



## **OPERATING INSTRUCTIONS**

### **LUBRICATION:**

1. Clutches with discs in the Magnetic circuit can only be operated wet.
2. Splash or internal lubrication is recommended for the clutches and Brakes. For splash lubrication it is advisable to immerse 1/10<sup>th</sup> of the clutch in oil.
3. The dark color of the oil due to the high loading of the clutch is Quite harmless.
4. The intervals between oil changes depend on the operating condition of the clutch, the oil quantity, oil temperature etc.
5. The oil used should have the following properties:
  - a) High heat and aging resistance.
  - b) Negative electrolytic properties.
  - c) Low content of solids.
  - d) Good conductivity and cooling.
  - e) Viscosity of 21 mm<sup>2</sup>/s (21cSt)
6. The oil flow rate should be approximately 0.1 to 0.2 it/min/clutch.

The following oils are recommended:

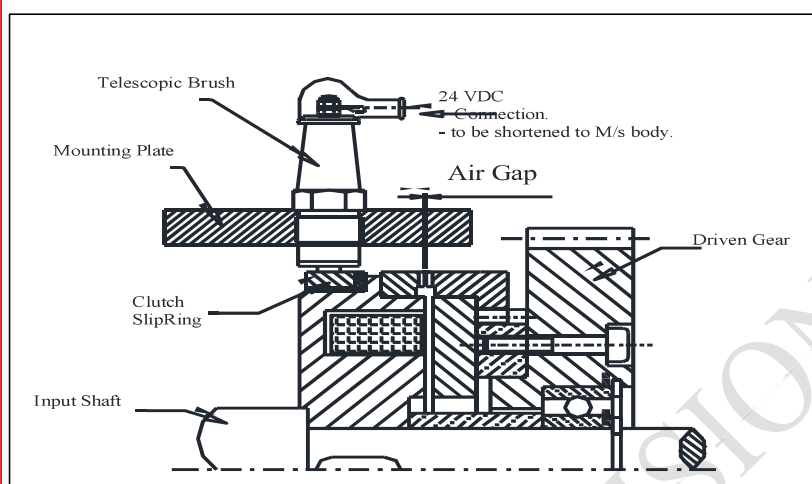
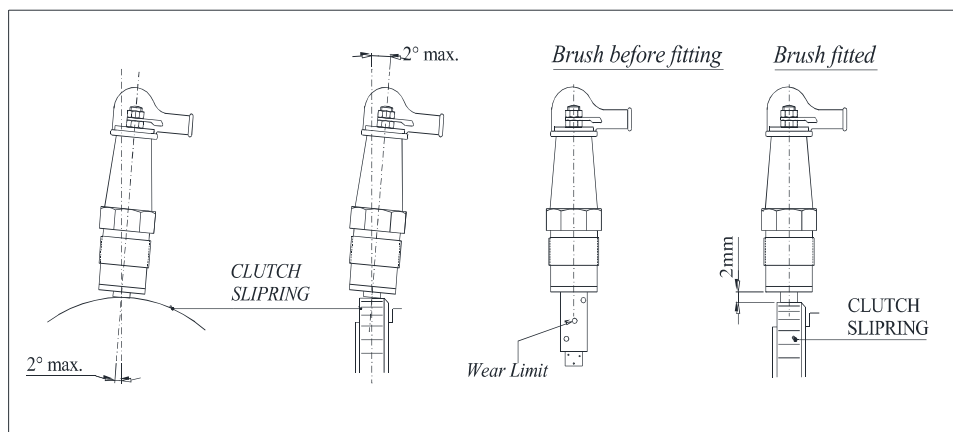
Supplier	Type
B.P.	Cabol 32 Cabol 46
Castrol	Perfecto T 32 Hypsin AWS 4 G
ESSO	Esstic 32 Teresso EP 47 NUTO H 44
MOBIL	VAC HLP 25 D-T-E Oil Light
SHELL INDIAN OIL	Hydrol 32 Servosystem HLP (N)22

### **DRY OPERATION**

1. Adequate ventilation should be provided.
2. Corrosive environment should be avoided.
3. Moist environment should be totally avoided.



## TELESCOPIC BRUSHES



1. Brushes must be connected to the positive pole of supply.

2. For dry running, carbon brushes are adequate.

3. For wet running, bronze gauze wire brush should be used.

4. Color code is used for matching before replacement of brushes.

5. The maximum permitted operating speeds of slipring type of clutches depend on the rubbing velocity permitted. For the slipring type operating wet, velocities above 20m/s requires an additional dummy brush. A dummy brush is also required at lower rubbing velocities for constantly varying current. Higher slipring velocities are permitted with dry operation.
6. Proper installation with minimum vibration is required for long life. In case the brushes are not screwed directly into the machine housing; They must be supported by strong bolted brackets on each side.
7. Brushes should never be fitted into the oil sump since the danger of short circuits exists through the bridging by metal particles.
8. The brushes should be checked for undue wear once every three Months.
9. Brushes of standard installation lengths can be expected to have a longer service life than the long type owing to their least tendency to oscillate.
10. Sparks between the brush and the slipring should be avoided at all Cost since it will produce a pitted surface.
11. In case the slipring becomes pitted or grooved they can be reground to a depth of 0.5mm (diameter).
12. It is essential to ensure that good contact between the clutch body and the machine housing or the negative pole is maintained.



## POWER SUPPLY

1. The nominal voltage for clutches should be 24 VDC ( $\pm 10\%$ ).
2. To minimize the line losses in voltage the power pack must be operated with maximum load possible in service.
3. The sparks which tend to occur between the relay contacts, due to the inductive load when the coil is de-energized, should be prevented by using a spark quenching capacitor as in fig.a
4. A high self-induced voltage is produced at the time of disengagement of Clutch or brake. This can damage the isolators or relays. Suitable surge-protection devices (varistors) should be used as shown in fig.b.
5. Rapid engagement of the clutch or brake is possible by connecting a resistor in series as shown in fig..c.
6. Rapid disengagement of clutch of brake is possible by connecting a Capacitor in parallel as shown in fig.d.
7. Faster engagement of the clutch or brake can be achieved by applying a pulsed voltage up to three times the rated voltage.

