowable moment (Note 11)	Ma: 167N•m
	Mb: 199N•m
	Mc: 89.8N•m
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 (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 11) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

Slider type moment direction

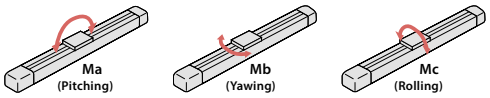


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	24	16	14	12		
80	24	16	14	12		
200	24	16	14	12		
320	24	16	10	8		
440	18	10	5	3		
560	7	4				

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	30	24	22	18	4	4
40	30	24	22	18	4	4
100	30	24	22	18	4	4
160	30	24	22	18	4	4
220	28	22	18	14	2	2
280	26	20	3	1	2	1
340	6					

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	38	33	33	33	14	14
50	38	33	33	33	14	14
80	38	33	33	28	14	14
110	38	33	33	28	12	12
140	36	31	28	24	11	10
170	34	26	17	12	4.5	2
200	18	5				

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	12	8	
80	12	8	
200	12	8	
320	12	6	
440	7	1	

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	12	3
40	18	12	3
100	18	12	3
160	18	12	3
220	12	10	1
280	6	2	

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	23	20	8
20	23	20	8
50	23	20	8
80	23	20	8
110	18	12	6
140	10	6	1
170	6		

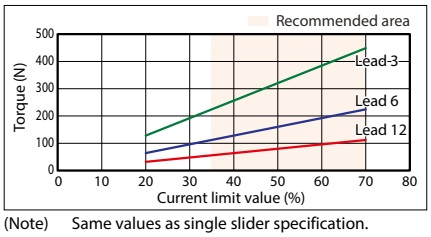
Stroke and Max Speed (double slider specification)

Lead	Nominal stroke	200~400	450	500	550	600	650	700	750	800
	Effective stroke	50~250	300	350	400	450	500	550	600	650
(mm)	Energy-saving setting	(Every 50mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
12	Disabled	560				515	445	390	345	315
	Enabled	440						390	345	315
6	Disabled	340 <280>			295 <280>	255	220	190	170	140
	Enabled	280 <220>				255 <220>	220	190	170	140
3	Disabled	200 <170>		170	145	125	110	95	85	70
	Enabled	170 <140>			145 <140>	125	110	95	85	70

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between torque and current limit (double slider specification)



(Note) Same values as single slider specification.

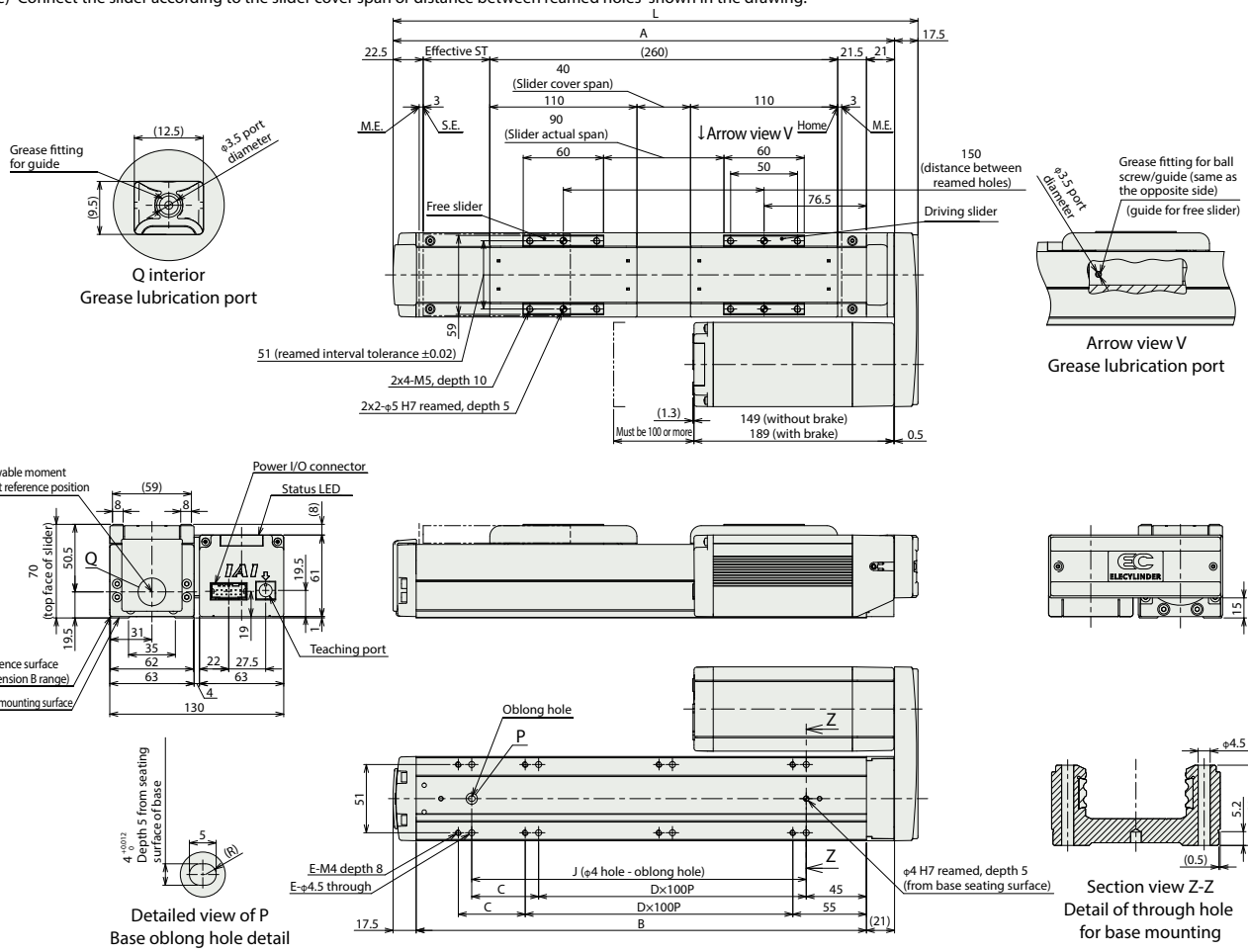
Dimensions (double slider specification)

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■EC-(D) S6□AHR <double slider specification>

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■Dimensions by stroke

Nominal stroke	200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650
L	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5
A	375	425	475	525	575	625	675	725	775	825	875	925	975
B	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C	50	0	50	0	50	0	50	0	50	0	50	0	50
D	2	3	3	4	4	5	5	6	6	7	7	8	8
E	8	8	10	10	12	12	14	14	16	16	18	18	20
J	250	300	350	400	450	500	550	600	650	700	750	800	850

■Mass by stroke

Nominal stroke			200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke			50	100	150	200	250	300	350	400	450	500	550	600	650
Mass (kg)	Without digital speed controller	Without brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83	6.03
		With brake	3.63	3.93	4.13	4.33	4.53	4.83	5.03	5.23	5.43	5.73	5.93	6.13	6.33
	With digital speed controller	Without brake	3.33	3.63	3.83	4.03	4.23	4.53	4.73	4.93	5.13	5.43	5.63	5.83	6.03
		With brake	3.63	3.93	4.13	4.33	4.53	4.83	5.03	5.23	5.43	5.73	5.93	6.13	6.33

(Note) Mass is added by 0.43kg of additional slider to the single slider specification.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7□AHR
EC-DS7□AHR

<With digital speed controller>

Simple Dust-proof | Side-mounted Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			AHR	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options

Type		Lead		Specifications	
S7	Standard	S	24mm	AHR	High rigidity side-mounted
DS7	Digital speed controller	H	16mm		
		M	8mm		
		L	4mm		

Stroke	
50	50mm
↕	↕
800	800mm (Every 50mm)

Power / I/O cable length: Refer to "Power / I/O Cable Length" below

Options: Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The figures above are for motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	S7□AHR	DS7□AHR	Stroke (mm)	S7□AHR	DS7□AHR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Specified grease specification (Note 2)	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Slider part roller specification (Note 4)	**SR**	2-386
Slider spacer (Note 2) (Note 5)	**SS**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Double slider specification (Note 2) (Note 4) (Note 6)	**W**	2-201
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Double slider specification (W), specified grease specification (G5) and slider space (SS) cannot be used together.
(Note 3) Specify either one of model code in the option column the model specification item.
(Note 4) When the slider part roller specification (SR) and Double slider specification (W) are used together, the price for the slider part roller specification (SR) becomes double.
(Note 5) Only DS7□AHR can be selected.
(Note 6) There are some non-selectable leads. See P. 2-201 for details.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty must be restricted depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions (under 600mm for double slider specification).
(6) 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.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 7) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 8) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 9) (with connectors on both ends)
		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 9) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	1080	840	420	190
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±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: 115N·m
	Mb: 115N·m
	Mc: 229N·m
Dynamic allowable moment (Note 10)	Ma: 75.5N·m
	Mb: 90.0N·m
	Mc: 134N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 10) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

■ Slider type moment direction

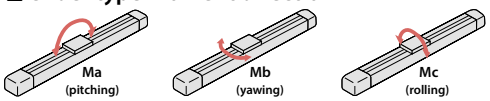


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	11	3	3
640	15	10	8	6.5	3	2
860	9	6	4	3	1.5	1
1080	3	2				

(Note) Refer to the caution below when "G5" option is selected.

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	30	25	15	10	5	4.5
560	15	12	7	5	3	2.5
700	10	5	3	1	1.5	1
840	3					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	9	8
280	35	20	15	12.5	6	5
350	20	5	4		3	2
420	2					

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	40	25	25
140	51	45	40	35	20	19
175	45	35	30	25	12.5	10
190	20	15			4	3
	5					

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
500	7.5	1.5	0.5
560	2		

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	5		0.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
120	15	6	2

<Cautions on "G5" (specified grease specification) option>
When used in ambient temperature of under 10°C, use at the speed specified below.
* Lead 24: 860mm/s or less
* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

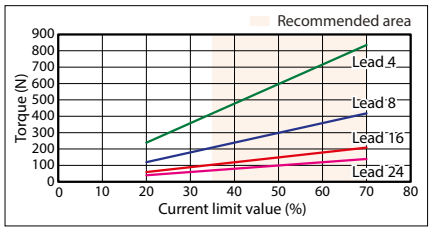
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 500 (Every 50mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1080 <860>				950	840	750
	Enabled	800 <640>						750 <640>
16	Disabled	840 <700>		820 <700>	715 <700>	625	555	495
	Enabled	560 <500>					555 <500>	495
8	Disabled	420 <350>		405 <350>	350	310	275	245
	Enabled	280					275	245
4	Disabled	190 <175>			175	150	135	120
	Enabled	120						

(Unit: mm/s)

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

Correlation between Torque and Current Limit

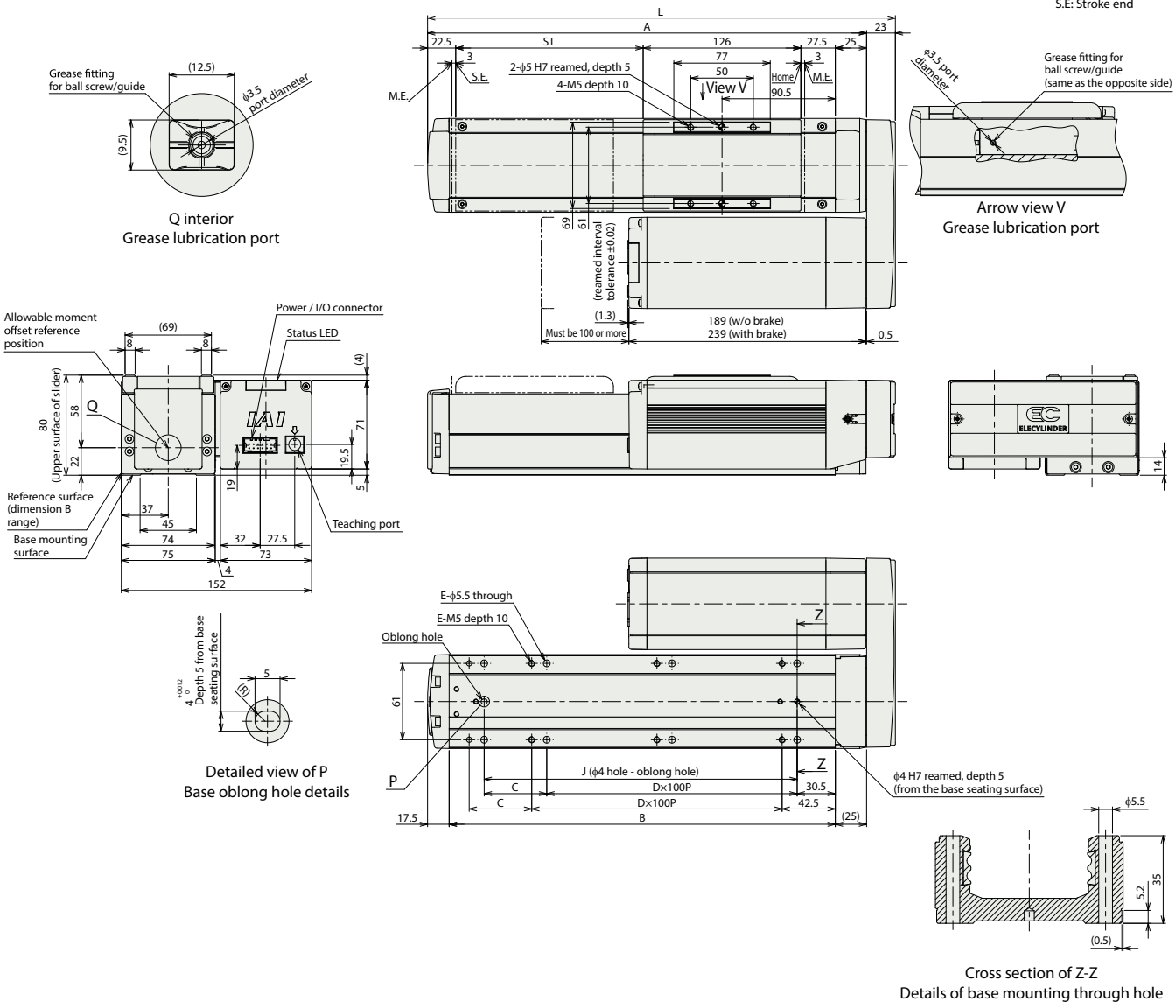


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■ EC-S7□AHR

(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) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	274	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024
A	251	301	351	401	451	501	551	601	651	701	751	801	851	901	951	1001
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

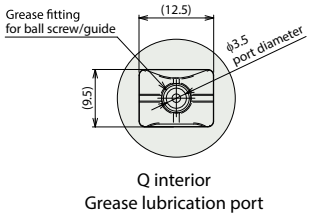
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.5	4.7	5	5.3	5.5	5.8	6.1	6.3	6.6	6.9	7.1	7.4	7.7	7.9	8.2	8.5
	With brake	5.0	5.2	5.5	5.8	6.0	6.3	6.6	6.8	7.1	7.4	7.6	7.9	8.2	8.4	8.7	9.0

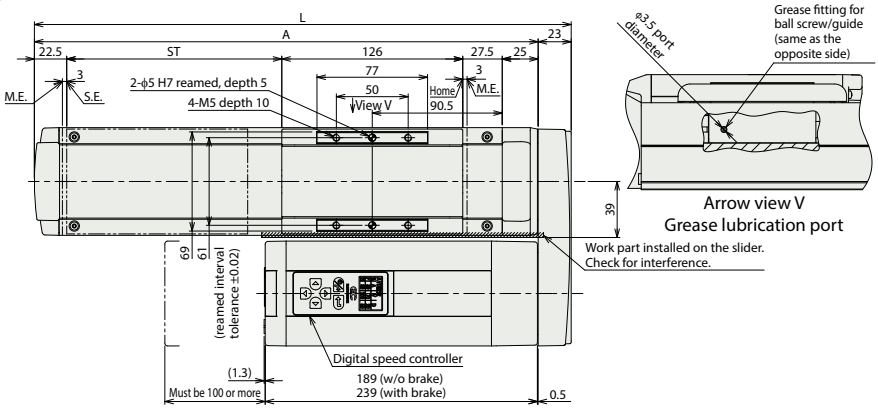
■ EC-DS7□AHR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor side-mounted to left (ML).

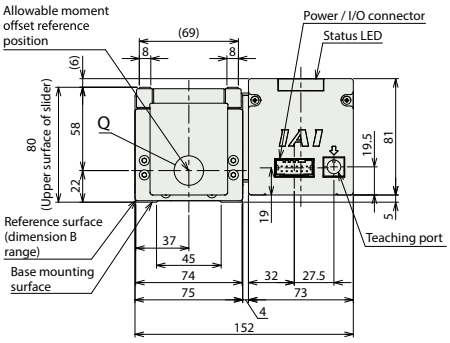
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

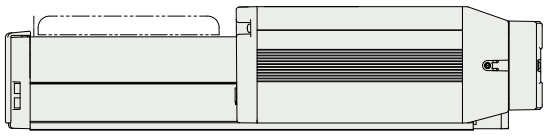


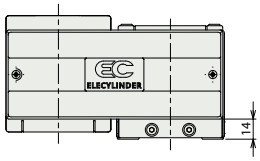
Q interior
Grease lubrication port

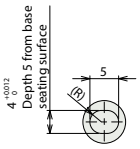


Arrow view V
Grease lubrication port

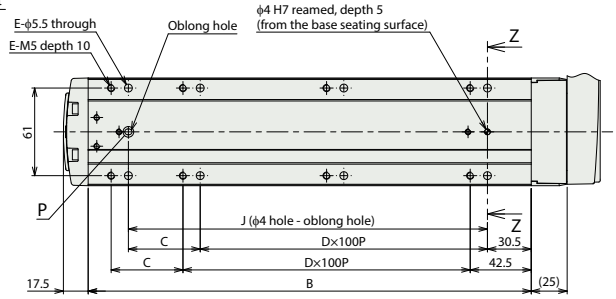


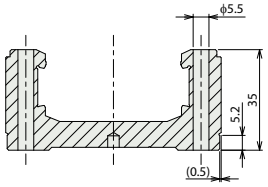






Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of base mounting through hole

■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	274	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024
A	251	301	351	401	451	501	551	601	651	701	751	801	851	901	951	1001
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.6	4.8	5.1	5.4	5.6	5.9	6.2	6.4	6.7	7.0	7.2	7.5	7.8	8.0	8.3	8.6
	With brake	5.2	5.4	5.7	6.0	6.2	6.5	6.8	7.0	7.3	7.6	7.8	8.1	8.4	8.6	8.9	9.2

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	44	49	49
		Max. payload (kg) (energy-saving enabled)	33	38	38
	Speed / acceleration/ deceleration	Max. speed (mm/s)	560	280	175
		Min. speed (mm/s)	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	-	14	23
		Max. payload (kg) (energy-saving enabled)	-	8	13
	Speed / acceleration/ deceleration	Max. speed (mm/s)	-	210	140
		Min. speed (mm/s)	-	10	5
		Rated acceleration/deceleration (G)	-	0.3	0.3
		Max. acceleration/deceleration (G)	-	0.5	0.5
Push		Max. push force (N)	209	418	836
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	8	16	25
Stroke		Min. nominal stroke (mm)	200	200	200
		Min. effective stroke (mm)	50	50	50
		Max. nominal stroke (mm)	800	800	800
		Max. effective stroke (mm)	650	650	650
		Stroke pitch (mm)	50	50	50

(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.
(Note) Lead 16 cannot be mounted vertically.

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±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: 900N•m
	Mb: 900N•m
	Mc: 458N•m
Dynamic allowable moment (Note 11)	Ma: 316N•m
	Mb: 376N•m
	Mc: 218N•m
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 (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 11) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions.

Slider type moment direction

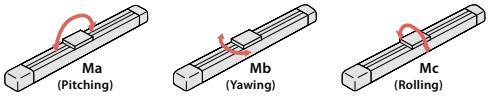


Table of Payload by Speed/Acceleration (double slider specification)

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	44	33	26	25		
140	44	33	26	25		
280	44	32	22	20		
420	22	15	8	6		
560	5	3				

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	14	14
70	49	43	38	38	14	14
140	49	38	36	33	14	14
210	47	31	26	18	5	3.5
280	29	14	9	5.5		

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	49	43	38	38	23	23
35	49	43	38	38	23	23
70	49	43	38	38	23	23
105	49	43	38	33	16	15
140	38	28	23	18	5.5	3
175	15					

Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	33	18	
140	33	18	
280	23	10	
420	8	1	

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	23	8
70	38	23	8
140	38	23	5
210	18	8	

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	38	28	13
35	38	28	13
70	38	28	13
105	36	26	4
120	4		

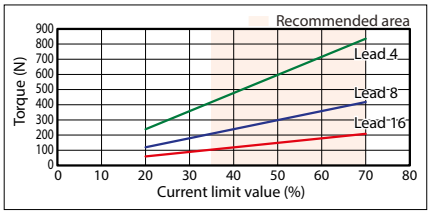
Stroke and Max Speed (double slider specification)

Lead	Nominal stroke	200~650	700	750	800
	Effective stroke	50~500	550	600	650
(mm)	Energy-saving setting	(Every 50mm)	(mm)	(mm)	(mm)
16	Disabled	560		555	495
	Enabled	420			
8	Disabled	280 <210>		275 <210>	245 <210>
	Enabled	210 <140>			
4	Disabled	175 <140>	150 <140>	135	120
	Enabled	120 <105>			

(Unit: mm/s)

(Note) Values in brackets < > are for vertical use.
(Note) Nominal stroke: Stroke shown in the model number.
Effective stroke: Stroke available for actual operation.

Correlation between torque and current limit (double slider specification)



(Note) Same values as single slider specification.

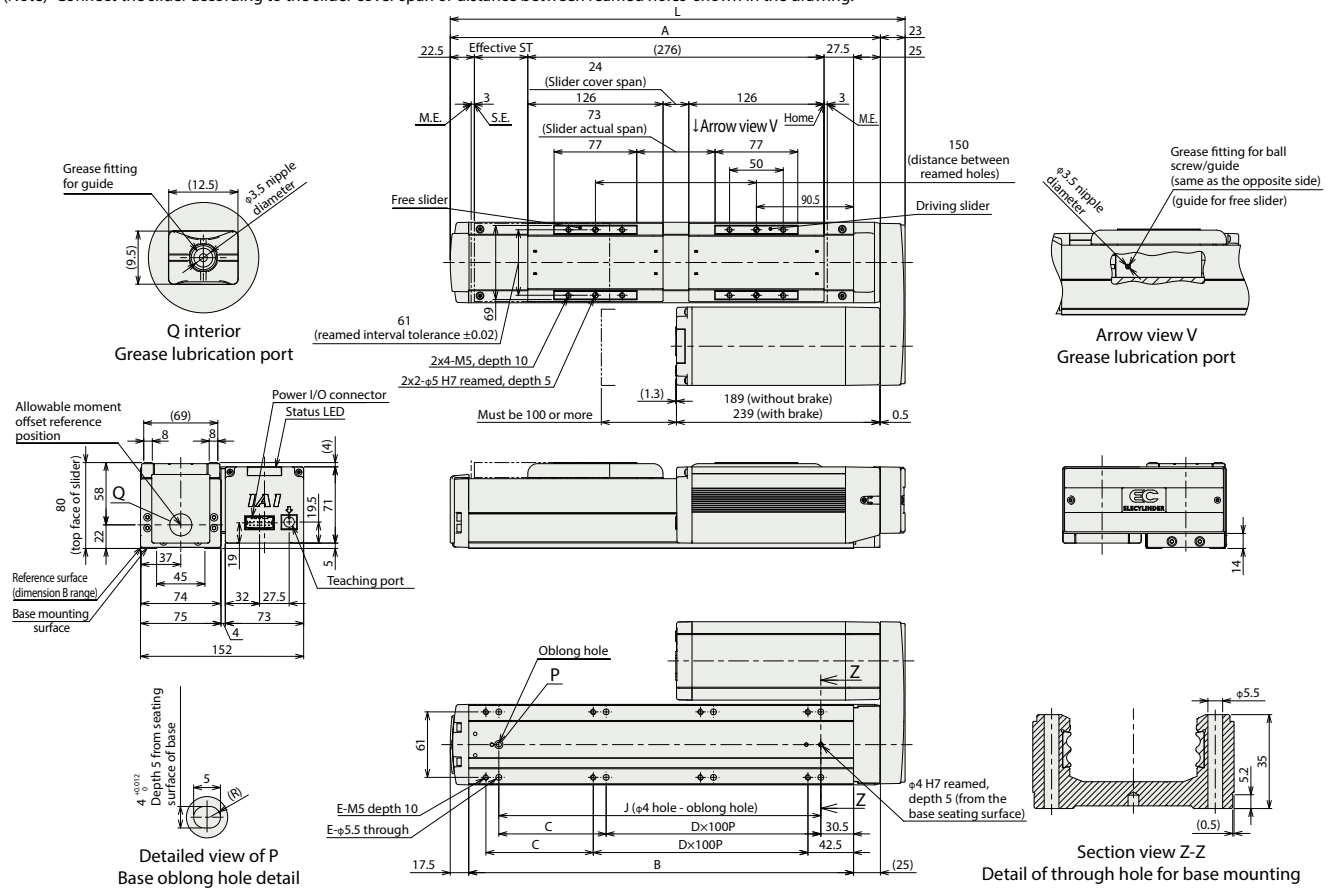
Dimensions (double slider specification)

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■EC-(D) S7□AHR <double slider specification>

(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) External view of the motor differs for product with a digital speed controller.
Refer to the external view for single slider with digital speed controller for details.
(Note) Connect the slider according to the slider cover span or distance between reamed holes shown in the drawing.

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



■Dimensions by stroke

Nominal stroke	200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650
L	424	474	524	574	624	674	724	774	824	874	924	974	1024
A	401	451	501	551	601	651	701	751	801	851	901	951	1001
B	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C	0	50	0	50	0	50	0	50	0	50	0	50	0
D	3	3	4	4	5	5	6	6	7	7	8	8	9
E	8	10	10	12	12	14	14	16	16	18	18	20	20
J	300	350	400	450	500	550	600	650	700	750	800	850	900

■Mass by stroke

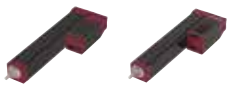
Nominal stroke			200	250	300	350	400	450	500	550	600	650	700	750	800
Effective stroke			50	100	150	200	250	300	350	400	450	500	550	600	650
Mass (kg)	Without digital speed controller	Without brake	6.03	6.23	6.53	6.83	7.03	7.33	7.63	7.83	8.13	8.43	8.63	8.93	9.23
		With brake	6.53	6.73	7.03	7.33	7.53	7.83	8.13	8.33	8.63	8.93	9.13	9.43	9.73
	With digital speed controller	Without brake	6.13	6.33	6.63	6.93	7.13	7.43	7.73	7.93	8.23	8.53	8.73	9.03	9.33
		With brake	6.73	6.93	7.23	7.53	7.73	8.03	8.33	8.53	8.83	9.13	9.33	9.63	9.93

(Note) Mass is added by 0.73kg of additional slider to the single slider specification.

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

Rod/Radial cylinder/Table

Stepper motors			
Rods	EC-R6/DR6	**2-205**	
	EC-R7/DR7	**2-209**	
Radial cylinders Radial Load Specification Radial Cylinder®	EC-RR3/DRR3	**2-213**	
	EC-RR4/DRR4	**2-219**	
	EC-RR6/DRR6	**2-225**	
	EC-RR7/DRR7	**2-229**	
High rigidity radial cylinders Radial Load Specification Radial Cylinder®	EC-RR6☐AH/DRR6☐AH	**2-233**	
	EC-RR6X☐AH/DRR6X☐AH [with intermediate support]	**2-237**	
	EC-RR7☐AH/DRR7☐AH	**2-241**	
	EC-RR7X☐AH/DRR7X☐AH [with intermediate support]	**2-245**	
Radial cylinder type [side-mounted type] Radial Load Specification Radial Cylinder®	EC-RR3☐R/DRR3☐R	**2-249**	
	EC-RR4☐R/DRR4☐R	**2-253**	
	EC-RR6☐R/DRR6☐R	**2-257**	
	EC-RR7☐R/DRR7☐R	**2-261**	
High rigidity radial cylinder type [side-mounted type] Radial Load Specification Radial Cylinder®	EC-RR6☐AHR/DRR6☐AHR	**2-265**	
	EC-RR7☐AHR/DRR7☐AHR	**2-269**	
Mini type rods	EC-RP4	**2-273**	
	EC-RP5	**2-275**	
	EC-GS4	**2-279**	
	EC-GD4	**2-281**	
	EC-GD5	**2-283**	
Mini type tables	EC-TC4	**2-287**	
	EC-TC5	**2-289**	
	EC-TW4	**2-293**	
	EC-TW5	**2-295**	

EC-R6
EC-DR6

<With digital speed controller>

Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	R6	Standard	S	20mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DR6	Digital speed controller	H	12mm	~	~		
			M	6mm	300	300mm (Every 50mm)		
			L	3mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	R6	DR6	Stroke (mm)	R6	DR6
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT

Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.

(2) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.

(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.

(4) Duty must be restricted depending on the ambient operating temperature.

(5) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 5)	±1.5 degrees
Allowable load and torque on rod tip	0.5N·m
Ambient operating temperature/humidity	0~40°C, 85% RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder Type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 5) The rod tip angular displacement (initial reference value) when the allowable static torque on rod tip is applied with the rod fully retracted.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

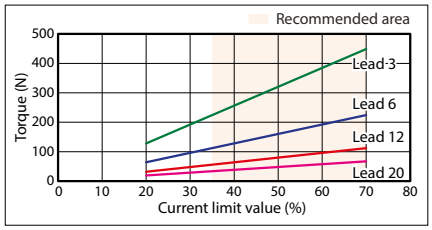
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50~200 (Every 50mm)	250 (mm)	300 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700		547
	Enabled	500		
6	Disabled	450	376	268
	Enabled	250		
3	Disabled	225	186	133
	Enabled	125		

(Unit: mm/s)

Correlation between Torque and Current Limit

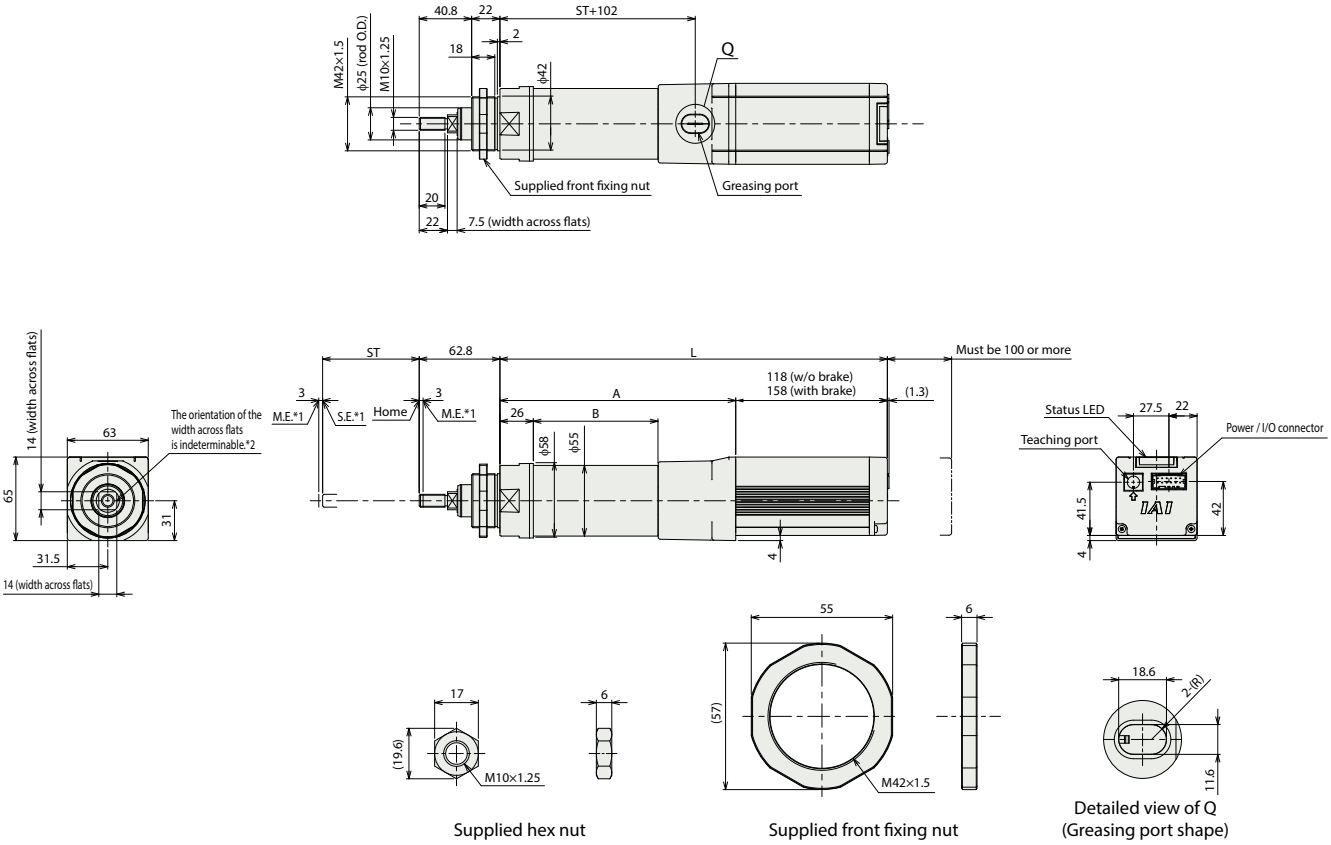


CAD drawings can be downloaded from our website.
www.iai-automation.com

EC-R6

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Supplied hex nut

Supplied front fixing nut

Detailed view of Q
(Greasing port shape)

Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	301.5	351.5	401.5	451.5	501.5	551.5
	With brake	341.5	391.5	441.5	491.5	541.5	591.5
A		183.5	233.5	283.5	333.5	383.5	433.5
B		97	147	197	247	297	347

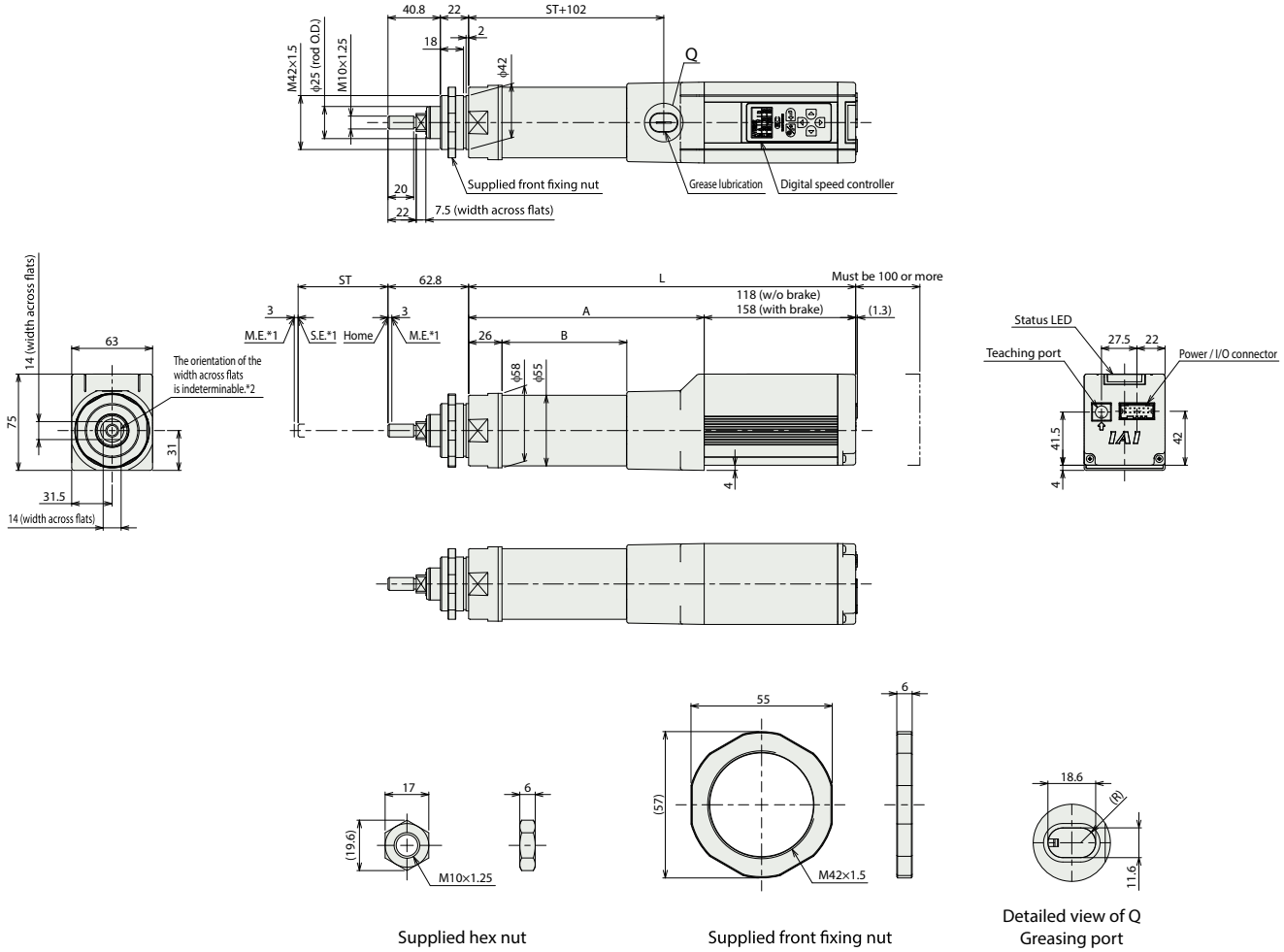
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.6	1.8	2	2.2	2.4	2.6
	With brake	1.8	2	2.2	2.4	2.6	2.8

■ EC-DR6 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Supplied hex nut

Supplied front fixing nut

Detailed view of Q
Greasing port

■ Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	301.5	351.5	401.5	451.5	501.5	551.5
	With brake	341.5	391.5	441.5	491.5	541.5	591.5
A		183.5	233.5	283.5	333.5	383.5	433.5
B		97	147	197	247	297	347

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.6	1.8	2.0	2.2	2.4	2.6
	With brake	1.8	2.0	2.2	2.4	2.6	2.8

■ Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-R7
EC-DR7

<With digital speed controller>

Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	R7	Standard	S	24mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DR7	Digital speed controller	H	16mm	~	~		
			M	8mm	300	300mm (Every 50mm)		
			L	4mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	R7	DR7	Stroke (mm)	R7	DR7
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.

(2) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.

(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.

(4) Duty must be restricted depending on the ambient operating temperature.

(5) Pay close attention to the installation orientation.

■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod	ϕ30mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 5)	±1.5 degrees
Allowable load and torque on rod tip	0.5N·m
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 5) The rod tip angular displacement (initial reference value) when the allowable static torque on rod tip is applied with the rod fully retracted.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
400	11	6	1.5
420	10	5	
600	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

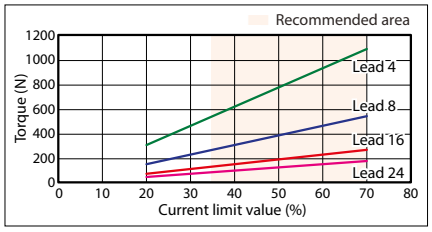
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 300 (Every 50mm)
24	Disabled	860 <640>
	Enabled	600 <400>
16	Disabled	700 <560>
	Enabled	420 <280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Unit: mm/s)

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

Correlation between Torque and Current Limit



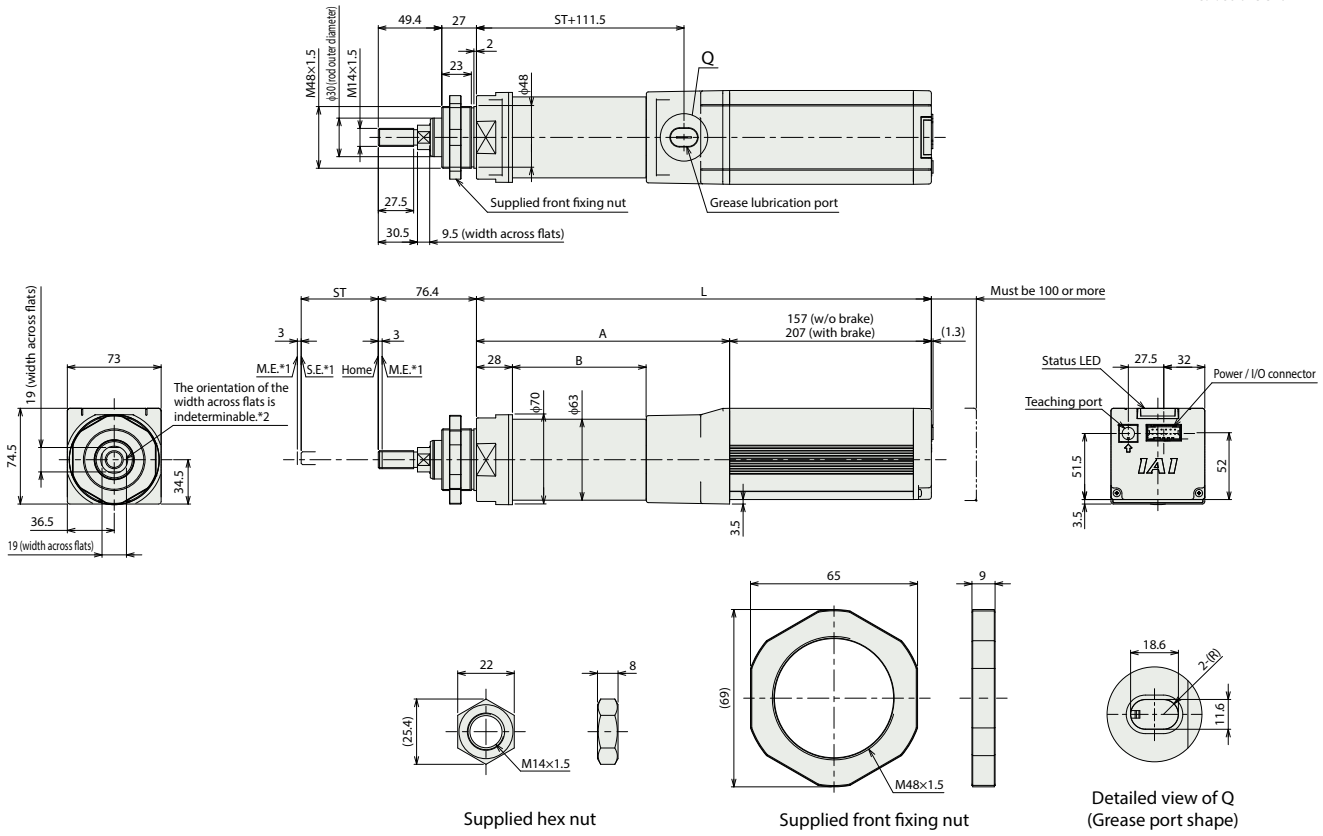
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

EC-R7

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Supplied hex nut

Supplied front fixing nut

Detailed view of Q
(Grease port shape)

Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	354	404	454	504	554	604
	With brake	404	454	504	554	604	654
A		197	247	297	347	397	447
B		104	154	204	254	304	354

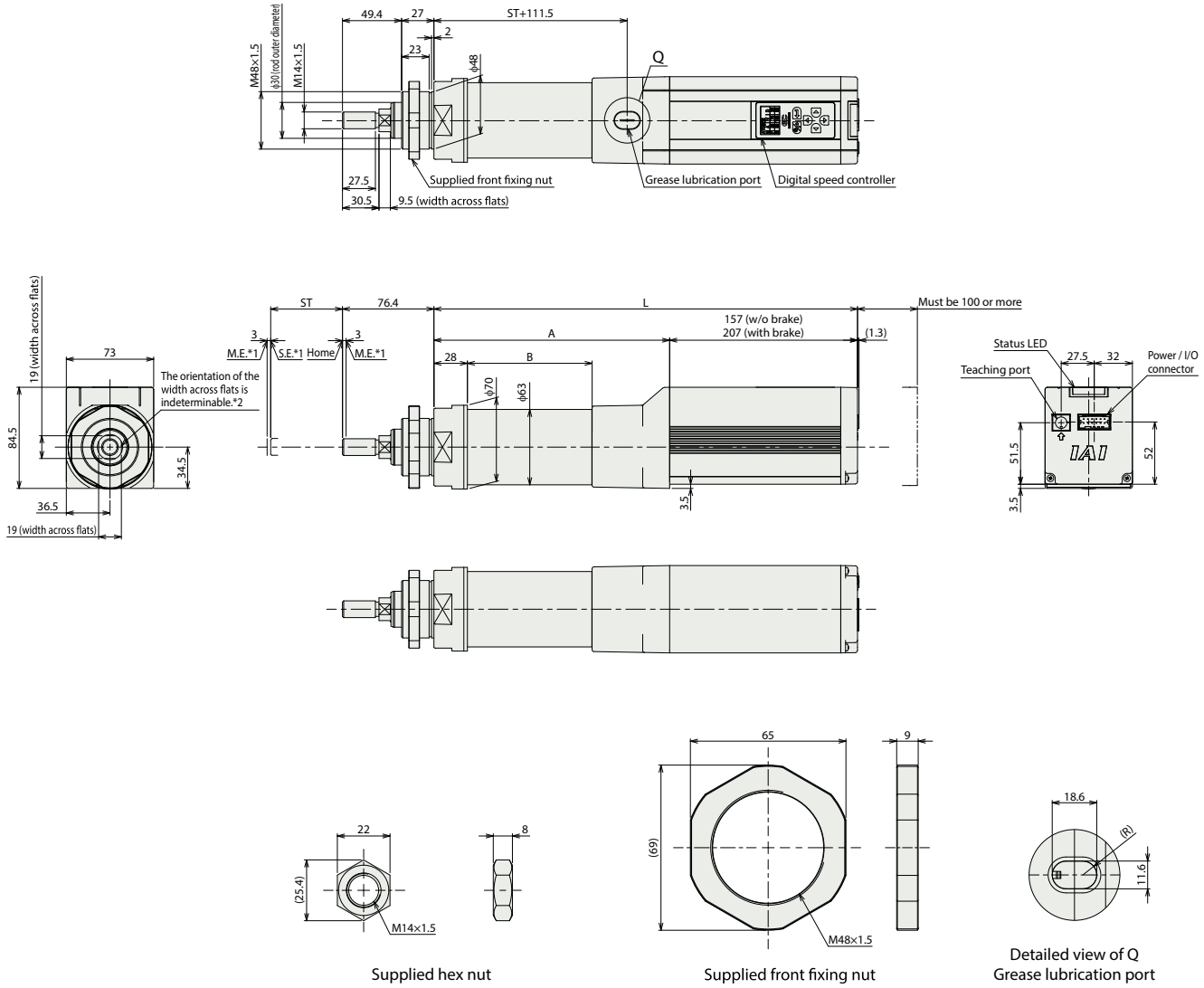
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	3.3	3.5	3.7	3.9	4.1	4.3
	With brake	3.5	3.7	3.9	4.1	4.3	4.5

■ EC-DR7 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Supplied hex nut

Supplied front fixing nut

Detailed view of Q
Grease lubrication port

■ Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	354	404	454	504	554	604
	With brake	404	454	504	554	604	654
A		197	247	297	347	397	447
B		104	154	204	254	304	354

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	3.3	3.5	3.7	3.9	4.1	4.3
	With brake	3.5	3.7	3.9	4.1	4.3	4.5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR3
EC-DRR3

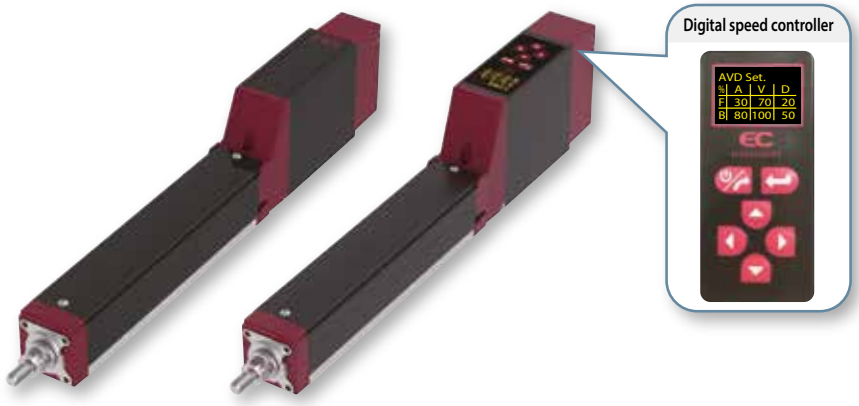
<With digital speed controller>

Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
EC	RR3	Standard	H	6mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR3	Digital speed controller	M	4mm	~	~		
			L	2mm	300	300mm (Every 50mm)		



Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The photos above are for motor installed on top (MOT).

■ Stroke

Stroke (mm)	RR3	DRR3	Stroke (mm)	RR3	DRR3
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor mounting direction changed (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction changed (left) (Note 2)	**MOL**	2-381
Motor mounting direction changed (right) (Note 2)	**MOR**	2-381
Motor mounting direction changed (up) (Note 2)	**MOT**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 3)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 3)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 3)	**QR**	2-385
Clevis bracket + swaying bracket (Note 3)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a model in the option column for Model Specification Items.
(Note 3) Purchase clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) together as a set. To be mounted by customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 4) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 6) (with connectors on both ends)
		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 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	9	14	18
	Speed / acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ16mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 7)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.5	0.3
0	9	7	1.5
120	9	7	1.5
210	9	7	1.5
255	9	7	1.5
315	9	7	1
360	8	6	1
420	6	5	1

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	14	2.5
80	14	2.5
140	14	2.5
170	14	2.5
210	14	2.5
240	13	2.5
280	12	2

Lead 2

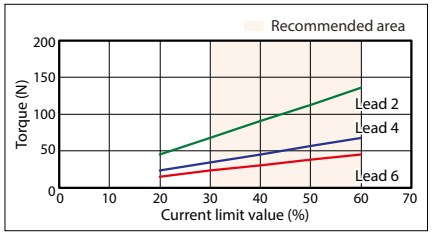
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	18	3.5
40	18	3.5
70	18	3.5
85	18	3.5
105	18	3.5
120	18	3
140	17	2.5

Stroke and Max Speed

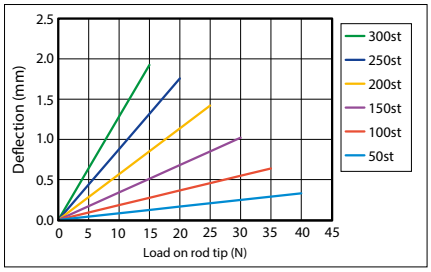
Lead (mm)	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
6	420	300	210	150
4	280	200	140	100
2	140	100	70	50

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

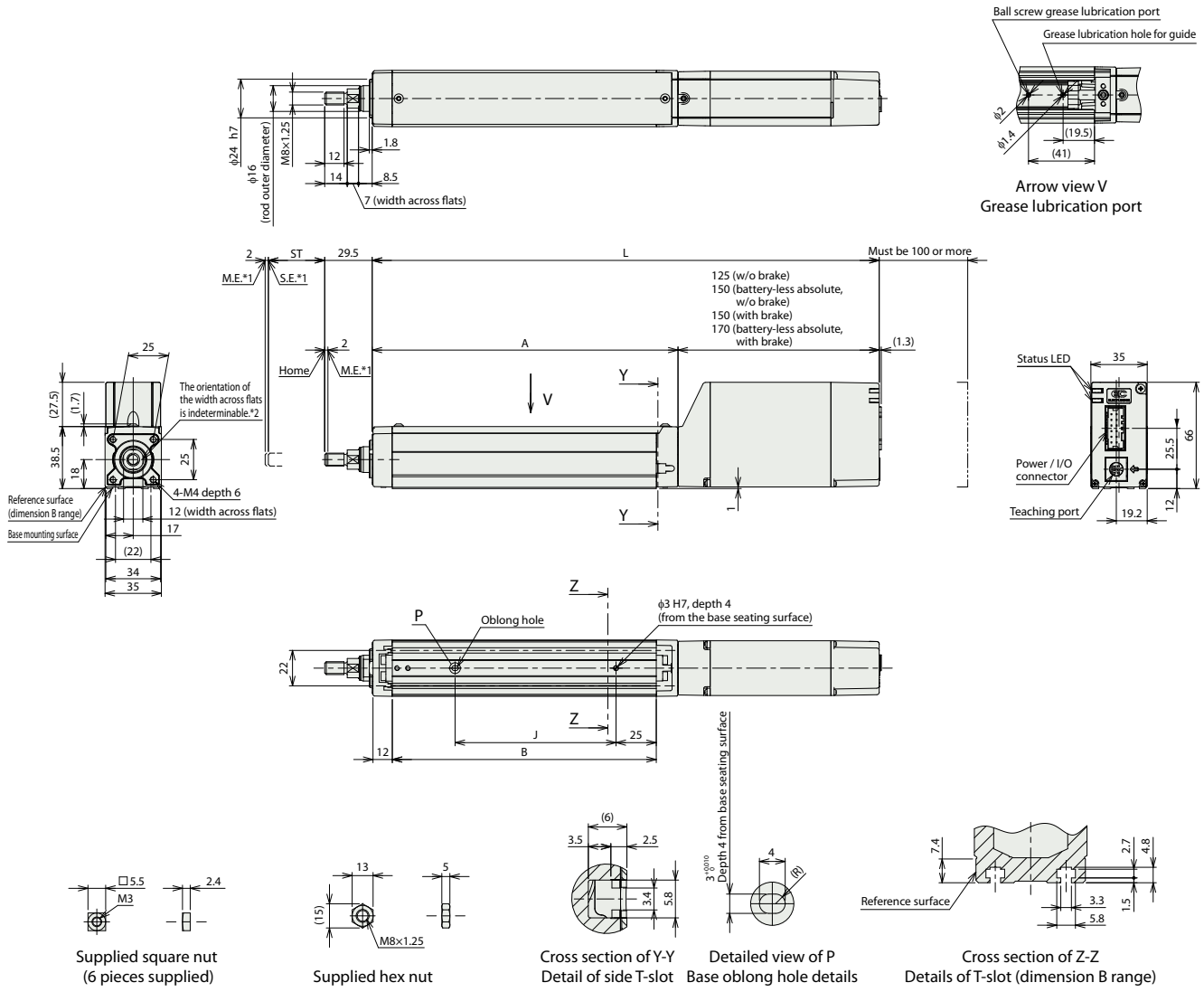


CAD drawings can be downloaded from our website.
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2D CAD 3D CAD

EC-RR3

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor installed on top (MOT).

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



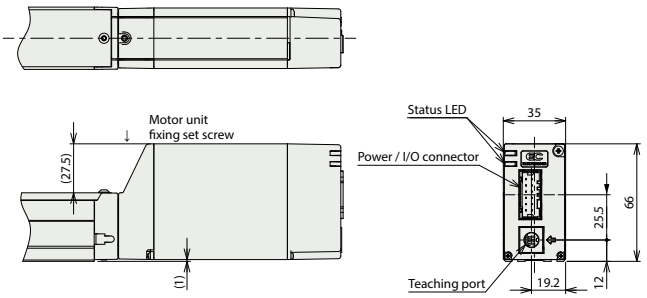
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	265	315	365	415	465	515
		With brake	290	340	390	440	490	540
	Battery-less absolute	Without brake	290	340	390	440	490	540
		With brake	310	360	410	460	510	560
A			140	190	240	290	340	390
B			114	164	214	264	314	364
J			50	100	150	200	250	300

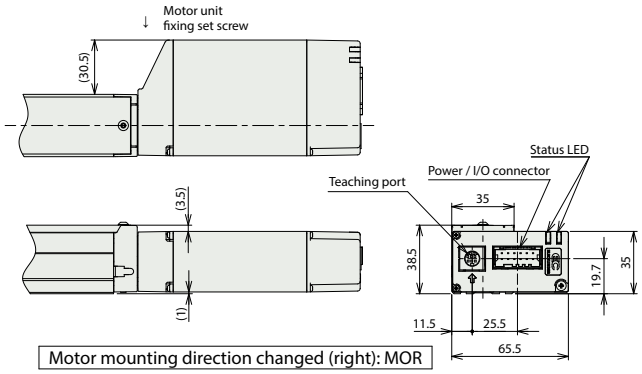
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.8	0.9	1	1.1	1.2	1.3
	With brake	0.9	1	1.1	1.2	1.3	1.4

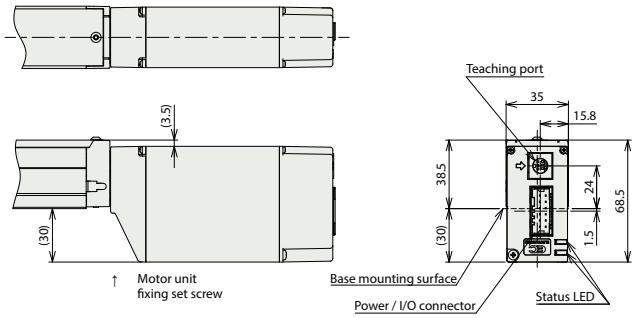
■Motor mounting direction changed (option)



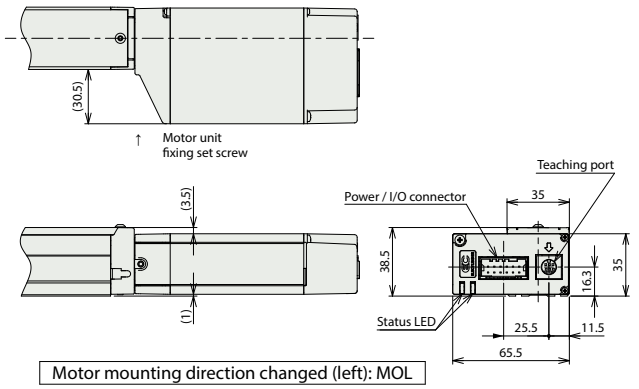
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB

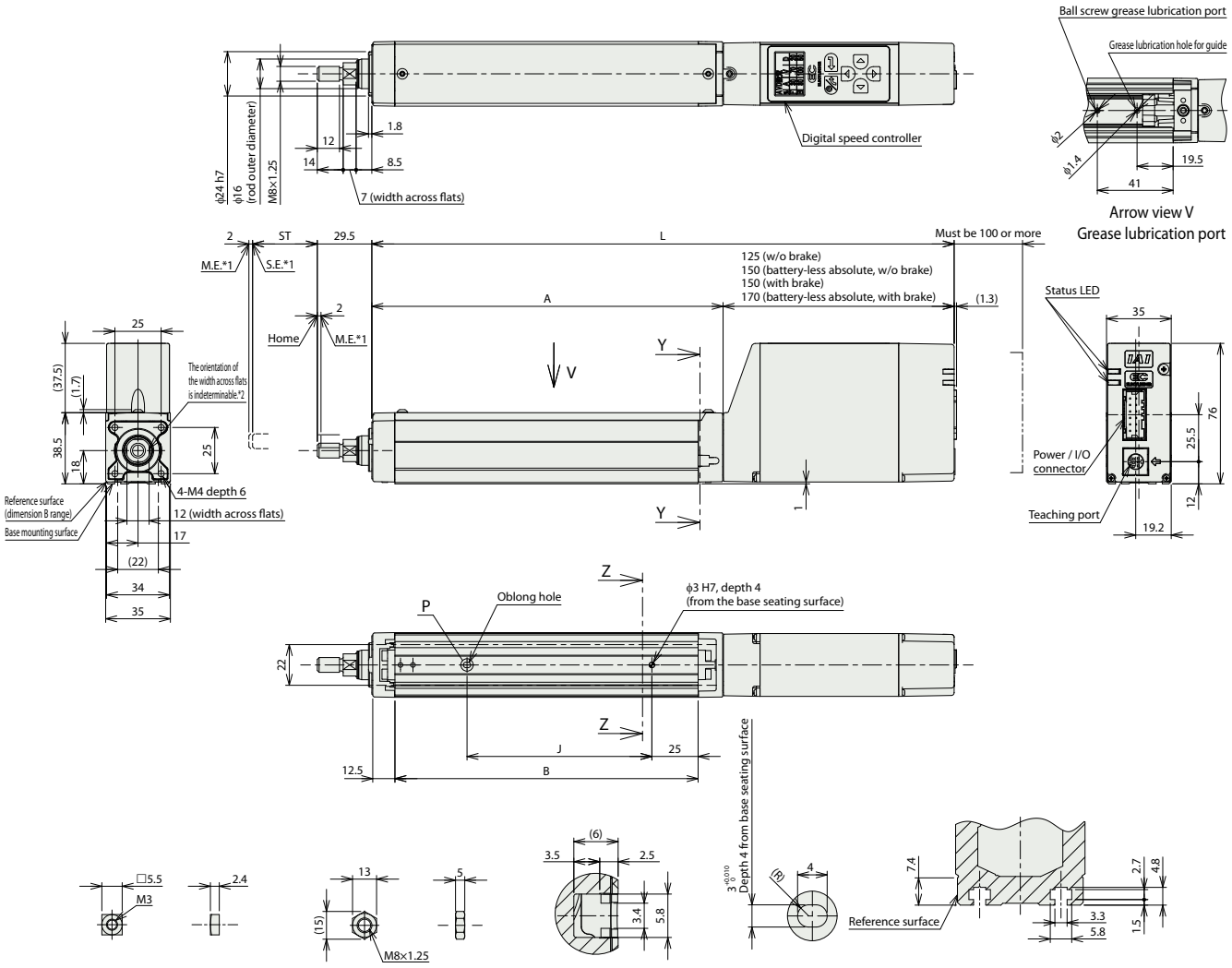


Motor mounting direction changed (left): MOL

EC-DRR3 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor installed on top (MOT).

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



Supplied square nut (6 pieces supplied)

Supplied hex nut

Cross section of Y-Y
Detail of side T-slot

Detailed view of P
Base oblong hole details

Cross section of Z-Z
Details of T-slot (dimension B range)

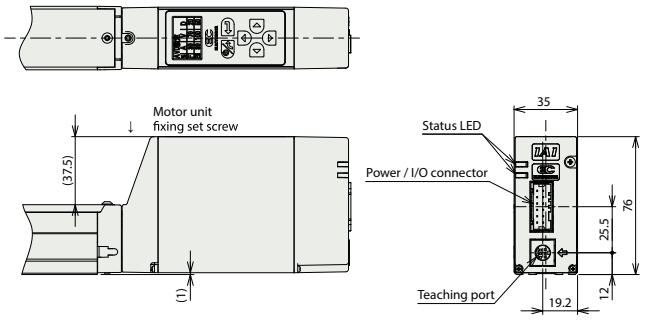
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	265	315	365	415	465	515
		With brake	290	340	390	440	490	540
	Battery-less absolute	Without brake	290	340	390	440	490	540
		With brake	310	360	410	460	510	560
A			140	190	240	290	340	390
B			114	164	214	264	314	364
J			50	100	150	200	250	300

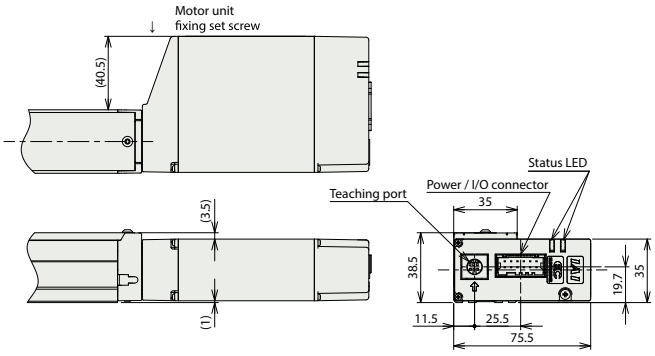
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.9	1.0	1.1	1.2	1.3	1.4
	With brake	1.0	1.1	1.2	1.3	1.4	1.5

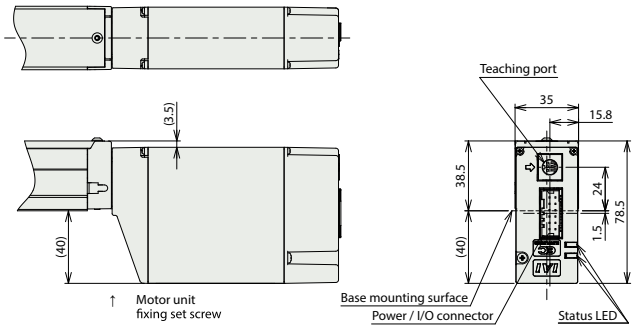
■ Motor mounting direction changed (option)



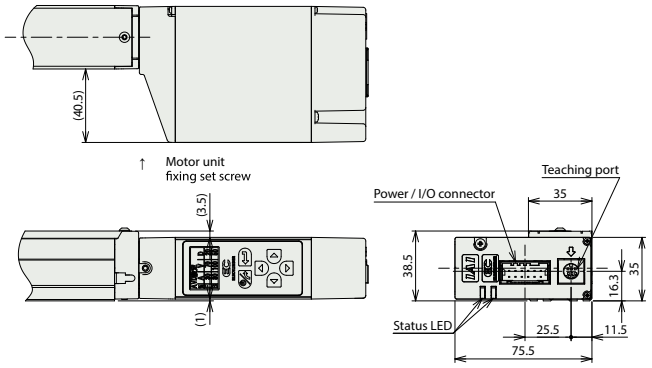
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB



Motor mounting direction changed (left): MOL

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR4
EC-DRR4

<With digital speed controller>

Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	RR4	Standard	S	16mm	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR4	Digital speed controller	H	10mm	~	~		
			M	5mm	300	300mm (Every 50mm)		
			L	2.5mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The photos above are for motor installed on top (MOT).

■ Stroke

Stroke (mm)	RR4	DRR4	Stroke (mm)	RR4	DRR4
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor mounting direction changed (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction changed (left) (Note 2)	**MOL**	2-381
Motor mounting direction changed (right) (Note 2)	**MOR**	2-381
Motor mounting direction changed (up) (Note 2)	**MOT**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 3)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 3)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 3)	**QR**	2-385
Clevis bracket + swaying bracket (Note 3)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a model in the option column for Model Specification Items.
(Note 3) Purchase clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) together as a set. To be mounted by customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 4) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 6) (with connectors on both ends)
		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 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	16	25	35
		Max. payload (kg) (energy-saving enabled)	5	10	22	35
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	41	66	132	263
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ20mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 7)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	7	6	5	3.5	1.5	1.25
140	7	6	5	3.5	1.5	1.25
280	7	6	4.5	3.5	1.5	1.25
420	7	6	3.5	2.5	1.5	1.25
560	6.5	5.5	3.5	2.5	1.5	1.25
700	5.5	3.5	2.5	1.5	1	1
800		1	1	1		1

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	16	15	13	11	2.5	2
175	16	15	13	11	2.5	2
350	16	11	11	7.5	2.5	2
435	15	9	8	6.5	2.5	2
525	11	7	5.5	4.5	2.5	2
600	7	4.5	3.5	2.5	2	2
700		2.5	1.5			1

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	22	5	4.5
85	25	22	5	4.5
130	25	22	5	4.5
215	25	22	5	4.5
260	25	22	5	4.5
300	22	18	5	4
350	18	11	3	3

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	35	6.5
135	32	6
150	30	6
175	28	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	5	3	1
140	5	3	1
280	5	3	1
420	4	3	1
560	3	1.5	1

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	6.5	2
175	10	6.5	2
350	9	6.5	2
435	5	2.5	1.5
525	1		1

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	22	4.5
85	22	4.5
130	22	4.5
215	18	3
260	12	2

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	30	6
135	25	3.5

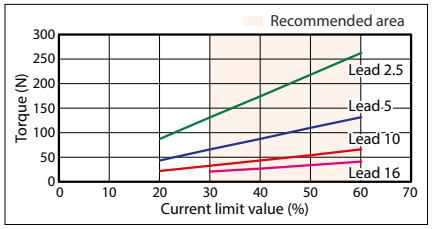
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
16	Disabled	800		600	440
	Enabled	560			440
10	Disabled	700	570	390	290
	Enabled	525		390	290
5	Disabled	350	280	190	140
	Enabled	260		190	140
2.5	Disabled	175 <150>	135	90	70
	Enabled	135		90	70

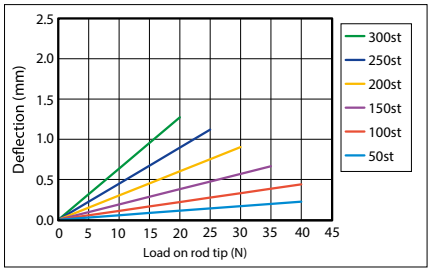
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

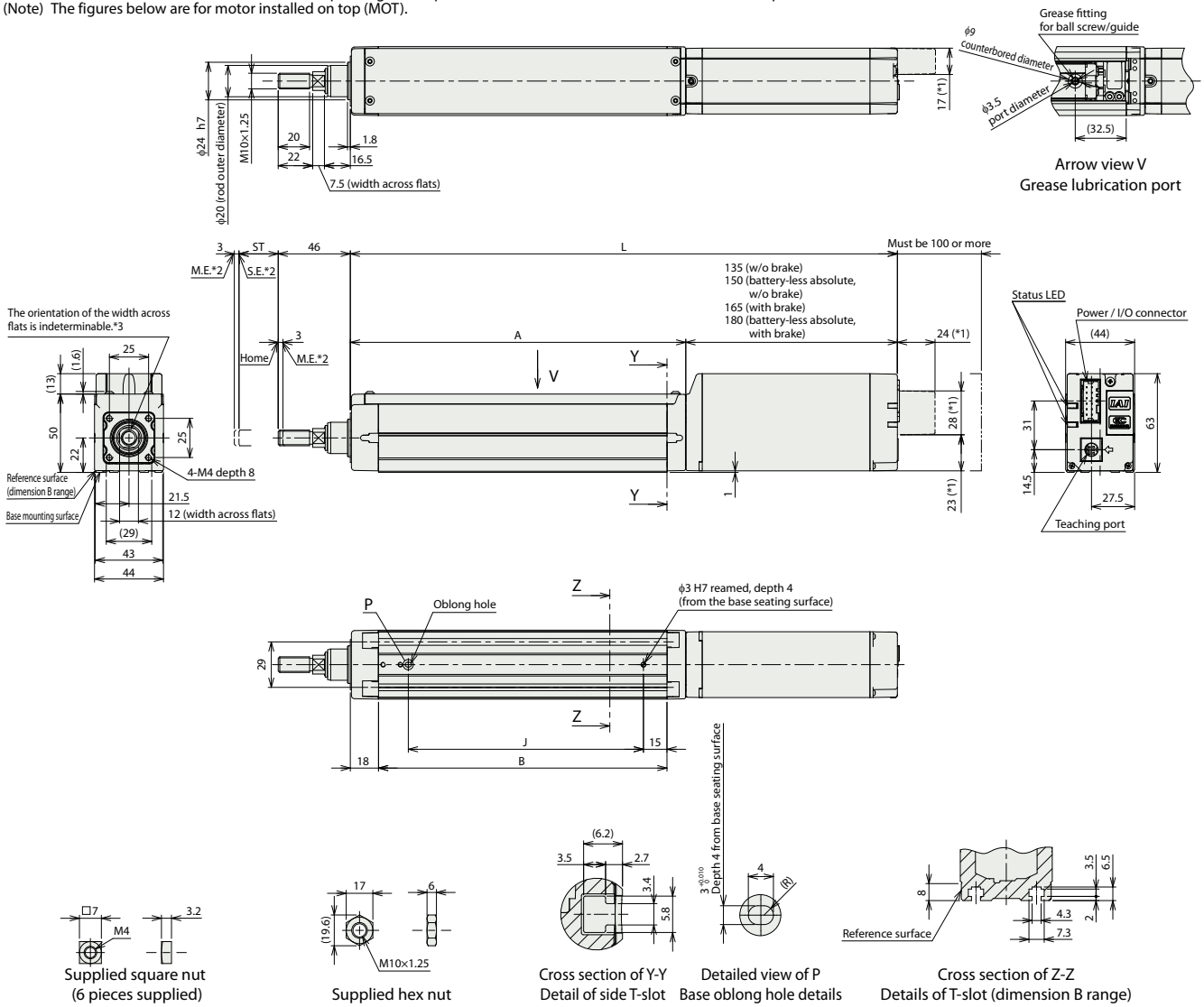


CAD drawings can be downloaded from our website.
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2D CAD 3D CAD

EC-RR4

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
*2 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*3 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor installed on top (MOT).

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



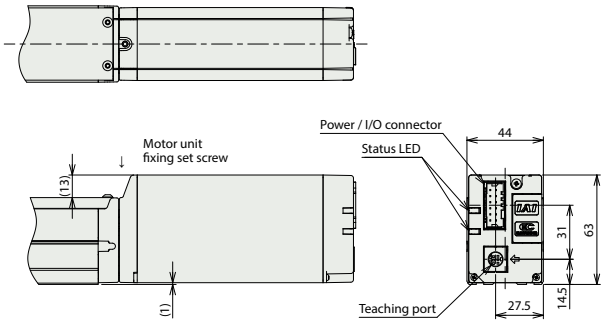
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	299	349	399	449	499	549
		With brake	329	379	429	479	529	579
	Battery-less absolute	Without brake	314	364	414	464	514	564
		With brake	344	394	444	494	544	594
A			164	214	264	314	364	414
B			134	184	234	284	334	384
J			100	150	200	250	300	350

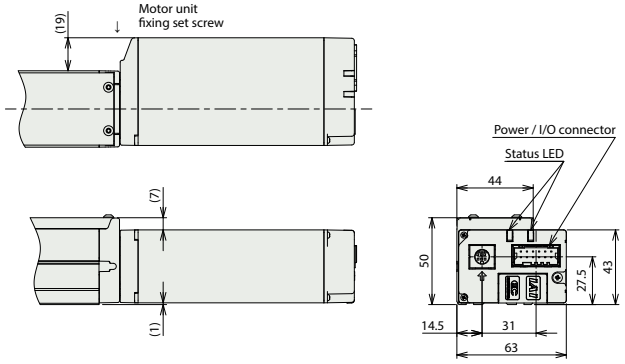
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.3	1.5	1.7	1.9	2.1	2.3
	With brake	1.5	1.7	1.9	2.1	2.2	2.4

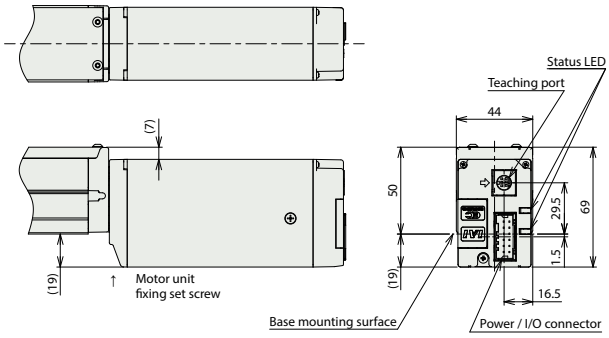
■Motor mounting direction changed (option)



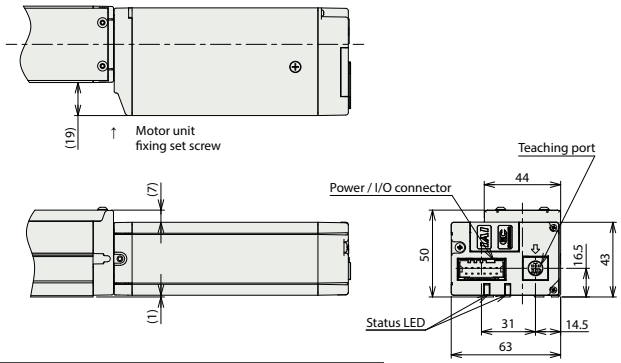
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB

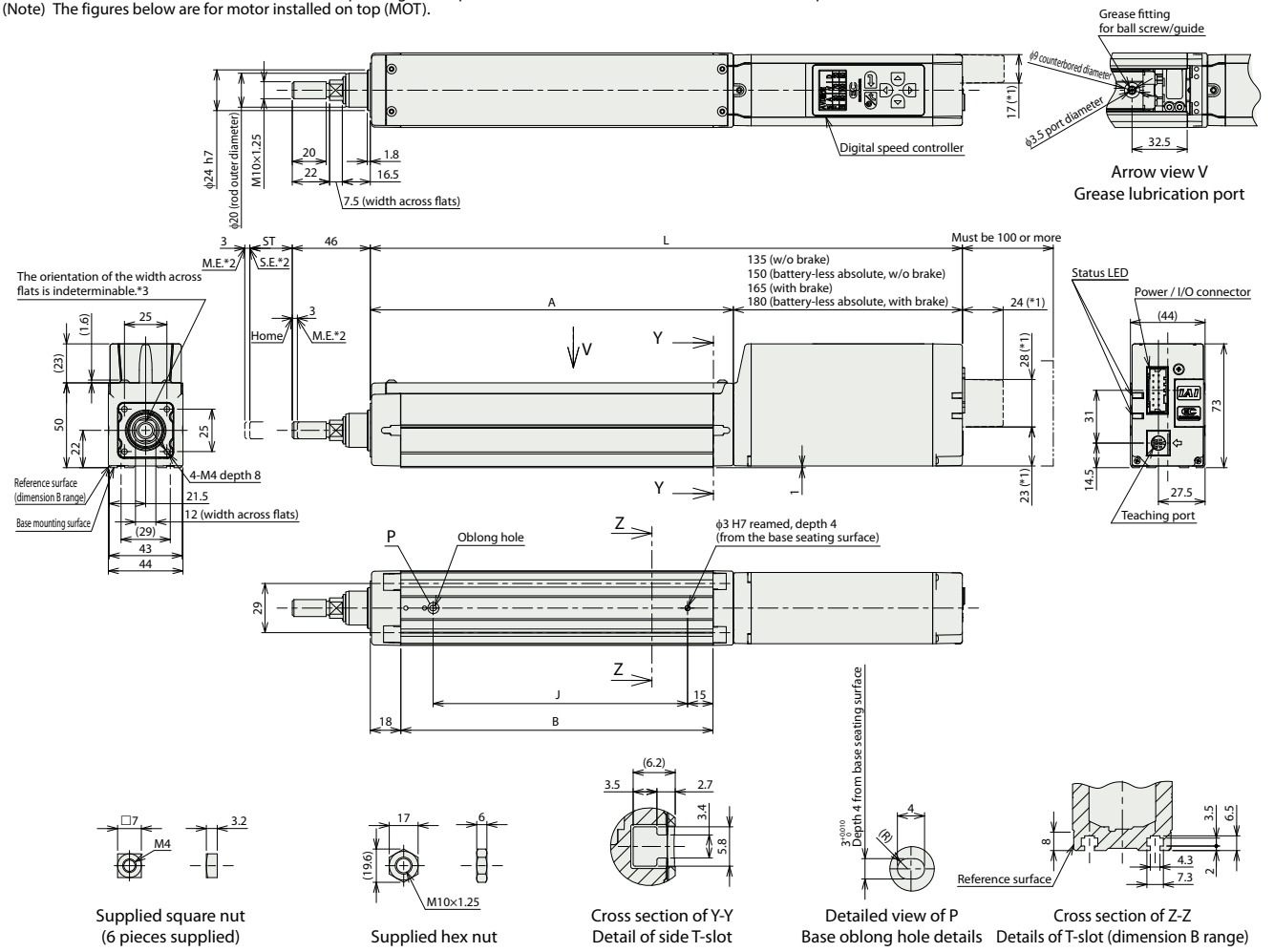


Motor mounting direction changed (left): MOL

EC-DRR4 <with digital speed controller>

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
*2 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*3 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor installed on top (MOT).

