ELECTROMAGNETIC-ACTUATED CLUTCHES & BRAKES

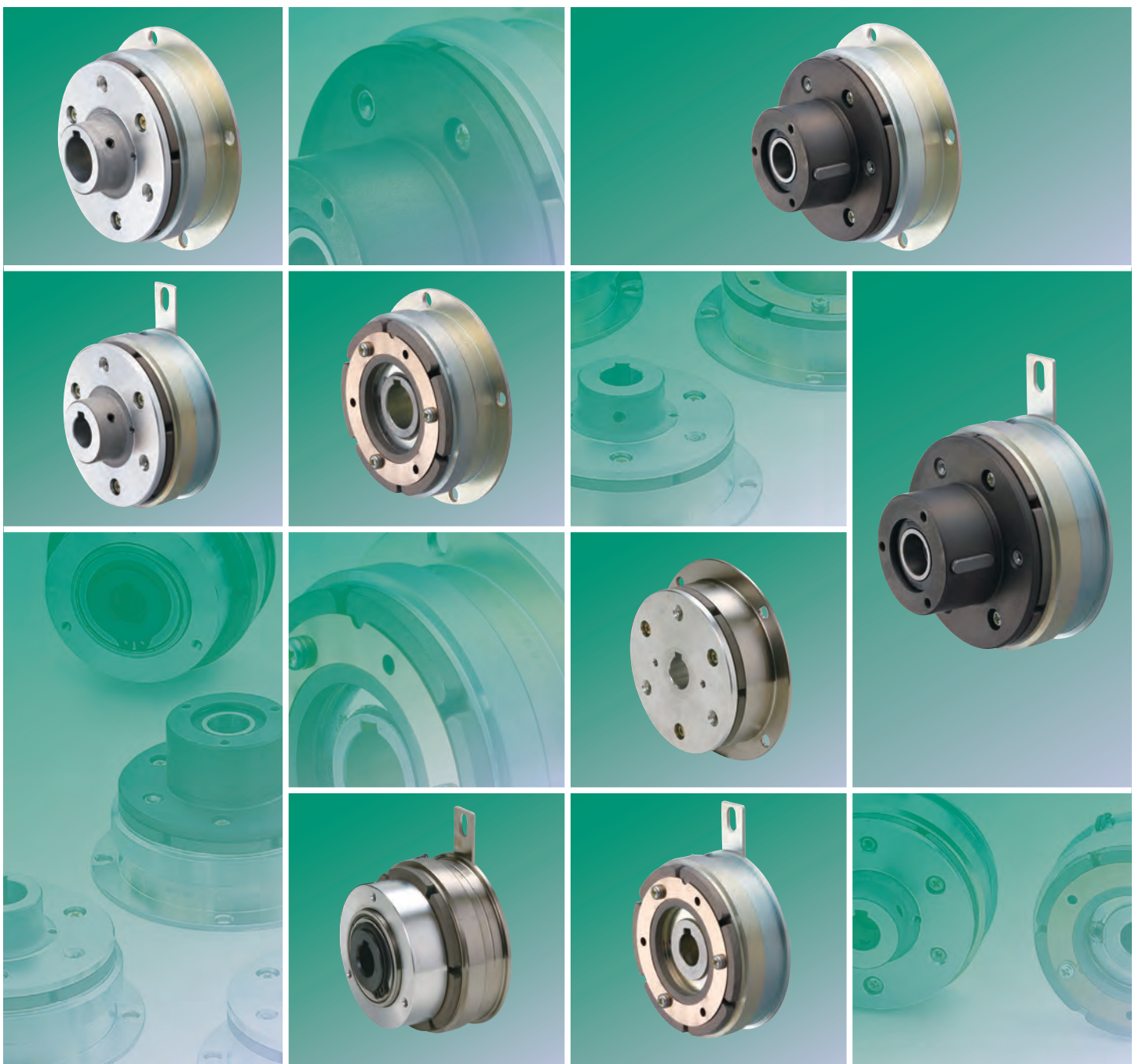
Clutch/brake torque [N·m]

	1	10	100
101/CS Models		(5 ~ 320)	
CSZ Models	(2.4 ~ 10)		
111 Models		(5 ~ 320)	
BSZ Models	(2.4 ~ 10)		

Application	Printing machinery, bookbinding machinery, food machinery, wrapping machinery, textiles machinery

Clutches and Brakes that Accurately Control a Variety of General Industrial Machinery

Clutches accurately connect and release power by being located between the driver and the load. Brakes are used to slow or stop load inertia and machinery and to hold things in stationary positions. Using these basic operations and combining clutches and brakes enable a variety of applications such as stepped speed-changing mechanisms, switching between forward and reverse operation, positioning/indexing, and inching. Part of their appeal is the simplicity of control and ease of maintenance.



Available Models

Series	Applications	Lineup	
CLUTCHES & BRAKES	Clutches	Standard type	101/CS » P.274
		One-touch mounted type	CSZ » P.280
	Brakes	Standard type	111 » P.278
		One-touch mounted type	BSZ » P.281

For details on selection, see P.310 to 317.

Clutches

101-□-1□
Mounting — Size — Shaft Coupling System (Armature)

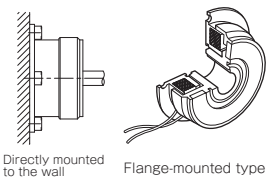
CS-□-3□
Mounting — Size — Shaft Coupling System (Armature)

■ Mounting

101

Wall-mounted type

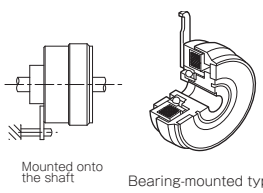
Uses a flange-mounted stator. Designed to be short in the axial direction, requiring less installation space.



CS

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)

101-□-□3, CS-□-□3

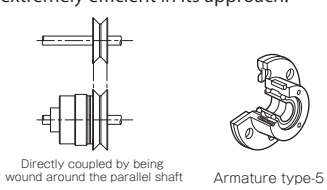
Butt and parallel shaft type (Armature type-3)

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.

101-□-□5, CS-□-□5

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

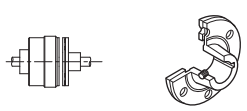
Uses an armature assembly designed for use with through-shafts. Ensures that mounting is relatively easy to complete as well as extremely efficient in its approach.



101-□-□1, CS-□-□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.

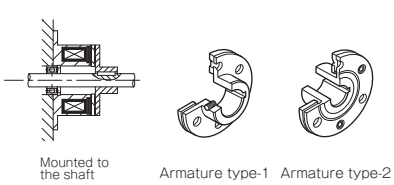


Brake

111-□-1□
Size — Shaft Coupling System (Armature)

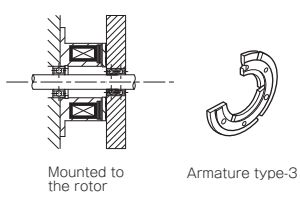
Shaft-mounted type

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.



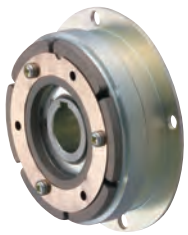
One-touch mounted type

CSZ, BSZ

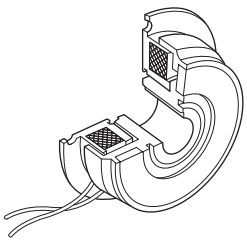
Designed with the same basic construction as that of the standard type. Comes equipped with a stator armature, eliminating the need for time-consuming gap adjustments. Easy to assemble, guaranteeing dramatic reductions in assembly times.

Product Lineup

101 Electromagnetic-actuated Clutches - Flange-mounted Type



RoHS-compliant

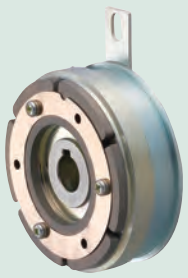


Flange-mounted type

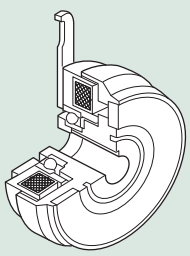
Stator and rotor are combined and directly mounted on stationary parts, such as frames, and fixed in place. These are short in the axial direction and can make effective use of space near windows. Select the armature according to the coupling type used (through-shaft, butt shaft, etc.).

