Discontinue

Direct drive actuator compatible type

AX4000G Series

Compatible with large load moment of inertia
Compatible function with free driver, actuator, and cable combinations
Different options including hollow diameter to facilitate cable wiring and piping.

- Max. torque: 9, 22, 45, 75 N·m
- Available driver: GS type driver

Actuator specifications

Descriptions		AX4009G	AX4022G	AX4045G	AX4075G
Maximum output torque	N·m	9	22	45	75
Continuous output torque	N·m	3	7	15	25
Maximum rotation speed	rpm	240			140
Allowable axial load	N	800	3700		20000
Allowable moment load	N·m	40	60	80	200
Output shaft moment of inertia	$kg·m^2$	0.009	0.0206	0.0268	0.1490
Allowable load moment of inertia	$kg·m^2$	0.35 (1.75) Note 2	0.60 (3.00) Note 2	0.90 (5.00) Note 2	5.00 (25.00) Note 2
Index accuracy (Note 1)	sec.	±30			
Repeatability	sec.	±5			
Output shaft friction torque	N·m	0.8	3.5		10.0
Resolver resolution	P/rev	540672			
Motor insulation grade		Class F			
Motor withstanding voltage		1500 VAC for one minute			
Motor insulation resistance		10MΩ and over 500 VDC			
Working ambient temperature range		0 to 45˚C			
Working ambient humidity range		20 to 85%RH with no dew condensation			
Storage ambient temperature range		-20 to 80˚C			
Storage ambient humidity range		20 to 90%RH with no dew condensation			
Weight	kg	5.5	12.3	15.0	36.0
Brake set total weight	kg	—	16.4	19.3	54.0
Runout of output shaft	mm	0.03			
Runout of output shaft surface	mm	0.05			

Note 1: Refer to the "CKD Index Units General Catalog" (CB-019SA) "Technical explanation, Static index precision" for details on the index precision.
Note 2: In the load conditions up to values in ( ), set parameter 72 (integral gain magnification) to 0.3 (reference).
Note 3: Consult with CKD when using continuous rotary operation and parameter 72 (integral gain magnification) together.

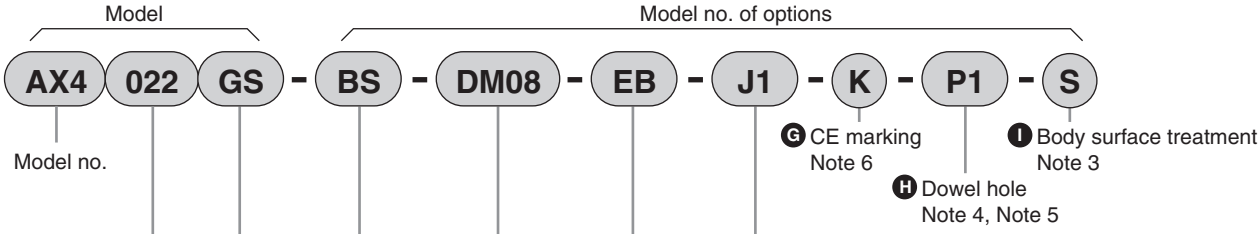
Electromagnetic brake specifications (option)

Descriptions \ Applicable model		AX4022G/AX4045G	AX4075G
Type		Non-backlash dry non-excitation operation type	
Rated voltage	V	24 VDC	
Power supply wattage	W	30	55
Rated current	A	1.25	2.30
Static friction torque	N·m	35	200
Armature release time (brake on)	msec	50 (reference value)	50 (reference value)
Armature suction time (brake off)	msec	150 (reference value)	250 (reference value)
Holding precision	min.	45 (reference value)	
Max. cycle rate	time/min.	60	40

Note 1: When the output shaft is rotating, rubbing may be generated at the electromagnetic brake's disk and fixing section.
Note 2: When moving after brakes are turned OFF, the delay time parameter must be changed based on armature suction time.
Note 3: This is a nonbacklash type, but it may be hard to hold a set position if load is applied in the direction of rotation.
Note 4: When electromagnetic brakes function, the armature may contact the magnetic brake's fixed section and generate noise.
Note 5: Brakes are manually released by alternately screwing screws into manual release taps (three positions). Lightly tighten screws until they stop, then turn them another 90˚. When finished with manual release, remove the three bolts immediately and apply brakes.

Refer to the safety precautions on Intro 13 to 20 before operating.

How to order



Symbol	Descriptions
A Size (max. torque)	
009	9 N·m
022	22 N·m
045	45 N·m
075	75 N·m
B Driver type	
GS	GS type driver
C Mounting base (cannot be used with dowel holes P2 and P3)	
Blank	Standard (without mounting base)
B	With blackening mounting base
BS	Electroless nickel plating, surface treatment mounting base Use with body surface treatment S.
D Cable change	
Blank	Standard (cable length 4 m)
D**	Cable length change
DM**	Flexible cable length change

**cable length		
02	2 m	
Blank	4 m	Flexible cable 4 m: DM
06	6 m	[Note] Use the noise filter for the motor cable if the cable is longer than 6 m.
08	8 m	
10	10 m	
15	15 m	
20	20 m	

E Brake	
Blank	Standard (without electromagnetic brake)
EB	With negative actuation type electromagnetic brake
F Driver power voltage	
Refer to the driver - power voltage table on the left.	
G CE marking	
Blank	Standard (CE marking not available)
K	CE marking
H Dowel hole	
Blank	Standard (without dowel hole)
P1	1 on top
P2	1 on bottom (2 on the bottom for AX4009G)
P3	1 each on both top and bottom (1 on the top, 2 on the bottom for AX4009G)
I Body surface treatment	
Blank	Standard (rotational section - blackening, fixing section casting surface plane - paint)
S	Rotational section: electroless nickel plating treatment, fixing section: nitriding

Note on model no. selection

Note 1: Select the driver according to the table below.

Driver - power voltage table

Model \ Driver type	GS type driver	
	3 phases 200 to 230 VAC	Single phase 100 to 115 VAC
AX4009G	Blank	J1
AX4022G	Blank	J1
AX4045G	Blank	J1
AX4075G	Blank	

Note 2: Use the optional flexible cable in applications where the cable is bent repeatedly. Refer to page 9 for the cable dimensions.
Note 3: Designate body surface treatment and mounting base surface treatment with (C) and (I).
Note 4: "P2" and "P3" cannot be selected if "B" with blackening mounting base or "BS" electroless nickel plating surface treatment mounting base is designated for (C) mounting base.
Note 5: Additionally machined sections may not have a treated surface.
Note 6: Refer to the Option Table below and select required options.

Option table

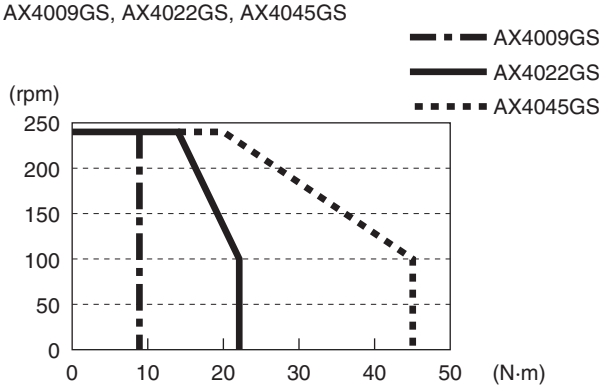
	AX4009G	AX4022G	AX4045G	AX4075G
Mounting base (-B)	X	○	○	○
Mounting base (-BS)	X	○	○	○
Brake (-EB)	X	○	○	○
CE marking (-K)	X	○	○	○

* Contact CKD when ordering parts individually for maintenance.

