For safe and reliable operation, it is essential to read the user's manual carefully before using this equipment.

We have a new slogan in Japan; "ECOing" a combination of "eco" and "ing" . This is to promote eco-friendly technological development and manufacturing.
Our ecological activities are of course not limited to Japan and practiced in many countries around the world.

SINFONIA TECHNOLOGY CO., LTD. continually upgrades and improves its products.
Actual features and specifications may therefore differ slightly from those described in this catalog.

Formerly SHINKO ELECTRIC CO., LTD.

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CODE E71-120

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ELECTROMAGNETIC CLUTCHES AND BRAKES

SELC&B
DRY, SINGLE-PLATE CLUTCHES/BRAKES

Our clutches and brakes used in various equipment including industrial equipment, information equipment and recreation facilities play an important part in automation or motion control systems in terms of power transmission and control.

SINFONIA
SINFONIA TECHNOLOGY CO., LTD.
Formerly SHINKO ELECTRIC CO., LTD.

Dry Type Single-disc Electromagnetic Clutches/Brakes

SELC&B

A truly state of the art product whose performance and reliability sets it apart from other electromagnetic clutches/brakes. Through the use of our revolutionary "zero backlash auto gap technology" we are able to achieve unparalleled precision and operating life in an easily implemented dry-type single-plate driving electromagnetic clutches/brakes. Additionally, we have included innovations such as an asbestos-free facing on the friction plate, which meets and exceeds expectations with superior motion control performance. Our customer satisfaction thus far has been overwhelmingly positive.

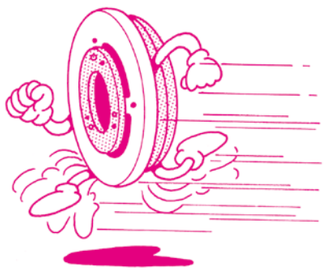
Features

1. Driven by a leaf spring with an integrated automatic gap adjustment

Our original auto gap equipment experiences no backlash and does not require adjustment.
*PATENT NO 1538370.

2. Rapid response and precise operation

Ideal torque is immediately achieved by utilizing "a high efficiency magnetic circuit".



3. Excellent thermal radiation capability

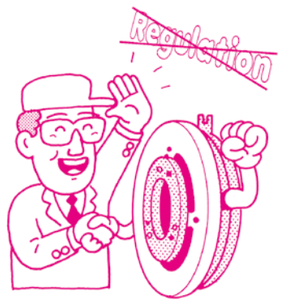
We have increased the radiation capability by more than several 10% by including a radial fan with a large airflow rate flange.

4. Silent, vibration-free housing

By using a silent, composite plate housing, we were able to prevent unnecessary vibrations, allowing for silent operation.

5. Asbestos-Free Facing

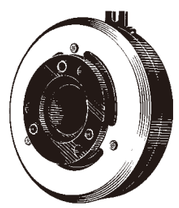
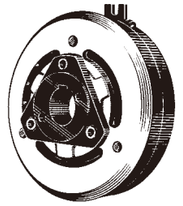
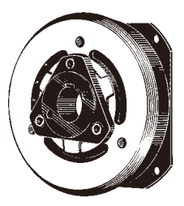
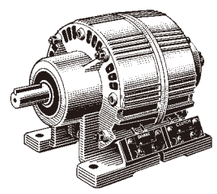
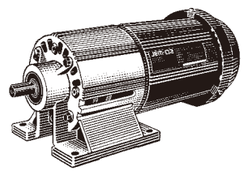
Abrasion resistance is increased 30% with a safe, asbestos-free facing.



6. Free mounting orientation

You are able to mount it vertically, horizontally or on an incline.

List of Models

Type	Clutch		Brake
	JC Throuh saft type	JCC Sprit saft type	JB
Appearance			
Type	Clutch/brake unit	Clutch/brake unit with motor	
	JEP Throuh saft type	JEM	
Appearance			

Models Names

JC-0.6

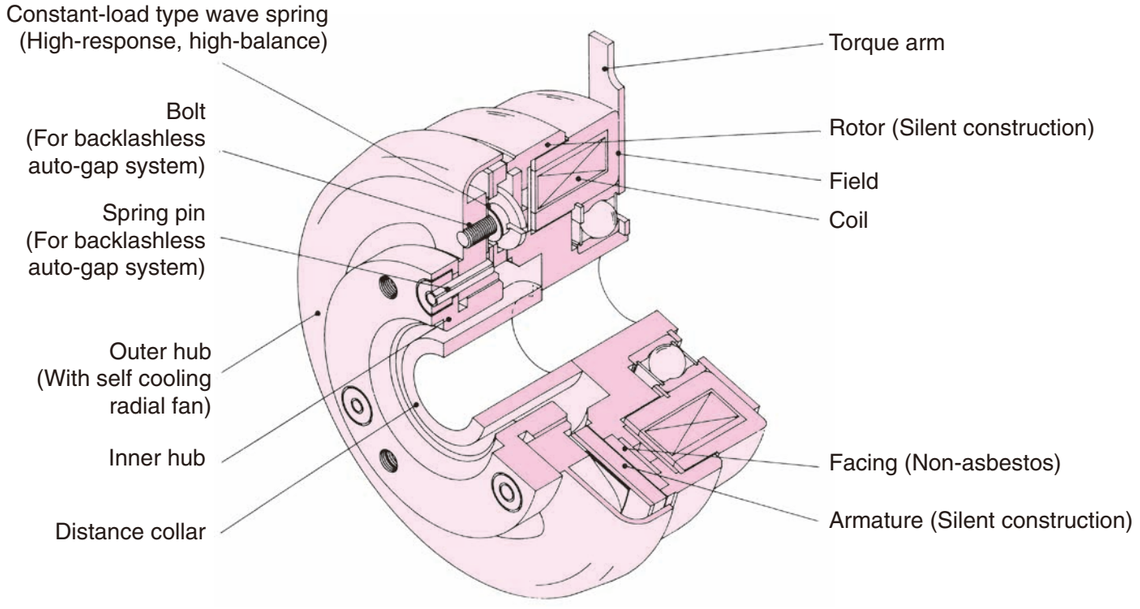
Nominal number

Model symbol
JC: Clutch, through shaft type
JCC: Clutch, sprit shaft type
JB: Brake, with integrated field-friction disc type
JEP: Clutch/brake unit
JEM: Clutch/brake unit with motor