Clutch torque	[N·m]	5 ~ 320
Operating temperature	[℃]	−10 ~+ 40
Backlash		Zero

CS Electromagnetic-actuated Clutches - Bearing-mounted Type



RoHS-compliant

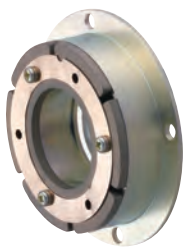


Bearing-mounted type

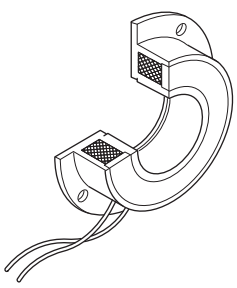
These integrate the stator and rotor, which are held to the stationary parts of the machine by a drive pin arm; the rotor is locked to the rotation shaft by a key. They are designed to be relatively easy to mount, reducing the processing work required for mounting.

Clutch torque	[N·m]	5 ~ 320
Operating temperature	[℃]	−10 ~+ 40
Backlash		Zero

111 Electromagnetic-actuated Brakes



RoHS-compliant



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]	5 ~ 320
Operating temperature	[℃]	−10 ~+ 40
Backlash		Zero

CSZ/BSZ Electromagnetic-actuated Clutches & Brakes - One-touch-mounted Type

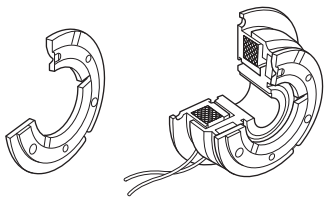
CSZ
RoHS-compliant

BSZ
RoHS-compliant

These models adjust the gap to the frictional surface that clutches and brakes require to operate and come pre-assembled. Clutches are simply placed on the shaft and brakes mounted on the flange surface. They do not require gap adjustment or adjustment of concentricity/parallel misalignment, greatly reducing installation work.

Clutch/brake torque	[N·m]	2.4 ~ 10
Operating temperature	[℃]	−10 ~+ 40
Backlash		Zero

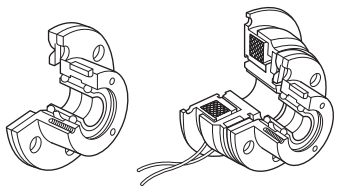
Types for through-shaft or butt shaft



Armature type-3 101-□-13G

» P.274

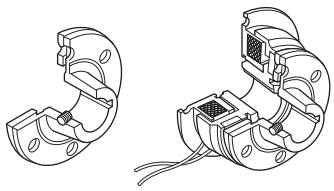
Through-shaft (coupled by winding around parallel shaft) type



Armature type-5 101-□-15G

» P.275

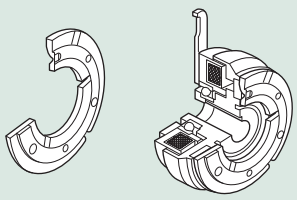
Butt shaft type



Armature type-1 101-□-11G

» P.275

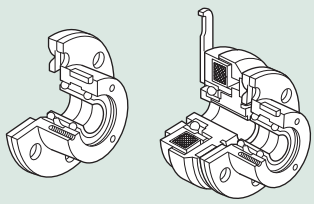
Types for through-shaft or butt shaft



Armature type-3 CS-□-33G

» P.276

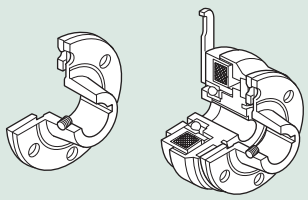
Through-shaft (coupled by winding around parallel shaft) type



Armature type-5 CS-□-35G

» P.277

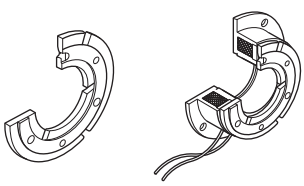
Butt shaft type



Armature type-1 CS-□-31G

» P.277

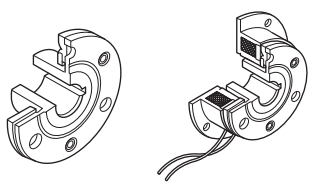
Types with many applications



Armature type-3 111-□-13G

» P.278

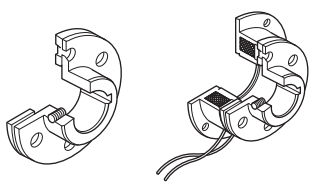
Slim, space-saving type



Armature type-2 111-□-12G

» P.279

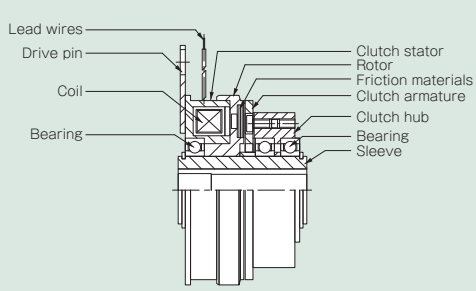
Easy-to-use standard-shape type



Armature type-1 111-□-11G

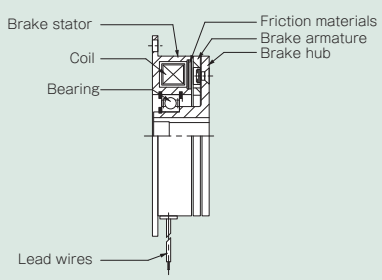
» P.279

CSZ



» P.280

BSZ

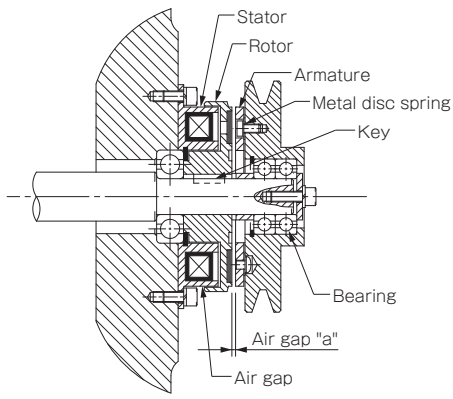


» P.281

Mounting Example

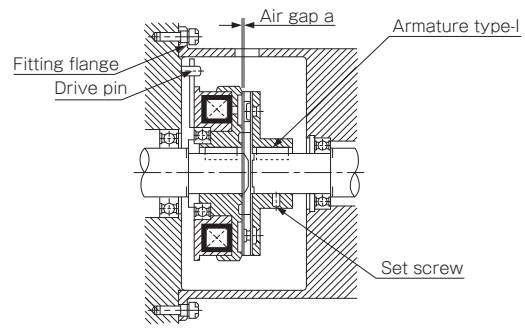
Flange-mounting example with 101

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.



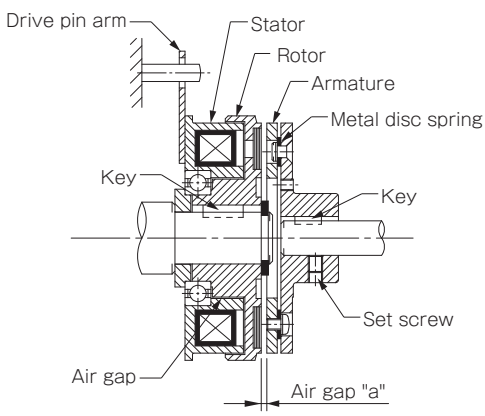
Butt shaft mounting example with CS

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



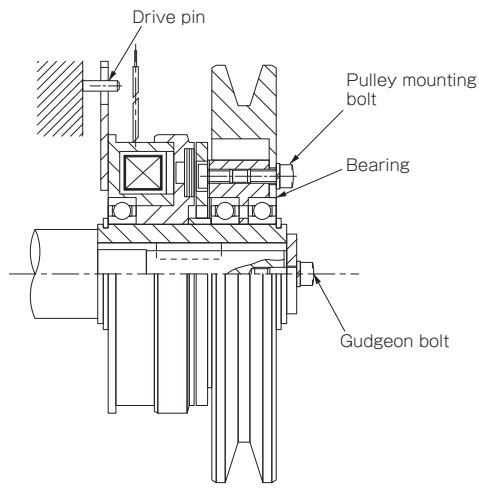
Bearing-mounting example with CS

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.



