

Non-excitation actuating type

RoHS2 compliant

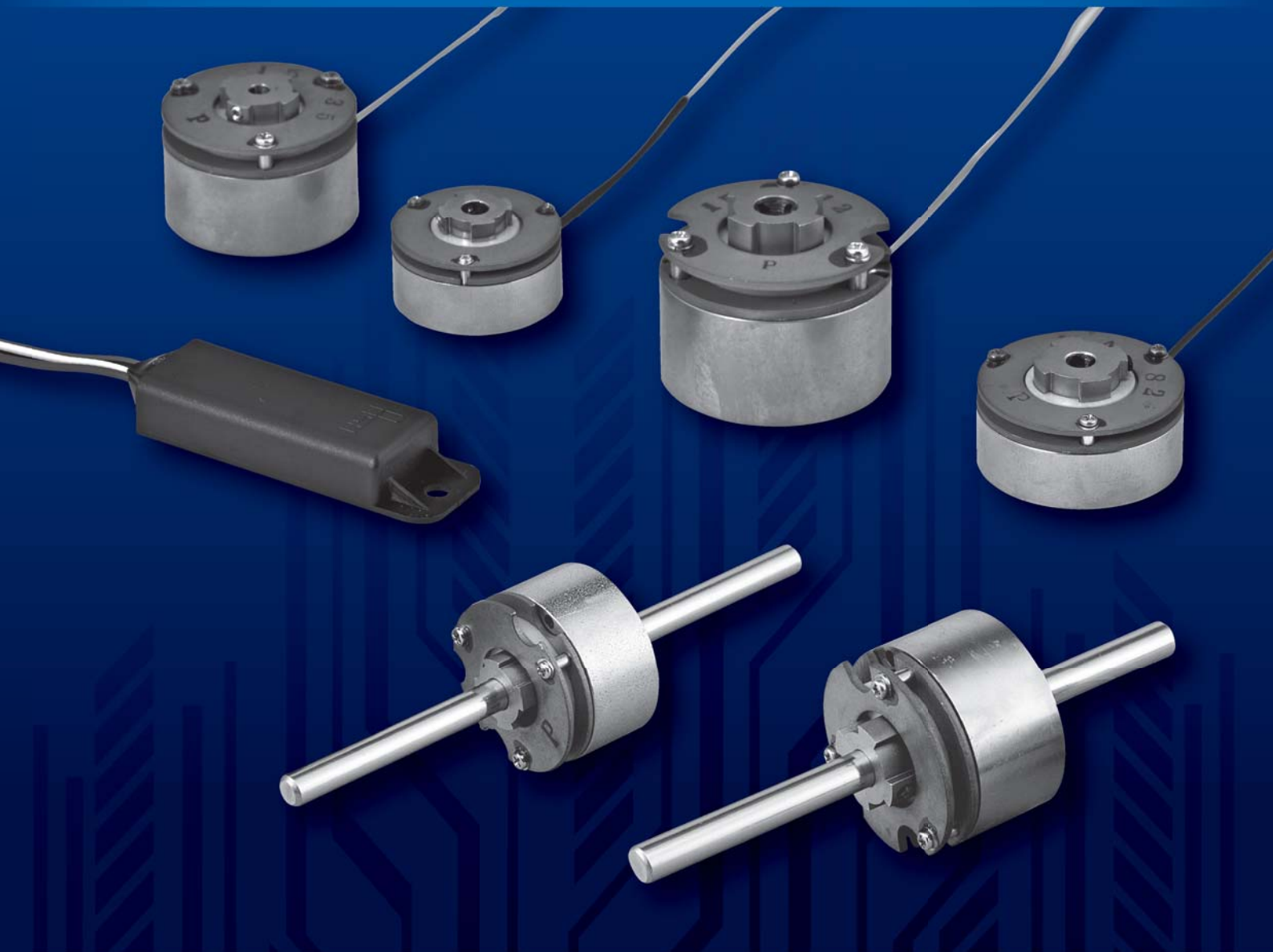
Micro Electromagnetic Brake

Features

- Ultra-small micro size: 20 mm in diameter and 16.7 mm in height; weighs 33 g
- Four external diameters available: 33, 28, 24, 20 mm
- Abrasion-resistant friction plate for long service life
- Easy installation; no adjustment required
- Small unit with large braking torque
- Increased torque with dedicated power supply

