

## CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

# TRANSERVO SERIES

- Articulated robots  
YA
- Linear conveyor  
modules  
LCM100
- Motor-less single  
axis actuator  
Robonity
- Compact  
single-axis robots  
TRANSERVO
- Single-axis robots  
FLIP-X
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single-axis robots  
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- Cartesian  
robots  
XY-X
- SCARA  
robots  
YK-X
- Pick & place  
robots  
YP-X
- CLEAN
- CONTROLLER
- INFORMATION

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# TRANSERVO SPECIFICATION SHEET

Type	Model	Size (mm) <sup>Note 1</sup>	Lead (mm)	Maximum payload (kg) <sup>Note 2</sup>		Maximum speed (mm/sec) <sup>Note 3</sup>	Stroke (mm)	Detailed info page
				Horizontal	Vertical			
SS type (Slide type) Straight model/ Space-saving model	SS04-S SS04-R (L)	W49 × H59	12	2	1	600	50 to 400	P.154 - P.155
			6	4	2	300		
			2	6	4	100		
	SS05-S SS05-R (L)	W55 × H56	20	4	-	1000	50 to 800	P.156 - P.157
			12	6	1	600		
			6	10	2	300		
SS05H-S SS05H-R (L)	W55 × H56	20	6	-	1000	50 to 800	P.158 - P.159	
		12	8	2	600 (Horizontal) 500 (Vertical)			
		6	12	4	300 (Horizontal) 250 (Vertical)			
SG type (Slide type)	SG07	W65 × H64	20	36	4	1200	50 to 800	P.160
			12	43	12	800		
			6	46	20	350		
SR Type (Rod type) Straight model/ Space-saving model	SR03-S SR03-R (L) SR03-U	W48 × H56.5	12	10	4	500	50 to 200	P.161 - P.163
			6	20	8	250		
			12	25	5	500		
	SR04-S SR04-R (L)	W48 × H58	6	40	12	250	50 to 300	P.166 - P.167
			2	45	25	80		
			12	50	10	300		
SR05-S SR05-R (L)	W56.4 × H71	6	55	20	150	50 to 300	P.170 - P.171	
		2	60	30	50			
		12	10	3.5	500			
SR Type (Rod type with support guide) Straight model/ Space-saving model	SRD03-S SRD03-U	W105 × H56.5	6	20	7.5	250	50 to 200	P.164 - P.165
			12	25	4	500		
			6	40	11	250		
	SRD04-S SRD04-U	W135 × H58	2	45	24	80	50 to 300	P.168 - P.169
			12	50	8.5	300		
			6	55	18.5	150		
SRD05-S SRD05-U	W157 × H71	2	60	28.5	50	50 to 300	P.172 - P.173	
		6	55	18.5	150			
		12	50	8.5	300			
STH Type (Slide table type) Straight model/ Space-saving model	STH04-S	W45 × H46	5	6	2	200	50 to 100	P.174 - P.175
	STH04-R (L) <sup>Note 4</sup>	W73 × H51	10	4	1	400		
	STH06	W61 × H65	8	9	2	150	50 to 150	P.176 - P.177
	STH06-R (L)	W106 × H70	16	6	4	400		

Type	Model	High (mm)	Torque type	Rotational torque (N · m)	Maximum pushing torque (N · m)	Maximum speed (mm/sec) <sup>Note 3</sup>	Rotation range (°)	Detailed info page
RF Type (Rotary type) Standard model/ High rigidity model	RF02-N	42 (Standard)	N:Standard	0.22	0.11	420	310 (RF02-N)	P.178 - P.181
	RF02-S	49 (High rigidity)	H:High torque	0.32	0.16	280	360 (RF02-S)	
	RF03-N	53 (Standard)	N:Standard	0.8	0.4	420	320 (RF03-N)	P.182 - P.185
	RF03-S	62 (High rigidity)	H:High torque	1.2	0.6	280	360 (RF03-S)	
	RF04-N	68 (Standard)	N:Standard	6.6	3.3	420	320 (RF04-N)	P.186 - P.189
	RF04-S	78 (High rigidity)	H:High torque	10	5	280	360 (RF04-S)	

Type	Model	Size (mm) <sup>Note 1</sup>	Lead (mm)	Maximum payload (kg) <sup>Note 2</sup>		Maximum speed (mm/sec) <sup>Note 3</sup>	Stroke (mm)	Detailed info page
				Horizontal	Vertical			
BD Type (Belt type)	BD04	W40 × H40	48	1	-	1100	300 to 1000	P.190
	BD05	W58 × H48	48	5	-	1400	300 to 2000	P.191
	BD07	W70 × H60	48	14	-	1500	300 to 2000	P.192

Note 1. The size shows approximate maximum cross sectional size.  
 Note 2. The payload may vary depending on the operation speed. For details, refer to the detailed page of relevant model.  
 Note 3. The maximum speed may vary depending on the transfer weight or stroke length. For details, refer to the detailed page of relevant model.  
 Note 4. STH04-R (L) with 50-stroke and brake is not supported.

### ⚠ Precautions for use

- **Handling**  
Fully understand the contents stated in the "TRANSERVO User's Manual" and strictly observe the handling precautions during operation.
- **Allowable installation ambient temperature**  
[SS/SR type] 0 to 40 °C  
[STH/RF/BD type] 5 to 40 °C

## SR/SRD/STH type Speed vs. payload table

### SR03

Horizontal			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
10	450	90	20	225	90	20	225	90
5	500	100	15	237.5	95	10	250	100

Vertical			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
4	300	60	8	150	60	8	150	60
2	432	86	5	200	80	2	250	100

### SRD03

Horizontal			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
10	450	90	20	225	90	20	225	90
5	500	100	15	237.5	95	10	250	100

Vertical			Lead 12			Lead 6		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
3.5	300	60	7.5	150	60	7.5	150	60
1.5	432	86	4.5	200	80	1.5	250	100

### SR04

Horizontal			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
25	320	64	40	200	80	45	80	100	45	80	100
20	363	72	30	225	90	20	250	100	20	250	100
15	407	81	15	250	100	15	250	100	15	250	100

Vertical			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
5	200	40	12	125	50	25	60	75	25	60	75
2	350	70	5	200	80	5	80	100	5	80	100
1	500	100	2	250	100	2	250	100	2	250	100

### SRD04

Horizontal			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
25	320	64	40	200	80	45	80	100	45	80	100
20	363	72	30	225	90	20	250	100	20	250	100
15	407	81	15	250	100	15	250	100	15	250	100

Vertical			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
4	200	40	11	120	48	24	60	75	24	60	75
3	250	50	4	200	80	14	70	87	14	70	87
0.5	500	100	1	250	100	4	80	100	4	80	100

### SR05

Horizontal			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
50	168	56	55	135	90	60	50	100	60	50	100
40	198	66	40	150	100	40	150	100	40	150	100
30	249	83	30	249	83	30	249	83	30	249	83

Vertical			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
10	69	23	20	48	32	30	30	60	30	30	60
5	168	56	15	75	50	5	50	100	5	50	100
1	300	100	2	150	100	2	150	100	2	150	100

### SRD05

Horizontal			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
50	168	56	55	135	90	60	50	100	60	50	100
40	198	66	40	150	100	40	150	100	40	150	100
30	249	83	30	249	83	30	249	83	30	249	83

Vertical			Lead 12			Lead 6			Lead 2		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
8.5	90	30	18.5	48	32	28.5	30	60	28.5	30	60
5.5	138	46	6.5	102	68	5	50	100	5	50	100
0.5	300	100	0.5	150	100	0.5	150	100	0.5	150	100

### STH04

Horizontal			Lead 10			Lead 5		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
4	400	100	6	200	100	6	200	100
2	400	100	3	200	100	3	200	100
1	400	100	1	200	100	1	200	100

Vertical			Lead 10			Lead 5		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
1	220	62	2	150	75	2	150	75
0.75	220	62	1	150	75	1	150	75
0.3	350	100	0.5	200	100	0.5	200	100

### STH06

Horizontal			Lead 16			Lead 8		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
6	400	100	9	150	100	9	150	100
3	400	100	5	150	100	5	150	100
1	400	100	1	150	100	1	150	100

Vertical			Lead 16			Lead 8		
Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
2	200	80	4	100	66	4	100	66
1.5	200	80	3	100	66	3	100	66
1	250	100	2	140	93	2	140	93

# Robot ordering method description

In the order format for the YAMAHA single-axis robots TRANSERVO series, the notation (letters/numbers) for the mechanical section is shown linked to the controller section notation.

## [Example]

### ● Mechanical ▶ SS05

- Lead ▷ 6mm
- Model ▷ Straight
- Brake ▷ Yes
- Origin position ▷ Standard
- Grease ▷ Standard
- Stroke ▷ 600mm
- Cable length ▷ 1m

### ● Controller ▶ TS-S2

- Input /Output selection ▷ NPN

### ● Ordering Method

**SS05-06SB-NN-600-1K-S2NP**

Mechanical section

Controller section

To find detailed controller information see the controller page.

TS-S2 ▶ P.514, TS-SH ▶ P.514, TS-SD ▶ P.524

#### ● SS type / SG type (Slider type)

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length
SS04	02 2mm	S Straight model	N With no brake	N Standard	N Standard grease		1K 1m
SS05	06 6mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	C Clean room grease		3K 3m
SS05H	12 12mm						5K 5m
SG07	20 20mm	L Space-saving model (motor installed on left)					10K 10m

#### ● SR type (Rod type)

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
SR03	02 2mm	S Straight model	N With no brake	N Standard	N No plate		1K 1m
SRD03	06 6mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	H With plate		3K 3m
SR04	12 12mm				V With flange		5K 5m
SRD04		L Space-saving model (motor installed on left)					10K 10m
SR05		U Space-saving model (motor installed on top)					
SRD05							

#### ● STH Type (Slide table type)

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
STH04	05 5mm	S Straight model	N With no brake	N Standard	N No plate		1K 1m
STH06	08 8mm	R Space-saving model (motor installed on right)	B With brake	Z No-motor side	H With plate		3K 3m
	10 10mm						5K 5m
	16 16mm	L Space-saving model (motor installed on left)					10K 10m

#### ● RF Type (Rotary type / Limit rotation specification, Rotary type / Sensor specification)

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length
RF02-N	N Stroke end (Limit rotation)	N Standard	N Standard torque	R From the right	N CCW	1K 1m
RF02-S	S Sensor (Limitless rotation)	R High rigidity	R High torque	L From the left	Z CW	3K 3m
RF03-N						5K 5m
RF03-S						10K 10m
RF04-N						
RF04-S						

#### ● BD Type (Belt type)

Model	Lead	Brake	Origin position	Stroke	Cable length
BD04	48 48mm	N With no brake	N Standard		1K 1m
BD05					3K 3m
BD07					5K 5m
					10K 10m

## ■ Rod type: Bracket plates

### SR03/SRD03 bracket plates



Feet (horizontal mount) Flange (vertical mount)

Type	Model No.
Feet (2 plates per set)	KCU-M223F-00
Flange (1 piece)	KCU-M224F-00

### SR04/SRD04 bracket plates



Feet (horizontal mount) Flange (vertical mount)

Type	Model No.
Feet (2 plates per set)*	KCV-M223F-00
Flange (1 piece)	KCV-M224F-00

\* Comes with 12 mounting nuts for feet.

### SR05/SRD05 bracket plates



Feet (horizontal mount) Flange (vertical mount)

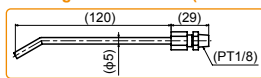
Type	Model No.
Feet (2 plates per set)*	KCW-M223F-00
Flange (1 piece)	KCW-M224F-00

\* Comes with 8 mounting nuts for feet.

## ■ Rod type: Grease gun nozzle tube for space-saving models

When greasing the ball screw in the SR03-UB or SRD03-UB (motor installed on top / with brake), use a grease gun with a bent nozzle tube as shown below.

### ■ Grease gun nozzle tube (YAMAHA recommended nozzle tube)

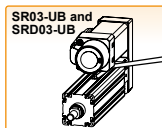


Model KCU-M3861-00

Note. This nozzle tube can be attached to a commercially available ordinary grease gun.

This nozzle tube is even usable when there is little space around the grease port.

For example, when the SR04 or SR05 space-saving model is used with the motor facing up, the grease port is positioned on the side of the robot body. This may make it difficult to refill grease depending on the positions of other robots or peripheral units.



## ■ Rod type: Running life distance to life time conversion example

This is an example of life time converted from the running life distance listed on each model page for the SR type.

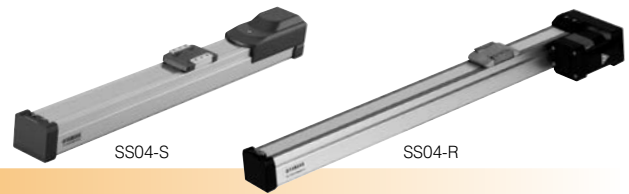
Model	SR04-02SB, Vertical mount, 25 kg payload
Life distance	500 km → Life time : Approx. 3 years
Operating conditions	100mm back-and-forth movement, shuttle time 16 seconds (duty: 20%)
Word conditions	16 hours per day
Work days	240 days per year

Note. Make sure that the rod is not subjected to a radical load.

# SS04

## Slider type

- CE compliance
- Origin on the non-motor side is selectable



### Ordering method

## SS04

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length <sup>Note 2</sup>
	12: 12mm 06: 6mm 02: 2mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard <sup>Note 1</sup> Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 400 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

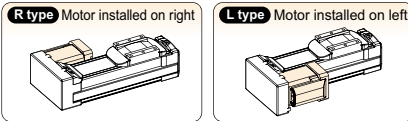
- Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 2. The robot cable is flexible and resists bending.  
 Note 3. See P.522 for DIN rail mounting bracket.  
 Note 4. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

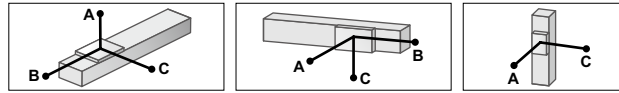
<b>Motor</b>	42 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	20480	
<b>Repeatability <sup>Note 1</sup> (mm)</b>	±0.02	
<b>Deceleration mechanism</b>	Ball screw φ8	
<b>Maximum motor torque (N·m)</b>	0.27	
<b>Ball screw lead (mm)</b>	12	6
<b>Maximum speed (mm/sec)</b>	600	300
<b>Maximum payload (kg)</b>	Horizontal: 2 Vertical: 1	4 2
<b>Max. pressing force (N)</b>	45	90
<b>Stroke (mm)</b>	50 to 400 (50mm pitch)	
<b>Overall length (mm)</b>	Horizontal: Stroke+216 Vertical: Stroke+261	
<b>Maximum outside dimension of body cross-section (mm)</b>	W49 × H59	
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	

Note 1. Positioning repeatability in one direction.

### Motor installation (Space-saving model)



### Allowable overhang <sup>Note</sup>



	Horizontal installation (Unit: mm)			Wall installation (Unit: mm)			Vertical installation (Unit: mm)		
	A	B	C	A	B	C	A	C	
<b>Lead 12</b>	1kg: 807	218	292	1kg: 274	204	776	0.5kg: 407	408	
	2kg: 667	107	152	2kg: 133	93	611	1kg: 204	204	
<b>Lead 6</b>	2kg: 687	116	169	2kg: 149	102	656	1kg: 223	223	
	3kg: 556	76	112	3kg: 92	62	516	2kg: 107	107	
<b>Lead 2</b>	4kg: 567	56	84	4kg: 63	43	507	2kg: 118	118	
	4kg: 869	61	92	4kg: 72	48	829	4kg: 53	53	
	6kg: 863	40	60	6kg: 39	29	789			

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 400mm stroke models).

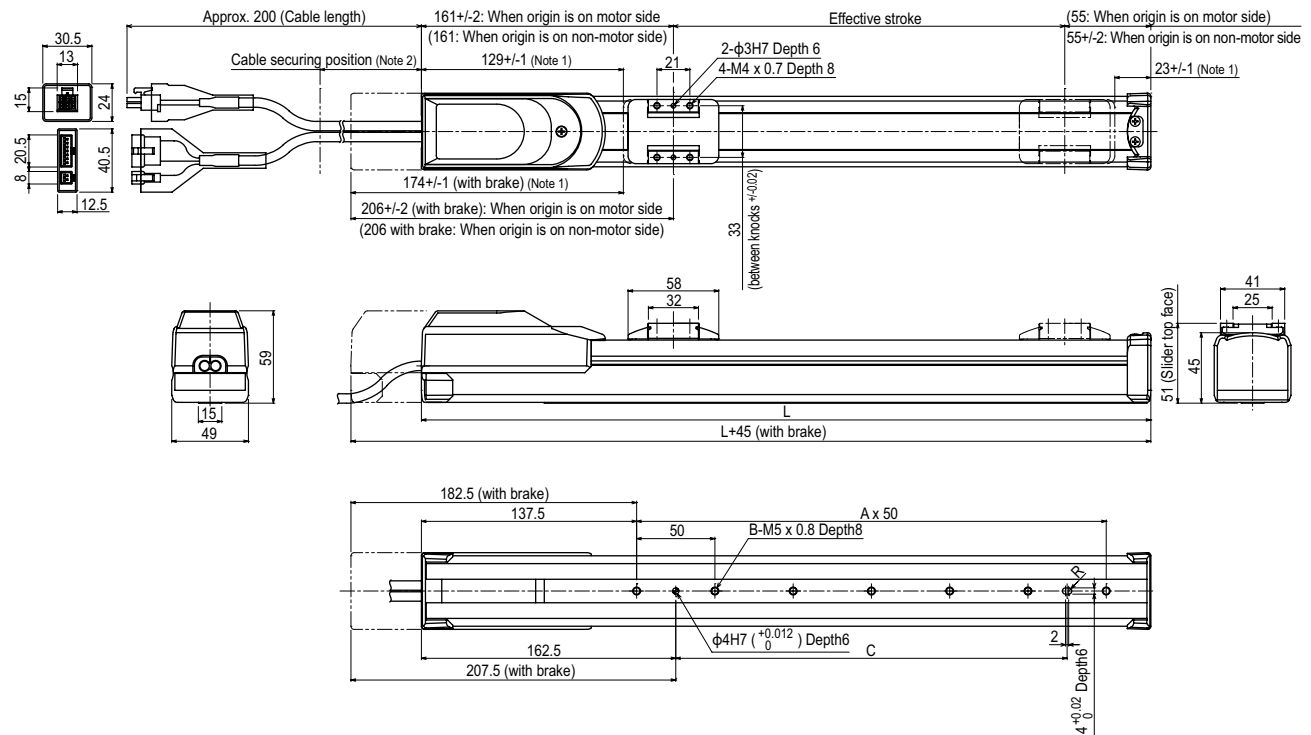
### Static loading moment

Static loading moment (Unit: N·m)		
MY	MP	MR
16	19	17

### Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

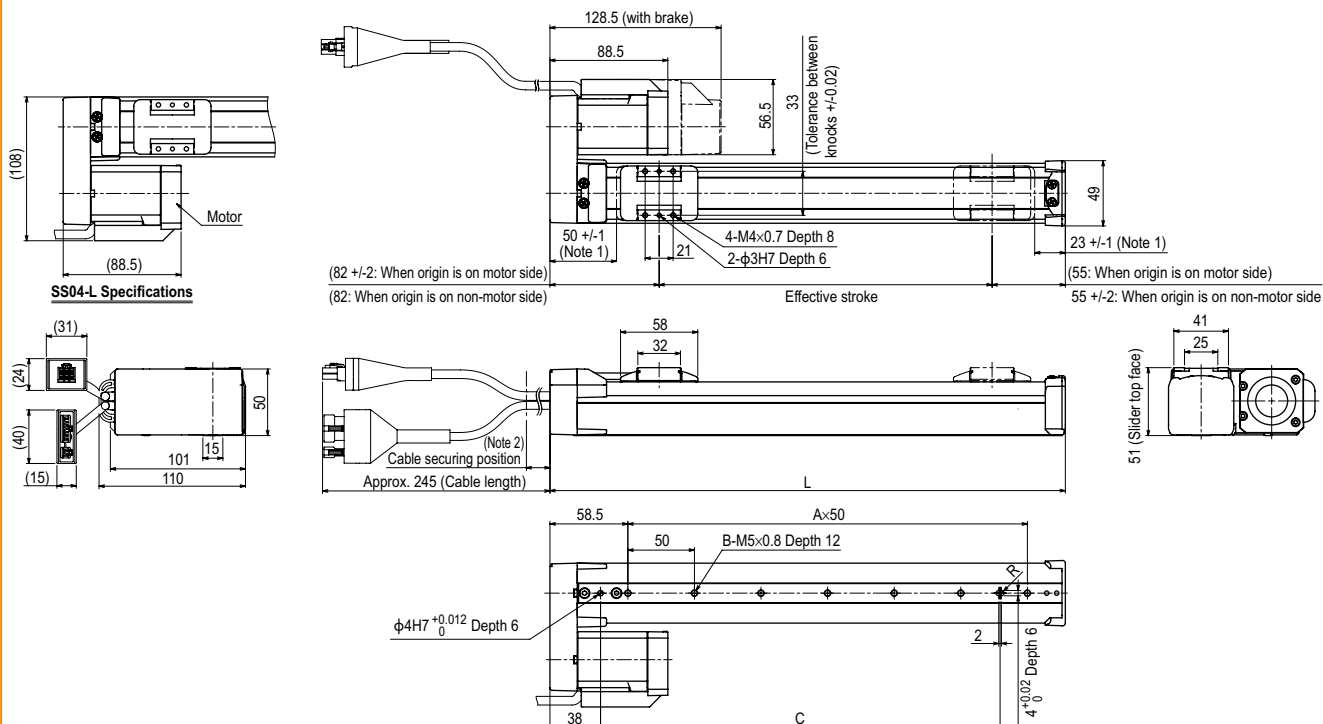
### SS04 Straight model S



Effective stroke	50	100	150	200	250	300	350	400
<b>L</b>	266	316	366	416	466	516	566	616
<b>A</b>	2	3	4	5	6	7	8	9
<b>B</b>	3	4	5	6	7	8	9	10
<b>C</b>	50	100	150	200	250	300	350	400
<b>Weight (kg) <sup>Note 4</sup></b>	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3

- Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.

SS04 Space-saving model **R** **L**



Effective stroke	50	100	150	200	250	300	350	400
<b>L</b>	187	237	287	337	387	437	487	537
<b>A</b>	2	3	4	5	6	7	8	9
<b>B</b>	3	4	5	6	7	8	9	10
<b>C</b>	100	150	200	250	300	350	400	450
<b>Weight (kg)</b> <sup>Note 4</sup>	1.2	1.4	1.5	1.6	1.7	1.8	1.9	2.1

Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.  
 Note 5. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

# SS05

Slider type



- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable

## Ordering method

### SS05

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length
	20: 20mm 12: 12mm 06: 6mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2	I/O
Robot positioner S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board
SH	Battery
Robot positioner SH: TS-SH	B: With battery (Absolute) N: None (Incremental)
SD	I/O cable
Robot driver SD: TS-SD	1: 1m

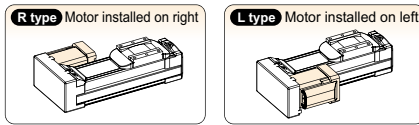
Note 1. Brake-equipped models can be selected only when the lead is 12mm or 6mm.  
 Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 3. The robot cable is flexible and resists bending.  
 Note 4. See P.522 for DIN rail mounting bracket.  
 Note 5. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability (mm)	+/-0.02
Deceleration mechanism	Ball screw φ12
Maximum motor torque (N·m)	0.27
Ball screw lead (mm)	20 12 6
Maximum speed (mm/sec)	1000 600 300
Maximum payload (kg)	Horizontal 4 6 10 Vertical - 1 2
Max. pressing force (N)	27 45 90
Stroke (mm)	50 to 800 (50mm pitch)
Overall length (mm)	Horizontal Stroke+230 Vertical Stroke+270
Maximum outside dimension of body cross-section (mm)	W55 × H56
Cable length (m)	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

## Motor installation (Space-saving model)



## Allowable overhang

Lead	Horizontal installation (Unit: mm)			Wall installation (Unit: mm)			Vertical installation (Unit: mm)		
	A	B	C	A	B	C	A	C	
Lead 20	2kg 413	139	218	2kg 192	123	372	0.5kg 578	579	
4kg	334	67	120	4kg 92	51	265	1kg 286	286	
Lead 12	4kg 347	72	139	4kg 109	57	300	1kg 312	312	
6kg 335	47	95	6kg 63	31	263	2kg 148	148		
4kg 503	78	165	4kg 134	63	496				
Lead 6	8kg 332	37	79	6kg 76	35	377			
10kg 344	29	62	8kg 47	22	355				

