ABFS03

Basic model **Single-axis robots**
Low-profile type

Ordering method

Model	Lead	Shape	Motor specification	Stroke	Cable length Note 1	Cable entry location	Robot positioner	Driver: Power capacity	I/O	Battery Note 2
ABFS03	8: 8mm 4: 4mm 2: 2mm	S: Straight R: Right attachment L: Left attachment	S: Standard/With no brake BK: Standard/With brake BL: Battery-less absolute/ With no brake BKL: Battery-less absolute/ With brake	50 to 300 (50mm pitch)	R3: 3 m R5: 5 m R10: 10 m	R: From rear of motor F: From front of motor	EP-01	A10: 200W or less	EP: EtherNet/IP™ PT: PROFINET ES: EtherCAT NS: NPN CC: CC-Link	B: With battery N: None

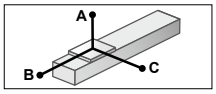
Note 1. The robot cable is flexible and resists bending.
Note 2. When the motor specification is the standard (S, BK), whether to use the battery needs to be selected.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor side. For details about how to change the return-to-origin direction, see the instruction manual for EP-01.)

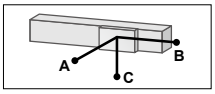
Specifications

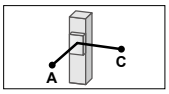
AC servo motor output		50 W		
Repeatability Note 1		±0.005 mm		
Deceleration mechanism		Rolled ball screw ϕ6 (C7 class)		
Stroke		50 mm to 300 mm (50 mm pitch)		
Maximum speed Note 2		480 mm/sec	240 mm/sec	100 mm/sec
Ball screw lead		8 mm	4 mm	2 mm
Maximum payload	Horizontal	10 kg	10 kg	13 kg
	Vertical	2 kg	4 kg	5 kg
Rated Thrust		88 N	143 N	352 N
Dinamic loading moment (MY,MP,MR)		8.1 / 8.1 / 9.3		
Maximum dimensions of cross section of main unit		W 42.2 mm × H 30 mm		
Overall length	Straight	ST + 220.5 mm		
	Bending	ST + 143 mm		
Degree of Cleanliness Note 3		Equivalent to ISO Class 4 (ISO 14644-1)		
Intake air Note 4		50 Nℓ/ min~		
Position detector		Absolute encoder Battery-less absolute encoder		
Resolution		23 bits		
Using ambient temperature and humidity		0 to 40 °C, 35 to 80 %RH (no condensation)		

Note 1. Positioning repeatability in one direction. ±0.01 for the Bending configuration.
Note 2. When a moving distance is short and depending on an operation condition, it may not reach the maximum speed.
Note 3. When using in a clean environment, attach a suction air joint. The degree of cleanliness is the cleanliness level achieved when using at 1000 mm/sec or less.
Note 4. The required suction amount will vary according to the operating conditions and operating environment.

Allowable overhang Note







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Horizontal installation (Unit: mm)

	A	B	C
4kg	785	113	116
7kg	492	60	61
10kg	360	38	39

Wall installation (Unit: mm)

	A	B	C
4kg	116	113	785
7kg	61	60	492
10kg	39	38	360

Vertical installation (Unit: mm)

	A	C
1kg	493	493
2kg	248	248

ABFS03-4

Horizontal installation (Unit: mm)

	A	B	C
4kg	1877	128	141
7kg	1202	68	75
10kg	912	44	49

Wall installation (Unit: mm)

	A	B	C
4kg	141	128	1877
7kg	75	68	1202
10kg	49	44	912

Vertical installation (Unit: mm)

	A	C
2kg	279	279
4kg	140	140

ABFS03-2

Horizontal installation (Unit: mm)

	A	B	C
5kg	4769	126	142
9kg	3117	65	73
13kg	2415	41	46

Wall installation (Unit: mm)

	A	B	C
5kg	142	126	4769
9kg	73	65	3117
13kg	46	41	2415

Vertical installation (Unit: mm)

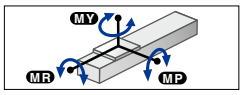
	A	C
3kg	230	230
5kg	138	138

Note. Distance from center of slider top to center of gravity of object being carried at a guide service life of 10,000 km.
Note. Service life is calculated for 300 mm stroke models.