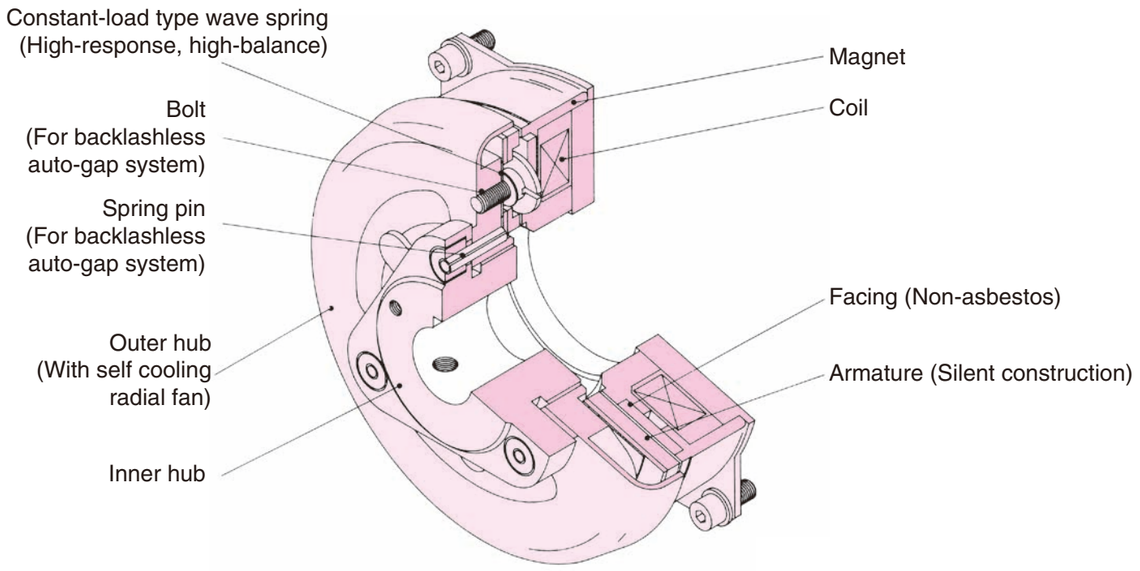
Structure

Single Unit

Clutch

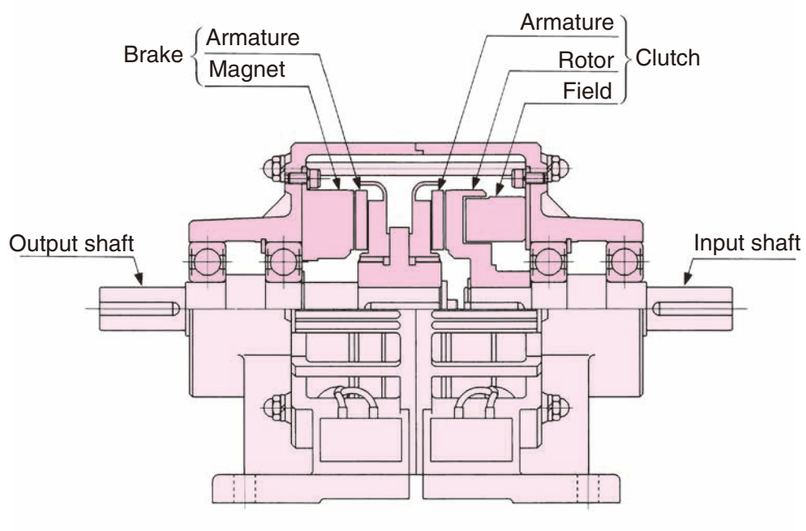


Brake

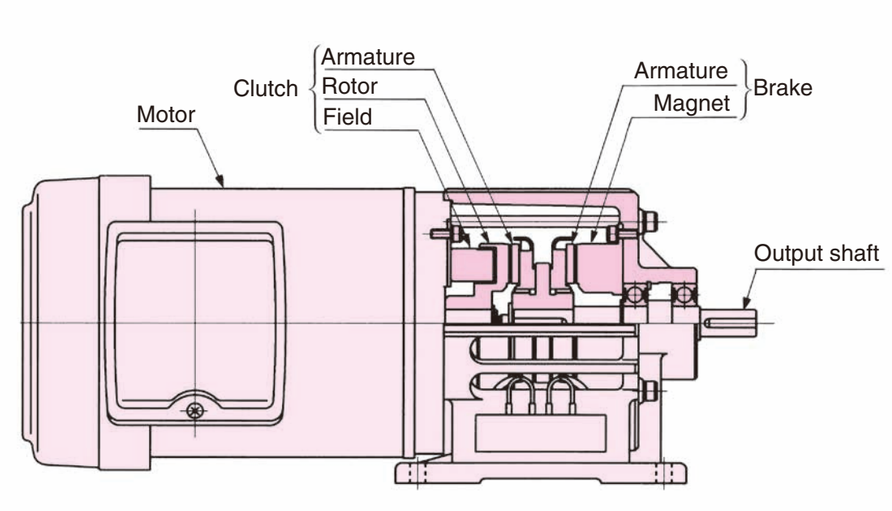


Clutch & Brake Unit

JEP



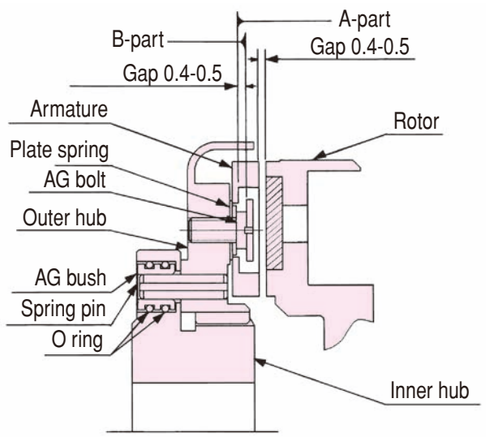
JEM



The explanation of the Auto-gap function

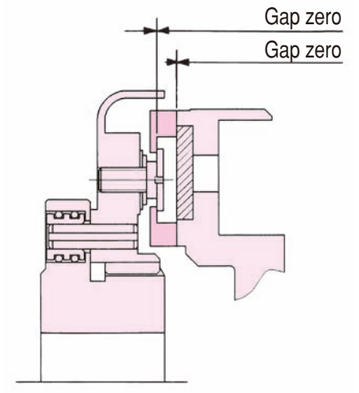
[Off time (Power is cut off)]
This should cause the back side of armature to be attracted to Hub outer side. In this time, the air-gap between A-part and B-part is adjusted by Auto-gap function, also the air-gap between the armature and the frictional face of rotor is kept the same air-gap.

Figure 1: The status of non-excitation



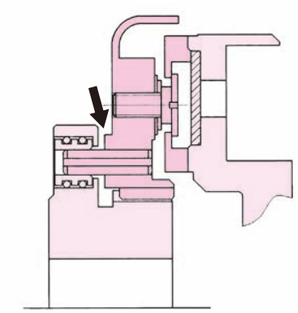
[On time]
This should cause the armature to be attracted to the frictional face of the rotor. The torque of the electromagnetic clutch/brake will be supplied. In this time, the Hub outer will be attracted to the friction face. However, Hub outer is sustained at the same position by spring pin, AG-bush. and the air-gap between A-part and B-part is Zero, lightly contacted. After power is cut off, this should cause the armature to leave by spring, come back to the status Figure 1.

Figure 2: The status of excitation



[On Auto-gap adjustment]
As the frictional face is loosened by usage, beyond the specified Air-gap. The A-part and the B-part is strongly touched, hub outer is attracted to the friction face by the AG-volt. In this time, Hub outer is moved to the rotor side slightly within the frictional face loosened. In this result, Air-gap is kept with the specified gap automatically.

Figure 3: The status of Auto-gap adjustment



Clutch or Brake Selection Guide

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 normal 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 closed).

By referring to Table I or II, it is easy to select the right clutch model for a paticular 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 I. If you have a brake in mind, use Table I.

Selection Table I Maximum torque is applied after sysem has fully been started

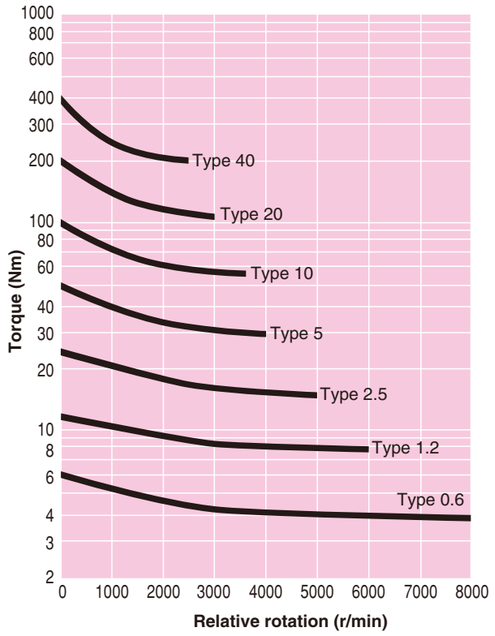
Motor power \ r/min		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000
kW	HP																					
0.015	1/50	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.035	1/20	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.065	1/12	2.5	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.1	1/8	2.5	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.125	1/5	5	2.5	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.2	1/4	5	2.5	2.5	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.25	1/3	10	5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.4	1/2	10	5	5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.55	3/4	20	10	5	5	5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6
0.75	1	20	10	10	5	5	5	5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6
1.1	1 1/2	40	20	10	10	10	5	5	5	5	5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	0.6	0.6
1.5	2	40	20	20	10	10	10	10	5	5	5	5	5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2
2.2	3		40	20	20	20	10	10	10	10	10	5	5	5	5	5	2.5	2.5	2.5	2.5	1.2	1.2
3.7	5			40	40	20	20	20	20	10	10	10	10	10	5	5	5	5	2.5	2.5	2.5	2.5
5.5	7 1/2				40	40	40	20	20	20	20	20	20	10	10	10	10	5	5	5		
7.5	10					40	40	40	40	20	20	20	20	20	10	10	10	10	5	5		
11	15							40	40	40	40	40	40	20	20	20	20	10	10			
15	20									40	40	40	40	40	20	20	20	20	10			
19	25											40	40	40	40	40	20	20				
22	30													40	40	40	40	20				
30	40														40	40	40					
37	50																40					

Selection Table II Maximum torque is applied when sysem is started

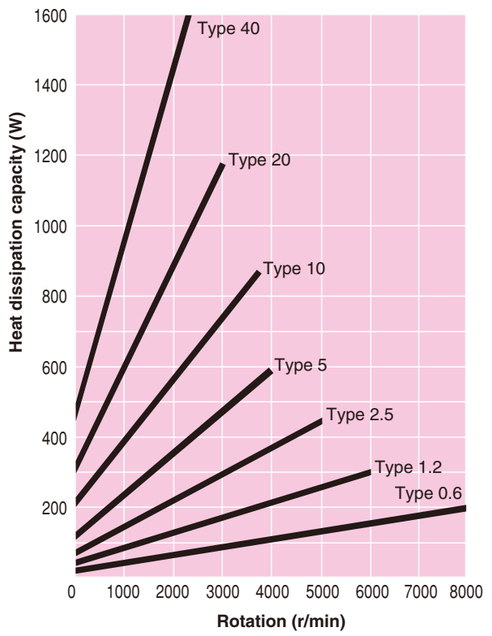
Motor power \ r/min		100	200	300	400	500	600	700	800	900	1000	1100	1200	1500	1800	2000	2400	3000	3600	4000	4600	5000
kW	HP																					
0.015	1/50	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.035	1/20	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.065	1/12	2.5	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.1	1/8	2.5	2.5	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.125	1/5	5	2.5	2.5	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.2	1/4	5	5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.25	1/3	10	5	5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
0.4	1/2	10	10	5	5	5	2.5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6	0.6	0.6
0.55	3/4	20	10	10	5	5	5	5	2.5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	0.6	0.6	0.6
0.75	1	20	20	10	10	5	5	5	5	5	5	5	2.5	2.5	2.5	2.5	1.2	1.2	1.2	1.2	1.2	1.2
1.1	1 1/2	40	20	20	10	10	10	10	10	5	5	5	5	5	2.5	2.5	2.5	2.5	2.5	1.2	1.2	1.2
1.5	2	40	40	20	20	10	10	10	10	10	10	10	5	5	5	5	5	2.5	2.5	2.5	2.5	2.5
2.2	3		40	40	20	20	20	20	10	10	10	10	10	10	5	5	5	5	5	2.5	2.5	2.5
3.7	5			40	40	40	20	20	20	20	20	20	20	10	10	10	10	10	5	5		
5.5	7 1/2					40	40	40	40	40	40	20	20	20	20	20	10	10	10			
7.5	10							40	40	40	40	40	40	40	20	20	20	20	10			
11	15												40	40	40	40	40	20				
15	20															40	40					

Characteristics

Relative Speed vs. Torque



Heat Dissipation Capacity



(Note) The heat dissipation capacity above indicates one of each discrete product. For clutch/brake unit products, regard 60% of the heat dissipation capacity in this graph as a standard.