Discontinue

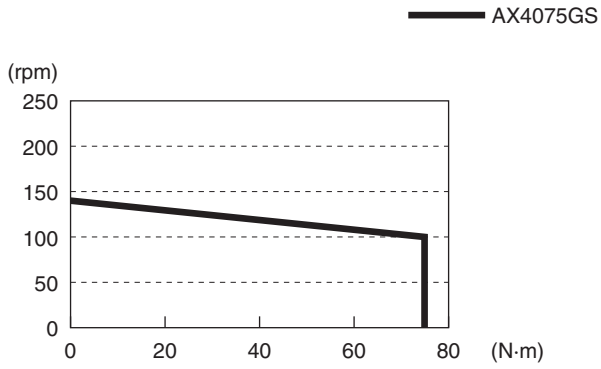
Speed/max. torque characteristics

● AX4009GS, AX4022GS, AX4045GS



*This is characteristics at three phase 200 VAC .

● AX4075GS



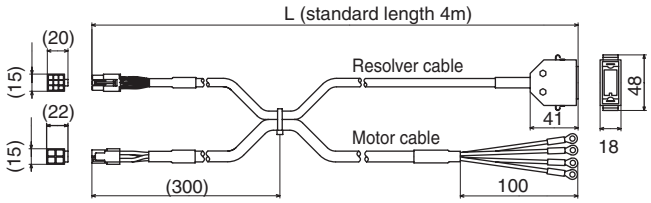
*This is characteristics at three phase 200 VAC .

Cable specifications

● AX4009G

Cable min. bending radius

Cable dimensions

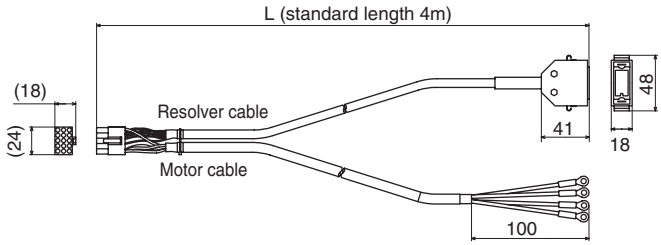


	Standard cable	Flexible cable
Resolver cable	50mm	60mm
Motor cable	100mm	110mm

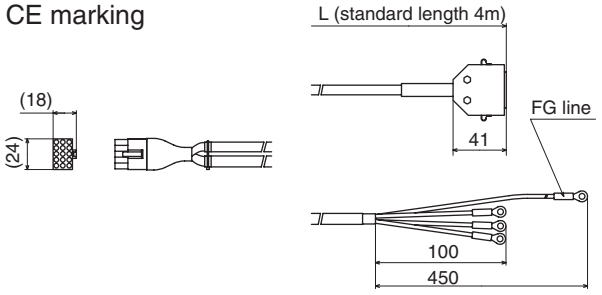
● AX4022G, AX4045G, AX4075G

Cable min. bending radius

Cable dimensions



CE marking

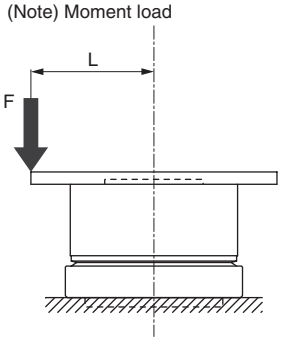


	Standard cable	Flexible cable
Resolver cable	50mm	60mm
Motor cable	90mm	90mm
Resolver cable	50mm	60mm
Motor cable	90mm	90mm

Safety precautions

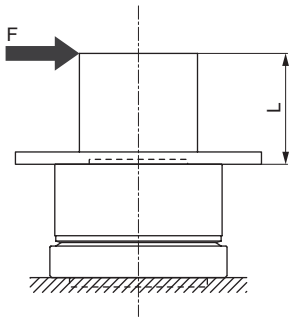
- Use the noise filter for the motor cable if the cable is longer than 6 m.
- When connecting the motor cable and driver, check that the cable's mark tubes and driver's indications are correct.
- Use the optional flexible cable in applications where the cable is bent repeatedly.
  When using a flexible cable, fix the cable sheath near the actuator connector.
- When connecting the cable, firmly insert the connector to the back. Firmly tighten the connector's set screws and fixing screws.
- Do not modify the cable by cutting or extending it. Failure to observe this could result in faults or malfunction.
- When the flexible cable option is selected, flexible cable specifications apply between the driver and actuator connector. Standard cable specifications apply between the actuator and connector. Fix the cable so that it does not move. (Only AX4009G)
- Do not pull the outlet cable of the device. (Only AX4009G)

(Note) Moment load



(Fig. a)

M (N·m) = F (N) x L (m)
M: Moment load
F: Load
L: Distance from center of output shaft



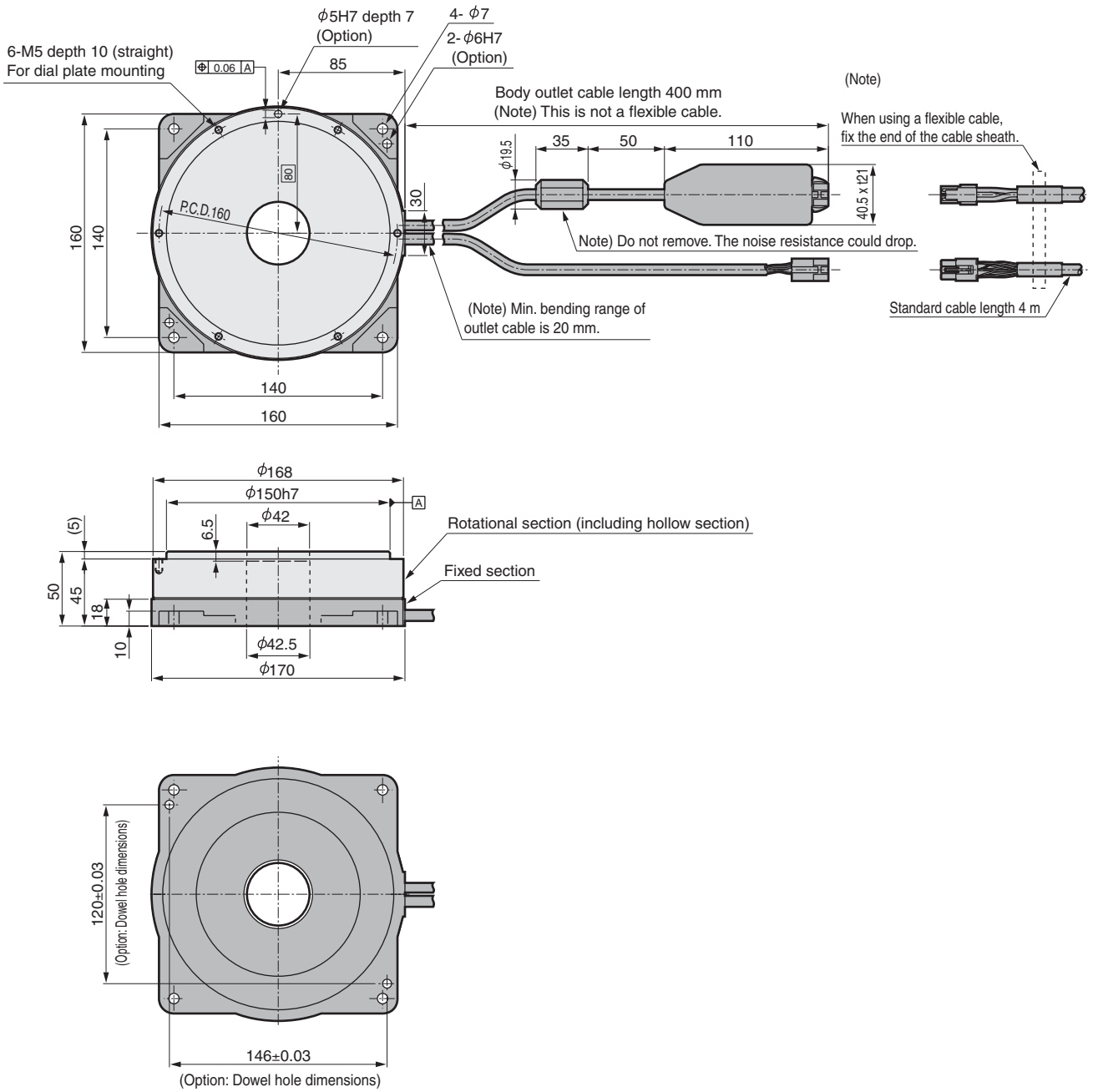
(Fig. b)

