

ABAR05

Basic model

Single-axis robots

Rod type



Ordering method

ABAR05

Model	Lead	Shape	Motor specification	Stroke	Cable length	Cable entry location	Robot positioner	Driver: Power capacity	Regenerative unit	I/O	Battery
	20: 20 mm 10: 10 mm 5: 5 mm	S: Straight R: Right bending L: Left bending	S: Standard/With no brake BK: Standard/With brake BL: Battery-less absolute/With no brake BKBL: Battery-less absolute/With brake	50 to 600 (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. When the actuator is used vertically and the stroke is 150 mm or more, the regenerative unit is needed.

When the actuator is used horizontally and the stroke of lead 20 is 300 to 400 mm, 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.

Specifications

AC servo motor output		100 W		
Repeatability ^{Note 1}		±0.01 mm		
Deceleration mechanism		Shifting position ball screw ϕ 12 (C7 class)		
Stroke		50 mm to 600 mm (50mm pitch)		
Maximum speed ^{Note 2}		1200 mm/sec	600 mm/sec	300 mm/sec
Ball screw lead		20 mm	10 mm	5 mm
Maximum payload	Horizontal	15 kg	25 kg	50 kg
	Vertical	4 kg	8 kg	16 kg
Max. pressing force		100 N	200 N	400 N
Rotating backlash		±0 °		
Maximum dimensions of cross section of main unit		W 54 mm × H 54.7 mm		
Overall length	Straight	ST + 344 mm		
	Bending	ST + 249 mm		
Position detector		Absolute encoder Battery-less absolute encoder		
Resolution		23 bits		
Using ambient temperature and humidity		0 to 40 °C, 35 to 80 %RH (non-condensing)		

Note 1. Positioning repeatability in one direction.

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 350 mm, the ball screw may resonate. (Critical speed)

At this time, make the adjustment to decrease the speed while referring to the maximum speed shown in the table.

Note. See P.136 for acceleration/deceleration.

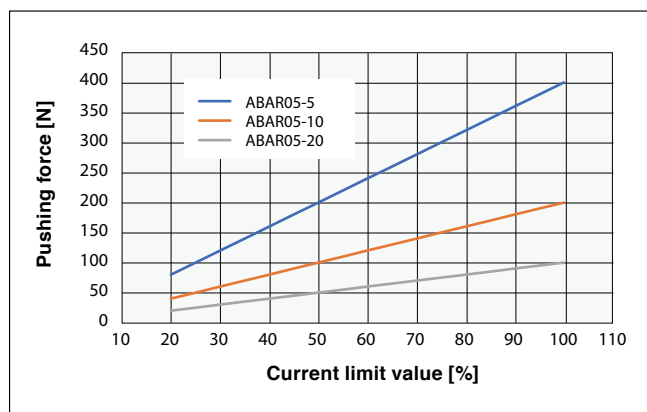
Controller

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

Pushing force (reference value)

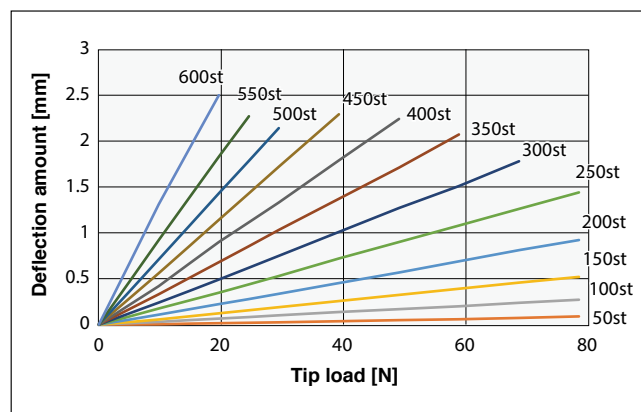
For the pushing force during pushing operation, see the graph below.

Note. The operable time (pushing judgement time) depends on the current limit value.
Use the pushing force under the conditions that no overload error occurs.



Rod deflection amount (reference value)

For the deflection amount per stroke, see the graph below.



