ABFS05

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
ABFS05	20: 20mm 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 800 (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

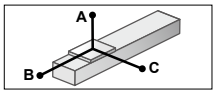
Note 1. The robot cable is flexible and resists bending.
Note 2. When the motor specification is the standard (S, BK), whether to use the battery needs to be selected.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor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

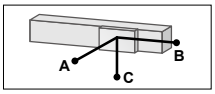
Specifications

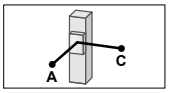
AC servo motor output		100 W			
Repeatability Note 1		±0.005 mm			
Deceleration mechanism		Rolled ball screw ϕ 10 (C7 class)			
Stroke		50 mm to 800 mm (50 mm pitch)			
Maximum speed Note 2		1200 mm/sec	800 mm/sec	400 mm/sec	120 mm/sec
Ball screw lead		20 mm	12 mm	6 mm	2 mm
Maximum payload	Horizontal	10 kg	22 kg	25 kg	30 kg
	Vertical	3 kg	4 kg	6 kg	10 kg
Rated Thrust		85 N	142 N	285 N	854 N
Dinamic loading moment (MY,MP,MR)		24.6 / 24.6 / 39.4			
Maximum dimensions of cross section of main unit		W 58 mm × H 40 mm			
Overall length	Straight	ST + 288.5 mm			
	Bending	ST + 195 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. If the effective stroke exceeds (A) mm, the ball screw may resonate. (Critical speed) (A):700 mm for lead 20; 600 mm for lead 2, 6, and 12.
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







ABFS05-20

Horizontal installation (Unit: mm)

	A	B	C
3kg	637	348	330
6kg	330	165	161
10kg	234	92	95

Wall installation (Unit: mm)

	A	B	C
3kg	330	348	637
6kg	161	165	330
10kg	95	92	234

Vertical installation (Unit: mm)

	A	C
1kg	941	941
3kg	327	327

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Horizontal installation (Unit: mm)

	A	B	C
8kg	511	151	186
15kg	353	73	93
22kg	268	44	57

Wall installation (Unit: mm)

	A	B	C
8kg	186	151	511
15kg	93	73	353
22kg	57	44	268

Vertical installation (Unit: mm)

	A	C
2kg	640	640
4kg	322	322

ABFS05-6

Horizontal installation (Unit: mm)

	A	B	C
10kg	1178	140	208
15kg	830	88	130
25kg	566	46	68

Wall installation (Unit: mm)

	A	B	C
10kg	208	140	1178
15kg	130	88	830
25kg	68	46	566

Vertical installation (Unit: mm)

	A	C
3kg	520	520
6kg	260	260

ABFS05-2

Horizontal installation (Unit: mm)

	A	B	C
10kg	9257	186	293
20kg	6043	84	133
30kg	4746	50	79

Wall installation (Unit: mm)

	A	B	C
10kg	293	186	9257
20kg	133	84	6043
30kg	79	50	4746

Vertical installation (Unit: mm)