M (N·m) = F (N) x (L + 0.02) (m)
M: Moment load
F: Load
L: Distance from output shaft flange surface

Refer to the safety precautions on Intro 13 to 20 before operating.

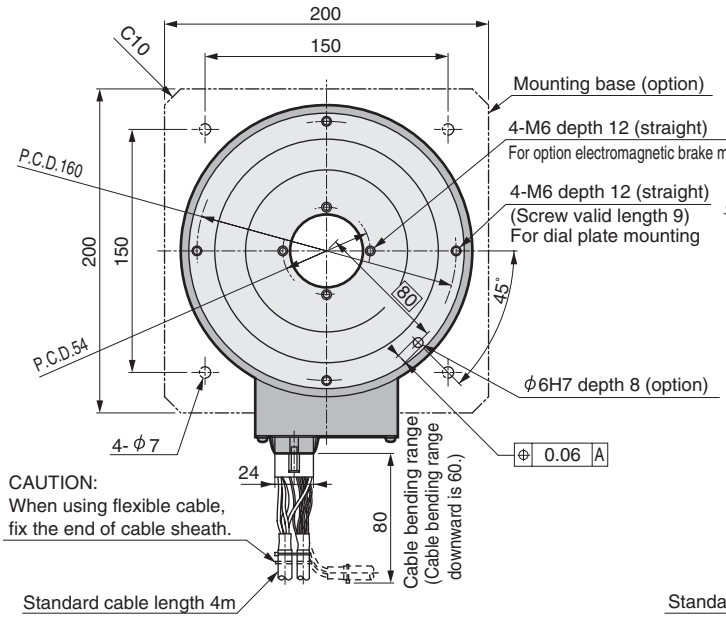
Dimensions

● AX4009G

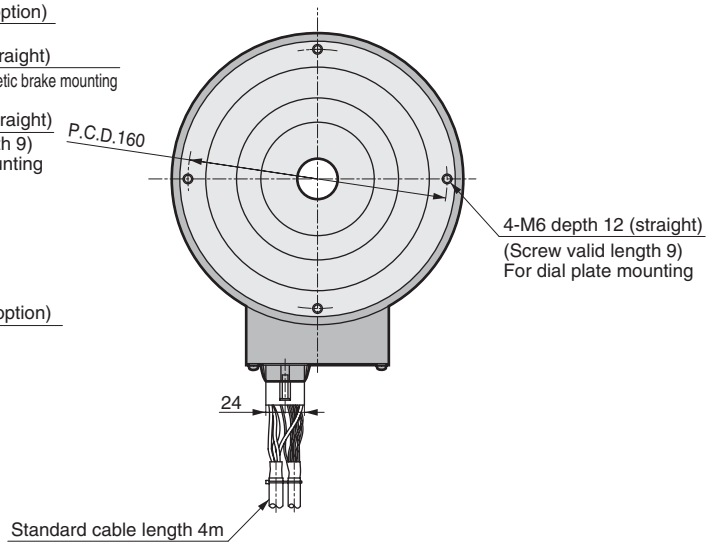


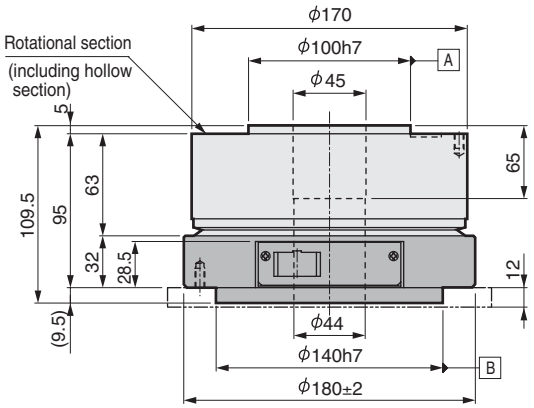
Dimensions

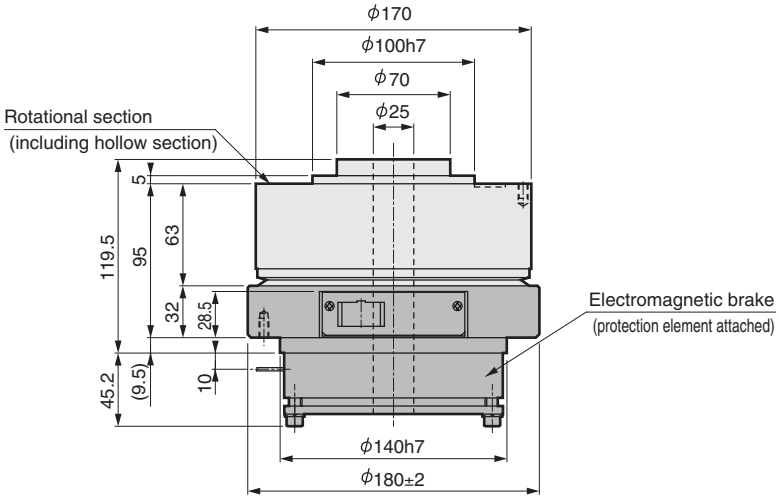
● AX4022G

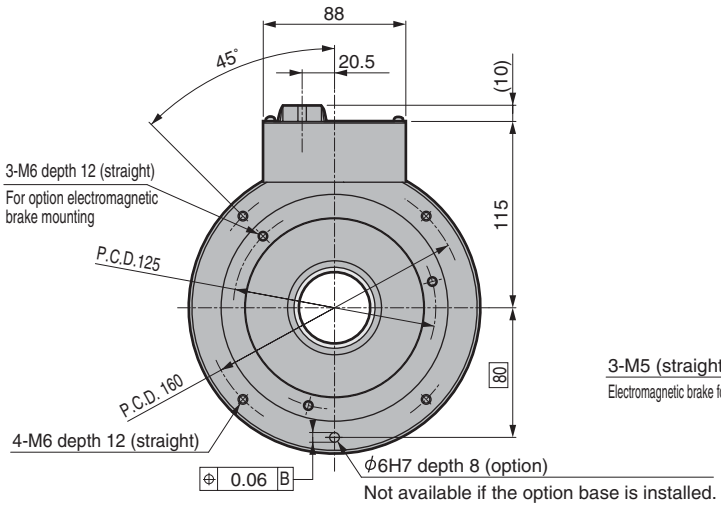


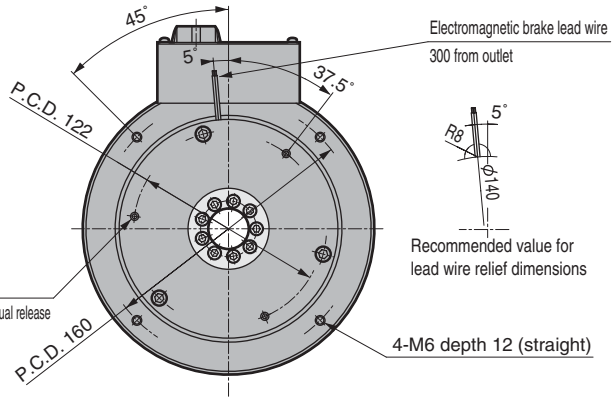
● AX4022G-EB
With electromagnetic brake
Refer to the left drawing for other options.