Controller

Controller	Operation method
EP-01	I/O point trace/Remote command

Static loading moment

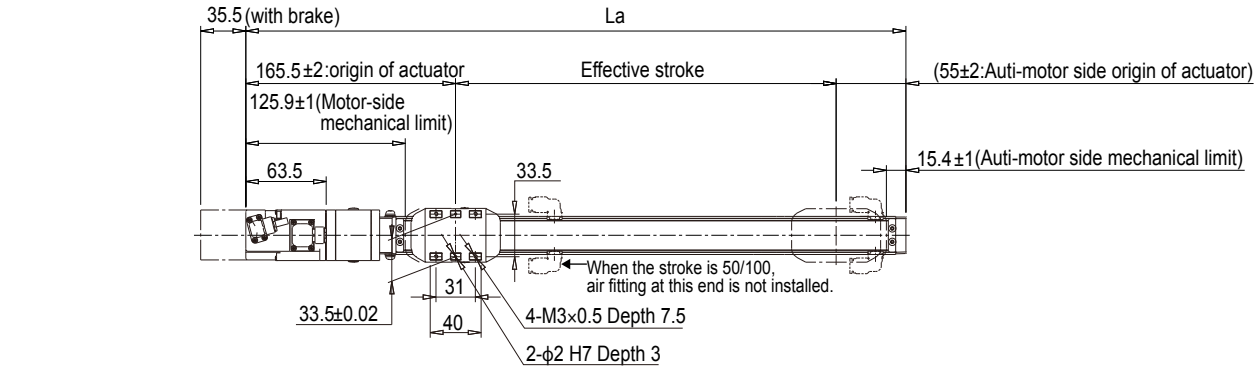


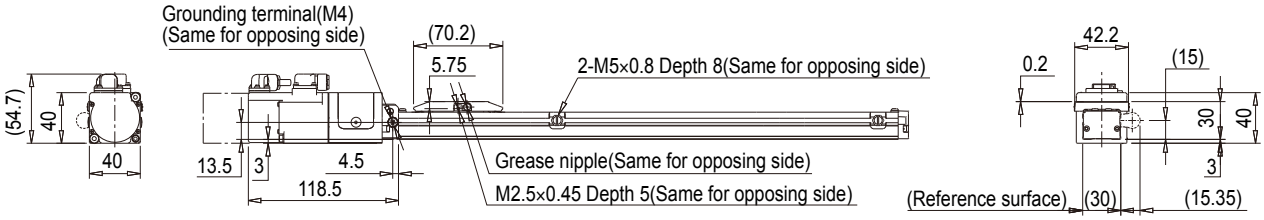
(Unit: N·m)

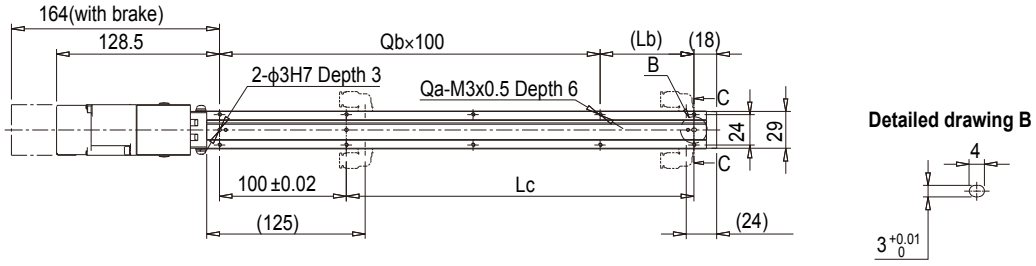
MY	MP	MR
13	13	15

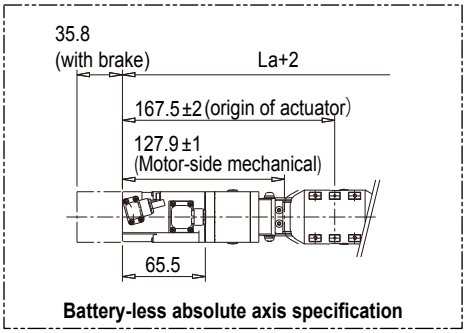
YAMAHA
▶ The cycle time simulation and service life calculation can be performed easily from our member site.

