

Design

The Hallite 454 double acting piston seal provides the designer with a compact, low friction seal for light to medium duty hydraulic cylinders.

It comprises a bronze filled PTFE ring, which is pre-loaded by an O ring to be effective for the operating pressure range recommended. As the pressure rises the O ring deforms and compresses the PTFE ring against the tube wall increasing the sealing force and the effectiveness of the seal. As only the PTFE ring is in contact with the sliding surface, friction is very low and stick slip movement is eliminated.

The housing width allows the designer to use a narrow width piston, but it is recommended an adequate bearing is mounted either side of the seal as shown.

A number of material options can be provided to extend operating conditions. Please ensure that the correct part number is specified for the material option as indicated.

The Hallite 454 seal is not recommended for applications where it is necessary for the pressurised cylinder to maintain the load in a set position.

Features

- Low stick/slip
- Low cost
- High strength precision machined PTFE cap ring
- Compact piston design
- Wide range of materials available

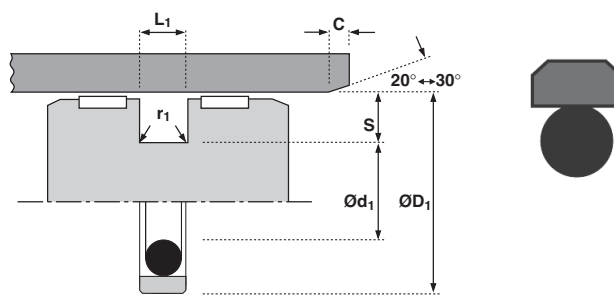
Materials

Face Material - O Ring
Standard material
 Bronze/PTFE – NBR
 ----- 00

Material options:
 15% Glass/PTFE – NBR
 ----- 01

15% Glass/PTFE – FKM
 ----- 11

Bronze/PTFE – FKM
 ----- 10



Technical details

Operating conditions

Maximum Speed 4.0 m/sec
 Temperature Range -30°C +100°C
 Maximum Pressure 350 bar

Inch

12.0 ft/sec
 -22°F +212°F
 5,000 p.s.i.

Maximum extrusion gap

Pressure p.s.i.	1500	2400	3750	5250
Maximum Gap in	0.024	0.020	0.018	0.014

Figures show the maximum permissible gap all on one side using minimum clearance Ø and maximum bore Ø.

Surface roughness

	µmRa	µmRt	µinCLA	µinRMS
Dynamic Sealing Face ØD ₁	0.1 < > 0.4	4 max	4 < > 16	5 < > 18
Static Sealing Face Ød ₁	1.6 max	10 max	63 max	70 max
Static Housing Faces L ₁	3.2 max	16 max	125 max	140 max

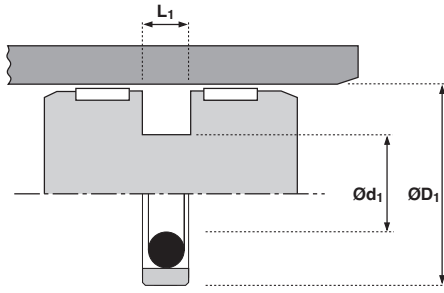
Chamfers & Radii

	0.147	0.216	0.305	0.413	0.483
Groove Section ≤ S in	0.093	0.125	0.156	0.187	0.305
Min Chamfer C in	0.016	0.016	0.032	0.032	0.032

Tolerances

in	ØD ₁	Ød ₁	L ₁
	H9	f8	+0.008 -0





$\text{Ø}D_1$	TOL H9	$\text{Ø}d_1$	TOL f8	L_1 + 0.008 -0	PART No.
2.000	+0.0030 +0.0000	1.576	-0.0012 -0.0030	0.165	72305__
2.500	+0.0030 +0.0000	2.076	-0.0012 -0.0030	0.165	72310__
2.750	+0.0030 +0.0000	2.326	-0.0012 -0.0030	0.165	72315__
3.000	+0.0030 +0.0000	2.576	-0.0012 -0.0030	0.165	72320__
3.250	+0.0035 +0.0000	2.634	-0.0014 -0.0036	0.246	72325__
3.500	+0.0035 +0.0000	2.884	-0.0014 -0.0036	0.246	72330__
4.000	+0.0035 +0.0000	3.384	-0.0014 -0.0036	0.246	72335__
4.250	+0.0035 +0.0000	3.634	-0.0014 -0.0036	0.246	72340__
4.500	+0.0035 +0.0000	3.884	-0.0014 -0.0036	0.246	72345__

$\text{Ø}D_1$	TOL H9	$\text{Ø}d_1$	TOL f8	L_1 + 0.008 -0	PART No.
5.000	+0.0040 +0.0000	4.384	-0.0016 -0.0041	0.246	72350__
5.500	+0.0040 +0.0000	4.670	-0.0016 -0.0041	0.319	72355__
6.000	+0.0040 +0.0000	5.170	-0.0016 -0.0041	0.319	72360__
6.500	+0.0040 +0.0000	5.670	-0.0016 -0.0041	0.319	72365__
7.000	+0.0040 +0.0000	6.170	-0.0016 -0.0041	0.319	72370__
7.500	+0.0045 +0.0000	6.670	-0.0016 -0.0041	0.319	72375__
8.000	+0.0045 +0.0000	7.170	-0.0020 -0.0048	0.319	72380__
9.500	+0.0045 +0.0000	8.670	-0.0020 -0.0048	0.319	72385__
10.000	+0.0050 +0.0000	9.170	-0.0020 -0.0048	0.319	72390__