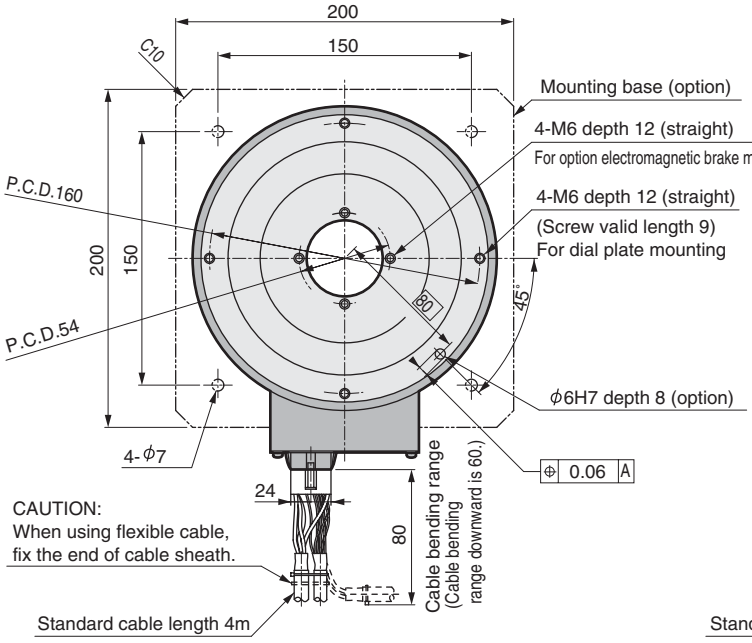




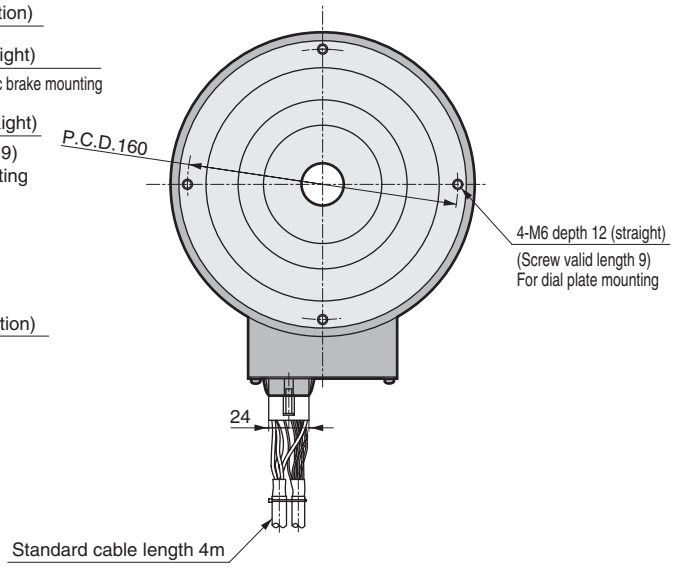


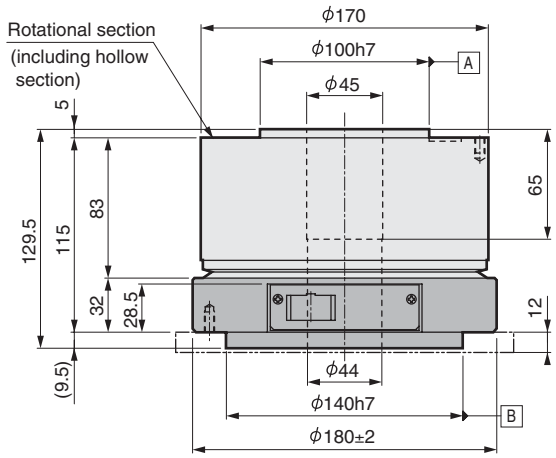
Dimensions

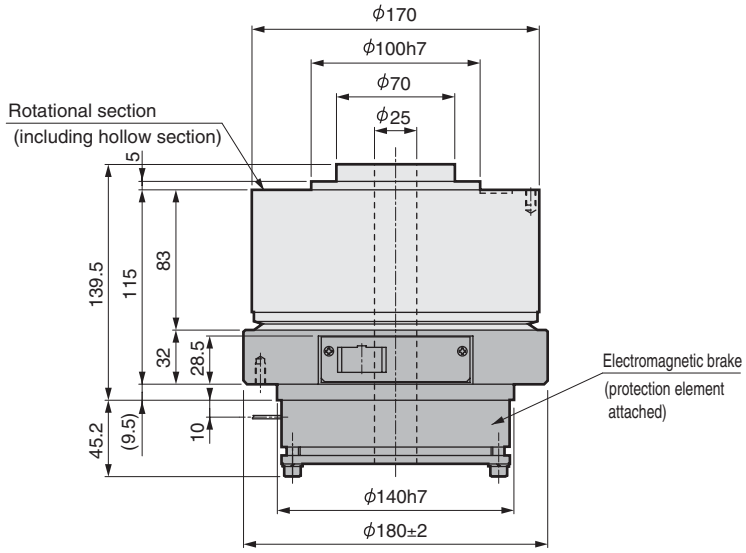
● AX4045G

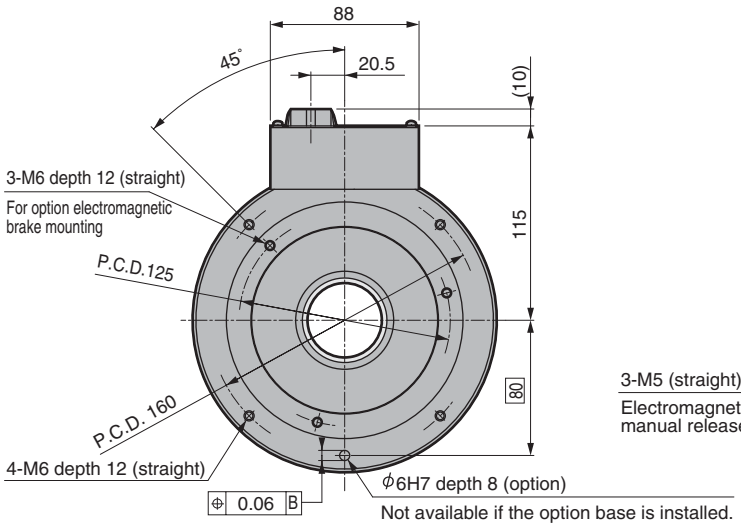


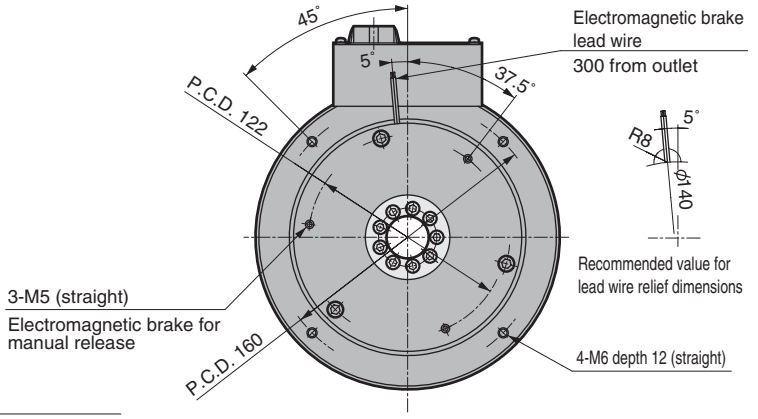
● AX4045G-EB
With electromagnetic brake
Refer to the left drawing for other options.





