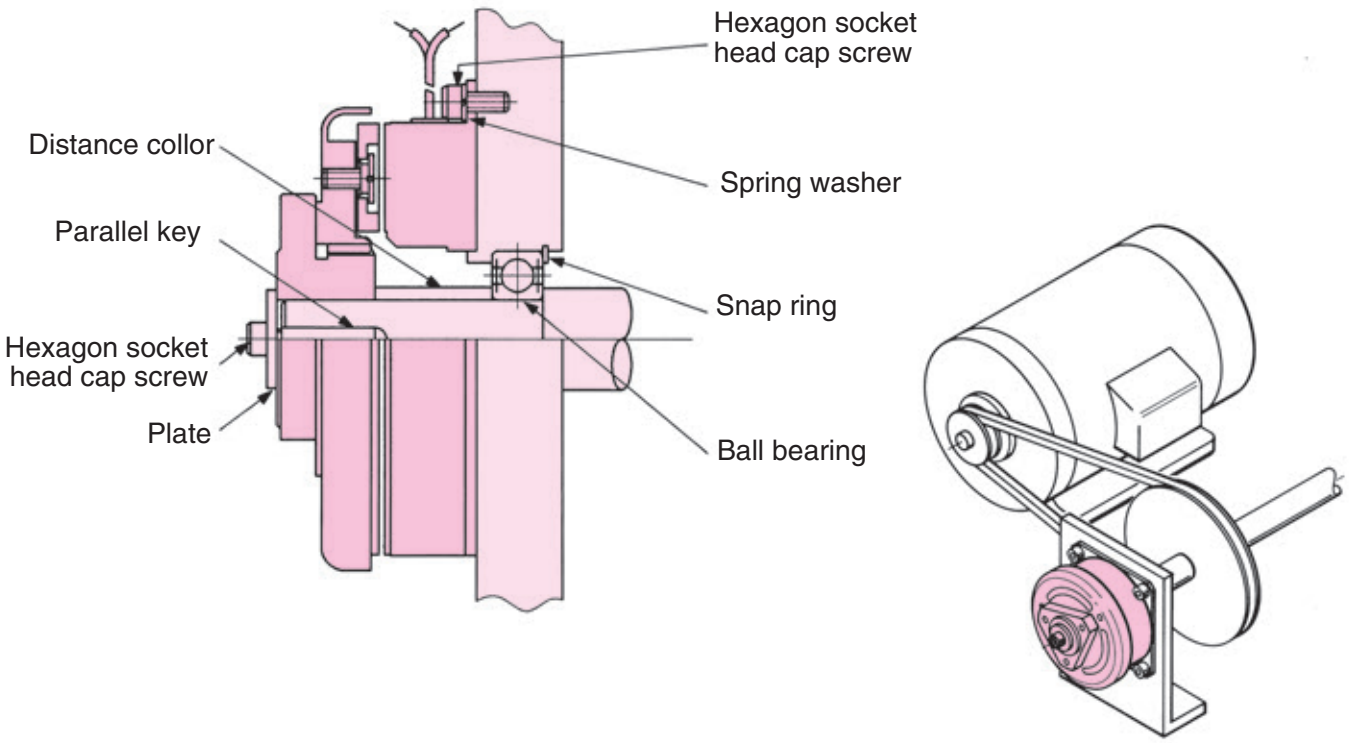
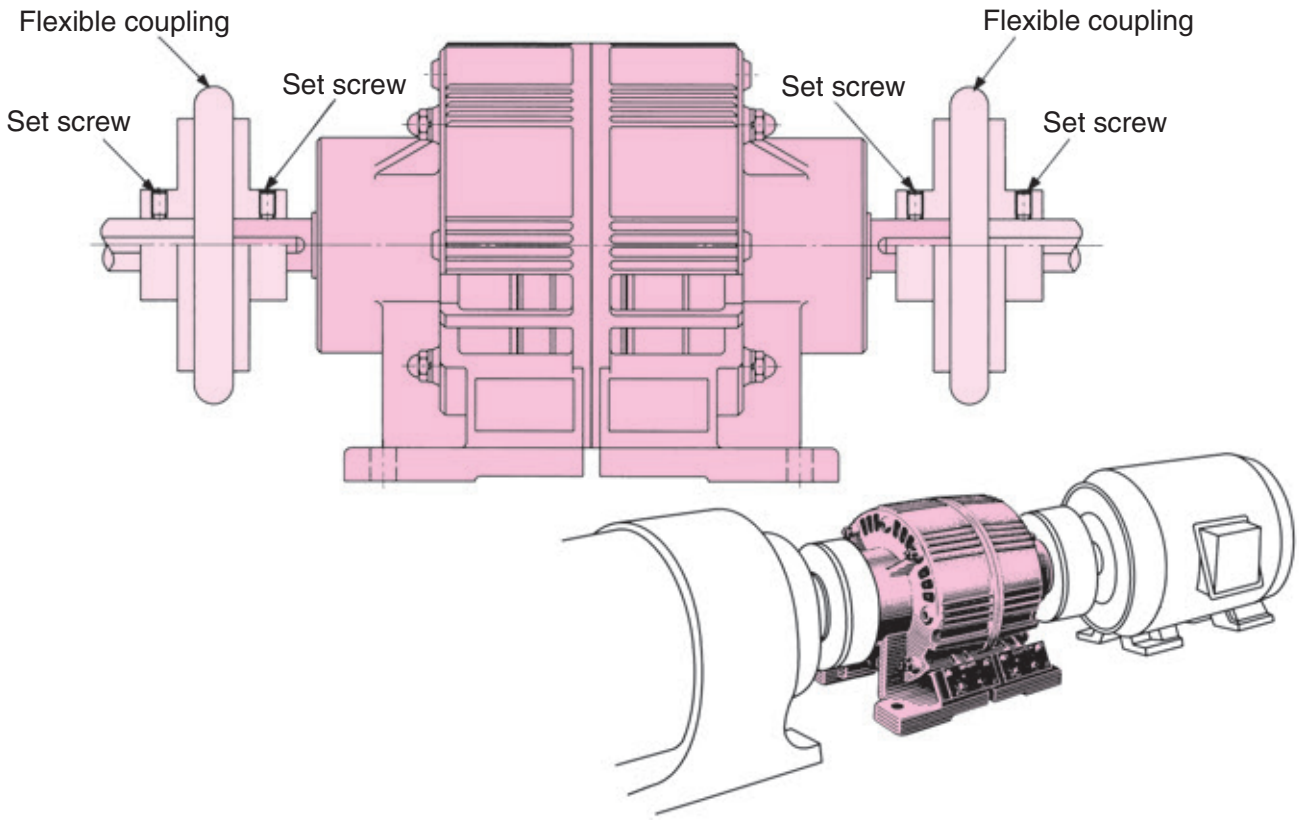
JB

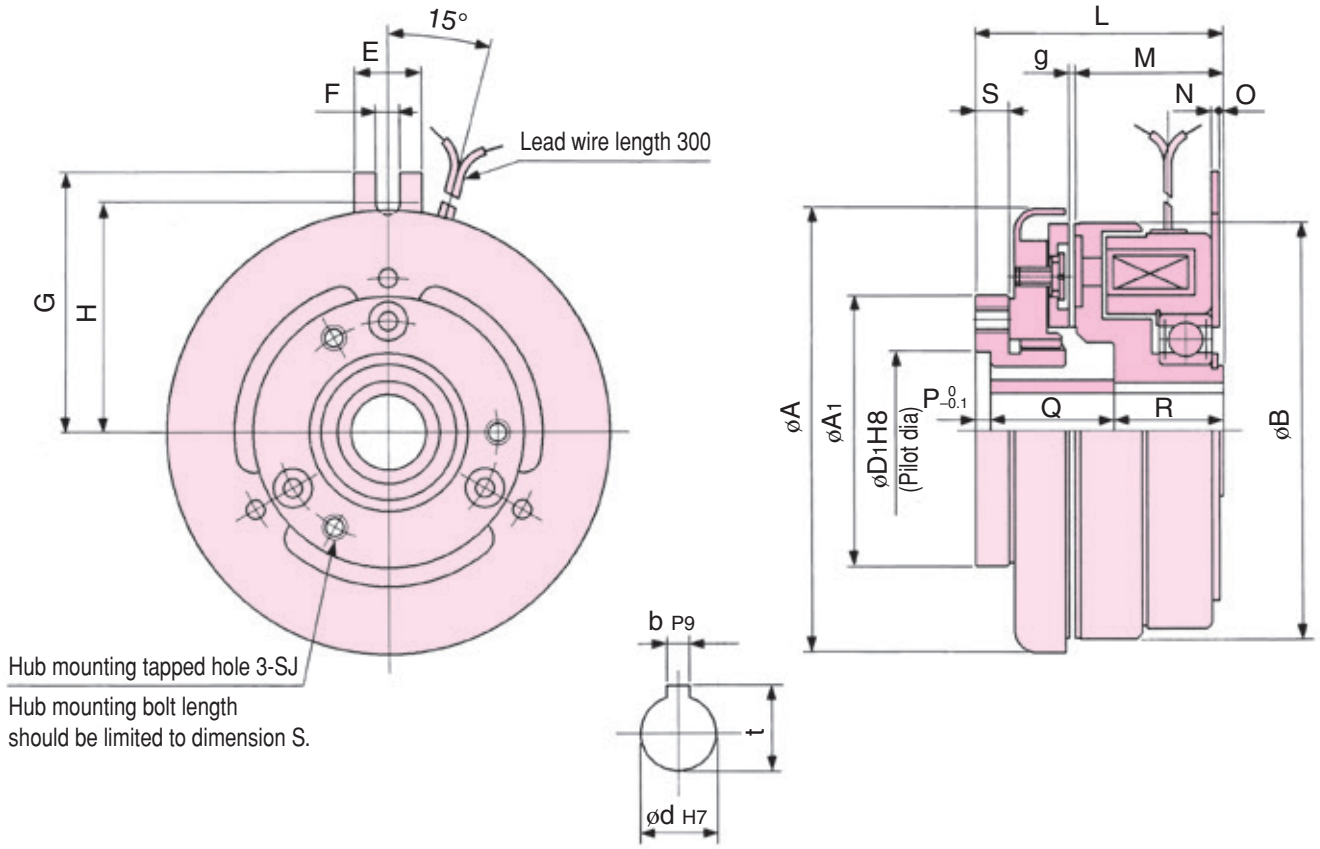

Hexagon socket
head cap screw
Distance collor
Spring washer
Parallel key
Snap ring
Hexagon socket
head cap screw
Plate
Ball bearing

JEP


Flexible coupling
Flexible coupling
Set screw
Set screw
Set screw
Set screw

JC-0.6, 1.2, 2.5, 5 Through Shaft Type

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75°C(W)	Mass(kg)
JC-0.6	6	24	8	0.8
JC-1.2	12	24	11	1.4
JC-2.5	25	24	16	2.6
JC-5	50	24	23	4.2



(DIM: mm)

Model	Diameter direction								Shuft direction		
	A	A1	B	D1	E	F	G	H	L	M	N
JC-0.6	76	51	70.3	28	14	4.5	46	39.5	47	29	1.6
JC-1.2	96	58	90.4	32	16	5.5	57	50	53	32	1.6
JC-2.5	118	72	110.5	42	18	6.5	69	61	66	40.5	2
JC-5	145	87	135.6	52	20	6.5	82	74	73	43.5	2.6

Model	Shuft direction						Attachment SJ		Shuft hole		
	O	P	Q	R	S	g	P.C.D	Tap	d	b	t
JC-0.6	1	3	23	21	6.5	0.4	40	M4	12	4	$13.8^{+0.1}_{0}$
JC-1.2	1	3	27	23	7.5	0.4	48	M5	15	5	$17.3^{+0.1}_{0}$
JC-2.5	1	4	33	29	9	0.5	58	M6	20	6	$22.8^{+0.1}_{0}$
JC-5	1	4	37	32	10	0.5	70	M8	25	8	$28.3^{+0.2}_{0}$

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

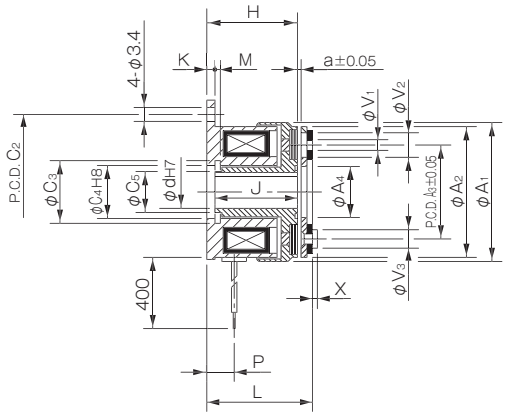
Specifications

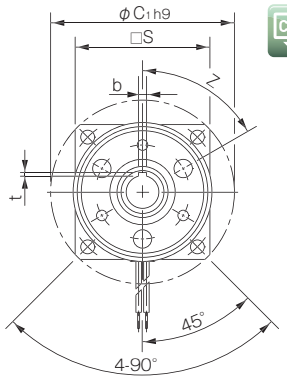
Model	Size	Dynamic friction torque Td [N·m]	Coil (at 20°C) Voltage [V]	Wattage [W]	Current [A]	Resistance [Ω]	Heat resistance class	Max. rotation speed [min⁻¹]	Rotating part moment of inertia J Armature [kg·m²]	Rotor [kg·m²]	Allowable engaging energy $E_{ea\ell}$ [J]	Total work performed until readjustment 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]
102-02-13								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)