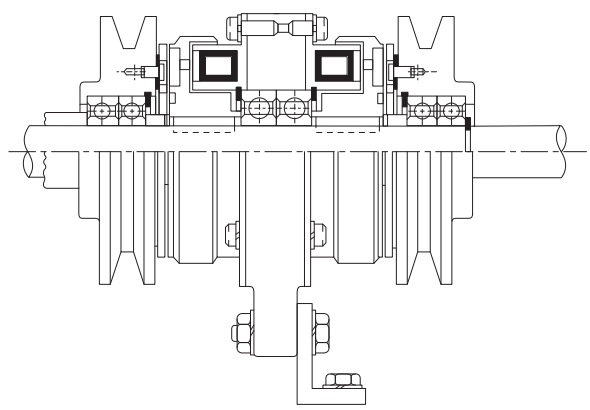
Mounting example with CSZ

Simply insert the shaft in the sleeve and fasten a CSZ on the shaft end and mounting is complete.



Example of combining clutches

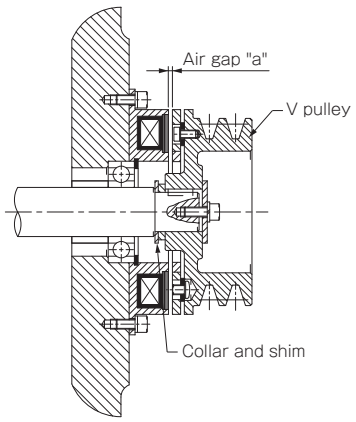
In this example, two clutches are assembled on a through-shaft. This is very effective when controls such as two-step speed changing and forward/reverse operation are needed and space is limited.



Mounting Example

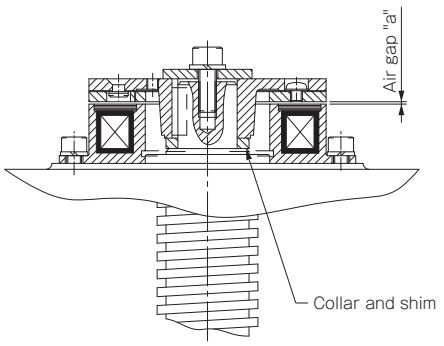
Armature type-3 mounting example with 111

When armature type-3 is directly mounted on the end face of a V pulley, no armature hub is needed, making for a very efficient design. These are optimal when space is limited or when a shaft overhangs from a wall and the overhang load must be kept extremely low.



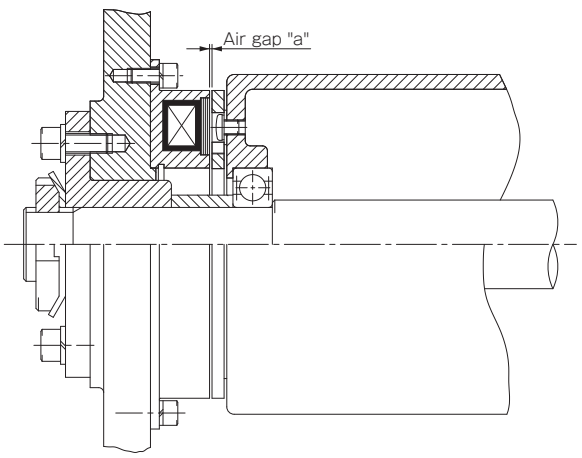
Armature type-2 mounting example on vertical shaft with 111

Armature type-2 is a special armature that puts the boss part of the armature hub into the space within the stator. That makes it compact. It is short in the axial direction even when a pulley or the like is installed on the tip of the brake. Since running torque is zero, it does not take up space even when mounted on a vertical shaft, and is also easy to install.
Air gap "a" can be set easily using collars and shims.
Corrections are easily accomplished by adding or removing shims.



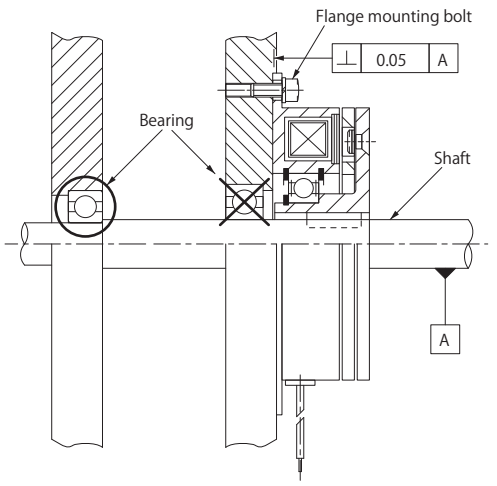
Armature type-3 mounting example with 111

If a rotating body floating above a shaft by means of a bearing (an idler pulley, guide roller, or the like) has an armature type-3 mounted on it directly, it can be assembled easily without taking up a lot of space.
Air gap "a" can be set easily using collars and shims.
Corrections are easily accomplished by adding or removing shims.



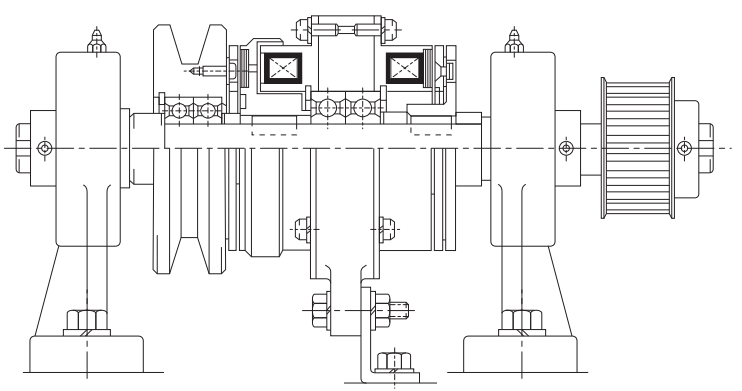
Mounting example with BSZ

Simply insert onto the shaft to be braked and lock the BSZ on the wall surface and mounting is complete. Be careful when designing that the mounting shaft does not cantilever and end up a three-point mounting.



Example of combining clutches and brakes

In this example, a clutch and brake are assembled on a through-shaft. This is effective when mounting space is limited or when there is no wall on which to mount the stator.



101 Models Electromagnetic Clutches - Flange-mounted Type

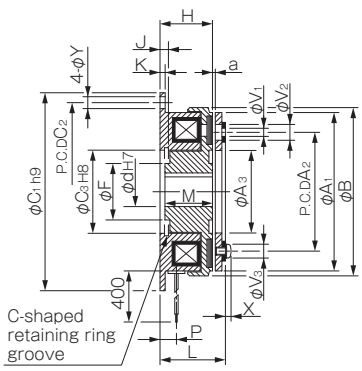
Specifications

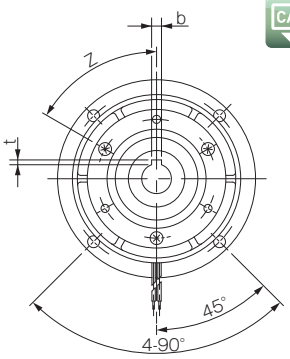
Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min^{-1}]	Rotating part moment of inertia J: Rotor [kg·m^2]	Armature [kg·m^2]	Total work performed until readjustment of the air gap E_T [J]	Armature pull-in time t_a [s]	Torque build-up time t_p [s]	Torque decaying time t_d [s]	Mass [kg]
101-06-13G											4.23×10^{-5}					0.46
101-06-15G	06	5	5.5	DC24	11	0.46	52	B	8000	7.35×10^{-5}	1.05×10^{-4}	36×10^6	0.020	0.041	0.020	0.66
101-06-11G											6.03×10^{-5}					0.5
101-08-13G											1.18×10^{-4}					0.83
101-08-15G	08	10	11	DC24	15	0.63	38	B	6000	2.24×10^{-4}	3.00×10^{-4}	60×10^6	0.023	0.051	0.030	1.19
101-08-11G											1.71×10^{-4}					0.91
101-10-13G											4.78×10^{-4}					1.5
101-10-15G	10	20	22	DC24	20	0.83	29	B	5000	6.78×10^{-4}	9.45×10^{-4}	130×10^6	0.025	0.063	0.050	2.11
101-10-11G											6.63×10^{-4}					1.66
101-12-13G											1.31×10^{-3}					2.76
101-12-15G	12	40	45	DC24	25	1.09	23	B	4000	2.14×10^{-3}	2.75×10^{-3}	250×10^6	0.040	0.115	0.065	3.8
101-12-11G											1.81×10^{-3}					3.05
101-16-13G											4.80×10^{-3}					5.1
101-16-15G	16	80	90	DC24	35	1.46	16	B	3000	6.30×10^{-3}	9.05×10^{-3}	470×10^6	0.050	0.160	0.085	6.9
101-16-11G											6.35×10^{-3}					5.4
101-20-13G											1.37×10^{-2}					9.3
101-20-15G	20	160	175	DC24	45	1.88	13	B	2500	1.93×10^{-2}	2.65×10^{-2}	10×10^8	0.090	0.250	0.130	13
101-20-11G											1.90×10^{-2}					10.5
101-25-13G											3.58×10^{-2}					17
101-25-15G	25	320	350	DC24	60	2.5	9.6	B	2000	4.48×10^{-2}	7.45×10^{-2}	20×10^8	0.115	0.335	0.210	23.6
101-25-11G											4.83×10^{-2}					18.7

* The dynamic friction torque, Td, 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.