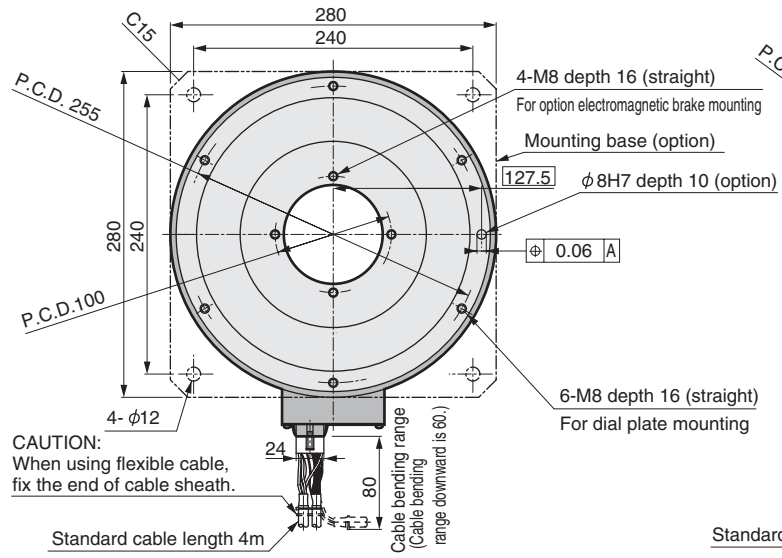




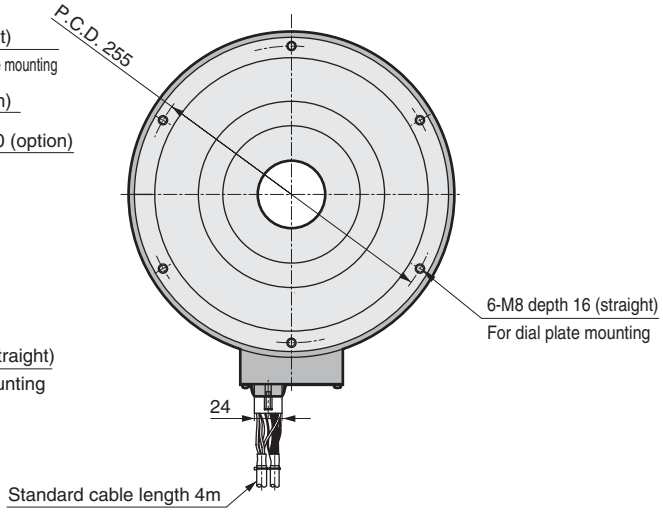


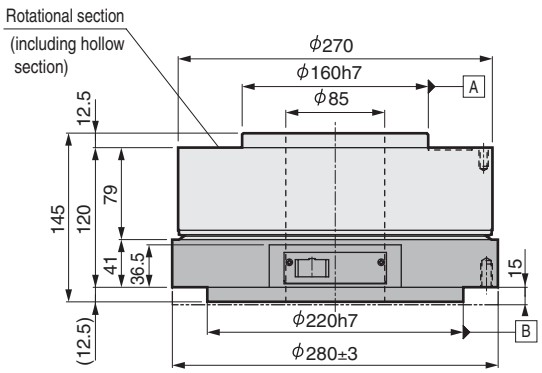
Dimensions

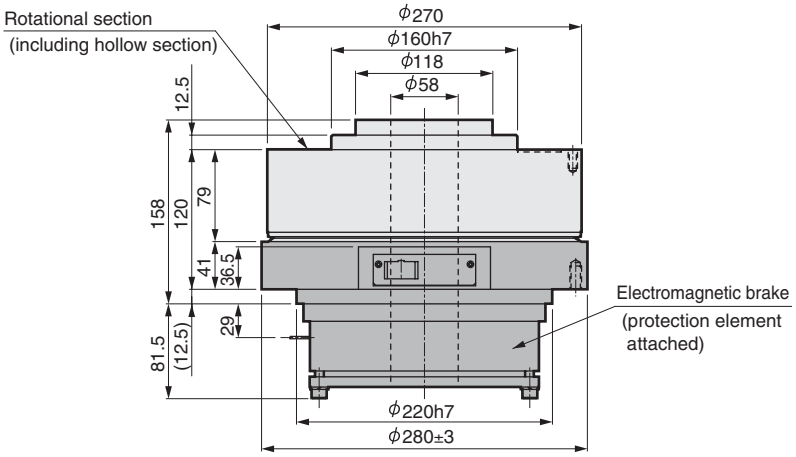
● AX4075G

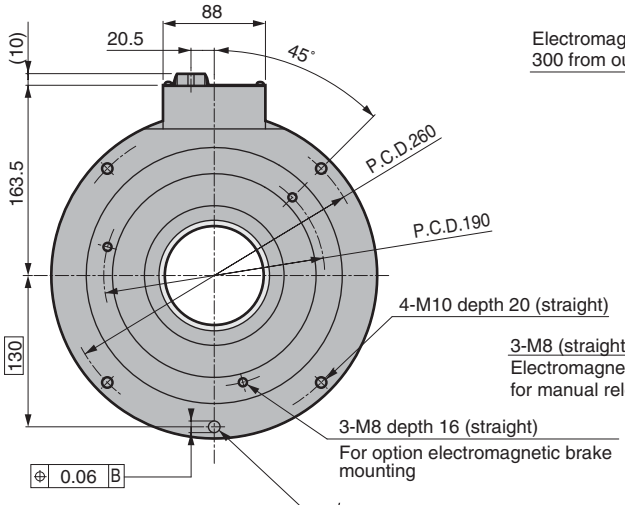


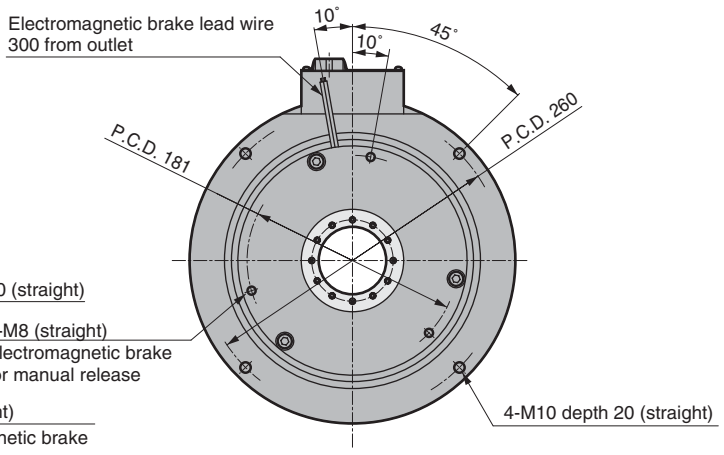
● AX4075G-EB
With electromagnetic brake
Refer to the left drawing for other options.











Discontinue

Direct drive actuator compatible type

AX4000G Series

Compatible with large load moment of inertia
Compatible functions with free driver, actuator and cable combination.
Different options including hollow diameter to facilitate cable wiring and piping.