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

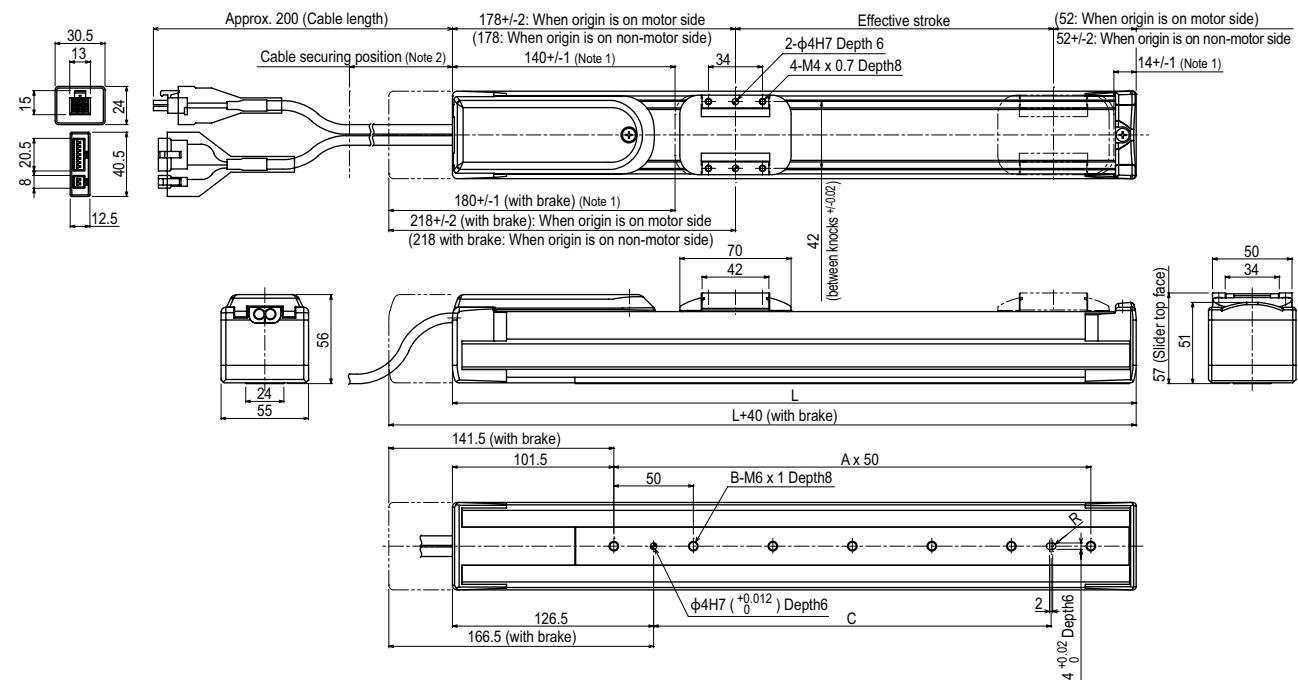
## Static loading moment

MY	MP		MR
	25	33	
0.5kg	578	579	30
1kg	286	286	
1kg	312	312	
2kg	148	148	

## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

## SS05 Straight model S

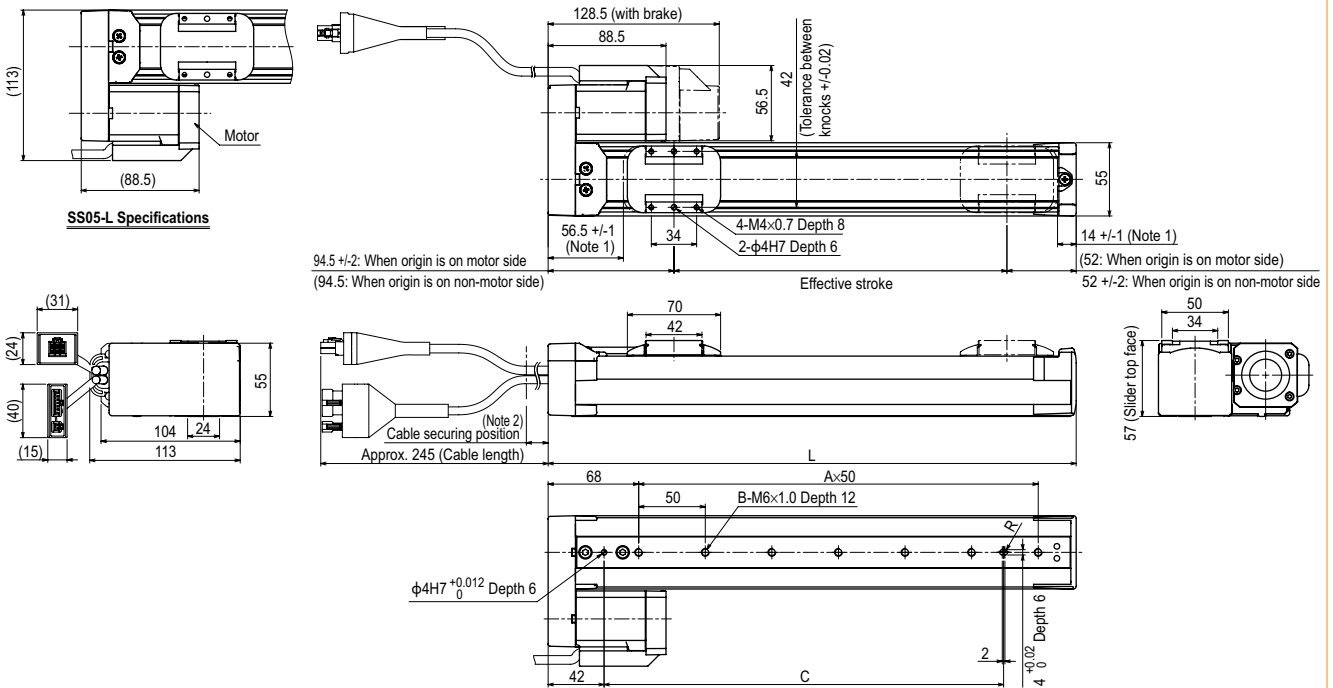


Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	280	330	380	430	480	530	580	630	680	730	780	830	880	930	980	1030
A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
B	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
C	100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg)	2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0
Maximum speed for each stroke (mm/sec)	Lead 20	1000										933	833	733	633	
	Lead 12	600										560	500	440	380	
	Lead 6	300										280	250	220	190	
	Speed setting	-										93%	83%	73%	63%	

Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.  
 Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.



SS05 Space-saving model **R** **L**



Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	
<b>L</b>	196.5	246.5	296.5	346.5	396.5	446.5	496.5	546.5	596.5	646.5	696.5	746.5	796.5	846.5	896.5	946.5	
<b>A</b>	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
<b>B</b>	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<b>C</b>	100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500	
<b>Weight (kg)</b> <sup>Note 4</sup>	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.1	4.3	4.5	
<b>Maximum speed for each stroke</b> <sup>Note 5</sup> (mm/sec)	<b>Lead20</b>												1000	933	833	733	633
	<b>Lead12</b>												600	560	500	440	380
	<b>Lead6</b>												300	280	250	220	190
<b>Speed setting</b>												-	93%	83%	73%	63%	

- Note 1. Stop positions are determined by the mechanical stoppers at both ends.
- Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.
- Note 3. The cable's minimum bend radius is R30.
- Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.
- Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.
- Note 6. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

# SS05H

Slider type



- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable

## Ordering method

<b>SS05H</b>							
<b>Model</b>	<b>Lead</b>	<b>Model</b>	<b>Brake</b> <sup>Note 1</sup>	<b>Origin position</b>	<b>Grease option</b>	<b>Stroke</b>	<b>Cable length</b> <sup>Note 3</sup>
	20: 20mm 12: 12mm 06: 6mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard <sup>Note 2</sup> Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

<b>S2</b>	<b>I/O</b>
<b>Robot positioner</b> S2: TS-S2 <sup>Note 4</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 5</sup>
<b>SH</b>	<b>Battery</b>
<b>Robot positioner</b> SH: TS-SH	B: With battery (Absolute) N: None (Incremental)
<b>SD</b>	<b>1</b>
<b>Robot driver</b> SD: TS-SD	I/O cable 1: 1m

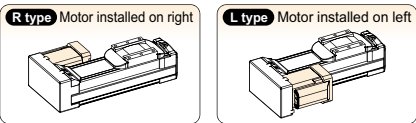
Note 1. Brake-equipped models can be selected only when the lead is 12mm or 6mm.  
 Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 3. The robot cable is flexible and resists bending.  
 Note 4. See P.522 for DIN rail mounting bracket.  
 Note 5. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	42 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability</b> <sup>Note 1</sup> (mm)	+/-0.02
<b>Deceleration mechanism</b>	Ball screw φ12
<b>Maximum motor torque (N·m)</b>	0.47
<b>Ball screw lead (mm)</b>	20    12    6
<b>Maximum speed</b> <sup>Note 2</sup> (mm/sec)	<b>Horizontal</b> 1000    600    300 <b>Vertical</b> -    500    250
<b>Maximum payload (kg)</b>	<b>Horizontal</b> 6    8    12 <b>Vertical</b> -    2    4
<b>Max. pressing force (N)</b>	36    60    120
<b>Stroke (mm)</b>	50 to 800 (50pitch)
<b>Overall length (mm)</b>	<b>Horizontal</b> Stroke+286 <b>Vertical</b> Stroke+306
<b>Maximum outside dimension of body cross-section (mm)</b>	W55 × H56
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

## Motor installation (Space-saving model)



## Allowable overhang <sup>Note</sup>

<b>Horizontal installation</b> (Unit: mm)	<b>Wall installation</b> (Unit: mm)	<b>Vertical installation</b> (Unit: mm)
<b>Lead 20</b>	<b>Lead 20</b>	<b>Lead 12</b>
<b>2kg</b> 599    225    291	<b>2kg</b> 262    203    554	<b>1kg</b> 458    459
<b>4kg</b> 366    109    148	<b>4kg</b> 118    88    309	<b>2kg</b> 224    224
<b>6kg</b> 352    71    104	<b>6kg</b> 71    49    262	<b>2kg</b> 244    245
<b>4kg</b> 500    118    179	<b>4kg</b> 146    96    449	<b>4kg</b> 113    113
<b>6kg</b> 399    79    118	<b>6kg</b> 85    55    334	
<b>8kg</b> 403    56    88	<b>8kg</b> 55    34    305	
<b>6kg</b> 573    83    136	<b>6kg</b> 101    62    519	
<b>8kg</b> 480    61    100	<b>8kg</b> 64    39    413	
<b>10kg</b> 442    47    78	<b>10kg</b> 43    26    355	
<b>12kg</b> 465    39    64	<b>12kg</b> 28    17    338	

## Static loading moment

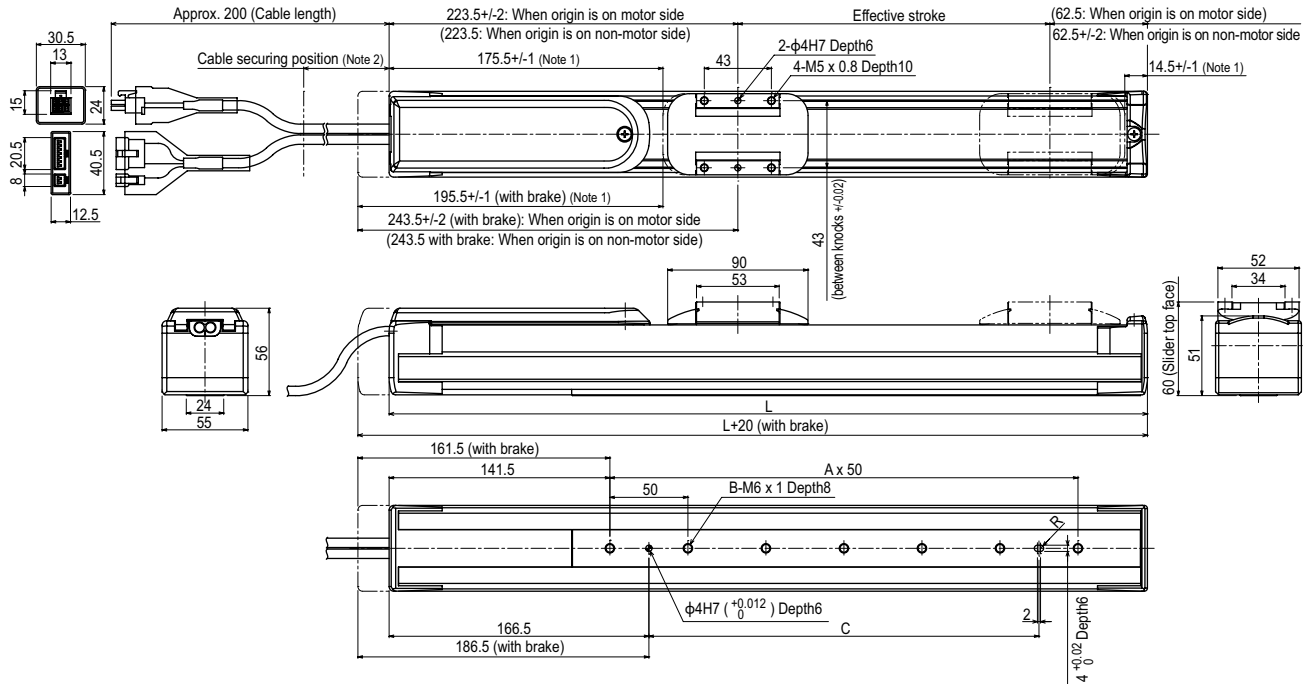
	<b>MY</b>	<b>MP</b>	<b>MR</b>
	32	38	34

## Controller

<b>Controller</b>	<b>Operation method</b>
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).

## SS05H Straight model **S**

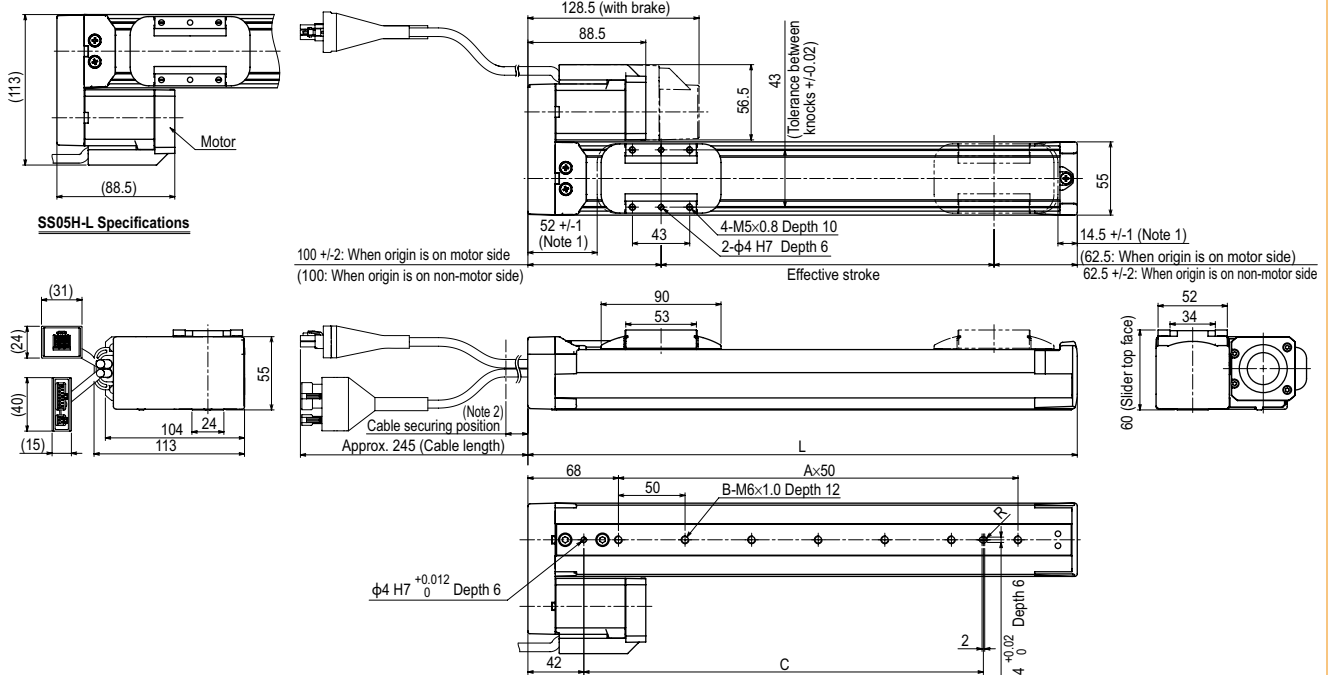


<b>Effective stroke</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>250</b>	<b>300</b>	<b>350</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>550</b>	<b>600</b>	<b>650</b>	<b>700</b>	<b>750</b>	<b>800</b>
<b>L</b>	336	386	436	486	536	586	636	686	736	786	836	886	936	986	1036	1086
<b>A</b>	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>B</b>	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<b>C</b>	100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
<b>Weight (kg)</b> <sup>Note 4</sup>	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.3
<b>Maximum speed for each stroke</b> <sup>Note 5</sup> (mm/sec)																
<b>Lead20</b>																
<b>Lead12 (Horizontal)</b>																
<b>Lead12 (Vertical)</b>																
<b>Lead6 (Horizontal)</b>																
<b>Lead6 (Vertical)</b>																
<b>Speed setting</b>																

Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.  
 Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.



## SS05H Space-saving model R L



SS05H-L Specifications

100 +/-2: When origin is on motor side  
 (100: When origin is on non-motor side)  
 Effective stroke  
 14.5 +/-1 (Note 1)  
 (62.5: When origin is on motor side)  
 62.5 +/-2: When origin is on non-motor side

Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	212.5	262.5	312.5	362.5	412.5	462.5	512.5	562.5	612.5	662.5	712.5	762.5	812.5	862.5	912.5	962.5
A	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
C	100	150	200	250	300	350	400	450	500	500	500	500	500	500	500	500
Weight (kg) <sup>Note 4</sup>	1.7	1.9	2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6
Maximum speed for each stroke <sup>Note 5</sup> (mm/sec)	Lead20	1000														
	Lead12 (Horizontal)	600														
	Lead12 (Vertical)	500														
	Lead6 (Horizontal)	300														
	Lead6 (Vertical)	250														
Speed setting												93%	83%	73%	63%	

Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 80mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.2kg heavier when equipped with a brake.  
 Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the left.  
 Note 6. The belt cover's left and right sides are asymmetrical. Therefore, if the motor mounting orientation is changed, the cover cannot be attached.

# SG07 Slider type

- High lead: Lead 20
- CE compliance
- Origin on the non-motor side is selectable.



## Ordering method

<b>SG07</b>										<b>SH</b>		
<b>Model</b>	<b>Lead</b>	<b>Model</b>	<b>Brake</b>	<b>Origin position</b>	<b>Grease option</b>	<b>Stroke</b>	<b>Cable length</b> <sup>Note 2</sup>	<b>Robot positioner</b>	<b>I/O</b>	<b>Battery</b>		
	20: 20mm 12: 12mm 06: 6mm	S: Straight model	N: With no brake B: With brake	N: Standard <sup>Note 1</sup> Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (60mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m	SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>	B: With battery (Absolute) N: None (Incremental)		

Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 2. The robot cable is flexible and resists bending.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	56 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability</b> <sup>Note 1</sup> (mm)	+/-0.02
<b>Deceleration mechanism</b>	Ball screw φ12
<b>Ball screw lead (mm)</b>	20 12 6
<b>Maximum speed</b> <sup>Note 2 Note 3</sup> (mm/sec)	1200 800 350
<b>Maximum payload (kg)</b>	Horizontal 36 43 46 Vertical 4 12 20
<b>Max. pressing force (N)</b>	60 100 225
<b>Stroke (mm)</b>	50 to 800 (50pitch)
<b>Overall length (mm)</b>	Horizontal Stroke+288 Vertical Stroke+328
<b>Maximum outside dimension of body cross-section (mm)</b>	W65×H64
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.  
 Note 3. It is necessary to change the maximum speed according to the payload. For details, see the "Speed vs. payload" graph shown below.  
 Note. Position detectors (resolvers) are common to incremental and absolute specifications.  
 If the controller has a backup function then it will be absolute specifications.

## Allowable overhang

Horizontal installation (Unit: mm)				Wall installation (Unit: mm)				Vertical installation (Unit: mm)		
Lead	A	B	C	Lead	A	B	C	Lead	A	C
20	10kg 3572	458	486	20	10kg 450	402	3261	20	2kg 2303	2303
	25kg 2971	220	245		25kg 117	155	2943		4kg 1147	1147
	36kg 3150	140	160		36kg 98	85	2520		4kg 1386	1386
12	15kg 3703	363	406	12	15kg 351	307	3403	12	12kg 442	442
	30kg 1962	172	196		30kg 134	117	1663	6	7kg 781	781
	43kg 1430	114	131		43kg 68	59	1070		20kg 252	252
6	15kg 3853	363	414	6	15kg 353	307	3541			
	30kg 2105	172	197		30kg 134	117	1752			
	46kg 1500	106	122		46kg 58	50	1100			

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000 km (Service life is calculated for 600mm stroke models).  
 Note. Calculated by the speed corresponding to the payload.

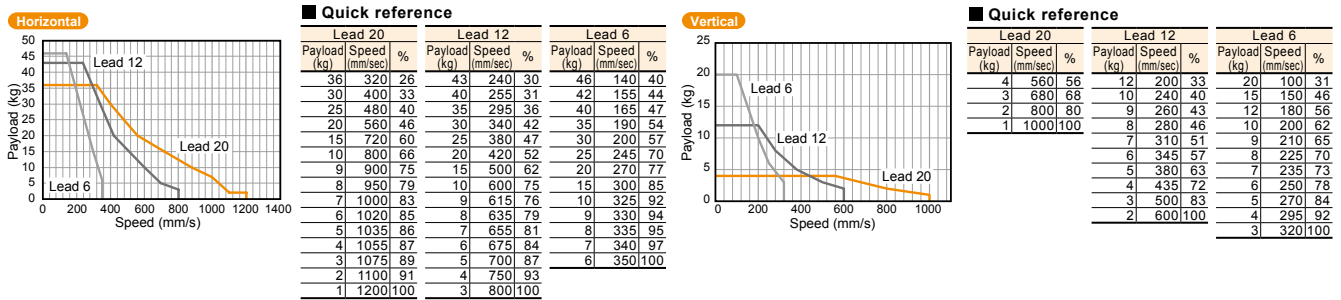
## Static loading moment

(Unit: N·m)		
MY	MP	MR
101	114	101

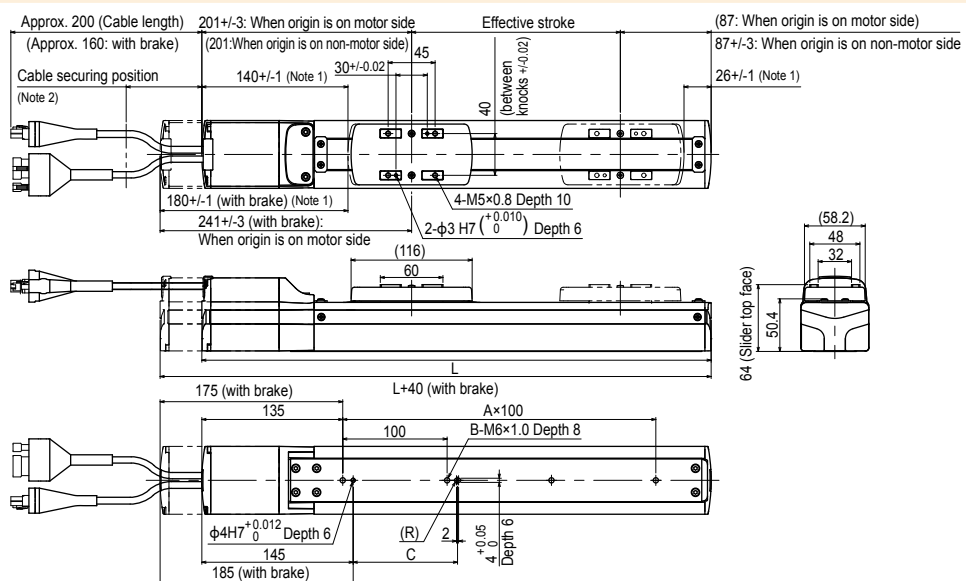
## Controller

Controller	Operation method
TS-SH	I/O point trace / Remote command

## Speed vs. payload



## SG07 Straight model



Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
	L	338	388	438	488	538	588	638	688	738	788	838	888	938	988	1038
A	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9
B	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10
C	100	100	100	100	100	100	400	400	400	400	400	400	700	700	700	700
<b>Weight (kg)</b> <sup>Note 4</sup>	2.9	3.2	3.4	3.6	3.9	4.1	4.3	4.6	4.8	5.0	5.3	5.5	5.7	5.9	6.1	6.3
<b>Maximum speed for each stroke</b> <sup>Note 5</sup> (mm/sec)	Lead20 (Horizontal)	1200														
	Lead20 (Vertical)	1000														
	Lead12 (Horizontal)	800														
	Lead12 (Vertical)	600														
	Lead6 (Horizontal)	350														
Lead6 (Vertical)	320															
<b>Speed setting</b>	-															

Note 1. Stop positions are determined by the mechanical stoppers at both ends.  
 Note 2. Secure the cable with a tie-band 100mm or less from unit's end face to prevent the cable from being subjected to excessive loads.  
 Note 3. The cable's minimum bend radius is R30.  
 Note 4. These are the weights without a brake. The weights are 0.7kg heavier when equipped with a brake.  
 Note 5. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table at the below.

# SR03 Rod type

- CE compliance
- Origin on the non-motor side is selectable



## Ordering method

### SR03

<b>Model</b>	<b>Lead</b>	<b>Model</b>	<b>Brake</b>	<b>Origin position</b>	<b>Bracket plate</b>	<b>Stroke</b>	<b>Cable length</b> <sup>Note 3</sup>
	12: 12mm 06: 6mm	S: Straight model R: Space-saving model <sup>Note 1</sup> (motor installed on right) L: Space-saving model <sup>Note 1</sup> (motor installed on left) U: Space-saving model <sup>Note 1</sup> (motor installed on top)	N: With no brake B: With brake	N: Standard <sup>Note 2</sup> Z: Non-motor side	N: No plate H: With plate V: With flange	50 to 200 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

<b>S2</b>	<b>S2</b>	<b>S2</b>
<b>Robot positioner</b>	<b>I/O</b>	<b>Battery</b>
S2: TS-S2 <sup>Note 4</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 5</sup>	B: With battery (Absolute) N: None (Incremental)
<b>SH</b>	<b>SH</b>	<b>SH</b>
<b>Robot positioner</b>	<b>I/O</b>	<b>Battery</b>
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 5</sup>	B: With battery (Absolute) N: None (Incremental)
<b>SD</b>	<b>SD</b>	<b>SD</b>
<b>Robot driver</b>	<b>I/O cable</b>	
SD: TS-SD	t: 1m	

Note 1. See P.153 for grease gun nozzles.  
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

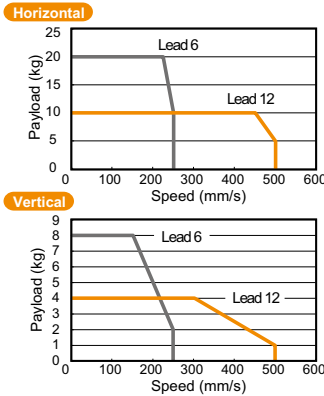
Note 3. The robot cable is flexible and resists bending.  
Note 4. See P.522 for DIN rail mounting bracket.  
Note 5. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	42 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability (mm)</b>	+/-0.02
<b>Deceleration mechanism</b>	Ball screw φ8
<b>Ball screw lead (mm)</b>	12
<b>Maximum speed</b> <sup>Note 1</sup> (mm/sec)	500      250
<b>Maximum payload (kg)</b>	<b>Horizontal</b> <b>Vertical</b>
	4                      8
<b>Max. pressing force (N)</b>	75                  100
<b>Stroke (mm)</b>	50 to 200 (50pitch)
<b>Lost motion</b>	0.1mm or less
<b>Rotating backlash (°)</b>	+/-1.0
<b>Overall length (mm)</b>	<b>Horizontal</b> <b>Vertical</b>
	Stroke+236.5      Stroke+276.5
<b>Maximum outside dimension of body cross-section (mm)</b>	W48 × H56.5
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

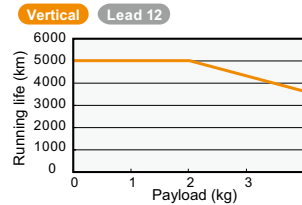
Note 1. The maximum speed needs to be changed in accordance with the payload.  
See the "Speed vs. payload" graph shown on the right. For details, see P. 152.

