

Single Acting Piston Seals

Technical details

Operating conditions

	Metric	Inch
Maximum Speed	1.0 m/sec	3.0 ft/sec
Temperature Range	-45°C +110°C	-50°F +230°F
Maximum Pressure	400 bar	6000 p.s.i.

Maximum extrusion gap

Figures show the maximum permissible gap all on one side using minimum rod \varnothing and maximum clearance \varnothing .

	160	250	400
Pressure bar			
Maximum Gap mm	0.6	0.5	0.4
Pressure p.s.i.	2400	3750	6000
Maximum Gap in	0.024	0.020	0.016

Surface roughness

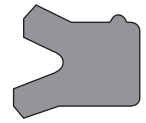
	μmRa	μmRt	μinCLA	μinRMS
Dynamic Sealing Face $\varnothing D_1$	0.1 <-> 0.4	4 max	4 <-> 16	5 <-> 18
Static Sealing Face $\varnothing d_1$	1.6 max	10 max	63 max	70 max
Static Housing Faces L_1	3.2 max	16 max	125 max	140 max

Chamfers & Radii

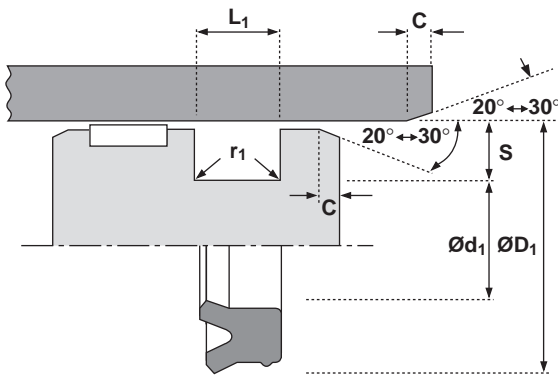
	4.0	5.0	7.5
Groove Section $\leq S$ mm			
Min Chamfer C mm	3.0	3.5	5.0
Max Fillet Rad r_1 mm	0.2	0.4	0.8
Groove Section $\leq S$ in	0.125	0.187	0.250
Min Chamfer C in	0.093	0.093	0.125
Max Fillet Rad r_1 in	0.008	0.008	0.016

Tolerances

	$\varnothing D_1$	$\varnothing d_1$	L_1
mm	H9	js11	+0.25 -0
in	+0.004 -0	0 -0.002	+0.010 -0



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Design

The Hallite 659 is an asymmetric piston seal designed to offer effective bore sealing in a wide variety of applications.

The outer dynamic lip is shorter and more robust to provide improved sealing and compression set characteristics over conventional U rings. The seal also features a secondary lip that provides a pocket for lubrication as well as the benefits listed below.

For use in single acting applications only, the seal is manufactured in Hallite's high performance polyurethane Hythane® 181. The Hallite 659 provides the following benefits:

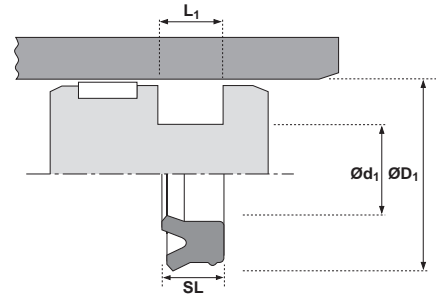
Features

- Flexible for easy installation
- Excellent wear resistance
- High resistance to extrusion
- Wide temperature range
- Twin lip design for: improved sealing, lower friction, increased seal stability, primary lip protection

Note: Variations of this seal are available in other sizes, please contact your local Hallite sales office for additional information and technical details.

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inch

ØD ₁	TOL	Ød ₁	TOL	SL	L ₁ + 0.010 -0	PART No.
1.250	+0.004 -0.000	1.000	+0.000 -0.002	0.171	0.187	4416600
1.500	+0.004 -0.000	1.250	+0.000 -0.002	0.187	0.207	4372400
1.750	+0.004 -0.000	1.250	+0.000 -0.002	0.375	0.413	4528600
2.000	+0.004 -0.000	1.630	+0.000 -0.002	0.250	0.281	4563300Δ
2.375	+0.004 -0.000	1.750	+0.000 -0.002	0.437	0.481	4528500
2.500	+0.004 -0.000	2.130	+0.000 -0.002	0.250	0.281	4563400Δ
3.000	+0.004 -0.000	2.250	+0.000 -0.002	0.500	0.550	4528400
3.000	+0.004 -0.000	2.630	+0.000 -0.002	0.250	0.281	4563500Δ

ØD ₁	TOL	Ød ₁	TOL	SL	L ₁ + 0.010 -0	PART No.
3.500	+0.004 -0.000	3.130	+0.000 -0.002	0.250	0.281	4563600Δ
3.625	+0.004 -0.000	2.875	+0.000 -0.002	0.562	0.619	4528300
4.000	+0.004 -0.000	3.630	+0.000 -0.002	0.250	0.281	4563700Δ
4.250	+0.004 -0.000	3.500	+0.000 -0.002	0.562	0.619	4528200
5.000	+0.004 -0.000	4.000	+0.000 -0.002	0.731	0.804	4528100
6.000	+0.004 -0.000	5.000	+0.000 -0.002	0.731	0.804	4530200
7.000	+0.004 -0.000	6.000	+0.000 -0.002	0.731	0.804	4529700

ΔDenotes parts designed to fit inch standard O ring grooves.

metric

ØD ₁	TOL H9	Ød ₁	TOL js11	SL	L ₁ + 0.25 -0	PART No.
90.00	+0.09 +0.00	75.00	+0.11 -0.11	11.50	12.50	4775500
100.00	+0.09 +0.00	80.00	+0.11 -0.11	14.50	16.00	4580300
100.00	+0.09 +0.00	85.00	+0.11 -0.11	11.50	12.50	4775600

ØD ₁	TOL H9	Ød ₁	TOL js11	SL	L ₁ + 0.25 -0	PART No.
110.00	+0.09 +0.00	90.00	+0.11 -0.11	14.50	16.00	4580400
110.00	+0.09 +0.00	95.00	+0.11 -0.11	11.50	12.50	4775700