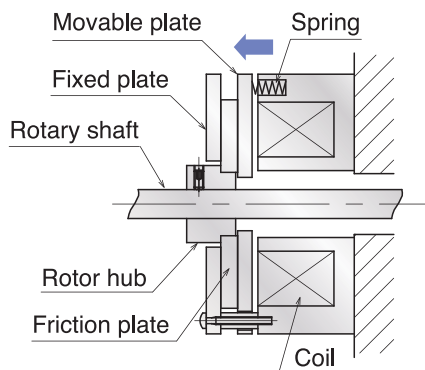
Applications

- Prevents servo positioning displacement.
- Prevents natural fall of a nut of vertical ball screw
- Retains robot position (when not energized).



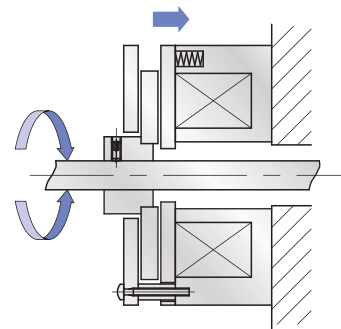
**ASA ELECTRONICS
INDUSTRY Co.,Ltd.**

Operating mechanism



Brake actuated (when coil is de-energized)

When the coil is not energized, the movable plate, under spring pressure, presses the friction plate against the fixed plate. This friction applies a braking force on the rotor hub and rotary shaft.



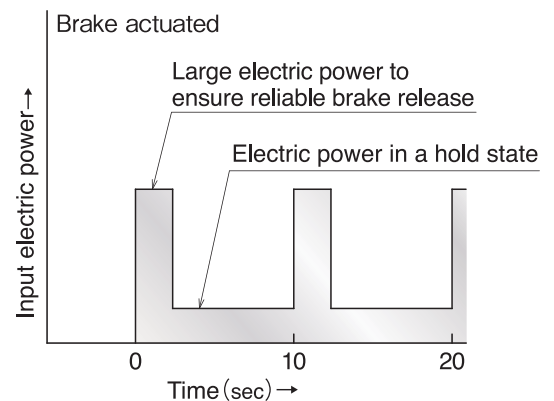
Brake at released position (when coil is energized)

When the coil is energized, the magnetic force overcomes the spring force and pulls the movable plate toward the coil side, allowing the friction plate to rotate freely.

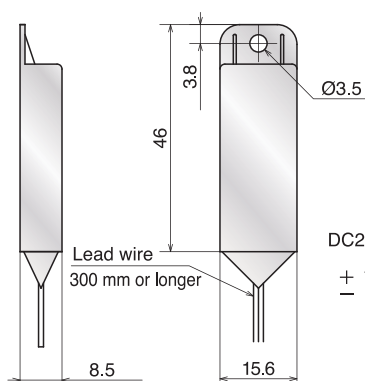
Dedicated power supply Mechanism of Parugen

Once the electromagnetic coil pulls in the movable plate and releases the brake, the coil requires less electric power to maintain the brake in that condition. The Parugen dedicated driving power supply temporarily transmits significant electric power to ensure reliable brake release. In a hold state, it supplies less electric power to minimize power consumption and brake heating. (To prevent accidents, Parugen supplies brake releasing electric power approximately once every 10 seconds.)

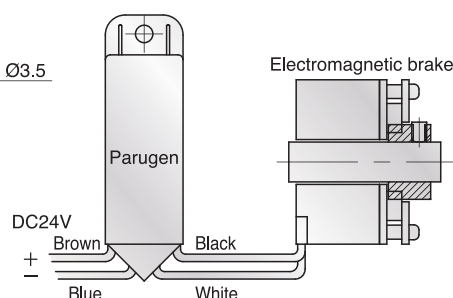
*Products designed to operate with Parugen have stronger springs and provide greater brake torque but cannot be used without the Parugen power supply unit.