Response Characteristics

Description	Nominalnumber / Excitin voltage	0.6	1.2	2.5	5	10	20	40
Armature pull-in time ta (ms)	DC24V Excitation	25	35	45	65	90	110	130
	2-Hold over excitaion	10	15	20	30	40	50	70
	4-Hold over excitation	8	8	10	15	20	25	35
Torque build-up time tp (ms)	DC24V Excitation	50	70	90	130	160	200	250
	2-Hold over excitaion	25	35	50	70	90	120	160
	4-Hold over excitation	15	20	25	35	45	60	80
Torque decay time td (ms)	DC24V Excitation	20	30	35	45	80	110	140
	2-Hold over excitaion							
	4-Hold over excitation							

(Note) 1. Refer to the above table for calculating the clutch engagement time and braking time.
2. The torque rise time includes the armature.

Total life/Max speed/Inertia

JC through shaft type clutch

Model	Total life (J)	Max speed (r/min)		Inertia J (kgm^2)	
		at idling	at engaging or braking	Armature side	Rotor side
JC-0.6	1.3×10^8	9500	8000	1.10×10^{-4}	1.03×10^{-4}
JC-1.2	2.3×10^8	7500	6000	3.13×10^{-4}	3.03×10^{-4}
JC-2.5	4.5×10^8	6000	5000	9.38×10^{-4}	9.45×10^{-4}
JC-5	8.0×10^8	5000	4000	2.38×10^{-3}	2.21×10^{-3}
JC-10	14×10^8	4000	3600	8.50×10^{-3}	1.23×10^{-2}
JC-20	30×10^8	3500	3000	2.73×10^{-2}	2.38×10^{-2}
JC-40	42×10^8	3000	2500	7.75×10^{-2}	6.93×10^{-2}

JCC sprit shaft type clutch

Model	Total life (J)	Max speed (r/min)		Inertia J (kgm^2)	
		at idling	at engaging or braking	Armature side	Rotor side
JCC-0.6	1.3×10^8	9500	8000	1.01×10^{-4}	1.03×10^{-4}
JCC-1.2	2.3×10^8	7500	6000	2.90×10^{-4}	3.03×10^{-4}
JCC-2.5	4.5×10^8	6000	5000	8.95×10^{-4}	9.45×10^{-4}
JCC-5	8.0×10^8	5000	4000	2.22×10^{-3}	2.21×10^{-3}
JCC-10	14×10^8	4000	3600	8.25×10^{-3}	1.23×10^{-2}
JCC-20	30×10^8	3500	3000	2.68×10^{-2}	2.38×10^{-2}
JCC-40	42×10^8	3000	2500	7.63×10^{-2}	6.93×10^{-2}

JB brake

Model	Total life (J)	Max speed (r/min)		Inertia J (kgm^2)
		at idling	at engaging or braking	Armature side
JB-0.6	1.3×10^8	9500	8000	1.01×10^{-4}
JB-1.2	2.3×10^8	7500	6000	2.90×10^{-4}
JB-2.5	4.5×10^8	6000	5000	8.95×10^{-4}
JB-5	8.0×10^8	5000	4000	2.22×10^{-3}
JB-10	14×10^8	4000	3600	8.25×10^{-3}
JB-20	30×10^8	3500	3000	2.68×10^{-2}
JB-40	42×10^8	3000	2500	7.63×10^{-2}

JEP clutch/brake unit

Model	Inertia J (kgm^2)	
	Input shuft side	Output shuft side
JEP-0.6	1.22×10^{-4}	2.11×10^{-4}
JEP-1.2	3.30×10^{-4}	6.15×10^{-4}
JEP-2.5	1.20×10^{-4}	1.73×10^{-4}
JEP-5	2.63×10^{-3}	4.63×10^{-3}
JEP-10	1.25×10^{-3}	1.65×10^{-2}
JEP-20	2.45×10^{-2}	5.20×10^{-2}
JEP-40	7.55×10^{-2}	15.2×10^{-2}

JEM clutch/brake unit with motor

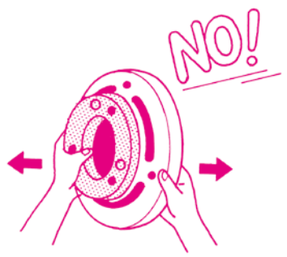
Model	Inertia J (kgm^2)
	Output shuft side
JEM-02	2.11×10^{-4}
JEM-05	6.15×10^{-4}
JEM-1	1.73×10^{-4}
JEM-2	4.63×10^{-3}

Operating Instructions

Pre-installation instructions

1. The frictin faces of the Clutch/brake are coated with a rust inhibitive, which need not be wiped off. Mount the components with out further processng, taking care not to contaminate the faces with oil or other foreign matters. They need not be wiped with thinner or trichloroethylene.

2. Do not pull the armature off the hub or slide the armature on the hub before they are completely mounted.

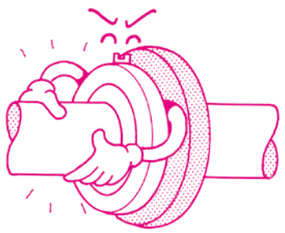


3. The dimensions concerning the key meet JIS B1301-1976 (newJIS).

Installation instructions

• Type JC/JCC/JB

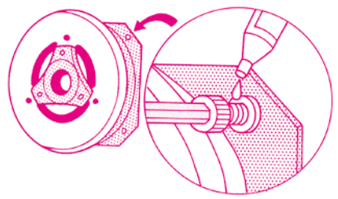
1. The degree of fitting between the Clutch/brake and the shaft should be H7. h6 or H7. js6 as defined in JIS B0401, and they should be fixed with no play in the axial direction. Where shock loads are expected, the shaft diameter tolerance should be k6 or m6. Also, minimize the end play of the mounting shaft.



2. The gap between rotor and armature and between magnet and armature should be set initially in such a way as to meet the specification when the armature has been pressed throughly into the hub (refer to dimension "g" in the external dimension diagrams on Pages 8, 9 and 10). Since the gap Specification cannot be met if impacts are applied in the axial direction, do not hit the unit with a hammer or the like.

3. Do not tighten the field detent. Leave it as loose as a common detent is.

4. The mounting screws should be fixed with an adhesive to keep them from loosening.



5. For installation accuracy, refer to Table 1.

6. For type JC clutches, use two ball bearings on the armature side (pulley side). Use hexagon socket head cap screws (JISB 1176-1974) as pulley and sprocket mounting bolts, and refer to Table 4 on page 11 for the tightening torque and the length of the bolts to be inserted into the hub.

Table 1. Installation accuracy

Unit:mm

Bearing No.	Clutch				Brake	
	Type JC (Through Shaft Type)		Type JCC (Sprit Shaft Type)		Type JB	
	Deflection of frictional face GAP (T.I.R.)	Concentricity(T.I.R.) (Hub attachment centering location and shaft)	Deviation of frictional face GAP (T.I.R.)	Concentricity(T.I.R.) (Shaft and shaft)	Deviation of frictional face GAP (T.I.R.)	Concentricity(T.I.R.) (Magnet attachment centering location and shaft)
0.6~5	0.1	0.15	0.1	0.1	0.1	0.15
10~40	0.15	0.2	0.15	0.15	0.15	0.2

(Notes)
1. T.I.R. stands for total dial indicator reading. Accordingly, do not allow the deviation from concentricity to exceed one-half the values above.
2. The deviation of the frictional face GAP indicates the angle error between the armature rotation center and shaft for type JC, the angle error between the shaft and shaft for type JCC, and the perpendicularity of the magnet attachment surface to the shaft for type JB.

• SELC&B Clutch/Brake Units–Type JEP/JEM

For SELC&B clutch/brake units, take note of the following in addition to the precautions on the previous page.

1. The input and output shafts of type JEP are respectively designated as “INPUT” and “OUTPUT” on the nameplate. Be sure to connect the motor to the input shaft. For the dimensions of the input and output shafts, refer to the outline drawing.
(Note) Output shaft only for type JEM.

2. The clutch/brake unit mounting surface should possess high rigidity, and the flatness must be 0.2 mm or less for the type 0.6 to 5 and 0.25 mm or less for the type 10 to 40 (0.2 mm or less for type JEM)

3. When installing pulleys and sprockets on the input and output shafts (output shaft only for type JEM), do not forcibly hit or hammer the shaft(s).

4. The clutch/brake unit is designed to allow use in all power transmission systems (direct coupling by the V-belt and pulleys, chain and sprockets, direct coupling, etc.).

