ABFS07

Basic model **Single-axis robots**

Low-profile type

Ordering method

本体	Lead	Shape	Motor specification	Stroke	Cable length Note 1	Cable entry location	EP-01 Robot positioner	Driver: Power capacity	Regenerative unit Note 2	I/O	Battery Note 3
ABFS07	20: 20 mm 10: 10 mm 5: 5 mm	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 1050 (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	No entry: None R: With EP-RU	EP: EtherNet/IP™ PT: PROFINET ES: EtherCAT NS: NPN CC: CC-Link	B: With battery N: None

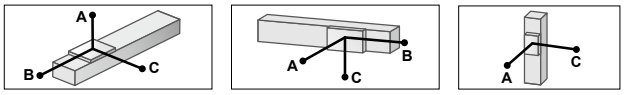
Note 1. The robot cable is flexible and resists bending.
Note 2.Note 2. When the actuator is used vertically, ①lead 20 is selected, and the stroke is 600 mm or more ②lead 10 is selected, and the stroke is 300mm or more ③lead 5 is selected, and the stroke is 250mm or more, the regenerative unit is needed.
Note 3. 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 12 (C7 class)		
Stroke		50 mm to 1050 mm (50 mm pitch)		
Maximum speed Note 2		1333 mm/sec	666 mm/sec	333 mm/sec
Ball screw lead		20 mm	10 mm	5 mm
Maximum payload	Horizontal	25 kg	45 kg	85 kg
	Vertical	4 kg	10 kg	16 kg
Rated Thrust		84 N	169 N	339 N
Dinamic loading moment (MY,MP,MR)		50.4 / 50.4 / 79.4		
Maximum dimensions of cross section of main unit		W 75 mm × H 48 mm		
Overall length	Straight	ST + 315.5 mm		
	Bending	ST + 224 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 550 mm, the ball screw may resonate. (Critical 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



ABFS07-20

Horizontal installation (Unit: mm)

	A	B	C
10kg	1330	239	290
18kg	955	129	166
25kg	800	89	118

Wall installation (Unit: mm)

	A	B	C
10kg	290	239	1330
18kg	166	129	955
25kg	118	89	800

Vertical installation (Unit: mm)

	A	C
2kg	1275	1275
4kg	653	653

ABFS07-10

Horizontal installation (Unit: mm)

	A	B	C
15kg	1199	169	228
30kg	561	73	98
45kg	339	41	55

Wall installation (Unit: mm)

	A	B	C
15kg	228	169	1199
30kg	98	73	561
45kg	55	41	339

Vertical installation (Unit: mm)

	A	C
5kg	571	571
10kg	287	287

ABFS07-5

Horizontal installation (Unit: mm)

	A	B	C
30kg	1187	86	129
60kg	565	31	47
85kg	344	15	23

Wall installation (Unit: mm)

	A	B	C
30kg	129	86	1187
60kg	47	31	565
85kg	35	23	485

Vertical installation (Unit: mm)