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



Supplied square nut (6 pieces supplied)

Supplied hex nut

Cross section of Y-Y Detail of side T-slot

Detailed view of P Base oblong hole details

Cross section of Z-Z Details of T-slot (dimension B range)

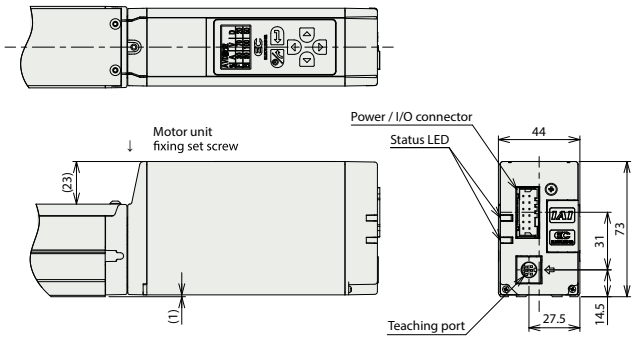
Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	299	349	399	449	499	549
		With brake	329	379	429	479	529	579
	Battery-less absolute	Without brake	314	364	414	464	514	564
		With brake	344	394	444	494	544	594
A			164	214	264	314	364	414
B			134	184	234	284	334	384
J			100	150	200	250	300	350

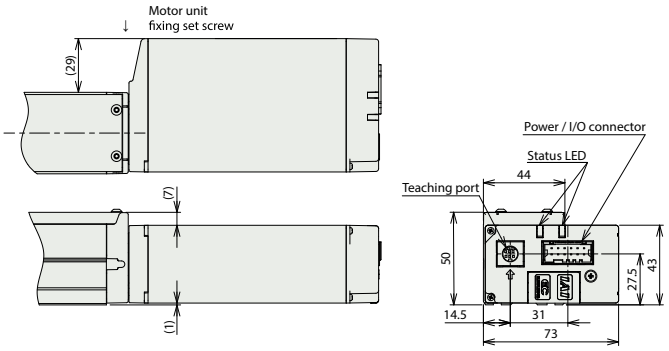
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.3	1.5	1.7	1.9	2.1	2.3
	With brake	1.5	1.7	1.9	2.1	2.3	2.5

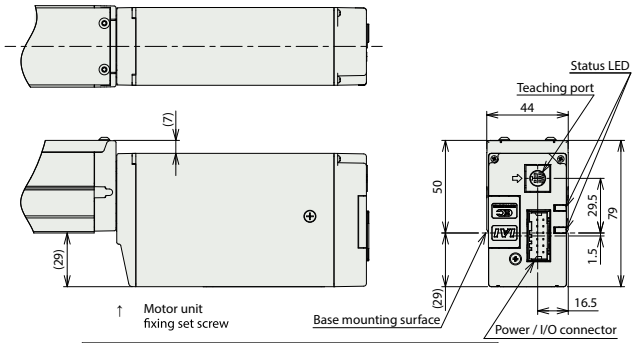
■ Motor mounting direction changed (option)



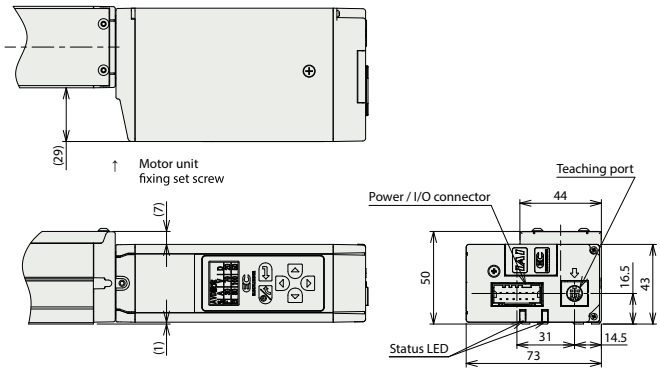
Motor mounting direction changed (top): MOT



Motor mounting direction changed (right): MOR



Motor mounting direction changed (bottom): MOB



Motor mounting direction changed (left): MOL

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR6
EC-DRR6

<With digital speed controller>

Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] - [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	RR6	Standard	S	20mm	65	65mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR6	Digital speed controller	H	12mm	~	~		
			M	6mm	315	315mm (Every 50mm)		
			L	3mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	RR6	DRR6	Stroke (mm)	RR6	DRR6
65	○	○	**215**	○	○
115	○	○	**265**	○	○
165	○	○	**315**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 2)	**NJ**	2-383
Knuckle joint + oscillation receiving bracket (Note 2)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 2)	**QR**	2-385
Clevis bracket + oscillation receiving bracket (Note 2)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 6)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

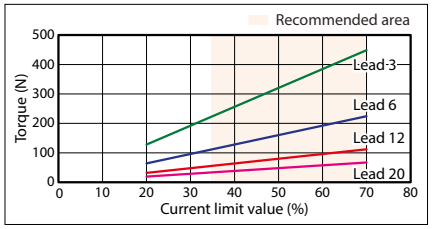
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max Speed

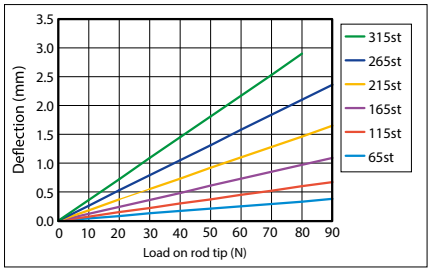
Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

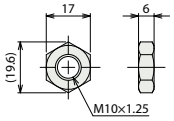


CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

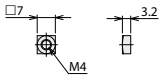
EC-RR6

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

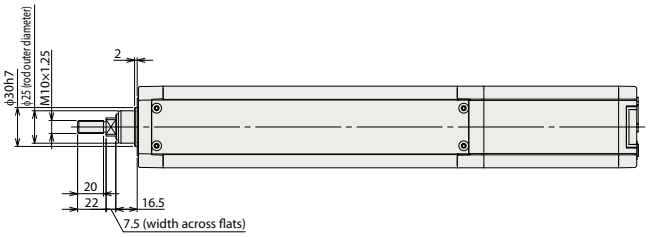
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

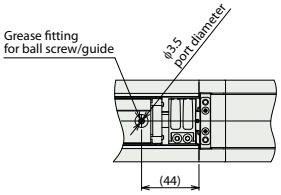


Supplied hex nut

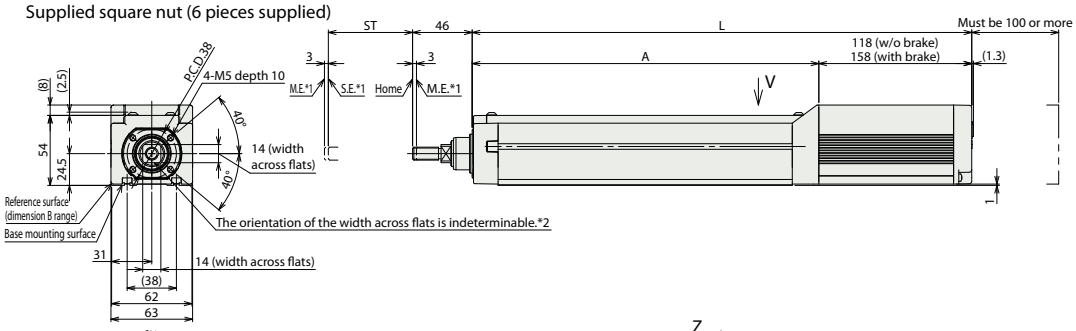


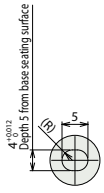
Supplied square nut (6 pieces supplied)



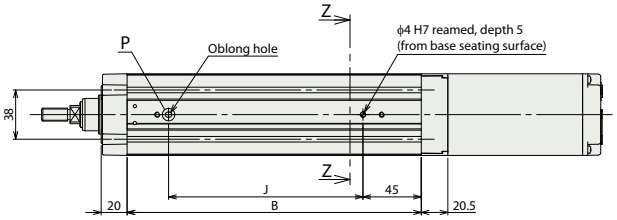


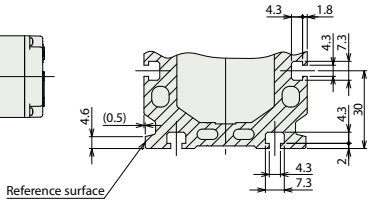
Arrow view V
Grease lubrication port





Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	335.5	385.5	435.5	485.5	535.5	585.5
	With brake	375.5	425.5	475.5	525.5	575.5	625.5
A		217.5	267.5	317.5	367.5	417.5	467.5
B		177	227	277	327	377	427
J		100	150	200	250	300	350

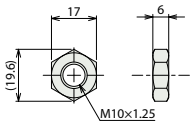
Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	1.7	2.0	2.2	2.5	2.7	3.0
	With brake	1.9	2.2	2.4	2.7	3.0	3.2

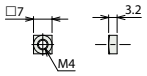
■ EC-DRR6 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

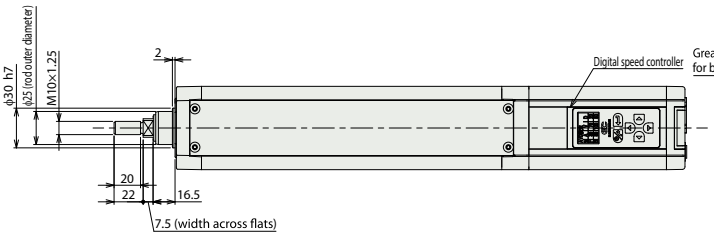
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

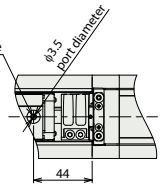


Supplied hex nut

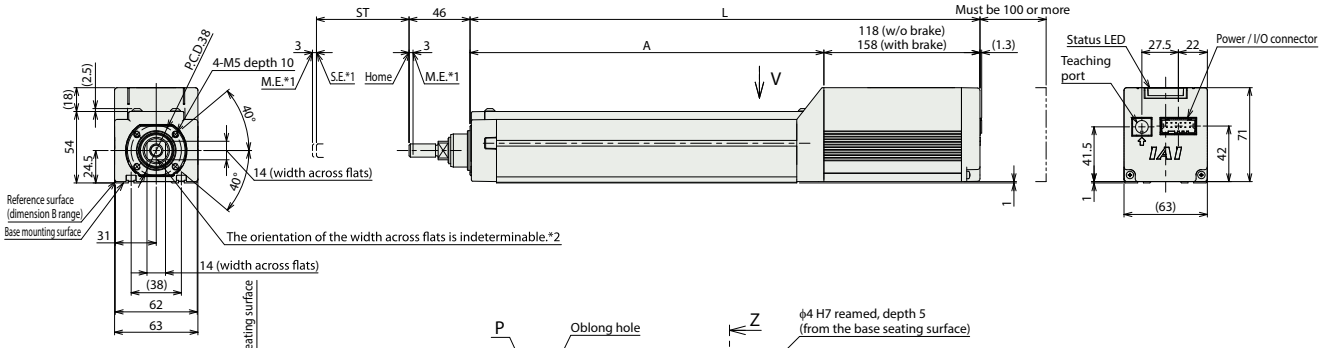


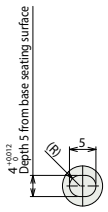
Supplied square nut (6 pieces supplied)



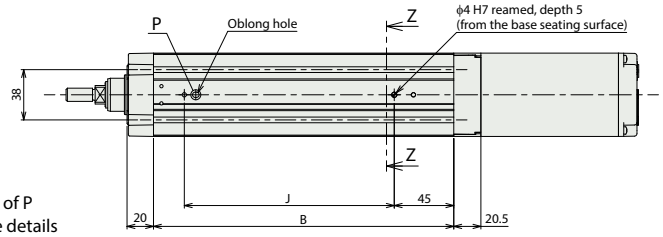


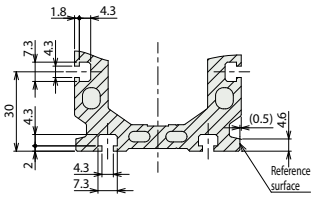
Arrow view V
Grease lubrication port





Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	335.5	385.5	435.5	485.5	535.5	585.5
	With brake	375.5	425.5	475.5	525.5	575.5	625.5
A		217.5	267.5	317.5	367.5	417.5	467.5
B		177	227	277	327	377	427
J		100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	1.8	2.1	2.3	2.6	2.8	3.1
	With brake	2.1	2.4	2.6	2.9	3.1	3.4

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR7
EC-DRR7

<With digital speed controller>

Straight Motor | Body Width 70 mm | 24V Stepper Motor

■ Model Specification Items

EC - [ ] [ ] - [ ] - [ ] - [ ]

Series	Type		Lead		Stroke		Power / I/O cable length	Options
	RR7	Standard	S	24mm	65	65mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR7	Digital speed controller	H	16mm	~	~		
			M	8mm	315	315mm (Every 50mm)		
			L	4mm				



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	RR7	DRR7	Stroke (mm)	RR7	DRR7
65	○	○	**215**	○	○
115	○	○	**265**	○	○
165	○	○	**315**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 2)	**NJ**	2-383
Knuckle joint + oscillation receiving bracket (Note 2)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 2)	**QR**	2-385
Clevis bracket + oscillation receiving bracket (Note 2)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ30mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 6)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
600	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

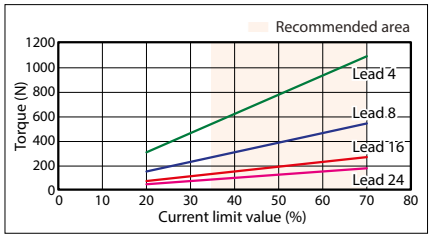
Stroke and Max Speed

Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
24	Disabled	860 <640>		
	Enabled	600 <420>		
16	Disabled	700 <560>		
	Enabled	420 <280>		
8	Disabled	350		
	Enabled	210		
4	Disabled	175		
	Enabled	105		

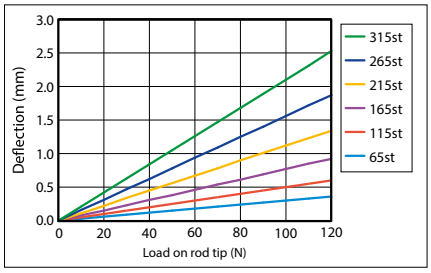
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

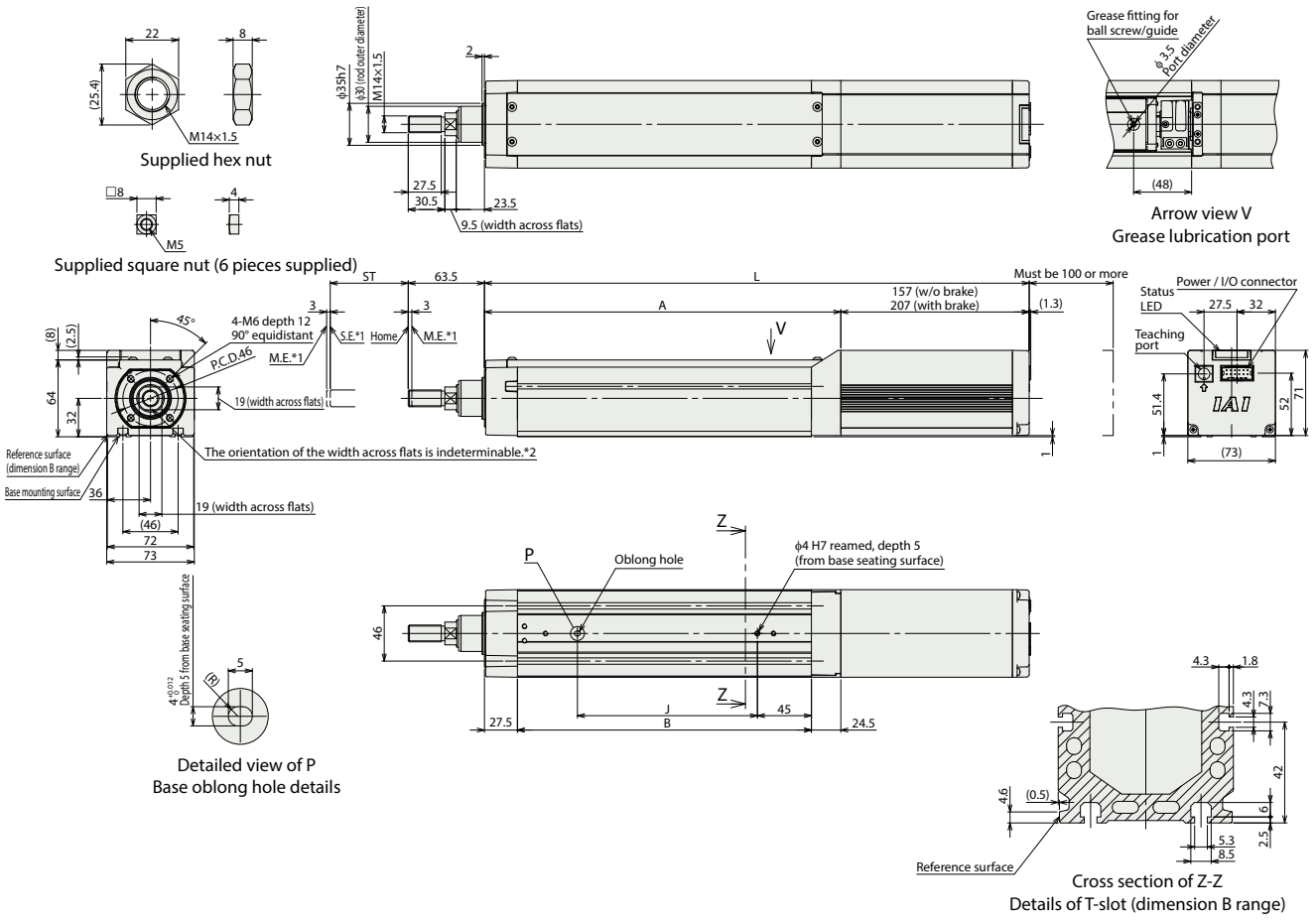


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2D CAD 3D CAD

EC-RR7

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	404	454	504	554	604	654
	With brake	454	504	554	604	654	704
A		247	297	347	397	447	497
B		195	245	295	345	395	445
J		100	150	200	250	300	350

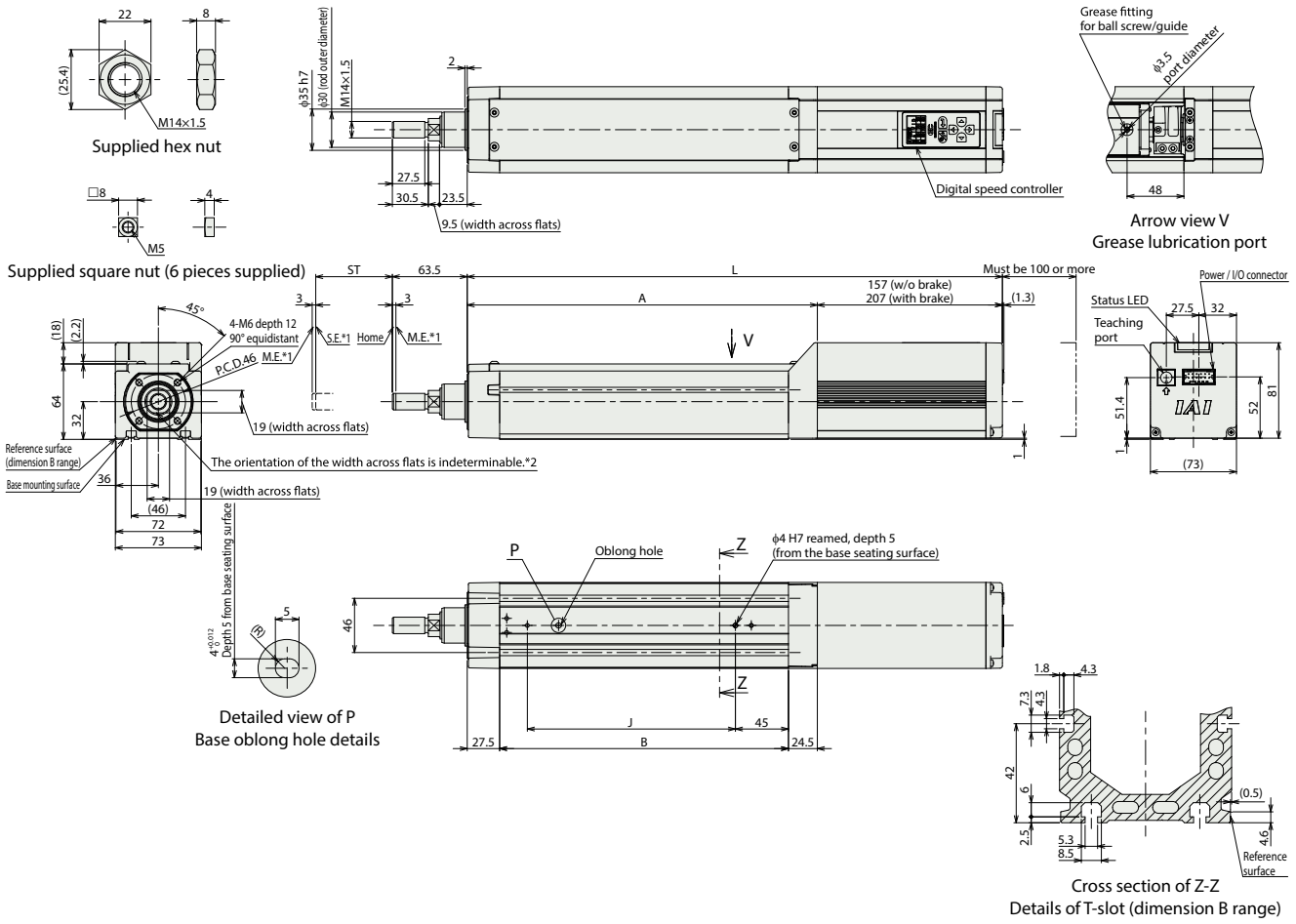
Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	3.7	4.1	4.4	4.8	5.2	5.5
	With brake	4.3	4.6	5.0	5.3	5.7	6.1

■ EC-DRR7 <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	404	454	504	554	604	654
	With brake	454	504	554	604	654	704
A		247	297	347	397	447	497
B		195	245	295	345	395	445
J		100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	3.8	4.2	4.5	4.9	5.2	5.6
	With brake	4.4	4.8	5.1	5.5	5.9	6.2

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR6□AH
EC-DRR6□AH

<With digital speed controller>

Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [Type] [Lead] - AH - [Stroke] - [Power / I/O cable length] - [Options]

Series
EC

Type	
RR6	Standard
DRR6	Digital speed controller

Lead	
S	20mm
H	12mm
M	6mm
L	3mm

Specifications	
AH	High rigidity

Stroke	
50	50mm
↕	↕
550	550mm (Every 50mm)

Power / I/O cable length
Refer to "Power / I/O Cable Length" below

Options
Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	RR6□AH	DRR6□AH	Stroke (mm)	RR6□AH	DRR6□AH
50	○	○	**350**	○	○
100	○	○	**400**	○	○
150	○	○	**450**	○	○
200	○	○	**500**	○	○
250	○	○	**550**	○	○
300	○	○			

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 2)	**NJ**	2-383
Knuckle joint + oscillation receiving bracket (Note 2)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 2)	**QR**	2-385
Clevis bracket + oscillation receiving bracket (Note 2)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected for strokes 50 - 400mm only. The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 288 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	20
		Max. payload (kg) (energy-saving enabled)	1	4	10	20
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	20
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rods	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 6)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	20	20
50	60	50	45	40	20	20
100	60	50	45	40	20	20
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
75	40	25	12
100	40	25	9
125	40	25	5

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

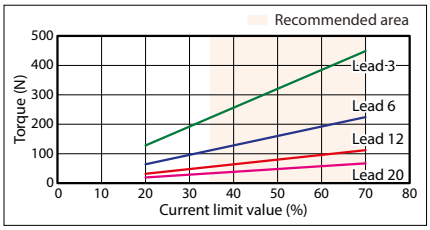
* Lead 12: 400mm/s or less
* Lead 6: 200mm/s or less
* Lead 3: 100mm/s or less

Stroke and Max Speed

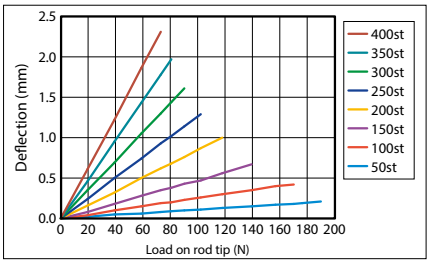
Lead (mm)	Energy-saving setting	50 ~ 550 (Every 50mm)
20	Disabled	800
	Enabled	640
12	Disabled	700
	Enabled	500
6	Disabled	450
	Enabled	250
3	Disabled	225
	Enabled	125

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

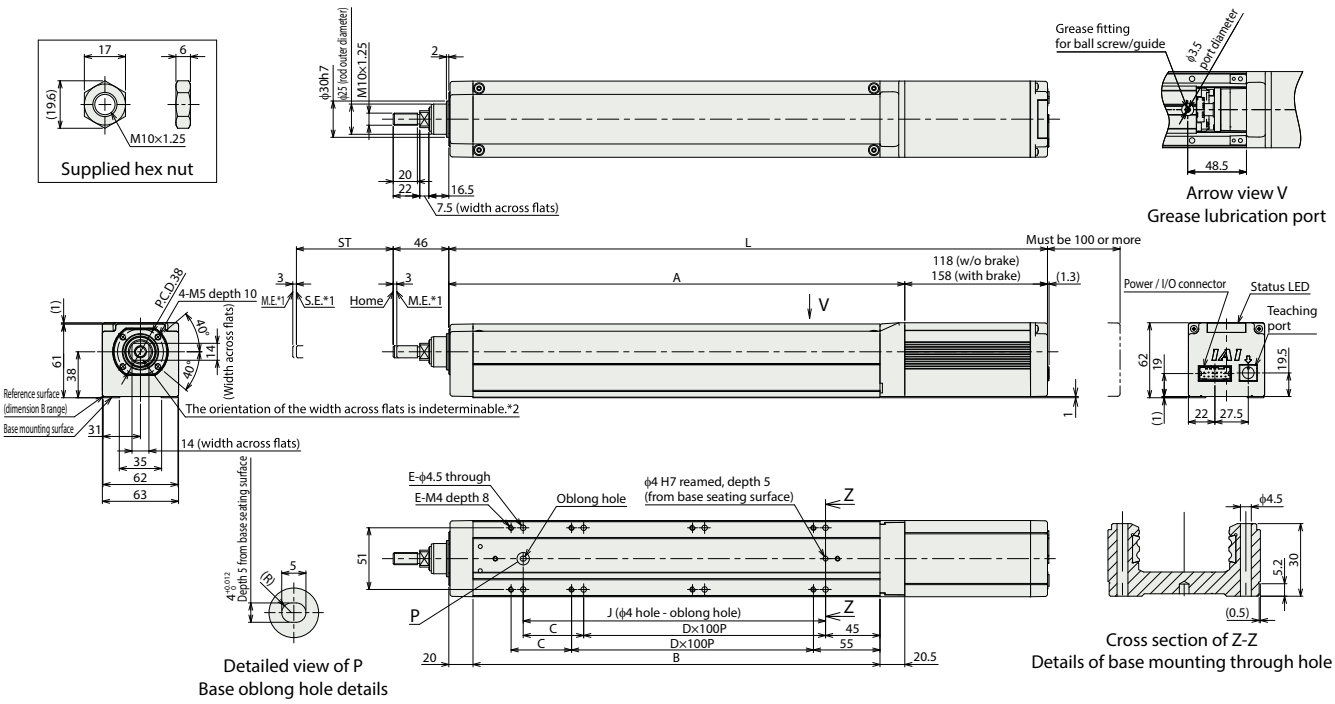


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■ EC-RR6□AH

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

	Stroke	50	100	150	200	250	300	350	400	450	500	550
L	Without brake	345	395	445	495	545	595	645	695	745	795	845
	With brake	385	435	485	535	585	635	685	735	785	835	885
A		227	277	327	377	427	477	527	577	627	677	727
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5
C		0	50	0	50	0	50	0	50	0	50	0
D		1	1	2	2	3	3	4	4	5	5	6
E		4	6	6	8	8	10	10	12	12	14	14
J		100	150	200	250	300	350	400	450	500	550	600

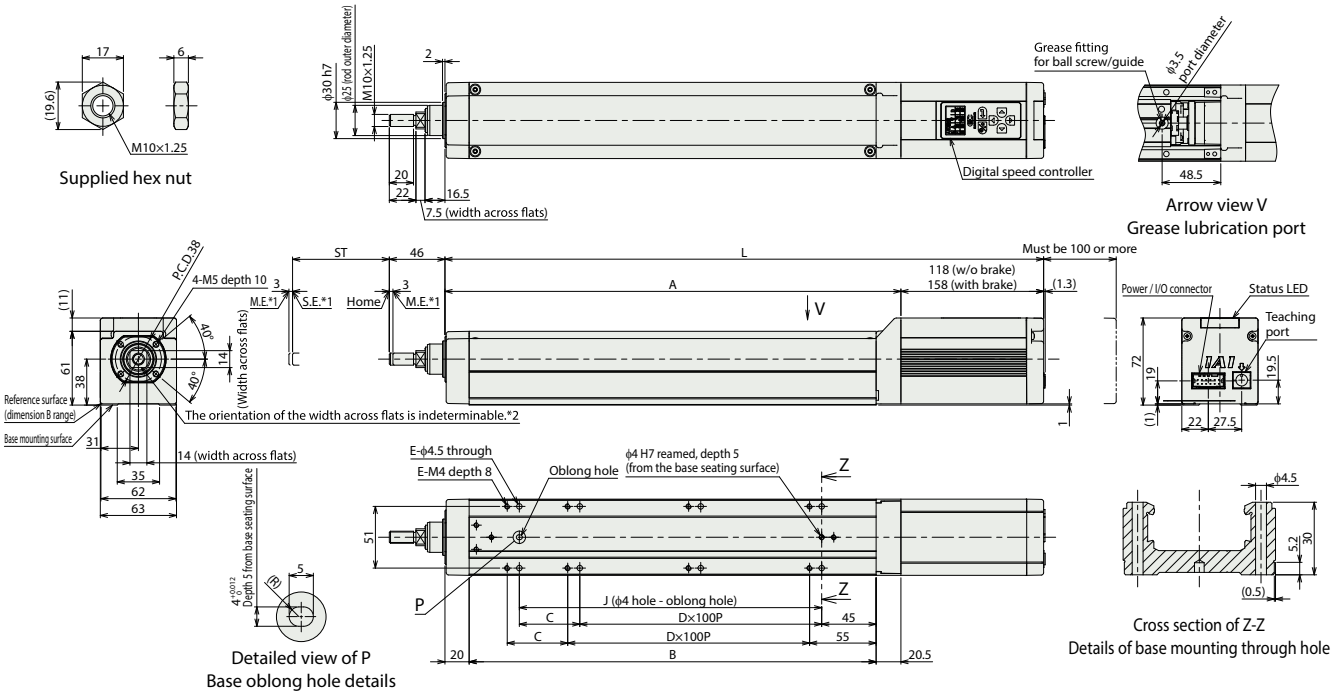
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550
Mass (kg)	Without brake	2	2.2	2.5	2.8	3	3.3	3.6	3.8	4.1	4.4	4.7
	With brake	2.3	2.5	2.8	3.1	3.3	3.6	3.9	4.1	4.4	4.6	4.9

■ EC-DRR6□AH <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550
L	Without brake	345	395	445	495	545	595	645	695	745	795	845
	With brake	385	435	485	535	585	635	685	735	785	835	885
A		227	277	327	377	427	477	527	577	627	677	727
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5
C		0	50	0	50	0	50	0	50	0	50	0
D		1	1	2	2	3	3	4	4	5	5	6
E		4	6	6	8	8	10	10	12	12	14	14
J		100	150	200	250	300	350	400	450	500	550	600

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550
Mass (kg)	Without brake	2.1	2.3	2.6	2.9	3.1	3.4	3.7	3.9	4.2	4.4	4.7
	With brake	2.4	2.6	2.9	3.2	3.4	3.7	4.0	4.2	4.5	4.7	5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

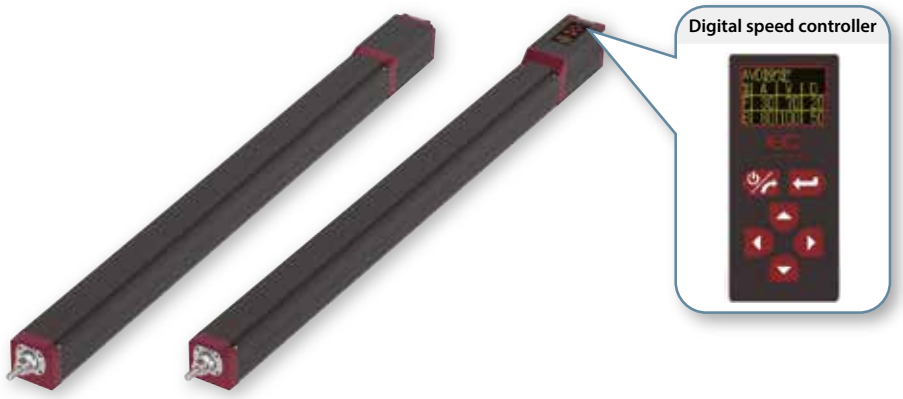
EC-RR6X□AH
EC-DRR6X□AH

<With digital speed controller>

Straight Motor | Support mechanism | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			AH		-		-	
Series	-	Type	Lead	Specification		Stroke	-	Power / I/O cable length	-	Options
		RR6X Standard	S 20mm	AH	High rigidity	600 ~ 1000	-	See power / I/O cable length below	-	See options below
		DRR6X Digital speed controller	H 12mm			600mm ~ 1000mm (Every 50mm)				
			M 6mm							
			L 3mm							



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

Stroke

Stroke (mm)	RR6X□AH	DRR6X□AH	Stroke (mm)	RR6X□AH	DRR6X□AH
600	○	○	850	○	○
650	○	○	900	○	○
700	○	○	950	○	○
750	○	○	1000	○	○
800	○	○			

Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Tip adaptor	FFA	2-375
Flange (front)	FL	2-376
Specified grease specification	G5	2-381
Tip adaptor (female screw)	NFA	2-382
Non-motor end specification	NM	2-384
PNP specification (Note 1)	PN	2-384
Twin power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) PNP specification (PN) and twin power supply specification (TMD2) cannot be selected for RCEON-EC connection specification (ACR).

POINT
Selection Notes

(1) The actuator specifications display the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details. The radial cylinder is equipped with a guide.
(2) Please contact IAI for radial load applied on the rod.
(3) Horizontal payload shows a value when an external guide is used.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values. For push motion, mount an external guide.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation. Please refer to P. 1-261 for details
(7) Cannot operate in sway operations.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is included. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	330	145
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	20
		Max. payload (kg) (energy-saving enabled)	1	4	10	20
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	330	145
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	20
Stroke		Min. stroke (mm)	600	600	600	600
		Max. stroke (mm)	1000	1000	1000	1000
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, φ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	φ25mm material: aluminum hard alumite treatment
Rod non-rotation accuracy (Note 5)	0 degree
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 (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 5) Displacement angle to the rod rotation direction at no load applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	3	2	1.5	1.5
640	6	4	2		1	1
800	4	3			0.5	

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	23	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	2	3	2.5
700	6	2			0.5	

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
330	29	14	10	6	5	4

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	20	20
50	60	50	45	40	20	20
100	60	50	45	40	20	20
125	60	50	40	30	10	10
145	40	35	25	20	6	5

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
280	20	8	3
400	10	5	2
500	5	2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
100	40	25	12
125	40	25	5

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

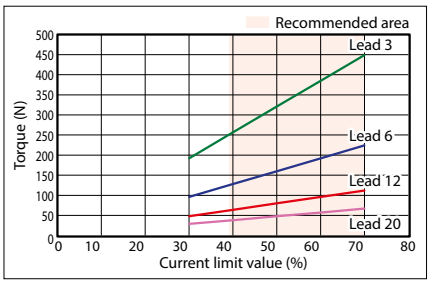
* Lead 12: 400mm/s or less
* Lead 6: 200mm/s or less
* Lead 3: 100mm/s or less

Stroke and Max Speed

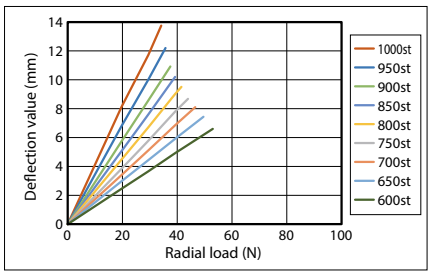
Lead (mm)	Energy-saving setting	600 ~ 1000 (Every 50mm)
20	Disabled	800
	Enabled	640
12	Disabled	700
	Enabled	500
6	Disabled	330
	Enabled	250
3	Disabled	145
	Enabled	125

(Unit: mm/s)

Correlation between torque and current limit



Rod deflection value (reference value)

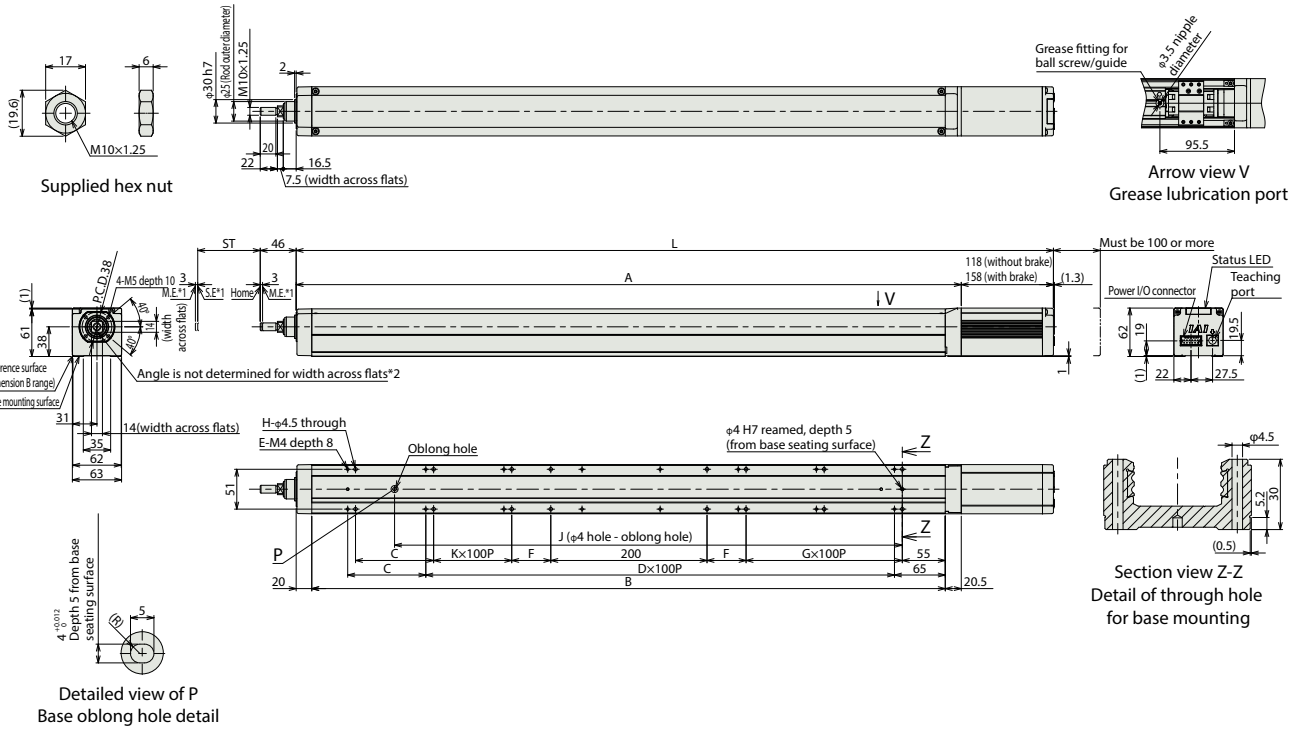


CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

EC-RR6X□AH

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Dimensions by stroke

	Stroke	600	650	700	750	800	850	900	950	1000
L	Without brake	969.5	1019.5	1069.5	1119.5	1169.5	1219.5	1269.5	1319.5	1369.5
	With brake	1009.5	1059.5	1109.5	1159.5	1209.5	1259.5	1309.5	1359.5	1409.5
A		851.5	901.5	951.5	1001.5	1051.5	1101.5	1151.5	1201.5	1251.5
B		811	861	911	961	1011	1061	1111	1161	1211
C		100	50	100	50	100	50	100	50	100
D		6	7	7	8	8	9	9	10	10
E		16	18	18	20	20	22	22	24	24
F		50	0	0	50	50	0	0	50	50
G		2	3	3	3	3	4	4	4	4
H		16	16	16	20	20	20	20	24	24
J		650	700	750	800	850	900	950	1000	1050
K		1	2	2	2	2	3	3	3	3

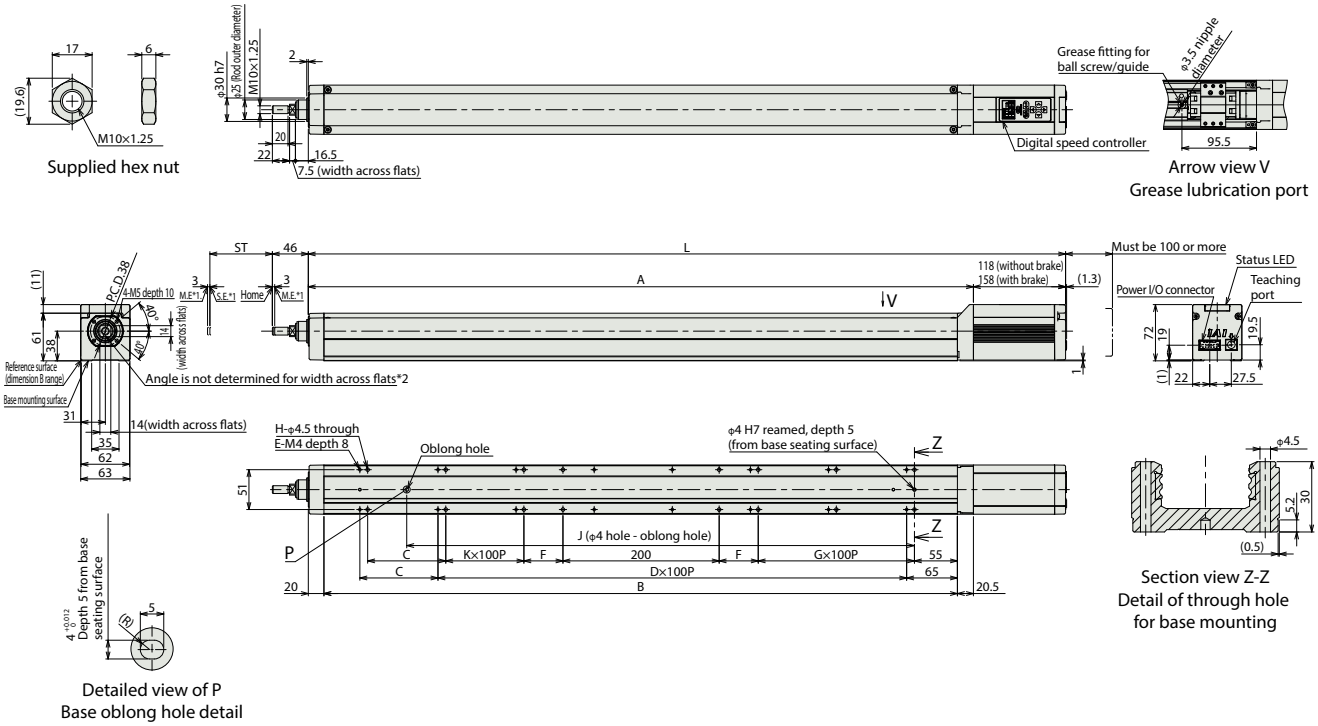
Mass by stroke

	Stroke	600	650	700	750	800	850	900	950	1000
Mass (kg)	Without brake	5.6	5.9	6.2	6.5	6.8	7	7.3	7.6	7.9
	With brake	5.9	6.2	6.5	6.8	7.1	7.3	7.6	7.9	8.2

■ EC-DRR6X□AH <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane..

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



■ Dimensions by stroke

Stroke		600	650	700	750	800	850	900	950	1000
L	Without brake	969.5	1019.5	1069.5	1119.5	1169.5	1219.5	1269.5	1319.5	1369.5
	With brake	1009.5	1059.5	1109.5	1159.5	1209.5	1259.5	1309.5	1359.5	1409.5
A		851.5	901.5	951.5	1001.5	1051.5	1101.5	1151.5	1201.5	1251.5
B		811	861	911	961	1011	1061	1111	1161	1211
C		100	50	100	50	100	50	100	50	100
D		6	7	7	8	8	9	9	10	10
E		16	18	18	20	20	22	22	24	24
F		50	0	0	50	50	0	0	50	50
G		2	3	3	3	3	4	4	4	4
H		16	16	16	20	20	20	20	24	24
J		650	700	750	800	850	900	950	1000	1050
K		1	2	2	2	2	3	3	3	3

■ Mass by stroke

Stroke		600	650	700	750	800	850	900	950	1000
Mass (kg)	Without brake	5.7	6	6.3	6.6	6.9	7.1	7.4	7.7	8
	With brake	6	6.3	6.6	6.9	7.2	7.4	7.7	8	8.3

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR7□AH
EC-DRR7□AH

<With digital speed controller>

Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			AH	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options
		RR7 Standard DRR7 Digital speed controller	S 24mm H 16mm M 8mm L 4mm	AH High rigidity		50 50mm ↕ ↕ 700 700mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	RR7□AH	DRR7□AH	Stroke (mm)	RR7□AH	DRR7□AH
50	○	○	**400**	○	○
100	○	○	**450**	○	○
150	○	○	**500**	○	○
200	○	○	**550**	○	○
250	○	○	**600**	○	○
300	○	○	**650**	○	○
350	○	○	**700**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Specified grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 2)	**NJ**	2-383
Knuckle joint + oscillation receiving bracket (Note 2)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 2)	**QR**	2-385
Clevis bracket + oscillation receiving bracket (Note 2)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected for strokes 50 - 500mm only. The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	28
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	26
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	28
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ30mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 6)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	28	28
35	80	70	65	60	28	28
70	80	70	65	60	28	28
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	26
35	55	50	26
70	55	50	13
105	30	15	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

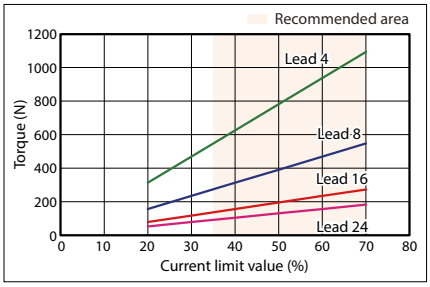
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 700 (Every 50mm)
24	Disabled	860 <640>
	Enabled	630 <420>
16	Disabled	700 <560>
	Enabled	420 <280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

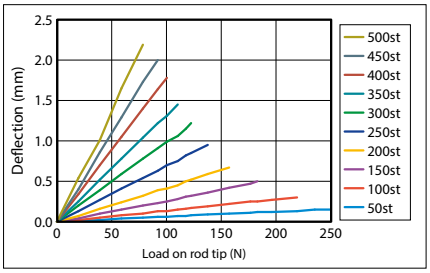
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)



Dimensions

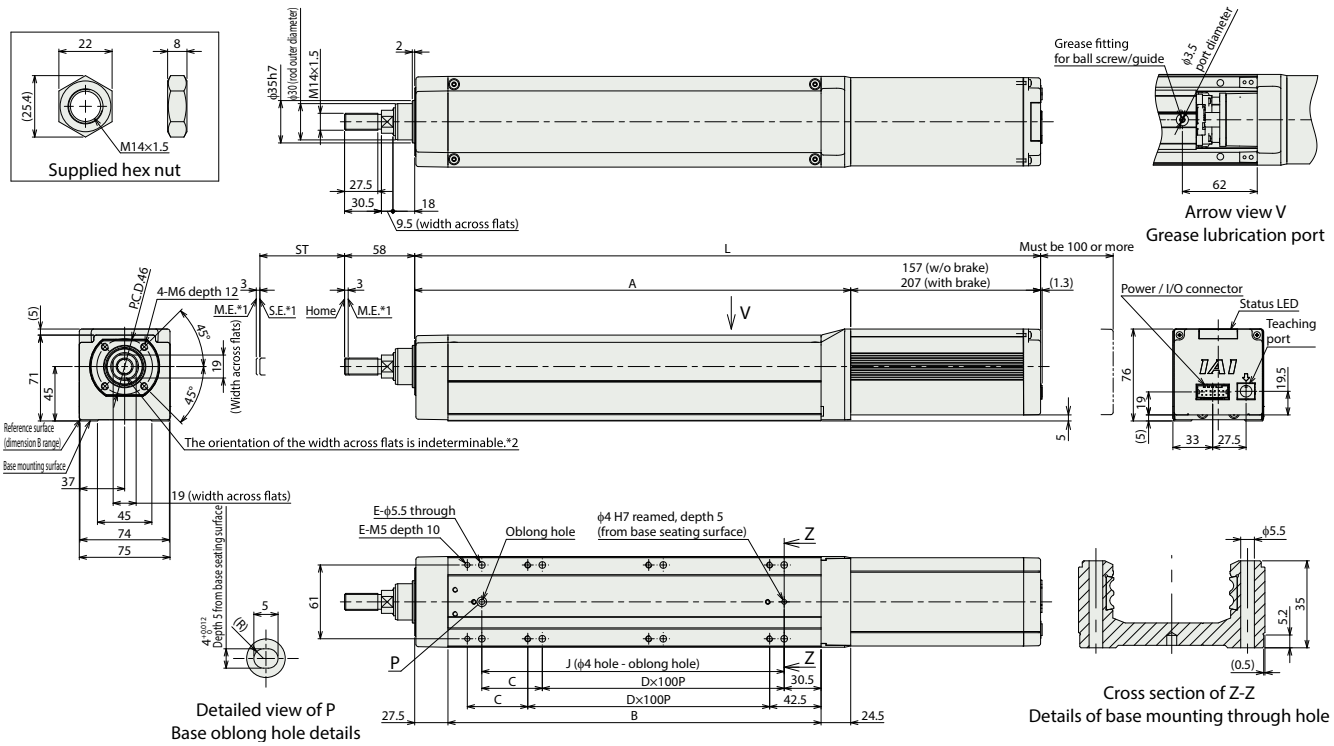
CAD drawings can be downloaded from our website.
www.iai-automation.com

2D CAD 3D CAD

■ EC-RR7□AH

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L	Without brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5
	With brake	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5
A		260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800

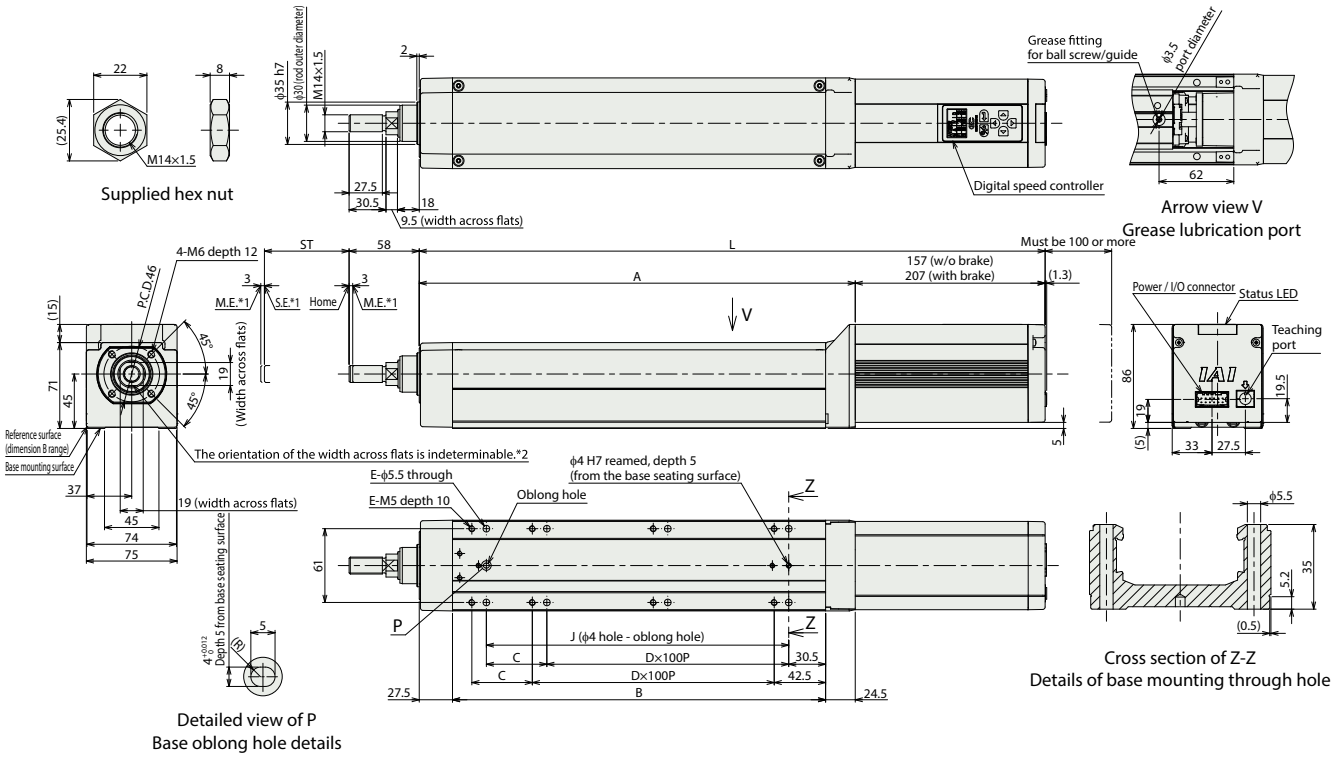
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Mass (kg)	Without brake	4	4.4	4.7	5	5.4	5.7	6	6.4	6.7	7	7.5	7.8	8.2	8.6
	With brake	4.5	4.9	5.2	5.5	5.9	6.2	6.5	6.9	7.2	7.5	8	8.3	8.7	9.1

■ EC-DRR7□AH <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L	Without brake	417.5	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5
	With brake	467.5	517.5	567.5	617.5	667.5	717.5	767.5	817.5	867.5	917.5	967.5	1017.5	1067.5	1117.5
A		260.5	310.5	360.5	410.5	460.5	510.5	560.5	610.5	660.5	710.5	760.5	810.5	860.5	910.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Mass (kg)	Without brake	4.1	4.5	4.8	5.2	5.5	5.9	6.3	6.6	7.0	7.3	7.6	7.9	8.3	8.6
	With brake	4.7	5.1	5.4	5.8	6.1	6.5	6.9	7.2	7.6	7.9	8.2	8.5	8.9	9.2

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR7X□AH
EC-DRR7X□AH

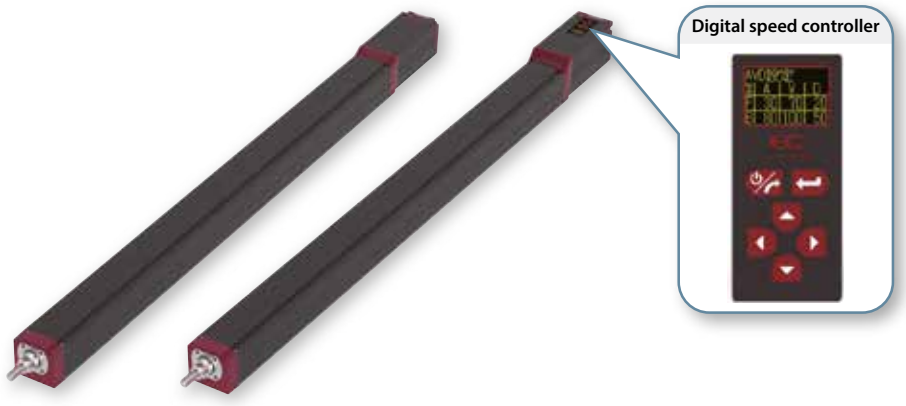
<With digital speed controller>

Straight Motor | Support mechanism | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] AH - [ ] - [ ] - [ ]

Series	Type		Lead		Specification		Stroke		Power / I/O cable length	Options
EC	RR7X	Standard	S	24mm	AH	High rigidity	750	750mm	See power / I/O cable length below	See options below
	DRR7X	Digital speed controller	H	16mm			~	~		
			M	8mm			1000	1000mm (Every 50mm)		
			L	4mm						



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

Stroke

Stroke (mm)	RR7X□AH	DRR7X□AH	Stroke (mm)	RR7X□AH	DRR7X□AH
750	○	○	900	○	○
800	○	○	950	○	○
850	○	○	1000	○	○

Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Tip adaptor	FFA	2-375
Flange (front)	FL	2-376
Specified grease specification	G5	2-381
Tip adaptor (female screw)	NFA	2-382
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
Twin power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) PNP specification (PN) and twin power supply specification (TMD2) cannot be selected for RCEON-EC connection specification (ACR).

POINT 選定上の注意

(1) The actuator specifications display the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details. The radial cylinder is equipped with a guide.
(2) Please contact IAI for radial load applied on the rod.
(3) Horizontal payload shows a value when an external guide is used.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values. The push force may deviate due to rod deflection. For push motion, mount an external guide.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.
(7) Cannot operate in sway operations.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is included. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	28
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	26
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	28
Stroke		Min. stroke (mm)	750	750	750	750
		Max. stroke (mm)	1000	1000	1000	1000
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, φ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	φ30mm material: aluminum hard alumite treatment
Rod non-rotation accuracy (Note 5)	0 degree
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 (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 5) Displacement angle to the rod rotation direction at no load applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
560	14	6	4	3	2	1.5
640	5	3	2	1	1	1
800	4	1				
860	2					

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	30	23	18	7	7
420	25	17	12	8	4.5	3.5
560	10	5	2	0.5	1	1
700	2					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	2			0.5	

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	28	28
35	80	70	65	60	28	28
70	80	70	65	60	28	28
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	55	50	26
35	55	50	26
70	55	50	13
105	30	15	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

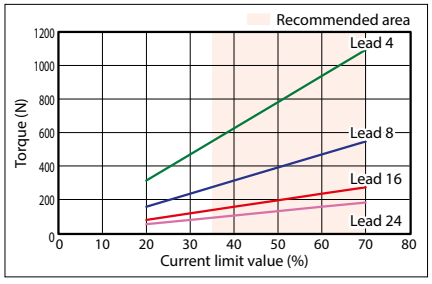
Stroke and Max Speed

Lead (mm)	Energy-saving setting	750 ~ 1000 (Every 50mm)
24	Disabled	860 <640>
	Enabled	630 <420>
16	Disabled	700 <560>
	Enabled	420 <280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

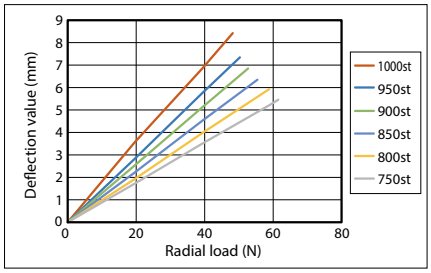
(Unit: mm/s)

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

Correlation between torque and current limit



Rod deflection value (reference value)



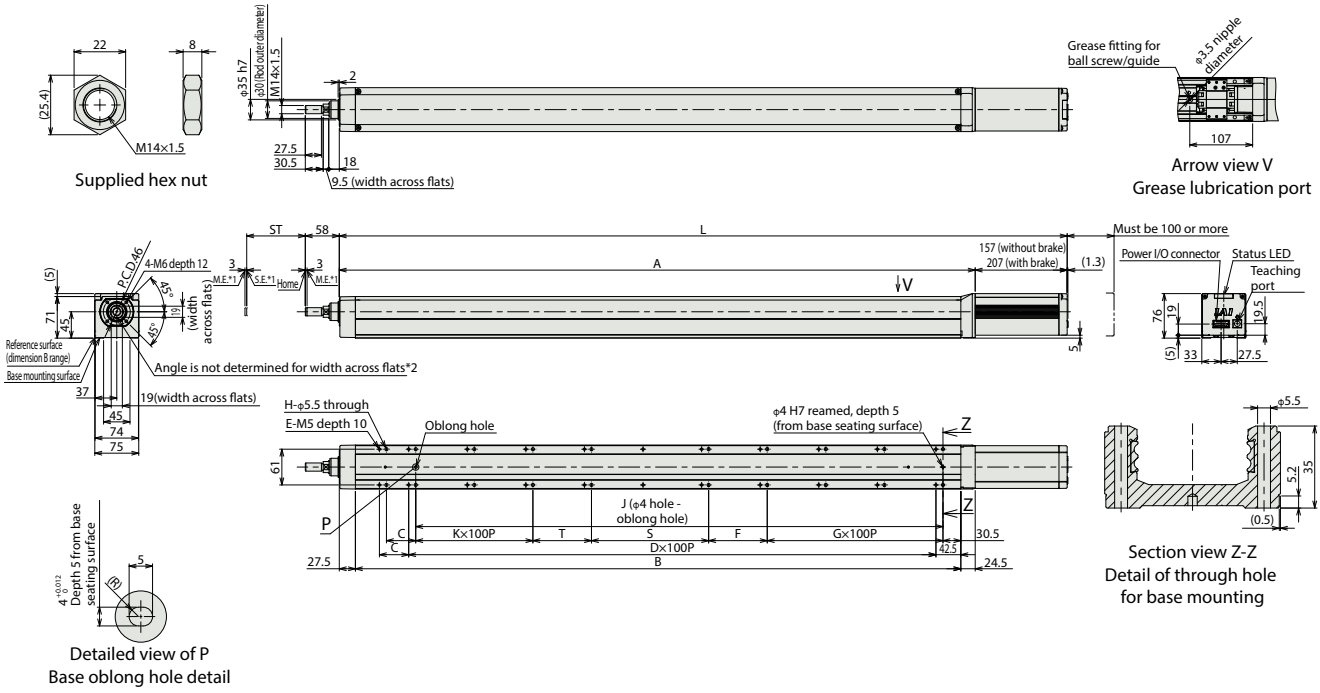
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

■ EC-RR7X□AH

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		750	800	850	900	950	1000
L	Without brake	1192.5	1242.5	1292.5	1342.5	1392.5	1442.5
	With brake	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5
A		1035.5	1085.5	1135.5	1185.5	1235.5	1285.5
B		983.5	1033.5	1083.5	1133.5	1183.5	1233.5
C		0	50	0	50	0	50
D		9	9	10	10	11	11
E		20	22	22	24	24	26
F		50	0	0	50	50	0
G		3	4	4	4	4	5
H		18	20	20	22	22	24
J		850	900	950	1000	1050	1100
K		3	3	3	3	4	4
S		250	200	250	250	250	200
T		0	0	50	0	0	0

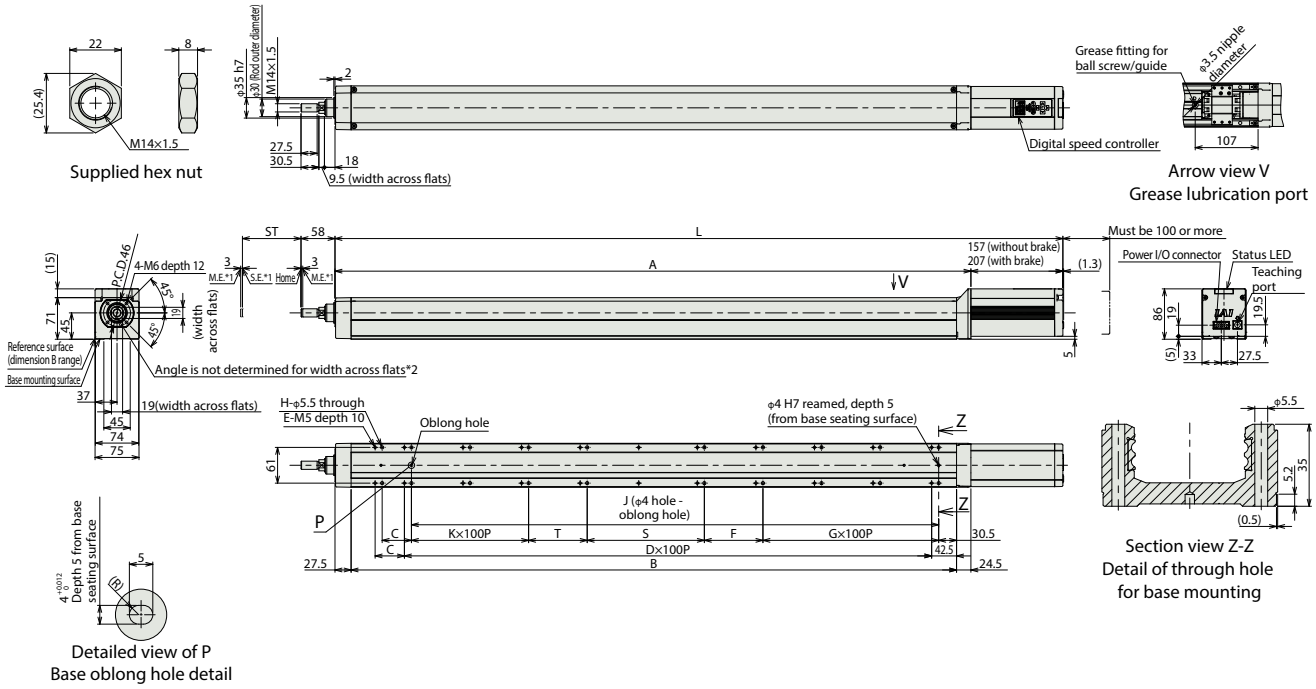
■ Mass by stroke

Stroke		750	800	850	900	950	1000
Mass (kg)	Without brake	9.6	10	10.3	10.7	11	11.4
	With brake	10.1	10.5	10.8	11.2	11.5	11.9

■ EC-DRR7X□AH <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Stroke		750	800	850	900	950	1000
L	Without brake	1192.5	1242.5	1292.5	1342.5	1392.5	1442.5
	With brake	1242.5	1292.5	1342.5	1392.5	1442.5	1492.5
A		1035.5	1085.5	1135.5	1185.5	1235.5	1285.5
B		983.5	1033.5	1083.5	1133.5	1183.5	1233.5
C		0	50	0	50	0	50
D		9	9	10	10	11	11
E		20	22	22	24	24	26
F		50	0	0	50	50	0
G		3	4	4	4	4	5
H		18	20	20	22	22	24
J		850	900	950	1000	1050	1100
K		3	3	3	3	4	4
S		250	200	250	250	250	200
T		0	0	50	0	0	0

■ Dimensions by stroke

Stroke		750	800	850	900	950	1000
Mass (kg)	Without brake	9.7	10.1	10.4	10.8	11.1	11.5
	With brake	10.3	10.7	11	11.4	11.7	12.1

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR3□R
EC-DRR3□R

<With digital speed controller>

Side-mounted Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC -			R -		-		-
Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
	RR3 Standard DRR3 Digital speed controller	H 6mm M 4mm L 2mm	R Side-mounted motor	50 ~ 300 : 50mm ~ 300mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR3□R	DRR3□R	Stroke (mm)	RR3□R	DRR3□R
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected if stroke is at least 150mm. However, can also be selected for a stroke of 100mm for incremental without brake.
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) Purchase clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) together as a set. To be mounted by customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	9	14	18
	Speed / acceleration/ deceleration	Max. speed (mm/s)	360	240	120
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	360	240	120
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

Item	Description
Driving system	Ball screw ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rods	ϕ16mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.5	0.3
0	9	7	1.5
120	9	7	1.5
210	9	7	1.5
255	8	5	1.5
315	7	3	1
360	6	2	1

Lead 4

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	14	2.5
80	14	2.5
140	14	2.5
170	14	2.5
210	14	2.5
240	13	2.5

Lead 2

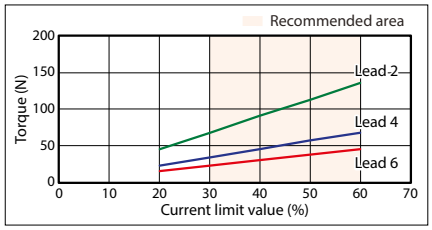
Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	18	3.5
40	18	3.5
70	18	3.5
85	18	3.5
105	18	3.5
120	18	3

Stroke and Max Speed

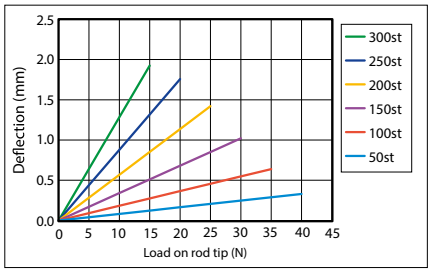
Lead (mm)	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
6	360	300	210	150
4	240	200	140	100
2	120	100	70	50

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

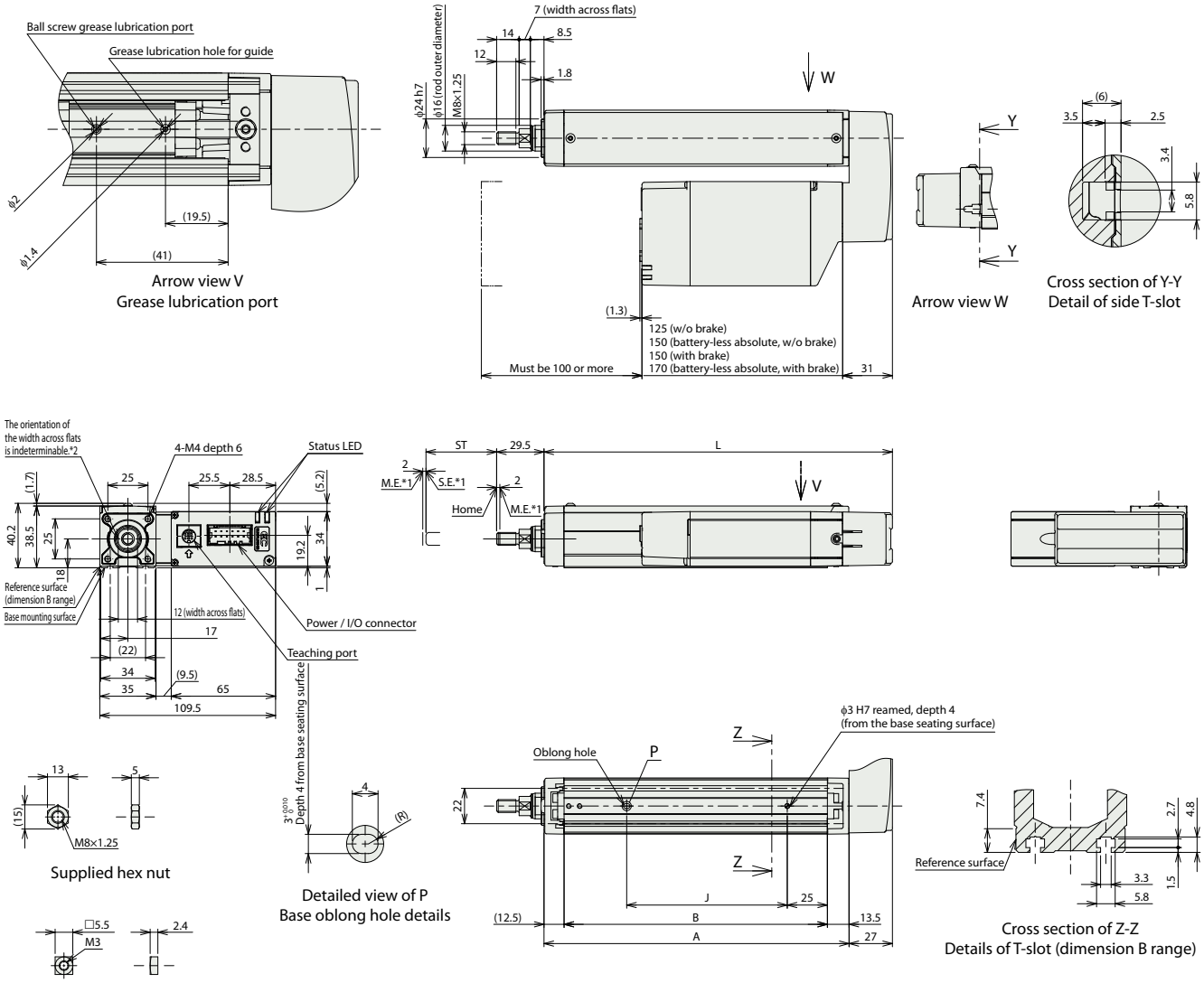


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EC-RR3□R

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



Dimensions by stroke

Stroke	50	100	150	200	250	300
L	167	217	267	317	367	417
A	140	190	240	290	340	390
B	114	164	214	264	314	364
J	50	100	150	200	250	300

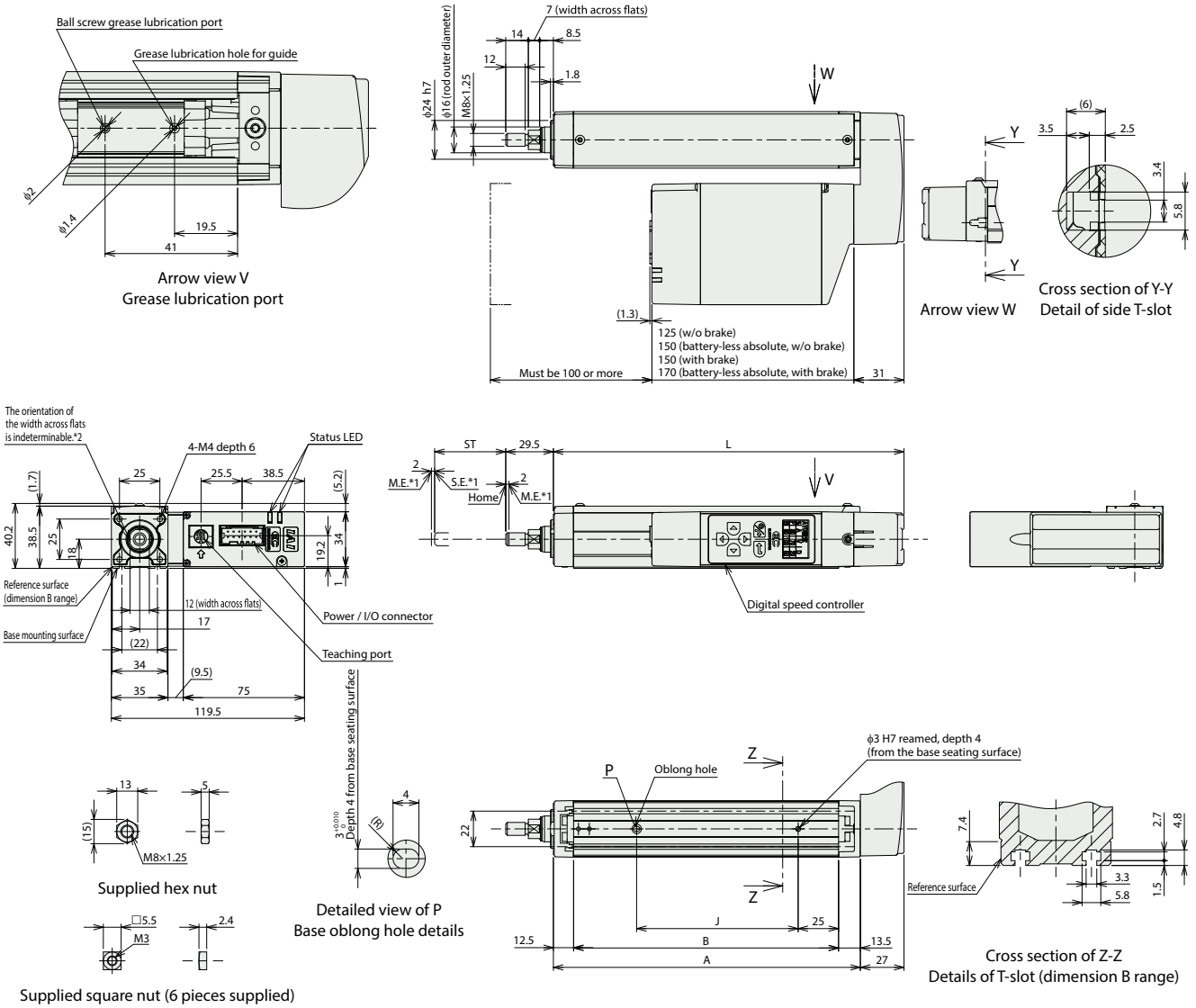
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.9	1.0	1.1	1.2	1.3	1.4
	With brake	1.0	1.1	1.2	1.3	1.4	1.5

■ EC-DRR3□R <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figure below is the motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300
L	167	217	267	317	367	417
A	140	190	240	290	340	390
B	114	164	214	264	314	364
J	50	100	150	200	250	300

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.0	1.1	1.2	1.3	1.4	1.5
	With brake	1.1	1.2	1.3	1.4	1.5	1.6

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR4□R
EC-DRR4□R

<With digital speed controller>

Side-mounted Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			R	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options

Type		Lead		Specifications	
RR4	Standard	S	16mm	R	Side-mounted motor
DRR4	Digital speed controller	H	10mm		
		M	5mm		
		L	2.5mm		

Stroke	
50	50mm
↓	↓
300	300mm (Every 50mm)

Power / I/O cable length: Refer to "Power / I/O Cable Length" below

Options: Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR4□R	DRR4□R	Stroke (mm)	RR4□R	DRR4□R
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected if stroke is at least 150mm. However, can also be selected for a stroke of 100mm for incremental without brake.
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) Purchase clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) together as a set. To be mounted by customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	16	25	35
		Max. payload (kg) (energy-saving enabled)	5	10	22	35
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	600	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	600	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	39	62	124	263
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rods	ϕ20mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	7	6	5	3.5	1.5	1.25
140	7	6	5	3.5	1.5	1.25
280	7	6	4.5	3.5	1.5	1.25
420	7	6	3.5	2.5	1.5	1.25
560	6.5	5.5	3.5	2.5	1.5	1.25
700	5.5	3.5	2.5	1.5	1	1
800		1	1	1		1

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	16	15	13	11	2.5	2
175	16	15	13	11	2.5	2
350	16	9	9	5	2.5	2
435	12	7	7	4	2.5	2
525	8	5	5	3	2	2
600	5	3	2	1	1	1

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	22	5	4.5
85	25	22	5	4.5
130	25	22	5	4.5
215	25	22	5	4.5
260	25	22	5	4.5
300	20	18	3	3
350	15	8	1	1

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	35	6.5
135	32	6
150	30	6
175	28	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	5	3	1
140	5	3	1
280	5	3	1
420	4	3	1
560	3	1.5	1

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	6.5	2
175	10	6.5	2
350	9	6.5	2
435	5	1	1
525	1		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	22	4.5
85	22	4.5
130	22	4.5
215	18	3
260	8	1.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	30	6
135	25	3.5

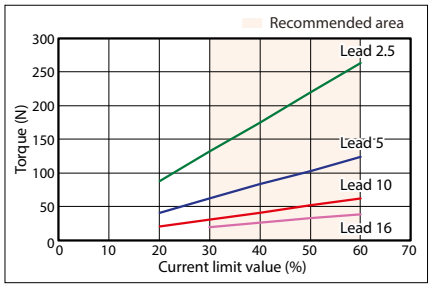
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
16	Disabled	800		600	440
	Enabled	560			440
10	Disabled	600	570	390	290
	Enabled	525 <435>		390	290
5	Disabled	350	280	190	140
	Enabled	260		190	140
2.5	Disabled	175 <150>	135	90	70
	Enabled	135		90	70

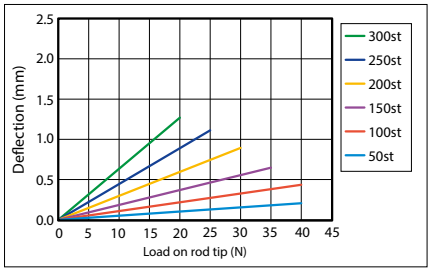
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

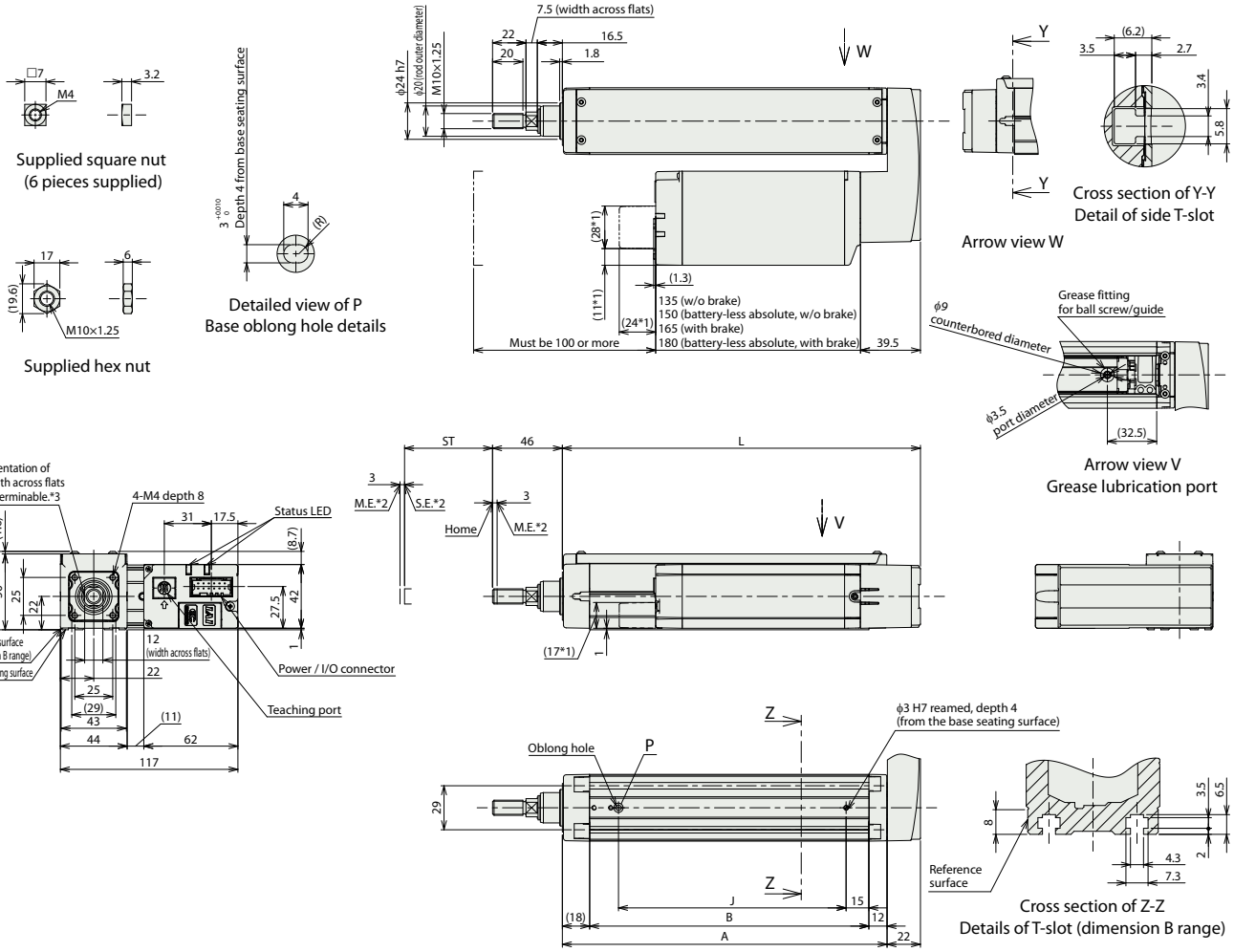


CAD drawings can be downloaded from our website.
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2D CAD 3D CAD

EC-RR4□R

*1 Dimensions are applicable when WL/WL2 option is selected.
*2 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*3 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



Dimensions by stroke

Stroke	50	100	150	200	250	300
L	186	236	286	336	386	436
A	164	214	264	314	364	414
B	134	184	234	284	334	384
J	100	150	200	250	300	350

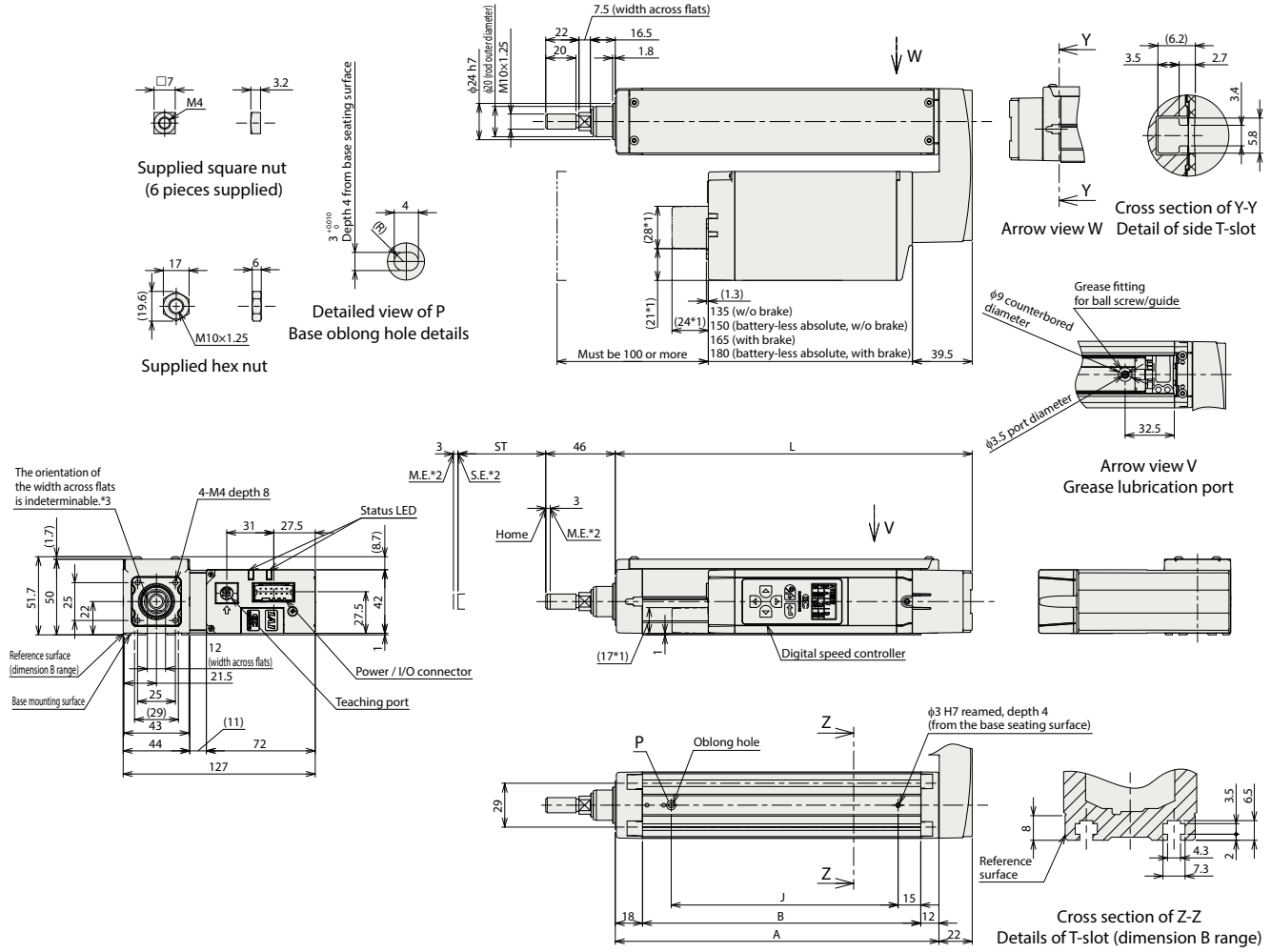
Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.4	1.6	1.8	2.0	2.2	2.4
	With brake	1.6	1.8	2.0	2.2	2.3	2.5

■ EC-DRR4□R <with digital speed controller>

*1 Dimensions are applicable when WL/WL2 option is selected.
*2 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*3 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300
L	186	236	286	336	386	436
A	164	214	264	314	364	414
B	134	184	234	284	334	384
J	100	150	200	250	300	350

■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.5	1.7	1.9	2.1	2.3	2.5
	With brake	1.7	1.9	2.1	2.3	2.5	2.7

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR6□R
EC-DRR6□R

<With digital speed controller>

Side-mounted Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			R	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options
		RR6 Standard DRR6 Digital speed controller	S 20mm H 12mm M 6mm L 3mm	R Side-mounted motor		65 65mm ~ ~ 315 315mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR6□R	DRR6□R	Stroke (mm)	RR6□R	DRR6□R
65	○	○	**215**	○	○
115	○	○	**265**	○	○
165	○	○	**315**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake (Note 2)	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) A brake (B) and flange (FL) cannot be both selected for a system operating at minimum stroke (65mm).
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	23	15	10	5	4
225	16	10			2.5	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

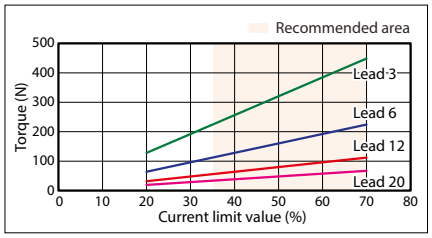
* Lead 12: 400mm/s or less
* Lead 6: 200mm/s or less
* Lead 3: 100mm/s or less

Stroke and Max Speed

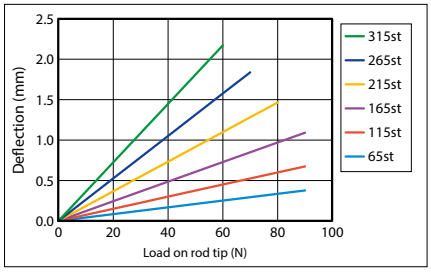
Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

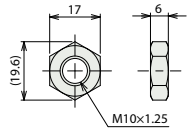


CAD drawings can be downloaded from our website.
www.iai-automation.com

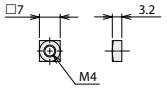
■EC-RR6□R

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

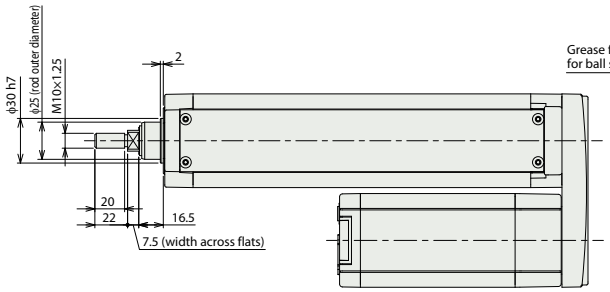
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

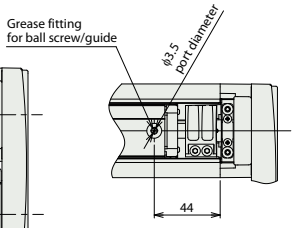


Supplied hex nut

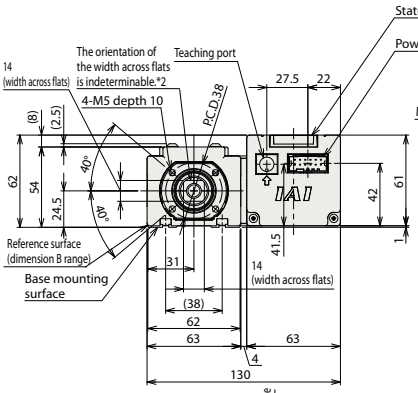


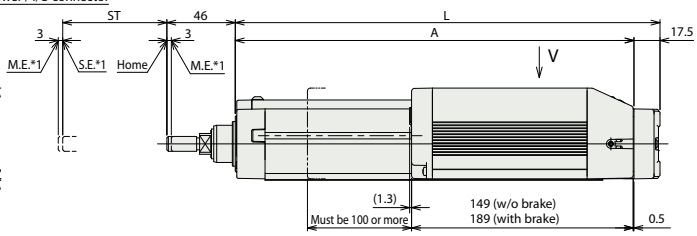
Supplied square nut (6 pieces supplied)

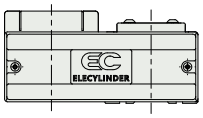


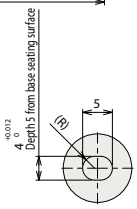


Arrow view V
Grease lubrication port

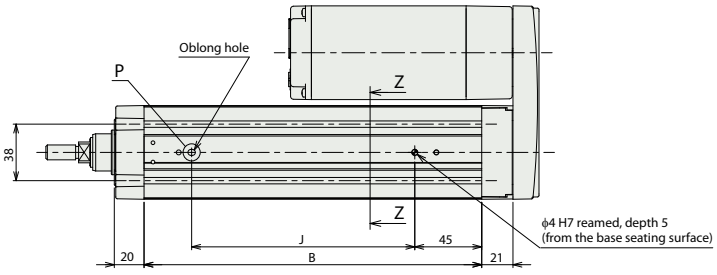


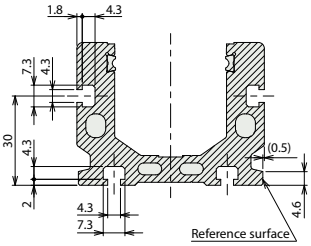






Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

■Dimensions by stroke

Stroke	65	115	165	215	265	315
L	235.5	285.5	335.5	385.5	435.5	485.5
A	218	268	318	368	418	468
B	177	227	277	327	377	427
J	100	150	200	250	300	350

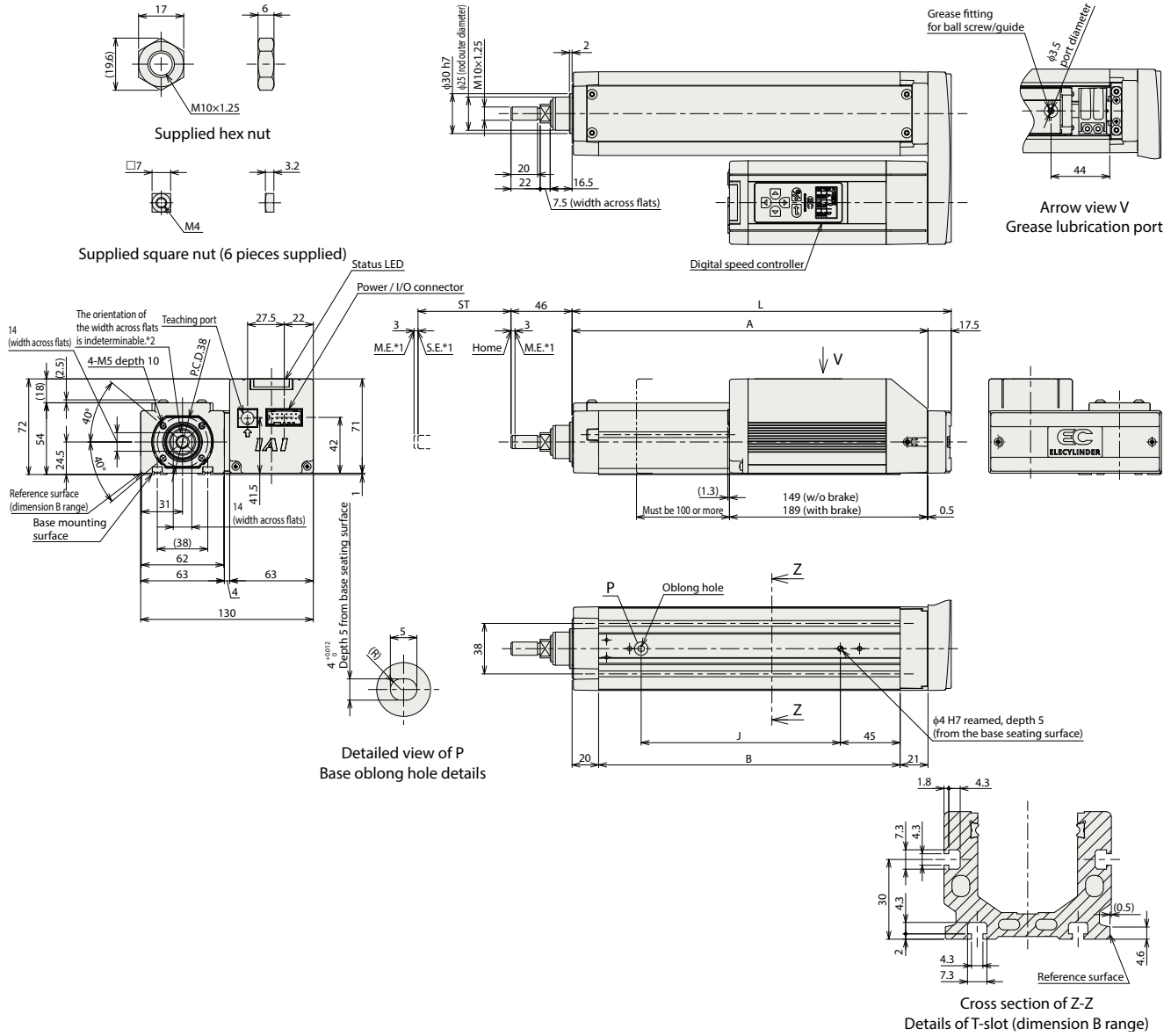
■Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	2.1	2.4	2.6	2.9	3.1	3.4
	With brake	2.3	2.6	2.8	3.1	3.3	3.6

■ EC-DRR6□R <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	65	115	165	215	265	315
L	235.5	285.5	335.5	385.5	435.5	485.5
A	218	268	318	368	418	468
B	177	227	277	327	377	427
J	100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	2.2	2.5	2.7	3.0	3.2	3.5
	With brake	2.5	2.8	3.0	3.3	3.5	3.8

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR7□R
EC-DRR7□R

<With digital speed controller>

Side-mounted Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			R	-		-		-	
Series	-	Type	Lead	Specifications	-	Stroke	-	Power / I/O cable length	-	Options
		RR7 Standard DRR7 Digital speed controller	S 24mm H 16mm M 8mm L 4mm	R Side-mounted motor		65 65mm ~ ~ 315 315mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR7□R	DRR7□R	Stroke (mm)	RR7□R	DRR7□R
65	○	○	**215**	○	○
115	○	○	**265**	○	○
165	○	○	**315**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake (Note 2)	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) A brake (B) and flange (FL) cannot be both selected for a system operating at minimum stroke (65mm).
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	320	160
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	280	140
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rod	ϕ30mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	2.5	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	1.5	1	1
700	1					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	25	10	8	6	3	2.5
320	5					

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	25	15	10	7	5
160	10					

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 12: 400mm/s or less
* Lead 6: 200mm/s or less
* Lead 3: 100mm/s or less

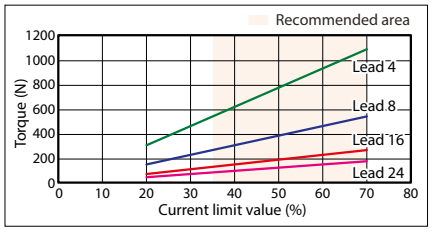
Stroke and Max Speed

Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
24	Disabled	860 <640>		
	Enabled	630 <420>		
16	Disabled	700 <560>		
	Enabled	420 <280>		
8	Disabled	320 <280>		
	Enabled	210		
4	Disabled	160 <140>		
	Enabled	105		

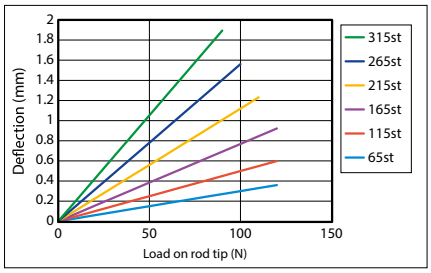
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

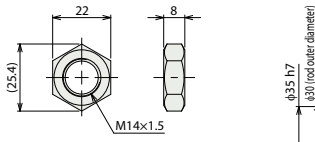


CAD drawings can be downloaded from our website.
www.iai-automation.com

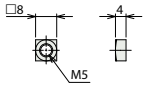
EC-RR7□R

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

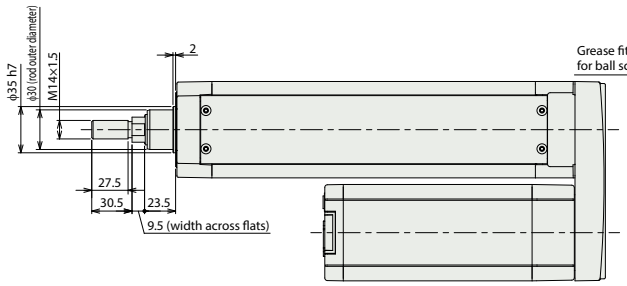
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

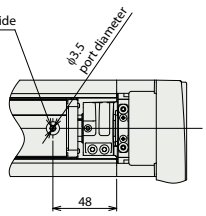


Supplied hex nut

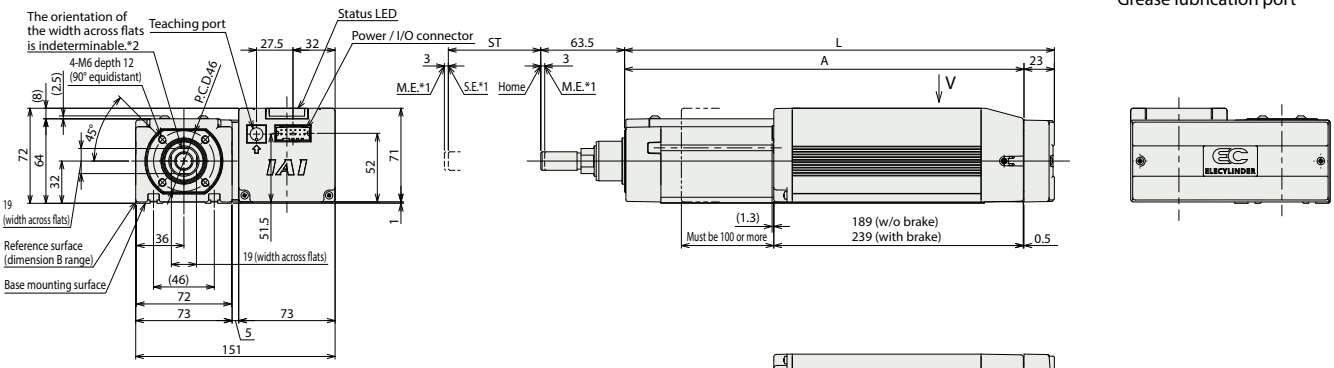


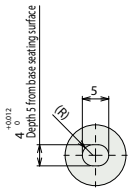
Supplied square nut (6 pieces supplied)



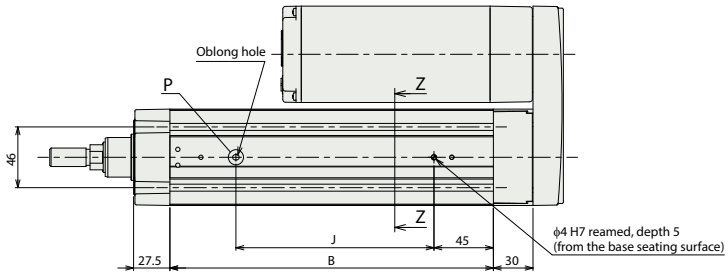


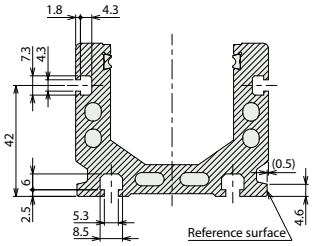
Arrow view V
Grease lubrication port





Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of T-slot (dimension B range)

Dimensions by stroke

Stroke	65	115	165	215	265	315
L	275.5	325.5	375.5	425.5	475.5	525.5
A	252.5	302.5	352.5	402.5	452.5	502.5
B	195	245	295	345	395	445
J	100	150	200	250	300	350

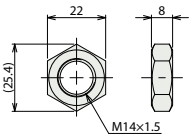
Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	4.4	4.8	5.1	5.5	5.8	6.2
	With brake	4.9	5.3	5.6	6.0	6.3	6.7

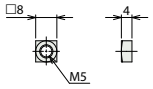
■ EC-DRR7□R <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

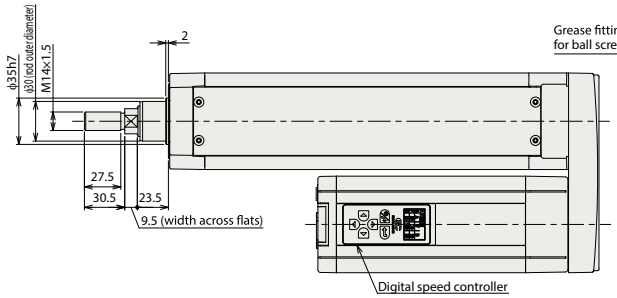
ST: Stroke
M.E: Mechanical end
S.E: Stroke end



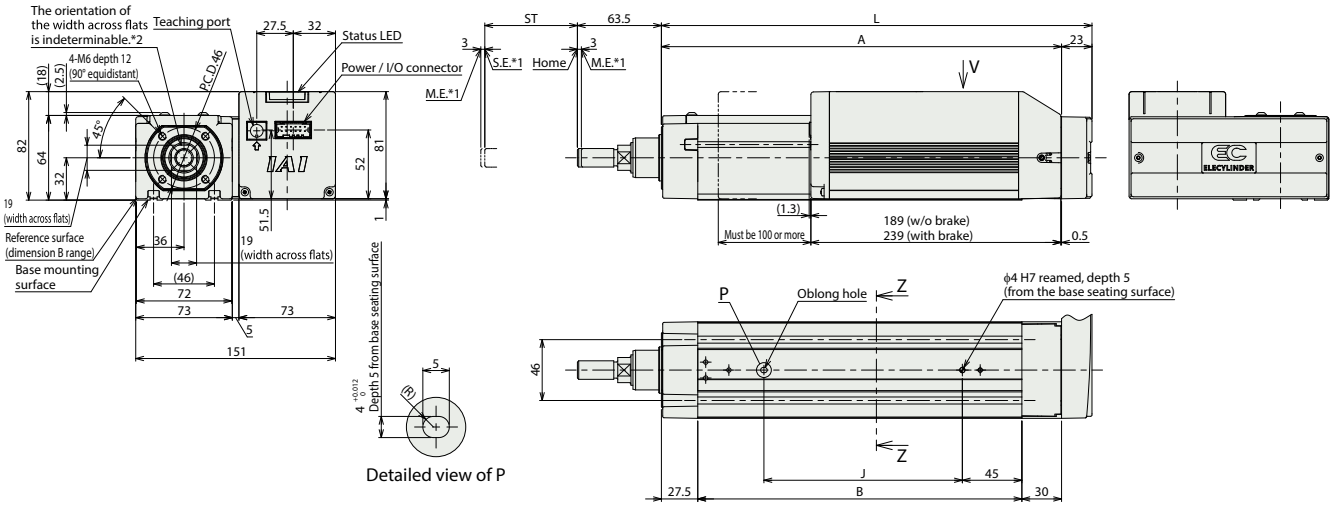
Supplied hex nut



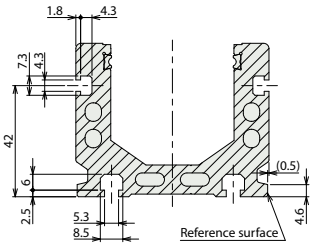
Supplied square nut (6 pieces supplied)



Arrow view V
Grease lubrication port



Detailed view of P



Cross section of Z-Z
Details of T-slot (dimension B range)

■ Dimensions by stroke

Stroke	65	115	165	215	265	315
L	275.5	325.5	375.5	425.5	475.5	525.5
A	252.5	302.5	352.5	402.5	452.5	502.5
B	195	245	295	345	395	445
J	100	150	200	250	300	350

■ Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	4.5	4.8	5.2	5.6	5.9	6.3
	With brake	5.1	5.4	5.8	6.2	6.5	6.9

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR6□AHR
EC-DRR6□AHR

<With digital speed controller>

Side-mounted Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] AHR - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
	RR6	Standard	S	20mm	AHR	High rigidity side-mounted	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below
	DRR6	Digital speed controller	H	12mm			↕	↕		
			M	6mm			400	400mm (Every 50mm)		
			L	3mm						



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR6□AHR	DRR6□AHR	Stroke (mm)	RR6□AHR	DRR6□AHR
50	○	○	**250**	○	○
100	○	○	**300**	○	○
150	○	○	**350**	○	○
200	○	○	**400**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake (Note 2)	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) A brake (B) and flange (FL) cannot be both selected for a system operating at minimum stroke (50mm).
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	20
		Max. payload (kg) (energy-saving enabled)	1	4	10	20
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	20
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rods	ϕ25mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	4.5
400	18	10	6	2	3	2.5
450	8	3			1	0.5

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	20	20
50	60	50	45	40	20	20
100	60	50	45	40	20	20
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	23	15	5	5	4
225	16				2	

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

(Note) Refer to the caution below when "G5" option is selected.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

(Note) Refer to the caution below when "G5" option is selected.