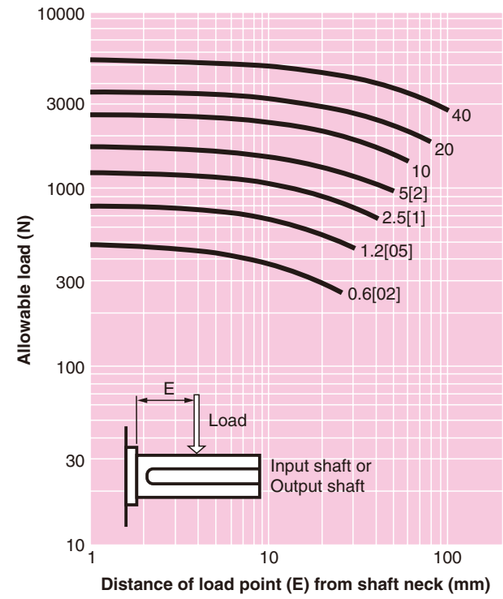
A. When using the unit in direct coupling, be extremely careful about alignment. It is recommended to use flexible couplings in such cases.

B. To connect the clutch/brake unit through pulleys or sprockets, limit the overhang load within the allowable overhang of the input shaft or output shaft load (see Fig.1, Tabel 2 and 3).
The overhang load practically acts are obtained by the following expression.

$$F=\frac{2Tf}{D}$$

Where, F : load (N) {kgf}
T : transfer torque (Nm) {kgf}
D : pitch dia. (m) of pulleys and sprockets
f : load cofficient (2–4 for belt, 1.2–1.5 for sprocket)

Fig.1 Allowable overhang load



(Notes)
1. These graphs are based on 1,800r/min an 6000 hour bearing life expectancy.
2. Use the appropriate speed and application coefficients for the turning speed and application you have in mind.
3. The graphs are based on the assumption that no thrust load is involved.

Table2. Speed coefficient

Rotating (r/min)	Speed factor	Rotating (r/min)	Speed factor
50	3.34	1000	1.21
100	2.65	1200	1.15
200	2.09	1400	1.08
400	1.67	1600	1.04
600	1.46	1800	1.00
800	1.32	2000	0.97

Table 3. Use coefficient

Use	Example of use	Use coefficient
Instruments and equipment not required to rotate at all times.	Door opening device etc.	3.00
Machinery used for a short time or intermittently, not exerting serious influence even if stopped by an accident.	General factory winding device, general hand winder, etc.	1.50
Machinery not use continuously but for which positive operation is requlred.	Conveyor device, general cargo crane, elevator, etc.	1.22
Machinery operated for 24 hr a day but for which no regular full operation is requlred.	Factory motor, general gearring, etc.	1.00
Machinery fully operated regularly for 8 hr a day.	Regularly operating crane, blower, etc.	0.89
Machinery continuously operated for 24 hr a day.	Compressor, pump, rolling machine, roller conveyor, and others.	0.65
Machinery operated for 24 hr a day and for which stoppage due to accidents is absolutely not allowed.	Paper making machine, chemical production machine, and others.	0.51

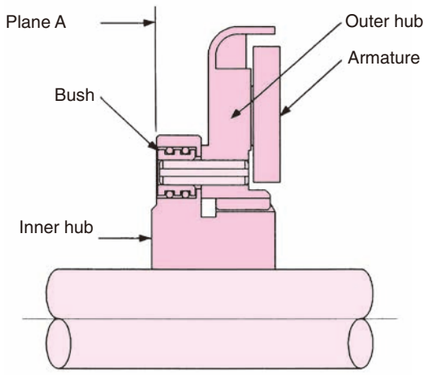
5. Precautions on input hub (inner hub) installation
Use hexagon socket head cap screws (JIS B1176-1974) as pulley and sprocket mounting bolts, and refer to Table 4 for the tightening torque and the length of the bolts to be inserted into the hub.

Table 4. Proper tightening torque of hub mounting bolt

Bearing number	Nominal designation of screw	Proper tightening torque (Nm)	Length of bolt inserted into hub (mm)
0.6	M4	3~3.5	Less than 6.5
1.2	M5	6~7	Less than 7.5
2.5	M6	10~12	Less than 9
5	M8	25~29	Less than 10
10	M10	50~58	Less than 11
20	M10	50~58	Less than 12
40	M12	85~100	Less than 14.5

• Post-Installation Precautions (Applicable to JC/JCC/JB)

After completing installation, apply power to the clutch/brake. This makes the armature stick to the frictional faces of the rotor and magnet. If it is not stuck completely, tap the outer periphery of the armature side in the rotor and magnet direction with a wooden hammer or driver handle. Then, cut off power. The armature will be separated from the friction plate and the gap will automatically be a proper value. Should the gap be narrow and readjustment is required, tap the outer periphery of the armature side in the direction opposite the above to extend the gap. Then, after sandwiching a shim of the approximately specified gap size between the frictional faces, press bushes (type 0.6 to 5: 3 locations, type 10 to 40: 6 locations) into the plane A of the inner hub shown below with a driver or the like and then perform the above work.



• Wire Connection Precautions

The supplied electric discharge elements (varistors) are absolutely necessary when the power unit of type DMP is used. When the controller of type EMP, CSM, CMPH, or TMP is used, never install the supplied varistors since electric discharge elements are incorporated.

• Installation Posture

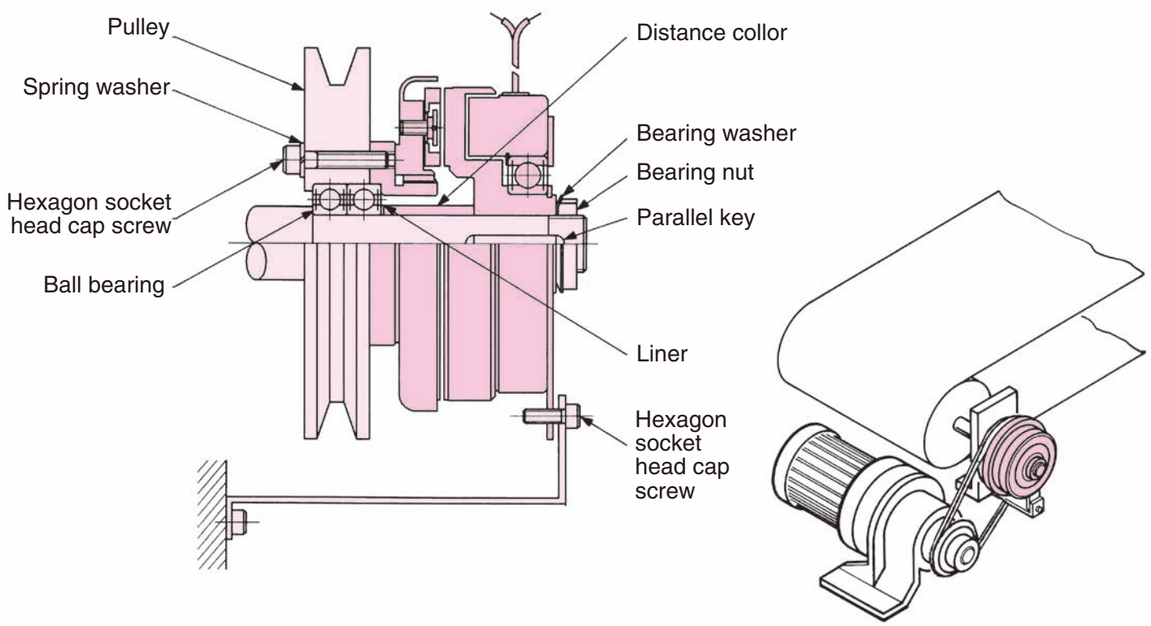
If there are no external vibrations or impacts in the axial direction, the installation posture is free in any direction (vertical, diagonal, etc.) as well as horizontal installation. However, do not allow the axial vibration level from the outside to exceed approximately 1.5G in the case of other than horizontal installation.
If the vibration level exceeds that level, the specified frictional face gap may not be able to be maintained. Therefore, exercise great caution.

• Break-in

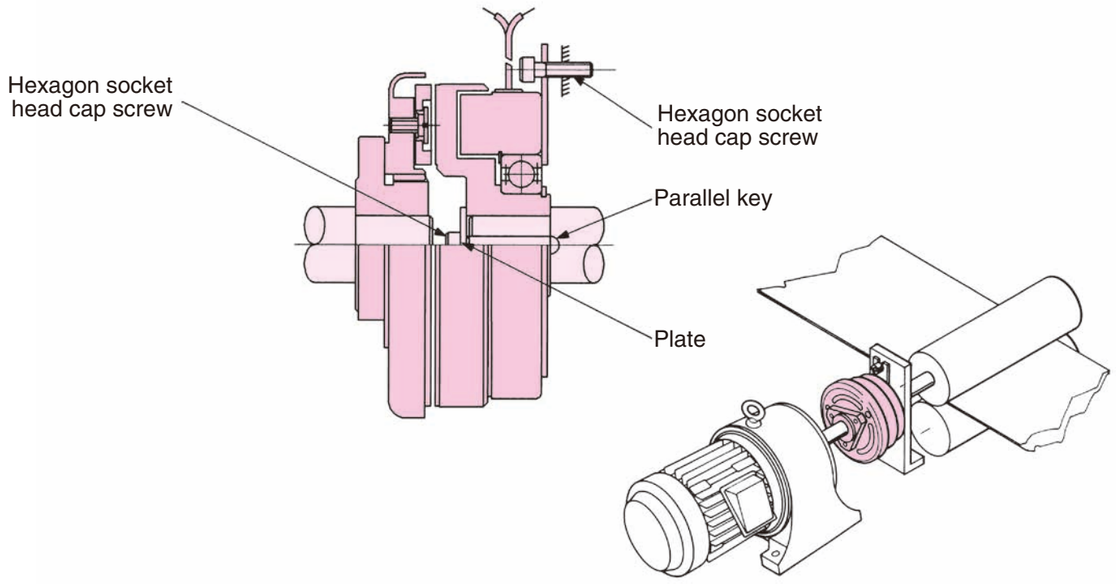
This series of clutches/brakes are designed to produce the rated torque from the initial stage. However, the specified torque (100% of the rated torque) may not be produced since the frictional faces do not conform sufficiently in the initial installation condition. In this case, perform light break-in operation.

