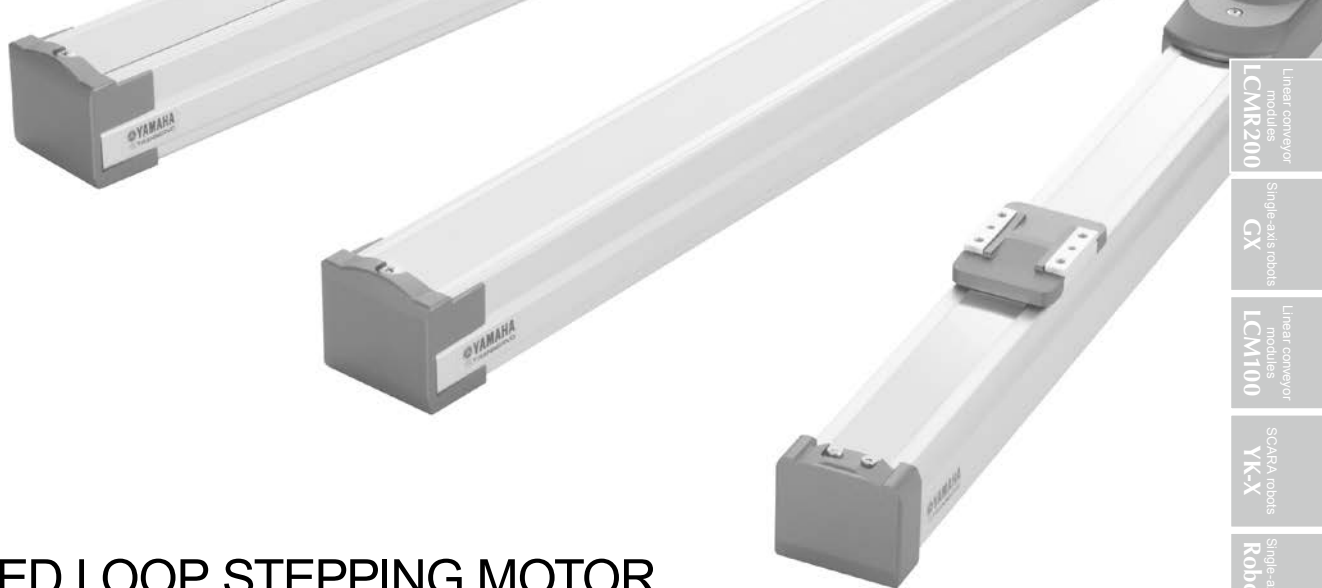




CLOSED LOOP STEPPING MOTOR SINGLE-AXIS ROBOTS

TRANSERVO SERIES

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TRANSERVO

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TRANSERVO SPECIFICATION SHEET

Type	Model	Size (mm) ^{Note 1}	Lead (mm)	Maximum payload (kg) ^{Note 2}		Maximum speed (mm/sec) ^{Note 3}	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.338 - P.339
			6	4	2	300		
			2	6	4	100		
			20	4	-	1000	50 to 800	P.340 - P.341
	SS05-S SS05-R (L)	W55 × H56	12	6	1	600		
			6	10	2	300		
			20	6	-	1000		
	SS05H-S SS05H-R (L)	W55 × H56	12	8	2	600 (Horizontal) 500 (Vertical)	50 to 800	P.342 - P.343
			6	12	4	300 (Horizontal) 250 (Vertical)		
SG type (Slide type)	SG07	W65 × H64	20	36	4	1200	50 to 800	P.344
			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.345 - P.347
			6	20	8	250		
			12	25	5	500	50 to 300	P.350 - P.351
	SR04-S SR04-R (L)	W48 × H58	6	40	12	250		
			2	45	25	80		
			12	50	10	300	50 to 300	P.354 - P.355
	SR05-S SR05-R (L)	W56.4 × H71	6	55	20	150		
			2	60	30	50		
			12	10	3.5	500	50 to 200	P.348 - P.349
SR Type (Rod type with support guide) Straight model/ Space-saving model	SRD03-S SRD03-U	W105 × H56.5	6	20	7.5	250		
			12	25	4	500	50 to 300	P.352 - P.353
			6	40	11	250		
	SRD04-S SRD04-U	W135 × H58	2	45	24	80	50 to 300	P.356 - P.357
			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.356 - P.357
			12	50	8.5	300		
			6	55	18.5	150		
STH Type (Slide table type) Straight model/ Space-saving model	STH04-S STH04-R (L) ^{Note 4} STH06	W45 × H46 W73 × H51 W61 × H65	5	6	2	200	50 to 100	P.358 - P.359
			10	4	1	400		
			8	9	2	150	50 to 150	P.360 - P.361
	STH06-R (L)	W106 × H70	16	6	4	400		
			16	6	4	400		

Type	Model	High (mm)	Torque type	Rotational torque (N · m)	Maximum pushing torque (N · m)	Maximum speed (mm/sec) ^{Note 3}	Rotation range (°)	Detailed info page
RF Type (Rotary type) Standard model/ High rigidity model	RF02-N RF02-S	42 (Standard)	N:Standard	0.22	0.11	420	310 (RF02-N) 360 (RF02-S)	P.362 - P.365
		49 (High rigidity)	H:High torque	0.32	0.16	280		
	RF03-N RF03-S	53 (Standard)	N:Standard	0.8	0.4	420	320 (RF03-N) 360 (RF03-S)	P.366 - P.369
		62 (High rigidity) ¹	H:High torque	1.2	0.6	280		
	RF04-N RF04-S	68 (Standard)	N:Standard	6.6	3.3	420	320 (RF04-N) 360 (RF04-S)	P.370 - P.373
		78 (High rigidity)	H:High torque	10	5	280		

Type	Model	Size (mm) ^{Note 1}	Lead (mm)	Maximum payload(kg) ^{Note 2}		Maximum speed (mm/sec) ^{Note 3}	Stroke (mm)	Detailed info page
				Horizontal	Vertical			
BD Type (Belt type)	BD04	W40 × H40	48	1	-	1100	300 to 1000	P.374
	BD05	W58 × H48	48	5	-	1400	300 to 2000	P.375
	BD07	W70 × H60	48	14	-	1500	300 to 2000	P.376

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)	%
	10	450	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)	%
	4	300	60	8	150	60
	2	432	86	5	200	80
	1	500	100	2	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)	%
	25	320	64	40	200	80	45	80	100
	20	363	72	30	225	90			
	15	407	81	20	250	100			
	5	500	100						
Vertical	Lead 12			Lead 6			Lead 2		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	5	200	40	12	125	50	25	60	75
	2	350	70	5	200	80	5	80	100
	1	500	100	2	250	100			

SR05

Horizontal	Lead 12			Lead 6			Lead 2		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	50	168	56	55	135	90	60	50	100
	40	198	66	40	150	100			
	30	249	83						
	20	300	100						
Vertical	Lead 12			Lead 6			Lead 2		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	10	69	23	20	48	32	30	30	60
	5	168	56	15	75	50	5	50	100
	1	300	100	2	150	100			

STH04

Horizontal	Lead 10			Lead 5		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	4	400	100	6	200	100
	2	400	100	3	200	100
	1	400	100	1	200	100
Vertical	Lead 10			Lead 5		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	1	220	62	2	150	75
	0.75	220	62	1	150	75
	0.3	350	100	0.5	200	100

SRD03

Horizontal	Lead 12			Lead 6		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	10	450	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)	%
	3.5	300	60	7.5	150	60
	1.5	432	86	4.5	200	80
	0.5	500	100	1.5	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)	%
	25	320	64	40	200	80	45	80	100
	20	363	72	30	225	90			
	15	407	81	20	250	100			
	5	500	100						
Vertical	Lead 12			Lead 6			Lead 2		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	4	200	40	11	120	48	24	60	75
	3	250	50	4	200	80	14	70	87
	0.5	500	100	1	250	100	4	80	100

SRD05

Horizontal	Lead 12			Lead 6			Lead 2		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	50	168	56	55	135	90	60	50	100
	40	198	66	40	150	100			
	30	249	83						
	20	300	100						
Vertical	Lead 12			Lead 6			Lead 2		
	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
	5.5	138	46	8.5	102	68	5	50	100
	0.5	300	100	0.5	150	100			

STH06

Horizontal	Lead 16			Lead 8		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	6	400	100	9	150	100
	3	400	100	5	150	100
	1	400	100	1	150	100
Vertical	Lead 16			Lead 8		
	Payload (kg)	Speed (mm/sec)	%	Payload (kg)	Speed (mm/sec)	%
	2	200	80	4	100	66
	1.5	200	80	3	100	66
	1	250	100	2	140	93
				1	150	100

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.592**, TS-SH ▶ **P.592**, TS-SD ▶ **P.602**

● 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)

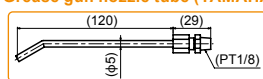
Type	Model No.
Feet (2 plates per set)*	KCW-M223F-00
Flange (1 piece)	KCW-M224F-00

* 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)

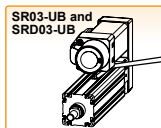


Model KCU-M3861-00

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.



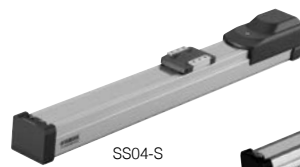
■ Rod type: Running life distance to life time conversion example

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

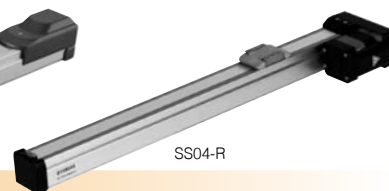
Model	SR04-02SB, Vertical mount, 25 kg payload
Life distance	500 km → Life time : Approx. 3 years
Operating conditions	100mm back-and-forth movement, shuttle time 16 seconds (duty: 20%)
Word conditions	16 hours per day
Work days	240 days per year

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


SS04-S



SS04-R

Ordering method

SS04

Model	Lead	Model	Brake	Origin position	Grease option	Stroke	Cable length ^{Note 1}
	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 ^{Note 1} Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 400 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

S2

Robot positioner	I/O
S2: TS-S2 ^{Note 3}	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 4}

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 ^{Note 4}	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. The robot cable is flexible and resists bending.

Note 3. See P.600 for DIN rail mounting bracket.

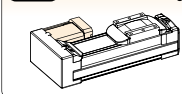
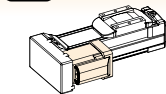
Note 4. Select this selection when using the gateway function.

Basic specifications

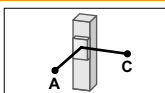
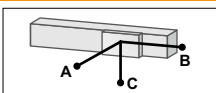
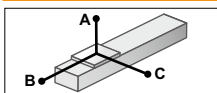
Motor	42 □ Step motor		
Resolution (Pulse/rotation)	20480		
Repeatability ^{Note 1} (mm)	±0.02		
Deceleration mechanism	Ball screw φ8		
Maximum motor torque (N·m)	0.27		
Ball screw lead (mm)	12	6	2
Maximum speed (mm/sec)	600	300	100
Maximum payload (kg)	Horizontal	4	6
	Vertical	1	4
Max. pressing force (N)	45	90	150
Stroke (mm)	50 to 400 (50mm pitch)		
Overall length (mm)	Horizontal	Stroke+216	
	Vertical	Stroke+261	
Maximum outside dimension of body cross-section (mm)	W49 × H59		
Cable length (m)	Standard: 1 / Option: 3, 5, 10		

Note 1. Positioning repeatability in one direction.

Motor installation (Space-saving model)

R type Motor installed on right

L type Motor installed on left


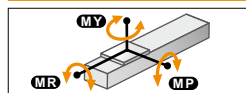
Allowable overhang ^{Note}



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

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

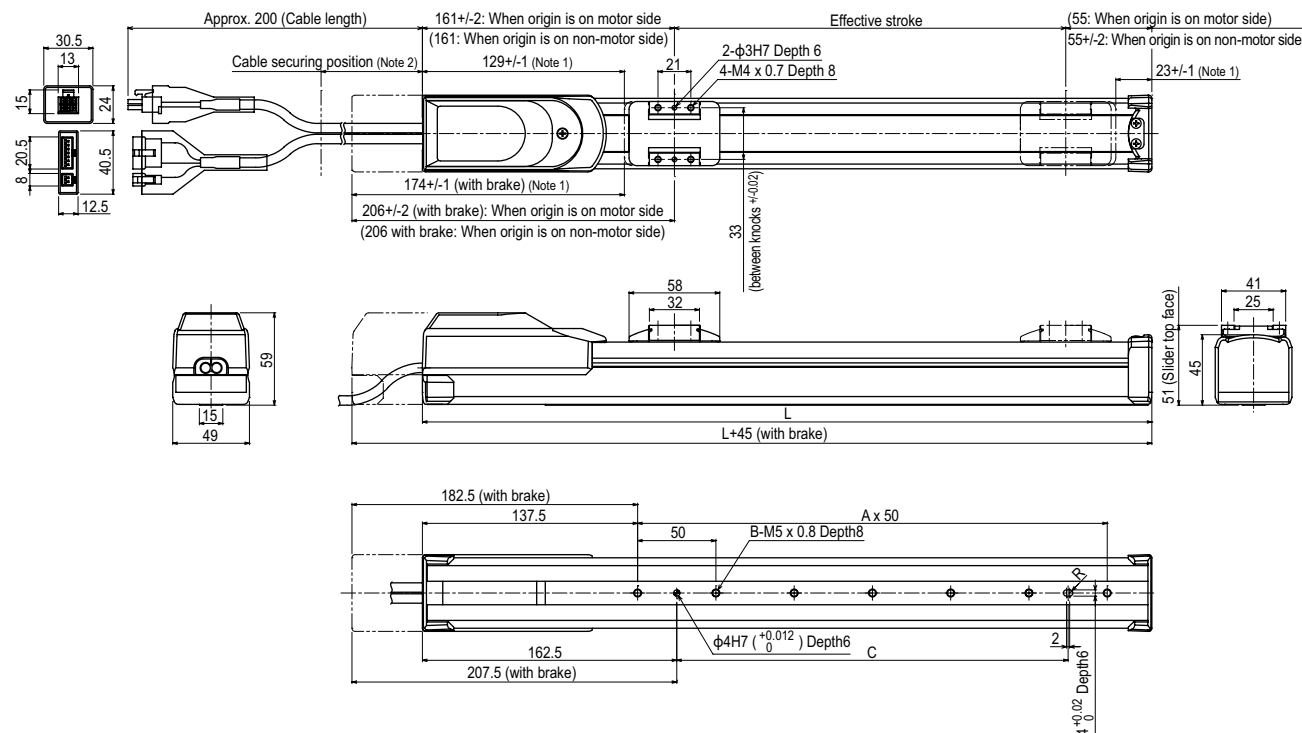


(Unit: N·m)			
MY	MP	MR	
16	19	17	

Controller

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

SS04 Straight model **S**



Effective stroke	50	100	150	200	250	300	350	400
L	266	316	366	416	466	516	566	616
A	2	3	4	5	6	7	8	9
B	3	4	5	6	7	8	9	10
C	50	100	150	200	250	300	350	400
Weight (kg) ^{Note 4}	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.

SS05

Slider type

● High lead: Lead 20

● CE compliance

● Origin on the non-motor side is selectable



Ordering method

SS05

Model	Lead	Model	Brake ^{Note 1}	Origin position	Grease option	Stroke	Cable length ^{Note 3}
	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 ^{Note 2} Z: Non-motor side	N: Standard grease C: Clean room grease	50 to 800 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

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.600 for DIN rail mounting bracket.

Note 5. Select this selection when using the gateway function.

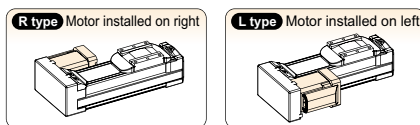
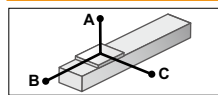
Basic specifications

Motor	42 □	Step motor
Resolution (Pulse/rotation)	20480	
Repeatability ^{Note 1} (mm)	±0.02	
Deceleration mechanism	Ball screw φ12	
Maximum motor torque (N·m)	0.27	
Ball screw lead (mm)	20 12 6	
Maximum speed ^{Note 2} (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	

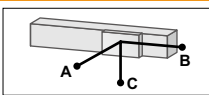
Note 1. Positioning repeatability in one direction.

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.

