PHOENIX VIBRATION CONTROLS B.V.

**Tips for Fitting Friction Rings**

Friction Rings with Cylindrical Base Friction rings with a cylindrical base are press-fitted to the cylindrical hub with pretension using a hydraulic plate press. Despite the steel reinforcement, the friction ring is still sufficiently elastic that fitting can be carried out without difficulty if the following instructions are observed.

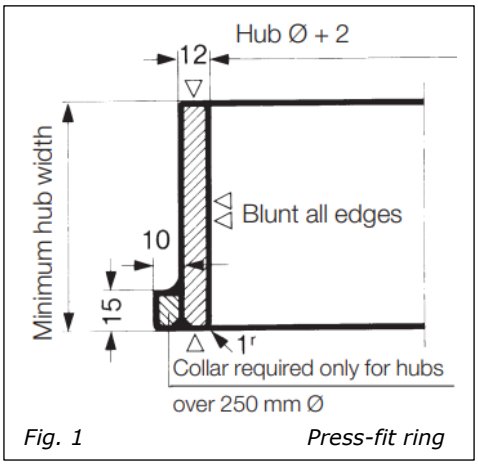


*Fig. 1* *Press-fit ring*

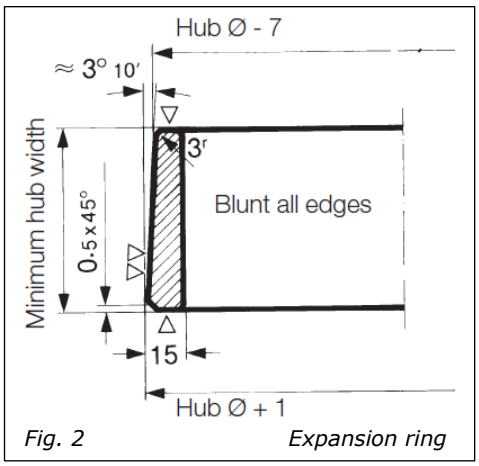


*Fig. 2* *Expansion ring*

The expansion ring should be manufactured as shown in Fig. 1. An expansion ring is unnecessary for small and narrow friction rings if the hub has highly chamfered edges. The press-fit ring is shown in Fig. 3. The press-fit ring ideally has a collar for hubs of greater than 250 mm Ø. Press blocks must not be used instead of a press-fit ring. The expansion ring and press-fit ring must only be used for the friction ring size they are built for. Any other use would damage the tools.

**Supplementary Tools**

Special supplementary tools are needed for the press-fitting process since the friction ring is not fitted directly but via a tapered expansion ring. To avoid deformation during fitting, a cylindrical press-fit ring is used which distributes the pressure evenly over the entire periphery of the ring and also prevents tilting.

**Fitting agent**

When press-fitting friction rings, the fitting agent TIP TOP SE lubricant, art. no. 5930388, should be used, diluted with water in a ratio 1:5 in accordance with manufacturer specifications. Oils, greases or normal fitting paste for pneumatic tires may not be used.

**Press-Fit Procedure (Fig. 3)**

- Check hub (B) for correct size, degrease it and place it on press plate (A).
- Center the expansion ring (C) on the hub. If high quantities are to be fitted, it is recommended to center the expansion ring on the hub.
- Apply lubricant solution evenly to sliding surfaces of hubs, expansion ring and friction ring (D). Place friction ring on expansion ring.
- Place press-fit ring (E) centrally on friction ring. Check that press guides are plane parallel.
- Lower press until friction ring is seated centrally on hub. The press must move in plane parallel mode at a speed of < 35 mm/s and must move continuously, without interruption.

When press-fitting 2 or more friction rings onto a hub, proceed as follows:

- With 2 friction rings: press-fit from both sides
- With 3 or 4 friction rings: enlarge press-fit ring to multiple friction ring width and press fit from both sides.

The force required for press-fitting depends on the diameter and width of the friction ring. Press fitted friction rings should be left for a few hours before being machined or installed.

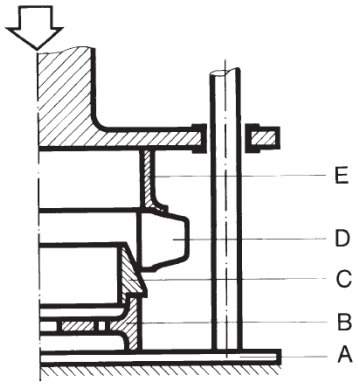


*Fig. 3* *Press-fitting*

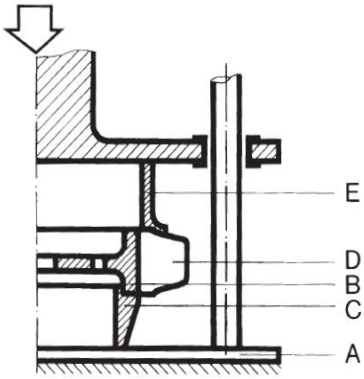


*Fig. 4* *Removal*

**Removal Procedure (Fig. 4)**

- Place expansion ring (C) on press platen (A).
- Center hub (B) with firmly seated friction ring (D) on expansion ring.
- Center press-fit ring (E) on friction ring.
- Lower press.

When removing 2 or more friction rings from a hub, the friction ring width must be appropriately increased, as in the press-fit procedure. The force required to remove rings is about 2-3 x the press-fit force.

Once removed, friction rings must not be reused.

**Friction Rings and Guide Pulleys with Tapered Base**

Friction rings and guide pulleys with a tapered base are fitted using two hub halves. A firm fit of the friction ring is achieved by tightening the two hub halves against the conical seat of the friction ring or guide pulley (Fig. 5). When fitting, it is important to ensure that the hub has a smooth finish and that the hub halves are directly contiguous after fitting. Fitted friction rings or guide pulleys should be left for a few hours before being machined or installed.

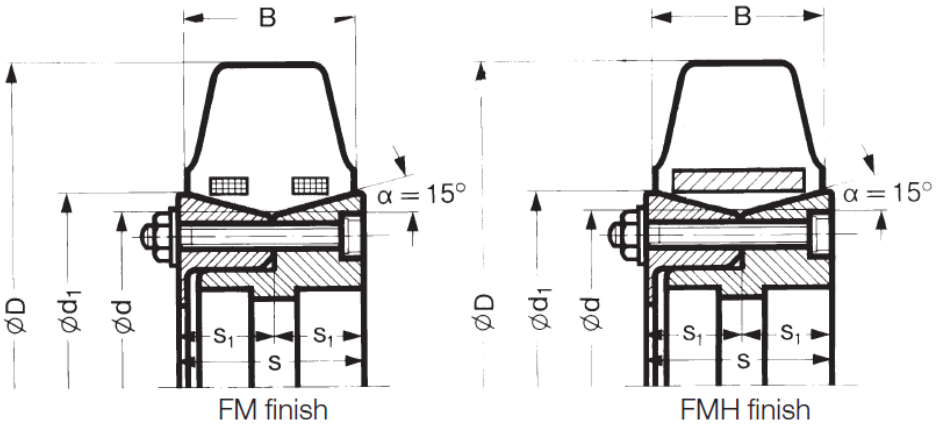


*Fig. 5* *ROTAFRIX® guide rollers with hubs*