102(13/15/11) Types Electromagnetic Micro Clutches - Flange-mounted Type

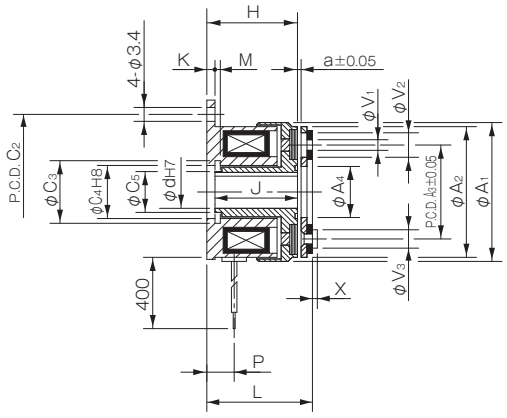
Specifications

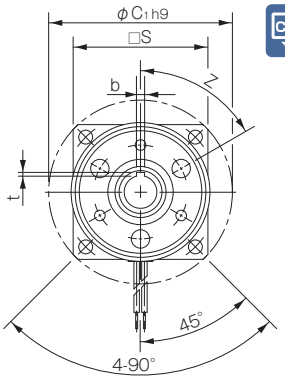
Model	Size	Dynamic friction torque Td [N·m]	Coil (at 20°C) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Lead wire UL style	Lead wire Size	Max. rotation speed [min⁻¹]	Rotating part moment of inertia J Armature [kg·m²]	Rotating part moment of inertia J Rotor [kg·m²]	Allowable engaging energy $E_{ea\ell}$ [J]	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 t_d [s]	Mass [kg]
102-02-13										10000	6.75×10^{-7}							0.075
102-02-15	02	0.4	DC24	6	0.25	96	B	UL3398	AWG26	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	UL3398	AWG26	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	UL3398	AWG26	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	UL3398	AWG22	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}. Depending on the initial torque characteristics, break-in to condition the engaging surfaces may also be required.
* Keep supply voltage fluctuation to within 10% of coil voltage. Do not allow the energization rate to exceed 80%.
* The moment of inertia of a rotating body and mass are measured for the maximum bore diameter.

Dimensions (102-□-13)

(For direct mounting)





CAD

Unit [mm]

Size	Shaft bore dimensions d_1 H7	Models compliant with JIS standards b P9	Models compliant with JIS standards t	Models compliant with the old JIS standards b E9	Models compliant with the old JIS standards 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 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	Axial direction dimensions H	J	K	L	P	M	a	X
02	31	28	19.5	10.7	39	33.5	11.4	11	8	—	2-2.1	2-5.3	2-3.7	4-90°	18	16.5	1.5	20.4	4.9	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	28.1	7.2	1.3	0.15	1.6
05	54	50	38	25.5	65	58	27.2	26	22	51	3-3.1	3-6.5	3-6	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.
* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

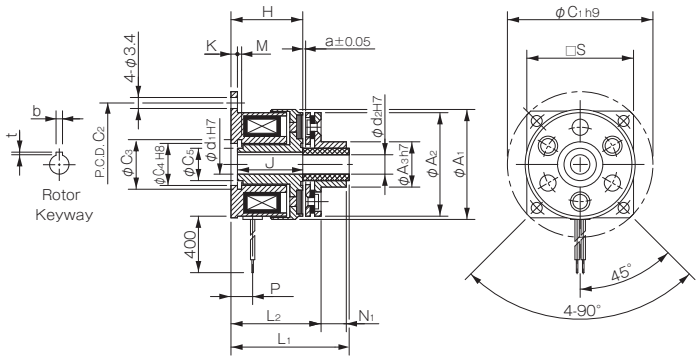
102-03-13 24V 6DIN

- 03: Size / Rotor bore diameter (dimensional symbol d)
- 6DIN: Keyway standards DIN: Compliant with JIS standards P9; JIS: Compliant with the old JIS standards (class 2) E9

*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 JIS standards: b P9	t	Models compliant with the old JIS standards: b E9	t
02	5	5	—	—		
03	6	6	$2^{-0.006}_{-0.031}$	$0.8^{+0.3}_{0}$		
04	8	8	$2^{-0.006}_{-0.031}$	$0.8^{+0.3}_{0}$		
	10	10	$3^{-0.006}_{-0.031}$	$1.2^{+0.3}_{0}$	$4^{+0.050}_{+0.020}$	$1.5^{+0.5}_{0}$
05	10	10	$3^{-0.006}_{-0.031}$	$1.2^{+0.3}_{0}$	$4^{+0.050}_{+0.020}$	$1.5^{+0.5}_{0}$
	15	15	$5^{-0.012}_{-0.042}$	$2^{+0.5}_{0}$	$5^{+0.050}_{+0.020}$	$2^{+0.5}_{0}$

* The armature type-5 bore d_2 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	4.9	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	7.2	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.
* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

