

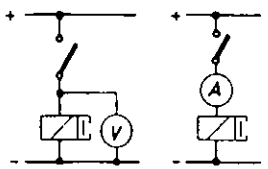
in the case of vertical installation the armature plate should be situated below the coil.

4. Installation and maintenance faults, and their elimination

4.1 Clutch slips

Check applied voltage at slipping, this should be 24 V + 10% when coil is energysed.

4.2 Clutch fails to engage:



Voltage measurement
Current measurement

- a) Check applied voltage to slipping.
- b) Check brushes for poor contact with slipping - replace worn brushes - clean slipping.
- c) Check circuit for continuity, interpose armature in circuit, current should correspond to table below.

Size	03	07	11	15	23	31	43	51
I at 20° C	0,5	1,1	1,2	2	2,5	3,3	3,4	4,2
I at 80° C	0,4	0,8	0,9	1,6	2	2,6	2,7	3,4

5. Spare parts

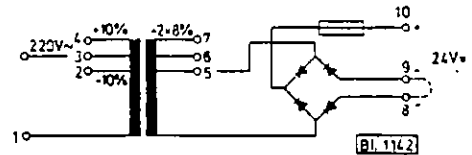
When ordering spare parts it is necessary to state the part number and factory number, both of which are stamped on the armature plate. To avoid delivery of wrong parts always place orders in writing.

6. Accessories

6.1 Rectifiers

The normal primary voltage is 220 V + 10%, 50-60 Hz, the output is rectified to a D.C. voltage of 24 V + 2 x 8%.

Power supply variation can be accomadated by using terminals 2 and 4 whilst high operating voltages are possible using terminals 6 or 7. The rectifiers must be connected in such a way that a voltage of 24 V + 10% is achieved at the slipping when the coil is energised. The rectifier is protected by a fuse in the direct current circuit.



Rectifier faults. 1. Rectifier delivers no current.

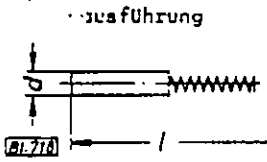
- a) No mains supply voltage.
- b) Interruption in mains or D.C. circuits.
- c) Rectifier fuse burnt out.

2. Rectifier fails to produce required output.

- a) Main supply has low voltage.

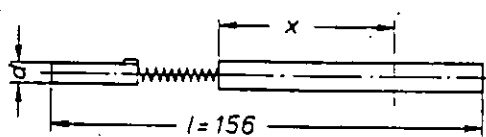
6.2 Brush assemblies

Dependant upon the size and running conditions, the clutches require different types of brushes, which must be frequently checked and renewed when necessary.



Size	Thread	Brush Ø d	I	Order Numbers	
				Copper graphite for dry running	Woven bronze for wet running
00	M 18x1,5	6	73	0-085-210-00-001	0-085-231-00-001
01	M 16x1,5	6	78	0-085-210-01-001	0-085-231-01-001
03	M 14x1,5	4	56	0-085-210-03-000	0-085-231-03-000

Extended design

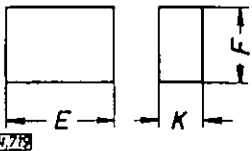


Size	Thread	Brush Ø d	Order Numbers	
			Copper graphite for dry running	Woven bronze for wet running
00	M 18x1,5	6	0-085-210-00-010	0-085-231-00-010
01	M 16x1,5	6	0-085-210-00-010	0-085-231-00-010
02	M 16x1,5	5	0-085-210-02-010	0-085-231-02-010

The brush can be shortened to suit present measurement "X"

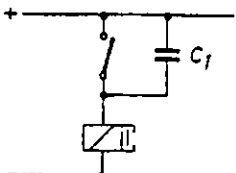
6.3 Spare brushes

for double-side-holders

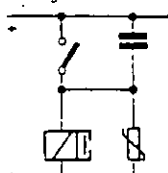


Size	E	F	K	Version	Type of running	Order No.
01	16	10	6.3	Copper graphite	Dry	0-085-200-01-000
				Woven bronze	Wet	0-085-221-01-000
02	20	16	8	Copper graphite	Dry	0-085-200-02-000
				Woven bronze	Wet	0-085-221-02-000

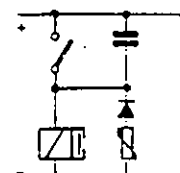
Circuit diagrams of electromagnetic tooth clutches