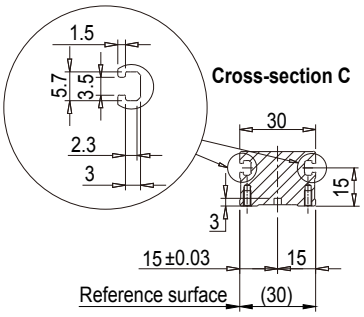
ABFS03 Straight type (S)









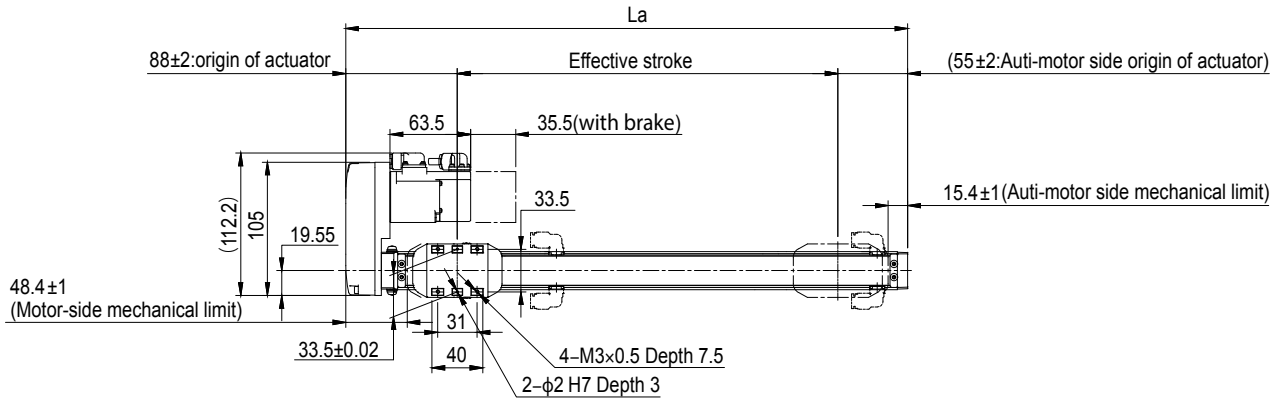


Note 1.Weight without brake. The weight with the brake is 0.2 kg heavier than the value in the weight column.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor side. For details about how to change the return-to-origin direction, see the instruction manual for EP-01.)
Note. In the installation tap hole, the length under head <<thickness of stand +6mm or less>> is recommended for the hex socket head bolts <M3×0.5> used to install the main unit.
Note. Grease gun nozzle (recommended) Part number: KFU-M3861-00
Note. The minimum bending radius for robot cables should be R30 or more for fixed cables / R50 or more for movable cables. The cable exit direction varies depending on the specifications.

