

DUST GROOVES

They are introduced to avoid brushes sticking in the brush holders as a result of dust accumulation.

Within practical limits they encourage dust to move away from the brush tracks, where the abrasive dust can become embedded in the brush contact face and cause commutator or ring grooving.

Two cases are to be considered:

- 1 - Dust arising from wear agglomerated with a greasy substance or deposits arising from chemical corrosion.

It is necessary to reduce the contact surfaces between brush box and brush to the minimum necessary to obtain good guidance of the latter. One central groove on the widest brush faces (see fig. 1) satisfies this condition. In spite of its simplicity, this arrangement is more effective than multiple, vertical, crossed or sloping grooves often used.

This central **dust groove** can be up to 1 mm deep for big brushes and its width about three quarters of the face width in which it is machined:

$$L \# 0.75 a$$

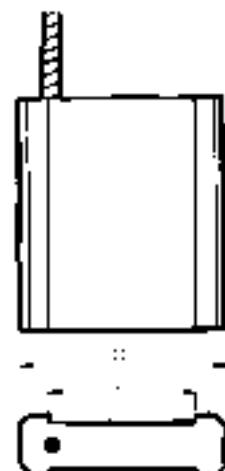


Fig. 1

Please, note that on bar commutators these grooves may have an unfavourable effect on commutating ability due to the decrease of the tangential dimension on one part of brush width. But it was sometimes noted that the subsequent increase of the transversal resistance of the brush improves the commutating ability.

For split brushes in two or three pieces similar grooves are also machined in the internal faces of the pieces as shown fig.2 (see overleaf). In this case we limit the groove depth to 0.2 mm for each piece.

Our machining rules are as follows:

a	10	12.5	16	20	25	32	40	50	63
L	6.3	8	10	12.5	16	20	25	32	40

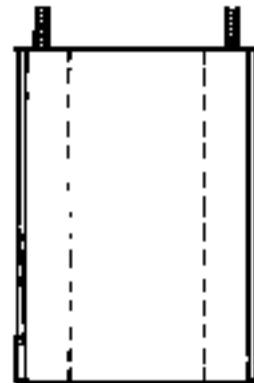


Fig.2

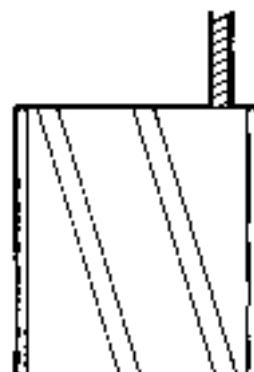


Fig.3

2 - Dusts of external origin.

These often abrasive dusts passing through the gap between brush and brush holder cause erosion of the brush sides and disturb its free sliding.

According to the method of ventilation, the position of the brush on the commutator and the intensity of vibration, dust can enter between brush and brush holder from all directions. If it reaches the commutator it can become embedded in the brush contact faces and cause grooving of the commutator.

The disposition fig.3 complies with this problem.

Depth of groove: 0.7 mm approx.

Width of groove: 3 mm approx.

These two methods are the only ones recommended. They adequately permit a limitation of incidents caused by dust.



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