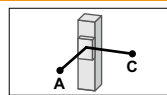
Motor installation (Space-saving model)

Allowable overhang ^{Note}

Horizontal installation (Unit: mm)			
	A	B	C
Lead 20	2kg 413	139	218
4kg	334	67	120
Lead 12	4kg 347	72	139
6kg	335	47	95
Lead 6	4kg 503	78	165
8kg	332	37	79
10kg	344	29	62

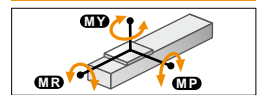


Wall installation (Unit: mm)			
	A	B	C
Lead 20	2kg 192	123	372
4kg	92	51	265
Lead 12	4kg 109	57	300
6kg	63	31	263
Lead 6	4kg 134	63	496
8kg	76	35	377
10kg	47	22	355



Vertical installation (Unit: m)			
		A	C
Lead 12	0.5kg	578	57
	1kg	286	28
Lead 6	1kg	312	31
	2kg	148	14

Static loading moment

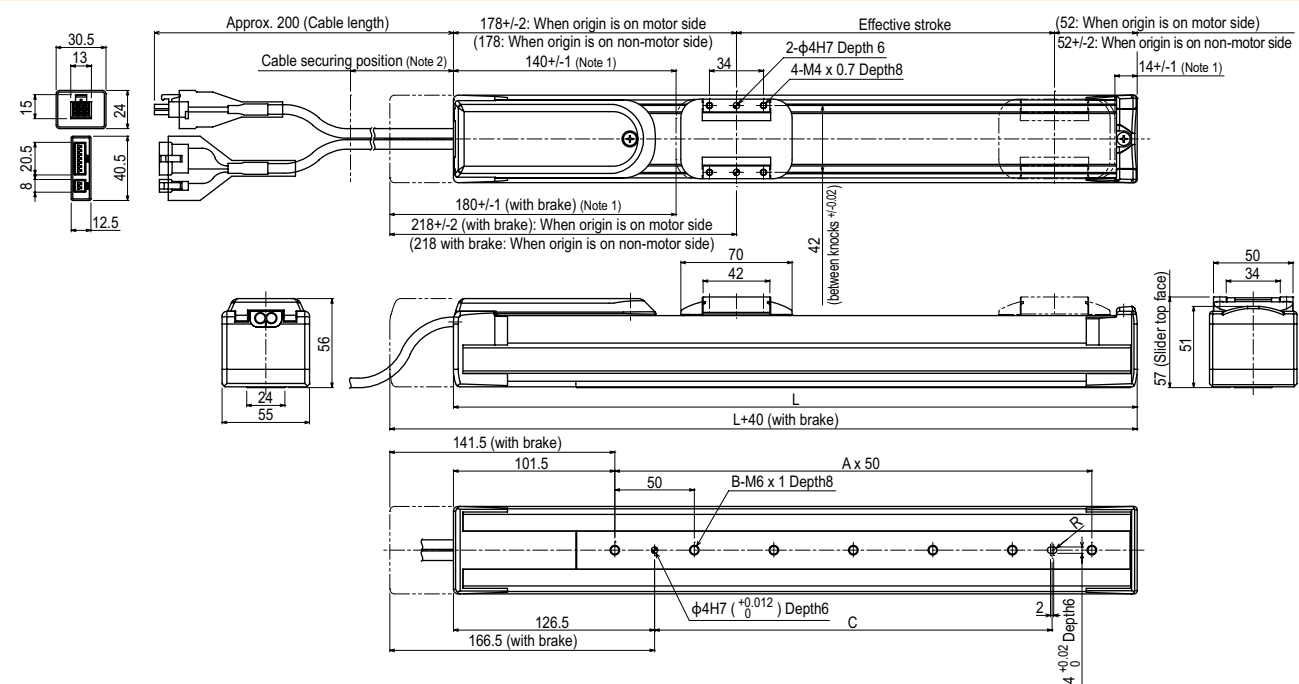


(Unit: N·m)		
MY	MP	MR
25	33	30

Controller

Controller	Operation method
TS-S2	I/O point trace /
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) ^{Note 4}	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 ^{Note 5} (mm/sec)	Lead20	1000					600					300				
Speed setting	Lead12	933					833					733				
	Lead6	560					500					440				
	Speed setting	280					250					220				
		93%					83%					73%				

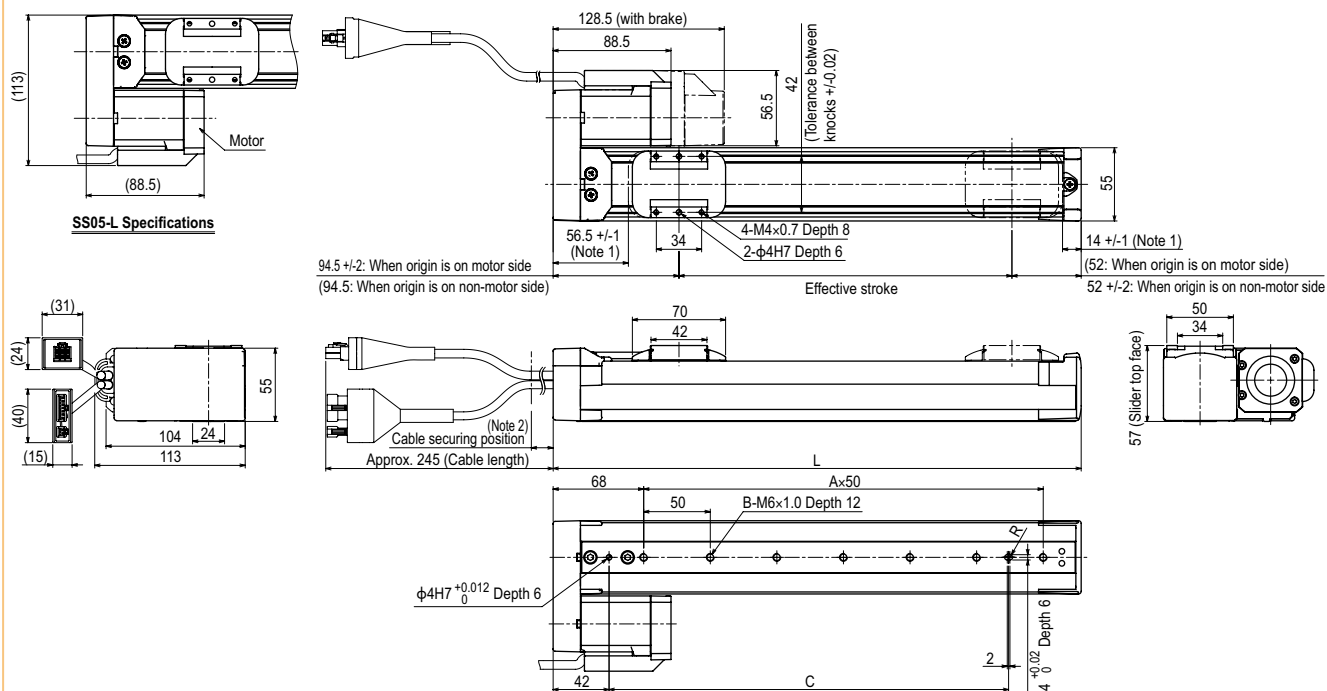
Note 1. Stop positions are determined by the mechanical stoppers at both ends.

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
L	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
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) ^{Note 4}	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
Maximum speed for each stroke (mm/sec) ^{Note 5}	Lead20	1000											933	833	733	633
	Lead12	600											560	500	440	380
	Lead6	300											280	250	220	190
	Speed setting	—											93%	83%	73%	63%

SS05H

Slider type

High lead: Lead 20

CE compliance

Origin on the non-motor side is selectable



Ordering method

SS05H

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

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.600 for DIN rail mounting bracket.

Note 5. Select this selection when using the gateway function.

Basic specifications

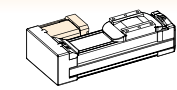
Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability (mm)	+/- 0.02
Deceleration mechanism	Ball screw $\phi 12$
Maximum motor torque (N·m)	0.47
Ball screw lead (mm)	20 12 6
Maximum speed (mm/sec)	Horizontal 1000 600 300 Vertical - 500 250
Maximum payload (kg)	Horizontal 6 8 12 Vertical - 2 4
Max. pressing force (N)	36 60 120
Stroke (mm)	50 to 800 (50pitch)
Overall length (mm)	Horizontal Stroke+286 Vertical Stroke+306
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.

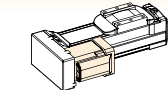
Note 2. When the stroke is longer than 600mm, resonance of the ball screw may occur depending on the operation conditions (critical speed). In this case, reduce the speed setting on the program by referring to the maximum speeds shown in the table below.

Motor installation (Space-saving model)

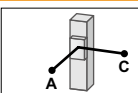
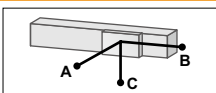
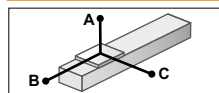
R type Motor installed on right



L type Motor installed on left



Allowable overhang

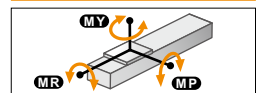


Horizontal installation (Unit: mm)	A	B	C
Lead 20	2kg 599	225	291
4kg	366	109	148
6kg	352	71	104
4kg	500	118	179
Lead 12	6kg 399	79	118
8kg	403	56	88
6kg	573	83	136
8kg	480	61	100
10kg	442	47	78
12kg	465	39	64

Wall installation (Unit: mm)	A	B	C
Lead 20	2kg 262	203	554
4kg	118	88	309
6kg	71	49	262
4kg	146	96	449
Lead 12	6kg 85	55	334
8kg	55	34	305
6kg	101	62	519
8kg	64	39	413
10kg	43	26	355
12kg	28	17	338

Vertical installation (Unit: mm)	A	C
Lead 12	1kg 458	459
2kg	224	224
Lead 6	2kg 244	245
4kg	113	113

Static loading moment



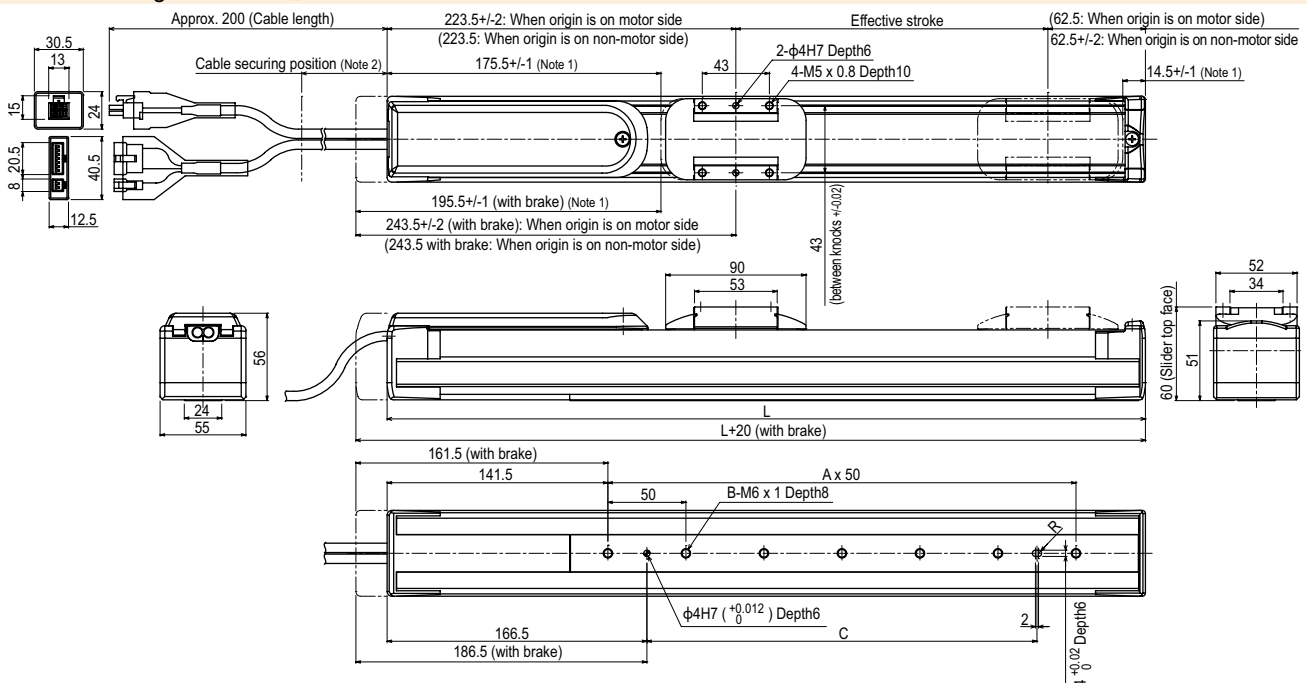
(Unit: N·m)	MY	MP	MR
32	38	34	

Controller

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

SS05H Straight model

S



Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	336	386	436	486	536	586	636	686	736	786	836	886	936	986	1036	1086
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)	2.4	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
Lead20	1000															
Lead12 (Horizontal)	600															
Lead12 (Vertical)	500															
Lead6 (Horizontal)	300															
Lead6 (Vertical)	250															
Speed setting	-															

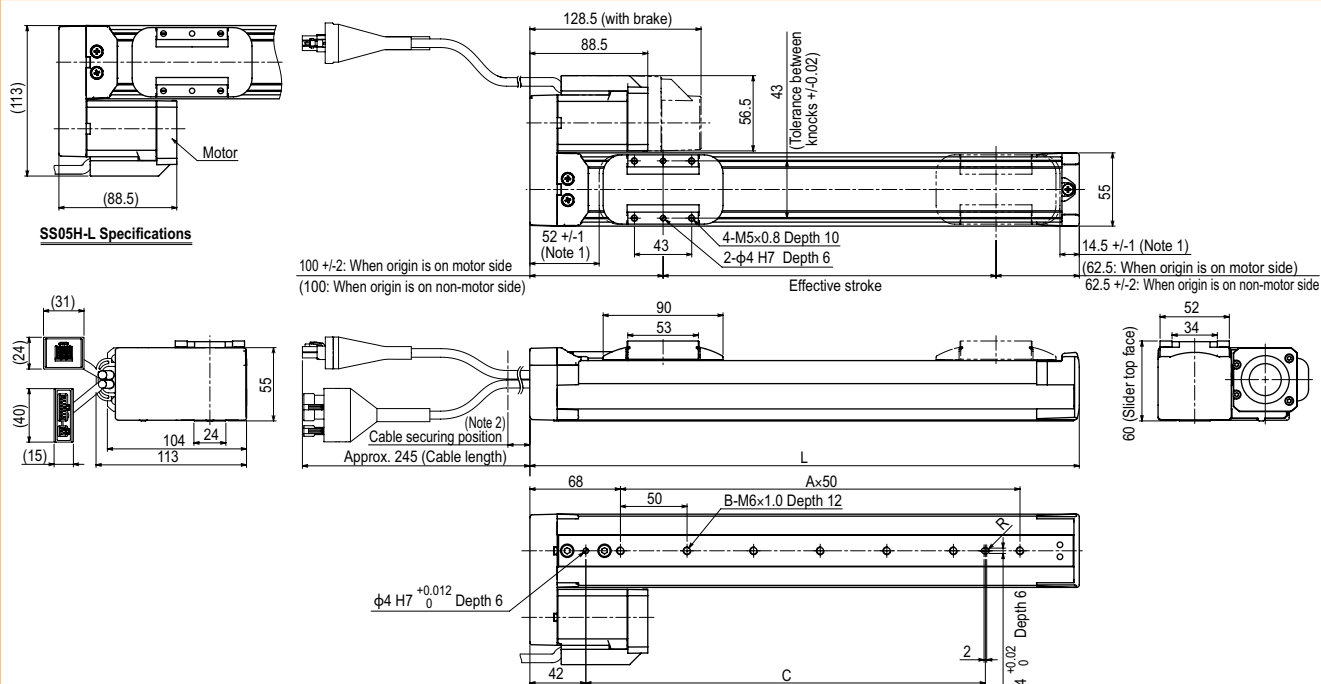
Note 1. Stop positions are determined by the mechanical stoppers at both ends.

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**

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) ^{Note 4}	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 ^{Note 5} (mm/sec)																
Lead20							1000						933	833	733	633
Lead12 (Horizontal)							600						560	500	440	380
Lead12 (Vertical)							500								440	380
Lead6 (Horizontal)							300						280	250	220	190
Lead6 (Vertical)							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 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

SG07

Model	Lead
	20: 20mm
	12: 12mm
	06: 6mm

Model	S: Straight model
-------	-------------------

Brake	N: With no brake B: With brake
-------	-----------------------------------

Origin position	N: Standard Z: Non-motor side
-----------------	----------------------------------

Grease option	N: Standard grease C: Clean room grease
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Stroke	50 to 800 (50mm pitch)
--------	---------------------------

Cable length	1K: 1m 3K: 3m 5K: 5m 10K: 10m
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SH

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

Battery	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.

Basic specifications

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

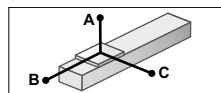
Note 1. Positioning repeatability in one direction.

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.

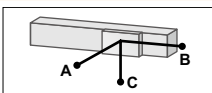
Note 3. It is necessary to change the maximum speed according to the payload. For details, see the "Speed vs. payload" graph shown below.

Note. Position detectors (resolvers) are common to incremental and absolute specifications.
If the controller has a backup function then it will be absolute specifications.