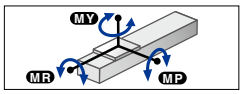
	A	C
5kg	406	406
10kg	203	203

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

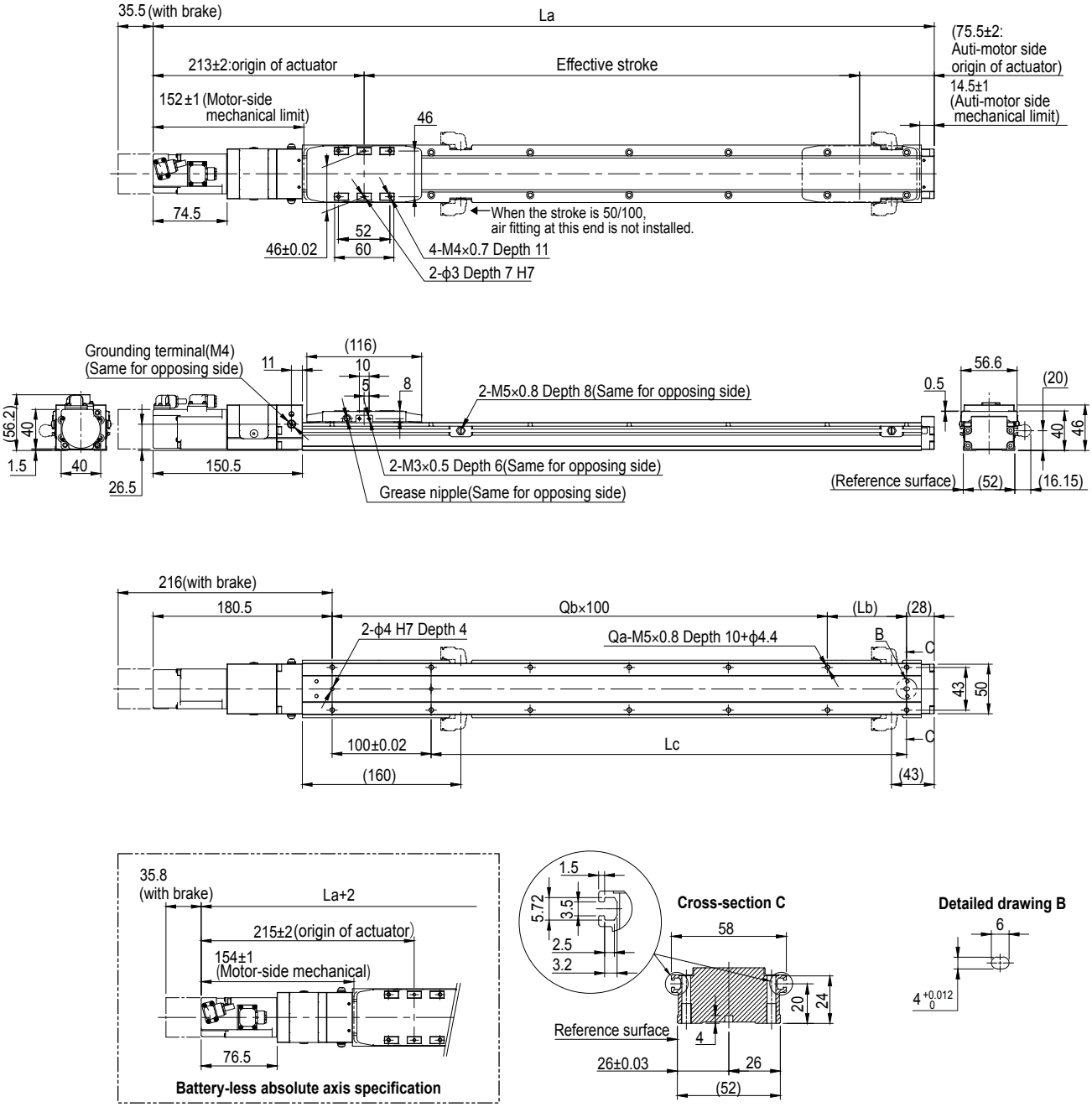


(Unit: N·m)

MY	MP	MR
73	73	115

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

ABFS05 Straight type (S)

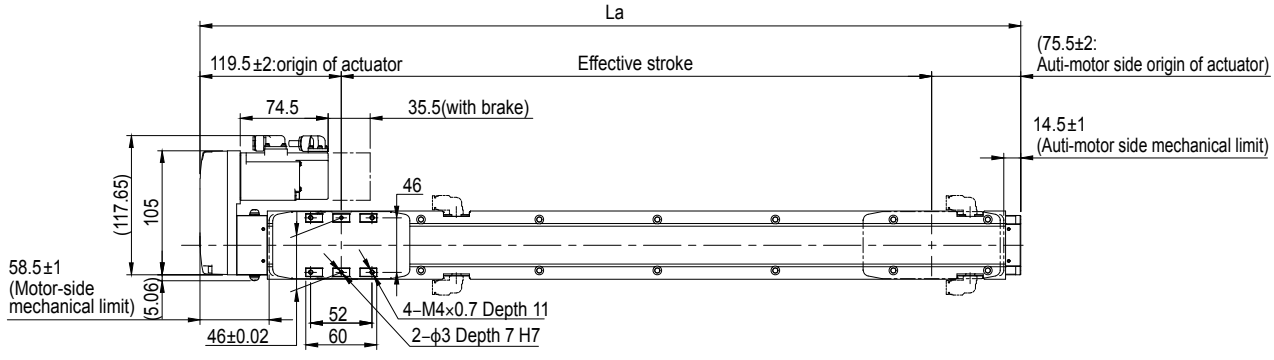


Note 1.Weight without brake. The weight with the brake is 0.2 kg heavier than the value in the weight column.
Note. The return-to-origin direction can be changed by changing the parameter. (The standard is that the origin is located on the motor side. For details about how to change the return-to-origin direction, see the instruction manual for EP-01.)
Note. For the installation through hole,the length under head <<35mm or more >> is recommended for the hex socket head bolts <M4×0.7>. In the installation tap hole, the length under head <<thickness of stand +10mm or less>> is recommended for the hex socket head bolts <M5×0.8> 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.