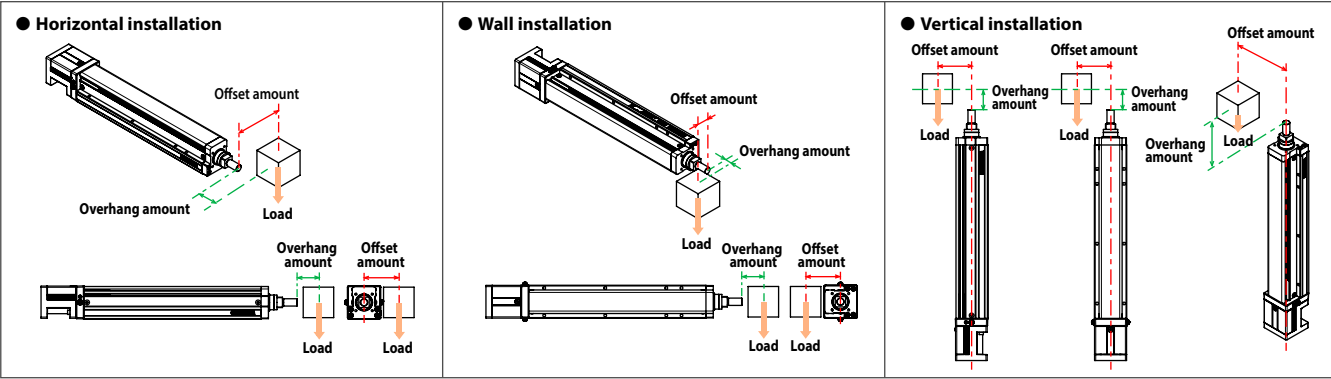
Access the website below.



► The cycle time simulation can be performed easily from our member site. For details, see P.12.