CAD

Unit [mm]

Size	Shaft bore dimensions d_1 H7	Models compliant with the new JIS standards b P9	t	Models compliant with the old JIS standards 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 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	10.5	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

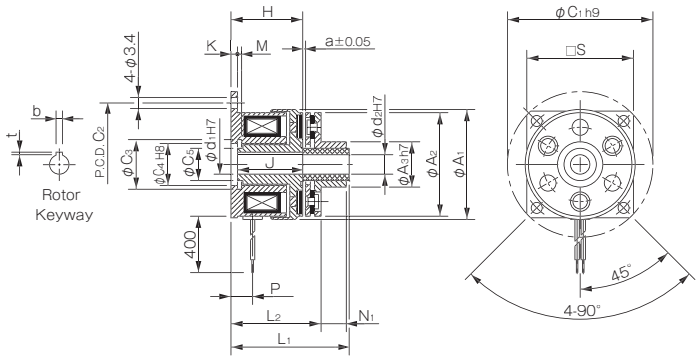
102-03-13 24V 6DIN

- 03: Size / Rotor bore diameter (dimensional symbol d)
- 6DIN: Keyway standards — DIN: Compliant with the new JIS standards; 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: 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	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

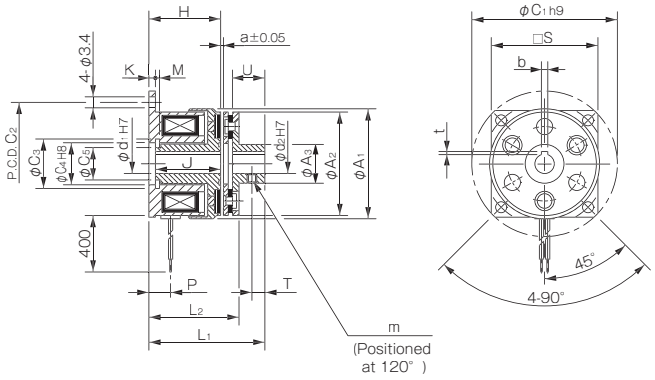
102-03-15 24V R6DIN A6

- 102-03-15: Size
- Rotor bore diameter (dimensional symbol d1)
- 24V
- R6DIN: Keyway standards — DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards
- 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 the new 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	27.5	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

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

How to Select Warner Clutch/Brake Models (Simplified Model Selection Tables)

Clutch operating modes may be divided into two types:

● The maximum torque is applied to the system after it has been started fully (for example, in a lathe, on which the work begins to be ground after its rotation has reached the regular speed).

● The maximum torque is applied when the clutch is actuated(for example, in a conveyor system, in which case the load is already on the system when the clutch closes).

By referring to Table I or II, it is easy to select the right clutch model for a particular application from the motor capacity and the clutch shaft speed involved.

If you are not sure which type of clutch operating mode is expected, use Table II.

If you have a brake in mind, use Table I.

If the application you have in mind involves a high load GD2 or high actuating frequency or high turning speed, ask the manufacturer for a recommendation.

—Selection Table I—Maximum Torque Is Applied After System Has Fully Been Started

Motor capacity \ rpm		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000
0.015 (kW)	1/50 (HP)	250	250	250	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
0.035	1/30	400	250	250	250	250	250	250	160	160	160	160	160	160	160	160	160	160	160	160	160	160
0.065	1/12	400	250	250	250	250	250	250	250	250	250	250	250	160	160	160	160	160	160	160	160	160
0.1	1/8	400	400	250	250	250	250	250	250	250	250	250	250	250	250	160	160	160	160	160	160	160
0.125	1/5	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250	160	160	160	160	160
0.2	1/4	500	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250	160	160	160
0.25	1/3	500	400	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
0.4	1/2	650	500	500	400	400	400	400	400	400	400	400	400	400	250	250	250	250	250	250	250	250
0.55	3/4	825	650	500	500	500	400	400	400	400	400	400	400	400	400	400	250	250	250	250	250	250
0.75	1	1000	650	650	500	500	500	500	400	400	400	400	400	400	400	400	400	400	250	250	250	250
1.1	1 1/2	1000	825	650	650	650	500	500	500	500	500	500	400	400	400	400	400	400	400	400		
1.5	2	1225	1000	825	650	650	650	650	500	500	500	500	500	400	400	400	400	400	400	400		
2.2	3	1225	1000	1000	825	650	650	650	650	650	650	500	500	500	500	500	400	400	400	400		
3.7	5	1525	1225	1000	1000	825	825	650	650	650	650	650	650	500	500	500	500	400	400	400		
5.5	7 1/2	1525HT	1225	1225	1000	1000	1000	825	825	650	650	650	650	650	650	650	500	500	500	500		
7.5	10	1525HT	1525	1225	1225	1000	1000	1000	1000	825	825	825	825	650	650	650	650	500	500	500		
11	15		1525HT	1525	1225	1225	1225	1000	1000	1000	1000	1000	1000	825	650	650	650	650	650	500		
15	20		1525HT	1525	1525	1225	1225	1225	1225	1000	1000	1000	1000	1000	825	825	650	650	650			
19	25			1525HT	1525	1525	1225	1225	1225	1225	1225	1000	1000	1000	1000	1000	825	825	650			
22	30			1525HT	1525HT	1525	1525	1225	1225	1225	1225	1225	1225	1000	1000	1000	1000	825	825			
30	40				1525HT	1525HT	1525	1525	1525	1525	1225	1225	1225	1225	1000	1000	1000	1000	825			
37	50					1525HT	1525HT	1525HT	1525	1525	1525	1525	1225	1225	1225	1225	1000	1000				
45	60						1525HT	1525HT	1525HT	1525	1525	1525	1525	1225	1225	1225	1225	1000				
55	75								1525HT	1525HT	1525HT	1525HT	1525	1525	1225	1225	1225					
75	100										1525HT	1525HT	1525HT	1525HT	1525							
92	125												1525HT	1525HT	1525HT							
110	150													1525HT	1525HT							

When an opticl-waveguide cable is laid, the individual fibers have to be spliced together.

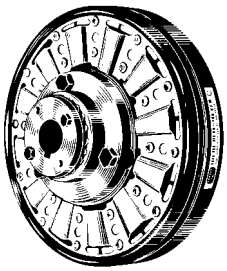
—Selection Table II—Maximum Torque Is Applied When System Is Started

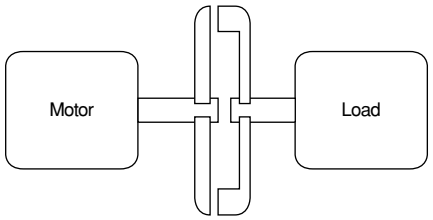
Motor capacity \ rpm		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000
0.015 (kW)	1/50 (HP)	250	250	250	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
0.035	1/20	400	250	250	250	250	250	250	250	250	160	160	160	160	160	160	160	160	160	160	160	160
0.065	1/12	400	400	250	250	250	250	250	250	250	250	250	250	250	250	160	160	160	160	160	160	160
0.1	1/8	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250	160	160	160	160
0.125	1/6	500	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
0.2	1/4	500	400	400	400	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250	250	250
0.25	1/3	500	500	400	400	400	400	400	400	400	400	250	250	250	250	250	250	250	250	250	250	250
0.4	1/2	650	650	500	500	500	400	400	400	400	400	400	400	400	400	400	400	250	250	250	250	250
0.55	3/4	825	650	650	500	500	500	500	400	400	400	400	400	400	400	400	400	400	400	400		
0.75	1	1000	825	650	650	500	500	500	500	500	500	500	400	400	400	400	400	400	400	400		
1.1	1 1/2	1225	1000	825	650	650	650	650	650	500	500	500	500	500	500	500	400	400	400	400		
1.5	2	1225	1000	825	825	650	650	650	650	650	500	500	500	500	500	500	500	400	400	400		
2.2	3	1525	1225	1000	1000	825	825	825	650	650	650	650	650	650	650	500	500	500	500	500		
3.7	5	1525	1225	1225	1000	1000	1000	825	825	825	825	825	825	825	650	650	650	650	650			
5.5	7 1/2	1525HT	1525	1225	1225	1000	1000	1000	1000	1000	1000	1000	1000	825	825	825	825	825	825			
7.5	10	1525HT	1525	1225	1225	1225	1225	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000				
11	15		1525HT	1525HT	1525	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225	1225					
15	20		1525HT	1525HT	1525HT	1525HT	1525	1525	1525	1525	1225	1225	1225	1225	1225	1225	1225					
19	25			1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525	1525	1525							
22	30				1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT							
30	40						1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT	1525HT							

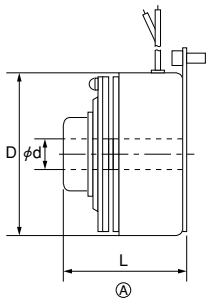
The picture shows a multiple splicer with fibers spliced in pairs by means of an AC arc.

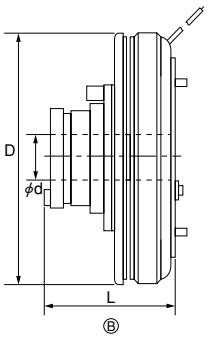
Warner Clutches (End-to-End Shaft Type), SFC Series

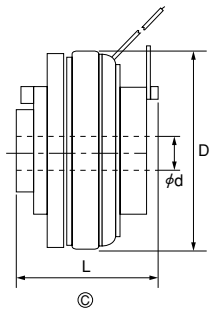
Have high power capacity, and tolerate high-frequency actuation.
End-to-end shaft design.

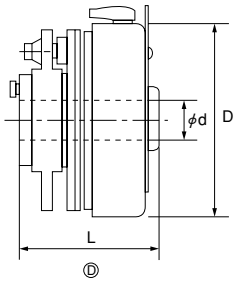








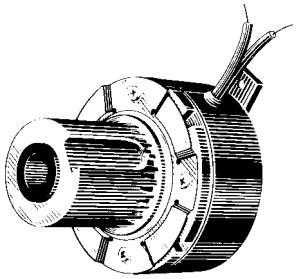


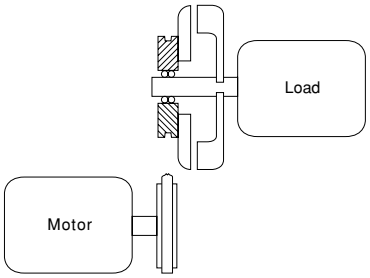


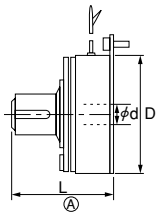
Model	Drawing number	Static friction torque (kgm)	Rated voltage (DC-V)	Power consumption at 75℃ (W)	Outside dimensions (mm)			Weight (kg)
					D	L	ϕ d	
SFC 160/FMS	Ⓐ	0.1	12	6	44.5	35	6.5	0.23
SFC 250/BMS	Ⓐ	0.7	24	7	67	55.3	12	0.77
SFC 250/FMS	Ⓐ	0.7	24	7	67	50.5	12	0.75
SFC 400/BMS	Ⓐ	2.8	24	8	108	67	18	2.3
SFC 400/FMS	Ⓐ	2.8	24	8	108	59.3	18	2.3
SFC 500/BMP	Ⓓ	7	24	23	135	95.5	28	4.0
SFC 501/BMS	Ⓐ	7	24	23	135.5	86.6	28	4.1
SFC 650/IMS	Ⓑ	13	24	26	169.5	92	28	6.6
SFC 650/BMS	©	13	24	26	169.5	124	28	7.9
SFC 825/IMS	Ⓑ	18	24	25	218	105.5	28	11
SFC 825/BMS	©	20	24	28	218	108.1	28	11
SFC 1000/IMS	Ⓑ	35	24	31	262	134.9	48	19
SFC 1000/BMS	©	35	24	31	262	168.9	48	21
SFC 1225/IMS	Ⓑ	65	24	27	322.5	148.1	50	32
SFC 1225/BMS	©	65	24	27	322.5	188.1	50	36
SFC 1525/IMS	Ⓑ	100	24	32	398	150.9	50	44
SFC 1525/BMS	©	100	24	32	398	186.9	50	54
SFC 1525HT/IMS	Ⓑ	180	24	143	400.8	184	75	51
SFC 1525HT/BMS	©	180	24	143	400.8	200.7	75	61

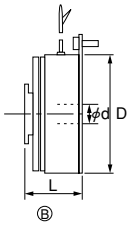
Warner Clutches (Through Shaft Type), SF Series

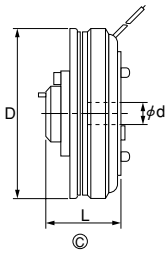
Have high power capacity, and tolerate high-frequency actuation. Through-shaft design.

