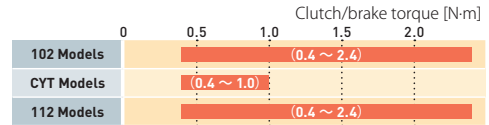


ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES



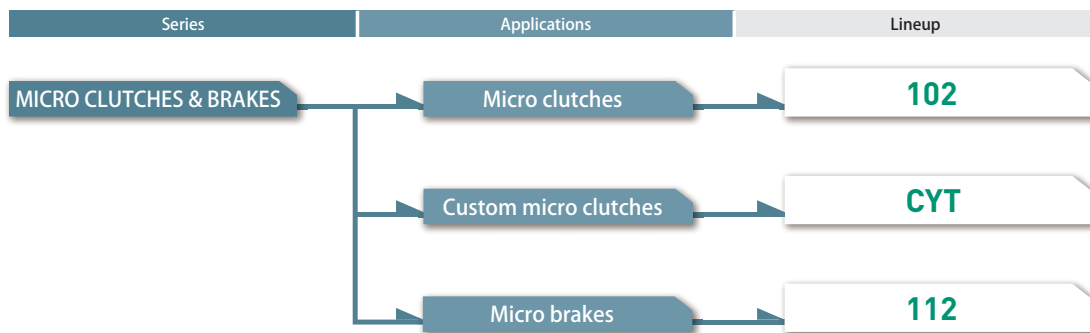
Application Automated teller machines, sorters, office equipment, weighing and packaging machinery, printing machinery, bookbinding machinery, optical equipment

Micro Clutches and Micro Brakes for Precise Control of Compact Precision Equipment

These micro clutches and micro brakes are ideal for compact precision equipment where fluctuations in torque and response must be avoided, such as office equipment, communication equipment and automobiles. In addition to the 102 (clutch) and 112 (brake) models, which share the same basic clutch/brake design, we also supply CYT models (clutches), which can be customized into a wide variety of types to suit the requirements of our customers.



Available Models



For details on selection, see P.312 to 319.

Micro Clutches

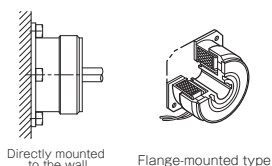


Mounting

102-□-1□

Wall-mounted type

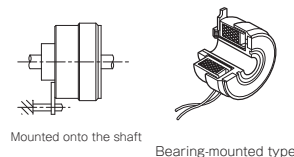
Uses a flange-mounted stator. Designed to be short in the axial direction, requiring less installation space.



102-□-3□, CYT

Shaft-mounted type

Uses a bearing-mounted stator. Designed to be relatively easy to mount, reducing the processing and work required for mounting.



Shaft coupling system (armatures)

102-□-□3

Butt and parallel shaft type (Armature type-3)

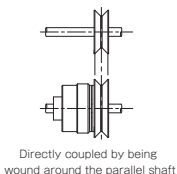
These incorporate non-armature parts provided by the customer such as V pulleys, enabling use in designs that use either butt shafts or through-shafts.



102-□-□5

Directly coupled type wound around the parallel axis (armature type-5)

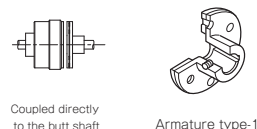
Uses an armature assembly designed for use with through-shafts. Ensures that mounting is relatively easy to complete as well as extremely efficient in its approach.



102-□-□1

Butt type (Armature type-1)

Uses an armature assembly designed for use with butt shafts. May be difficult to mount due to the need for centering and other adjustments, may require the use of a fitting flange, or may require use in combination with flexible couplings.

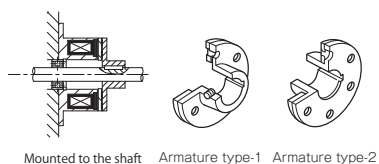


Micro Brakes



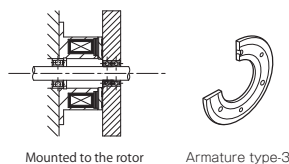
Shaft-mounted type

These use axial braking in most cases, the effectiveness of which depends on how efficiently parts are mounted.



Rotor-mounted type

Uses an armature assembly mounted directly to an inertial body not fastened to the shaft that continues to move even after the shaft has stopped.



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ROSTA

SERIES

ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES

ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES

ELECTROMAGNETIC CLUTCH & BRAKE UNITS

SPRING-ACTUATED BRAKE

ELECTROMAGNETIC TOOTH CLUTCHES

BRAKE MOTORS

POWER SUPPLIES

MODELS

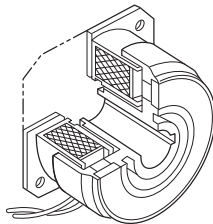
102

CYT

112

Product Lineup

102- □ -1 □ Electromagnetic-actuated Micro Clutches - Flange-mounted Type

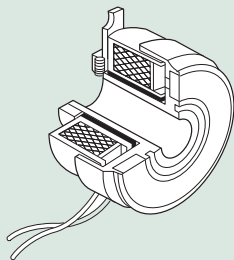


Flange-mounted type

Stator and rotor are combined and directly mounted on stationary parts, such as frames, and fixed in place. These are short in the axial direction and can use space near walls effectively. Select the armature according to the coupling type used (through-shaft, butt shaft, etc.).

| | | |
|-----------------------|-------|-----------|
| Clutch torque | [N·m] | 0.4 ~ 2.4 |
| Operating temperature | [°C] | -10 ~ +40 |
| Backlash | | Zero |

102- □ -3 □ Electromagnetic-actuated Micro Clutches - Bearing-mounted Type

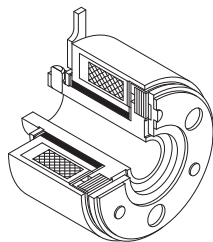


Bearing-mounted type

These integrate the stator and rotor, which are held to the stationary parts of the machine by a drive pin arm; the rotor is locked to the rotation shaft by a set screw. They are designed to be relatively easy to mount, reducing the processing work required for mounting. Select the armature according to the coupling type used (through-shaft, butt shaft, etc.).

| | | |
|-----------------------|-------|-----------|
| Clutch torque | [N·m] | 0.4 ~ 2.4 |
| Operating temperature | [°C] | -10 ~ +40 |
| Backlash | | Zero |

CYT Electromagnetic-actuated Micro Clutches - Custom Type



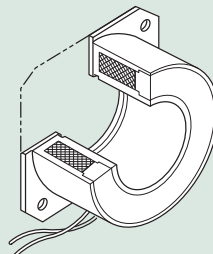
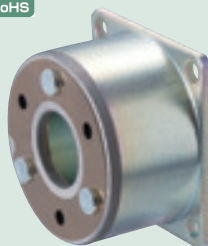
The CYT models are the basic building blocks for customized micro-clutches. The basic model is bearing mounted. Two types are available for different shaft rotation speeds: a dry metal type and a ball bearing type. Armature type-3 is standard, but many customizations are possible.

| | | |
|-----------------------|-------|-----------|
| Clutch torque | [N·m] | 0.4 ~ 1.0 |
| Operating temperature | [°C] | -10 ~ +40 |
| Backlash | | Zero |

112 Electromagnetic-actuated Micro Brakes



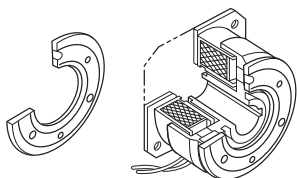
Except size #02



Brakes are used to brake and hold rotating bodies. The flange of the stator is locked securely to a strong stationary part. Select an armature that factors in the mounting space available.

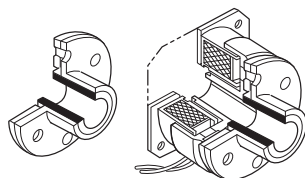
| | | |
|-----------------------|-------|-----------|
| Brake torque | [N·m] | 0.4 ~ 2.4 |
| Operating temperature | [°C] | -10 ~ +40 |
| Backlash | | Zero |