Condenser circuit

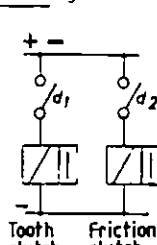
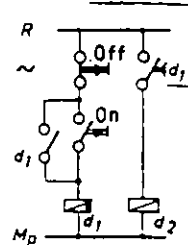


with varistor

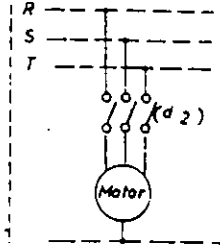


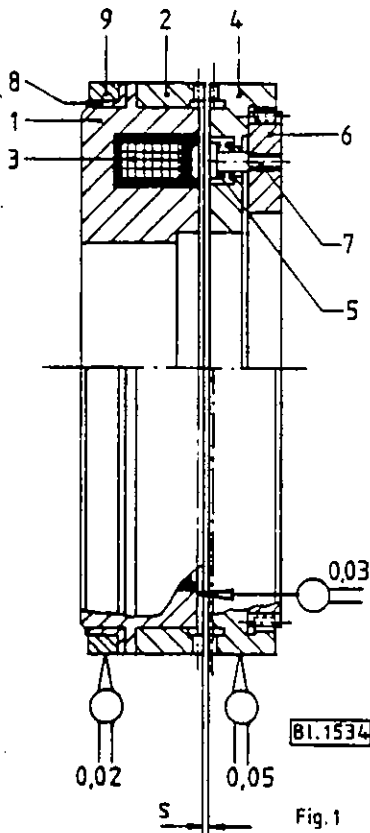
combined with varistor and diode joined in series

Delayed switching



Circuit of tooth clutch in connection with friction clutch and engine





1. Operation

When the magnetic coil (3) is excited, a magnetic flux results which attracts the armature plate (4) to the gear rim (2). This results in the meshing of the teeth and hence a positive drive between coil body and armature plate. When the coil is de-energised, several strong compression springs (5) cause the clutch to rapidly disengage. The required air gap "s", that must be maintained between the armature plate and gear rim when the clutch is disengaged, is fixed by these compression springs which are located on the drive plate (6) by spring shackle bolts (7).

The coil is electrically connected via an earth connection through the coil body and through the slipring (9) which is insulated from the coil body by insulating ring (8).

External diameter of the magnetic body (1) mm	70	82	95	114	134	165	195	240
Clutch size	03	07	11	15	23	31	43	51

2. Operating conditions

These clutches are designed for 100% continuous rating. Depending on the installation conditions, they will attain a permanent temperature of up to approximately 80°C (175°F). Transmission of rated torques requires an input D.C. voltage of 24 volt (+10%). In most cases the clutch is actuated on the D.C. side, but to prevent contact burning, it is advisable to interpose a spark quench condenser parallel (electrolytic condensers are not acceptable).

- 1 Coil body
- 2 Gear rim
- 3 Magnetic coil
- 4 Armature plate
- 5 Compression spring
- 6 Driving plate
- 7 Spring shackle bolt
- 8 Insulating ring
- 9 Slipring

Clutch size	Condenser	µF
03 to 31	0-085-500-02-000	2
43 to 51	0-085-500-04-000	4

3. Installation directions

The clutches are suitable for both wet and dry operation, but it is important that when running wet the clutches are not immersed in oil. Tooth clutches must only be engaged at synchronised speeds or where the relative speeds are relatively low. Coil body and armature section with driver plate must be perfectly located in the axial direction and must have accurate linear alignment free from axial and radial eccentric errors. In the case of high speeds, any alignment inaccuracies will unfavourably influence the torque transmitted because such misalignments create permanent displacement of the tooth engagement. The axial air gap "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 spacing bushes.

Size	03	07	11	15	23	31	43	51
air gap "s" mm	0,4 _{-0,2}	0,5 _{-0,2}	0,5 _{-0,2}	0,5 _{-0,2}	0,6 _{-0,2}	0,6 _{-0,2}	0,8 _{-0,3}	1 _{-0,3}

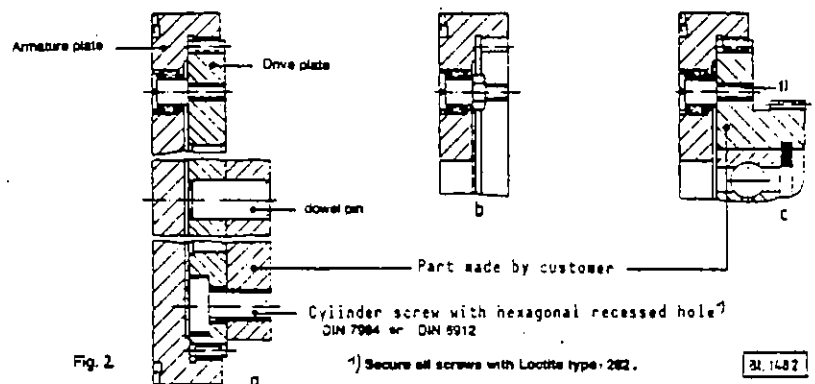
3.1 Installation of the armature plate with drive plate

By loosening the spring shackle bolts (7) the driving plate can be dismantled. The driving plate has to be bolted, pinned and secured to the driving/driven member if necessary using the driving plate as a drilling jug. After the installation of the driving plate the armature plate must be reassembled and secured in position using the compression springs and spring shackle bolts. The spring shackle bolts must be tightened and secured with a suitable adhesive.

3.1.1 Installation of armature plate without drive plate

If the tooth clutches is supplied without the drive plate, i.e. the external teeth are manufactured by the customer, the hexagonal nuts on the spring shackle bolts be removed before installation. Installation of the armature plate is then as in 3.1. It is important that the armature is free to move on the drive plate.

Tooth clutches can be installed in both the horizontal and vertical position but



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