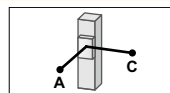
Allowable overhang



Horizontal installation (Unit: mm)	A	B	C
Lead 20	10kg 3572	458 486	
25kg	2971	220 245	
36kg	3150	140 160	
15kg	3703	363 406	
Lead 12	30kg 1962	172 196	
43kg	1430	114 131	
15kg	3853	363 414	
Lead 6	30kg 2105	172 197	
46kg	1500	106 122	

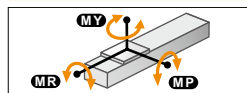


Wall installation (Unit: mm)	A	B	C
Lead 20	10kg 450	402 3261	
25kg	117	155 2943	
36kg	98	85 2520	
15kg	351	307 3403	
Lead 12	30kg 134	117 1663	
43kg	68	59 1070	
15kg	353	307 3541	
Lead 6	30kg 134	117 1752	
46kg	58	50 1100	



Vertical installation (Unit: mm)	A	C
Lead 20	2kg 2303	2303
4kg	1147	1147
Lead 12	4kg 1386	1386
12kg	442	442
Lead 6	7kg 781	781
20kg	252	252

Static loading moment

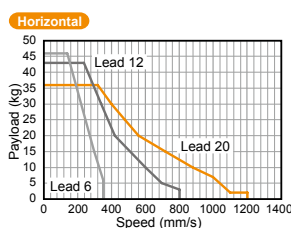


(Unit: N·m)	MY	MP	MR
	101	114	101

Controller

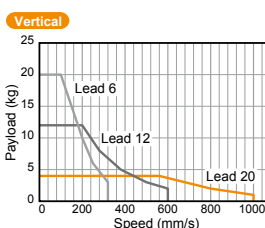
Controller	Operation method
TS-SH	I/O point trace / Remote command

Speed vs. payload



Quick reference

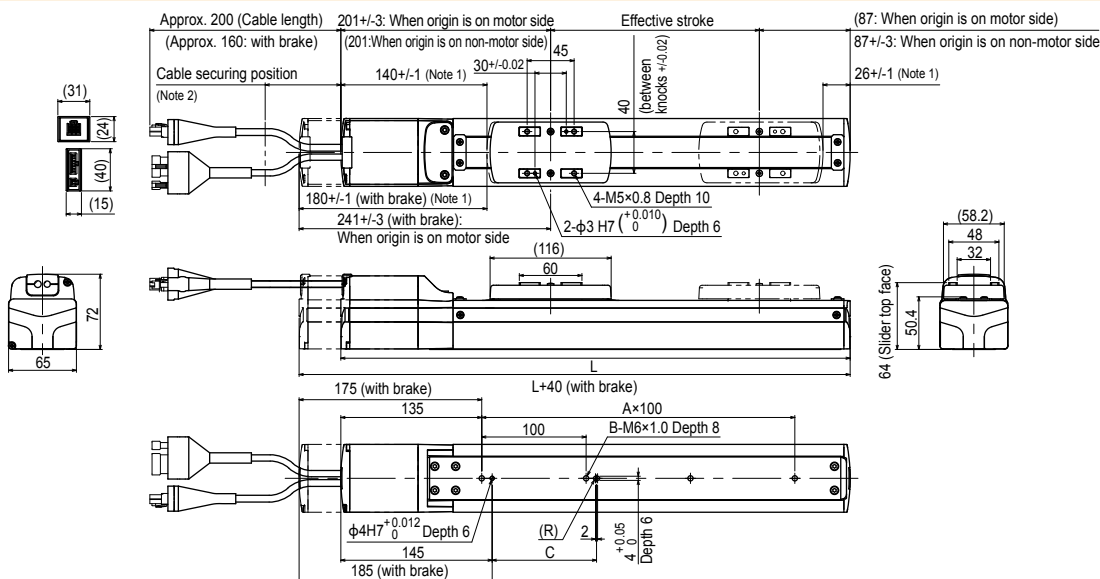
Lead 20	Lead 12	Lead 6
Payload (kg)	Payload (kg)	Payload (kg)
Speed (mm/sec)	Speed (mm/sec)	Speed (mm/sec)
%	%	%
36 320 26	43 240 30	46 140 40
30 400 33	40 255 31	42 155 44
25 480 40	35 295 36	40 165 47
20 560 46	30 340 42	35 190 54
15 720 60	25 380 47	30 200 57
10 800 66	20 420 52	25 245 70
9 900 75	15 500 62	20 270 77
8 950 79	10 600 75	15 300 85
7 1000 83	9 615 76	10 325 92
6 1020 85	8 635 79	9 330 94
5 1035 86	7 655 81	8 335 95
4 1055 87	6 675 84	7 340 97
3 1075 89	5 700 87	6 350 100
2 1100 91	4 750 93	
1 1200/100	3 800/100	



Quick reference

Lead 20	Lead 12	Lead 6
Payload (kg)	Payload (kg)	Payload (kg)
Speed (mm/sec)	Speed (mm/sec)	Speed (mm/sec)
%	%	%
4 560 56	12 200 33	20 100 31
3 680 68	10 240 40	15 150 46
2 800 80	9 260 43	12 180 56
1 1000/100	8 280 46	10 200 62
	7 310 51	9 210 65
	6 345 57	8 225 70
	5 380 63	7 235 73
	4 435 72	6 250 78
	3 500 83	5 270 84
	2 600/100	4 295 92
		3 320/100

SG07 Straight model S



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	1088
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	100	400	400	400	400	400	700	700	700	700
Weight (kg)	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
Maximum speed for each stroke (mm/sec)	Lead20 (Horizontal) 1200	Lead20 (Vertical) 1000	Lead12 (Horizontal) 800	Lead12 (Vertical) 600	Lead6 (Horizontal) 350	Lead6 (Vertical) 320	Speed setting									

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

Model	Lead	Model	Brake	Origin position	Bracket plate	Stroke	Cable length
	12: 12mm 06: 6mm	S: Straight model R: Space-saving model (motor installed on right) L: Space-saving model (motor installed on left) U: 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 V: With flange	50 to 200 (50mm pitch)	1K: 1m 3K: 3m 5K: 5m 10K: 10m

Note 1. See P.337 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.600 for DIN rail mounting bracket.

Note 5. Select this selection when using the gateway function.

S2

Robot positioner	I/O
S2: TS-S2	NP: PNP 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: PNP 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

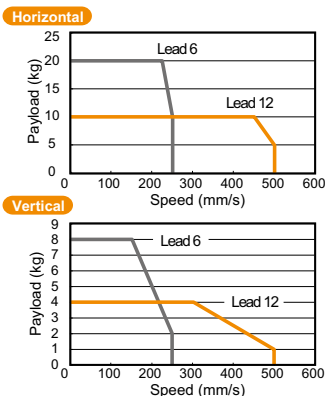
Robot driver	I/O cable
SD: TS-SD	1: 1m

Basic specifications

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

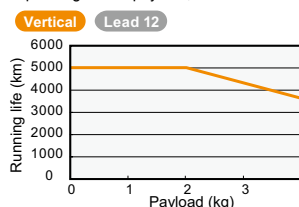
Note 1. The maximum speed needs to be changed in accordance with the payload. See the "Speed vs. payload" graph shown on the right. For details, see P. 336.

Speed vs. payload



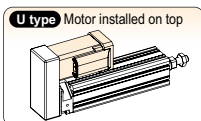
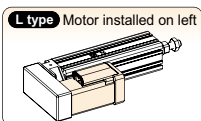
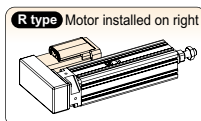
Running life

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.337 for running life distance to life time conversion example.

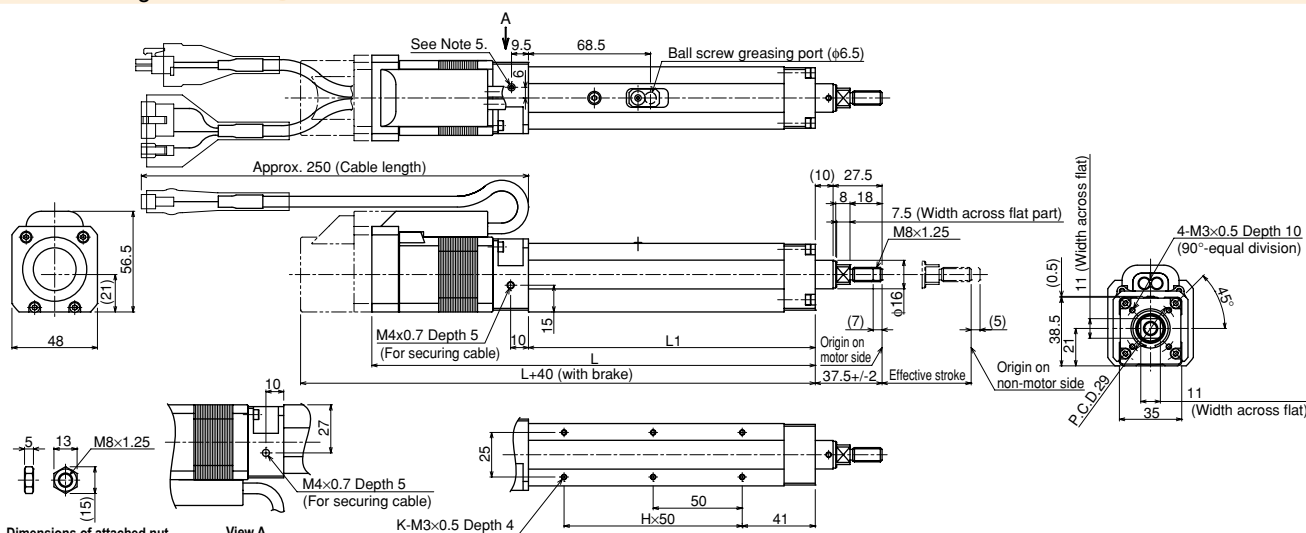
Motor installation (Space-saving model)



Controller

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

SR03 Straight model S

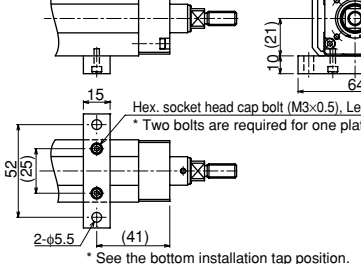


Dimensions of attached nut View A

Option: Horizontal installation plate (foot)

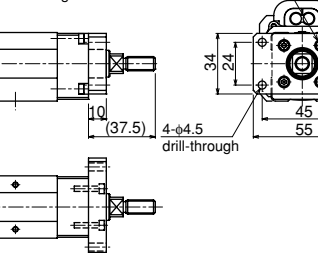
* Contents of option: Plate, 2 pcs.

See our robot manuals for additional settings.



Option: Vertical installation plate (flange)

Hex. socket head cap bolt (M3x0.5), Length under head 14



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)	1.1	1.3	1.4	1.6

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.

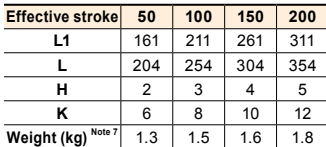
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)

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

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

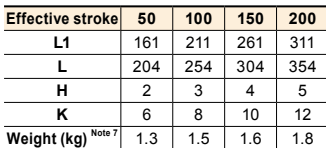
Note 8. Distance to mechanical stopper.

R



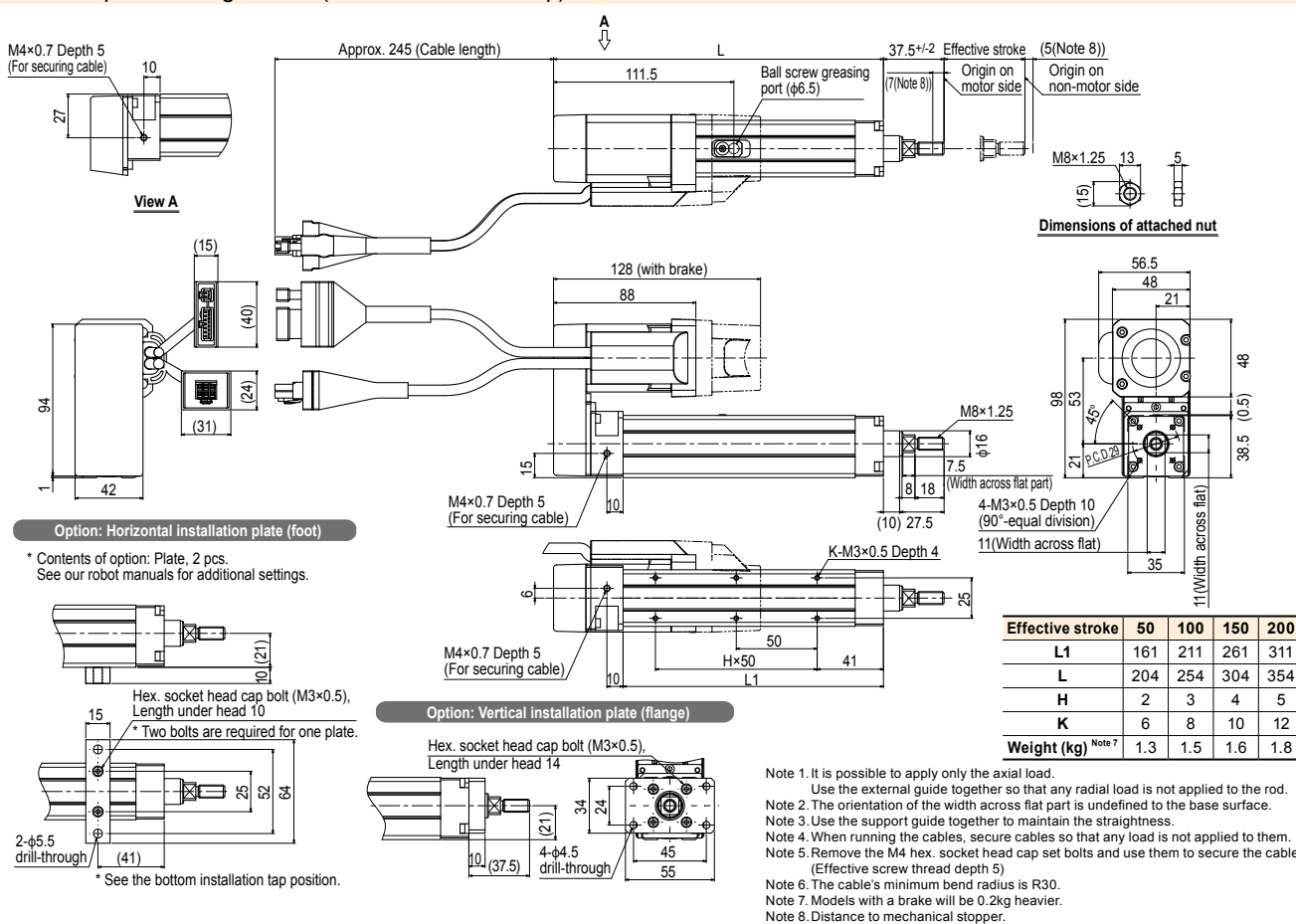
- Note 1. It is possible to apply only the axial load.
- Note 2. Use the external guide together so that any radial load is not applied to the rod.
- Note 3. The orientation of the width across flat part is undefined to the base surface.
- Note 3. Use the support guide together to maintain the straightness
- Note 4. When running the cables, secure cap screws so that any load is not applied to them.
- Note 5. Remove the three 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.

L



- 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
	12: 12mm 06: 6mm	S: Straight model U: 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 200 (50mm pitch)	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. See P.337 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.600 for DIN rail mounting bracket.

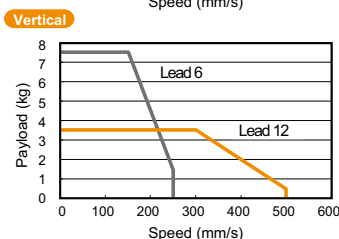
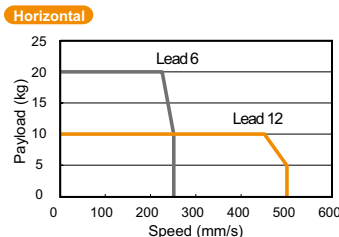
Note 5. Select this selection when using the gateway function.

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 (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

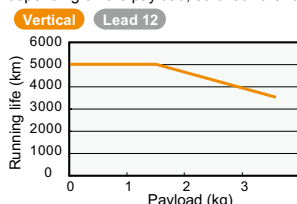
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.
For details, see P. 336.