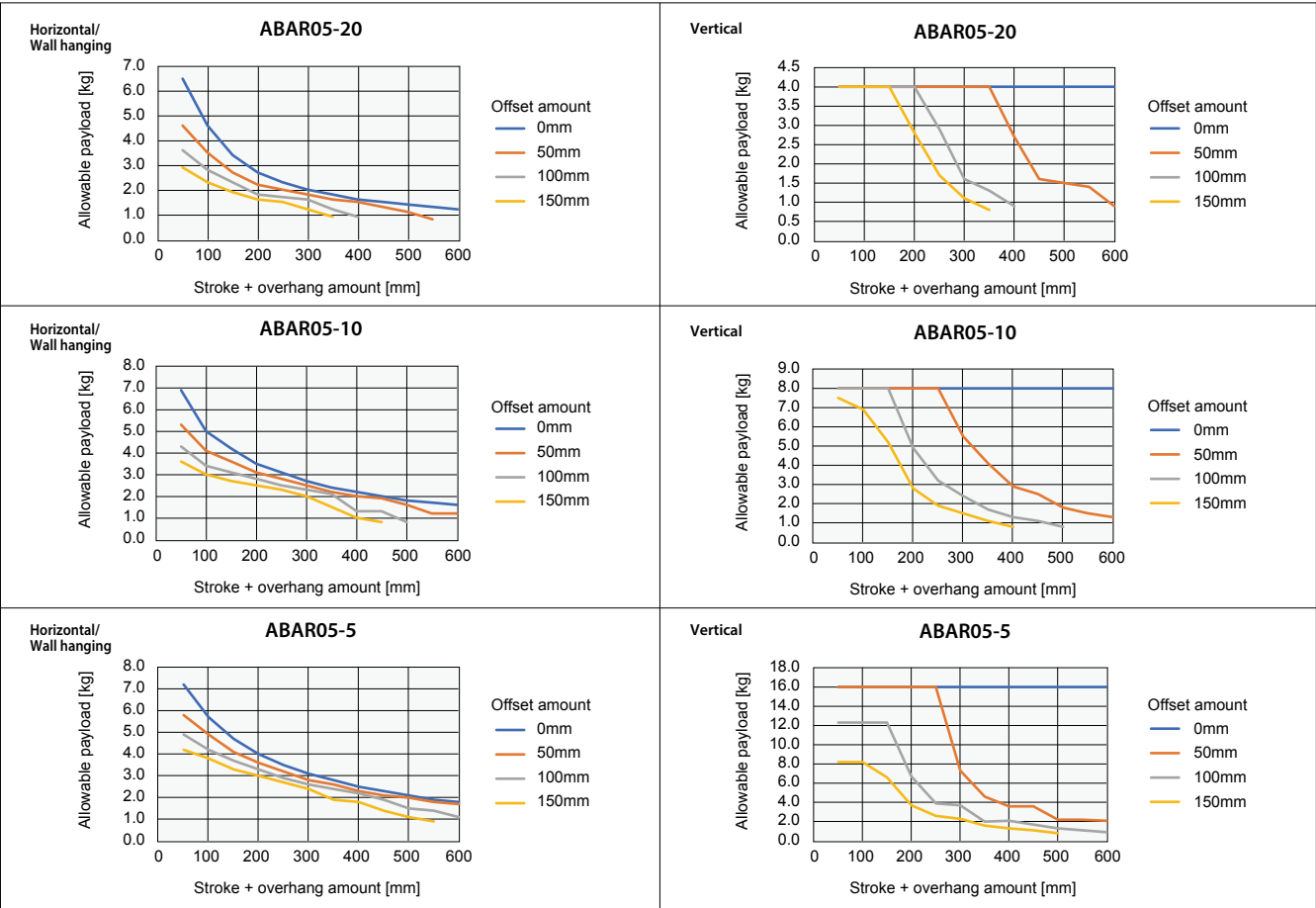
■ Allowable payload

For the allowable payload per offset amount, see the graph below.

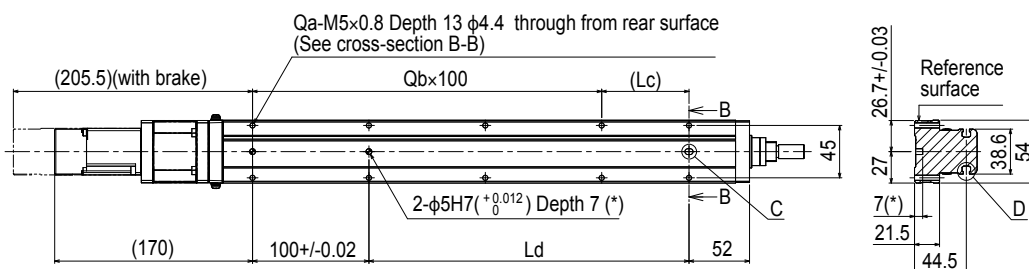
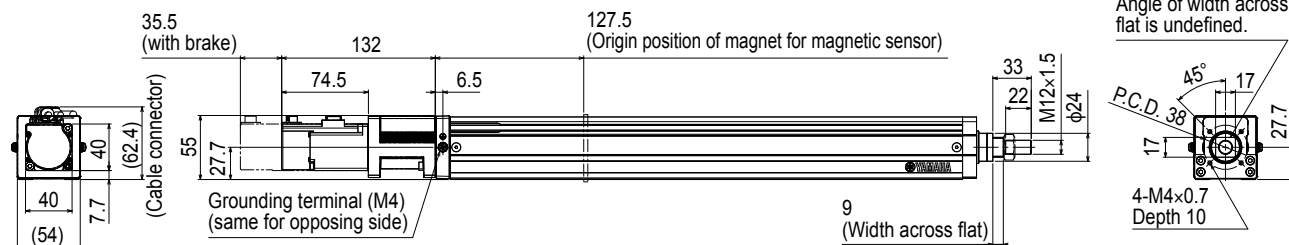
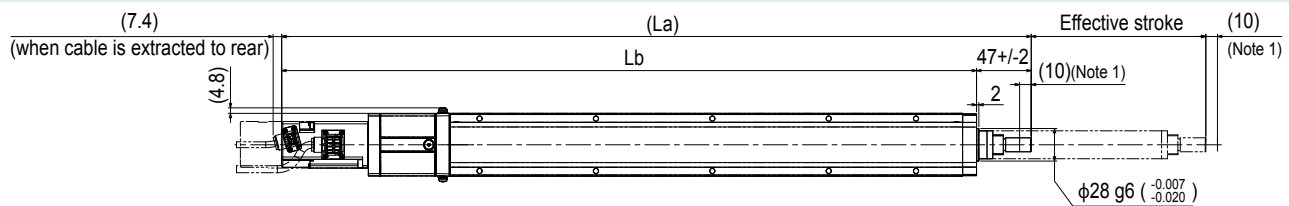


Note 1. When transferring an object with a weight exceeding the following, use an external support guide.
Install the support guide flexibly so that no unnecessary load is applied to the rod.

