ABFS04

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
ABFS04	12: 12mm 6: 6mm 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 500 (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

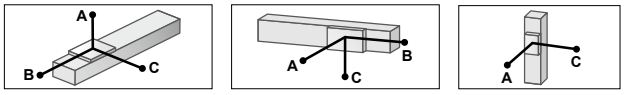
Note 1. The robot cable is flexible and resists bending.
Note 2. When the motor specification is the standard (S, BK), whether to use the battery needs to be selected.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor 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 ϕ 10 (C7 class)		
Stroke		50 mm to 500 mm (50 mm pitch)		
Maximum speed Note 2		720 mm/sec	360 mm/sec	120 mm/sec
Ball screw lead		12 mm	6 mm	2 mm
Maximum payload	Horizontal	12 kg	20 kg	25 kg
	Vertical	3 kg	5 kg	8 kg
Rated Thrust		71 N	141 N	424 N
Dinamic loading moment (MY,MP,MR)		17.2 / 17.2 / 23.3		
Maximum dimensions of cross section of main unit		W 49.7 mm × H 40 mm		
Overall length	Straight	ST + 284 mm		
	Bending	ST + 204 mm		
Degree of Cleanliness Note 3		Equivalent to ISO Class 4 (ISO 14644-1)		
Intake air Note 4		80 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



ABFS04-12

Horizontal installation (Unit: mm)

	A	B	C
4kg	896	228	259
8kg	596	107	125
12kg	465	67	78

Wall installation (Unit: mm)

	A	B	C
4kg	256	228	864
8kg	130	107	691
12kg	84	67	619

Vertical installation (Unit: mm)

	A	C
1kg	913	913
3kg	316	316

ABFS04-6

Horizontal installation (Unit: mm)

	A	B	C
5kg	1867	209	272
10kg	1181	98	127
20kg	748	42	55

Wall installation (Unit: mm)

	A	B	C
5kg	272	209	1867
10kg	127	98	1181
20kg	55	42	748

Vertical installation (Unit: mm)

	A	C
3kg	369	369
5kg	222	222

ABFS04-2

Horizontal installation (Unit: mm)

	A	B	C
10kg	4004	128	172
18kg	2635	65	87
25kg	2088	43	58

Wall installation (Unit: mm)

	A	B	C
10kg	172	128	4004
18kg	87	65	2635
25kg	58	43	2088

Vertical installation (Unit: mm)

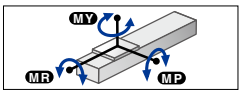
	A	C
4kg	354	354
8kg	177	177

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 500 mm stroke models.

Controller

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

Static loading moment



(Unit: N·m)