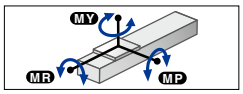
	A	C
8kg	412	412
16kg	206	206

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

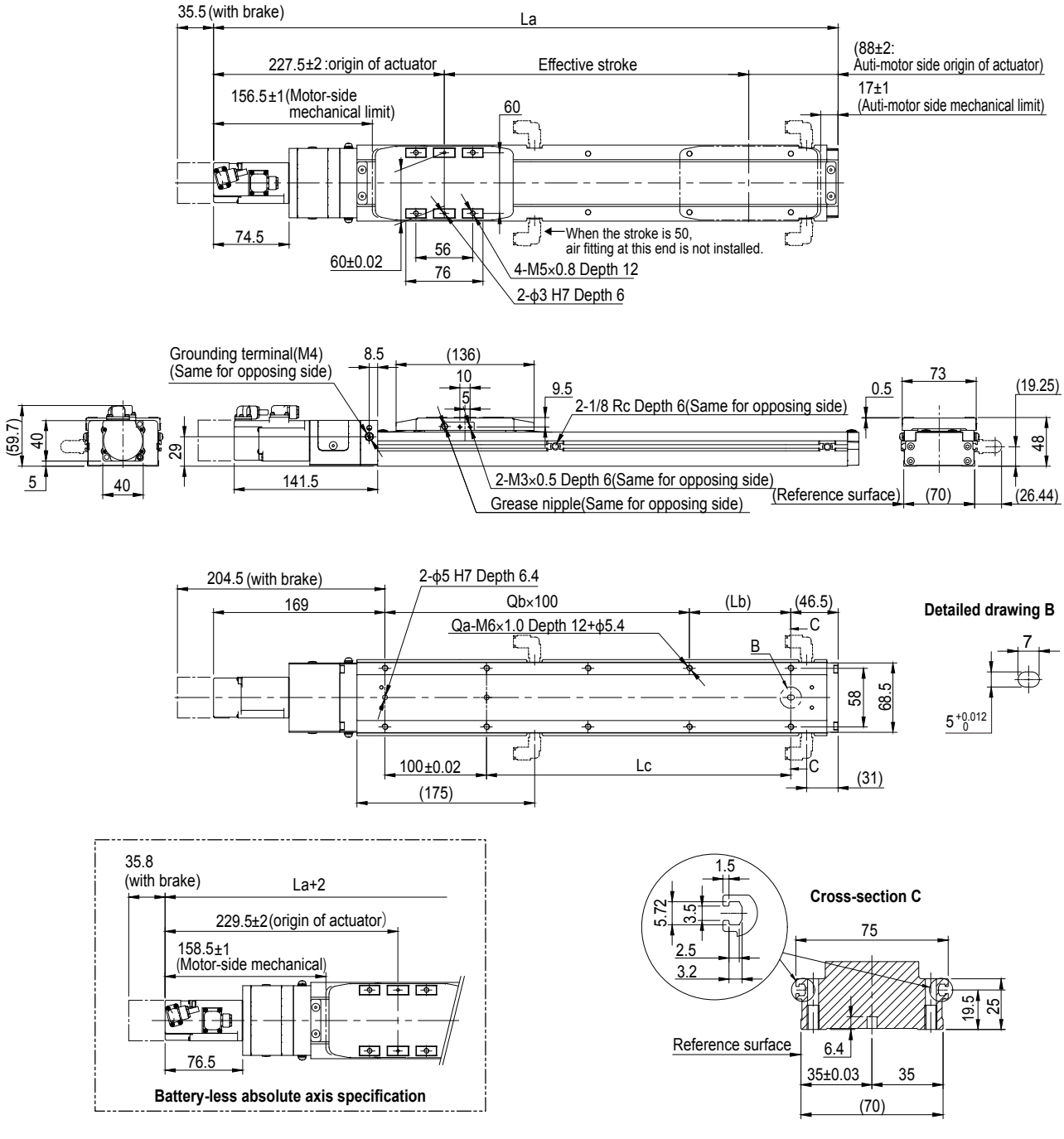


(Unit: N·m)