- Max. torque: 150, 300, 500N·m
- Available driver: GH type driver

Actuator specifications

Descriptions		AX4150G	AX4300G	AX4500G
Maximum output torque	N·m	150	300	500
Continuous output torque	N·m	50	100	160
Maximum rotation speed	rpm	100		70
Allowable axial load	N	20000		
Allowable moment load	N·m	300	400	500
Output shaft moment of inertia	kg·m^2	0.2120	0.3260	0.7210
Allowable load moment of inertia	kg·m^2	75.00 (Note 2)	180.00 (Note 2)	300.00 (Note 2)
Index accuracy (Note 1)	sec.	±30		
Repeatability	sec.	±5		
Output shaft friction torque	N·m	10.0		15.0
Resolver resolution	P/rev	540672		
Motor insulation grade		Class F		
Motor withstanding voltage		1500 VAC for one minute		
Motor insulation resistance		10MΩ and over 500 VDC		
Working ambient temperature range		0 to 45˚C		
Working ambient humidity range		20 to 85%RH with no dew condensation		
Storage ambient temperature range		-20 to 80˚C		
Storage ambient humidity range		20 to 90%RH with no dew condensation		
Weight	kg	44.0	66.0	115.0
Brake set total weight	kg	63.0	86.0	-
Runout of output shaft	mm	0.03		
Runout of output shaft surface	mm	0.05		

Note 1: Refer to the "CKD Index Units General Catalog" (CB-019SA) "Technical explanation, Static index precision" for details on the index precision.
Note 2: It is the large moment of inertia setting as default.

Electromagnetic brake specifications (option)

Descriptions \ Applicable model		AX4150G/AX4300G
Type		Non-backlash dry non-excitation operation type
Rated voltage	V	24 VDC
Power supply wattage	W	55
Rated current	A	2.30
Static friction torque	N·m	200
Armature release time (brake on)	msec	50 (reference value)
Armature suction time (brake off)	msec	250 (reference value)
Holding precision	min.	45 (reference value)
Max. cycle rate	time/min.	40

Note 1: When the output shaft is rotating, rubbing may be generated at the electromagnetic brake's disk and fixing section.
Note 2: When moving after brakes are turned OFF, the delay time parameter must be changed based on armature suction time.
Note 3: This is a nonbacklash type, but it may be hard to hold a set position if load is applied in the direction of rotation.
Note 4: When electromagnetic brakes function, the armature may contact the magnetic brake's fixed section and generate noise.
Note 5: Brakes are manually released by alternately screwing screws into manual release taps (three positions). Lightly tighten screws until they stop, then turn them another 90˚. When finished with manual release, remove the three bolts immediately and apply brakes.

⚠ Refer to the safety precautions on Intro 13 to 20 before operating.

How to order

Model | Model no. of options

AX4 | 300 | GH - BS - DM08 - EB - K - P1 - S

- AX4: Model no.
- 300: A Size (max. torque)
- GH: B Driver type
- BS: C Mounting base Note 3, Note 4
- DM08: D Cable change Note 2
- EB: E Brake Note 5
- K: F CE marking
- P1: G Dowel hole Note 4, Note 6
- S: H Body surface treatment Note 3

Symbol	Descriptions
A Size (max. torque)	
150	150 N·m
300	300 N·m
500	500 N·m
B Driver type	
GH	With GH type driver
C Mounting base (cannot be used with dowel holes P2 and P3)	
Blank	Standard (without mounting base)
B	With blackening mounting base
BS	Electroless nickel plating, surface treatment mounting base Use with body surface treatment S.
D Cable change	
Blank	Standard (cable length 4 m)
D**	Cable length change
DM**	Flexible cable length change

**cable length		
02	2 m	
Blank	4 m	Flexible cable 4 m: DM
06	6 m	[Note] Use the noise filter for the motor cable if the cable is longer than 6 m.
08	8 m	
10	10 m	
15	15 m	
20	20 m	

E Brake	
Blank	Standard (without electromagnetic brake)
EB	With negative actuation type electromagnetic brake
F CE marking	
Blank	Standard (CE marking not available)
K	CE marking
G Dowel hole	
Blank	Standard (without dowel hole)
P1	1 on top
P2	1 on bottom
P3	1 each on both top and bottom
H Body surface treatment	
Blank	Standard (rotational section - blackening, fixing section casting surface plane - paint)
S	Rotational section: electroless nickel plating treatment, fixing section: nitriding

Note on model no. selection

Note 1: Select the driver according to the table below.

Driver - power voltage table

Model \ Driver type	GH type driver
	3 phases 200 to 230 VAC
AX4150G	Blank
AX4300G	Blank
AX4500G	Blank

Note 2: Use the optional flexible cable in applications where the cable is bent repeatedly. Refer to page 17 for the cable dimensions.

Note 3: Designate body surface treatment and mounting base surface treatment with (C) and (H).

Note 4: "P2" and "P3" cannot be selected if "B" with blackening mounting base or "BS"electroless nickel plating surface treatment mounting base is designated for (C) mounting base.

Note 5: Refer to the Option Table below and select required options.

Option table

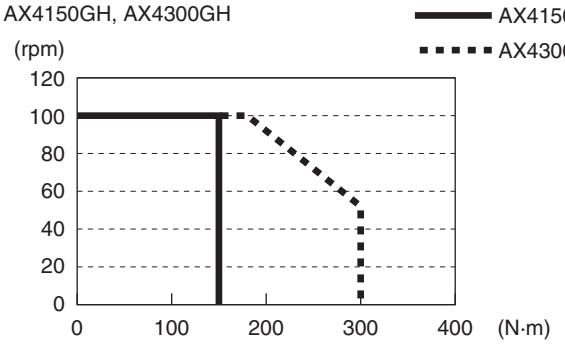
	AX4150G	AX4300G	AX4500G
Electromagnetic brake (-EB)	○	○	X

Note 6: Additionally machined sections may not have a treated surface.

* Contact CKD when ordering parts individually for maintenance.

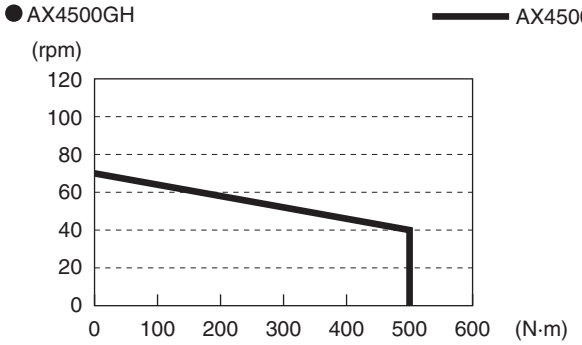
Speed/max. torque characteristics

● AX4150GH, AX4300GH



*This is characteristics at three phase 200 VAC .

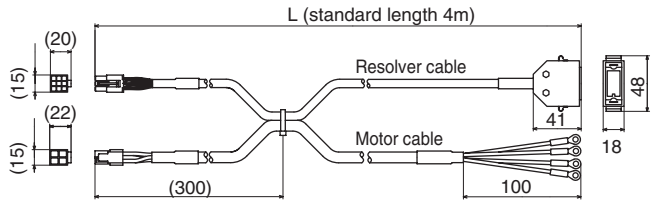
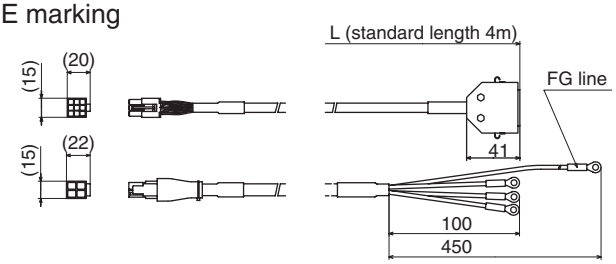
● AX4500GH



*This is characteristics at three phase 200 VAC .

