LOAD DEFINITIONS

RADIAL LOAD—A load applied normal to the bearing bore axis.

AXIAL LOAD—A load applied along the bearing bore axis.

STATIC RADIAL LIMIT LOAD—That static load required to produce a specified permanent set in the bearing structure. It will vary for a given size as a function of configuration. It may also be pin limited or it may be limited as a function of body restraints, as in the case of a rod end bearing.

STATIC RADIAL ULTIMATE LOAD—That load that can be applied to a bearing without fracturing the ball, race or rod end eye. The ultimate load rating is usually but not always 1.5 times the limit load.

STATIC AXIAL LIMIT LOAD—That load that can be applied to a bearing to produce a specified permanent set in the bearing structure.

STATIC AXIAL ULTIMATE LOAD—That load that can be applied to a bearing without separating the ball from the race. The ultimate load rating is usually but not always 1.5 times the limit load.

AXIAL PROOF LOAD—That axial load that can be applied to a mounted spherical bearing without impairing the integrity of the bearing mounting or bearing performance. It is always less than the static axial limit load.

OSCILLATING RADIAL LOAD—A unidirectional load producing a specified maximum amount of wear when the bearing is oscillated at a specific frequency and amplitude.

FORMULAE FOR DETERMINING MISALIGNMENT OF ROD END & SPHERICAL BEARINGS

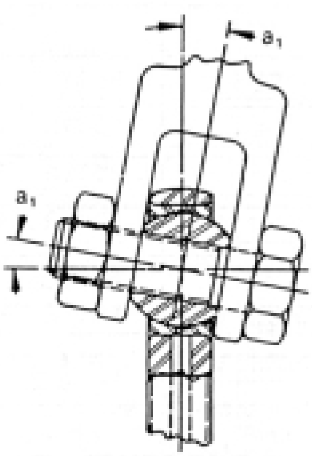

FIGURE 1

$$a_1 = \text{Sin}^{-1}\frac{W}{D} - \text{Sin}^{-1}\frac{H}{D}$$

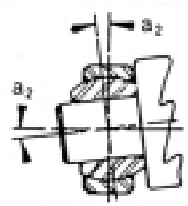

FIGURE 2

$$a_2 = \text{Sin}^{-1}\frac{W}{A} - \text{Sin}^{-1}\frac{H}{A}$$

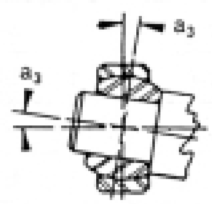

FIGURE 3

$$a_3 = \text{Sin}^{-1}\frac{W}{E} - \text{Sin}^{-1}\frac{H}{E}$$

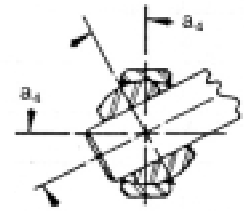

FIGURE 4

$$a_4 = \text{Cos}^{-1}\frac{B}{E} - \text{Sin}^{-1}\frac{H}{E}$$

Reference Letters

- B - Ball Bore
- C - Outer Race Chamfer
- D - Head Diameter or Outer Race Diameter
- E - Ball Diameter
- H - Housing Width
- A - $\sqrt{(D - 2C)^2 + H^2}$
- W - Ball Width

The misalignment angle of a rod or spherical bearing refers to the angle between the ball centerline and the outer member centerline when the ball is misaligned to the extreme position allowed by the clevis or shaft design, as applicable.

Figures 1 through 4 illustrate varying types of bearing misalignment and a formula for calculating each.

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