Installation Example

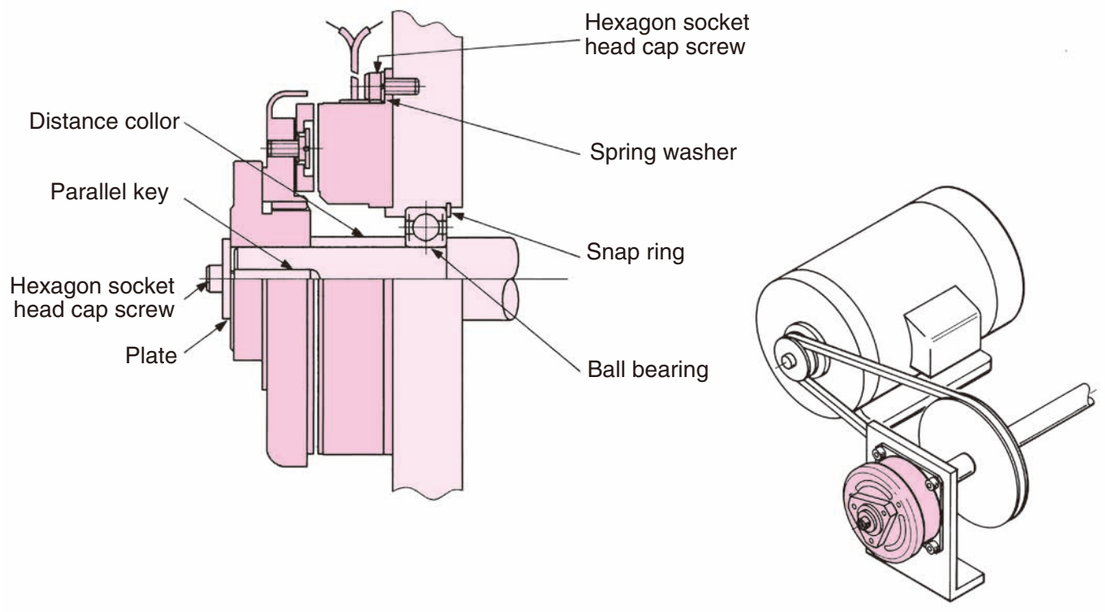
JC



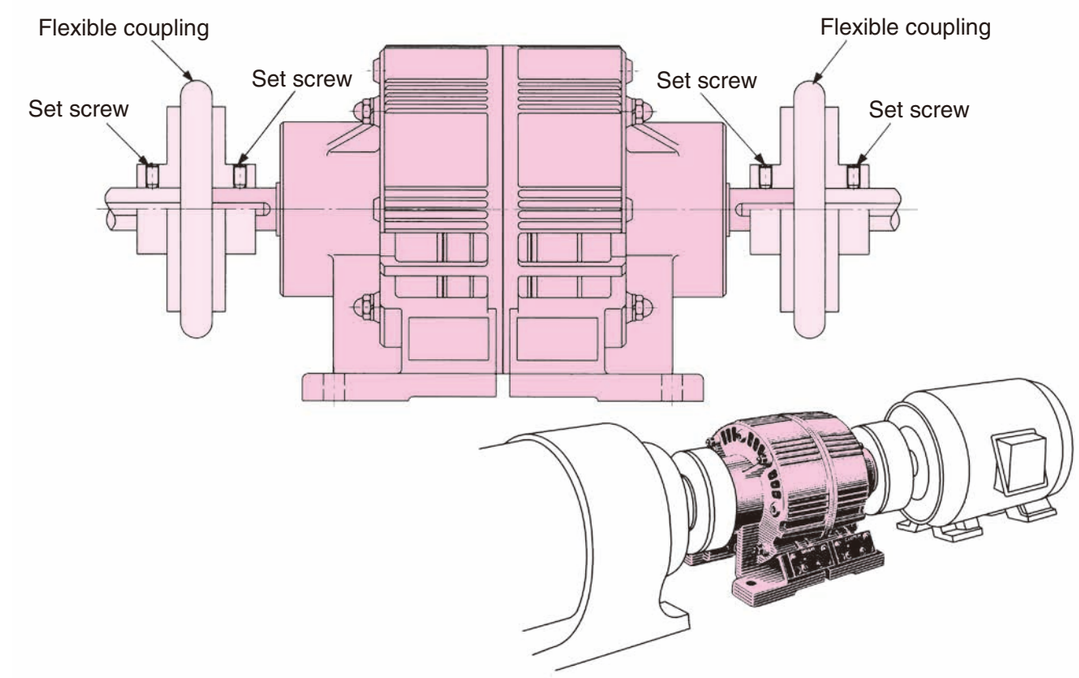
JCC



JB

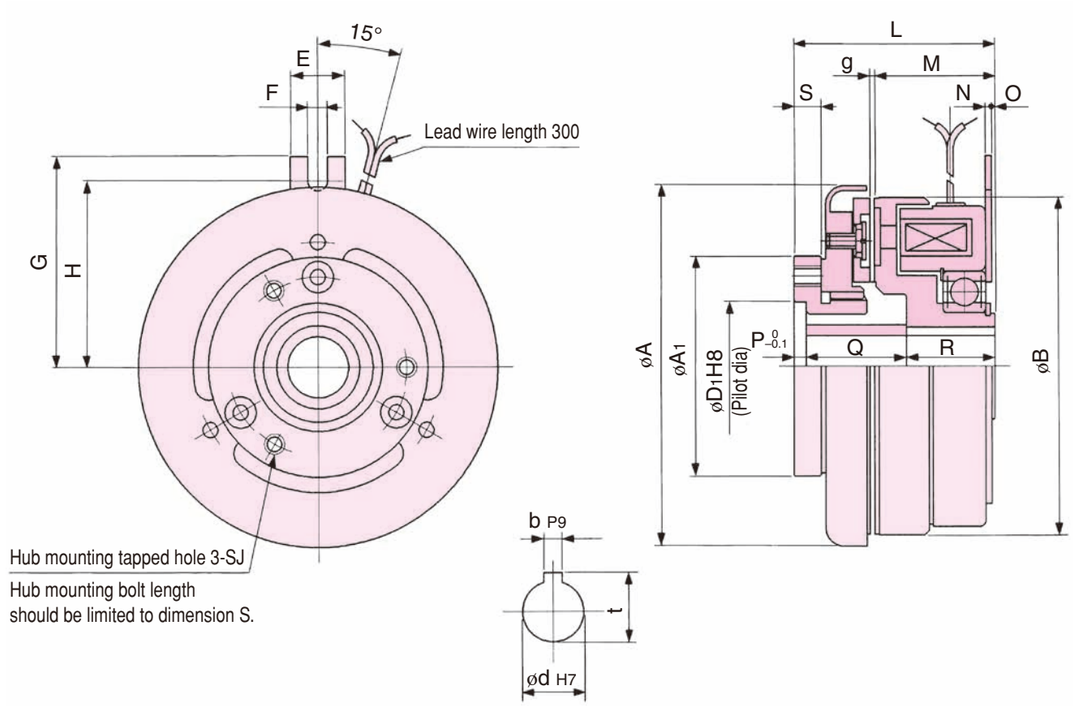


JEP



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



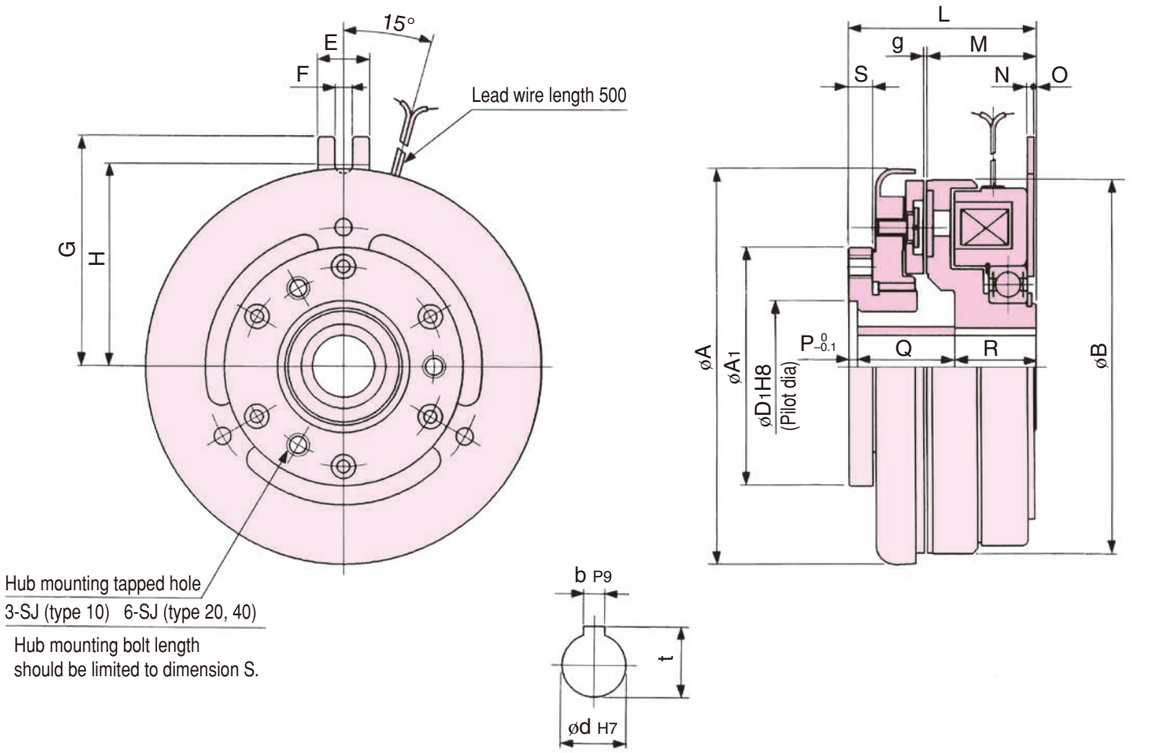
(DIM: mm)

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	$28.3^{+0.2}_{0}$

JC-10, 20, 40 Through Shaft Type

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75°C(W)	Mass(kg)
JC-10	100	24	33	8.7
JC-20	200	24	40	17.5
JC-40	400	24	50	32.5



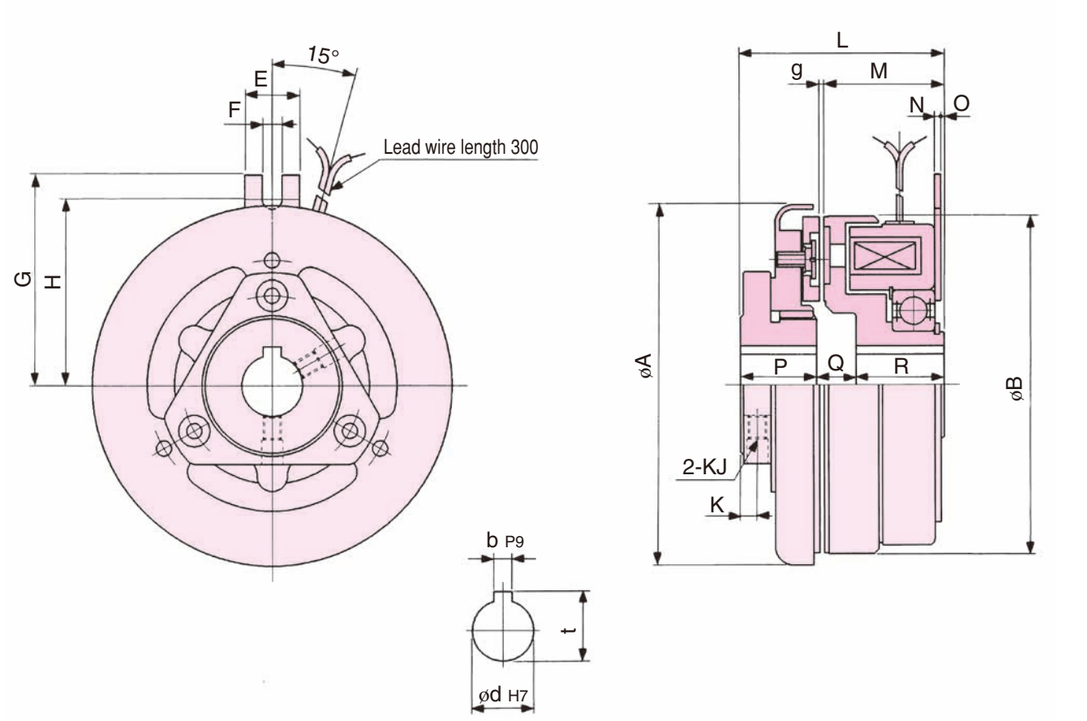
(DIM: mm)

Model	Diameter direction								Shuft direction		
	A	A1	B	D1	E	F	G	H	L	M	N
JC-10	186	112	175.7	62	24	8.5	108	95	87.5	52	3.2
JC-20	236	140	219	80	26	8.5	130	118	106	60.5	3.2
JC-40	288	168	271	90	30	10.5	160	145	127	71	3.2

Model	Shuft direction						Attachment SJ		Shuft hole		
	O	P	Q	R	S	g	P.C.D	Tap	d	b	t
JC-10	1	4	45.5	38	11	0.5	90	M10	30	10	$33.3^{+0.1}_{0}$