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.337 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

Effective stroke+78

Approx. 250 (Cable length)

Option: Horizontal installation plate (foot)

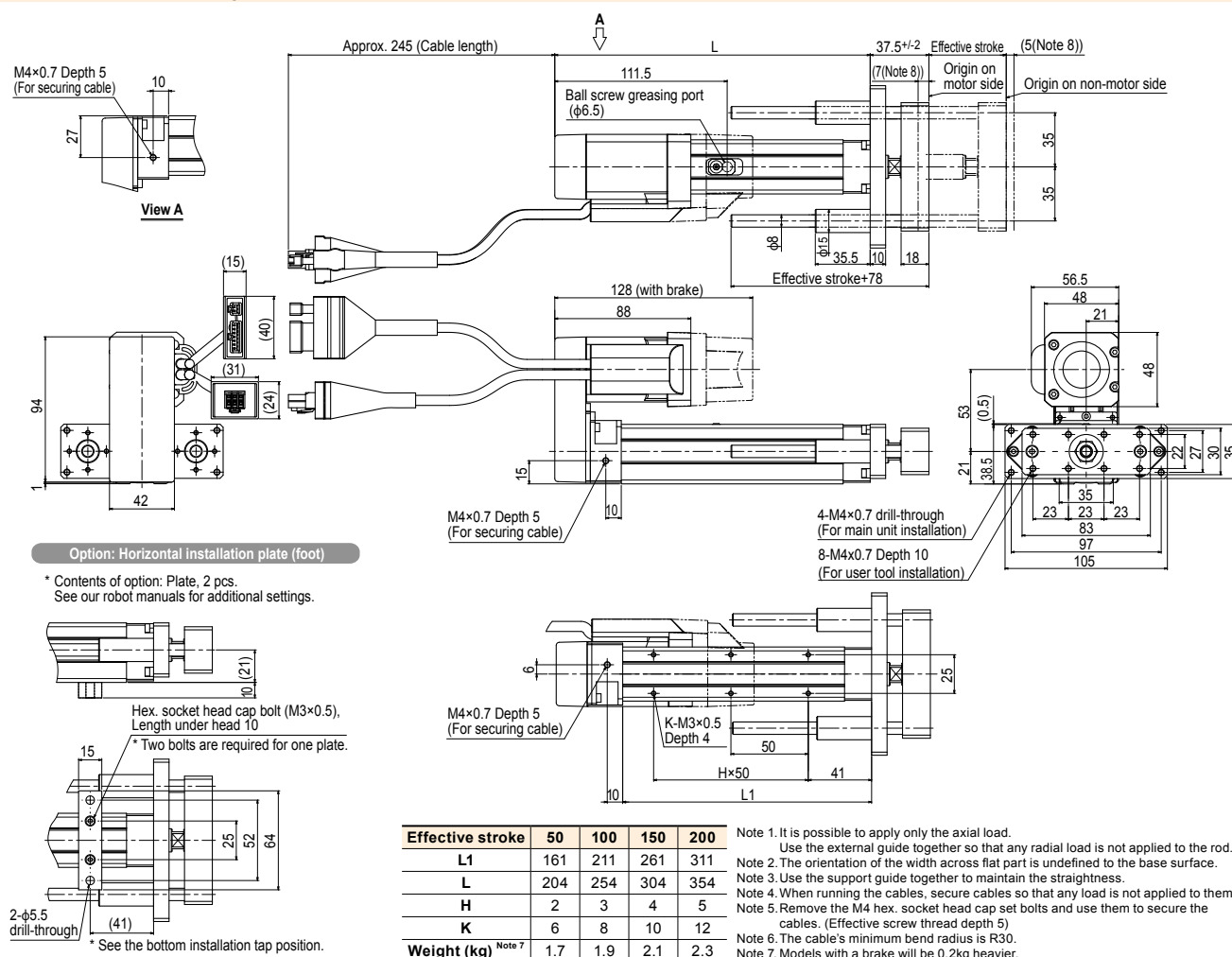
* Contents of option: Plate, 2 pcs.
See our robot manuals for additional settings.

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	249	299	349	399
H	2	3	4	5
K	6	8	10	12
Weight (kg)	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**

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.337 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.600 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function.

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

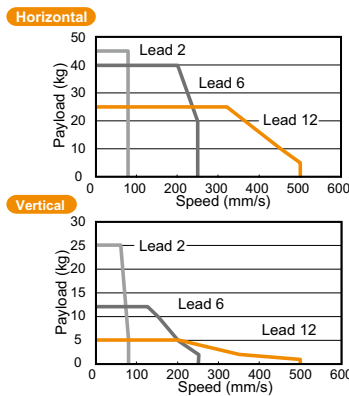
Robot driver	I/O cable
SD: TS-SD	1: 1m

Basic specifications

Motor	42 Step motor
Resolution (Pulse/rotation)	20480
Repeatability (mm)	+/-0.02
Deceleration mechanism	Ball screw $\phi 8$ Ball screw $\phi 10$
Ball screw lead (mm)	12 6 2
Maximum speed (mm/sec)	500 250 80
Maximum payload (kg)	25 40 45
Max. pressing force (N)	150 300 600
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 x H58
Cable length (m)	Standard: 1 / Option: 3, 5, 10

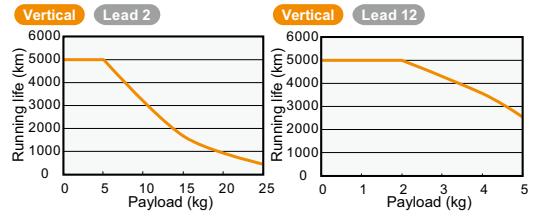
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right. For details, see P. 336. Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw. See the maximum speed table shown 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.

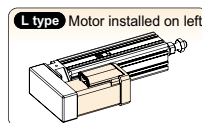
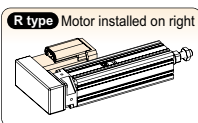


Note. See P.337 for running life distance to life time conversion example.

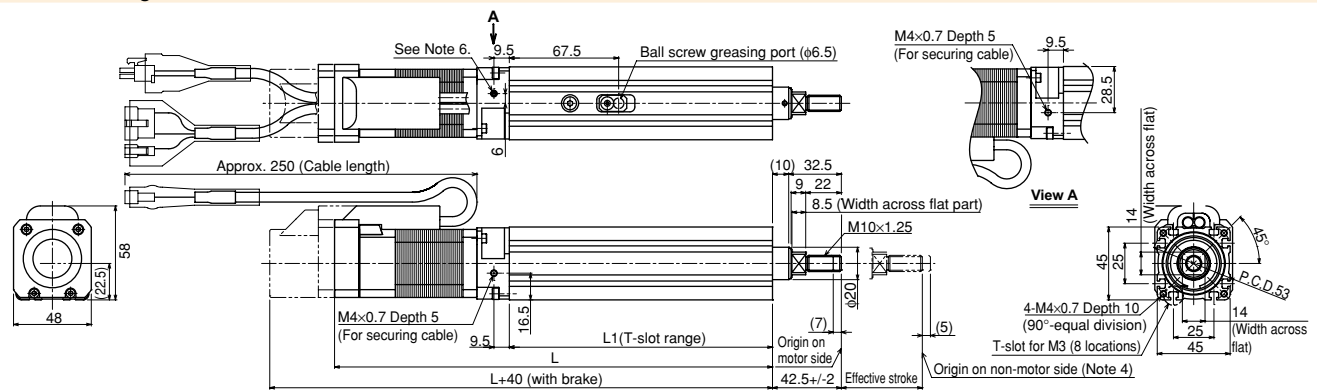
Controller

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

Motor installation (Space-saving model)

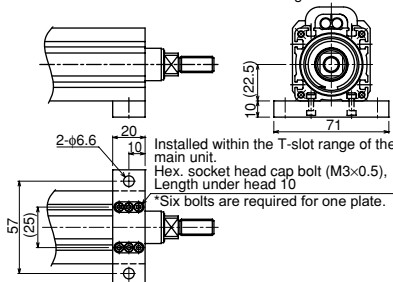


SR04 Straight model S



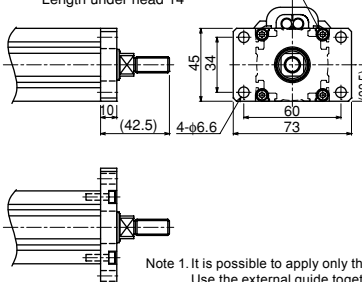
Option: Horizontal installation plate (foot)

* 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 (M4x0.7).
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.

SRD04

Rod type (With support guide)

CE compliance

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



Ordering method

SRD04

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

Note 1. See P.337 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.

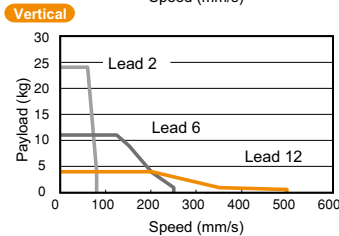
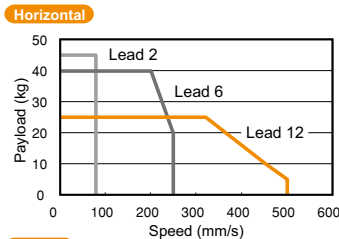
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.600 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function.

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 / 2
Maximum speed (mm/sec)	500 / 250 / 80
Maximum payload (kg)	Horizontal: 25 / 40 / 45 Vertical: 4 / 11 / 24
Max. pressing force (N)	150 / 300 / 600
Stroke (mm)	50 to 300 (50pitch)
Lost motion	0.1mm or less
Rotating backlash (°)	+/-0.05
Overall length	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

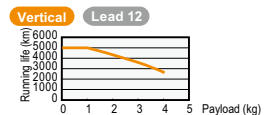
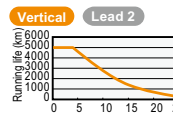
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right. For details, see P. 336.
Additionally, when the stroke is long, the maximum speed is decreased due to the critical speed of the ball screw.
See the maximum speed table shown 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.

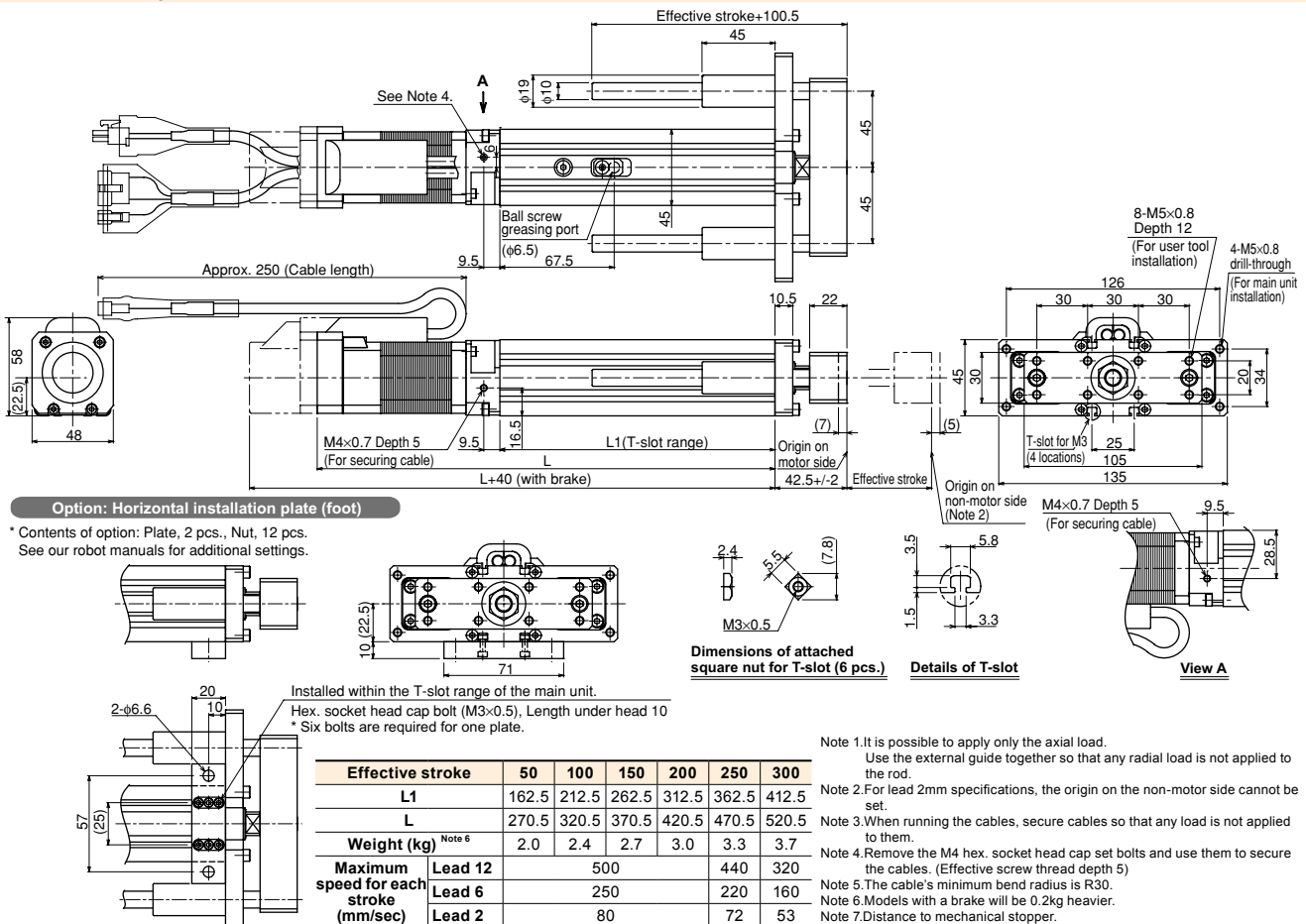


Note. See P.337 for running life distance to life time conversion example.

Controller

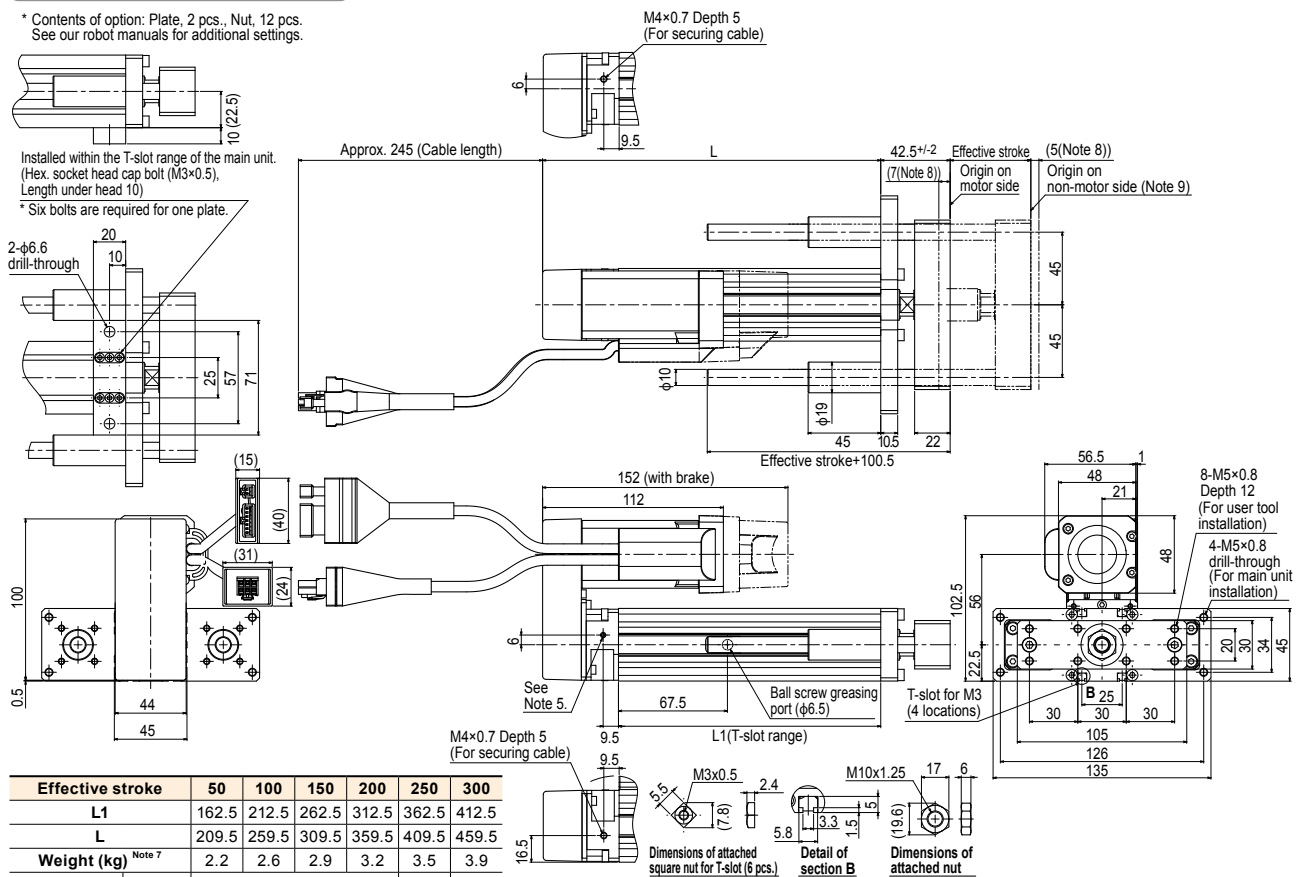
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

SRD04 Straight model S



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.

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.337 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.600 for DIN rail mounting bracket.
 Note 6. Select this selection when using the gateway function.

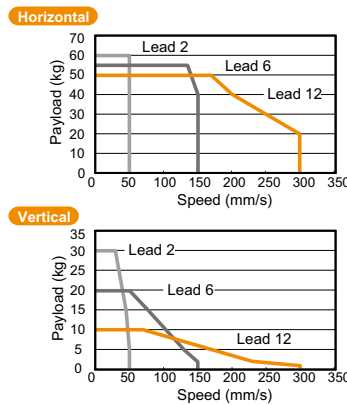
S2	I/O
Robot positioner S2: TS-S2	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board
SH	Battery
Robot positioner SH: TS-SH	B: With battery (Absolute) N: None (Incremental)
SD	I/O cable
Robot driver SD: TS-SD	1: 1m

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)	50 55 60
Max. pressing force (N)	10 20 30
Stroke (mm)	250 550 900
Lost motion	50 to 300 (50pitch) 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

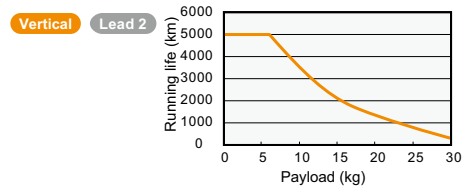
Note 1. The maximum speed needs to be changed in accordance with the payload.
 See the "Speed vs. payload" graph shown on the right.
 For details, see P. 336.