External dimensions of Parugen (mm)



Parugen connection diagram

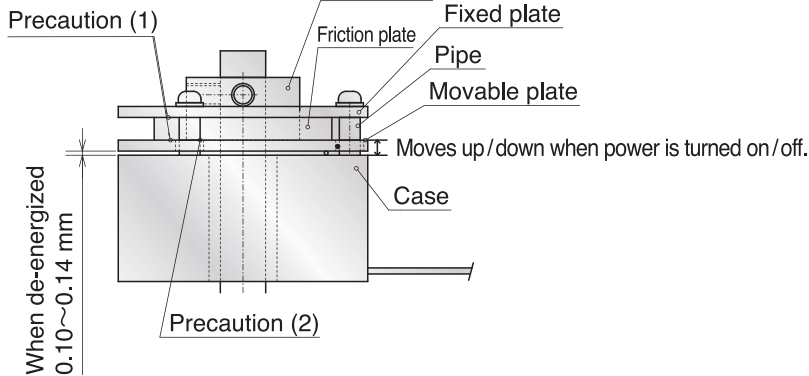


Parugen specifications

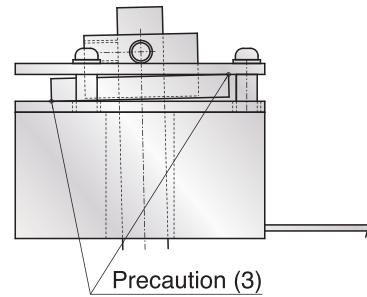
Item	Specification
Input voltage	DC 24 V
Output voltage	DC 24 V
Maximum output current	0.5 A
Minimum output current	0.1 A
Brake release electric power output duration	0.2 S
Brake release electric power output interval	Approx. 10 sec
Allowable operating ambient temperatures	-15~85 °C
Weight	10 g
Lead wire	Heat-resistant PVC AWG26 UL1095

Precautions for use

Brake actuated



Brake at released position

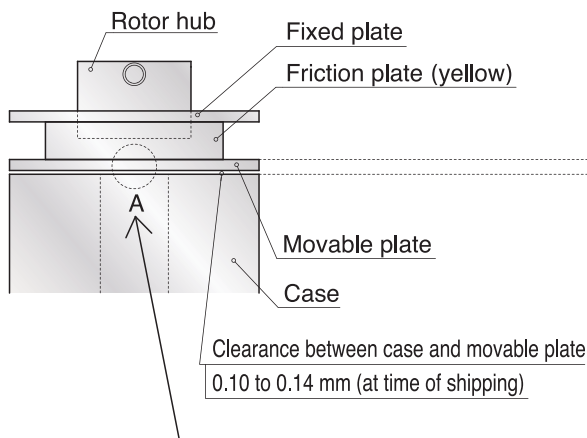


- Precaution (1) The product will not function properly if foreign matter adheres between the friction plate, movable plate, and fixed plate.
- Precaution (2) Provide a clearance of 0.2 to 0.4 mm between the Rotor hub and movable plate. This clearance is necessary to keep the Rotor hub and movable plate from colliding and generating metal particles.
- Precaution (3) If declination exceeds 0.25 degrees or eccentricity exceeds 0.1 mm, the friction plate will collide with the movable plate or fixed plate, resulting in wear of the friction plate or abnormal movable plate operation.

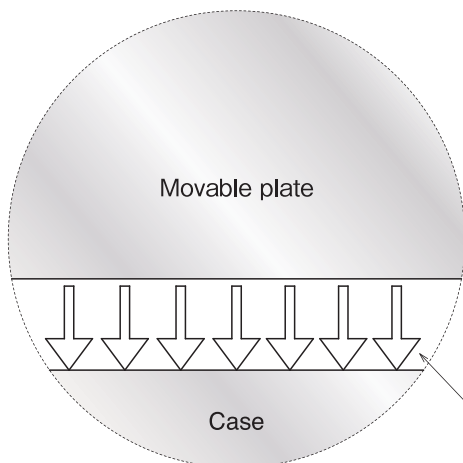
State of product at end of service life

If the clearance between the case and movable plate exceeds 0.2 mm, the brake may not be released when 24 V DC is applied. If this happens, the product has reached the end of its service life.

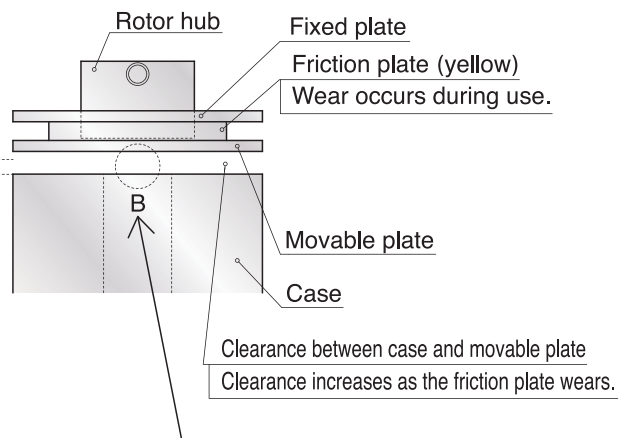
State of product at time of shipping Brake actuated