JC-20	2	5	56.5	44.5	13	0.6	115	M10	40	12	$43.3^{+0.1}_{0}$
JC-40	2	5	70	52	15	0.6	135	M12	50	16	$54.3^{+0.1}_{0}$

JCC-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)
JCC-0.6	6	24	8	0.8
JCC-1.2	12	24	11	1.4
JCC-2.5	25	24	16	2.6
JCC-5	50	24	23	4.2



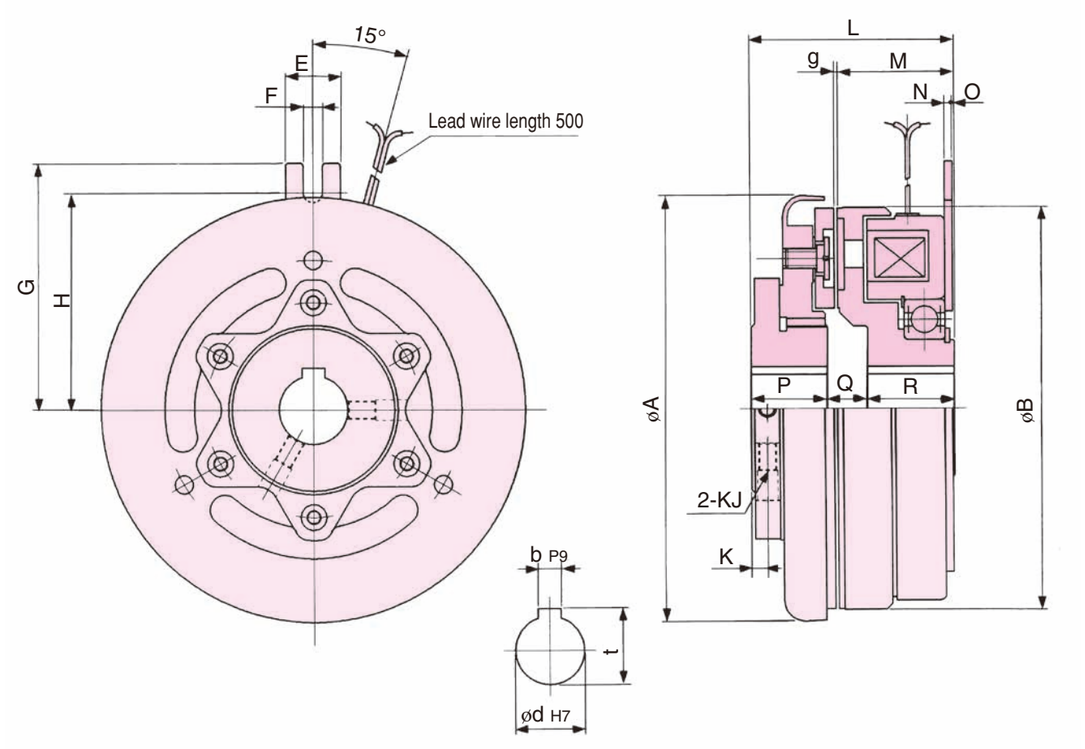
(DIM: mm)

Model	Diameter direction						Shuft direction			
	A	B	E	F	G	H	L	M	N	O
JCC-0.6	76	70.3	14	4.5	46	39.5	47	29	1.6	1
JCC-1.2	96	90.4	16	5.5	57	50	53	32	1.6	1
JCC-2.5	118	110.5	18	6.5	69	61	66	40.5	2	1
JCC-5	145	135.6	20	6.5	82	74	73	43.5	2.6	1

Model	Shuft direction				Attachment		Shuft hole		
	P	Q	R	g	K	KJ	d	b	t
JCC-0.6	18	9	21	0.4	4.2	M4	12	4	$13.8^{+0.1}_{0}$
JCC-1.2	21	10	23	0.4	4.7	M5	15	5	$17.3^{+0.1}_{0}$
JCC-2.5	25	13	29	0.5	5.5	M6	20	6	$22.8^{+0.1}_{0}$
JCC-5	28	14	32	0.5	6	M8	25	8	$28.3^{+0.2}_{0}$

JCC-10, 20, 40 Through Shaft Type

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75°C(W)	Mass(kg)
JCC-10	100	24	33	8.7
JCC-20	200	24	40	17.5
JCC-40	400	24	50	32.5



