

Housing Designs

Hallite Seals' product data sheets give information indicating the allowable extrusion gap a seal can see at pressure during its working life. The extrusion gap can be calculated using the tolerance build ups within the cylinder and any dilation that may occur under pressure.

Maximum extrusion gap = F max (see drawing below).

F max is the maximum extrusion gap for the seal

Minimum metal to metal clearance = F min (see drawing below).

F min for cylinders with minimal side loading should be > 0.1mm (0.004").

Rods

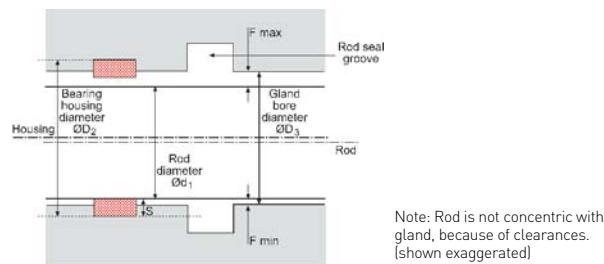
Maximum extrusion gap

$$F \max = \frac{(\text{ØD3 max} + \text{ØD2 max})}{2} - S \min - \text{Ød1 min}$$

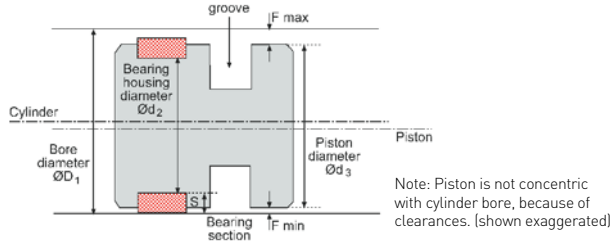
Minimum metal to metal clearance (extrusion gap)

$$F \min = S \min - \frac{(\text{ØD2 max} - \text{ØD3 min})}{2}$$

Rod Bearing



Piston Bearing



Pistons

Maximum extrusion gap

$$F \max = \text{ØD1 max} - S \min - \frac{(\text{Ød3 min} + \text{Ød2 min})}{2} + \text{dilation}$$

Minimum metal to metal clearance (extrusion gap)

$$F \min = S \min - \frac{(\text{Ød3 max} - \text{Ød2 min})}{2}$$

Calculate both F max and F min.

Ensure the F min is greater than 0.1mm (0.004") and F max is less than the maximum extrusion gap stated on the seal data sheet at the application's working pressure.

For built-in metal bearings, the extrusion gap calculation is simpler.

For F max:

$$\text{Rod} = \text{ØD3 max} - \text{Ød1 min}$$

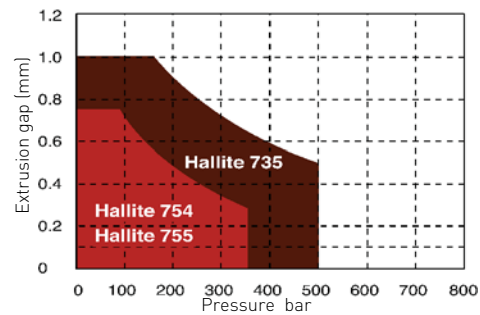
$$\text{Piston} = \text{ØD1 max} - \text{Ød3 min} + \text{dilation}$$

F min must be zero

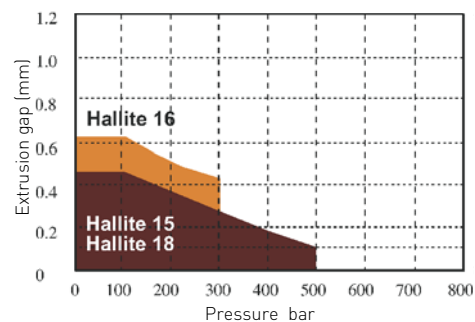
Extrusion is closely linked to pressure and temperature. In general, the best seal performance and life is provided by specifying the smallest possible extrusion gap.

The figures shown for the extrusion gap within the operating conditions of Hallite's product data sheets, relate to the maximum permissible, worst case situation with the gap all on one side.

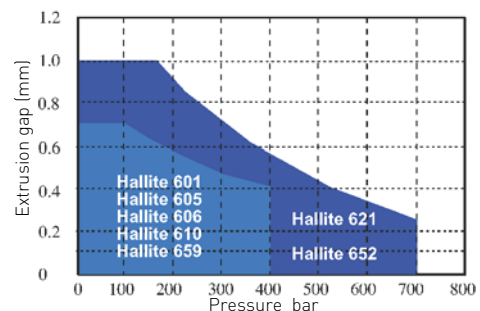
Type 735, 754, 755



Type 15, 16, 18



Type 601, 605, 606, 610, 621, 652, 659



Vee pack sets

