

Extrusion Chart

Design Data: Extrusion Limit of O-ring & Clearance Gap

The O-ring is contained in the gland and forced to flow into the surface imperfections of the glands and any clearance gap available to it. So, O-ring can perform sealing by means of squeeze under low-pressure conditions. However, as the pressure mounts, it becomes distorted. The distortion increases the strain, and the increased strain results in more tight sealing. Under high pressure, O-ring would extrude out of the clearance gap. The extrusion will cause seal failure in a standard gland configuration.

An antiextrusion back-up ring, made of a tough, cut-resistant material such as leather, Teflon or hard rubber, is suggested. In static applications it may be possible to modify the gland design to withstand the higher pressure without the addition of a back-up ring. Anyway, care must be taken to make the extrusion as small as possible. The extent of this extrusion depends upon the hardness of O-ring, pressure and clearance gap. Please refer to FIG 1, FIG 2 and TABLE 1.

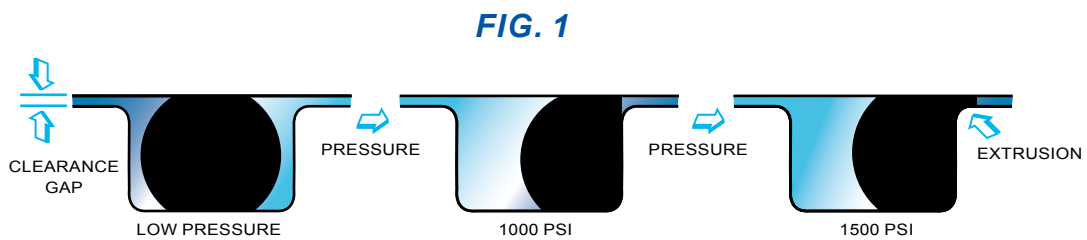
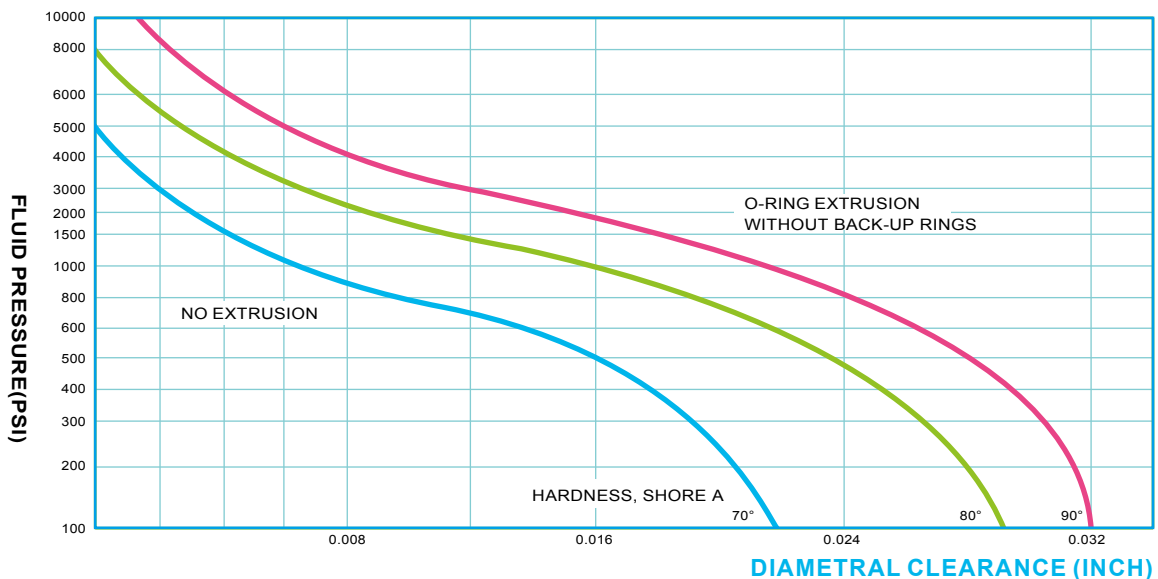


FIG. 2: EXTRUSION LIMIT OF O-RING



Diametrical Clearance Limit

Table 1: Limit of the Diametral Clearance (Unit: Inch) Against Fluid Pressure

PRESSURE (PSI)					
HARDNESS SHORE A	UP TO 500	500-1000	1000-1500	1500-2000	2000-3000
70	0.016	0.010	0.006	0.004	0.002
90	0.028	0.024	0.020	0.016	0.010

EXTRUSION HAPPENS BEYOND THE LIMIT OF DIAMETRAL CLEARANCE AGAINST FLUID PRESSURE.