Types for through-shaft or butt shaft



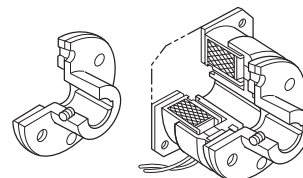
Armature type-3 102-□-13

Through-shaft (coupled by winding around parallel shaft) type



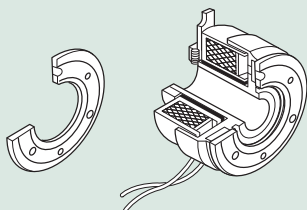
Armature type-5 102-□-15

Butt shaft type



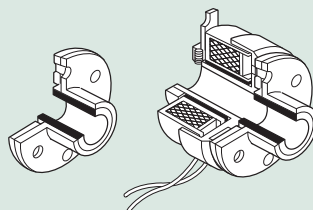
Armature type-1 102-□-11

Types for through-shaft or butt shaft



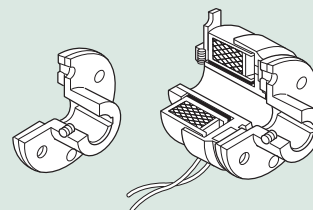
Armature type-3 102-□-33

Through-shaft (coupled by winding around parallel shaft) type



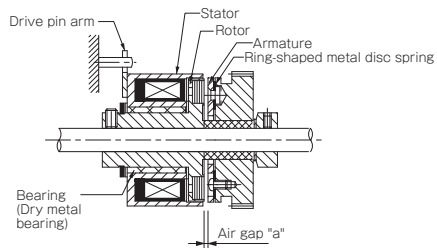
Armature type-5 102-□-35

Butt shaft type



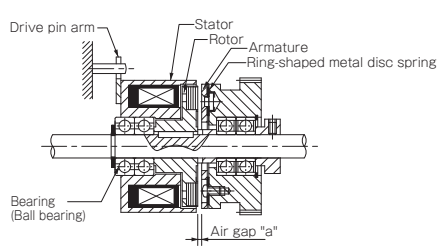
Armature type-1 102-□-31

Dry metal type



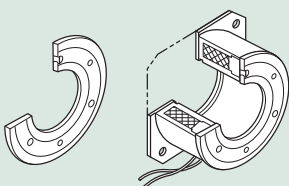
CYT-□-33M

Ball bearing type



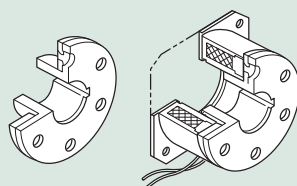
CYT-□-33B

Types with many applications



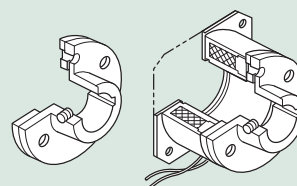
Armature type-3 112-□-13

Slim, space-saving type



Armature type-2 112-□-12

Easy-to-use standard-shape type



Armature type-1 112-□-11

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SERIES

ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES

ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES

ELECTROMAGNETIC CLUTCH & BRAKE UNITS

SPRING-ACTUATED BRAKE

ELECTROMAGNETIC TOOTH CLUTCHES

BRAKE MOTORS

POWER SUPPLIES

MODELS

102

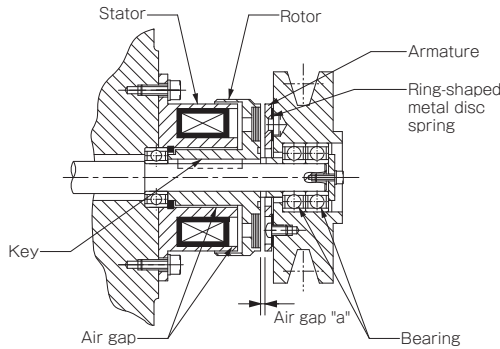
CYT

112

Mounting and CYT Customization Examples

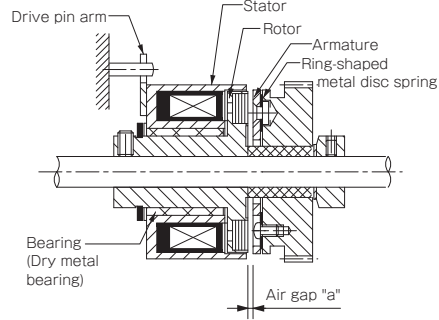
Flange-mounting example with 102

The stator is directly mounted on a stationary part, such as a frame, by a mounting flange, and fixed in place. The rotor is locked to the rotation shaft using a key. The stator and rotor are combined via a narrow air gap that serves as part of the magnetic circuit to form a magnetic pole.



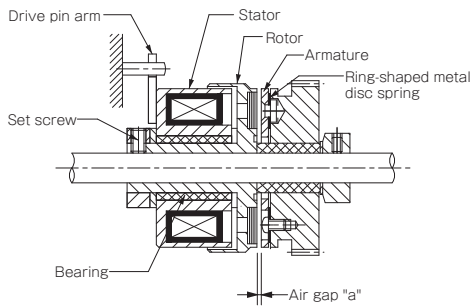
Dry-metal type mounting example with CYT

The stator is integrated with the rotor via dry metal, and held to the stationary parts of the machine by a drive pin arm. The rotor is locked to the rotation shaft using a set screw. The stator and rotor form a magnetic pole via the dry metal.



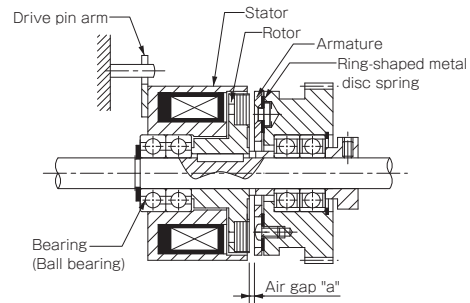
Bearing-mounting example with 102.

The stator is integrated with the rotor via a bearing and held to the stationary parts of the machine by a drive pin arm. The rotor is locked to the rotation shaft using a set screw. The stator and rotor form a magnetic pole via the bearing (ferrous oil-impregnated metal).



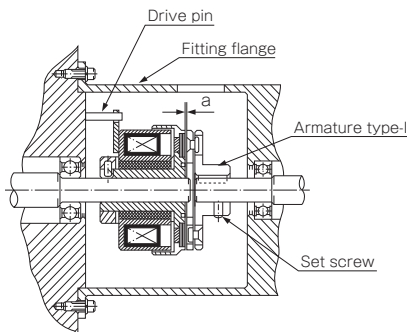
Ball-bearing type mounting example with CYT

The stator is mounted on the shaft via a bearing and held to the stationary parts of the machine by a drive pin arm. The stator and rotor are combined via a narrow air gap that serves as part of the magnetic circuit to form a magnetic pole.



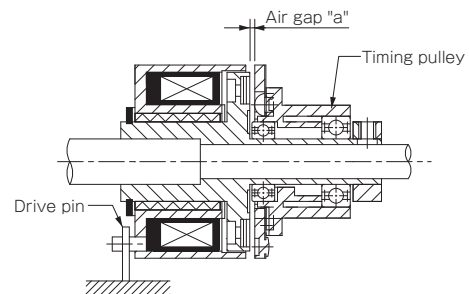
Butt shaft mounting example with 102

In designs that use butt shafts, the two shafts can be reliably centered using fitting flanges, as shown in the figure.



Dry-metal type embedding example with CYT

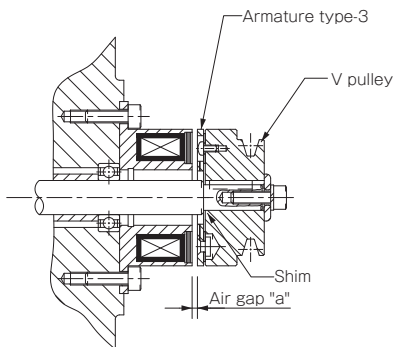
We design to your requirements using timing pulleys, gears and the like mounted on armature type-3.



Mounting and CYT Customization Examples

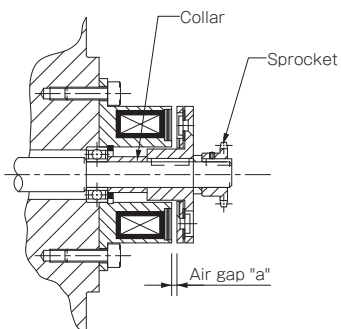
Armature type-3 mounting example with 112

Armature type-3 is used by directly mounting it to a transmission element such as a V-pulley or to a rotating body that stops inertial force. The shaft of the brake part requires no processing. The shaft diameter may also be determined freely. Air gap "a" can be set easily using collars and shims. Corrections are easily accomplished by adding or removing shims.



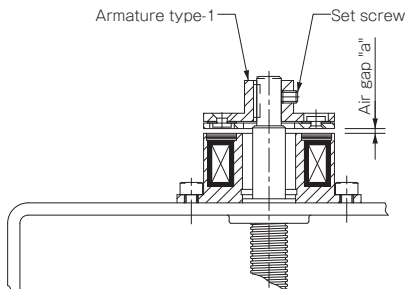
Armature type-2 mounting example with 112

Armature type-2 has the smallest mounting-space footprint of any of the armatures, so overhang is not a concern even when a sprocket or the like is mounted on the brake tip. Air gap "a" can be set easily using collars and shims. Corrections are easily accomplished by adding or removing shims.



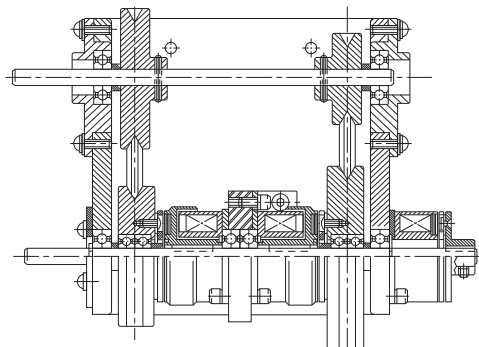
Armature type-1 mounting example on vertical shaft with 112

Since there is no restriction on mounting direction, there is no running torque or abnormal wear even when mounted on vertical shafts. It is easy to set air gap a: simply move armature type-1 and lock it in place with a set screw.



