

O-Ring Applications: Static vs Dynamic

O-ring applications are categorized by the type of motion that is happening between the two surfaces. Static applications involve sealing between two parts that do not move. Dynamic sealing refers to applications where the two parts are moving in relation to each other. The following drawings depict static and dynamic sealing.

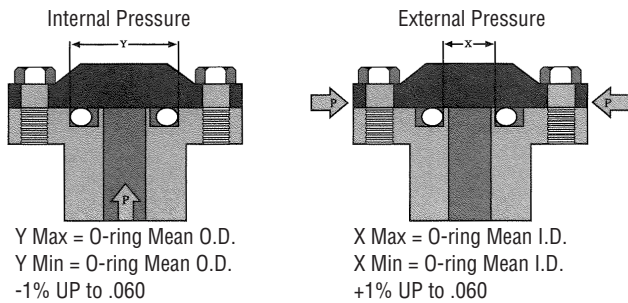
Used in situations involving reciprocating, rotating or oscillating machine movement relative to the o-ring, dynamic seal

performance may be substantially affected by a number of operating environmental factors. Such factors include: seal swell in fluids, surface finish of metal parts, lubrication, system pressure, thermal cycling, o-ring squeeze, o-ring stretch and friction. As many of these factors are interrelated, it is important to consider ALL of the in dynamic sealing situations.

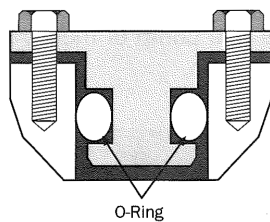
Rubber Fab highly recommends pretesting in specific dynamic applications to determine acceptable life cycle.

STATIC APPLICATIONS

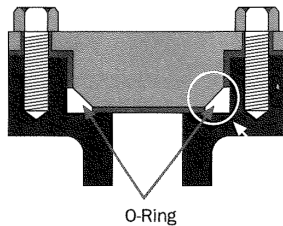
Axial Seals: The pressure is on the top and bottom of the cross section and is usually found in flange applications.



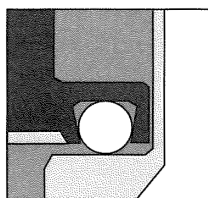
Radial Seals: The squeeze is on the I.D. and O.D. of the o-ring as found in most end cap applications.



Crush Seals: The squeeze is at an angle to the o-ring's axis due to its confinement in a triangle gland.

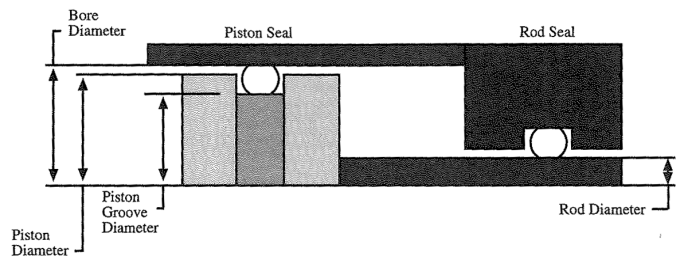


Dovetail Gland Seals: The squeeze in on the top and bottom of the o-ring's cross section while the special gland configuration is used to hold the o-ring in place during operation and/or assembly.

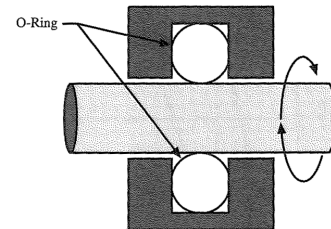


DYNAMIC APPLICATIONS

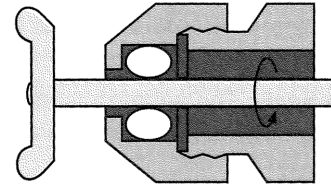
Reciprocating: Motion occurs in an alternating backward and forward direction. Frequently encountered in hydraulic cylinders.



Rotary: Motion occurs as a shaft rotates in relation to the o-ring, as in a pump or motor. Rotation usually occurs in only one direction.



Oscillating: Motion occurs when a shaft rotates backward and forward in a circular arc. Longitudinal motion is usually not significant. Example is a faucet valve stem.



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