

INSTRUCTION SHEET FOR INSTALLATION AND OPERATION

HYPONIC DRIVE

1. Lubrication

Hyponic Drive are filled with grease at our factory and are ready for use without refilling (please see chapter 5. for details).

2. Mounting

Mounting conditions

Ambient temperature:	-10~+40°C
Ambient humidity:	85% or less
Altitude:	Lower than 1000 metres above sea level
Ambient air:	Free from corrosive gases, explosive gases or steam. It should also be free from dust and well ventilated.
Place of mounting:	Indoor

2.1 Solid-shaft type

- Mount the Drive on a rigid table or plate.
- There is no restriction for mounting angle.
- Use hexagon socket head bolts when mounting RNFM series (flange-mount type) (Table 1).

Table 1

Series	Frame Size	Size of hexagon socket head bolt
RNFM	20, 23	M8
	30, 33	M10
	40, 43	M10
	50, 53, 54	M12

2.2 Hollow-shaft type

- Mount the Drive on a driven shaft that has sufficient rigidity.
- There is no restriction for mounting angle.
- There is no restriction for torque arm.

(i) How to connect a driven shaft.

Apply molybdenum disulfide grease to the surface of a driven shaft and the inner surface of a hollow shaft. Then insert the Drive into the driven shaft.

If the fitting is too tight, lightly knock the end face of a hollow output shaft with a wooden hammer for smooth insertion. Avoid knocking the casing. We recommend making a jig shown below. Using this jig, you can insert the Drive smoothly.

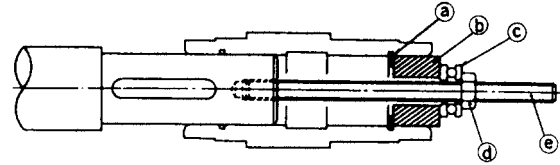


Fig. 1

The hollow shaft is made according to the tolerance H8. If you experience impact or notice a large radial load with the hollow shaft, further tighten the fitting below the hollow shaft and the driven shaft (We recommend js6 or k6 as the tolerance of a driven shaft).

(ii) How to fix the Drive to a driven shaft

* Method to avoid Drive from slipping onto a driven machine (Fig. 2~4)

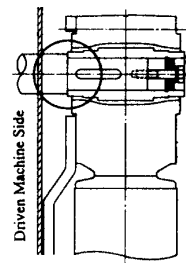


Fig. 2 Fixed by stopping shaft

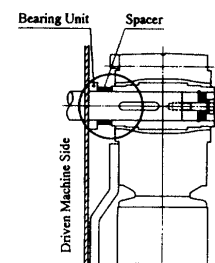


Fig. 3 Fixed by spacer

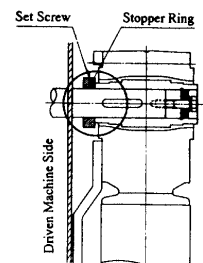


Fig. 4 Fixed by set screw

* Method to avoid Drive from slipping away from a driven machine (Fig. 5~7)

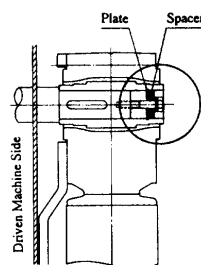


Fig. 5 Fixed by spacer and plate

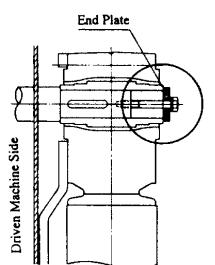


Fig. 6 Fixed by end plate

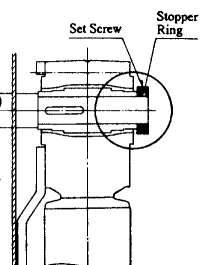


Fig. 7 Fixed by set screw and stopper ring

(iii) How to set a torque arm

Mount the torque arm on the driven machine side of the Drive casing. Use hexagon socket head bolts for mounting. (See Table 2 for bolt sizes.)

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Table 2

Frame Size	Size of hexagon socket head bolt
20, 23	M8
30, 33	M10
40, 43	M12
50, 53, 54	M16
60, 63, 64	M20

Torque arm anti-rotation stopper (A-part in Fig. 8) should be designed so as to allow movement of the torque arm to make sure that the contact surface between the Drive and shaft are free from excessive force.

Don't fix the torque arm by anti-rotation bolts.