Note 2. The values are when the service life of the guide is 5000 km.

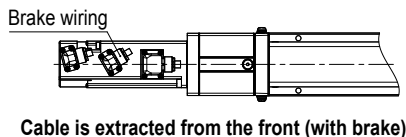


ABAR05 Straight type (S)

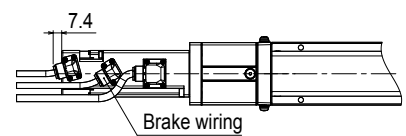


Cross-section B-B

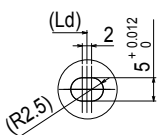
Cable is extracted from the front



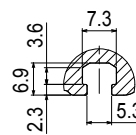
Cable is extracted from the front (with brake)



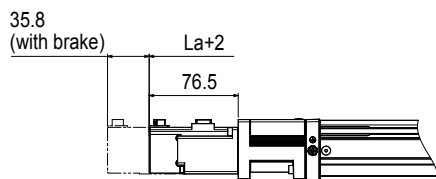
Cable is extracted from the rear (with brake)



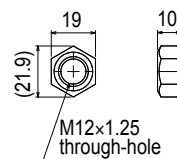
Detailed drawing C



Detailed drawing D



Battery-less absolute axis specification



Dimensions of attached hex nut

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

Note 2. When changing the return-to-origin direction, the parameter needs to be changed. (The standard is that the origin is located on the motor side.)

Note 3. For the installation through hole, the length under head << 30 mm or more>> is recommended for the hex socket head bolts <M3 × 0.5>. In the installation tap hole, the length under head <<thickness of stand +10 mm or less>> is recommended for the hex socket head bolts <M4 × 0.7> used to install the main unit.

Note 4. The weight with the brake is 0.2 kg heavier than the value in the weight column.

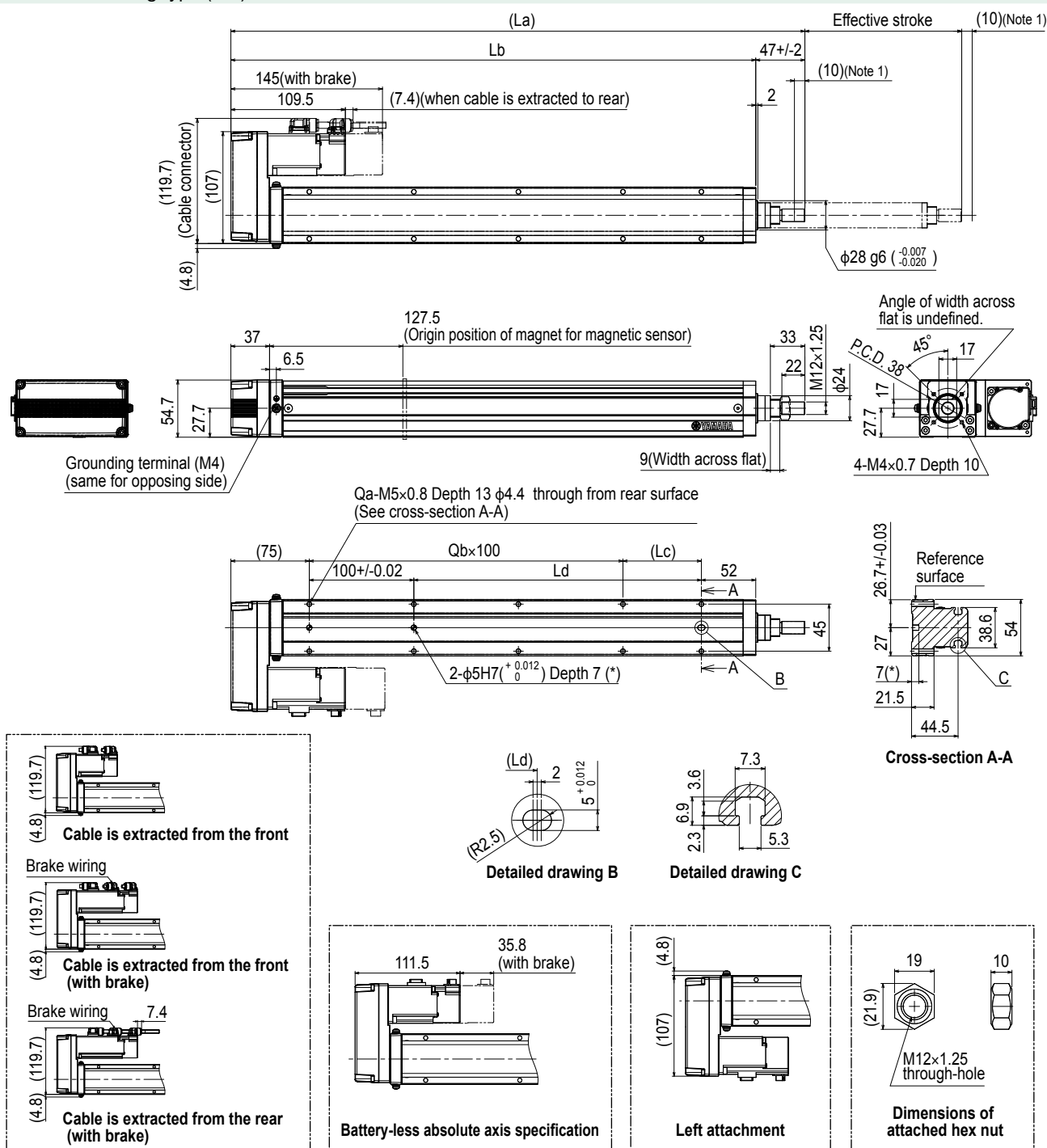
Note 5. The minimum bending radius of the robot cable is R30 on the fixed side or R50 on the movable side. The cable extraction direction may vary depending on the specifications.