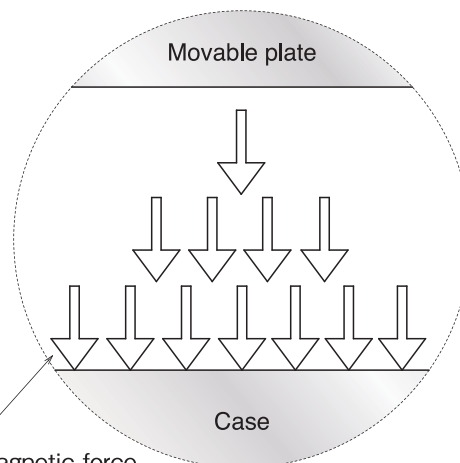
Enlarged view of section A



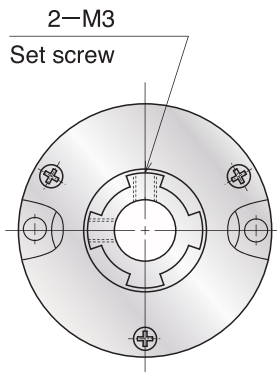
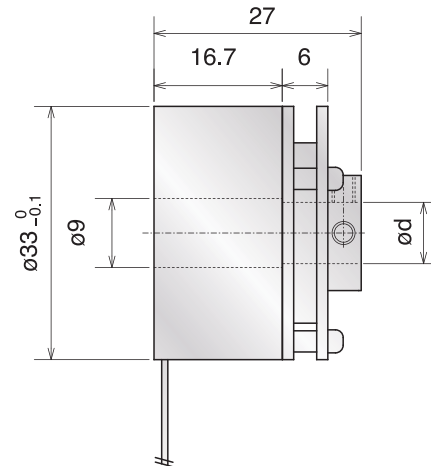
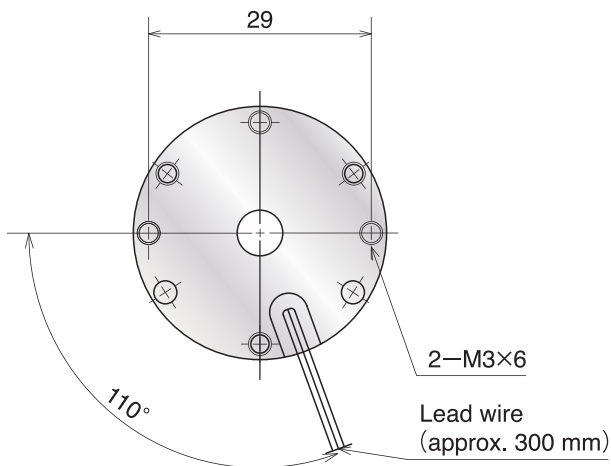
State of product at end of service life Brake actuated



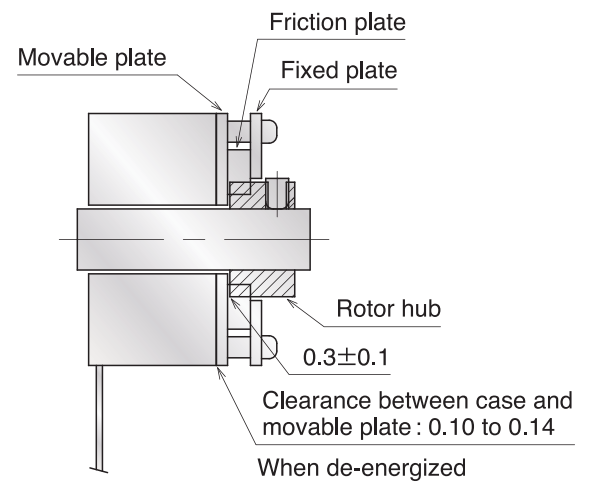
Enlarged view of section B



External dimensions (mm)



Recommended installation precision



Take appropriate measures to prevent loosening of the unit mounting screws.