Dimensions (101- □ -13G)

(For direct mounting)





CAD

Unit [mm]

Size	Shaft bore dimensions: d H7	Models compliant with the new JIS standards: b P9	t	Models compliant with the old JIS standards: b E9	t
06	12	$4\ ^{-0.012}_{-0.042}$	$1.5\ ^{+0.5}_{0}$	$4\ ^{+0.050}_{+0.020}$	$1.5\ ^{+0.5}_{0}$
	15	$5\ ^{-0.012}_{-0.042}$	$2\ ^{+0.5}_{0}$	$5\ ^{+0.050}_{+0.020}$	$2\ ^{+0.5}_{0}$
08	15	$5\ ^{-0.012}_{-0.042}$	$2\ ^{+0.5}_{0}$	$5\ ^{+0.050}_{+0.020}$	$2\ ^{+0.5}_{0}$
	20	$6\ ^{-0.012}_{-0.042}$	$2.5\ ^{+0.5}_{0}$	$5\ ^{+0.050}_{+0.020}$	$2\ ^{+0.5}_{0}$
10	20	$6\ ^{-0.012}_{-0.042}$	$2.5\ ^{+0.5}_{0}$	$5\ ^{+0.050}_{+0.020}$	$2\ ^{+0.5}_{0}$
	25	$8\ ^{-0.015}_{-0.051}$	$3\ ^{+0.5}_{0}$	$7\ ^{+0.061}_{+0.025}$	$3\ ^{+0.5}_{0}$
12	25	$8\ ^{-0.015}_{-0.051}$	$3\ ^{+0.5}_{0}$	$7\ ^{+0.061}_{+0.025}$	$3\ ^{+0.5}_{0}$
	30	$8\ ^{-0.015}_{-0.051}$	$3\ ^{+0.5}_{0}$	$7\ ^{+0.061}_{+0.025}$	$3\ ^{+0.5}_{0}$
16	30	$8\ ^{-0.015}_{-0.051}$	$3\ ^{+0.5}_{0}$	$7\ ^{+0.061}_{+0.025}$	$3\ ^{+0.5}_{0}$
	40	$12\ ^{-0.018}_{-0.061}$	$3\ ^{+0.5}_{0}$	$10\ ^{+0.061}_{+0.025}$	$3.5\ ^{+0.5}_{0}$
20	40	$12\ ^{-0.018}_{-0.061}$	$3\ ^{+0.5}_{0}$	$10\ ^{+0.061}_{+0.025}$	$3.5\ ^{+0.5}_{0}$
	50	$14\ ^{-0.018}_{-0.061}$	$3.5\ ^{+0.5}_{0}$	$12\ ^{+0.075}_{+0.032}$	$3.5\ ^{+0.5}_{0}$
25	50	$14\ ^{-0.018}_{-0.061}$	$3.5\ ^{+0.5}_{0}$	$12\ ^{+0.075}_{+0.032}$	$3.5\ ^{+0.5}_{0}$
	60	$18\ ^{-0.018}_{-0.061}$	$4\ ^{+0.5}_{0}$	$15\ ^{+0.075}_{+0.032}$	$5\ ^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions: A_1	A_2	A_3	B	C_1	C_2	C_3	F	V_1	V_2	V_3	Y	Z	Axial direction dimensions: H	J	K	L	M	P	X	a
06	63	46	34.5	67.5	80	72	35	23	3-3.1	3-6.3	3-5.5	5	6-60°	24	3.5	2.1	28	22	7.3	2.5	$0.2\ \pm 0.05$
08	80	60	41.5	85	100	90	42	28.5	3-4.1	3-8	3-7	6	6-60°	26.5	4.3	2.6	31	24	8.3	2.85	$0.2\ \pm 0.05$
10	100	76	51.5	106	125	112	52	40	3-5.1	3-10.5	3-9	7	6-60°	30	5	3.1	36	27	9	3.3	$0.2\ \pm 0.05$
12	125	95	61.5	133	150	137	62	45	3-6.1	3-12	3-11	7	6-60°	33.5	5.5	3.6	40.5	30	9.3	3.3	$0.3\ ^{+0.05}_{-0.1}$
16	160	120	79.5	169	190	175	80	62	3-8.1	3-15	3-14	9.5	6-60°	37.5	6	4.1	46.5	34	11.7	3.5	$0.3\ ^{+0.05}_{-0.1}$
20	200	158	99.5	212.5	230	215	100	77	3-10.2	3-18	3-17	9.5	6-60°	44	7	5.1	55.5	40	13.4	4.9	$0.5\ ^{0}_{-0.2}$
25	250	210	124.5	264	290	270	125	100	4-12.2	4-22	4-20	11.5	8-45°	51	8	6.1	64	47	16	5.5	$0.5\ ^{0}_{-0.2}$

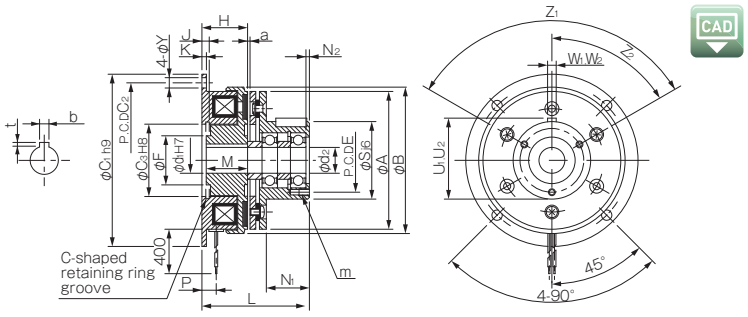
How to Place an Order

101-06-13G 24V 12DIN

- 101-06-13G: Size
- 24V: Voltage
- 12DIN: Rotor bore diameter (dimensional symbol d)
- DIN: Keyway standards DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards

Dimensions (101- □ -15G)

(For through-shafts)



Unit [mm]

Size	Shaft bore dimensions					
	d_1 H7	d_2	Models compliant with the new JIS standards		Models compliant with the old JIS standards	
			b P9	t	b E9	t
06	12	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	4 $^{+0.050}_{+0.020}$	1.5 $^{+0.5}_{0}$
08	15	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
12	25	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
20	40	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
25	50	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions											Axial direction dimensions												
	A	B	C_1	C_2	C_3	E	F	Y	S	Z_1	Z_2	H	J	K	L	M	N_1	N_2	P	U_1	W_1	U_2	W_2	a	m
06	63	67.5	80	72	35	33	23	5	38	3-120°	60°	24	3.5	2.1	51.5	22	20	2	7.3	39.5	4	39.5	4	0.2 ±0.05	3-M4 × 0.7, length: 4
08	80	85	100	90	42	37	28.5	6	45	3-120°	60°	26.5	4.3	2.6	60	24	25	2	8.3	47	5	47	5	0.2 ±0.05	3-M4 × 0.7, length: 6
10	100	106	125	112	52	47	40	7	55	4-90°	45°	30	5	3.1	71	27	30	3	9	57	5	57.5	6	0.2 ±0.05	4-M4 × 0.7, length: 8
12	125	133	150	137	62	52	45	7	64	4-90°	45°	33.5	5.5	3.6	86.5	30	40	2	9.3	67	7	67	8	0.3 $^{+0.05}_{-0.1}$	4-M4 × 0.7, length: 8
16	160	169	190	175	80	62	62	9.5	75	6-60°	30°	37.5	6	4.1	103.5	34	50	3	11.7	78	7	78	8	0.3 $^{+0.05}_{-0.1}$	6-M5 × 0.8, length: 8
20	200	212.5	230	215	100	74.5	77	9.5	90	4-90°	45°	44	7	5.1	124.5	40	60	5	13.4	93.5	10	93	10	0.5 $^{0}_{-0.2}$	4-M6 × 1, length: 12
25	250	264	290	270	125	101.5	100	11.5	115	8-45°	22.5°	51	8	6.1	145	47	70	6	16	118.5	12	118	12	0.5 $^{0}_{-0.2}$	8-M6 × 1, length: 12