## Speed vs. payload



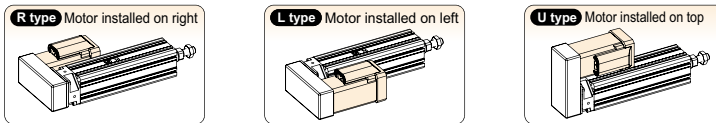
## Running life

5000 km on models other than shown below.  
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.



Note. See P.153 for running life distance to life time conversion example.

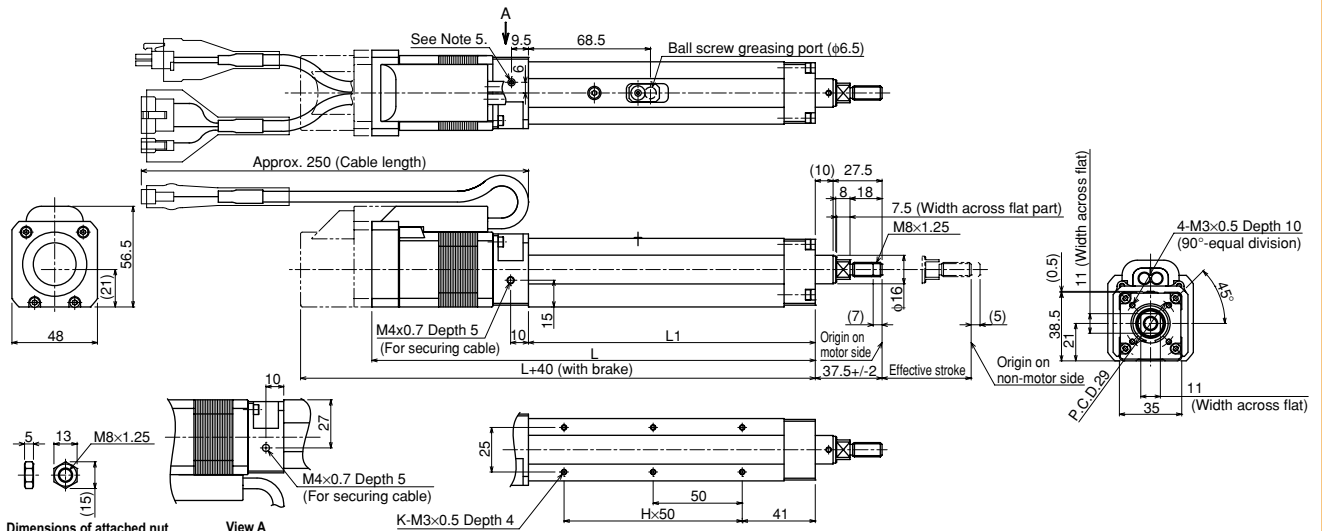
## Motor installation (Space-saving model)



## Controller

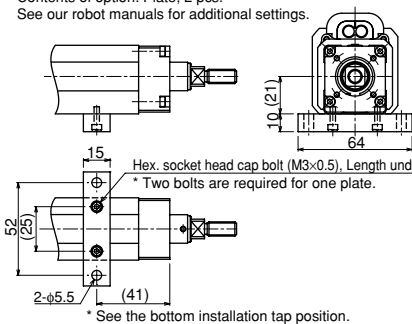
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

## SR03 Straight model S

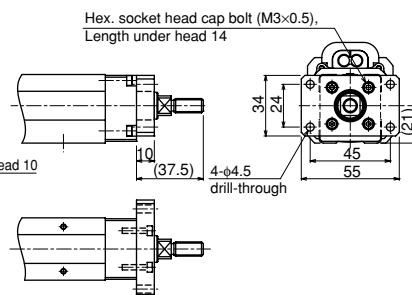


**Option: Horizontal installation plate (foot)**

\* Contents of option: Plate, 2 pcs.  
See our robot manuals for additional settings.



**Option: Vertical installation plate (flange)**



Effective stroke	50	100	150	200
<b>L1</b>	161	211	261	311
<b>L</b>	249	299	349	399
<b>H</b>	2	3	4	5
<b>K</b>	6	8	10	12
<b>Weight (kg)</b> <sup>Note 7</sup>	1.1	1.3	1.4	1.6

Note 1. It is possible to apply only the axial load.  
Note 2. The orientation of the width across flat part is undefined to the base surface.  
Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.

## SR03 Space-saving model (motor installed on right) **R**

**Option: Horizontal installation plate (foot)**

\* Contents of option: Plate, 2 pcs.  
See our robot manuals for additional settings.

**Option: Vertical installation plate (flange)**

Hex. socket head cap bolt (M3×0.5),  
Length under head 14

Hex. socket head cap bolt (M3×0.5),  
Length under head 10

\* Two bolts are required for one plate.

\* See the bottom installation tap position.

Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) <sup>Note 7</sup>	1.3	1.5	1.6	1.8

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.

Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.

Note 4. When running the cables, secure cables so that any load is not applied to them.

Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

Note 6. The cable's minimum bend radius is R30.

Note 7. Models with a brake will be 0.2kg heavier.

Note 8. Distance to mechanical stopper.

## SR03 Space-saving model (motor installed on left) **L**

**Option: Horizontal installation plate (foot)**

\* Contents of option: Plate, 2 pcs.  
See our robot manuals for additional settings.

**Option: Vertical installation plate (flange)**

Hex. socket head cap bolt (M3×0.5),  
Length under head 14

Hex. socket head cap bolt (M3×0.5),  
Length under head 10

\* Two bolts are required for one plate.

\* See the bottom installation tap position.

Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) <sup>Note 7</sup>	1.3	1.5	1.6	1.8

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.

Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.

Note 4. When running the cables, secure cables so that any load is not applied to them.

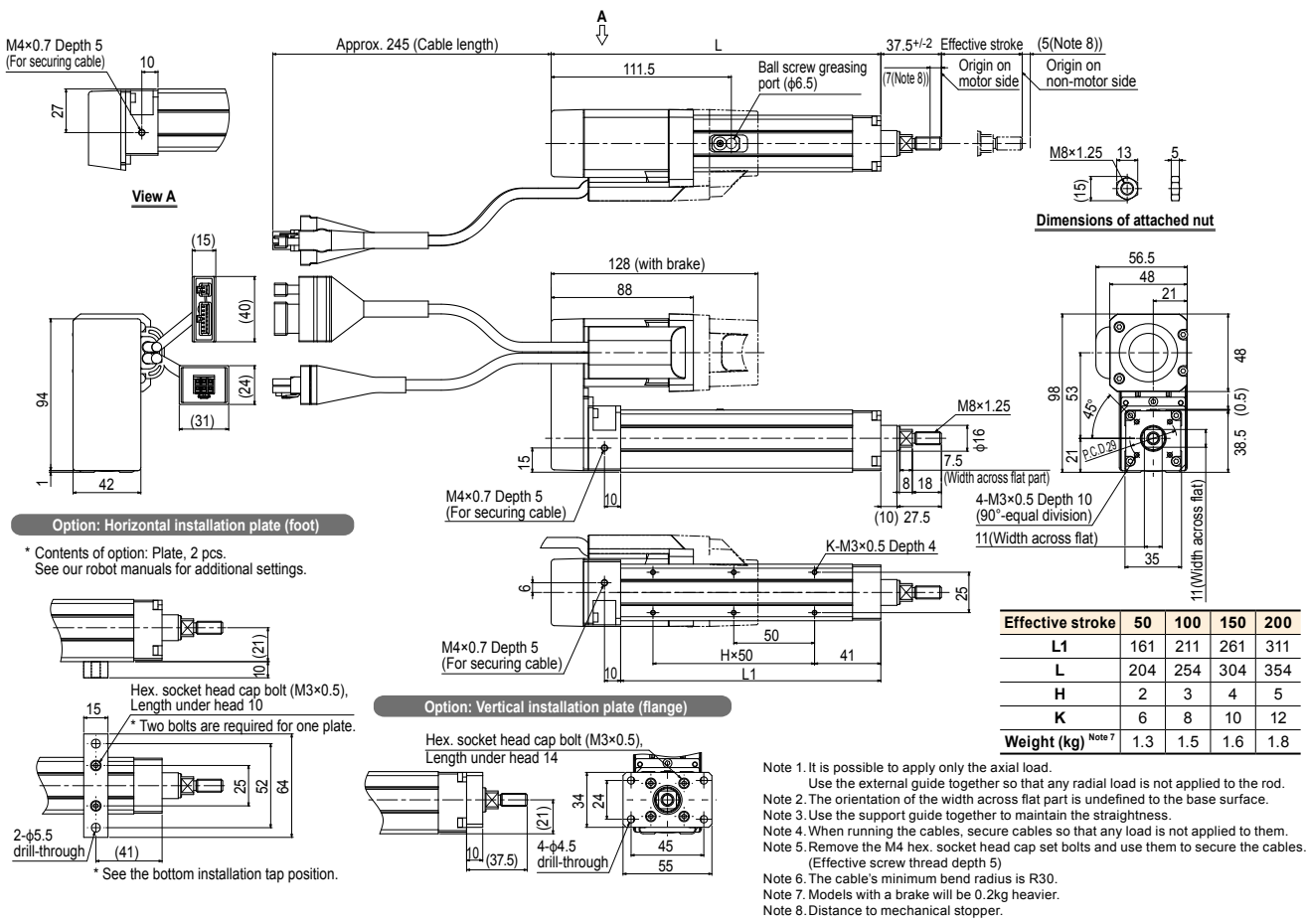
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

Note 6. The cable's minimum bend radius is R30.

Note 7. Models with a brake will be 0.2kg heavier.

Note 8. Distance to mechanical stopper.

SR03 Space-saving model (motor installed on top) U

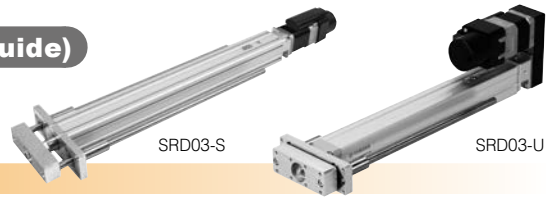




# SRD03

Rod type (With support guide)

- CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12



## Ordering method

### SRD03

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length <sup>Note 3</sup>
	12: 12mm 06: 6mm	S: Straight model U: Space-saving model <sup>Note 1</sup> (motor installed on top)	N: With no brake B: With brake	N: Standard <sup>Note 2</sup> Z: Non-motor side	N: No plate H: With plate	50 to 200 (60mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2	I/O
Robot positioner S2: TS-S2 <sup>Note 4</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 5</sup>
SH	Battery
Robot positioner SH: TS-SH	B: With battery (Absolute) N: None (Incremental)
SD	1
Robot driver SD: TS-SD	I/O cable 1: 1m

Note 1. See P.153 for grease gun nozzles.  
Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

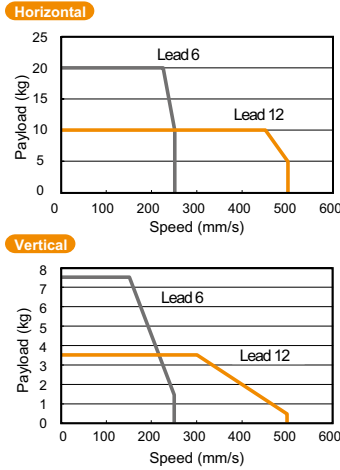
Note 3. The robot cable is flexible and resists bending.  
Note 4. See P.522 for DIN rail mounting bracket.  
Note 5. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability (mm)	+/-0.02
Deceleration mechanism	Ball screw φ8
Ball screw lead (mm)	12      6
Maximum speed <sup>Note 1</sup> (mm/sec)	500      250
Maximum payload (kg)	Horizontal: 10, 20 Vertical: 3.5, 7.5
Max. pressing force (N)	75      100
Stroke (mm)	50 to 200 (50pitch)
Lost motion	0.1mm or less
Rotating backlash (°)	+/-0.05
Overall length (mm)	Horizontal: Stroke+236.5 Vertical: Stroke+276.5
Maximum outside dimension of body cross-section (mm)	W48 × H56.5
Cable length (m)	Standard: 1 / Option: 3, 5, 10

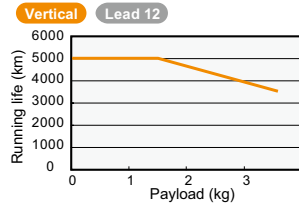
Note 1. The maximum speed needs to be changed in accordance with the payload.  
See the "Speed vs. payload" graph shown on the right.  
For details, see P. 152.

## Speed vs. payload



## Running life

5000 km on models other than shown below.  
Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

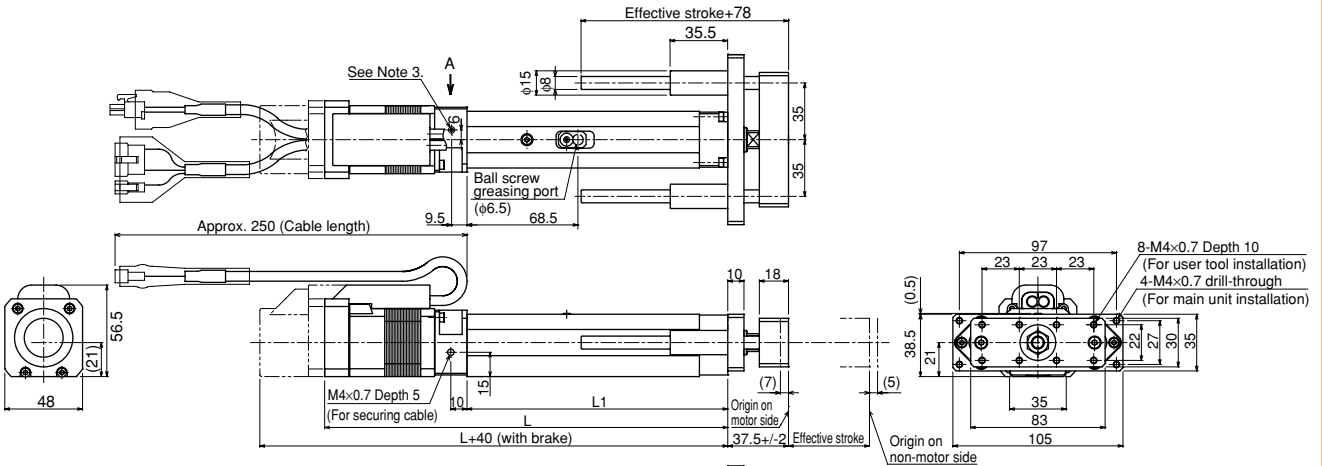


Note. See P.153 for running life distance to life time conversion example.

## Controller

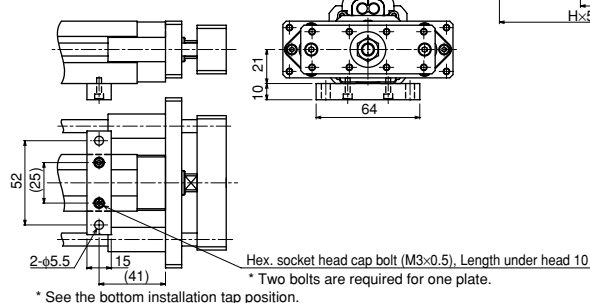
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

## SRD03 Straight model S



### Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs.  
See our robot manuals for additional settings.

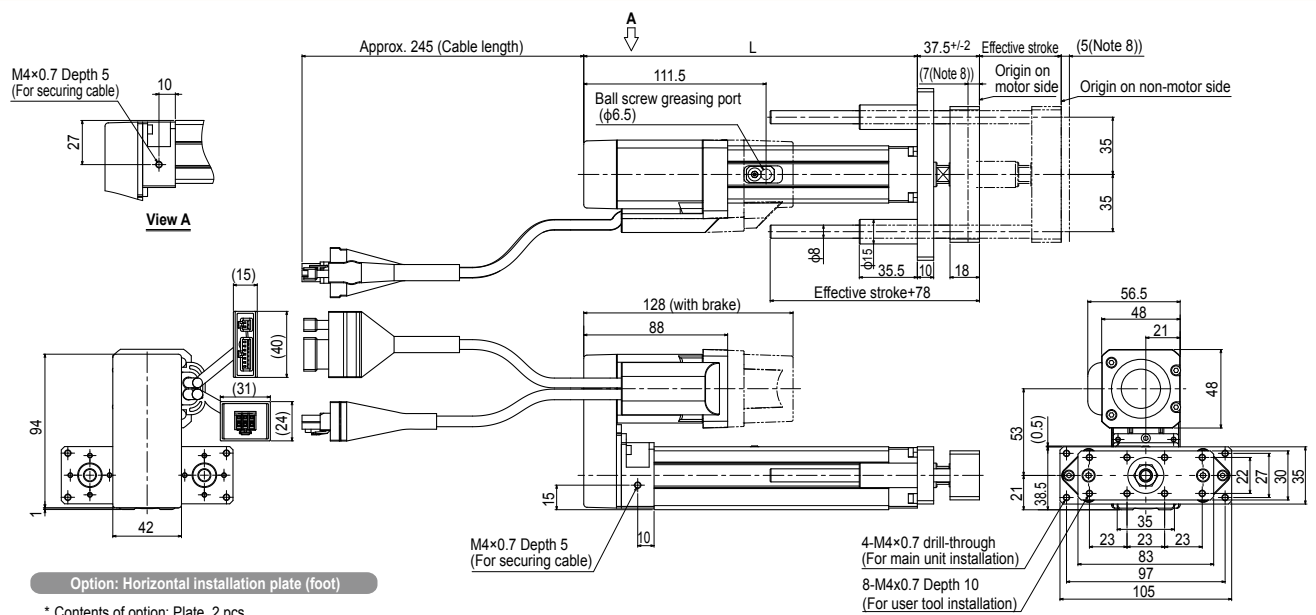


Effective stroke	50	100	150	200
L1	161	211	261	311
L	249	299	349	399
H	2	3	4	5
K	6	8	10	12
Weight (kg) <sup>Note 5</sup>	1.5	1.7	1.9	2.1

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. When running the cables, secure cables so that any load is not applied to them.  
Note 3. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 4. The cable's minimum bend radius is R30.  
Note 5. Models with a brake will be 0.2kg heavier.  
Note 6. Distance to mechanical stopper.



SRD03 Space-saving model (motor installed on top) **U**



\* Contents of option: Plate, 2 pcs.  
See our robot manuals for additional settings.

Effective stroke	50	100	150	200
L1	161	211	261	311
L	204	254	304	354
H	2	3	4	5
K	6	8	10	12
Weight (kg) <sup>Note 7</sup>	1.7	1.9	2.1	2.3

- Note 1. It is possible to apply only the axial load.
- Note 2. Use the external guide together so that any radial load is not applied to the rod.
- Note 3. The orientation of the width across flat part is undefined to the base surface.
- Note 4. Use the support guide together to maintain the straightness.
- Note 5. When running the cables, secure cables so that any load is not applied to them.
- Note 6. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)
- Note 7. The cable's minimum bend radius is R30.
- Note 8. Distance to mechanical stopper.

# SR04 Rod type

- CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12



## Ordering method

### SR04

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
	12: 12mm 06: 6mm 02: 2mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard Z: Non-motor side	N: No plate H: With plate V: With flange	50 to 300 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

- Note 1. See P.153 for grease gun nozzles.  
 Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).  
 Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 4. The robot cable is flexible and resists bending.  
 Note 5. See P.522 for DIN rail mounting bracket.  
 Note 6. Select this selection when using the gateway function. For details, see P.66.

### S2

Robot positioner	I/O
S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board

### SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board	B: With battery (Absolute) N: None (Incremental)

### SD

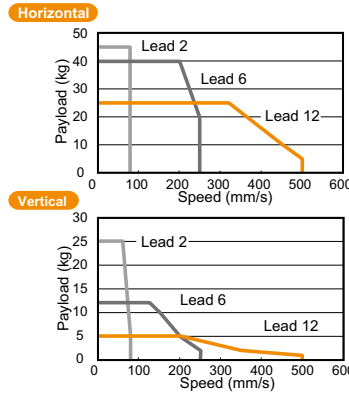
Robot driver	I/O cable
SD: TS-SD	1: 1m

## Basic specifications

Motor	42 Step motor	
Resolution (Pulse/rotation)	20480	
Repeatability (mm)	±0.02	
Deceleration mechanism	Ball screw φ8	Ball screw φ10
Ball screw lead (mm)	12	6
Maximum speed (mm/sec)	500	250
Maximum payload (kg)	25	40
Max. pressing force (N)	150	300
Stroke (mm)	50 to 300 (50pitch)	
Lost motion	0.1mm or less	
Rotating backlash (°)	±1.0	
Overall length (mm)	Horizontal	Stroke+263
	Vertical	Stroke+303
Maximum outside dimension of body cross-section (mm)	W48 × H58	
Cable length (m)	Standard: 1 / Option: 3, 5, 10	

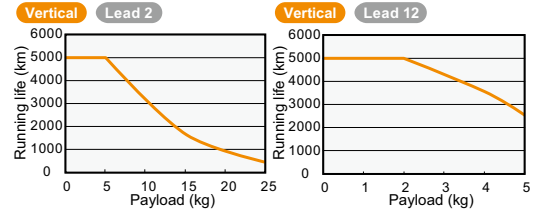
Note 1. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 152. Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw. See the maximum speed table shown at the lower portion of the drawing.

## Speed vs. payload

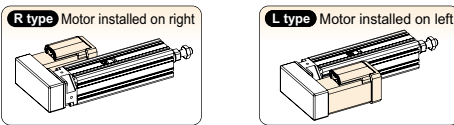


## Running life

5000 km on models other than shown below. Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.



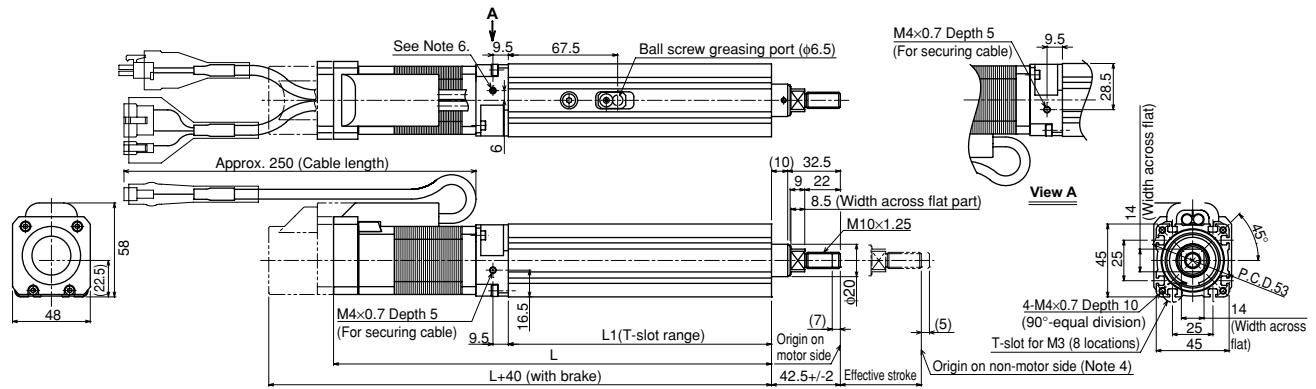
## Motor installation (Space-saving model)



## Controller

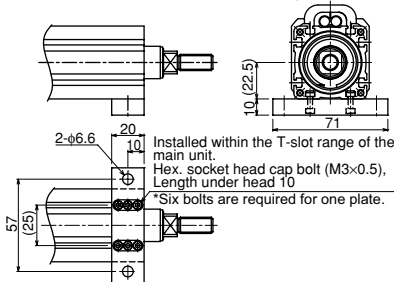
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control

## SR04 Straight model S



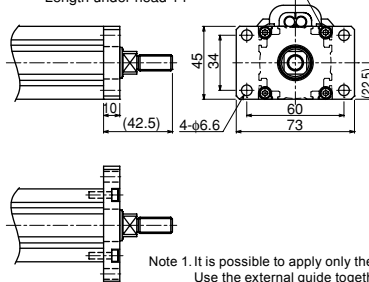
### Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 12 pcs. See our robot manuals for additional settings.



### Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M4×0.7), Length under head 14



Dimensions of attached square nut for T-slot (6 pcs.) Details of T-slot Dimensions of attached nut

Effective stroke	50	100	150	200	250	300
L1	162.5	212.5	262.5	312.5	362.5	412.5
L	270.5	320.5	370.5	420.5	470.5	520.5
Weight (kg)	1.4	1.7	1.9	2.2	2.4	2.7
Maximum speed for each stroke (mm/sec)						
Lead 12		500		440	320	
Lead 6		250		220	160	
Lead 2		80		72	53	

- Note 1. It is possible to apply only the axial load.  
 Use the external guide together so that any radial load is not applied to the rod.  
 Note 2. The orientation of the width across flat part is undefined to the base surface.  
 Note 3. Use the support guide together to maintain the straightness.  
 Note 4. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
 Note 5. When running the cables, secure cables so that any load is not applied to them.  
 Note 6. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
 Note 7. The cable's minimum bend radius is R30.  
 Note 8. Models with a brake will be 0.2kg heavier.  
 Note 9. Distance to mechanical stopper.