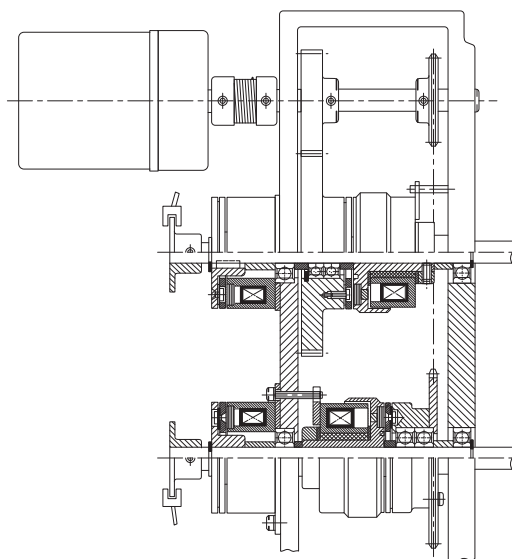
Example of the combination of clutches and brakes

This example uses a two-step speed-change mechanism combining two clutches and a brake.



Example of the combination of clutches and brakes

Shaft drive is both forward and reverse in combination with a clutch in this example. Start and stop freely by mounting brakes on each shaft.



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- ELECTROMAGNETIC CLUTCHES & BRAKES**
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- INVERTERS
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- ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES**
- ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES
- ELECTROMAGNETIC CLUTCH & BRAKE UNITS
- SPRING-ACTUATED BRAKE
- ELECTROMAGNETIC TOOTH CLUTCHES
- BRAKE MOTORS
- POWER SUPPLIES

MODELS

- 102
- CYT
- 112

102-□-1□ Types Electromagnetic Micro Clutches - Flange-mounted Type

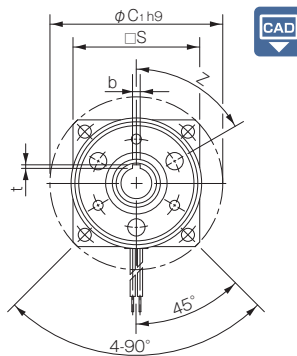
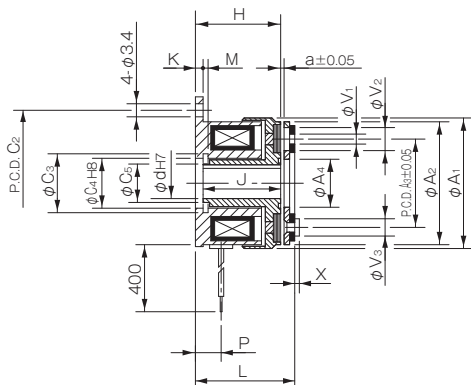
Specifications

| Model | Size | Dynamic friction torque Td [N·m] | Coil (at 20°C) | | | | Heat resistance class | Max. rotation speed [min ⁻¹] | Rotating part moment of inertia J | | Allowable engaging energy E _{Coil} [J] | Total work performed until readjustment of the air gap E _r [J] | Armature pull-in time t _a [s] | Torque rise time t _p [s] | Torque extinction time t _d [s] | Mass [kg] |
|-----------|------|----------------------------------|----------------|-------------|-------------|----------------|-----------------------|--|-----------------------------------|----------------------------|---|---|--|-------------------------------------|---|-----------|
| | | | Voltage [V] | Wattage [W] | Current [A] | Resistance [Ω] | | | Armature [kg·m ²] | Rotor [kg·m ²] | | | | | | |
| 102-02-13 | | | | | | | 10000 | 6.75 × 10 ⁻⁷ | | | | | | | | 0.075 |
| 102-02-15 | 02 | 0.4 | DC24 | 6 | 0.25 | 96 | B | 500 | 1.00 × 10 ⁻⁶ | 2.45 × 10 ⁻⁶ | 1500 | 2 × 10 ⁶ | 0.009 | 0.019 | 0.017 | 0.081 |
| 102-02-11 | | | | | | | 10000 | 1.00 × 10 ⁻⁶ | | | | | | | | 0.079 |
| 102-03-13 | | | | | | | 10000 | 1.30 × 10 ⁻⁶ | | | | | | | | 0.096 |
| 102-03-15 | 03 | 0.6 | DC24 | 6 | 0.25 | 96 | B | 500 | 1.95 × 10 ⁻⁶ | 3.25 × 10 ⁻⁶ | 2300 | 3 × 10 ⁶ | 0.009 | 0.022 | 0.020 | 0.105 |
| 102-03-11 | | | | | | | 10000 | 1.95 × 10 ⁻⁶ | | | | | | | | 0.103 |
| 102-04-13 | | | | | | | 10000 | 4.38 × 10 ⁻⁶ | | | | | | | | 0.178 |
| 102-04-15 | 04 | 1.2 | DC24 | 8 | 0.33 | 72 | B | 500 | 6.15 × 10 ⁻⁶ | 1.41 × 10 ⁻⁵ | 4500 | 6 × 10 ⁶ | 0.011 | 0.028 | 0.030 | 0.195 |
| 102-04-11 | | | | | | | 10000 | 6.15 × 10 ⁻⁶ | | | | | | | | 0.191 |
| 102-05-13 | | | | | | | 10000 | 9.08 × 10 ⁻⁶ | | | | | | | | 0.310 |
| 102-05-15 | 05 | 2.4 | DC24 | 10 | 0.42 | 58 | B | 500 | 1.38 × 10 ⁻⁵ | 3.15 × 10 ⁻⁵ | 9000 | 9 × 10 ⁶ | 0.012 | 0.031 | 0.040 | 0.335 |
| 102-05-11 | | | | | | | 10000 | 1.38 × 10 ⁻⁵ | | | | | | | | 0.325 |

* The dynamic friction torque, T_d, is measured at a relative speed of 100 min⁻¹.
 * The moment of inertia of a rotating body and mass are measured for the maximum bore diameter.
 * Keep supply voltage fluctuation to within 10% of coil voltage.

Dimensions (102-□-13)

(For direct mounting)



| Size | Shaft bore dimensions | | | | |
|------|-----------------------|---|-----------------------|---|-----------------------|
| | d _{1, H7} | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | b P9 | t | b E9 | t |
| 02 | 5 | — | — | — | — |
| 03 | 6 | 2 ^{-0.006/-0.031} | 0.8 ^{+0.3/0} | — | — |
| 04 | 8 | 2 ^{-0.006/-0.031} | 0.8 ^{+0.3/0} | — | — |
| | 10 | 3 ^{-0.006/-0.031} | 1.2 ^{+0.3/0} | 4 ^{+0.050/+0.020} | 1.5 ^{+0.5/0} |
| 05 | 10 | 3 ^{-0.006/-0.031} | 1.2 ^{+0.3/0} | 4 ^{+0.050/+0.020} | 1.5 ^{+0.5/0} |
| | 15 | 5 ^{-0.012/-0.042} | 2 ^{+0.5/0} | 5 ^{+0.050/+0.020} | 2 ^{+0.5/0} |

| Size | Radial direction dimensions | | | | | | | | | | | | | Axial direction dimensions | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----------------|----------------|----------------|----------------------------|------|------|-----|------|-----|-----|------|-----|
| | A ₁ | A ₂ | A ₃ | A ₄ | C ₁ | C ₂ | C ₃ | C ₄ | C ₅ | S | V ₁ | V ₂ | V ₃ | Z | H | J | K | L | P | M | a | X |
| 02 | 31 | 28 | 19.5 | 10.5 | 39 | 33.5 | 11.4 | 11 | 8 | — | 2-2.1 | 2-5.3 | 2-4 | 4-90° | 18 | 16.5 | 1.5 | 20.5 | 5 | 1.1 | 0.1 | 0.8 |
| 03 | 34 | 32 | 23 | 12.5 | 45 | 38 | 13.6 | 13 | 10 | 33 | 3-2.6 | 3-6 | 3-4.5 | 6-60° | 22.2 | 20.2 | 2 | 24.5 | 6.7 | 1.3 | 0.15 | 1.2 |
| 04 | 43 | 40 | 30 | 18.5 | 54 | 47 | 20 | 19 | 15.5 | 41 | 3-3.1 | 3-6 | 3-5 | 6-60° | 25.4 | 23.4 | 2 | 28.2 | 7 | 1.3 | 0.15 | 1.5 |
| 05 | 54 | 50 | 38 | 25.5 | 65 | 58 | 27.2 | 26 | 22 | 51 | 3-3.1 | 3-6.5 | 3-5.5 | 6-60° | 28.1 | 26.1 | 2 | 31.3 | 8.2 | 1.5 | 0.2 | 1.5 |

* Size 02 is a rounded flange.
 * The rotor of size 02 has no keyway. Lock it in place by press-fitting it onto the shaft or the like.

