Methods of Attaching Industrial Friction Materials

RIVETING

Asbestos friction materials are usually fastened in position with either rivets or bolts.

Due to normal wear of the friction material, it is sometimes difficult to prevent occasional contact of the fastenings with the drums. By the proper selection of the fastening material, the possible cutting, scoring, or wearing away of the drum may be minimized.

The materials generally employed for bolts and rivets are copper, brass and aluminum, or their alloys.

Copper rivets are strong, tough and ductile and are widely used against both cast iron and steel friction surfaces. However, copper tends to drag and plate the metal surface and may cause serious erosion of the drum.

Brass rivets are superior to copper because they resist abrasion better and show no tendency to score under normal operating conditions.

As a general rule, solid flat head rivets are the most satisfactory type for industrial purposes. Semi-tubular rivets are better for this work than the full tubular kind as they are considerably stronger. Split rivets should never be used on industrial work.

The minimum length of rivet should be the thickness of lining under the rivet head, plus the thickness of the brake band or shoe, plus the diameter of the rivet body. The maximum length should be the thickness of lining under the rivet head, plus the thickness of brake band or shoe, plus the diameter of the rivet body, multiplied by 1.25. The length of a rivet is measured in sixteenths of an inch from the underside of the head to the end of the shank or body.

For fabric linings it is suggested that rivet heads be made twice the diameter of the body or shank. Molded linings are dense and mechanically strong and do not require rivets with as large heads to hold the lining in position.

Molded blocks, being relatively thick and of large size, are usually fastened in place with standard bolts or heavy solid rivets. Flexible linings less than ½" thick are usually secured to the bands by rivets.

Countersinking

Fastenings of any type should never be permitted to come in contact with the brake drum or clutch plate, as they might cut or abrade it. The heads should be countersunk below the friction material surface as far as can conveniently be done without weakening the holding power of the fastening.

In flexible materials, it is customery to counterbore only half the thickness; in rigid materials, which are much stronger physically, about two-thirds of the thickness can be counterbored. Sinking the heads of fastenings in a flexible lining is sometimes accomplished merely by forcing the rivet head into the material, but this is not good practice. It is better workmanship to drill and counterbore for the fastening by removing material from lining. This is easily accomplished by standard drills and counterbores and the use of portable electric drills or drill presses.

Several machines are manufactured for drilling and counterboring brake lining, and rivet presses also are available for use in the automotive trade. These can be adapted in many cases for use on industrial braking equipment.

Rivet Hole Plugs

Rivet-hole countersinks in friction linings tend to accumulate dirt and abraded materials which increases the possibility of scoring the drums and reducing the life of the friction material.

The use of our semiplastic Rivet Hole Plugs, largely eliminates such destructive actions resulting from countersinks. They also help to increase the area of the friction material surface. The plugs are recommended for all styles of blocks and fabric linings.

After the blocks or lining have been riveted or bolted to the band or shoe, the plugs are inserted in the countersinks and driven firmly into place. It is important that plugs be ordered to exact dimensions so as to assure proper fit and to fill the countersink completely.

Any excess material which protrudes above the surface of the friction blocks or lining should be faced-off flush before placing in service.

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