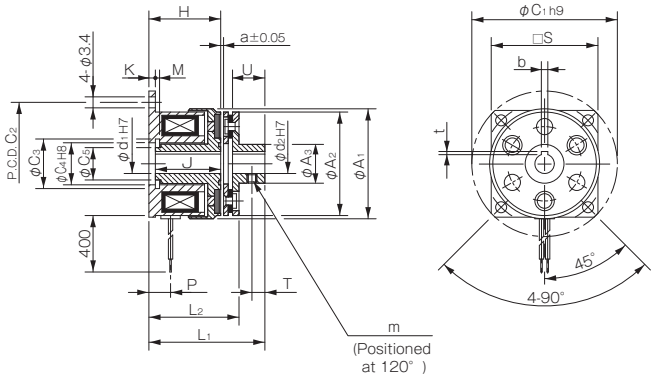
102-03-15 24V R6DIN A6

- 102-03-15: Size — Rotor bore diameter (dimensional symbol d1)
- 24V: Armature bore diameter (dimensional symbol d2)
- R6DIN: Keyway standards — DIN: Compliant with JIS standards P9; JIS: Compliant with the old JIS standards (class 2) E9
- A6: 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.

Dimensions (102-□-11)

(For butt shafts)



Unit [mm]

Size	Shaft bore dimensions					
	d_1 H7	d_2 H7	Models compliant with JIS standards: b P9	t	Models compliant with the old JIS standards: b E9	t
02	5	5	—	—		
03	6	6	$2^{-0.006}_{-0.031}$	$0.8^{+0.3}_{0}$		
04	8	8	$2^{-0.006}_{-0.031}$	$0.8^{+0.3}_{0}$		
	10	10	$3^{-0.006}_{-0.031}$	$1.2^{+0.3}_{0}$	$4^{+0.050}_{+0.020}$	$1.5^{+0.5}_{0}$
05	10	10	$3^{-0.006}_{-0.031}$	$1.2^{+0.3}_{0}$	$4^{+0.050}_{+0.020}$	$1.5^{+0.5}_{0}$
	15	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	A_3	C_1	C_2	C_3	C_4	C_5	S	m	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	27.4	22.4	1.1	4.9	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	40.1	30.8	1.3	7.2	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.
* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

102-03-11 24V R6DIN A6DIN

- 102-03-11: Size — Rotor bore diameter (dimensional symbol d1)
- 24V: Armature bore diameter (dimensional symbol d2)
- R6DIN: Keyway standards — DIN: Compliant with JIS standards P9; JIS: Compliant with the old JIS standards (class 2) E9
- A6DIN: Armature bore diameter (dimensional symbol d2)
- Keyway standards — DIN: Compliant with JIS standards P9; JIS: Compliant with the old JIS standards (class 2) E9

*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.

102(33/35/31) Types Electromagnetic Micro Clutches - Bearing-mounted Type

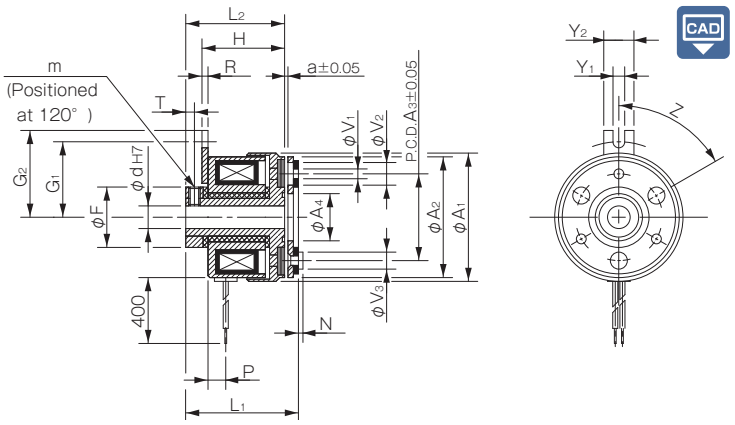
Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Coil (at 20°C) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Lead wire UL style	Lead wire Size	Max. rotation speed [min⁻¹]	Rotating part moment of inertia J Armature [kg·m²]	Rotor [kg·m²]	Allowable engaging energy $E_{ea\ell}$ [J]	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 t_d [s]	Mass [kg]
102-02-33											6.75×10^{-7}							0.076
102-02-35	02	0.4	DC24	6	0.25	96	B	UL3398	AWG26	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	UL3398	AWG26	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	UL3398	AWG26	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	UL3398	AWG22	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}. Depending on the initial torque characteristics, break-in to condition the engaging surfaces may also be required.
* Keep supply voltage fluctuation to within 10% of coil voltage. Do not allow the energization rate to exceed 80%.
* The moment of inertia of a rotating body and mass are measured for the maximum bore diameter.