SR04 Space-saving model (motor installed on right) **R**

Approx. 245 (Cable length)

Effective stroke (5)(Note 8)

42.5<sup>+/-2</sup> (7)(Note 8)

152 (with brake)  
112

Origin on motor side

Origin on non-motor side (Note 9)

5.8  
3.3  
1.5  
17  
6  
M10x1.25  
(19.6)

Detail of section B

Dimensions of attached nut

67.5

Ball screw greasing port (φ6.5)

L1(T-slot range)

9.5

16.5

M4×0.7 Depth 5 (For securing cable)

9.5

M10×1.25

φ20

8.5

14

14 (Width across flat)

45

25

45

45

48

56

T-slot for M3 (8 locations)

45°

4-M4×0.7 Depth 10 (90°-equal division)

48

102.5

1.5

Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 12 pcs.  
See our robot manuals for additional settings.

2-φ6.6 drill-through

20

10

10 (22.5)

Installed within the T-slot range of the main unit.  
(Hex. socket head cap bolt (M3×0.5), Length under head 10)  
\* Six bolts are required for one plate.

Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M4×0.7), Length under head 14

73

4-φ6.6 drill-through

60

Dimensions of attached square nut for T-slot (6 pcs.)

M3×0.5

2.4

7 (3)

Effective stroke	50	100	150	200	250	300
L1	162.5	212.5	262.5	312.5	362.5	412.5
L	209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) <sup>Note 7</sup>	1.6	1.9	2.1	2.4	2.6	2.9
Maximum speed for each stroke (mm/sec)	Lead 12	500		440	320	
	Lead 6	250		220	160	
	Lead 2	80		72	53	

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. The orientation of the width across flat part is undefined to the base surface.  
Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.  
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).

SR04 Space-saving model (motor installed on left) **L**

Approx. 245 (Cable length)

Effective stroke (5)(Note 8)

42.5<sup>+/-2</sup> (7)(Note 8)

Origin on motor side

Origin on non-motor side (Note 9)

5.8  
3.3  
1.5  
17  
6  
M10x1.25  
(19.6)

Detail of section B

Dimensions of attached nut

67.5

Ball screw greasing port (φ6.5)

L1(T-slot range)

9.5

16.5

M4×0.7 Depth 5 (For securing cable)

9.5

M10×1.25

φ20

8.5

14

14 (Width across flat)

45

25

45

48

56

T-slot for M3 (8 locations)

45°

4-M4×0.7 Depth 10 (90°-equal division)

48

102.5

1.5

Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 12 pcs.  
See our robot manuals for additional settings.

2-φ6.6 drill-through

20

10

10 (22.5)

Installed within the T-slot range of the main unit.  
(Hex. socket head cap bolt (M3×0.5), Length under head 10)  
\* Six bolts are required for one plate.

Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M4×0.7), Length under head 14

73

4-φ6.6 drill-through

60

Dimensions of attached square nut for T-slot (6 pcs.)

M3×0.5

2.4

7 (3)

Effective stroke	50	100	150	200	250	300
L1	162.5	212.5	262.5	312.5	362.5	412.5
L	209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) <sup>Note 7</sup>	1.6	1.9	2.1	2.4	2.6	2.9
Maximum speed for each stroke (mm/sec)	Lead 12	500		440	320	
	Lead 6	250		220	160	
	Lead 2	80		72	53	

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. The orientation of the width across flat part is undefined to the base surface.  
Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.  
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).

# SRD04

## Rod type (With support guide)



- CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12

### Ordering method

## SRD04

<b>Model</b>	<b>Lead</b>	<b>Model</b>	<b>Brake</b>	<b>Origin position</b> <small>Note 2</small>	<b>Bracket plate</b>	<b>Stroke</b>	<b>Cable length</b> <small>Note 4</small>
	12: 12mm 06: 6mm 02: 2mm	S: Straight model J: Space-saving model <small>Note 1</small> (motor installed on top)	N: With no brake B: With brake	N: Standard <small>Note 3</small> Z: Non-motor side	N: No plate H: With plate	50 to 300 (60mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

## S2

<b>Robot positioner</b>	<b>I/O</b>
S2: TS-S2 <small>Note 5</small>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 6</small>

## SH

<b>Robot positioner</b>	<b>I/O</b>	<b>Battery</b>
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 6</small>	B: With battery (Absolute) N: None (Incremental)

## SD

<b>Robot driver</b>	<b>I/O cable</b>
SD: TS-SD	f: 1m

Note 1. See P.153 for grease gun nozzles.  
 Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).  
 Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

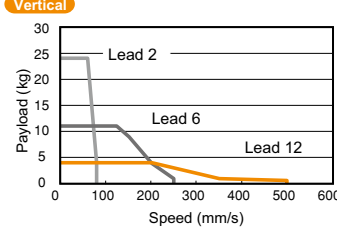
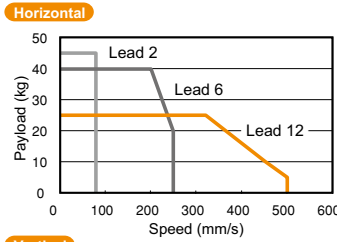
Note 4. The robot cable is flexible and resists bending.  
 Note 5. See P.522 for DIN rail mounting bracket.  
 Note 6. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

<b>Motor</b>	42 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	20480	
<b>Repeatability (mm)</b>	+/-0.02	
<b>Deceleration mechanism</b>	Ball screw φ8	Ball screw φ10
<b>Ball screw lead (mm)</b>	12	6
<b>Maximum speed</b> <small>Note 1</small> (mm/sec)	500	250
<b>Maximum payload (kg)</b>	<b>Horizontal</b>	<b>Vertical</b>
	25	40
	4	11
<b>Max. pressing force (N)</b>	150	300
<b>Stroke (mm)</b>	50 to 300 (50pitch)	
<b>Lost motion</b>	0.1mm or less	
<b>Rotating backlash (°)</b>	+/-0.05	
<b>Overall length</b>	<b>Horizontal</b>	<b>Vertical</b>
	Stroke+263	Stroke+303
<b>Maximum outside dimension of body cross-section (mm)</b>	W48 × H58	
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	

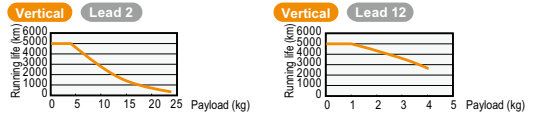
Note 1. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right. For details, see P. 152.  
 Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw.  
 See the maximum speed table shown at the lower portion of the drawing.

### Speed vs. payload



### Running life

5000 km on models other than shown below.  
 Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

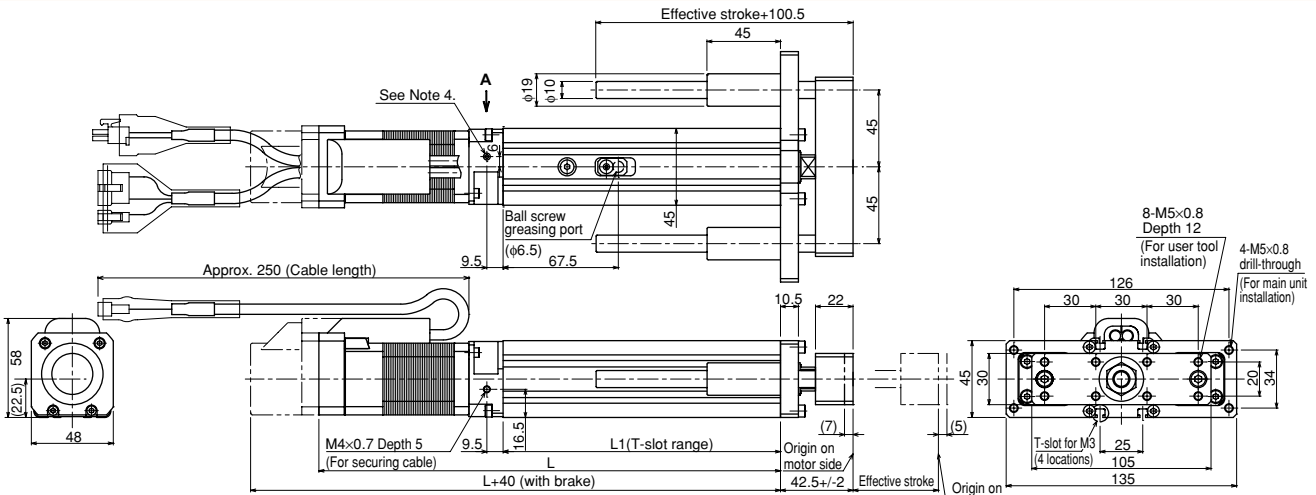


Note. See P.153 for running life distance to life time conversion example.

### Controller

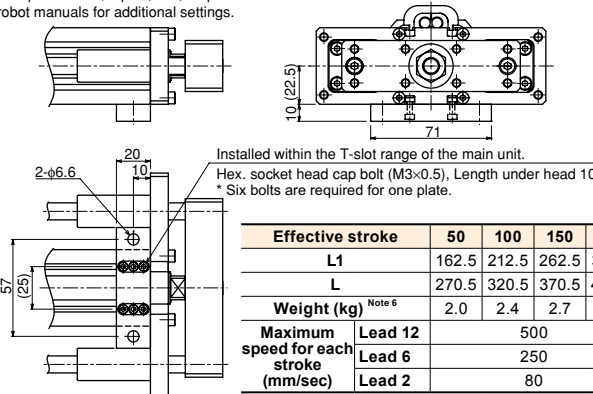
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

### SRD04 Straight model S



#### Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 12 pcs.  
 See our robot manuals for additional settings.



Dimensions of attached square nut for T-slot (6 pcs.)

Details of T-slot

View A

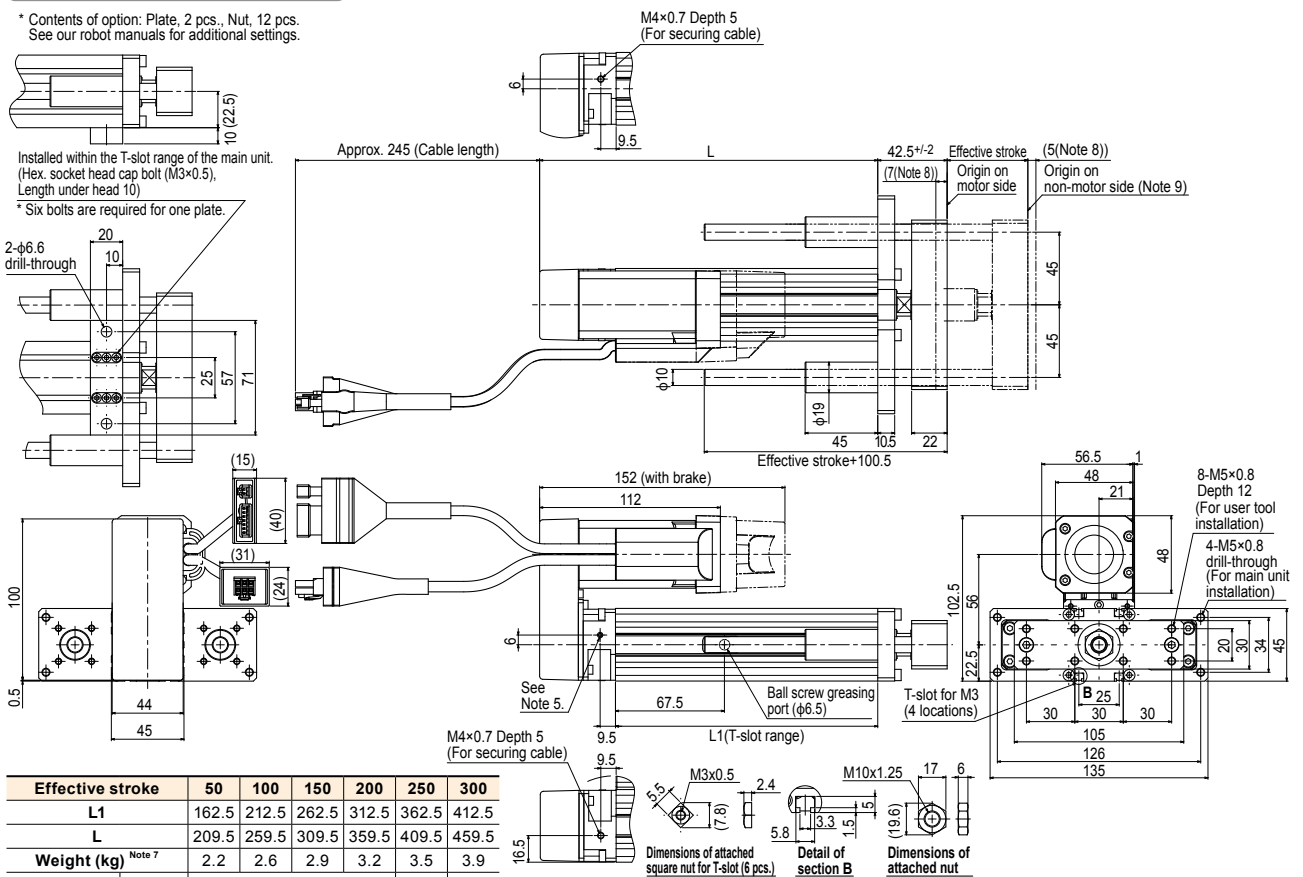
Effective stroke	50	100	150	200	250	300
	L1	162.5	212.5	262.5	312.5	362.5
L	270.5	320.5	370.5	420.5	470.5	520.5
Weight (kg)						
Lead 12	2.0	2.4	2.7	3.0	3.3	3.7
Maximum speed for each stroke (mm/sec)						
Lead 12	500		440		320	
Lead 6	250		220		160	
Lead 2	80		72		53	

Note 1. It is possible to apply only the axial load.  
 Use the external guide together so that any radial load is not applied to the rod.  
 Note 2. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
 Note 3. When running the cables, secure cables so that any load is not applied to them.  
 Note 4. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
 Note 5. The cable's minimum bend radius is R30.  
 Note 6. Models with a brake will be 0.2kg heavier.  
 Note 7. Distance to mechanical stopper.

SRD04 Space-saving model (motor installed on top) **U**

Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 12 pcs.  
See our robot manuals for additional settings.



Effective stroke	50	100	150	200	250	300
L1	162.5	212.5	262.5	312.5	362.5	412.5
L	209.5	259.5	309.5	359.5	409.5	459.5
Weight (kg) <sup>Note 7</sup>	2.2	2.6	2.9	3.2	3.5	3.9
Maximum speed for each stroke (mm/sec)	Lead 12	500		440	320	
	Lead 6	250		220	160	
	Lead 2	80		72	53	

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. The orientation of the width across flat part is undefined to the base surface.

Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.  
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.



# SR05 Rod type

- CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12



## Ordering method

### SR05

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
	12: 12mm 06: 6mm 02: 2mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard Z: Non-motor side	N: No plate H: With plate V: With flange	50 to 300 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

- Note 1. See P.153 for grease gun nozzles.  
 Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).  
 Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 4. The robot cable is flexible and resists bending.  
 Note 5. See P.522 for DIN rail mounting bracket.  
 Note 6. Select this selection when using the gateway function. For details, see P.66.

### S2

Robot positioner	I/O
S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board

### SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board	B: With battery (Absolute) N: None (Incremental)

### SD

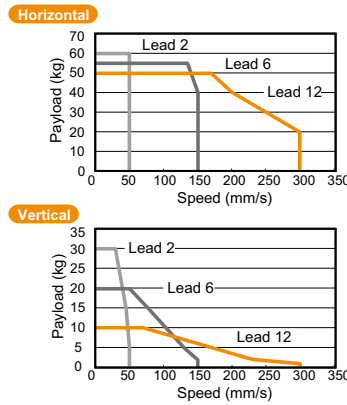
Robot driver	I/O cable
SD: TS-SD	1: 1m

## Basic specifications

Motor	56 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability (mm)	+/-0.02
Deceleration mechanism	Ball screw φ12
Ball screw lead (mm)	12      6      2
Maximum speed (mm/sec)	300    150    50
Maximum payload (kg)	Horizontal    50    55    60 Vertical      10    20    30
Max. pressing force (N)	250    550    900
Stroke (mm)	50 to 300 (50pitch)
Lost motion	0.1mm or less
Rotating backlash (°)	+/-1.0
Overall length (mm)	Horizontal    Stroke+276 Vertical      Stroke+316
Maximum outside dimension of body cross-section (mm)	W56.4 × H71
Cable length (m)	Standard: 1 / Option: 3, 5, 10

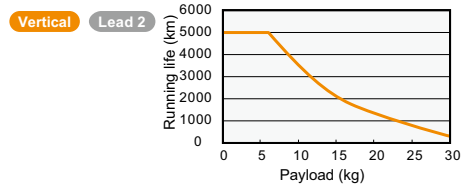
Note 1. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right.  
 For details, see P. 152.

## Speed vs. payload



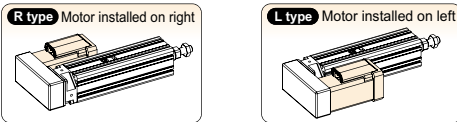
## Running life

5000 km on models other than shown below.  
 Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.



Note. See P.153 for running life distance to life time conversion example.

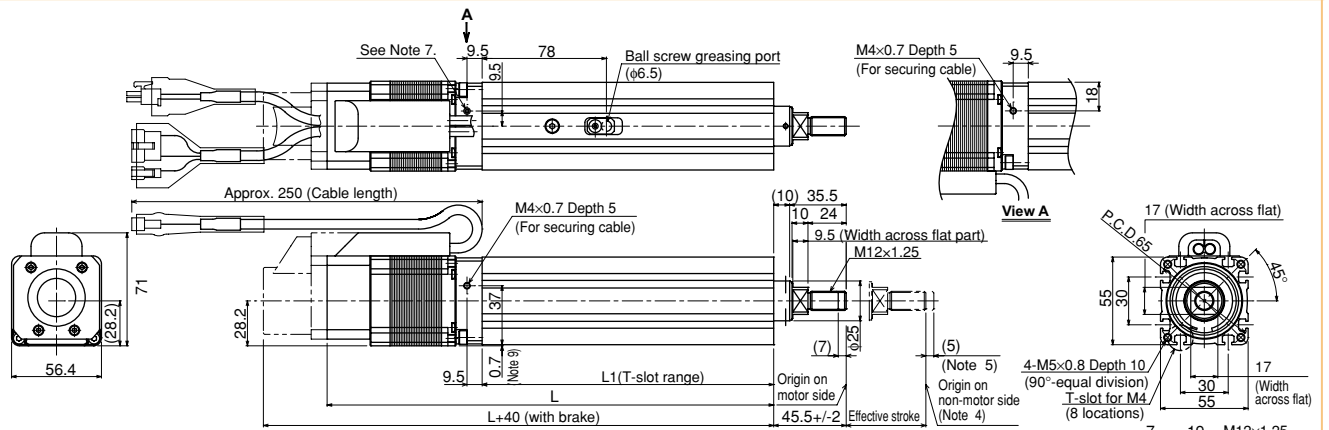
## Motor installation (Space-saving model)



## Controller

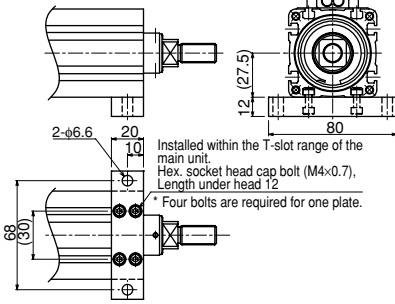
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control

## SR05 Straight model S



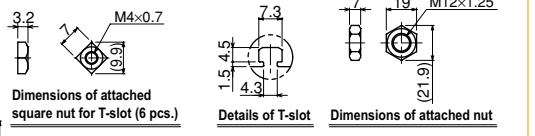
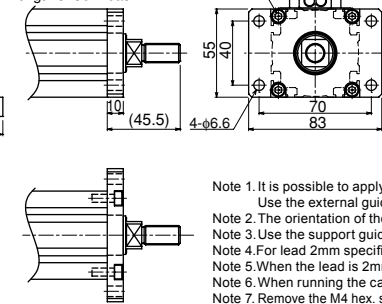
Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 8 pcs.  
 See our robot manuals for additional settings.



Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M5×0.8), Length under head 14



Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	280.5	330.5	380.5	430.5	480.5	530.5
Weight (kg)	2.2	2.6	3.0	3.3	3.7	4.1

- Note 1. It is possible to apply only the axial load.  
 Note 2. Use the external guide together so that any radial load is not applied to the rod.  
 Note 3. The orientation of the width across flat part is undefined to the base surface.  
 Note 4. Use the support guide together to maintain the straightness.  
 Note 5. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
 Note 6. When the lead is 2mm, this dimension is 27mm.  
 Note 7. When running the cables, secure cables so that any load is not applied to them.  
 Note 8. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
 Note 9. The cable's minimum bend radius is R30.  
 Note 10. Models with a brake will be 0.2kg heavier.  
 Note 11. Distance to mechanical stopper.



SR05 Space-saving model (motor installed on right) **R**

Approx. 245 (Cable length)

146 (with brake)  
106

45.5<sup>+/-2</sup> Effective stroke (5(Note 8,Note 12))  
(7(Note 8))

Ball screw greasing port (φ6.5)

Origin on motor side

Origin on non-motor side (Note 9)

M4x0.7 (9.9)

Dimensions of attached square nut for T-slot (6 pcs.)

7.3  
4.3  
1.5  
6

M12x1.25 19 7  
(21.9)

Dimensions of attached nut

Detail of section B

28.5 70  
T-slot for M4 (8 locations)

17 (Width across flat)

30 55  
56.5 71

9.5 (Width across flat part)

10 24 17 (Width across flat)

30 55

56.4

M12x1.25

9.5 (Width across flat part)

10 24 17 (Width across flat)

(10) 35.5

4-M5x0.8 Depth 10 (90°-equal division)

0.7 (Note 11)

37 9.5

L1(T-slot range)

9.5

M4x0.7 Depth 5 (For securing cable)

M4x0.7 Depth 5 (For securing cable)

Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 8 pcs. See our robot manuals for additional settings.

127.5 56.5

12 (27.5)

Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M5x0.8), Length under head 14

4-φ6.6 drill-through

2-φ6.6 drill-through

20 10 30 68 80

Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M4x0.7), Length under head 12)

\* Four bolts are required for one plate.

Table:

Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	227.5	277.5	327.5	377.5	427.5	477.5
Weight (kg) <sup>Note 7</sup>	2.4	2.8	3.2	3.5	3.9	4.3

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. The orientation of the width across flat part is undefined to the base surface.  
Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.  
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).  
Note 11. Take great care as the outer case of the motor and cover belt projects from the bottom of the main unit.  
Note 12. When the lead is 2mm, this dimension is 27mm.

SR05 Space-saving model (motor installed on left) **L**

Approx. 245 (Cable length)

106 146 (with brake)

45.5<sup>+/-2</sup> Effective stroke (5(Note 8,Note 12))  
(7(Note 8))

Ball screw greasing port (φ6.5)

Origin on motor side

Origin on non-motor side (Note 9)

M4x0.7 (9.9)

Dimensions of attached square nut for T-slot (6 pcs.)

7.3  
4.3  
1.5  
6

M12x1.25 19 7  
(21.9)

Dimensions of attached nut

Detail of section B

28.5 70  
T-slot for M4 (8 locations)

17 (Width across flat)

30 55  
56.5 71

9.5 (Width across flat part)

10 24 17 (Width across flat)

30 55

56.4

M12x1.25

9.5 (Width across flat part)

10 24 17 (Width across flat)

(10) 35.5

4-M5x0.8 Depth 10 (90°-equal division)

0.7 (Note 11)

37 9.5

L1(T-slot range)

9.5

M4x0.7 Depth 5 (For securing cable)

M4x0.7 Depth 5 (For securing cable)

Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 8 pcs. See our robot manuals for additional settings.

127.5 56.5

12 (27.5)

Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M5x0.8), Length under head 14

4-φ6.6 drill-through

2-φ6.6 drill-through

20 10 30 68 80

Installed within the T-slot range of the main unit. (Hex. socket head cap bolt (M4x0.7), Length under head 12)

\* Four bolts are required for one plate.

Table:

Effective stroke	50	100	150	200	250	300
L1	183	233	283	333	383	433
L	227.5	277.5	327.5	377.5	427.5	477.5
Weight (kg) <sup>Note 7</sup>	2.4	2.8	3.2	3.5	3.9	4.3

Note 1. It is possible to apply only the axial load.  
Use the external guide together so that any radial load is not applied to the rod.  
Note 2. The orientation of the width across flat part is undefined to the base surface.  
Note 3. Use the support guide together to maintain the straightness.  
Note 4. When running the cables, secure cables so that any load is not applied to them.  
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
Note 6. The cable's minimum bend radius is R30.  
Note 7. Models with a brake will be 0.2kg heavier.  
Note 8. Distance to mechanical stopper.  
Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
Note 10. This unit can be installed with the motor facing up (turned 90 degrees from the position in this drawing).  
Note 11. Take great care as the outer case of the motor and cover belt projects from the bottom of the main unit.  
Note 12. When the lead is 2mm, this dimension is 27mm.

# SRD05

## Rod type (With support guide)

- CE compliance
- Origin on the non-motor side is selectable: Lead 6, 12



### Ordering method

#### SRD05

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
	12: 12mm 06: 6mm 02: 2mm	S: Straight model J: Space-saving model (motor installed on top)	N: With no brake B: With brake	N: Standard Z: Non-motor side	N: No plate H: With plate	50 to 300 (50mm pitch)	Note 4 1K: 1m 3K: 3m 5K: 5m 10K: 10m

#### S2

Robot positioner	I/O
S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board

#### SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board	B: With battery (Absolute) N: None (Incremental)

#### SD

Robot driver	I/O cable
SD: TS-SD	f: 1m

Note 1. See P.153 for grease gun nozzles.  
 Note 2. When "2mm lead" is selected, the origin position cannot be changed (to non-motor side).  
 Note 3. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.