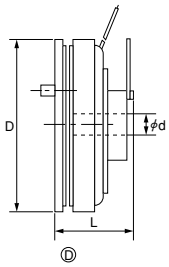


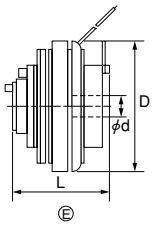


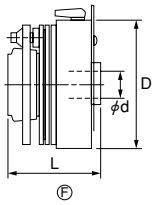








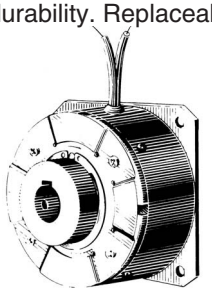


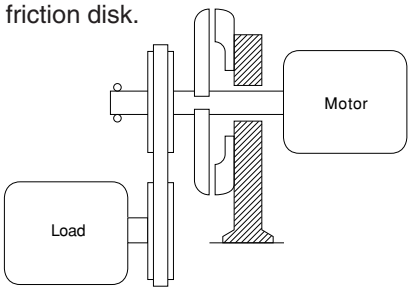


Model	Drawing number	Static friction torque (kgm)	Rated voltage (DC-V)	Power consumption at 75℃ (W)	Outside dimensions (mm)			Weight (kg)
					D	L	ϕ d	
SF 160/FMS	Ⓐ	0.1	12	6	44.5	42.6	6.5	0.24
SF 250/BMS	Ⓐ	0.7	24	7	67	85	12	0.79
SF 250/FMS	Ⓐ	0.7	24	7	67	80.2	12	0.77
SF 250/BMG	Ⓑ	0.7	24	7	67	96.7	12	0.77
SF 250/FMG	Ⓑ	0.7	24	7	67	49.5	12	0.75
SF 400/BMS	Ⓐ	2.8	24	8	108	96.7	18	2.4
SF 400/FMS	Ⓐ	2.8	24	8	108	89	18	2.3
SF 400/BMG	Ⓑ	2.8	24	8	108	64.3	18	2.3
SF 400/FMG	Ⓑ	2.8	24	8	108	56.4	18	2.3
SF 500/BMP	Ⓕ	7	24	23	135	96.5	28	3.5
SF 501/BMS	Ⓔ	7	24	23	135	89.5	28	3.8
SF 650/IMS	Ⓒ	13	24	26	169.5	93	28	6.4
SF 650/IMP	Ⓓ	13	24	26	169.5	63	28	5.9
SF 650/BMS	Ⓔ	13	24	26	169.5	125	28	7.7
SF 650/BMP	Ⓓ	13	24	26	169.5	95	28	6.2
SF 825/IMS	Ⓒ	18	24	25	218	91.4	28	11
SF 825/IMP	Ⓓ	18	24	25	218	63.5	28	9.0
SF 825/BMS	Ⓔ	20	24	28	218	94.3	28	11
SF 825/BMP	Ⓓ	20	24	28	218	66.4	28	9.9
SF 1000/IMS	Ⓒ	35	24	31	262	93.1	48	17
SF 1000/IMP	Ⓓ	35	24	31	262	64.3	48	15
SF 1000/BMS	Ⓔ	35	24	31	262	127.1	48	19
SF 1000/BMP	Ⓓ	35	24	31	262	98.3	48	17
SF 1225/IMS	Ⓒ	65	24	27	322.5	109.2	50	31
SF 1225/IMP	Ⓓ	65	24	27	322.5	75.4	50	25
SF 1225/BMS	Ⓔ	65	24	27	322.5	149.2	50	34
SF 1225/BMP	Ⓓ	65	24	27	322.5	114.6	50	29
SF 1525/IMS	Ⓒ	100	24	32	398	112	50	43
SF 1525/IMP	Ⓓ	100	24	32	398	75.4	50	43
SF 1525/BMS	Ⓔ	100	24	32	398	148	50	48
SF 1525/BMP	Ⓓ	100	24	32	398	111.4	50	43
SF 1525HT/IMS	Ⓒ	180	24	143	400.8	147.3	75	49
SF 1525HT/BMS	Ⓓ	180	24	143	400.8	164	75	59

Warner Brakes (with Replaceable Friction Disk), RF Series

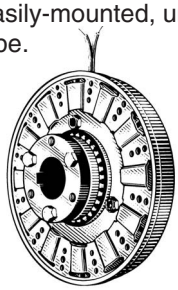
High braking torque. Distinguished durability. Replaceable friction disk.

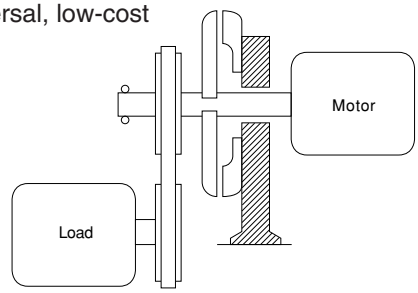


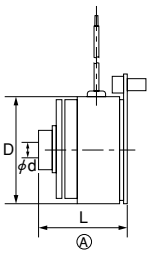


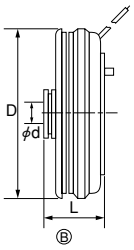
Warner Brakes (with Integrated Field-Fiction Disk), PB Series

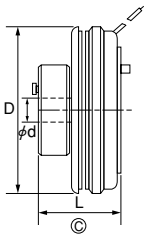
Integrated field-friction disk. Easily-mounted, universal, low-cost type.

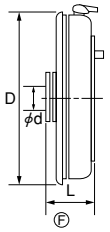


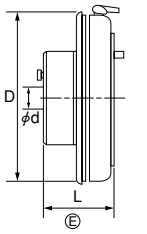


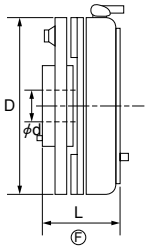












Warner Brakes, RF Series

Model	Drawing number	Static friction torque (kgm)	Rated voltage (DC-V)	Power consumption at 75℃ (W)	Outside dimensions (mm)			Weight (kg)
					D	L	ϕ d	
RF 160/FMS	Ⓐ	0.1	12	6	44.5	34.5	6.5	0.20
RF 250/FMS	Ⓐ	0.7	24	7	67	50	12	0.67
RF 400/FMS	Ⓐ	2.8	24	8	108	59.2	18	2.0
RF 825/IMS	Ⓑ	18	24	25	218	81.3	28	9.0
RF 825/IMP	Ⓒ	18	24	25	218	104	28	11
RF 1000/IMS	Ⓑ	35	24	31	262	110.1	48	16
RF 1000/IMP	Ⓒ	35	24	31	262	112.7	48	15
RF 1225/IMS	Ⓑ	65	24	27	322.5	121.4	50	25
RF 1225/IMP	Ⓒ	65	24	27	322.5	151.6	50	30
RF 1525/IMS	Ⓑ	100	24	32	398	121.4	50	33
RF 1525/IMP	Ⓒ	100	24	32	398	126.2	50	39
RF 1525HT/IMS	Ⓑ	180	24	143	400.8	119.2	75	38

Warner Brakes, PB Series

Model	Drawing number	Static friction torque (kgm)	Rated voltage (DC-V)	Power consumption at 75℃ (W)	Outside dimensions (mm)			Weight (kg)
					D	L	ϕ d	
PB 175/FMS	Ⓐ	0.1	12	7.7	44.8	34.5	6.5	0.20
PB 260/FMS	Ⓐ	0.7	24	9.7	68	50	12	0.55
PB 400/FMS	Ⓐ	2.8	24	8	102	52	18	1.3
PB 500/IMP	Ⓕ	5.5	24	21	128.6	74	28	2.7
PB 501/IMS	Ⓓ	5.5	24	21	133.6	64.4	28	2.6
PB 650/IMS	Ⓓ	13	24	21	165	57.4	28	4.7
PB 650/IMP	Ⓕ	13	24	21	165	71	28	5.0
PB 825/IMS	Ⓓ	18	24	30	218	69.9	28	6.9
PB 825/IMP	Ⓔ	18	24	30	218	92.6	28	7.3
PB 1000/IMS	Ⓓ	35	24	27	262	97.7	48	12
PB 1000/IMP	Ⓔ	35	24	27	262	100.3	48	11
PB 1225/IMS	Ⓓ	65	24	22	322.5	104.2	50	19
PB 1225/IMP	Ⓔ	65	24	22	322.5	134.4	50	20
PB 1525/IMS	Ⓓ	100	24	25	398	107.4	50	26
PB 1525/IMP	Ⓔ	100	24	25	398	112.2	50	27

101 Models Electromagnetic Clutches - Flange-mounted Type

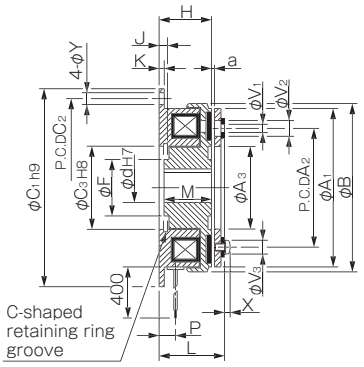
Specifications

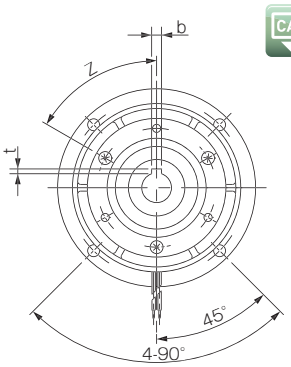
Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20°C) Voltage [V]	Coil (at 20°C) Wattage [W]	Coil (at 20°C) Current [A]	Coil (at 20°C) Resistance [Ω]	Heat resistance class	Max. rotation speed [min⁻¹]	Rotating part moment of inertia J Rotor [kg·m²]	Rotating part moment of inertia J Armature [kg·m²]	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)





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	$0.5^{0}_{-0.2}$

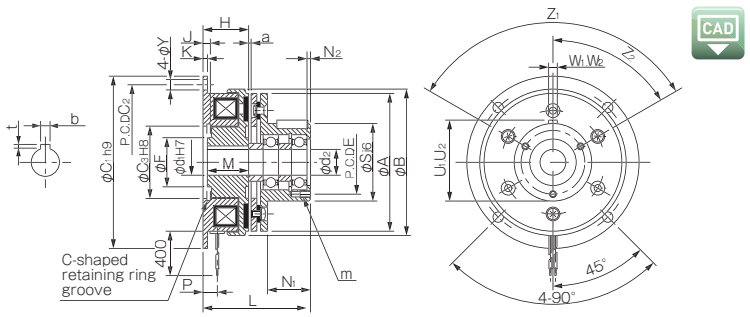
How to Place an Order

101-06-13G 24V 12DIN

- 101-06-13G: Size
- 24V: Coil 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)



CAD

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

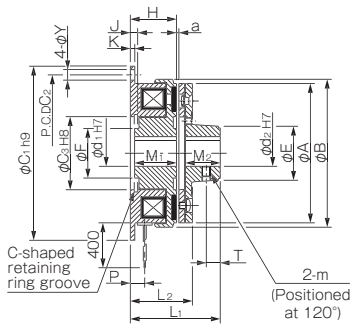
How to Place an Order

101-06-15G 24V R12DIN A12JIS

- 06: Size
- R12: Rotor bore diameter (dimensional symbol d1)
- DIN: Keyway standards DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards
- A12: Armature bore diameter (dimensional symbol d2)
- JIS: 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)



CAD

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

- 06: Size
- R12: Rotor bore diameter (dimensional symbol d1)
- DIN: Keyway standards DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards
- A12: Armature bore diameter (dimensional symbol d2)
- DIN: Keyway standards DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards

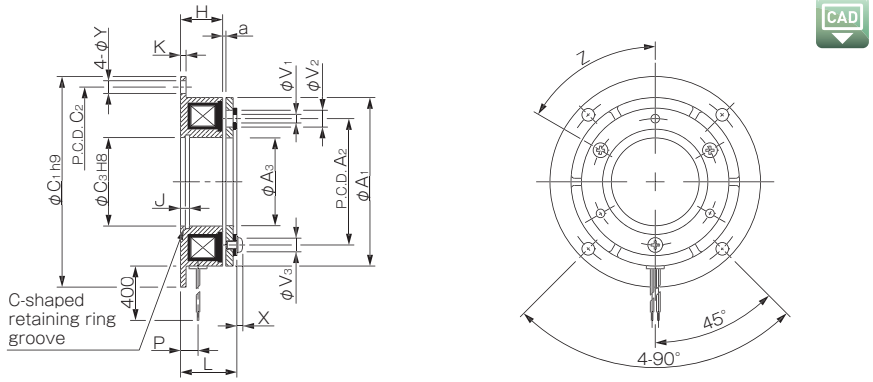
111 Models Electromagnetic Brakes

Specifications

Model	Size	Dynamic friction torque T_d [N·m]	Static friction torque T_s [N·m]	Coil (at 20℃) Voltage [V]	Coil (at 20℃) Wattage [W]	Coil (at 20℃) Current [A]	Coil (at 20℃) 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]

