

Examples of safeguarding magnet bodies against rotation

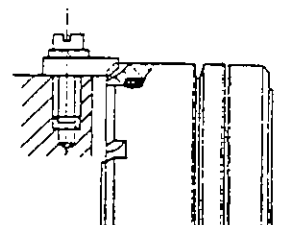
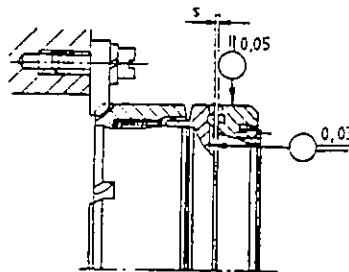


Fig. 2

Fig. 3

- 1 Magnet body
- 2 Magnet coil
- 3 Support plate
- 4 Armature plate
- 5 Drive plate
- 6 Pressure pin
- 7 Spring
- 8 Grub screw (DIN 551)
- 9 Spring bolt
- 10 Spring
- 11 Spring locking ring
- 12 Spacer ring
- 13 Circlip
- 14 Cover plate
- 15 Brass spacing washer

1. Description

The Oertlinghaus electromagnetic stationary field tooth clutch are supplied in two versions for dry running: series 0-013-050 (fig. 1, top half) for wet running: series 0-013-000 (fig. 1, bottom half)

Excitation of magnet coil(2) produces a magnetic field which flows through magnet body (1), support ring (3) and is closed by armature plate (4). The armature plate is thus attracted and the teeth of the clutch engage. When the clutch is disengaged, the springs (7) acting on pressure pins (6) separate the two clutch halves rapidly. The spring force is supported by grub screws (8). The springs (10) between armature plate and drive plate (5) together with the spring bolts (9) retain the armature in the retracted position when the clutch is switched off so that no idling friction can occur between the two clutch halves.

The non-rotating magnet body (1) is radially located by anti-friction bearings on the support ring and is held in position by spring locking ring (11), spacer ring (12) and circlip (13). On the clutch versions designed for dry running the anti-friction bearings are sealed by the cover plate (14).

The coil wire ends are connected to a two-pole plug secured to the magnet body. This plug connection can be swivelled through 90° in accordance with clutch location after releasing the nut. The wires must be squashed. The supply wires are connected by inserting male connector blades. The magnet body should be locked in position to prevent rotation in such a way that no radial or axial stresses arise (see fig. 2 and fig. 3).

Clutch size can be established in accordance with following data:

Outside diameter of magnet body (1) mm	80	95	114	134	165	195
Clutch size	07	11	15	23	31	43

2. Working data

These clutches are designed for 100% continuous rating. Depending on fitting conditions they will attain a permanent temperature of up to 80° C.

These clutches will transmit the rated torque subject to an input voltage of 24 V DC (+10%).

In most instances clutches are actuated from the DC side. It is therefore advisable to prevent contact burning by interposing a spark quench condenser in parallel circuit (no electrolytic condenser).

Clutch size	Capacitor order No.	µF
07 to 31	0-085-500-02-000	2
43	0-085-500-04-000	4

3. Fitting instructions

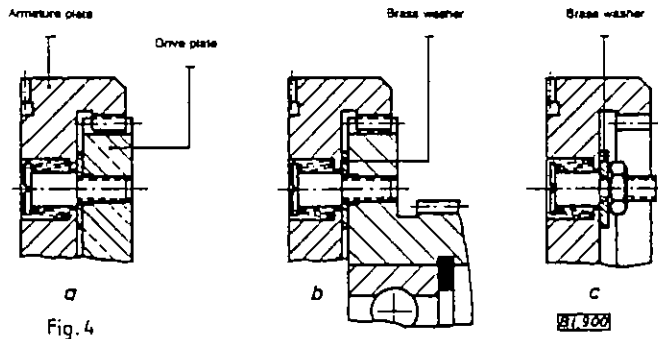
Clutches running wet (series 0-013-000) should preferably be so fitted that the teeth do not submerge. Tooth clutches may only be engaged at synchronized speeds or when relatively small speed differentials apply. In the case of relative speed differentials it is essential to bear system elasticity in mind. Magnet body and armature section with driver plate must be perfectly located in axial direction and must be in accurate linear alignment free from axial and radial eccentricity errors. Where necessary, carry out a "run-out" check when assembled in situ (fig. 2). Especially when high speeds apply, any alignment inaccuracies will unfavourably influence the torque transmitted because such malalignments create permanent displacement of the peripheral tooth engagement. The axial play "s" between the two peripheral tooth faces is shown in the table below and should be checked after assembly. It is advisable to compensate for manufacturing errors by using spacer bushes. Magnet body and armature plate must always be fitted in pairs as supplied.