Lead 3

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	20
25	40	25	20
50	40	25	20
75	40	25	12
100	40	25	9
125	40	25	5

(Note) Refer to the caution below when "G5" option is selected.

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

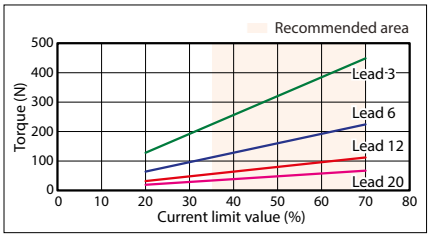
* Lead 12: 400mm/s or less
* Lead 6: 200mm/s or less
* Lead 3: 100mm/s or less

Stroke and Max Speed

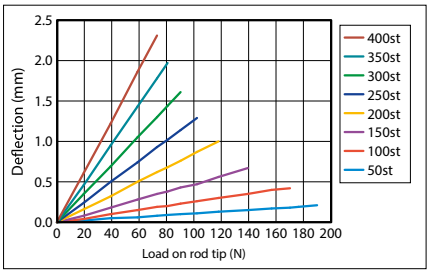
Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)
20	Disabled	800
	Enabled	640
12	Disabled	700
	Enabled	500
6	Disabled	450
	Enabled	250
3	Disabled	225
	Enabled	125

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

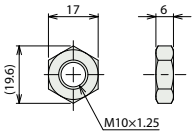


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www.iai-automation.com

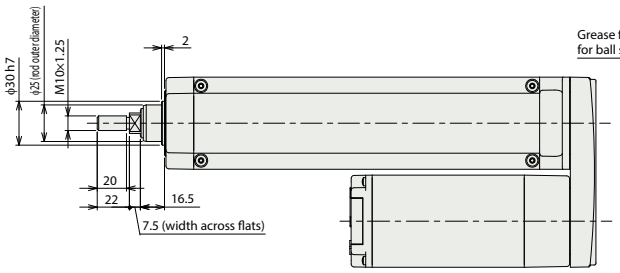
EC-RR6□AHR

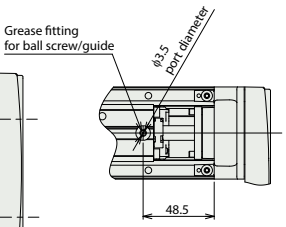
*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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

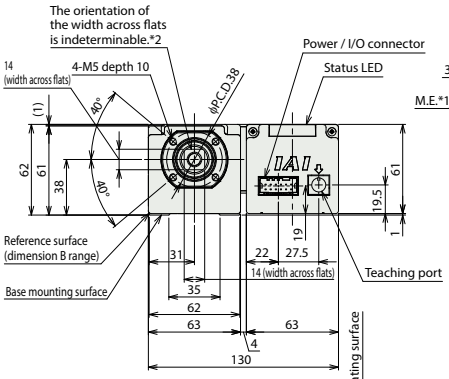


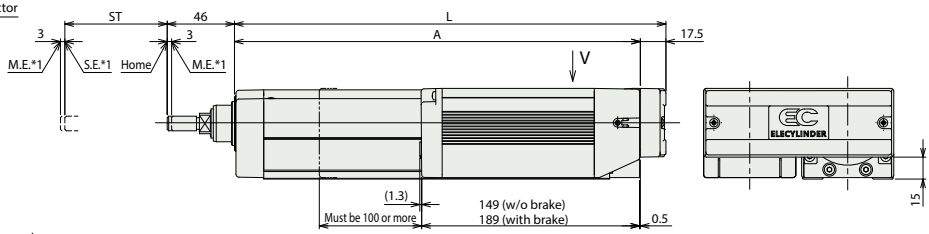
Supplied hex nut

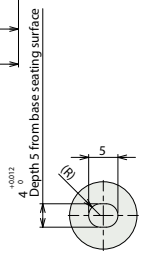




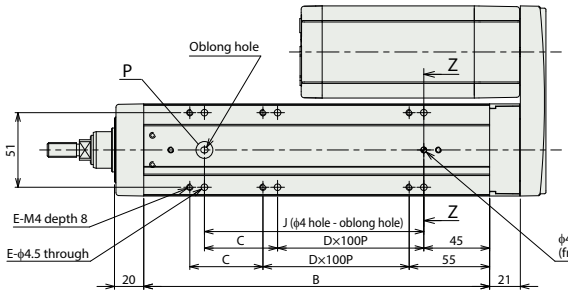
Arrow view V
Grease lubrication port

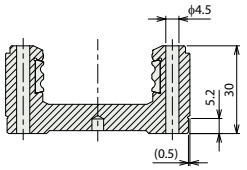






Detailed view of P
Base oblong hole details





Cross section of Z-Z
Details of base mounting through hole

Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	245	295	345	395	445	495	545	595
A	227.5	277.5	327.5	377.5	427.5	477.5	527.5	577.5
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5
C	0	50	0	50	0	50	0	50
D	1	1	2	2	3	3	4	4
E	4	6	6	8	8	10	10	12
J	100	150	200	250	300	350	400	450

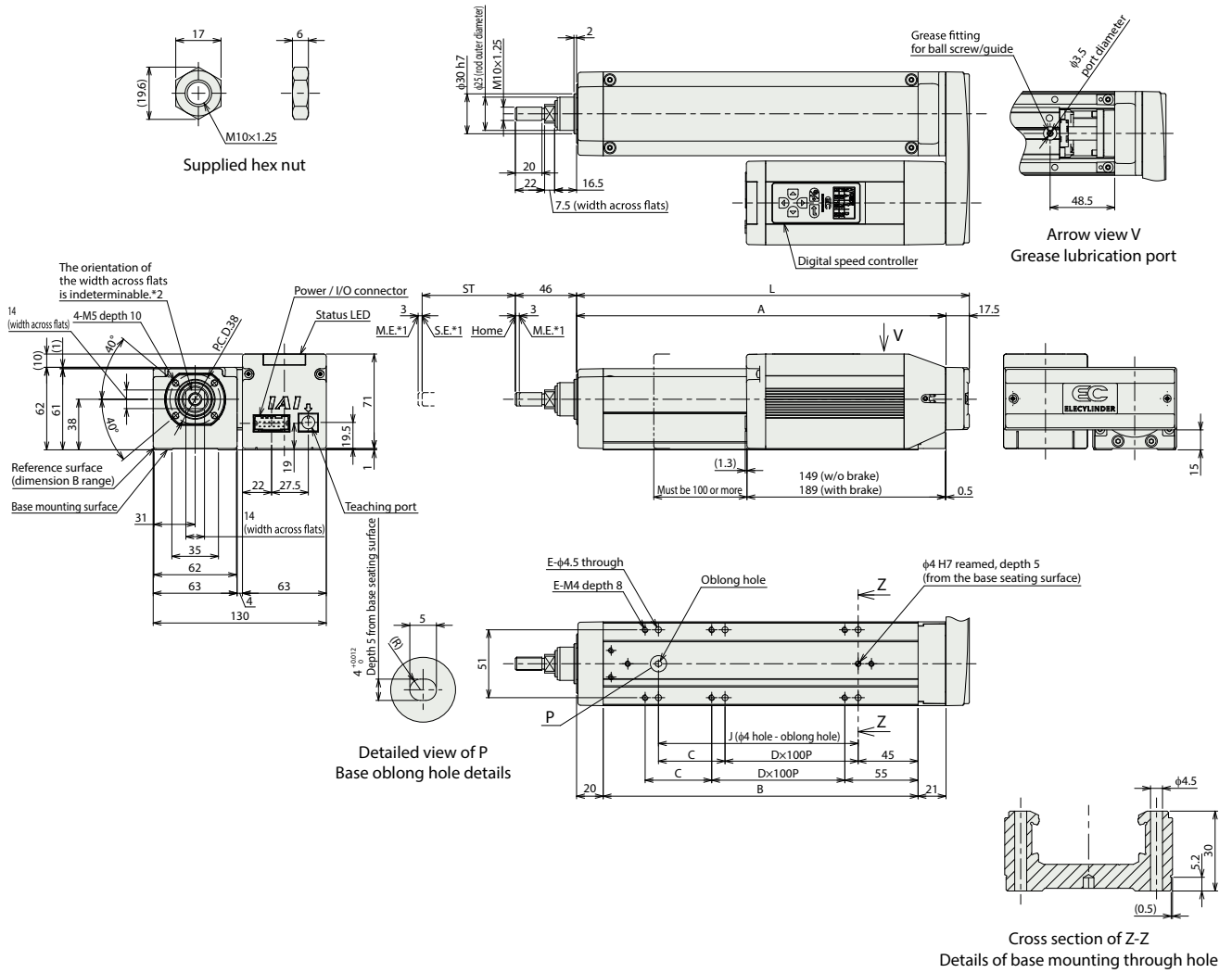
Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	2.3	2.5	2.8	3.1	3.3	3.6	3.9	4.1
	With brake	2.6	2.8	3.1	3.4	3.6	3.9	4.2	4.4

■ EC-DRR6□AHR <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400
L	245	295	345	395	445	495	545	595
A	227.5	277.5	327.5	377.5	427.5	477.5	527.5	577.5
B	186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5
C	0	50	0	50	0	50	0	50
D	1	1	2	2	3	3	4	4
E	4	6	6	8	8	10	10	12
J	100	150	200	250	300	350	400	450

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	2.4	2.7	3.0	3.2	3.5	3.8	4.0	4.3
	With brake	2.7	3.0	3.3	3.5	3.8	4.1	4.3	4.6

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RR7□AHR
EC-DRR7□AHR

<With digital speed controller>

Side-mounted Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC - [ ] [ ] AHR - [ ] - [ ] - [ ]

Series	Type		Lead		Specifications		Stroke		Power / I/O cable length	Options
EC	RR7	Standard	S	24mm	AHR	High rigidity side-mounted	50	50mm	Refer to "Power / I/O Cable Length" below	Refer to"Options" below
	DRR7	Digital speed controller	H	16mm			~	~		
			M	8mm			500	500mm (Every 50mm)		
			L	4mm						



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

(Note) The figure above is the motor side-mounted to left (ML).

■ Stroke

Stroke (mm)	RR7□AHR	DRR7□AHR	Stroke (mm)	RR7□AHR	DRR7□AHR
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake (Note 2)	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front) (Note 2)	**FL**	2-376
Foot bracket	**FT**	2-377
Specified grease specification	**G5**	2-381
Motor side-mounted to left (Note 3)	**ML**	2-381
Motor side-mounted to right (Note 3)	**MR**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Knuckle joint (Note 4)	**NJ**	2-383
Knuckle joint + swaying bracket (Note 4)	**NJPB**	2-384
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Clevis bracket (Note 4)	**QR**	2-385
Clevis bracket + swaying bracket (Note 4)	**QRPB**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) A brake (B) and flange (FL) cannot be both selected for a system operating at minimum stroke (50mm).
(Note 3) Be sure to enter a code in the "Options" field in "Model Specification Items."
(Note 4) The clevis bracket (QR or QRPB) and knuckle joint (NJ or NJPB) are sold as a set. The assembly is to be performed by the customer.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for more details.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for radial load applied on the rod.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 5) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 7) (with connectors on both ends)
		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 7) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	640	320	150
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	28
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	26
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	280	140
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	28
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Linear guide	Linear motion infinite circulating type
Rods	ϕ30mm, material: aluminum, hard alumite treatment
Rod non-rotation precision (Note 8)	0 degrees
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 8) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	2.5	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2					

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	10	10	4	3
560	7	5	2	1	0.5	0.5
640	2.5					

(Note) Refer to the caution below when "G5" option is selected.

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	25	10	8	6	3	2.5
320	5					

(Note) Refer to the caution below when "G5" option is selected.

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	28	28
35	80	70	65	60	28	28
70	80	70	65	60	28	28
105	80	60	50	40	18	18
140	40	15	10	5	5	3
150	20					

(Note) Refer to the caution below when "G5" option is selected.

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
630	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	1

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	26
35	55	50	26
70	55	50	13
105	30	15	2

<Cautions on "G5" (specified grease specification) option>

When used in ambient temperature of under 10°C, use at the speed specified below.

* Lead 16: 560mm/s or less
* Lead 8: 280mm/s or less
* Lead 4: 140mm/s or less

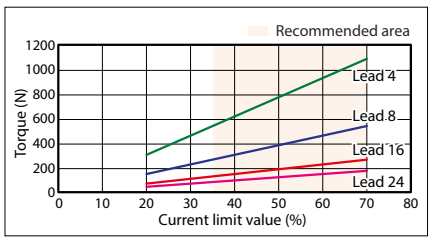
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 500 (Every 50mm)
24	Disabled	860 <640>
	Enabled	630 <420>
16	Disabled	640 <560>
	Enabled	420 <280>
8	Disabled	320 <280>
	Enabled	210
4	Disabled	150 <140>
	Enabled	105

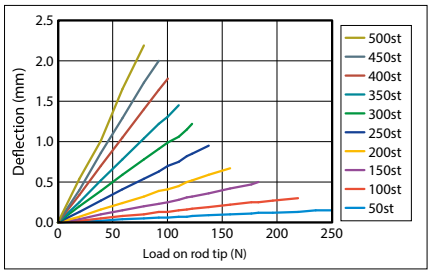
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod Deflection (Reference Values)

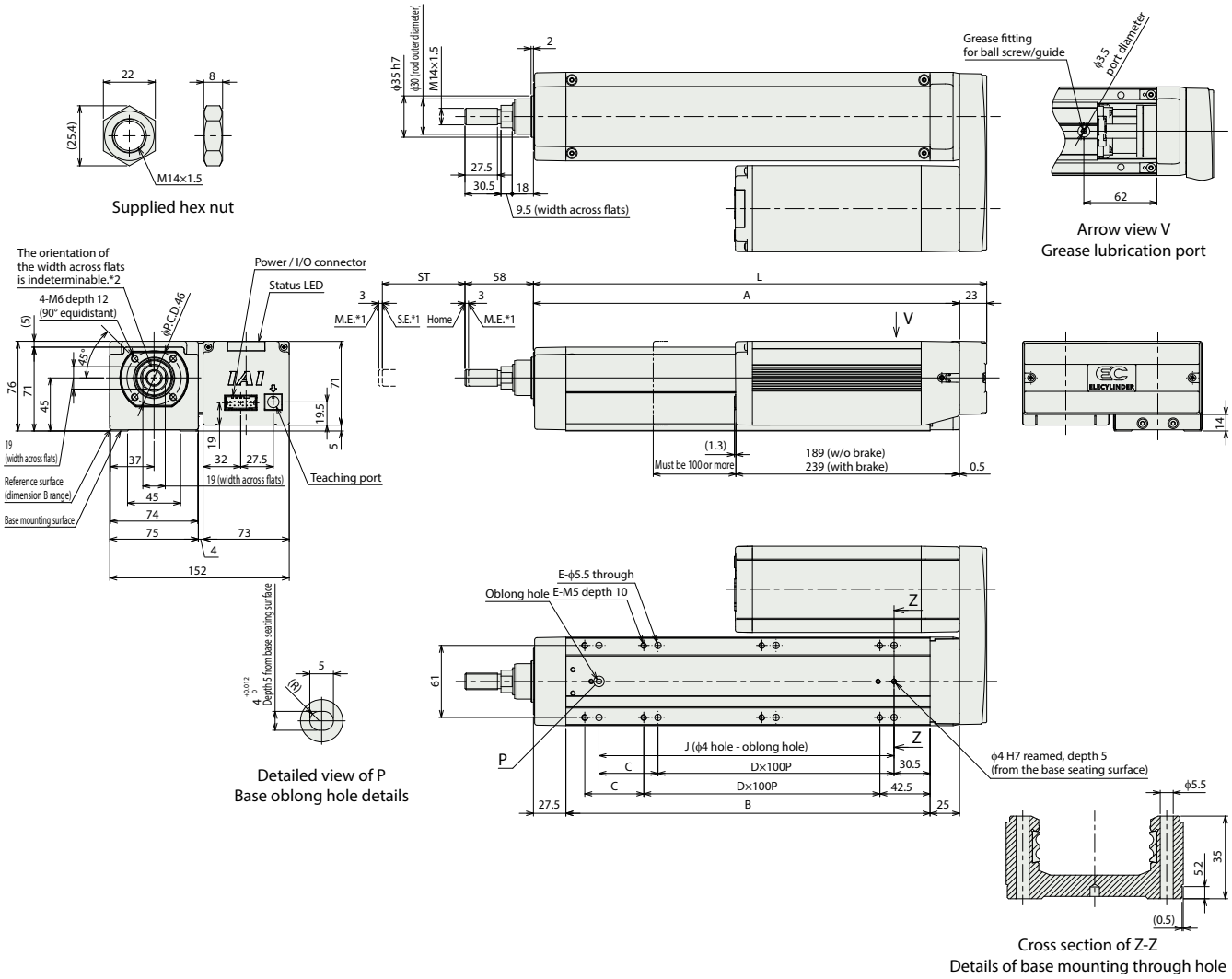


CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

EC-RR7□AHR

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	284	334	384	434	484	534	584	634	684	734
A	261	311	361	411	461	511	561	611	661	711
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5
C	50	0	50	0	50	0	50	0	50	0
D	1	2	2	3	3	4	4	5	5	6
E	6	6	8	8	10	10	12	12	14	14
J	150	200	250	300	350	400	450	500	550	600

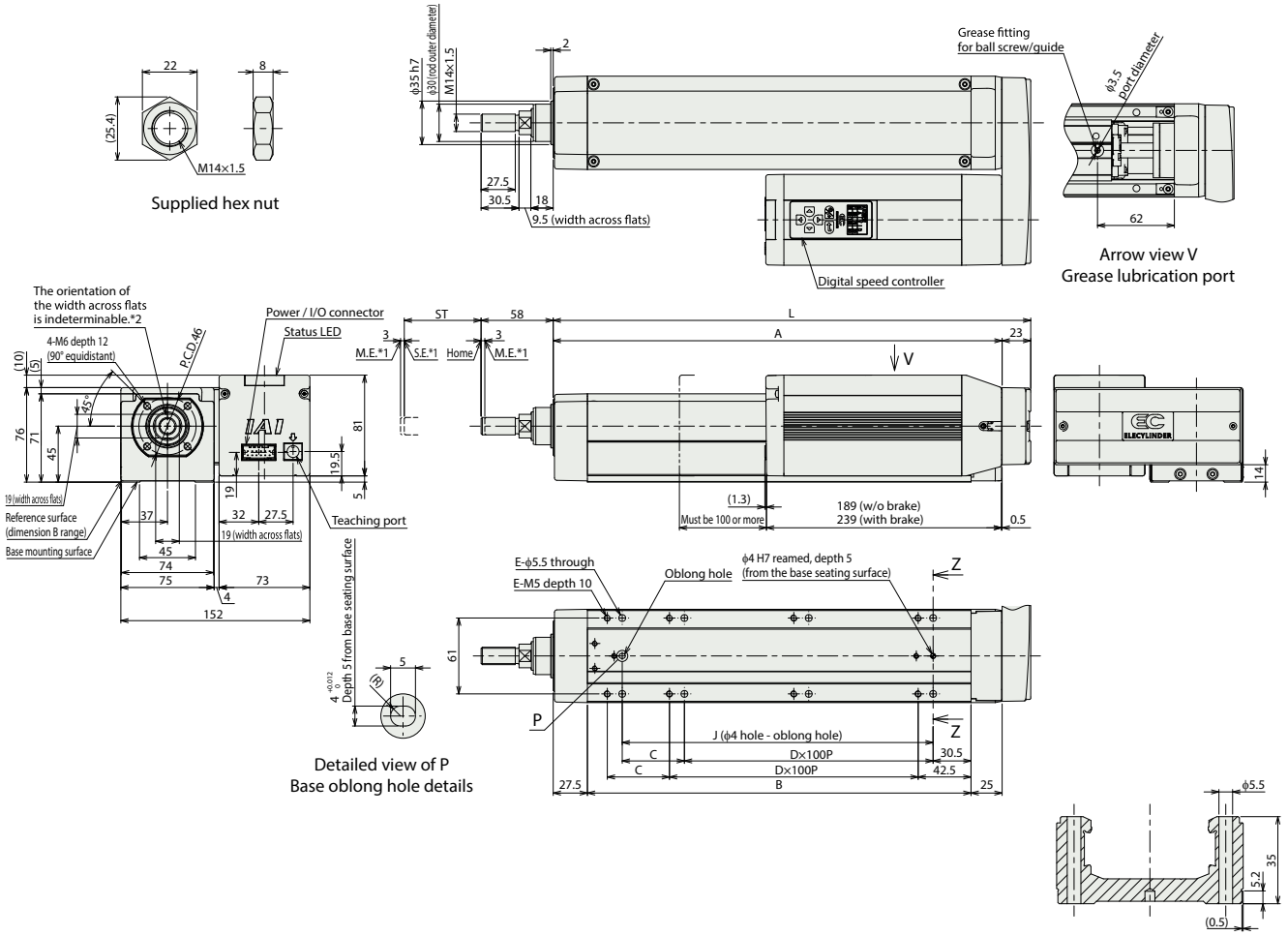
Mass by stroke

	Stroke	50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	4.6	5	5.3	5.6	6	6.3	6.6	7	7.3	7.6
	With brake	5.1	5.5	5.8	6.1	6.5	6.8	7.1	7.5	7.8	8.1

■ EC-DRR7□AHR <with digital speed controller>

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
(Note) The figures below are for motor side-mounted to left (ML).

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



■ Dimensions by stroke

Stroke	50	100	150	200	250	300	350	400	450	500
L	284	334	384	434	484	534	584	634	684	734
A	261	311	361	411	461	511	561	611	661	711
B	208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5
C	50	0	50	0	50	0	50	0	50	0
D	1	2	2	3	3	4	4	5	5	6
E	6	6	8	8	10	10	12	12	14	14
J	150	200	250	300	350	400	450	500	550	600

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	4.8	5.1	5.5	5.8	6.1	6.5	6.8	7.2	7.5	7.9
	With brake	5.4	5.7	6.1	6.4	6.7	7.1	7.4	7.8	8.1	8.5

■ Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RP4

Mini | Side-mounted Motor | Body Width 30 mm | 24v Stepper Motor

■ Model Specification Items

Series	Type	Lead	Stroke	Power / I/O cable length	Options
EC	RP4	H: 6mm M: 4mm L: 2mm	30: 30mm 50: 50mm 100: 100mm	Refer to "Power / I/O Cable Length" below	Refer to "Options" below



Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The feed screw has no rotation stop mechanism. Add a rotation stop mechanism such as a guide to the tip of the feed screw when in use (if there is no rotation stop, the feed screw will rotate instead of tip of the feed screw when in use (if there is no rotation stop, the feed screw will rotate instead of traveling back and forth). Also, do not use floating joints when connecting the rotation stop mechanism to the rod. Please contact to IAI for more information on the mounting method and conditions.
(2) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration.
(3) The value of the horizontal payload assumes that there is an external guide. Do not apply external force to the rod in a direction other than the moving direction.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Pay close attention to the installation orientation.

■ Stroke

Stroke (mm)	EC-RP4
30	○
50	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification	**G5**	2-381
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Push		Max. push force (N)	30	45	90
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

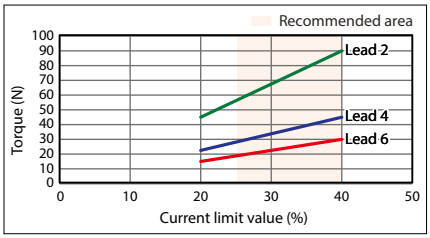
Item	Description
Driving system	Ball screw, ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod non-rotation precision	-
Operation life	5000km or 50 million reciprocations
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH 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 (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Stroke and Max Speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit: mm/s)

Correlation between Torque and Current Limit



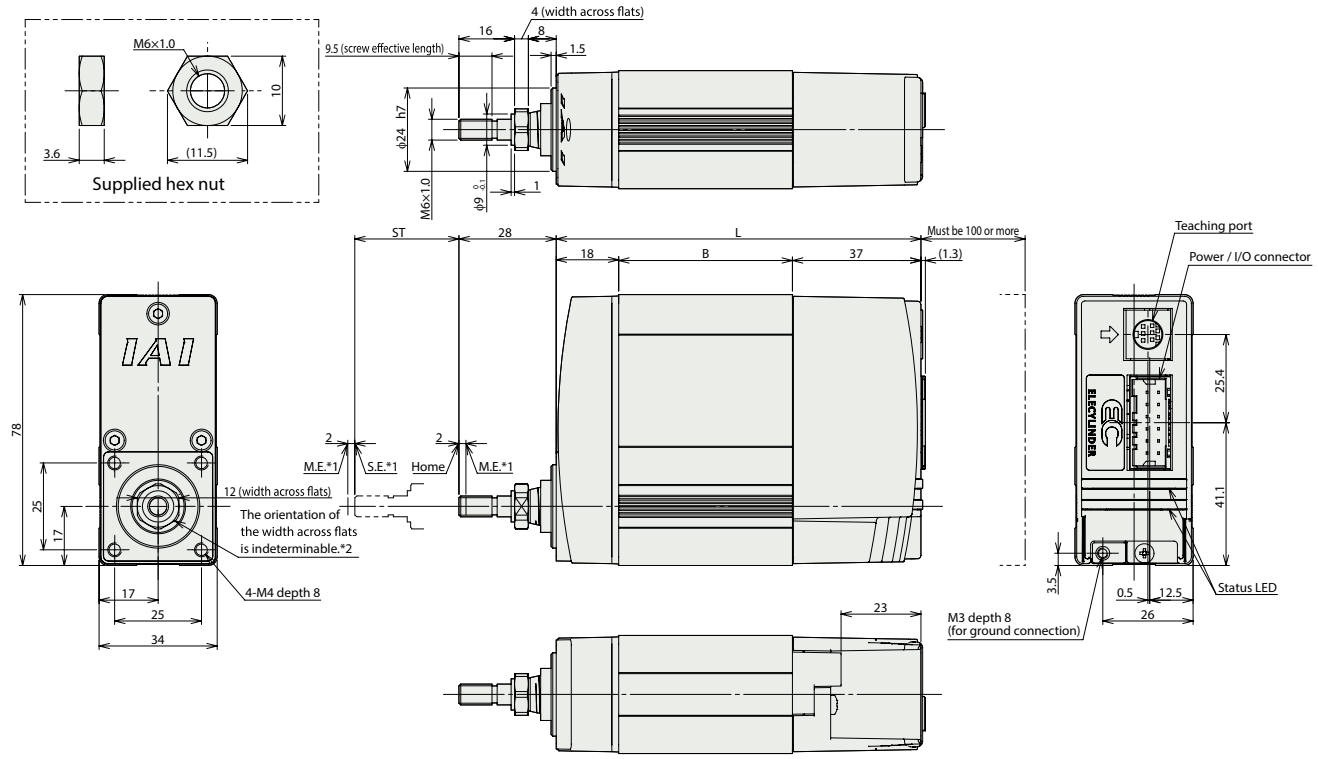
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

2D CAD 3D CAD

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



■ Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	105	125	125	125
	With brake	135	135	155	155
B	Without brake	50	70	70	70
	With brake	80	80	100	100

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Mass (kg)	Without brake	0.5	0.6	0.6	0.6
	With brake	0.7	0.7	0.7	0.7

Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	8	2.5
100	8	2.5

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RP5

Mini | Rod Type | Side-mounted Motor | Body Width 50 mm | 24v Stepper Motor

Model Specification Items

EC	-	RP5	-		-		-		-	
Series	-	Type	-	Lead	-	Stroke	-	Power / I/O cable length	-	Options
				S 16mm H 10mm M 5mm L 2.5mm		50 50mm 100 100mm 150 150mm		See power / I/O cable length below		See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-RP5
50	○
100	○
150	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification (Note 2)	G5	2-381
PNP specification	PN	2-384
Split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

POINT Selection Notes

(1) The feed screw has no rotation stop mechanism. Add a rotation stop mechanism such as a guide to the tip of the feed screw when in use. (If there is no rotation stop, the feed screw will rotate instead of traveling back and forth.) Also, do not use floating joints when connecting the rotation stop mechanism to the rod. Please contact IAI for more information on the mounting method and conditions.
(2) "Main Specifications" displays the payload's maximum value.
(3) The value of the horizontal payload assumes that there is an external guide. Do not apply external force to the rod in a direction other than the moving direction.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(5) Pay close attention to the installation orientation.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6.5	16	25	35
		Max. payload (kg) (energy-saving enabled)	6.5	15	25	35
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	600	300	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	6.5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	600	300	135
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	46	73	150	310
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	6.5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	150	150	150	150
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod non-rotation precision	-
Service life	5000km
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Table of Payload by Speed/Acceleration

■ **Energy-saving setting disabled** The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.25
140	6.5	4	3	2	1.5	1.25
280	6.5	4	3	2	1.5	1.25
420	6.5	4	2.5	1.5	1.5	1.25
560	5	3	2	1	1	1
700	3.5	1.5	1	0.5	1	1
800		1	1	0.5		0.5

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	16	11	7	4.5	2.5	2
175	16	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435	9.5	5	3	1.5	2	2
525	5	4	2	1	1.5	1
600	4.5	2	1	0.5	0.5	

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	22	6.5	4.5
85	25	22	6.5	4.5
130	25	20	5	4.5
215	15	15	4	4
260	10	10	2	2
300	5	5	1.5	1.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	35	6.5
135	30	2
150	10	

■ **Energy-saving setting enabled** The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5	2	1
420	4	1	0.5
560	2.5	0.5	0.5

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	6	2	1.5
435	4.5	1.5	0.5
525	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	25	5
85	25	5
130	25	5
215	8	2

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	34	6.5
105	25	1

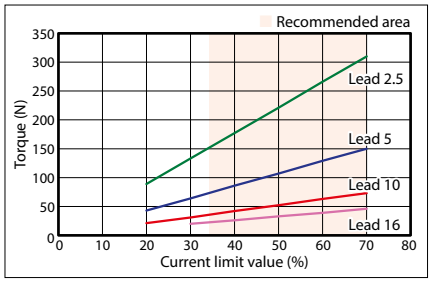
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)
16	Disabled	800
	Enabled	560
10	Disabled	600
	Enabled	525 <435>
5	Disabled	300
	Enabled	215
2.5	Disabled	150 <135>
	Enabled	105

(Unit: mm/s)

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

Correlation between Torque and Current Limit

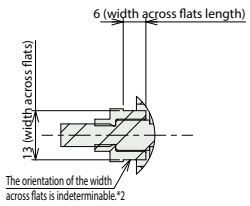


Dimensions

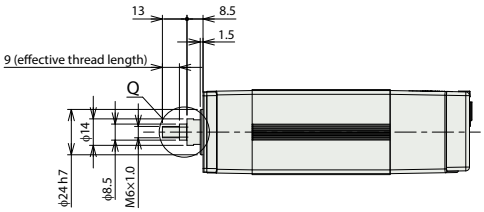
CAD drawings can be downloaded from our website.
www.iai-automation.com

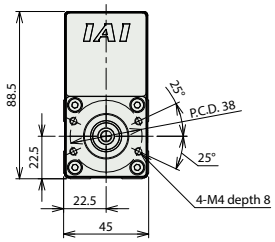
*1 When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.
*2 The direction of width across flats varies depending on the product. Those flats cannot be use for reference plane.

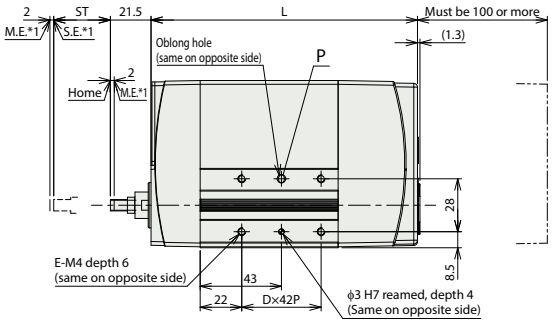
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

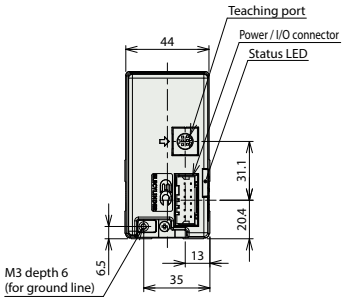


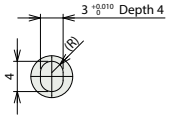
Detailed view of Q
Width across flats details



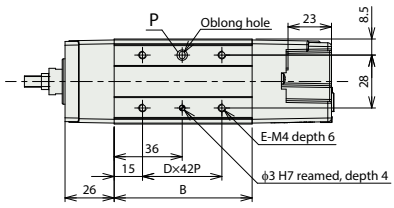


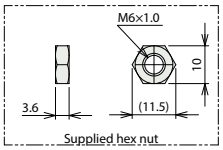






Detailed view of P
Oblong hole details





Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
L	Without brake	141	191	241	166	191	241
	With brake	191	191	241	204	204	241
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8

Mass by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	1.0	1.2	1.5	1.1	1.3	1.5
	With brake	1.4	1.4	1.6	1.5	1.5	1.7

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-GS4

Mini | Side-mounted Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	GS4		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			H 6mm M 4mm L 2mm		30 30mm 50 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



(Note) The photo above shows the left mounting specification (GT2).

CE RoHS 10

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed.
(2) Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to "Radial Load and Operation Life."
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(4) Be sure to select an option code for the guide mounting direction from the options table below.
(5) Pay close attention to the installation orientation.

■ Stroke

Stroke (mm)	EC-GS4
30	○
50	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification	**G5**	2-381
Guide right mount (Note 2)	**GT2**	2-381
Guide bottom mount (Note 2)	**GT3**	2-381
Guide left mount (Note 2)	**GT4**	2-381
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a model in the option column for Model Specification Items.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Push		Max. push force (N)	30	45	90
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

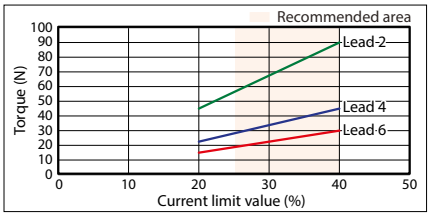
Item	Description
Driving system	Ball screw, ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod non-rotation precision	-
Operation life	5000km or 50 million reciprocations
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Stroke and Max Speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit: mm/s)

Correlation between Torque and Current Limit



Allowable Radial Load and Operation Life

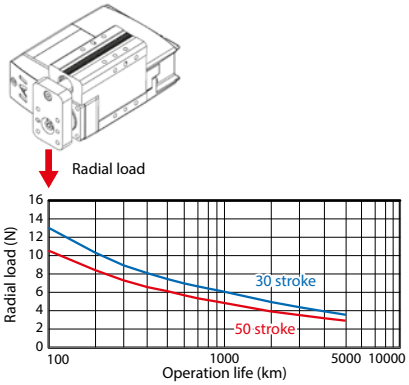


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

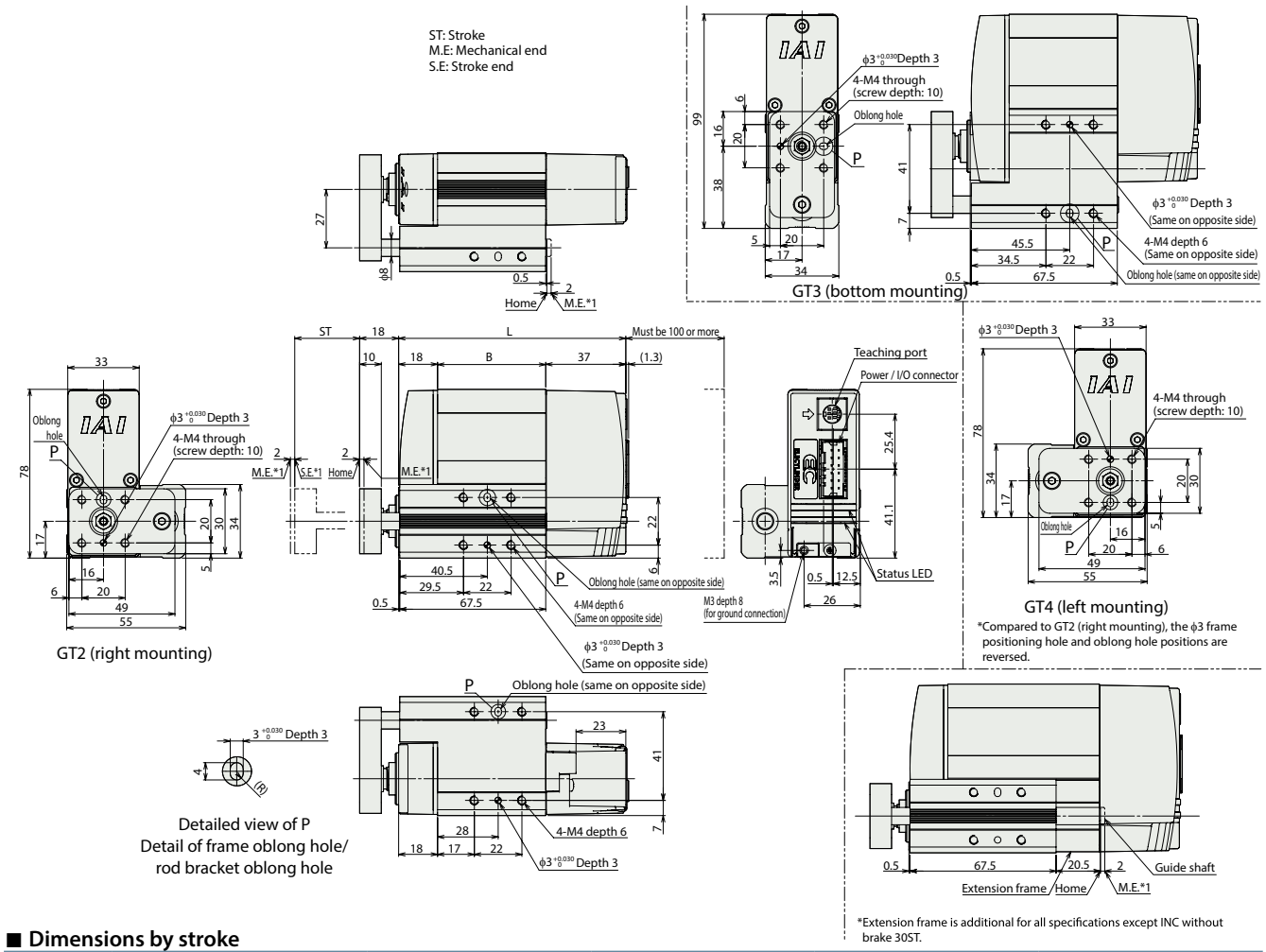
Lead 2

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	8	2.5
100	8	2.5

Dimensions

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.

CAD drawings can be downloaded from our website.
www.iai-automation.com



*Extension frame is additional for all specifications except INC without brake 30ST.

■ Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	105	125	125	125
	With brake	135	135	155	155
B	Without brake	50	70	70	70
	With brake	80	80	100	100

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Mass (kg)	Without brake	0.7	0.7	0.7	0.7
	With brake	0.8	0.8	0.9	0.9

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-GD4

Mini | Side-mounted Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	GD4		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			H 6mm M 4mm L 2mm		30 30mm 50 50mm 100 100mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed.
(2) Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to "Radial Load and Operation Life."
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(4) Pay close attention to the installation orientation.

■ Stroke

Stroke (mm)	EC-GD4
30	○
50	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification	**G5**	2-381
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Push		Max. push force (N)	30	45	90
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

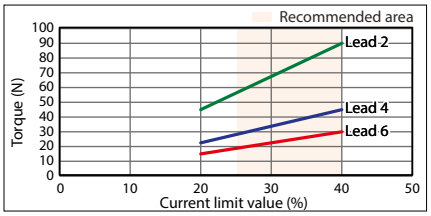
Item	Description
Driving system	Ball screw, ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod non-rotation precision	-
Operation life	5000km or 50 million reciprocations
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Stroke and Max Speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit: mm/s)

Correlation between Torque and Current Limit



Allowable Radial Load and Operation Life

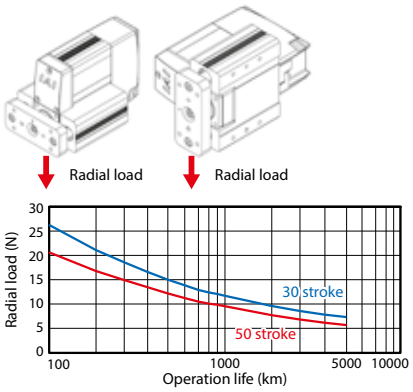


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	8	2.5
100	8	2.5

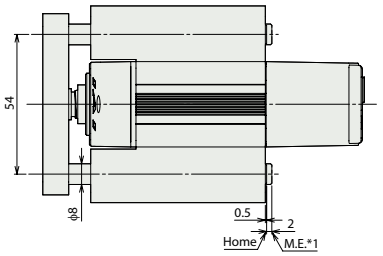
Dimensions

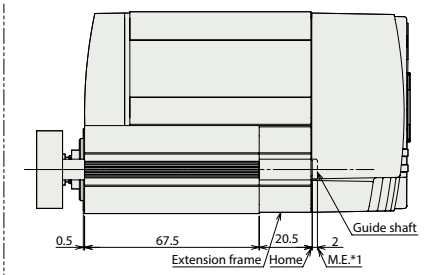
*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.

CAD drawings can be downloaded from our website.
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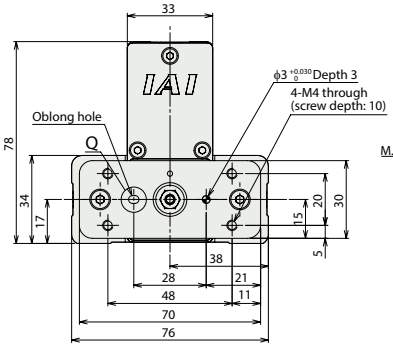
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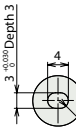
ST: Stroke
M.E: Mechanical end
S.E: Stroke end



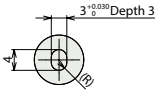


*Extension frame is additional for all specifications except INC without brake 30ST.

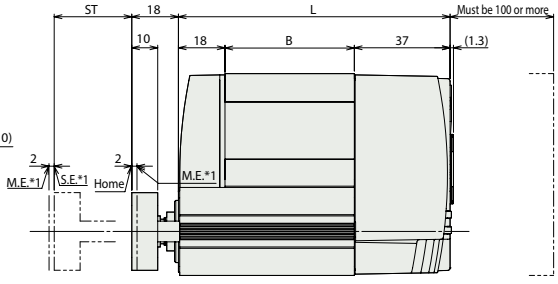


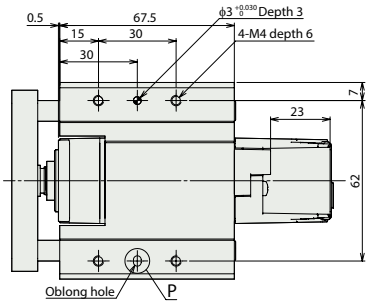


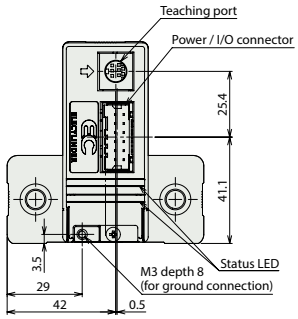
Detailed view of Q
Detail of rod bracket oblong hole



Detailed view of P
Detail of frame oblong hole







■ Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	105	125	125	125
	With brake	135	135	155	155
B	Without brake	50	70	70	70
	With brake	80	80	100	100

■ Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Mass (kg)	Without brake	0.9	0.9	0.9	0.9
	With brake	1.0	1.0	1.0	1.1

Applicable Controllers

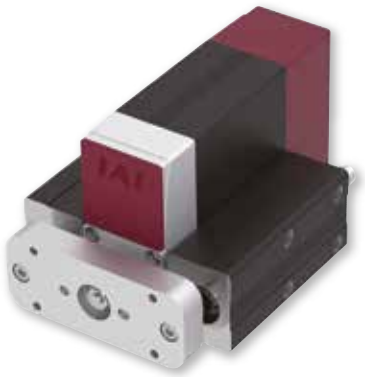
(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-GD5

Mini | Side-mounted Motor | Body Width 110 mm | 24v Stepper Motor

Model Specification Items

EC	-	GD5		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			S 16mm H 10mm M 5mm L 2.5mm		50 50mm 100 100mm 150 150mm		See power / I/O cable length below		See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-GD5
50	○
100	○
150	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification (Note 2)	G5	2-381
PNP specification	PN	2-384
Split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value.
(2) Horizontal payload is the value when also using a guide so that radial and moment loads are not applied to the rod. If not installing a guide, refer to "Radial Load and Service Life."
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(4) Pay close attention to the installation orientation.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6.5	16	25	35
		Max. payload (kg) (energy-saving enabled)	6.5	15	25	35
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	600	300	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	6.5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	600	300	135
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	46	73	150	310
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	6.5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	150	150	150	150
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod non-rotation precision	-
Service life	5000km
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Table of Payload by Speed/Acceleration

■ **Energy-saving setting disabled** The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.25
140	6.5	4	3	2	1.5	1.25
280	6.5	4	3	2	1.5	1.25
420	6.5	4	2.5	1.5	1.5	1.25
560	5	3	2	1	1	1
700	3.5	1.5	1	0.5	1	1
800		1	1	0.5		0.5

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	16	11	7	4.5	2.5	2
175	16	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435	9.5	5	3	1.5	2	2
525	5	4	2	1	1.5	1
600	4.5	2	1	0.5	0.5	

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	25	22	6.5	4.5
85	25	22	6.5	4.5
130	25	20	5	4.5
215	15	15	4	4
260	10	10	2	2
300	5	5	1.5	1.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	35	6.5
105	35	6.5
135	30	2
150	10	

■ **Energy-saving setting enabled** The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5	2	1
420	4	1	0.5
560	2.5	0.5	0.5

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	6	2	1.5
435	4.5	1.5	0.5
525	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	25	5
85	25	5
130	25	5
215	8	2

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	35	6.5
40	35	6.5
85	34	6.5
105	25	1

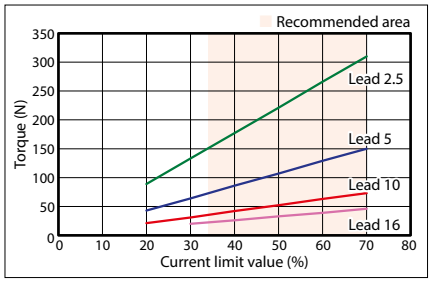
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 150 (Every 50mm)
16	Disabled	800
	Enabled	560
10	Disabled	600
	Enabled	525 <435>
5	Disabled	300
	Enabled	215
2.5	Disabled	150 <135>
	Enabled	105

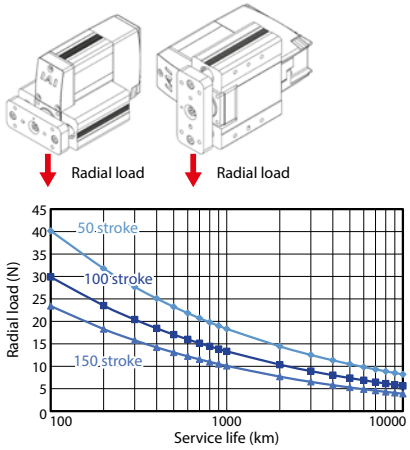
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Allowable Radial Load and Service Life

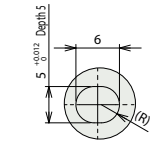


Dimensions

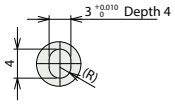
CAD drawings can be downloaded from our website.
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(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

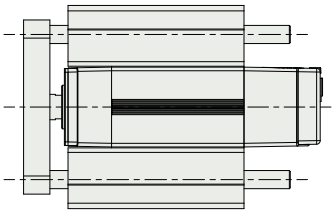
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

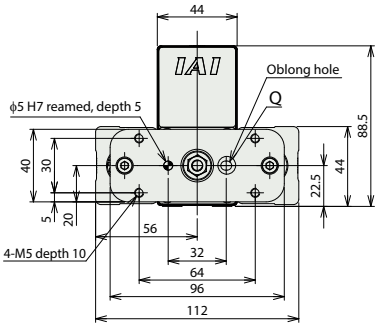


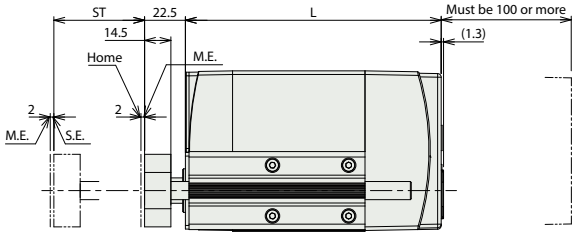
Detailed view of Q
Front plate oblong hole details

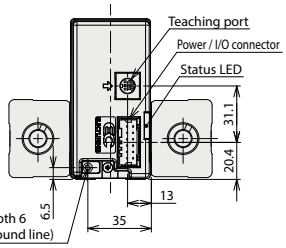


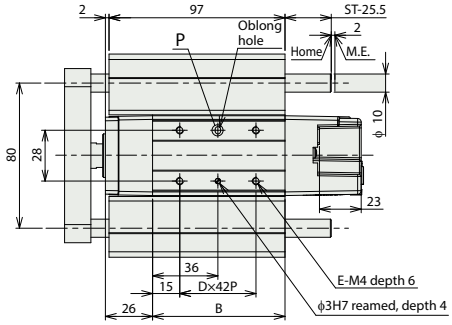
Detailed view of P
Body frame oblong hole details











Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
L	Without brake	141	191	241	166	191	241
	With brake	191	191	241	204	204	241
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8

Mass by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	2.1	2.4	2.7	2.2	2.4	2.7
	With brake	2.5	2.5	2.8	2.5	2.6	2.8

Applicable controllers

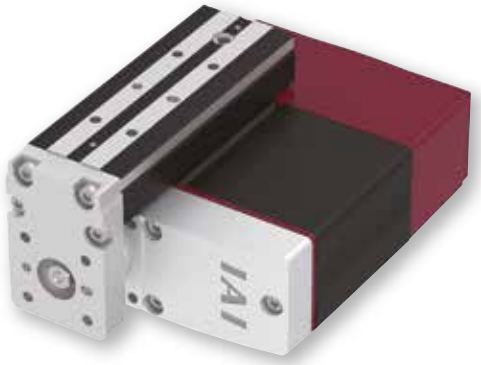
(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-TC4

Mini | Side-mounted Motor | Body Width 30 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	TC4		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			H 6mm M 4mm L 2mm		30 30mm 50 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



(Note) The photo above shows the table left mounting specification (GT4).

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Be sure to select an option code for the table mounting direction from the option list below.
(4) The reference values of the overhang load length are 100mm or less in the table top direction for the Ma direction, 50mm or less in the table tip direction, and 120mm or less in the Mb/Mc directions.
(5) Pay close attention to the installation orientation.

■ Stroke

Stroke (mm)	EC-TC4
30	○
50	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification	**G5**	2-381
Table right mount (Note 2)	**GT2**	2-381
Table bottom mount (Note 2)	**GT3**	2-381
Table left mount (Note 2)	**GT4**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a code in the "Options" field in "Model Specification Items."

■ Power / I/O Cable Length

■ Standard connector cables

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Push		Max. push force (N)	30	45	90
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

Item	Description
Driving system	Ball screw, ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Static allowable moment	Ma: 5.9N·m
	Mb: 5.9N·m
	Mc: 9.3N·m
Dynamic allowable moment (Note 6)	Ma: 3.77N·m
	Mb: 3.77N·m
	Mc: 6.01N·m
Operation life	5000km or 50 million reciprocations
Ambient operating temperature/humidity	0 ~ 40°C, 85% RH or less (Non-condensing)
Degree of protection	-
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
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. Confirm the operation life on P. 1-244.

■ Table type moment direction

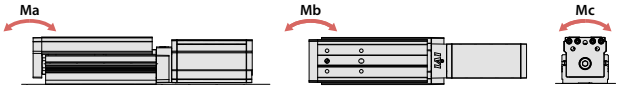


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

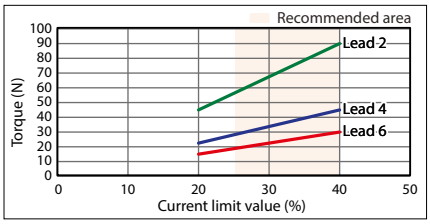
Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and Max Speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit: mm/s)

Correlation between Torque and Current Limit



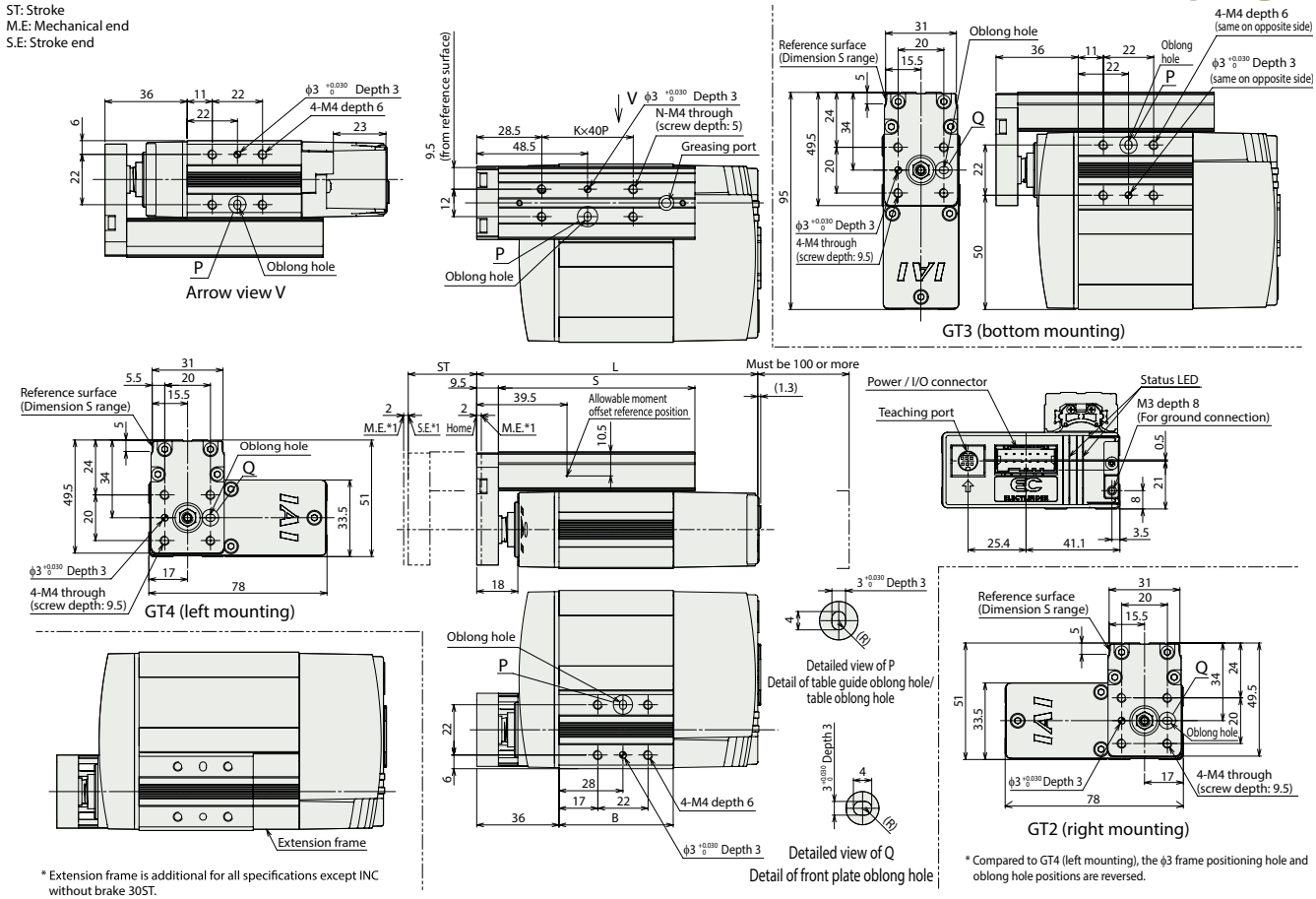
Dimensions

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.

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2D CAD 3D CAD

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



* Extension frame is additional for all specifications except INC without brake 30ST.

* Compared to GT4 (left mounting), the ϕ3 frame positioning hole and oblong hole positions are reversed.

■ Dimensions by stroke

Encoder Type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	123	143	143	143
	With brake	153	153	173	173
B	Without brake	50	70	70	70
	With brake	80	80	100	100
S		86	106	86	106
K		1	2	1	2
N		4	6	4	6

■ Mass by stroke

Encoder Type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Mass (kg)	Without brake	0.6	0.7	0.7	0.7
	With brake	0.8	0.8	0.8	0.8

Applicable Controllers

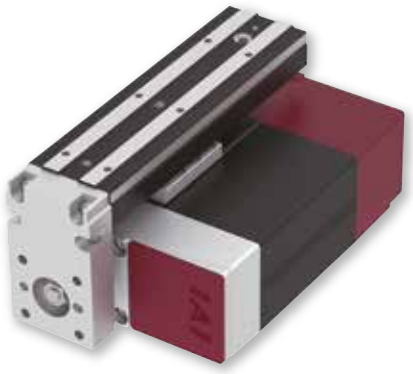
(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-TC5

Mini | Side-mounted Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	TC5		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			S 16mm		50 50mm		See power / I/O cable length below		See options below
			H 10mm		100 100mm				
			M 5mm		150 150mm				
			L 2.5mm						



Horizontal | Vertical | Side | Ceiling

(Note) The photo above shows table left mounting (GT4).

■ Stroke

Stroke (mm)	EC-TC5
50	○
100	○
150	○

■ Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Designated grease specification (Note 2)	**G5**	2-381
Table right mount (Note 3)	**GT2**	2-381
Table bottom mount (Note 3)	**GT3**	2-381
Table left mount (Note 3)	**GT4**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.
(Note 3) Be sure to enter a code in the option column for Model Specification Items.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value at 50 stroke.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Be sure to select an option code for the table mounting direction from the option price list below.
(4) The reference values of the overhang load length are 100m or less in the table top direction for the Ma direction, 150mm or less in the table tip direction, and 120mm or less in the Mb/Mc directions.
(5) Pay close attention to the installation orientation.

■ Power / I/O cable length

■ Standard connector cable

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

(Note 4) Only terminal block connector is supplied. Please refer to P. 25 for details.
(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 6) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6.5	12.5	12.5	12.5
		Max. payload (kg) (energy-saving enabled)	6.5	12.5	12.5	12.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	600	300	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	700	525	260	135
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	46	73	150	310
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	150	150	150	150
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Static allowable moment	Ma: 13.0Nm
	Mb: 18.6Nm
	Mc: 25.3Nm
Dynamic allowable moment (Note 7)	Ma: 4.98Nm
	Mb: 7.11Nm
	Mc: 9.68Nm
Service life	5000km
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 (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P. 1-244.

■ Table type moment direction

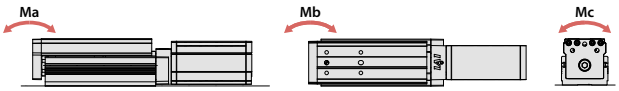


Table of Payload by Speed/Acceleration

■ **Energy-saving setting disabled** The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.5
140	6.5	4	3	2	1.5	1.5
280	6.5	4	3	2	1.5	1.5
420				1.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	12.5	11	7	4.5	2.5	2
175	12.5	11	7	4.5	2.5	2
350	9.5	7	4	2.5	2.5	2
435				1.5		

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	12.5	12.5	5	4.5
85	12.5	12.5	5	4.5
130	12.5	12.5	5	4.5
215	12	12	4	4
260	9	7	1	1
300	2	0.5		

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12.5	6.5
40	12.5	6.5
85	12.5	6.5
105	12.5	6.5
135	12.5	3
150	1	

[100mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.5
140	6.5	4	3	2	1.5	1.5
280	6.5	4	3	2	1.5	1.5
420	6.5	4	2.5	1.5	1.5	1.5
560		3	2	1		1
700				0.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	6.5	6.5	4.5	2.5	2
175	6.5	6.5	6.5	4.5	2.5	2
350	6.5	6.5	4	2.5	2.5	2
435	6.5	5	3	1.5	1.5	1
525		2	1.5	1		0.5
600		0.5				

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	6.5	6.5	5	4.5
85	6.5	6.5	5	4.5
130	6.5	6.5	5	4.5
215	6.5	6.5	4	4
260	6.5	6.5	1	1
300	2	0.5		

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	6.5	6.5
40	6.5	6.5
85	6.5	6.5
105	6.5	6.5
135	6.5	3
150	1	

[150mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	4	4	3	2	1.5	1.5
140	4	4	3	2	1.5	1.5
280	4	4	3	2	1.5	1.5
420	4	4	2.5	1.5	1.5	1.5
560	4	3	2	1	1	1
700		1.5	1	0.5		0.5
800			1	0.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	4	4	4	4	2.5	2
175	4	4	4	4	2.5	2
350	4	4	4	2.5	2.5	2
435	4	4	3	1.5	1.5	1
525	3	2	1.5	1	0.5	0.5
600		0.5				

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	4	4	5	4.5
85	4	4	5	4.5
130	4	4	5	4.5
215	4	4	4	4
260	4	4	1	1
300	2	0.5		

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	6.5	6.5
40	6.5	6.5
85	6.5	6.5
105	6.5	6.5
135	6.5	3
150	1	

■ **Energy-saving setting enabled** The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	12.5	5.5	2.5
175	12.5	5.5	2.5
350	5.5	2	0.5

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12.5	5
85	12.5	5
130	12.5	5
215	6	0.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12.5	6.5
40	12.5	6.5
85	12.5	6.5
105	12.5	1

[100mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	5.5	2.5
175	6.5	5.5	2.5
350	5.5	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	6.5	5
85	6.5	5
130	6.5	5
215	6	0.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	6	6.5
40	6	6.5
85	6	6.5
105	6	1

[150mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	4	2.5	1
140	4	2.5	1
280	4	2	1
420	4	1	0.5
560	2.5	0.5	0.5

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	4	4	2.5
175	4	4	2.5
350	4	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	4	5
85	4	5
130	4	5
215	4	0.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	4	6.5
40	4	6.5
85	4	6.5
105	4	1

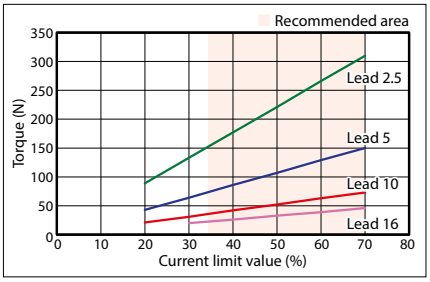
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 (mm)	100 (mm)	150 (mm)
16	Disabled	420 <280>	700 <560>	800 <700>
	Enabled	280	420	560
10	Disabled	435 <350>	600 <525>	
	Enabled	350	435 <350>	
5	Disabled	300 <260>		
	Enabled	215		
2.5	Disabled	150 <135>		
	Enabled	105		

(Unit: mm/s)

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

Correlation between Torque and Current Limit

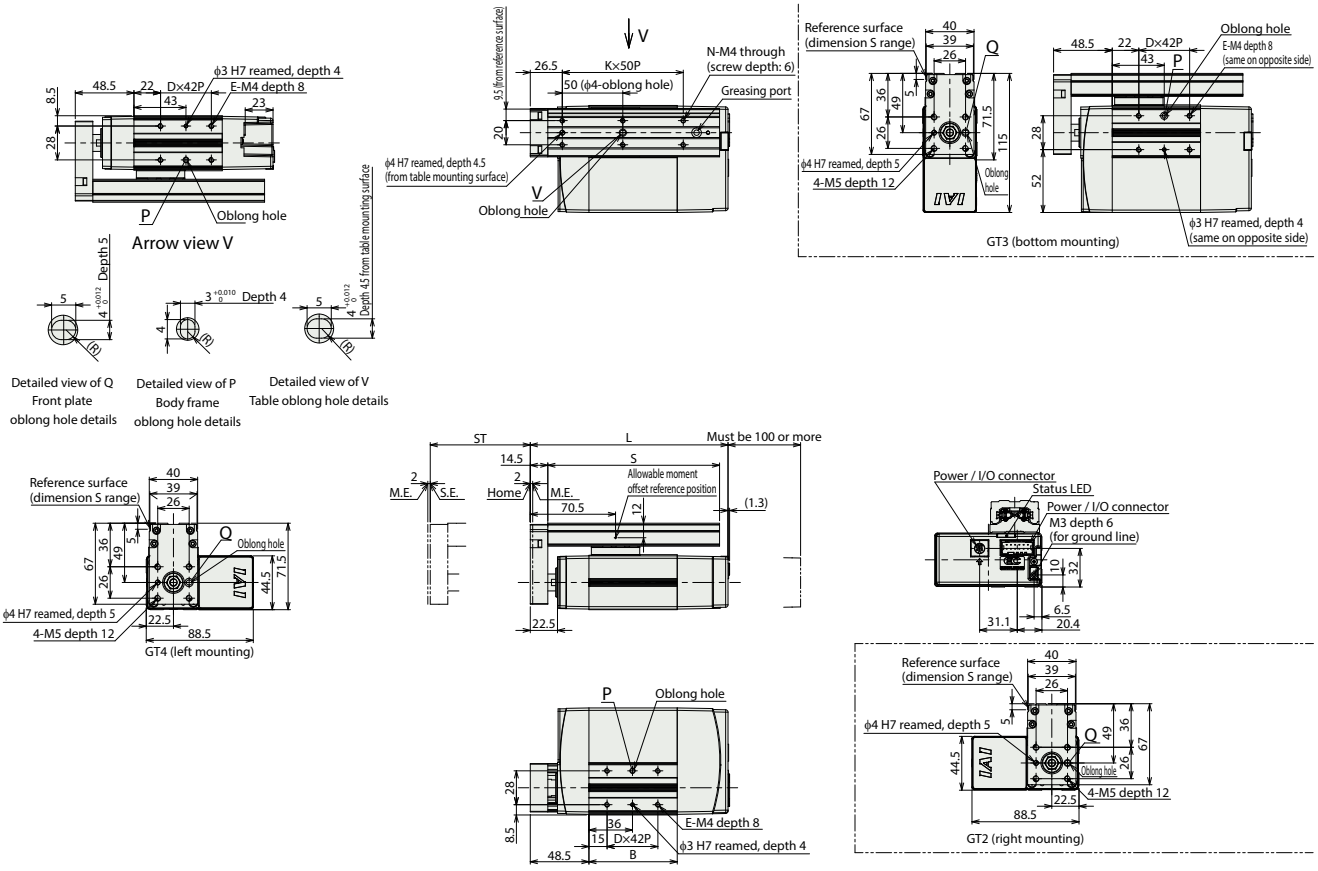


Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
L	Without brake	163.5	213.5	263.5	188.5	213.5	263.5
	With brake	213.5	213.5	263.5	226.5	226.5	263.5
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8
K	Without brake	2	3	4	2	3	4
	With brake	2	3	4	2	3	4
N	Without brake	6	8	10	6	8	10
	With brake	6	8	10	6	8	10
S	Without brake	142	192	242	142	192	242
	With brake	142	192	242	142	192	242

Mass by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	1.3	1.6	1.9	1.5	1.6	1.9
	With brake	1.7	1.8	2.1	1.8	1.9	2.1

Applicable controllers

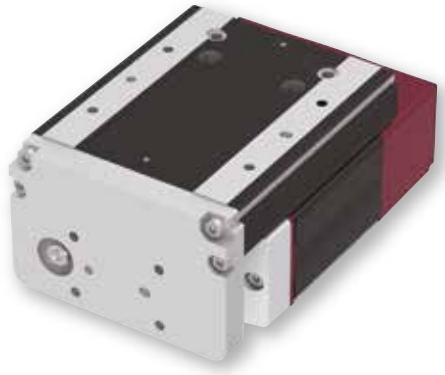
(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-TW4

Mini | Side-mounted Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	TW4		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			H 6mm M 4mm L 2mm		30 30mm 50 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) The reference values of the overhang load length are 100mm or less in the table top direction for the Ma direction, 50mm or less in the table tip direction, and 120mm or less in the Mb/Mc directions.
(4) Pay close attention to the installation orientation.

■ Stroke

Stroke (mm)	EC-TW4
30	○
50	○

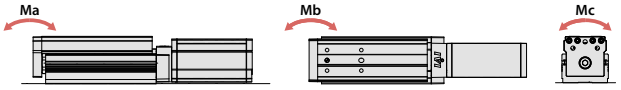
■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Specified grease specification	**G5**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Table type moment direction



■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	2.5	4	8
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.3
Vertical	Payload	Max. payload (kg)	1	1.5	2.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	300	200	100
		Min. speed (mm/s)	7.5	5	2.5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.3
Push		Max. push force (N)	30	45	90
		Max. push speed (mm/s)	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1	1.5	2.5
Stroke		Min. stroke (mm)	30	30	30
		Max. stroke (mm)	50	50	50
		Stroke pitch (mm)	20	20	20

Item	Description
Driving system	Ball screw, ϕ6mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Static allowable moment	Ma: 8.3N·m
	Mb: 8.3N·m
	Mc: 26.3N·m
Dynamic allowable moment (Note 5)	Ma: 5.4N·m
	Mb: 5.4N·m
	Mc: 17.2N·m
Operation life	5000km or 50 million reciprocations
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

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

Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	2.5	2.5	1.5	1.5	1	1
300	2.5	2.5	1.5	1.5	1	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	4	4	2	2	1.5	1.5
200	4	4	2	2	1.5	1.5

Lead 2

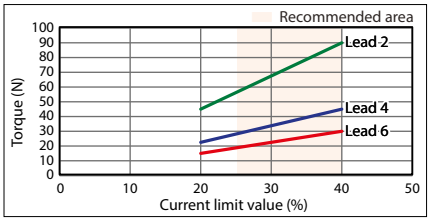
Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	8	2.5
100	8	2.5

Stroke and Max Speed

Lead (mm)	30 (mm)	50 (mm)
6	300	
4	200	
2	100	

(Unit: mm/s)

Correlation between Torque and Current Limit



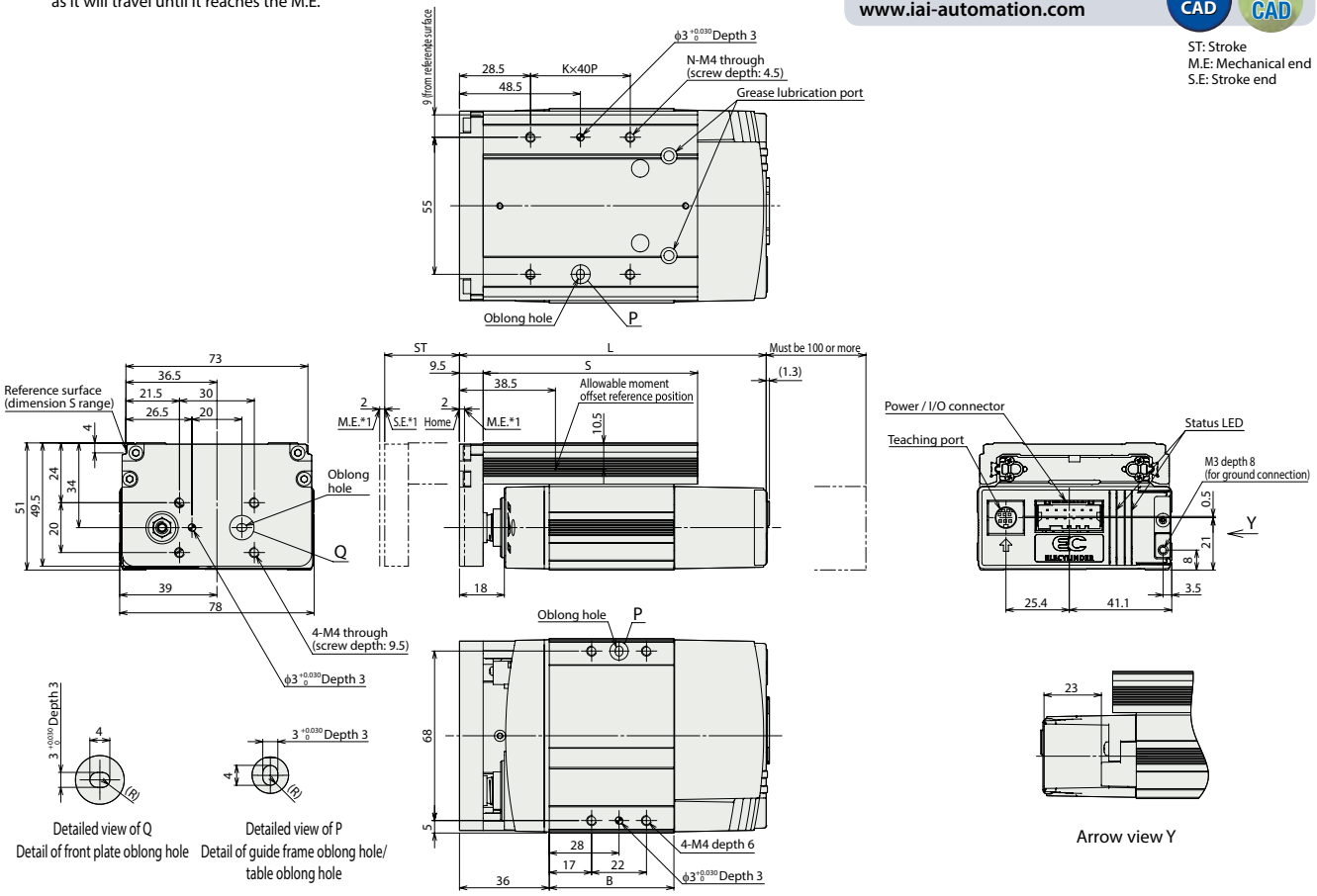
Dimensions

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.

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2D CAD 3D CAD

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



Dimensions by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
L	Without brake	123	143	143	143
	With brake	153	153	173	173
B	Without brake	50	70	70	70
	With brake	80	80	100	100
S		86	106	86	106
K		1	2	1	2
N		4	6	4	6

Mass by stroke

Encoder type		Incremental		Battery-less absolute	
Stroke		30	50	30	50
Mass (kg)	Without brake	0.8	0.9	0.8	0.9
	With brake	0.9	1.0	1.0	1.0

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-TW5

Mini | Side-mounted Motor | Body Width 90 mm | 24v Stepper Motor

Model Specification Items

EC	-	TW5		-		-		-	
Series	-	Type	Lead	-	Stroke	-	Power / I/O cable length	-	Options
			S 16mm H 10mm M 5mm L 2.5mm		50 50mm 100 100mm 150 150mm		See power / I/O cable length below		See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	EC-TW5
50	○
100	○
150	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Designated grease specification (Note 2)	G5	2-381
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
Split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The operating temperature environment for designated grease specification (G5) is 10°C to 40°C.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value at 50mm stroke.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) The reference values of the overhang load length are 100m or less in the table top direction for the Ma direction, 150mm or less in the table tip direction, and 120mm or less in the Mb/Mc directions.
(4) Pay close attention to the installation orientation.

Power / I/O cable length

Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6.5	16	20	20
		Max. payload (kg) (energy-saving enabled)	6.5	15	20	20
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	700	525	300	135
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2.5	5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	560	435	260	135
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	46	73	150	310
		Max. push speed (mm/s)	40	30	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	150	150	150	150
		Stroke pitch (mm)	50	50	50	50

Item	Description
Driving system	Ball screw, ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Static allowable moment	Ma: 32.3Nm
	Mb: 23.5Nm
	Mc: 45.0Nm
Dynamic allowable moment (Note 6)	Ma: 11.6Nm
	Mb: 16.6Nm
	Mc: 34.0Nm
Service life	5000km
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 (□35)
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.

