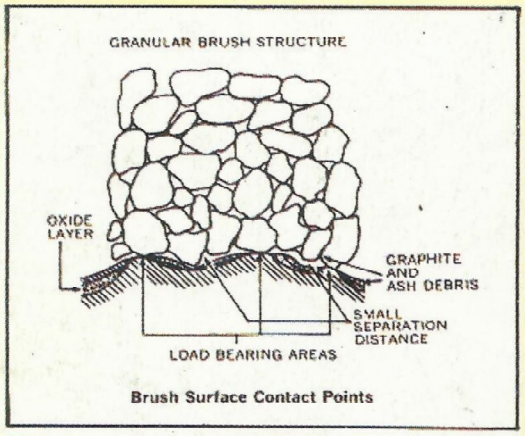
BRUSH MATERIAL CONTACT PROPERTIES

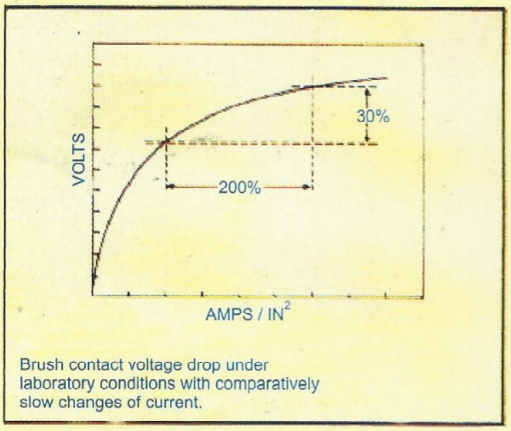
Contact Properties



Brush Surface Contact Points

CONTACT DROP

Contact drop is the voltage drop between the brush and the commutator or slip ring. It is influenced by many factors including brush grade, current density, spring pressure, friction vibration and ambient conditions.



Brush contact voltage drop under laboratory conditions with comparatively slow changes of current.

COEFFICIENT OF FRICTION

Brush friction is tangential force at the interface of the brush and the commutator or slip ring while in sliding contact with each other. Coefficient of friction is the ratio between the force of friction and the pressure perpendicular to the sliding surfaces. Brush friction depends upon current density, peripheral speed, spring pressure, temperature, and is influence by composition and condition of ring or commutator and brushes, oxidation, abrasion, humidity, chemical fumes and other contaminants.

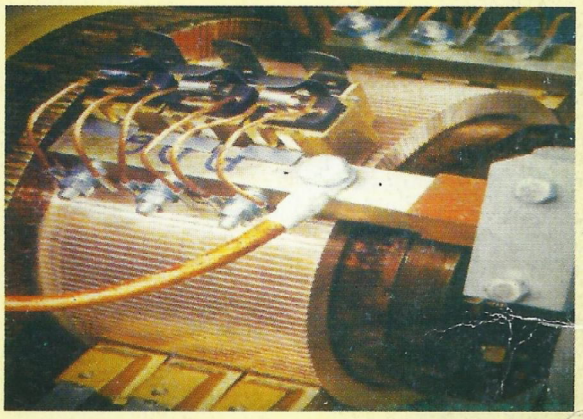
Operating Parameters

NORMAL CURRENT DENSITY

Current-carrying capacity is actual load current per unit area of cross –section that a brush material can carry under normal operating conditions.

NORMAL MAXIMUM PERIPHERAL SPEED

Allowable maximum peripheral speed depends upon the characteristics of the brush material, spring pressure, current density, collector condition, vibration, and atmospheric conditions.



SPRING PRESSURE

The spring force needed for satisfactory brush operation will vary with each application. Insufficient force results in poor contact, sparking, overheating and rapid wear due to electrical erosion. Excessive force causes high friction and increased mechanical wear.

In accompanying curve AB indicates a rapid increase in rate of wear due to burning caused by lack of contact between brush and collector. CD shows wear increasing from abrasive frictional forces. BC indicates a reduction in electrical wear nearly balanced by an increase in mechanical wear.