Specifications

Type	MB3 () A24	MB3 () P24
Rated voltage	DC 24 V ± 10 %	
Max. instantaneous power (typical)	—	7.2 W
Power consumption (typical)	2.4 W	1 W or lower
Static friction torque	20 N · cm	36 N · cm
Armature pull-in time	40 msec or lower	
Armature release time	10 msec or lower	
Pull-in voltage	20 V or lower	
Release voltage	3 V or more	10 V or more
Moment of inertia	3.2 g · cm ²	
Insulation resistance	10 MW or more with 500 V DC megger	
Withstand voltage	1 minute at 1,000 V AC	
Insulation classification	F type	
Weight	100 g	112 g
Rotor hub bore diameter (ød)	ø6, ø8 (H7)	
Lead wire	JUNFLON ETFE AWG26 UL1609	

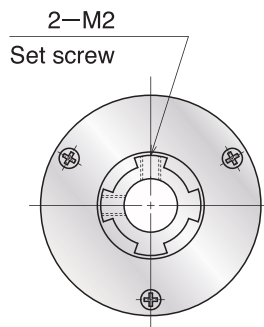
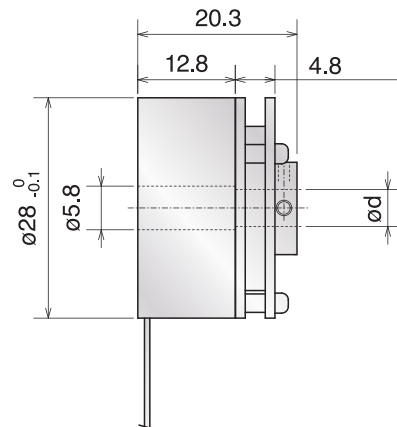
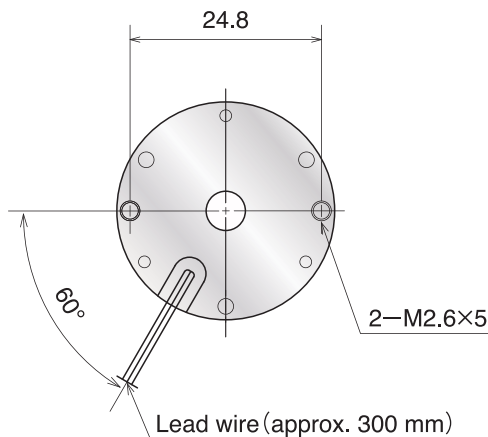
Product ID

MB 3 (6) A 24

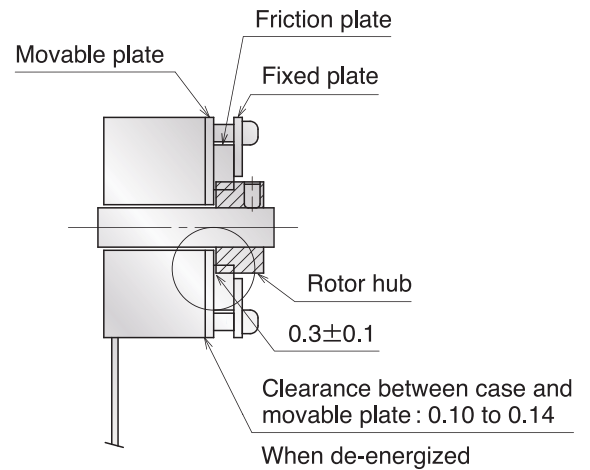
Rotor hub bore diameter
6 : ø6
8 : ø8

A : Non-Parugen
P : With Parugen

External dimensions (mm)



Recommended installation precision



Take appropriate measures to prevent loosening of the unit mounting screws.

Specifications

Type	MB2 () A24	MB2 () P24
Rated voltage	DC 24 V ± 10 %	
Max. instantaneous power (typical)	—	8.1 W
Power consumption (typical)	1.6 W	1 W or lower
Static friction torque	16 N · cm	25 N · cm
Armature pull-in time	40 msec or lower	
Armature release time	10 msec or lower	
Pull-in voltage	20 V or lower	
Release voltage	3 V or more	10 V or more
Moment of inertia	1.7 g · cm ²	
Insulation resistance	10 MW or more with 500 V DC megger	
Withstand voltage	1 minute at 1,000 V AC	
Insulation classification	F type	
Weight	57 g	66 g
Rotor hub bore diameter (ød)	ø3, ø4, ø5 (H7)	
Lead wire	JUNFLON ETFE AWG26 UL1609	