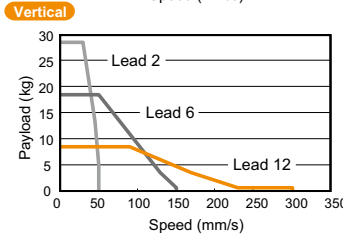
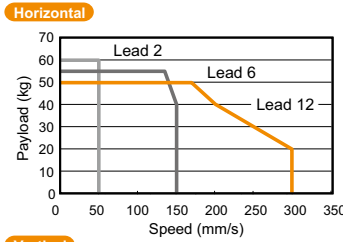
Note 4. The robot cable is flexible and resists bending.  
 Note 5. See P.522 for DIN rail mounting bracket.  
 Note 6. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

<b>Motor</b>	56 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	20480	
<b>Repeatability (mm)</b>	±0.02	
<b>Deceleration mechanism</b>	Ball screw φ12	
<b>Ball screw lead (mm)</b>	12	6
<b>Maximum speed<sup>Note 1</sup> (mm/sec)</b>	300	150
<b>Maximum payload (kg)</b>	Horizontal	Vertical
	50	55
	8.5	18.5
	250	550
<b>Max. pressing force (N)</b>	250	550
<b>Stroke (mm)</b>	50 to 300 (50pitch)	
<b>Lost motion</b>	0.1mm or less	
<b>Rotating backlash (°)</b>	±0.05	
<b>Overall length (mm)</b>	Horizontal	Vertical
	Stroke+276	Stroke+316
<b>Maximum outside dimension of body cross-section (mm)</b>	W56.4 × H71	
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	

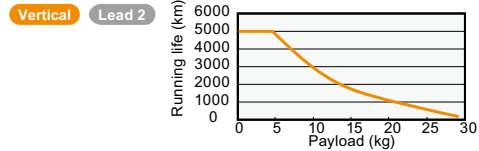
Note 1. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right.  
 For details, see P. 152.

### Speed vs. payload



### Running life

5000 km on models other than shown below.  
 Running life of only the model shown below becomes shorter than 5000 km depending on the payload, so check the running life curve.

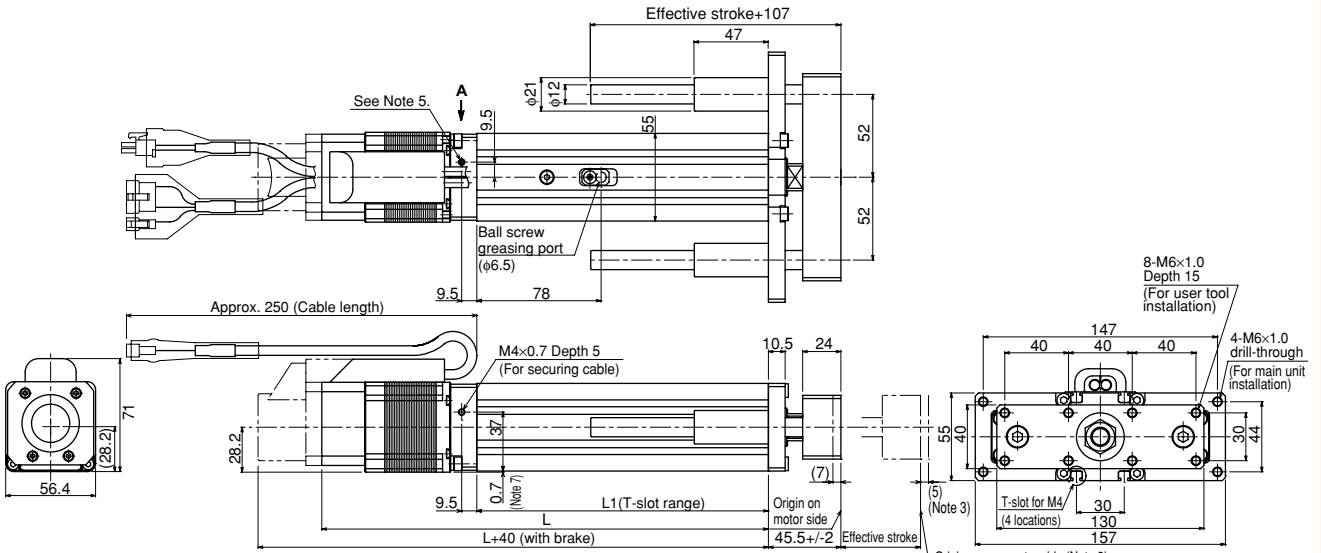


Note. See P.153 for running life distance to life time conversion example.

### Controller

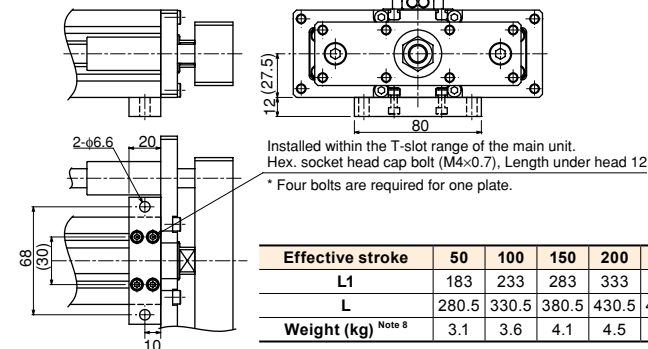
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

### SRD05 Straight model S



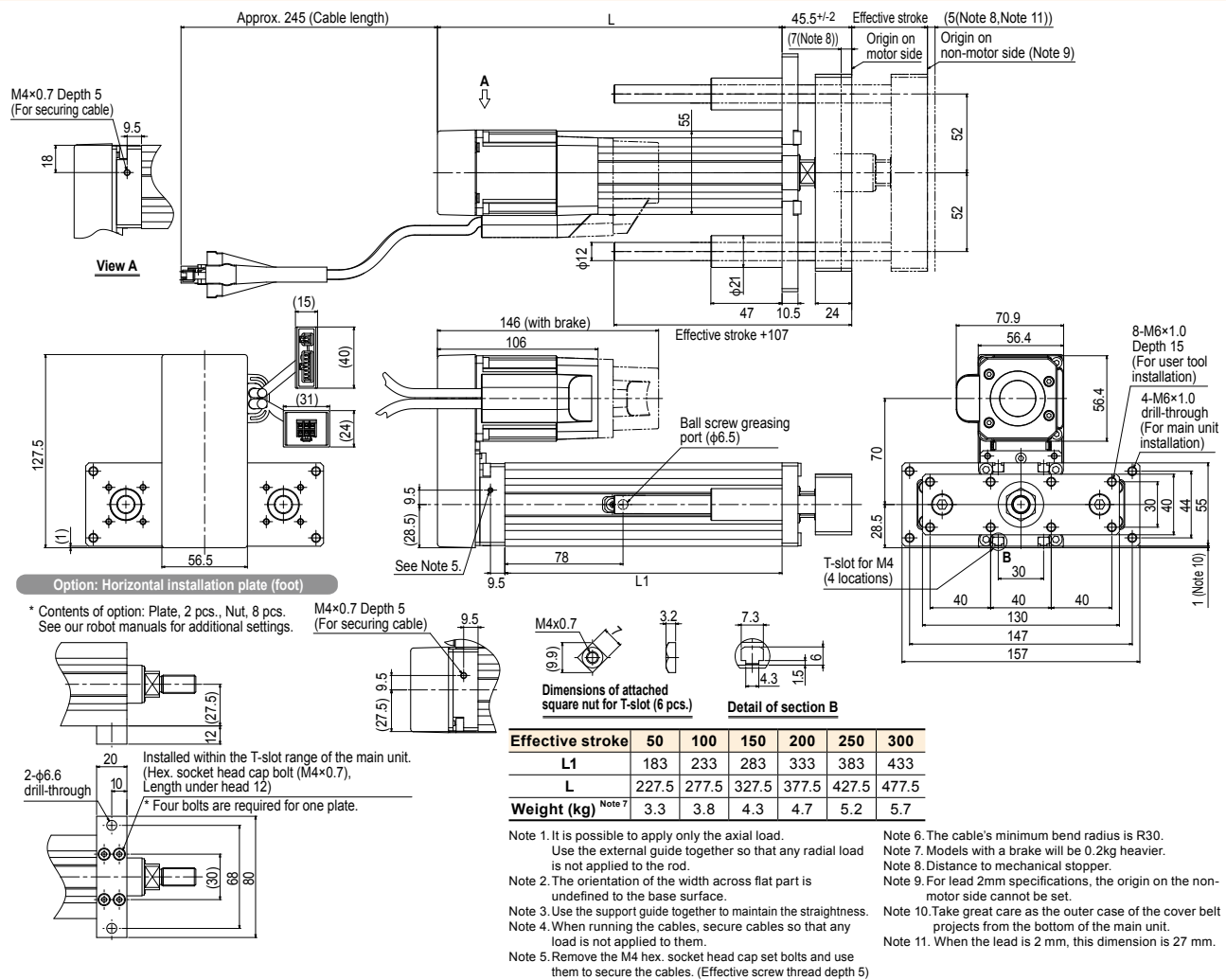
#### Option: Horizontal installation plate (foot)

\* Contents of option: Plate, 2 pcs., Nut, 8 pcs.  
 See our robot manuals for additional settings.



Note 1. It is possible to apply only the axial load.  
 Note 2. Use the external guide together so that any radial load is not applied to the rod.  
 Note 3. For lead 2mm specifications, the origin on the non-motor side cannot be set.  
 Note 4. When running the cables, secure cables so that any load is not applied to them.  
 Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)  
 Note 6. The cable's minimum bend radius is R30.  
 Note 7. Take great care as the outer case of the motor projects from the bottom of the main unit.  
 Note 8. Models with a brake will be 0.2kg heavier.  
 Note 9. Distance to mechanical stopper.

**SRD05 Space-saving model (motor installed on top) U**



# STH04

Slide table type

- CE compliance
- Origin on the non-motor side is selectable

## Ordering method

<b>Model</b>	<b>Lead</b>	<b>Model</b>	<b>Brake</b> <sup>Note 1</sup>	<b>Origin position</b> <sup>Note 2</sup>	<b>Bracket plate</b> <sup>Note 3</sup>	<b>Stroke</b>	<b>Cable length</b> <sup>Note 4</sup>
	05: 5mm 10: 10mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard <sup>Note 2</sup> Z: Non-motor side	N: No plate H: With plate	50: 50mm 100: 100mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m

<b>S2</b>	<b>I/O</b>
<b>Robot positioner</b> S2: TS-S2 <sup>Note 5</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 7</sup>
<b>SH</b>	<b>Battery</b>
<b>Robot positioner</b> SH: TS-SH	B: With battery (Absolute) N: None (Incremental)
<b>SD</b>	<b>I/O cable</b>
<b>Robot driver</b> SD: TS-SD <sup>Note 6</sup>	1: 1m

- Note 1. For the space saving models (R and L), the specifications with brake are applicable to only 100mm strokes.  
 Note 2. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.  
 Note 3. Space-saving models (R and L) with the plate cannot be selected.  
 Note 4. The robot cable is flexible and resists bending.  
 Note 5. See P.522 for DIN rail mounting bracket.  
 Note 6. The robot with the brake cannot use the TS-SD.  
 Note 7. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	28 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	4096	
<b>Repeatability</b> <sup>Note 1</sup> (mm)	+/-0.05	
<b>Drive method</b>	Straight	Slide screw
	Space-saving	Slide screw + belt
<b>Ball screw lead (mm)</b>	5      10	
<b>Maximum speed</b> <sup>Note 2</sup> (mm/sec)	200    400	
<b>Maximum payload (kg)</b>	Horizontal	6      4
	Vertical	2      1
<b>Max. pressing force (N)</b>	55      30	
<b>Stroke (mm)</b>	50/100	
<b>Maximum outside dimension of body cross-section (mm)</b>	Straight	W45 × H46
	Space-saving	W74.5 × H51
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	

- Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right. For details, see P. 152.

## Allowable overhang

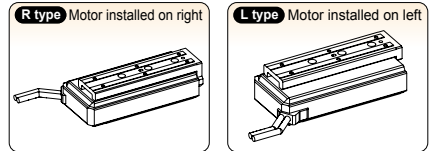
Horizontal installation (Unit: mm)	Note			Wall installation (Unit: mm)	Vertical installation (Unit: mm)
	A	B	C		
Lead 10	2kg	1534	611	435	435
	3kg	949	374	263	359
	4kg	656	255	177	241
Lead 5	2kg	1534	611	435	435
	4kg	656	255	177	241
	6kg	364	137	91	123

- Note. Overhang at travelling service life of 3000km.  
 (Service life is calculated for 75mm stroke models.)

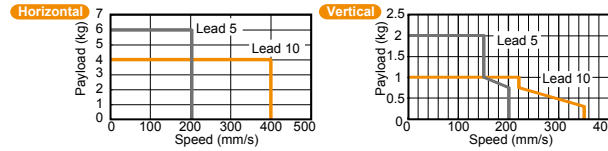
## Static loading moment

Stroke	Note			MR
	MY	MP	MR	
50mm	26	26	48	
100mm	43	43	48	

## Motor installation (Space-saving model)



## Speed vs. payload



## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD <sup>Note</sup>	Pulse train control

Note. The robot with the brake cannot use the TS-SD.

## STH04 Straight model S

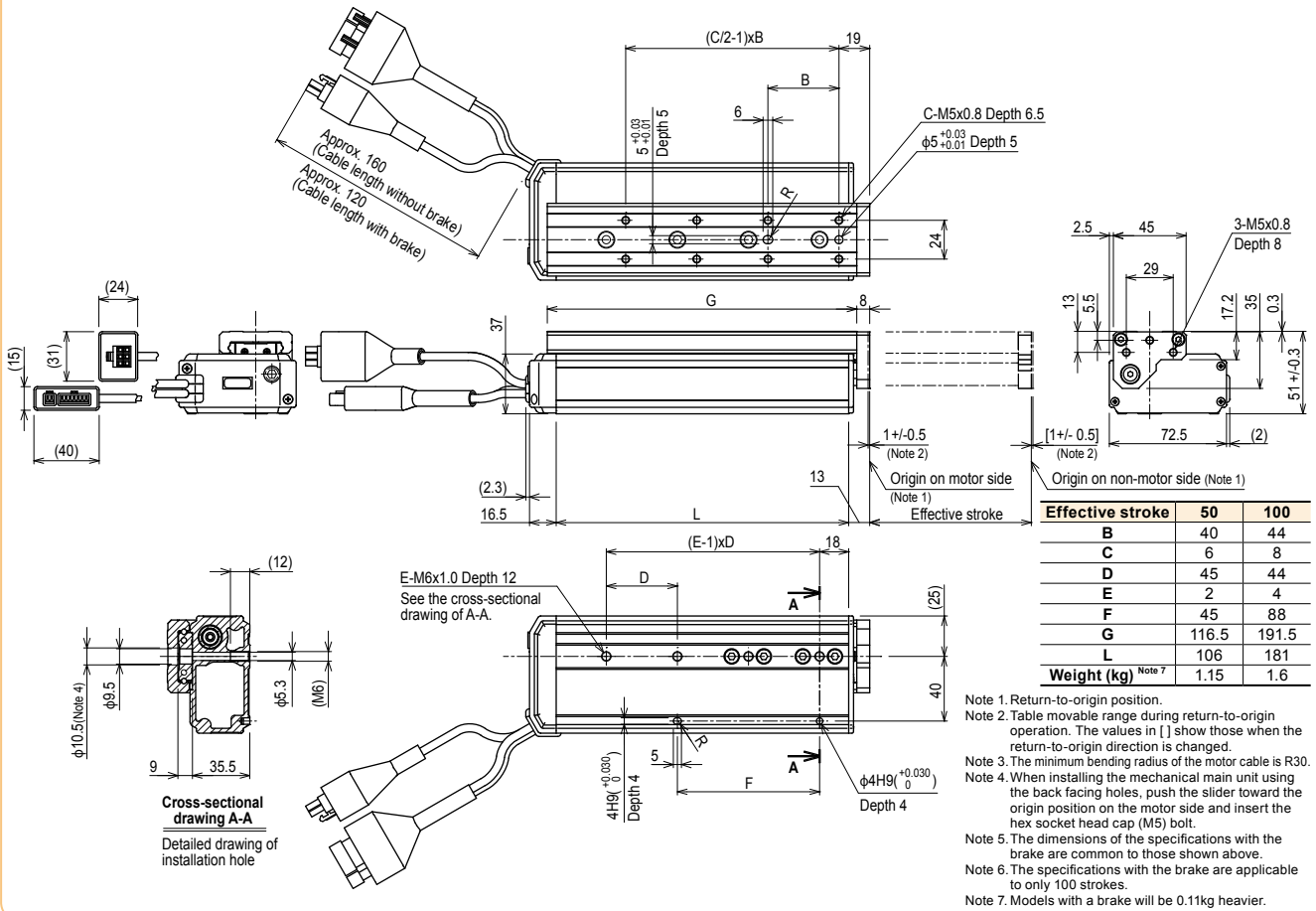
Effective stroke	50	100
B	40	44
C	6	8
D	116.5	191.5
E	65	85
G	39.5	88.5
L	122	191
Weight (kg) <sup>Note 6</sup>	1.25	1.7

**Option: Installation plate**  
 Contents of option: Plate, 4 pcs.  
 \* For additional settings, contact your distributor.

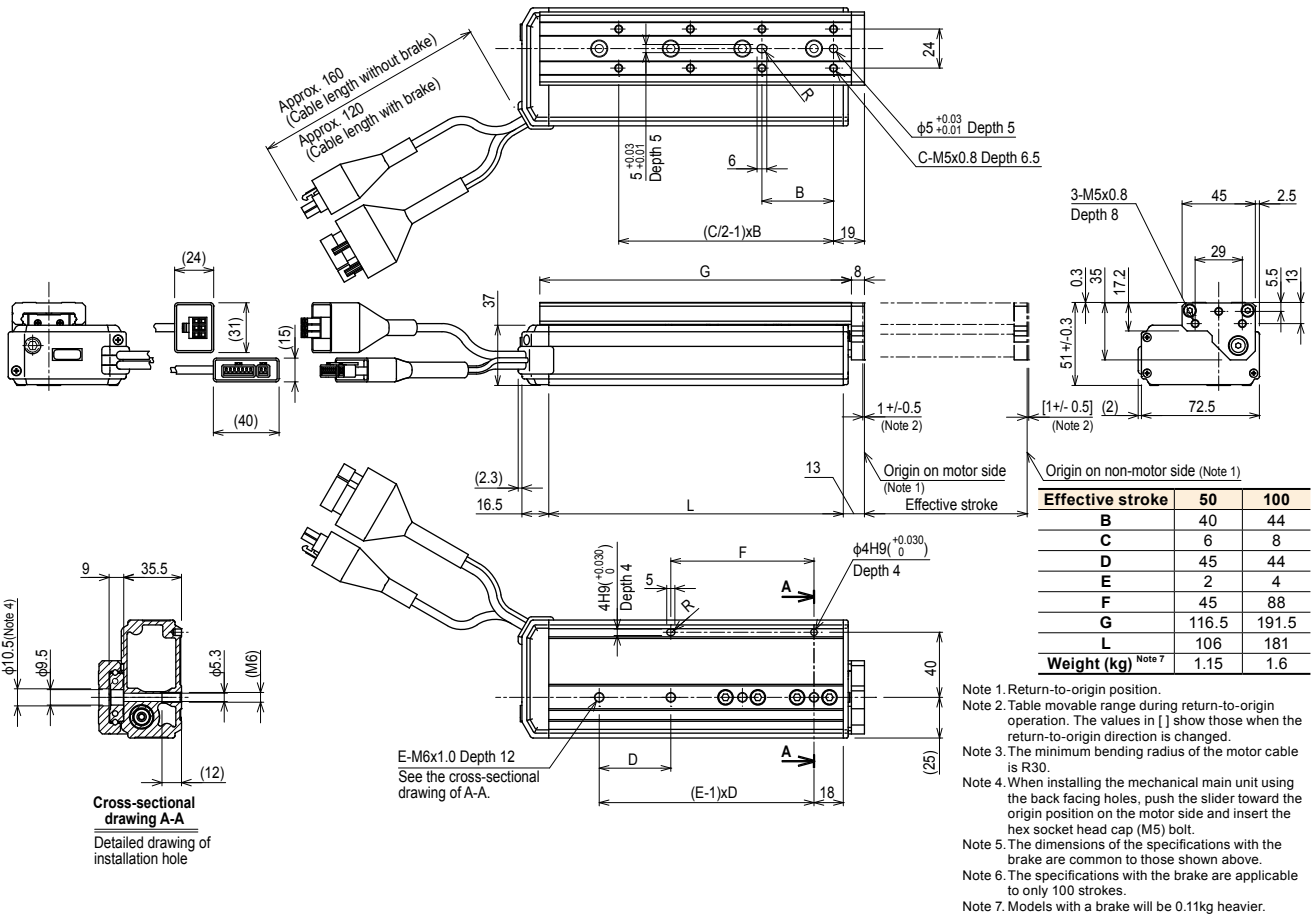
**Cross-sectional drawing A-A**  
 Detailed drawing of installation hole

**Note 1.** Return-to-origin position.  
**Note 2.** Table movable range during return-to-origin operation. The values in [ ] show those when the return-to-origin direction is changed.  
**Note 3.** The minimum bending radius of the motor cable is R30.  
**Note 4.** When installing the mechanical main unit using the back facing holes, use the hex socket head cap M5 bolts.  
**Note 5.** The installation hole positions of the main unit with the specifications with the brake are common to those shown above.  
**Note 6.** Models with a brake will be 0.1kg heavier.

STH04 Space-saving model (motor installed on right) **R**



STH04 Space-saving model (motor installed on left) **L**





# STH06

Slide table type



- CE compliance
- Origin on the non-motor side is selectable

## Ordering method

### STH06

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
	08: 8mm 16: 16mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left)	N: With no brake B: With brake	N: Standard Z: Non-motor side	N: No plate H: With plate	50: 50mm 100: 100mm 150: 150mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m

### S2

Robot positioner	I/O
S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board

### SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board	B: With battery (Absolute) N: None (Incremental)

### SD

Robot driver	I/O cable
SD: TS-SD	1: 1m

- Note 1. If changing from the origin position at the time of purchase, the machine reference amount must be reset. For details, refer to the manual.
- Note 2. Space-saving models (R and L) with the plate cannot be selected.
- Note 3. The robot cable is flexible and resists bending.
- Note 4. See P.522 for DIN rail mounting bracket.
- Note 5. The robot with the brake cannot use the TS-SD.
- Note 6. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

Motor	42 □ Step motor	
Resolution (Pulse/rotation)	20480	
Repeatability (mm)	+/- 0.05	
Drive method	Straight	Slide screw
	Space-saving	Slide screw + belt
Ball screw lead (mm)	8 16	
Maximum speed (mm/sec)	150 400	
Maximum payload (kg)	Horizontal	9 6
	Vertical	4 2
Max. pressing force (N)	180 100	
Stroke (mm)	50/100/150	
Maximum outside dimension of body cross-section (mm)	Straight	W61 × H65
	Space-saving	W108 × H70
Cable length (m)	Standard: 1 / Option: 3, 5, 10	

- Note 1. Positioning repeatability in one direction.
- Note 2. The maximum speed needs to be changed in accordance with the payload.
- See the "Speed vs. payload" graph shown on the right. For details, see P. 152.

## Allowable overhang

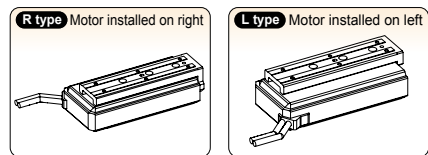
Lead	Horizontal installation (Unit: mm)			Wall installation (Unit: mm)			Vertical installation (Unit: mm)		
	A	B	C	A	B	C	A	B	C
Lead 16	2kg 3000	2123	1436	2kg 1500	2091	3000	1kg 3000	3000	3000
Lead 8	4kg 2493	1001	680	4kg 710	975	2443	1.5kg 2458	2457	2457
	6kg 1571	627	428	6kg 440	603	1524	2kg 1837	1837	1837
Lead 8	3kg 3000	1375	932	3kg 979	1347	3000	2kg 1837	1837	1837
	6kg 1571	627	428	6kg 440	603	1524	3kg 1217	1216	1216
Lead 8	9kg 956	378	260	9kg 260	355	912	4kg 907	906	906

- Note. Overhang at travelling service life of 3000km. (Service life is calculated for 100mm stroke models.)

