

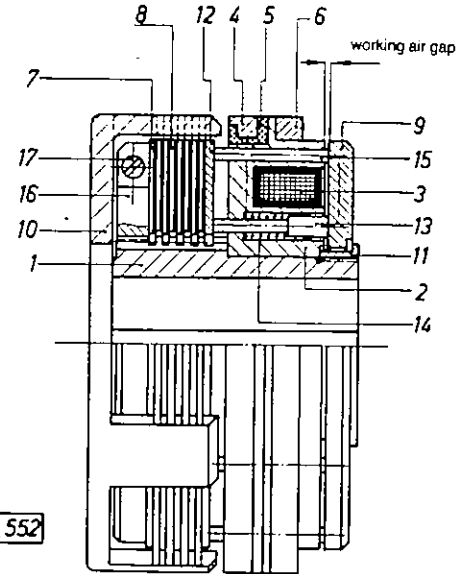
1. Description

The housing (10) has male splines engaging with female splines in the hardened and face-ground externally splined clutch plates (8).

The internally splined plates (7) slide on the mating splines of clutch hub (1). The coil body (2) is fixed to prevent relative rotation and axial displacement. The magnet coil (3) is permanently cast into the coil body in fixed position. In the standard version, the coil end is in contact with the insulated slipring and the other coil end is in contact with earth-coil body and consequently with the slipring (6).

When the clutch is energized, a magnetic field flows through the coil body and the armature plate (9). The armature plate (9) is attracted to the coil body, compressing the plate pack via the pressure pins (13 and 15) and the pressure plate (12). The resulting friction between inner and outer plates transmits torque between inner and outer plates.

When current supply is interrupted, the magnetic field collapses. The pressure pins (13) subjected to the force of compression springs (14) push the armature plate back against the centering nut (11) (with stop) so that the clutch plate stack is once more free. The internally splined "SINUS" clutch plates only incorporated in clutches with "steel/friction metal" pairing also act as springs thus severing clutch plate stack contact ("SINUS" plates have wavy contour). In turn, this also reduces the idling torque of the clutch.



2. Installation and maintenance of the clutch

Frictional wear of the clutch plates reduces the working air gap. The split adjusting nut is used to restore the working air gap to its original value (see table below). To increase the air gap (ie decrease the torque), loosen the lock screw (16) and rotate the lock nut (17) clockwise – in the direction $M_d \rightarrow -$ and re-tighten the lock screw. To decrease the air gap (ie increase the torque), rotate the lock nut anticlockwise – direction $+ \leftarrow M_d$. There must always be a small air gap between armature plate (9) and coil body (2).

The working air gap can be measured by inserting a non magnetic feeler gauge between coil body and armature plate.

Clutch size		07	11	15	23	31	43	51	59
Working air gap	mm	0,2 - 0,25		0,25 - 0,3			0,25 - 0,35		

3. Clutch lubrication

Dry running clutches must not be lubricated: although the centering nut (11) is to be smeared with a high melting point grease eg Shell Alvania Grease R 2.

Wet running clutches require a mineral lubricating oil with a viscosity of appr. $32 \text{ mm}^2/\text{s}$ at 40°C eg Shell Tellus Oil C 32 ($\text{mm}^2/\text{s} = \text{cSt}$). The oil used must be ageing resistant and non aggressive to steel and cooper even at high temperatures. Oils with high film strengthening additives are to be avoided.

In most cases, mist lubrication is sufficient, but it must be ensured that the sliprings are not over lubricated since this would be detrimental to the electrical contact between brush and slipring.

If the clutch is partly submerged, the oil level should not be above $1/10$ th clutch diameter.

4. Fault check

4.1 Clutch slips

- The clutch is incorrectly adjusted, and must be re-set as in 2 above.
- Check the working voltage.
- The oil used is too thick, or over-supplied.