Speed vs. payload



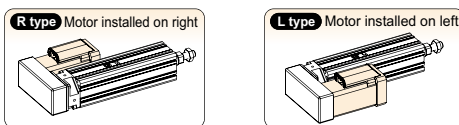
Running life

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.337 for running life distance to life time conversion example.

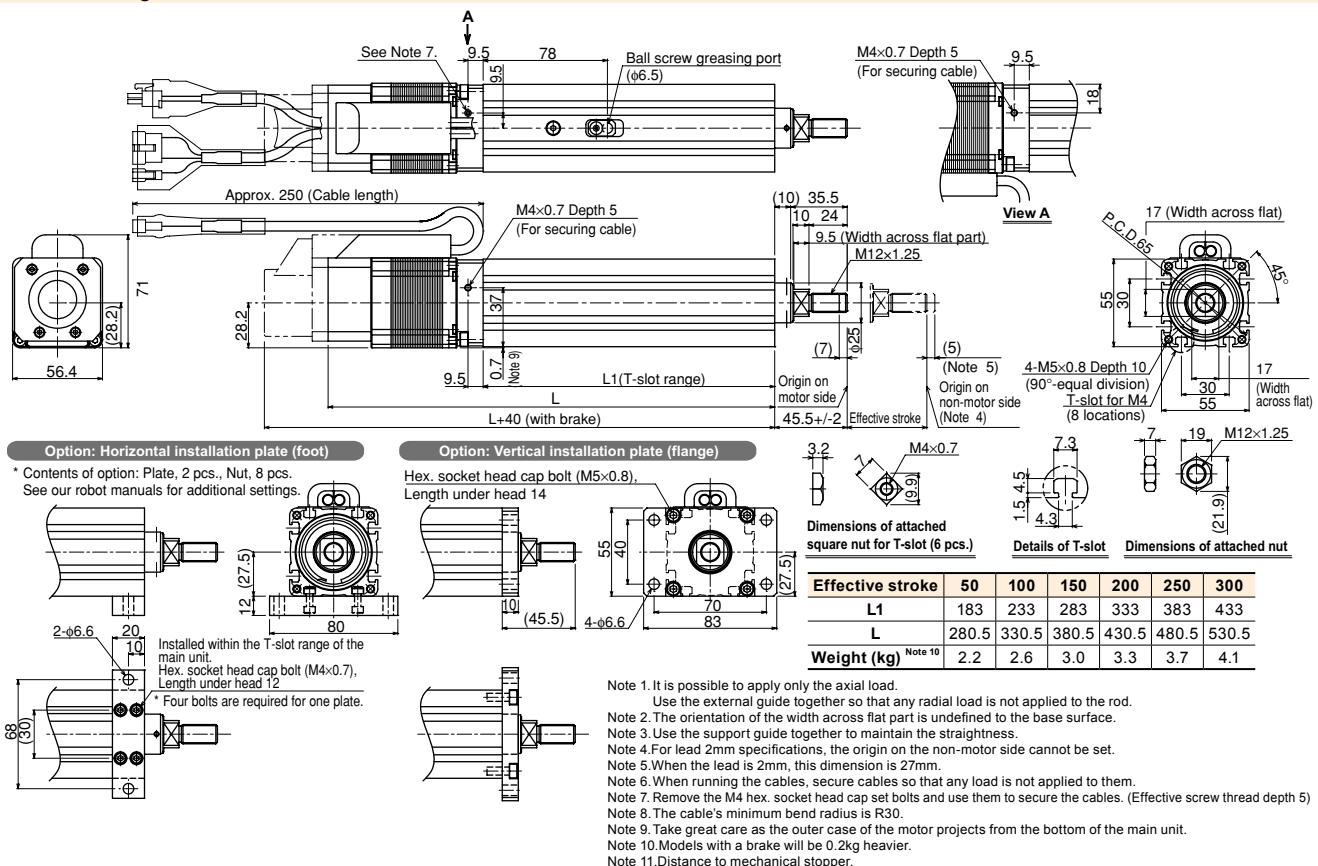
Motor installation (Space-saving model)



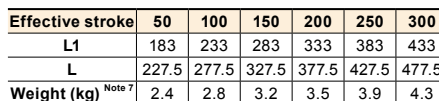
Controller

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

SR05 Straight model S

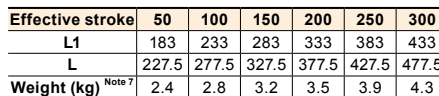


R



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 is 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.

L



- 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 is 10 mm.)
- 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 2mm lead 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 2 mm, this dimension is 27 mm.

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 U: 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)	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
SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board

SD

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

Note 1. See P.337 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.

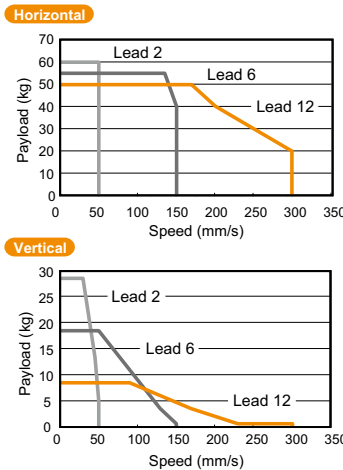
Note 4. The robot cable is flexible and resists bending.
Note 5. See P.600 for DIN rail mounting bracket.
Note 6. Select this selection when using the gateway function.

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 8.5 18.5 28.5
Max. pressing force (N)	250 550 900
Stroke (mm)	50 to 300 (50pitch)
Lost motion	0.1mm or less
Rotating backlash (°)	+/-0.05
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

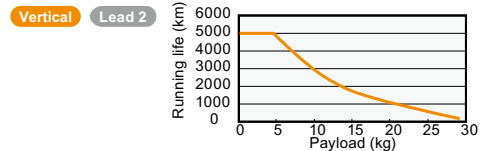
Note 1. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.
For details, see P. 336.

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.

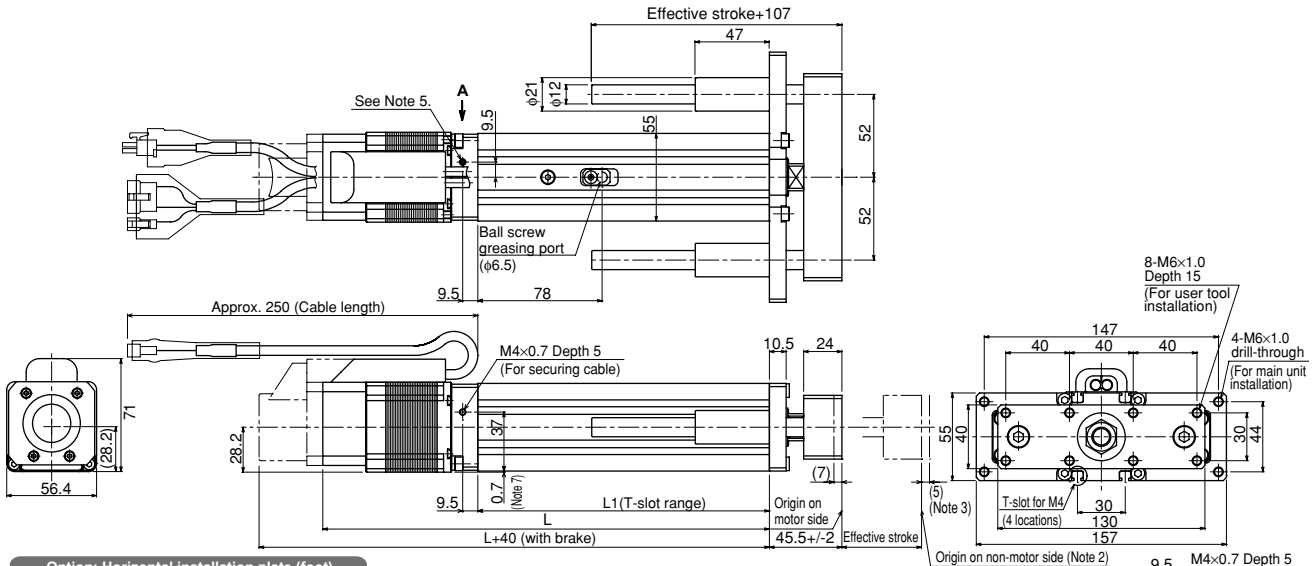


Note. See P.337 for running life distance to life time conversion example.

Controller

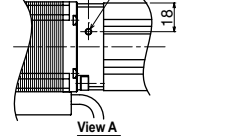
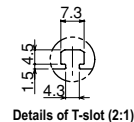
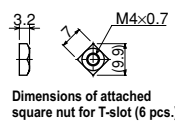
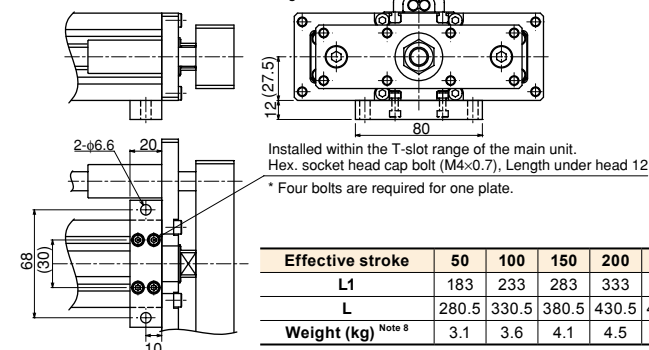
Controller	Operation method	Controller	Operation method
TS-S2	I/O point trace / Remote command	TS-SD	Pulse train control
TS-SH			

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.

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)	3.1	3.6	4.1	4.5	5.0	5.5

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 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 2. The orientation of the width across flat part is undefined to the base surface.	Note 9. For lead 2mm specifications, the origin on the non-motor side cannot be set.
Note 3. Use the support guide together to maintain the straightness.	Note 10. Take great care as the outer case of the cover belt projects from the bottom of the main unit.
Note 4. When running the cables, secure cables so that any load is not applied to them.	Note 11. When the lead is 2 mm, this dimension is 27 mm.
Note 5. Remove the M4 hex. socket head cap set bolts and use them to secure the cables. (Effective screw thread depth 5)	

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 Note 1 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
S2: TS-S2 Note 4

I/O

NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
PT: PROFINET
GW: No I/O board Note 6

SH

Robot positioner
SH: TS-SH

I/O

NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
PT: PROFINET
GW: No I/O board Note 6

Battery

B: With battery
(Absolute)
N: None
(Incremental)

SD

Robot driver
SD: TS-SD Note 5

1

I/O cable
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.600 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.

Basic specifications

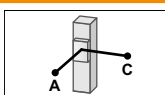
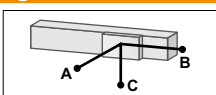
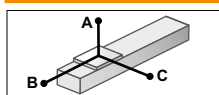
Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability Note 1 (mm)	+/- 0.05
Drive method	Straight Slide screw Space-saving Slide screw + belt
Ball screw lead (mm)	8 16
Maximum speed Note 2 (mm/sec)	150 400
Maximum payload (kg)	Horizontal 9 6 Vertical 4 2
Max. pressing force (N)	180 100
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. 336.

Allowable overhang Note



Horizontal installation (Unit: mm)

	A	B	C
Lead 16	2kg 3000	2123	1436
4kg	2493	1001	680
6kg	1571	627	428
Lead 8	3kg 3000	1375	932
6kg	1571	627	428
9kg	956	378	260

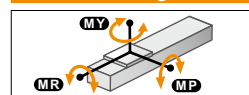
Wall installation (Unit: mm)

	A	B	C
Lead 16	2kg 1500	2091	3000
4kg	710	975	2443
6kg	440	603	1524
Lead 8	3kg 979	1347	3000
6kg	440	603	1524
9kg	260	355	912

Vertical installation (Unit: mm)

	A	C
Lead 16	1kg 3000	3000
1.5kg	2458	2457
2kg	1837	1837
Lead 8	2kg 1837	1837
3kg	1217	1216
4kg	907	906

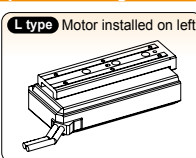
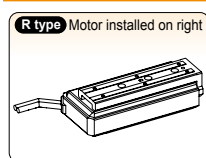
Static loading moment



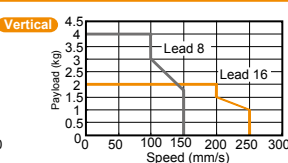
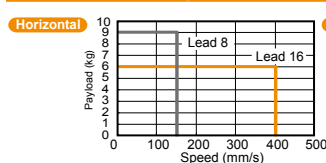
(Unit: N-m)

Stroke	MY	MP	MR
50mm	77	77	146
100mm	112	112	177
150mm	155	155	152

Motor installation (Space-saving model)