Cable specifications

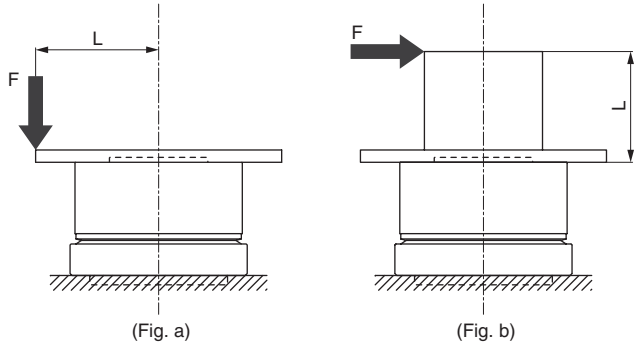
Cable min. bending radius

	Standard cable	Flexible cable
Cable dimensions  Resolver cable	50mm	60mm
Motor cable	100mm	110mm
CE marking  Resolver cable	50mm	60mm
Motor cable	100mm	110mm

Safety precautions

- Use the noise filter for the motor cable if the cable is longer than 6 m.
- When connecting the motor cable and driver, check that the cable's mark tubes and driver's indications are correct.
- Use the optional flexible cable in applications where the cable is bent repeatedly.
  When using a flexible cable, fix the cable sheath near the actuator connector.
- When connecting the cable, firmly insert the connector to the back. Firmly tighten the connector's set screws and fixing screws.
- Do not modify the cable by cutting or extending it. Failure to observe this could result in faults or malfunction.

(Note) Moment load



(Fig. a)

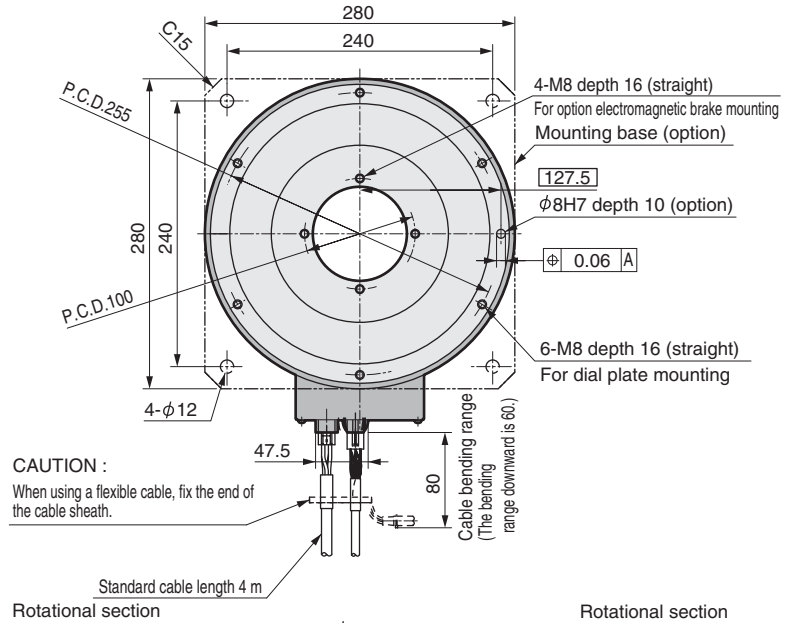
M (N·m) = F (N) x L (m)
M : Moment load
F : Load
L : Distance from center of output shaft

(Fig. b)

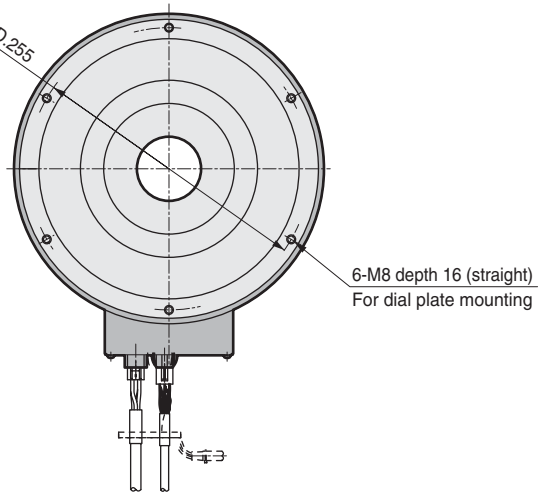
M (N·m) = F (N) x (L + 0.02) (m)
M : Moment load
F : Load
L : Distance from output shaft flange surface

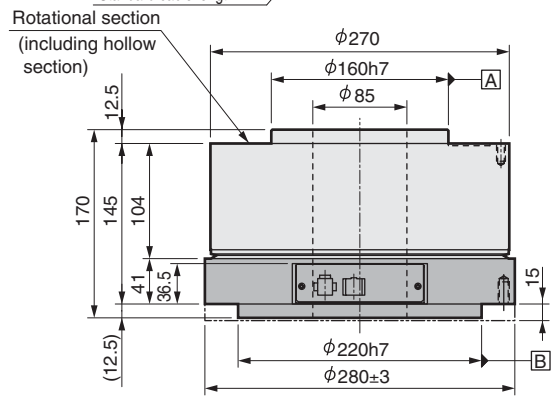
Dimensions

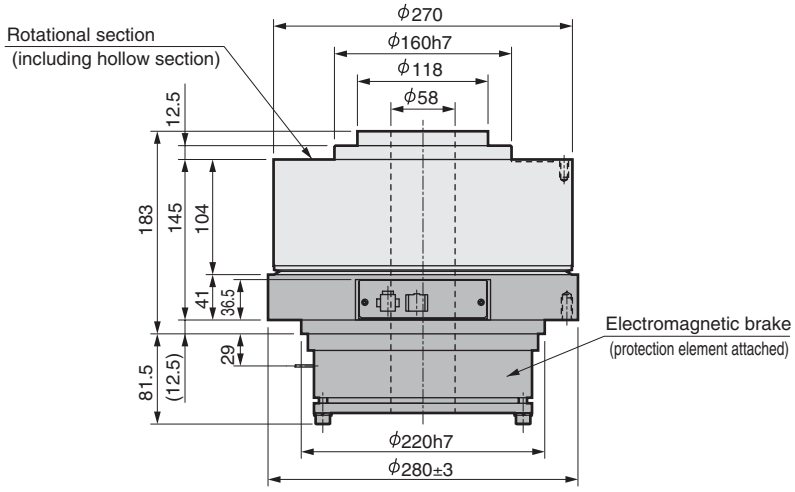
● AX4150G

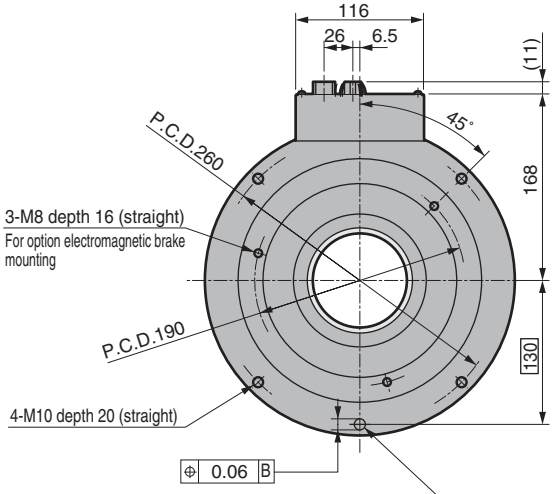


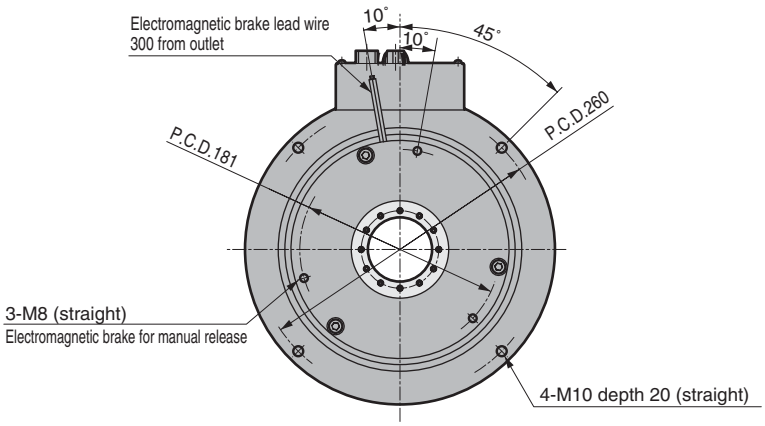
● AX4150G-EB
With electromagnetic brake
Refer to the left drawing for other options.