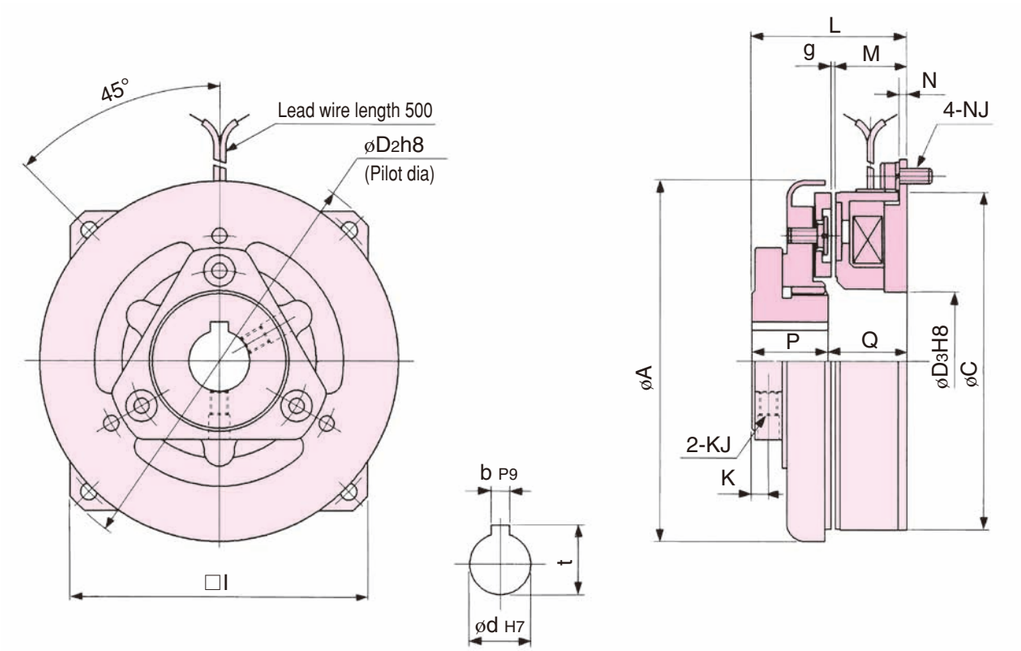
(DIM: mm)

Model	Diameter direction						Shuft direction			
	A	B	E	F	G	H	L	M	N	O
JCC-10	186	175.7	24	8.5	108	95	89	52	3.2	1
JCC-20	236	219	26	8.5	130	118	108	60.5	3.2	2
JCC-40	288	271	30	10.5	1600	145	129	71	3.2	2

Model	Shuft direction				Attachment		Shuft hole		
	P	Q	R	g	K	KJ	d	b	t
JCC-10	33.5	17.5	38	0.5	7	M8	30	10	$33.3^{+0.1}_{0}$
JCC-20	41.5	22	44.5	0.6	8.5	M8	40	12	$43.3^{+0.1}_{0}$
JCC-40	51.5	25.5	52	0.6	9.5	M10	50	16	$54.3^{+0.1}_{0}$

JB-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)
JB-0.6	6	24	8	0.8
JB-1.2	12	24	11	1.4
JB-2.5	25	24	16	2.6
JB-5	50	24	23	4.2



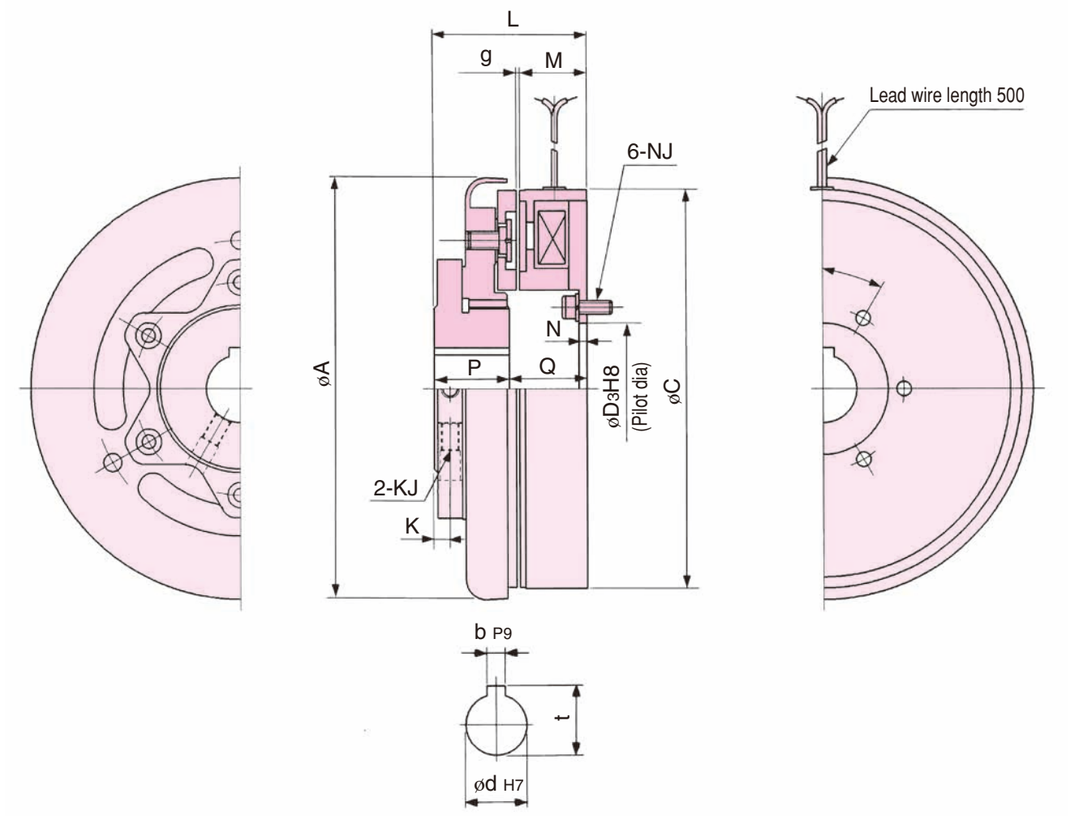
(DIM: mm)

Model	Diameter direction					Shuft direction			
	A	C	D2	D3	I	L	M	N	P
JB-0.6	76	70.3	88	25	66	40	21	2	18
JB-1.2	96	90.4	108	33	80	43	21	2	21
JB-2.5	118	110.5	132	45	98	51	24.5	2.5	25
JB-5	145	135.6	163	54	120	57	26.5	3	28

Model	Shuft direction		Attachment				Shuft hole		
					NJ				
	Q	g	K	KJ	P.C.D	Bolt	d	b	t
JB-0.6	22	0.4	4.2	M4	79	M4×10	12	4	$13.8^{+0.1}_{0}$
JB-1.2	22	0.4	4.7	M5	99	M4×10	15	5	$17.3^{+0.1}_{0}$
JB-2.5	26	0.5	5.5	M6	121	M5×12	20	6	$22.8^{+0.1}_{0}$
JB-5	29	0.5	6	M6	149	M6×16	25	8	$28.3^{+0.2}_{0}$

JB-10, 20, 40 Through Shaft Type

Model	Static friction torque(Nm)	Rated voltage(DC-V)	Power consumption at75°C(W)	Mass(kg)
JB-10	100	24	33	8.7
JB-20	200	24	40	17.5
JB-40	400	24	50	32.5



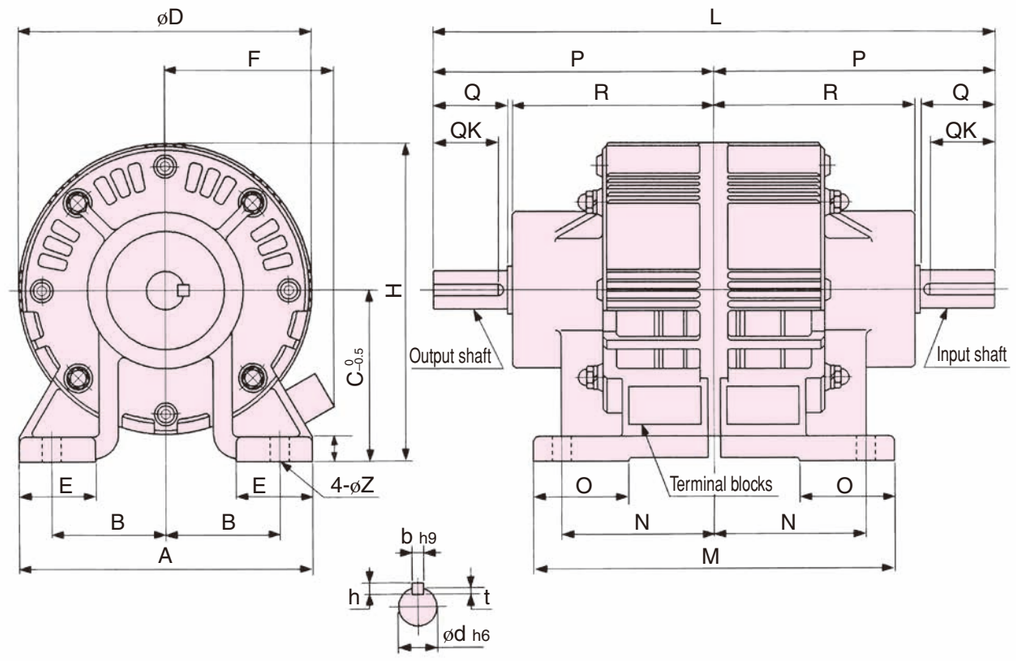
(DIM: mm)

