

## Design

The Hallite 54 double acting piston seal provides the designer with a compact, low friction seal for light to medium duty hydraulic cylinders.

It comprises a PTFE ring, strengthened with additives to resist creep, 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 54 seal is not recommended for applications where it is necessary for the pressurised cylinder to maintain the load in a set position.

\*See Hallite 87 and 506 wear ring data sheets.

**NB:** Part numbers suffixed by “+” indicate housing sizes to meet ISO 7425-1.

**Note:** Technical details shown are for 15% Glass/PTFE and NBR energiser. Technical details for material options should be requested from Hallite Seals.

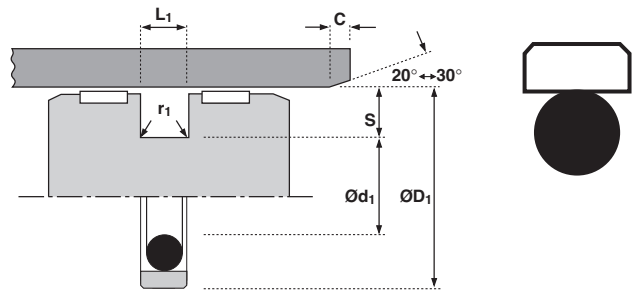
### Features

- Low stick/slip
- Low breakout & running friction
- High maximum speed
- Compact piston design
- The seal ring component can be machined to any size

### Materials

Face Material - O Ring  
**Standard material**  
 15% Glass/PTFE – NBR  
 ----- 10

**Material options:**  
 15% Glass/PTFE – FKM  
 ----- 11  
 Bronze/PTFE – NBR  
 ----- 20  
 Bronze/PTFE – FKM  
 ----- 21



## 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
5000 p.s.i.

### Maximum extrusion gap

Figures show the maximum permissible gap all on one side using minimum rod Ø and maximum clearance Ø. Refer to Housing Design section.

Pressure bar	100	160	250	350
Maximum Gap mm	0.60	0.50	0.45	0.35
Pressure p.s.i.	1500	2400	3750	5250
Maximum Gap in	0.024	0.020	0.018	0.014

### Surface roughness

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

### Chamfers & Radii

Groove Section ≤ S mm	3.75	5.50	7.75	10.50	12.25
Min Chamfer C mm	2.00	2.50	5.00	7.50	10.00
Max Fillet Rad r <sub>1</sub> mm	0.40	0.80	1.20	1.60	2.00
Groove Section ≤ S in	0.147	0.216	0.305	0.413	0.483
Min Chamfer C in	0.093	0.125	0.156	0.187	0.305
Max Fillet Rad r <sub>1</sub> in	0.016	0.016	0.032	0.032	0.032

### Tolerances

	ØD <sub>1</sub>	Ød <sub>1</sub>	L <sub>1</sub>
mm	H9	h9	+0.2 -0
in	H9	h9	+0.008 -0