■ Table type moment direction

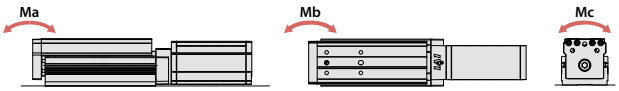


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.5
140	6.5	4	3	2	1.5	1.5
280	6.5	4	3	2	1.5	1.5
420				1.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	16	11	7	4.5	2.5	2
175	16	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435				0.5		

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	20	20	5	4.5
85	20	20	5	4.5
130	20	17.5	5	4.5
215	20	13	4	4
260	7	6.5	1	1
300	1			

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	20	6.5
40	20	6.5
85	20	6.5
105	20	6.5
135	18	1.5

[100mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.5
140	6.5	4	3	2	1.5	1.5
280	6.5	4	3	2	1.5	1.5
420	6.5	4	2.5	1.5	1.5	1.5
560		3	2	1		0.5
700				0.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15.5	11	7	4.5	2.5	2
175	15.5	11	7	4.5	2.5	2
350	12.5	7	4	2.5	2.5	2
435	9.5	5	3	0.5	1	1
525		2	1			

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	15.5	15.5	5	4.5
85	15.5	15.5	5	4.5
130	15.5	15.5	5	4.5
215	15.5	13	4	4
260	7	6.5	1	1
300	1			

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	15.5	6.5
40	15.5	6.5
85	15.5	6.5
105	15.5	6.5
135	15.5	1.5

[150mm stroke]

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	6.5	4	3	2	1.5	1.5
140	6.5	4	3	2	1.5	1.5
280	6.5	4	3	2	1.5	1.5
420	6.5	4	2.5	1.5	1.5	1.5
560	5	3	2	1	0.5	0.5
700		1.5	1	0.5		

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	10	10	7	4.5	2.5	2
175	10	10	7	4.5	2.5	2
350	10	7	4	2.5	2.5	2
435	9.5	5	3	0.5	1	1
525	4.5	2	1			

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	10	10	5	4.5
85	10	10	5	4.5
130	10	10	5	4.5
215	10	10	4	4
260	7	6.5	1	1
300	1			

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	10	6.5
40	10	6.5
85	10	6.5
105	10	6.5
135	10	1.5

■ Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

[50mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	5	2	0.5

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	20	5
85	20	5
130	20	5
215	4.5	

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	20	6.5
40	20	6.5
85	20	4.5
105	18	1

[100mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	15	5.5	2.5
175	15	5.5	2.5
350	5	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	15.5	5
85	15.5	5
130	15.5	5
215	4.5	

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	15.5	6.5
40	15.5	6.5
85	15.5	4.5
105	15.5	1

[150mm stroke]

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	6.5	2.5	1
140	6.5	2.5	1
280	5.5	2	1
420	4	1	0.5
560	2	0.5	

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	5.5	2.5
175	10	5.5	2.5
350	5	2	0.5
435	0.5		

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	10	5
85	10	5
130	10	5
215	4.5	

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	10	6.5
40	10	6.5
85	10	4.5
105	10	1

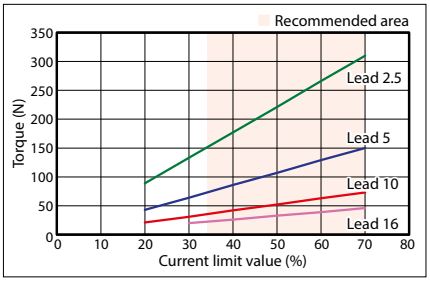
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 (mm)	100 (mm)	150 (mm)
16	Disabled	420 <280>	700 <560>	
	Enabled	280	420	560 <420>
10	Disabled	435 <350>	525 <435>	
	Enabled	350	435 <350>	
5	Disabled	300 <260>		
	Enabled	215 <130>		
2.5	Disabled	135		
	Enabled	105		

(Unit: mm/s)

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

Correlation between Torque and Current Limit

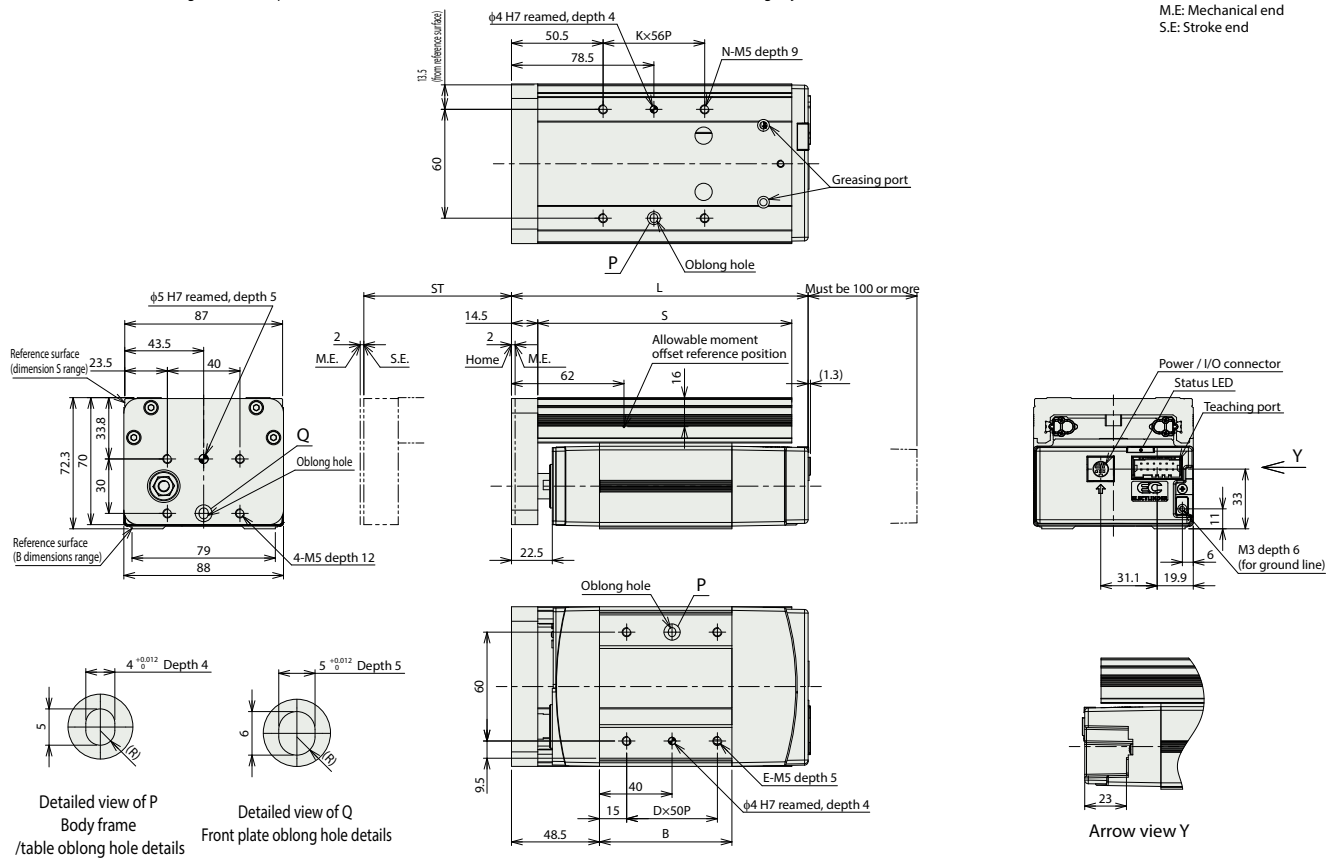


Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

(Note) When returning to the home position, the rod will move to the M.E. Be careful of interference with surrounding objects.

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



Detailed view of P
Body frame
/table oblong hole details

Detailed view of Q
Front plate oblong hole details

Arrow view Y

■ Dimensions by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
L	Without brake	163.5	213.5	263.5	188.5	213.5	263.5
	With brake	213.5	213.5	263.5	226.5	226.5	263.5
B	Without brake	73	123	173	98	123	173
	With brake	123	123	173	136	136	173
D	Without brake	1	2	3	1	2	3
	With brake	2	2	3	2	2	3
E	Without brake	4	6	8	4	6	8
	With brake	6	6	8	6	6	8
K	Without brake	1	2	3	1	2	3
	With brake	1	2	3	1	2	3
N	Without brake	4	6	8	4	6	8
	With brake	4	6	8	4	6	8
S	Without brake	140	190	240	140	190	240
	With brake	140	190	240	140	190	240

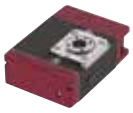
■ Mass by stroke

Encoder type		Incremental			Battery-less absolute		
Stroke		50	100	150	50	100	150
Mass (kg)	Without brake	1.7	2.2	2.6	1.9	2.2	2.6
	With brake	2.2	2.4	2.8	2.3	2.5	2.8

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

Gripper / Rotary / Stopper

Stepper motors			
Gripper	EC-GRB8	**2-301**	
	EC-GRB10	**2-305**	
	EC-GRB13	**2-309**	
Rotary	EC-RTC9	**2-313**	
	EC-RTC12	**2-317**	
Stopper	EC-ST15	**2-321**	

EC-GRB8

Slider | 2-Finger | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	GRB8	M	-	20	-		-	
Series		Type	Deceleration ratio		Stroke		Power / I/O cable length		Option
			M: Trapezoidal screw, Lead 1.5mm, Pulley deceleration ratio 1.5		20: 20mm (One side 10mm)		Refer to Power / I/O cable length below		Refer to Option below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

By Stroke

Stroke (mm)	EC-GRB8
20	○

Option * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Cable fixing bracket (front)	**FST**	2-373
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Cable fixing bracket (top) (Note 2)	**TST**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected only when selecting the 4-way connector cable.

Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

■ 4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

POINT Selection Notes

(1) The maximum open/close speed in the Main Specifications represents the operation speed for one side. The relative operation speed is twice the value.
(2) The maximum grip force in the Main Specifications is the total of the grip force of both fingers when the grip point distance and overhang distance are both 0. For the workpiece weight which can actually be conveyed, refer to the Confirmation of Grip Point Distance.
(3) When gripping the workpiece, be sure to use push-motion operation.
(4) The workpiece grip force will be maintained via self-lock even during power cutoffs. To release the workpiece being gripped during a power cutoff, turn the open/close screw on the side, or remove the finger attachment to release the workpiece.

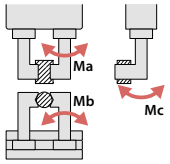
Main Specifications

Item		Description
Lead	Trapezoidal screw lead (mm)	1.5
	Pulley deceleration ratio	1.5
Grip operation	Max. grip force (N) (both sides)	28
	Max. speed during grip operation (mm/s) (one side)	5
Approach operation	Max. speed (mm/s) (one side)	45
	Min. speed (mm/s) (one side)	5
	Rated acceleration/deceleration (G) (one side)	0.3
	Max. acceleration/deceleration (G) (one side)	0.3
Brake	Brake specification	-
	Brake holding force (kgf)	-
Stroke (one side)	Min. stroke (mm) (one side)	10
	Max. stroke (mm) (one side)	10

Item	Description
Drive system	Trapezoidal screw ϕ8
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Backlash (one side)	0.2mm or less
Linear guide	Limited guide
Static allowable moment	Ma: 3.60N•m
	Mb: 3.60N•m
	Mc: 10.2N•m
Vertical allowable load (Note 6)	598N
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□20)
Encoder type	Incremental (no setting for battery-less absolute option)
Number of encoder pulses	800 pulse/rev

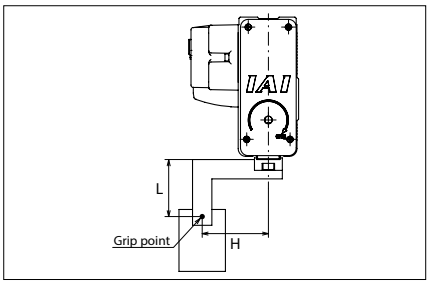
(Note 6) Use at a load exceeding the value above could reduce operation life or lead to damage.

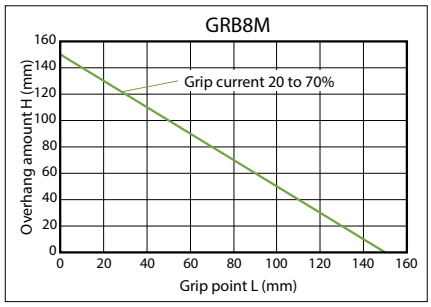
■ Slide type moment direction



Confirmation of Grip Point Distance

Use with distance (L, H) from finger (jaw) mounting surface to grip point within the range in the graph.

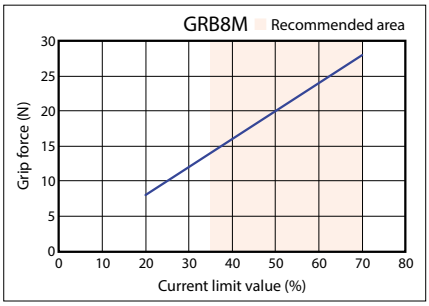




(Note) Use beyond the limited range will cause excess moment to operate on the finger sliding part and interior mechanisms, negatively affecting operation life.

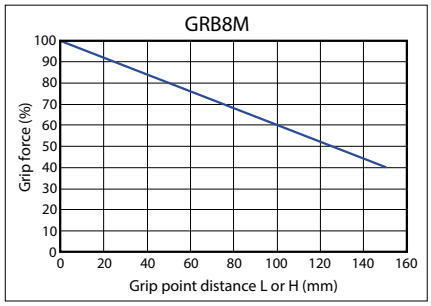
Grip Force

■ Correlation diagram between grip force and current limit value



(Note) Total value of both fingers when grip point distance (L, H) is 0.
(Note) Guideline values. There is variation of 0 to 60%. In particular, current limit values set outside the recommended range (colored part of the graph) are more likely to lead to variation.
(Note) For gripping (pushing), the speed is fixed at 5mm/s.

■ Guidelines for grip point distance and grip force

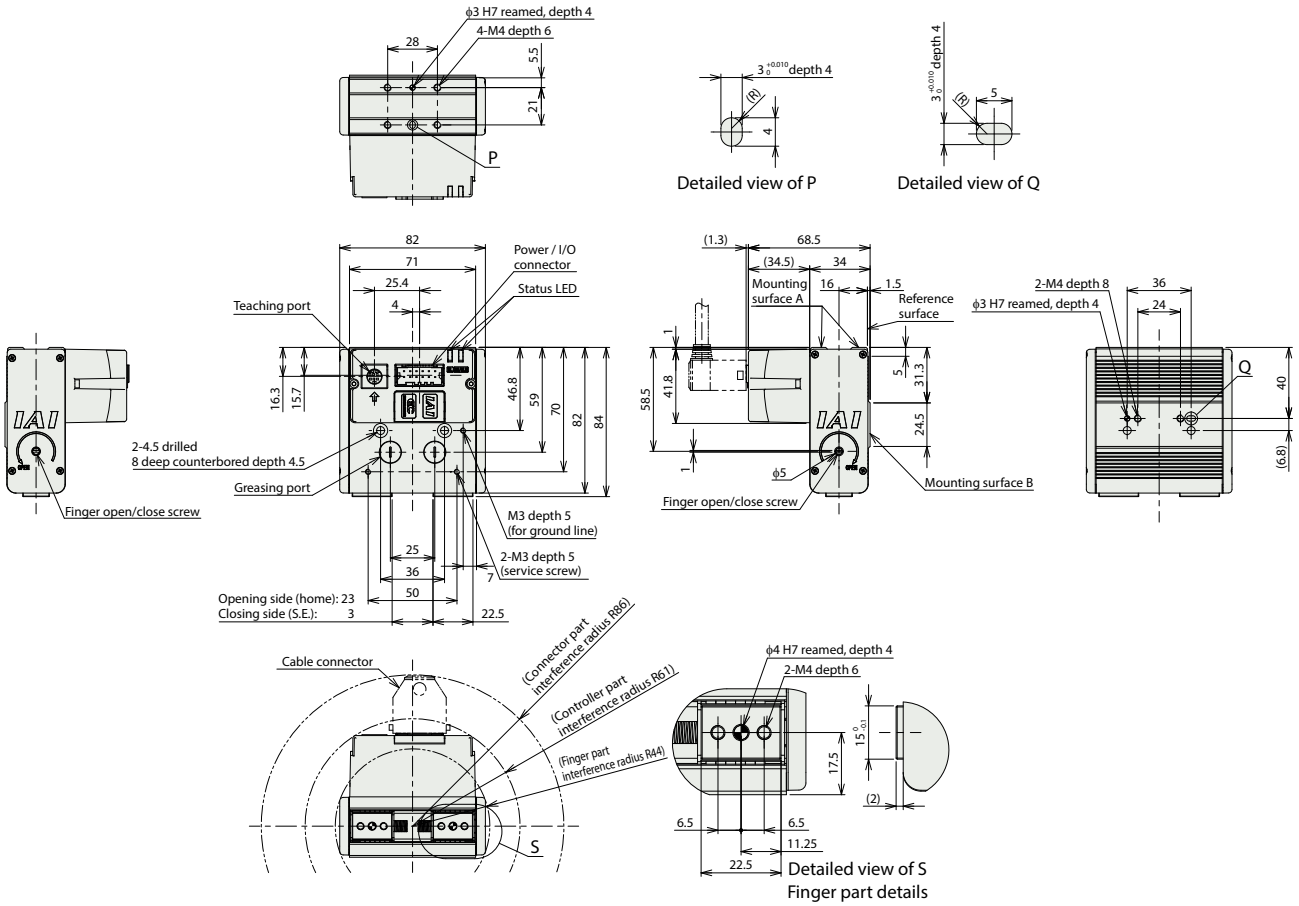


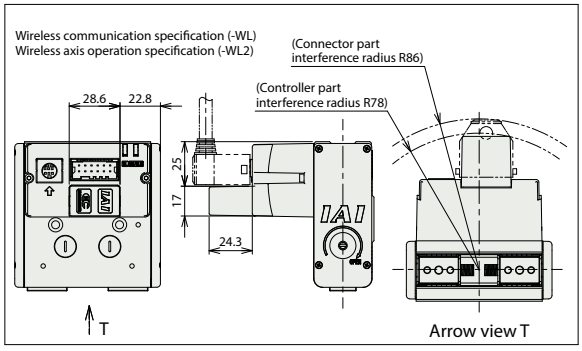
(Note) Shows grip force of overhang position when maximum grip force is set to 100%. The results may differ due to the rigidity of the finger attachment used.

Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

(Note) The opening side is home as standard. To set the closing side as home, designate the option (model: NM). S.E: Stroke end





Mass

Item	Description
Mass	0.51kg

Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-GRB10

Slider | 2-Finger | Body Width 100 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	GRB10	-	M	-	30	-		-	
Series		Type		Deceleration ratio		Stroke		Power / I/O cable length		Option
				M: Trapezoidal screw, Lead 1.5mm, Pulley deceleration ratio 1.15		30: 30mm (One side 15 mm)		Refer to Power / I/O cable length below		Refer to Option below



Horizontal | Vertical | Side | Ceiling

■ By Stroke

Stroke (mm)	EC-GRB10
30	○

■ Option * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Cable fixing bracket (front)	**FST**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Cable fixing bracket (top) (Note 2)	**TST**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected only when selecting the 4-way connector cable.

■ Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

■ 4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

POINT Selection Notes

(1) The maximum open/close speed in the Main Specifications represents the operation speed for one side. The relative operation speed is twice the value.
(2) The maximum grip force in the Main Specifications is the total of the grip force of both fingers when the grip point distance and overhang distance are both 0. For the workpiece weight which can actually be conveyed, refer to the Confirmation of Grip Point Distance.
(3) When gripping the workpiece, be sure to use push-motion operation.
(4) The workpiece grip force will be maintained via self-lock even during power cutoffs. To release the workpiece being gripped during a power cutoff, turn the open/close screw on the side, or remove the finger attachment to release the workpiece.

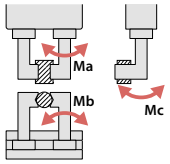
Main Specifications

Item		Description
Lead	Trapezoidal screw lead (mm)	1.5
	Pulley deceleration ratio	1.15
Grip operation	Max. grip force (N) (both sides)	100
	Max. speed during grip operation (mm/s) (one side)	5
Approach operation	Max. speed (mm/s) (one side)	95
	Min. speed (mm/s) (one side)	5
	Rated acceleration/deceleration (G) (one side)	0.3
	Max. acceleration/deceleration (G) (one side)	0.3
Brake	Brake specification	-
	Brake holding force (kgf)	-
Stroke (one side)	Min. stroke (mm) (one side)	15
	Max. stroke (mm) (one side)	15

Item	Description
Drive system	Trapezoidal screw ϕ8
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Backlash (one side)	0.2mm or less
Linear guide	Limited guide
Static allowable moment	Ma: 3.60N•m
	Mb: 3.60N•m
	Mc: 10.2N•m
Vertical allowable load (Note 6)	598N
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental (standard) /battery-less absolute (option)
Number of encoder pulses	800 pulse/rev

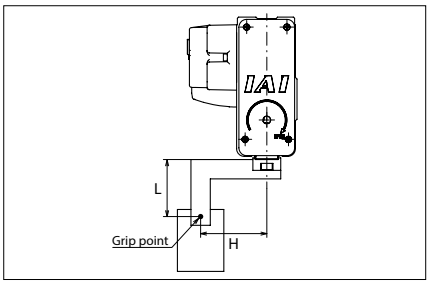
(Note 6) Use at a load exceeding the value above could reduce operation life or lead to damage.

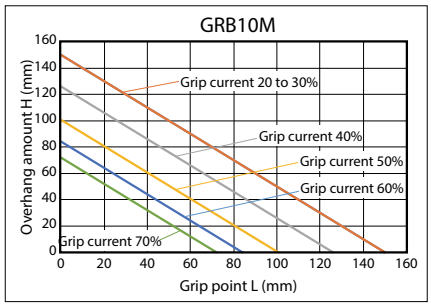
■ Slide type moment direction



Confirmation of Grip Point Distance

Use with distance (L, H) from finger (jaw) mounting surface to grip point within the range in the graph.

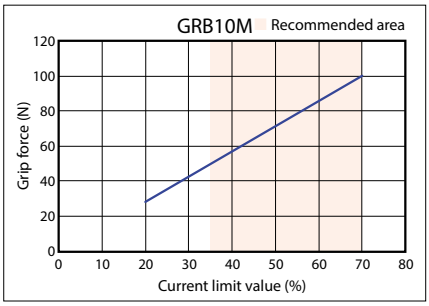




(Note) Use beyond the limited range will cause excess moment to operate on the finger sliding part and interior mechanisms, negatively affecting operation life.

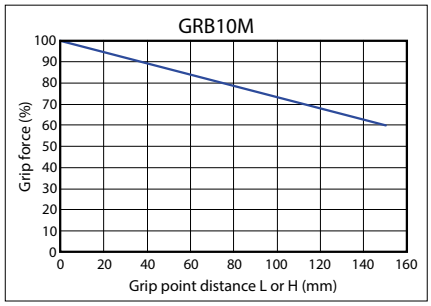
Grip Force

■ Correlation diagram between grip force and current limit value



(Note) Total value of both fingers when grip point distance (L, H) is 0.
(Note) Guideline values. There is variation of 0 to 60%. In particular, current limit values set outside the recommended range (colored part of the graph) are more likely to lead to variation.
(Note) For gripping (pushing), the speed is fixed at 5mm/s.

■ Guidelines for grip point distance and grip force



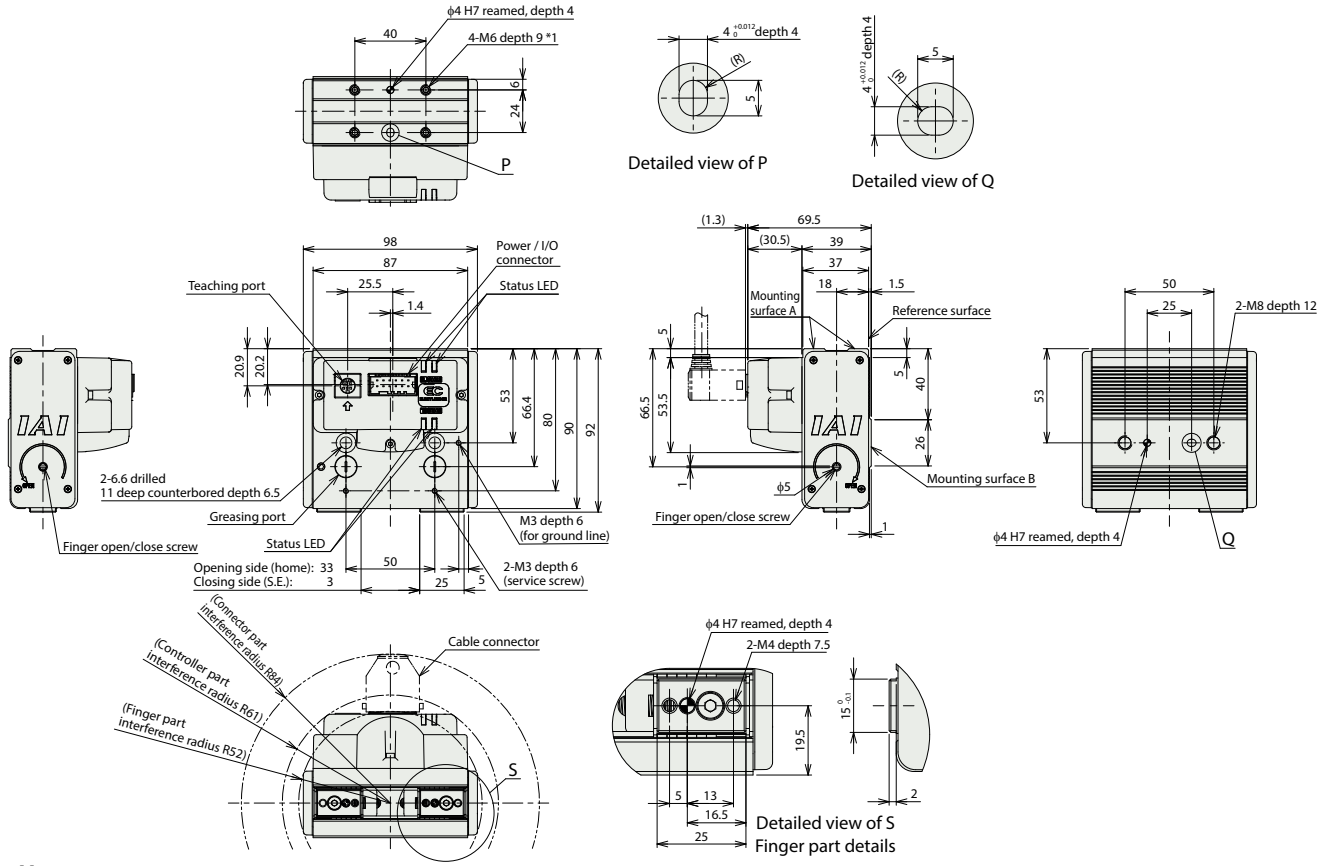
(Note) Shows grip force of overhang position when maximum grip force is set to 100%. The results may differ due to the rigidity of the finger attachment used.

Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

*1 Plugged with a set screw to prevent contamination with foreign matter. Remove when using mounting surface A.
(Note) The opening side is home as standard. To set the closing side as home, designate the option (model: NM).

S.E: Stroke end



Mass

Item	Description
Mass	0.69kg

Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-GRB13

Slider | 2-Finger | Body Width 130 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	GRB13		-	40	-		-	
Series		Type	Deceleration ratio		Stroke		Power / I/O cable length		Option
			M: Standard — Trapezoidal screw, Lead 2mm, Pulley deceleration ratio 1.25		40: 40mm (One side 20mm)		Refer to Power / I/O cable length below		Refer to Option below
			L: High thrust — Trapezoidal screw, Lead 2mm, Pulley deceleration ratio 2.50						



Horizontal | Vertical | Side | Ceiling

By Stroke

Stroke (mm)	EC-GRB13
40	○

Option * Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Cable fixing bracket (front)	**FST**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Split motor and controller power supply specification	**TMD2**	2-387
Cable fixing bracket (top) (Note 2)	**TST**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Can be selected only when selecting the 4-way connector cable.

Power / I/O Cable Length

■ Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

■ 4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) Robot cable.

POINT Selection Notes

(1) The maximum open/close speed in the Main Specifications represents the operation speed for one side. The relative operation speed is twice the value.
(2) The maximum grip force in the Main Specifications is the total of the grip force of both fingers when the grip point distance and overhang distance are both 0. For the workpiece weight which can actually be conveyed, refer to the Confirmation of Grip Point Distance.
(3) When gripping the workpiece, be sure to use push-motion operation.
(4) The workpiece grip force will be maintained via self-lock even during power cutoffs. To release the workpiece being gripped during a power cutoff, turn the open/close screw on the side, or remove the finger attachment to release the workpiece.

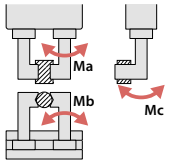
Main Specifications

Item		Description	
Deceleration ratio		M	L
Lead	Trapezoidal screw lead (mm)	2	2
	Pulley deceleration ratio	1.25	2.50
Grip operation	Max. grip force (N) (both sides)	150	360
	Max. speed during grip operation (mm/s) (one side)	5	5
Approach operation	Max. speed (mm/s) (one side)	120	60
	Min. speed (mm/s) (one side)	5	5
	Rated acceleration/deceleration (G) (one side)	0.3	0.3
	Max. acceleration/deceleration (G) (one side)	0.3	0.3
Brake	Brake specification	-	-
	Brake holding force (kgf)	-	-
Stroke (one side)	Min. stroke (mm) (one side)	20	20
	Max. stroke (mm) (one side)	20	20

Item	Description
Drive system	Trapezoidal screw ϕ10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Backlash (one side)	0.2mm or less
Linear guide	Limited guide
Static allowable moment	Ma: 7.52 N•m
	Mb: 7.52 N•m
	Mc: 15.3 N•m
Vertical allowable load (Note 6)	898N
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (no condensation)
Degree of protection	-
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder type	Incremental (standard) /battery-less absolute (option)
Number of encoder pulses	800 pulse/rev

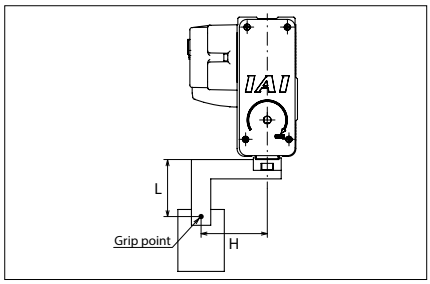
(Note 6) Use at a load exceeding the value above could reduce operation life or lead to damage.

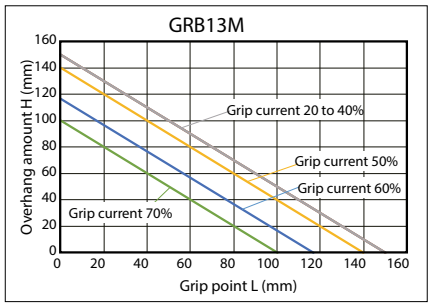
■ Slide type moment direction

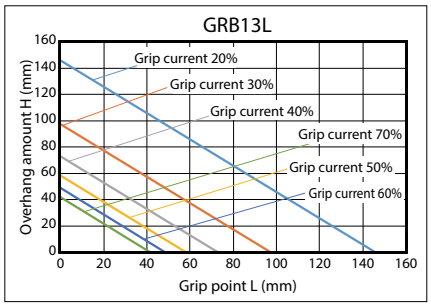


Confirmation of Grip Point Distance

Use with distance (L, H) from finger (jaw) mounting surface to grip point within the range in the graph.



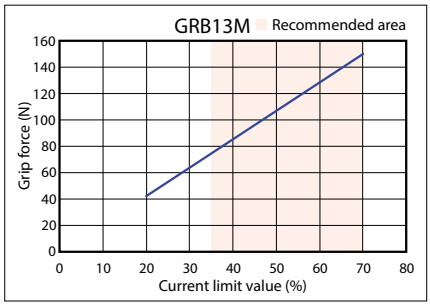


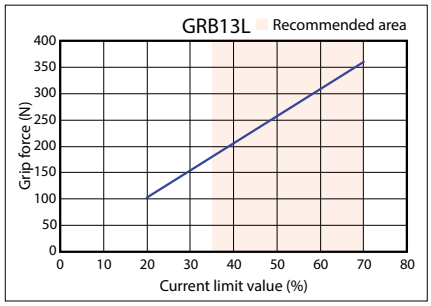


(Note) Use beyond the limited range will cause excess moment to operate on the finger sliding part and interior mechanisms, negatively affecting operation life.

Grip Force

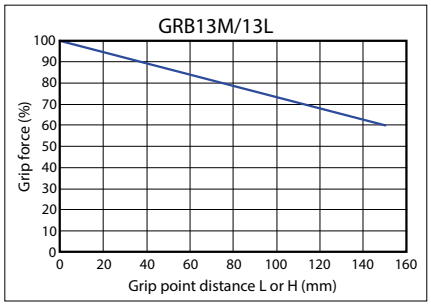
■ Correlation diagrams between grip force and current limit value





(Note) Total value of both fingers when grip point distance (L, H) is 0.
(Note) Guideline values. There is variation of 0 to 60%. In particular, current limit values set outside the recommended range (colored part of the graph) are more likely to lead to variation.
(Note) For gripping (pushing), the speed is fixed at 5mm/s.

■ Guidelines for grip point distance and grip force



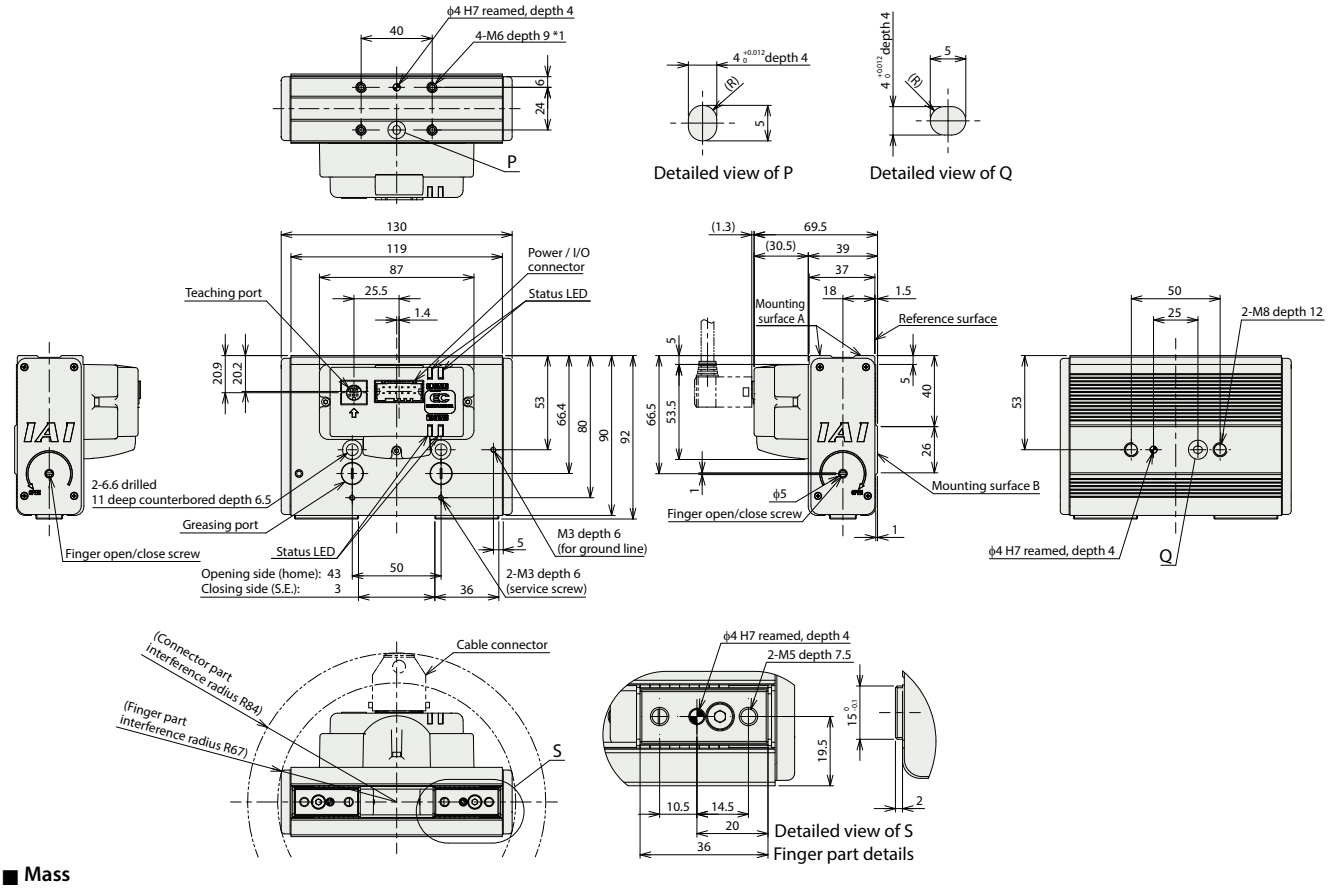
(Note) Shows grip force of overhang position when maximum grip force is set to 100%. The results may differ due to the rigidity of the finger attachment used.

Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

*1 Plugged with a set screw to prevent contamination with foreign matter. Remove when using mounting surface A.
(Note) The opening side is home as standard. To set the closing side as home, designate the option (model: NM).

S.E: Stroke end



Mass

Item	Description
Mass	0.99kg

Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RTC9

Body Width 90 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	RTC9	M	-	330	-		-	
Series	-	Type	Deceleration ratio	-	Oscillation angle	-	Power / I/O cable length	-	Options
			M: Deceleration ratio 1/45		330: 330-degree rotation		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Operation Range

Oscillation angle (°)	EC-RTC9
330	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Shaft adapter	**SA**	2-386
Table adapter	**TA**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ Power / I/O Cable Length

■ Standard connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 3) (with connectors on both ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

POINT Selection Notes

(1) Output torque decreases as rotation speed increases. Refer to the "correlation diagram between rotation speed and output torque" for details.
(2) The allowable moment of inertia of a part being rotated will vary depending on the rotation speed. Refer to the "correlation diagram between rotation speed and allowable moment of inertia" for details.
(3) The brake is used for retention purposes only, Do not use it for braking or emergency stopping.
(4) When sizing, calculate values as described in "Selecting rotary type actuators" and check the usage conditions.
(5) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(6) The maximum acceleration/deceleration is 0.5G when horizontal or ceiling mounted, or 0.3G when side or vertical mounted.

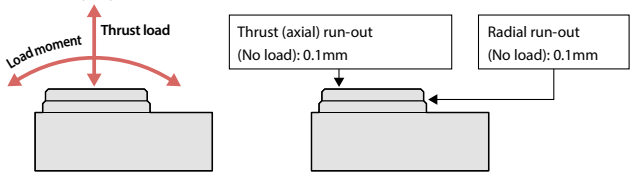
Main Specifications

Item		Description
Deceleration ratio		1/45
Max. torque (N·m)		1.5
Speed / acceleration/ deceleration (Note 5)	Max. speed (degrees/s)	600
	Min. speed (degrees/s)	20
	Rated acceleration/deceleration (G)	0.3
	Max. acceleration/deceleration (G) (Note 6)	0.5
Brake	Brake specification	Non-excitation actuating solenoid brake
	Brake retaining torque (N·m) (Note 7)	0.9
Operation range (degrees)		330

(Note 5) 1G≈9807°/s²
(Note 6) Horizontal only. The maximum acceleration/deceleration will be 0.3G when side or vertical mounted.
(Note 7) Both the allowable moment of inertia and brake retaining torque will not necessarily be established. Confirm that the load torque does not exceed the retaining torque.

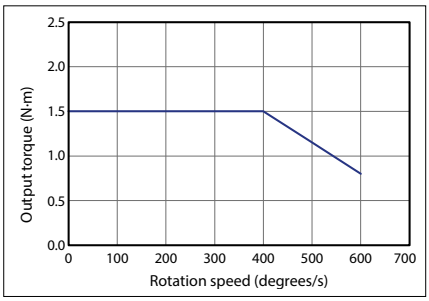
Item	Description
Driving system	Hypoid gear + timing belt
Positioning repeatability	±0.05 degrees
Homing method	Mechanical stopper method
Homing precision	±0.05 degrees
Backlash	0.2° or less
Allowable thrust load	50N
Allowable load moment	5N·m
Allowable moment of inertia	0.02kg·m²
Radial run-out	0.1mm or less
Thrust run-out	0.1mm or less
Ambient operating temperature/humidity	0 ~ 40°C, 85% RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□28)
Encoder Type	Incremental
Number of encoder pulses	800 pulse/rev

■ Rotary Type Moment Direction

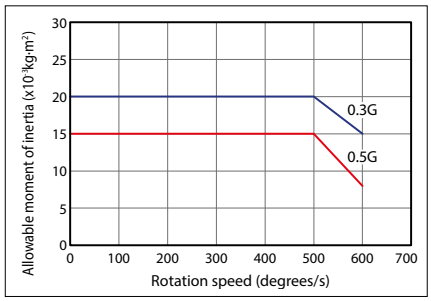


Correlation diagrams

■ Correlation diagram between rotation speed and output torque



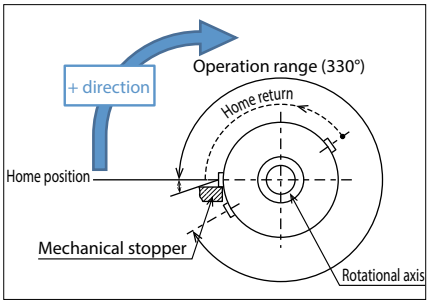
■ Correlation diagram between rotation speed and allowable moment of inertia



(Note) 0.5G can be used only when horizontal or ceiling mounted.

Homing method and positive rotation direction

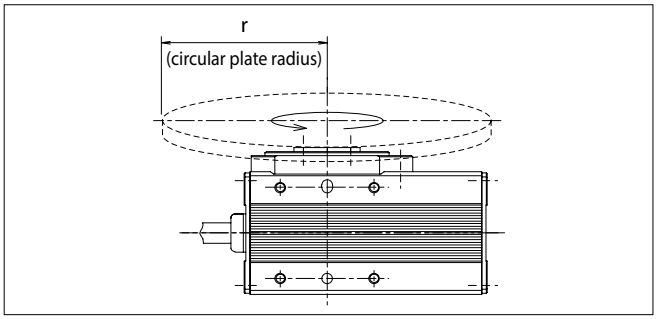
■ 330-degree rotation specification



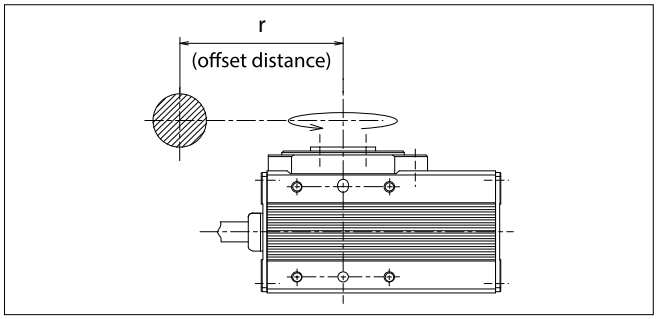
The positive rotation direction will be clockwise when viewing the rotating table from above.
During home return motion, the table rotates counterclockwise.
It detects the mechanical stopper position, moves in reverse, and then stops.
The actuator cannot perform a home return motion in the clockwise direction.
(Note) For the non-motor end specification, all movement directions are reversed.

Guideline for load shape and mass

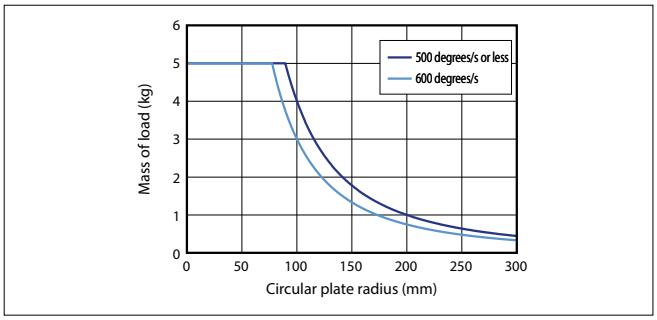
When the center of gravity of a circular plate load is the same as the rotational center of the output shaft



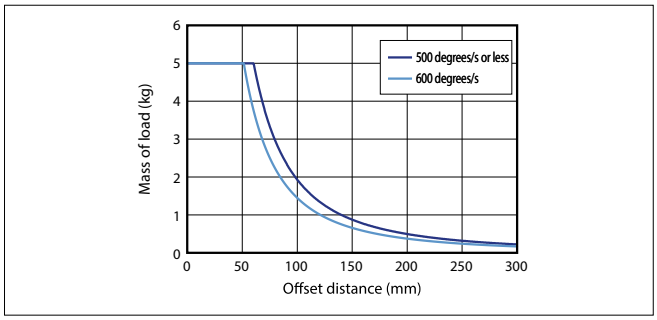
When the center of gravity of the load is offset from the rotational center of the output shaft



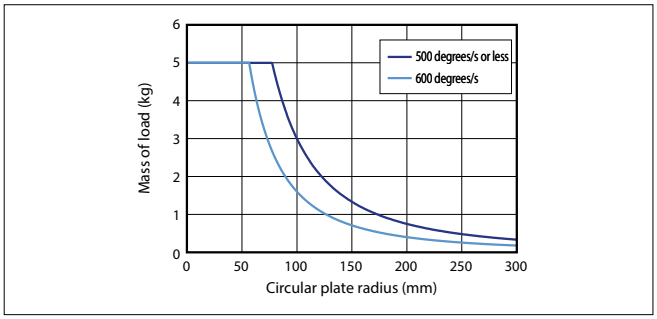
Acceleration 0.3G



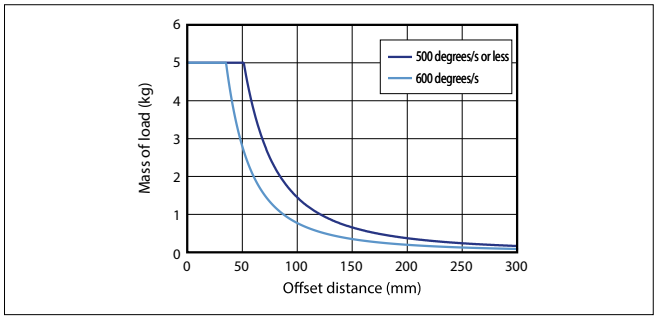
Acceleration 0.3G



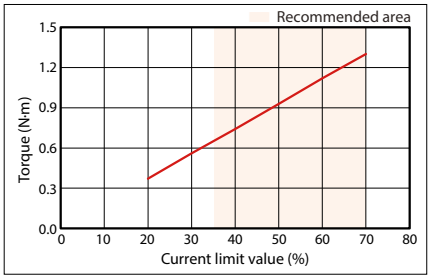
Acceleration 0.5G



Acceleration 0.5G



Correlation between Torque and Current Limit

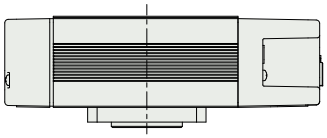


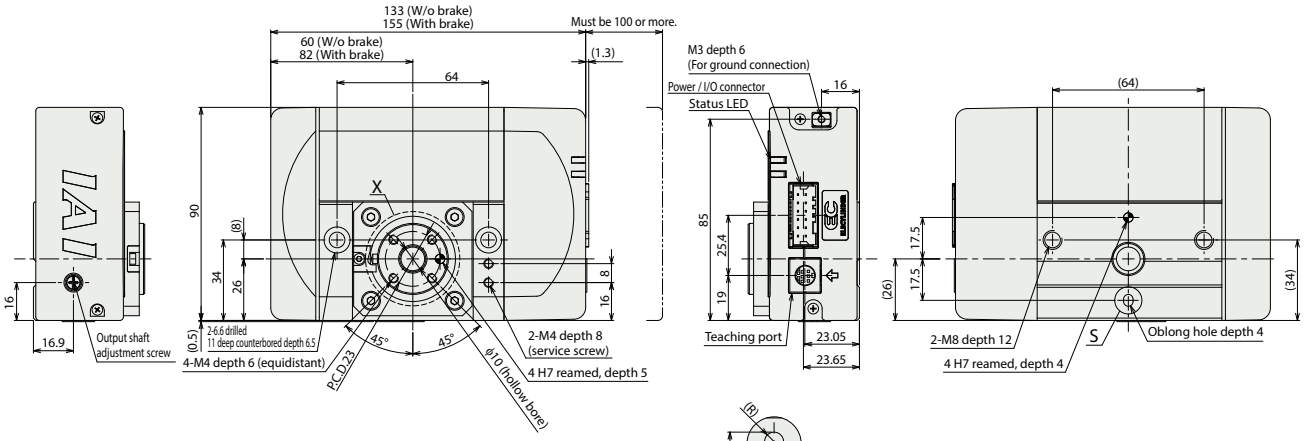
Dimensions

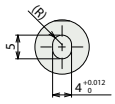
CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

(Note) The rotating table is shown shaded in the dimension drawings below.

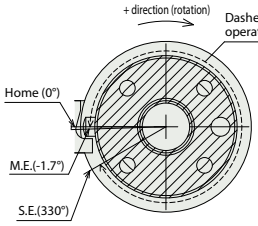
M.E: Mechanical end
S.E: Stroke end



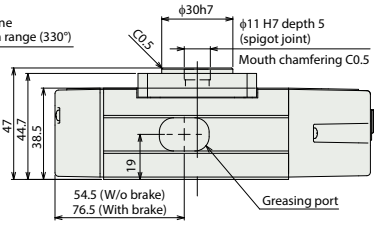


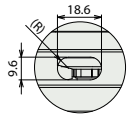


Detailed view of S
Details of base oblong hole

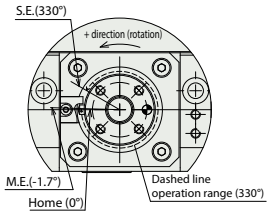


Detailed view of X

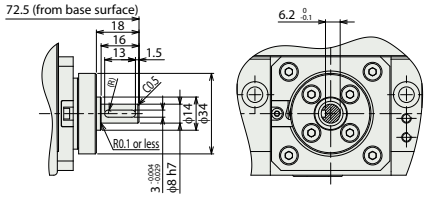




Grease lubrication port
detailed view



Non-motor end specification



Shaft adapter specification

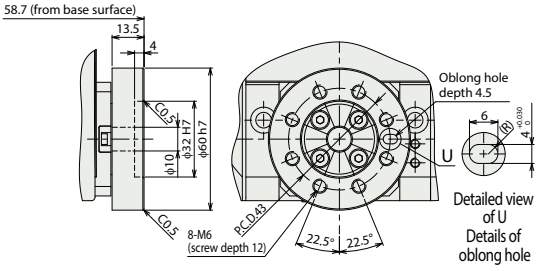


Table adapter specification

Mass

Item		Description
Mass	Without brake	0.88kg
	With brake	0.98kg

Applicable Controllers

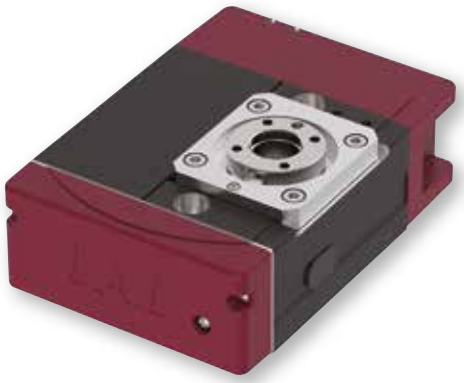
(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-RTC12

Body Width 120 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	RTC12	M	-	330	-		-	
Series	-	Type	Deceleration ratio	-	Oscillation angle	-	Power / I/O cable length	-	Options
			M: Deceleration ratio 1/45		330: 330-degree rotation		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Operation Range

Oscillation angle (°)	EC-RTC12
330	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Shaft adapter	**SA**	2-386
Table adapter	**TA**	2-387
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

■ 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 ends)
		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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 4) (with connectors on both ends)
		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) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

POINT Selection Notes

(1) Output torque decreases as rotation speed increases. Refer to the "Correlation between rotation speed and output torque" diagram for details.
(2) The allowable moment of inertia of a part being rotated will vary depending on the rotation speed. Refer to the "Correlation between rotation speed and allowable moment of inertia" diagram for details.
(3) The brake is used for retention purposes only. Do not use it for braking or emergency stopping.
(4) When sizing, calculate values as described in "Selecting rotary type actuators" and check the usage conditions.
(5) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(6) The maximum acceleration/deceleration is 0.7G when horizontal or ceiling mounted, or 0.5G when side or vertical mounted with the energy-saving setting disabled, or 0.5G when horizontal or ceiling mounted, or 0.3G when side or vertical mounted with the energy-saving setting enabled.

Main Specifications

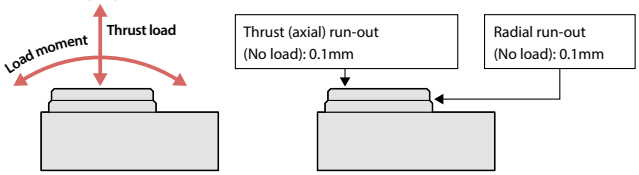
Item		Description
Deceleration ratio		1/45
Max. torque (N·m)		8.0
Speed / acceleration/ deceleration (Note 5)	Max. speed (degrees/s)	600
	Min. speed (degrees/s)	20
	Rated acceleration/deceleration (G)	0.3
	Max. acceleration/deceleration (G) (Note 6)	0.7
Brake	Brake specification	Non-excitation actuating solenoid brake
	Brake retaining torque (N·m) (Note 7)	5.3
Operation range (degrees)		330

(Note 5) 1G≈9807°/s²
(Note 6) Horizontal only. The maximum acceleration/deceleration will be 0.5G when side or vertical mounted.
(Note 7) Both the allowable moment of inertia and brake retaining torque will not necessarily be established. Confirm that the load torque does not exceed the retaining torque.

Item	Description
Driving system	Hypoid gear + timing belt
Positioning repeatability	±0.01 degrees
Homing method	Mechanical stopper method
Homing precision	±0.01 degrees
Backlash	0.2° or less
Allowable thrust load	400N
Allowable load moment (Note 8)	18N·m
Allowable moment of inertia	0.13kg·m²
Radial run-out	0.1mm or less
Thrust run-out	0.1mm or less
Ambient operating temperature, humidity	0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection	IP20
Vibration/shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder type	Incremental
Number of encoder pulses	800 pulse/rev

(Note 8) 12N·m when side or vertical mounted.

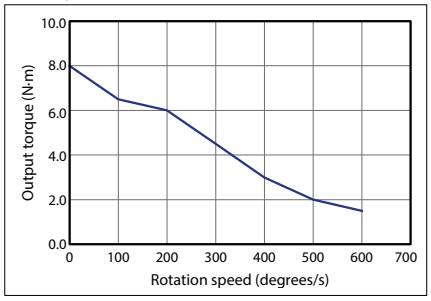
■ Rotary type moment direction



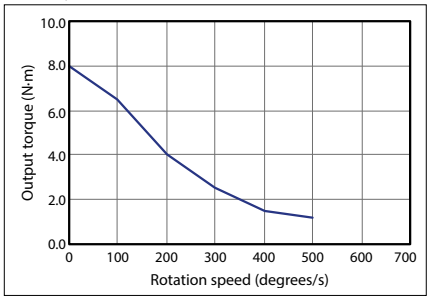
Correlation diagrams

■ Correlation between rotation speed and output torque

Energy-saving setting disabled

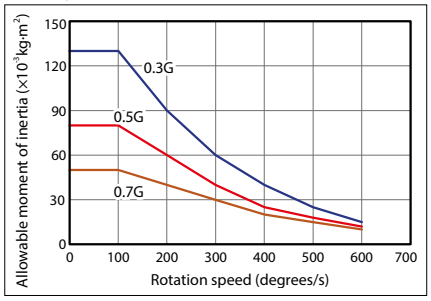


Energy-saving setting enabled



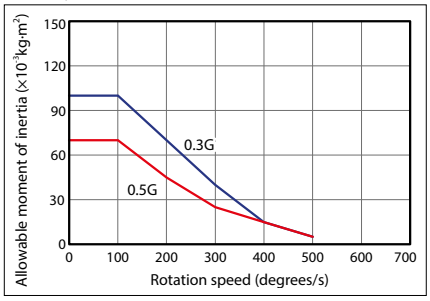
■ Correlation between rotation speed and allowable moment of inertia

Energy-saving setting disabled



(Note) 0.7G can be used only when horizontal or ceiling mounted.

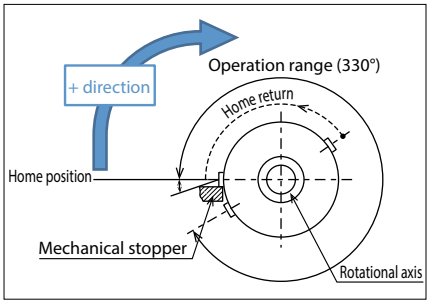
Energy-saving setting enabled



(Note) 0.5G can be used only when horizontal or ceiling mounted.

Homing method and positive rotation direction

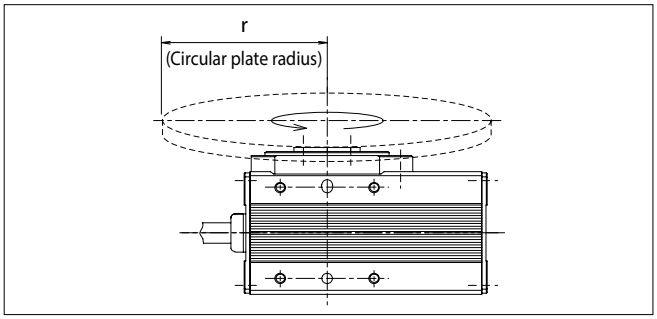
■ 330-degree rotation specification



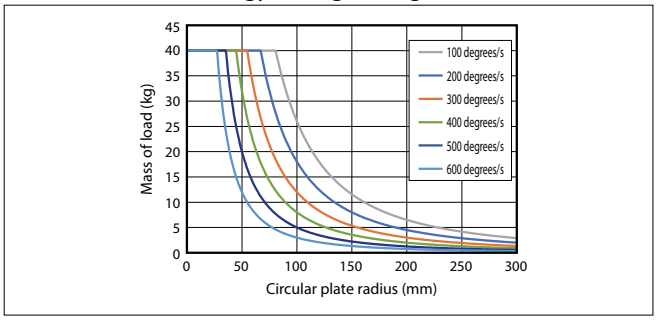
The positive rotation direction will be clockwise when viewing the rotating table from above.
During home return motion, the table rotates counterclockwise.
It detects the mechanical stopper position, moves in reverse, and then stops.
The actuator cannot perform a home return motion in the clockwise direction.
(Note) For the non-motor end specification, all movement directions are reversed.

Guideline for load shape and mass

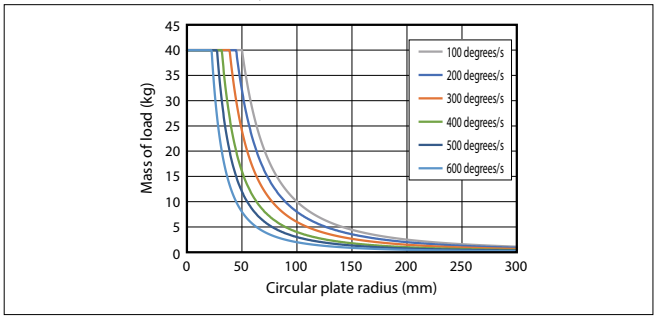
When the center of gravity of a circular plate load is the same as the rotational center of the output shaft



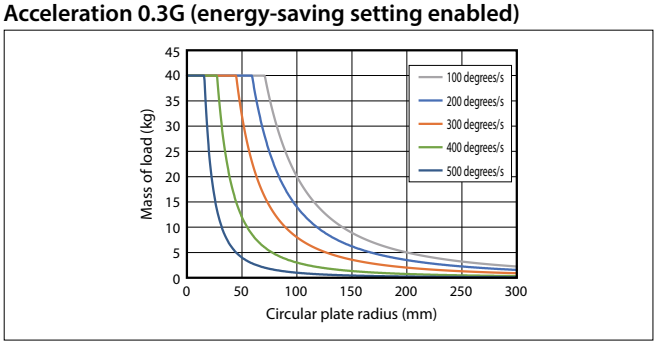
Acceleration 0.3G (energy-saving setting disabled)



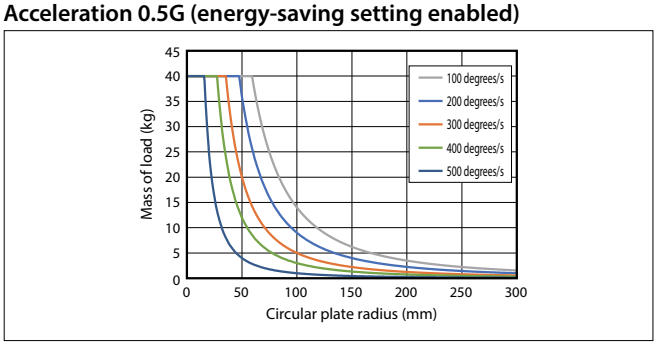
Acceleration 0.7G (energy-saving setting disabled)



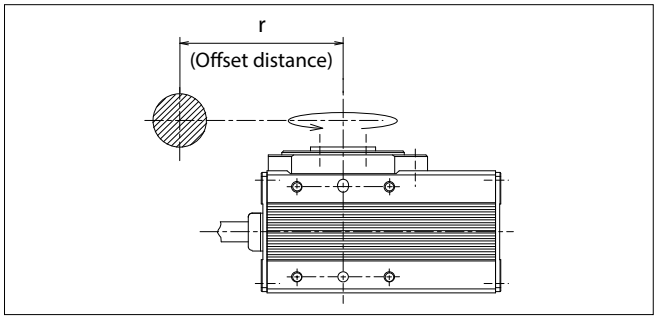
Acceleration 0.3G (energy-saving setting enabled)



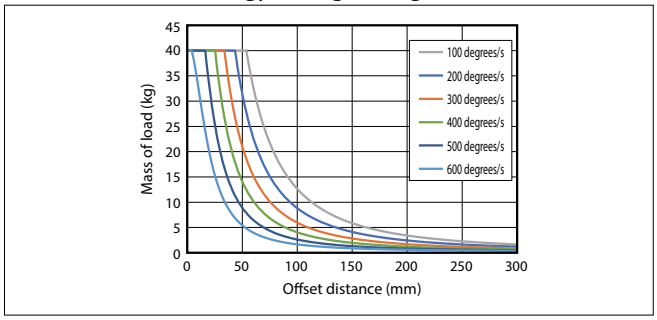
Acceleration 0.5G (energy-saving setting enabled)



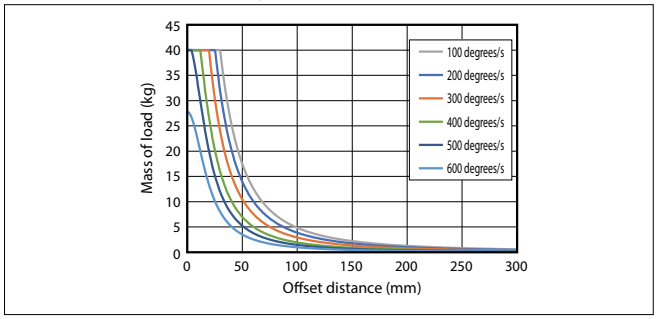
When the center of gravity of the load is offset from the rotational center of the output shaft



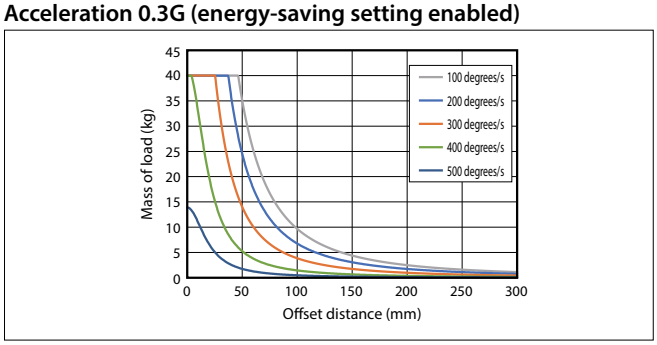
Acceleration 0.3G (energy-saving setting disabled)



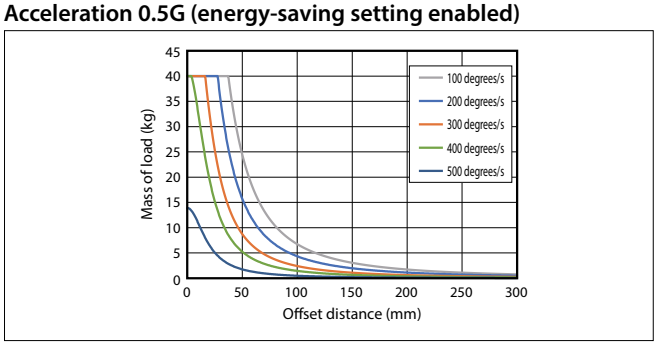
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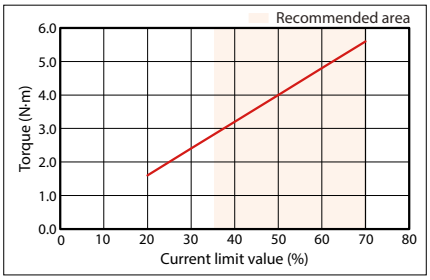
Acceleration 0.3G (energy-saving setting enabled)



Acceleration 0.5G (energy-saving setting enabled)



Correlation between Torque and Current Limit

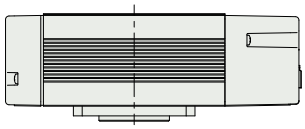


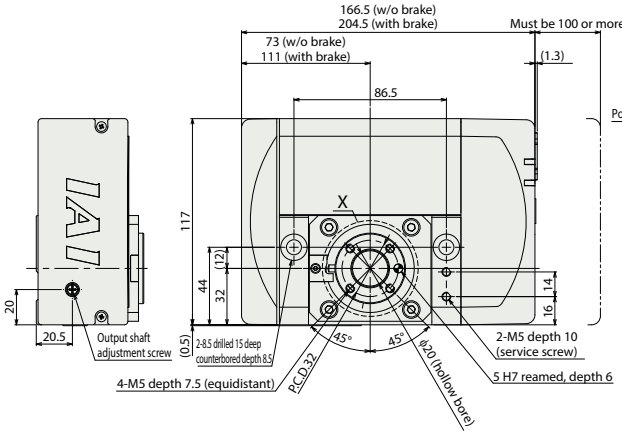
Dimensions

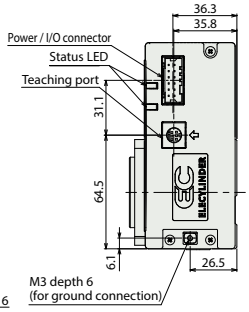
CAD drawings can be downloaded from our website.
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2D CAD 3D CAD

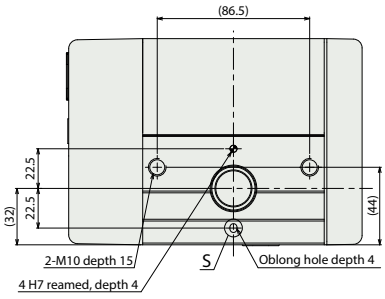
(Note) The rotating table is shown shaded in the dimension drawings below.

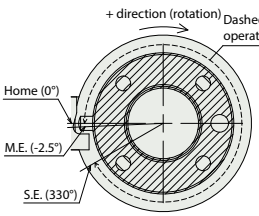
M.E: Mechanical end
S.E: Stroke end



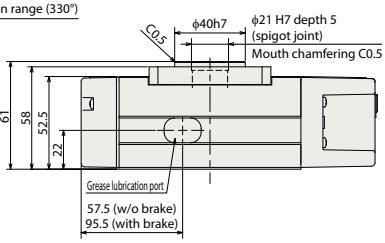


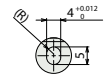




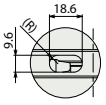


Detailed view of X

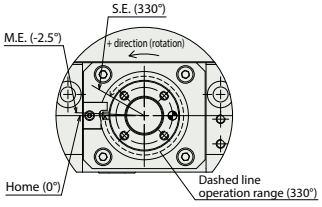




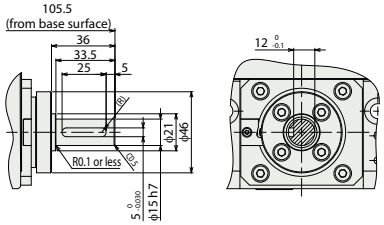
Detailed view of S
Base oblong hole details



Grease lubrication port
detailed view



Non-motor end specification



Shaft adapter specification

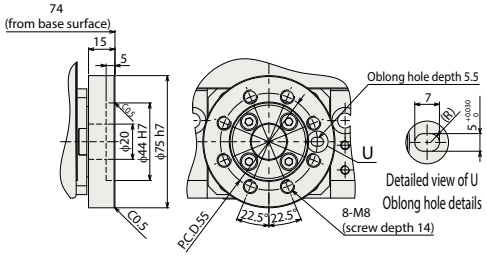


Table adapter specification

■ Mass

Item		Description
Mass	Without brake	1.74kg
	With brake	1.90kg

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-ST15

Side-mounted Motor | Body Width 150 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	ST15	L	-	50	-		-	
Series		Type	Lead		Stroke		Power / I/O cable length		Options
			L: 3mm		50: 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

POINT Selection Notes

(1) The home position is set on the non-motor side for the standard specification. Please check dimensions for the home position.
(2) Use with a maximum load thrust of 500N.

■ Operation Range

Stroke (mm)	EC-ST15
50	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Non-motor end specification (Note 2)	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) The home position is set on the non-motor side for the standard specification.

■ Power / I/O Cable Length

■ Standard connector cables

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

Cable code	Cable length	User wiring specification (flying leads)	RCON-EC connection specification (Note 5) (with connectors on both ends)
		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 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

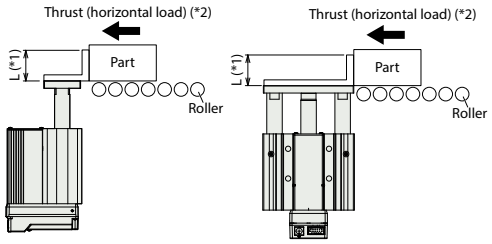
■ Main Specifications

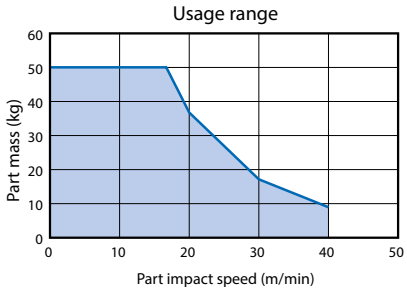
Item		Description	
Lead		Ball screw lead (mm)	3
Horizontal	Payload (Note 6)	Payload (kg) (energy-saving disabled)	5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	200
		Min. speed (mm/s)	4
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	0.5
Vertical	Payload (Note 6)	Payload (kg) (energy-saving disabled)	3
	Speed / acceleration/ deceleration	Max. speed (mm/s)	200
		Min. speed (mm/s)	4
		Rated acceleration/deceleration (G)	0.3
		Max. acceleration/deceleration (G)	0.5
Brake		Brake specification	Non-excitation actuating solenoid brake
		Brake holding force (kgf)	12.5
Stroke (mm)			50

(Note 6) With speed of 200mm/s and acceleration/deceleration of 0.5G.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.15mm
Lost motion	- (two-point positioning function; cannot be represented)
Rod	ϕ25mm, material: aluminum, hard alumite treatment
Guide shaft	S45C
Front bracket	S45C
Ambient operating temperature/humidity	0~40°C, 85% RH or less (Non-condensing)
Degree of protection	IP20
Vibration & shock resistance	4.9m/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
Encoder Type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

Correlation Diagram of Part Mass and Part Impact Speed





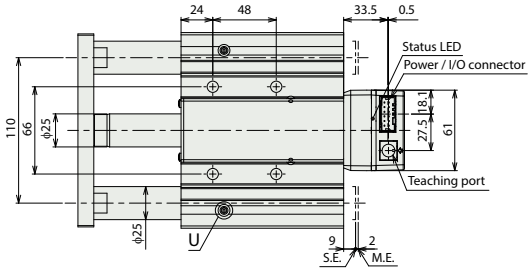
(*1) Use within L dimension of 50mm.
(*2) Use with a maximum load thrust of 500N.

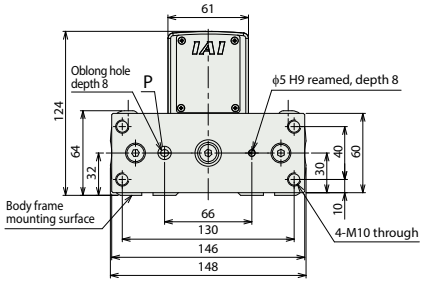
Dimensions

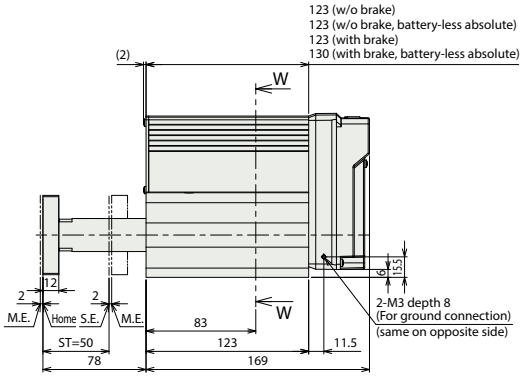
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2D CAD 3D CAD

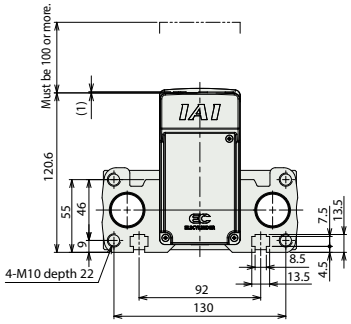
(Note) When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.

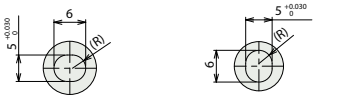
ST: Stroke
M.E: Mechanical end
S.E: Stroke end

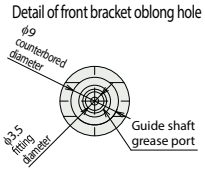




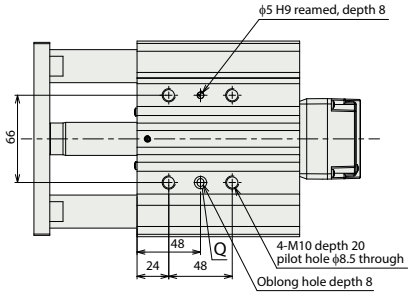


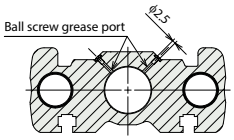






Detailed view of U
Greasing port





Cross section of W-W
Detail of ball screw grease lubrication port

■ Mass

Stroke		50
Mass (kg)	Without brake	5.06
	With brake	5.36

Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

Clean room specification

Stepper motors			
Slider type moment direction	EC-S3□CR/DS3□CR	2-325	 
	EC-S4□CR/DS4□CR	2-331	
	EC-S6□CR/DS6□CR	2-337	
	EC-S7□CR/DS7□CR	2-341	
High rigidity slider	EC-S6□AHCR/DS6□AHCR	2-345	 
	EC-S7□AHCR/DS7□AHCR	2-349	

EC-S3□CR
EC-DS3□CR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			CR	-		-		-	
Series	-	Type	Lead	Specification	-	Stroke	-	Power / I/O cable length	-	Options
	-	S3 Standard DS3 Digital speed controller	H 6mm M 4mm L 2mm	CR Cleanroom specification	-	50 ~ 300 50mm ~ 300mm (Every 50mm)	-	See power / I/O cable length below	-	See options below





CE RoHS 10

Horizontal | Vertical | Side | Ceiling

(Note) The photos above are for motor installed on top (MOT).

■ Stroke

Stroke (mm)	S3□CR	DS3□CR	Stroke (mm)	S3□CR	DS3□CR
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

■ Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Motor mounting direction change (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction change (left) (Note 2)	**MOL**	2-381
Motor mounting direction change (right) (Note 2)	**MOR**	2-381
Motor mounting direction change (up) (Note 2)	**MOT**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Air suction joint in opposite position	**VR**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a code in the option column for Model Specification Items.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 100mm in the Ma, Mb, and Mc directions. Please contact IAI for overhang load lengths.
(5) 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.

■ Power / I/O cable length

■ Standard connector cable

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

(Note 3) Only terminal block connector is included. Please refer to P. 39 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description		
Lead		Ball screw lead (mm)	6	4	2
Horizontal	Payload	Max. payload (kg)	3.5	6	9
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.3	0.3
Vertical	Payload	Max. payload (kg)	1.5	2.5	3.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	420	280	140
		Min. speed (mm/s)	8	5	3
		Rated acceleration/deceleration (G)	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.3	0.3	0.3
Push		Max. push force (N)	45	68	136
		Max. push speed (mm/s)	20	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 6)	40	35	35
Brake		Brake specification	Non-excitation actuating solenoid brake		
		Brake holding force (kgf)	1.5	2.5	3.5
Stroke		Min. stroke (mm)	50	50	50
		Max. stroke (mm)	300	300	300
		Stroke pitch (mm)	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw ϕ6mm rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 9.5N·m
	Mb: 13.5N·m
	Mc: 15.1N·m
Dynamic allowable moment (Note 7)	Ma: 3.8N·m
	Mb: 5.4N·m
	Mc: 6.1N·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 (□28)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P. 1-244.

■ Slider type moment direction

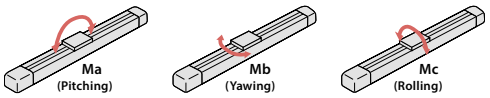


Table of Payload by Speed/Acceleration

The unit for payload is kg.

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.5	0.3
0	3.5	3	1.5
120	3.5	3	1.5
210	3.5	3	1.5
255	3.5	3	1.5
315	3.5	3	1.5
360	3.5	3	1.5
420	3	2.5	1

Lead 4

Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	6	2.5
80	6	2.5
140	6	2.5
170	6	2.5
210	6	2.5
240	5.5	2.5
280	4.5	2

Lead 2

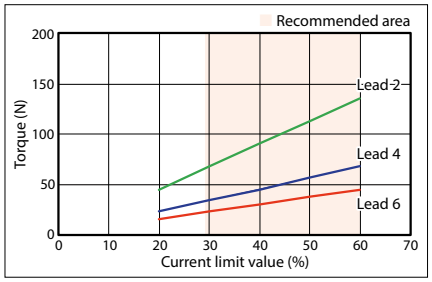
Orientation	Horizontal	Vertical
Speed	Acceleration (G)	
(mm/s)	0.3	0.3
0	9	3.5
40	9	3.5
70	9	3.5
85	9	3.5
105	9	3.5
120	9	3
140	8	2.5

Stroke and Max Speed

Lead (mm)	50 ~ 150 (Every 50mm)	200 (mm)	250 (mm)	300 (mm)
6	420	300	210	150
4	280	200	140	100
2	140	100	70	50

(Unit: mm/s)

Correlation between Torque and Current Limit

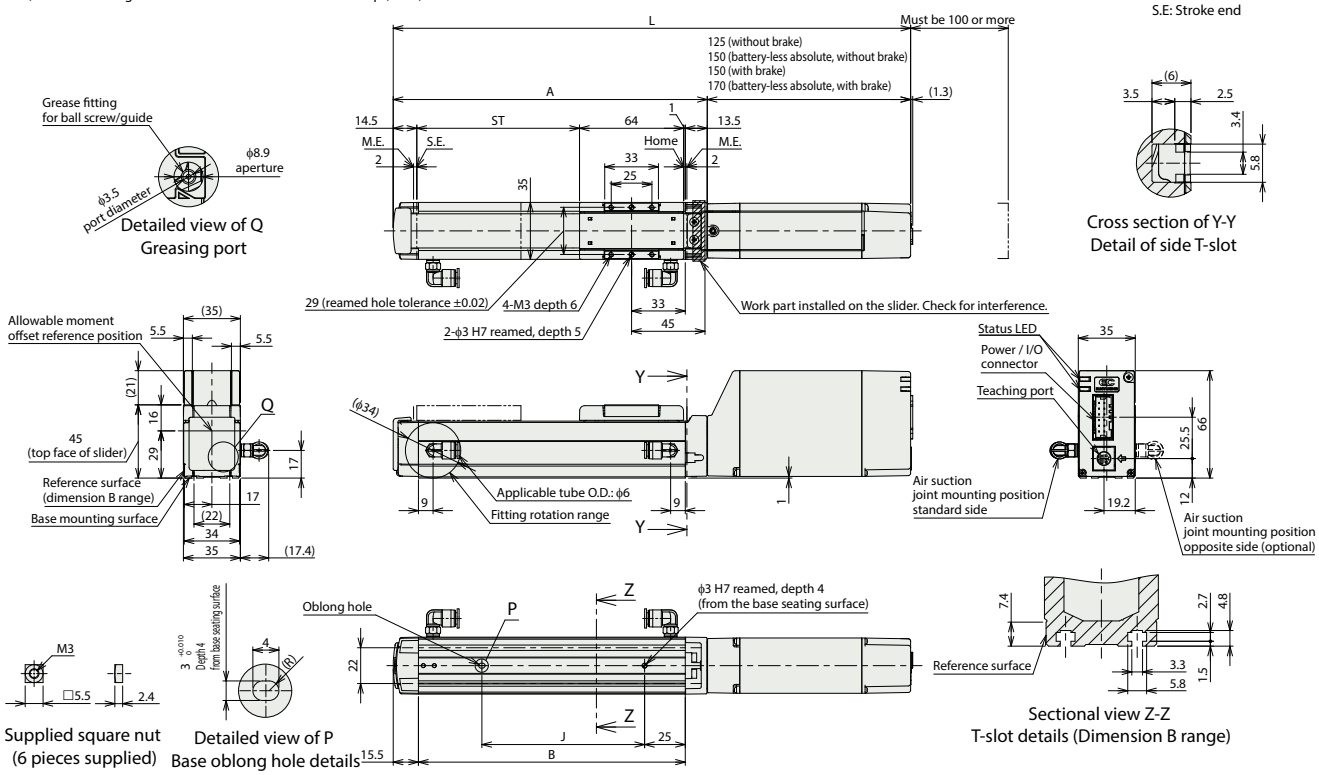


CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

■ EC-S3□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



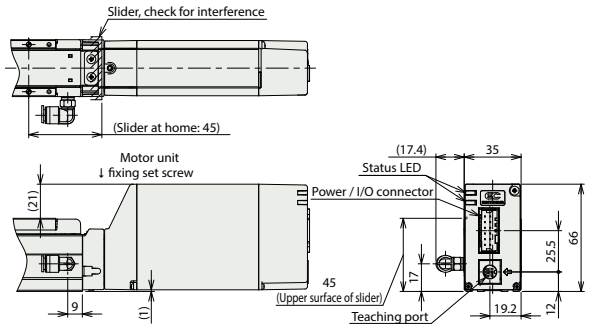
■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

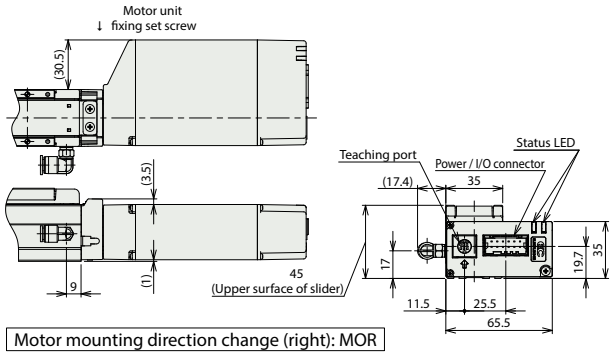
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.7	0.8	0.9	1.0	1.1	1.2
	With brake	0.8	0.9	1.0	1.1	1.2	1.3

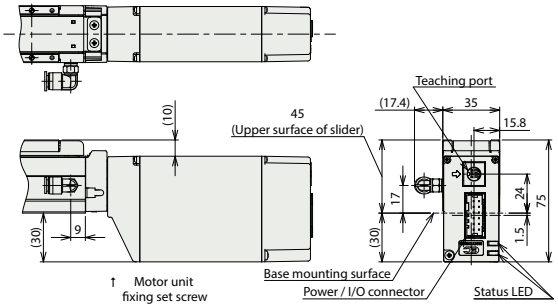
■ Motor mounting direction change (option)



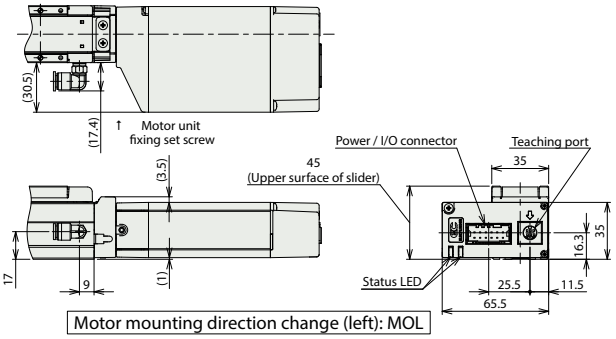
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB

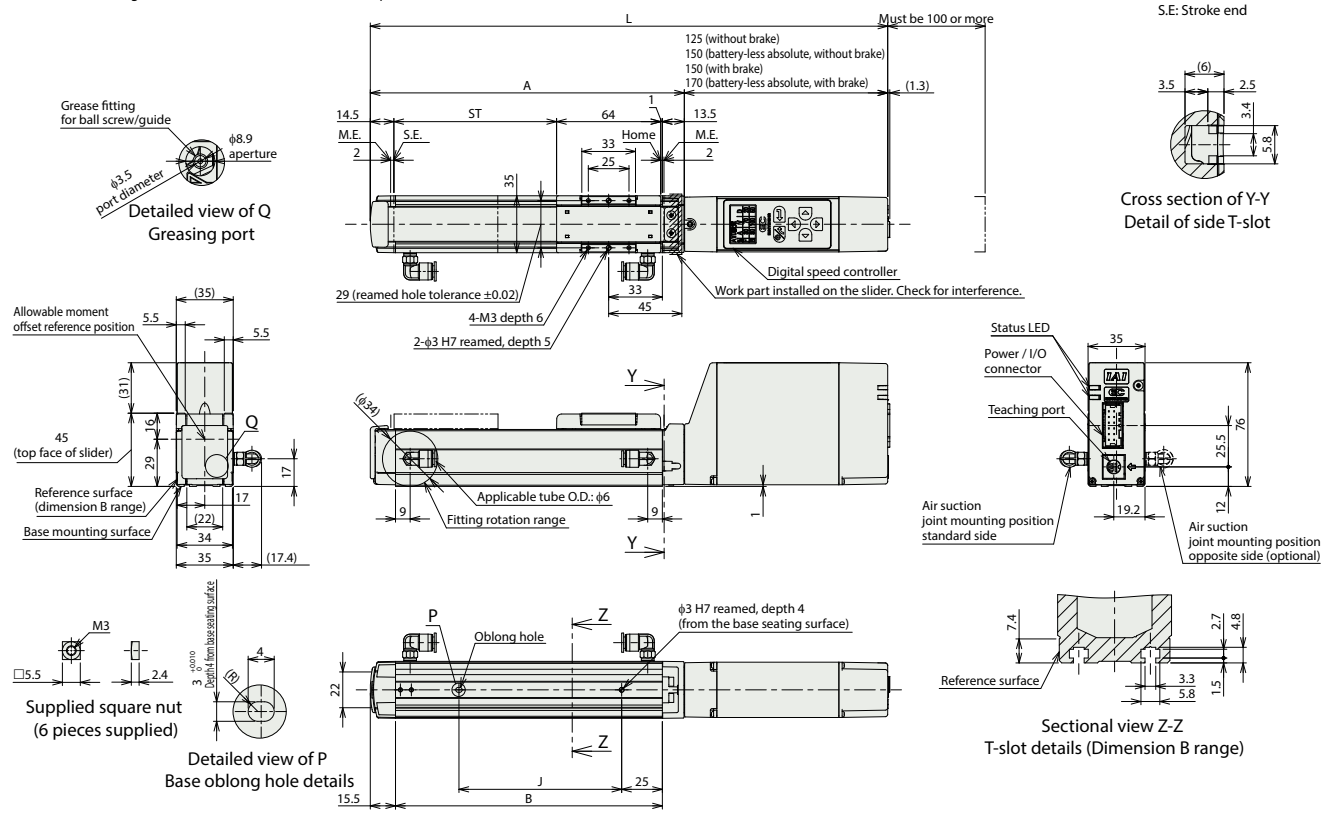


Motor mounting direction change (left): MOL

■ EC-DS3□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



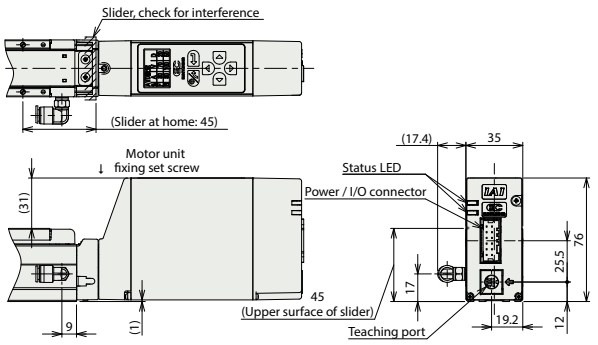
■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	268	318	368	418	468	518
		With brake	293	343	393	443	493	543
	Battery-less absolute	Without brake	293	343	393	443	493	543
		With brake	313	363	413	463	513	563
A			143	193	243	293	343	393
B			114	164	214	264	314	364
J			50	100	150	200	250	300

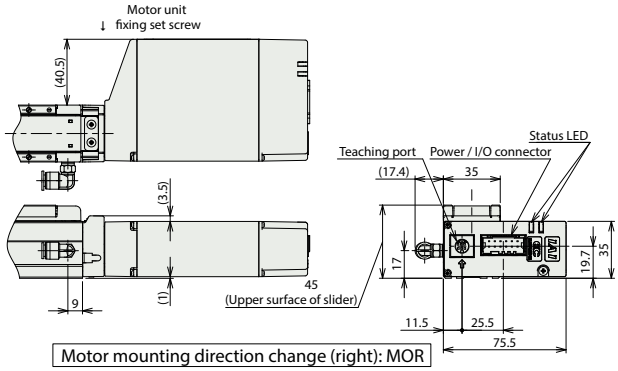
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	0.8	0.9	1.0	1.1	1.2	1.3
	With brake	0.9	1.0	1.1	1.2	1.3	1.4

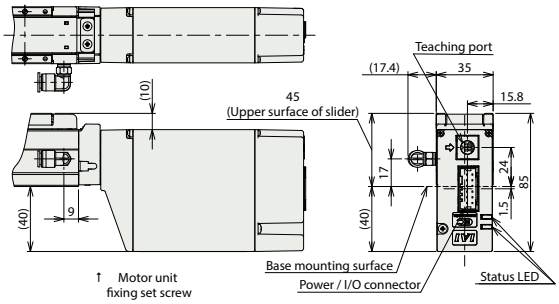
■ Motor mounting direction change (option)



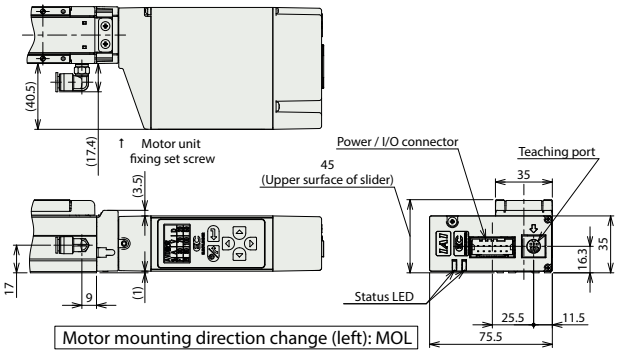
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB



Motor mounting direction change (left): MOL

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S4□CR
EC-DS4□CR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 40 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			CR	-		-		-	
Series	-	Type	Lead	Specification	-	Stroke	-	Power / I/O cable length	-	Options
	-	S4 Standard DS4 Digital speed controller	S 16mm H 10mm M 5mm L 2.5mm	CR Cleanroom specification	-	50 50mm ⁞ ⁞ 300 300mm (Every 50mm)	-	See power / I/O cable length below	-	See options below





Horizontal | Vertical | Side | Ceiling

(Note) The photos above are for motor installed on top (MOT).