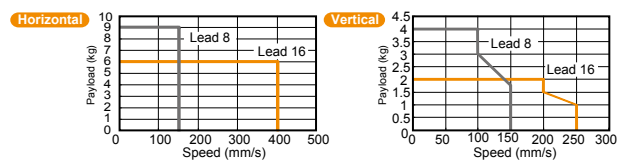
## Static loading moment

Stroke	(Unit: N·m)		
	MY	MP	MR
50mm	77	77	146
100mm	112	112	177
150mm	155	155	152

## Motor installation (Space-saving model)



## Speed vs. payload

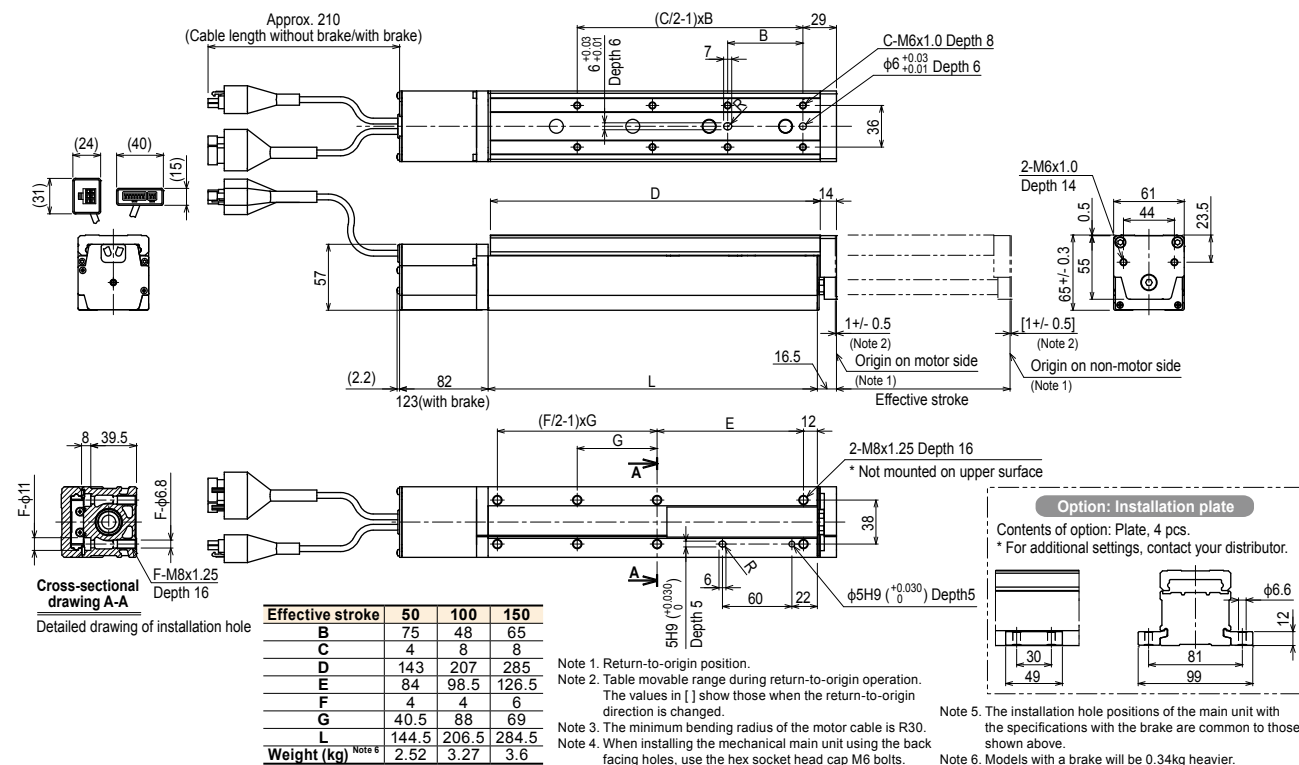


## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

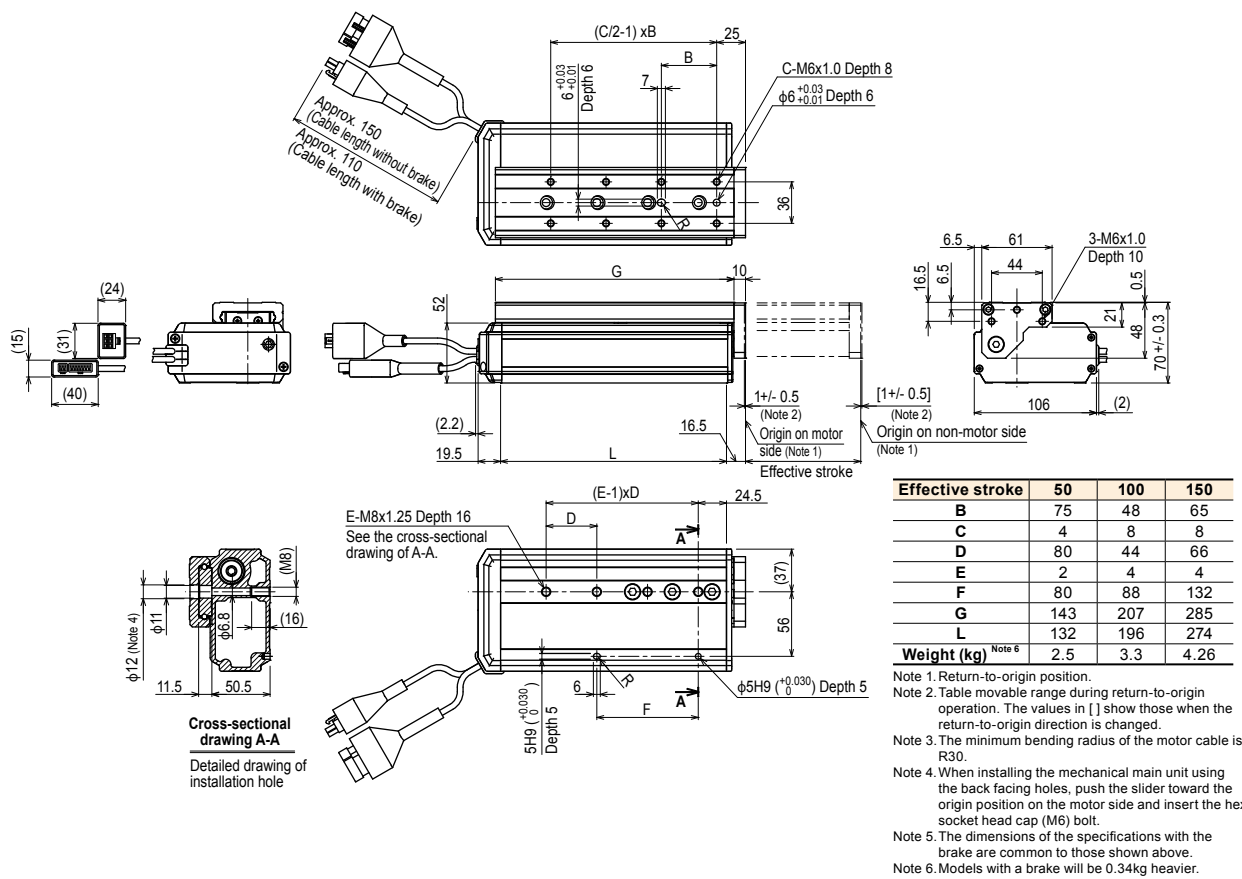
- Note. The robot with the brake cannot use the TS-SD.

## STH06 Straight model S

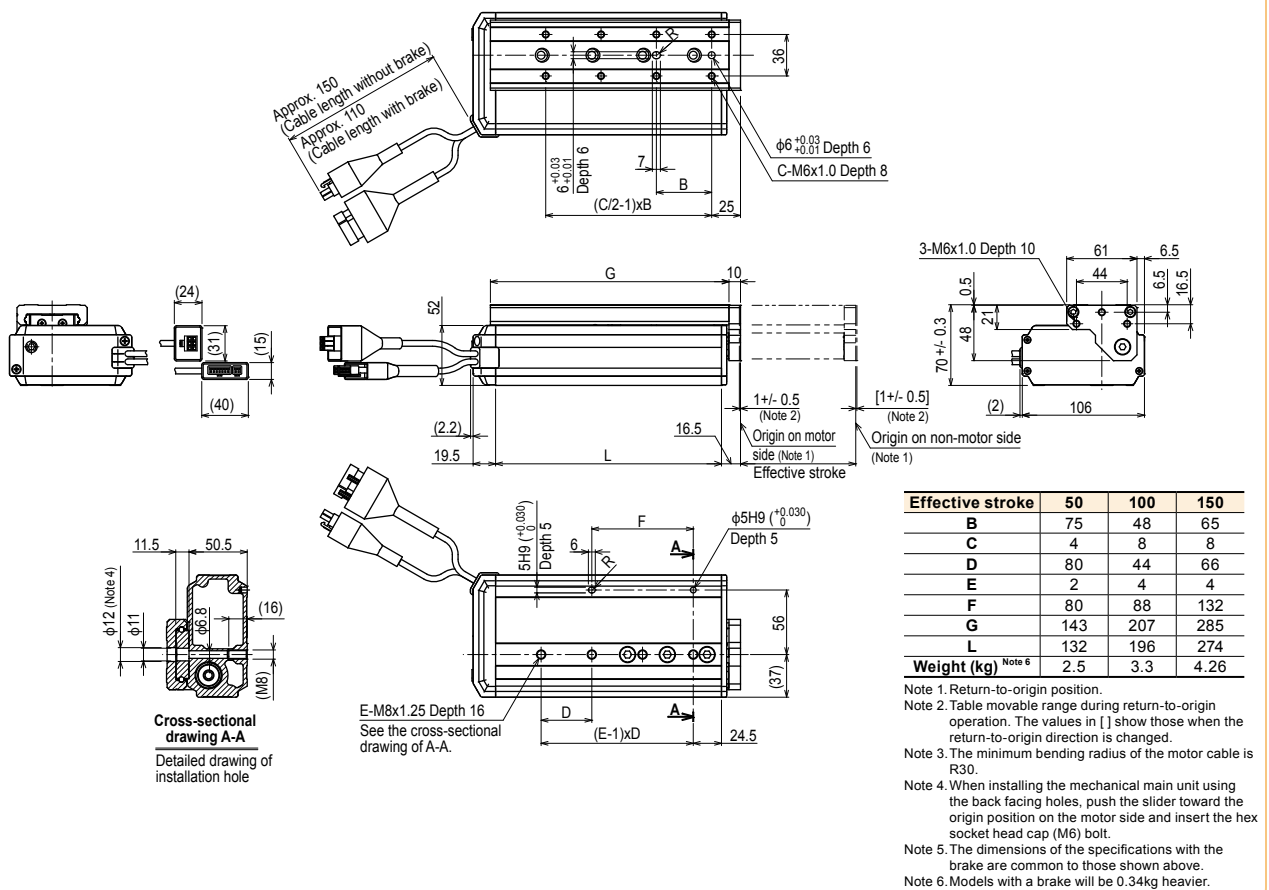




STH06 Space-saving model (motor installed on right) **R**



STH06 Space-saving model (motor installed on left) **L**



Articulated robots  
**YA**  
 Linear conveyor modules  
**LCM100**  
 Motor-less single axis actuator  
**Robonity**  
 Compact single-axis robots  
**TRANSEVO**  
 Single-axis robots  
**FLIP-X**  
 Linear motor single-axis robots  
**PHASER**  
 Cartesian robots  
**XY-X**  
 SCARA robots  
**YK-X**  
 Pick & place robots  
**YP-X**  
 CLEAN  
 CONTROLLER INFORMATION

# RF02-N

## Rotary type / Limit rotation specification

- CE compliance
- Rotation range : 310°

### Ordering method

<b>RF02</b>	<b>N</b>			<b>L</b>			<b>S2</b>	
<b>Model</b>	<b>Return-to-origin method</b> N: Stroke end (Limit rotation)	<b>Bearing</b> N: Standard H: High rigidity	<b>Torque</b> N: Standard torque H: High torque	<b>Cable entry location</b> L: From the left	<b>Rotation direction</b> N: CCW Z: CW	<b>Cable length</b> <sup>Note 1</sup> 1K: 1m 3K: 3m 5K: 5m 10K: 10m	<b>Robot positioner</b> S2: TS-S2 <sup>Note 2</sup>	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>
							<b>SH</b>	<b>Battery</b> B: With battery (Absolute) N: None (Incremental)
							<b>SD</b>	<b>1</b>
							<b>Robot driver</b> SD: TS-SD	<b>I/O cable</b> t: 1m

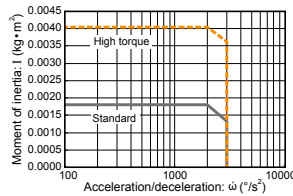
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

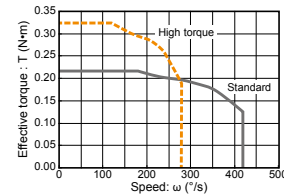
<b>Motor</b>	20 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	4096	
<b>Repeatability</b> <sup>Note 1</sup> (°)	±0.05	
<b>Drive method</b>	Special warm gear + belt	
<b>Torque type</b>	Standard	High torque
<b>Maximum speed</b> <sup>Note 2</sup> (°/sec)	420	280
<b>Rotating torque (N·m)</b>	0.22	0.32
<b>Max. pushing torque (N·m)</b>	0.11	0.16
<b>Backlash (°)</b>	±0.5	
<b>Max. moment of inertia</b> <sup>Note 3</sup> (kg·m <sup>2</sup> )	0.0018	0.004
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	
<b>Rotation range (°)</b>	310	

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.64.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N·m)	
		(a)		(b)			
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
78	86	74	78	107	2.4	2.9	

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

### Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	I/O point trace / Remote command
TS-SD	Pulse train control

### RF02-NN Limit rotation specification – Standard model

Stroke end  
Origin position in CW rotation direction [Origin]<sup>3</sup>

Origin mark

Origin<sup>2</sup>  
Origin position in CCW rotation direction [Stroke end]

310°

CCW direction

CW direction

\*1 Table movable range by return-to-origin operation.  
Be careful not to interfere with the workpiece or equipment around the table.

\*2 Return-to-origin position

\*3 Values and characters in [ ] show those when the return-to-origin direction is changed.

Manual operation screw (both sides)

Origin mark

31

24

16

65.8

76

40

15

φ18H8 (+0.027/0)

φ8 (Through-hole)

φ15H8 (+0.027/0)

2

(tolerance range)

7

(tolerance range)

**Cross-sectional drawing A-A**

45°

51

42

15

2

21

2

52

42

2-φ5.2 drill-through  
φ9 deep spot facing,  
Depth 5.5  
P.C.D.32  
6-M4x0.7 Depth 6  
(60° equally divided.)

φ43h8 (+0.039/0)

φ42h8 (+0.039/0)

6

3.5

32

10

(2.1)

85

(2.1)

Approx. 170

(Motor cable exit direction: Exit from left side)

51

3H8 (+0.014/0)

Depth 4

2

14

52

2-M6x1.0 Depth 12

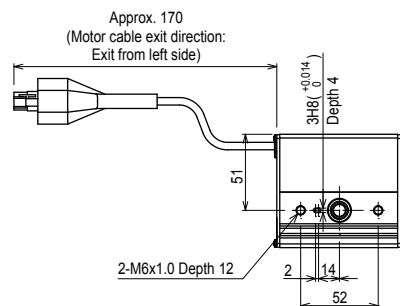
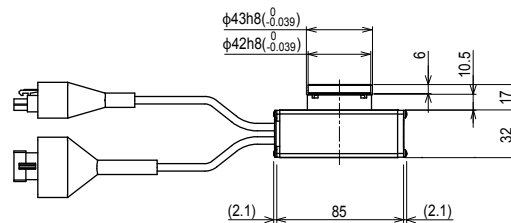
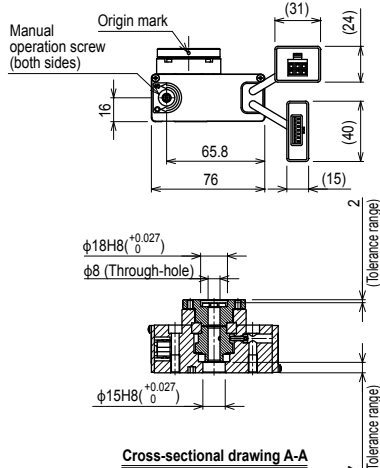
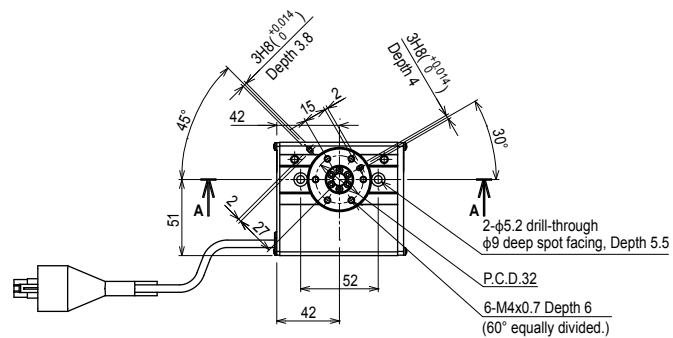
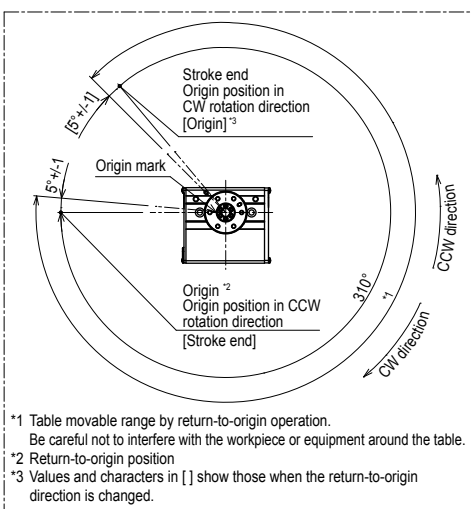
**Weight (kg)** 0.49

Note 1. This drawing is output under the conditions below.  
 Bearing ..... Standard  
 Torque ..... Standard/High torque

Note 2. The minimum bending radius of the motor cable is R30.

Note 3. The motor cable exit direction is only the left side.

RF02-NH Limit rotation specification – High rigidity model



<b>Weight (kg)</b>	0.52
--------------------	------

Note 1. This drawing is output under the conditions below.  
 Bearing ..... High rigidity  
 Torque ..... Standard/High torque  
 Note 2. The minimum bending radius of the motor cable is R30.  
 Note 3. The motor cable exit direction is only the left side.

# RF02-S

## Rotary type / Sensor specification



- CE compliance
- Limitless rotation

### Ordering method

**RF02-S-L**

Model	Return-to-origin method S: Sensor (Limitless rotation)	Bearing N: Standard H: High rigidity	Torque N: Standard torque L: High torque	Cable entry location L: From the left	Rotation direction N: CCW Z: CW	Cable length <sup>Note 1</sup> 1K: 1m 3K: 3m 5K: 5m 10K: 10m
-------	---	--	--	--	---------------------------------------	--

S2S	
Robot positioner S2S: TS-S2 <sup>Note 2</sup>	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>

SHS		
Robot positioner SHS: TS-SH	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>	Battery B: With battery (Absolute) N: None (Incremental)

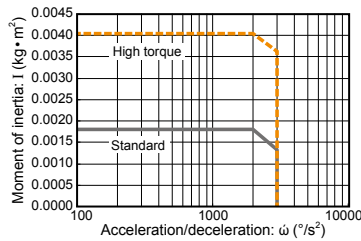
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

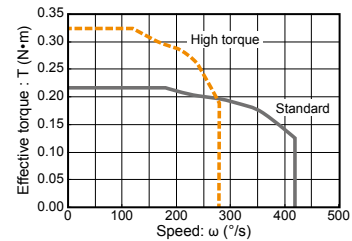
Motor	20 □ Step motor
Resolution (Pulse/rotation)	4096
Repeatability <sup>Note 1</sup> (°)	+/-0.05
Drive method	Special warm gear + belt
Torque type	Standard High torque
Maximum speed <sup>Note 2</sup> (°/sec)	420 280
Rotating torque (N•m)	0.22 0.32
Max. pushing torque (N•m)	0.11 0.16
Backlash (°)	+/-0.5
Max. moment of inertia <sup>Note 3</sup> (kg•m <sup>2</sup> )	0.0018 0.004
Cable length (m)	Standard: 1 / Option: 3, 5, 10
Rotation range (°)	360

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/Deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.641.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

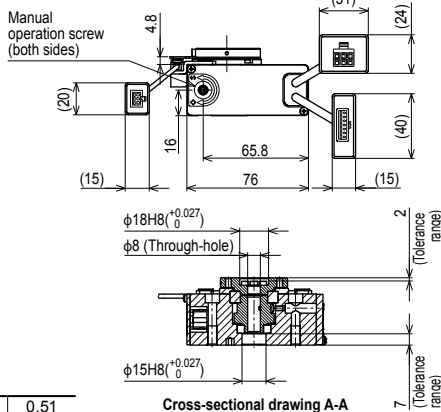
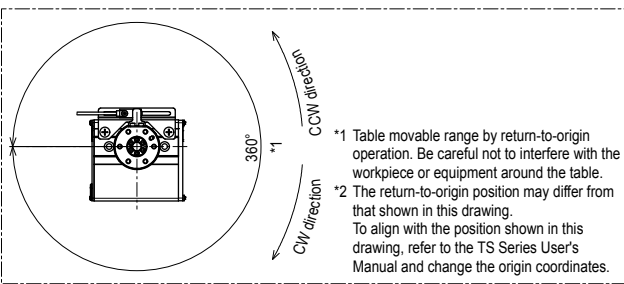
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N•m)	
Standard model	High rigidity model	(a)		(b)		Standard model	High rigidity model
78	86	Standard model	High rigidity model	Standard model	High rigidity model	2.4	2.9

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

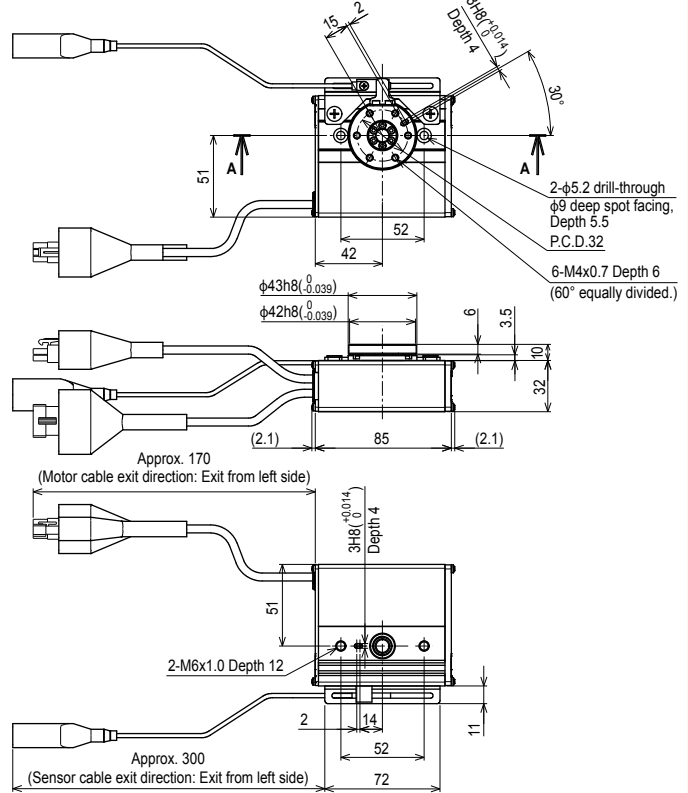
### Controller

Controller	Operation method
TS-S2S	I/O point trace /
TS-SHS	Remote command

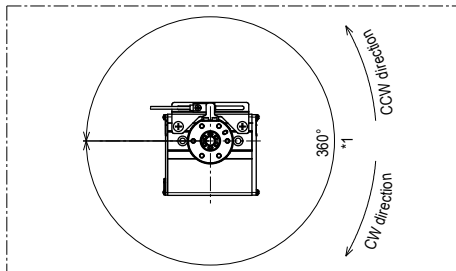
### RF02-SN Sensor specification – Standard model



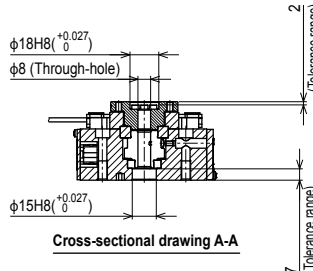
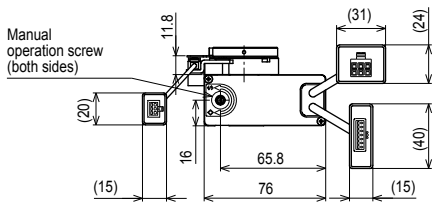
Note 1. This drawing is output under the conditions below.  
 Bearing ..... Standard  
 Torque ..... Standard/High torque  
 Note 2. The minimum bending radii of the motor cable and sensor cable are R30.  
 Note 3. The motor cable exit direction is only the left side.



RF02-SH Sensor specification – High rigidity model

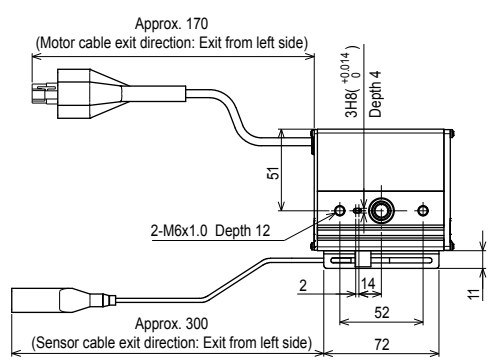
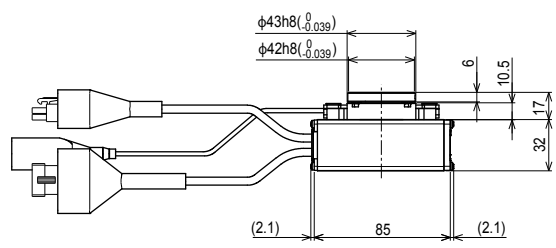
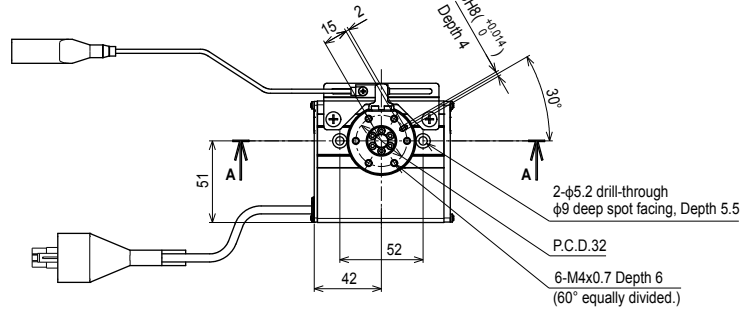


\*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.  
\*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.



Weight (kg)	0.55
-------------	------

Note 1. This drawing is output under the conditions below.  
Bearing..... High rigidity  
Torque..... Standard/High torque  
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.  
Note 3. The motor cable exit direction is only the left side.