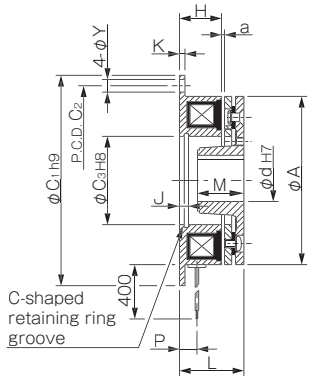
Size	Radial direction dimensions											Axial direction dimensions						
	A_1	A_2	A_3	C_1	C_2	C_3	V_1	V_2	V_3	Y	Z	H	J	K	L	P	X	a
06	63	46	34.5	80	72	35	3-3.1	3-6.3	3-5.5	5	6-60°	18	3.5	2.1	22	7.3	2.5	$0.2^{\pm 0.05}$
08	80	60	41.5	100	90	42	3-4.1	3-8	3-7	6	6-60°	20	4.3	2.6	24.5	8.3	2.85	$0.2^{\pm 0.05}$
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	$0.2^{\pm 0.05}$
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	$0.5^{0}_{-0.2}$

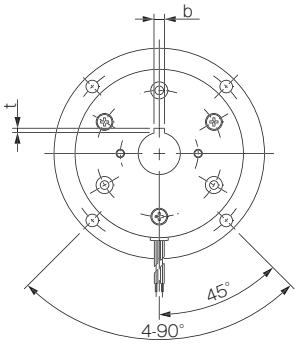
How to Place an Order

111-06-13G 24V

Size

Dimensions (111-□-12G)





Unit [mm]

Size	Shaft bore dimensions d H7	Models compliant with the new JIS standards 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]

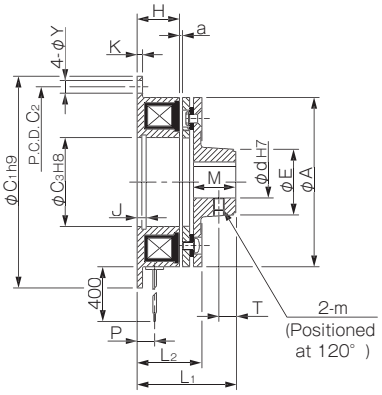
Size	Radial direction dimensions A	C_1	C_2	C_3	Y	Axial direction dimensions H	J	K	L	M	P	a
06	63	80	72	35	5	18	3.5	2.1	25.5	15	7.3	0.2 ±0.05
08	80	100	90	42	6	20	4.3	2.6	28.5	20	8.3	0.2 ±0.05
10	100	125	112	52	7	22	5	3.1	33	25	9	0.2 ±0.05
12	125	150	137	62	7	24	5.5	3.6	37	30	9.3	0.3 $^{+0.05}_{-0.1}$
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 $^{0}_{-0.2}$

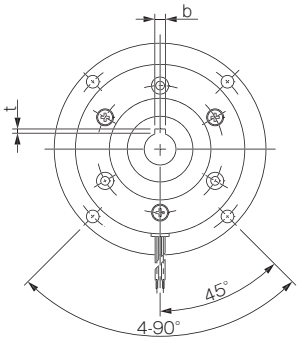
How to Place an Order

111-06-12G 24V 12DIN

- Size: 06
- Armature bore diameter (dimensional symbol d): 12
- 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 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	C_1	C_2	C_3	E	Y	M	Axial direction dimensions 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: 06
- Armature bore diameter (dimensional symbol d): 12
- Keyway standards: DIN: Compliant with the new JIS standards; JIS: Compliant with the old JIS standards

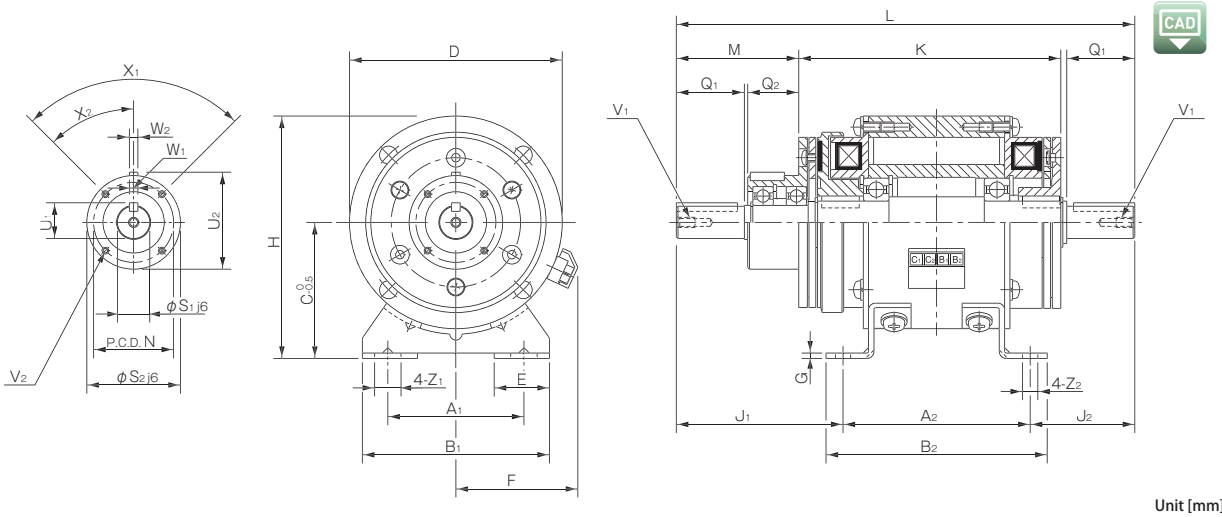
121-□-20G Types Clutch/Brake Units

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 [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]
121-06-20G	06	5	5.5	DC24	11	0.46	52	B	3000	1.43×10^{-4}	36×10^{6}	C:0.020 B:0.015	C:0.041 B:0.033	C:0.020 B:0.015	1.5
121-08-20G	08	10	11	DC24	15	0.63	38	B	3000	4.23×10^{-4}	60×10^{6}	C:0.023 B:0.016	C:0.051 B:0.042	C:0.030 B:0.025	2.7
121-10-20G	10	20	22	DC24	20	0.83	29	B	3000	1.42×10^{-3}	130×10^{6}	C:0.025 B:0.018	C:0.063 B:0.056	C:0.050 B:0.030	5.5
121-12-20G	12	40	45	DC24	25	1.09	23	B	3000	4.18×10^{-3}	250×10^{6}	C:0.040 B:0.027	C:0.115 B:0.090	C:0.065 B:0.050	9.6
121-16-20G	16	80	90	DC24	35	1.46	16	B	3000	1.34×10^{-2}	470×10^{6}	C:0.050 B:0.035	C:0.160 B:0.127	C:0.085 B:0.055	18.5
121-20-20G	20	160	175	DC24	45	1.88	13	B	2500	4.13×10^{-2}	10×10^{8}	C:0.090 B:0.065	C:0.250 B:0.200	C:0.130 B:0.070	35
121-25-20G	25	320	350	DC24	60	2.50	9.6	B	2000	1.02×10^{-1}	20×10^{8}	C:0.115 B:0.085	C:0.335 B:0.275	C:0.210 B:0.125	64

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

Dimensions



Unit [mm]

Size	Dimensions of part																	Dimensions of shaft										
	A_1	A_2	B_1	B_2	C	D	E	F	G	H	J_1	J_2	K	L	M	N	Z_1	Z_2	Q_1	Q_2	S_1	S_2	U_1	U_2	V_1	V_2	X_1	X_2	$W_{1,2}$
06	52.5	75	80	90	55	80	27.5	53	2.6	95	65.5	40.5	105.5	181	47	33	13.5	6.5	25	20	11	38	12.5	39.5	M4 × 0.7, length: 8	3-M4 × 0.7, length: 4	3-120°	60°	4
08	65	90	90	105	65	100	27.5	61	2.6	115	78.5	48.5	126.5	217	57	37	13.5	6.5	30	25	14	45	16	47	M4 × 0.7, length: 8	3-M4 × 0.7, length: 6	3-120°	60°	5
10	80	110	110	130	80	125	32.5	72	3.2	142.5	98	62	154	270	72	47	15.5	9	40	30	19	55	21	57	M6 × 1, length: 11	4-M4 × 0.7, length: 8	4-90°	45°	5
12	105	135	140	160	90	150	35	81	3.2	165	121	73.5	184	330	92	52	20	11.5	50	40	24	64	27	67	M6 × 1, length: 11	4-M4 × 0.7, length: 8	4-90°	45°	7
16	135	160	175	185	112	190	43	97	4.5	207	149	90	221	399	113	62	24.5	11.5	60	50	28	75	31	78	M6 × 1, length: 11	6-M5 × 0.8, length: 8	6-60°	30°	7
20	155	200	200	230	132	230	45	109	6	247	187	117	276	504	142	74.5	28	14	80	60	38	90	41.5	93.5	M10 × 1.5, length: 17	4-M6 × 1, length: 12	4-90°	45°	10
25	195	240	240	270	160	290	47.5	124	20	305	238	154	334	632	183	101.5	28	14	110	70	42	115	45.5	118.5	M10 × 1.5, length: 17	8-M6 × 1, length: 12	8-45°	22.5°	12

* The input/output shaft keyways are old JIS standard class 2 while the key is old JIS standard class 1. Note that the keyway dimensions of the unit hub part do not conform to the old JIS standard. Check them on the dimensions table above.
* When inserting pulleys or the like onto input/output shafts, use the supplied insertion set.
* The 121-25-20G base is a casting.

How to Place an Order

121-06-20G
Size

List of Stand-alone Clutches and Brakes Used

Model	Stand-alone clutch system	Stand-alone braking system	Bearing number	
			Main shaft part	Hub part
121-06-20G	101-06-15G 24V R15JIS A12JIS	111-06-12G 24V 15JIS	6202	6001
121-08-20G	101-08-15G 24V R20JIS A15JIS	111-08-12G 24V 20JIS	6004	6002
121-10-20G	101-10-15G 24V R25JIS A20JIS	111-10-12G 24V 25JIS	6205	6004
121-12-20G	101-12-15G 24V R30JIS A25JIS	111-12-12G 24V 30JIS	6206	6005
121-16-20G	101-16-15G 24V R40JIS A30JIS	111-16-12G 24V 40JIS	6208	6006
121-20-20G	101-20-15G 24V R50JIS A40JIS	111-20-12G 24V 50JIS	6211	6008
121-25-20G	101-25-15G 24V R60JIS A50JIS	111-25-12G 24V 60JIS	6214	6010

Recommended Power Supplies and Accessory Parts

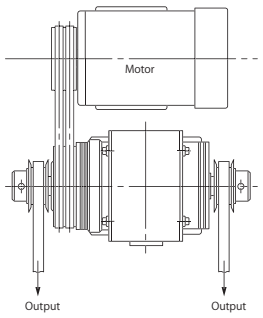
Model	Recommended power supplies	Accessory parts				
		Circuit protector (Varistor), qty. 2	Tightening collar	Screw stock	Presser foot	Hexagonal nut
121-06-20G	BEH-10G	NVD07SCD082 or an equivalent	Qty. 1	M4 × 55, qty. 3	Qty. 1	M4, qty. 3
121-08-20G	BEH-10G	NVD07SCD082 or an equivalent	Qty. 1	M4 × 55, qty. 3	Qty. 1	M4, qty. 3
121-10-20G	BEH-10G	NVD07SCD082 or an equivalent	Qty. 1	M4 × 55, qty. 3	Qty. 1	M4, qty. 3
121-12-20G	BEH-10G	NVD07SCD082 or an equivalent	Qty. 1	M4 × 55, qty. 2/M6 × 100, qty. 1	Qty. 1	M4, qty. 2/M6, qty. 1
121-16-20G	BEH-10G	NVD07SCD082 or an equivalent	Qty. 1	M5 × 70, qty. 2/M6 × 100, qty. 1	Qty. 1	M5, qty. 2/M6, qty. 1
121-20-20G	BEH-20G	NVD07SCD082 or an equivalent	Qty. 1	M6 × 160, qty. 2/M10 × 220, qty. 1	Qty. 1	M6, qty. 4/M10, qty. 2
121-25-20G	BEH-20G	NVD07SCD082 or an equivalent	Qty. 1	M6 × 160, qty. 2/M10 × 220, qty. 1	Qty. 1	M6, qty. 4/M10, qty. 2

* NVD □ SCD □ parts are manufactured by KOA Corporation.
* Varistors need not be used when a BEH model overexcitation electromagnetic power supply is used. For details, refer to the section on power supplies.