How to Place an Order

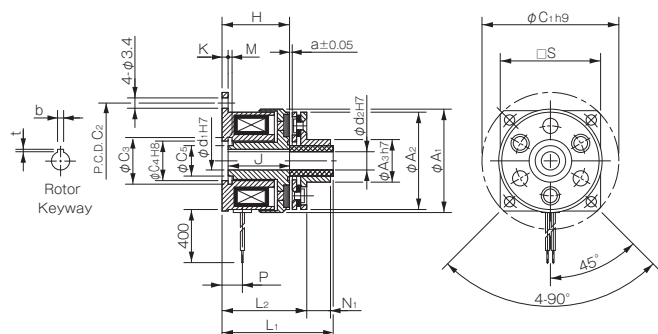
102-03-13 24V 6DIN

Size ——— Keyway standards DIN: Compliant with the new JIS standards
 Rotor bore diameter (dimensional symbol d) ——— JIS: Compliant with the old JIS standards

*Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

Dimensions (102-□-15)

(For through-shafts)



Unit [mm]

| Size | Shaft bore dimensions | | | | | |
|------|-----------------------|----------------------|---|---------------------------------------|---|---------------------------------------|
| | d ₁ H7 | d ₂ H7 | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | | b P9 | t | b E9 | t |
| 02 | 5 | 5 | — | — | — | — |
| 03 | 6 | 6 | 2 | 0.8 ^{+0.3} _{-0.006} | — | — |
| | | | — | — | — | — |
| 04 | 8 | 8 | 2 | 0.8 ^{+0.3} _{-0.006} | — | — |
| | | | — | — | — | — |
| 05 | 10 | 10 | 3 | 1.2 ^{+0.3} _{-0.006} | 4 | 1.5 ^{+0.5} _{-0.050} |
| | | | — | — | — | — |
| | | | 5 | 2 ^{+0.5} _{-0.012} | 5 | 2 ^{+0.5} _{-0.042} |

* The armature type-5 bore d₂ is a straight bore.

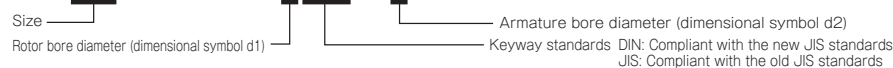
Unit [mm]

| Size | Radial direction dimensions | | | | | | | | | Axial direction dimensions | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----------------------------|------|-----|----------------|----------------|-----|-----|----------------|------|
| | A ₁ | A ₂ | A ₃ | C ₁ | C ₂ | C ₃ | C ₄ | C ₅ | S | H | J | K | L ₁ | L ₂ | M | P | N ₁ | a |
| 02 | 31 | 28 | 13 | 39 | 33.5 | 11.4 | 11 | 8 | — | 18 | 16.5 | 1.5 | 27.5 | 22.4 | 1.1 | 5 | 4.8 | 0.1 |
| 03 | 34 | 32 | 14 | 45 | 38 | 13.6 | 13 | 10 | 33 | 22.2 | 20.2 | 2 | 34.5 | 26.5 | 1.3 | 6.7 | 7.8 | 0.15 |
| 04 | 43 | 40 | 18 | 54 | 47 | 20 | 19 | 15.5 | 41 | 25.4 | 23.4 | 2 | 40.2 | 30.8 | 1.3 | 7 | 9.1 | 0.15 |
| 05 | 54 | 50 | 28 | 65 | 58 | 27.2 | 26 | 22 | 51 | 28.1 | 26.1 | 2 | 43.3 | 34.3 | 1.5 | 8.2 | 8.8 | 0.2 |

* Size 02 is a rounded flange.
* The rotor of size 02 has no keyway. Lock it in place by press-fitting it onto the shaft or the like.

How to Place an Order

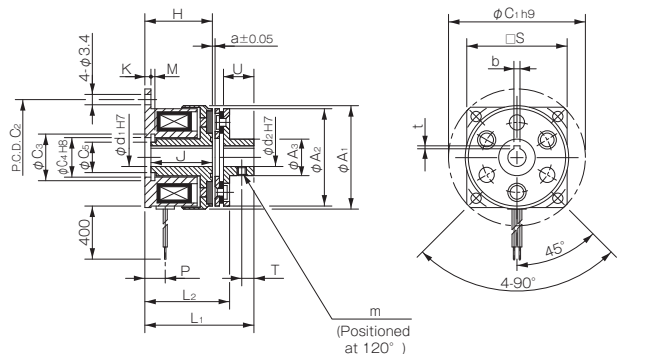
102-03-15 24V R6DIN A6



*Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

Dimensions (102-□-11)

(For butt shafts)



Unit [mm]

| Size | Shaft bore dimensions | | | | | |
|------|-----------------------|----------------------|---|---------------------------------------|---|---------------------------------------|
| | d ₁ H7 | d ₂ H7 | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | | b P9 | t | b E9 | t |
| 02 | 5 | 5 | — | — | — | — |
| 03 | 6 | 6 | 2 | 0.8 ^{+0.3} _{-0.006} | — | — |
| | | | — | — | — | — |
| 04 | 8 | 8 | 2 | 0.8 ^{+0.3} _{-0.006} | — | — |
| | | | — | — | — | — |
| 05 | 10 | 10 | 3 | 1.2 ^{+0.3} _{-0.006} | 4 | 1.5 ^{+0.5} _{-0.050} |
| | | | — | — | — | — |
| | | | 5 | 2 ^{+0.5} _{-0.012} | 5 | 2 ^{+0.5} _{-0.042} |

Unit [mm]

| Size | Radial direction dimensions | | | | | | | | | Axial direction dimensions | | | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----------------------------|------|------|----------------|----------------|------|-----|-----|----|-----|------|
| | A ₁ | A ₂ | A ₃ | C ₁ | C ₂ | C ₃ | C ₄ | C ₅ | S | H | J | K | L ₁ | L ₂ | M | P | U | T | a | |
| 02 | 31 | 28 | 9.5 | 39 | 33.5 | 11.4 | 11 | 8 | — | M3 | 18 | 16.5 | 1.5 | 27.5 | 22.5 | 1.1 | 5 | 7 | 2.5 | 0.1 |
| 03 | 34 | 32 | 12 | 45 | 38 | 13.6 | 13 | 10 | 33 | 2-M3 | 22.2 | 20.2 | 2 | 34.5 | 26.5 | 1.3 | 6.7 | 10 | 4 | 0.15 |
| 04 | 43 | 40 | 17 | 54 | 47 | 20 | 19 | 15.5 | 41 | 2-M3 | 25.4 | 23.4 | 2 | 40.2 | 30.8 | 1.3 | 7 | 12 | 5 | 0.15 |
| 05 | 54 | 50 | 24 | 65 | 58 | 27.2 | 26 | 22 | 51 | 2-M4 | 28.1 | 26.1 | 2 | 43.3 | 34.3 | 1.5 | 8.2 | 12 | 5 | 0.2 |

* Size 02 is a rounded flange.
* The rotor of size 02 has no keyway. Lock it in place by press-fitting it onto the shaft or the like.

How to Place an Order

102-03-11 24V R6DIN A6DIN



*Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

- COUPLINGS
- ETP BUSHINGS
- ELECTROMAGNETIC CLUTCHES & BRAKES**
- SPEED CHANGERS & REDUCERS
- INVERTERS
- LINEAR SHAFT DRIVES
- TORQUE LIMITERS
- ROSTA

- SERIES
- ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES**
- ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES
- ELECTROMAGNETIC CLUTCH & BRAKE UNITS
- SPRING-ACTUATED BRAKE
- ELECTROMAGNETIC TOOTH CLUTCHES
- BRAKE MOTORS
- POWER SUPPLIES