# RF03-N

## Rotary type / Limit rotation specification

- CE compliance
- Rotation range : 320°

### Ordering method

# RF03

# N

Model	Return-to-origin method	Bearing	Torque	Cable entry location	Rotation direction	Cable length <sup>Note 1</sup>
	N: Stroke end (Limit rotation)	N: Standard H: High rigidity	N: Standard torque H: High torque	R: From the right L: From the left	N: CCW Z: CW	1K: 1m 3K: 3m 5K: 5m 10K: 10m

# S2

Robot positioner	I/O
S2: TS-S2 <sup>Note 2</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>

# SH

Robot positioner	I/O	Battery
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>	B: With battery (Absolute) N: None (Incremental)

# SD

Robot driver	I/O cable
SD: TS-SD	t: 1m

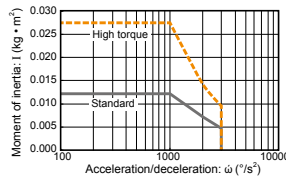
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

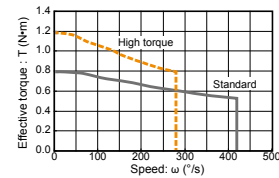
Motor	28 □ Step motor	
Resolution (Pulse/rotation)	4096	
Repeatability <sup>Note 1</sup> (°)	±0.05	
Drive method	Special warm gear + belt	
Torque type	Standard	High torque
Maximum speed <sup>Note 2</sup> (°/sec)	420	280
Rotating torque (N·m)	0.8	1.2
Max. pushing torque (N·m)	0.4	0.6
Backlash (°)	±0.5	
Max. moment of inertia <sup>Note 3</sup> (kg·m <sup>2</sup> )	0.012	0.027
Cable length (m)	Standard: 1 / Option: 3, 5, 10	
Rotation range (°)	320	

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.641.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

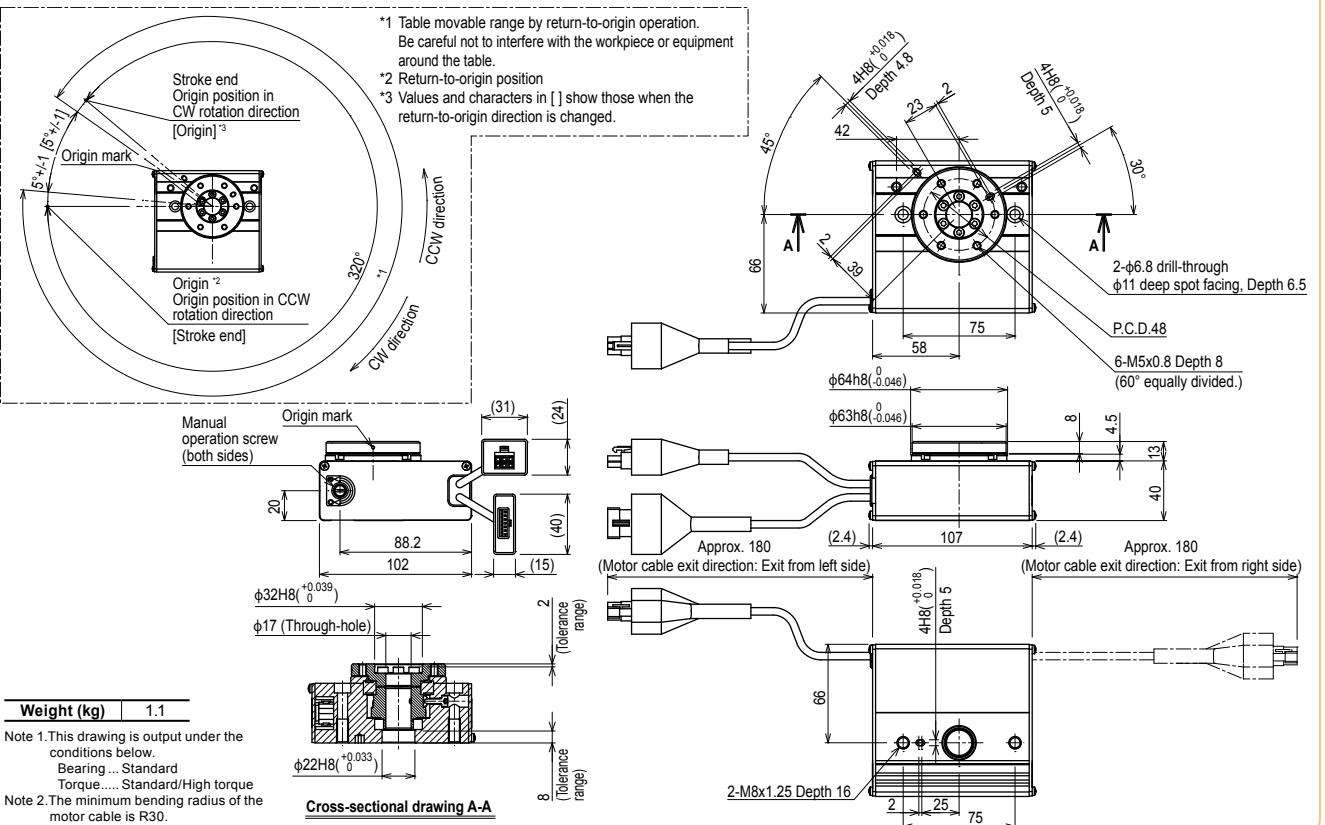
Allowable radial load (N)	Allowable thrust load (N)				Allowable moment (N·m)	
	Standard model	High rigidity model	(a) Standard model	(b) High rigidity model	Standard model	High rigidity model
196	233	197	363	5.3	6.4	

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

### Controller

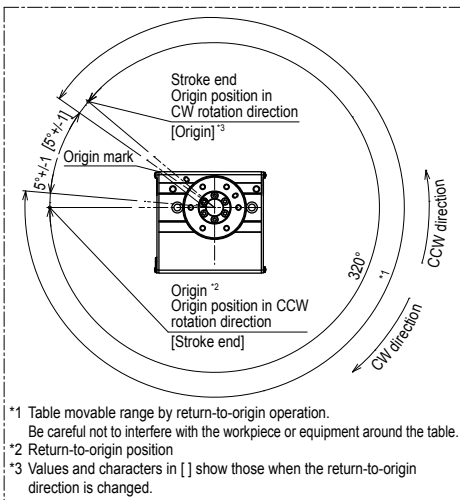
Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Pulse train control
TS-SD	Pulse train control

### RF03-NN Limit rotation specification – Standard model

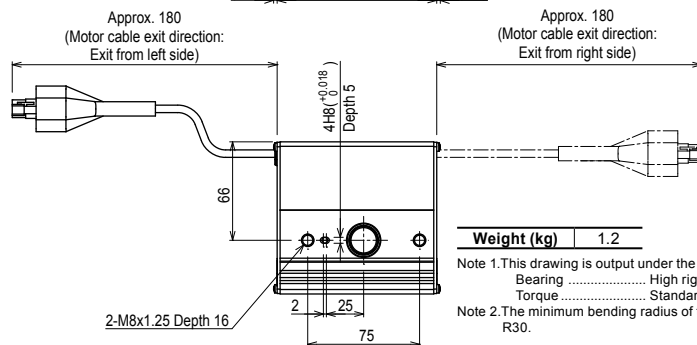
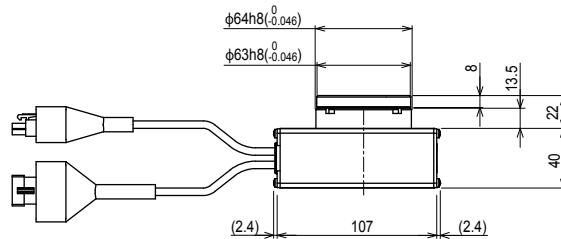
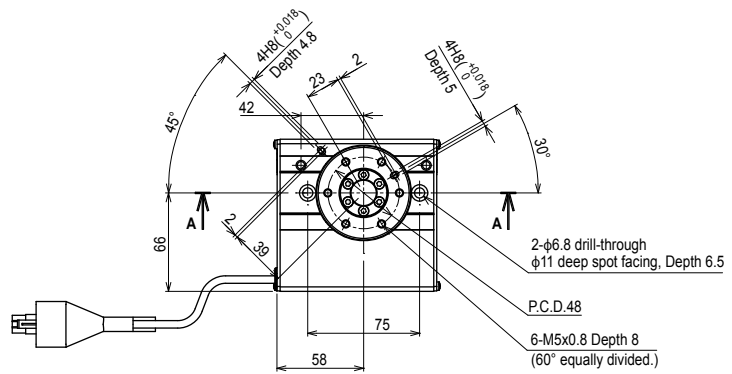
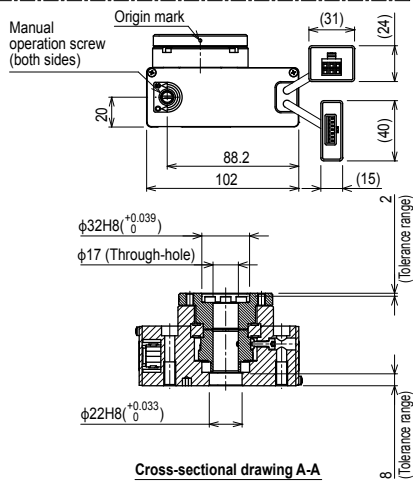




RF03-NH Limit rotation specification – High rigidity model



- \*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.
- \*2 Return-to-origin position
- \*3 Values and characters in [ ] show those when the return-to-origin direction is changed.



# RF03-S

## Rotary type / Sensor specification

- CE compliance
- Limitless rotation

### Ordering method

<b>RF03</b>	<b>S</b>						<b>S2S</b>	
<b>Model</b>	<b>Return-to-origin method</b> S: Sensor (Limitless rotation)	<b>Bearing</b> N: Standard H: High rigidity	<b>Torque</b> N: Standard torque H: High torque	<b>Cable entry location</b> R: From the right L: From the left	<b>Rotation direction</b> N: CCW Z: CW	<b>Cable length</b> <sup>Note 1</sup> 1K: 1m 3K: 3m 5K: 5m 10K: 10m	<b>Robot positioner</b> S2S: TS-S2 <sup>Note 2</sup>	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>
							<b>SHS</b>	<b>Battery</b> B: With battery (Absolute) N: None (Incremental)
							<b>Robot positioner</b> SHS: TS-SH	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>

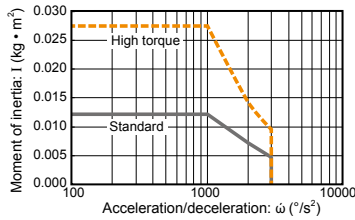
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

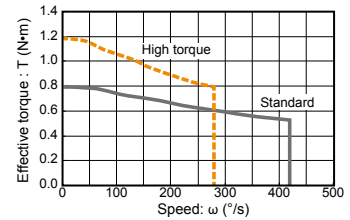
<b>Motor</b>	28 □ Step motor
<b>Resolution (Pulse/rotation)</b>	4096
<b>Repeatability</b> <sup>Note 1</sup> (°)	+/-0.05
<b>Drive method</b>	Special warm gear + belt
<b>Torque type</b>	Standard High torque
<b>Maximum speed</b> <sup>Note 2</sup> (°/sec)	420 280
<b>Rotating torque (N·m)</b>	0.8 1.2
<b>Max. pushing torque (N·m)</b>	0.4 0.6
<b>Backlash (°)</b>	+/-0.5
<b>Max. moment of inertia</b> <sup>Note 3</sup> (kg·m <sup>2</sup> )	0.012 0.027
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10
<b>Rotation range (°)</b>	360

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.641.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

		(a)	(b)	
<b>Allowable radial load (N)</b>		<b>Allowable thrust load (N)</b>		<b>Allowable moment (N·m)</b>
Standard model	High rigidity model	(a) Standard model	(b) High rigidity model	Standard model
196	233	197	363	5.3
			398	6.4

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

### Controller

<b>Controller</b>	<b>Operation method</b>
TS-S2S	I/O point trace /
TS-SHS	Remote command

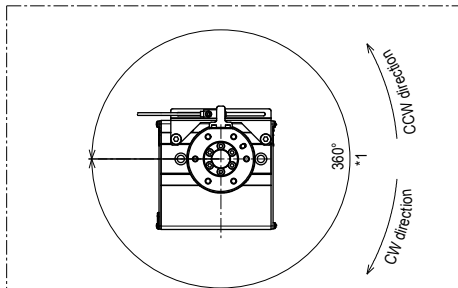
### RF03-SN Sensor specification – Standard model

**Weight (kg)** 1.2

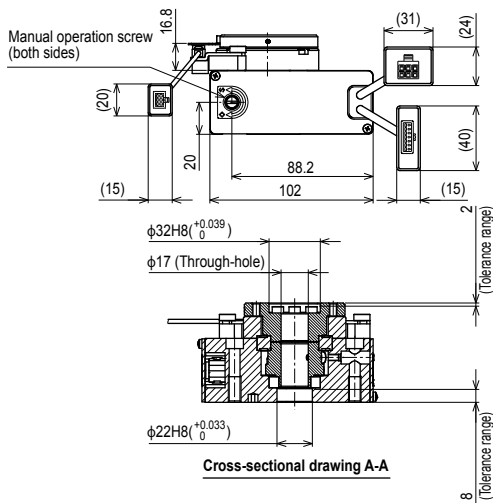
**Cross-sectional drawing A-A**

Note 1. This drawing is output under the conditions below.  
 Bearing ..... Standard  
 Torque ..... Standard/High torque  
 Note 2. The minimum bending radii of the motor cable and sensor cable are R30.

RF03-SH Sensor specification – High rigidity model

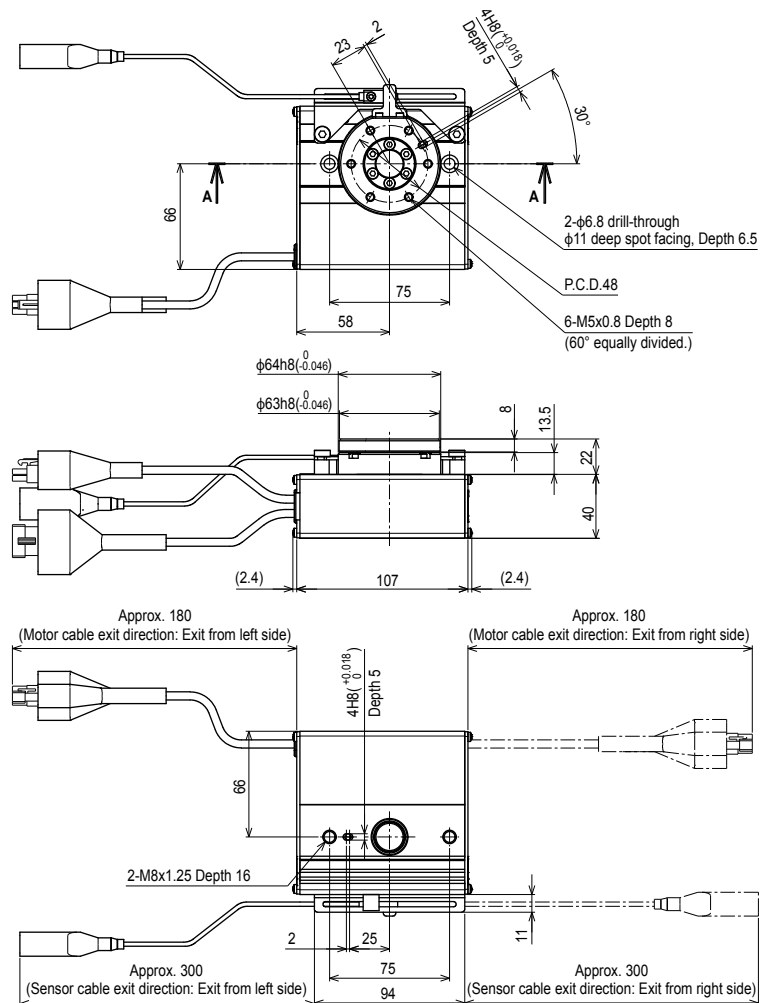


\*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.  
\*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.



Weight (kg)	1.3
-------------	-----

Note 1. This drawing is output under the conditions below.  
Bearing ..... High rigidity  
Torque ..... Standard/High torque  
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.



# RF04-N

## Rotary type / Limit rotation specification



- CE compliance
- Rotation range : 320°

### Ordering method

<b>RF04</b>	<b>N</b>					
<b>Model</b>	<b>Return-to-origin method</b> N: Stroke end (Limit rotation)	<b>Bearing</b> N: Standard H: High rigidity	<b>Torque</b> N: Standard torque H: High torque	<b>Cable entry location</b> R: From the right L: From the left	<b>Rotation direction</b> N: CCW Z: CW	<b>Cable length</b> <sup>Note 1</sup> 1K: 1m 3K: 3m 5K: 5m 10K: 10m

<b>S2</b>	<b>I/O</b>
<b>Robot positioner</b> S2: TS-S2 <sup>Note 2</sup>	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>
<b>SH</b>	<b>Battery</b>
<b>Robot positioner</b> SH: TS-SH	<b>Battery</b> B: With battery (Absolute) N: None (Incremental)
<b>SD</b>	<b>1</b>
<b>Robot driver</b> SD: TS-SD	<b>I/O cable</b> t: 1m

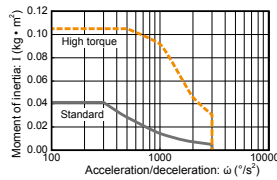
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

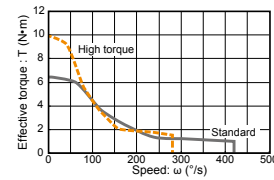
<b>Motor</b>	42 □ Step motor	
<b>Resolution (Pulse/rotation)</b>	20480	
<b>Repeatability</b> <sup>Note 1</sup> (°)	+/-0.05	
<b>Drive method</b>	Special warm gear + belt	
<b>Torque type</b>	Standard	High torque
<b>Maximum speed</b> <sup>Note 2</sup> (°/sec)	420	280
<b>Rotating torque (N·m)</b>	6.6	10
<b>Max. pushing torque (N·m)</b>	3.3	5
<b>Backlash (°)</b>	+/-0.5	
<b>Max. moment of inertia</b> <sup>Note 3</sup> (kg·m <sup>2</sup> )	0.04	0.1
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10	
<b>Rotation range (°)</b>	320	

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.641.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

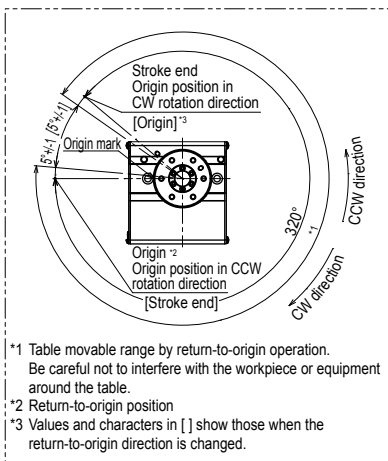
Allowable radial load (N)	Allowable thrust load (N)				Allowable thrust load (N)		Allowable moment (N·m)
	(a)	(b)					
Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model	Standard model	High rigidity model
314	378	296	398	517		9.7	12.0

Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

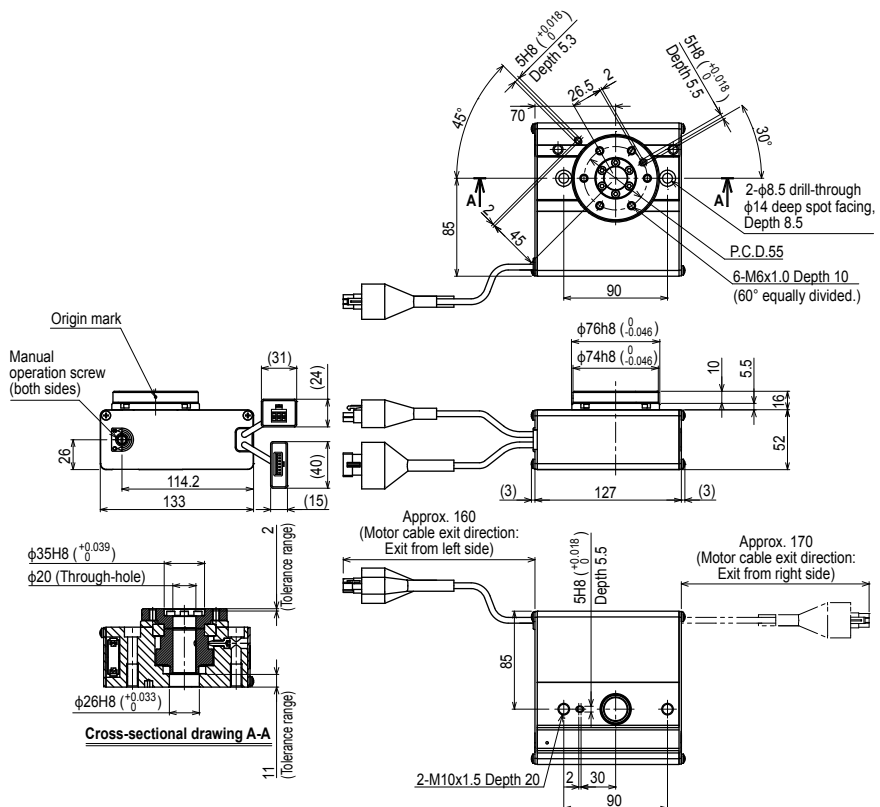
### Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Pulse train control
TS-SD	Pulse train control

### RF04-NN Limit rotation specification – Standard model



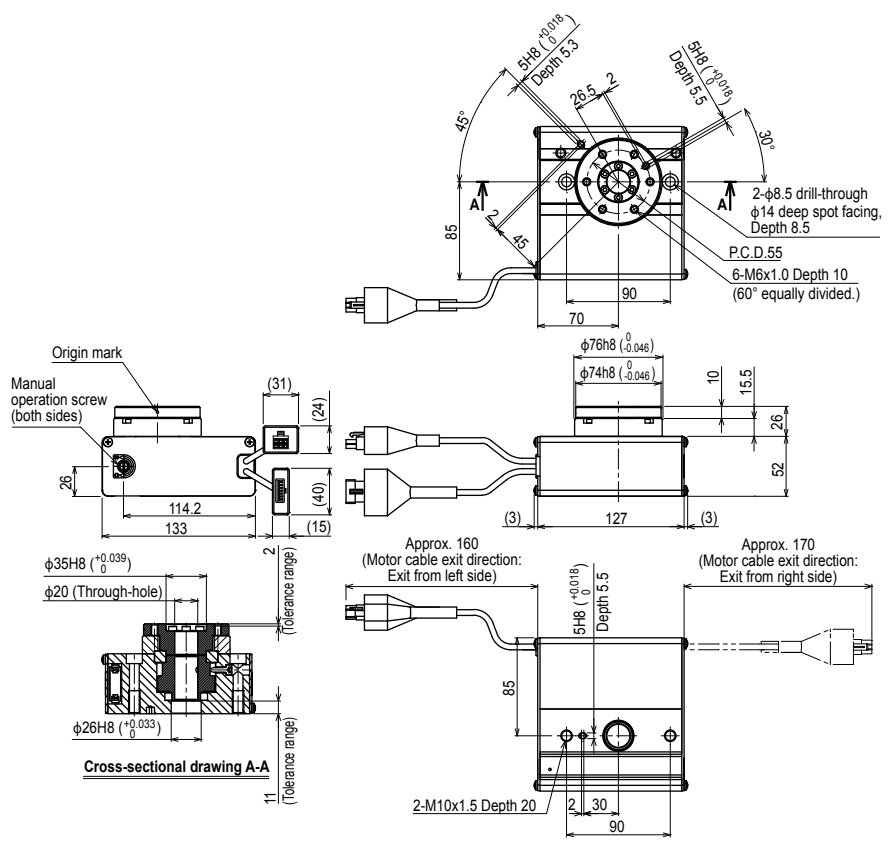
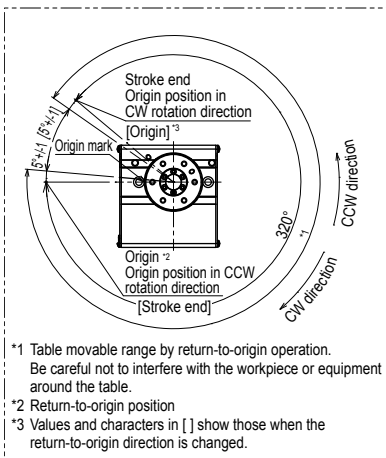
\*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.  
 \*2 Return-to-origin position  
 \*3 Values and characters in [ ] show those when the return-to-origin direction is changed.



<b>Weight (kg)</b>	2.2
--------------------	-----

Note 1. This drawing is output under the conditions below.  
 Bearing: Standard  
 Torque: Standard/High torque  
 Note 2. The minimum bending radius of the motor cable is R30.

RF04-NH Limit rotation specification – High rigidity model



Weight (kg)	2.4
-------------	-----

Note 1. This drawing is output under the conditions below.  
Bearing..... High rigidity  
Torque..... Standard/High torque  
Note 2. The minimum bending radius of the motor cable is R30.



# RF04-S

## Rotary type / Sensor specification

- CE compliance
- Limitless rotation

### Ordering method

<b>RF04</b>	<b>S</b>						<b>S2S</b>	
<b>Model</b>	<b>Return-to-origin method</b> S: Sensor (Limitless rotation)	<b>Bearing</b> N: Standard H: High rigidity	<b>Torque</b> N: Standard torque H: High torque	<b>Cable entry location</b> R: From the right L: From the left	<b>Rotation direction</b> N: CCW Z: CW	<b>Cable length</b> <sup>Note 1</sup> 1K: 1m 3K: 3m 5K: 5m 10K: 10m	<b>Robot positioner</b> S2S: TS-S2 <sup>Note 2</sup>	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>
							<b>SHS</b>	<b>Battery</b> B: With battery (Absolute) N: None (Incremental)
							<b>Robot positioner</b> SHS: TS-SH	

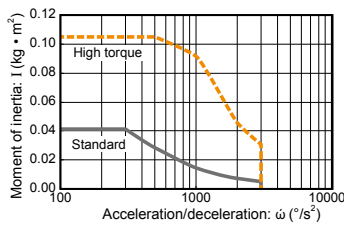
Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

### Basic specifications

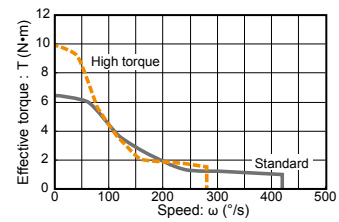
<b>Motor</b>	42 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability</b> <sup>Note 1</sup> (°)	+/-0.05
<b>Drive method</b>	Special worm gear + belt
<b>Torque type</b>	Standard High torque
<b>Maximum speed</b> <sup>Note 2</sup> (°/sec)	420 280
<b>Rotating torque (N•m)</b>	6.6 10
<b>Max. pushing torque (N•m)</b>	3.3 5
<b>Backlash (°)</b>	+/-0.5
<b>Max. moment of inertia</b> <sup>Note 3</sup> (kg•m <sup>2</sup> )	0.04 0.1
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10
<b>Rotation range (°)</b>	360

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/ deceleration" graph and the "Effective torque vs. speed" graph (reference).  
 Note 3. For moment of inertia and effective torque details, see P.641.