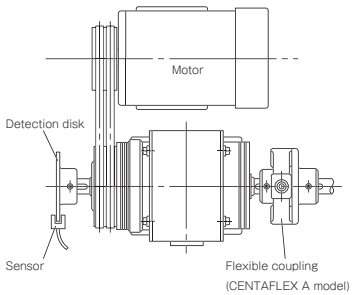
Mounting Example

This clutch/brake unit allows the output shaft to be used in two locations, so both outputs can be used simultaneously, or one can be connected to a load and a rotation detection disk mounted to the other. A variety of transmission paths can be used in layouts.

Example with Two Outputs



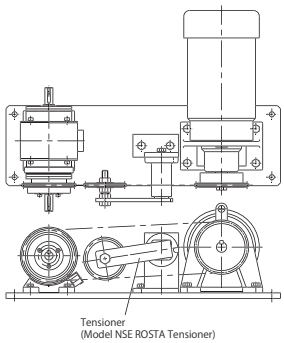
Example with Detection Disk on One Side



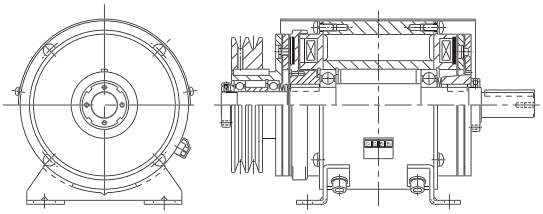
Special Types

In addition to the special application examples shown below, drivers can also be set, and units can be provided with pulleys, sprockets, and the like. Contact Miki Pulley for details.

One-piece Unit Connected by Geared Motor and Sprocket

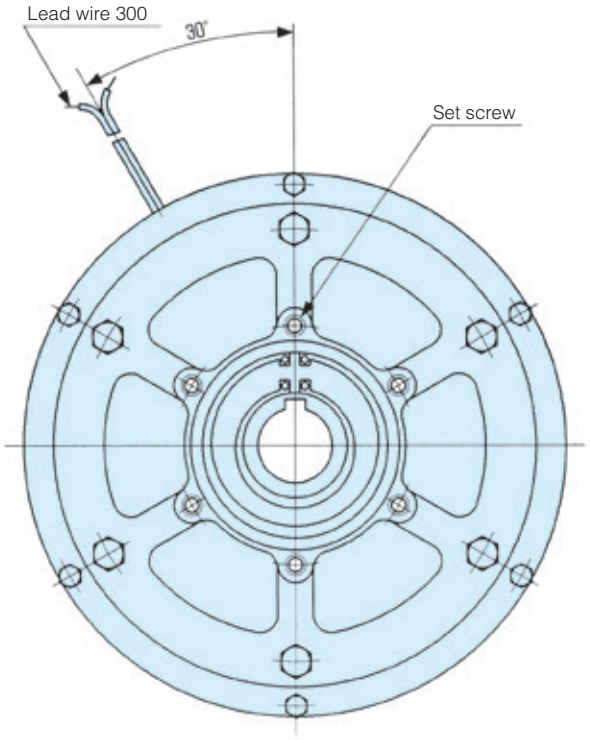


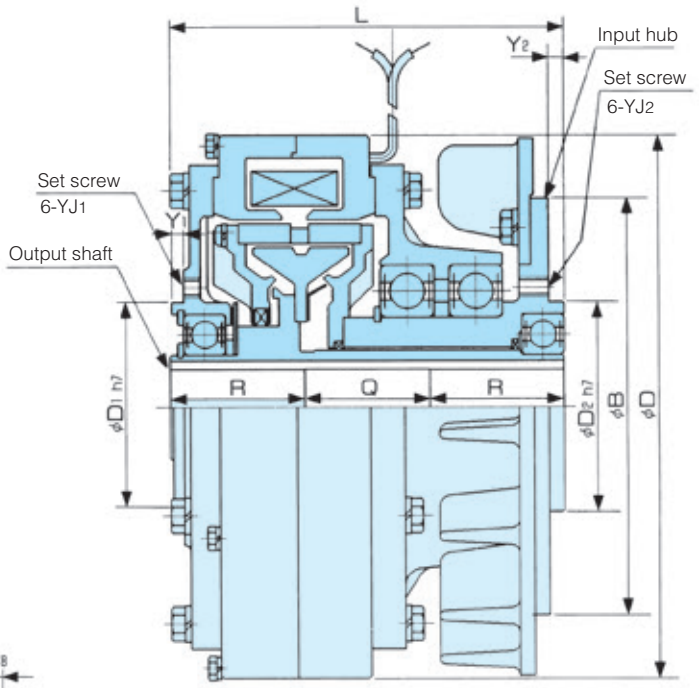
Clutch/Brake Unit with V Pulley Mounted on Input Side

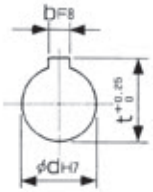


PHC-0.6, 1.2, 2.5, 5, 10, 20R

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
PHC-0.6R	6	24	22.5	4.2
PHC-1.2R	12	24	23	5.7
PHC-2.5R	25	24	30	10
PHC-5R	50	24	54	17
PHC-10R	100	24	52.8	43
PHC-20R	200	24	66	70



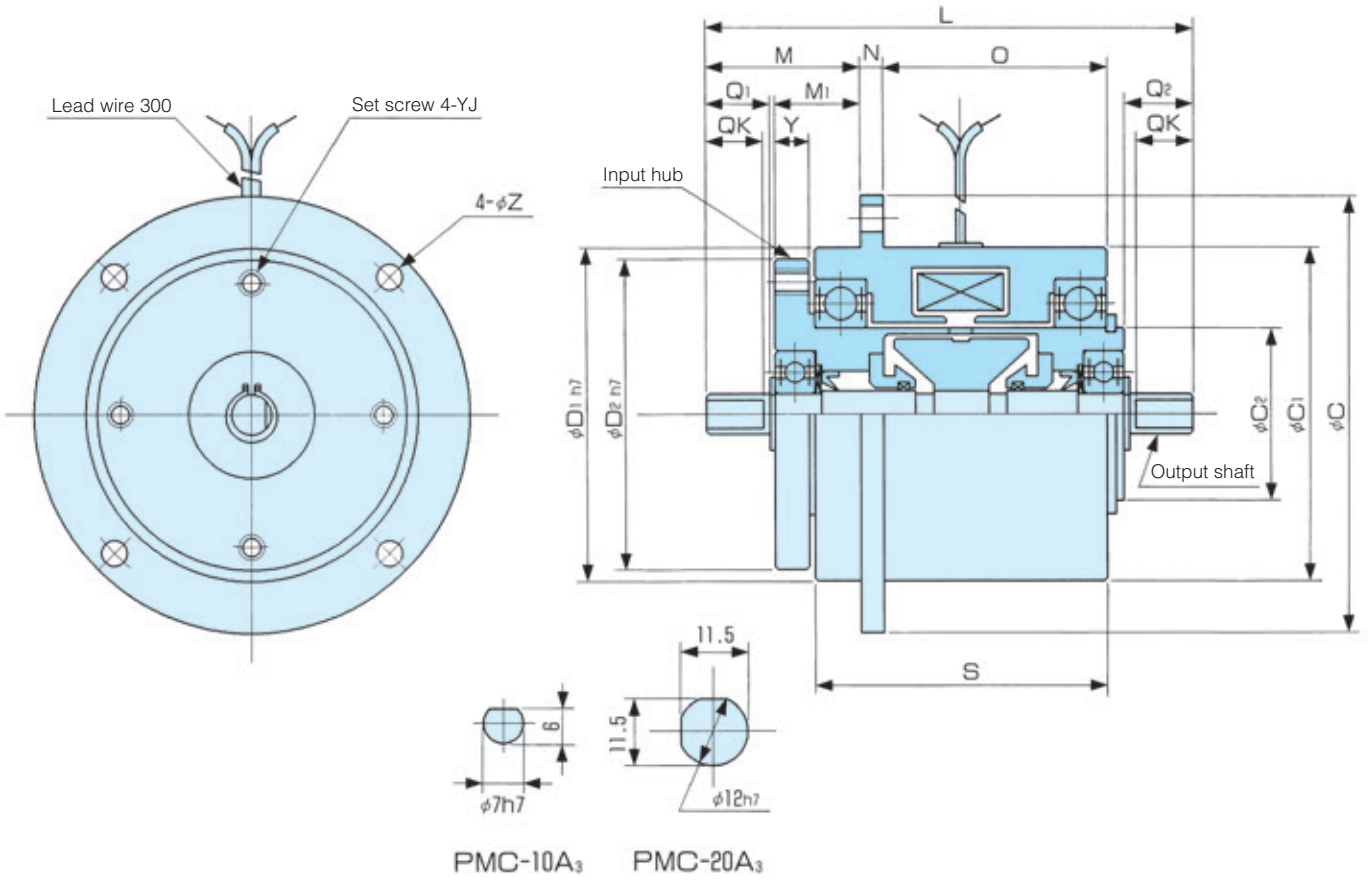




Model	Diameter direction				Shuft direction					Attachment				Shuft hole		
										YJ1		YJ2				
	B	D	D2	D1	L	Q	R	Y1	Y2	P.C.D	Tap	P.C.D	Tap	d	b	t
POC-0.6R	89	134	50	50	93	42	25.5	4	4	60	M4×6	60	M4×6	12	4	13.5
POC-1.2R	89	152	45	70	96	46	25	4	4	80	M4×8	55	M5×6	15	5	17
POC-2.5R	140	182	70	70	132	42	45	4	5	80	M6×9	80	M6×10	25	7	28
POC-5R	165	219	87	87	148	68	40	4	4	102	M8×10	102	M8×10	35	10	38.5
POC-10R	190	290	105	110	183.5	63.5	60	4	6	140	M8×10	120	M10×13	45	12	48.5
POC-20R	220	335	130	130	222	69	75	4	9	150	M10×13.5	150	M10×13.5	55	15	60

PMC-10, 20A3

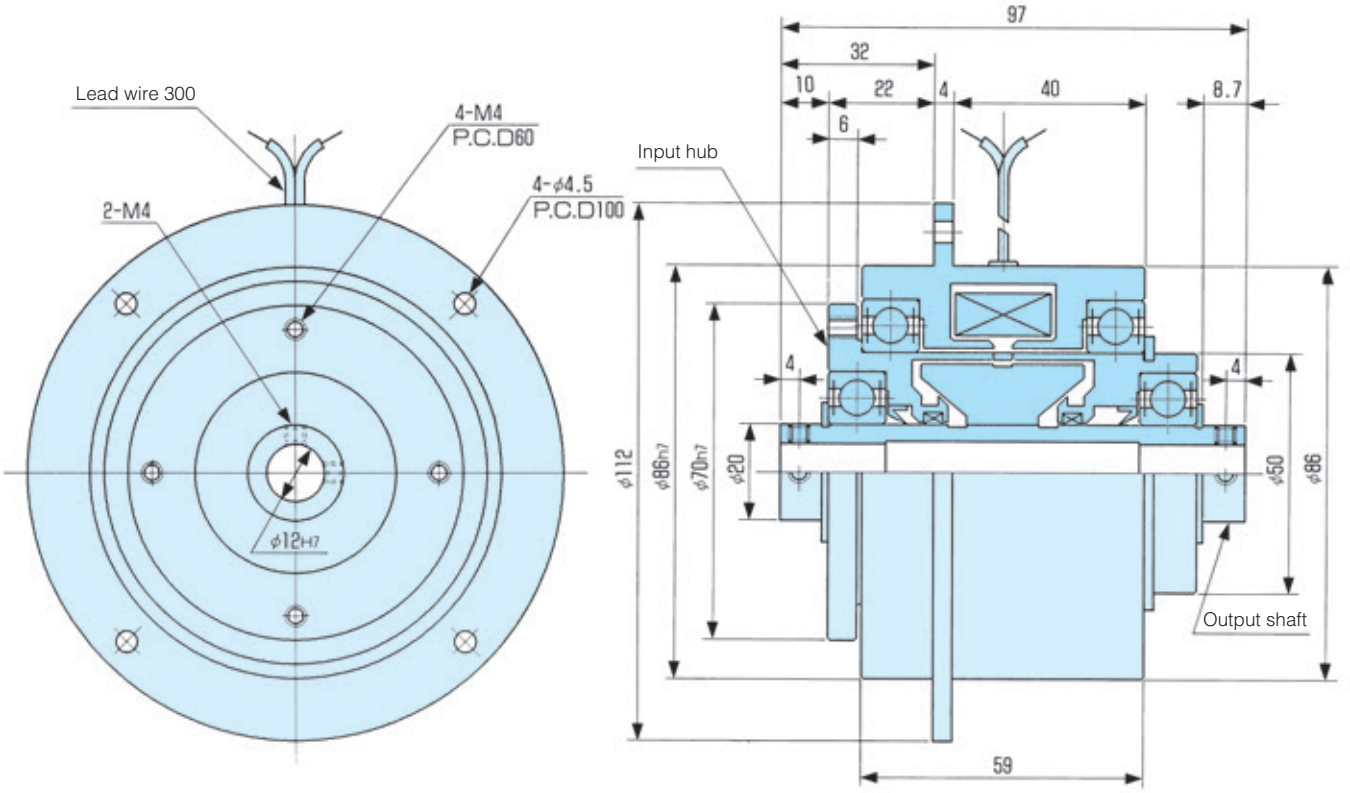
Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
PMC-10A3	1	24	13.5	0.90
PMC-20A3	2	24	15	1.34