For such applications as requiring frequent start and stop or frequent reversing of the rotating direction, insert a rubber bushing between the torque arm and securing bolt (or spacer) in order to relax impact load.

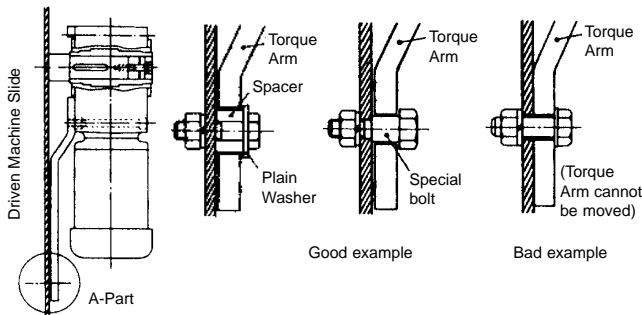
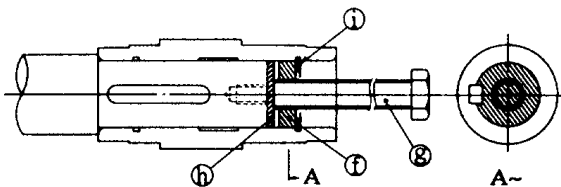


Fig. 8 A-part securing methods (example)

(iv) How to remove the shaft

Make sure that excess force does not act on the Drive and shaft. Using a jig as shown in Fig. 9 will facilitate removal of the shaft.

Note: Parts for setting, securing or removing the shaft should be prepared by the user.



- f Spacer
- g Bolt
- h Plate
- i Shaft retaining C-ring

Fig. 9

(v) Flange and On-bed mounting (optional)

When installing the Drive, pay attention to the alignment between the Drive and shaft to be driven so that the Drive is free from excess force.

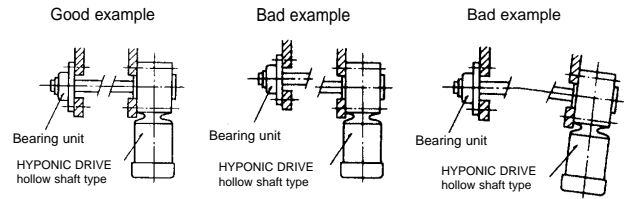


Fig. 10 Flange coupling

(The shaft centre-line is not positioned at right angles to the flange).

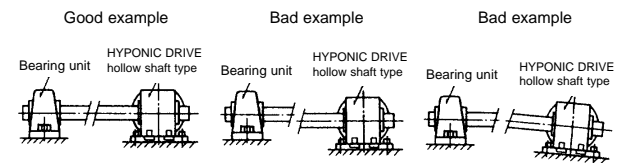


Fig. 11 On-bed mounting optional

(The shaft centre of the bearing unit does not align with that of the drive).

(The parallelism of the mounting beds is out of the allowable range)

3. Connection to the Machine to be Driven (Solid-shaft type)

- a) Set the connecting device such as coupling, chain, sprocket, gear or V-pulley on the shaft as close to the shaft collar as possible, unless specifically required so that a loading point comes between the shaft centre and the shaft collar (Fig. 12).

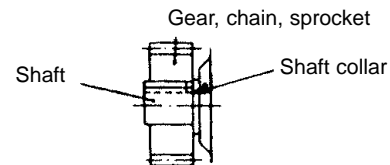


Fig. 12

- b) As the bearings may be damaged, if a heavy impact or thrust load is applied to the shaft when fitting the connecting device, use of end cap screws is recommended (Fig. 13).

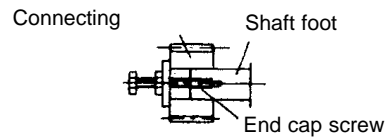


Fig.