### Moment of inertia Acceleration/deceleration



### Effective torque vs. speed



### Allowable load

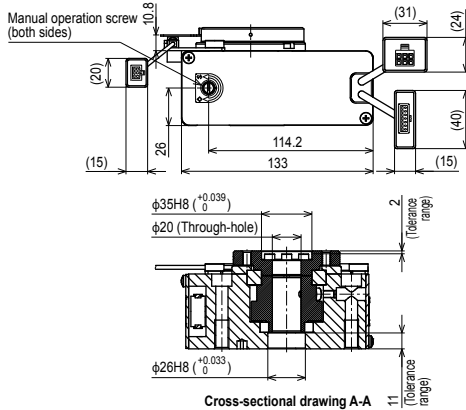
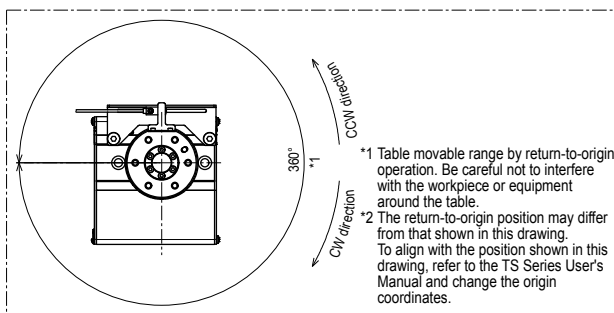
	(a)	(b)	
<b>Allowable radial load (N)</b>	<b>Allowable thrust load (N)</b>		<b>Allowable moment (N•m)</b>
Standard model	Standard model	Standard model	Standard model
High rigidity model	High rigidity model	High rigidity model	High rigidity model
314	296	398	9.7
378	517	12.0	

### Controller

Controller	Operation method
TS-S2S	I/O point trace / Remote command
TS-SHS	

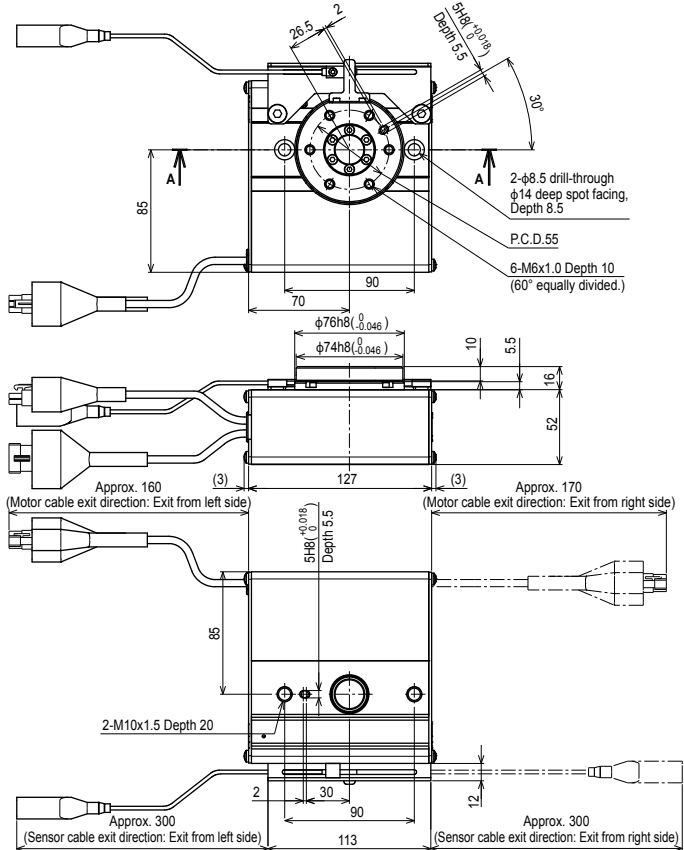
Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.  
 For details, please refer to the TRANSERVO Series User's Manual.

### RF04-SN Sensor specification – Standard model

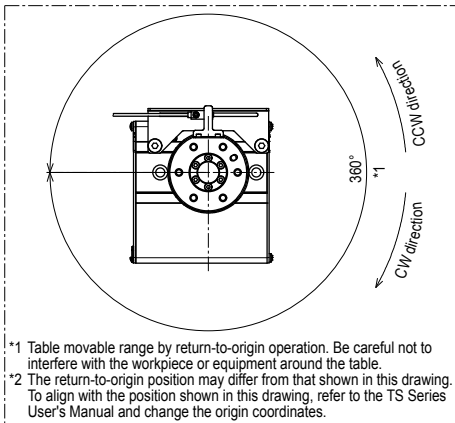


**Weight (kg)** 2.3

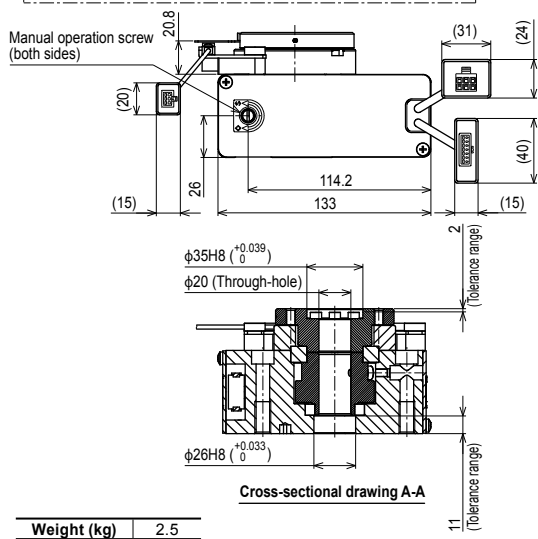
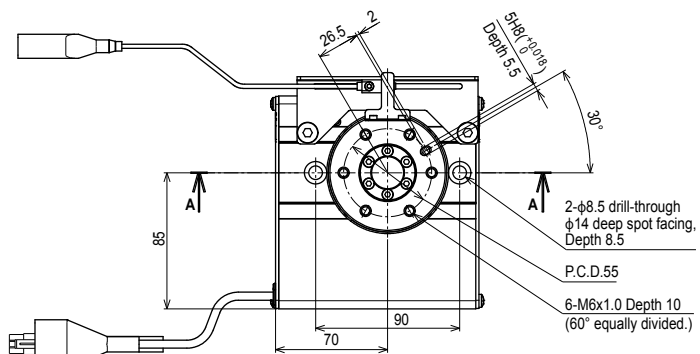
Note 1. This drawing is output under the conditions below.  
 Bearing ..... Standard  
 Torque ..... Standard/High torque  
 Note 2. The minimum bending radii of the motor cable and sensor cable are R30.



RF04-SH Sensor specification – High rigidity model

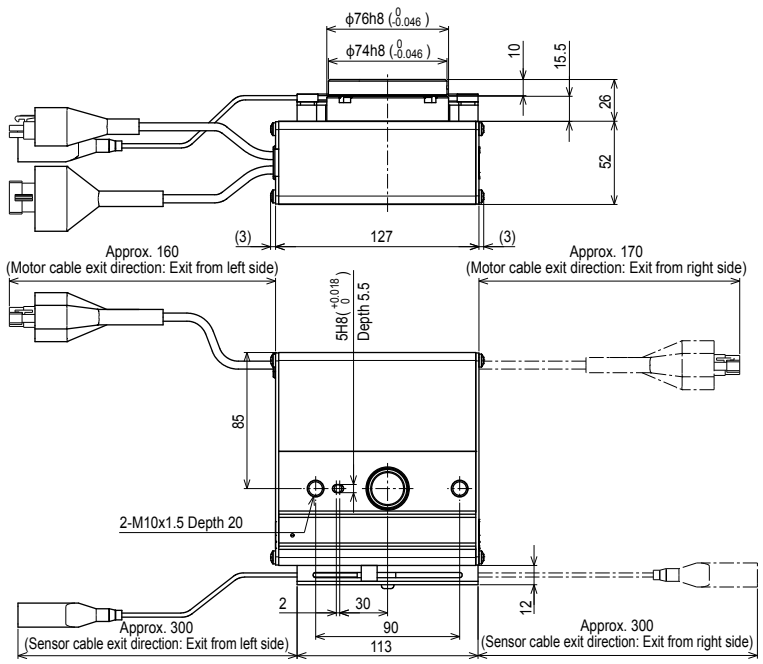


\*1 Table movable range by return-to-origin operation. Be careful not to interfere with the workpiece or equipment around the table.  
\*2 The return-to-origin position may differ from that shown in this drawing. To align with the position shown in this drawing, refer to the TS Series User's Manual and change the origin coordinates.



Weight (kg)	2.5
-------------	-----

Note 1. This drawing is output under the conditions below.  
Bearing..... High rigidity  
Torque..... Standard/High torque  
Note 2. The minimum bending radii of the motor cable and sensor cable are R30.



# BD04

Belt type

CE compliance

## Ordering method

<b>BD04</b>	<b>48</b>	<b>N</b>	<b>N</b>			<b>S2</b>		
<b>Model</b>	<b>Lead</b> 48: 48mm	<b>Brake</b> N: With no brake	<b>Origin position</b> N: Standard	<b>Stroke</b> 300: 300mm 500: 500mm 600: 600mm 700: 700mm 800: 800mm 900: 900mm 1000: 1000mm	<b>Cable length</b> <small>Note 1</small> 1K: 1m 3K: 3m 5K: 5m 10K: 10m	<b>Robot positioner</b> S2: TS-S2 <small>Note 2</small>	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 3</small>	
						<b>SH</b>		
						<b>Robot positioner</b> SH: TS-SH	<b>I/O</b> NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 3</small>	<b>Battery</b> B: With battery (Absolute) N: None (Incremental)
						<b>SD</b>	<b>1</b>	
						<b>Robot driver</b> SD: TS-SD	<b>I/O cable</b> t: 1m	

Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	28 □ Step motor
<b>Resolution (Pulse/rotation)</b>	4096
<b>Repeatability</b> <small>Note 1</small> (mm)	+/-0.1
<b>Drive method</b>	Belt
<b>Equivalent lead (mm)</b>	48
<b>Maximum speed</b> <small>Note 2</small> (mm/sec)	1100
<b>Maximum payload (kg)</b>	1
<b>Stroke (mm)</b>	300/500/600/700/800/900/1000
<b>Overall length (mm) (Horizontal installation)</b>	Stroke + 195.5
<b>Maximum outside dimension of body cross-section (mm)</b>	W40 × H101.9
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right.

## Allowable overhang

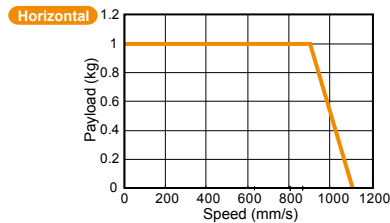
Horizontal installation (Unit: mm)				Wall installation (Unit: mm)			
	A	B	C		A	B	C
0.5kg	8036	1950	1504	0.5kg	1614	1942	8013
1kg	3933	968	747	1kg	798	961	3969

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

## Static loading moment

(Unit: N·m)		
MY	MP	MR
10	10	20

## Speed vs. payload

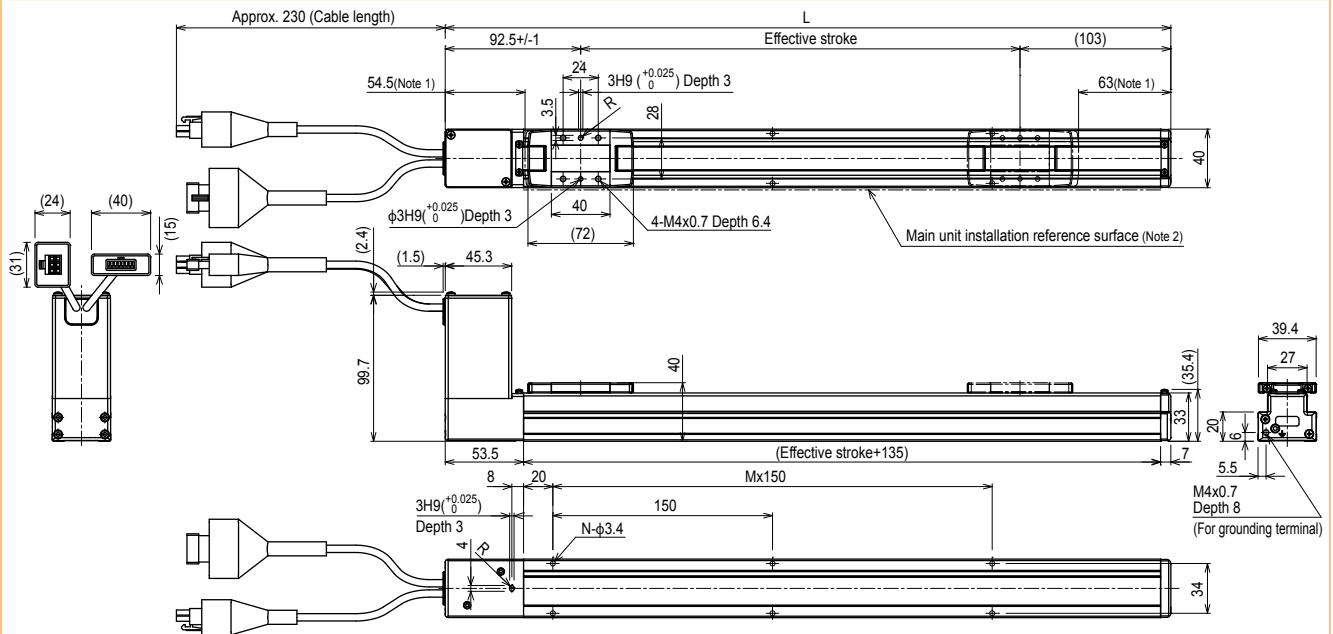


Quick reference		
Payload (kg)	Speed (mm/sec)	%
1	900	90
0.5	1000	95
0	1100	100

## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

## BD04



Effective stroke	300	500	600	700	800	900	1000
<b>L</b>	495.5	695.5	795.5	895.5	995.5	1095.5	1195.5
<b>M</b>	2	4	4	5	6	6	7
<b>N</b>	6	10	10	12	14	14	16
<b>Weight (kg)</b>	1.19	1.45	1.58	1.71	1.84	1.97	2.1

Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)  
 Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)  
 Note 3. The minimum bending radius of the motor cable is R30.

# BD05

Belt type

CE compliance

## Ordering method

<b>BD05</b>	<b>48</b>	<b>N</b>	<b>N</b>			<b>S2</b>	
<b>Model</b>	<b>Lead</b>	<b>Brake</b>	<b>Origin position</b>	<b>Stroke</b>	<b>Cable length</b> <small>Note 1</small>	<b>Robot positioner</b>	<b>I/O</b>
	48: 48mm	N: With no brake	N: Standard	300: 300mm 500: 500mm 600: 600mm 700: 700mm 800: 800mm 900: 900mm 1000: 1000mm 1200: 1200mm 1500: 1500mm 1800: 1800mm 2000: 2000mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m	S2: TS-S2 <small>Note 2</small>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 3</small>
						<b>SH</b>	
						<b>Robot positioner</b>	<b>I/O</b>
						SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <small>Note 3</small>
							<b>Battery</b>
							B: With battery (Absolute) N: None (Incremental)
						<b>SD</b>	<b>1</b>
						<b>Robot driver</b>	<b>I/O cable</b>
						SD: TS-SD	t: 1m

Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	42 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability</b> <small>Note 1</small> (mm)	+/-0.1
<b>Drive method</b>	Belt
<b>Equivalent lead (mm)</b>	48
<b>Maximum speed</b> <small>Note 2</small> (mm/sec)	1400
<b>Maximum payload (kg)</b>	5
<b>Stroke (mm)</b>	300/500/600/700/800/900/ 1000/1200/1500/1800/2000
<b>Overall length (mm) (Horizontal installation)</b>	Stroke + 241.8
<b>Maximum outside dimension of body cross-section (mm)</b>	W58 × H123
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right.

## Allowable overhang Note

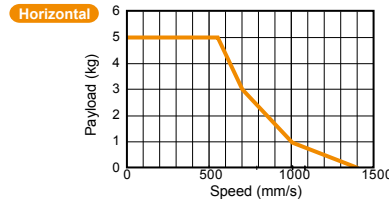
Horizontal installation (Unit: mm)				Wall installation (Unit: mm)			
	A	B	C		A	B	C
1kg	9445	2274	1681	1kg	1784	2312	9545
3kg	2982	702	553	3kg	573	743	3082
5kg	1689	385	325	5kg	331	429	1789

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

## Static loading moment

(Unit: N·m)		
MY	MP	MR
27	27	52

## Speed vs. payload

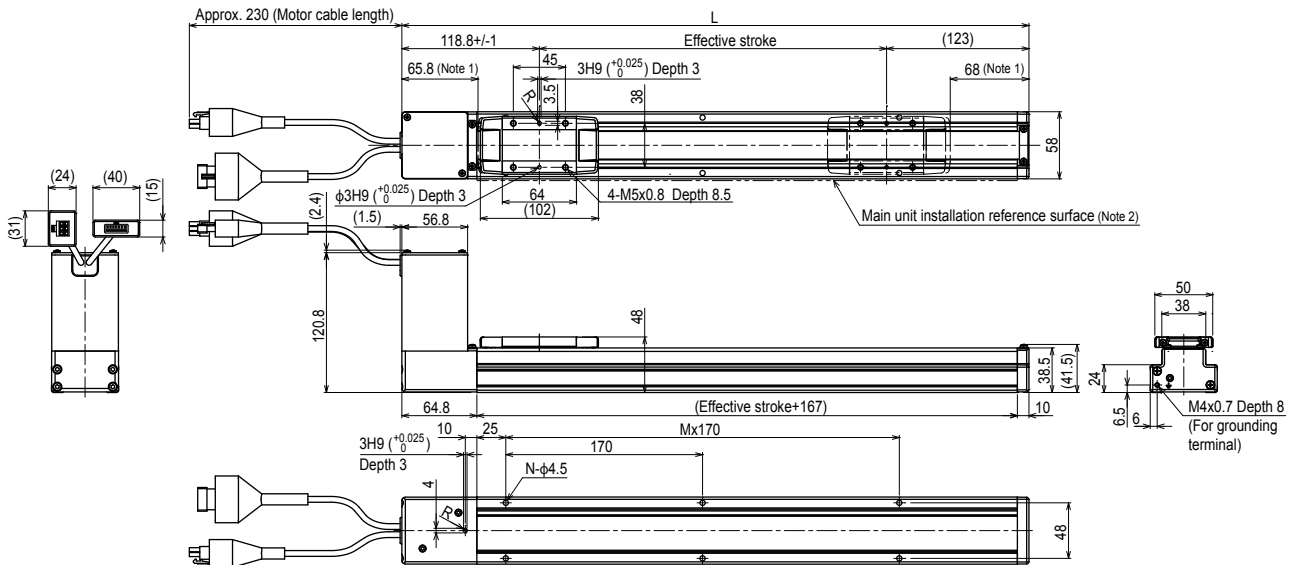


Quick reference		
Payload (kg)	Speed (mm/sec)	%
5	550	39
3	700	50
1	1000	71
0	1400	100

## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

## BD05



Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)  
 Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)  
 Note 3. The minimum bending radius of the motor cable is R30.

# BD07

Belt type



CE compliance

## Ordering method

<b>BD07</b>	<b>48</b>	<b>N</b>	<b>N</b>		
<b>Model</b>	<b>Lead</b>	<b>Brake</b>	<b>Origin position</b>	<b>Stroke</b>	<b>Cable length</b> <sup>Note 1</sup>
	48: 48mm	N: With no brake	N: Standard	300: 300mm 500: 500mm 600: 600mm 700: 700mm 800: 800mm 900: 900mm 1000: 1000mm 1200: 1200mm 1500: 1500mm 1800: 1800mm 2000: 2000mm	1K: 1m 3K: 3m 5K: 5m 10K: 10m

<b>S2</b>		
<b>Robot positioner</b>	<b>I/O</b>	
S2: TS-S2 <sup>Note 2</sup>	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>	
<b>SH</b>		
<b>Robot positioner</b>	<b>I/O</b>	<b>Battery</b>
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board <sup>Note 3</sup>	B: With battery (Absolute) N: None (Incremental)
<b>SD</b>		<b>1</b>
<b>Robot driver</b>	<b>I/O cable</b>	
SD: TS-SD	t: 1m	

Note 1. The robot cable is flexible and resists bending.  
 Note 2. See P.522 for DIN rail mounting bracket.  
 Note 3. Select this selection when using the gateway function. For details, see P.66.

## Basic specifications

<b>Motor</b>	56 □ Step motor
<b>Resolution (Pulse/rotation)</b>	20480
<b>Repeatability</b> <sup>Note 1</sup> (mm)	+/-0.1
<b>Drive method</b>	Belt
<b>Equivalent lead (mm)</b>	48
<b>Maximum speed</b> <sup>Note 2</sup> (mm/sec)	1500
<b>Maximum payload (kg)</b>	14
<b>Stroke (mm)</b>	300/500/600/700/800/900/ 1000/1200/1500/1800/2000
<b>Overall length (mm) (Horizontal installation)</b>	Stroke + 285.6
<b>Maximum outside dimension of body cross-section (mm)</b>	W70 × H147.5
<b>Cable length (m)</b>	Standard: 1 / Option: 3, 5, 10

Note 1. Positioning repeatability in one direction.  
 Note 2. The maximum speed needs to be changed in accordance with the payload.  
 See the "Speed vs. payload" graph shown on the right.

## Allowable overhang

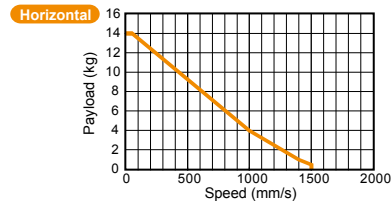
Horizontal installation (Unit: mm)				Wall installation (Unit: mm)			
	A	B	C		A	B	C
<b>3kg</b>	5767	1353	1247	<b>3kg</b>	1324	1354	5588
<b>8kg</b>	1839	399	458	<b>8kg</b>	474	399	1658
<b>14kg</b>	829	154	254	<b>14kg</b>	255	151	643

Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

## Static loading moment

(Unit: N·m)		
MY	MP	MR
46	46	101

## Speed vs. payload

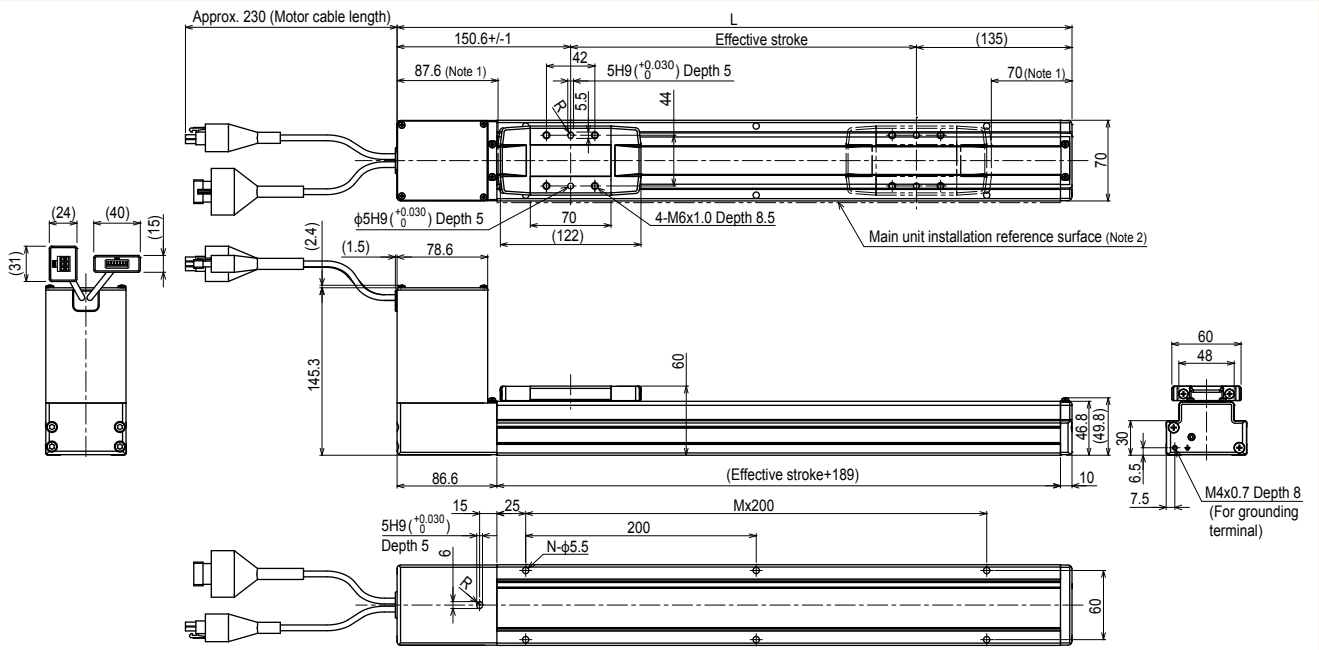


Quick reference		
Payload (kg)	Speed (mm/sec)	%
14	50	3
9	525	35
4	1000	66
1	1400	93
0.5	1500	100

## Controller

Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD	Pulse train control

## BD07



Effective stroke	300	500	600	700	800	900	1000	1200	1500	1800	2000
<b>L</b>	585.6	785.6	885.6	985.6	1085.6	1185.6	1285.6	1485.6	1785.6	2085.6	2285.6
<b>M</b>	2	3	3	4	4	5	5	6	8	9	10
<b>N</b>	6	8	8	10	10	12	12	14	18	20	22
<b>Weight (kg)</b>	4.12	4.8	5.14	5.48	5.82	6.16	6.5	7.18	8.2	9.22	9.9

Note 1. Position from both ends to the mechanical stopper. (Movable range during return-to-origin)  
 Note 2. When installing using the main unit installation reference surface, make the mating or positioning height 2mm or more higher than the reference surface since the R-chamfering is provided on the main unit. (Recommended height, 5mm)  
 Note 3. The minimum bending radius of the motor cable is R30.