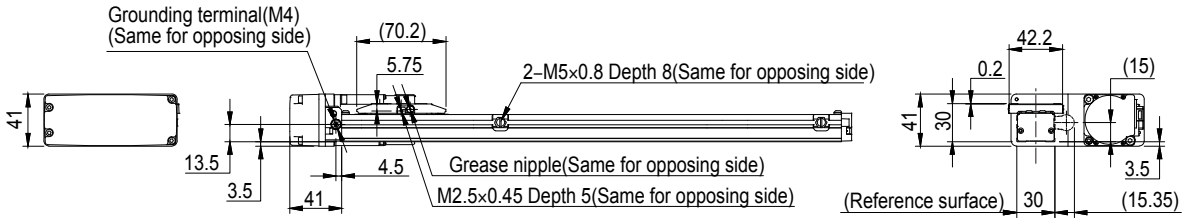
Effective stroke		50	100	150	200	250	300
La		270.5	320.5	370.5	420.5	470.5	520.5
Lb		24	74	24	74	24	74
Lc		24	74	124	174	224	274
Qa		6	6	8	8	10	10
Qb		1	1	2	2	3	3
Weight (kg) Note 1		0.69	0.75	0.82	0.88	0.95	1.01
Maximum speed (mm/sec)	Lead 8	480					
	Speed setting	-					
	Lead 4	240					
	Speed setting	-					
	Lead 2	100					
	Speed setting	-					

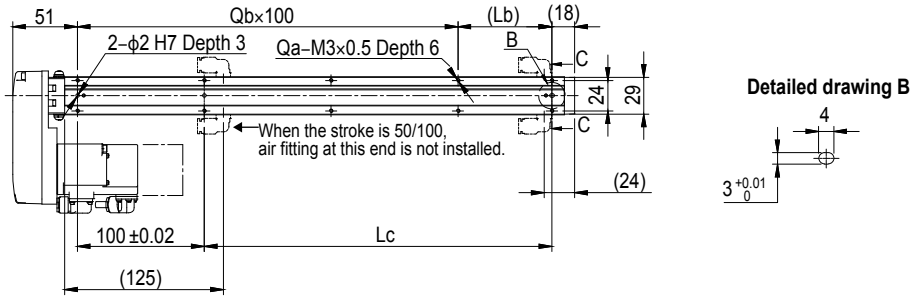
ABFS03

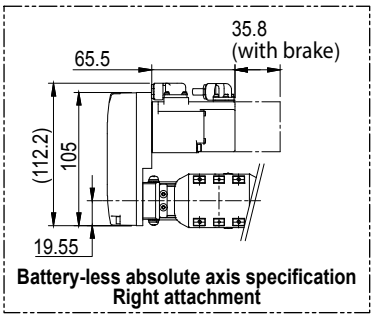
ABFS03 Bending type (R/L)



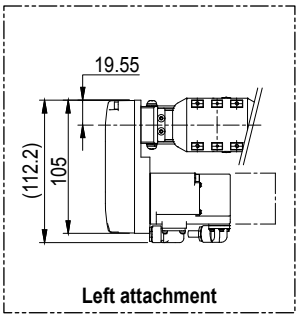
Right attachment



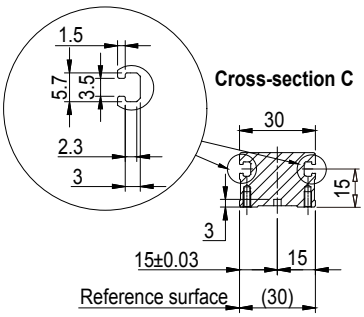




Battery-less absolute axis specification
Right attachment



Left attachment



Note 1.Weight without brake. The weight with the brake is 0.2 kg heavier than the value in the weight column.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor side. For details about how to change the return-to-origin direction, see the instruction manual for EP-01.)
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Note. Grease gun nozzle (recommended) Part number: KFU-M3861-00
Note. The minimum bending radius for robot cables should be R30 or more for fixed cables / R50 or more for movable cables. The cable exit direction varies depending on the specifications.

Effective stroke		50	100	150	200	250	300
La		193	243	293	343	393	443
Lb		24	74	24	74	24	74
Lc		24	74	124	174	224	274
Qa		6	6	8	8	10	10
Qb		1	1	2	2	3	3
Weight (kg) Note 1		0.91	0.96	1.01	1.06	1.11	1.16
Maximum speed (mm/sec)	Lead 8	480					
	Speed setting	-					
	Lead 4	240					
	Speed setting	-					
	Lead 2	100					
	Speed setting	-					