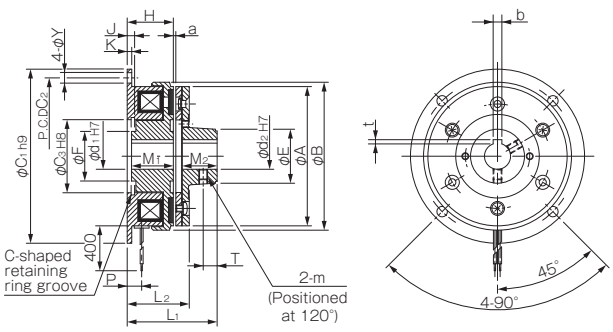
How to Place an Order

101-06-15G 24V R12DIN A12JIS

- 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)
- Armature type-5 keyway standards
  Dimensional symbol U2, W2: Compliant with the new JIS standards: DIN
  Dimensional symbol U1, W1: Compliant with the old JIS standards: JIS

Dimensions (101- □ -11G)

(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
06	12	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	4 $^{+0.050}_{+0.020}$	1.5 $^{+0.5}_{0}$
	15	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
08	15	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	20	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	25	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
12	25	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	30	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	40	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
20	40	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
	50	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
25	50	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
	60	60	18 $^{-0.018}_{-0.061}$	4 $^{+0.5}_{0}$	15 $^{+0.075}_{+0.032}$	5 $^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions									Axial direction dimensions									
	A	B	C_1	C_2	C_3	E	F	Y	m	H	J	K	L_1	L_2	M_1	M_2	P	T	a
06	63	67.5	80	72	35	26	23	5	M4	24	3.5	2.1	43	31.5	22	15	7.3	6	0.2 ±0.05
08	80	85	100	90	42	31	28.5	6	M5	26.5	4.3	2.6	51	35	24	20	8.3	8	0.2 ±0.05
10	100	106	125	112	52	41	40	7	M5	30	5	3.1	61	41	27	25	9	10	0.2 ±0.05
12	125	133	150	137	62	49	45	7	M6	33.5	5.5	3.6	70.5	46.5	30	30	9.3	12	0.3 $^{+0.05}_{-0.1}$
16	160	169	190	175	80	65	62	9.5	M8	37.5	6	4.1	84.5	53.5	34	38	11.7	15	0.3 $^{+0.05}_{-0.1}$
20	200	212.5	230	215	100	83	77	9.5	M8	44	7	5.1	100.5	64.5	40	45	13.4	18	0.5 $^{0}_{-0.2}$
25	250	264	290	270	125	105	100	11.5	M10	51	8	6.1	118	75	47	54	16	22	0.5 $^{0}_{-0.2}$

How to Place an Order

101-06-11G 24V R12DIN A12DIN

- 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)
- Keyway standards DIN: Compliant with the new JIS standards
  JIS: Compliant with the old JIS standards

CS Models Electromagnetic Clutches - Bearing-mounted Type

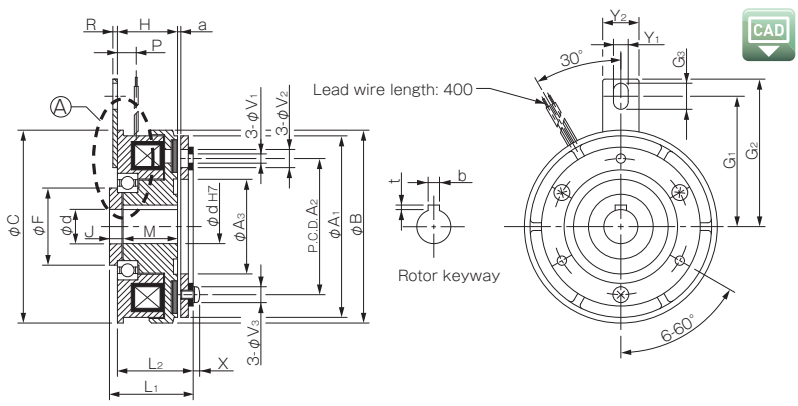
Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min^{-1}]	Rotating part moment of inertia J Rotor [kg·m^2]	Armature [kg·m^2]	Total work performed until readjustment of the air gap E_T [J]	Armature pull-in time t_a [s]	Torque build-up time t_p [s]	Torque decaying time td [s]	Mass [kg]
CS-06-33G											4.23×10^{-5}					0.50
CS-06-35G	06	5	5.5	DC24	11	0.46	52	B	3000	7.35×10^{-5}	1.05×10^{-4}	36×10^{6}	0.020	0.041	0.020	0.70
CS-06-31G											6.03×10^{-5}					0.54
CS-08-33G											1.18×10^{-4}					0.87
CS-08-35G	08	10	11	DC24	15	0.63	38	B	3000	2.24×10^{-4}	3.00×10^{-4}	60×10^{6}	0.023	0.051	0.030	1.23
CS-08-31G											1.71×10^{-4}					0.95
CS-10-33G											4.78×10^{-4}					1.57
CS-10-35G	10	20	22	DC24	20	0.83	29	B	3000	6.78×10^{-4}	9.45×10^{-4}	130×10^{6}	0.025	0.063	0.050	2.18
CS-10-31G											6.63×10^{-4}					1.73
CS-12-33G											1.31×10^{-3}					2.89
CS-12-35G	12	40	45	DC24	25	1.09	23	B	2000	2.14×10^{-3}	2.75×10^{-3}	250×10^{6}	0.040	0.115	0.065	3.93
CS-12-31G											1.81×10^{-3}					3.18
CS-16-33G											4.80×10^{-3}					5.3
CS-16-35G	16	80	90	DC24	35	1.46	16	B	2000	6.30×10^{-3}	9.05×10^{-3}	470×10^{6}	0.050	0.160	0.085	7.1
CS-16-31G											6.35×10^{-3}					5.6
CS-20-33G	20	160	175	DC24	45	1.88	13	B	1500	1.93×10^{-2}	1.37×10^{-2}	10×10^{8}	0.090	0.250	0.130	9.8
CS-25-33G	25	320	350	DC24	72	3.00	8	B	1500	4.48×10^{-2}	3.58×10^{-2}	20×10^{8}	0.115	0.335	0.210	17.5

* 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.

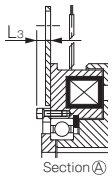
Dimensions (CS-□-33G)

(For direct mounting)



Unit [mm]

Size	Shaft bore dimensions d H7	Models compliant with the new JIS standards b P9	t	Models compliant with the old JIS standards b E9	t
06	12	$4^{-0.012}_{-0.042}$	$1.5^{+0.5}_{0}$	$4^{+0.050}_{+0.020}$	$1.5^{+0.5}_{0}$
08	15	$5^{-0.012}_{-0.042}$	$2^{+0.5}_{0}$	$5^{+0.050}_{+0.020}$	$2^{+0.5}_{0}$
10	20	$6^{-0.012}_{-0.042}$	$2.5^{+0.5}_{0}$	$5^{+0.050}_{+0.020}$	$2^{+0.5}_{0}$
12	25	$8^{-0.015}_{-0.051}$	$3^{+0.5}_{0}$	$7^{+0.061}_{+0.025}$	$3^{+0.5}_{0}$
16	30	$8^{-0.015}_{-0.051}$	$3^{+0.5}_{0}$	$7^{+0.061}_{+0.025}$	$3^{+0.5}_{0}$
20	40	$12^{-0.018}_{-0.061}$	$3^{+0.5}_{0}$	$10^{+0.061}_{+0.025}$	$3.5^{+0.5}_{0}$
25	50	$14^{-0.018}_{-0.061}$	$3.5^{+0.5}_{0}$	$12^{+0.075}_{+0.032}$	$3.5^{+0.5}_{0}$



Size	L_3
20	9
25	6.8

* On sizes 20 and 25, the head of the bolt for pressing down the bearing will stick out. See the above dimensions.