Speed vs. payload

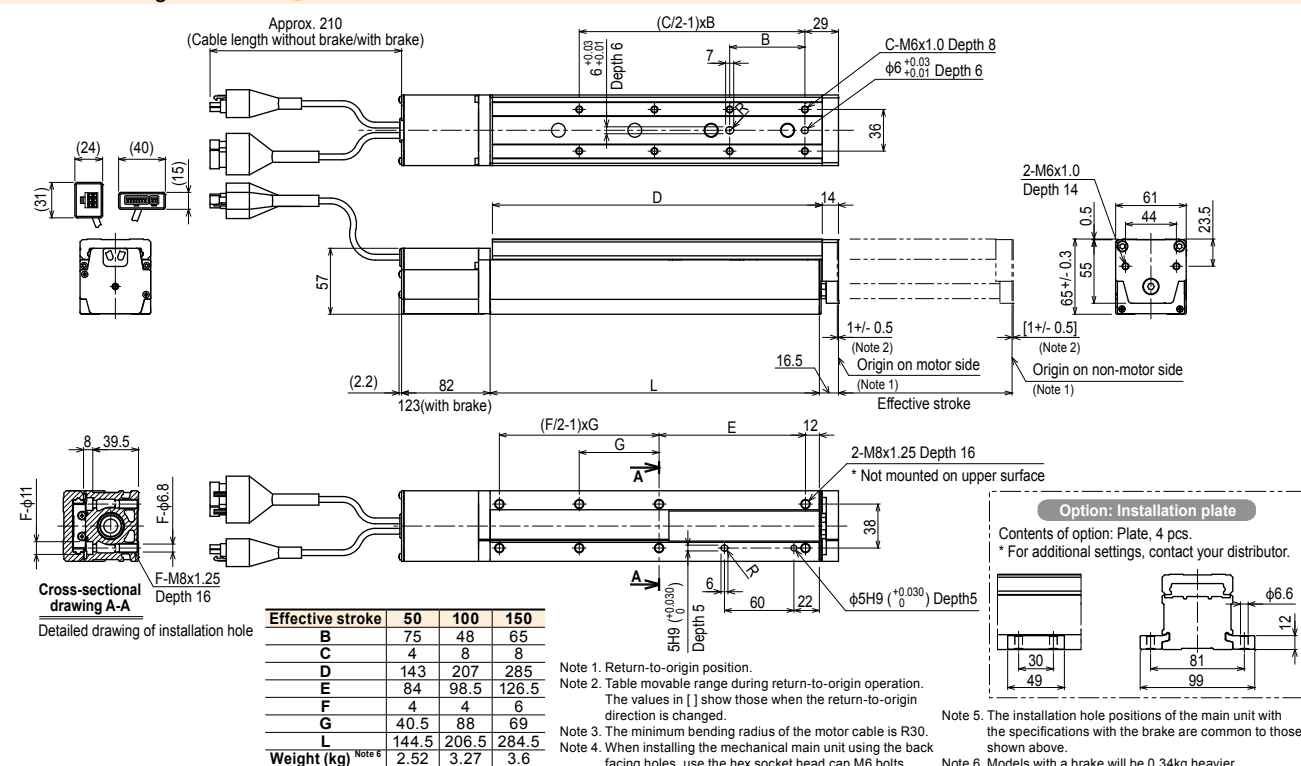


Controller

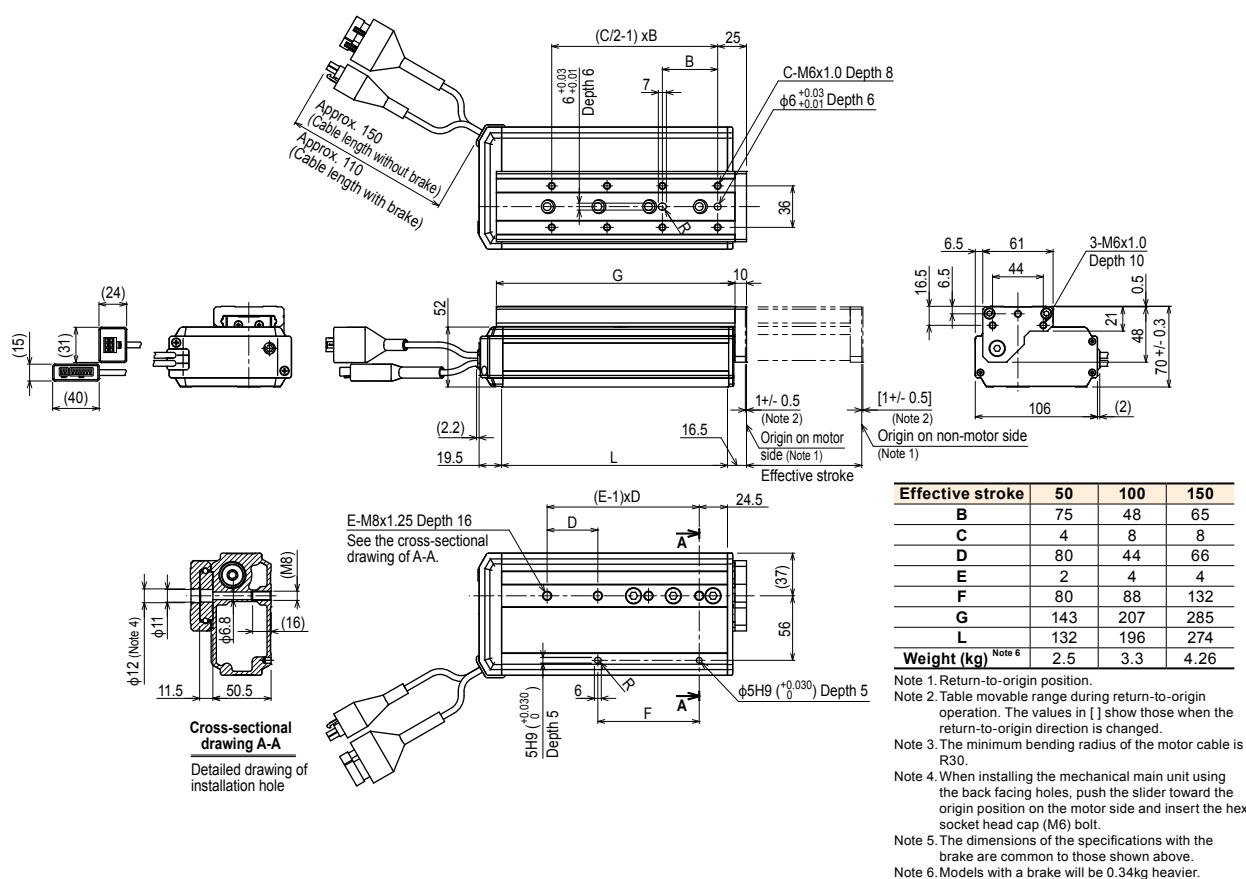
Controller	Operation method
TS-S2	I/O point trace / Remote command
TS-SH	Remote command
TS-SD Note	Pulse train control

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

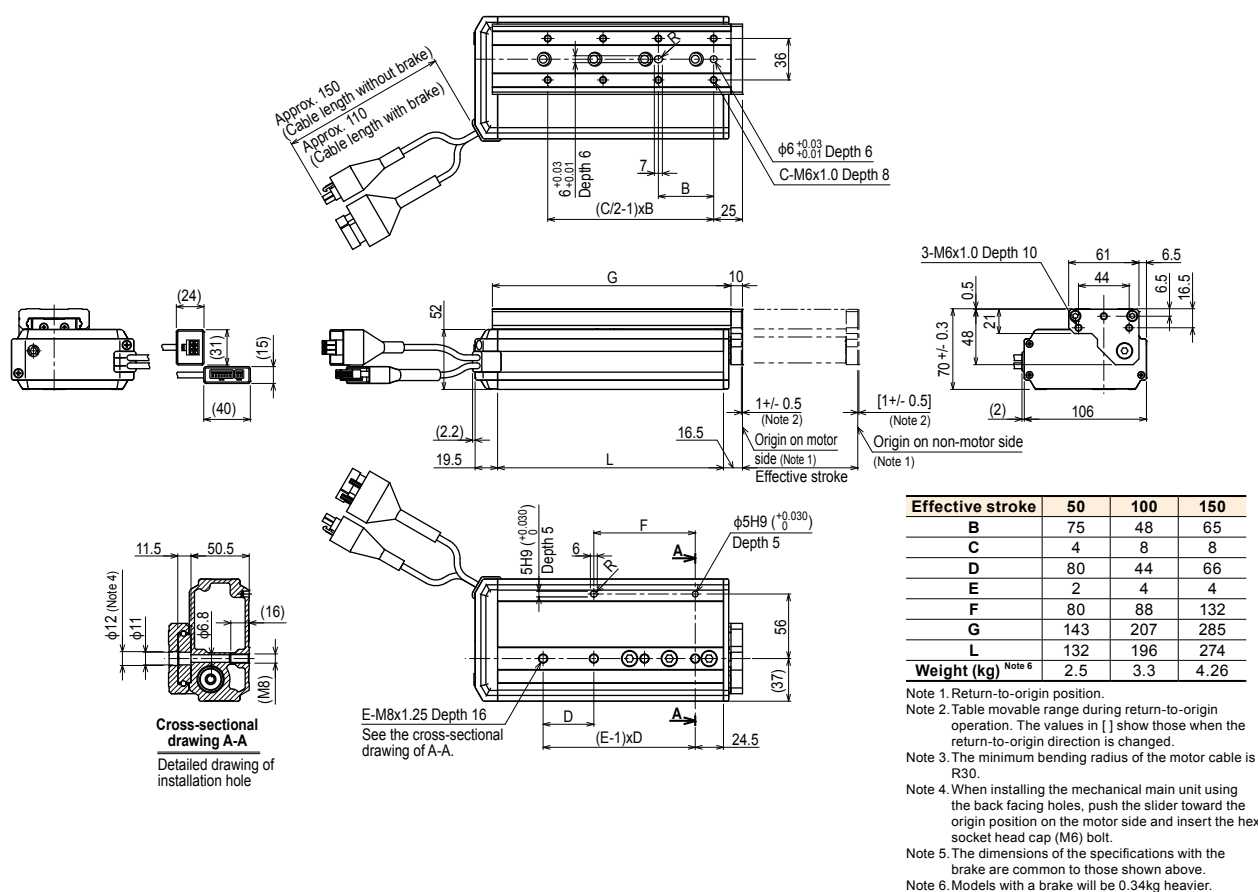
STH06 Straight model S



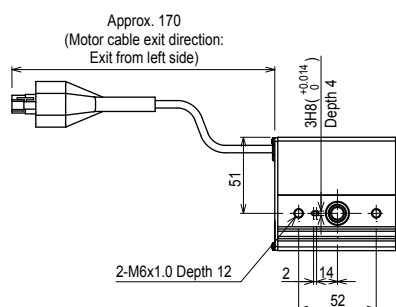
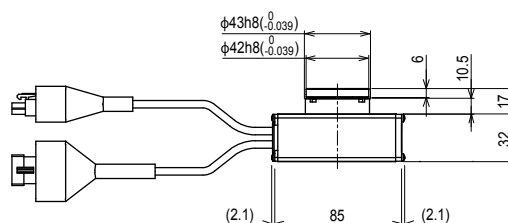
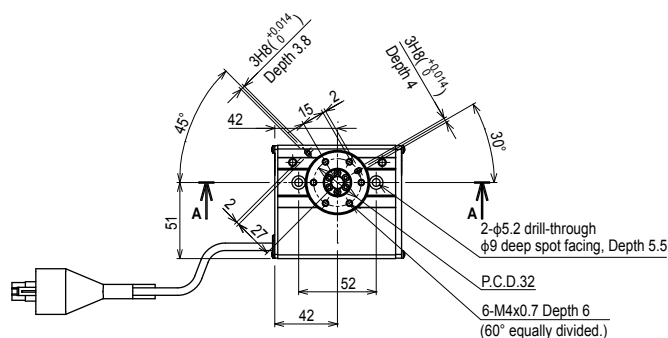
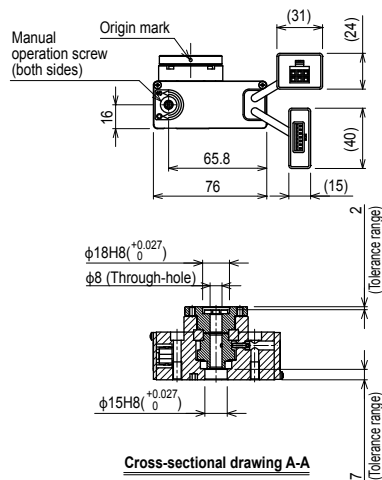
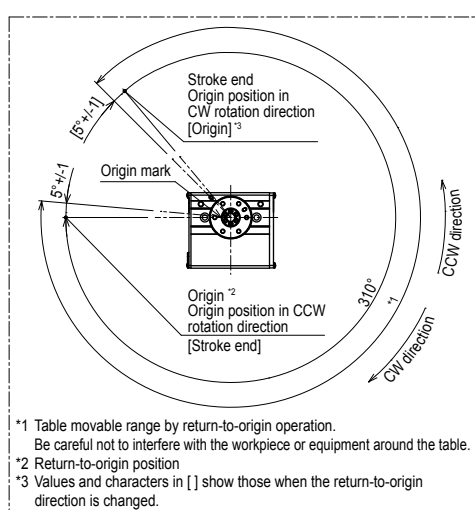
STH06 Space-saving model (motor installed on right) **R**



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



RF02-NH Limit rotation specification – High rigidity model



Weight (kg)	0.52
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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			S2S	
Model	Return-to-origin method S: Sensor (Limitless rotation)	Bearing N: Standard H: High rigidity	Torque N: Standard torque H: High torque	Cable entry location L: From the left	Rotation direction N: CCW Z: CW	Cable length ^{Note 1} 1K: 1m 3K: 3m 5K: 5m 10K: 10m	Robot positioner S2S: TS-S2S ^{Note 2}	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
							SHS	Battery B: With battery (Absolute) N: None (Incremental)
							Robot positioner SHS: TS-SHS	

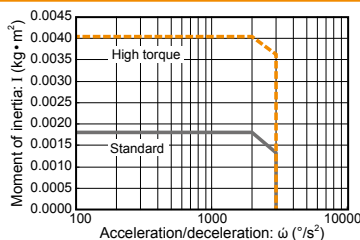
Note 1. The robot cable is flexible and resists bending.
Note 2. See P.600 for DIN rail mounting bracket.
Note 3. Select this selection when using the gateway function.

Basic specifications

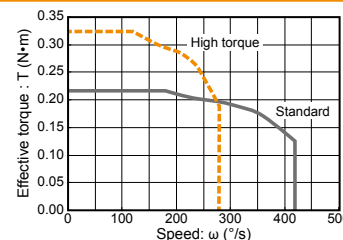
Motor	20 □ Step motor
Resolution (Pulse/rotation)	4096
Repeatability ^{Note 1} (°)	+/-0.05
Drive method	Special worm gear + belt
Torque type	Standard High torque
Maximum speed ^{Note 2} (°/sec)	420 280
Rotating torque (N·m)	0.22 0.32
Max. pushing torque (N·m)	0.11 0.16
Backlash (°)	+/-0.5
Max. moment of inertia ^{Note 3} (kg·m ²)	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.711.

Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load

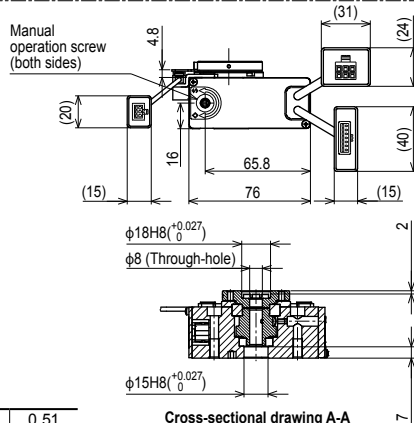
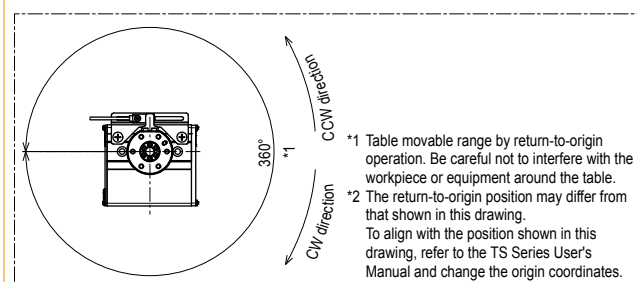
	(a)	(b)	
Allowable radial load (N)	Allowable thrust load (N)		Allowable moment (N·m)
	(a)	(b)	
Standard model	Standard model	Standard model	Standard model
High rigidity model	High rigidity model	High rigidity model	High rigidity model
78	74	78 107	2.4 2.9

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 TRANSERO Series User's Manual.

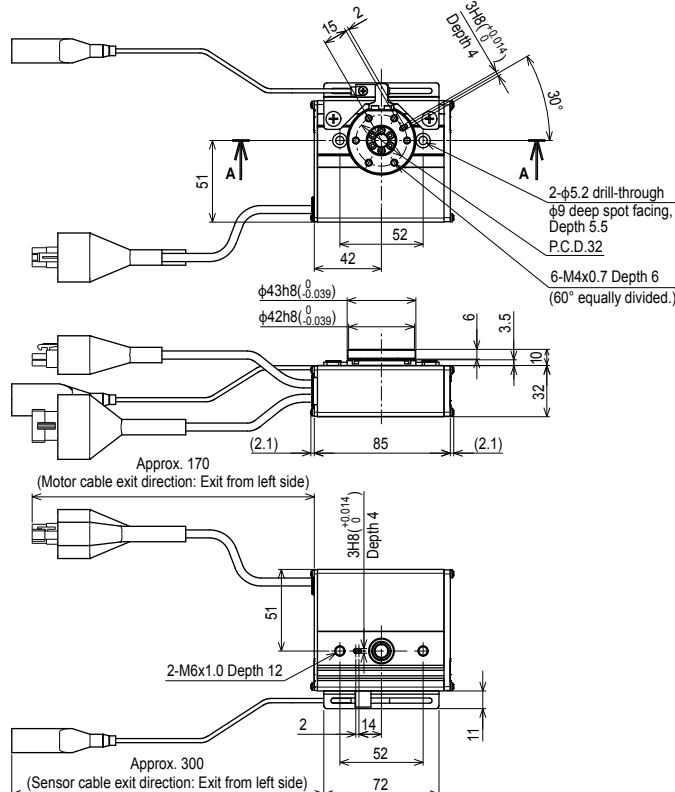
Controller

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

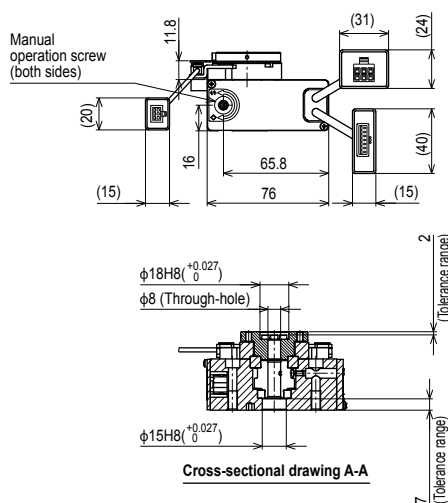
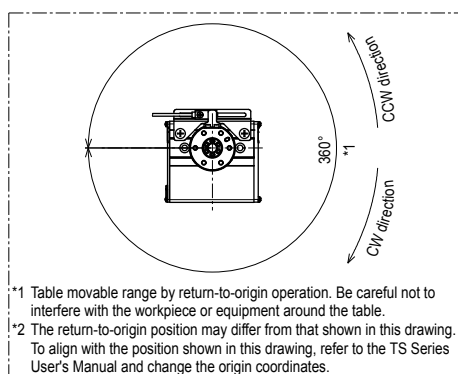
RF02-SN Sensor specification – Standard model



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



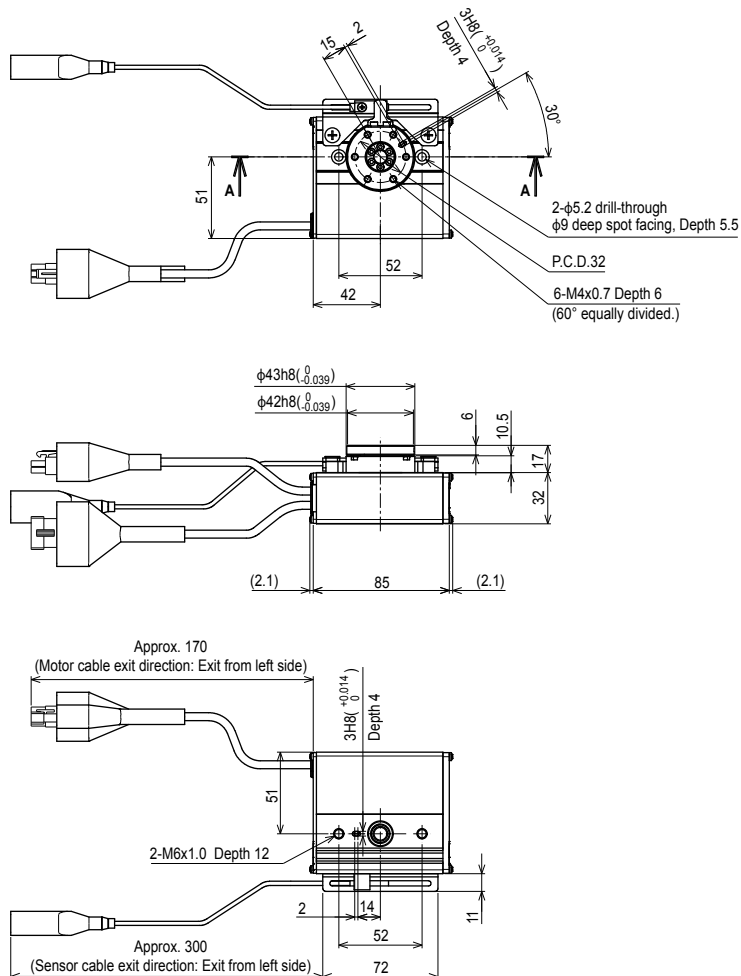
Weight (kg)	0.55
-------------	------

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						S2	
Model	Return-to-origin method N: Stroke end (Limit rotation)	Bearing N: Standard H: High rigidity	Torque N: Standard torque H: High torque	Cable entry location R: From the right L: From the left	Rotation direction N: CCW Z: CW	Cable length Note 1 1K: 1m 3K: 3m 5K: 5m 10K: 10m	Robot positioner S2: TS-S2 Note 2	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3
							SH	
							Robot positioner SH: TS-SH	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board Note 3
							SD	1
							Robot driver SD: TS-SD	I/O cable t: 1m

Note 1. The robot cable is flexible and resists bending.