Dimensions (102-□-33)

(For direct mounting)



Unit [mm]

Size	Shaft bore dimensions d H7
02	5
03	6
04	8
	10
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	10.7	14	2-2.1	2-5.3	2-3.7	15.8	19.8	3.1	8	4-90°	2-M3	19.1	1.2	25.9	23.5	4.9	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	22	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	25.2	1.6	33.1	30.4	5.2	1.5	2.8	0.15
05	54	50	38	25.5	30	3-3.1	3-6.5	3-6	28	31	3.1	8	6-60°	2-M5	27.9	1.6	37.3	34.1	6.2	1.5	3.3	0.2

* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

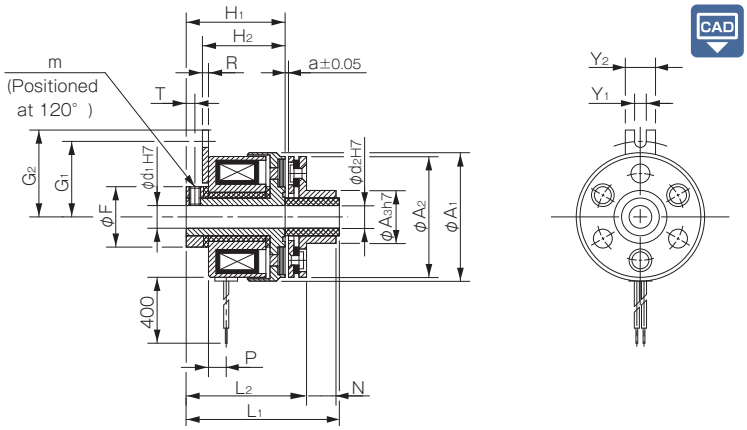
102-03-33 24V 6

Size

Rotor bore diameter (dimensional symbol d)

Dimensions (102-□-35)

(For through-shafts)



Unit [mm]

Size	Shaft bore dimensions	
	d_1 H7	d_2 H7
02	5	5
03	6	6
04	8	8
	10	10
05	10	10
	15	15

Unit [mm]

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	15.8	20	3.1	8	2-M3	23.5	19.1	1.2	33	27.9	4.9	4.8	2.5	0.1
03	34	32	14	16	20	23	3.1	8	2-M3	26.2	22	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	25.2	1.6	45.2	35.8	5.2	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	6.2	8.8	3.3	0.2

* For details on mounting method, see "Items Checked for Design Purposes".

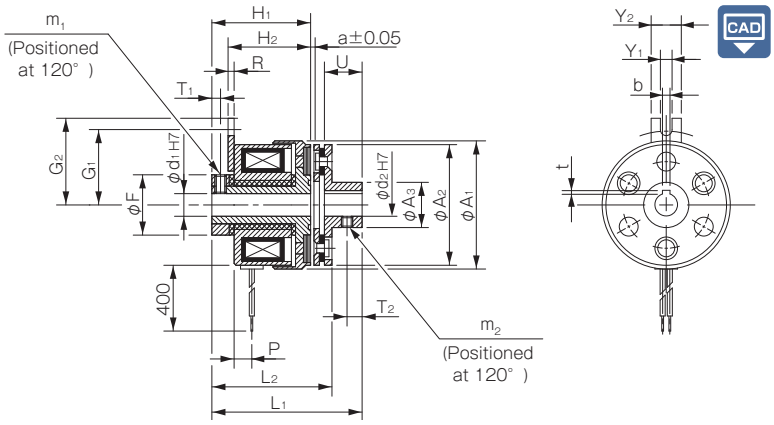
How to Place an Order

102-03-35 24V R6 A6

- Size: 03
- Armature bore diameter (dimensional symbol d2): A6
- Rotor bore diameter (dimensional symbol d1): R6

Dimensions (102-□-31)

(For butt shafts)



Unit [mm]

Size	Shaft bore dimensions					
			Models compliant with JIS standards		Models compliant with the old JIS standards	
	d_1 H7	d_2 H7	b P9	t	b E9	t
02	5	5	—	—		
03	6	6	$2\ ^{-0.006}_{-0.031}$	$0.8\ ^{+0.3}_{0}$		
04	8	8	$2\ ^{-0.006}_{-0.031}$	$0.8\ ^{+0.3}_{0}$		
	10	10	$3\ ^{-0.006}_{-0.031}$	$1.2\ ^{+0.3}_{0}$	$4\ ^{+0.050}_{+0.020}$	$1.5\ ^{+0.5}_{0}$
05	10	10	$3\ ^{-0.006}_{-0.031}$	$1.2\ ^{+0.3}_{0}$	$4\ ^{+0.050}_{+0.020}$	$1.5\ ^{+0.5}_{0}$
	15	15	$5\ ^{-0.012}_{-0.042}$	$2\ ^{+0.5}_{0}$	$5\ ^{+0.050}_{+0.020}$	$2\ ^{+0.5}_{0}$

* Rotor bore d_1 is a straight bore.

Unit [mm]

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	15.8	20	3.1	8	2-M3	M3	23.5	19.1	1.2	32.9	27.9	4.9	7	2.5	2.5	0.1
03	34	32	12	16	20	23	3.1	8	2-M3	2-M3	26.2	22	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	25.2	1.6	45.1	35.8	5.2	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	6.2	12	3.3	5	0.2

* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

102-03-31 24V R6 A6DIN

- Size: 03
- Rotor bore diameter (dimensional symbol d1): R6
- Keyway standards: DIN: Compliant with JIS standards P9; JIS: Compliant with the old JIS standards (class 2) E9
- Armature bore diameter (dimensional symbol d2): 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.