

1-1/4" Hole Through BLOCK-HEAD® Models 4B and 4R

The design function of the through-hole is to provide clearance for accessories such as coolant lines, shaft extensions, or safety sleeves. The diameter tolerance is not specified on the published prints.

For manufacturing purposes, the hole in the shaft is held to 1.2500/1.2502". In assembly, it will shrink up to 30 microinches on the ends. The maximum shaft size that will clear the hole should be 1.2499" diameter. An interference fit should not be used because of the chance of warping the rotor. The thrust plate holes are ground to 1.2502" diameter minimum to allow some eccentricity without preventing the passage of a 1.2499" diameter shaft.

For manufacturing convenience, the high-limit thrust plate hole is set to 1.2505" diameter. This is not a strict control. Some plates must be ground larger to clean up residue from the coating operation.

Almost all plates from crashed bearing require new coatings. This means that every time a plate goes through the regrind cycle, the hole will get at least .002" diameter larger. No ultimate limit has been set since the hole size is not a functional characteristic of the spindle. (A supply of preground plates is maintained for exchange. A repaired spindle could have substantially larger holes.

Most items which are fastened to the thrust plates must run concentric to the rotor axis within very close limits. Standard practice is to wring the flange down to full parallel contact with the thrust plate mounting band. A sensitive indicator is then used to measure the concentricity of a reference surface. The item can be readily adjusted to run true to whatever level is required. It takes a few moments to do this, but it makes possible a higher level of accuracy than any pilot could provide.

If this technique is unacceptably inconvenient, a pilot could be used. However, several requirements must be considered:

1. The pilot must fit freely in the hole. An interference fit would not allow rotation of the item. Rotation is necessary to wring the flange surface into proper contact with the mounting band on the face of the thrust plate.
2. The pilot must not interfere with the alignment of the face mount. The extreme worst case would be a long engaged length that is not perpendicular to the flange.
3. The flange surface should have radial wiper grooves so microscopic particles can be wring out of the joint.
4. For best accuracy, the pilot should locate in the shaft, not the thrust plate. If conditions require piloting in the thrust plate, special action will be required to maintain a given hole size:
 - a. Size must be specified on the purchase order.
 - b. For new spindles, plates can be ground or selected for the appropriate size. An extra charge will be added.
 - c. Spindles returned for repair will require thrust plate replacement or chrome plating in the hole. Either action will require a substantial extra charge.

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