Note 2. See P.600 for DIN rail mounting bracket.

Note 3. Select this selection when using the gateway function.

Basic specifications

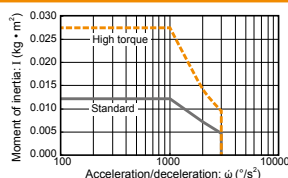
Motor	28 □ Step motor
Resolution (Pulse/rotation)	4096
Repeatability Note 1 (°)	+/-0.05
Drive method	Special worm gear + belt
Torque type	Standard High torque
Maximum speed Note 2 (°/sec)	420 280
Rotating torque (N·m)	0.8 1.2
Max. pushing torque (N·m)	0.4 0.6
Backlash (°)	+/-0.5
Max. moment of inertia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

Note 1. Positioning repeatability in one direction.

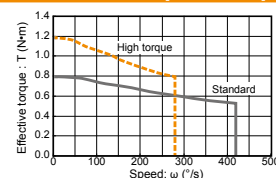
Note 2. The maximum speed may vary depending on the moment of inertia. Check the maximum speed while referring to the "Moment of inertia vs. Acceleration/deceleration" graph and the "Effective torque vs. speed" graph (reference).

Note 3. For moment of inertia and effective torque details, see P.711.

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
196	233	Standard model	High rigidity model	Standard model	High rigidity model	5.3	6.4

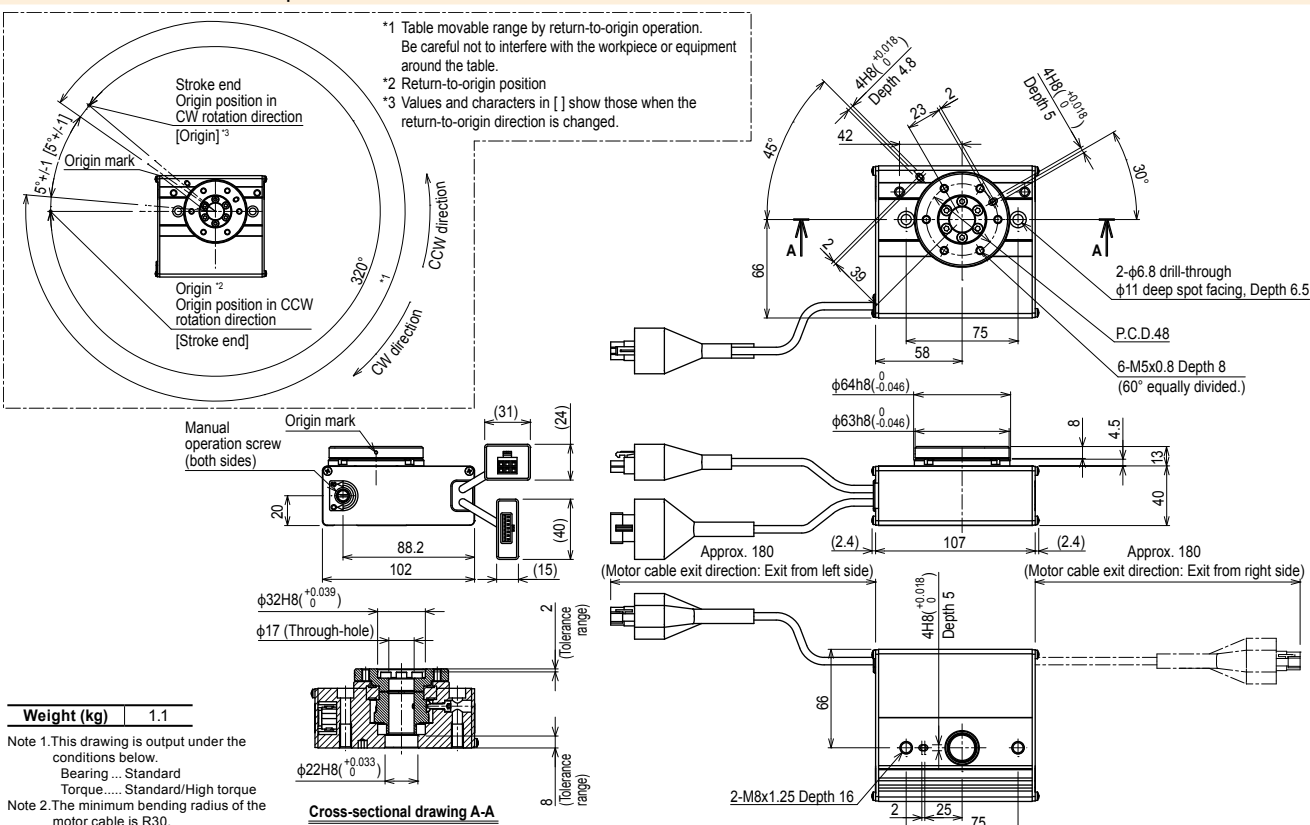
Note. When purchasing the product, set the controller acceleration while carefully checking the "Moment of inertia vs. Acceleration/Deceleration" and "Effective torque vs. Speed" graphs.

For details, please refer to the TRANSERO Series User's Manual.

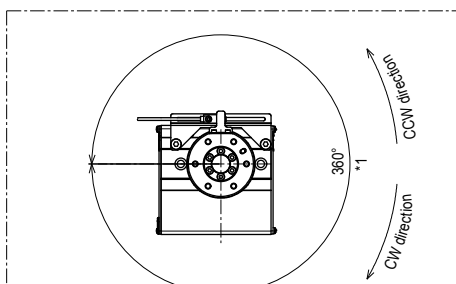
Controller

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

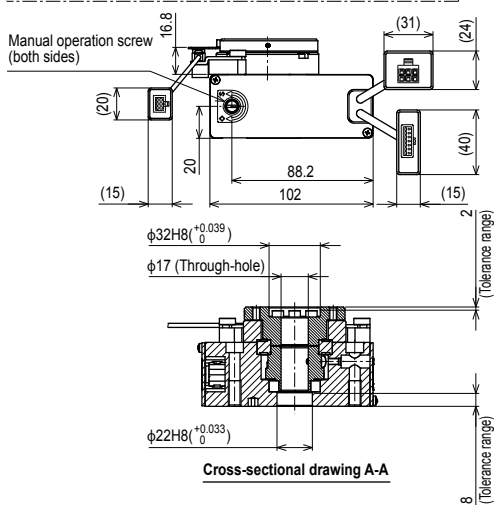
RF03-NN Limit rotation specification – Standard model



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.

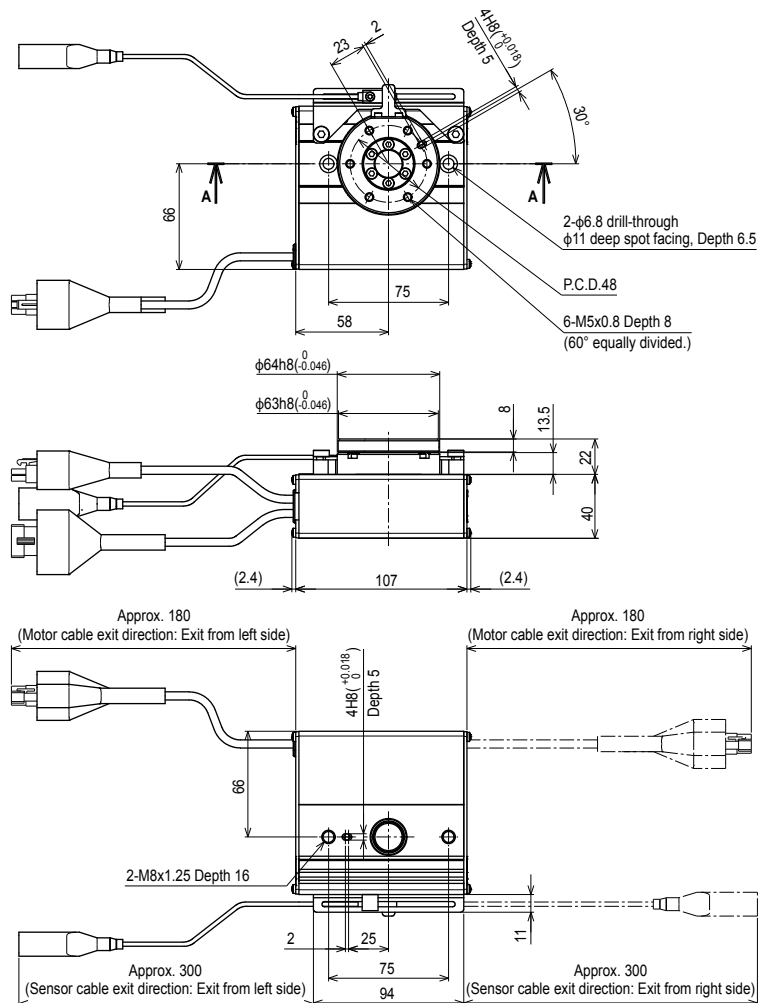


Weight (kg)	1.3
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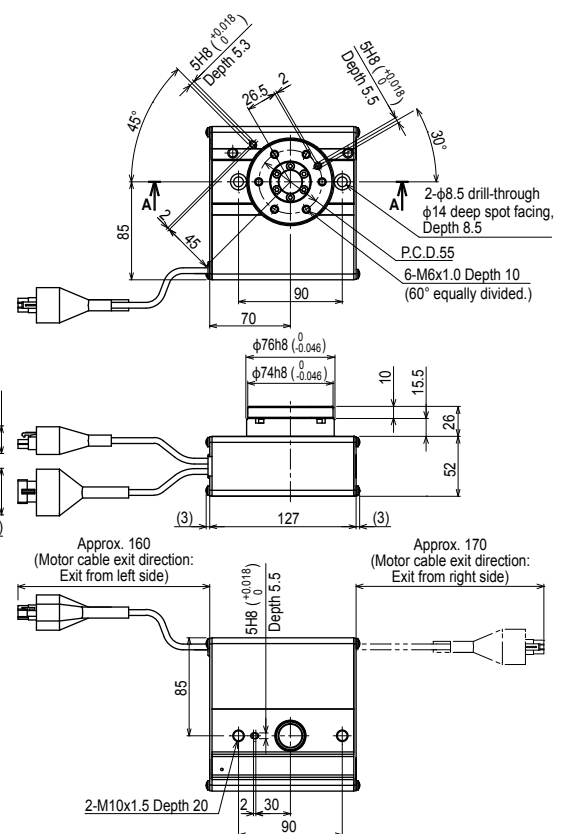
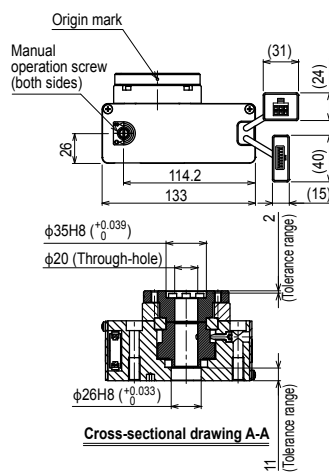
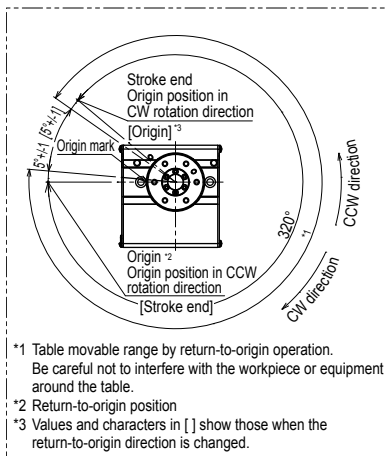
Note 1. This drawing is output under the conditions below.

Bearing High rigidity
Torque Standard/High torque

Note 2. The minimum bending radii of the motor cable and sensor cable are R30.



RF04-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

RF04

S

Model

Return-to-origin method
S: Sensor
(Limitless rotation)Bearing
N: Standard
H: High rigidityTorque
N: Standard torque
H: High torqueCable entry location
R: From the right
L: From the leftRotation direction
N: CCW
Z: CWCable length ^{Note 1}
1K: 1m
3K: 3m
5K: 5m
10K: 10m

S2S

Robot positioner

S2S: TS-S2S ^{Note 2}

I/O

NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
PT: PROFINET
GW: No I/O board ^{Note 3}

SHS

Robot positioner

SHS: TS-SHS

I/O

NP: NPN
PN: PNP
CC: CC-Link
DN: DeviceNet™
EP: EtherNet/IP™
PT: PROFINET
GW: No I/O board ^{Note 3}

Battery

B: With battery
(Absolute)
N: None
(Incremental)

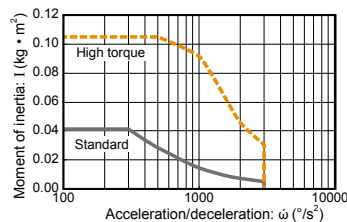
Note 1. The robot cable is flexible and resists bending.
 Note 2. See P.600 for DIN rail mounting bracket.
 Note 3. Select this selection when using the gateway function.

Basic specifications

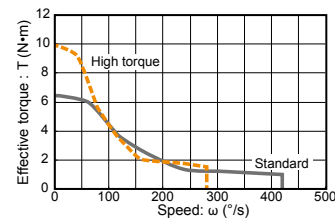
Motor	42 □ Step motor
Resolution (Pulse/rotation)	20480
Repeatability ^{Note 1} (°)	±0.05
Drive method	Special worm gear + belt
Torque type	Standard High torque
Maximum speed ^{Note 2} (°/sec)	420 280
Rotating torque (N·m)	6.6 10
Max. pushing torque (N·m)	3.3 5
Backlash (°)	±0.5
Max. moment of inertia ^{Note 3} (kg·m ²)	0.04 0.1
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.711.

Moment of inertia Acceleration/deceleration



Effective torque vs. speed



Allowable load

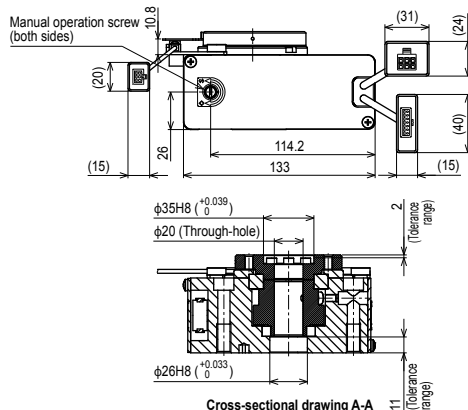
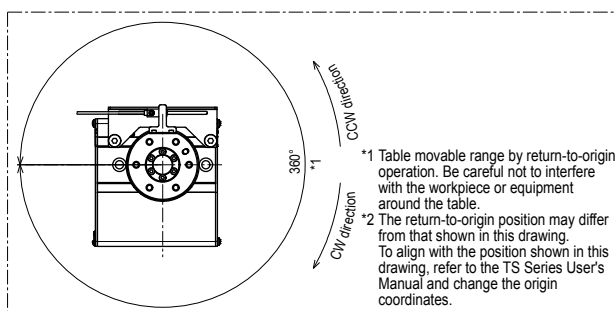
Allowable radial load (N)		Allowable thrust load (N)				Allowable moment (N·m)	
Standard model	High rigidity model	(a)		(b)		Standard model	High rigidity model
314	378	Standard model	High rigidity model	Standard model	High rigidity model	9.7	12.0
		296	398	517			

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 TRANSERO Series User's Manual.