Model	Diameter direction					Shuft direction							Attachment				Shuft end		
													YJ1		YJ2				
	C	C1	C2	D1	D2	L	M	M1	N	O	S	Y	P.C.D	Hole	P.C.D	Tap	Q1	Q2	QK
PMC-10A3	76	58	30	58	54	85	27	15	4	39	51	6	68	4.5	46	M4×6	11	12	10
PMC-20A3	92	69	35	69	54	116	47	22	4	32	51	6	82	4.5	46	M4×6	24	25	20

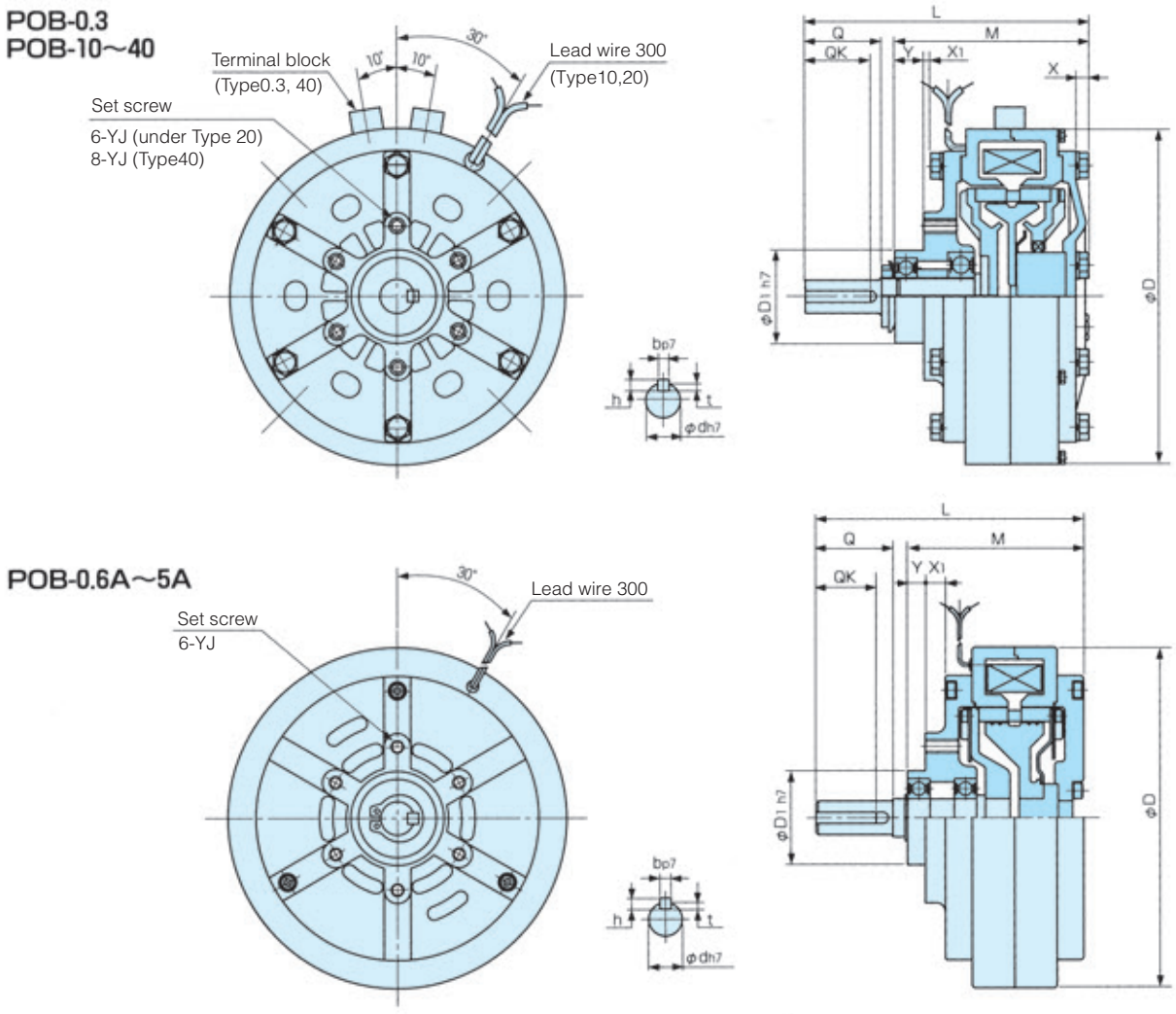
PMC-40A3

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
PMC-40A3	4	24	18	2.5



POB-0.3, 0.6A, 1.2A, 2.5A, 5A, 10, 20, 40

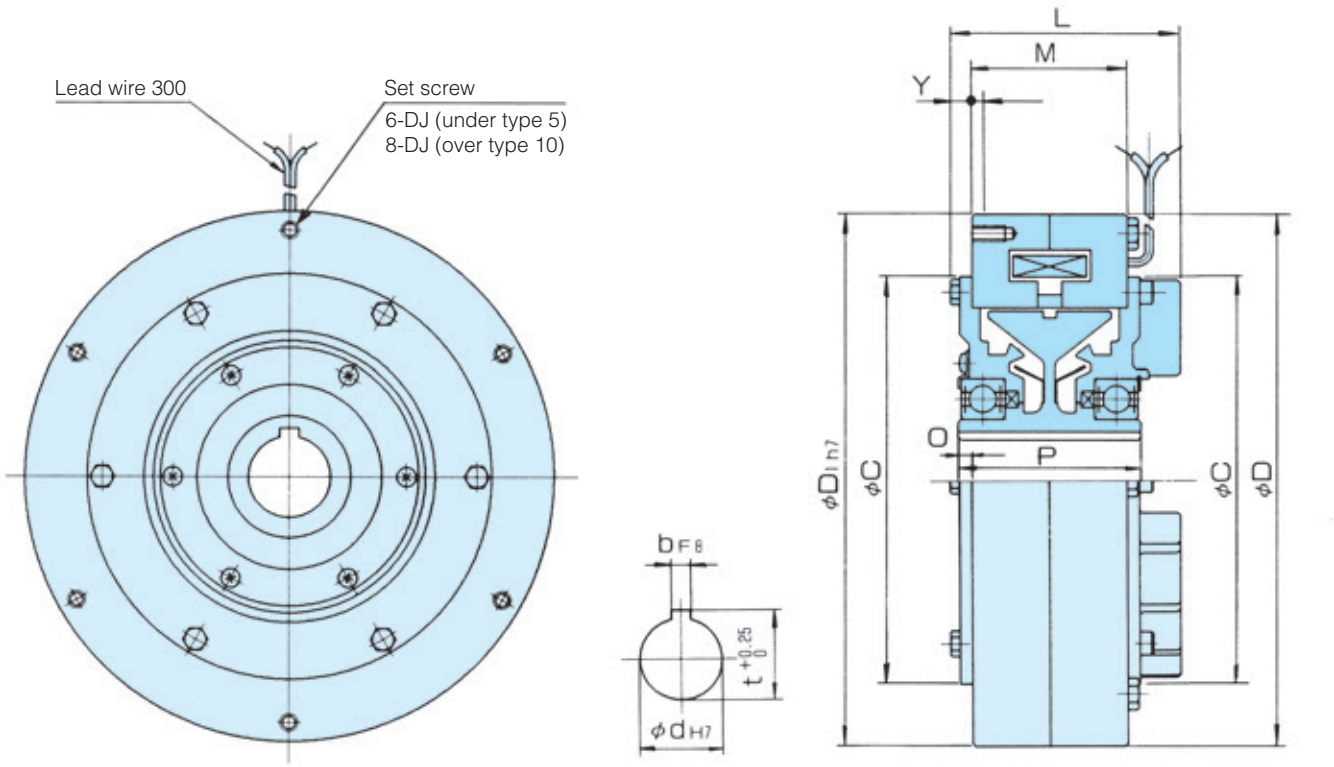
Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
POB-0.3	3	24	13.3	2.5
POB-0.6A	6	24	19.2	3.3
POB-1.2A	12	24	20.4	4.9
POB-2.5A	25	24	26.8	9
POB-5A	50	24	47.3	15.5
POB-10	100	24	52.8	33
POB-20	200	24	66	48
POB-40	400	24	92	80



Model	Diameter direction		Shuft direction					Attachment YJ		Shuft end					
	D	D1	L	M	X	X1	Y	P.C.D	Tap	Q	QK	d	b	h	t
POB-0.3	120	42	105	75	8.6	11	11	64	M5×10	23	20	10	4	4	2.5
POB-0.6A	134	42	103.5	71	–	7	8	64	M5×11	26	22	12	4	4	2.5
POB-1.2A	152	42	120	79	–	9	8	64	M6×13	34.5	27	15	5	5	3
POB-2.5A	182	55	145.5	94	–	9	9	78	M6×13	43	35	20	5	5	3
POB-5A	219	74	181	114.5	–	8	18	100	M6×13	57	47	25	7	7	4
POB-10	290	100	233.5	155.5	7.5	7.5	25	140	M10×18	67	56	30	7	7	4
POB-20	335	110	263.5	180.5	9.5	10.5	25	150	M10×18	71	60	35	10	8	4.5
POB-40	395	130	330	224	16.1	22.5	33	200	M12×20	92	80	45	12	8	4.5

PRB-1.2, 2.5, 5, 10, 20H

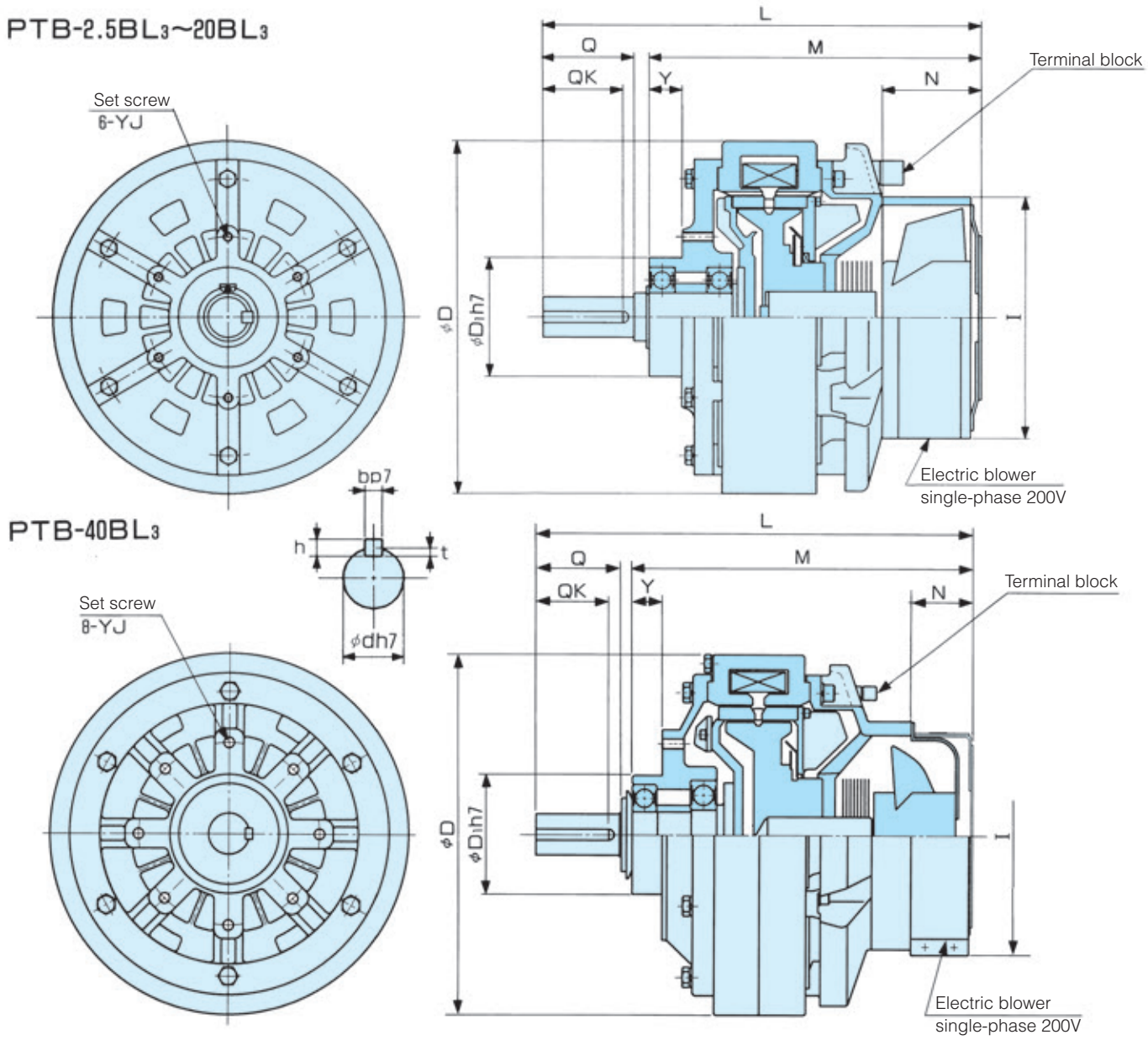
Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
PRB-1.2H	12	24	15	4
PRB-2.5H	25	24	18.5	5.2
PRB-5H	50	24	24.5	10
PRB-10H	100	24	32	20
PRB-20H	200	24	36	36