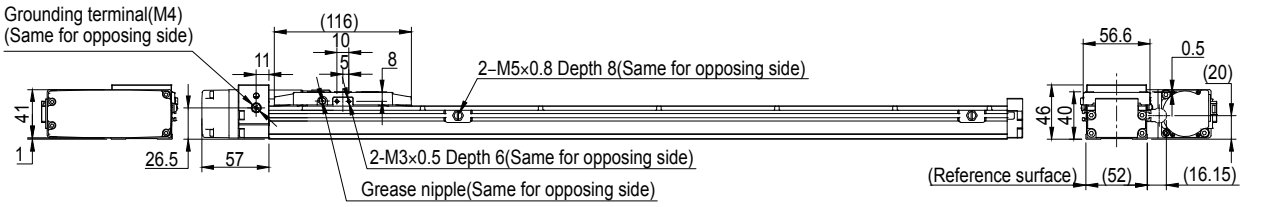
Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
La		338.5	388.5	438.5	488.5	538.5	588.5	638.5	688.5	738.5	788.5	838.5	888.5	938.5	988.5	1038.5	1088.5
Lb		30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80
Lc		30	80	130	180	230	280	330	380	430	480	530	580	630	680	730	780
Qa		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
Qb		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
Weight (kg) Note 1		1.33	1.57	1.82	2.06	2.30	2.55	2.79	3.03	3.28	3.52	3.76	4.00	4.25	4.49	4.73	4.98
Maximum speed (mm/sec)	Lead 20	1200													780	720	600
	Speed setting	-													65%	60%	50%
	Lead 12	800											680	560	480	400	360
	Speed setting	-											85%	70%	60%	50%	45%
	Lead 6	400											340	280	240	200	180
	Speed setting	-											85%	70%	60%	50%	45%
	Lead 2	120											102	90	78	66	60
	Speed setting	-											85%	75%	65%	55%	50%

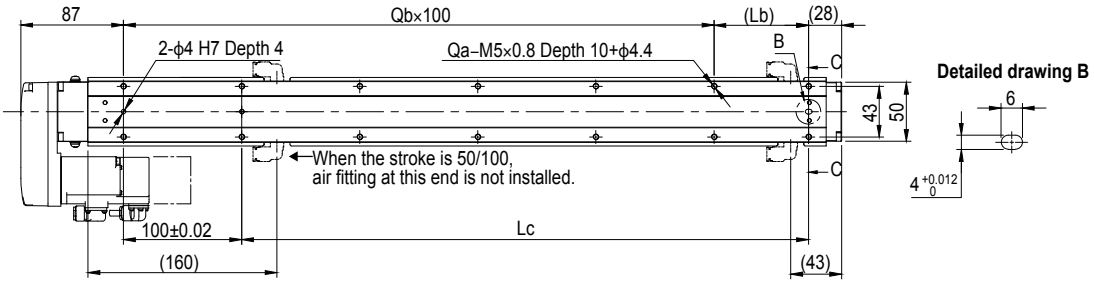
Controller EP-01 ▶ 582

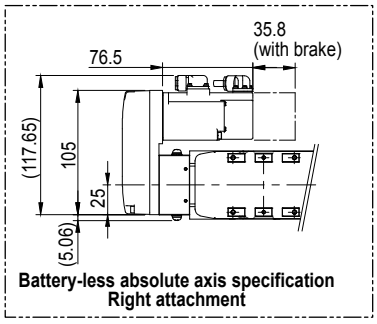
ABFS05 Bending type (R/L)



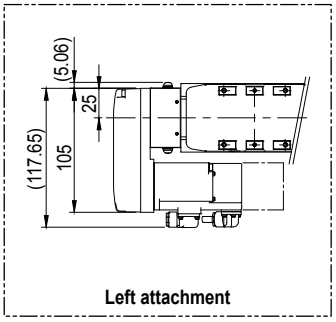
Right attachment



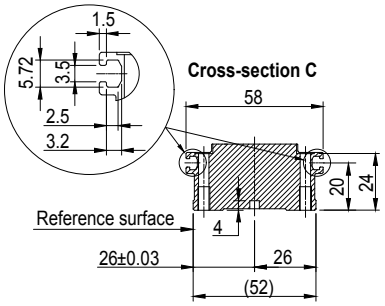




Battery-less absolute axis specification
Right attachment



Left attachment



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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	350	400	450	500	550	600	650	700	750	800
La		245	295	345	395	445	495	545	595	645	695	745	795	845	895	945	995
Lb		30	80	30	80	30	80	30	80	30	80	30	80	30	80	30	80
Lc		30	80	130	180	230	280	330	380	430	480	530	580	630	680	730	780
Qa		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
Qb		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
Weight (kg) Note 1		1.24	1.41	1.57	1.74	1.91	2.08	2.24	2.41	2.58	2.75	2.91	3.08	3.25	3.42	3.58	3.75
Maximum speed (mm/sec)	Lead 20	1200													780	720	600
	Speed setting	-													65%	60%	50%
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