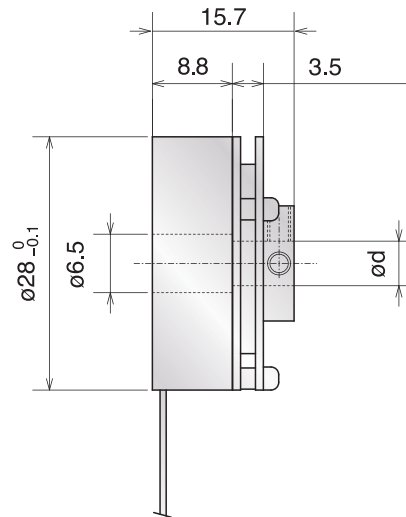
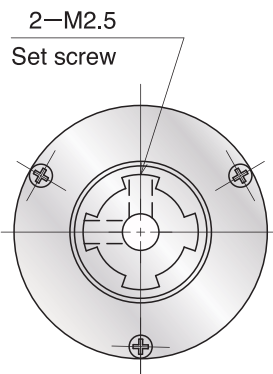
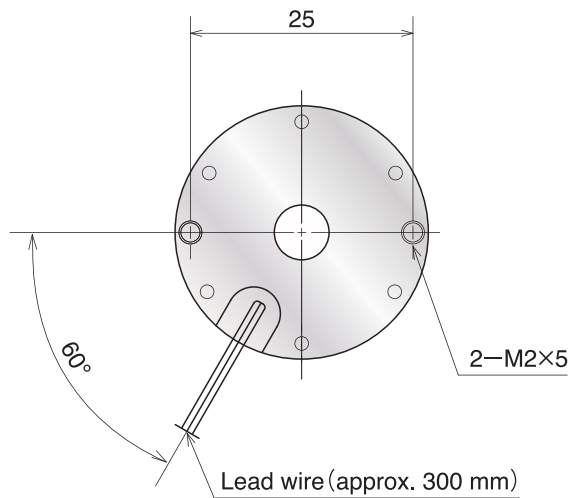
Product ID

MB 2 (3) A 24

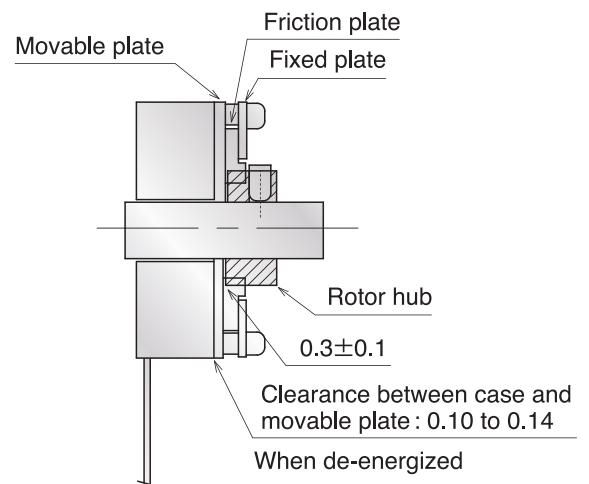
Rotor hub bore diameter
3 : ø3
4 : ø4
5 : ø5

A : Non-Parugen type
P : With Parugen

External dimensions (mm)



Recommended installation precision



Take appropriate measures to prevent loosening of the unit mounting screws.

Specifications

Type	MB2S () A24	MB2S () P24
Rated voltage	DC 24 V \pm 10 %	
Max. instantaneous power (typical)	—	7.6 W
Power consumption (typical)	1.6 W	1 W or lower
Static friction torque	12 N · cm	18 N · cm
Armature pull-in time	40 msec or lower	
Armature release time	10 msec or lower	
Pull-in voltage	20 V or lower	
Release voltage	3 V or more	10 V or more
Moment of inertia	1.2 g · cm ²	
Insulation resistance	10 MW or more with 500 V DC megger	
Withstand voltage	1 minute at 1,000 V AC	
Insulation classification	F type	
Weight	39 g	49 g
Rotor hub bore diameter ($\varnothing d$)	$\varnothing 4$, $\varnothing 5$, $\varnothing 6$ (H7)	
Lead wire	FEP AWG30	