Model	Diameter direction			Shuft direction					Attachment DJ		Shuft hole		
	C	D	D1	L	M	O	P	Y	P.C.D	Tap	d	b	t
PRB-1.2H	109	136	136	63	42	5.5	53	7	125	M5×10	15	5	17
PRB-2.5H	124	160	160	73	47	6.5	60	7.5	148	M5×10	20	5	22
PRB-5H	149	195	195	84.5	57	5	67	8	181	M6×12	30	7	33
PRB-10H	188	250	250	104	68	5	78	8.5	233	M6×12	30	7	33
PRB-20H	234	305	305	128.5	80	7.5	95	12	282	M8×12	40	10	43.5

PTB-2.5, 5, 10, 20, 40BL3

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75℃(W)	Mass(kg)
PTB-2.5BL3	25	24	30	11
PTB-5BL3	50	24	54	17
PTB-10BL3	100	24	52.8	34.5
PTB-20BL3	200	24	66	51.5
PTB-40BL3	400	24	92	85



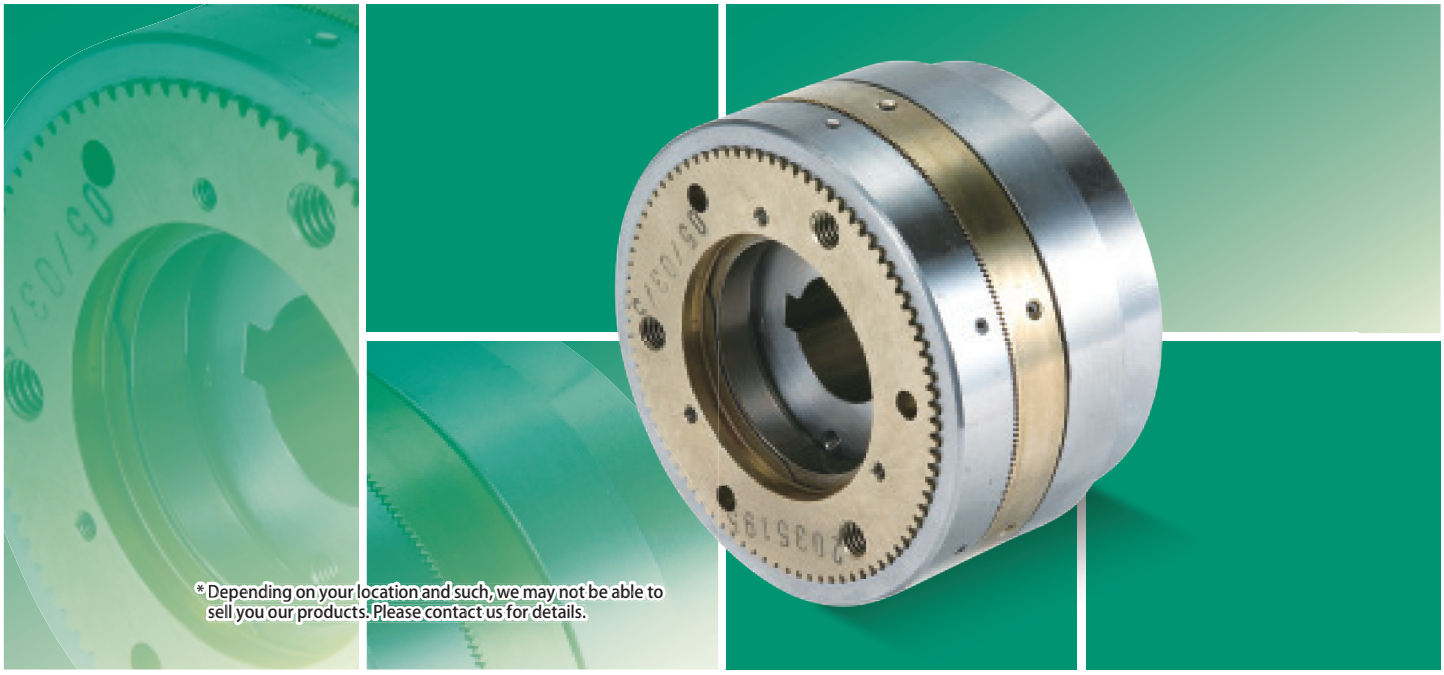
Model	Diameter direction			Shuft direction				Attachment YJ		Shuft end					
	D	D1	I	L	M	N	Y	P.C.D	Tap	Q	QK	d	b	h	t
PTB-2.5BL3	182	55	120	221.5	169.5	43	15	78	M6×13	43	38	20	5	5	3
PTB-5BL3	219	74	ø150	274.5	208	61.5	23	100	M6×13	57	47	25	7	7	4
PTB-10BL3	290	100	ø150	335	257	61.5	25	140	M10×18	67	56	30	7	7	4
PTB-20BL3	335	110	ø150	352.5	269.5	61.5	25	150	M10×18	71	60	35	10	8	4.5
PTB-40BL3	395	130	ø268	482	376	68	33	200	M12×20	92	80	45	12	8	4.5

ELECTROMAGNETIC TOOTH CLUTCHES

Application	Printing machinery, wrapping machinery, filling machinery, food machinery, medical machinery

Meshing-type Electromagnetic-actuated Clutch Has High Torque and Reliable Transmission

These electromagnetic tooth clutches are electromagnetic-actuated clutches of the type that transmit torque by engaging tooth. Since torque is transmitted by engaging tooth, these clutches can transmit very high torque with a compact size (five to ten times our dry-type single discs). They may be either full position, which engage everywhere around their circumference, or single position, which engage at a set position, engaging in only one location per revolution. The shape of the tooth tip may be either symmetrical or sawtooth. Symmetrical tips can be used in any rotation direction, while sawtooth tips are faster than symmetrical tips and can engage at higher speeds.



* Depending on your location and such, we may not be able to sell you our products. Please contact us for details.

Compact, high torque
Since torque is transmitted by the meshing of the tooth, high torque transmission can be achieved with a compact form factor.

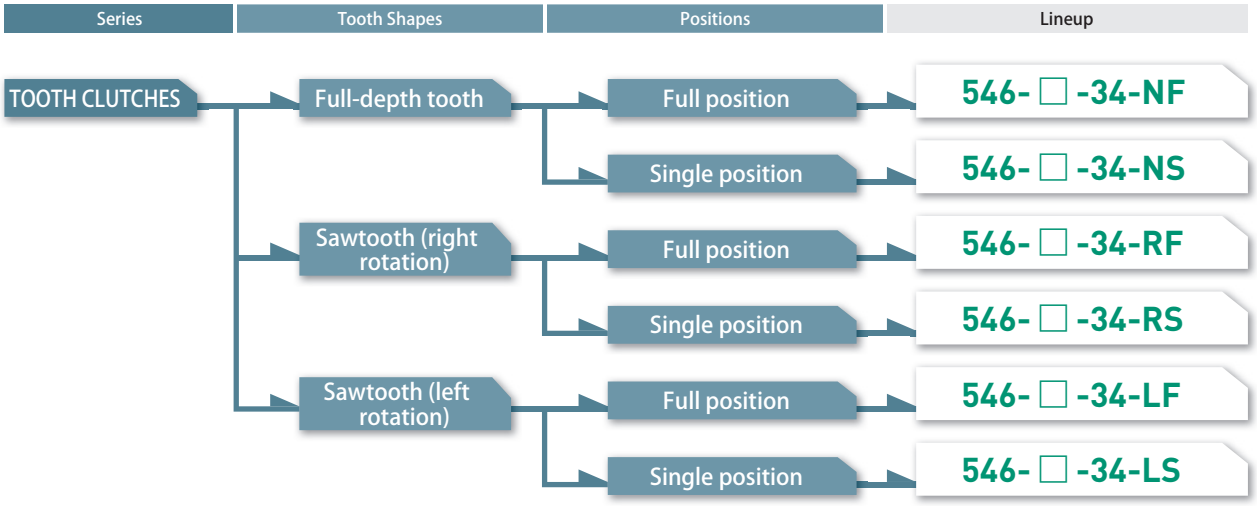
No drag torque
Since the tooth do not form a magnetic circuit, engagement and release can be faster, and there is no drag torque.

Easy mounting
Bearings are built in, so there is no centering of stator and rotor.

Can be used in oily environments
Can be used in oily environments under some usage conditions.

Special position engagement
Special tooth shapes can be made that mesh at multiple locations.

Available Models



Tooth Shape/Construction

Full-depth Tooth

By far the most common tooth shape, it can be used rotating in either direction.

Sawtooth

These have fewer tooth that the full-depth tooth type, and have a smaller angle of mesh insertion. They can thus engage at a relatively higher speed than full-depth tooth.

Full Position

A common tooth shape that can mesh anywhere around the full circumference.

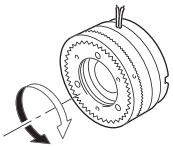
Single Position

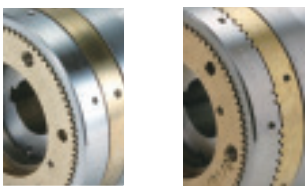
This tooth shape is for fixed position engagement, where only one location meshes per revolution.

Name of tooth shape	NF	NS	RF	RS	LF	LS
Type of tooth shape	Full-depth tooth	Full-depth tooth	Sawtooth	Sawtooth	Sawtooth	Sawtooth
Position	Full	Single	Full	Single	Full	Single
Rotational direction	Both	Both	Right	Right	Left	Left

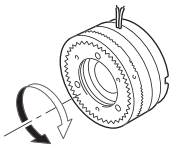
* The reference point for rotation direction (rotor) is the direction as seen from the adapter plate. With armature input, the rotation direction is as stated. Note that with shaft input, the direction is the opposite. Example: To get right rotation at shaft input, use a left-rotating sawtooth (L).

[NF] Full-depth tooth, full-position

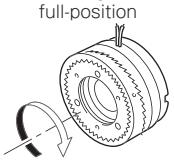




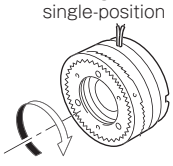
[NS] Full-depth tooth, single-position



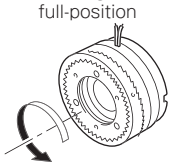
[RF] Right-handed rotating sawtooth, full-position

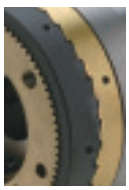


[RS] Right-handed rotating sawtooth, single-position

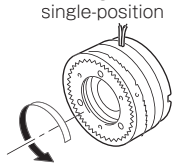


[LF] Left-handed rotating sawtooth, full-position





[LS] Left-handed rotating sawtooth, single-position



Manual tension controller PCM

This controller can manually change the torque using the volume on the panel in a wide range. This is suitable to adjust the change of the roll diameter manually or to generate constant torque.

PCM-102

Features

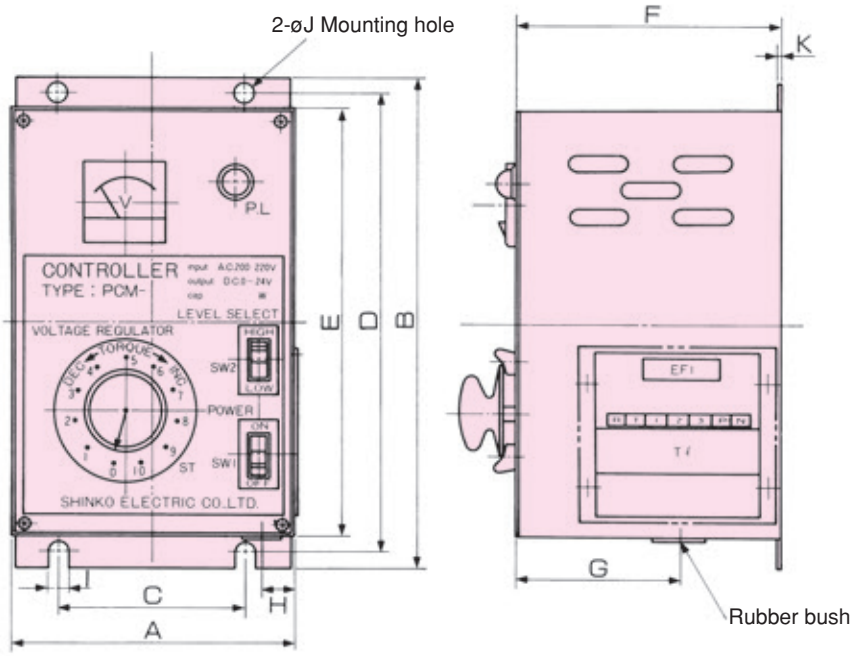
1. A wide range of torque control is possible
Torque can be set manually in a wide range, it can be used as a torque limiter with a large adjustment range.