Unit [mm]

Size	Radial direction dimensions A_1	A_2	A_3	B	C	F	G_1	G_2	G_3	V_1	V_2	V_3	Y_1	Y_2	Axial direction dimensions H	L_1	L_2	M	J	P	R	X	a
06	63	46	34.5	67.5	67.5	24	42.5	50	9.5	3.1	6.3	5.5	4.5	14	24	31	28	22	5	7.3	2	2.5	$0.2^{\pm0.05}$
08	80	60	41.5	85	85	34	57.5	65	11.5	4.1	8	7	6.5	16	26.5	34.5	31	24	6	8.3	2	2.85	$0.2^{\pm0.05}$
10	100	76	51.5	106	106	40	62.5	70	11.5	5.1	10.5	9	6.5	16	30	39.5	36	27	6.5	9	2	3.3	$0.2^{\pm0.05}$
12	125	95	61.5	133	133	45	77.5	85	11.5	6.1	12	11	6.5	16	33.5	44.5	40.5	30	7.5	9.3	2	3.3	$0.3^{+0.05}_{-0.1}$
16	160	120	79.5	169	169	58	100	112	18.5	8.1	15	14	8.5	25	37.5	50.5	46.5	34	7.5	11.7	3.2	3.5	$0.3^{+0.05}_{-0.1}$
20	200	158	99.5	212.5	212	75	125	138	18.5	10.2	18	16.2	8.5	25	44	60.5	55.5	40	9	13.4	3	5	$0.5^{0}_{-0.2}$
25	250	210	124.5	264	250	100	155	173	24	12.2	22	20	12	30	53	69	66	47	9	18	6	4.5	$0.5^{0}_{-0.2}$

* The V_1, V_2, and V_3 dimensions of size 25 are located in four places 90° apart.

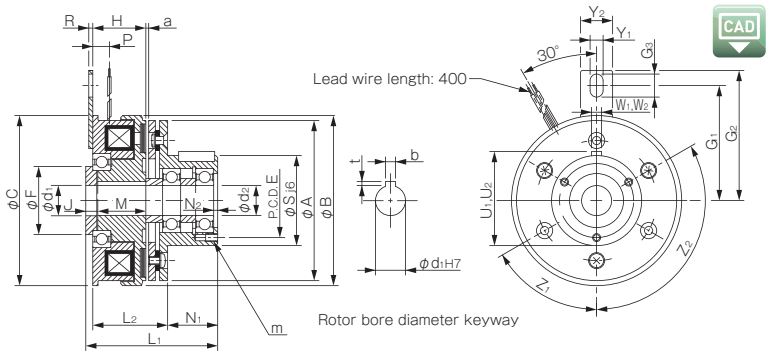
How to Place an Order

CS-06-33G 24V 12DIN

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

Dimensions (CS- □ -35G)

(For through-shafts)



Unit [mm]

Size	Shaft bore dimensions					
	d_1 H7	d_2	Models compliant with the new JIS standards		Models compliant with the old JIS standards	
			b P9	t	b E9	t
06	12	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	4 $^{+0.050}_{+0.020}$	1.5 $^{+0.5}_{0}$
08	15	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
12	25	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions													Axial direction dimensions												
	A	B	C	E	F	G_1	G_2	G_3	S	Y_1	Y_2	Z_1	Z_2	H	L_1	L_2	M	J	N_1	N_2	P	R	U_1	W_1	U_2	W_2	a	m
06	63	67.5	67.5	33	24	42.5	50	9.5	38	4.5	14	3-120°	0°	24	54.5	31.5	22	5	20	2	7.3	2	39.5	4	39.5	4	0.2 ±0.05	3-M4 × 0.7, length: 4
08	80	85	85	37	34	57.5	65	11.5	45	6.5	16	3-120°	0°	26.5	63.5	35	24	6	25	2	8.3	2	47	5	47	5	0.2 ±0.05	3-M4 × 0.7, length: 6
10	100	106	106	47	40	62.5	70	11.5	55	6.5	16	4-90°	45°	30	74.5	41	27	6.5	30	3	9	2	57	5	57.5	6	0.2 ±0.05	4-M4 × 0.7, length: 8
12	125	133	133	52	45	77.5	85	11.5	64	6.5	16	4-90°	45°	33.5	90.5	46.5	30	7.5	40	2	9.3	2	67	7	67	8	0.3 $^{+0.05}_{-0.1}$	4-M4 × 0.7, length: 8
16	160	169	169	62	58	100	112	18.5	75	8.5	25	6-60°	30°	37.5	107.5	53.5	34	7.5	50	3	11.7	3.2	78	7	78	8	0.3 $^{+0.05}_{-0.1}$	6-M5 × 0.8, length: 8

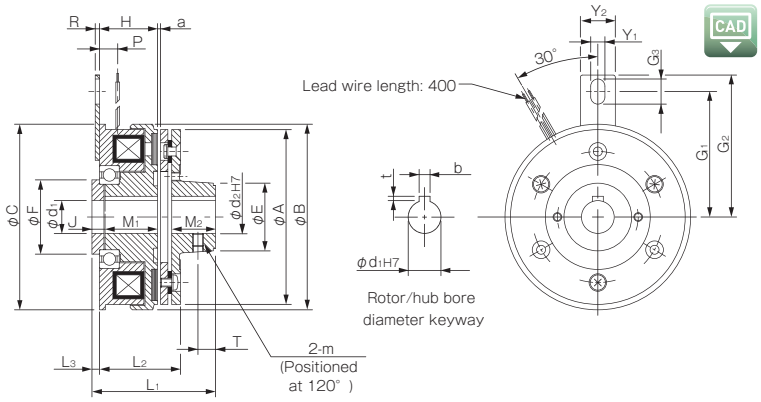
How to Place an Order

CS-06-35G 24V R12DIN A12JIS

- Size
- Rotor bore diameter (dimensional symbol)
- Keyway standards DIN: Compliant with the new JIS standards
  JIS: Compliant with the old JIS standards
- Armature bore diameter (dimensional symbol d2)
- Armature type-5 keyway standards
  Dimensional symbol U_2, W_2: Compliant with the new JIS standards: DIN
  Dimensional symbol U_1, W_1: Compliant with the old JIS standards: JIS

Dimensions (CS- □ -31G)

(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
06	12	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	4 $^{+0.050}_{+0.020}$	1.5 $^{+0.5}_{0}$
08	15	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
12	25	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions											Axial direction dimensions										
	A	B	C	E	F	G_1	G_2	G_3	Y_1	Y_2	m	H	L_1	L_2	L_3	M_1	M_2	J	P	R	T	a
06	63	67.5	67.5	26	24	42.5	50	9.5	4.5	14	M4	24	46	31.5	3	22	15	5	7.3	2	6	0.2 ±0.05
08	80	85	85	31	34	57.5	65	11.5	6.5	16	M5	26.5	54.5	35	3.5	24	20	6	8.3	2	8	0.2 ±0.05
10	100	106	106	41	40	62.5	70	11.5	6.5	16	M5	30	64.5	41	3.5	27	25	6.5	9	2	10	0.2 ±0.05
12	125	133	133	49	45	77.5	85	11.5	6.5	16	M6	33.5	74.5	46.5	4	30	30	7.5	9.3	2	12	0.3 $^{+0.05}_{-0.1}$
16	160	169	169	65	58	100	112	18.5	8.5	25	M8	37.5	88.5	53.5	4	34	38	7.5	11.7	3.2	15	0.3 $^{+0.05}_{-0.1}$

How to Place an Order

CS-06-31G 24V R12DIN A12DIN

- 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)
- Keyway standards DIN: Compliant with the new JIS standards
  JIS: Compliant with the old JIS standards

