

# Seal Dimensional Specifications

## Seal Inside Diameter

The recommended tolerance for the inside diameter of the seal appear below in table 1.

**TABLE 1**

	Shaft Diameter	Tolerance
<b>ISO 6194/1 (Dimensions in mm)</b>	$\leq 75$	$\pm 0.50$
	75 – 150	$\pm 0.65$
	150 - 250	$\pm 0.75$
<b>SAE J946 (Dimensions in inches)</b>	$\leq 3.000$	$\pm 0.020$
	3.000 – 6.000	$\pm 0.025$
	6.000 – 10.000	$\pm 0.025$

## Seal Width

Tolerance for the seal width is below in table 2.

**TABLE 2**

	Seal Width	Tolerance
<b>ISO 6194/1 (Dimensions in mm)</b>	$< 10$	$\pm 0.3$
	$> 10$	$\pm 0.4$
<b>SAE J946 (Dimensions in inches)</b>	$< 0.400$	$\pm 0.015$
	$> 0.400$	$\pm 0.020$

## Seal Outside Diameter

Calculating the outside diameter of the seal is critical and requires special attention. The seal OD is determined by averaging (a minimum of) three equally spaced measurements. The out of found (OOR) is defined as the maximum variation of these OD readings. The nominal pressfit is the distance between the nominal seal OD and the nominal housing bore (inside) diameter. The tolerance for the seal OD, maximum allowable OOR, and recommended pressfit appears below in table 3 and 3.1 for metal OD seals. The data for rubber OD seals is found in table 4 and 4.1.

**TABLE 3**

**Metal OD Seals - OD Specifications**

<b>ISO 6194/1 (Dimensions in mm)</b>	<b>Seal OD in mm</b>	<b>Nominal Pressfit</b>	<b>Seal OD Tolerance</b>	<b>Seal OD OOR</b>
	$\leq 50$	0.12	+0.20/+0.08	0.18
	50 – 80	0.14	+0.23/+0.09	0.25
	80 - 120	0.15	+0.25/+0.10	0.30
	120 - 180	0.17	+0.28/+0.12	0.40
	180 - 300	0.21	+0.35/+0.15	0.25% of OD
	300 - 440	0.28	+0.45/+0.20	0.25% of OD

**TABLE 3.1**

<b>SAE J946 (Dimensions in inches)</b>	<b>Seal OD in Inches</b>	<b>Nominal Pressfit</b>	<b>Seal OD Tolerance</b>	<b>Seal OD OOR</b>
	$\leq 2$	0.005	$\pm 0.002$	0.007
	2 – 3	0.0055	$\pm 0.0025$	0.010
	3 – 5	0.0065	$\pm 0.003$	0.012
	5 – 7	0.007	$\pm 0.003$	0.016
	7 – 12	0.0085	$\pm 0.0035$	0.025 in/in of seal OD
	12 – 20	0.012	$\pm 0.005$	
	20 – 40	0.013	$\pm 0.005$	
40 – 60	0.016	$\pm 0.006$		

**TABLE 4****Rubber OD Seals - OD Specifications**

<b>ISO 6194/1 (Dimensions in mm)</b>	<b>Seal OD in mm</b>	<b>Nominal Pressfit</b>	<b>Seal OD Tolerance</b>	<b>Seal OD OOR</b>
	≤50	0.20	+0.30/+0.15	0.25
	50 – 80	0.25	+0.35/+0.20	0.35
	80 - 120	0.25	+0.35/+0.20	0.50
	120 - 180	0.32	+0.45/+0.25	0.65
	180 - 300	0.34	+0.50/+0.25	0.80
	300 - 440	0.38	+0.55/+0.30	1.00

**TABLE 4.1**

<b>SAE J946 (Dimensions in inches)</b>	<b>Seal OD in Inches</b>	<b>Nominal Pressfit</b>	<b>Seal OD Tolerance</b>	<b>Seal OD OOR</b>
	≤ 2	0.008	±0.003	0.010
	2 – 3	0.010	±0.003	0.014
	3 – 5	0.0105	±0.003	0.020
	5 – 7	0.012	±0.004	0.026
	7 – 12	0.0125	±0.004	0.031
	12 – 20	0.015	±0.005	0.039
	20 – 40	0.018	±0.006	0.045
40 – 60	0.020	±0.007	0.050	