

MOUNTINGS

Rigid mountings should be provided to hold the displacements of the gears under operating loads within recommended limits. Care should be taken to see that keys are properly fitted and that couplings are not out of true or out of square.

For a number of years the Gleason Works has been making deflection tests on gears and their mountings and observing these same units in service. From these tests the recommended allowable deflections under maximum service load have been determined for gears from 6" to 15" diameter:

1. The pinion should not lift or depress more than 0.003".
2. The pinion should not yield axially more than 0.003" in either direction.
3. The gear should not lift or depress more than .003".
4. The gear should not yield axially more than 0.003" in either direction on miters or near miters or more than 0.010" away from the pinion on higher ratios.

Spiral bevel gears should in general be mounted on anti-friction bearings in an oil-tight case. While designs may be made for a given set of conditions using plain bearings for radial and thrust loads, the problem of maintaining the gears in satisfactory alignment is usually more easily accomplished with ball or roller bearings.

There are two general types of pinion mountings, namely the straddle and the overhung mounting. Either ball or roller bearings may be used in both types of mountings.

Ball bearings with extremely small axial yield should be used behind each pinion to take care of combined thrust and radial loads.

Matched angular contact or double row deep groove angular contact bearings are preferred. At the other end of the shaft a single row radial bearing may be used as shown in Figures 27 and 30.

When mounted on taper roller bearings, the indirect mounting should be used. That is, the large ends of the tapered rollers of each bearing should point outward as shown in Figures 28 and 29. The thrust load of the pinion is thus absorbed by the bearing adjacent to the pinion and the reverse thrust load will be taken by the opposite bearing.

In either type of mounting both the gears and thrust bearings should be locked against thrust in either direction. This applies to straight bevel and Zerol® bevel gears as well as to spiral bevel and hypoid gears. It is accepted practice to preload the bearings to remove initial freedom in the mounting. The amount of preload depends upon the mounting load and operating speed, and should be established by the bearing manufacturer.

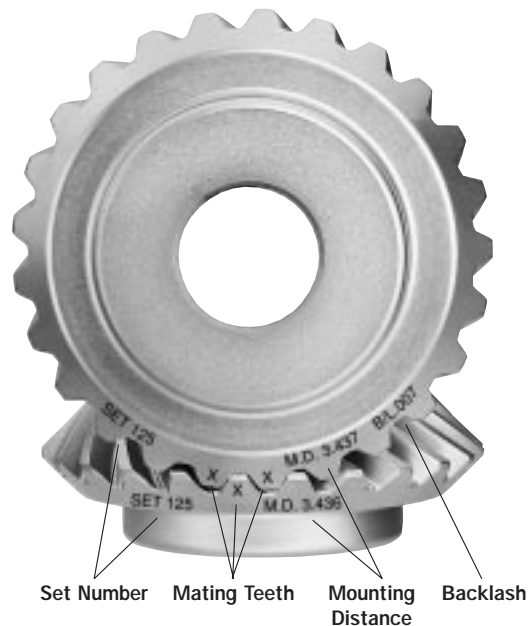


Fig. 26— All Arrow Stock Gears are marked with the above assembly information.