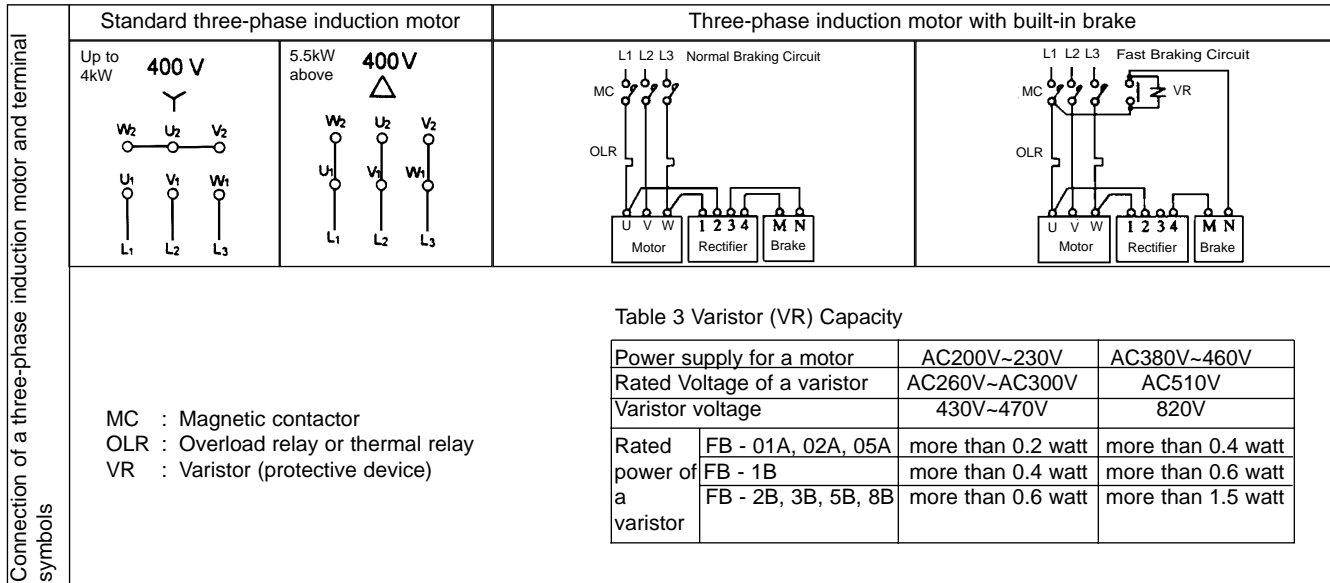
- c) In connecting the Drive to the driven machine, careful attention should be paid to align the shafts of both units (connection by couplings) or to keep both shafts parallel to each other (connection by chains, gears or V-belts).
- d) Excessively loose chains can cause an impact on start, which may cause problems to the Drive and the machine.
- e) Excessive tension of V-belts may result in failure of the bearings.

4.1 Wirings

- a) For wiring, use good wiring tools and follow the client's interoffice wiring criteria and power supply company's recommendations.
- b) When wiring over long distances, consideration should be paid to avoid voltage drops.

- e) When the standard electric motor is driven by an inverter, the dielectric withstand voltage of the electric motor may have to be taken into account if the inverter has a high carrier frequency (typical in IGBT) with high input voltage (400V or more), or if it has a long wiring distance. Consult SUMITOMO CYCLO EUROPE in such a case.

Fig. 14



- c) Standard specifications for wire connections and terminal marks are shown in Fig. 14. The rotating direction of output shaft is when wiring is made as per Fig. 14 is shown in Fig. 15.
- d) 3 phase-400V class standard motors are applicable to the following special voltages.

Standard motor	400V, 50/60Hz	400V, 60Hz
Voltage (V)	380, 400, 415	400, 440
Frequency (Hz)	50/60	60

These special voltages are not shown on name plate (standard voltages are showed on name plate).