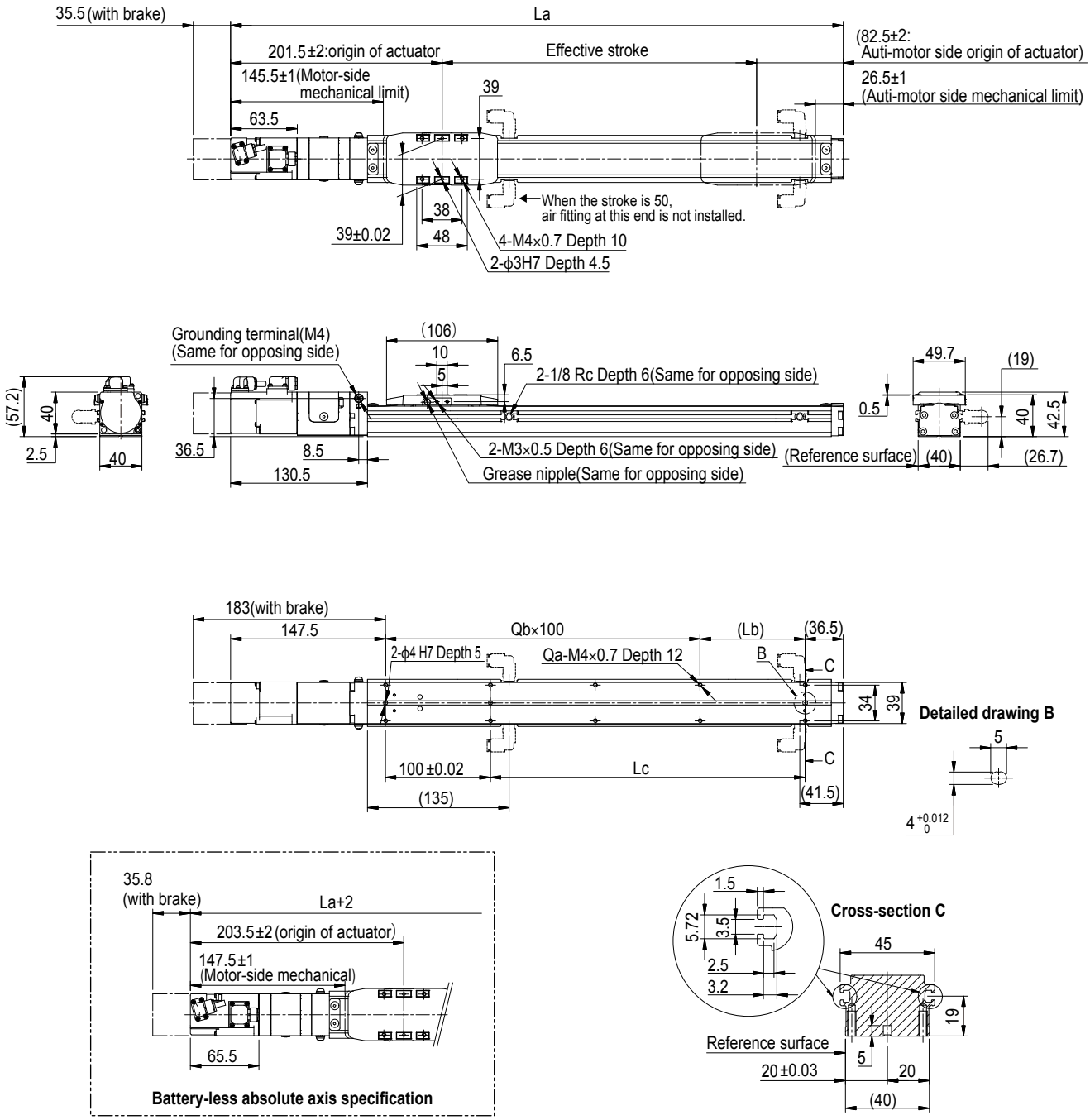
MY	MP	MR
47	47	64

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

Controller EP-01 ▶ 582

ABFS04

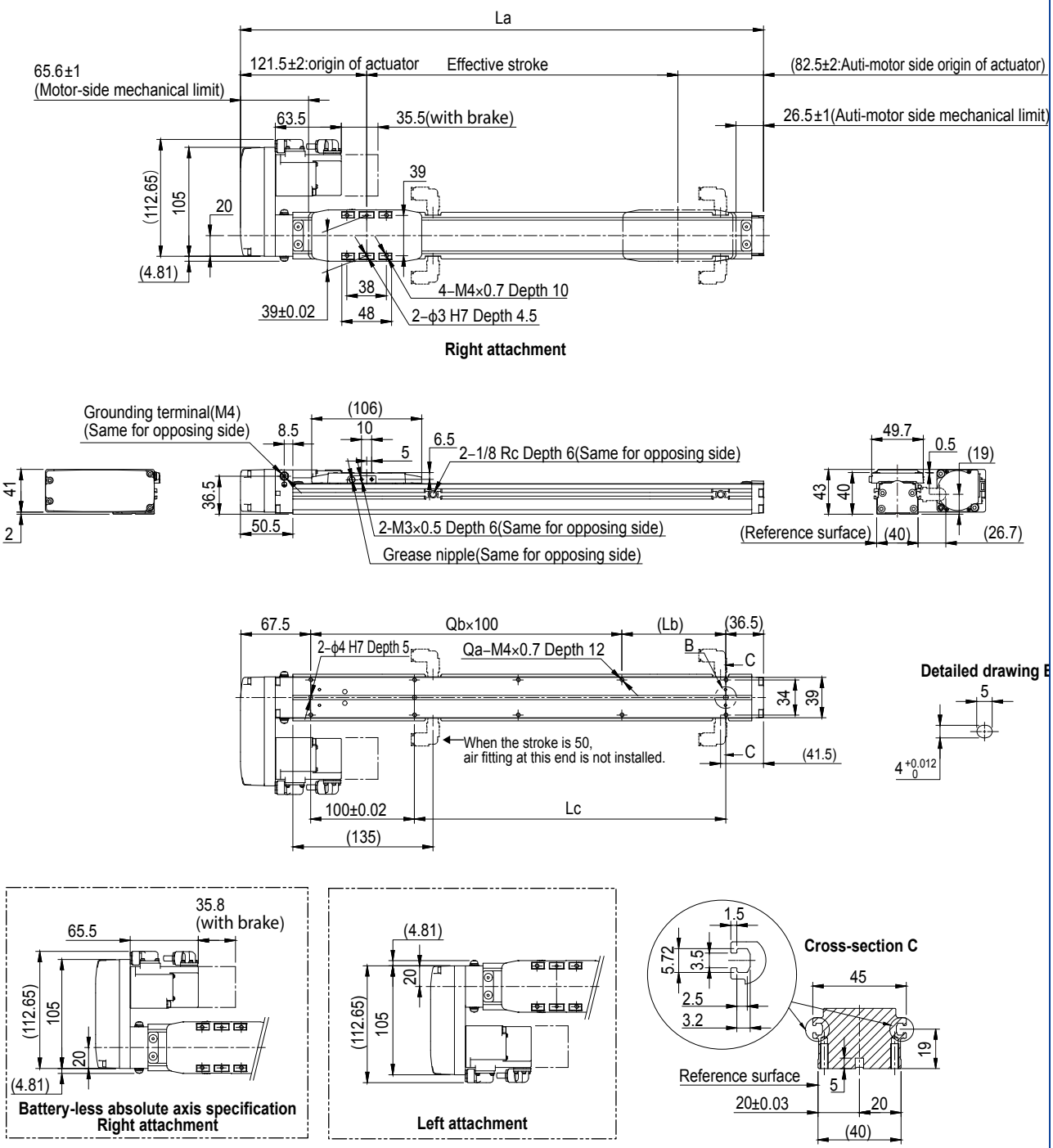
ABFS04 Straight type (S)



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 +12mm or less>> is recommended for the hex socket head bolts <M4×0.7> 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	350	400	450	500
La		334	384	434	484	534	584	634	684	734	784
Lb		50	100	50	100	50	100	50	100	50	100
Lc		50	100	150	200	250	300	350	400	450	500
Qa		6	6	8	8	10	10	12	12	14	14
Qb		1	1	2	2	3	3	4	4	5	5
Weight (kg) Note 1		1.29	1.4	1.52	1.64	1.76	1.89	1.99	2.11	2.23	2.35
Maximum speed (mm/sec)	Lead 12	720									
	Speed setting	-									
	Lead 6	360									
	Speed setting	-									
	Lead 2	120									
	Speed setting	-									

ABFS04 Bending type (R/L)



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 +12mm or less>> is recommended for the hex socket head bolts <M4×0.7> 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	350	400	450	500
La		254	304	354	404	454	504	554	604	654	704
Lb		50	100	50	100	50	100	50	100	50	100
Lc		50	100	150	200	250	300	350	400	450	500
Qa		6	6	8	8	10	10	12	12	14	14
Qb		1	1	2	2	3	3	4	4	5	5
Weight (kg) Note 1		1.42	1.53	1.64	1.75	1.86	1.97	2.08	2.19	2.3	2.42
Maximum speed (mm/sec)	Lead 12	720									
	Speed setting	-									
	Lead 6	360									
	Speed setting	-									
	Lead 2	120									
	Speed setting	-									