- MODELS
- 102**
- CYT
- 112

102- □ -3 □ Types Electromagnetic Micro Clutches - Bearing-mounted Type

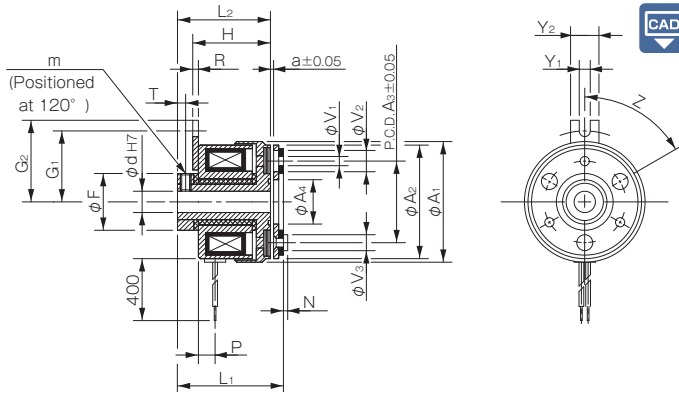
Specifications

| Model | Size | Dynamic friction torque T_d [N·m] | Coil (at 20°C) | | | | Heat resistance class | Max. rotation speed [min ⁻¹] | Rotating part moment of inertia J | | Allowable engaging energy E_{ea} [J] | Total work performed until readjustment of the air gap E_r [J] | Armature pull-in time t_a [s] | Torque rise time t_p [s] | Torque extinction time t_e [s] | Mass [kg] |
|-----------|------|-------------------------------------|----------------|-------------|-------------|----------------|-----------------------|--|-----------------------------------|----------------------------|--|--|---------------------------------|----------------------------|----------------------------------|-----------|
| | | | Voltage [V] | Wattage [W] | Current [A] | Resistance [Ω] | | | Armature [kg·m ²] | Rotor [kg·m ²] | | | | | | |
| 102-02-33 | | | | | | | | 6.75 × 10 ⁻⁷ | | | | | | | | 0.076 |
| 102-02-35 | 02 | 0.4 | DC24 | 6 | 0.25 | 96 | B | 500 | 1.00 × 10 ⁻⁶ | 2.75 × 10 ⁻⁶ | 1500 | 2 × 10 ⁶ | 0.009 | 0.019 | 0.017 | 0.082 |
| 102-02-31 | | | | | | | | 1.00 × 10 ⁻⁶ | | | | | | | | 0.080 |
| 102-03-33 | | | | | | | | 1.30 × 10 ⁻⁶ | | | | | | | | 0.101 |
| 102-03-35 | 03 | 0.6 | DC24 | 6 | 0.25 | 96 | B | 500 | 1.95 × 10 ⁻⁶ | 4.08 × 10 ⁻⁶ | 2300 | 3 × 10 ⁶ | 0.009 | 0.022 | 0.020 | 0.110 |
| 102-03-31 | | | | | | | | 1.95 × 10 ⁻⁶ | | | | | | | | 0.108 |
| 102-04-33 | | | | | | | | 4.38 × 10 ⁻⁶ | | | | | | | | 0.183 |
| 102-04-35 | 04 | 1.2 | DC24 | 8 | 0.33 | 72 | B | 500 | 6.15 × 10 ⁻⁶ | 1.44 × 10 ⁻⁵ | 4500 | 6 × 10 ⁶ | 0.011 | 0.028 | 0.030 | 0.200 |
| 102-04-31 | | | | | | | | 6.15 × 10 ⁻⁶ | | | | | | | | 0.196 |
| 102-05-33 | | | | | | | | 9.08 × 10 ⁻⁶ | | | | | | | | 0.321 |
| 102-05-35 | 05 | 2.4 | DC24 | 10 | 0.42 | 58 | B | 500 | 1.38 × 10 ⁻⁵ | 2.90 × 10 ⁻⁵ | 9000 | 9 × 10 ⁶ | 0.012 | 0.031 | 0.040 | 0.346 |
| 102-05-31 | | | | | | | | 1.38 × 10 ⁻⁵ | | | | | | | | 0.336 |

* The dynamic friction torque, T_d , is measured at a relative speed of 100 min⁻¹.
 * The moment of inertia of a rotating body and mass are measured for the maximum bore diameter.
 * Keep supply voltage fluctuation to within 10% of coil voltage.

Dimensions (102- □ -33)

(For direct mounting)



Unit (mm)

| Size | Shaft bore dimensions | |
|------|-----------------------|--|
| | d H7 | |
| 02 | 5 | |
| 03 | 6 | |
| 04 | 8 | |
| 05 | 10 | |
| | 15 | |

Unit (mm)

| Size | Radial direction dimensions | | | | | | | | | | | | | | Axial direction dimensions | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|----------------------------|-----|----------------|----------------|-----|-----|-----|------|
| | A ₁ | A ₂ | A ₃ | A ₄ | F | V ₁ | V ₂ | V ₃ | G ₁ | G ₂ | Y ₁ | Y ₂ | Z | m | H | R | L ₁ | L ₂ | P | N | T | a |
| 02 | 31 | 28 | 19.5 | 10.5 | 14 | 2-2.1 | 2-5.3 | 2-4 | 16.8 | 20 | 3.1 | 8 | 4-90° | 2-M3 | 19.5 | 1.6 | 25.9 | 23.5 | 5 | 0.8 | 2.5 | 0.1 |
| 03 | 34 | 32 | 23 | 12.5 | 16 | 3-2.6 | 3-6 | 3-4.5 | 20 | 23 | 3.1 | 8 | 6-60° | 2-M3 | 21.9 | 1.6 | 28.5 | 26.2 | 4.7 | 1.2 | 2.3 | 0.15 |
| 04 | 43 | 40 | 30 | 18.5 | 22 | 3-3.1 | 3-6 | 3-5 | 23 | 26 | 3.1 | 8 | 6-60° | 2-M4 | 25.1 | 1.6 | 33.2 | 30.4 | 5 | 1.5 | 2.8 | 0.15 |
| 05 | 54 | 50 | 38 | 25.5 | 30 | 3-3.1 | 3-6.5 | 3-5.5 | 28 | 31 | 3.1 | 8 | 6-60° | 2-M5 | 27.9 | 1.6 | 37.3 | 34.1 | 6 | 1.5 | 3.3 | 0.2 |

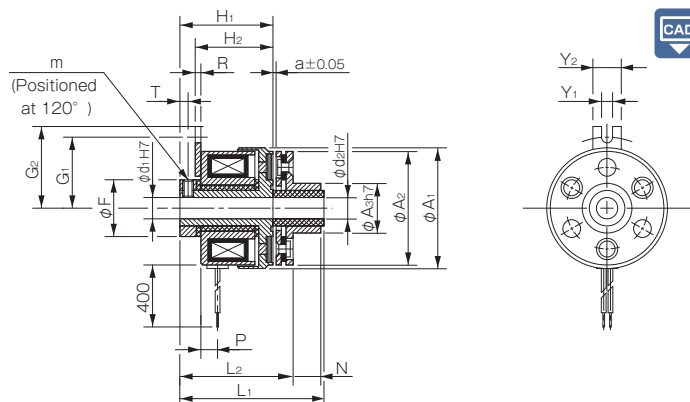
How to Place an Order

102-03-33 24V 6

Size ——— Rotor bore diameter (dimensional symbol d)

Dimensions (102-□-35)

(For through-shafts)



| Size | Shaft bore dimensions | |
|------|-----------------------|-------------------|
| | d ₁ H7 | d ₂ H7 |
| 02 | 5 | 5 |
| 03 | 6 | 6 |
| 04 | 8 | 8 |
| 05 | 10 | 10 |
| | 15 | 15 |

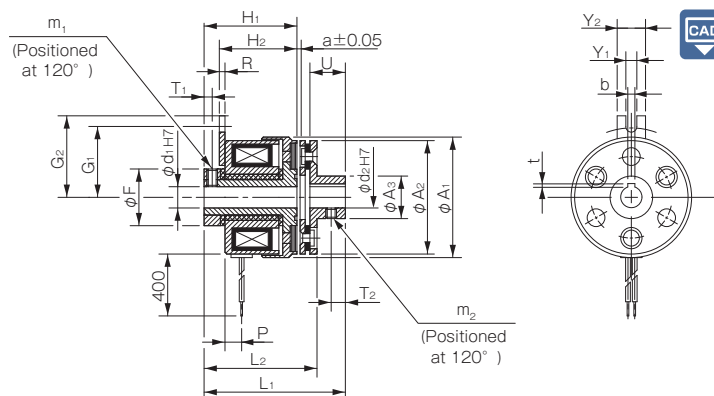
| Size | Radial direction dimensions | | | | | | | | | Axial direction dimensions | | | | | | | | |
|------|-----------------------------|----------------|----------------|----|----------------|----------------|----------------|----------------|------|----------------------------|----------------|-----|----------------|----------------|-----|-----|-----|------|
| | A ₁ | A ₂ | A ₃ | F | G ₁ | G ₂ | Y ₁ | Y ₂ | m | H ₁ | H ₂ | R | L ₁ | L ₂ | P | N | T | a |
| 02 | 31 | 28 | 13 | 14 | 16.8 | 20 | 3.1 | 8 | 2-M3 | 23.5 | 19.5 | 1.6 | 33 | 27.9 | 5 | 4.8 | 2.5 | 0.1 |
| 03 | 34 | 32 | 14 | 16 | 20 | 23 | 3.1 | 8 | 2-M3 | 26.2 | 21.9 | 1.6 | 38.5 | 30.5 | 4.7 | 7.8 | 2.3 | 0.15 |
| 04 | 43 | 40 | 18 | 22 | 23 | 26 | 3.1 | 8 | 2-M4 | 30.4 | 25.1 | 1.6 | 45.2 | 35.8 | 5 | 9.1 | 2.8 | 0.15 |
| 05 | 54 | 50 | 28 | 30 | 28 | 31 | 3.1 | 8 | 2-M5 | 34.1 | 27.9 | 1.6 | 49.3 | 40.3 | 6 | 8.8 | 3.3 | 0.2 |

How to Place an Order

102-03-35 24V R6 A6
 Size ————
 Armature bore diameter (dimensional symbol d2)
 Rotor bore diameter (dimensional symbol d1)

Dimensions (102-□-31)