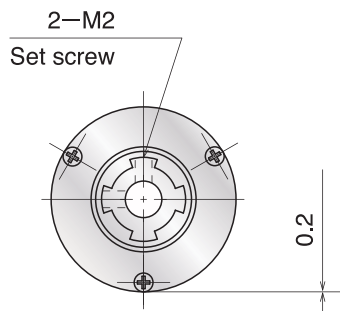
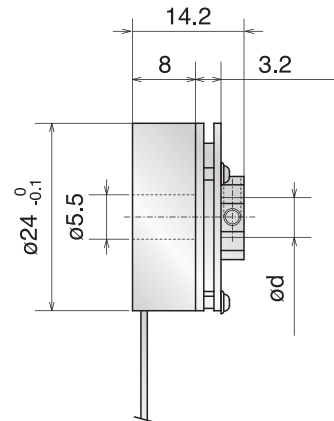
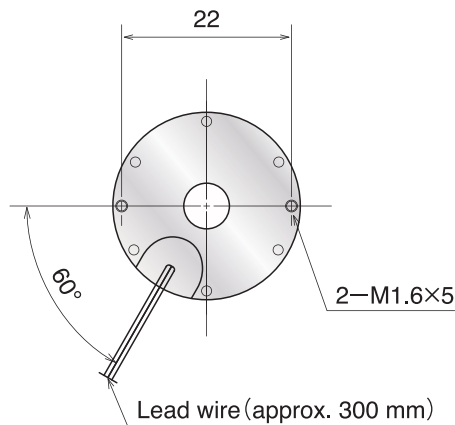
Product ID

MB 2S (4) A 24

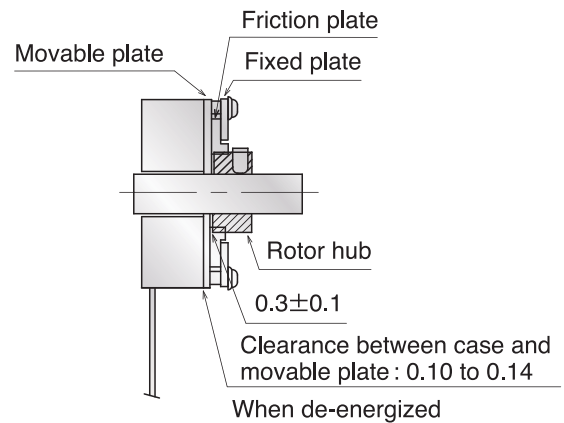
Rotor hub bore diameter
4 : $\varnothing 4$
5 : $\varnothing 5$
6 : $\varnothing 6$

A : Non-Parugen type
P : With Parugen

External dimensions (mm)



Recommended installation precision



Take appropriate measures to prevent loosening of the unit mounting screws.

Specifications

Type	MB24 () P24
Rated voltage	DC 24 V ± 10 %
Max. instantaneous power (typical)	8.5 W
Power consumption (typical)	1 W or lower
Static friction torque	10 N · cm
Armature pull-in time	40 msec or lower
Armature release time	10 msec or lower
Pull-in voltage	20 V or lower
Release voltage	10 V or more
Moment of inertia	0.9 g · cm ²
Insulation resistance	10 MW or more with 500 V DC megger
Withstand voltage	1 minute at 1,000 V AC
Insulation classification	F type
Weight	42 g
Rotor hub bore diameter (ød)	ø3, ø4, ø5 (H7)
Lead wire	FEP AWG30

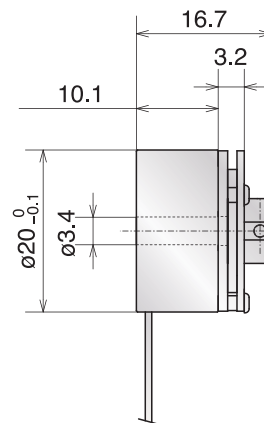
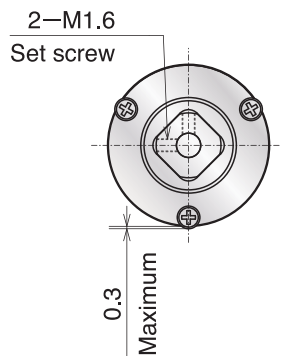
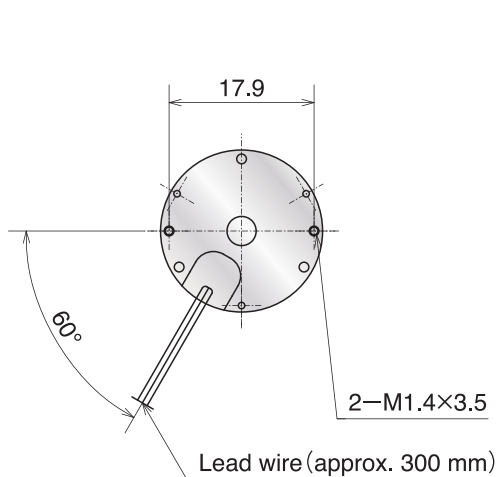
Product ID