2. Simple handling and operation
The most appropriate torque can be set easily by voltage adjustment while looking at the volt meter.

• Specifications

Type	PCM-102	PCM-202
Input voltage	200/220V AC 50/60Hz	200/220V AC 50/60Hz
Capacity	100W	150W
Output (switchable)	HIGH: DC0~24V LOW : DC0~12V	HIGH: DC0~24V LOW : DC0~12V
Rated	Continuous	Continuous
Weight	7.0kg	8.8kg
Paint color	Munsell N-7	Munsell N-7
Major applied models	POC/POB-0.3~20 PRB-1.2~20	POC/POB-40~

Outline dimensions drawing



• Dimensions table

Unit: mm

Type	PCM-102	PCM-202
A	141	141
B	246	260
C	90	90
D	231	245
E	216	230
F	127	150
G	79	77
H	21	21
I	7	7
J	7	7
K	1.2	1.2

Constant voltage/Constant current power source PS-6.0A

This is a dedicated power source to control the load torque of electromagnetic powder clutches/brakes at constant voltage and constant current.
When constant current control is used, stable torque control is possible even for a temperature change in the coil of the electromagnetic powder clutches/brakes. The constant voltage control and the constant current control are switched and used according to the necessity. It has overvoltage and overcurrent protective functions to protect the controller at the time of load abnormality.

Features

1. Constant voltage, constant current control
Constant voltage control and constant current control can be selected with a switch for stable torque control.

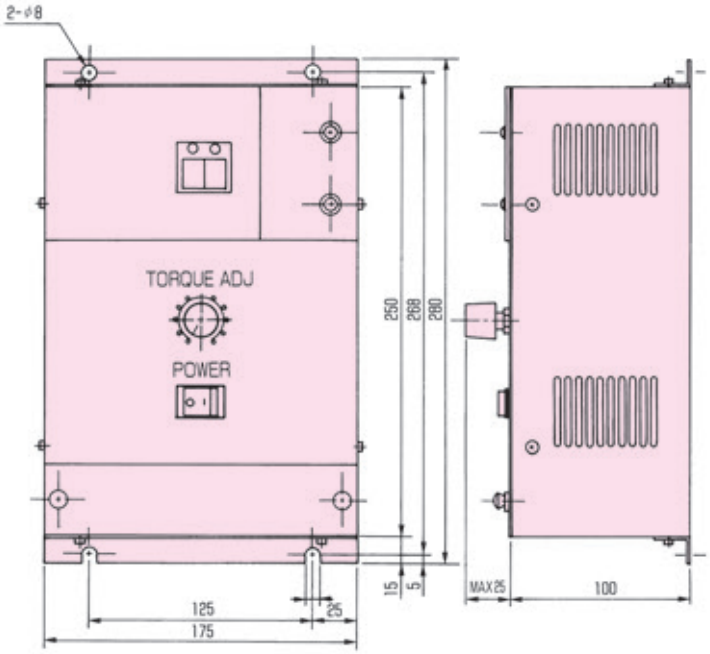
2. There are 3 types to command torque change
Because there are 3 types of torque commands of volume on the panel, external volume, and external voltage input, it can be used for any application.

3. Small in size and light in weight
Small in size and light in weight are realized by adopting a switching regulator method.

4. With overvoltage and overcurrent protective function
When overvoltage or overcurrent occurs, the output is shut off and an alarm indicator lights on.

5. Output cutoff function
Torque generation and torque free can be controlled by an external signal.

Outline dimensions drawing/Specifications



•Specifications

Type	PS-6.0A
Capacity	6.2A (24V)
Input power	100/110V AC or 200/220V DC ±10% Terminal block switch
Output voltage	0.5~24V ±2.5% when constant voltage setting
Output current	0.1~6.2A ±2.5%(at24V) when constant current setting
Control input	Input resistance (front panel, external volume)
External voltage input	Input resistance about 10kW
External signal	RUN signal (pulse signal) output ON
	STOP signal (pulse signal) output OFF
Monitor display	Output current 0.0~6.2A when constant current setting
	Output voltage 00~24V when constant voltage setting
	Overvoltage OV
	Overcurrent OC
Operating temperature	0~40°C (Storage temperature)
Structure	Made of steel plate, wall hanging, protective type
Paint color	Case: Munsell 5Y8/0.5, panel P2-1007
Weight	2.5kg
Applied models	Powder clutches/brakes all models

BES Models For Ordinary High-speed Control

Specifications

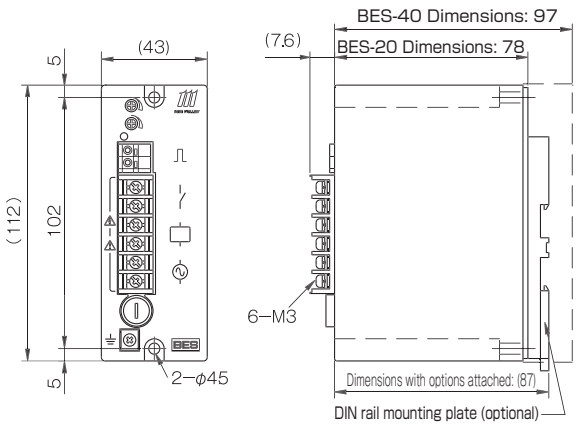
Model	BES-20-□-1	BES-40-□-1	BES-20-□	BES-40-□
Input voltage	AC100V ± 10% 50/60Hz		AC200V ± 10% 50/60Hz	
Output current	2.0A	4.0A	2.0A	4.0A
Voltage control system	PWM control			
Constant excitation voltage	Adjusted for each model and size at the time of shipment			
Overexcitation voltage	DC 90 V Full-wave (with AC 100 V input)		DC 180 V Full-wave (with AC 200 V input)	
Overexcitation time	Adjusted for each model and size at the time of shipment			
Protective functions	Input side Quick-acting fuse (5A)			
Insulating resistance	DC 500 V With Megger 100 MΩ (between terminal and main body)			
Dielectric strength voltage	AC 1000 V 50 Hz 1 min. (between terminal and main body)			
Usage environment	-10 to +50℃ /10 to 90%RH (with no condensation)			
Mass	0.3kg	0.7kg	0.3kg	0.7kg

* The voltage that is output is not insulated from the power supply, so shocks can result if touched.

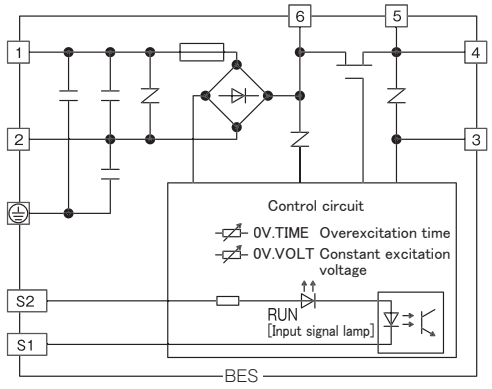
Terminals and Functions

Terminal symbol	Terminal name	Function description
1-2	Power supply input terminal	Connector for a commercial power supply
3-4	Output terminal	Connector for an electromagnetic clutch or brake
5-6	Control terminal 1	Output is controlled by opening and closing between terminals using a relay or the like.
	Ground terminal	External ground terminal (third class ground or more)
S1-S2	Control terminal 2	Output is controlled by turning the DC 24 V on and off (30 mA, smoothing power supply)

Dimensions



Structure



How to Place an Order

BES-20-10-1 DIN

- Output current: 20: 2 A, 40: 4 A (Refer to the power supply size compatibility table)
- Input voltage: 1: 100 V AC, Blank: 200 V AC
- Mounting method: DIN: Mounting by DIN mounting rail, Blank: Direct mounting
  *The DIN mounting rail mounting option can only be set for BES-20.

Options (Sets that meet EMC directives)

Equipment can conform to EC directives (for the CE marking) if you also order, using the following model number, a noise filter (one) and ferrite cores (two) as a set to meet EMC directives.

BES-20-EMC

Table of Power Supply/Size Correspondence

MIKI PULLEY electromagnetic-actuated clutch/brake size		02	025	03	04	05	06	08	10	12	16	20	25
Nominal power supply output current							20						40
Power supply size	Excitation voltage For 24 V			05				10			16	20	25

MIKI PULLEY electromagnetic tooth clutch sizes		12	13	15	21	23	25	31	32
Nominal power supply output current				20				40	
Power supply size	Excitation voltage For 24 V		51			52		53	

MIKI PULLEY spring-actuated brake size		01	02	03	04	05	06	08	10	12	14	16	18	20	25
Nominal power supply output current								20							
Power supply size	Excitation voltage 45/90 V					61					62			63	
	Excitation voltage For 24 V					71					72			73	

* The constant excitation voltage for the 45/90 V excitation voltages of spring-actuated brakes is the DC 45 V specification for an input of AC 100 V and the DC 90 V specification for an input of AC 200 V.

Characteristics

Operating Response

All circuits have been made contactless, and response from signal input to output to the electromagnetic-actuated clutch or brake is fast and stable.

Energy Saving

Standby power is "zero." Absolutely no electricity is wastefully consumed.

By combining this power supply with a MIKI PULLEY spring-actuated brake, the electricity consumption and heat generation of the spring-actuated brake is reduced by more than 70%, saving energy.

Noise During Operation

BES models use a quiet design, but electromagnetic clutches and brakes may produce excitation noise when operating under some mounting conditions. This noise is not abnormal and is not cause for concern.

Two Types of Control Systems

You can operate under either PLC control (which uses voltage control via programmable controllers or the like) or contactor control (which controls using relays and the like).

In the case of contactor control, however, a power controller for controlling the power supply line must be used.

Supply Voltage Fluctuations and Output Voltage

BES model power supplies are designed to operate reliably even when supply voltage fluctuates. Characteristically, however, their output voltage will rise or fall along with rises and falls of supply voltage. To fulfill electromagnetic clutch/brake performance, supply voltage fluctuations should be kept within a range of ± 10%.

Precautions for Use

Circuit Protector

BES models incorporate circuit protectors, so there is no need to connect circuit protectors to the output side (between 3 and 4). Also, since voltage is controlled using PWM, the actual voltage output is the same level as the input voltage. This means that connecting the varistor that comes with 24 V-specification clutches and brakes or the like may result in explosion of the varistor or damage to the power supply. Never connect such devices.

Protective Functions

BES models contain fuses on the input side. When a fuse engages, the likely cause is a malfunction on the output side.

- Short on output side
- Ground fault on output side
- Malfunction on output side (electromagnetic-actuated clutch/brake)

Thoroughly verify that there are no malfunctions on the output side before resuming operation.

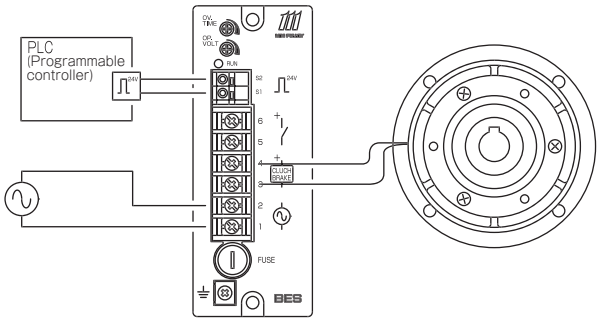
How to Check Output Voltage Values

If you are checking the output voltage with a voltage meter, tester or the like, check the value with a load such as an electromagnetic clutch or brake connected to the output side.

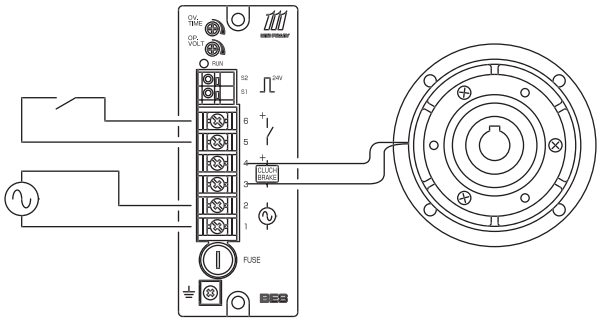
If nothing is connected, it shows a value close to the supply voltage.

Wiring Methods and Timing Charts

Wiring 1 (PLC Control)



Wiring 2 (Contactor Control)



Time Chart