5. Lubrication detailed instruction

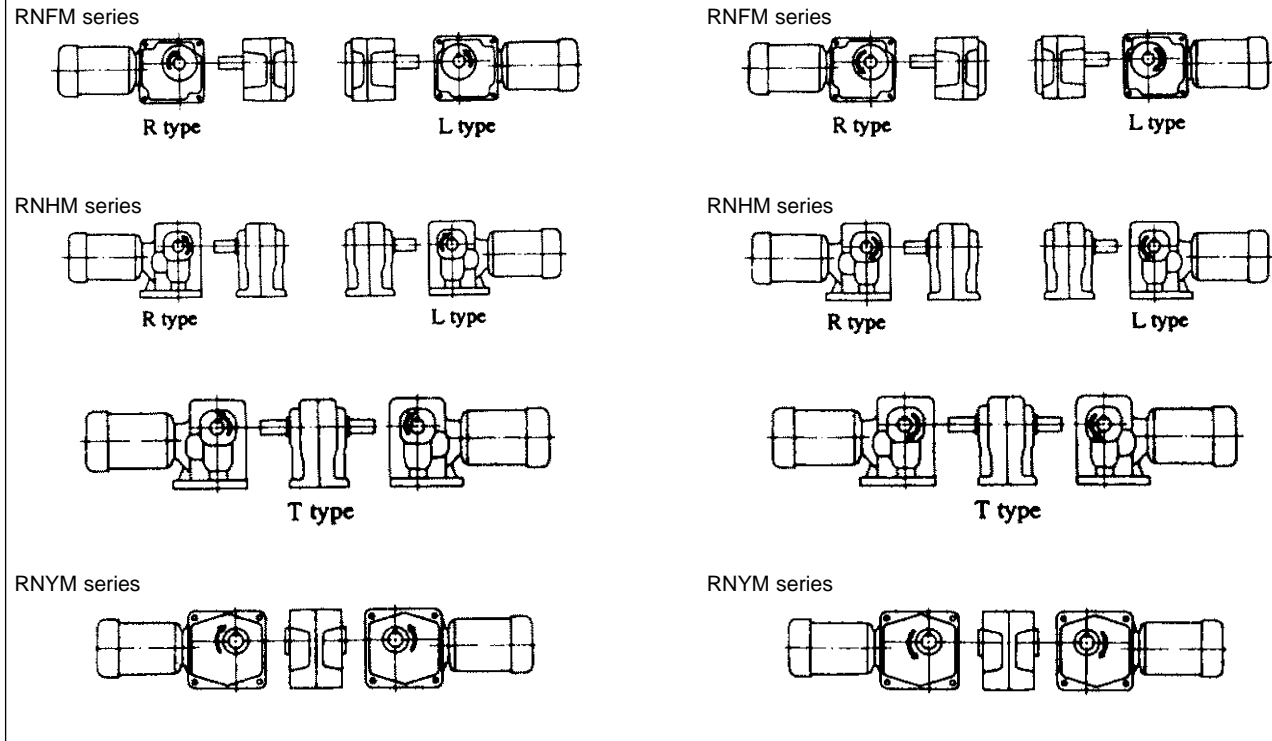
All Hyponic units are lifetime lubricated and can be mounted in any position required. The units are filled with grease Nippon Koyu BA-11 000 at the factory and do not require any filling for 20,000 hours or 4 to 5 years of service.

The service life can be increased if the grease is replaced after the period mentioned above. Replacement of grease requires dismounting of the unit, which should be done at the factory.

Fig. 15 Rotating Direction of the Output Shaft

If wiring connection has been completed as shown in Fig. 14, a motor shaft rotates clockwise as seen from the fan cover side. The rotating directions of an output shaft are indicated by arrows in the Table below.

kW	Frame Size	Speed reduction ratio	kW	Frame Size	Speed reduction ratio
0,12	20	10,12,15,20,25,30,40,50,60	0,12	20	80,100,120
0,18	23	10,12,15,20,25,30	0,18	23	40,50,60
0,25	30	10,15,20,30,40,50,60	0,25	30	80,100,120
0,37	33	10,12,15,20,25,30	0,37	33	40,50,60
	40	10,15,20,30,40,50,60		40	80,100,120
0,55	43	10,12,15,20,25,30	0,55	43	40,50,60
0,75	50	10,15,20,30,40,50,60	0,75	50	80,100,120
1,1	53	10,12,15,20,25,30	1,1	53	40,50,60,80
1,5	60		1,5	60	80,100,120
2,2	54	10,12,15,20,25,30	2,2	54	40,50,60
	60	10,12,15,20,25,30,40,50		60	60,80
3,0-4,0	63	10,12,15,20,25,30	3,0-4,0	63	40,50
5,5	64	10,12,15,20,25	5,5	64	30



Note: Replacing two of the three power supplies of a three-phase induction motor will cause the motor to rotate in directions reverse to those shown in above Figure.

If you have any questions, please don't
hesitate to contact us.

SUMITOMO CYCLO EUROPE

SUMITOMO (SHI) CYCLO DRIVE EUROPE, Ltd.

Marfleet

GB-Kingston upon Hull HU9 5RA

Phone: ++44 (14 82) 78 80 22

Fax: ++44 (14 82) 71 32 05

e-mail: mktg@smcyceuro.com

<http://www.smcyceuro.com>