Controller

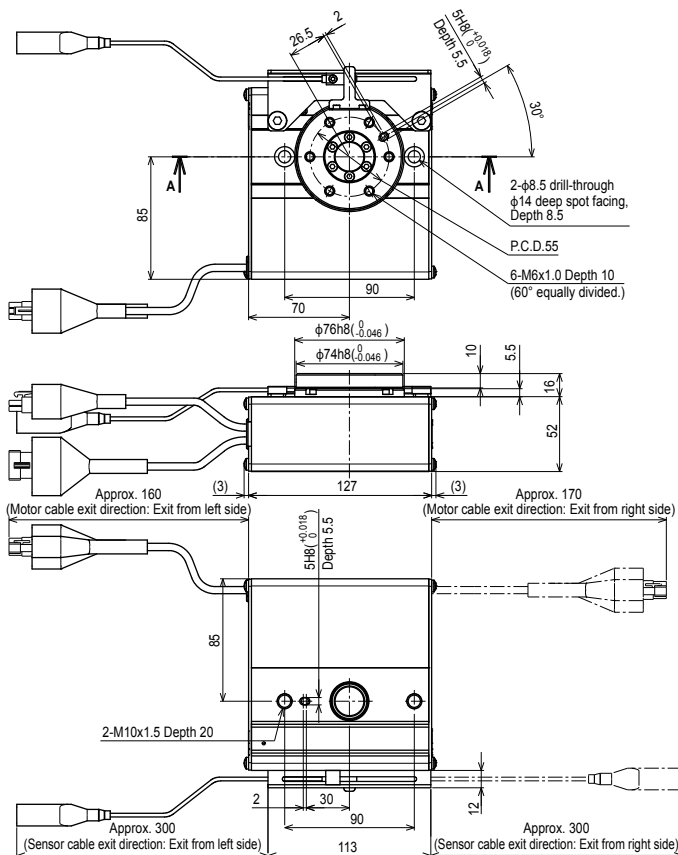
Controller	Operation method
TS-S2S	I/O point trace /
TS-SHS	Remote command

RF04-SN Sensor specification – Standard model

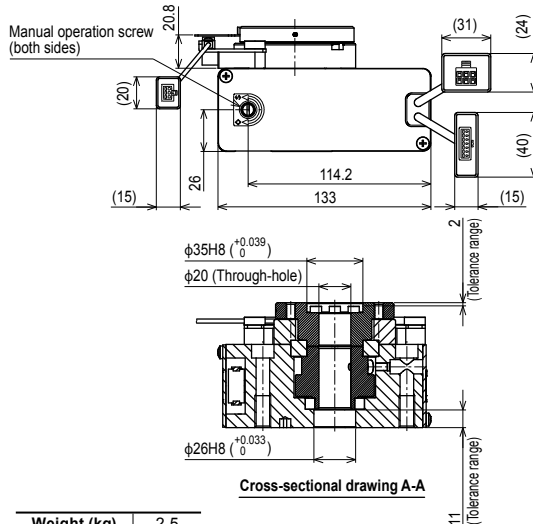
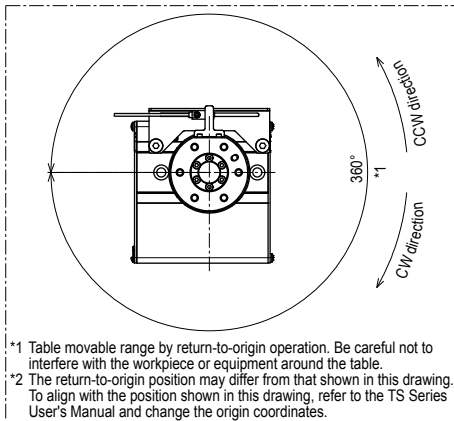


Weight (kg) 2.3

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.



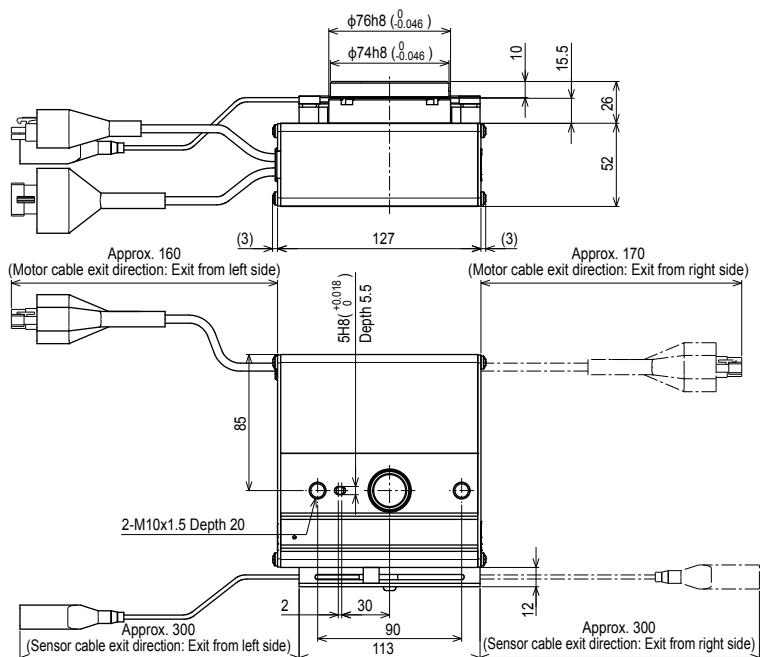
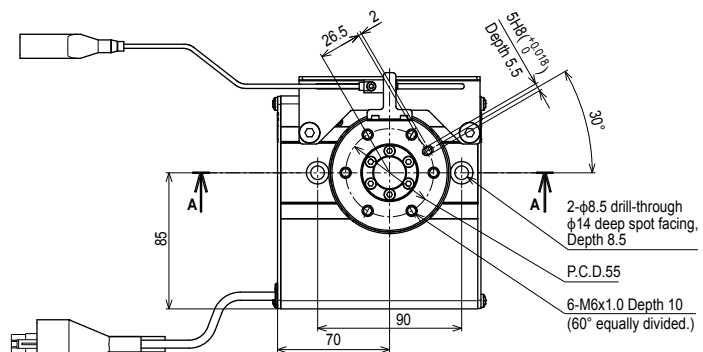
RF04-SH Sensor specification – High rigidity model



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

BD04	48	N	N			S2	
Model	Lead 48: 48mm	Brake N: With no brake	Origin position N: Standard	Stroke 300: 300mm 500: 500mm 600: 600mm 700: 700mm 800: 800mm 900: 900mm 1000: 1000mm	Cable length ^{Note 1} 1K: 1m 3K: 3m 5K: 5m 10K: 10m	Robot positioner S2: TS-S2 ^{Note 2}	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SH	
						Robot positioner SH: TS-SH	I/O NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SD	1
						Robot driver SD: TS-SD	I/O cable 1: 1m

Note 1. The robot cable is flexible and resists bending.

Note 2. See P.600 for DIN rail mounting bracket.

Note 3. Select this selection when using the gateway function.

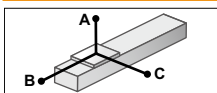
Basic specifications

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

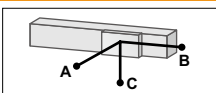
Note 1. Positioning repeatability in one direction.

Note 2. The maximum speed needs to be changed in accordance with the payload.

See the "Speed vs. payload" graph shown on the right.

Allowable overhang ^{Note}

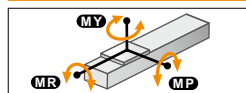
Horizontal installation (Unit: mm)	A	B	C
0.5kg	8036	1950	1504
1kg	3933	968	747



Wall installation (Unit: mm)	A	B	C
0.5kg	1614	1942	8013
1kg	798	961	3969

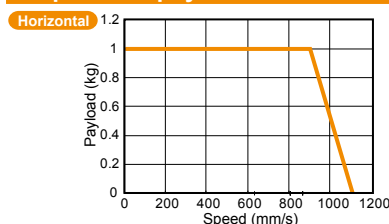
Note. Distance from center of slider upper surface to carrier center-of-gravity at a guide service life of 10,000km (This does not warrant the service life of the product.). (Service life is calculated for 600mm stroke models.)

Static loading moment



(Unit: N·m)		
MY	MP	MR
10	10	20

Speed vs. payload



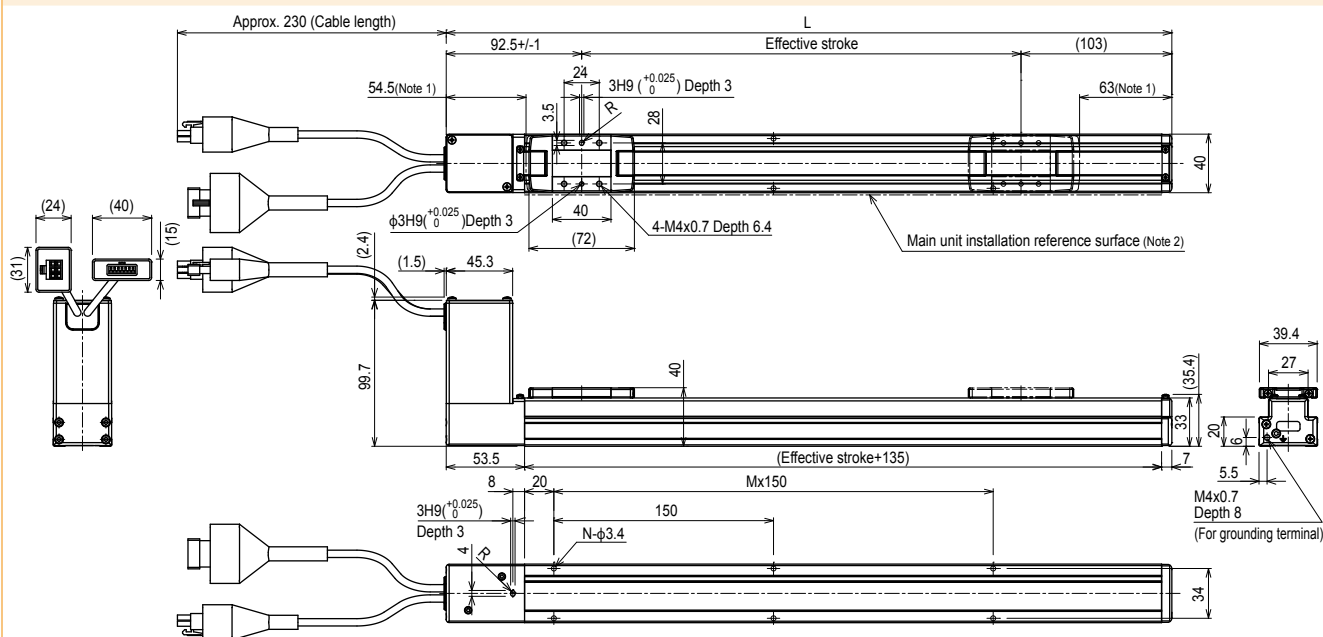
Quick reference

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	Pulse train control
TS-SD	

BD04



Effective stroke	300	500	600	700	800	900	1000
L	495.5	695.5	795.5	895.5	995.5	1095.5	1195.5
M	2	4	4	5	6	6	7
N	6	10	10	12	14	14	16
Weight (kg)	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

BD05	48	N	N			S2	
Model	Lead	Brake	Origin position	Stroke	Cable length ^{Note 1}	Robot positioner	I/O
	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 ^{Note 2}	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SH	
						Robot positioner	I/O
						SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SD	1
						Robot driver	I/O cable
						SD: TS-SD	1: 1m
							Battery
							B: With battery (Absolute) N: None (Incremental)

Note 1. The robot cable is flexible and resists bending.

Note 2. See P.600 for DIN rail mounting bracket.

Note 3. Select this selection when using the gateway function.

Basic specifications

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

Note 1. Positioning repeatability in one direction.

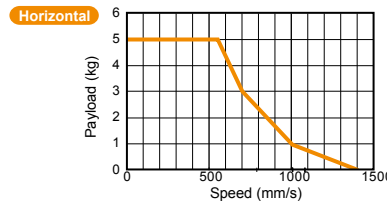
Note 2. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.

Allowable overhang ^{Note}

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

Speed vs. payload



Quick reference

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

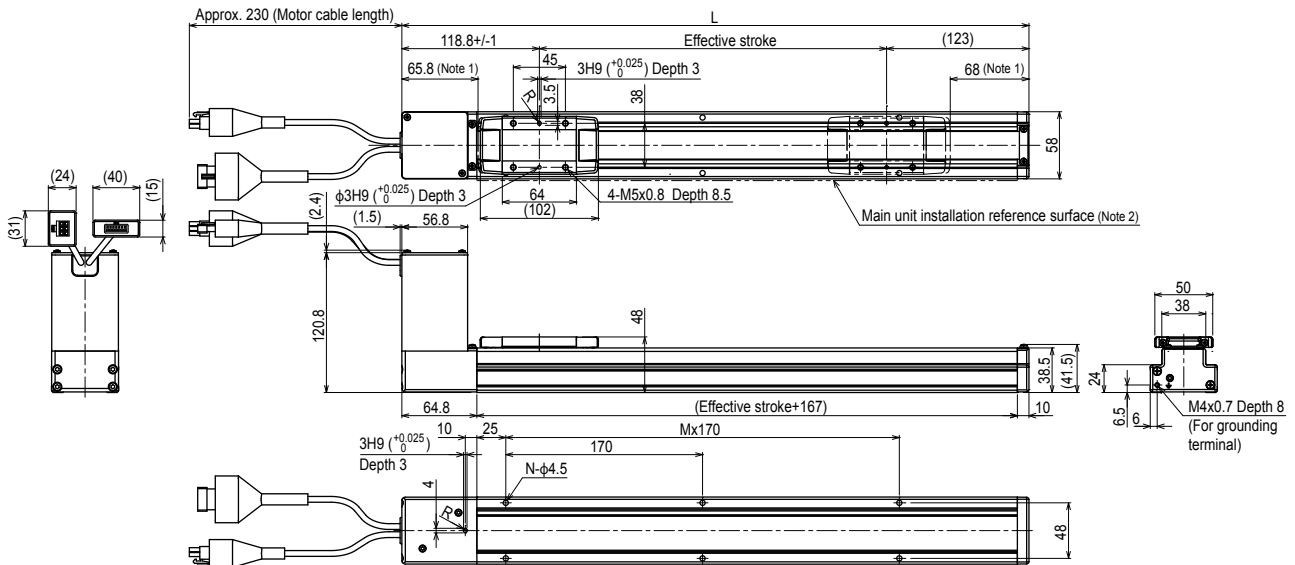
Static loading moment

	MY	MP	MR
(Unit: N·m)	27	27	52

Controller

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

BD05



Effective stroke	300	500	600	700	800	900	1000	1200	1500	1800	2000
L	541.8	741.8	841.8	941.8	1041.8	1141.8	1241.8	1441.8	1741.8	2041.8	2241.8
M	2	3	4	4	5	6	6	7	9	11	12
N	6	8	10	10	12	14	14	16	20	24	26
Weight (kg)	2.39	2.85	3.08	3.31	3.54	3.77	4	4.46	5.15	5.84	6.3

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.

Controller

TS-S2 ▶ 592 TS-SH ▶ 592 TS-SD ▶ 602

BD07

Belt type

CE compliance

Ordering method

BD07	48	N	N			S2	
Model	Lead	Brake	Origin position	Stroke	Cable length ^{Note 1}	Robot positioner	I/O
	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 ^{Note 2}	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SH	
						Robot positioner	I/O
						SH: TS-SH	NP: NPN PN: PNP CC: CC-Link DN: DeviceNet™ EP: EtherNet/IP™ PT: PROFINET GW: No I/O board ^{Note 3}
						SD	1
						Robot driver	I/O cable
						SD: TS-SD	1: 1m
							Battery
							B: With battery (Absolute) N: None (Incremental)

Note 1. The robot cable is flexible and resists bending.

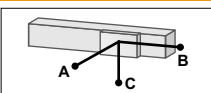
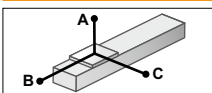
Note 2. See P.600 for DIN rail mounting bracket.

Note 3. Select this selection when using the gateway function.

Basic specifications

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

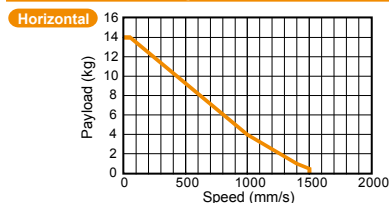
Note 1. Positioning repeatability in one direction.

Note 2. The maximum speed needs to be changed in accordance with the payload.
See the "Speed vs. payload" graph shown on the right.Allowable overhang ^{Note}

Horizontal installation (Unit: mm)				Wall installation (Unit: mm)			
	A	B	C		A	B	C
3kg	5767	1353	1247	3kg	1324	1354	5588
8kg	1839	399	458	8kg	474	399	1658
14kg	829	154	254	14kg	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.)

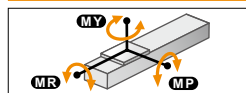
Speed vs. payload



Quick reference

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

Static loading moment



(Unit: N-m)		
MY	MP	MR
46	46	101

Controller

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

BD07

