

## tolerances and press fit charts

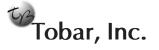
| Oil Seal Standard Tolerances - Inches Single and Dual Lip Spring Loaded Bonded Seals |                   |                                    |                                   |                             |  |                                    |                       |  |  |  |
|--|-------------------|------------------------------------|-----------------------------------|-----------------------------|--|------------------------------------|-----------------------|--|--|--|
| Bore Diameter  | Bore<br>Tolerance | Nominal<br>Press Fit<br>Metal O.D. | Metal<br>O.D.<br>Tolerance<br>(1) | Metal<br>O.D.<br>OOR<br>(2) | Nominal<br>Press Fit<br>Rubber<br>O.D. | Rubber<br>O.D.<br>Tolerance<br>(3) | Rubber<br>O.D.<br>OOR |  |  |  |
| Up to 2.000  | ±.001             | .005                               | ±.002                             | .007                        | .008                                   | ±.003                              | .010                  |  |  |  |
| 2.001 to 3.000   | ±.001             | .0055                              | ±.0025                            | .010                        | .010                                   | ±.003                              | .014                  |  |  |  |
| 3.001 to 5.000   | ±.0015            | .0065                              | ±.003                             | .012                        | .0105                                  | ±.003                              | .020                  |  |  |  |
| 5.001 to 7.000   | ±.0015            | .007                               | ±.003                             | .016                        | .012                                   | ±.004                              | .026                  |  |  |  |
| *7.001 to 12.000   | ±.002             | .0085                              | ±.0035                            | * .0025                     | .0125                                  | ±.004                              | .031                  |  |  |  |
| *12.001 to 20.000  | ±.003             | .012                               | ±.005                             | in/in                       | .015                                   | ±005                               | .039                  |  |  |  |
| *20.001 to 40.000  | ±.004             | .013                               | ±.005                             | of seal                     | .018                                   | ±.006                              | .045                  |  |  |  |
| *40.001 to 60.000  | ±006              | .016                               | ±.006                             | O.D.                        | .020                                   | ±007                               | .050                  |  |  |  |

<sup>\*</sup>Seal O.D. above 7.001 x .0025 for OOR tolerance specification

| Oil Seal Standard Tolerances - mm Single and Dual Lip Spring Loaded Bonded Seals |                   |                |                   |                           |                   |  |  |  |  |  |
|--|-------------------|----------------|-------------------|---------------------------|-------------------|--|--|--|--|--|
|  |                   |                | Tolerance         |                           | Tolerance         |  |  |  |  |  |
| Nominal Bore<br>Diameter   | Bore<br>Tolerance | Metal<br>Cased | Rubber<br>Covered | Metal<br>Cased            | Rubber<br>Covered |  |  |  |  |  |
| Up to 50   | +0.039<br>-0.0    | +0.20<br>+0.08 | +0.30<br>+0.15    | 0.18                      | 0.25              |  |  |  |  |  |
| 51 to 80   | +0.046<br>-0.0    | +0.23<br>+0.09 | +0.35<br>+0.20    | 0.25                      | 0.35              |  |  |  |  |  |
| 81 to 120  | +0.054<br>-0.0    | +0.25<br>+0.10 | +0.35<br>+0.20    | 0.30                      | 0.50              |  |  |  |  |  |
| 121 to 180   | +0.063<br>-0.0    | +0.28<br>+0.15 | +0.45<br>+0.25    | 0.40                      | 0.65              |  |  |  |  |  |
| 181 to 300   | +0.075<br>-0.0    | +0.35<br>+0.15 | +0.45<br>+0.25    | 0.25% of outside diameter | 0.80              |  |  |  |  |  |
| 301 to 440   | +0.089<br>_0.0    | +0.45<br>+0.20 | +0.55<br>+0.30    | 0.25% of outside diameter | 1.00              |  |  |  |  |  |

<sup>(1)</sup> Seal O.D.: The average of a minimum of three measurements to be taken at equally spaced positions.

Note: To guarantee positive installation of the seal in the bore, the axial length of the bore should always be equal to, or greater than the maximum seal width.



<sup>(2)</sup> Out of Round (OOR): The maximum variance between any of the readings used in determining seal O. D.

<sup>(3)</sup> Rubber covered seals employing certain materials other than nitrile may require different tolerances.