Note 6. Grease gun nozzle (recommended) (see P.143 for detail)

Part number: KFU-M3861-00

Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600
La	394	444	494	544	594	644	694	744	794	844	894	944
Lb	347	397	447	497	547	597	647	697	747	797	847	897
Lc	25	75	25	75	25	75	25	75	25	75	25	75
Ld	25	75	125	175	225	275	325	375	425	475	525	575
Qa	6	6	8	8	10	10	12	12	14	14	16	16
Qb	1	1	2	2	3	3	4	4	5	5	6	6
Weight (kg) Note 4	2.1	2.3	2.4	2.6	2.8	3	3.1	3.2	3.3	3.4	3.6	3.8
Maximum speed (mm/sec)	Lead 20	1200						960	780	600	480	420
	Lead 10	600						480	390	300	240	210
	Lead 5	300						240	195	150	120	105
Speed setting	-							80%	65%	50%	40%	35%

ABAR05 Bending type (R/L)



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

Note 2. When changing the return-to-origin direction, the parameter needs to be changed. (The standard is that the origin is located on the motor side.)

Note 3. For the installation through hole, the length under head << 30 mm or more>> is recommended for the hex socket head bolts <M3 × 0.5>. In the installation tap hole, the length under head << (thickness of stand + 10 mm or less)>> is recommended for the hex socket head bolts <M4 × 0.7> used to install the main unit.

Note 4. The weight with the brake is 0.2 kg heavier than the value in the weight column.

Note 5. The minimum bending radius of the robot cable is R30 on the fixed side or R50 on the movable side. The cable extraction direction may vary depending on the specifications.

Note 6. Grease gun nozzle (recommended) (see P.143 for detail)

Part number: KFU-M3861-00

Effective stroke	50	100	150	200	250	300	350	400	450	500	550	600
La	299	349	399	449	499	549	599	649	699	749	799	849
Lb	252	302	352	402	452	502	552	602	652	702	752	802
Lc	25	75	25	75	25	75	25	75	25	75	25	75
Ld	25	75	125	175	225	275	325	375	425	475	525	575
Qa	6	6	8	8	10	10	12	12	14	14	16	16
Qb	1	1	2	2	3	3	4	4	5	5	6	6
Weight (kg) ^{Note 4}	2.2	2.3	2.5	2.7	2.9	3.1	3.2	3.3	3.4	3.5	3.7	3.8
Maximum speed (mm/sec)	Lead 20	1200						960	780	600	480	420
	Lead 10	600						480	390	300	240	210
	Lead 5	300						240	195	150	120	105
	Speed setting	-						80%	65%	50%	40%	35%