Stroke

Stroke (mm)	S4□CR	DS4□CR	Stroke (mm)	S4□CR	DS4□CR
50	○	○	**200**	○	○
100	○	○	**250**	○	○
150	○	○	**300**	○	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Motor mounting direction change (bottom) (Note 2)	**MOB**	2-381
Motor mounting direction change (left) (Note 2)	**MOL**	2-381
Motor mounting direction change (right) (Note 2)	**MOR**	2-381
Motor mounting direction change (up) (Note 2)	**MOT**	2-381
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Air suction joint in opposite position	**VR**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.
(Note 2) Be sure to enter a code in the option column for Model Specification Items.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. Please refer to "Table of Payload by Speed/Acceleration" for more details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Pay close attention to the installation orientation.
(4) Reference value of the overhang load length is under 150mm in the Ma, Mb, and Mc directions. Please contact IAI for overhang load lengths.
(5) 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.

Power / I/O cable length

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	16	10	5	2.5
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	7	12	15	18
		Max. payload (kg) (energy-saving enabled)	4	10	12	14
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	175
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	0.5	0.3
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	2.5	5	6.5
		Max. payload (kg) (energy-saving enabled)	1	2	4.5	6.5
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	350	150
		Min. speed (mm/s)	40	30	7	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.3
Push		Max. push force (N)	41	66	132	263
		Max. push speed (mm/s)	40	30	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 6)	40	30	25	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	2.5	5	6.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

(Note 6) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw ϕ8mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 13.0N·m
	Mb: 18.6N·m
	Mc: 25.3N·m
Dynamic allowable moment (Note 7)	Ma: 5.0N·m
	Mb: 7.1N·m
	Mc: 9.7N·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 (□35)
Encoder type	Incremental/battery-less absolute
Number of encoder pulses	800 pulse/rev

(Note 7) Based on the standard rated operation life of 5,000km. Operation life varies according to operating and mounting conditions. Confirm the operation life on P. 1-244.

Slider type moment direction

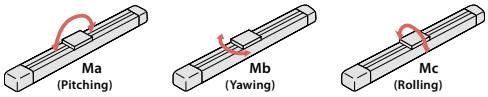


Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	7	6	6	5	1.5	1.25
140	7	6	6	5	1.5	1.25
280	7	6	6	5	1.5	1.25
420	7	6	6	5	1.5	1.25
560	7	6	5.5	5	1.5	1.25
700	6	5	4.5	4	1.5	1.25
800		4	3.5	3		1

Lead 10

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	12	11	10	10	2.5	2
175	12	11	10	10	2.5	2
350	12	11	10	9	2.5	2
435	12	11	9	8	2.5	2
525	11	9	7	6	2	2
600	10	7	5	4.5	2	1.5
700		4	2.5	2.5		1

Lead 5

Orientation	Horizontal		Vertical	
Speed (mm/s)	Acceleration (G)			
	0.3	0.5	0.3	0.5
0	15	14	5	4.5
85	15	14	5	4.5
130	15	14	5	4.5
215	15	14	5	4.5
260	15	14	5	4.5
300	15	14	4.5	4
350	13	12	4	3.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	18	6.5
40	18	6.5
85	18	6.5
105	18	6.5
135	18	6.5
150	18	6
175	18	

Energy-saving setting enabled The unit for payload is kg. If blank, operation is not possible.

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	4	3.5	1
140	4	3.5	1
280	4	3.5	1
420	4	3.5	1
560	4	3	1
700	3	2	
800		1	

Lead 10

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	10	8	2
175	10	8	2
350	9	6	2
435	7	5	1.5
525	5	2.5	1

Lead 5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	12	4.5
85	12	4.5
130	12	4
215	10	4
260	9	2.5

Lead 2.5

Orientation	Horizontal	Vertical
Speed (mm/s)	Acceleration (G)	
	0.3	0.3
0	14	6.5
40	14	6.5
85	14	6.5
105	14	6.5
135	14	5

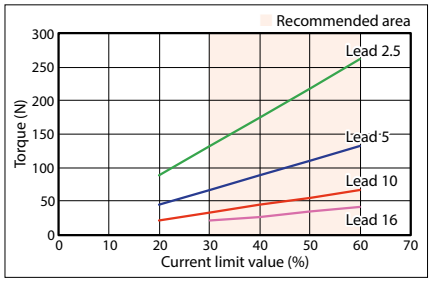
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)
16	Disabled	800	760	540
	Enabled	800 <560>	760 <560>	540
10	Disabled	700	470	320
	Enabled	525	470	320
5	Disabled	350	240	160
	Enabled	260	240	160
2.5	Disabled	175 <150>	120	85
	Enabled	135	120	85

(Unit: mm/s)

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

Correlation between Torque and Current Limit



Dimensions

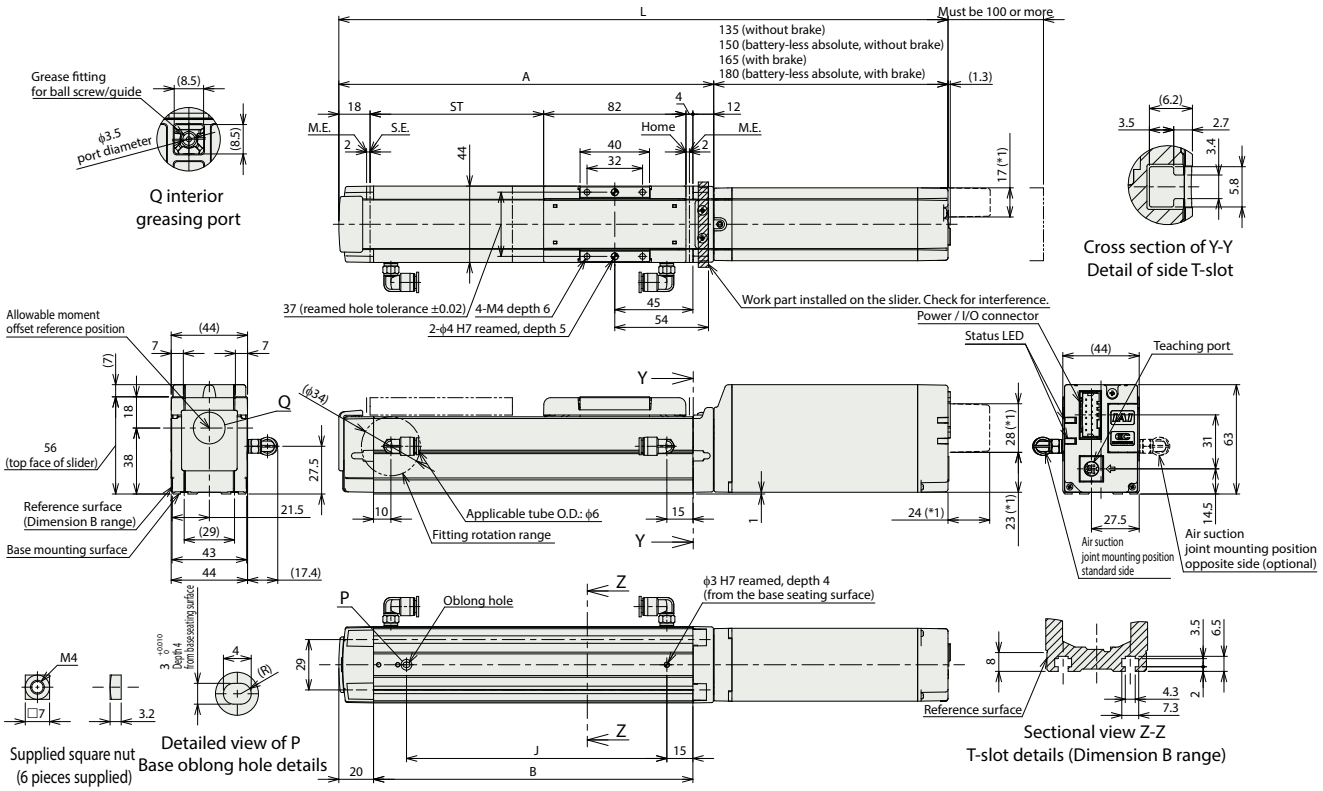
CAD drawings can be downloaded from our website.
www.iai-automation.com

2D CAD 3D CAD

■ EC-S4□CR

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



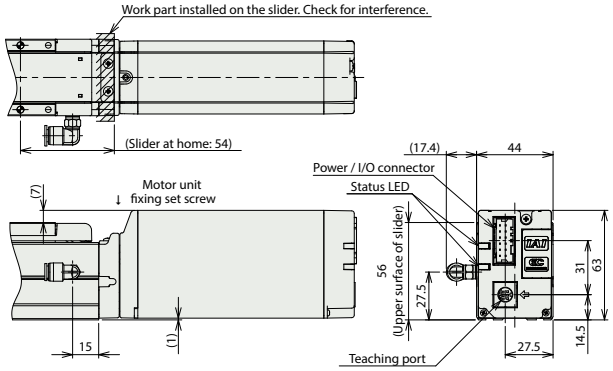
■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	301	351	401	451	501	551
		With brake	331	381	431	481	531	581
	Battery-less absolute	Without brake	316	366	416	466	516	566
		With brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

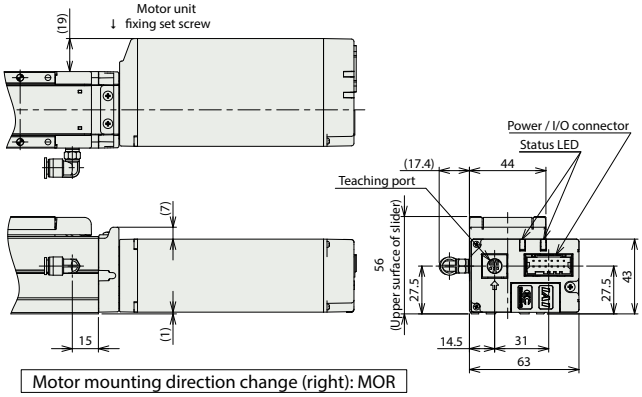
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.3	1.5	1.6	1.8	1.9	2.1

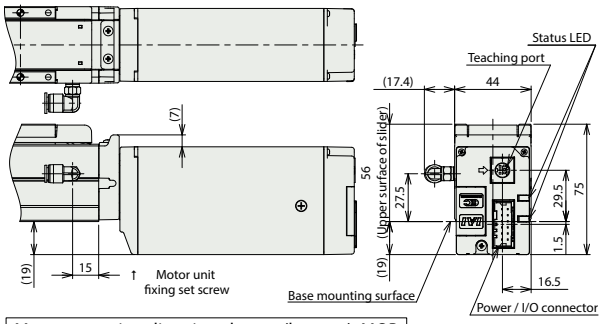
■ Motor mounting direction change (option)



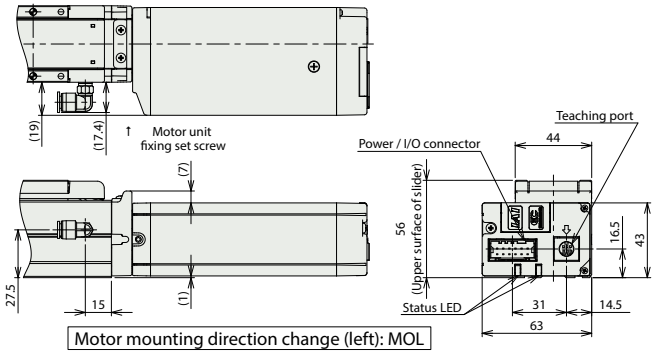
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB

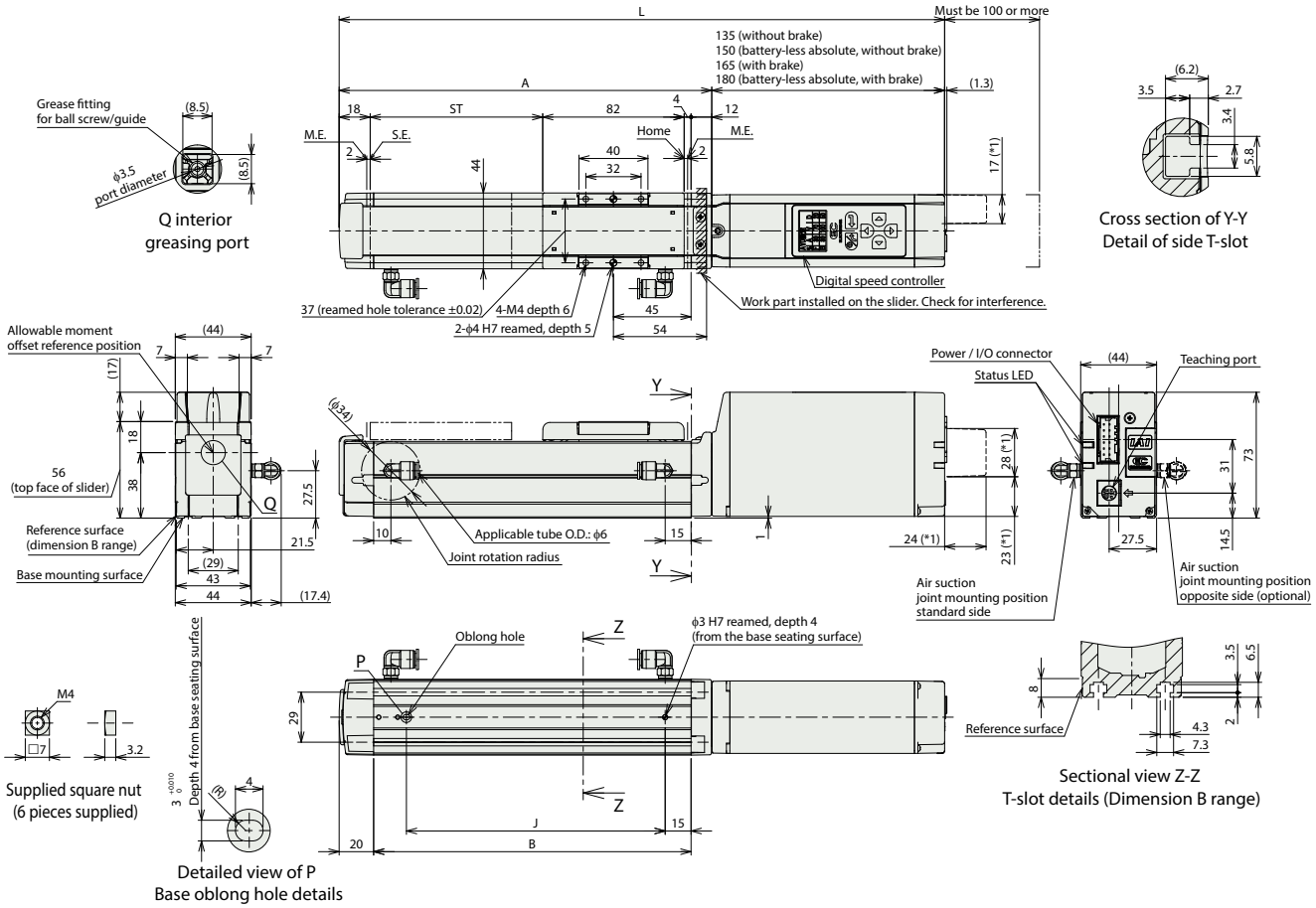


Motor mounting direction change (left): MOL

■ EC-DS4□CR <with digital speed controller>

*1 The dimensions when wireless communication specification (option) or wireless axis operation specification (option) is selected.
(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.
(Note) The figures below are for motor installed on top (MOT).

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



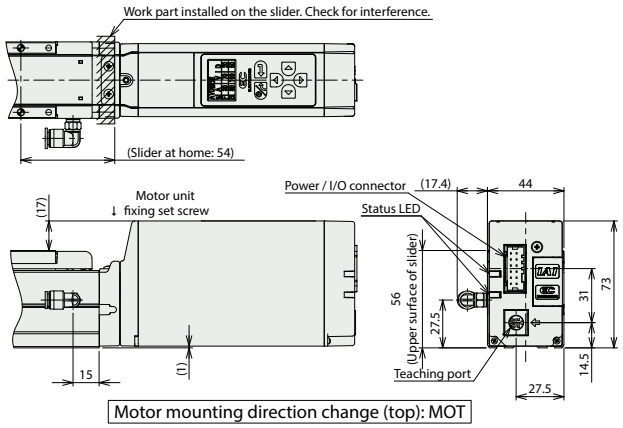
■ Dimensions by stroke

Stroke			50	100	150	200	250	300
L	Incremental	Without brake	301	351	401	451	501	551
		With brake	331	381	431	481	531	581
	Battery-less absolute	Without brake	316	366	416	466	516	566
		With brake	346	396	446	496	546	596
A			166	216	266	316	366	416
B			134	184	234	284	334	384
J			100	150	200	250	300	350

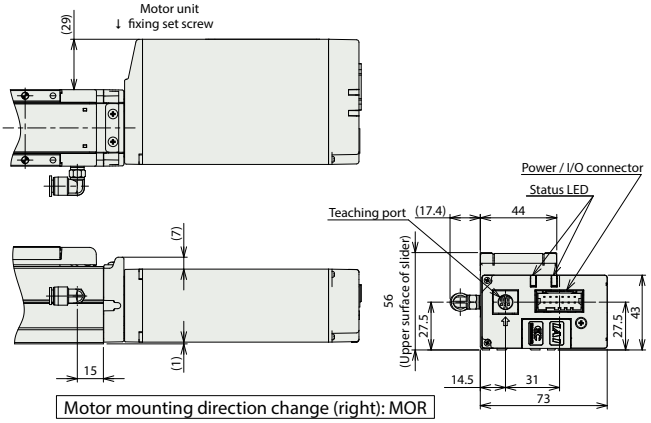
■ Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.2	1.3	1.5	1.6	1.8	1.9
	With brake	1.4	1.5	1.7	1.8	2.0	2.1

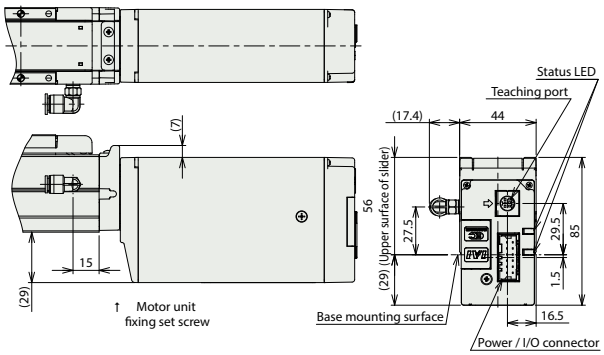
■ Motor mounting direction change (option)



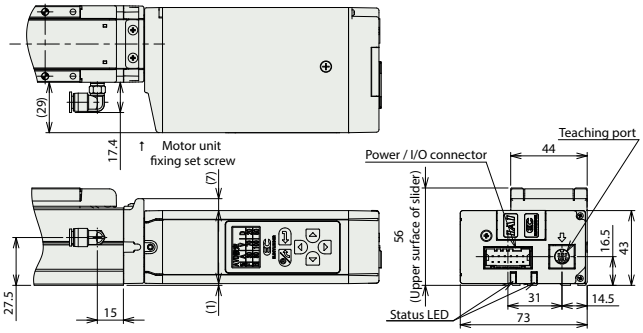
Motor mounting direction change (top): MOT



Motor mounting direction change (right): MOR



Motor mounting direction change (bottom): MOB



Motor mounting direction change (left): MOL

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6□CR
EC-DS6□CR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			CR	-		-		-	
Series	-	Type	Lead	Specification	-	Stroke	-	Power / I/O cable length	-	Options
		S6 Standard	S 20mm	CR Cleanroom specification		50 50mm		See power / I/O cable length below		See options below
		DS6 Digital speed controller	H 12mm			↕ ↕				
			M 6mm			400 400mm (Every 50mm)				
			L 3mm							



Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	S6□CR	DS6□CR	Stroke (mm)	S6□CR	DS6□CR
50	○	○	**250**	○	○
100	○	○	**300**	○	○
150	○	○	**350**	○	○
200	○	○	**400**	○	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Air suction joint in opposite position	**VR**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty restriction is required, depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 220mm in the Ma, Mb, and Mc directions Please contact IAI for overhang load lengths.
(6) 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.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	12.5
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 5)	60	60	40	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	400	400	400	400
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 48.5N·m
	Mb: 69.3N·m
	Mc: 97.1N·m
Dynamic allowable moment (Note 6)	Ma: 11.6N·m
	Mb: 16.6N·m
	Mc: 23.3N·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 (□42)
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. Confirm the operation life on P. 1-244.

■ Slider type moment direction

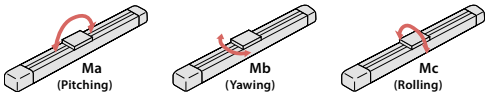


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	15	9	5	4	2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	11	8	3.5	3.5
450	15	8	6	4	2	2

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	12.5	12.5
50	40	35	35	35	12.5	12.5
80	40	35	35	30	12.5	12.5
110	40	35	35	30	12.5	12.5
140	40	35	35	28	12.5	12.5
170	40	32	32	24	12.5	12
200	35	28	23	20	10	9
225	28	20	16	12	6	

■ Energy-saving setting enabled The unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

Lead 3

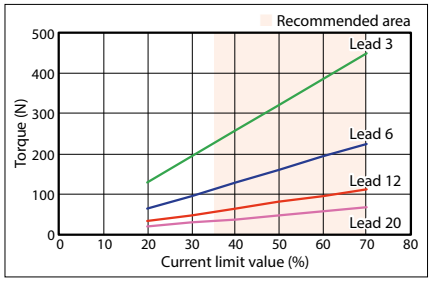
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 200 (Every 50mm)	250 (mm)	300 (mm)	350 (mm)	400 (mm)
20	Disabled	800			727	566
	Enabled	800			727	566
12	Disabled	700		521	392	305
	Enabled	680		521	392	305
6	Disabled	450	371	265	199	155
	Enabled	340		265	199	155
3	Disabled	225	188	134	100	78
	Enabled	170		134	100	78

(Unit: mm/s)

Correlation between Torque and Current Limit

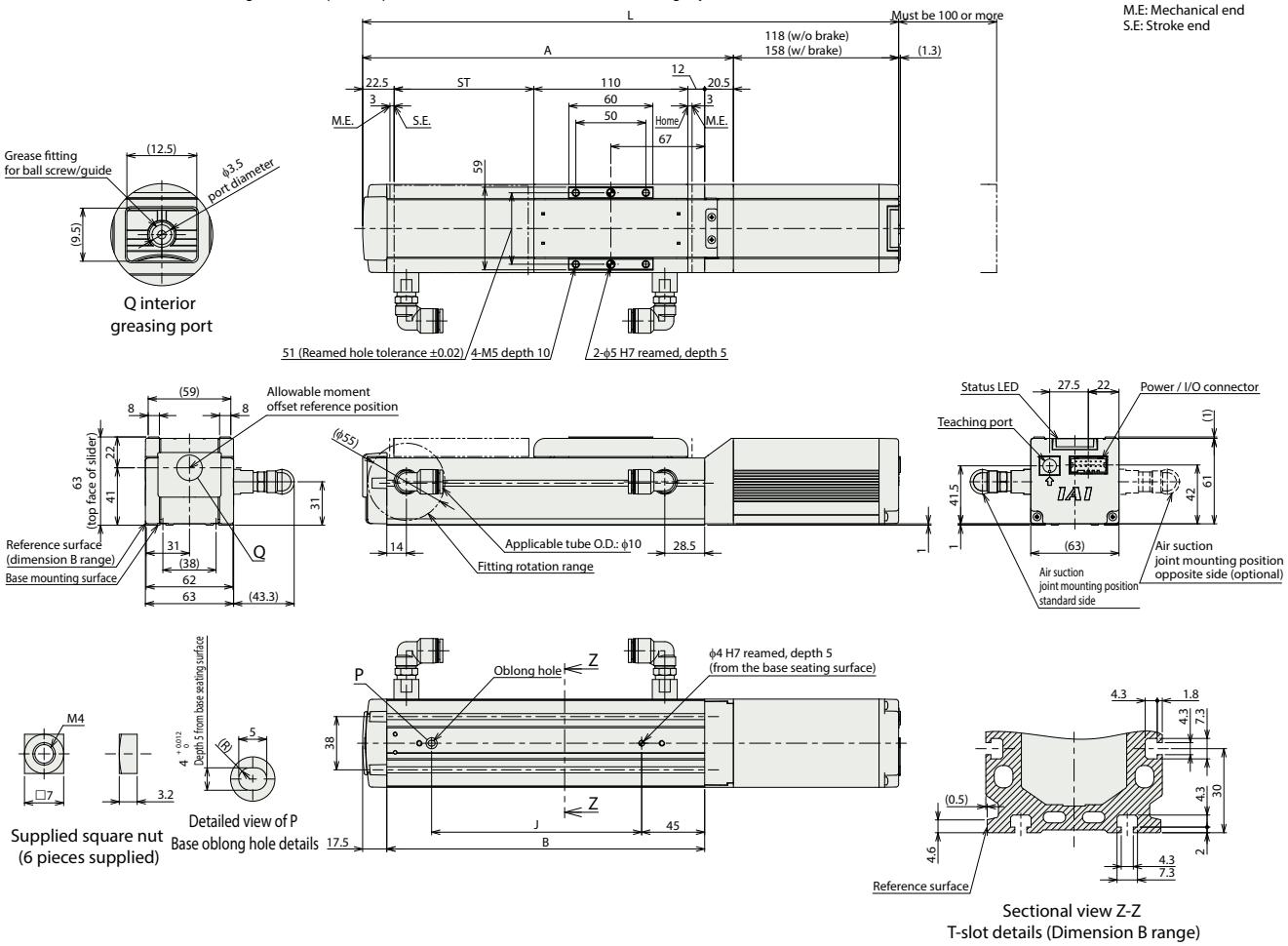


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■ EC-S6□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

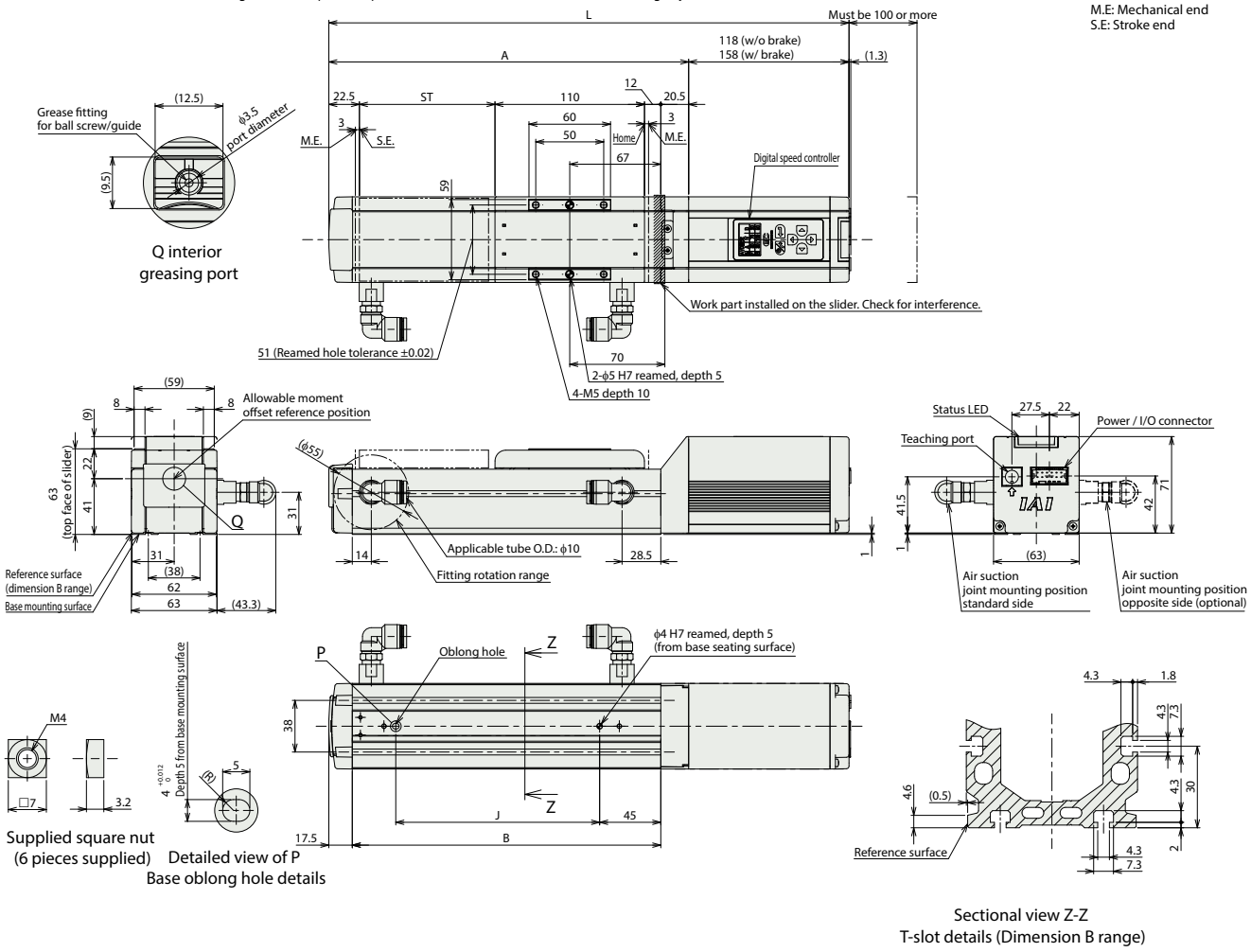
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.0	2.2	2.4	2.6	2.8	3.0	3.3	3.4

■ EC-DS6□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

	Stroke	50	100	150	200	250	300	350	400
L	Without brake	333	383	433	483	533	583	633	683
	With brake	373	423	473	523	573	623	673	723
A		215	265	315	365	415	465	515	565
B		177	227	277	327	377	427	477	527
J		100	150	200	250	300	350	400	450

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	With brake	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7□CR
EC-DS7□CR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC	-				CR	-		-		-	
Series	-	Type		Lead	Specification	-	Stroke	-	Power / I/O cable length	-	Options
	-	S7 Standard	S 24mm		CR Cleanroom specification	-	50 50mm ~ 500 500mm (Every 50mm)	-	See power / I/O cable length below	-	See options below
	-	DS7 Digital speed controller	H 16mm								
	-		M 8mm								
	-		L 4mm								



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	S7□CR	DS7□CR	Stroke (mm)	S7□CR	DS7□CR
50	○	○	**300**	○	○
100	○	○	**350**	○	○
150	○	○	**400**	○	○
200	○	○	**450**	○	○
250	○	○	**500**	○	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Foot bracket	**FT**	2-377
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Air suction joint in opposite position	**VR**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty restriction is required, depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 280mm in the Ma, Mb, and Mc directions. Please contact IAI for overhang load lengths.
(6) 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.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	19
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	860	700	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 5)	90	80	50	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	500	500	500	500
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±0.05mm
Lost motion	- (two-point positioning function; cannot be represented)
Base	Dedicated aluminum extruded material (A6063SS-T5 equivalent), black alumite treatment
Linear guide	Linear motion infinite circulating type
Static allowable moment	Ma: 79.7N·m
	Mb: 114N·m
	Mc: 157N·m
Dynamic allowable moment (Note 5)	Ma: 17.7N·m
	Mb: 25.3N·m
	Mc: 34.9N·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 (□56)
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.

Slider type moment direction

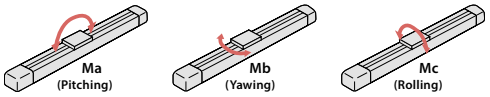


Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	10	7	4	3	2.5

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	10	5	3	3	2

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	19	19
35	51	45	40	40	19	19
70	51	45	40	40	19	19
105	51	45	40	35	19	19
140	45	35	30	25	14	12
175	30	18			9	7.5
210	6					

Energy-saving setting enabled The unit for payload is kg.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

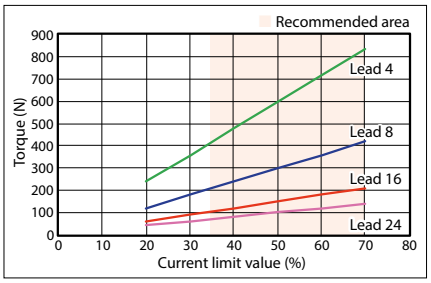
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 300 (Every 50mm)	350 (mm)	400 (mm)	450 (mm)	500 (mm)
24	Disabled	860		774	619	506
	Enabled	800		774	619	506
16	Disabled	700	631	492	395	323
	Enabled	560		492	395	323
8	Disabled	420	322	251	200	164
	Enabled	280		251	200	164
4	Disabled	210 <175>	163	126	101	83
	Enabled	140		126	101	83

(Unit: mm/s)

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

Correlation between Torque and Current Limit

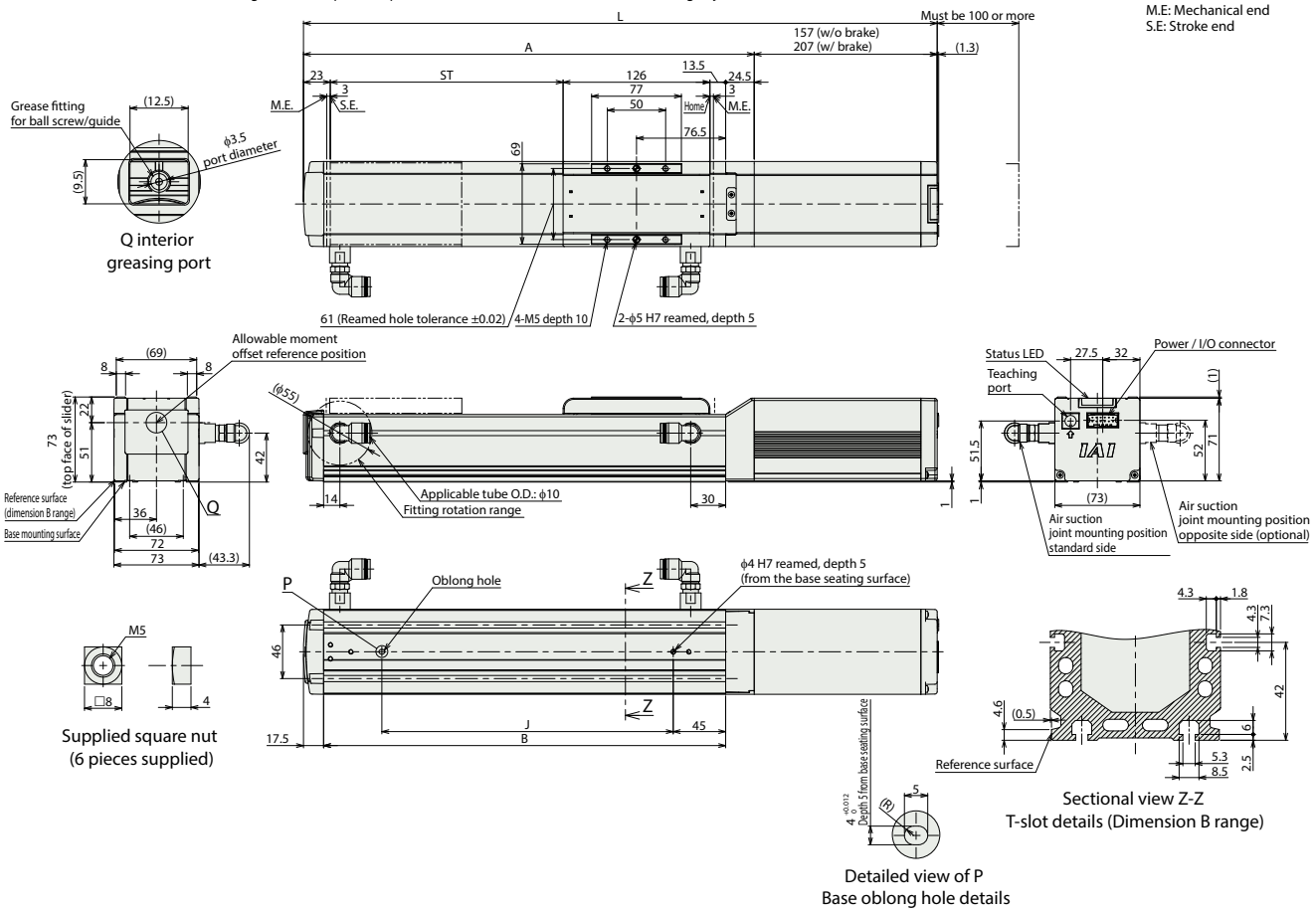


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2D CAD 3D CAD

■ EC-S7□CR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

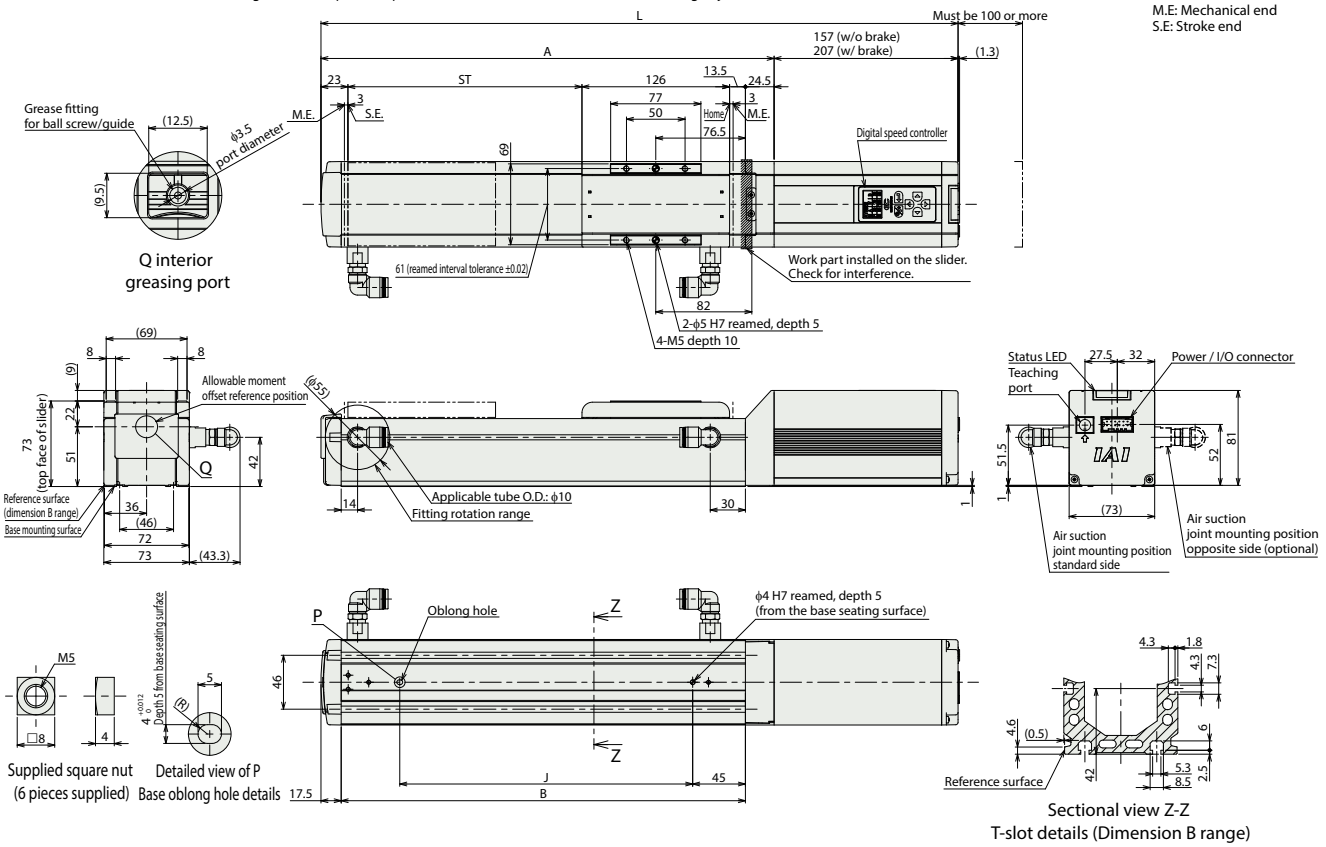
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.4	3.6	3.9	4.2	4.4	4.7	5.0	5.2	5.5	5.8
	With brake	3.8	4.1	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2

■ EC-DS7□CR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
L	Without brake	394	444	494	544	594	644	694	744	794	844
	With brake	444	494	544	594	644	694	744	794	844	894
A		237	287	337	387	437	487	537	587	637	687
B		195	245	295	345	395	445	495	545	595	645
J		100	150	200	250	300	350	400	450	500	550

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500
Mass (kg)	Without brake	3.5	3.7	4.0	4.3	4.5	4.8	5.1	5.3	5.6	5.9
	With brake	4.1	4.3	4.6	4.9	5.1	5.4	5.7	5.9	6.2	6.5

■ Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S6□AHCR
EC-DS6□AHCR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			AH	CR	-		-		-	
Series	-	Type	Lead	Specification	Specifications	-	Stroke	-	Power / I/O cable length	-	Options

Type		Lead		Specification		Specifications	
S6	Standard	S	20mm	AH	High rigidity	CR	Cleanroom specification
DS6	Digital speed controller	H	12mm				
		M	6mm				
		L	3mm				

Stroke	
50	50mm
~	~
800	800mm (Every 50mm)

Power / I/O cable length: See power / I/O cable length below

Options: See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	S6□AHCR	DS6□AHCR	Stroke (mm)	S6□AHCR	DS6□AHCR
50	○	○	450	○	○
100	○	○	500	○	○
150	○	○	550	○	○
200	○	○	600	○	○
250	○	○	650	○	○
300	○	○	700	○	○
350	○	○	750	○	○
400	○	○	800	○	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	ACR	2-373
Brake	B	2-373
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
split motor and controller power supply specification	TMD2	2-387
Air suction joint in opposite position	VR	2-388
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty restriction is required, depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions. Please contact IAI for overhang load lengths.
(6) 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.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	15	26	32	40
		Max. payload (kg) (energy-saving enabled)	8	14	20	25
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1350	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1	2.5	6	16
		Max. payload (kg) (energy-saving enabled)	0.75	2	5	10
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1120	900	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 5)	100	70	40	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1	2.5	6	16
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, ϕ10mm, rolled C10
Positioning repeatability	±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: 48.5N·m
	Mb: 69.3N·m
	Mc: 103N·m
Dynamic allowable moment (Note 6)	Ma: 33.7N·m
	Mb: 40.2N·m
	Mc: 55.3N·m
Cleanliness	ISO Class 2.5 (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/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□42)
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.

■ Slider type moment direction

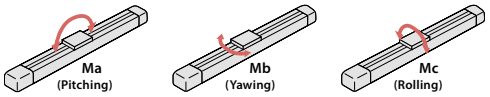


Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 20

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	15	10	8	7	1	1
160	15	10	8	7	1	1
320	12	10	8	6	1	1
480	12	9	8	6	1	1
640	12	8	6	5	1	1
800	10	6.5	4.5	3	1	1
960	8	5	3.5	1.5	1	1
1120	5	3	2	1	0.5	0.5
1280		1	1	0.5		
1350		0.5				

Lead 12

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	26	18	16	14	2.5	2.5
80	26	18	16	14	2.5	2.5
200	26	18	16	14	2.5	2.5
320	26	18	14	12	2.5	2.5
440	26	18	12	10	2.5	2.5
560	20	12	8	7	2.5	2.5
700	14	7	5	4	2	1
800	8	4	2	1	1.5	1
900	5	2	0.5		0.5	

Lead 6

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	32	26	24	20	6	6
40	32	26	24	20	6	6
100	32	26	24	20	6	6
160	32	26	24	20	6	6
220	32	26	24	20	6	6
280	32	26	24	15	6	5.5
340	32	20	18	12	5	4.5
400	22	12	10	7	3.5	3.5
450	14.5	7	4.5	2	2	1.5

Lead 3

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	40	35	35	35	16	16
50	40	35	35	35	16	16
80	40	35	35	30	16	16
110	40	35	35	30	16	16
140	40	35	35	28	15	15
170	40	32	32	24	12.5	12
200	35	28	23	19	9	8
225	28	20	10	7	5	

■ Energy-saving setting enabled The unit for payload is kg.

Lead 20

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	8	5	0.75
160	8	5	0.75
320	8	5	0.75
480	8	4	0.75
640	6	3	0.75
800	4	1.5	0.75

Lead 12

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	14	10	2
80	14	10	2
200	14	10	2
320	14	10	2
440	11	7	1.5
560	7	2.5	1
680	4	1	0.5

Lead 6

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	20	14	5
40	20	14	5
100	20	14	5
160	20	14	5
220	16	14	4
280	13	7	2.5
340	10	1	1

Lead 3

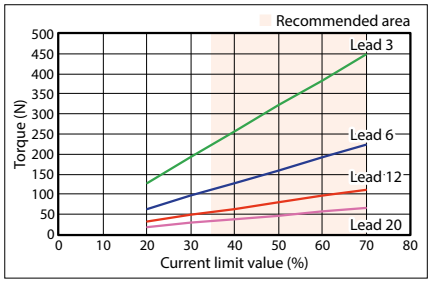
Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	25	22	10
20	25	22	10
50	25	22	10
80	25	22	10
110	20	14	8
140	15	11	5
170	11	9	2

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 400 (Every 50mm)	450 (mm)	500 (mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
20	Disabled	1350 <1120>		1280 <1120>	1090	940	815	715	630	560
	Enabled	800						715	630	560
12	Disabled	900	845	705	585	515	445	390	345	315
	Enabled	680			585	515	445	390	345	315
6	Disabled	450	415	350	295	255	220	190	170	140
	Enabled	340			295	255	220	190	170	140
3	Disabled	225	205	170	145	125	110	95	85	70
	Enabled	170			145	125	110	95	85	70

(Unit: mm/s)

Correlation between Torque and Current Limit

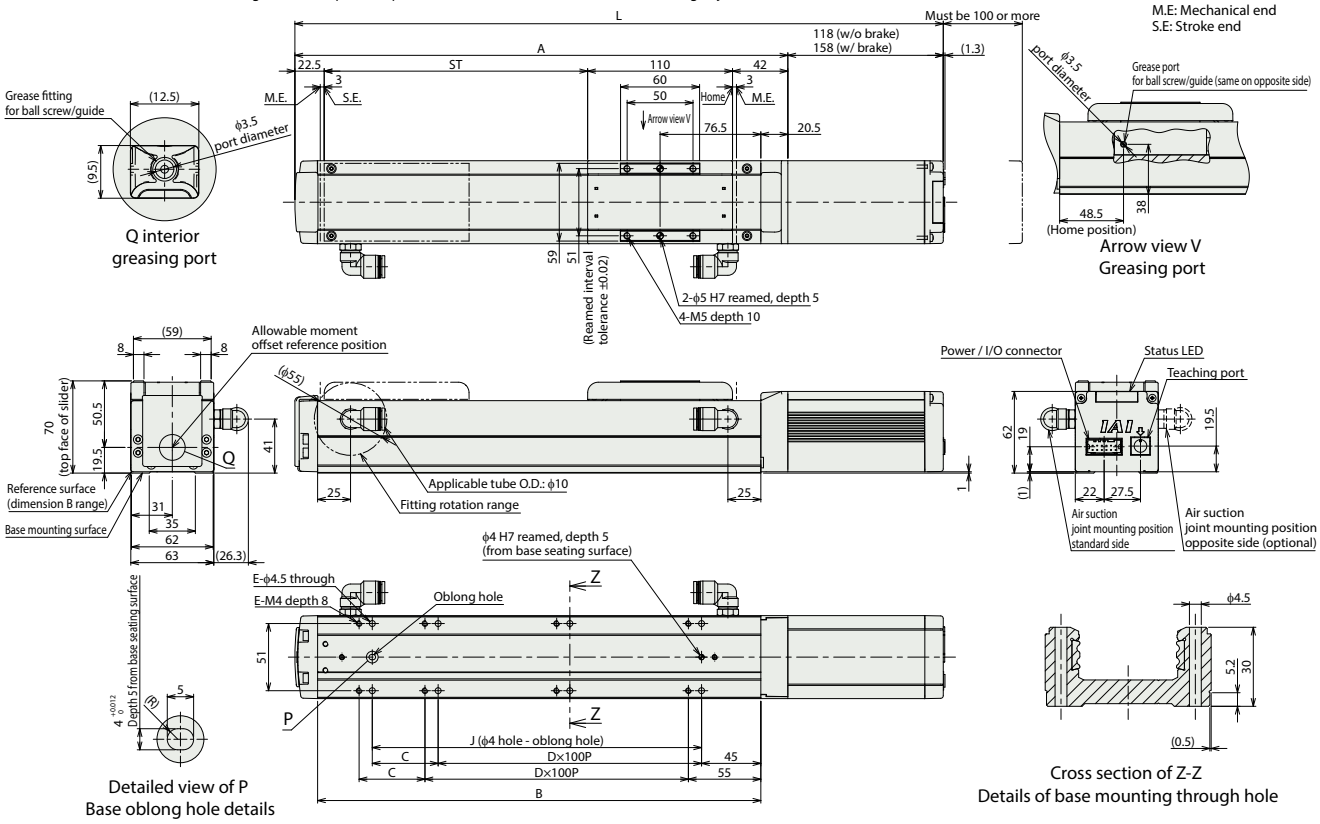


CAD drawings can be downloaded from our website.
www.iai-automation.com

■ EC-S6□AHCR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

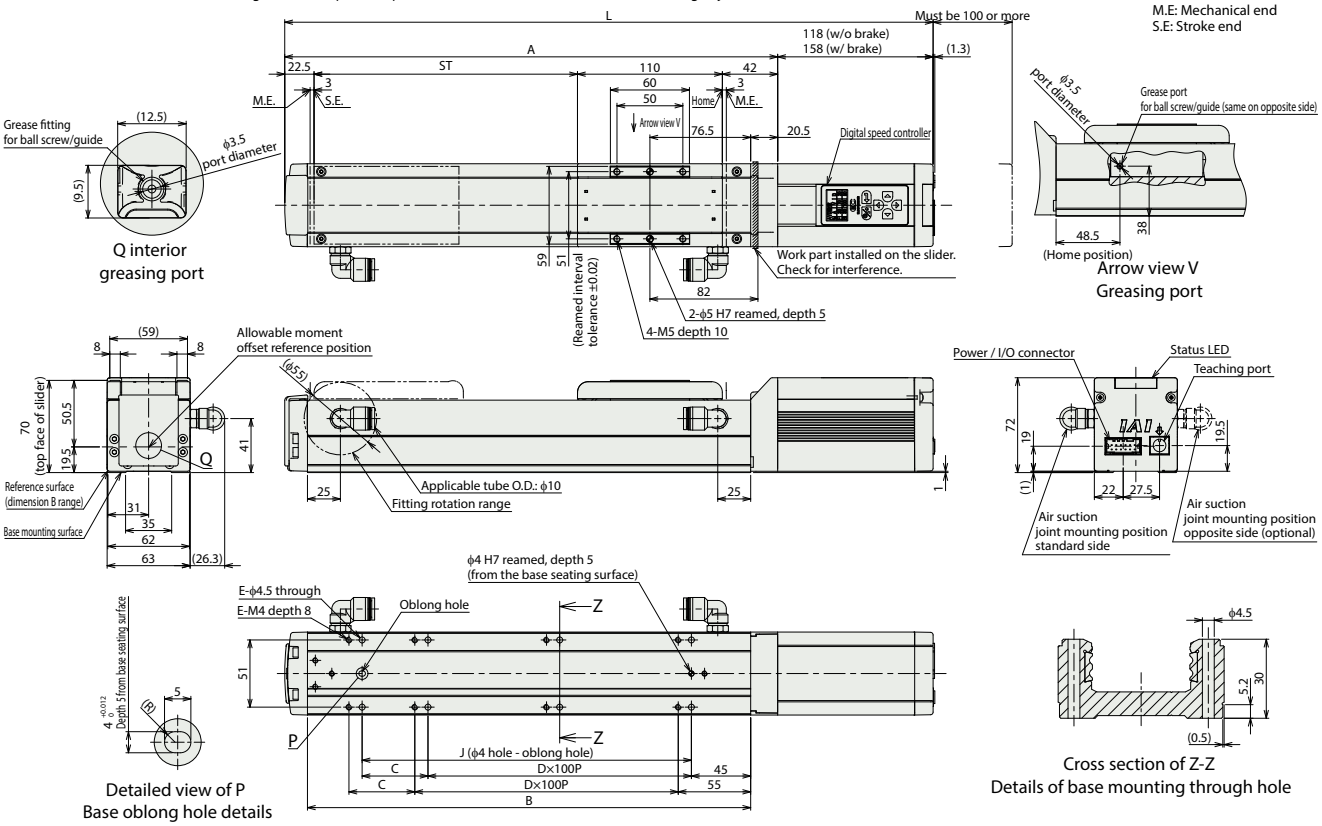
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6

■ EC-DS6□AHCR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	342.5	392.5	442.5	492.5	542.5	592.5	642.5	692.5	742.5	792.5	842.5	892.5	942.5	992.5	1042.5	1092.5
	With brake	382.5	432.5	482.5	532.5	582.5	632.5	682.5	732.5	782.5	832.5	882.5	932.5	982.5	1032.5	1082.5	1132.5
A		224.5	274.5	324.5	374.5	424.5	474.5	524.5	574.5	624.5	674.5	724.5	774.5	824.5	874.5	924.5	974.5
B		186.5	236.5	286.5	336.5	386.5	436.5	486.5	536.5	586.5	636.5	686.5	736.5	786.5	836.5	886.5	936.5
C		0	50	0	50	0	50	0	50	0	50	0	50	0	50	0	50
D		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
E		4	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20
J		100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.7	4.9	5.1	5.3
	With brake	2.3	2.5	2.7	2.9	3.2	3.4	3.6	3.8	4.1	4.3	4.5	4.7	5.0	5.2	5.4	5.6

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

EC-S7□AHCR
EC-DS7□AHCR

<With digital speed controller>

Cleanroom Spec | Straight Motor | Body Width 80 mm | 24v Stepper Motor

■ Model Specification Items

EC	-			AH	CR	-		-		-	
Series	-	Type	Lead	Specification	Specifications	-	Stroke	-	Power / I/O cable length	-	Options

Type		Lead		Specification		Specifications	
S7	Standard	S	24mm	AH	High rigidity	CR	Cleanroom specification
DS7	Digital speed controller	H	16mm				
		M	8mm				
		L	4mm				

Stroke	
50	50mm
~	~
800	800mm (Every 50mm)

Power / I/O cable length: See power / I/O cable length below

Options: See options below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Stroke

Stroke (mm)	S7□AHCR	DS7□AHCR	Stroke (mm)	S7□AHCR	DS7□AHCR
50	○	○	**450**	○	○
100	○	○	**500**	○	○
150	○	○	**550**	○	○
200	○	○	**600**	○	○
250	○	○	**650**	○	○
300	○	○	**700**	○	○
350	○	○	**750**	○	○
400	○	○	**800**	○	○

Option

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
RCON-EC connection specification (Note 1)	**ACR**	2-373
Brake	**B**	2-373
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
split motor and controller power supply specification	**TMD2**	2-387
Air suction joint in opposite position	**VR**	2-388
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) "Main Specifications" displays the payload's maximum value. If the energy-saving setting is enabled, the main specifications will change. Please refer to "Table of Payload by Speed/ Acceleration" for details.
(2) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques listed are only reference values.
(3) Duty restriction is required, depending on the ambient operating temperature.
(4) Pay close attention to the installation orientation.
(5) Reference value of the overhang load length is under 300mm in the Ma, Mb, and Mc directions. Please contact IAI for overhang load lengths.
(6) 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.

Power / I/O cable length

■ Standard connector cable

Cable code	Cable length	User wiring specification (flying leads) CB-EC-PWBIO□□□-RB supplied	RCON-EC connection specification (Note 3) (with connectors on both ends) 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 terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 3) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ 4-way connector cable

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

(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	37	46	51	51
		Max. payload (kg) (energy-saving enabled)	18	35	40	40
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1230	980	420	210
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	16	25
		Max. payload (kg) (energy-saving enabled)	2	5	10	15
	Speed/ acceleration/ deceleration	Max. speed (mm/s)	1080	840	420	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	139	209	418	836
		Max. push speed (mm/s)	20	20	20	20
Cleanroom specification		Vacuum amount (Nl/min) (Note 5)	140	120	50	30
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	16	25
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	800	800	800	800
		Stroke pitch (mm)	50	50	50	50

(Note 5) The approximate suction amount at maximum speed.

Item	Description
Driving system	Ball screw, ϕ12mm, rolled C10
Positioning repeatability	±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: 115N·m
	Mb: 115N·m
	Mc: 229N·m
Dynamic allowable moment (Note 6)	Ma: 75.5N·m
	Mb: 90.0N·m
	Mc: 134N·m
Cleanliness	ISO Class 2.5 (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/s²
Overseas standards	CE marking, RoHS directive
Motor type	Stepper motor (□56)
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.

Slider type moment direction

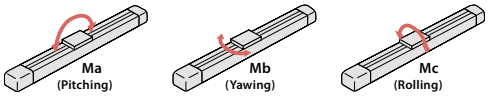


Table of Payload by Speed/Acceleration

Energy-saving setting disabled The unit for payload is kg. If blank, operation is not possible.

Lead 24

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	37	22	16	14	3	3
200	37	22	16	14	3	3
420	34	20	16	14	3	3
640	20	15	10	9	3	3
860	12	9	6	4	2	2
1080	7	3	2	1	0.5	0.5
1230	3	1	0.5			

Lead 16

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	46	35	28	27	8	8
140	46	35	28	27	8	8
280	46	35	25	24	8	8
420	34	25	15	10	5	4.5
560	20	15	10	6	4	3
700	15	8	5	2.5	2.5	2
840	7	3	1		0.5	
980	1					

Lead 8

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	16	16
70	51	45	40	40	16	16
140	51	40	38	35	16	16
210	51	35	30	24	10	9.5
280	40	28	20	15	8	7
350	30	9	4		5	4
420	7				2	

Lead 4

Orientation	Horizontal				Vertical	
Speed (mm/s)	Acceleration (G)					
	0.3	0.5	0.7	1	0.3	0.5
0	51	45	40	40	25	25
35	51	45	40	40	25	25
70	51	45	40	40	25	25
105	51	45	40	35	20	19
140	45	35	30	25	14	12
175	30	18			9	6
210	5					

Energy-saving setting enabled The unit for payload is kg.

Lead 24

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	18	10	2
200	18	10	2
420	18	10	2
640	10	2	1
800	5	0.5	0.5

Lead 16

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	35	20	5
140	35	20	5
280	25	12	3
420	15	6	1.5
560	7	0.5	0.5

Lead 8

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	25	10
70	40	25	10
140	40	25	7
210	25	14	4
280	10	1	1.5

Lead 4

Orientation	Horizontal		Vertical
Speed (mm/s)	Acceleration (G)		
	0.3	0.7	0.3
0	40	30	15
35	40	30	15
70	40	30	15
105	40	30	8
140	15	6	2

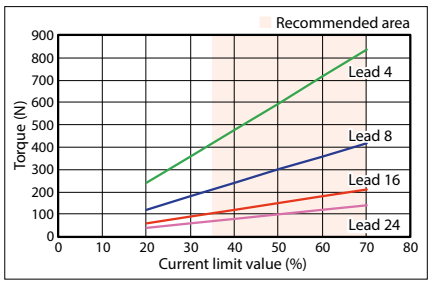
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 500 (Every 50mm)	550 (mm)	600 (mm)	650 (mm)	700 (mm)	750 (mm)	800 (mm)
24	Disabled	1230 <1080>			1080	950	840	750
	Enabled	800						750
16	Disabled	980 <840>	955 <840>	820	715	625	555	495
	Enabled	560					555	495
8	Disabled	420		405	350	310	275	245
	Enabled	280					275	245
4	Disabled	210 <175>		195 <175>	175	150	135	120
	Enabled	140					135	120

(Unit: mm/s)

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

Correlation between Torque and Current Limit

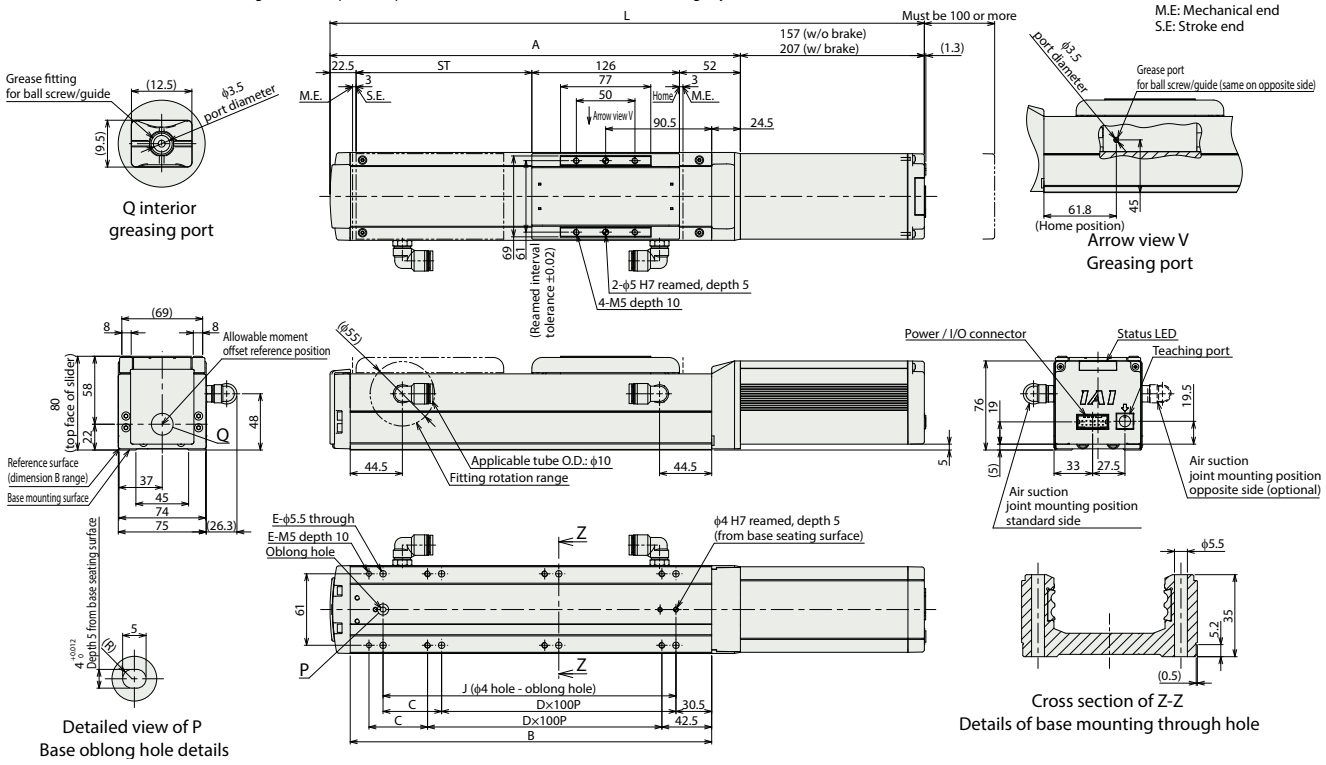


CAD drawings can be downloaded from our website.
www.iai-automation.com

■ EC-S7□AHCR

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

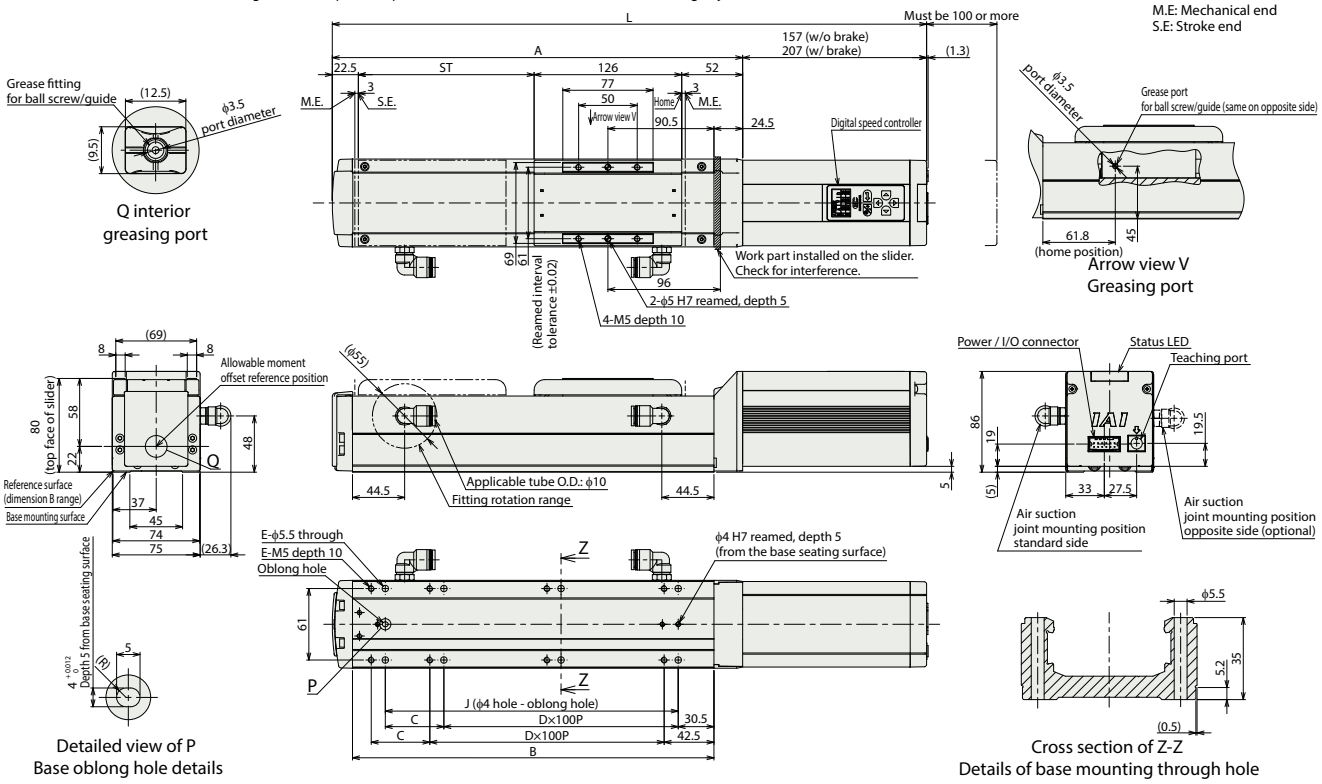
■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	3.9	4.1	4.4	4.7	4.9	5.2	5.5	5.7	6.0	6.3	6.5	6.8	7.1	7.3	7.6	7.9
	With brake	4.4	4.6	4.9	5.2	5.4	5.7	6.0	6.2	6.5	6.8	7.0	7.3	7.6	7.8	8.1	8.4

■ EC-DS7□AHCR <with digital speed controller>

(Note) When the slider is returning to its home position, please be careful of interference from surrounding objects, as it will travel until it reaches the M.E.

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



■ Dimensions by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5
	With brake	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5	1057.5	1107.5	1157.5	1207.5
A		250.5	300.5	350.5	400.5	450.5	500.5	550.5	600.5	650.5	700.5	750.5	800.5	850.5	900.5	950.5	1000.5
B		208.5	258.5	308.5	358.5	408.5	458.5	508.5	558.5	608.5	658.5	708.5	758.5	808.5	858.5	908.5	958.5
C		50	0	50	0	50	0	50	0	50	0	50	0	50	0	50	0
D		1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
E		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
J		150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900

■ Mass by stroke

Stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Mass (kg)	Without brake	4.0	4.2	4.5	4.8	5.0	5.3	5.6	5.8	6.1	6.4	6.6	6.9	7.2	7.4	7.7	8.0
	With brake	4.6	4.8	5.1	5.4	5.6	5.9	6.2	6.4	6.7	7.0	7.2	7.5	7.8	8.0	8.3	8.6

Applicable controllers

(Note) EC Series products are equipped with a built-in controller. Please refer to P. 2-391 for details on built-in controllers.

Cleanroom specification Cleanliness

Cleanliness is an indicator of how clean a cleanroom is. It is indicated as the "number of dust particles of a certain size or larger within a set volume."
The standard was based on United States Federal Standard 209 (1963), but was eliminated in 2001 following the establishment of ISO14644-1 in 1999.
Japanese Industrial Standard JIS B 9920 was also revised in 2002 to completely mimic the ISO.
The IAI ELECYLINDER® cleanroom specification therefore complies with ISO 14644-1.

Standard	Class	Particle diameter	Standard volume	Remarks
Fed.Std.209D	Class 1, 10, 100 ... 100,000	0.5μm	1ft³	Established in 1963, eliminated in 2001
ISO14644-1	Class 1 to 9	0.1μm	1m³	Established in 1999

EC Cleanroom specification



The standard regulates the number of dust particles of a certain diameter with a space of a certain size (1m³ or 1ft³)

<ISO cleanliness standard>

ISO 14644-1

Particle diameter	0.1μm					
Class standard	Exponential of number of particles in 1m³					
Class	Upper density [particles/m³]					
	0.1μm	0.2μm	0.3μm	0.5μm	1μm	5μm
Class 1	10	2				
(Class 1.5)	32					
Class 2	100	24	10	4		
(Class 2.5)	316					
Class 3	1,000	237	102	35	8	
(Class 3.5)	3,160					
Class 4	10,000	2,370	1,020	352	83	
(Class 4.5)	31,600					
Class 5	100,000	23,700	10,200	3,520	832	29
Class 6	1,000,000	237,000	102,000	35,200	8,320	293
Class 7				352,000	83,200	2,930
Class 8				3,520,000	832,000	29,300
Class 9				35,200,000	8,320,000	293,000

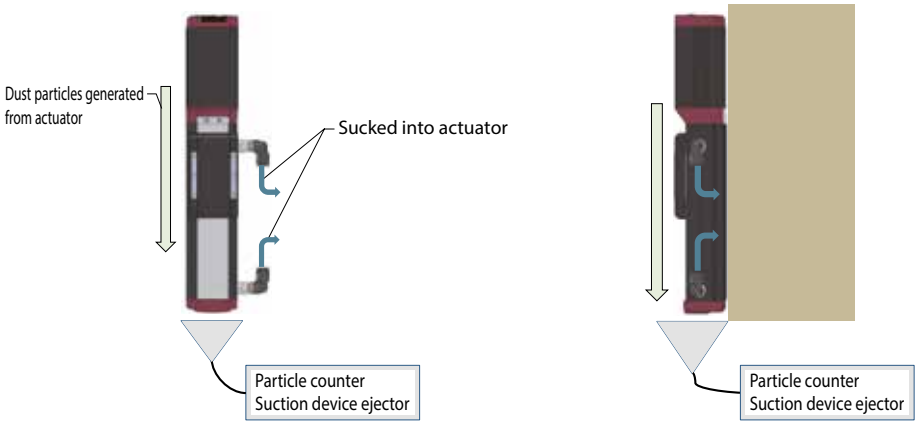
*Filled area indicates applicable particle diameter

EC Cleanroom specification cleanliness

Type	ISO class
(D)S3□CR	Class 3
(D)S4□CR	
(D)S6□CR	
(D)S7□CR	
(D)S6□AHCR	Class 2.5
(D)S7□AHCR	

<IAI method for measuring cleanliness>

As shown in the figure below, the number of dust particles is measured 3 times with the product vertically mounted. The largest number is used as the cleanliness.



Cleanroom specification Cleanroom-compliant suction

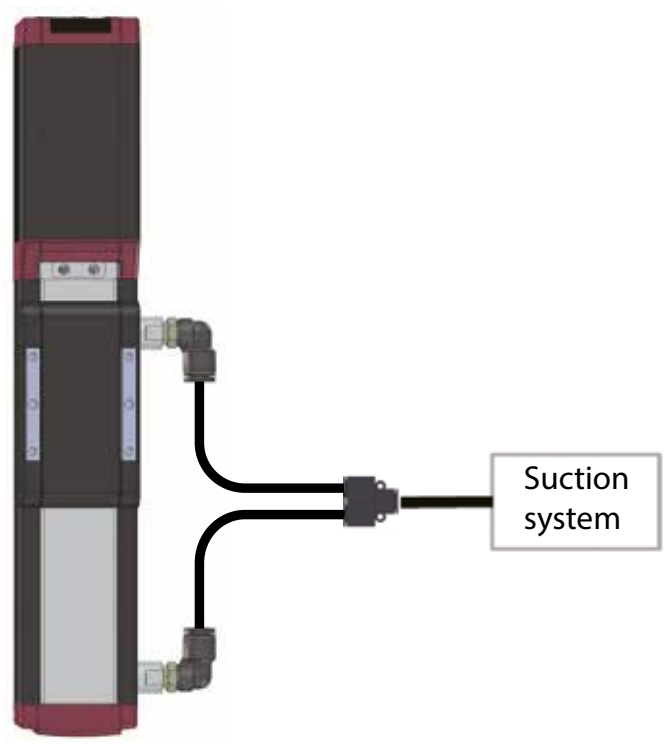
Cleanroom-compliant actuators suction air from the suction joint, and are capable of performance compliant with cleanroom/ISO Class 2.5 and 3 (ISO 14644-1 standard). The following table lists the approximate suction amount for each model lead (maximum speed).

- Perform air suction from the 2 suction joints on the side of the body, at the suction amount shown in the following table (total from 2 locations). Adjust the piping so that the suction amount is the same from each location.
- For EC-(D)S☐AHCR type, use with all base mounting holes on the bottom surface of the body closed. Any through holes in the body will reduce cleanliness.

Table. Approximate suction amounts

Type	Lead	Suction amount	
	[mm]	[Nℓ/min]	[ℓ/min]
(D)S3☐CR	6	40	43
	4	35	38
	2	35	38
(D)S4☐CR	16	40	43
	10	30	32
	5	25	27
	2.5	20	21
(D)S6☐CR	20	60	64
	12	60	64
	6	40	43
	3	30	32
(D)S7☐CR	24	90	97
	16	80	86
	8	50	54
	4	30	32
(D)S6☐AHCR	20	100	107
	12	70	75
	6	40	43
	3	30	32
(D)S7☐AHCR	24	140	150
	16	120	129
	8	50	54
	4	30	32

Suction tube layout diagram



Dust- and Splash-proof Specification

Stepper motors			
Rods	EC-R6□W	2-357	
	EC-R7□W	2-361	
Radial cylinders Radial Load Specification Radial Cylinder®	EC-RR6□W	2-365	
	EC-RR7□W	2-369	

EC-R6□W

Dust/ Splash-Proof Spec | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	R6		W	-		-		-	
Series		Type	Lead	Specifications		Stroke		Power / I/O cable length		Options
			S 20mm	W Dust/Splash-proof		50 50mm		Refer to "Power / I/O Cable Length" below		Refer to "Options" below
			H 12mm			↓ ↓				
			M 6mm			300 300mm (Every 50mm)				
			L 3mm							



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-R6□W	Stroke (mm)	EC-R6□W
50	○	**200**	○
100	○	**250**	○
150	○	**300**	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable length: 5m	**AC5**	2-373
Actuator cable length: 2m (fluoro-rubber covering specification) (Note 1)	**ACF2**	2-373
Actuator cable length: 5m (fluoro-rubber covering specification) (Note 1)	**ACF5**	2-373
RCON-EC connection specification (Note 2)	**ACR**	2-373
Brake	**B**	2-373
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Designated grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Fluoro-rubber seal specification (Note 1)	**SLF**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) When the "ACF2" or "ACF5" options are selected, the "SLF" option is also supplied. Either one or the other can therefore be selected.
(Note 2) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details. If the energy-saving setting is enabled, the main specifications will change.
(2) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(4) Duty must be restricted depending on the ambient operating temperature.
(5) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

(Note) Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

■ Standard connector cables

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cables

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw, ϕ10mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (two-point positioning function; cannot be represented)
Main component materials	Rod	ϕ25mm, material: aluminum, hard alumite treatment
	Frame	Material: Aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Vinyl chloride (PVC)
Rod non-rotation precision (Note 6)		±1.5 degrees
Allowable load and torque on rod tip		0.5N·m
Ambient operating temperature/humidity		0~40°C, 85% RH or less (Non-condensing)
Degree of protection		IP67
Vibration & shock resistance		4.9m/s²
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□42)
Encoder Type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 6) The rod tip angular displacement (initial reference value) when the allowable static torque on rod tip is applied with the rod fully retracted.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

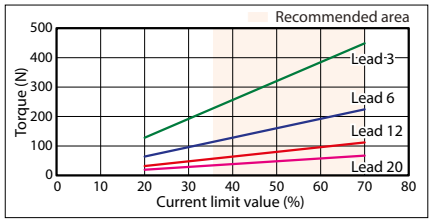
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	12.5
25	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max Speed

Lead (mm)	Energy-saving setting	50~200 (Every 50mm)	250 (mm)	300 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700		547
	Enabled	500		
6	Disabled	450	376	268
	Enabled	250		
3	Disabled	225	186	133
	Enabled	125		

(Unit: mm/s)

Correlation between Torque and Current Limit



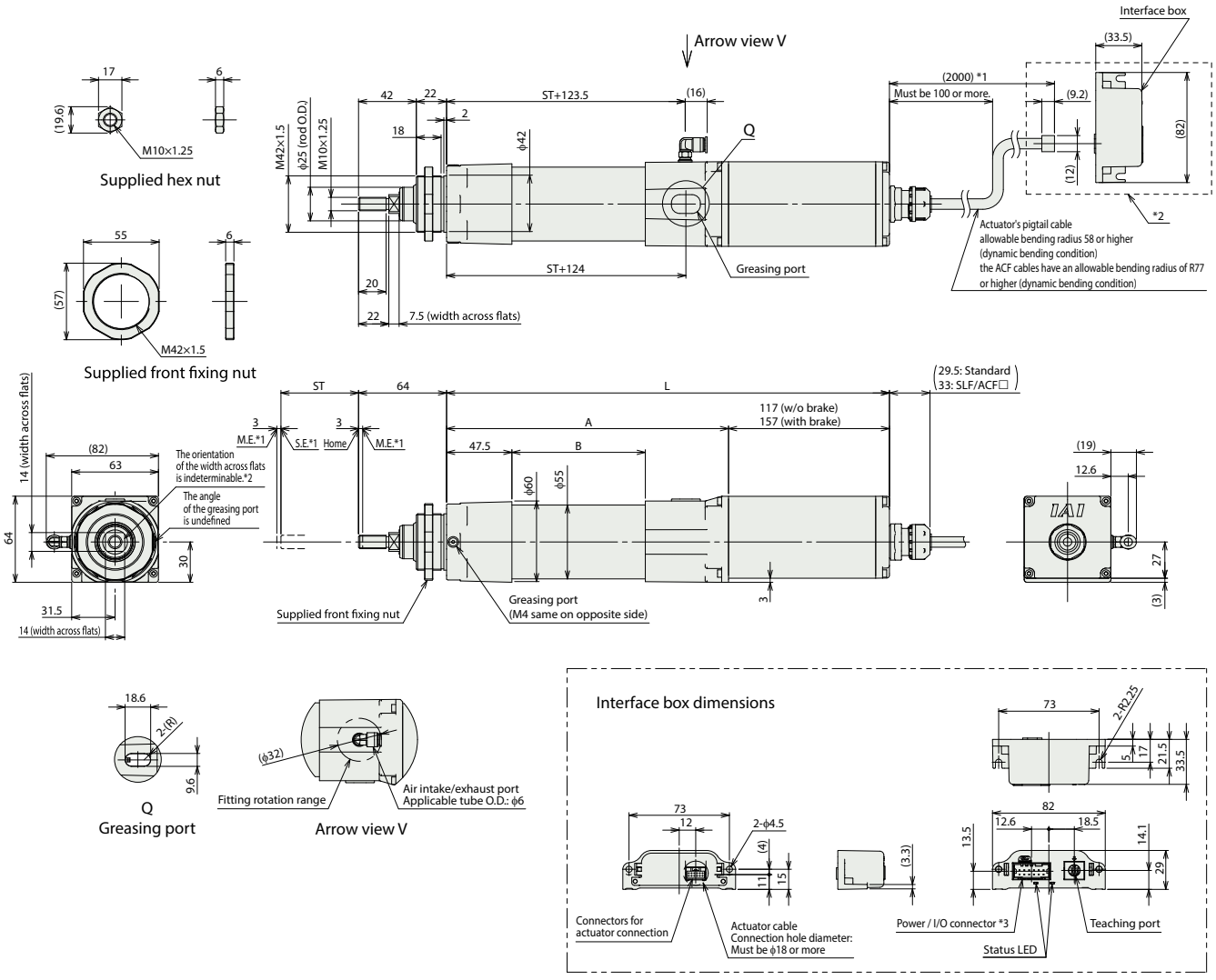
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

2D CAD 3D CAD

*1 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*2 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.
*3 The length of the actuator cable can be set to 5m as an option.
*4 The interface box relay section within the dashed line is not dust-proof or splash-proof.
*5 Make sure that the total length of the actuator's pigtail cable and power I/O cable is 10m or less.

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



Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	322	372	422	472	522	572
	With brake	362	412	462	512	562	612
A		205	255	305	355	405	455
B		97	147	197	247	297	347

Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	1.8	2.0	2.2	2.4	2.6	2.8
	With brake	2.1	2.3	2.5	2.7	2.9	3.1

Applicable Controllers

(Note) The EC series is equipped with a built-in controller. Please refer to P. 2-392 for details on built-in controllers.