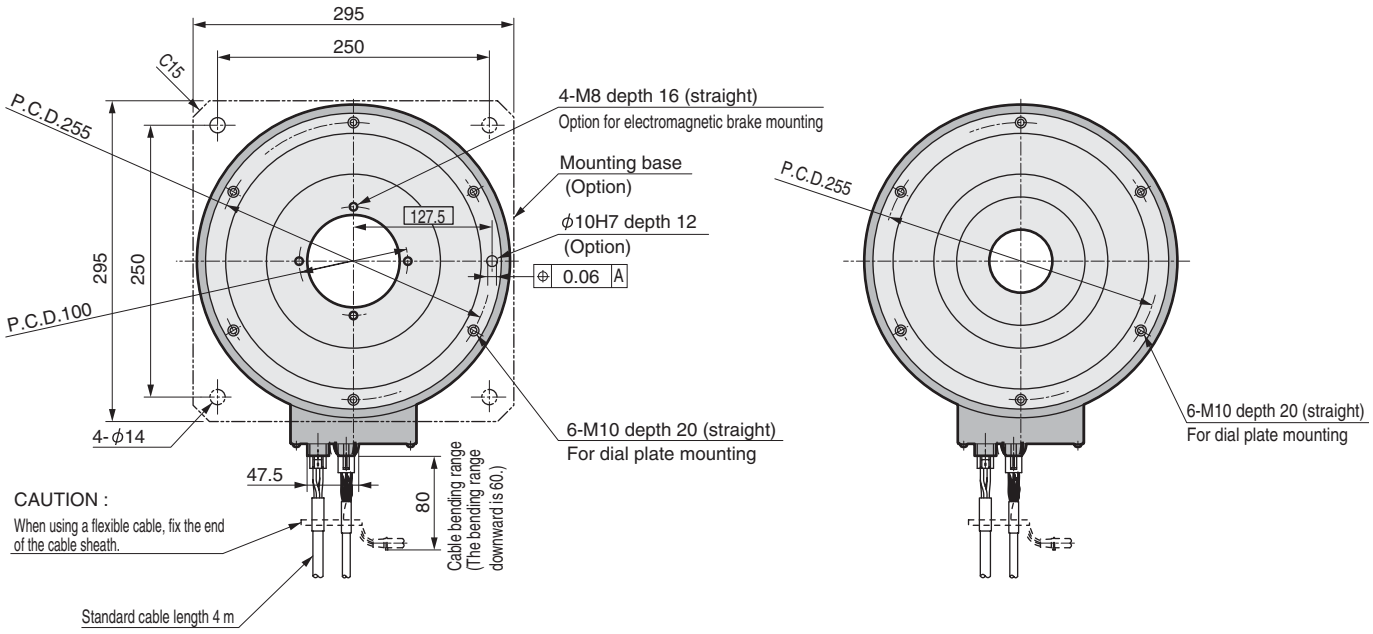


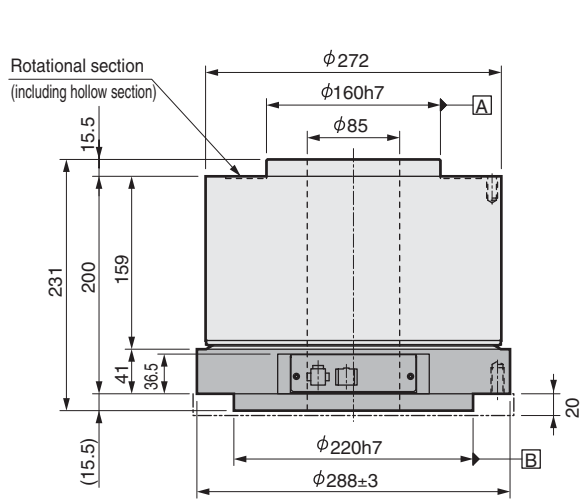


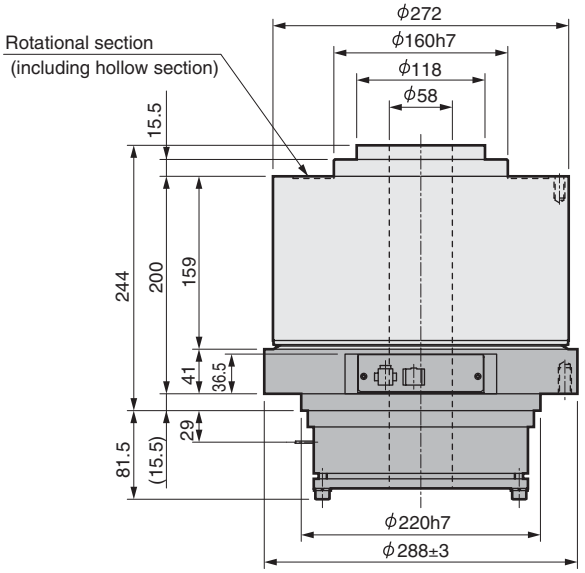
Dimensions

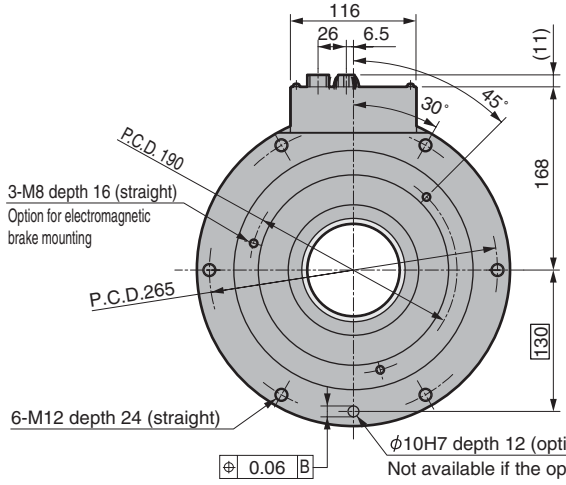
● AX4300G

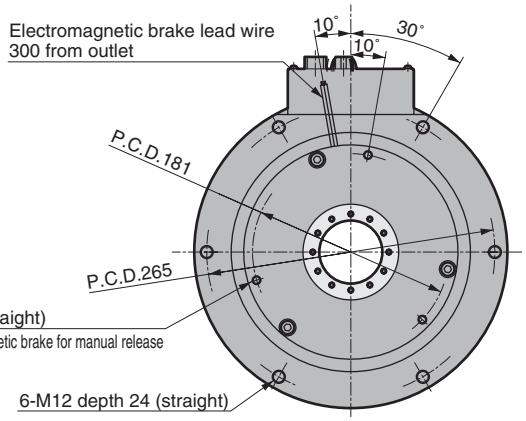
● AX4300G-EB
With electromagnetic brake
Refer to the left drawing for other options.











Dimensions

● AX4500G