EDWIN LOWE LTD. BIRMINGHAM, UK.

PREFABRICATED BEARING HOUSING ASSEMBLIES (CARTRIDGES) – ADDITIONAL DIMENSIONAL INFORMATION

GROSS BAR DIAMETER - V- PIERCED HOLE DIAMETER IN BOTTOM OF BEARING HOUSING CARTRIDGE

PIERCED HOLE DIAMETER

- The pierced hole diameters in the base of the majority of our pressed steel bearing housings, have been designed to accommodate a machined shaft shoulder - i.e. a gross bar diameter machined down to a nett bearing inside diameter / bore dimension, to provide a shaft shoulder all round.

- The depth or height of this machined shoulder will be different for each different bearing specification.

- Obviously therefore the pierced hole diameters will vary according to the gross diameter of the shaft involved. However, each pierced hole is designed to provide a precise clearance all round - between the pierced hole inside diameter and the gross bar outside diameter.

- We produce a series of standard pierced hole diameters– but these can be individually tailored to each customer's requirements - subject to prior agreement concerning dimensions and tooling costs – to suit the many different international specifications of bar stock diameters.

MACHINED SHAFT SHOULDER

- The design of the Edwin Lowe Ltd cartridge has removed the necessity of holding the shaft in situ within the roller, through the medium of circlips/snap rings, normally assembled within a machined groove upon the shaft, in front of the bearing.

- A machined shaft shoulder now acts as an inboard shaft retention / location mechanism - replacing the conventional circlips/snap rings mentioned above.

- For ball bearing cartridges - the combination of shaft shoulder and of grease filled cavity at the base of the cartridge also provides:

    - An effective and proven grease retention device.

    - An equally effective contamination barrier against contaminants drawn by centrifugal force along the surface of the shaft, towards the back face of the bearing.

- This particular configuration eliminates the need for additional seals behind the bearing (saving on costs), and it has been used as a standard configuration for several years now, both here in the UK and in the USA and other countries, for rollers used both above and below ground.

USE OF A CIRCLIP OR SNAP RING

- In some cases some customers use precision drawn steel bear (BDMS bar) in conjunction with a circlip/snap ring within a machined groove upon the shaft, behind the bearing. There are however a few points to watch here, i.e:
  - The toleranced outside diameter and surface condition of the drawn bar must be carefully monitored to ensure correct fit of the ball bearing upon the shaft, and to ensure a correct interface with the three lips of the cartridge seal.
  - Endeavour not to use circlips or snap rings which incorporate eyes. It is better to use circlips / snap rings without eyes – in order to keep the cartridge pierced hole diameter to a minimum.
  - Always ensure that the gross diameter of the assembled circlip or of the assembled snap ring is less than the pierced hole diameter in the base of the cartridge housing - to avoid the risk of steel / steel contact and fouling etc, during actual operation.

LONG RETURN ROLLERS

- For very long return rollers, it is always preferable to use a gross bar diameter for the shaft, which is greater than the inside diameter / bore diameter of the bearing – i.e. a machined shoulder configuration.
- This reduces the risk of shaft flexing and the consequent risk of uncontrolled bearing preload and premature bearing failure.
- **According to the bearing manufacturers with whom we worked to design our cartridges - on a pro rata basis - a greater percentage of return rollers fail because of shaft flexing - compared with load bearing troughing rollers.**
- For inboard bearing location purposes - circlips or snap rings will always move to a degree, within their machined grooves upon the roller shaft. By contrast the linear distance between two opposing shoulders, machined upon either end of the shaft, is a fixed static dimension.

  This is a point worth considering when looking at the question of shaft end float etc.

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