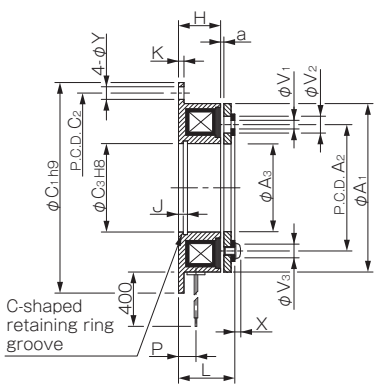
111 Models Electromagnetic Brakes

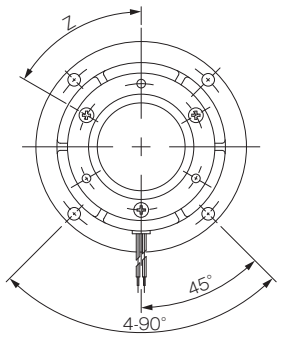
Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min⁻¹]	Armature Moment of inertia J [kg·m²]	Total work performed until readjustment of the air gap E_T [J]	Armature pull-in time t_a [s]	Torque rise time t_p [s]	Torque extinction time td [s]	Mass [kg]
111-06-13G										4.23×10^{-5}					0.28
111-06-12G	06	5	5.5	DC24	11	0.46	52	B	8000	6.03×10^{-5}	36×10^6	0.015	0.033	0.015	0.32
111-06-11G										6.03×10^{-5}					0.32
111-08-13G										1.18×10^{-4}					0.5
111-08-12G	08	10	11	DC24	15	0.63	38	B	6000	1.71×10^{-4}	60×10^6	0.016	0.042	0.025	0.58
111-08-11G										1.71×10^{-4}					0.58
111-10-13G										4.78×10^{-4}					0.91
111-10-12G	10	20	22	DC24	20	0.83	29	B	5000	6.63×10^{-4}	130×10^6	0.018	0.056	0.030	1.07
111-10-11G										6.63×10^{-4}					1.07
111-12-13G										1.31×10^{-3}					1.68
111-12-12G	12	40	45	DC24	25	1.09	23	B	4000	1.81×10^{-3}	250×10^6	0.027	0.090	0.050	1.97
111-12-11G										1.81×10^{-3}					1.97
111-16-13G										4.80×10^{-3}					3.15
111-16-12G	16	80	90	DC24	35	1.46	16	B	3000	6.35×10^{-3}	470×10^6	0.035	0.127	0.055	3.45
111-16-11G										6.35×10^{-3}					3.45
111-20-13G										1.37×10^{-2}					5.9
111-20-12G	20	160	175	DC24	45	1.88	13	B	2500	1.90×10^{-2}	10×10^8	0.065	0.200	0.070	7.1
111-20-11G										1.90×10^{-2}					7.1
111-25-13G										3.58×10^{-2}					10.5
111-25-12G	25	320	350	DC24	60	2.5	9.6	B	2000	4.83×10^{-2}	20×10^8	0.085	0.275	0.125	12.2
111-25-11G										4.83×10^{-2}					12.2

* 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.

Dimensions (111-□-13G)





Unit [mm]

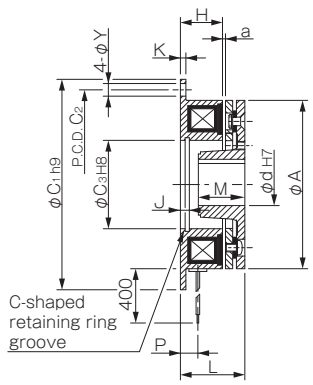
Size	Radial direction dimensions											Axial direction dimensions						
	A_1	A_2	A_3	C_1	C_2	C_3	V_1	V_2	V_3	Y	Z	H	J	K	L	P	X	a
06	63	46	34.5	80	72	35	3-3.1	3-6.3	3-5.5	5	6-60°	18	3.5	2.1	22	7.3	2.5	0.2 ±0.05
08	80	60	41.5	100	90	42	3-4.1	3-8	3-7	6	6-60°	20	4.3	2.6	24.5	8.3	2.85	0.2 ±0.05
10	100	76	51.5	125	112	52	3-5.1	3-10.5	3-9	7	6-60°	22	5	3.1	28	9	3.3	0.2 ±0.05
12	125	95	61.5	150	137	62	3-6.1	3-12	3-11	7	6-60°	24	5.5	3.6	31	9.3	3.3	$0.3^{+0.05}_{-0.1}$
16	160	120	79.5	190	175	80	3-8.1	3-15	3-13	9.5	6-60°	26	6	4.1	35	11.7	3.5	$0.3^{+0.05}_{-0.1}$
20	200	158	99.5	230	215	100	3-10.2	3-18	3-17	9.5	6-60°	30	7	5.1	41.5	13.4	4.9	$0.5^{0}_{-0.2}$
25	250	210	124.5	290	270	125	4-12.2	4-22	4-20	11.5	8-45°	35	8	6.1	48	16	5.5	$0.5^{0}_{-0.2}$

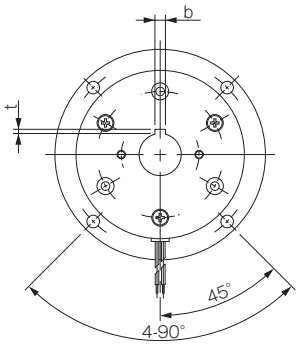
How to Place an Order

111-06-13G 24V

Size

Dimensions (111-□-12G)





Unit [mm]

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
06	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	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 $^{+0.5}_{0}$
08	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
12	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
20	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
25	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
	60	18 $^{-0.018}_{-0.061}$	4 $^{+0.5}_{0}$	15 $^{+0.075}_{+0.032}$	5 $^{+0.5}_{0}$

Unit [mm]

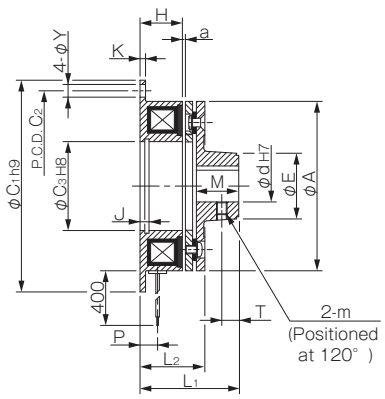
Size	Radial direction dimensions					Axial direction dimensions						
	A	C_1	C_2	C_3	Y	H	J	K	L	M	P	a
06	63	80	72	35	5	18	3.5	2.1	25.5	15	7.3	0.2 ±0.05
08	80	100	90	42	6	20	4.3	2.6	28.5	20	8.3	0.2 ±0.05
10	100	125	112	52	7	22	5	3.1	33	25	9	0.2 ±0.05
12	125	150	137	62	7	24	5.5	3.6	37	30	9.3	0.3 $^{+0.05}_{-0.1}$
16	160	190	175	80	9.5	26	6	4.1	42	38	11.7	0.3 $^{+0.05}_{-0.1}$
20	200	230	215	100	9.5	30	7	5.1	50.5	45	13.4	0.5 $^{0}_{-0.2}$
25	250	290	270	125	11.5	35	8	6.1	59	54	16	0.5 $^{0}_{-0.2}$

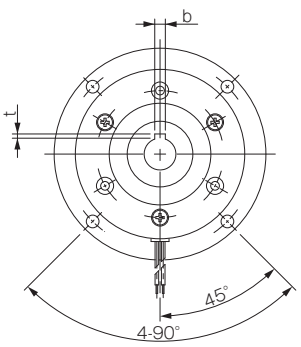
How to Place an Order

111-06-12G 24V 12DIN

- Size: Armature bore diameter (dimensional symbol d)
- Keyway standards: DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards

Dimensions (111-□-11G)





Unit [mm]

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
06	12	4 $^{-0.012}_{-0.042}$	1.5 $^{+0.5}_{0}$	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 $^{+0.5}_{0}$
08	15	5 $^{-0.012}_{-0.042}$	2 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
10	20	6 $^{-0.012}_{-0.042}$	2.5 $^{+0.5}_{0}$	5 $^{+0.050}_{+0.020}$	2 $^{+0.5}_{0}$
	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
12	25	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
16	30	8 $^{-0.015}_{-0.051}$	3 $^{+0.5}_{0}$	7 $^{+0.061}_{+0.025}$	3 $^{+0.5}_{0}$
	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
20	40	12 $^{-0.018}_{-0.061}$	3 $^{+0.5}_{0}$	10 $^{+0.061}_{+0.025}$	3.5 $^{+0.5}_{0}$
	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
25	50	14 $^{-0.018}_{-0.061}$	3.5 $^{+0.5}_{0}$	12 $^{+0.075}_{+0.032}$	3.5 $^{+0.5}_{0}$
	60	18 $^{-0.018}_{-0.061}$	4 $^{+0.5}_{0}$	15 $^{+0.075}_{+0.032}$	5 $^{+0.5}_{0}$

Unit [mm]