EC-R7□W

Dust/ Splash-Proof Spec | Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

EC	-	R7		W	-		-		-	
Series		Type	Lead	Specifications		Stroke		Power / I/O cable length		Options
			S 24mm H 16mm M 8mm L 4mm	W Dust-proof/ splash-proof		50 50mm ~ ~ 300 300mm (Every 50mm)		Refer to "Power / I/O Cable Length" below		Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

■ Stroke

Stroke (mm)	EC-R7□W	Stroke (mm)	EC-R7□W
50	○	**200**	○
100	○	**250**	○
150	○	**300**	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable length: 5m	**AC5**	2-373
Actuator cable length: 2m (fluoro-rubber covering specification) (Note 1)	**ACF2**	2-373
Actuator cable length: 5m (fluoro-rubber covering specification) (Note 1)	**ACF5**	2-373
RCON-EC connection specification (Note 2)	**ACR**	2-373
Brake	**B**	2-373
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Designated grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Fluoro-rubber seal specification (Note 1)	**SLF**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) When the "ACF2" or "ACF5" options are selected, the "SLF" option is also supplied. Either one or the other can therefore be selected.
(Note 2) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details. If the energy-saving setting is enabled, the main specifications will change.
(2) The value of the horizontal payload assumes that there is an external guide. Please be aware that the anti-rotation stopper can be damaged when an external force is applied to the rod from any direction other than the moving direction.
(3) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(4) Duty must be restricted depending on the ambient operating temperature.
(5) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
(6) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

(Note) Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	50	50	50	50
		Max. stroke (mm)	300	300	300	300
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw, ϕ12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (two-point positioning function; cannot be represented)
Main component materials	Rod	ϕ30mm, material: aluminum, hard alumite treatment
	Frame	Material: Aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Vinyl chloride (PVC)
Rod non-rotation precision (Note 6)		±1.5 degrees
Allowable load and torque on rod tip		0.5N·m
Ambient operating temperature, humidity		0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection		IP67
Vibration/shock resistance		4.9m/s²
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□56)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 6) The rod tip angular displacement (initial reference value) when the allowable static torque on rod tip is applied with the rod fully retracted.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

■ Energy-saving setting enabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
400	11	6	1.5
420	10	5	
600	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

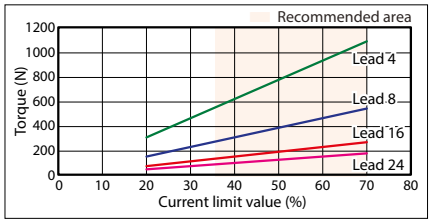
Stroke and Max Speed

Lead (mm)	Energy-saving setting	50 ~ 300 (Every 50mm)
24	Disabled	860 <640>
	Enabled	600 <400>
16	Disabled	700 <560>
	Enabled	420 <280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

(Unit: mm/s)

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

Correlation between Torque and Current Limit

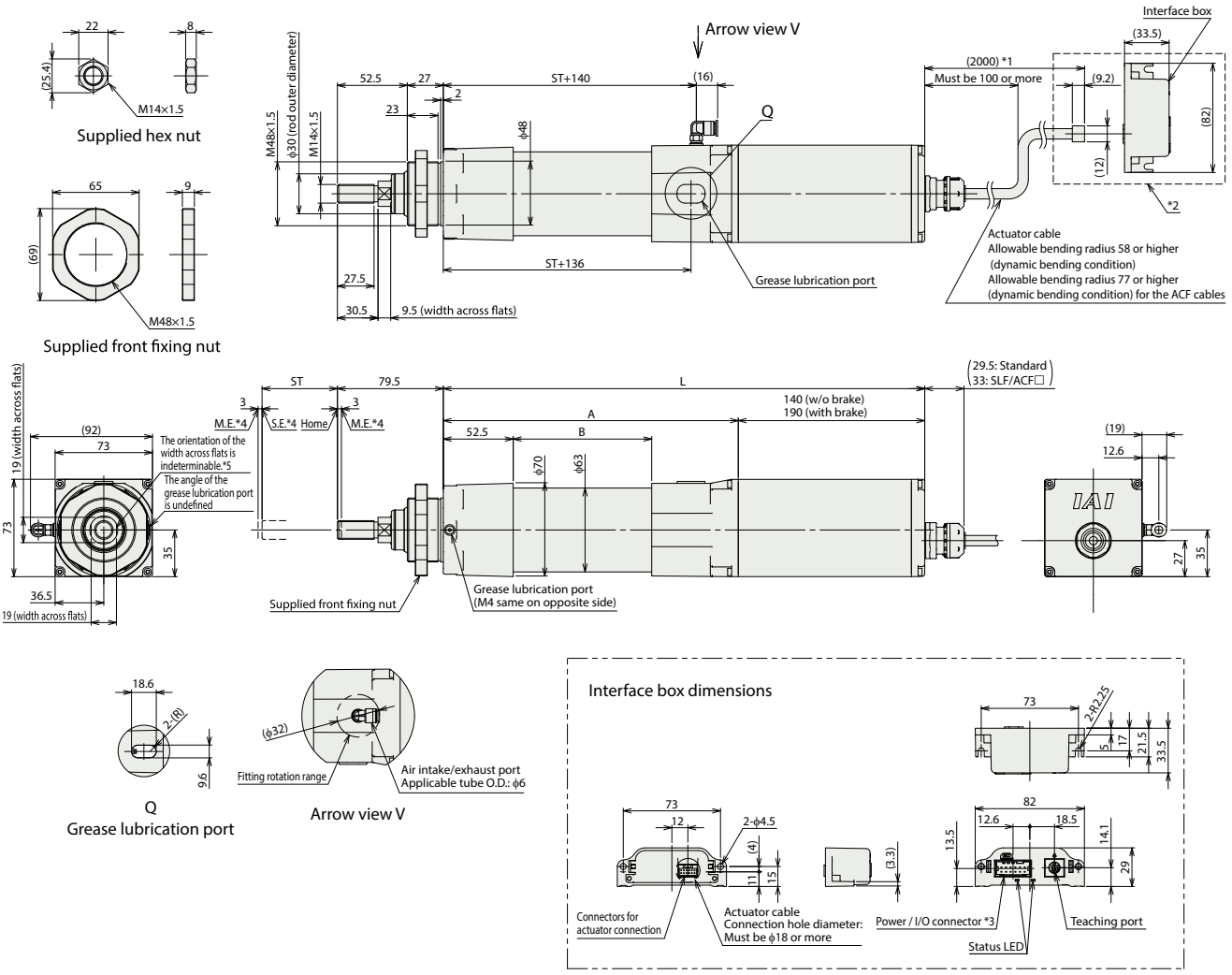


Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

*1 The length of the actuator cable can be set to 5m as an option.
*2 The interface box relay section within the dashed line is not dust-proof or splash-proof.
*3 Make sure that the total length of the actuator's pigtail cable and power I/O cable is 10m or less.
*4 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*5 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Dimensions by stroke

Stroke		50	100	150	200	250	300
L	Without brake	361.5	411.5	461.5	511.5	561.5	611.5
	With brake	411.5	461.5	511.5	561.5	611.5	661.5
A		221.5	271.5	321.5	371.5	421.5	471.5
B		104	154	204	254	304	354

Mass by stroke

Stroke		50	100	150	200	250	300
Mass (kg)	Without brake	3.6	3.8	4.0	4.2	4.4	4.6
	With brake	4.2	4.4	4.6	4.8	5.0	5.2

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-392 for details on built-in controllers.

EC-RR6□W

Dust/ Splash-Proof Spec | Straight Motor | Body Width 60 mm | 24v Stepper Motor

■ Model Specification Items

Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
EC	RR6	S 20mm H 12mm M 6mm L 3mm	W Dust-proof/ splash-proof	65 65mm ~ ~ 315 315mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	EC-RR6□W	Stroke (mm)	EC-RR6□W
65	○	**215**	○
115	○	**265**	○
165	○	**315**	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable length: 5m	**AC5**	2-373
Actuator cable length: 2m (fluoro-rubber covering specification) (Note 1)	**ACF2**	2-373
Actuator cable length: 5m (fluoro-rubber covering specification) (Note 1)	**ACF5**	2-373
RCON-EC connection specification (Note 2)	**ACR**	2-373
Brake	**B**	2-373
Tip adapter (flange)	**FFA**	2-375
Flange (front)	**FL**	2-376
Foot bracket	**FT**	2-377
Designated grease specification	**G5**	2-381
Tip adapter (internal thread)	**NFA**	2-382
Non-motor end specification	**NM**	2-384
PNP specification	**PN**	2-384
Fluoro-rubber seal specification (Note 1)	**SLF**	2-386
split motor and controller power supply specification	**TMD2**	2-387
Battery-less absolute encoder specification	**WA**	2-388
Wireless communication specification	**WL**	2-388
Wireless axis operation specification	**WL2**	2-388

(Note 1) When the "ACF2" or "ACF5" options are selected, the "SLF" option is also supplied. Either one or the other can therefore be selected.
(Note 2) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details. If the energy-saving setting is enabled, the main specifications will change.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for details on the radial load applied to rods.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
(7) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

(Note) Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	20	12	6	3
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	6	25	40	60
		Max. payload (kg) (energy-saving enabled)	6	25	40	40
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	1.5	4	10	12.5
		Max. payload (kg) (energy-saving enabled)	1	4	10	12.5
	Speed / acceleration/ deceleration	Max. speed (mm/s)	800	700	450	225
		Min. speed (mm/s)	25	15	8	4
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	67	112	224	449
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	1.5	4	10	12.5
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw, ϕ10mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (two-point positioning function; cannot be represented)
Linear guide		Linear motion infinite circulating type
Main component materials	Rod	ϕ25mm, material: aluminum, hard alumite treatment
	Frame	Material: Aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Vinyl chloride (PVC)
Rod non-rotation precision (Note 6)		0 degrees
Ambient operating temperature, humidity		0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection		IP67
Vibration/shock resistance		4.9m/s²
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□42)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 20

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	6	6	5	5	1.5	1.5
160	6	6	5	5	1.5	1.5
320	6	6	5	3	1.5	1.5
480	6	6	5	3	1.5	1.5
640	6	4	3	2	1.5	1.5
800	4	3			1	1

Lead 12

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	25	18	16	12	4	4
100	25	18	16	12	4	4
200	25	18	16	10	4	4
400	20	14	10	6	4	4
500	15	8	6	4	3.5	3
700	6	2			2	1

Lead 6

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	40	35	30	25	10	10
50	40	35	30	25	10	10
100	40	35	30	25	10	10
200	40	30	25	20	10	10
250	40	27.5	22.5	18	9	8
350	30	14	12	10	5	5
400	18	10	6	5	3	3
450	8	3			2	1

Lead 3

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	12.5	12.5
50	60	50	45	40	12.5	12.5
100	60	50	45	40	12.5	12.5
125	60	50	40	30	10	10
175	40	35	25	20	6	5
200	35	30	20	14	5	4.5
225	16	16	10	6	5	4

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 20

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	6	5	1
160	6	5	1
320	6	5	1
480	4	3	1
640	3	1	0.5

Lead 12

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	25	10	4
100	25	10	4
200	25	10	4
300	20	8	3
400	10	5	2
500	5	2	1

Lead 6

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	20	10
50	40	20	10
100	40	20	10
150	40	20	8
200	35	18	5
250	10	6	3

Lead 3

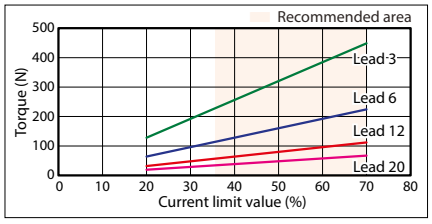
Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	12.5
50	40	25	12.5
75	40	25	12
100	40	25	9
125	40	25	5

Stroke and Max Speed

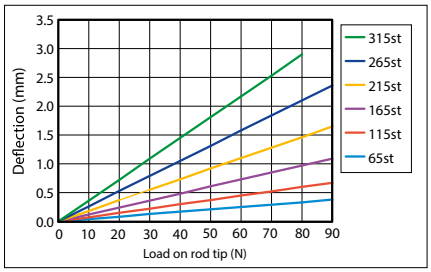
Lead (mm)	Energy-saving setting	65 ~ 215 (Every 50mm)	265 (mm)	315 (mm)
20	Disabled	800		
	Enabled	640		
12	Disabled	700	660	480
	Enabled	500		480
6	Disabled	450	325	235
	Enabled	250		235
3	Disabled	225	160	115
	Enabled	125		115

(Unit: mm/s)

Correlation between Torque and Current Limit



Rod deflection

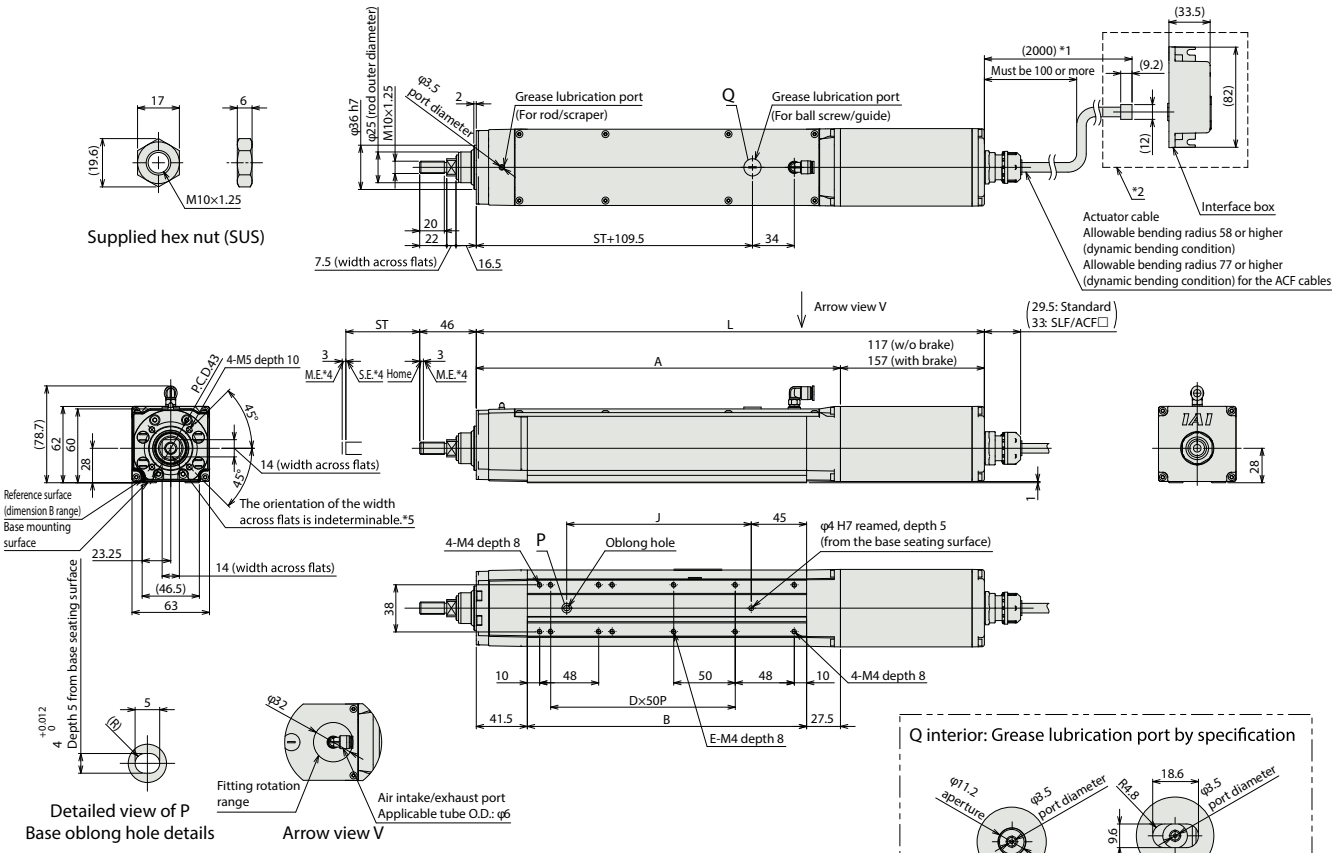


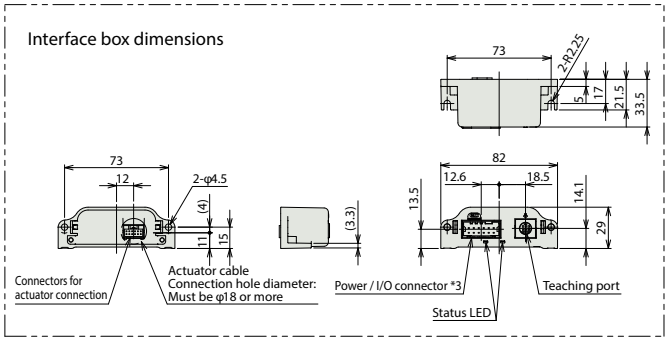
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

*1 The length of the actuator cable can be set to 5m as an option.
*2 The interface box relay section within the dashed line is not dust-proof or splash-proof.
*3 Make sure that the total length of the actuator's pigtail cable and power I/O cable is 10m or less.
*4 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*5 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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





Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	363	413	463	513	563	613
	With brake	403	453	503	553	603	653
A		246	296	346	396	446	496
B		177	227	277	327	377	427
D		2	3	4	5	6	7
E		4	6	8	10	12	14
J		100	150	200	250	300	350

Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	2.4	2.7	3.1	3.4	3.7	4.1
	With brake	2.7	3	3.3	3.7	4	4.3

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-392 for details on built-in controllers.

EC-RR7□W

Dust/ Splash-Proof Spec | Straight Motor | Body Width 70 mm | 24v Stepper Motor

■ Model Specification Items

Series	Type	Lead	Specifications	Stroke	Power / I/O cable length	Options
EC	RR7	S: 24mm H: 16mm M: 8mm L: 4mm	W: Dust-proof/ splash-proof	65: 65mm ~ 315: 315mm (Every 50mm)	Refer to "Power / I/O Cable Length" below	Refer to "Options" below



CE RoHS 10

Horizontal | Vertical | Side | Ceiling

Radial Load Specification
Radial Cylinder®

■ Stroke

Stroke (mm)	EC-RR7□W	Stroke (mm)	EC-RR7□W
65	○	215	○
115	○	265	○
165	○	315	○

■ Options

* Please check the Options reference pages to confirm each option.

Name	Option code	Reference page
Actuator cable length: 5m	AC5	2-373
Actuator cable length: 2m (fluoro-rubber covering specification) (Note 1)	ACF2	2-373
Actuator cable length: 5m (fluoro-rubber covering specification) (Note 1)	ACF5	2-373
RCON-EC connection specification (Note 2)	ACR	2-373
Brake	B	2-373
Tip adapter (flange)	FFA	2-375
Flange (front)	FL	2-376
Foot bracket	FT	2-377
Designated grease specification	G5	2-381
Tip adapter (internal thread)	NFA	2-382
Non-motor end specification	NM	2-384
PNP specification	PN	2-384
Fluoro-rubber seal specification (Note 1)	SLF	2-386
split motor and controller power supply specification	TMD2	2-387
Battery-less absolute encoder specification	WA	2-388
Wireless communication specification	WL	2-388
Wireless axis operation specification	WL2	2-388

(Note 1) When the "ACF2" or "ACF5" options are selected, the "SLF" option is also supplied. Either one or the other can therefore be selected.
(Note 2) If the RCON-EC connection specification (ACR) is selected, the PNP specification (PN) and split motor and controller power supply specification (TMD2) cannot be selected.

POINT Selection Notes

(1) The actuator specifications display the payload's maximum value, but it will vary depending on the acceleration and speed. Please refer to "Table of Payload by Speed/Acceleration" for more details. If the energy-saving setting is enabled, the main specifications will change.
(2) Radial cylinders are equipped with a built-in guide. Please contact IAI for details on the radial load applied to rods.
(3) The value of the horizontal payload assumes that there is an external guide.
(4) If performing push-motion operations, refer to the "Correlation between Torque and Current Limit" diagram. The torques are only reference values.
(5) Duty must be restricted depending on the ambient operating temperature.
(6) The interface box is not dust-proof or splash-proof. Install in a location not exposed to water.
(7) Pay close attention to the installation orientation.

■ Power / I/O Cable Length

(Note) Make sure that the total length of the actuator cable and power I/O cable is 10m or less.

■ Standard connector cable

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

(Note 3) Only terminal block connector is supplied. Please refer to P. 2-394 for details.
(Note 4) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

■ Four-way connector cable

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

(Note 5) If RCON-EC connection specification (ACR) is selected as an option.
(Note) The robot cable is standard.

Main Specifications

Item			Description			
Lead		Ball screw lead (mm)	24	16	8	4
Horizontal	Payload	Max. payload (kg) (energy-saving disabled)	20	50	60	80
		Max. payload (kg) (energy-saving enabled)	18	40	50	55
	Speed / acceleration/ deceleration	Max. speed (mm/s)	860	700	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	1	1	1	1
Vertical	Payload	Max. payload (kg) (energy-saving disabled)	3	8	18	19
		Max. payload (kg) (energy-saving enabled)	3	5	17.5	19
	Speed / acceleration/ deceleration	Max. speed (mm/s)	640	560	350	175
		Min. speed (mm/s)	30	20	10	5
		Rated acceleration/deceleration (G)	0.3	0.3	0.3	0.3
		Max. acceleration/deceleration (G)	0.5	0.5	0.5	0.5
Push		Max. push force (N)	182	273	547	1094
		Max. push speed (mm/s)	20	20	20	20
Brake		Brake specification	Non-excitation actuating solenoid brake			
		Brake holding force (kgf)	3	8	18	19
Stroke		Min. stroke (mm)	65	65	65	65
		Max. stroke (mm)	315	315	315	315
		Stroke pitch (mm)	50	50	50	50

Item		Description
Driving system		Ball screw, ϕ12mm, rolled C10
Positioning repeatability		±0.05mm
Lost motion		- (two-point positioning function; cannot be represented)
Linear guide		Linear motion infinite circulating type
Main component materials	Rod	ϕ30mm, material: aluminum, hard alumite treatment
	Frame	Material: Aluminum, black alumite treatment
	Dust seal	Rubber (NBR)
	Actuator cable	Vinyl chloride (PVC)
Rod non-rotation precision (Note 6)		0 degrees
Ambient operating temperature, humidity		0 ~ 40°C, 85%RH or less (Non-condensing)
Degree of protection		IP67
Vibration/shock resistance		4.9m/s²
Overseas standards		CE marking, RoHS directive
Motor type		Stepper motor (□56)
Encoder type		Incremental/battery-less absolute
Number of encoder pulses		800 pulse/rev

(Note 6) Displacement angle in the rod rotational direction when no load is applied.

Table of Payload by Speed/Acceleration

■ Energy-saving setting disabled (The unit for payload is kg. If blank, operation is not possible.)

Lead 24

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	20	18	15	12	3	3
200	20	18	15	12	3	3
400	20	14	12	8	3	3
420	17	12	10	6	3	3
600	14	6	5	4	3	2
640	5	3	2	1.5	2	1
800	5	1	1			
860	2	0.5				

Lead 16

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	50	40	35	30	8	8
140	50	40	35	30	8	8
280	50	35	25	20	7	7
420	25	18	14	10	4.5	4
560	10	5	3	2	2	1
700	2					

Lead 8

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	60	50	45	40	18	18
70	60	50	45	40	18	18
140	60	50	45	40	16	12
210	60	40	31	26	10	9
280	34	20	15	11	5	4
350	12	4	1		2	1

Lead 4

Orientation	Horizontal				Vertical	
Speed	Acceleration (G)					
(mm/s)	0.3	0.5	0.7	1	0.3	0.5
0	80	70	65	60	19	19
35	80	70	65	60	19	19
70	80	70	65	60	19	19
105	80	60	50	40	18	18
140	50	30	20	15	12	10
175	15				2	

■ Energy-saving setting enabled (The unit for payload is kg.)

Lead 24

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	18	9.5	3
200	18	9.5	3
420	10	5	1.5
600	1		

Lead 16

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	40	25	5
140	40	25	5
280	18	12	2
420	1.5	1	

Lead 8

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	50	30	17.5
70	50	30	17.5
140	50	30	7
210	14	7	2

Lead 4

Orientation	Horizontal		Vertical
Speed	Acceleration (G)		
(mm/s)	0.3	0.7	0.3
0	55	50	19
35	55	50	19
70	55	50	13
105	30	15	2

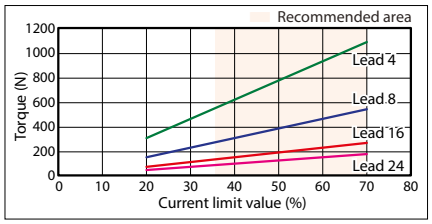
Stroke and Max Speed

Lead (mm)	Energy-saving setting	65 ~ 315 (Every 50mm)
24	Disabled	860 <640>
	Enabled	600 <420>
16	Disabled	700 <560>
	Enabled	420 <280>
8	Disabled	350
	Enabled	210
4	Disabled	175
	Enabled	105

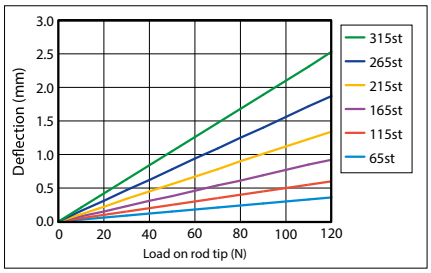
(Unit: mm/s)

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

Correlation between Torque and Current Limit



Rod deflection



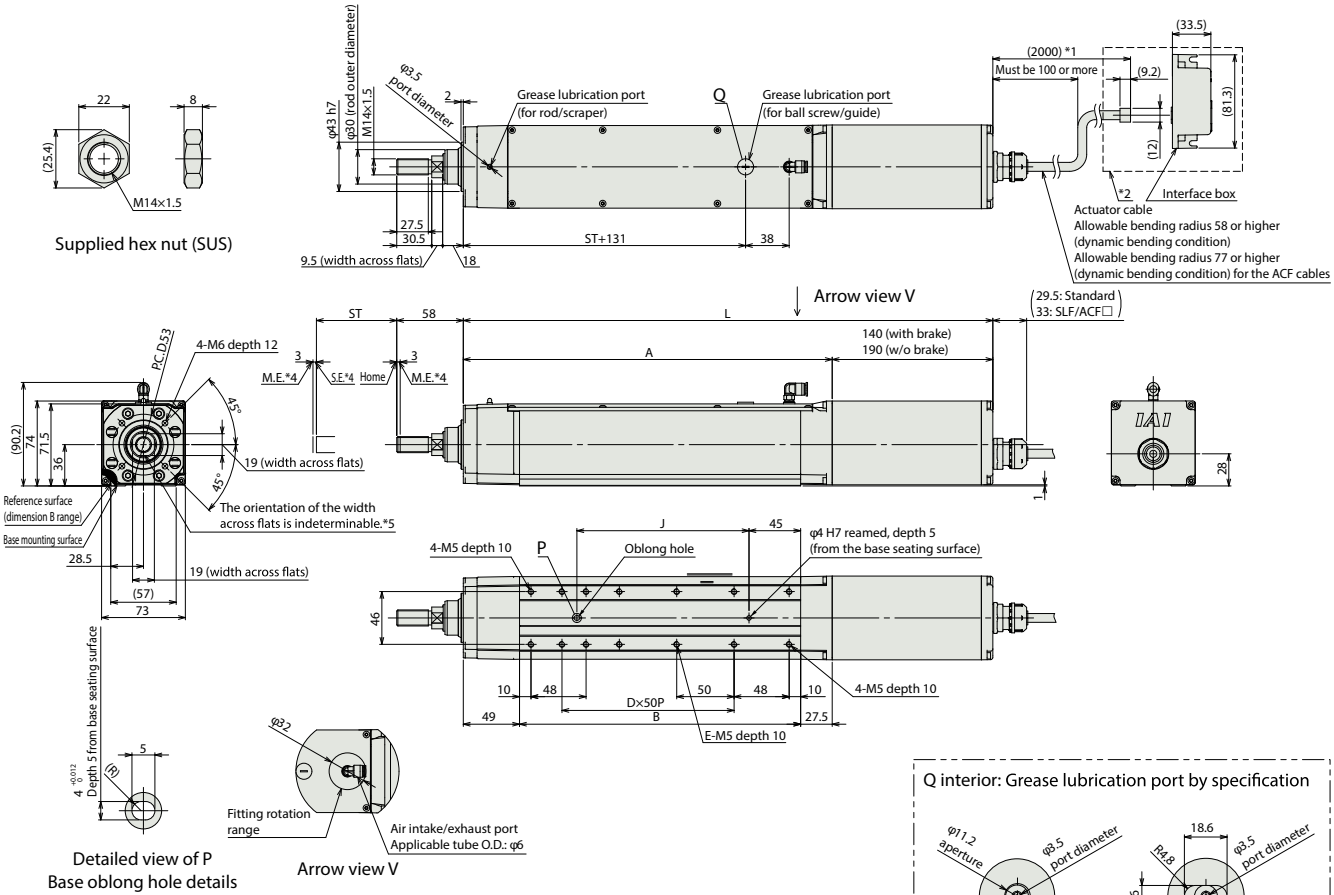
Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

2D CAD 3D CAD

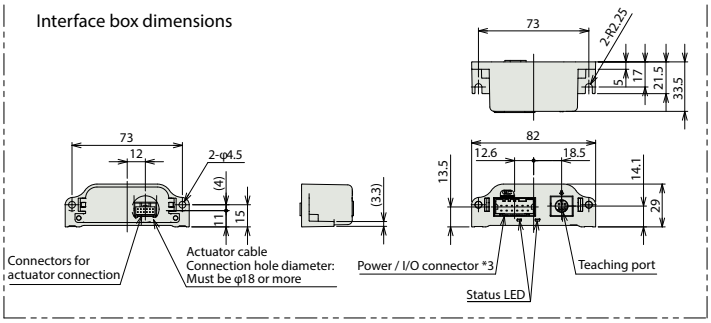
*1 The length of the actuator cable can be set to 5m as an option.
*2 The interface box relay section within the dashed line is not dust-proof or splash-proof.
*3 Make sure that the total length of the actuator's pigtail cable and power I/O cable is 10m or less.
*4 When the rod is returning to its home position, be careful of possible interference from surrounding objects, as it will travel until it reaches the M.E.
*5 The direction of width across flats varies depending on the product. Those flats cannot to be used for reference plane.

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



Q interior: Grease lubrication port by specification

Interface box dimensions



Dimensions by stroke

Stroke		65	115	165	215	265	315
L	Without brake	411.5	461.5	511.5	561.5	611.5	661.5
	With brake	461.5	511.5	561.5	611.5	661.5	711.5
A		271.5	321.5	371.5	421.5	471.5	521.5
B		202.5	252.5	302.5	352.5	402.5	452.5
D		2	3	4	5	6	7
E		4	6	8	10	12	14
J		100	150	200	250	300	350

Mass by stroke

Stroke		65	115	165	215	265	315
Mass (kg)	Without brake	4.7	5.1	5.6	6.1	6.5	7
	With brake	5.3	5.7	6.2	6.6	7.1	7.5

Applicable Controllers

(Note) EC series is equipped with a built-in controller. Please refer to P. 2-392 for details on built-in controllers.

ELECYLINDER® Series Options

Actuator cable length: 5m

Model **AC5** Applicable models **EC-R6□W / R7□W / RR6□W / RR7□W**

Description Although the standard length of the actuator cable of the dust-proof/splash-proof type is 2m, it can be changed to 5m as an option.
*Make sure that the total length of the actuator cable and power / I/O cable 10m or less.
(If an actuator cable length of 5m (AC5) is selected, the power / I/O cable must be no longer than 5m.)

Actuator cable length change (fluoro-rubber covering specification)

Model **ACF2 / ACF5** Applicable models **EC-R6□W / R7□W / RR6□W / RR7□W**

Description Select this to change sealing materials from NBR (nitrile rubber) to FKM (fluoro-rubber), and the actuator cable covering from PVC (polyvinyl chloride) to FKM (fluoro-rubber). The cable length will be 2m (ACF2) or 5m (ACF5).

RCON-EC connection specification *Cannot be selected with the TMD2 and PN options (the ACR option includes the split motor and controller power supply specification)

Model **ACR** Applicable models **All models**

Description This option should be selected to connect over an R-unit to a field network.
*If this option is selected, the power supply must be a split motor and controller power supply specification and the input/output specification must be NPN. Therefore, it cannot be selected with the TMD2 or PN options.

Brake

Model **B** Applicable models **All models**

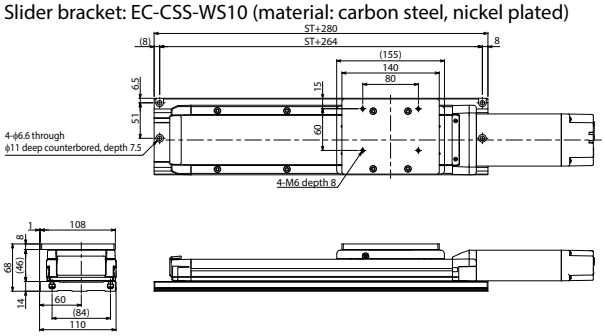
Description When the actuator is mounted vertically, this works as a holding mechanism that prevents the slider or rod from falling and damaging any attachments when the power or servo is turned off. When using the rotary on its side or vertically, this holding mechanism also prevents the output shaft from accidentally rotating due to the weight of the attached object, and damaging the attached object when the power or servo is turned off.

Air cylinder mounting plates

Model **CS**

Description These plates provide compatibility for mounting with some models of rodless air cylinders.
Plates can be mounted to the slider carriage and actuator base to align their heights with the slider on an air cylinder.
*Not shipped assembled. Assembly required.
(Note 1) Selecting CS will reduce the payload by 1kg.
(Note 2) Cannot be side mounted, invert mounted, or vertically mounted.

EC-WS10/DWS10
Individual model number Base bracket: EC-CSB-WS10-(stroke) (material: aluminum)
Slider bracket: EC-CSS-WS10 (material: carbon steel, nickel plated)



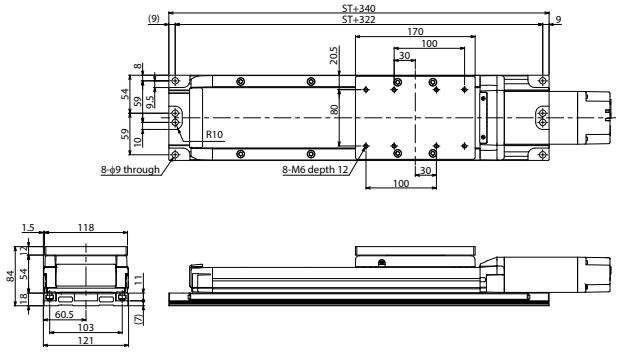
◆ Additional accessories
•Hex socket bolts (for mounting to the slider carriage): M5×10 (4 bolts)
•Parallel pin: ϕ5×8 type B h7 (2 pins)
•Hex socket bolts (for mounting to the actuator base): M5×35 (no. of bolts shown in following table)
•Square nuts: □8×4 M5 (no. of nuts shown in following table)

Stroke (mm)	50 ~ 100	150 ~ 300	350 ~ 500
Quantity	4	6	8

◆ Mass by stroke (plate addition)

Stroke (mm)	50	100	150	200	250	300	350	400	450	500
Added mass (kg)	2.1	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.4	3.6

EC-WS12/DWS12
Individual model number Base bracket: EC-CSB-WS12-(stroke) (material: aluminum)
Slider bracket: EC-CSS-WS12 (material: aluminum)



◆ Additional accessories
•Hex socket bolts (for slider mounting): M6×15 (4 bolts)
•Parallel pin: ϕ6×10 type B h7 (2 pins)
•Hex socket bolts (for base mounting): M6×40 (no. of bolts shown in following table)
•Square nuts: □10×5 M6 (no. of nuts shown in following table)

Stroke	50 ~ 100	150 ~ 300	350 ~ 500	550 ~ 700	750 ~ 800
Quantity	4	6	8	10	12

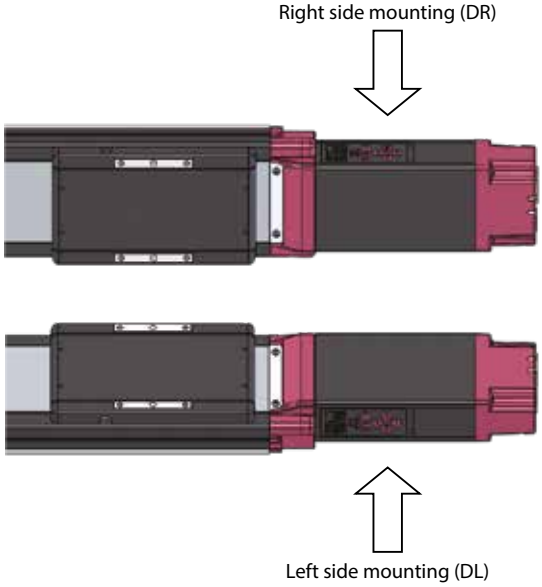
◆ Mass by stroke (plate addition)

Stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Added mass (kg)	2.2	2.5	2.7	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.6	4.8	5.1	5.3	5.5

Digital speed controller installation direction

Model **DL/DR**

Description This code specifies the installation orientation of the digital speed controller for types with digital speed controllers.
The left side and right side are indicated with DL and DR, respectively, when looking from the motor side. Be sure to enter a code in the model number.



Hanging fixture

Model **EB** Applicable models **EC-S15X**

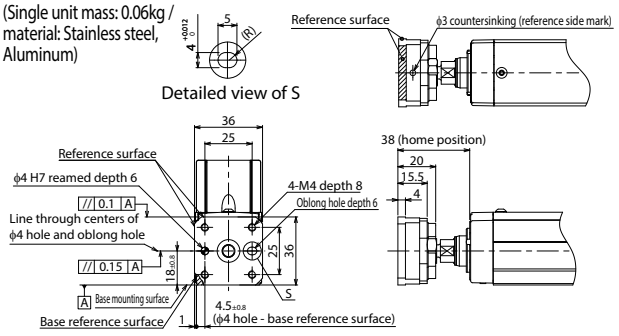
Description This is a set of a hanging fixture and an eye bolt for lifting the actuator for installation.The left side and right side are indicated with DL and DR, respectively, when looking from the motor side. Be sure to enter a code in the model number.

Tip adapter (flange)

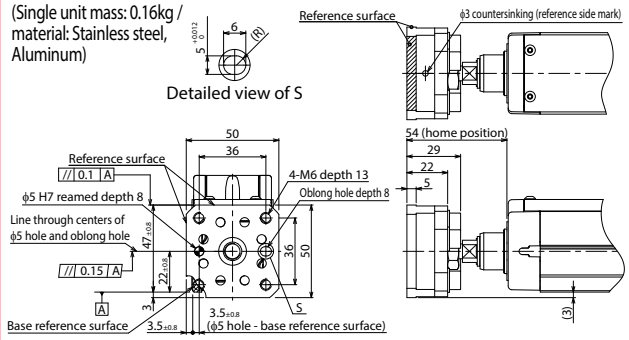
Model **FFA** **Applicable models** **EC-RR/DRR (all models)**

Description This adapter is used to mount jigs, etc., on the rod tip with four bolts.

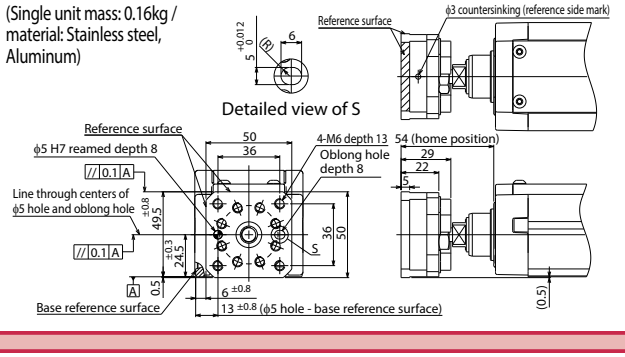
EC-RR3 / RR3□R / DRR3 / DRR3□R
Individual model number: EC-FFA-RR3
(Single unit mass: 0.06kg / material: Stainless steel, Aluminum)



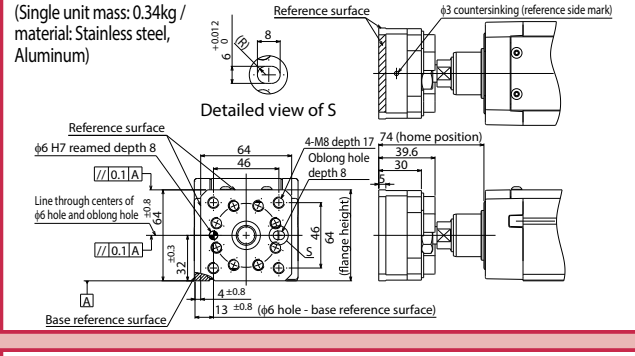
EC-RR4 / RR4□R / DRR4 / DRR4□R
Individual model number: EC-FFA-RR6
(Single unit mass: 0.16kg / material: Stainless steel, Aluminum)



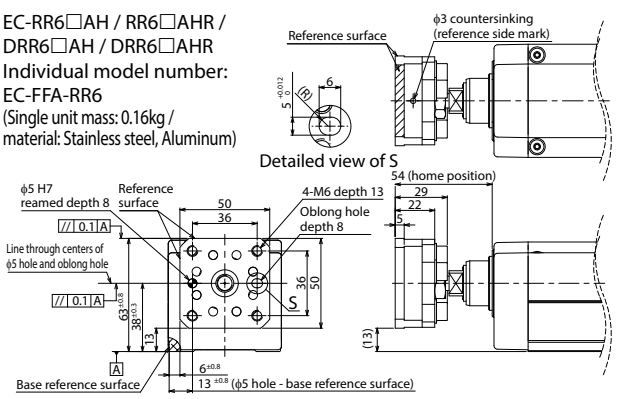
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-FFA-RR6
(Single unit mass: 0.16kg / material: Stainless steel, Aluminum)



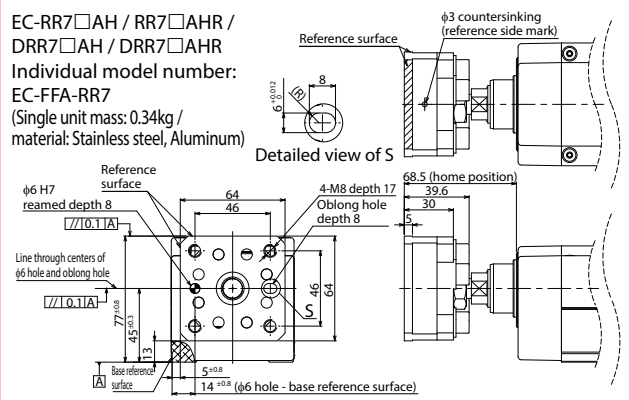
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-FFA-RR7
(Single unit mass: 0.34kg / material: Stainless steel, Aluminum)



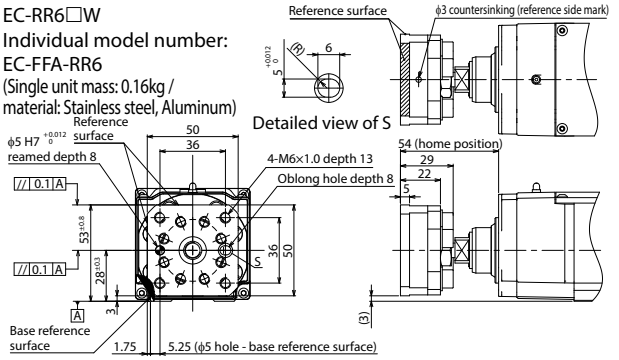
EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: EC-FFA-RR6
(Single unit mass: 0.16kg / material: Stainless steel, Aluminum)



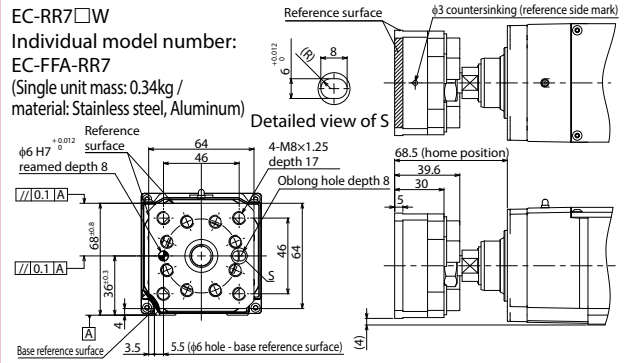
EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: EC-FFA-RR7
(Single unit mass: 0.34kg / material: Stainless steel, Aluminum)



EC-RR6□W
Individual model number: EC-FFA-RR6
(Single unit mass: 0.16kg / material: Stainless steel, Aluminum)



EC-RR7□W
Individual model number: EC-FFA-RR7
(Single unit mass: 0.34kg / material: Stainless steel, Aluminum)

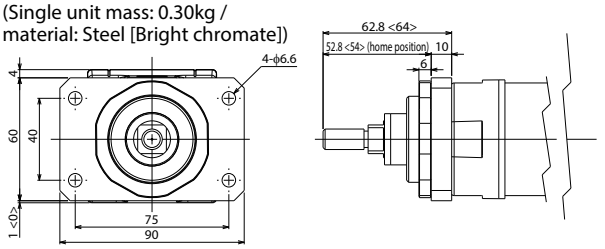


Flange (front)

Model **FL** Applicable models **EC-R / RR / DR / DRR (all models)**

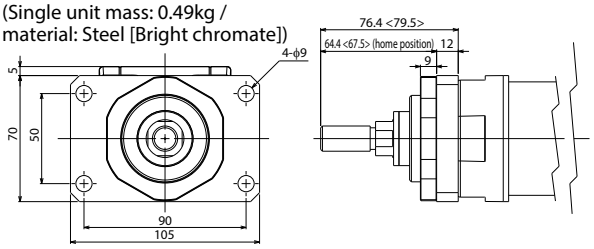
Description This bracket is used for mounting the actuator at the non-motor side, using bolts.
*Not assembled before shipment. Refer to the drawings for mounting instructions.
However, it will be shipped with flange front "FL" assembled if selected with tip adapter (flange) "FFA."

EC-R6 / DR6 / R6□W
Individual model number: EC-FL-R6
(Single unit mass: 0.30kg /
material: Steel [Bright chromate])



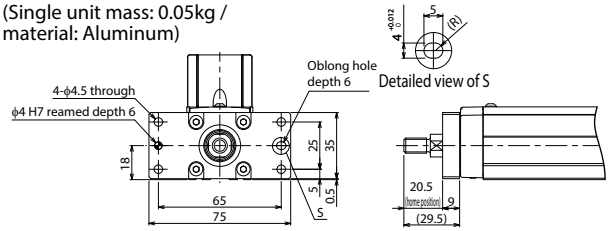
Values in brackets are for the waterproof type (R6□W).

EC-R7 / DR7 / R7□W
Individual model number: EC-FL-R7
(Single unit mass: 0.49kg /
material: Steel [Bright chromate])

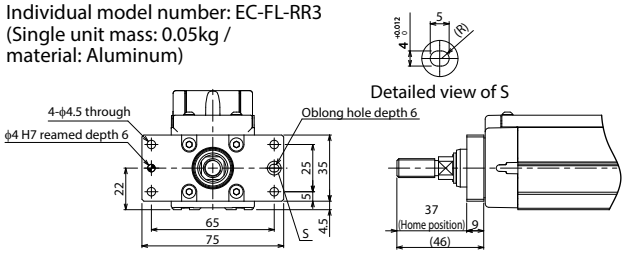


Values in brackets are for the waterproof type (R7□W).

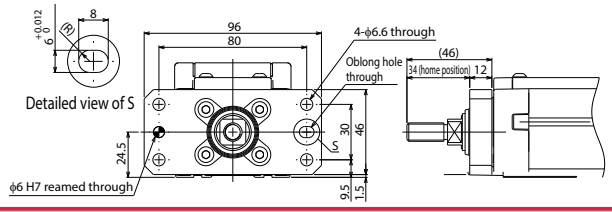
EC-RR3 / RR3□R / DRR3 / DRR3□R
Individual model number: EC-FL-RR3
(Single unit mass: 0.05kg /
material: Aluminum)



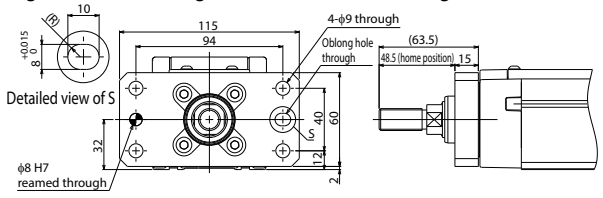
EC-RR4 / RR4□R / DRR4 / DRR4□R
Individual model number: EC-FL-RR3
(Single unit mass: 0.05kg /
material: Aluminum)



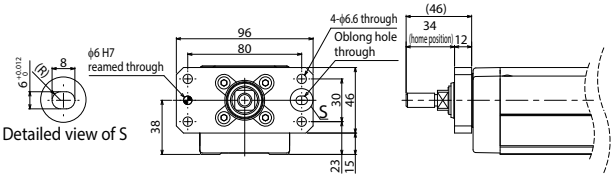
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-FL-RR6
(Single unit mass: 0.31kg / material: Steel [blackening])



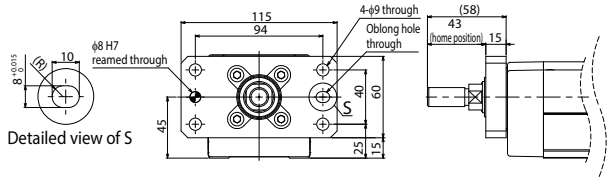
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-FL-RR7
(Single unit mass: 0.60kg / material: Steel [blackening])



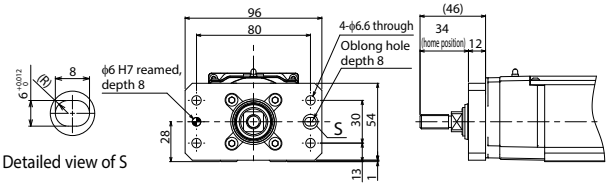
EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: EC-FL-RR6
(Single unit mass: 0.31kg / material: Steel [blackening])



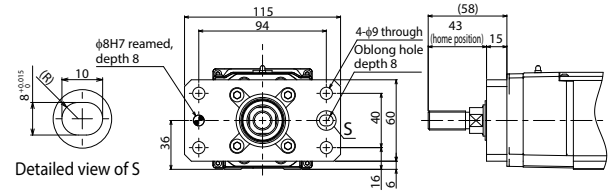
EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: EC-FL-RR7
(Single unit mass: 0.60kg / material: Steel [blackening])



EC-RR6□W, Individual model number: ECW-FL-RR6
(Single unit mass: 0.36kg / material: Steel [Nickel plated])



EC-RR7□W, Individual model number: ECW-FL-RR7
(Single unit mass: 0.58kg / material: Steel [Nickel plated])



Cable fixing bracket (front)

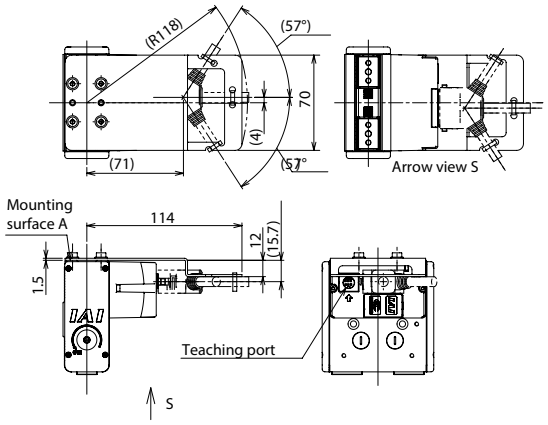
Model **FST** Applicable models **All models**

Description This is a bracket used to fix the cable near the connector with a cable tie.
The teaching port can be accessed even with the fixing bracket mounted.
(However, the teaching port cannot be accessed when the cable exit direction is on the teaching port side, due to interference.)
*Not assembled before shipment. Refer to the drawings for mounting instructions.
When fixing the gripper on mounting surface A, co-fasten with the cable fixing bracket.

EC-GRB8 EC-GRB10 EC-GRB13

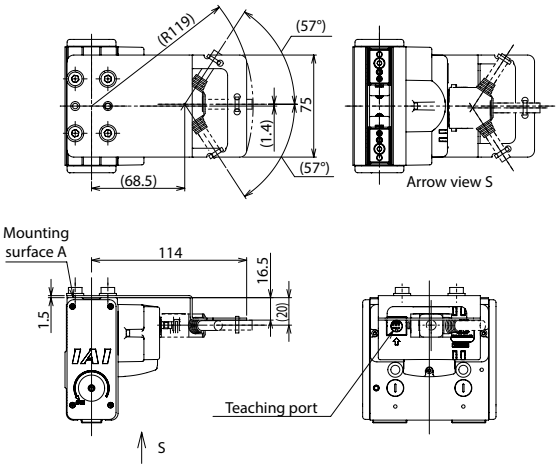


EC-GRB8 Individual model number EC-FST-GRB8
(Individual weight: 0.1kg / Material: Stainless steel)



u Accessories other than fixing brackets
- Flange head hex bolts (stainless steel): M4 x 6 (4 pcs)
- Cable tie (1 pc)

EC-GRB10/GRB13 Individual model number EC-FST-GRB1013
(Individual weight: 0.11kg / Material: Stainless steel)



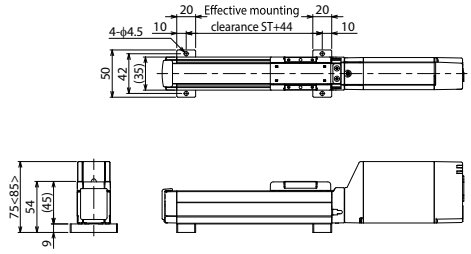
u Accessories other than fixing brackets
- Flange head hex bolts (stainless steel): M6 x 10 (4 pcs)
- Cable tie (1 pc)

Foot bracket

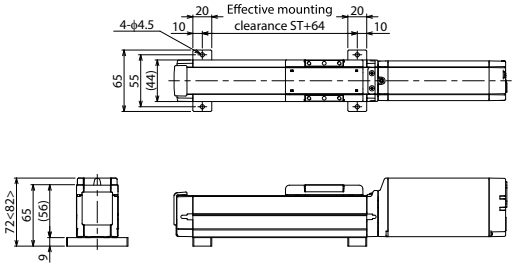
Model **FT** Applicable models **(Excluding S□AH / DS□AH / S□AHCR / DS□AHCR / RR□AH / DRR□AH) S / R / RR / DS / DR / DRR (all models)**

Description This bracket is used for mounting the actuator body from the top with bolts.
*Not assembled before shipment. Refer to the drawings for mounting instructions.
Values in brackets are dimensions with digital speed controller.

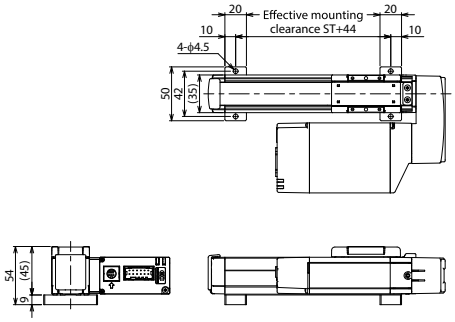
EC-S3 / DS3, Individual model number: EC-FT-SRR3 (2-piece set)
(Material: Aluminum)



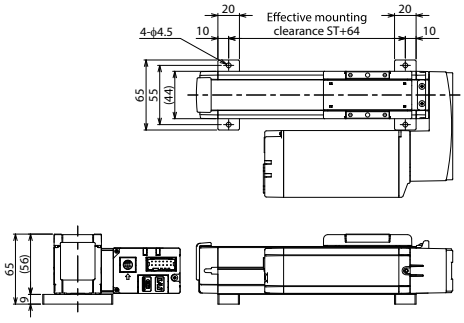
EC-S4 / DS4, Individual model number: EC-FT-SRR4 (2-piece set)
(Material: Aluminum)



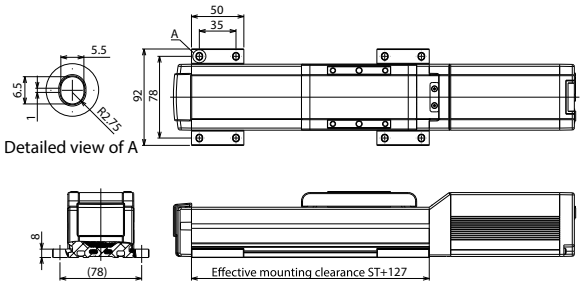
EC-S3□R / DS3□R, Individual model number: EC-FT-SRR3 (2-piece set)
(Material: Aluminum)



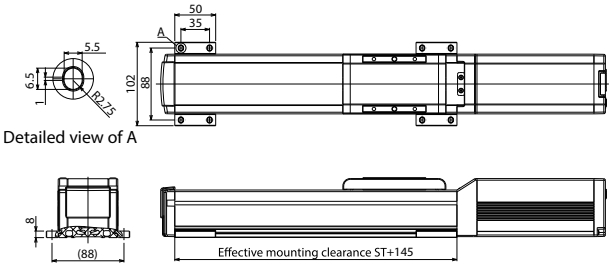
EC-S4□R / DS4□R, Individual model number: EC-FT-SRR4 (2-piece set)
(Material: Aluminum)



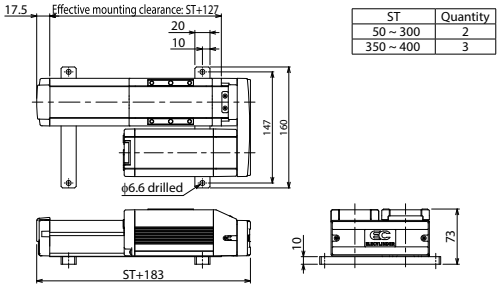
EC-S6 / DS6, Individual model number: EC-FTSB
(Material: Steel [steam-treated])



EC-S7 / DS7, Individual model number: EC-FTSB
(Material: Steel [steam-treated])

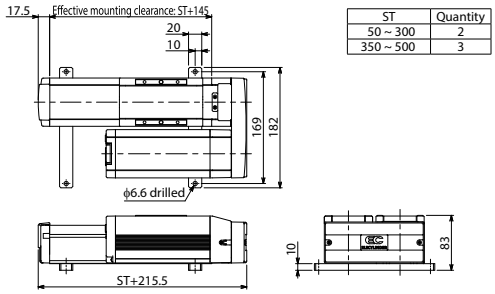


EC-S6□R / DS6□R, Individual model number: EC-FT-SRR6R
(Material: Aluminum)



ST	Quantity
50 ~ 300	2
350 ~ 400	3

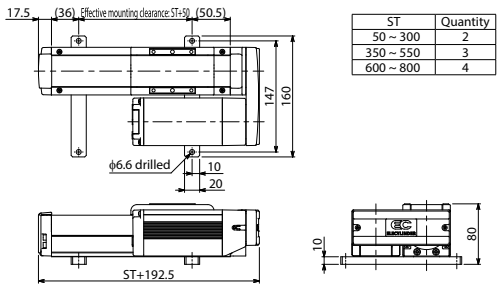
EC-S7□R / DS7□R, Individual model number: EC-FT-SRR7R
(Material: Aluminum)



ST	Quantity
50 ~ 300	2
350 ~ 500	3

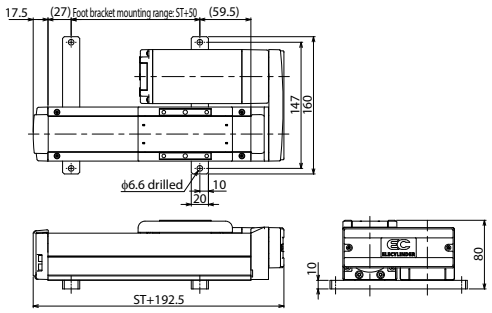
EC-S6□AHR / DS6□AHR, Individual model number: EC-FT-SRR6R
(Material: Aluminum)

(Dimensions for left side mounted motor)



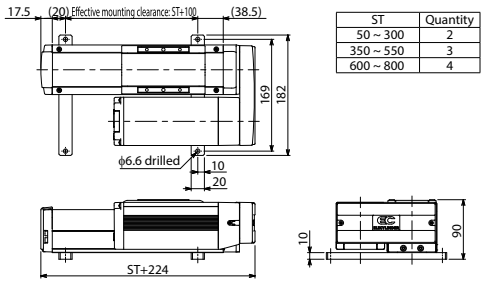
ST	Quantity
50 ~ 300	2
350 ~ 550	3
600 ~ 800	4

(Dimensions for right side mounted motor)



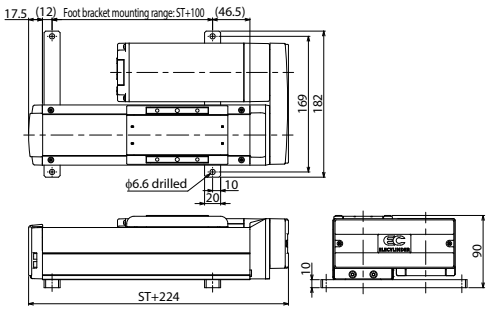
EC-S7□AHR / DS7□AHR, Individual model number: EC-FT-SRR7R
(Material: Aluminum)

(Dimensions for left side mounted motor)

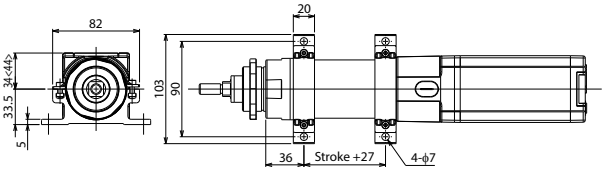


ST	Quantity
50 ~ 300	2
350 ~ 550	3
600 ~ 800	4

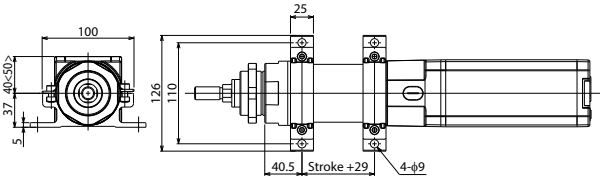
(Dimensions for right side mounted motor)



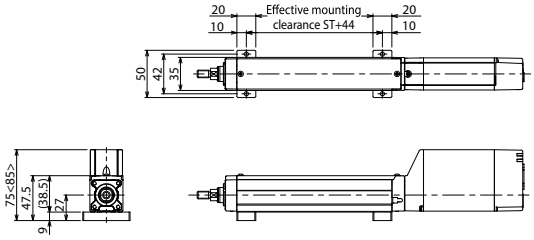
EC-R6 / DR6 / R6□W
Individual model number: EC-FT-R6
(Material: Aluminum / Steel [Bright chromate])



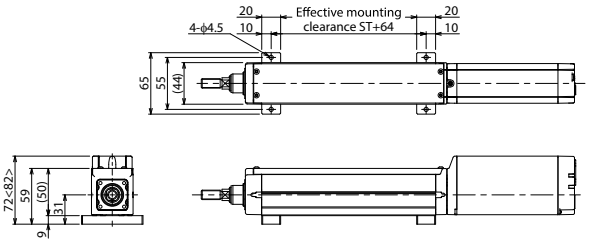
EC-R7 / DR7 / R7□W
Individual model number: EC-FT-R7
(Material: Aluminum / Steel [Bright chromate])



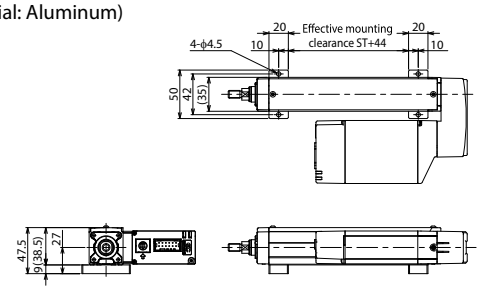
EC-RR3 / DRR3
Individual model number: EC-FT-SRR3 (2-piece set)
(Material: Aluminum)



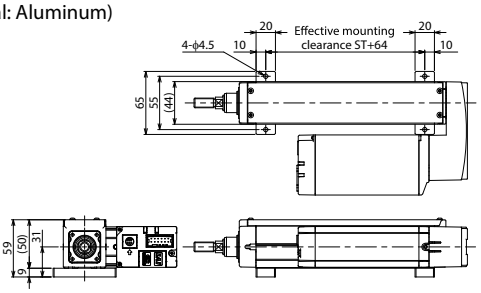
EC-RR4 / DRR4
Individual model number: EC-FT-SRR4 (2-piece set)
(Material: Aluminum)



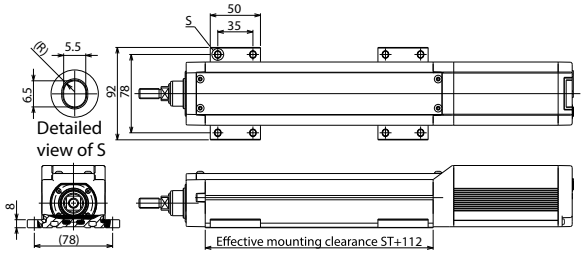
EC-RR3□R / DRR3□R
Individual model number: EC-FT-SRR3 (2-piece set)
(Material: Aluminum)



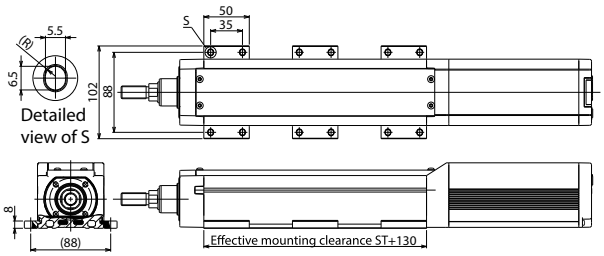
EC-RR4□R / DRR4□R
Individual model number: EC-FT-SRR4 (2-piece set)
(Material: Aluminum)



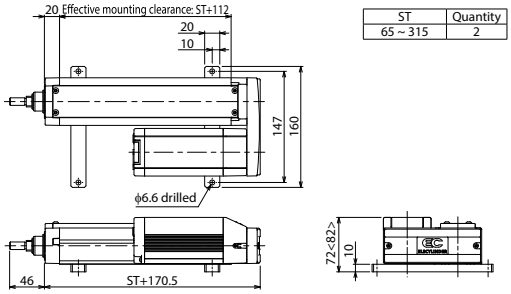
EC-RR6 / DRR6
Individual model number: EC-FTSB
(Material: Steel [steam-treated])



EC-RR7 / DRR7
Individual model number: EC-FTSB-02
(Material: Steel [steam-treated])

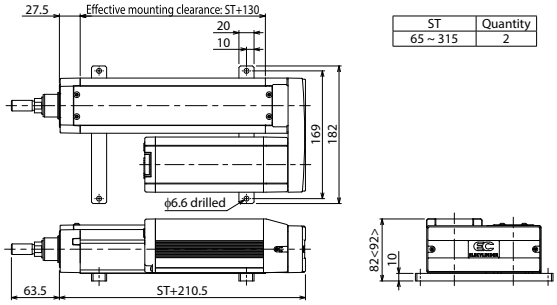


EC-RR6□R / DRR6□R
Individual model number: EC-FT-SRR6R
(Material: Aluminum)



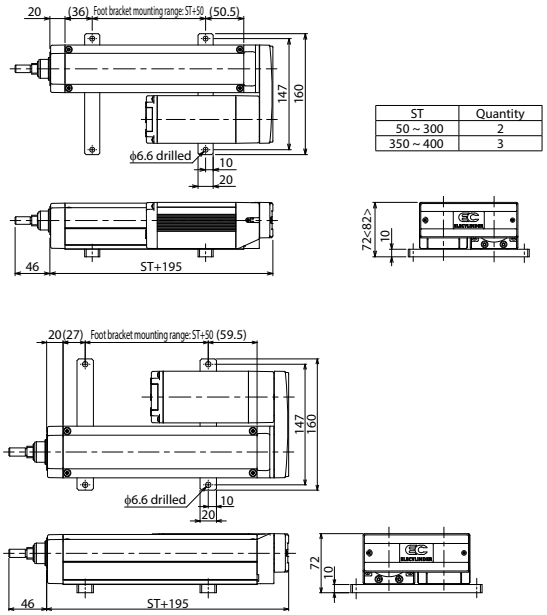
ST	Quantity
65 ~ 315	2

EC-RR7□R / DRR7□R
Individual model number: EC-FT-SRR7R
(Material: Aluminum)



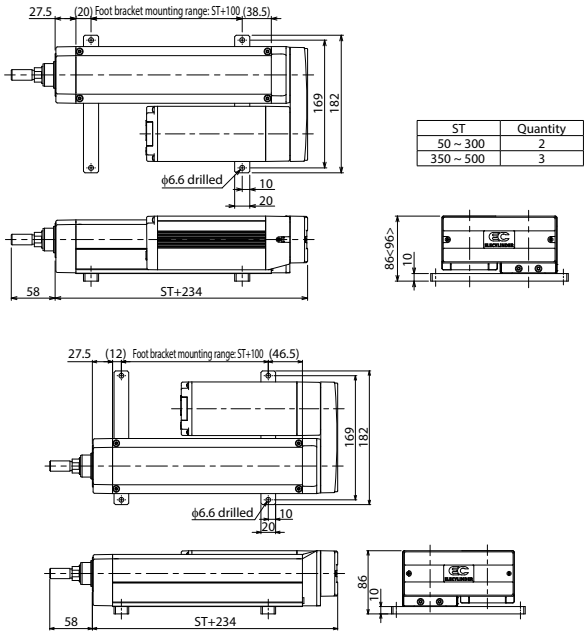
ST	Quantity
65 ~ 315	2

EC-RR6□AHR / DRR6□AHR
Individual model number: EC-FT-SRR6R (Material: Aluminum)
(Dimensions for left side mounted motor)



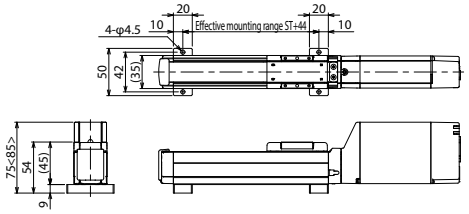
ST	Quantity
50 ~ 300	2
350 ~ 400	3

EC-RR7□AHR / DRR7□AHR
Individual model number: EC-FT-SRR7R (Material: Aluminum)
(Dimensions for left side mounted motor)



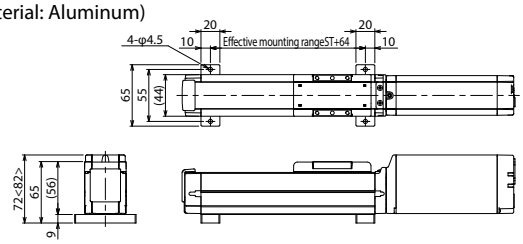
ST	Quantity
50 ~ 300	2
350 ~ 500	3

EC-S3□CR / DS3□CR
Individual model number: EC-FT-SRR3 (2 pieces/set)
(Material: Aluminum)



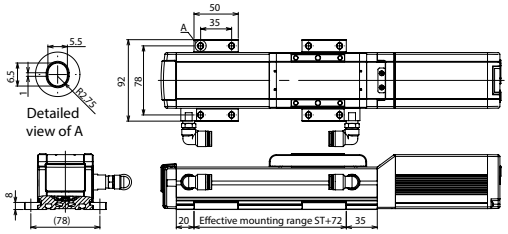
* Refer to the product page about Joint position.

EC-S4□CR / DS4□CR
Individual model number: EC-FT-SRR4 (2 pieces/set)
(Material: Aluminum)

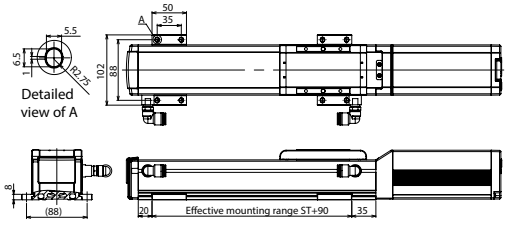


* Refer to the product page about Joint position.

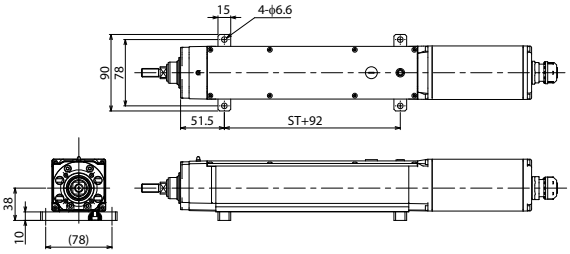
EC-S6□CR / DS6□CR
Individual model number: EC-FTSB (4 pieces/set)
(Material: Iron)



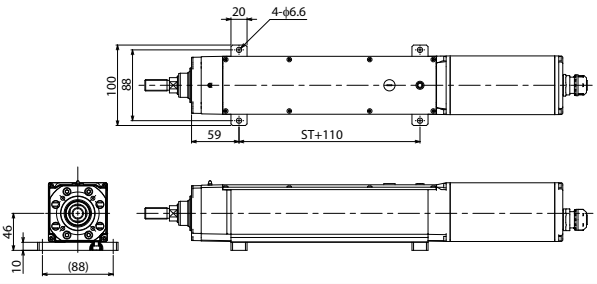
EC-S7□CR / DS7□CR
Individual model number: EC-FTSB (4 pieces/set)
(Material: Iron)



EC-RR6□W
Individual model number: ECW-FT-RR6
(Material: Aluminum)



EC-RR7□W
Individual model number: ECW-FT-RR7
(Material: Aluminum)



Designated grease specification

Model **G1 / G5** Applicable models **G1 : EC-(D)S3 / (D)S4 / (D)S6 / (D)S7 / (D)S6□AH / (D)S7□AH**
G5: All models (except for Rotary, Stopper, Clean room specification)

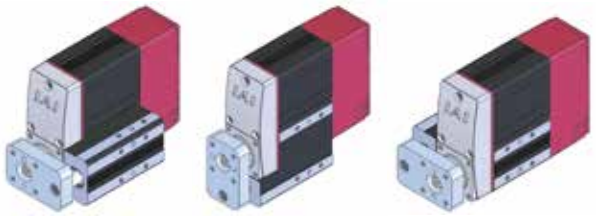
Description Grease for actuator ball screw, linear guide and rod sliding surface is changed to low dust grease for clean environment (Kuroda C grease) for model G1, and food machinery grease (White Alcom Grease) for model G5.

Guide mounting direction / table mounting direction

Model **GT2 / GT3 / GT4** Applicable models **EC-GS4 / TC4 / TC5**

Description Select the guide shaft position of EC-GS4 and the table position of EC-TC4.
Be sure to enter a code in the model number.

EC-GS4



GT2
Guide right mount

GT3
Guide bottom mount

GT4
Guide left mount

EC-TC4 / TC5



GT2
Table right mount

GT3
Table bottom mount

GT4
Table left mount

Motor side-mounted direction

Model **ML / MR** Applicable models **Side-mounted motor specification**

Description This code is for specifying the motor side-mounted direction for side-mounted motor type actuators.
As viewed from the motor-side of the actuator, side-mounting to left is ML and right is MR.

Motor mounting direction change

Model **MOB / MOL / MOR / MOT** Applicable models **EC-S3 / S4 / RR3 / RR4 / DS3 / DS4 / DRR3 / DRR4**

Description One of four motor mounting directions can be selected: bottom, left, right, or top.
* Be sure to enter a code in the model number.

EC-S3



MOB
Motor mounting direction change (bottom)

MOL
Motor mounting direction change (left)

MOR
Motor mounting direction change (right)

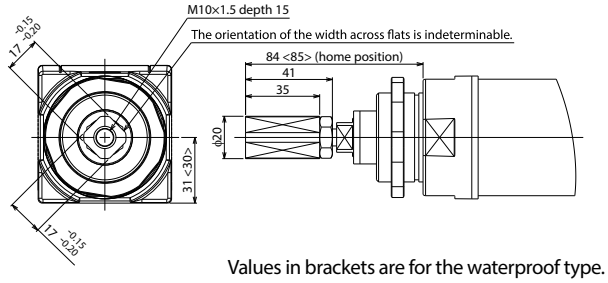
MOT
Motor mounting direction change (top)

Tip adapter (internal thread)

Model **NFA** Applicable models **EC-R / RR / DR / DRR (all models)**

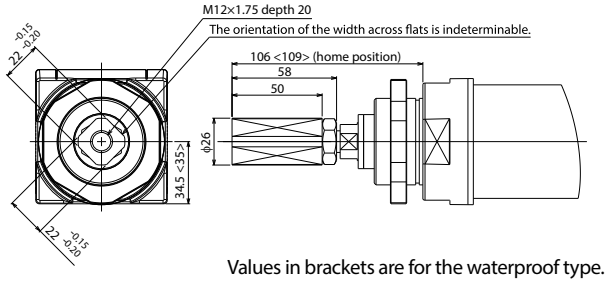
Description This adapter is used to mount jigs, etc., on the rod tip with one bolt.

EC-R6 / DR6 / R6☐W
Individual model number: EC-NFA-R6
(Single unit mass: 0.06kg / material: Stainless steel)



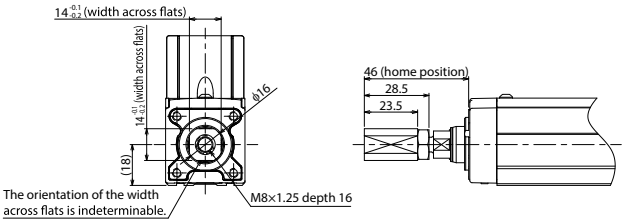
Values in brackets are for the waterproof type.

EC-R7 / DR7 / R7☐W
Individual model number: EC-NFA-R7
(Single unit mass: 0.14kg / material: Stainless steel)

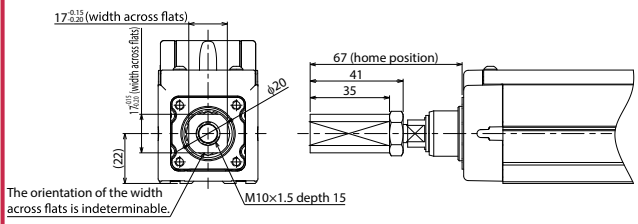


Values in brackets are for the waterproof type.

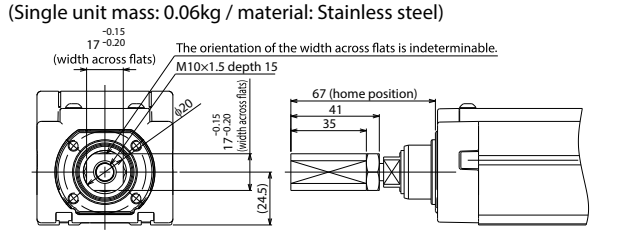
EC-RR3 / RR3☐R / DRR3 / DRR3☐R
Individual model number: EC-NFA-RR3
(Single unit mass: 0.03kg / material: Stainless steel)



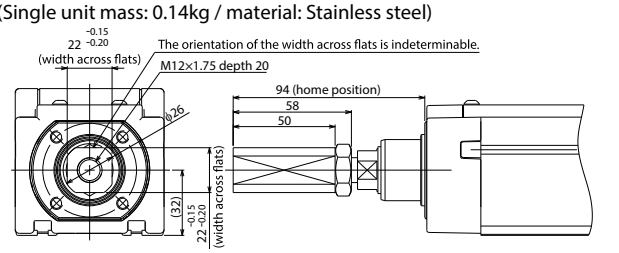
EC-RR4 / RR4☐R / DRR4 / DRR4☐R
Individual model number: EC-NFA-R
(Single unit mass: 0.06kg / material: Stainless steel)6



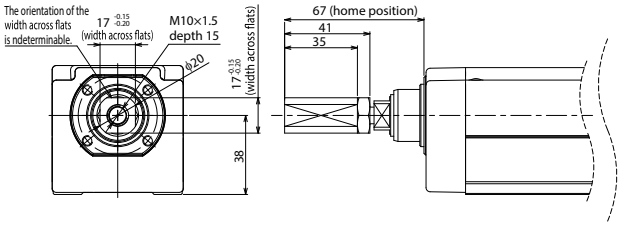
EC-RR6 / RR6☐R / DRR6 / DRR6☐R
Individual model number: EC-NFA-R6
(Single unit mass: 0.06kg / material: Stainless steel)



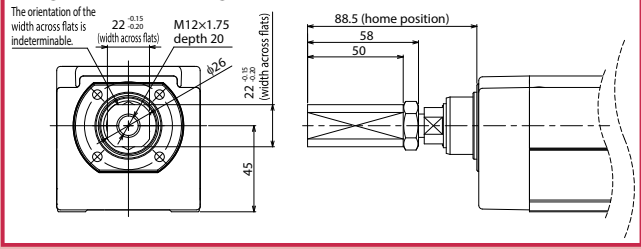
EC-RR7 / RR7☐R / DRR7 / DRR7☐R
Individual model number: EC-NFA-R7
(Single unit mass: 0.14kg / material: Stainless steel)



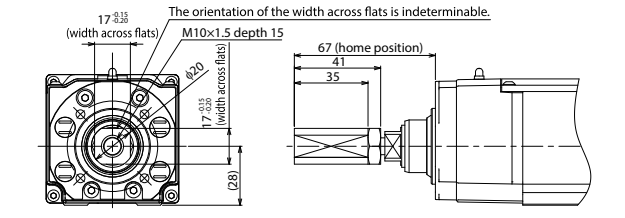
EC-RR6☐AH / RR6☐AHR / DRR6☐AH / DRR6☐AHR
Individual model number: EC-NFA-R6
(Single unit mass: 0.06kg / material: Stainless steel)



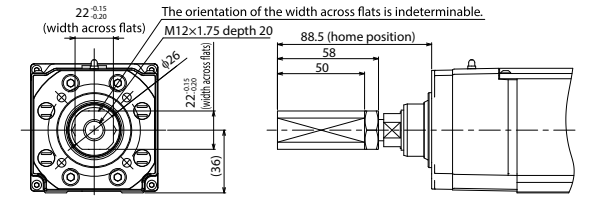
EC-RR7☐AH / RR7☐AHR / DRR7☐AH / DRR7☐AHR
Individual model number: EC-NFA-R7
(Single unit mass: 0.14kg / material: Stainless steel)



EC-RR6☐W, Individual model number: EC-NFA-R6
(Single unit mass: 0.06kg / material: Stainless steel)



EC-RR7☐W, Individual model number: EC-NFA-R7
(Single unit mass: 0.14kg / material: Stainless steel)



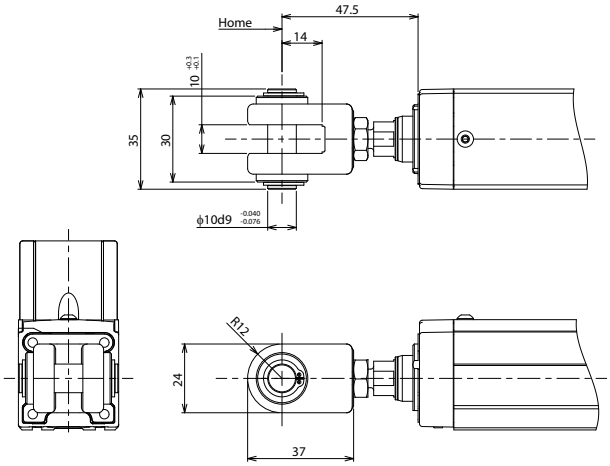
Knuckle joint

Model **NJ** **Applicable models** **EC-RR3 / RR4 / RR6 / RR7/ DRR3 / DRR4 / DRR6 / DRR7 (all models)**

Description The knuckle joint gives rotational freedom of movement to the rod tip when clevis or trunnion brackets are used.
It should be used as a set with a clevis bracket (QR or QRPB).

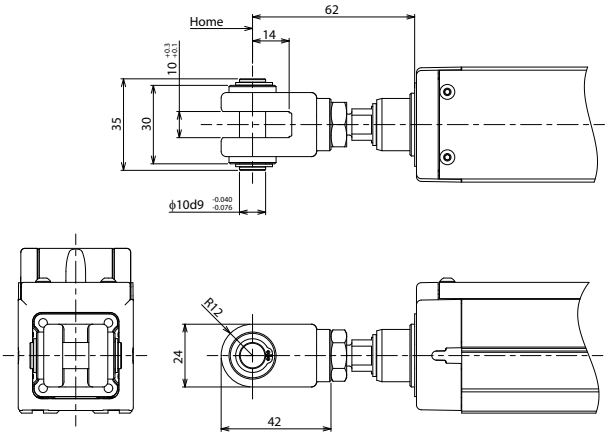
EC-RR3 / RR3□R / DRR3 / DRR3□R
Single unit model EC-NJ-RR3 (Single unit mass: 0.13kg / Material: stainless steel)

*It is not assembled for shipment. The customer is to mount according to the drawing.
It is recommended that the adjustment standard be within the parallelism specified in the drawing.



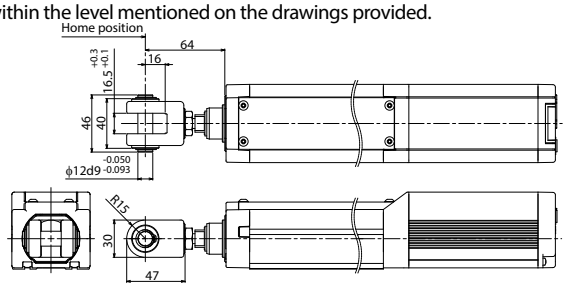
EC-RR4 / RR4□R / DRR4 / DRR4□R
Single unit model EC-NJ-RR3 (Single unit mass: 0.14kg / Material: stainless steel)

*It is not assembled for shipment. The customer is to mount according to the drawing.
It is recommended that the adjustment standard be within the parallelism specified in the drawing.



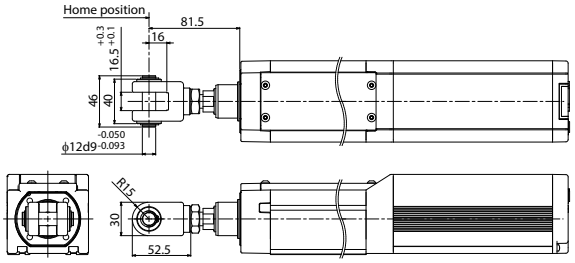
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-NJ-RR6 (Single unit mass: 0.27kg / Material: stainless steel)

*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



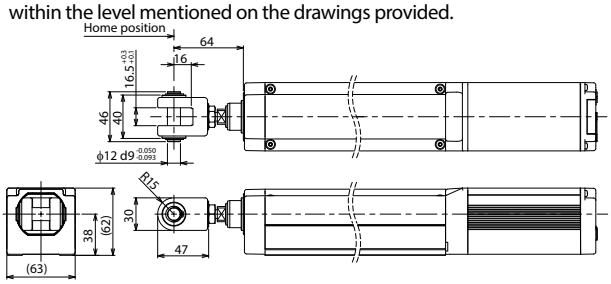
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-NJ-RR7 (Single unit mass: 0.28kg / Material: stainless steel)

*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



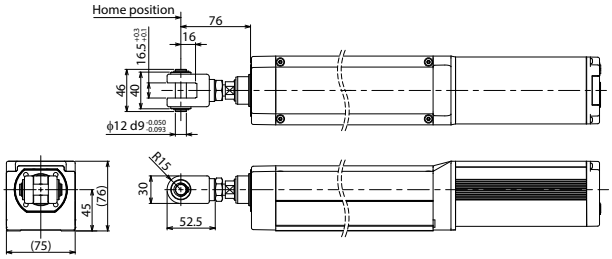
EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: EC-NJ-RR6 (Single unit mass: 0.27kg / Material: stainless steel)

*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: EC-NJ-RR7 (Single unit mass: 0.28kg / Material: stainless steel)

*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.

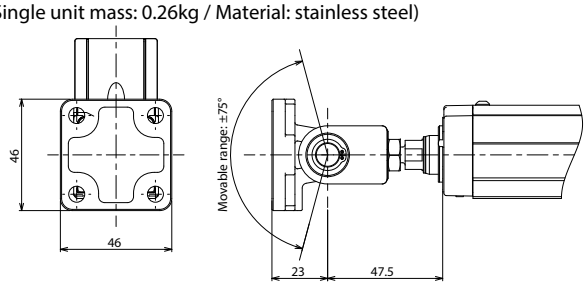


Knuckle joint + oscillation receiving bracket

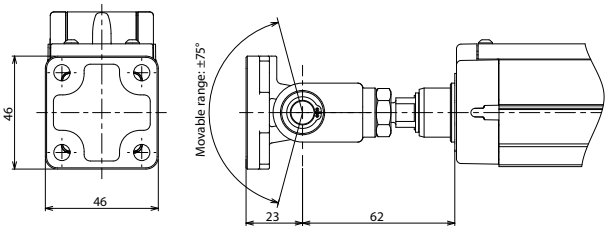
Model **NJPB** Applicable models **EC-RR3 / RR4 / RR6 / RR7 / DRR3 / DRR4 / DRR6 / DRR7 (all models)**

Description This is a knuckle joint and oscillation receiving bracket.
It should be used as a set with a clevis bracket (QR or QRPB).

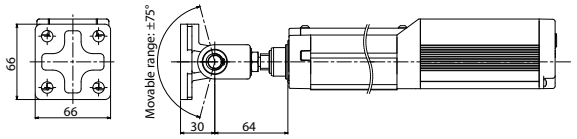
EC-RR3 / RR3□R / DRR3 / DRR3□R
Individual model number: EC-NJPB-RR3
(Single unit mass: 0.26kg / Material: stainless steel)



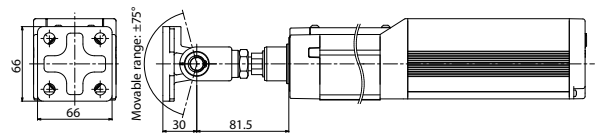
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-NJPB-RR3
(Single unit mass: 0.27kg / Material: stainless steel)



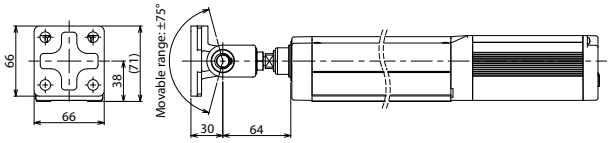
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-NJPB-RR6
(Single unit mass: 0.59kg / Material: stainless steel)



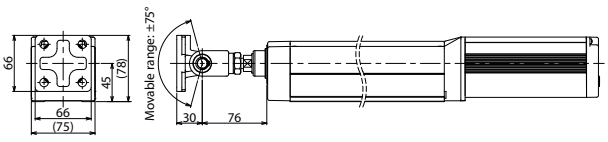
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-NJPB-RR7
(Single unit mass: 0.60kg / Material: stainless steel)



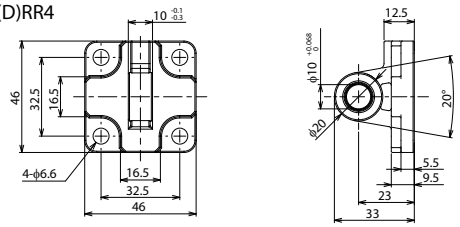
EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: EC-NJPB-RR6
(Single unit mass: 0.59kg / Material: stainless steel)



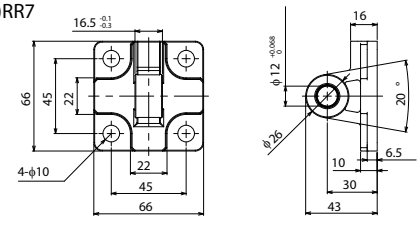
EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: EC-NJPB-RR7
(Single unit mass: 0.60kg / Material: stainless steel)



Swaying bracket
mounting dimensions
(D)RR3 / (D)RR4



Swaying bracket
mounting dimensions
(D)RR6 / (D)RR7



Non-motor end specification

Model **NM** Applicable models **Models other than EC-RP4 / GS4 / GD4 / RP5 / GD5**

Description The home position is normally located on the motor side. This option reverses the home position to the opposite end in order to accommodate equipment variations and the facility layout.