4.2 Clutch drags when idling.

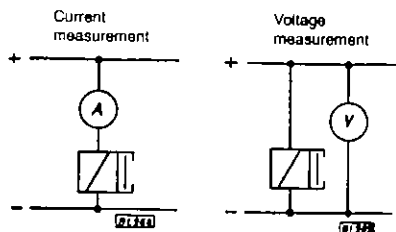
- There is a residual voltage at the slipring due to faulty control system or insulation.
- The oil used is too thick, or over-supplied.

4.3 Clutch overheats (above 80°C).

- a) Temperature rise with clutch engaged.
 - The clutch is incorrectly adjusted, and must be re-set as in 2 above.
 - The input and output shaft are not aligned sufficiently accurately.
- b) Temperature rise with clutch disengaged.
 - Insufficient bearing lubrication (or over-lubrication of bearing).
 - The oil used is too thick, or over-supplied.

4.4 Clutch not energising

- Check voltage (+ 10%) at slipring.
- Clean and replace worn brushes.
- Check continuity of the coil. Put an ammeter in circuit and check for the correct current reading as given below.



Clutch size		07	11	15	23	31	43	51	59	
24 V	at 20°C	0,62	0,63	1,01	1,12	2,1	2,38	3,6	4,38	Amp.
	at 80°C	0,5	0,51	0,82	0,91	1,67	1,93	2,92	3,55	Amp.
12 V	at 20°C	1,0	1,46	1,75	2,53	3,75	5,1	6,25	8,6	Amp.
	at 80°C	0,8	1,18	1,42	2,05	3,02	4,12	5,06	6,95	Amp.

5. Spare parts

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

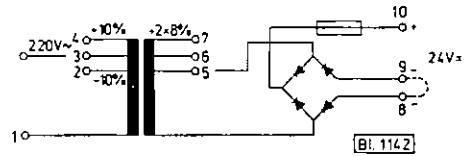
Clutch size can be established from following table.

Outer dia. of slipring (4 and 6)	mm	85	100	110	128	154	200	245	295
corresponds with clutch 0-006-...-	size	07	11	15	23	31	43	51	59

6. 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 \pm 2 x 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 \pm 10% on the output side. A fuse is provided in the DC circuit.



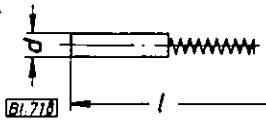
Rectifier units faults

- 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).

7. Current supply brushes

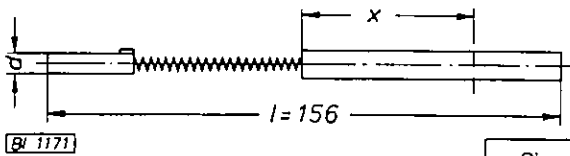
are subject to wear and should be checked regularly.

Standard version replacement brush



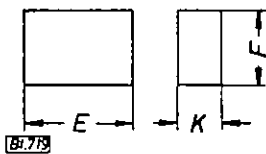
Size	Thread M of holder	Brush dia. d	l	Order number	
				Copper graphite for dry running	Woven bronze for wet running
00	M 18 x 1,5	6	73	0-085-210-00-001	0-085-231-00-001
01	M 16 x 1,5	6	78	0-085-210-01-001	0-085-231-01-001
03	M 14 x 1,5	4	56	0-085-210-03-000	0-085-231-03-000

Extended version replacement brush



Size	Thread M of holder	Brush dia. d	l	Order number	
				Copper graphite for dry running	Woven bronze for wet running
00	M 18 x 1,5	6	156	0-085-210-00-010	0-085-231-00-010
01	M 16 x 1,5	6	156	0-085-210-01-010	0-085-231-01-010
02	M 16 x 1,5	5	156	0-085-210-02-010	0-085-231-02-010

8. Replacement brushes of caliper-type



Size	E	F	K	Version	Type of running	Order number
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

ORTLINGHAUS-WERKE GMBH · D-5632 WERMELSKIRCHEN / W.-GERMANY

Post Box: 14 40

Telephone: (2196) 8 51

Telex: 8 513 311

Telegrams: Ortlinghauswerk Wermelskirchen