MY	MP	MR
130	130	278

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

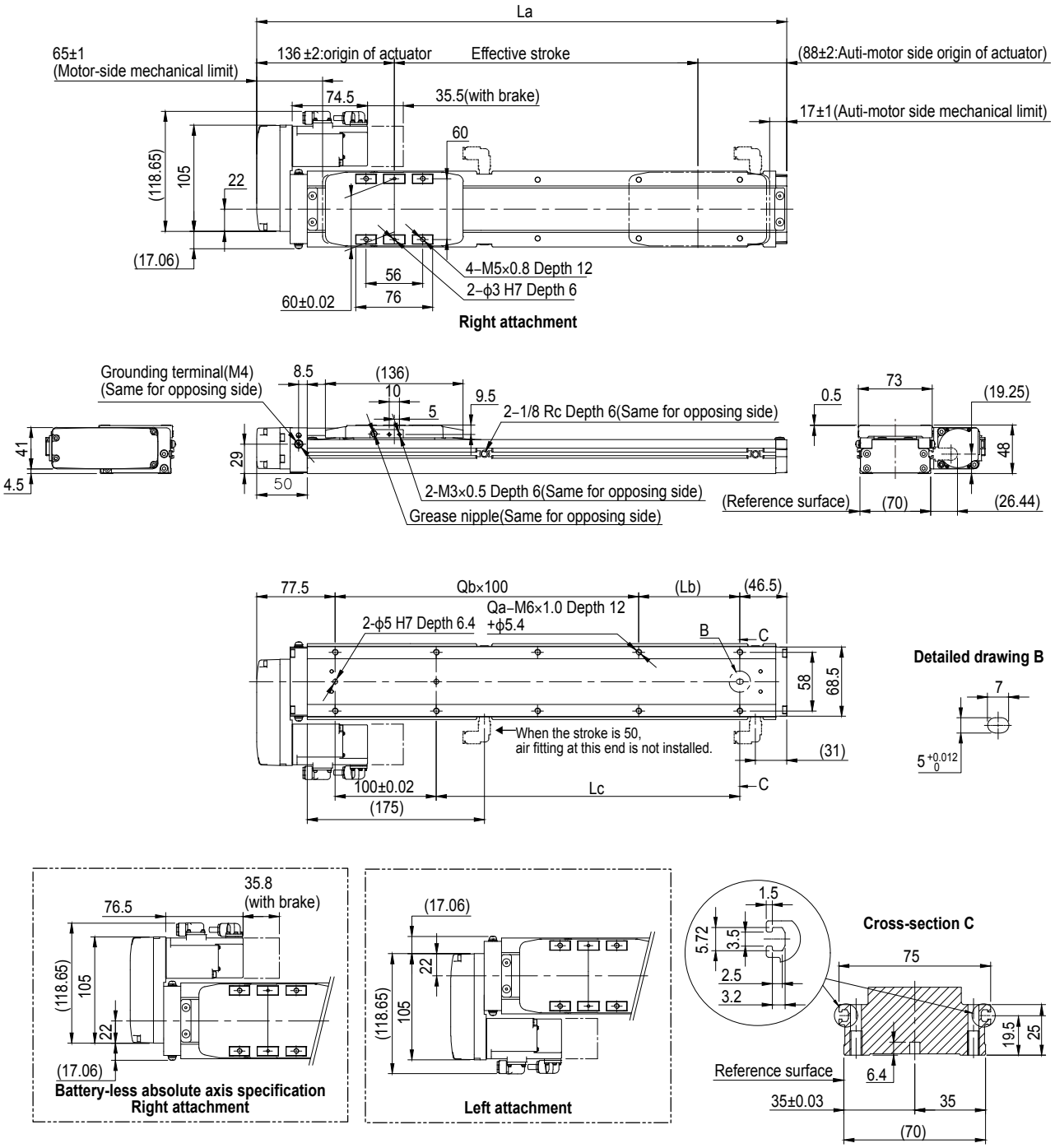
ABFS07 Straight type (S)



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 <M5×0.8>. In the installation tap hole, the length under head <<thickness of stand +12mm or less>> is recommended for the hex socket head bolts <M6×1.0> 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	850	900	950	1000	1050
La		365.5	415.5	465.5	515.5	565.5	615.5	665.5	715.5	765.5	815.5	865.5	915.5	965.5	1015.5	1065.5	1115.5	1165.5	1215.5	1265.5	1315.5	1365.5
Lb		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50
Lc		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
Qa		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
Qb		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
Weight (kg) Note 1		2.56	2.74	2.92	3.10	3.28	3.46	3.64	3.82	4.00	4.18	4.36	4.54	4.72	4.90	5.08	5.26	5.44	5.62	5.80	5.98	6.16
Maximum speed (mm/sec)	Lead 20	1333										1262	1064	932	800	664	600	532	466	400	400	332
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%
	Lead 10	666										632	532	466	400	332	300	266	232	200	200	166
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%
	Lead 5	333										316	266	233	200	166	150	133	116	100	100	83
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%

ABFS07 Bending type (R/L)



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Effective stroke		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
La		274	324	374	424	474	524	574	624	674	724	774	824	874	924	974	1024	1074	1124	1174	1224	1274
Lb		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50
Lc		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050
Qa		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26
Qb		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11
Weight (kg) Note 1		2.33	2.52	2.71	2.90	3.09	3.28	3.47	3.66	3.85	4.04	4.23	4.42	4.61	4.80	4.99	5.18	5.37	5.56	5.75	5.94	6.13
Maximum speed (mm/sec)	Lead 20	1333										1262	1064	932	800	664	600	532	466	400	400	332
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%
	Lead 10	666										632	532	466	400	332	300	266	232	200	200	166
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%
	Lead 5	333										316	266	233	200	166	150	133	116	100	100	83
	Speed setting	-										95%	80%	70%	60%	50%	45%	40%	35%	30%	30%	25%