PNP specification * Cannot be selected with ACR option, which must be the NPN specification.

Model **PN** Applicable models **All models**

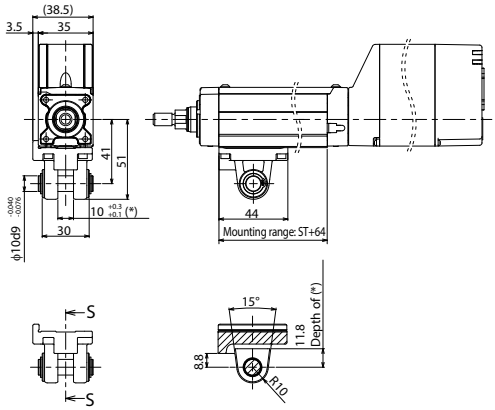
Description EC Series provides NPN specification input/output for connecting external devices as standard.
Specifying this option changes input/output to the PNP specification.

Clevis bracket

Model **QR** **Applicable models** **EC-RR3 / RR4 / RR6 / RR7/ DRR3 / DRR4 / DRR6 / DRR7 (all models)**

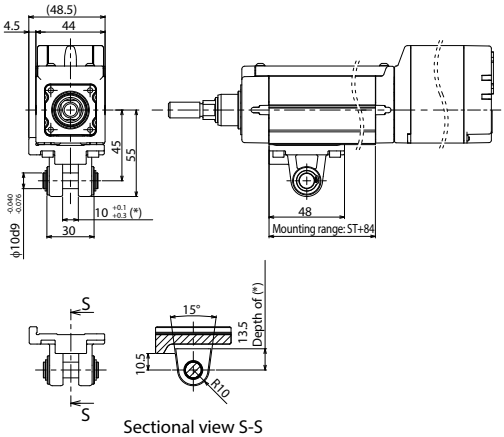
Description When the object mounted to the rod tip moves in a direction other than the rod operation direction, this bracket allows the actuator body to follow that movement.
It should be used as a set with a knuckle joint (NJ or NJPB).

EC-RR3 / RR3□R / DRR3 / DRR3□R
Individual model number: EC-QR-RR3
(Single unit mass: 0.19kg / Material: stainless steel & Iron)
*It is not assembled for shipment. The customer is to mount according to the drawing.
It is recommended that the adjustment standard be within the parallelism specified in the drawing.



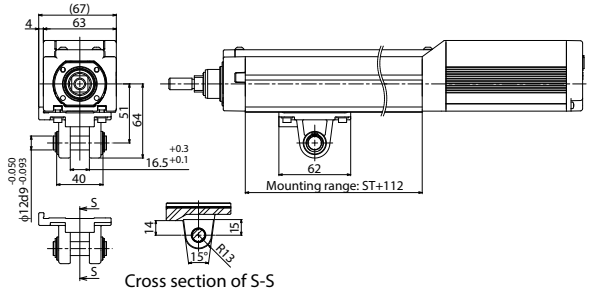
Sectional view S-S

EC-RR4 / RR4□R / DRR4 / DRR4□R
Individual model number: EC-QR-RR4
(Single unit mass: 0.21kg / Material: stainless steel & Iron)
*It is not assembled for shipment. The customer is to mount according to the drawing.
It is recommended that the adjustment standard be within the parallelism specified in the drawing.



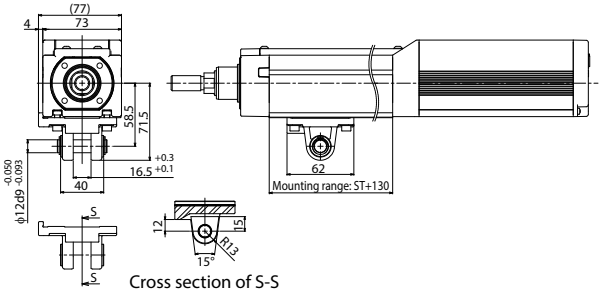
Sectional view S-S

EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-QR-RR6
(Single unit mass: 0.35kg / Material: stainless steel)
*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



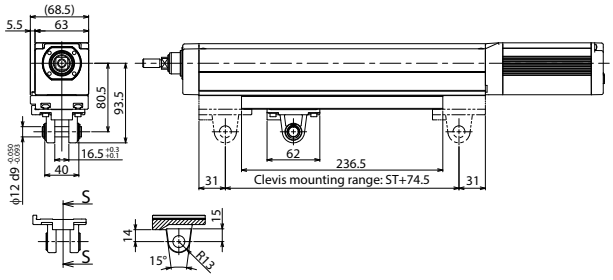
Cross section of S-S

EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-QR-RR7
(Single unit mass: 0.44kg / Material: stainless steel)
*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



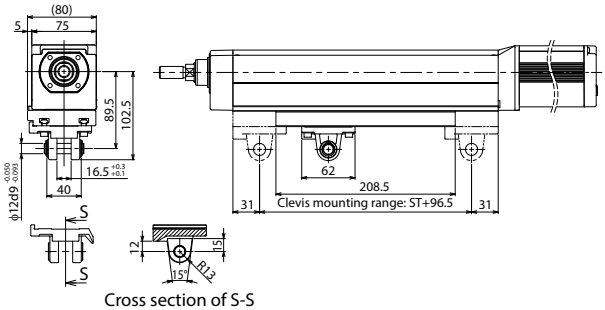
Cross section of S-S

EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: ECH-QR-RR6
(Single unit mass: 0.93kg / Material: stainless steel & aluminum)
*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



Cross section of S-S

EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: ECH-QR-RR7
(Single unit mass: 1.13kg / Material: stainless steel & aluminum)
*Not assembled before shipment. Refer to the drawing for mounting instructions. When making adjustments, it is recommended that the parallelism fall within the level mentioned on the drawings provided.



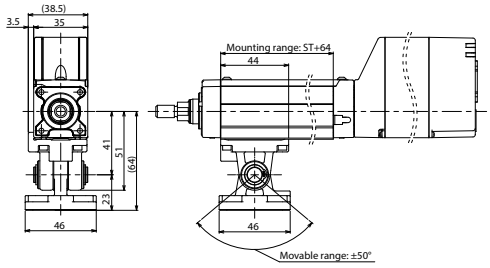
Cross section of S-S

Clevis bracket + oscillation receiving bracket

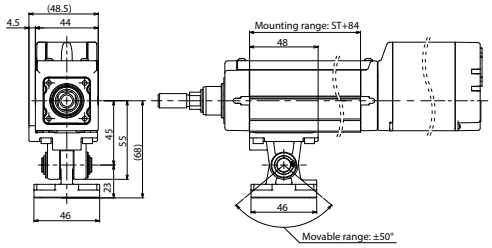
Model **QRPB** Applicable models **EC-RR3 / RR4 / RR6 / RR7 / DRR3 / DRR4 / DRR6 / DRR7 (all models)**

Description This is a clevis and oscillation receiving bracket. The method for mounting the oscillation receiving bracket is the same as for NJPB.
It should be used as a set with a knuckle joint (NJ or NJPB).

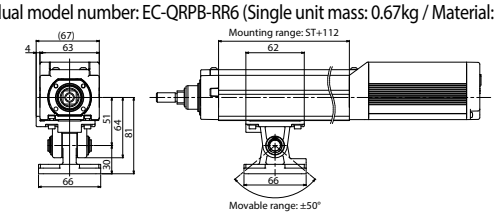
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-QRPB-RR3 (Single unit mass: 0.32kg / Material: stainless & iron)



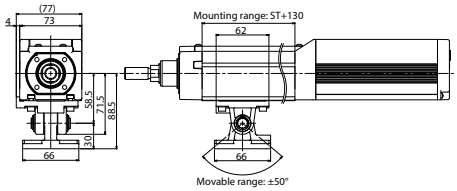
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-QRPB-RR4 (Single unit mass: 0.34kg / Material: stainless & iron)



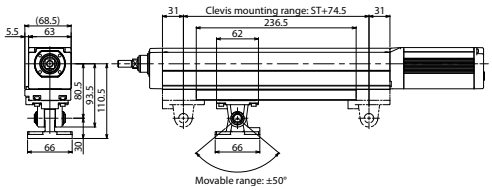
EC-RR6 / RR6□R / DRR6 / DRR6□R
Individual model number: EC-QRPB-RR6 (Single unit mass: 0.67kg / Material: stainless)



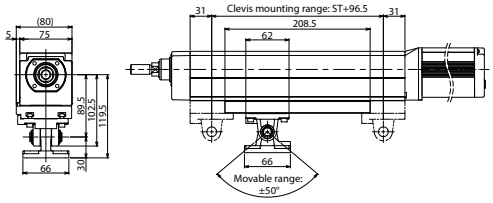
EC-RR7 / RR7□R / DRR7 / DRR7□R
Individual model number: EC-QRPB-RR7 (Single unit mass: 0.76kg / Material: stainless)



EC-RR6□AH / RR6□AHR / DRR6□AH / DRR6□AHR
Individual model number: ECH-QRPB-RR6 (Single unit mass: 1.25kg / Material: stainless & aluminum)



EC-RR7□AH / RR7□AHR / DRR7□AH / DRR7□AHR
Individual model number: ECH-QRPB-RR7 (Single unit mass: 1.45kg / Material: stainless & aluminum)



Shaft adapter

Model **SA** Applicable models **EC-RTC9 / RTC12**

Description This adapter is used to mount jigs to the rotary table. Refer to the dimensions on the individual product page for detailed dimensions.

For EC-RTC9, Individual model number: EC-SA-RTC9
(Single unit mass: 0.06kg / Material: steel [nickel plated])
Moment of inertia: 0.006×10^{-3}kg·m²

For EC-RTC12, Individual model number: EC-SA-RTC12
(Single unit mass: 0.16kg / Material: steel [nickel plated])
Moment of inertia: 0.05×10^{-3}kg·m²

Fluoro-rubber seal specification

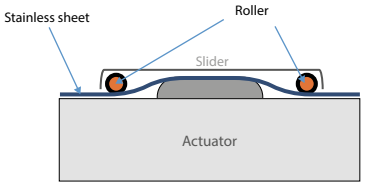
Model **SLF** Applicable models **EC-R6□W / R7□W / RR6□W / RR7□W**

Description Select this to change the sealing material from NBR (nitrile rubber) to FKM (fluoro-rubber).

Slider part roller specification

Model **SR** Applicable models **EC-(D)S3(R) / (D)S4(R) / (D)S6(R) / (D)S7(R) / (D)S6□AH(R) / (D)S7□AH(R)**

Description Standard slider type construction is changed to the roller construction same as clean specification.
When changed to the slider part roller specification, the external view of the slider cover becomes the same type as that of the clean specification.

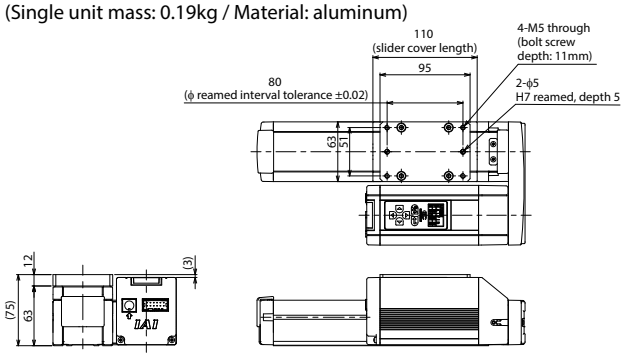


Slider spacer

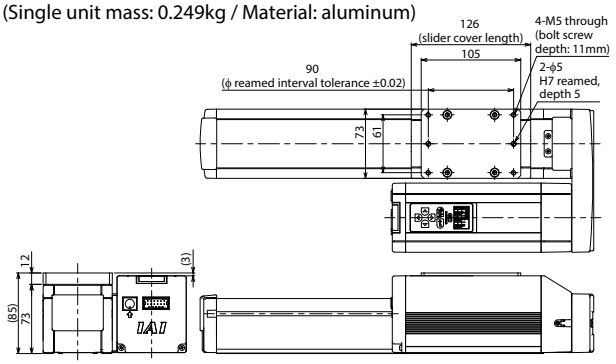
Model **SS** Applicable models **DS6□R / DS7□R / DS6□AHR / DS7□AHR**

Description This option adds an adapter plate, which increases the slider's height to be taller than the motor's height.

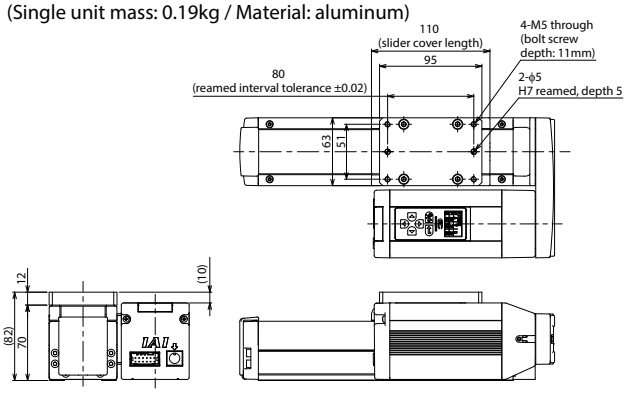
For EC-DS6□R, Individual model number: EC-SS-DS6
(Single unit mass: 0.19kg / Material: aluminum)



For EC-DS7□R, Individual model number: EC-SS-DS7
(Single unit mass: 0.249kg / Material: aluminum)



For EC-DS6□AHR, Individual model number: EC-SS-DS6
(Single unit mass: 0.19kg / Material: aluminum)



For EC-DS7□AHR, Individual model number: EC-SS-DS7
(Single unit mass: 0.19kg / Material: aluminum)

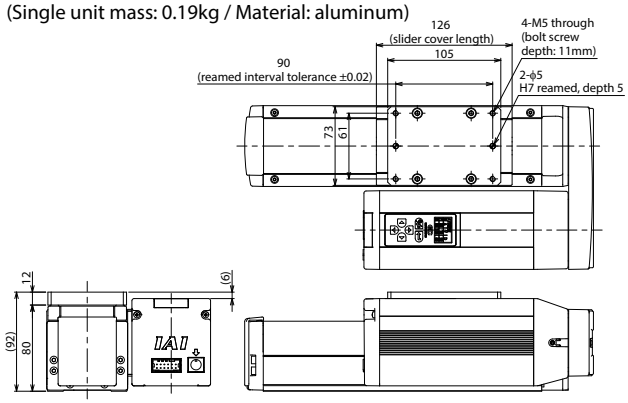


Table adapter

Model **TA** Applicable models **EC-RTC9 / RTC12**

Description This adapter is used to mount jigs to the rotary table. Refer to the dimensions on the individual product page for detailed dimensions.

For EC-RTC9, Individual model number: EC-TA-RTC9
(Single unit mass: 0.08kg / Material: aluminum)
Moment of inertia: 0.04×10^{-3}kg·m^2

For EC-RTC12, Individual model number: EC-TA-RTC12
(Single unit mass: 0.13kg / Material: aluminum)
Moment of inertia: 0.11×10^{-3}kg·m^2

Split motor and controller power supply specification

* Cannot be selected with the ACR option (the RCON-EC connection specification is a split motor and controller power supply specification)

Model **TMD2** Applicable models **All models**

Description This option provides separate power for the motor and controller.
Select this option to allow shutting down the actuator drive power only.
Please refer to P. 2-394 for more information on wiring.
Although EC-S10 / S10X / S13 / S13X / S15 / S15X provides actuator operation stop input, drive power shutoff is not performed.
Please refer to P. 2-401 for details.

Cable fixing bracket (top)

Model **TST** Applicable models **All models**

Description This is a bracket used to fix the cable near the connector with a cable tie.
The teaching port can be accessed even with the fixing bracket mounted.
*Can be selected only when selecting the 4-way connector cable.
*Not assembled before shipment. Refer to the drawings for mounting instructions.
When fixing the gripper on mounting surface A, co-fasten with the cable fixing bracket.

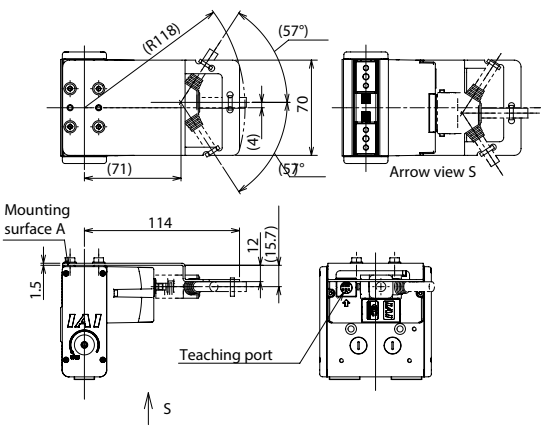
EC-GRB8



EC-GRB10
EC-GRB13

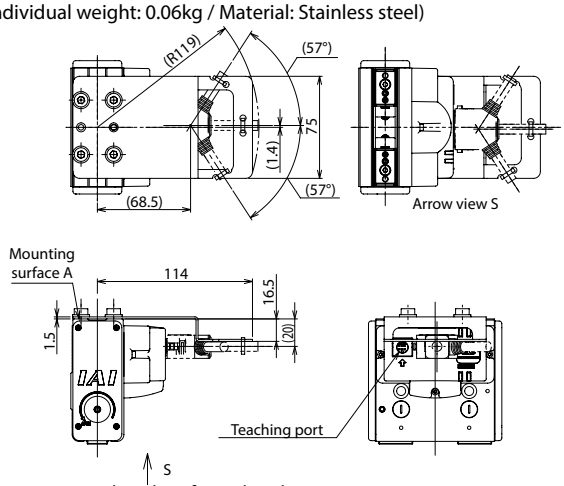


EC-GRB8 Individual model number EC-TST-GRB8
(Individual weight: 0.06kg / Material: Stainless steel)



u Accessories other than fixing brackets
- Flange head hex bolts (stainless steel): M4 x 6 (4 pcs)
- Cable tie (1 pc)

EC-GRB10/GRB13 Individual model number EC-TST-GRB1013
(Individual weight: 0.06kg / Material: Stainless steel)



u Accessories other than fixing brackets
- Flange head hex bolts (stainless steel): M6 x 10 (4 pcs)
- Cable tie (1 pc)

Suction joint on the opposite side

Model **VR** Applicable models **clean specification all models**

Description The joint for vacuum is mounted on the left side viewing from the motor side. This option enables to change it to the opposite side.

Double slider

Model **W** Applicable models **EC-(D)S6□(R) / (D)S7□(R) / (D)S6□AH(R) / (D)S7□AH(R)**

Description This option enables to add a free slider that is not connected to the screw.
The double slider allows to increase allowable moment and overhang length.

Battery-less absolute encoder specification

Model **WA** Applicable models **(all models excluding EC-GRB8/S10/S10X/S13/S13X/S15/S15X)**

Description Incremental encoder specification is standard for the EC Series.
Specifying this option installs a built-in battery-less absolute encoder.
EC-GRB8 uses only an incremental encoder. This option cannot be selected.
EC-S10 / S10X / S13 / S13X / S15 / S15X are equipped standard with a battery-less absolute encoder. This item is not necessary.

Wireless communication specification

Model **WL** Applicable models **All models**

Description This option enables support for wireless communication. Specifying this option enables wireless connection with the TB-03 teaching pendant.
The start point, end point, and AVD can be adjusted via wireless communication.

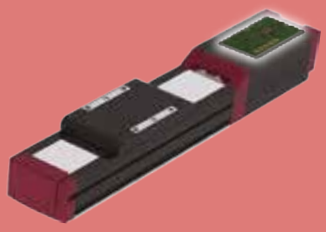
Wireless axis operation specification

Model **WL2** Applicable models **All models**

Description Specifying WL2 all of the wireless features of the WL option (adjusting the start point, end point, and the AVD) are available, and test operations of axis movement (forward/backward movement, jogging, and inching) are also possible. However, this function is not meant to perform automatic or continuous operation. Refer to P. 2-436 for precautions on axis operations using a wireless connection. (Note) Customers cannot change WL to WL2, or WL2 to WL. Please contact IAI for this.

Controllers

Built-in controllers



REC



PSA-24



TB-03



TB-03E



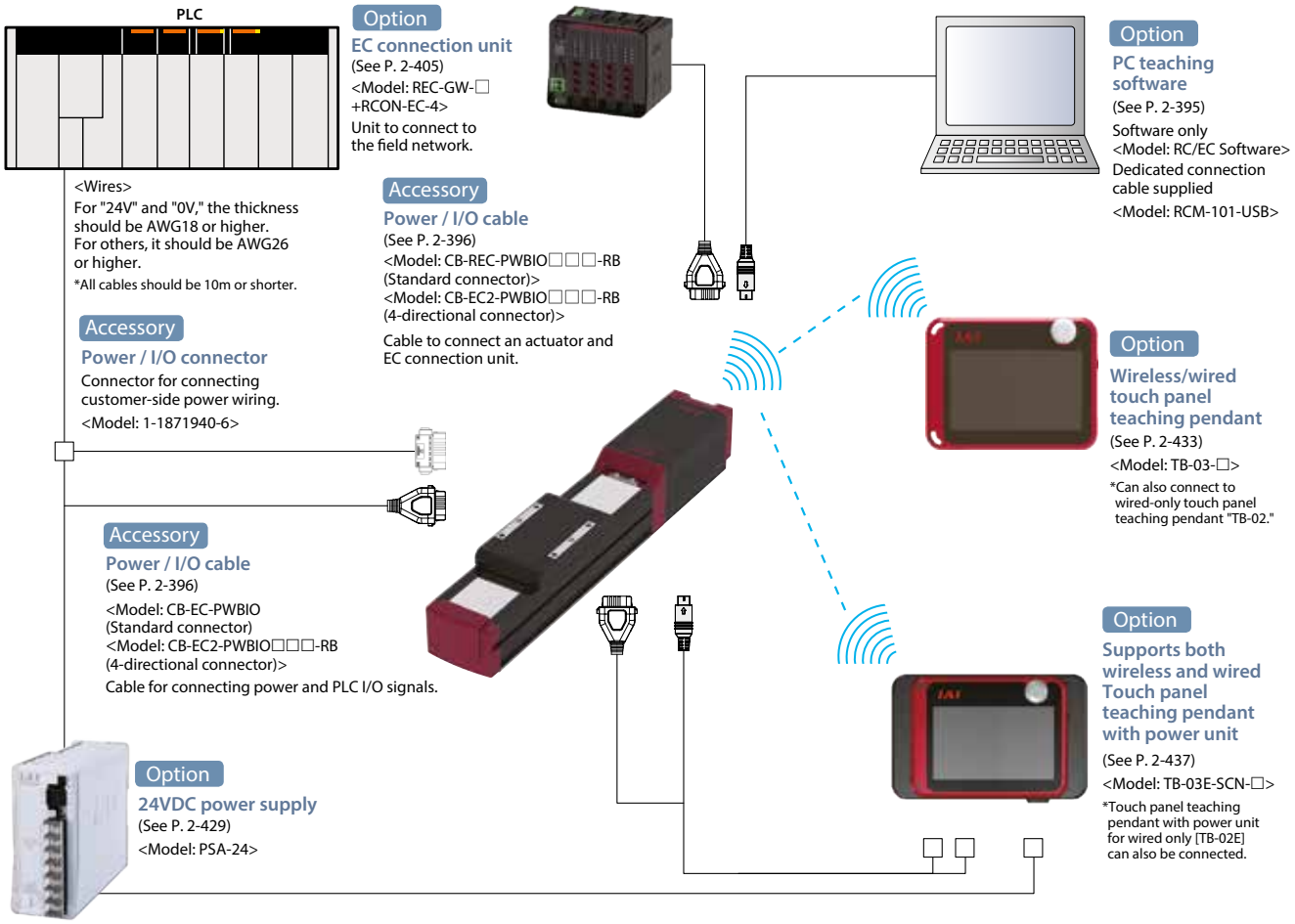
Built-in controllers	Stepper motor mounted models	**2-391**
	AC servo motor mounted models	**2-399**
Field network connection unit	REC/RCON-EC	**2-405**
24VDC power supply	PSA-24/24L	**2-429**
Touch panel teaching pendant	TB-03	**2-433**
Teaching pendant with power unit	TB-03E/TB-02E/ADTB	**2-437**

EC controller specification [Stepper motor mounted models]

Stepper motor-mounted ELECYLINDER® Built-in controllers
(All models other than EC-S10(X)/S13(X)/S15(X))

CE RoHS 10

System Configuration



List of Accessories

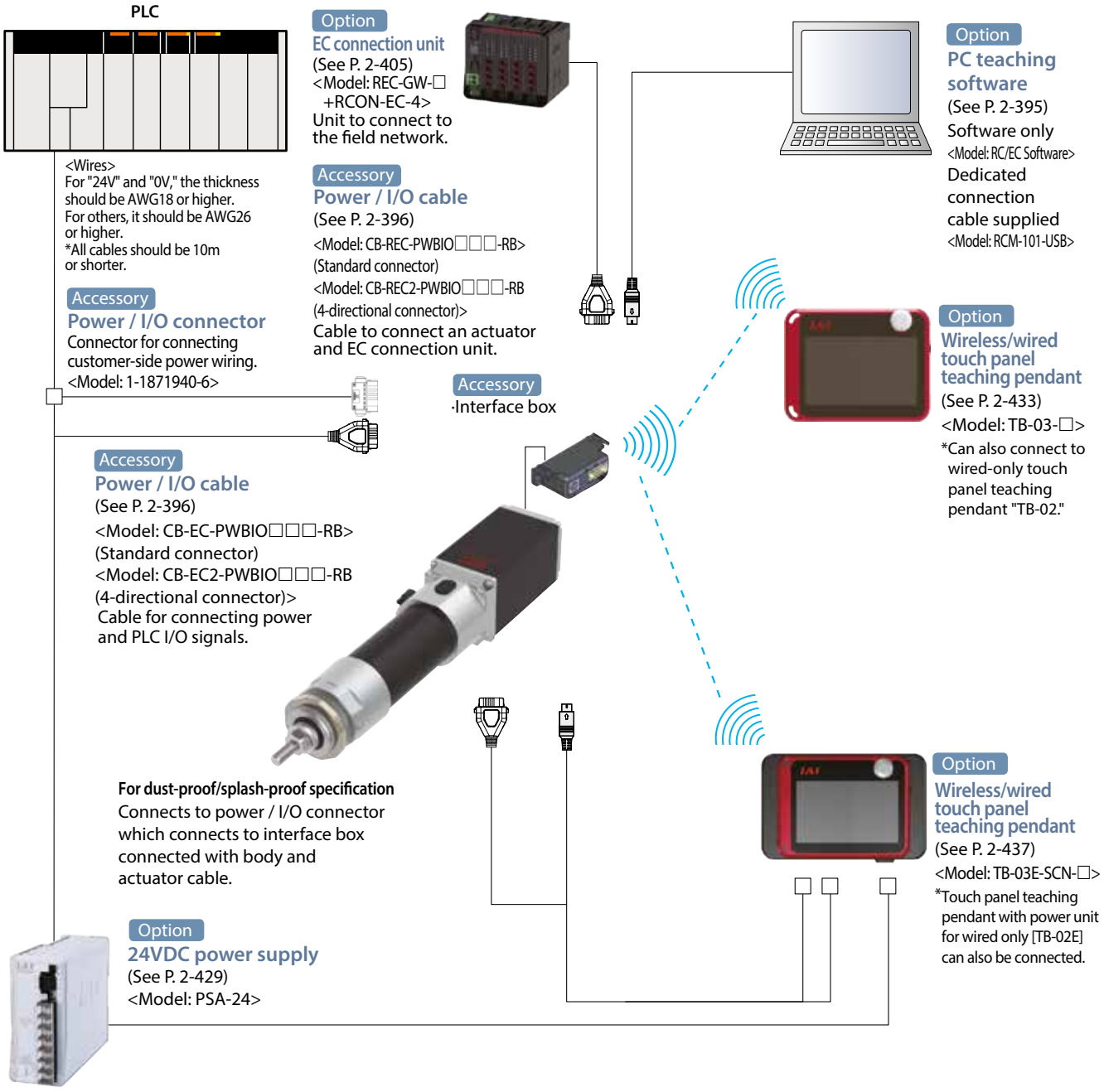
■ Power / I/O cables, connectors
[Standard connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	No	Power / I/O connector (1-1871940-6)
	Yes	—
1 ~ 10	No	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC-PWBIO□□□-RB)

[Four-way connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
S1 ~ S10	No	Power / I/O cable (CB-EC2-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC2-PWBIO□□□-RB)

System Configuration



List of Accessories

■ Power / I/O cables, connectors

[Standard connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	No	Power / I/O connector (1-1871940-6)
	Yes	—
1 ~ 10	No	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC-PWBIO□□□-RB)

[Four-way connector]

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
S1 ~ S10	No	Power / I/O cable (CB-EC2-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC2-PWBIO□□□-RB)

Built-in controllers

Basic Controller Specifications

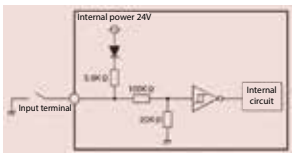
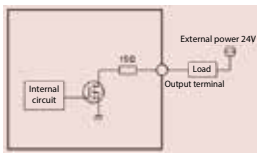
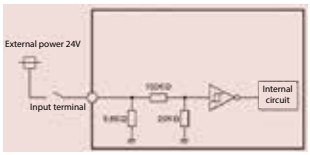
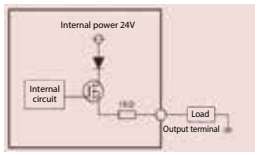
Specification item			Specification content
Number of controlled axes			1 axis
Power supply voltage			24VDC ±10%
Power capacity (including control power of 0.3A)		GRB8	Maximum 1A (only for energy-saving enabled)
		RP4, GS4, GD4, TC4, TW4, GRB10/13, RTC9	Max. 2A (with energy-saving setting enabled only)
		(D)S3(□CR), (D)RR3	Max. 2.2A (with energy-saving setting enabled only)
		Other than the above	With energy-saving setting disabled: Rated 3.5A, max. 4.2A With energy-saving setting enabled: Max. 2.2A
Brake release power sup			24VDC ±10%, 200mA (only for external brake release)
Heat quantity (at duty ratio 100%)		GRB8	2W
		(D)S3(□CR), (D)RR3, RP4, GS4, GD4, TC4, TW4, GRB10/13, RTC9	5W
		Other than the above	8W
Inrush current (Note 1)		(D)S3(□CR), (D)RR3, RP4, GS4, GD4, TC4, TW4, GRB8/10/13, RTC9	2A
		Other than the above	8.3A (with inrush current limit circuit)
Momentary power failure resistance			max 500μs
Motor size			□20, □28, □35, □42, □56
Motor rated current		GRB8	0.4A
		Other than the above	1.2A
Motor control system			Weak field-magnet vector control
Supported encoders			Incremental (800 pulse/rev), battery-less absolute encoder (800 pulse/rev)
SIO			RS485 1ch (Modbus protocol compliant)
PIO	Input specification	Number of inputs	3 points (forward, backward, alarm clear)
		Input voltage	24VDC ±10%
		Input current	5mA per circuit
		Leakage current	Max. 1mA per point
		Isolation method	Non-isolated
	Output specification	No. of outputs	3 points (forward complete, backward complete, alarm)
		Output voltage	24VDC ±10%
		Output current	50mA per point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting, input method			PC teaching software, touch panel teaching pendant, digital speed controller
Data retention memory			Position and parameters are saved in non-volatile memory (no limit to rewrite)
LED display	Controller status display		Servo ON (green light ON) / Alarm (red light ON) / Initializing when power comes ON (orange light ON) / Minor failure alarm (green/red alternately blinking) / Operation from teaching: Stop from teaching (red light ON) / Servo OFF (light OFF)
	Wireless status display		Initializing wireless hardware, without wireless connection, or connecting from TP board (light OFF) Connecting through wireless (green blinking) / Wireless hardware error (red blinking) / Initializing when power comes ON (orange light ON)
Predictive maintenance/preventative maintenance			When the number of movements or operation distance has exceeded the set value and when the LED (right side) blinks alternately green and red at overload warning *Only when configured in advance
Ambient operating temperature			0 ~ 40°C
Ambient operating humidity			85% RH or less (non-condensing or freezing) Operating ambience
Operating ambience			No corrosive gas and excessive dust
Insulation resistance			500VDC 10MΩ
Electric shock protection mechanism			Class 1 basic insulation
Cooling method			Natural air cooling

(Note 1) Inrush current flows for approximately 5ms after the power is input. Inrush current (at 40°C) value differs depending on the impedance on the power line.

Solenoid valve system

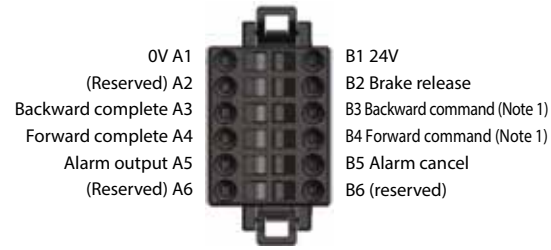
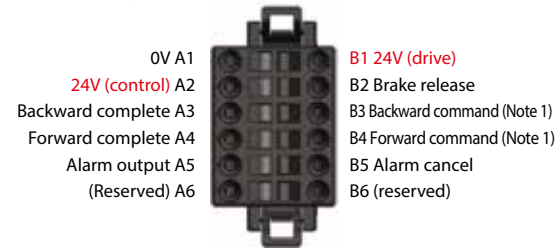
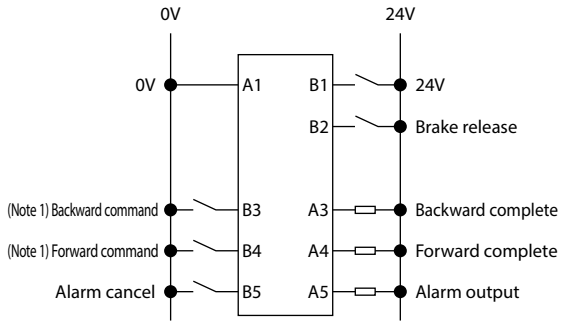
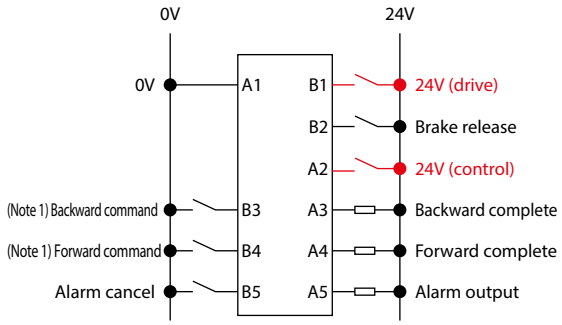
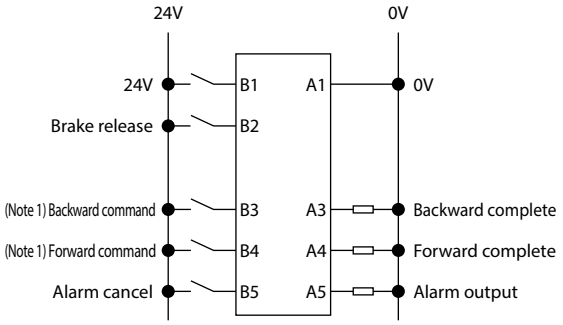
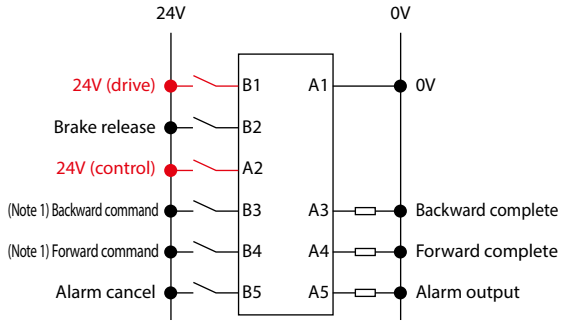
ELE CYLINDER is usually the double solenoid system.
To change it to the single solenoid system, change the parameter No.9 "Selection of solenoid valve system."
<Note>
The single solenoid system cannot be operated when connecting to RCON-EC.

I/O (Input/Output) Specifications

I/O		Input		Output	
Specifications		Input voltage	24VDC ±10%	Load voltage	24VDC ±10%
		Input current	5mA per circuit	Maximum load current	50mA per point
		ON/OFF voltage	ON voltage: MIN. 18VDC OFF voltage: MAX. 6VDC	Residual voltage	2V or less
		Leakage current	MAX. 1mA per point	Leakage current	MAX. 0.1mA per point
Isolation method		Non-isolated from external circuit		Non-isolated from external circuit	
I/O logic	NPN				
	PNP				

(Note) Isolation method is non-isolated. When connecting an external device (such as a PLC) to ELECYLINDER®, use the same ground as ELECYLINDER®.

I/O Signal Wiring Diagram

I/O		Standard specification	Split motor and controller power supply specification (option model: TMD2)
Power / I/O connector			Drive power and control power are separate for the TMD2 specification. 
I/O logic	NPN		
	PNP		

(Note 1) For the single solenoid system, B3 is "Forward/Backward command" and B4 is "Not used."

I/O Signal Table

Power / I/O connector pin assignment			
Pin No.	Connector nameplate name	Signal abbreviation	Function overview
B3 (Note 1)	Backward	ST0	Backward command
B4 (Note 1)	Forward	ST1	Forward command
B5	Alarm cancel	RES	Alarm cancel
A3	Backward complete	LS0/PE0	Backward complete/push complete
A4	Forward complete	LS1/PE1	Forward complete/push complete
A5	Alarm	*ALM	Alarm detection (b-contact)
B2	Brake release	BKRLS	Brake forced release (for brake equipped specification)
B1 (Note 2)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note 2)	(24V)	(24V)	24V input

(Note 1) For the single solenoid system, B3 is "Forward/Backward command" and B4 is "Not used." However, indication of the power-I/O connector remains unchanged from B3: Backward and B4: Forward.
(Note 2) For the split motor and controller power supply specification (TMD2), B1 is 24V (drive) and A2 is 24V (control).

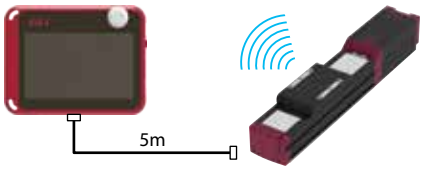
Options

Wireless/wired touch panel teaching pendant

Features This teaching device supports wireless connections.
Start point/end point/AVD input and axis operation can be performed wirelessly.

Model **TB-03-□** Please contact IAI for the current supported versions.

Configuration Wireless or wired connection



Specifications

Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	20 ~ 85%RH (Non-condensing)
Environmental resistance	IPX0
Mass	Approx. 485g (body) + approx. 175g (battery)
Charging method	Wired connection with dedicated adapter/controller
Wireless connection	Bluetooth 4.2 class 2

PC teaching software (RC/EC Software)

Features This start-up support software provides functions such as position teaching, trial operation, and monitoring.
It provides a complete range of functions required to make adjustments, to help reduce start-up time.

* Please purchase through your distributor and a download link will be sent to your valid email address.

Model **IA-OS** (software only, for customers who already own a dedicated connection cable)
Please contact IAI for the current supported versions

Configuration



PC software
(Download Only)

Your dedicated cable
[CB-SEL-USB030/RCB-CV-USB/
CB-RCA-SIO050]



Supported Windows versions: 7/10



Model **IA-O-C** (with an external device communication cable + USB conversion adapter + USB cable)
Please contact IAI for the current supported versions

Configuration



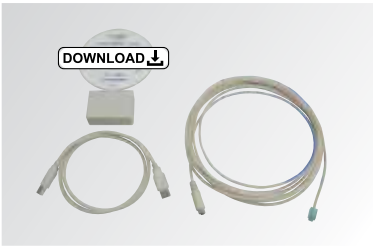
PC software
(Download Only)

USB conversion adapter
RCB-CV-USB

3m
USB cable
CB-SEL-USB030

5m
External device communication cable
CB-RCA-SIO050





Maintenance Parts

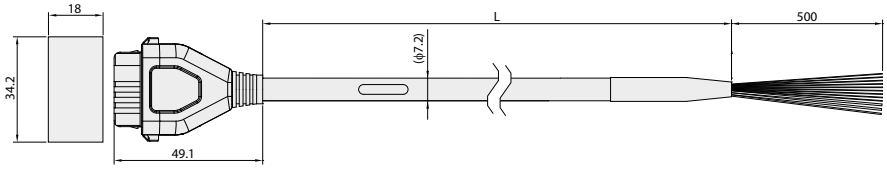
When placing an order for a replacement cable, please use the model name shown below.

■ **Table of compatible cables**

Cable type	Cable model
Power / I/O cable (user-wired specification)	CB-EC-PWBIO□□□-RB
Power / I/O cable (user-wired specification, four-way connector)	CB-EC2-PWBIO□□□-RB
Power / I/O cable (RCON-EC connection specification)	CB-REC-PWBIO□□□-RB
Power / I/O cable (RCON-EC connection specification, four-way connector)	CB-REC2-PWBIO□□□-RB

Model CB-EC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□ (for example, 030 = 3m)



Minimum bending R: r=58mm or more (dynamic bending condition)
***Only the robot cable is available for this model.**

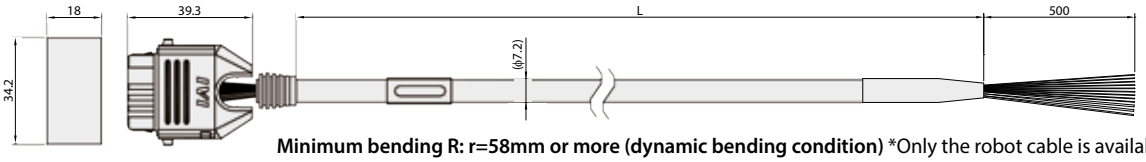
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)	BKRLS	B2

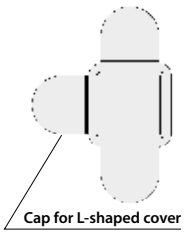
(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-EC2-PWBIO□□□-RB

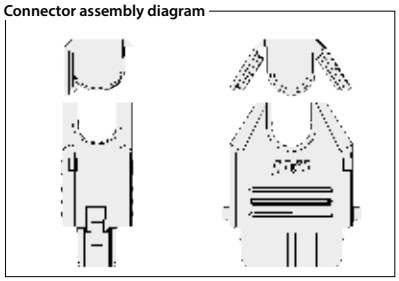
*Please indicate the cable length (L) in □□□ (for example, 030 = 3m)



Minimum bending R: r=58mm or more (dynamic bending condition) *Only the robot cable is available for this model.



Connector assembly diagram



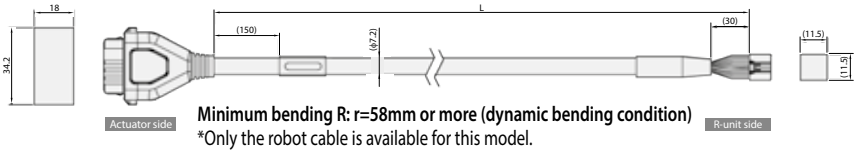
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)	BKRLS	B2

(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-REC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□ up to 10m in length (for example, 030 = 3m)



Minimum bending R: r=58mm or more (dynamic bending condition)
*Only the robot cable is available for this model.

3-1871946-6

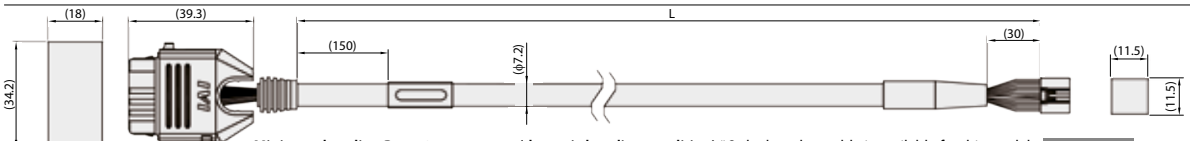
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	SD+	B6
White (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2.2C (18)

Pin No.	Signal name	Color
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

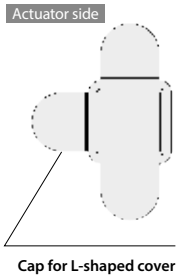
Model CB-REC2-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□ up to 10m in length (for example, 030 = 3m)

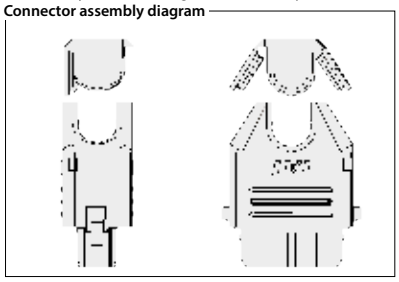


Minimum bending R: r=58mm or more (dynamic bending condition) *Only the robot cable is available for this model. R-unit side

Actuator side



Connector assembly diagram



1-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2C(18)

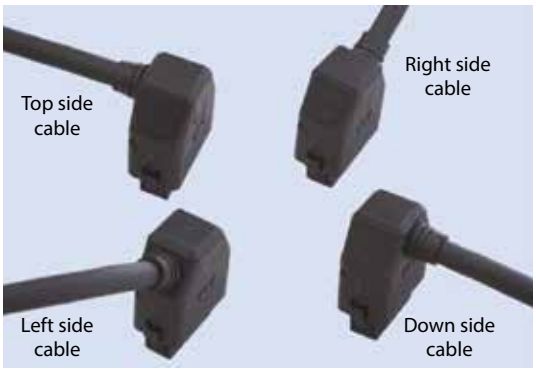
Pin No.	Signal name	Color
2	0V	Black (AWG22)
1	24V(MP)	Red (AWG22)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

■ Four-way connector cable

This cable allows the connector direction to be changed to any of 4 directions.
The cable wiring for the connector is the same as that of power I/O cable CB-EC-PWBIO□□□-RB.

Model: CB-EC2-PWBIO□□□-RB





Cable direction can be set to any of 4 directions

- The wiring on the side opposite the connector is left unprepared.
- The cable length may be from 1m to 10m long.
  The length can be specified in 1m units.
- Example models are listed below.

Cable length **1**m → CB-EC2-PWBIO**010**-RB
Cable length **3**m → CB-EC2-PWBIO**030**-RB
Cable length **10**m → CB-EC2-PWBIO**100**-RB

Follow the procedure below to assemble the connector in the desired direction.

(1) Insert while sliding along the groove in the desired direction from the semi-cylindrical curved portion.

(2) Confirm that the cable has been firmly inserted, and then insert the 2 sides of the lid along the groove.

(3) Finally, press the remaining side of the lid.

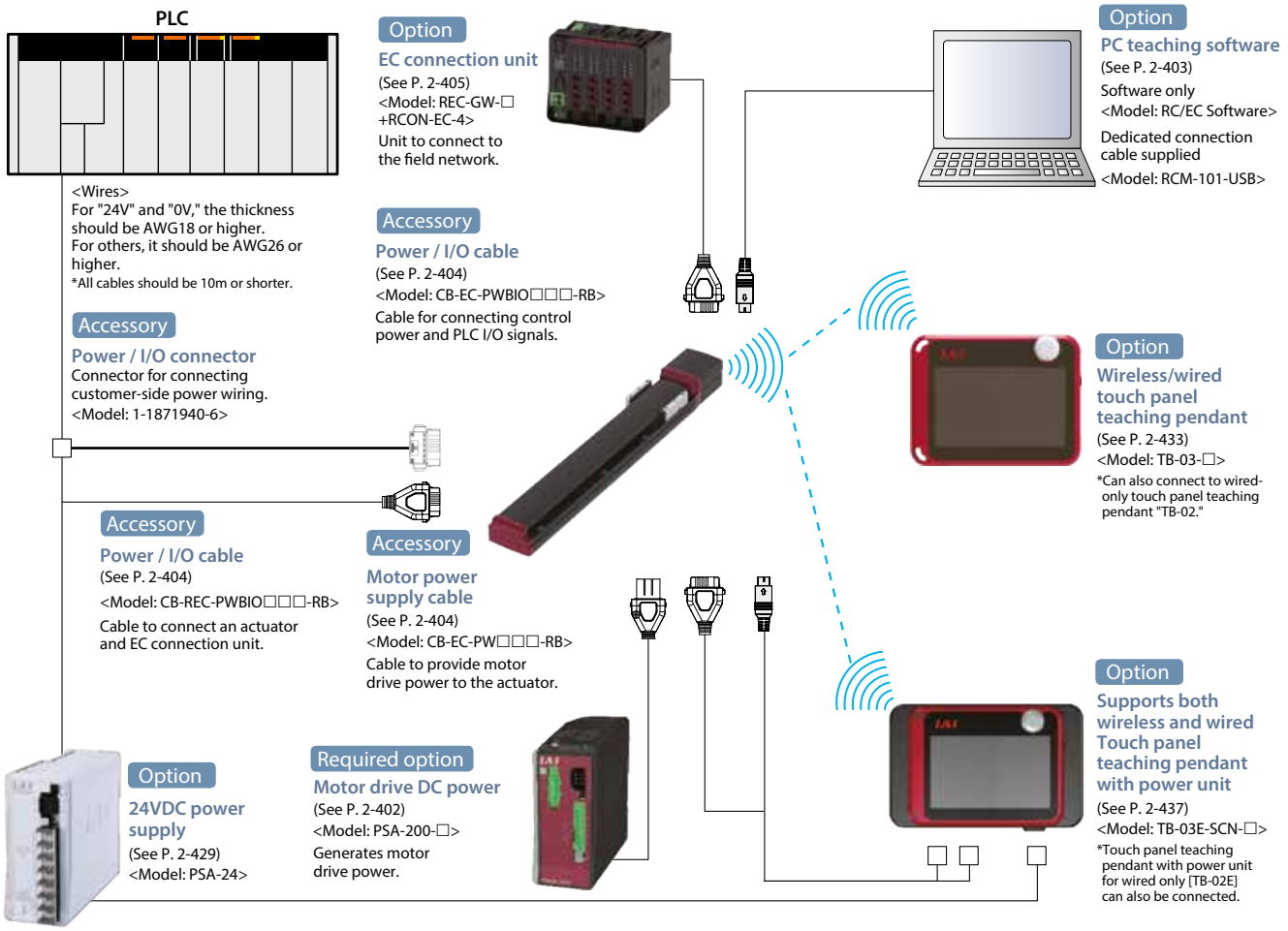


EC controller specification [AC servo motor mounted models]

AC servo motor-mounted ELECYLINDER® Built-in controllers
(EC-S10(X)/S13(X)/S15(X))

CE RoHS 10

System Configuration



List of Accessories

■ Power / I/O cable

Product category		Accessory
Power / I/O cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	No	Power / I/O connector (1-1871940-6)
	Yes	—
1 ~ 10	No	Power / I/O cable (CB-EC-PWBIO□□□-RB)
	Yes	Power / I/O cable (CB-REC-PWBIO□□□-RB)

■ Motor power supply cable

Product category		Accessory
Motor power supply cable length (selected with actuator model)	RCON-EC connection specification (ACR) selection	
0	No	—
	Yes	
1 ~ 10	No	Motor power supply cable (CB-EC-PW□□□-RB)
	Yes	

Basic Controller Specifications

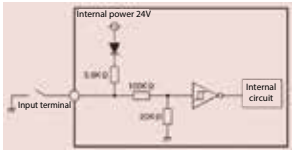
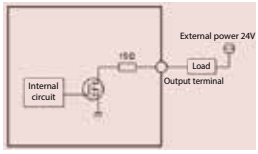
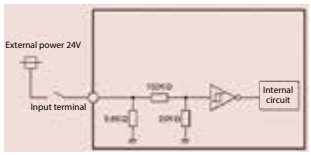
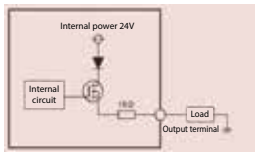
Specification item			Specification content
Number of controlled axes			1 axis
Motor power input voltage			Supplied from PSA-200 (280VDC typ)
Control power input voltage			24VDC ±10%
Control power current	Control		320mA
	Teaching (Note 1)		150mA
	Brake (Note 2)	S10(X)	220mA (No over-excitation)
		S13(X), S15(X)	Over-excitation: 875mA, Normal: 85mA
Control power capacity	Control		7.6W
	Teaching (Note 1)		3.6W
	Brake (Note 2)	S10(X)	5.3W (No over-excitation)
		S13(X), S15(X)	Excitation: 21.0W, Normal: 2.0W
Inrush current			-
Momentary power failure resistance			Max 500μs
Compatible motor wattage (W)			100W/200W/400W
Motor control system			Sine wave PWM vector current control
Supported encoders			Battery-less absolute encoder (16,384 pulses/rev)
SIO			RS485 1ch (Modbus protocol compliant)
PIO	Input specification	Number of inputs	points (forward, backward, alarm clear)
		Input voltage	24VDC ±10%
		Input current	5mA per circuit
		Leakage current	Max. 1mA per point
		Isolation method	Non-isolated
	Output specification	No. of outputs	3 points (forward complete, backward complete, alarm)
		Output voltage	24VDC ±10%
		Output current	50mA per point
		Residual voltage	2V or less
		Isolation method	Non-isolated
Data setting, input method			PC teaching software, touch panel teaching pendant
Data retention memory			Position and parameters are saved in non-volatile memory (no limit to rewrite)
LED display	Controller status display (right)		Servo ON (green light ON) / Alarm (red light ON) / Initializing when power comes ON (orange light ON) / Minor failure alarm (green light blinking) / Operation from teaching: Stop from teaching (red light ON) / Servo OFF (light OFF)
	Motor power status display (middle)		Motor power ON (green light on) / Motor power OFF (green light blinking)
	Wireless status display (left)		Initializing wireless hardware, without wireless connection, or connecting from TP board (light OFF) Connecting through wireless (green blinking) / Wireless hardware error (red blinking) / Initializing when power comes ON (orange light ON)
	Charge status display (I/O connector yellow)		Internal circuit charged (red light on) / Internal circuit not charged (off) (Note 3)
Predictive maintenance/preventative maintenance			When the number of movements or operation distance has exceeded the set value and when the LED (right side) blinks green at overload warning *Only when configured in advance
Ambient operating temperature			0 ~ 40°C
Ambient operating humidity			85% RH or less (no condensation or freezing)
Operating ambience			No corrosive gas and excessive dust
Insulation resistance			500VDC 10MΩ
Electric shock protection mechanism			Class 1 basic insulation
Cooling method			Natural air cooling

(Note 1) Add this if connecting a teaching pendant.
(Note 2) Add this if using an actuator with brake.
(Note 3) When the charge status display LED is on, it means that the controller is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.

Solenoid valve system

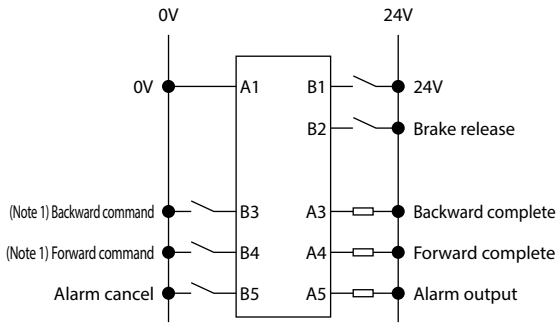
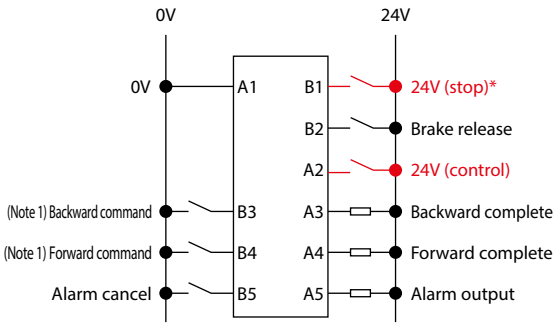
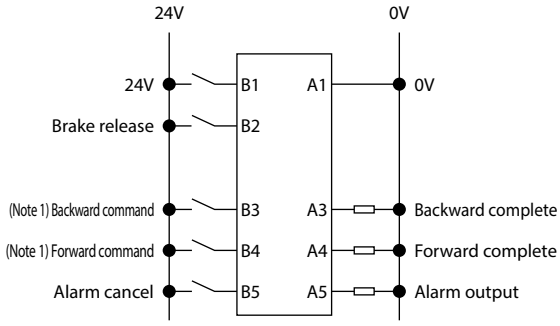
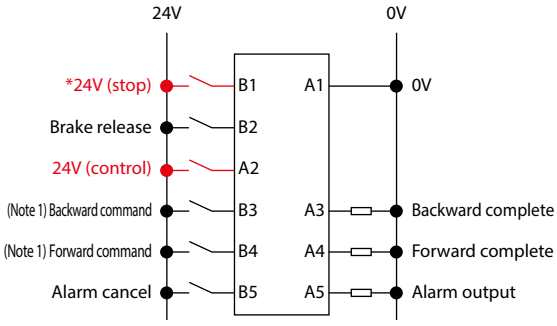
ELE CYLINDER is usually the double solenoid system.
To change it to the single solenoid system, change the parameter No.9 "Selection of solenoid valve system."
<Note>
The single solenoid system cannot be operated for RCON-EC.

I/O (Input/Output) Specifications

I/O		Input		Output	
Specifications		Input voltage	24VDC ±10%	Load voltage	24VDC ±10%
		Input current	5mA per circuit	Maximum load current	50mA per point
		ON/OFF voltage	ON voltage: MIN. 18VDC OFF voltage: MAX. 6VDC	Residual voltage	2V or less
		Leakage current	MAX. 1mA per point	Leakage current	MAX. 0.1mA per point
Isolation method		Non-isolated from external circuit		Non-isolated from external circuit	
I/O logic	NPN				
	PNP				

(Note) Isolation method is non-isolated. When connecting an external device (such as a PLC) to ELECYLINDER®, use the same ground as ELECYLINDER®.

I/O Signal Wiring Diagram

I/O		Standard specification	Split motor and controller power supply specification (option model: TMD2)
Power / I/O connector			Although the TMD2 specification provides actuator operation stop input, drive power shutoff is not performed. Separate PSA-200 AC power (L1, L2) is required for drive power shutoff. 
I/O logic	NPN		
	PNP		

(Note 1) For the single solenoid system, B3 is "Forward/Backward command" and B4 is "Not used."

I/O Signal Table

Power / I/O connector pin assignment			
Pin No.	Connector nameplate name	Signal abbreviation	Function overview
B3 (Note 1)	Backward	ST0	Backward command
B4 (Note 2)	Forward	ST1	Forward command
B5	Alarm cancel	RES	Alarm cancel
A3	Backward complete	LS0	Backward complete
A4	Forward complete	LS1	Forward complete
A5	Alarm	*ALM	Alarm detection (b-contact)
B2	Brake release	BKRLS	Brake forced release (for brake equipped specification)
B1 (Note 2)	24V	24V	24V input
A1	0V	0V	0V input
A2 (Note 2)	(24V)	(24V)	24V input

(Note 1) For the single solenoid system, B3 is "Forward/Backward command" and B4 is "Not used."
However, indication of the power-I/O connector remains unchanged from B3: Backward and B4: Forward.
(Note 2) For the split motor and controller power supply specification (TMD2), B1 is 24V (stop) and A2 is 24V (control).

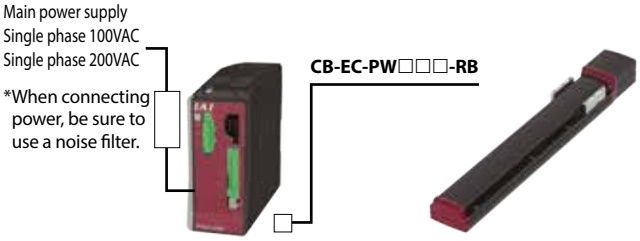
Required Option

Motor drive DC power

■**Features** **This unit provides drive DC power to the actuator motor. A single unit can provide power for up to 6 axes (within the max. connection wattage (W)).**

■**Model** **PSA-200-1**
(Input voltage: Single phase 100VAC, max. 800W connectable)
PSA-200-2
(Input voltage: Single phase 200VAC, max. 1600W connectable)

■**Configuration** **Connected with motor power supply cable**



<Recommended models>
NF2010A-UP (manufacturer: Soshin Electric)
NAC-10-472 (manufacturer: COSEL)

Actuator-mounted motor wattage (W)

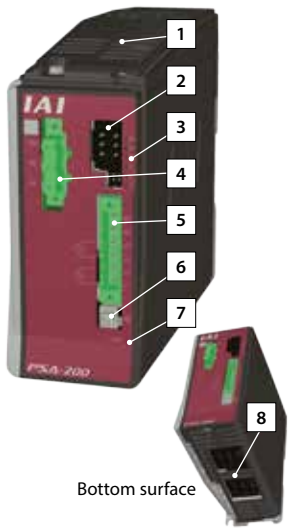
EC-S10/S10X	100W
EC-S13/S13X	200W
EC-S15/S15X	400W

■**Specifications**

Power input voltage range		Single phase 100VAC specification: 100 ~ 115VAC ±10% Single phase 200VAC specification: 200 ~ 230VAC ±10%
Input frequency range		50/60Hz ±5%
Inrush current (Note 1)	55°C	Control power: 60A Motor power: 70A
Output voltage		DC280V typ
Max. motor connection wattage (W)		Single phase 100VAC specification: 800W Single phase 200VAC specification: 1600W
Max. number of driven axes		6 axes
Momentary power failure resistance		50Hz: 20ms, 60Hz: 16ms
Dielectric withstand voltage		Between primary and FG: 1500VAC for 1 min.
Insulation resistance		Between secondary and FG: 500VDC 10MΩ or higher
Leakage current		Total 3.1mA (using recommended noise filter, 6 axes connected)
Electric shock protection mechanism		Class 1 basic insulation

(Note 1) Inrush current flows for approximately 20ms after the power is input. The inrush current value varies depending on the impedance of the power line and internal element temperature (thermistor).

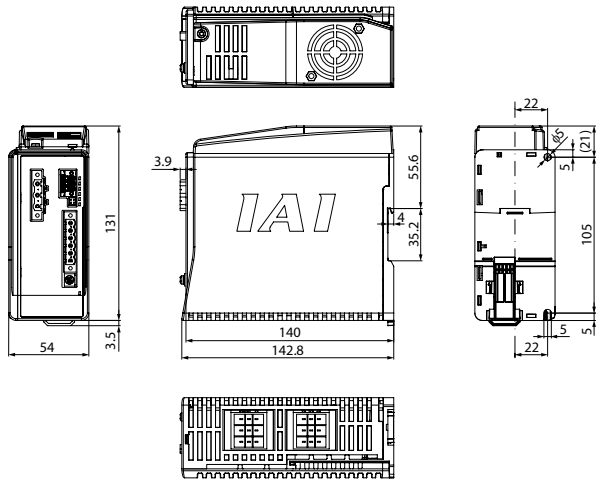
■**Names of each part**



1 **Fan unit**
2 **Status output connector**
3 **Status display LED**
4 **Regenerative resistance unit cable connector**
5 **Power supply connector**
6 **Ground terminal**
7 **Charge status display LED*1**
8 **Motor power connector**

(*1) When the charge status display LED is on, it means that PSA-200 is internally charged. To prevent electric shock when wiring or conducting an inspection, shutdown the power and confirm that the LED is off.

■**External dimensions**



Regenerative resistance unit

■**Features** This unit converts the regenerative current generated as the motor decelerates into heat. Calculate the total wattage of the actuator to operate and refer to the "Necessary amount guideline" table to the right. Prepare regenerative resistance if required.

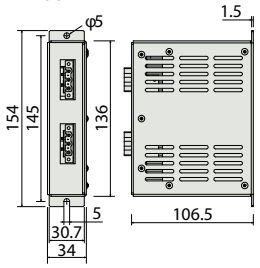
■**Model** **RESU-1**(standard specification)/**RESUD-1**(DIN rail mounting specification)

■**Specifications**

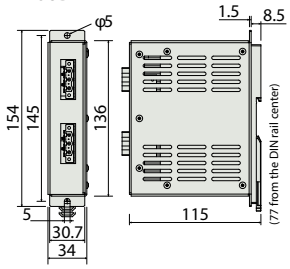
Model	RESU-1	RESUD-1
Unit weight	Approx. 0.4kg	
Built-in regenerative resistance value	235Ω 80W	
Unit mounting method	Screw mount	DIN rail mount
Supplied cable	CB-ST-REU010	

■**External dimensions**

<RESU-1>



<RESUD-1>



■**Necessary amount guideline**

Actuator-mounted motor wattage (W)

EC-S10/S10X	100W
EC-S13/S13X	200W
EC-S15/S15X	400W

Wattage (W)		Horizontal								
		0	200	400	600	800	1000	1200	1400	1600
Vertical	0	0	0	0	0	0	0	1	1	1
	200	0	1	1	1	1	1	1	1	-
	400	1	1	1	1	2	2	2	-	-
	600	1	1	2	2	2	2	-	-	-
	800	1	2	2	2	2	-	-	-	-
	1000	2	2	2	2	-	-	-	-	-
	1200	2	2	3	-	-	-	-	-	-
	1400	2	3	-	-	-	-	-	-	-
	1600	3	-	-	-	-	-	-	-	-

<Caution>

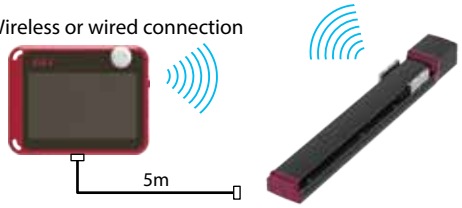
1. Values above are for when performing back and forth operation at an actuator operation duty ratio of 50% for a 1000mm stroke at rated acceleration/deceleration and rated load.
2. Regenerative energy is also absorbed inside the controller. If the allowance is exceeded, the estimated regenerative discharge power excess alarm will trip. You should therefore connect an additional external regenerative resistance unit.
   If the operation duty ratio is about 50% or the load is high when vertically mounted, a regenerative resistance unit exceeding the values above will be needed.
   Note that a maximum of 5 regenerative resistance units may be connected. Never connect more than 5 units as this may cause a failure.

Wireless/wired touch panel teaching pendant

■**Features** This teaching device supports wireless connections. Start point/end point/AVD input and axis operation can be performed wirelessly.

■**Model** **TB-03-□** Please contact IAI for the current supported versions.

■**Configuration** Wireless or wired connection



■**Specifications**

Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	20 ~ 85%RH (Non-condensing)
Environmental resistance	IPX0
Mass	Approx. 485g (body) + approx. 175g (battery)
Charging method	Wired connection with dedicated adapter/controller
Wireless connection	Bluetooth 4.2 class 2

PC teaching software (RC/EC Software)

■**Features** This start-up support software provides functions such as position teaching, trial operation, and monitoring. It provides a complete range of functions required to make adjustments, to help reduce start-up time.

* Please purchase through your distributor and a download link will be sent to your valid email address.

Supported Windows versions: 7/10



■**Model** **IA-OS** (software only, for customers who already own a dedicated connection cable)

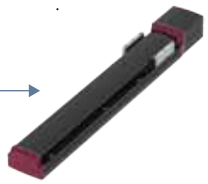
Please contact IAI for the current supported versions

■**Configuration**



PC software **(Download Only)**

Your dedicated cable
[CB-SEL-USB030/RCB-CV-USB/
CB-RCA-SIO050]



■**Model** **IA-OS-C** (with an external device communication cable + USB conversion adapter + USB cable)

Please contact IAI for the current supported versions

■**Configuration**



PC software **(Download Only)**

USB conversion adapter
RCB-CV-USB

3m
USB cable
CB-SEL-USB030

5m
External device communication cable
CB-RCA-SIO050





Maintenance Parts

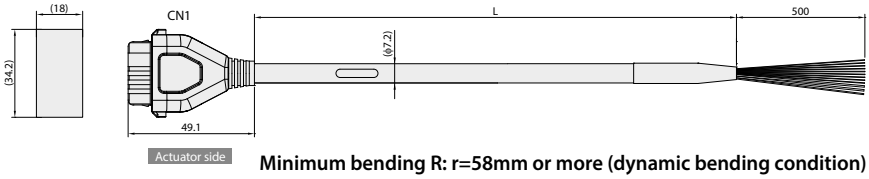
When placing an order for a replacement cable, please use the model name shown below.

■ **Table of compatible cables**

Cable type	Cable model
Power / I/O cable (user-wired specification)	CB-EC-PWBIO□□□-RB
Power / I/O cable (RCON-EC connection specification)	CB-REC-PWBIO□□□-RB
Motor power supply cable	CB-EC-PW□□□-RB

Model CB-EC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□ (for example. 030 = 3m)



Minimum bending R: r=58mm or more (dynamic bending condition)
***Only the robot cable is available for this model.**

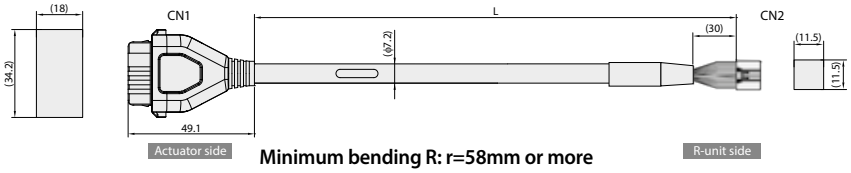
3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V	B1
Light blue (AWG22)	(Reserved) (Note 1)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	(Reserved)	B6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
White (AWG26)	(Reserved)	A6
Brown (AWG26)	BKRLS	B2

(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-REC-PWBIO□□□-RB

*Please indicate the cable length (L) in □□□ (for example. 030 = 3m)



Minimum bending R: r=58mm or more (dynamic bending condition)
***Only the robot cable is available for this model.**

3-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	SD+	B6
White (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

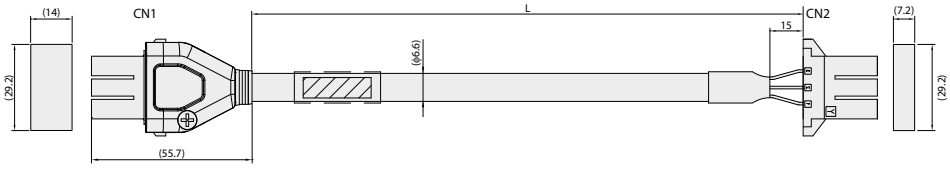
DF62C-13S-2.2C (18)

Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

(Note 1) 24V (control) when split motor and controller power supply specification (TMD2) selected.

Model CB-EC-PW□□□-RB

*Please indicate the cable length (L) in □□□ (for example, 030 = 3m)



Minimum bending R: r=40mm or more (dynamic bending condition)
***Only the robot cable is available for this model.**

Color	Signal name	Pin No.
Red (AWG18)	MP	1
Black (AWG18)	MN	2
Green/yellow (AWG18)	PE	3

Pin No.	Signal name	Color
1	MP	Red (AWG18)
2	MN	Black (AWG18)
3	PE	Green/yellow (AWG18)

REC

ELECYLINDER® field network connection unit

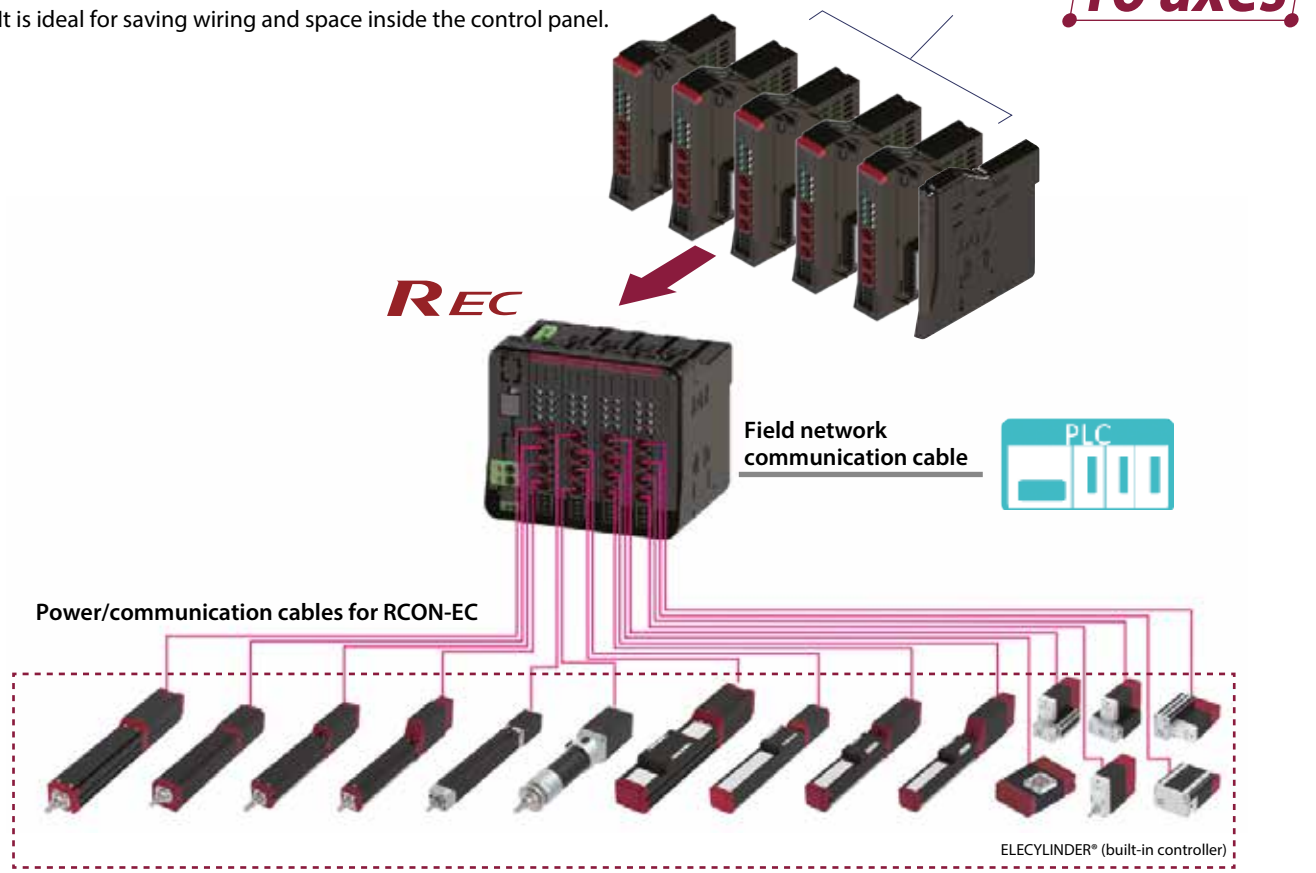
CE RoHS 10

REC features

Connect ELECYLINDER® to a field network

This field network connection unit is specifically for use with ELECYLINDER®.
It allows up to 16 axes of ELECYLINDER® to be connected via network.
It is ideal for saving wiring and space inside the control panel.

EC connection unit
4-axis specification x 4 units = Max. 16 axes



Compatibility: No. 1 in the industry with seven field network types supported

Can be connected to various field networks.

CC-Link CC-Link IE Field DeviceNet™ EtherNet/IP™ EtherCAT® PROFIBUS® PROFINET®

EC connection unit can be connected mixed with other driver units connected to RCON

Connect to RCON to allow mixed connections with ROBO Cylinder and single axis robots.



Can communicate using the same gateway unit as other actuators.



REC Selection method

Please refer to P. 8-35 for information on selecting products when using RCON-GW/GWG products from other series.
*Make sure to select "ACR" as an option for the ELECYLINDER model.

Procedure 1 Select the ELECYLINDER® to connect (up to 16 axes)

*Please be sure to select "ACR" as the option model.

<Selection example>



EC-S6☐AH　EC-S7☐AH　EC-S3　EC-TC4　EC-GS4　EC-RR6　EC-S6☐AHR

Procedure 2 Select the EC gateway unit

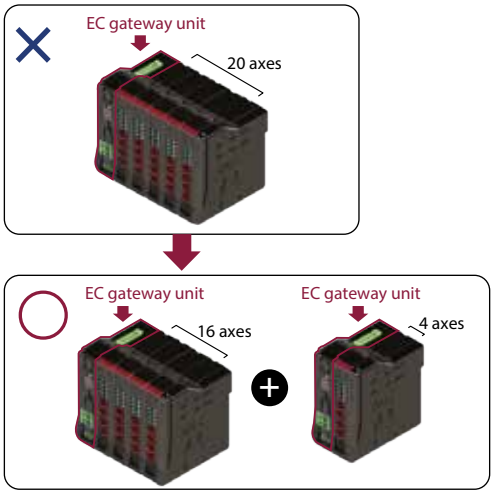
Select the EC gateway unit based on the network type.

Network type	Gateway unit model
DeviceNet	REC-GW-DV
CC-Link	REC-GW-CC
CC-Link IE Field	REC-GW-CIE
PROFIBUS	REC-GW-PR
EtherCAT	REC-GW-EC
EtherNet/IP	REC-GW-EP
PROFINET	REC-GW-PRT

<Selection example>
Select! 1

Caution
Only one EC gateway unit can be connected per system.
Split this among two or more units to connect 17 or more axes or if the power capacity is exceeded.

Example: When connecting 20 axes



Procedure 3 Connect EC connection unit

Up to 4 axes of ELECYLINDER® can be connected to one EC connection unit.
Select the required number of EC connection units based on the number of units for connecting ELECYLINDER®.

Actuator	EC connection unit			<Selection example>	
Series	External view	Number of axes connected to actuator	Model	Classification	Required units
EC		4-axis specification	RCON-EC-4	 EC Series x 7 axes	2 units

Select! 2

Step 4 Calculation of control power capacity (CP)

Confirm that the total control power capacity of each unit connected to REC and ELECYLINDER is less than the value specified below.

Item	Average current
Control power (CP)	Less than 9.0A

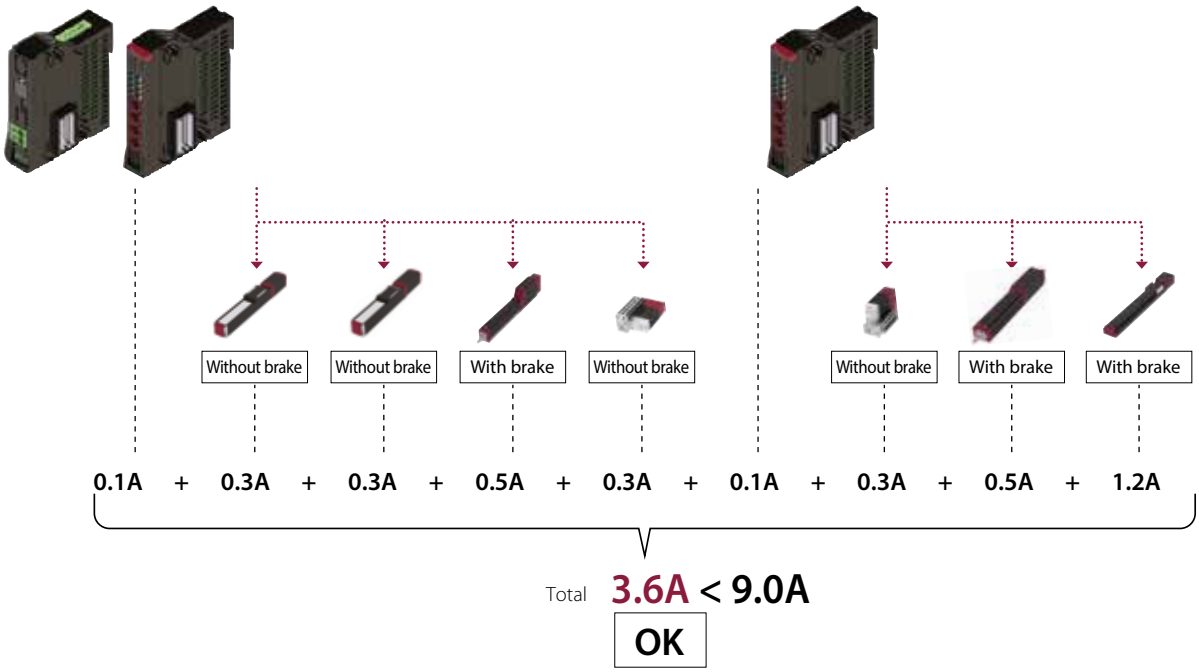
How to check

Add up referring to the "Control power capacity table" below.

Item	Specification			Power source current	
Control power capacity	Master unit			0.8A	
	EC connection unit			0.1A	x 2 axes
	24V specification ELECYLINDER (per unit)	Without brake		0.3A	x 4 axes
		With brake		0.5A	x 2 axes
	200V specification ELECYLINDER (per axis)	Without brake		0.32A	
		With brake	EC-S10□/S10X□	0.54A	
			EC-S13□/S13X□	1.2A	x 1 axis
			EC-S15□/S15X□		

* Power capacity of the master unit is not included in calculation.

<Selection example>



Total 3.6A < 9.0A

OK

(It is confirmed that the current is less than 9.0A. If it is greater than 0.9A, another gateway unit is needed.)

Step 5 Calculation of motor power capacity (MP)

Make sure that the total motor power capacity of the units connected to REC is as follows.

Item	Average current
Motor power (MP)	37.5A or less

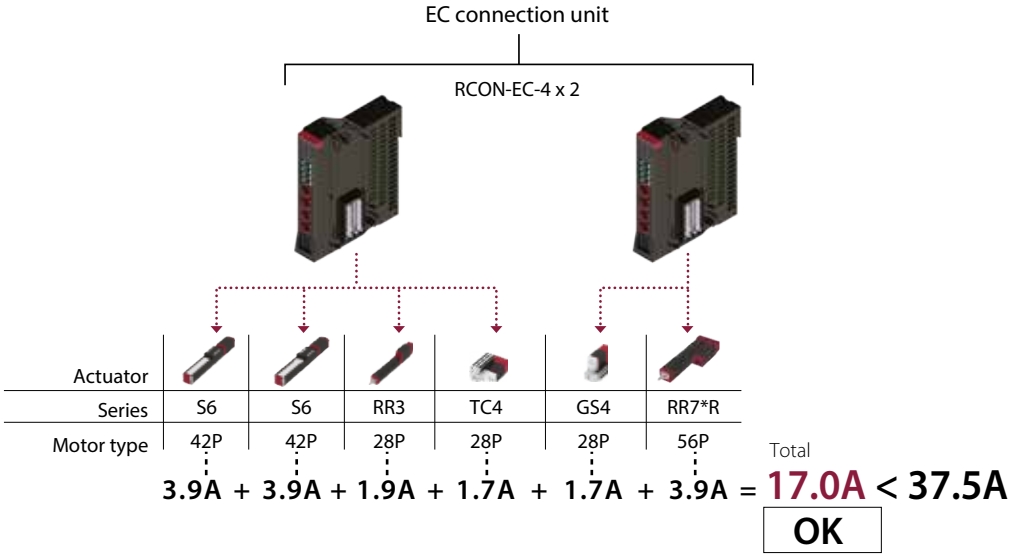
How to check

Add up while checking the "Motor power capacity list" below.
If the maximum current is listed, add the maximum current.
If not, add the rated current.

Motor power capacity list

Item	Actuator / connection unit	Series	Motor type	Type	Power source current: Energy-saving disabled: Rate current	Power source current: Energy-saving disabled: Maximum	Power source current: Energy-saving enabled	<Selection example>
Motor power capacity (per 1-axis actuator)	24V stepper motor	EC	35P/42P/56P	Other than the below	2.3A	3.9A	1.9A	x 4 axes
			28P	S3□/RR3□	-	-	1.9A	x 1 axis
				RP4/GS4/GW4/TC4/ TW4/RTC9/GRB10/GRB12	-	-	1.7A	x 2 axes
			20P	GRB8	-	-	0.7A	

<Selection example>



(The total was confirmed to be 37.5A or less. If the value is larger than 37.5A, another EC gateway unit is required.)

It is possible to calculate the motor power capacity as in step 5 (calculation when all axes are simultaneously used at maximum load).

Step 6 Selection of 200V specification motor power

When connecting a 200V specification ELECYLINDER, determine the number of power supply units for DC motors according to the total motor wattage.

DC power source for driving motors

Connecting power	Max. connectable axes (per power supply unit)	Max. connecting motor wattage
PSA-200-1 (AC100V)	6 axes	800W
PSA-200-2 (AC200V)	6 axes	1,600W

How to check

Confirm the motor wattage from the actuator specification.

<Selection example>





DC power source (AC100V/200V)

Series	EC-S13
Motor wattage	200W

Total

= 200W < 800W (one unit)

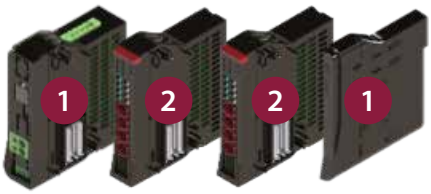
OK

Step 7 Unit models to be ordered

Order using the model name for each unit.

<Selection example>

Order model (x number of units)	Name/specification	
REC-GW-CC	EC gateway unit (with terminal unit)	1
RCON-EC-4 x 2 units	EC connection unit	2



Combined



Model Specification Items

RCON



① ②



REC



① ②

① Master unit

RCON – [ ] – [ ] – [ ]

Series / Type / I/O type / Option

Type	
GW	Standard type
GWG	Safety category specification

I/O type	
DV	DeviceNet connection specification
CC	CC-Link connection specification
CIE	CC-Link IE Field connection specification
PR	PROFIBUS-DP connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PRT	PROFINET IO connection specification

Option	
ET	Ethernet-equipped
FU□	Fan unit mounting (□: Specify the number of units, 1 ~ 8)
TRN	Without terminal unit

* · For fan units, this is the number connected to the 24V driver unit.
· A terminal unit is required during operation.
However, when connecting/ordering an RCON-SC, connect the terminal unit supplied with the 200V power supply unit.

REC – **GW** – [ ] – [ ]

Series / Type / I/O type / Option

I/O type	
DV	DeviceNet connection specification
CC	CC-Link connection specification
CIE	CC-Link IE Field connection specification
PR	PROFIBUS-DP connection specification
EC	EtherCAT connection specification
EP	EtherNet/IP connection specification
PRT	PROFINET IO connection specification

Option	
TRN	Without terminal unit

*A terminal unit is required during operation.

