

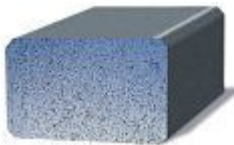
Technical Support – Rotating Machines

Surface Appearance of Brushes



SMOOTH POLISHED SURFACE

This indicates good performance. However, if the polish is mirror-like (glazed), high frequency chatter due to low current may be the cause. Check the side-faces of the brush for signs of vibration.



OPEN TEXTURED SURFACE

This, again, indicates that brush performance is satisfactory. Actual appearance will depend on the type of grade.



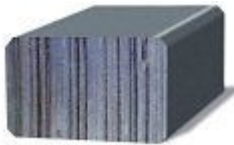
FINELY LINED SURFACE

Another satisfactory condition. Fine lines indicate the presence of dust in the atmosphere. This may be overcome by the use of filters or ducting the machine's air supply from another area.



FINELY SERRATED SURFACE

This is a further development of (S3) above. The causes are normally atmospheric contamination or lack of load current.



HEAVY SERRATED SURFACE

As (4) above, but problem is more severe or has been allowed to continue for longer.



GHOST MARKED SURFACE

This may be associated with difficult commutation and can arise from incorrect neutral position, interpole problems or other causes of poor commutation.

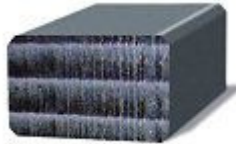


BURNT EDGES

Normally occurs on the trailing edge of the brush. Caused by poor commutation and heavy sparking.

**PITTED SURFACE**

Indicates heavy under-brush sparking as a result of current overload or brush instability.

**LAMINATED SURFACE**

This is an unusual condition caused by an armature winding fault giving rise to poor commutation.

**DOUBLE-BEDDED SURFACE**

This occurs as a result of brush tilting on a reversing machine, i.e. the brush beds itself in both directions of rotation. In itself this does not give any cause for concern.

**COPPER PARTICLES**

Copper pick-up from commutator surface can result from copper drag problems or heavy peak loads. Can cause further commutator wear.

**CHIPPED EDGES**

Normally occurs on the leading (entering) edge of the brush. breakage can result from poor commutator profile, high micas and severe brush instability.