



Bore Configurations

Tobar's oil seals are designed with an entry lead-in angle on the outside diameter of the seal to provide ease of installation. Additionally, the bore should be designed with a lead-in chamfer to facilitate seal assembly, and protect against damage to the O.D. of the seal. A chamfer of 15° to 30° is recommended at the entry edge of the bore. This chamfer should have a minimum axial depth of .060"/.090" and be free of burrs. The internal corner of the bore should have a maximum radius of 1/32".

Bore Tolerance

Tobar's oil seals are manufactured to tight outside diameter tolerances to insure a positive press-fit seal between the seal O.D. and the bore. Depending upon the size and configuration of the seal, the nominal press-fit of the seal O.D. in the bore will be between .004" and .010". The bore tolerance chart on page 14 will furnish the exact tolerances required for bore design.

Tolerances on these tables apply to bores fabricated in ferrous materials only. Bores machined in aluminum and other materials of higher coefficients of thermal expansion may require tighter press-fits. Tobar's Type C case and O.D. structured oil seals with rubber covered O.D.'s are recommended when used in conjunction with bores of higher thermal expansion. (The rubber covered O.D. will provide a rate of thermal expansion greater than that of the carbon steel cans thereby helping to ensure a positive press-fit through elevated temperatures.) Additionally, these rubber covered O.D.'s will provide protection against the damage to bores of a softer Rockwell hardness than the carbon steel cans.

Bore Hardness

There is no recommended Rockwell hardness for the bore. However, the bore should be of sufficient hardness to provide and maintain a stable interface for the seal. If the seal is press-fit into a plastic housing whereby the metal O.D. of the seal will be significantly harder than the bore, Tobar recommends a rubber covered outside diameter seal as shown on page 5.

Bore Finish

Metal O.D.: Up to 100 micro-inches.
Rubber O.D.: 100 plus micro-inches.