② EC connection unit

RCON – **EC** – **4**

Series / Type / Number of axes

① Master unit (select one)

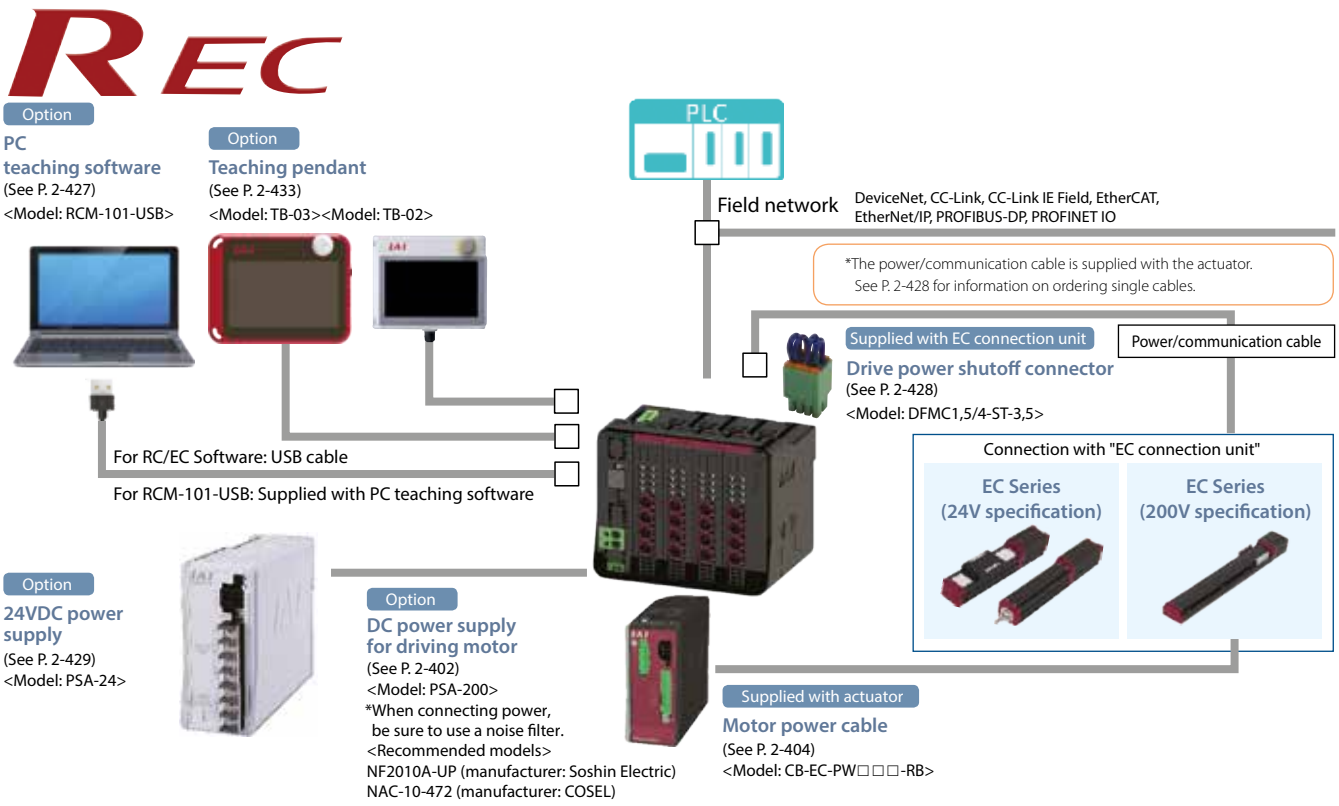
Model		RCON-GW/GWG						
I/O type		Field network						
		CC-Link	CC-Link IE Field	DeviceNet	EtherCAT	EtherNet/IP	PROFIBUS	PROFINET
		CC-Link connection specification	CC-Link IE Field connection specification	DeviceNet connection specification	EtherCAT connection specification	EtherNet/IP connection specification	PROFIBUS-DP connection specification	PROFINET IO connection specification
I/O type model number		CC	CIE	DV	EC	EP	PR	PRT
Without fan		○	○	○	○	○	○	○
With 24V driver fan	FU1	○	○	○	○	○	○	○
	FU2	○	○	○	○	○	○	○
	FU3	○	○	○	○	○	○	○
	FU4	○	○	○	○	○	○	○
	FU5	○	○	○	○	○	○	○
	FU6	○	○	○	○	○	○	○
	FU7	○	○	○	○	○	○	○
	FU8	○	○	○	○	○	○	○

Model	REC-GW						
I/O type	Field network						
	CC-Link	CC-Link IE Field	DeviceNet	EtherCAT	EtherNet/IP	PROFIBUS	PROFINET
	CC-Link connection specification	CC-Link IE Field connection specification	DeviceNet connection specification	EtherCAT connection specification	EtherNet/IP connection specification	PROFIBUS-DP connection specification	PROFI NET connection specification
I/O type model number	CC	CIE	DV	EC	EP	PR	PRT

② EC connection unit

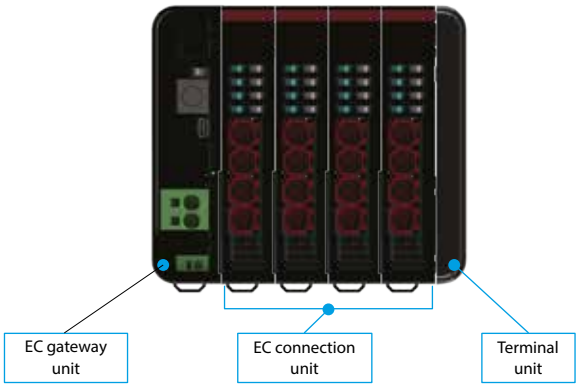
Series code	RCON
Type name	EC connection unit
Type code	EC-4

System Configuration



Unit Configuration

REC has a unit-connecting configuration. Every unit has the same connector and locking configuration.
However, there are restrictions on unit arrangement. Connect each unit with these restrictions in mind.
Connect each prepared unit in order starting from the left, with the EC gateway unit serving as the standard unit when looking at the front surface.
*The system will not operate normally if units are not connected in the following order.



Unit name	Number of connected units	Additional information
EC gateway unit	1	Placed at far left
EC connection unit	(Max.) 4	Can be rearranged within the unit (up to 16 axes can be connected)
Terminal unit	1	Placed at far right

Product name		Model	Reference page
Master unit/ EC gateway unit	DeviceNet connection specification	REC-GW-DV	2-417
	CC-Link connection specification	REC-GW-CC	2-418
	CC-Link IE Field connection specification	REC-GW-CIE	2-419
	PROFIBUS-DP connection specification	REC-GW-PR	2-420
	EtherCAT connection specification	REC-GW-EC	2-421
	EtherNet/IP connection specification	REC-GW-EP	2-422
	PROFINET IO connection specification	REC-GW-PRT	2-423
EC connection unit	EC connection unit 4-axis specification	RCON-EC-4	2-424
Terminal unit	For REC	RCON-GW-TRE	2-424

System Configuration

RCON

Option
PC teaching software
(See P. 2-427)
<Model: RC/EC Software>

Option
Teaching pendant
(See P. 2-433)
<Model: TB-03><Model: TB-02>

PLC

Field network DeviceNet, CC-Link, CC-Link IE Field, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO







Supplied with GWG specification
Dummy plug
(See P. 8-120)
<Model: DP-5>



Supplied with gateway unit
System I/O connector
(See P. 8-120)
<Model: DFMC1,5/5-ST-3,5>



Option
Fan unit
(See P. 8-119)
<Model: RCON-FU>

For RC/EC Software: USB cable

For RCM-101-USB: Supplied with PC teaching software



Option
24VDC power supply
(See P. 2-429)
<Model: PSA-24>



Supplied with 200V driver unit



Dummy plug
(See P. 8-120)
<Model: DP-6>

Supplied with SCON-(RC specification)

Connection cable
(See P. 8-127)
<Model: CB-RE-CTL002>

RCON-EXT connection specification [I/O type: RC]
(See P. 8-217)





Supplied with expansion unit
Terminal connector
(See P. 8-120)
<Model: RCON-EXT-TR>



Supplied with 24V driver unit
Drive power shutoff connector
(See P. 8-120)
<Model: DFMC1,5/2-STF-3,5>

Supplied with simple absolute unit
Connection cable
(See P. 8-123)
<Model: CB-ADPC-MPA050>



Option
Simple absolute unit
(See P. 8-106)
<Model: RCON-ABU-P
(for stepper motor)>
<Model: RCON-ABU-A
(for AC servo motor)>



Option
Regenerative resistance unit (Note 1)
(See P. 8-120)
<Model: RESU-2/
RESUD-2>

Supplied with power supply unit



Power supply connector
(See P. 8-120)
<Model: SPC5/4-STF-7,62>



Supplied with EC connection unit
Drive power shutoff connector
(See P. 2-428)
<Model: DFMC1,5/4-ST-3,5>

Motor power three-phase/ single phase AC200V

Motor-encoder cables / power/communication cables (EC connection)*1

Connection with "expansion unit"

RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series



*Refer to P. 8-90 for not connectable actuators.

Connection with "24V driver unit"

RCP2/3/4/5/6 Series



RCA/2 Series



RCD Series



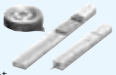
Connection with "EC connection unit"

EC Series *2



Connection with "200V driver unit"

(60W ~ 750W equipped actuator)
RCS2/3/4 Series
IS(D)B Series
SSPA Series
DD(A) Series
LSA Series



*Refer to P. 8-90 for not connectable actuators.

*1 The motor/encoder cable is supplied with the actuator.
The motor/encoder cables differ according to the actuator type to be connected.
Please see the R-unit catalog for information on whether actuators from other series can be connected, and for details on the unit configuration.
Refer to P. 8-121 to purchase cable single unit.

*2: When connecting 200V specification, a DC power supply for driving motor is necessary. Refer to P. 2-402 for details.

Note 1: A 60W regenerative resistor is built into both RCON-SC and RCON-PS2.
There is generally no need for regenerative resistance. However, if there is insufficient regenerative resistance, use an external regenerative resistance unit.

General Specifications

■RCON

Item			Specifications						
Power supply voltage			24VDC ±10% 200VAC ~ 230VAC ±10% (power supply unit)						
Power supply current			Differs with system configuration						
Number of axes controlled			1 ~ 16 axes (*for maximum axes, see "Maximum number of connectable axes" (P. 8-109))						
Supported encoders		24V series	Incremental (including ABZ parallel) Battery-less absolute						
		200V series	Incremental (including ABZ parallel), battery-less absolute, quasi absolute, index absolute (SCON connection specification) absolute, absolute multi-rotation						
Supported field networks			CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO						
Configuration units			Gateway unit, driver unit, expansion unit, EC connection unit, power supply unit, fan unit, terminal unit, simple absolute unit						
SIO interface	Teaching port		Communication method	RS485					
			Communication speed	9.6/19.2/38.4/57.6/115.2/230.4kbps					
	USB port		Communication method	USB					
			Communication speed	12Mbps					
Emergency stop/enable operation			Bulk system support with gateway unit STOP signal input, equipped with connectors capable of shutting off drive power to individual axes of each driver unit						
Data recording device			FRAM 256kb (gateway unit, 24V driver unit) SRAM 4Mb (200V driver unit)						
Data input method	Teaching port		Touch panel teaching pendant						
	USB		PC teaching software						
Calendar function	Retention function		Approx. 10 days						
	Charging time		Approx. 100 hours						
Safety category compliance			B (the safety category specification supports up to 4 external circuits)						
Protection function			Overcurrent, abnormal humidity, encoder disconnection, overload						
Preventative/predictive maintenance function			Low electrolytic capacitor capacity and low fan rotation speed						
Ambient operating temperature			0 ~ 40°C (without fan), 0 ~ 55°C (with fan) (*0 ~ 40°C for simple absolute units)						
Ambient operating humidity			5%RH ~ 85%RH (Non-condensing)						
Operating atmosphere			No corrosive gas and excessive dust						
Vibration resistance			[Frequency 10 ~ 57Hz] Amplitude: 0.075mm [Frequency 57 ~ 150Hz] Acceleration: 9.8m/s^2 [XYZ directions] Sweep time: 10 minutes, Number of sweeps: 10						
Shock resistance			[Drop height 800mm] 1 corner, 3 edges, 6 faces						
Electric shock protection mechanism		24V	Class III						
		200V	Class I						
Degree of protection			IP20						
Insulation withstanding voltage			500VDC 10MΩ						
Cooling method			Natural cooling and forced cooling by fan unit (option)						
Connections between each unit			Unit connection method						
Installation/mounting method			DIN rail (35mm) mounting						
Regulations/standards	Unit name		Gateway unit	24V driver unit	200V driver unit	200V power supply unit	Simple absolute unit	SCON expansion unit	EC connection unit
	CE Marking		○	○	○	○	○	○	○
	UL		○	○	- (to be acquired)	- (to be acquired)	○	○	- (to be acquired)

■REC-GW

Item		Specifications	
Power supply voltage		24VDC ±10%	
Power supply current		Differs with system configuration	
Number of axes controlled		1 ~ 16 axes	
Supported encoders	EC connection	ELECYLINDER® connection only Incremental, battery-less absolute	
Supported field networks		CC-Link, CC-Link IE Field, DeviceNet, EtherCAT, EtherNet/IP, PROFIBUS-DP, PROFINET IO	
Configuration units		EC gateway unit, EC connection unit, terminal unit	
Data input method		Teaching port	Touch panel teaching pendant
		USB	PC teaching software

■REC-GW

Item		Specifications	
Serial communication function	Teaching port	Communication method	RS485
		Communication speed	9.6/19.2/38.4/57.6/115.2/230.4Kbps
	USB port	Communication method	USB
		Communication speed	12Mbps full speed
Emergency stop/enable operation		Equipped with connectors capable of shutting off power to individual axes of the EC connection unit	
Safety category compliance		Non-compliant	
Ambient operating temperature		0 ~ 55°C	
Ambient operating humidity		5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere		No corrosive gas and excessive dust	
Vibration resistance		[Frequency 10 ~ 57Hz] Amplitude: 0.075mm [Frequency 57 ~ 150Hz] Acceleration: 9.8m/s² [XYZ directions] Sweep time: 10 minutes, Number of sweeps: 10	
Shock resistance		[Drop height 800mm] 1 corner, 3 edges, 6 faces	
Electric shock protection mechanism		Class III	
Degree of protection		IP20	
Insulation withstanding voltage		500VDC 10MΩ	
Cooling method		Natural cooling	
Connections between each unit		Unit connection method	
Installation/mounting method		DIN rail (35mm) mounting	
Regulations/standards	Unit name	EC gateway unit	EC connection unit
	CE Marking	○	○
	UL	- (to be acquired)	- (to be acquired)

Encoder resolution

Item	Motor type	Model	Encoder type	Value [pulse/r]
EC connection unit	Stepper motor	EC	Battery-less absolute / Incremental	800
	AC servo motor		Battery-less absolute	16384

Inrush current

Unit name	Unit model	Type	Value
EC connection unit	RCON-EC-4	(For 4-axis connection)	40A

Power capacity

For R units, make sure for each unit that the calculated results for control power and motor power do not exceed the current limit value for selection calculation, based on the connection configuration. When connecting ELECYLINDER of 200V specification, select the required number of DC power supply for driving motor depending on the total motor wattage.

***The maximum number of connectable axes varies by series.**

Current limit value

Item	Current limit value
Control power	9.0A or less
Motor power	37.5A or less

DC power supply for driving motor

Power supply	Max. connectable axes (per one power supply)	Max. connectable motor wattage
AC100V	6 axes	800W
AC200V	6 axes	1,600W

Power supply capacity

<Control power>

Item	Specifications			Power capacity
Control power capacity (per unit)	Master unit (including terminal unit)	Gateway unit	Without Ethernet	0.8A
			With Ethernet	1.0A
		EC gateway unit		0.8A
	EC connection unit			0.1A
	24V specification ELECYLINDER (per axis)	Without brake		0.3A
		With brake		0.5A
	200V specification ELECYLINDER (per axis)	Without brake		0.32A
		With brake		1.2A

* Calculate for the number of connected ELECYLINDER axes.

<Motor power>

Item	Actuator/connection unit				Power supply current		
		Series	Motor type	Type	When energy-saving is set: Rated current	When energy-saving is set: Maximum	Energy-saving enabled
Motor power capacity (per actuator axis)	24V stepper motor	EC	35P/42P/56P	Other than the below	2.3A	3.9A	1.9A
			28P	S3□/RR3□	-	-	1.9A
				RP4/GS4/GW4/TC4/TW4/ RTC9/GRB10/GRB12	-	-	1.7A
			20P	GRB8	-	-	0.7A

Caution

· For operation patterns where acceleration/deceleration operation is performed simultaneously on all axes, and where operating duty is 100%, motor power must be calculated at the maximum current value
(if the maximum current is not listed, calculate with the rated current).

"Calculator" software can be downloaded from IAI website free of charge.

IAI Calculator Search

Configuration Unit Description

Master unit

Features This unit is used to connect to a field network.
It connects a 24V power supply and teaching (a terminal unit is supplied).

DeviceNet connection specification

RCON



Model **RCON-GW/GWG-DV**

REC



Model **REC-GW-DV**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

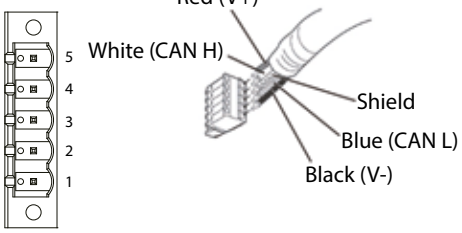
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AUM	Standard accessories
		TMSTBP2,5/5-STF-5,08 AUM (bifurcated) (*for DV2)	Standard accessories
	Controller side	MSTB2,5/5-GF-5,08 AU	

Network connection cable

Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1(6)	V- (black)	Power supply cable, negative side	DeviceNet dedicated cable
2(7)	CAN L (blue)	Signal data, low side	
3(8)	-	Drain (shield)	
4(9)	CAN H (white)	Signal data, high side	
5(10)	V+ (red)	Power supply cable, positive side	

*Numbers in parentheses are for bifurcated connector specification

Network connector



CC-Link connection specification



Model **RCON-GW/GWG-CC**



Model **REC-GW-CC**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

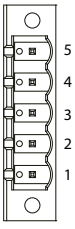
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	MSTB2,5/5-STF-5,08 AU With 110Ω/130Ω terminal resistor	Standard accessories
		TMSTBP2,5/5-STF-5,08 AU (*for CC2) With 110Ω/130Ω terminal resistor	Standard accessories
	Controller side	MSTB2,5/5-GF-5,08 AU	

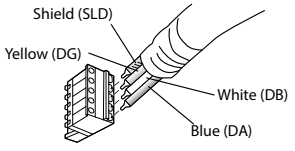
Network connection cable

Pin No.	Signal name (color scheme)	Description	Compatible wire diameter
1(6)	DA (blue)	Signal line A	CC-Link dedicated cable
2(7)	DB (white)	Signal line B	
3(8)	DG (yellow)	Digital ground	
4(9)	SLD	Connects the shield of shielded cables (5-pin FG and control power connector 1-pin FG connected internally)	
5	FG	Frame ground (4-pin SLD and control power connector 1-pin FG connected internally)	

*Numbers in parentheses are for bifurcated connector specification

Network connector





CC-Link IE Field connection specification

RCON



Model **RCON-GW/GWG-CIE**

REC



Model **REC-GW-CIE**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

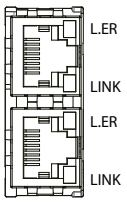
*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

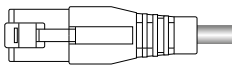
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5e or higher shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5e or higher shielded 8P8C modular plug (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TP0+	Data 0+	For the Ethernet cable, use a straight STP cable of Category 5e or higher.
2	TP0 -	Data 0-	
3	TP1+	Data 1+	
4	TP2+	Data 2+	
5	TP2-	Data 2-	
6	TP1-	Data 1-	
7	TP3+	Data 3+	
8	TP3 -	Data 3-	

Network connector





PROFIBUS-DP connection specification



Model **RCON-GW/GWG-PR**



Model **REC-GW-PR**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

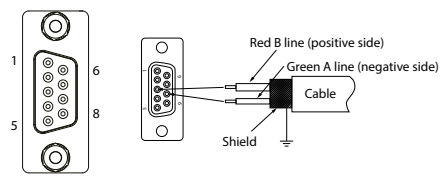
*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	9-pin D sub connector (male)	To be prepared by the customer
	Controller side	9-pin D sub connector (female)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	NC	Not connected	PROFIBUS-DP dedicated cable (type A: EN5017)
2	NC	Not connected	
3	B-Line	Signal line B (RS485)	
4	RTS	Transmission request	
5	GND	Signal GND (isolated)	
6	+5V	+5V output (isolated)	
7	NC	Not connected	
8	A-Line	Signal line A (RS485)	
9	NC	Not connected	

Network connector



EtherCAT connection specification

RCON



Model **RCON-GW/GWG-EC**

REC



Model **REC-GW-EC**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

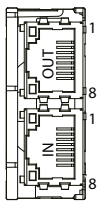
*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

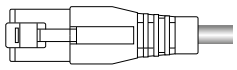
Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD+	Transmit data (+)	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data (-)	
3	RD+	Receive data (+)	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data (-)	
7	-	Not used	
8	-	Not used	

Network connector





EtherNet/IP connection specification



Model **RCON-GW/GWG-EP**



Model **REC-GW-EP**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

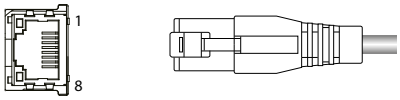
*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD+	Transmit data (+)	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data (-)	
3	RD+	Receive data (+)	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data (-)	
7	-	Not used	
8	-	Not used	

Network connector



PROFINET IO connection specification

RCON



Model **RCON-GW/GWG-PRT**

REC



Model **REC-GW-PRT**

Specifications

	RCON	REC
Operation type	Positioner type	
Power supply input voltage	24VDC ±10%	
Power supply current	0.8A (with Ethernet: 1.0A)	0.8A
Ambient operating temperature & humidity	0 ~ 55°C* 5%RH ~ 85%RH (Non-condensing)	
Operating atmosphere	No corrosive gas and excessive dust	
Safety category compliance	GWG specification: Compliant with category IV	-
Degree of protection	IP20	
Mass	167g	135g
Supplied item	(GWG specification) Dummy plug DP-5	-
External dimensions	W30mm×H115mm×D95mm	W30mm×H115mm×D95mm
PC teaching software	RC/EC Software(RCM-101-USB)	
Teaching pendant	TB-02/TB-03	

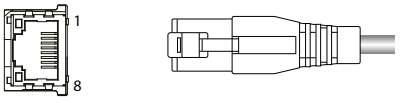
*A fan unit must be attached during use in environments exceeding 40°C (excluding REC).

Connector area		Cable connector model	Remarks
System IO	Cable side	(RCON)DFMC1,5/5-ST-3,5	Standard accessories
Drive power shutoff	Cable side	(REC)DFMC1,5/4-ST-3,5	Standard accessories
Network	Cable side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular plug (RJ45)	To be prepared by the customer
	Controller side	Ethernet ANSI/TIA/EIA-568-B Category 5 or higher Shielded 8P8C modular jack (RJ45)	

Network connection cable

Pin No.	Signal name	Description	Compatible wire diameter
1	TD+	Transmit data (+)	For the Ethernet cable, use a straight STP cable of Category 5 or higher.
2	TD -	Transmit data (-)	
3	RD+	Receive data (+)	
4	-	Not used	
5	-	Not used	
6	RD -	Receive data (-)	
7	-	Not used	
8	-	Not used	

Network connector



EC connection unit

This unit allows up to 4 axes of ELECYLINDER® to be connected.

RCON REC



Model
RCON-EC-4

Specifications

Power	24VDC ±10%
Control power	0.1A
Ambient operating temperature & humidity	0 ~ 55°C, 5%RH ~ 85%RH (Non-condensing)
Operating atmosphere	No corrosive gas and excessive dust
Degree of protection	IP20
Mass	123g
External dimensions	W22.6mm×H115mm×D95mm
Accessory	Drive power shutoff connector (DFMC1,5/4-ST-3,5 (REC))

REC terminal unit

This terminal resistor is for connecting an EC module only (supplied with purchase of gateway unit).

REC



Model
RCON-GW-TRE

Specifications

Power	24VDC ±10%
Ambient operating temperature & humidity	0 ~ 55°C, 5%RH ~ 85%RH (Non-condensing)
Operating atmosphere	No corrosive gas and excessive dust
Degree of protection	IP20
Mass	48g
External dimensions	W12.6mm×H115mm×D95mm

Terminal unit

A terminal resistor for returning RCON serial communication and input/output signals (supplied with purchase of gateway unit).

RCON



Model
RCON-GW-TR

Specifications

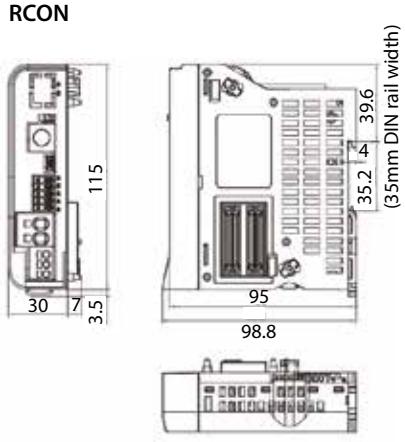
Power	24VDC ±10%
Ambient operating temperature & humidity	0 ~ 55°C, 5%RH ~ 85%RH (Non-condensing)
Operating atmosphere	No corrosive gas and excessive dust
Degree of protection	IP20
Mass	48g
External dimensions	W12.6mm × H115mm × D95mm

External Dimensions

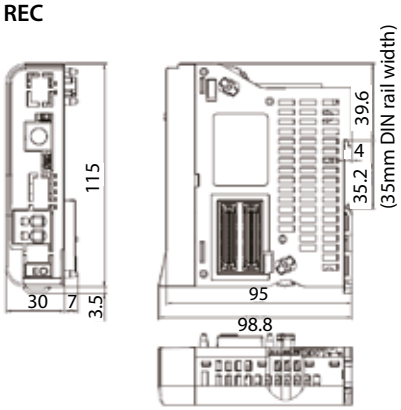
CAD drawings can be downloaded from our website.
www.iai-automation.com

Master unit

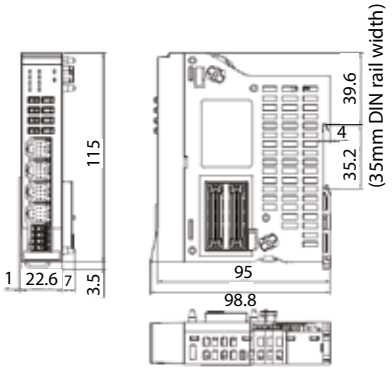
RCON



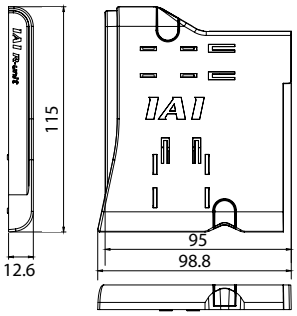
REC



EC connection unit



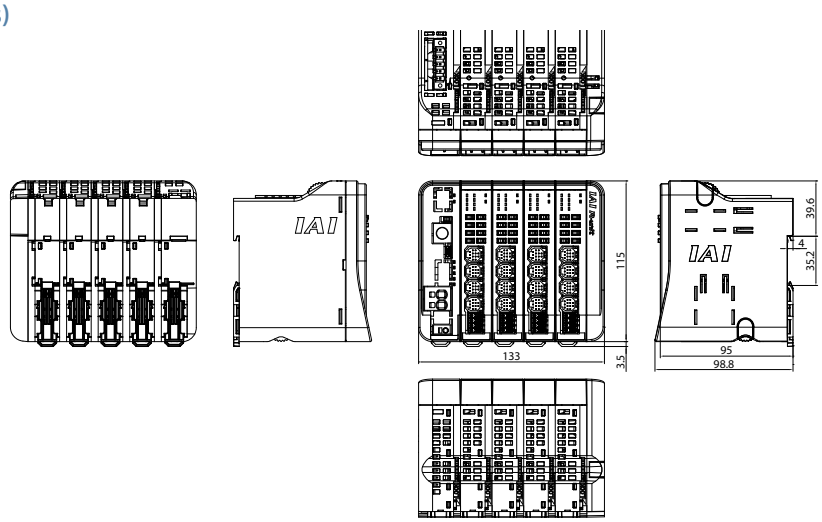
Terminal unit



Unit Combination Examples

REC

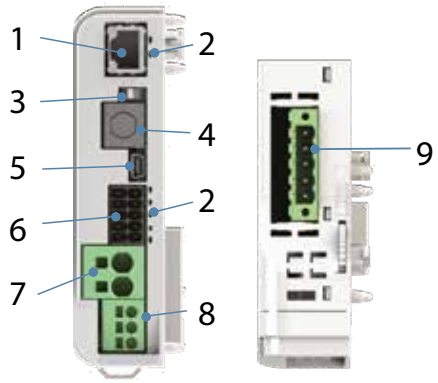
For 4 EC connection units (16 axes)



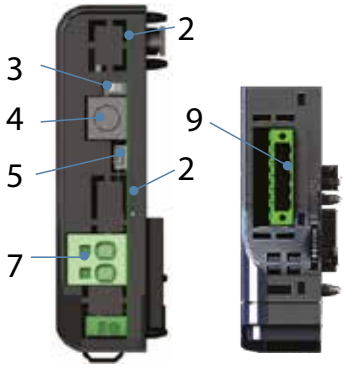
Part Names

Master unit

RCON-GW/GWG



REC-GW



1 Ethernet connector
A connector for connecting to Ethernet (selected as option for RCON).

2 Status LED
Indicates the status of the controller.

3 AUTO/MANU switch
A switch for automatic/manual operation.

4 SIO connector
A connector for connecting the teaching pendant and PC teaching software cable.

5 USB connector
A connector for connecting the PC teaching software cable.

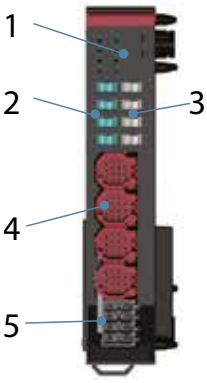
6 System I/O connector
A connector with a serial communication line for STOP input and PSA-24. Allows for external AUTO/MANU switching input for RCON.

7 Motor power connector
Motor power +24V supply connector.

8 Control power connector
A connector for connecting control power +24V and FG.

9 Fieldbus connector/IO connector
A connector for connecting the Fieldbus connector selected for the I/O type.

EC connection unit



1 Status LED
Indicates the status of the controller.

2 Jog switch
A switch used for jog operations.

3 Brake release switch
A forced brake release switch (on NOM side during normal operation).

4 EC connector
A connector to connect to ELECYLINDER®.

5 Drive power shutoff connector
A connector that allows for drive power shutoff input for each actuator.

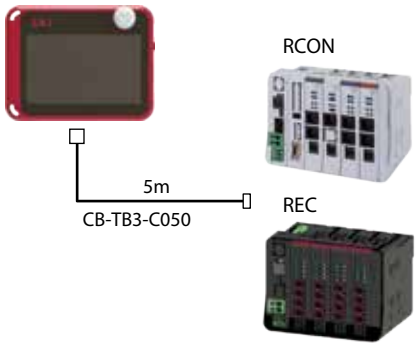
Options

Touch panel teaching pendant

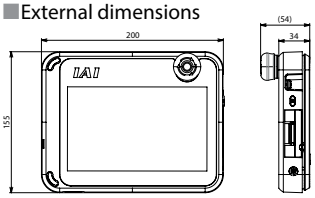
■Features A teaching device equipped with functions such as position teaching, trial operation, and monitoring.

■Model **TB-03-□** Please contact IAI for the current supported versions.

■Configuration



■External dimensions



■Specifications

Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 ~ 40°C
Ambient operating humidity	5% - 85%RH or less (Non-condensing, No frost)
Environmental resistance	IPX0
Mass	670g (TB-03 unit only)
Charging method	Wired connection with dedicated AC adapter/ controller
Wireless connection	Bluetooth 4.2 class 2

PC teaching software (RC/EC Software)

■Features Start-up support software which comes equipped with functions such as position/program input, trial operation, and monitoring.

* Please purchase through your distributor and a download link will be sent to your valid email address.

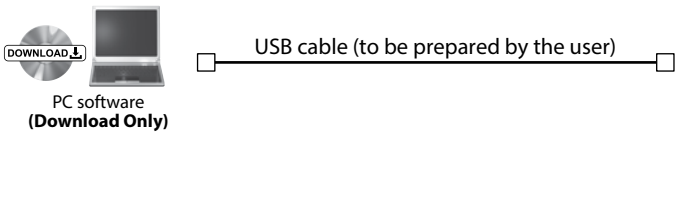
Supported Windows versions: 7/10



For RCON/REC

■Model **IA-OS** Please contact IAI for the current supported versions.

■Configuration



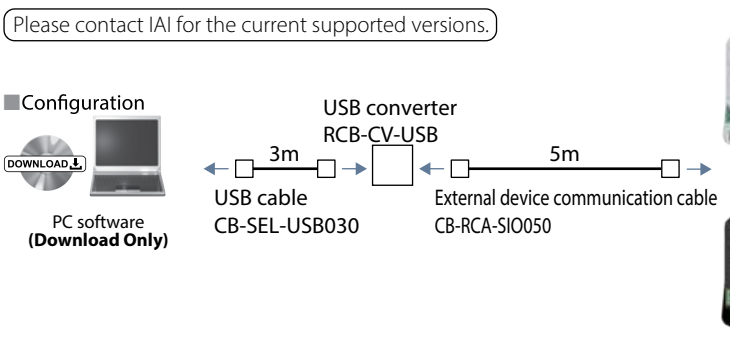
■Model **IA-OS-C** (with an external device communication cable + USB conversion adapter + USB cable

Please contact IAI for the current supported versions.

Supported Windows versions: 7/10



■Configuration



Maintenance Parts

System I/O connector

■Overview A connector for emergency stop input, external operation mode switching input, etc.

For RCON-GW(G)

■Model **DFMC1,5/5-ST-3,5**



Drive power shutoff connector

For EC connection unit

■Model **DFMC1,5/4-ST-3,5(REC)**

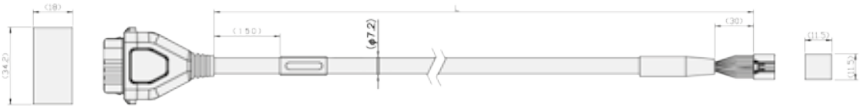


Maintenance Parts (Cables)

When placing an order for a replacement cable, please use the model name shown below.

■Model **CB-REC-PWBIO□□□-RB**

*Please indicate the cable length (L) (up to 10m) in □□□ (for example, 030 = 3m)



Actuator side

Controller side

Minimum bending R: r=58mm or more (dynamic bending condition)

*Only the robot cable is available for this model.

3-1871946-6

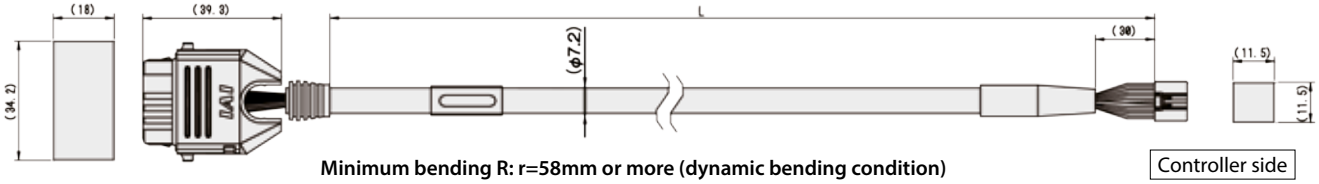
Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Pink (AWG26)	SD+	B6
White (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2.2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG18)
1	24V(MP)	Red (AWG18)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Pink (AWG26)
10	SD-	White (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

■Model **CB-REC2-PWBIO□□□-RB**

*Please indicate the cable length (L) (up to 10m) in □□□ (for example, 030 = 3m)

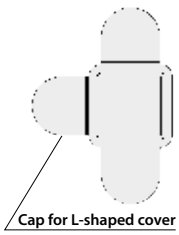


Actuator side

Minimum bending R: r=58mm or more (dynamic bending condition)

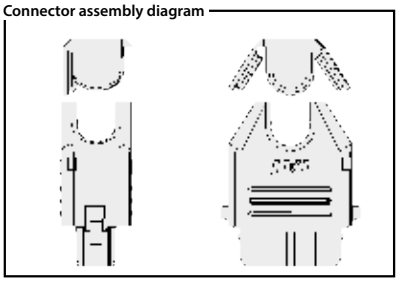
*Only the robot cable is available for this model.

Controller side



Cap for L-shaped cover

Connector assembly diagram



1-1871946-6

Color	Signal name	Pin No.
Black (AWG18)	0V	A1
Red (AWG18)	24V(MP)	B1
Light blue (AWG22)	24V(CP)	A2
Orange (AWG26)	IN0	B3
Yellow (AWG26)	IN1	B4
Green (AWG26)	IN2	B5
Yellow (AWG26)	SD+	B6
Light gray (AWG26)	SD-	A6
Blue (AWG26)	OUT0	A3
Purple (AWG26)	OUT1	A4
Gray (AWG26)	OUT2	A5
Brown (AWG26)	BKRLS	B2

DF62C-13S-2C(18)

Pin No.	Signal name	Color
2	0V	Black (AWG22)
1	24V(MP)	Red (AWG22)
12	24V(CP)	Light blue (AWG22)
7	OUT0	Orange (AWG26)
8	OUT1	Yellow (AWG26)
9	OUT2	Green (AWG26)
6	SD+	Yellow (AWG26)
10	SD-	Light gray (AWG26)
3	INO	Blue (AWG26)
4	IN1	Purple (AWG26)
5	IN2	Gray (AWG26)
11	BKRLS	Brown (AWG26)
13	FG	Green (AWG26)

PSA-24

■ Model PSA-24/PSA-24L

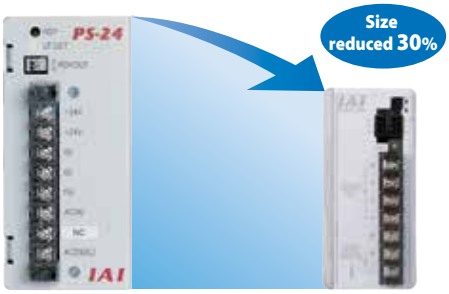
24VDC power supply



Features

Compact

Even smaller than the conventional 24V power supply to save space.

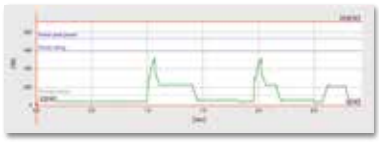


PS-24 NEW PSA-24

Output data inside power supply

Connect to RCON to monitor the following items.

- Output voltage
- Output current
- Load factor
- Total power-on time
- Internal temperature
- Low fan speed warning



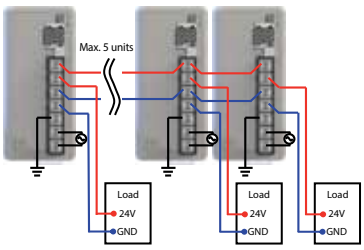
*Graph is for illustrative purposes only.



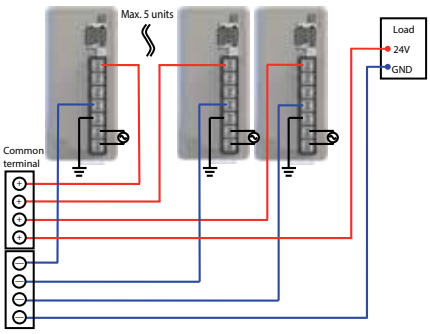
PSA-24 RCON PLC

Up to 5 units can be operated in parallel

[Multiple loads]



[Single unit load]



(Note) Parallel connection cannot be used under the following conditions.
- Parallel connection of PSA-24 (specification without fan) and PSA-24L (specification with fan)
- Parallel connection with a power supply unit other than this power supply
- Parallel connection with PS-24

Number of parallel connected units and permissible current

No. of connected units [unit]	Rated current [A]		Peak current [A]
	PSA-24 (without fan)	PSA-24L (with fan)	PSA-24/PSA-24L
1	8.5	13.8	17.0
2	15.3	24.8	30.6
3	22.95	37.3	45.9
4	30.6	49.7	61.2
5	38.25	62.1	76.5

Models

Model	PSA-24 (without fan)	PSA-24L (with fan)

Specifications Table

Item		Specifications		Conditions, etc.
		PSA-24 (without fan)	PSA-24L (with fan)	
Power input voltage range		100VAC ~ 230VAC ±10%		
Power supply current	AC100V	2.5A or less	3.9A or less	Continuous rated output 204W
	AC200V	1.4A or less	1.9A or less	Continuous rated output 204W
Power frequency range		50/60Hz ±5%		
Power capacity	AC100V	250VA	390VA	Continuous rated output 204W
	AC200V	280VA	380VA	Continuous rated output 204W
Inrush current (Note 1)	AC100V	27.4A (typ)		At cold start (40°C)
	AC200V	54.8A (typ)		
Momentary power failure resistance	50Hz	20ms		
	60Hz	16ms		
Electric shock protection mechanism		Class I		
Efficiency	AC100V	86% or more		Continuous rated output 204W
	AC200V	90% or more		
Output voltage range (Note 2)		24V ±10%		
Continuous rated output		8.5A (204W)	13.8A (330W)	
Peak output		17A (408W)		
Protection function		Overcurrent protection, overheat protection, overload protection		
		Overvoltage protection, input undervoltage protection, fan rotation detection		
Ambient operating temperature		0°C ~ +55°C (with derating)		
Ambient operating humidity		5%RH ~ 85%RH		No condensation
Operating atmosphere		No corrosive gas and excessive dust		
Vibration resistance		[Frequency 10 ~ 57Hz] Amplitude: 0.075mm [Frequency 57 ~ 150Hz] Acceleration: 9.8m/s² [XYZ directions] Sweep time: 10 minutes, Number of sweeps: 10		
Shock resistance		[Drop height 800mm] 1 corner, 3 edges, 6 faces		
Electric shock protection mechanism		Class I		
Degree of protection		Not applicable		
Generated heat	AC100V	28.6W		204W continuous rated
	AC200V	20.4W		204W continuous rated
Cooling method		Natural air cooling	Forced cooling with a fan unit	
Dielectric withstand voltage	AC input-DC output	Leakage current 10mA		3000VAC 1 min
	AC input-FG	Leakage current 10mA		2000VAC 1 min
	DC output-FG	Leakage current 25mA		500VAC 1 min
Insulation resistance	AC input-DC output	500VDC 50MΩ or higher		
	AC input-FG	500VDC 50MΩ or higher		
	DC output-FG	500VDC 50MΩ or higher		
Leakage current (Note 3)	AC100V	0.40mmA (typ)		
	AC200V	0.75mA (typ)		
Safety standards		UL61010, EN61010-1		
		KC (EMC), EN55011		
Mass		805g	845g	

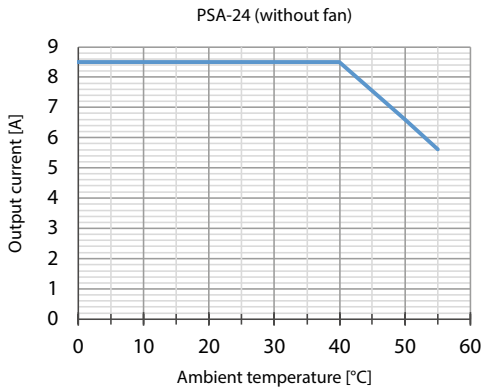
(Note 1) The pulse width of flowing inrush current is less than 5ms. During parallel operation, inrush current increases according to the number of units. Check the characteristics thoroughly before selection to prevent the breaker from tripping due to inrush current.
(Note 2) In order to enable parallel operation, this power supply can vary the output voltage according to the load. Therefore, the power supply unit is dedicated for IAI controllers. Refer to the instruction manual for the characteristics of output voltage by load.
(Note 3) Regulations for leakage current in power supply units.

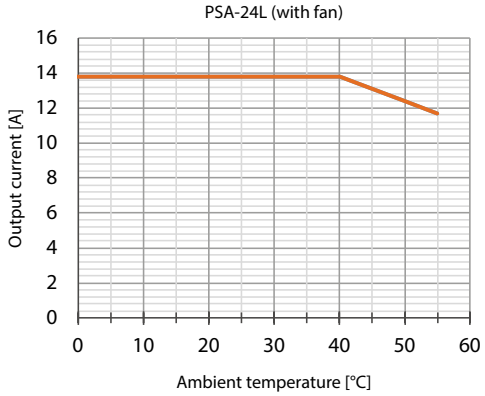
Caution

- This power supply is not a rated voltage power supply. The output voltage will fluctuate under load (voltage will drop based on load factor). Connect only IAI actuators.
- Parallel operation should be limited to 5 units. Do not use power supplies other than this power supply simultaneously for parallel operation.
- Note that serial operation is not supported.
- To use multiple units in series, allow at least 10mm between each power supply for PSA-24 (without fan). No space is required between units with fans.
- The PSA-24 (without fan) power supply uses natural air cooling. Ensure there is sufficient natural convection to prevent heat from building up around the power supply.
- The housing of this product also serves to dissipate heat. Do not touch the housing after installation as it will become extremely hot and could cause burns if touched.

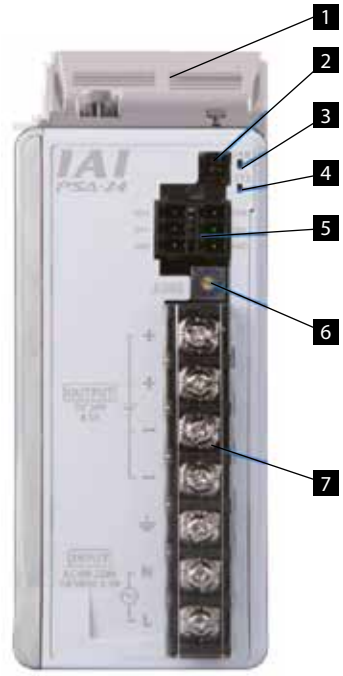
Derating with Ambient Temperature

Reduce the output power in accordance with the following derating curve when the ambient temperature is 40°C or higher.





Part Names



1 Fan unit

Unit connected when using with a continuous rated output of 330W (PSA-24L)

2 Fan connection unit

Fan connector connected when using with a continuous rated output of 330W

3 Fan alarm notification LED 4 Normal operation notification LED

There are two LEDs used to indicate the status of the fan and power supply

Name	Panel notation	Display color	Status	Description
Fan alarm notification LED	FAN	Orange	ON	Fan rotation speed error
			Blinking	Fan rotation speed warning
			OFF	No fan error
Normal operation notification LED	SYS	Green	ON	Normal operation
			OFF	Stopped

5 Communication connector

Connector for power supply monitoring status data via communication

6 Communication address switch

Sets the allocation of the slave address for communication when multiple power supplies are connected using multi-drop

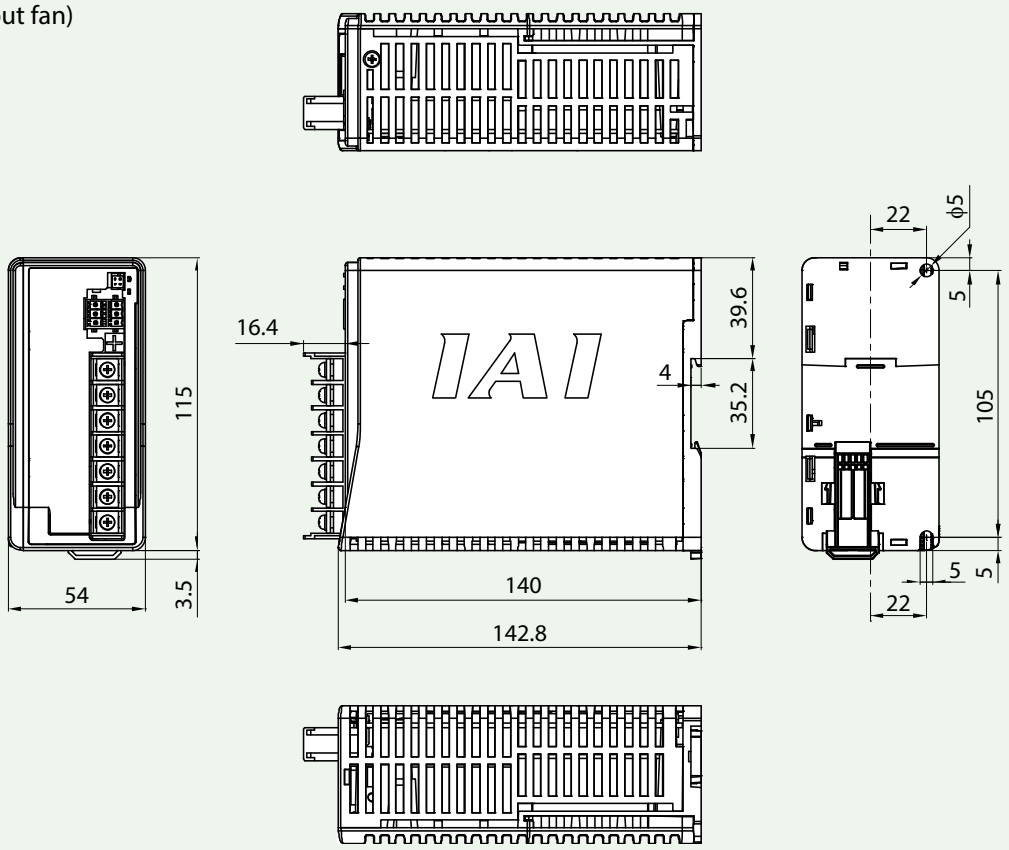
7 Power terminal block

Connects AC power supply input, frame ground, and output voltage wires

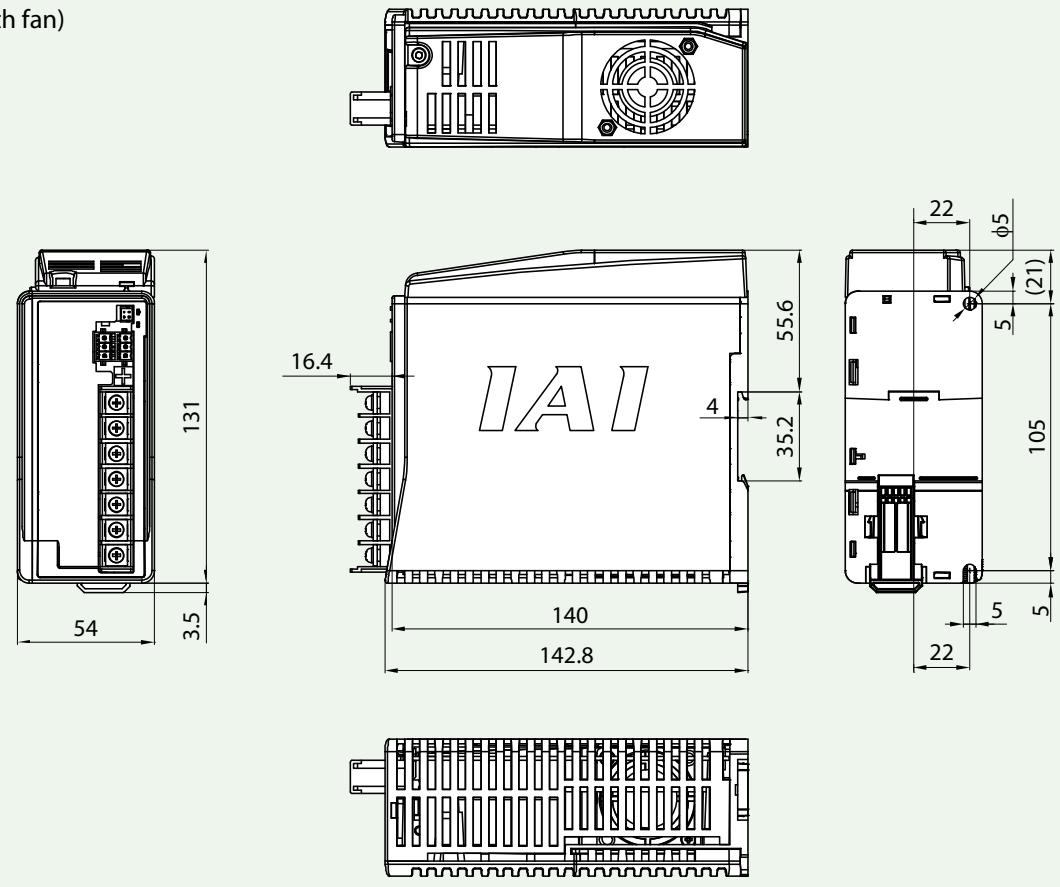
External Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

PSA-24 (without fan)



PSA-24L (with fan)



TB-03

Touch panel teaching pendant TB-03 for both position controllers and program controllers



Features

1. Set operating conditions wirelessly

Position adjustment, operating condition configuration, and actuator operation can be performed from outside the device without connecting to ELECYLINDER® itself with a cable.

*The stop switch is enabled only for wired connections.
It is disabled for wireless connections.

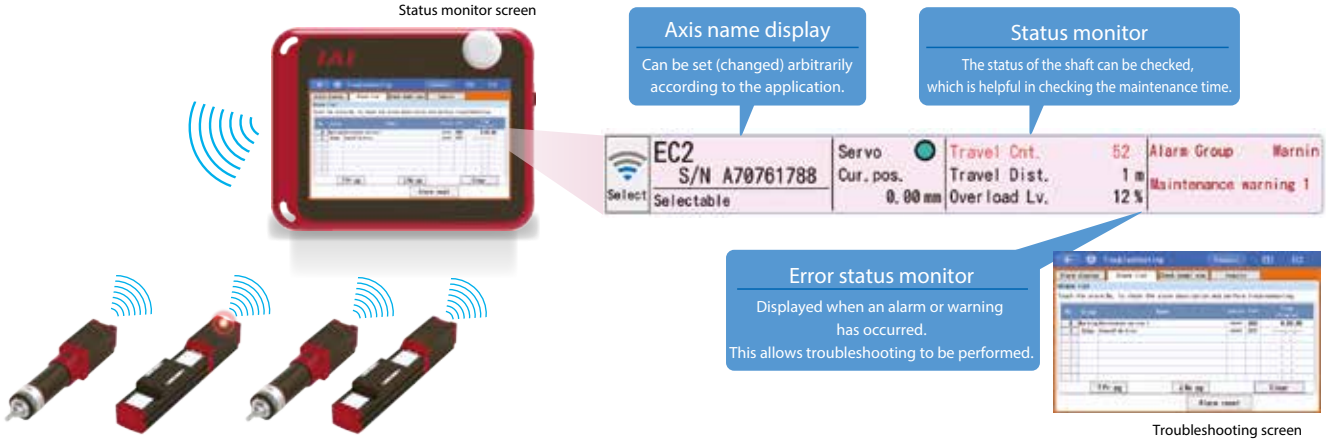


ELECYLINDER® can be operated wirelessly, and its wireless functions vary according to what is listed in the ELECYLINDER® model option column.
"-WL" = edit only, "-WL2" = edit + action

2. Status monitoring makes daily maintenance easier and reduces trouble recovery time

Receives wireless data transmitted constantly from ELECYLINDER® to monitor the operation status of up to 16 axes.
Errors can also be troubleshooted wirelessly to reduce recovery time.

*Monitoring is possible only when connected wirelessly to ELECYLINDER®.

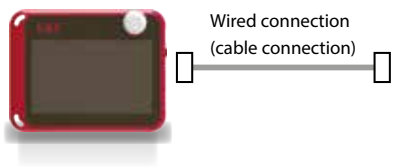


Troubleshooting screen

3. Supports ELECYLINDER® and all IAI controllers

Can be connected to all controllers* with dedicated cables. Can perform the same functions and operations as the conventional teaching pendant TB-02.

*All controllers listed in the General Catalog in 2018 or later



Wired/wireless operation can be selected when selecting the ELECYLINDER® model.

Models

One unit can support all controllers*, but the cables for connecting to each controller must be selected according to the connected controller. In addition, the AC adapter for charging the main body must be selected according to your environment.

*All controllers listed in the General Catalog in 2018 or later

Model **TB – 03 –** [Cable] **–** [AC adapter]

● Body + cable + AC adapter set model

Connection controller	Model		Cable	
	Body + cable	AC adapter	For ELECYLINDER®/ position controller	For program controller
ELECYLINDER® Position controller	TB-03-C	(Blank)/C/E/K	①CB-TB3-C050	—
		N*2		
Program controller	TB-03-S	(Blank)/C/E/K	—	②CB-TB3-S050 + ③CB-SEL-SJS002
		N*2		
ELECYLINDER® Position controller Program controller	TB-03-SC	(Blank)/C/E/K	①CB-TB3-C050	②CB-TB3-S050 + ③CB-SEL-SJS002 (conversion cable)*3
		N*2		
	TB-03-SCN*1	(Blank)/C/E/K	—	—
		N*2		

*1 No cable *2 No AC adapter

● Cable single product model number

Connection controller	Model
ELECYLINDER® Position controller	①CB-TB3-C050
Program controller	②CB-TB3-S050
	③CB-SEL-SJS002 (conversion cable)*3

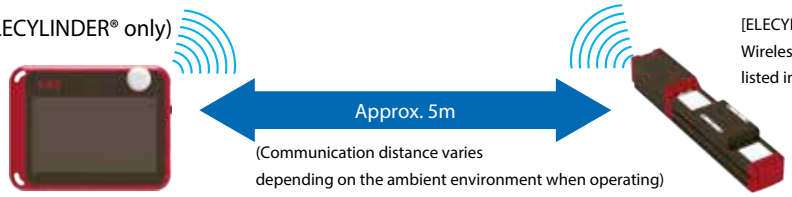
*3 Use with the cable from ② when connecting to ASEL, PSEL, SSEL, or MSEL

● AC adapter single product model number

Connection controller	Model	Specifications	Single product model number
ELECYLINDER® Position controller Program controller	(Blank)	For Japan/North America/Thailand	UN318-5928
	C	For China	UNZ318-5928
	E	For Europe	UNE318-5928
	K	For Korea	UNR318-5928

Connection

● Wireless connection (ELECYLINDER® only)

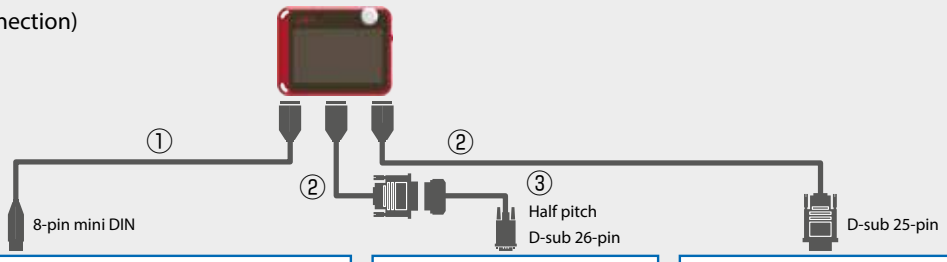


[ELECYLINDER® model and wireless function]
Wireless functions vary according to what is listed in the model option column.

"-WL" = Editing allowed using wireless function
"-WL2" = Editing and action allowed using wireless function

Note: Certification issues limit the countries in which wireless communication can be used. Refer to P. 2-436 for details.

● Wired connection (cable connection)





[ELECYLINDER®]
EC
[Position controllers]

PCON-CB/CFB/CGB/CGFB	PCON-CYB/PLB/POB
ACON-CB/CGB	ACON-CYB/PLB/POB
DCON-CB/CGB	DCON-CYB/PLB/POB
SCON-CB/CGB	SCON-CAL/CGAL
MCON-C/CG	MSCON
RCON	RCM-P6PC/P6AC/P6DC *1
RCP6S *1	



[Program controllers]
MSEL-PC/PG/PCF/PGF/PCX/PGX
SSEL-CS
RSEL



[Program controllers]
XSEL-RA/SA/RAX/SAX/RAXD/SAXD
XSEL-P/Q/PCT/QCT/PX/QX
TTA

*1 A gateway unit or PLC connection unit is required to operate RCP6S and RCM-P6.

Body specifications

Power input voltage range	24VDC ±10% [supplied from controller]
	5.9VDC (5.7 ~ 6.3V) [supplied from AC adapter]
Power consumption	3.6W or less
Consumption current	150mA (supplied from controller)
Ambient operating temperature	0 ~ 40°C (no condensation or freezing)
Ambient operating humidity	5% - 85%RH or less (Non-condensing, No frost)
Ambient storage temperature	-20 ~ 40°C
Vibration resistance	[10 ~ 57Hz] Amplitude: 0.075mm
Degree of protection	IPX0
Mass	670g (body) + approx. 285g (dedicated cable)
Liquid crystal	7" TFT color WVGA (800 x 480)
External memory	SD/SDHC memory card interface mounted (1GB ~ 32GB)
Charging method	Wired connection with dedicated AC adapter/controller
Language support	Japanese/English/Chinese

Wireless Function (when Connected to ELECYLINDER® Only)

Wireless connection	Bluetooth 4.2 class 2
Wireless function	Data setter/monitor function/axis operation
Operation command/stop command	Position travel/jog/inching
Max. number of connectable axes	16 axes
Operation	Battery (AB-7) operation
Wireless operating time	Max. 4 hours (battery driven)
Battery life	Cycle durability 300 times

AC Adapter Common Specifications

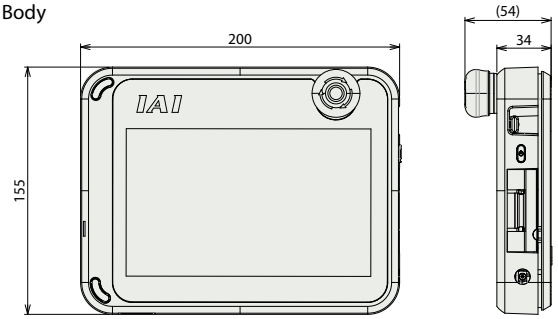
Power input voltage range	Single-phase 100 ~ 240VAC ±10%
Power supply current	0.4A (max.)
Consumption current	2.8A (max.)
Output voltage	5.9VDC (5.7 ~ 6.3V)
Charging time	Approx. 3 hours
Cable length	1500 ±100mm

External Dimensions

CAD drawings can be downloaded from our website.
www.iai-automation.com

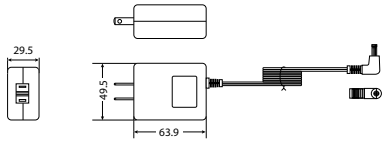
2D CAD 3D CAD

● Body

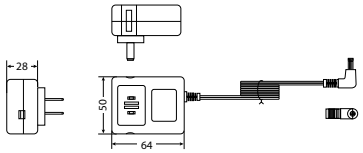


● AC adapter

For Japan/North America/Thailand: UN318-5928

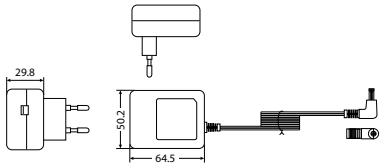


For China: UNZ318-5928

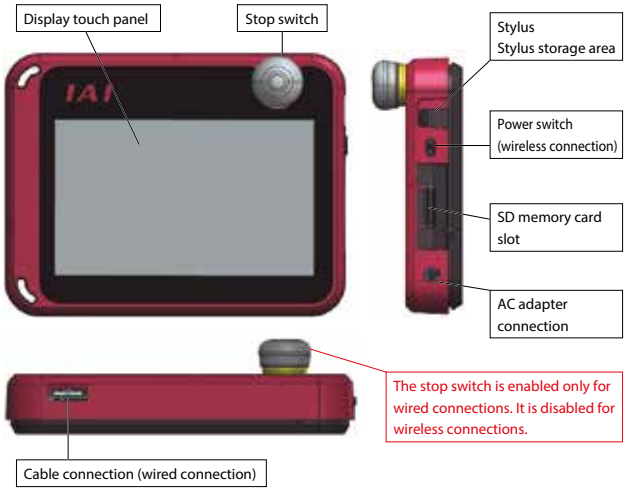


For Europe: UNE318-5928

For Korea: UNR318-5928



Part Names

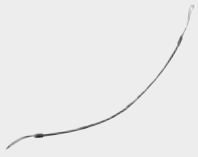


Options

● Strap: STR-1



● Spiral code: SIC-1



● Grip belt: GRP-2



■ Maintenance part

Battery unit: AB-7



Cautions on axis-operations using wireless connection

This device (V2.30 or later) is capable of operating the ELECYLINDER® having option code: WL2 by wireless connection.
For the operation, make sure to conrm the safety according to the following items.

- When connected wirelessly, **the stop switch of the main unit does not function.**
  Prepare a device or circuit that stops the operation in case of emergency.



- In ELECYLINDER® operations using wireless connection, there is a function to perform operation tests (moving to the forward and backward ends, jog and inching). However, **it is not for automatic operations.** Congure a system of the equipment according to risks of the operating environment.

- **Make sure to conduct a risk assessment according to the requirements of the standard required for the built-in equipment.**
  Dangerous operations, such that the machine has to be stopped automatically when control signals are not received including communication interruptions, are not allowed.

- A stop motion of axis operations via wireless connection cannot be used as the safety function of EN ISO 13849-1: 2015.
  It does not conform to the Safety Category B and 1 to 4 of EN ISO 13849-1: 2015.

Cautions on the use of wireless connections

- This product uses 2.4GHz band wave called an ISM band (radio frequency 2,400 to 2483.5MHz, wireless output +5dBm).

- Since this frequency band is used for various devices such as microwaves and wireless LANs, wireless communications may be interrupted due to radio disturbances.

- The use of this product is permitted in the following countries (regions) only.
  In other countries (regions), it is necessary to acquire a certication in conformity with the concerned country (region).

  Japan, U.S.A., Canada, EU countries, China, South Korea, Thailand, Mexico

TB-03E



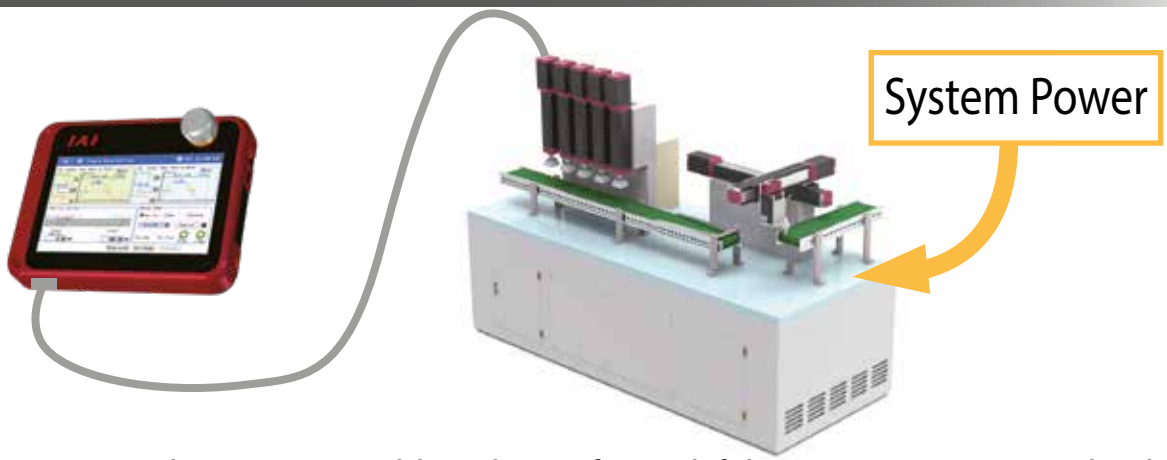
ELECYLINDER® teaching pendant with dedicated power supply unit

CE RoHS 10

Features

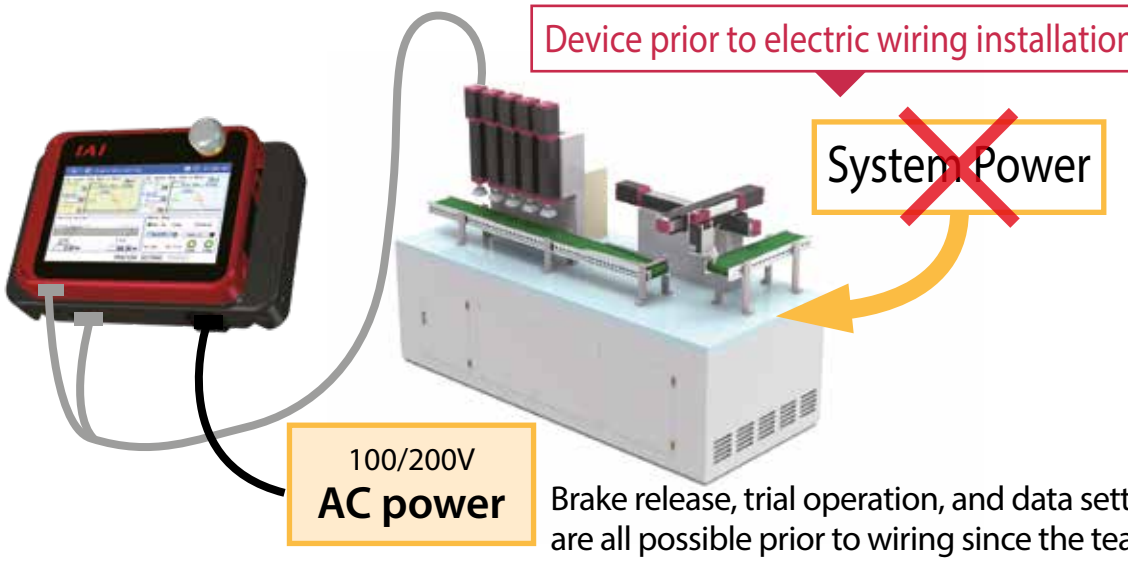
Data setting and trial operation are both possible prior to wiring and installation of the teaching pendant + system power supply unit

Conventionally…



ELECYLINDER trial operation could not be performed if there was no power to the device.

When using a teaching pendant with dedicated power supply unit…



Brake release, trial operation, and data setting are all possible prior to wiring since the teaching pendant has its own power supply unit!

Model

TB - **03E** - **SCN** - [ ] - [ ]

Series	Type	Controller connection Cable	Teaching pendant AC adapter	Power supply unit cable

03E	With actuator drive power unit for ELECYLINDER

SCN	No cable

(Blank)	For Japan/North America/ Thailand/Mexico
C	For China
E	For Europe
K	For Korea
N	Without AC adapter

0	No cable
1	100VAC power cable (2m)
2	200VAC power cable (2m)

*EC power + TB-03 connection composite cable (CB-ADTB-PWTB050), which also works as a controller connection, is supplied.

AC adapter/cable

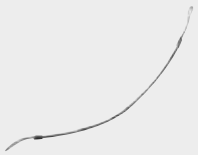
Name	TB-03E					
AC adapter	Japan/North America/Thailand/Mexico China/Europe/Korea			None		
Power cable	None	100VAC	200VAC	None	100VAC	200VAC

Options

● Strap: STR-1



● Spiral cable: SIC-1



● Grip belt: GRP-2



■ Maintenance parts
Battery unit: AB-7



Connection



Accessories

EC power + TB-03 connection composite cable
<Model: CB-ADTB-PWTB050>





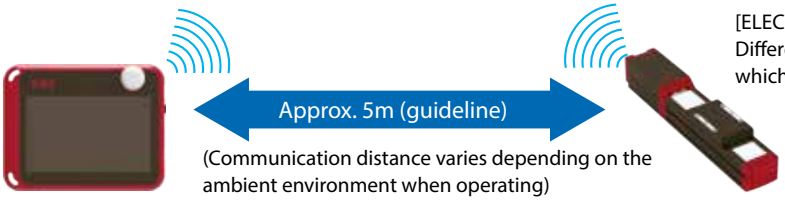
*Teaching pendant actuator drive power supply unit is removable.

Selected model accessories included

100VAC power cable
<Model: KWD-UJ-2MBS>

200VAC power cable
<Model: CB-APMEC-PW020-TM>

■ If the "WL" or "WL2" option is selected with the ELECYLINDER, then wireless connection is possible.
*There must be wired power supplied to the ELECYLINDER.



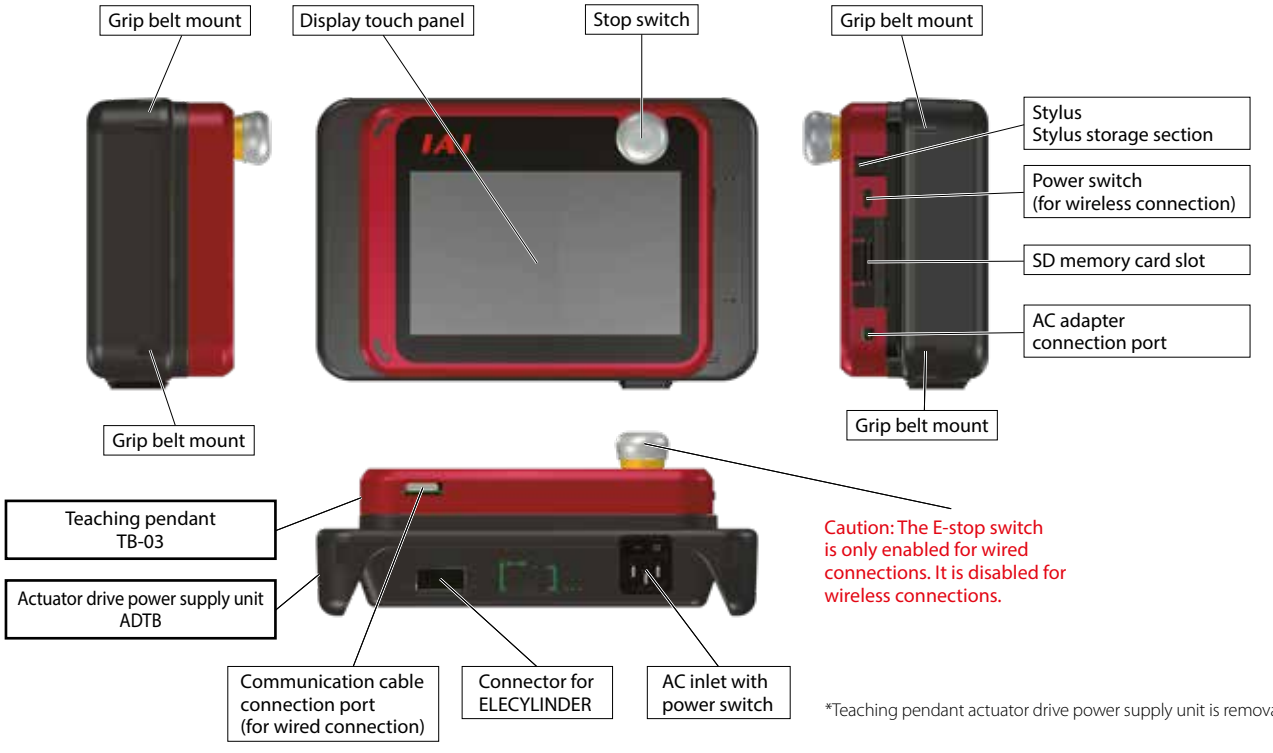
(Communication distance varies depending on the ambient environment when operating)

[ELECYLINDER models and wireless functions]
Different wireless functions are available depending which wireless option is selected.

"-WL" = wireless functions, editing OK
"-WL2" = wireless functions, editing + operating OK

Caution: Certification issues limit the countries in which wireless communication can be used. (Listed on P. 2-436)
Contact our sales personnel for details.

Components



Caution: The E-stop switch is only enabled for wired connections. It is disabled for wireless connections.

*Teaching pendant actuator drive power supply unit is removable.

Power supply unit specifications

Rated input voltage		Single-phase 100 to 230VAC ±10%
Input current (Specified in a 25°C operating environment and rated input/output conditions)		1.4Atyp (100VAC) 0.6Atyp (230VAC)
Frequency range		50/60Hz ±5%
Power capacity (Specified in a 25°C operating environment and rated input/output conditions)		141VA (100VAC) 145VA (230VAC)
Output voltage		24VDC ± 10%
Load current	Standard Dust-proof/splash-proof High rigidity	Energy saving setting disabled: 3.5A rated/4.2A max Energy saving setting enabled: 2.2A rated
	Mini	2.0A max.
Output capacity		Energy saving setting disabled: 84W rated/98.4W max Energy saving setting enabled: 52.8W rated
Ambient operating temperature		0 to 40°C (no condensation or freezing)
Ambient operating humidity		5% RH ~ 85% RH (no condensation or freezing)
Ambient storage temperature		-20 to 70°C
Environment		Avoid corrosive gas and excessive dust
Elevation		1000m or less above sea level
Vibration resistance		Frequency 10-57Hz / Amplitude: 0.075mm Frequency 57-150Hz / Acceleration 9.8m/s^2 XYZ directions: Sweep time: 10 minutes, Number of sweeps: 10 times
Packaging drop test		Drop height: 800mm 1 corner, 3 edges, 6 faces
Overvoltage category		II
Contamination		2
Electric shock protection class		II
Ingress protection		IP30
Mass		Approx. 740g
Cooling method		Natural air cooling

TB-03 body specifications

Power input voltage range	24VDC ±10% [supplied from controller]
	5.9VDC (5.7 to 6.3V) [supplied from AC adapter]
Power consumption	3.6W or less
Consumption current	150mA (supplied from controller)
Ambient operating temperature	0 to 40°C (no condensation or freezing)
Ambient operating humidity	5% RH ~ 85% RH (no condensation or freezing)
Ambient storage temperature	-20 to 40°C
Vibration resistance	10 to 57Hz Amplitude 0.075mm
Ingress protection	IPX0
Mass	670g (body) + approx. 285g (dedicated cable)
LCD	7" TFT color WVGA (800 x 480)
External memory	SD/SDHC memory card interfaces mounted (1G to 32G)
Charging method	Wired connection with dedicated AC adapter/controller
Language support	Japanese/English/Chinese

Wireless function

AC Adapter Common Specifications

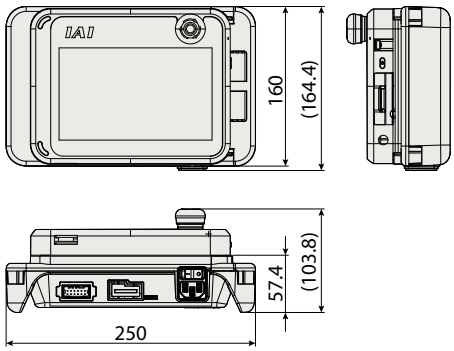
Cautions on axis-operations using wireless connection

Cautions on the use of wireless connections

Please refer to P. 2-435.
Same as TB-03E.

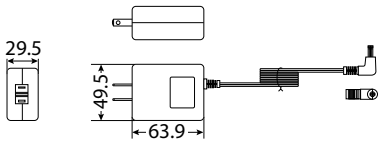
External dimensions

● Body

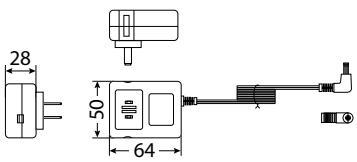


● AC adapter

Japan/North America/Thailand/
Mexico: UN318-5928

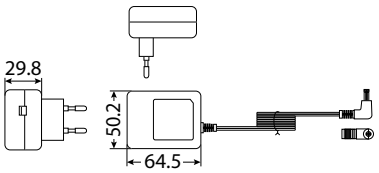


For China: UNZ318-5928



CAD drawings can be downloaded from our website.
www.iai-automation.com
2D CAD 3D CAD

For Europe: UNE318-5928
For Korea: UNR318-5928



TB-02E



ELECYLINDER® teaching pendant with dedicated power supply unit

CE RoHS 10

Model

TB	-	02E	-	C	-		-	
Series		Type		Controller connection Cable		Stop switch color		Power supply unit cable

02E	With actuator drive power unit for ELECYLINDER

C	For ELECYLINDER position controller*

(Blank)	Gray
SWR	Red

0	No cable
1	100VAC power cable (2m)
2	200VAC power cable (2m)

*In addition to the ELECYLINDER/position controller connection cable (CB-TB1-C002), an EC power supply cable (CB-ADTB-PW050-RB) is included.

AC adapter/cable

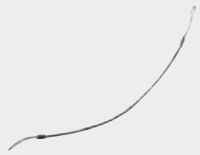
Name	TB-02E		
Power cable	None	100VAC	200VAC

Options

● Strap: STR-1



● Spiral cable: SIC-1



● Grip belt: GRP-2



■ Maintenance parts
Mounting bracket: BKT-1



Connection



Accessories
EC power supply cable
<Model: CB-ADTB-PW050-RB>

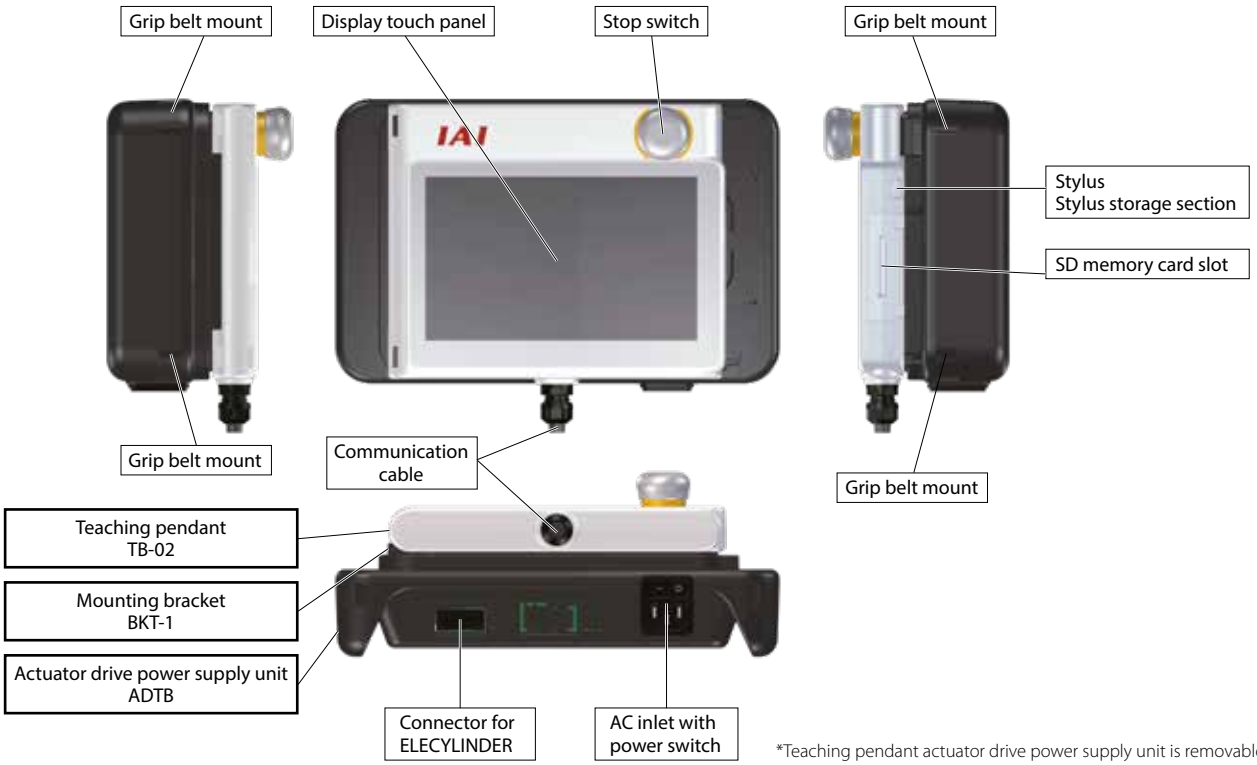


Accessories
Position controller connection cable
<Model: CB-TB1-C002>

*Teaching pendant actuator drive power supply unit is removable.

Selected model accessories included
100VAC power cable
<Model: KWD-UJ-2MBS>
200VAC power cable
<Model: CB-APMEC-PW020-TM>

Components



*Teaching pendant actuator drive power supply unit is removable.

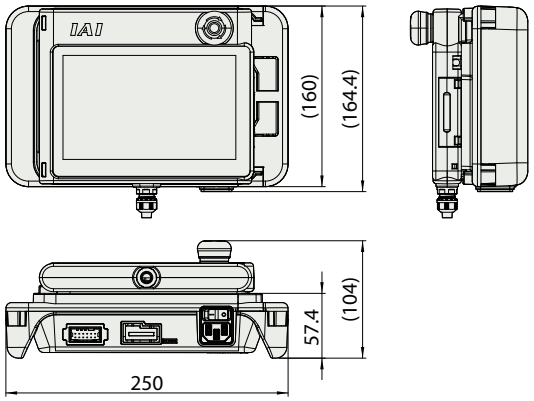
Power supply unit specifications

Refer to P. 2-440. Same as TB-03E.

TB-02 body specifications

Rated voltage	24VDC
Power consumption	3.6W or less (150mA or less)
Ambient operating temperature	0 to 40℃
Ambient operating humidity	5% RH ~ 85% RH (non-condensing)
Ingress Protection	IP20
Overseas standard	CE Marking
Mass	470g (TB-02 body) + 330g (5m cable)
Cable length	5m (standard cable is included and fixed to the body)

External dimensions



CAD drawings can be downloaded from our website.
www.iai-automation.com

ADTB



Teaching Pendant Actuator Drive Power Supply Unit

CE RoHS 10

Model

ADTB – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Series | Compatible actuators | Connection cable type | Cable length | Power supply unit cable | TB-02 mounting bracket

EC	ELECYLINDER

N	No cable
EC (Note 1)	EC power connection cable
ECT (Note 2)	EC power + TB-03 composite connection cable

0	No cable
5	5m (Standard)
10 (Note 3)	10m

(Blank)	No accessories
BKT	Bracket included

(Note) A dedicated bracket is required if mounting to TB-02.

0	No cable
1	100VAC power cable (2m)
2	200VAC power cable (2m)

(Note 1) EC power cable (CB-ADTB-PW050-RB or CB-ADTB-PW100-RB) is included.
(Note 2) EC power + TB-03 connection composite cable (CB-ADTB-PWTB050 or CB-ADTB-PWTB100) is included. Select only for the TB-03.
(Note 3) Not available for the TB-02.

AC adapter/cable

● Body + cable set

Name	ADTB														
Attached cable	None (Model: N)			EC power cable (Model: EC)						EC power + TB-03 composite connection cable (Model: ECT)					
Accessory cable length	-			5m			10m			5m			10m		
Power supply unit cable	None	100V	200V	None	100V	200V	None	100V	200V	None	100V	200V	None	100V	200V

● Connection cable

Name	EC power connection cable		EC power + TB-03 composite connection cable	
Model	CB-ADTB-PW□□□-RB		CB-ADTB-PWTB□□□-RB	
Connection cable length	5m	10m	5m	10m

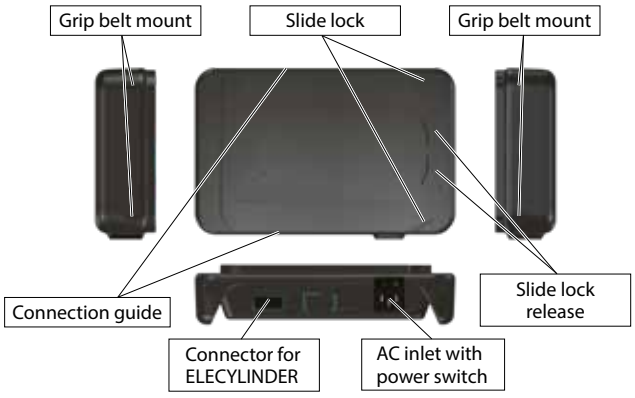
● Power supply unit cable

Name	100VAC power cable (2m)	200VAC power cable (2m)
Model	KWD-UJ-2MBS	CB-APMEC-PW020-TM

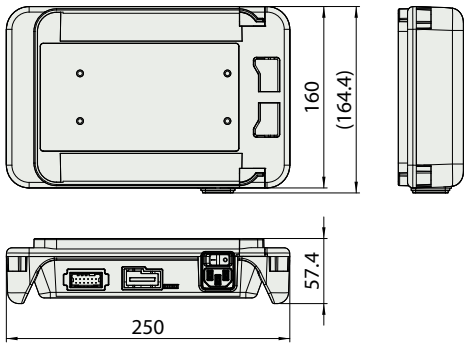
● Options

Name	TB-02 mounting bracket	Grip belt Separately sold options
Model	BKT-1	GRP-2

Components



External dimensions



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IAI America, Inc.

US HeadquarterS & Western Region (Los Angeles): 2690 W. 237th Street, Torrance, CA 90505 (800) 736-1712
Midwest Branch Office (Chicago) : 110 E. State Pkwy, Schaumburg, IL 60173 (800) 944-0333
Southeast Branch Office (Atlanta): 1220 Kennestone Circle, Suite 108, Marietta, GA 30066 (888) 354-9470

www.iai-automation.com

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IAI Industrieroboter GmbH
Ober der Röth 4, D-65824 Schwalbach am Taunus, Germany

IAI (Shanghai) Co., Ltd.
Shanghai Jiahua Business Center A8-303, 808,
Hongqiao Rd., Shanghai 200030, China

IAI Robot (Thailand) Co., Ltd.
825 Phairojkijja Tower 7th Floor, Debaratana Rd.,
Bangna Nuea, Bangna, Bangkok 10260, Thailand

20230608