Size	07	11	15	23	31	43
Play "s"	0,5 _{-0,2}	0,5 _{-0,2}	0,5 _{-0,2}	0,6 _{-0,2}	0,6 _{-0,2}	0,8 _{-0,2}

Fitting of armature section

The drive plate can be fitted after releasing the spring pins. Having drilled the dowel holes, again release drive plate then fitting armature plate complete with spring bolts and springs. The spring bolts should be tightened down fully and should then be safeguarded against rotation by centre-punching or bonding.

The drive plate is then bolted and dowelled to the armature plate once more. The armature plate must allow easy movement on the drive plate (fig. 4a). When flange-mounting the armature plate to machine components made from steel, the brass spacing washers supplied will have to be used (fig. 4b). When the clutch is supplied without drive plate, remove the hex. nuts prior to fitting. Note brass spacing washers (fig. 4c).



Tooth clutches can be fitted both horizontally and vertically. When fitting in vertical position, the armature plate should preferably be positioned at the bottom. It is essential to cater for adequate lubrication of the anti-friction bearings in the case of wet running clutches of series 0-013-000. Depending on operating conditions we recommend an oil baffle or direct splash lubrication.

In the case of dry running clutches of series 0-013-050, the anti-friction bearings have been provided with adequate grease and are sealed.

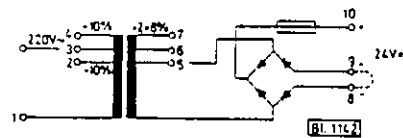
4. Rectifier units

Rectifier units are normally supplied with primary windings for 220 V $\pm 10\%$ 50-60 Hz. The secondary (output) winding is normally 24 V $+ 2 \times 8\%$. Mains voltage variations can be accommodated using terminals 2 or 4, and higher output voltages can be obtained by using terminals 6 or 7. When wired up correctly the rectifier unit should give 24 V DC $+ 10\%$ on the output side. A fuse is provided in the DC circuit.

Rectifier unit faults: No output from rectifier

- No mains voltage at input.
- Primary or secondary winding open circuit.
- The DC fuse has blown.

Output voltage is too low mains voltage is reduced, (see above).



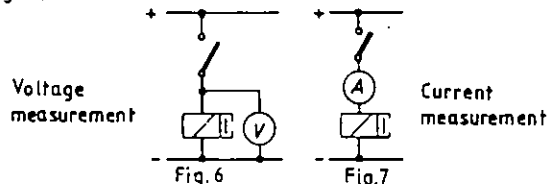
5. Fault check

5.1 Clutch slips: Check whether 24 V supply is available as prescribed.

5.2 Clutch fails to engage: Check current path

- Check whether requisite voltage of 24 V ($+10\%$) is available on the clutch.
- Check whether coil is being energized. Interpose ammeter in circuit which should then show the following approx. amperages:

Clutch size	07	11	15	23	31	43
at 20° C A	1,1	1,6	1,7	2,6	3,5	3,6
at 80° C A	0,9	1,3	1,4	2,1	2,9	2,9



6. Spare parts

When ordering spare parts, please state the factory number, which is stamped on the magnet body. To avoid mistakes, please place all orders in writing or by telex.

7. Circuit diagrams for electromagnetic clutches