(For butt shafts)



| Size | Shaft bore dimensions | | | | | |
|------|-----------------------|-------------------|---|----------------------------------|---|----------------------------------|
| | d ₁ H7 | d ₂ H7 | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | | b _{P9} | t | b _{E9} | t |
| 02 | 5 | 5 | — | — | — | — |
| 03 | 6 | 6 | 2 ^{-0.006} _{-0.031} | 0.8 ^{+0.3} ₀ | — | — |
| | | | 2 ^{-0.006} _{-0.031} | 0.8 ^{+0.3} ₀ | — | — |
| 04 | 8 | 8 | 2 ^{-0.006} _{-0.031} | 1.2 ^{+0.3} ₀ | 4 ^{+0.050} _{+0.020} | 1.5 ^{+0.5} ₀ |
| | | | 3 ^{-0.006} _{-0.031} | 1.2 ^{+0.3} ₀ | 4 ^{+0.050} _{+0.020} | 1.5 ^{+0.5} ₀ |
| 05 | 10 | 10 | 3 ^{-0.006} _{-0.031} | 1.2 ^{+0.3} ₀ | 4 ^{+0.050} _{+0.020} | 1.5 ^{+0.5} ₀ |
| | | | 5 ^{-0.012} _{-0.042} | 2 ^{+0.5} ₀ | 5 ^{+0.050} _{+0.020} | 2 ^{+0.5} ₀ |

| Size | Radial direction dimensions | | | | | | | | | Axial direction dimensions | | | | | | | | | | |
|------|-----------------------------|----------------|----------------|----|----------------|----------------|----------------|----------------|----------------|----------------------------|----------------|----------------|-----|----------------|----------------|-----|----|----------------|----------------|------|
| | A ₁ | A ₂ | A ₃ | F | G ₁ | G ₂ | Y ₁ | Y ₂ | m ₁ | m ₂ | H ₁ | H ₂ | R | L ₁ | L ₂ | P | U | T ₁ | T ₂ | a |
| 02 | 31 | 28 | 9.5 | 14 | 16.8 | 20 | 3.1 | 8 | 2-M3 | M3 | 23.5 | 19.5 | 1.6 | 33 | 27.9 | 5 | 7 | 2.5 | 2.5 | 0.1 |
| 03 | 34 | 32 | 12 | 16 | 20 | 23 | 3.1 | 8 | 2-M3 | 2-M3 | 26.2 | 21.9 | 1.6 | 38.5 | 30.5 | 4.7 | 10 | 2.3 | 4 | 0.15 |
| 04 | 43 | 40 | 17 | 22 | 23 | 26 | 3.1 | 8 | 2-M4 | 2-M3 | 30.4 | 25.1 | 1.6 | 45.2 | 35.8 | 5 | 12 | 2.8 | 5 | 0.15 |
| 05 | 54 | 50 | 24 | 30 | 28 | 31 | 3.1 | 8 | 2-M5 | 2-M4 | 34.1 | 27.9 | 1.6 | 49.3 | 40.3 | 6 | 12 | 3.3 | 5 | 0.2 |

How to Place an Order

102-03-31 24V R6 A6DIN
 Size ————
 Rotor bore diameter (dimensional symbol d1)
 Keyway standards DIN: Compliant with the new JIS standards
 JIS: Compliant with the old JIS standards
 Armature bore diameter (dimensional symbol d2)

*Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

- COUPLINGS
- ETP BUSHINGS
- ELECTROMAGNETIC CLUTCHES & BRAKES**
- SPEED CHANGERS & REDUCERS
- INVERTERS
- LINEAR SHAFT DRIVES
- TORQUE LIMITERS
- ROSTA

- SERIES
- ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES**
- ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES
- ELECTROMAGNETIC CLUTCH & BRAKE UNITS
- SPRING-ACTUATED BRAKE
- ELECTROMAGNETIC TOOTH CLUTCHES
- BRAKE MOTORS
- POWER SUPPLIES

- MODELS
- 102
- CYT
- 112

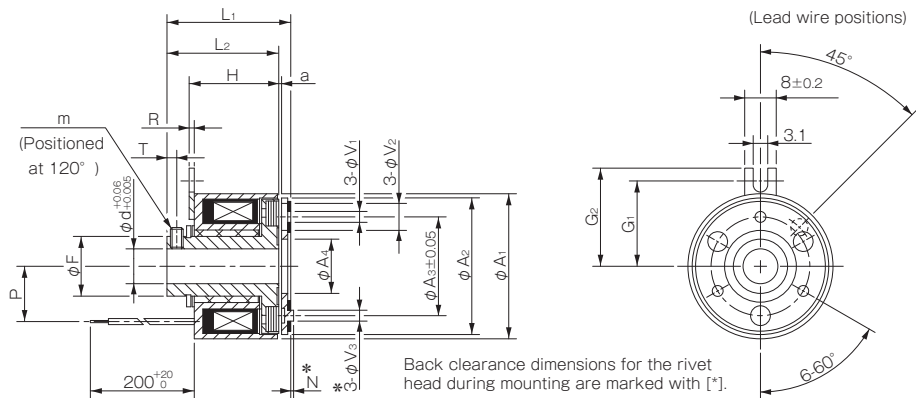
CYT Models Electromagnetic Micro Clutches - Bearing-mounted Type

Specifications

| Model | Size | Dynamic friction torque T_d [N-m] | Coil (at 20°C) | | | | Heat resistance class | Max. rotation speed [min ⁻¹] | Rotating part moment of inertia | | Allowable engaging energy E_{eng} [J] | Total work E_t [J] | Armature pull-in time t_a [s] | Torque rise time t_p [s] | Torque extinction time t_d [s] | Mass [kg] |
|-------------|------|-------------------------------------|----------------|-------------|-------------|-------------------------|-----------------------|--|---------------------------------|----------------------------|---|----------------------|---------------------------------|----------------------------|----------------------------------|-----------|
| | | | Voltage [V] | Wattage [W] | Current [A] | Resistance [Ω] | | | Armature [kg-m ²] | Rotor [kg-m ²] | | | | | | |
| CYT-025-33B | 025 | 0.4 | DC24 | 4.5 | 0.188 | 128 | B | 3600 | 1.00×10^{-6} | 1.43×10^{-6} | 800 | 1.0×10^6 | 0.014 | 0.028 | 0.030 | 0.07 |
| CYT-03-33B | 03 | 0.5 | DC24 | 5.5 | 0.23 | 105 | B | 3600 | 1.30×10^{-6} | 1.85×10^{-6} | 900 | 1.5×10^6 | 0.015 | 0.030 | 0.040 | 0.13 |
| CYT-03-33M | | | | | | | | 500 | | 1.90×10^{-6} | | | | | | |
| CYT-04-33B | 04 | 1.0 | DC24 | 5.9 | 0.25 | 98 | B | 3600 | 5.15×10^{-6} | 1.00×10^{-5} | 1900 | 2.0×10^6 | 0.030 | 0.040 | 0.040 | 0.26 |
| CYT-04-33M | | | | | | | | 500 | | 1.05×10^{-5} | | | | | | |

* The dynamic friction torque, T_d , is measured at a relative speed of 100 min⁻¹.
 * The rotating part moment of inertia and mass are measured for the maximum bore diameter.
 * Keep supply voltage fluctuation to within 10% of coil voltage. Also, be careful that energization does not exceed 50%.

Dimensions (CYT-□-33M)



Unit [mm]

| Size | Radial direction dimensions | | | | | | | | | | | | Axial direction dimensions | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----|----------------|----------------|----------------|----------------|----------------|----|----------------------------|-----|----------------|----------------|------|-----|-----|------------|
| | d | A ₁ | A ₂ | A ₃ | A ₄ | F | V ₁ | V ₂ | V ₃ | G ₁ | G ₂ | m | H | R | L ₁ | L ₂ | P | N | T | a |
| 03 | 6 8 | 34 | 32 | 23 | 12.5 | 14 | 3-2.6 | 3-5.5 | 3-6 | 20 | 23 | M3 | 21 | 1.2 | 28.6 | 26.2 | 13 | 3 | 2.3 | 0.2 ± 0.05 |
| 04 | 8 10 | 45 | 42 | 30 | 18.5 | 18 | 3-3.1 | 3-6 | 3-6 | 25 | 27.5 | M4 | 25.3 | 1.2 | 35.1 | 32.4 | 17.5 | 3.5 | 3 | 0.2 ± 0.05 |

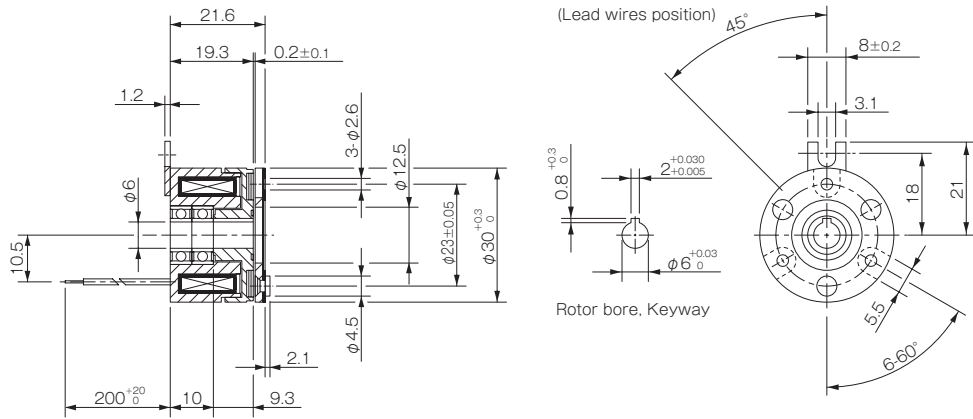
* Dimensional symbols N and V3 indicate the clearance dimensions for the rivet head during mounting.