Model	Diameter direction			Shuft direction					
	A	C	D3	L	M	N	P	Q	g
JB-10	186	175.7	58	68	31	3.5	33.5	34.5	0.5
JB-20	236	219	72	82	34.5	5	41.5	40.5	0.6
JB-40	288	271	90	98	40	6	51.5	46.5	0.6

Model	Attachment				Shuft hole		
			NJ				
	K	KJ	P.C.D	Bolt	d	b	t
JB-10	7	M8	72	M6×16	30	10	$33.3^{+0.1}_{0}$
JB-20	8.5	M8	90	M8×20	40	12	$43.3^{+0.1}_{0}$
JB-40	9.5	M10	112	M10×25	50	16	$54.3^{+0.1}_{0}$

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

Model	Clutch model used	Brake model used	Static friction torque (Nm)	Rated voltage (DC-V)	Power consumption at75°C(W)		Mass(kg)
					Clutch	Brake	
JEP-0.6	JCC-0.6F	JB-0.6	6	24	8	8	2.6
JEP-1.2	JCC-1.2F	JB-1.2	12	24	11	11	4.5
JEP-2.5	JCC-2.5F	JB-2.5	25	24	16	14	8.4
JEP-5	JCC-5F	JB-5	50	24	23	20	14



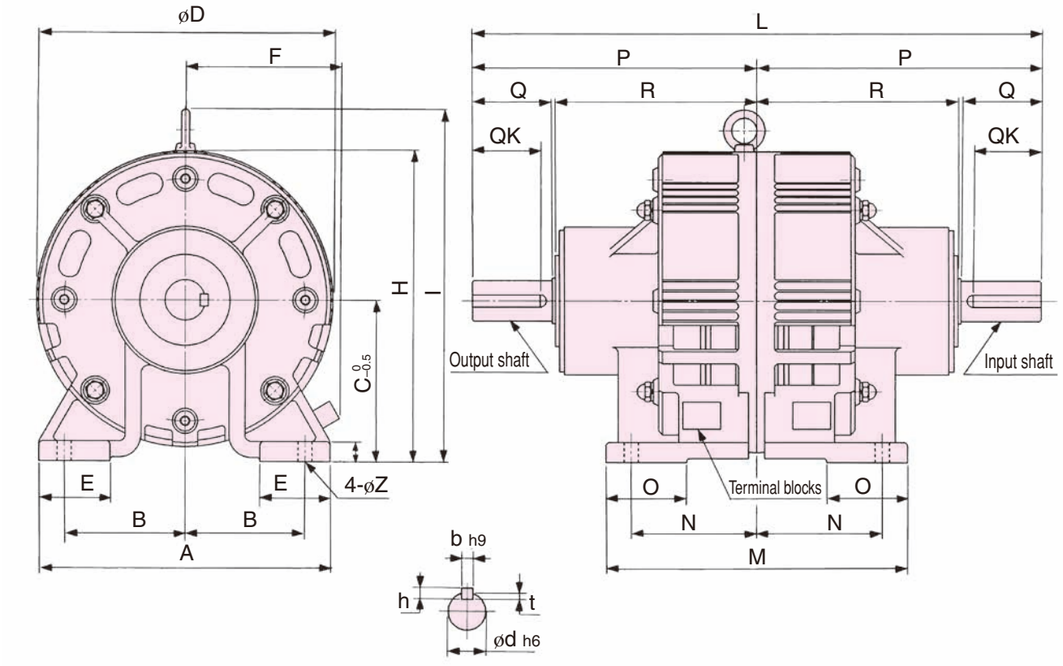
(DIM: mm)

Model	Diameter direction								Shuft direction		
	A	B	C	D	E	F	G	H	L	M	N
JEP-0.6	105	40	63	105	30	69	9	115.5	198	130	55
JEP-1.2	128	45	71	128	35	79	11	135	236	150	65
JEP-2.5	154	60	90	154	40	89	13	167	295	190	80
JEP-5	188	75	100	188	50	106	15	194	360	220	90

Model	Shuft direction				Shuft hole					
	O	P	R	Z	Q	QK	d	b	h	t
JEP-0.6	30	99	72.5	7	25	18	12	4	4	2.5
JEP-1.2	40	118	86.5	7	30	25	15	5	5	3
JEP-2.5	50	147.5	106	10	40	34	20	6	6	3.5
JEP-5	60	180	128	12	50	38	25	8	7	4

JEP-10, 20, 40 Through Shaft Type

Model	Clutch model used	Brake model used	Static friction torque (Nm)	Rated voltage (DC-V)	Power consumption at75°C(W)		Mass(kg)
					Clutch	Brake	
JEP-10	JCC-10F	JB-10	100	24	33	31	29
JEP-20	JCC-20F	JB-20	200	24	40	40	60
JEP-40	JCC-40F	JB-40	400	24	50	46	100



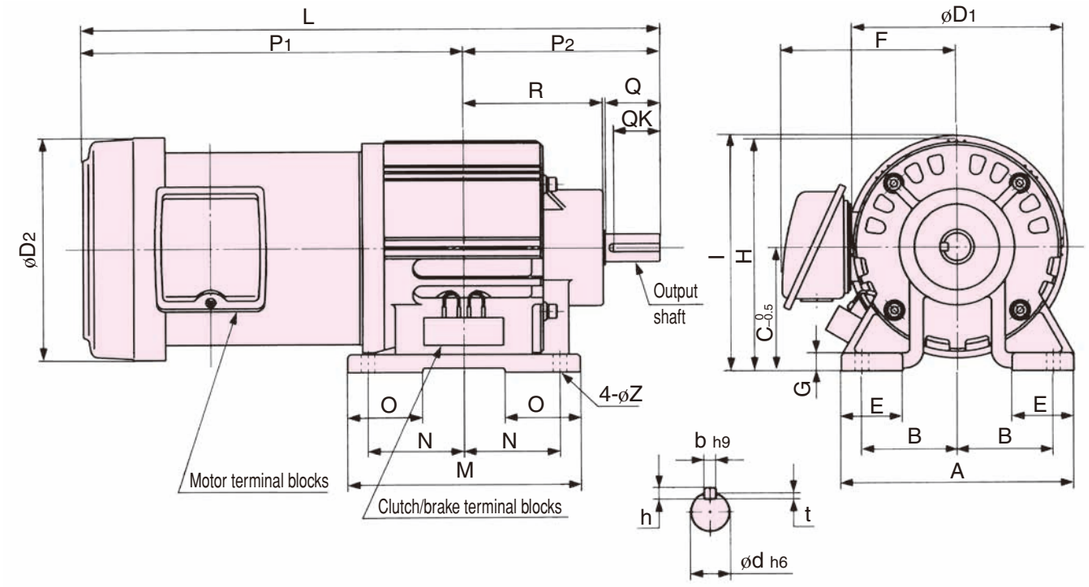
(DIM: mm)

Model	Diameter direction									Shuft direction	
	A	B	C	D	E	F	G	H	I	L	M
JB-10	234	95	120	234	60	127	20	237	–	430	260
JB-20	290	120	160	300	70	155	20	310	352	566	300
JB-40	340	140	180	354	80	177	24	357	408	680	360

Model	Shuft direction					Shuft hole					
	N	O	P	R	Z	Q	QK	d	b	h	t
JB-10	110	70	215	152.5	14	60	46	30	10	8	5
JB-20	125	80	283	200	14	80	68	40	12	8	5
JB-40	150	90	340	237	18	100	84	50	16	10	6

JEM-02, 05, 1, 2 Through Shaft Type

Model	Clutch/Brake						Motor		Mass (kg)
	Clutch model used	Brake model used	Static friction torque (Nm)	Rated voltage (DC-V)	Power consumption at75°C(W)		Capacity(kW)	Voltage, Frequency, Pole	
					Clutch	Brake			
JEM-02	JCC-0.6F	JB-0.6	6	24	8	8	0.2	AC200/220V 50/60Hz 4P	11
JEM-05	JCC-1.2F	JB-1.2	12	24	11	11	0.4		16
JEM-1	JCC-2.5F	JB-2.5	25	24	16	14	0.75		24
JEM-2	JCC-5F	JB-5	50	24	23	20	1.5		36



(DIM: mm)

Model	Diameter direction										Shuft direction	
	A	B	C	D1	D2	E	F	G	H	I	L	M
JEM-02	130	55	71	116	131	40	118	9	130.5	136	327.5	130
JEM-05	150	62.5	80	132	131	45	118	11	147.5	145.5	364.5	150
JEM-1	170	70	90	152	162	45	128	13	167.5	171	421.5	170
JEM-2	190	80	112	190	187	60	141	15	207	205.5	502	200

Model	Shuft direction						Shuft hole					
	N	O	P1	P2	R	Z	Q	QK	d	b	h	t
JEM-02	55	38	231.5	96	69.5	7	25	21	12	4	4	2.5
JEM-05	62.5	47	249.5	115	83.5	10	30	25	15	5	5	3
JEM-1	70	55	278	143.5	102	10	40	34	20	6	6	3.5
JEM-2	80	60	326	176	123.5	12	50	42	25	8	7	4