

111 Models Electromagnetic Brakes

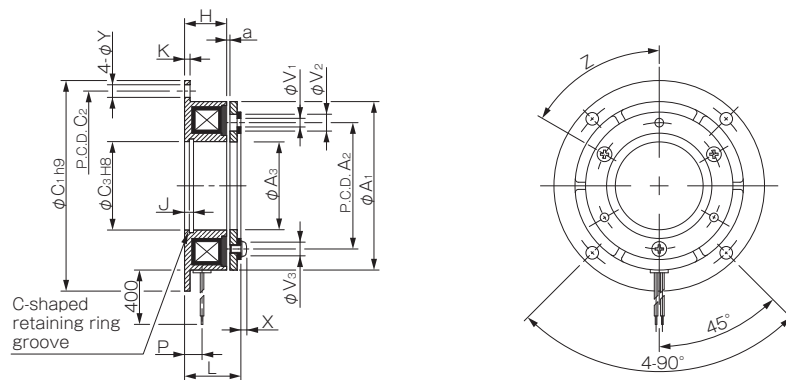
Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20°C)				Heat resistance class	Lead wire		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 rise time t_p [s]	Torque extinction time t_d [s]	Mass [kg]
				Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]		UL style	Size							
111-06-13G	06	5	5.5	DC24	11	0.46	52	B	UL3398	AWG22	8000	4.23×10^{-5}	36×10^6	0.015	0.033	0.015	0.28
111-06-12G												6.03×10^{-5}					0.32
111-06-11G												6.03×10^{-5}					0.32
111-08-13G	08	10	11	DC24	15	0.63	38	B	UL3398	AWG18	6000	1.18×10^{-4}	60×10^6	0.016	0.042	0.025	0.5
111-08-12G												1.71×10^{-4}					0.58
111-08-11G												1.71×10^{-4}					0.58
111-10-13G	10	20	22	DC24	20	0.83	29	B	UL3398	AWG18	5000	4.78×10^{-4}	130×10^6	0.018	0.056	0.030	0.91
111-10-12G												6.63×10^{-4}					1.07
111-10-11G												6.63×10^{-4}					1.07
111-12-13G	12	40	45	DC24	25	1.04	23	B	UL3398	AWG18	4000	1.31×10^{-3}	250×10^6	0.027	0.090	0.050	1.68
111-12-12G												1.81×10^{-3}					1.97
111-12-11G												1.81×10^{-3}					1.97
111-16-13G	16	80	90	DC24	35	1.46	16	B	UL3398	AWG18	3000	4.80×10^{-3}	470×10^6	0.035	0.127	0.055	3.15
111-16-12G												6.35×10^{-3}					3.45
111-16-11G												6.35×10^{-3}					3.45
111-20-13G	20	160	175	DC24	45	1.88	13	B	UL3398	AWG16	2500	1.37×10^{-2}	10×10^8	0.065	0.200	0.070	5.9
111-20-12G												1.90×10^{-2}					7.1
111-20-11G												1.90×10^{-2}					7.1
111-25-13G	25	320	350	DC24	60	2.5	9.6	B	UL3398	AWG16	2000	3.58×10^{-2}	20×10^8	0.085	0.275	0.125	10.5
111-25-12G												4.83×10^{-2}					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. Depending on the initial torque characteristics, break-in to condition the engaging surfaces may also be required.

* 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	41.7	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	3-11	3-9	7	6-60°	22	5	3.1	28.1	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
16	160	120	79.5	190	175	80	3-8.2	3-15	3-14	9.5	6-60°	26	6	4.1	35	11.7	3.5	0.3 ± 0.05
20	200	158	99.5	230	215	100	3-10.2	3-18	3-16.2	9.5	6-60°	30	7	5.1	41.4	13.4	4.9	0.5 ± 0.1
25	250	210	124.5	290	270	125	4-12.2	4-22	4-20	11.5	8-45°	35	8	6.1	47.9	16	5.5	0.5 ± 0.2

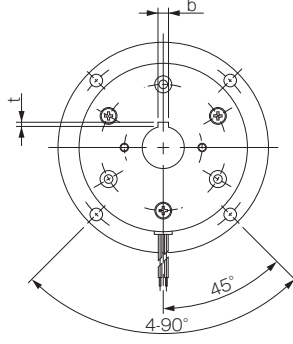
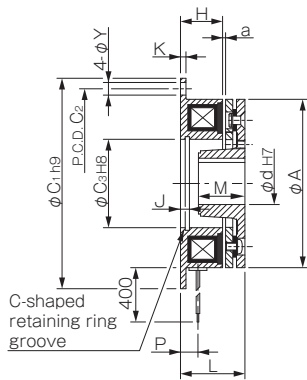
* For details on mounting method, see "Items Checked for Design Purposes".

How to Place an Order

111-06-13G 24V

Size

Dimensions (111-□-12G)



Unit [mm]

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

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	33.1	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
16	160	190	175	80	9.5	26	6	4.1	42	38	11.7	0.3	± 0.05
20	200	230	215	100	9.5	30	7	5.1	50.4	45	13.4	0.5	± 0.2
25	250	290	270	125	11.5	35	8	6.1	58.9	54	16	0.5	± 0.2

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

How to Place an Order

111-06-12G 24V 12DIN

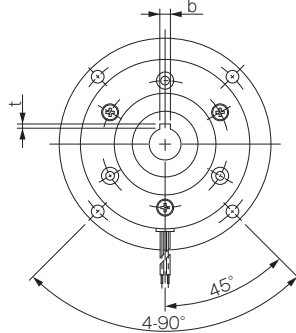
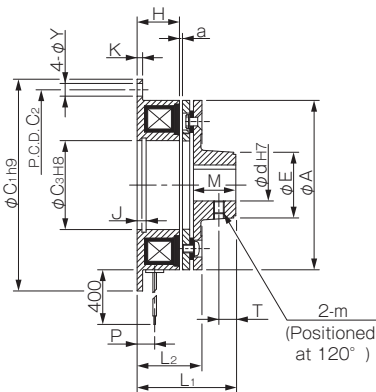
Size

Armature bore diameter (dimensional symbol d)

Keyway standards DIN: Compliant with JIS standards P9

JIS: Compliant with the old JIS standards (class 2) E9

Dimensions (111-□-11G)



Unit [mm]

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

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	53.1	33.1	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	86.4	50.4	45	13.4	18	0.5 ⁺⁰ _{-0.2}
25	250	290	270	125	105	11.5	M10	35	8	6.1	101.9	58.9	54	16	22	0.5 ⁺⁰ _{-0.2}

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

How to Place an Order

111-06-11G 24V 12DIN

Size

Armature bore diameter (dimensional symbol d)

Keyway standards DIN: Compliant with JIS standards P9

JIS: Compliant with the old JIS standards (class 2) E9