How to Place an Order

CYT-03-33M 24V 6

Size Rotor bore diameter (dimensional symbol d)

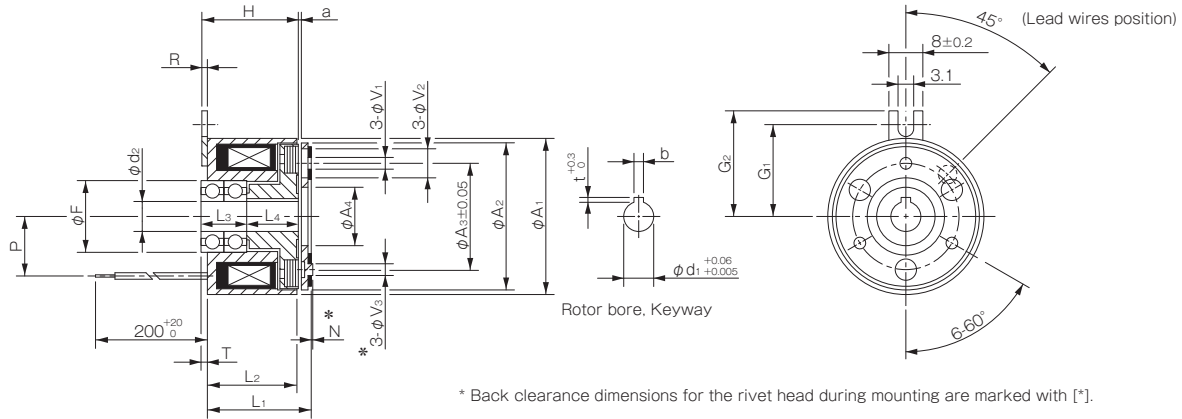
Dimensions (CYT-025-33B)



How to Place an Order

CYT-025-33B 24V 6

Dimensions (CYT-□-33B)



* Back clearance dimensions for the rivet head during mounting are marked with [*].

| Size | Nominal diameter | Radial direction dimensions | | | | | | | | | | Axial direction dimensions | | | | | | | | | | Shaft bore dimensions | | | | |
|------|------------------|-----------------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|----------------|----------------|----------------------------|-----|----------------|----------------|----------------|----------------|------|-----|-----|----------------|-----------------------|----------------|-----------------|------------|--|
| | | A ₁ | A ₂ | A ₃ | A ₄ | F | V ₁ | V ₂ | V ₃ | G ₁ | G ₂ | H | R | L ₁ | L ₂ | L ₃ | L ₄ | P | N | T | a | d ₂ | d ₁ | b | t | |
| 03 | 6 | 34 | 32 | 23 | 12.5 | 15 | 3-2.6 | 3-5.5 | 3-6 | 20 | 23 | 21 | 1.2 | 22.2 | 19.8 | 10 | 11.3 | 13 | 3 | 1.5 | 0.2 ±0.05 | 6 | 6 | 2 +0.030 +0.005 | 0.8 +0.3 0 | |
| | 8 | 34 | 32 | 23 | 12.5 | 16 | 3-2.6 | 3-5.5 | 3-6 | 20 | 23 | 21 | 1.2 | 22.2 | 19.8 | 10 | 11.3 | 13 | 3 | 1.5 | 0.2 ±0.05 | 8 | 8 | 2 +0.030 +0.005 | 0.8 +0.3 0 | |
| 04 | 8 | 45 | 42 | 30 | 18.5 | 19 | 3-3.1 | 3-6 | 3-6 | 25 | 28 | 25.3 | 1.2 | 26.8 | 24.1 | 12 | 13 | 17.5 | 3.5 | 0.9 | 0.2 +0.05 -0.1 | 8 | 8 | 2 +0.030 +0.005 | 0.8 +0.3 0 | |
| | 10 | 45 | 42 | 30 | 18.5 | 19 | 3-3.1 | 3-6 | 3-6 | 25 | 28 | 25.3 | 1.2 | 26.8 | 24.1 | 14 | 11 | 17.5 | 3.5 | 0.9 | 0.2 +0.05 -0.1 | 10 | 10 | 3 +0.025 0 | 1.2 +0.3 0 | |

* Dimensional symbols N and V3 indicate the clearance dimensions for the rivet head during mounting.

How to Place an Order

CYT-03-33B 24V 6
 Size Nominal diameter

- COUPLINGS
- ETP BUSHINGS
- ELECTROMAGNETIC CLUTCHES & BRAKES**
- SPEED CHANGERS & REDUCERS
- INVERTERS
- LINEAR SHAFT DRIVES
- TORQUE LIMITERS
- ROSTA

- SERIES
- ELECTROMAGNETIC-ACTUATED MICRO CLUTCHES & BRAKES**
 - ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES
 - ELECTROMAGNETIC CLUTCH & BRAKE UNITS
 - SPRING-ACTUATED BRAKE
 - ELECTROMAGNETIC TOOTH CLUTCHES
 - BRAKE MOTORS
 - POWER SUPPLIES

- MODELS
- 102
 - CYT**
 - 112

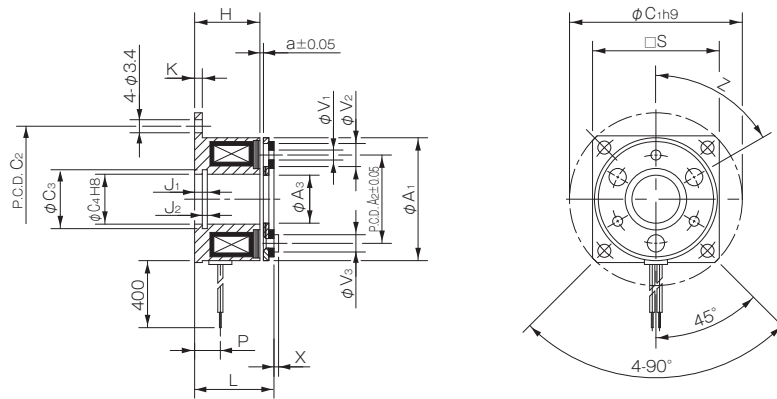
112 Models Electromagnetic Micro Brakes

Specifications

| Model | Size | Dynamic friction torque T_d [N·m] | Coil (at 20°C) | | | | Heat resistance class | Max. rotation speed [min ⁻¹] | Armature moment of inertia J [kg·m ²] | Allowable engaging energy E_{ea} [J] | Total work performed until Readjustment of the air gap E_r [J] | Armature pull-in time t_a [s] | Torque build-up time t_p [s] | Torque decaying time t_d [s] | Mass [kg] |
|-----------|------|-------------------------------------|----------------|-------------|-------------|-------------------------|-----------------------|--|---|--|--|---------------------------------|--------------------------------|--------------------------------|-----------|
| | | | Voltage [V] | Wattage [W] | Current [A] | Resistance [Ω] | | | | | | | | | |
| 112-02-13 | | | | | | | | 6.75×10^{-7} | | | | | | | 0.053 |
| 112-02-12 | 02 | 0.4 | DC24 | 6 | 0.25 | 96 | B | 10000 | 1.00×10^{-6} | 1500 | 2×10^6 | 0.004 | 0.010 | 0.010 | 0.057 |
| 112-02-11 | | | | | | | | 1.00×10^{-6} | | | | | | | 0.057 |
| 112-03-13 | | | | | | | | 1.30×10^{-6} | | | | | | | 0.072 |
| 112-03-12 | 03 | 0.6 | DC24 | 6 | 0.25 | 96 | B | 10000 | 1.95×10^{-6} | 2300 | 3×10^6 | 0.005 | 0.012 | 0.008 | 0.079 |
| 112-03-11 | | | | | | | | 1.95×10^{-6} | | | | | | | 0.079 |
| 112-04-13 | | | | | | | | 4.38×10^{-6} | | | | | | | 0.118 |
| 112-04-12 | 04 | 1.2 | DC24 | 8 | 0.33 | 72 | B | 10000 | 6.15×10^{-6} | 4500 | 6×10^6 | 0.007 | 0.016 | 0.010 | 0.131 |
| 112-04-11 | | | | | | | | 6.15×10^{-6} | | | | | | | 0.131 |
| 112-05-13 | | | | | | | | 9.08×10^{-6} | | | | | | | 0.200 |
| 112-05-12 | 05 | 2.4 | DC24 | 10 | 0.42 | 58 | B | 10000 | 1.38×10^{-5} | 9000 | 9×10^6 | 0.010 | 0.023 | 0.012 | 0.215 |
| 112-05-11 | | | | | | | | 1.38×10^{-5} | | | | | | | 0.215 |

* The dynamic friction torque, T_d , is measured at a relative speed of 100 min⁻¹.
 * The rotating part moment of inertia and mass are measured for the maximum bore diameter.
 * Keep supply voltage fluctuation to within 10% of coil voltage.