Size	Radial direction dimensions							Axial direction dimensions								
	A	C_1	C_2	C_3	E	Y	M	H	J	K	L_1	L_2	M	P	T	a
06	63	80	72	35	26	5	M4	18	3.5	2.1	37	25.5	15	7.3	6	0.2 ±0.05
08	80	100	90	42	31	6	M5	20	4.3	2.6	44.5	28.5	20	8.3	8	0.2 ±0.05
10	100	125	112	52	41	7	M5	22	5	3.1	53	33	25	9	10	0.2 ±0.05
12	125	150	137	62	49	7	M6	24	5.5	3.6	61	37	30	9.3	12	0.3 $^{+0.05}_{-0.1}$
16	160	190	175	80	65	9.5	M8	26	6	4.1	73	42	38	11.7	15	0.3 $^{+0.05}_{-0.1}$
20	200	230	215	100	83	9.5	M8	30	7	5.1	86.5	50.5	45	13.4	18	0.5 $^{0}_{-0.2}$
25	250	290	270	125	105	11.5	M10	35	8	6.1	102	59	54	16	22	0.5 $^{0}_{-0.2}$

How to Place an Order

111-06-11G 24V 12DIN

- Size: Armature bore diameter (dimensional symbol d)
- Keyway standards: DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards

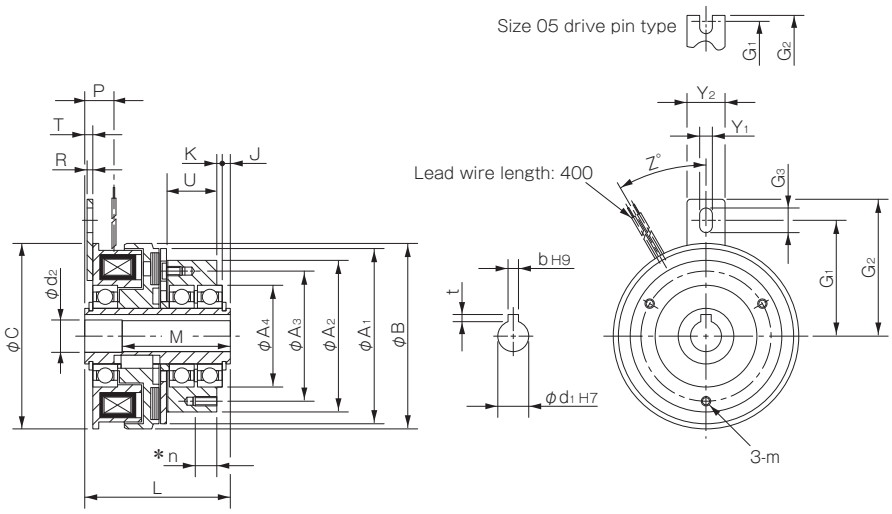
CSZ Models Electromagnetic Clutches - One-touch-mounted Type

Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min^{-1}]	Rotating part moment of inertia Rotor [kg·m^2]	Armature [kg·m^2]	Total work until readjustment of the air gap E_T [J]	Armature pull-in time t_a [s]	Torque build-up time t_p [s]	Torque decaying time t_d [s]	Mass [kg]	Bearing used
CSZ-05-35	05	2.4	2.4	DC24	10	0.42	57	B	1800	2.87×10^{-5}	2.43×10^{-5}	9×10^6	0.017	0.035	0.023	0.38	6902ZZ
CSZ-06-35	06	5	5.5	DC24	11	0.46	52	B	1800	8.94×10^{-5}	7.57×10^{-5}	29×10^6	0.023	0.050	0.010	0.67	6904ZZ
CSZ-08-35	08	10	11	DC24	15	0.63	38	B	1800	2.41×10^{-4}	2.08×10^{-4}	60×10^6	0.025	0.064	0.020	1.23	6906ZZ

* The dynamic friction torque, T_d, is measured at a relative speed of 100 min^{-1}.

Dimensions



Unit [mm]

Size	Shaft bore dimensions d_1 H7	d_2	b H9	t
05	10	10.2	$3^{+0.030}_{0}$	$1.2^{+0.3}_{0}$
06	12	12.2	$4^{+0.030}_{0}$	$1.8^{+0.3}_{0}$
08	15	15.5	$5^{+0.030}_{0}$	$2.3^{+0.3}_{0}$

Unit [mm]

Size	Radial direction dimensions A_1	A_2	A_3	A_4	B	C	G_1	G_2	G_3	Y_1	Y_2	Axial direction dimensions J	K	L	M	P	R	T	U	Z	m	n*
05	50	47	38	$28_{-0.009}^{0}$	54	50	28	31	—	3.1	8	2.1	2	47.2	33	7.9	1.6	1.9	14	180	M4	6
06	63	55	46	$37_{-0.011}^{0}$	67.5	67.5	42.5	50	9.5	4.5	14	2.5	2.3	53.5	40	9.8	2	2.5	18	30	M4	6
08	80	70	60	$47_{-0.011}^{0}$	85	85	57.5	65	11.5	6.5	16	3	2.5	58	43	11.5	2	3	18.5	30	M4	8

* For bolts mounted on clutch hubs marked with an asterisk, select a length no greater than the n dimension.

How to Place an Order

CSZ-05-35

Size

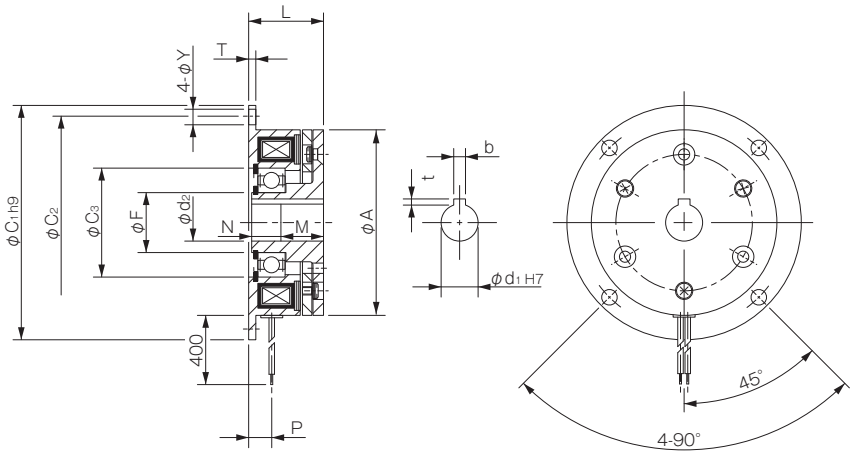
BSZ Models Electromagnetic Brakes - One-touch-mounted Type

Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min^{-1}]	Armature Moment of inertia J [kg·m^2]	Total work performed until readjustment of the air gap E_T [J]	Armature pull-in time t_a [s]	Torque build-up time t_p [s]	Torque decaying time t_d [s]	Mass [kg]	Bearing used
BSZ-05-12	05	2.4	2.4	DC24	10	0.42	57	B	1800	1.46×10^{-5}	9×10^6	0.020	0.030	0.010	0.25	6902ZZ
BSZ-06-12	06	5	5.5	DC24	11	0.46	52	B	1800	5.77×10^{-5}	29×10^6	0.017	0.033	0.010	0.36	6904ZZ
BSZ-08-12	08	10	11	DC24	15	0.63	38	B	1800	1.63×10^{-4}	60×10^6	0.020	0.052	0.015	0.67	6905ZZ

* The dynamic friction torque, T_d, is measured at a relative speed of 100 min^{-1}.

Dimensions



Unit [mm]

Size	Radial direction dimensions					Axial direction dimensions					Shaft bore dimensions				
	A	C_1	C_2	C_3	F	L	M	N	P	T	Y	d_{1H7}	d_2	b_{H9}	t
05	50	65	58	28	15	28.3	18	9.8	8.2	2	3.4	10	10.2	$3^{+0.030}_{0}$	$1.2^{+0.3}_{0}$
06	63	80	72	37	20	25.5	15	10	7.3	2	5	12	12.2	$4^{+0.030}_{0}$	$1.8^{+0.3}_{0}$
08	80	100	90	42	25	28.5	20	8	8.3	2.6	6	15	15.5	$5^{+0.030}_{0}$	$2.3^{+0.3}_{0}$

How to Place an Order

BSZ-05-12

Size

ABSSAC

PRECISION MOTION SINCE 1982

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