MB 24 (3) P 24

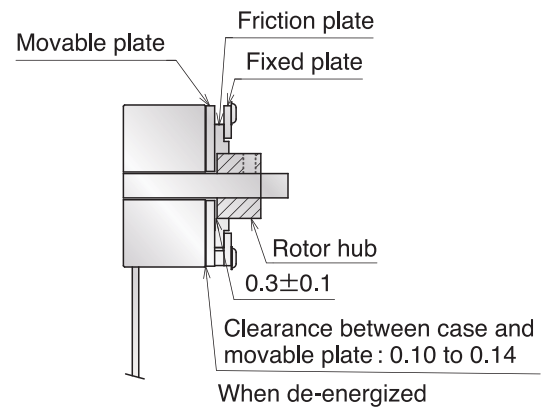
Rotor hub bore diameter
3 : ø3
4 : ø4
5 : ø5

P : With Parugen

External dimensions (mm)



Recommended installation precision



Take appropriate measures to prevent loosening of the unit mounting screws.

Specifications

Type	MB20 () P24
Rated voltage	DC 24 V ± 10 %
Max. instantaneous power (typical)	6.7 W
Power consumption (typical)	1 W or lower
Static friction torque	7 N · cm
Armature pull-in time	40 msec or lower
Armature release time	10 msec or lower
Pull-in voltage	20 V or lower
Release voltage	10 V or more
Moment of inertia	0.3 g · cm ²
Insulation resistance	10 MW or more with 500 V DC megger
Withstand voltage	1 minute at 1,000 V AC
Insulation classification	F type
Weight	33 g
Rotor hub bore diameter (ød)	ø2, ø2.5, ø3 (H7)
Lead wire	FEP AWG30

Product ID

MB 20 (2) P 24

Rotor hub bore diameter
2 : ø2
2.5 : ø2.5
3 : ø3

P : With Parugen

Precautions when ordering

The products and specifications presented in this catalog are subject to change without notice to allow product improvements or for other reasons (including specifications and production termination). When considering purchasing products in this catalog or when placing an order, contact our Customer Service to make sure the information in this catalog is up to date.

■ Acceptance inspection

Inspect the purchased/delivered product promptly. Ensure proper handling of the product before and during the acceptance inspection.

■ Warranty period

The warranty period for this product is one year from the date of purchase or one year from the date of product delivery to the site specified by the customer.

■ Scope of warranty

Should the product be found to have malfunctions or defects during the warranty period due to causes attributable to us, we will promptly provide a replacement product free of charge. Note that the warranty does not cover the following malfunctions and defects:

- (1) Malfunctions or defects attributable to customer-specified specifications, standards, handling methods, or the like
- (2) Malfunctions or defects attributable to modifications of the structure, performance, specifications, or the like made after product purchase/delivery without the involvement of our company
- (3) Malfunctions or defects attributable to phenomena not possible to foresee using practical technologies available at the time of purchase or contract signing
- (4) Malfunctions or defects attributable to use of the product under conditions or environments outside the range specified in the catalog or specifications
- (5) Malfunctions or defects attributable to use of the product embedded in a device manufactured by the customer and attributable to the absence of functions or structures typically provided in similar devices, in accordance with common industrial practice
- (6) Malfunctions or defects attributable to natural disasters or other force majeure events

Note that the product warranty covers only the product unit purchased or delivered. It does not cover indirect damages caused by malfunctions or defects in the product.

The warranty assumes that the product is purchased and used in Japan.

The contents of this catalog are subject to change without notice to allow product improvements.

Other information

■ Inquiries

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FAX	042-341-8826
URL	https://www.asadenshi.co.jp
e-mail	sales@asadenshi.co.jp

Please send email to request CAD, 2D, or 3D data.

■ Days/hours of operation

Business hours: 8:30 to 17:30

Closed Saturdays, Sundays, public holidays, and New Year's holidays

■ Other products

We also offer shaft couplings (ball couplings, Oldham couplings), magnetic proximity sensors, and contactless touch switches.



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