Dimensions (112-□-13)



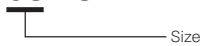
Unit (mm)

| Size | Radial direction dimensions | | | | | | | | | | | Axial direction dimensions | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----|----------------|----------------|----------------|----------------------------|------|-----|----------------|----------------|------|-----|-----|------|
| | A ₁ | A ₂ | A ₃ | C ₁ | C ₂ | C ₃ | C ₄ | S | V ₁ | V ₂ | V ₃ | Z | H | K | J ₁ | J ₂ | L | P | X | a |
| 02 | 28 | 19.5 | 10.5 | 39 | 33.5 | 11.4 | 11 | — | 2-2.1 | 2-5.3 | 2-4 | 4-90° | 13.7 | 1.5 | 2.6 | 1.3 | 16.1 | 5 | 0.8 | 0.1 |
| 03 | 32 | 23 | 12.5 | 45 | 38 | 13.6 | 13 | 33 | 3-2.6 | 3-6 | 3-4.5 | 6-60° | 17 | 2 | 3.3 | 1.3 | 19.3 | 6.7 | 1.2 | 0.15 |
| 04 | 40 | 30 | 18.5 | 54 | 47 | 20 | 19 | 41 | 3-3.1 | 3-6 | 3-5 | 6-60° | 20 | 2 | 3.3 | 1.3 | 22.8 | 7 | 1.6 | 0.15 |
| 05 | 50 | 38 | 25.5 | 65 | 58 | 27.2 | 26 | 51 | 3-3.1 | 3-6.5 | 3-5.5 | 6-60° | 22 | 2 | 3.5 | 1.5 | 25.2 | 8 | 1.6 | 0.2 |

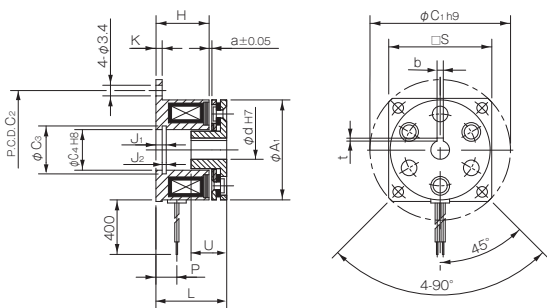
* Size 02 is a rounded flange.

How to Place an Order

112-03-13 24V



Dimensions (112-□-12)



| Size | Shaft bore dimensions | | | | |
|------|-----------------------|---|------------------------------------|---|------------------------------------|
| | d H7 | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | b P9 | t | b E9 | t |
| 02 | 5 | — | — | | |
| 03 | 6 | 2 ^{-0.006} / _{-0.031} | 0.8 ^{+0.3} / ₀ | | |
| 04 | 8 | 2 ^{-0.006} / _{-0.031} | 0.8 ^{+0.3} / ₀ | | |
| | 10 | 3 ^{-0.006} / _{-0.031} | 1.2 ^{+0.3} / ₀ | 4 ^{+0.050} / _{+0.020} | 1.5 ^{+0.5} / ₀ |
| 05 | 10 | 3 ^{-0.006} / _{-0.031} | 1.2 ^{+0.3} / ₀ | 4 ^{+0.050} / _{+0.020} | 1.5 ^{+0.5} / ₀ |
| | 15 | 5 ^{-0.012} / _{-0.042} | 2 ^{+0.5} / ₀ | 5 ^{+0.050} / _{+0.020} | 2 ^{+0.5} / ₀ |

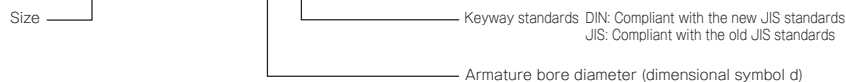
Unit [mm]

| Size | Radial direction dimensions | | | | | | Axial direction dimensions | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----|----------------------------|-----|----------------|----------------|------|-----|----|------|--|
| | A ₁ | C ₁ | C ₂ | C ₃ | C ₄ | S | H | K | J ₁ | J ₂ | L | P | U | a | |
| 02 | 28 | 39 | 33.5 | 11.4 | 11 | — | 13.7 | 1.5 | 2.6 | 1.3 | 18.1 | 5 | 7 | 0.1 | |
| 03 | 32 | 45 | 38 | 13.6 | 13 | 33 | 17 | 2 | 3.3 | 1.3 | 21.3 | 6.7 | 10 | 0.15 | |
| 04 | 40 | 54 | 47 | 20 | 19 | 41 | 20 | 2 | 3.3 | 1.3 | 25.5 | 7 | 12 | 0.15 | |
| 05 | 50 | 65 | 58 | 27.2 | 26 | 51 | 22 | 2 | 3.5 | 1.5 | 28.2 | 8 | 12 | 0.2 | |

* Size 02 is a rounded flange.
 * The armature hub of size 02 has no keyway. Lock it in place by press-fitting it onto the shaft or the like.

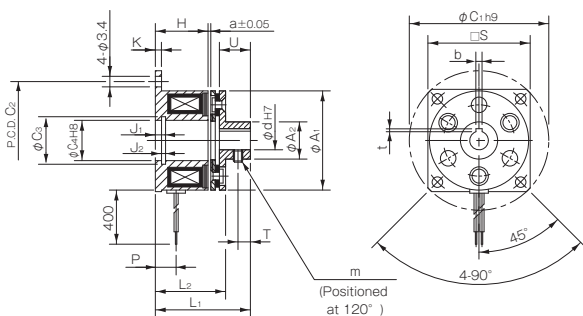
How to Place an Order

112-03-12 24V 6DIN



* Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

Dimensions (112-□-11)



| Size | Shaft bore dimensions | | | | |
|------|-----------------------|---|------------------------------------|---|------------------------------------|
| | d H7 | Models compliant with the new JIS standards | | Models compliant with the old JIS standards | |
| | | b P9 | t | b E9 | t |
| 02 | 5 | — | — | | |
| 03 | 6 | 2 ^{-0.006} / _{-0.031} | 0.8 ^{+0.3} / ₀ | | |
| 04 | 8 | 2 ^{-0.006} / _{-0.031} | 0.8 ^{+0.3} / ₀ | | |
| | 10 | 3 ^{-0.006} / _{-0.031} | 1.2 ^{+0.3} / ₀ | 4 ^{+0.050} / _{+0.020} | 1.5 ^{+0.5} / ₀ |
| 05 | 10 | 3 ^{-0.006} / _{-0.031} | 1.2 ^{+0.3} / ₀ | 4 ^{+0.050} / _{+0.020} | 1.5 ^{+0.5} / ₀ |
| | 15 | 5 ^{-0.012} / _{-0.042} | 2 ^{+0.5} / ₀ | 5 ^{+0.050} / _{+0.020} | 2 ^{+0.5} / ₀ |

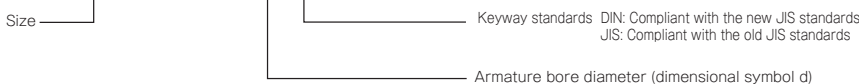
Unit [mm]

| Size | Radial direction dimensions | | | | | | | Axial direction dimensions | | | | | | | | | | |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----|----------------------------|------|-----|----------------|----------------|----------------|----------------|-----|----|-----|------|
| | A ₁ | A ₂ | C ₁ | C ₂ | C ₃ | C ₄ | S | m | H | K | J ₁ | J ₂ | L ₁ | L ₂ | P | U | T | a |
| 02 | 28 | 9.5 | 39 | 33.5 | 11.4 | 11 | — | M3 | 13.7 | 1.5 | 2.6 | 1.3 | 23.1 | 18.1 | 5 | 7 | 2.5 | 0.1 |
| 03 | 32 | 12 | 45 | 38 | 13.6 | 13 | 33 | 2-M3 | 17 | 2 | 3.3 | 1.3 | 29.3 | 21.3 | 6.7 | 10 | 4 | 0.15 |
| 04 | 40 | 17 | 54 | 47 | 20 | 19 | 41 | 2-M3 | 20 | 2 | 3.3 | 1.3 | 34.8 | 25.5 | 7 | 12 | 5 | 0.15 |
| 05 | 50 | 24 | 65 | 58 | 27.2 | 26 | 51 | 2-M4 | 22 | 2 | 3.5 | 1.5 | 37.2 | 28.2 | 8 | 12 | 5 | 0.2 |

* Size 02 is a rounded flange.

How to Place an Order

112-03-11 24V 6DIN



* Models for which there are no keyway standards (models marked by [-]) on the Shaft Bore Dimensions table need not be marked with a keyway standards designation. Products with standards marked by diagonal lines are not set as standard products.

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MODELS

102

CYT

112