

Piston Seals

Technical details

Operating conditions

	Metric
Maximum Speed	0.5 m/sec
Temperature Range	-30°C +100°C
Maximum Pressure	400 bar

Inch

1.5 ft/sec
-22°F +212°F
6000 p.s.i.



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 $\varnothing d_1$ $\varnothing d_2$	1.6 max	10 max	63 max	70 max
Static Housing Faces $\varnothing d_3$ L ₁ L ₂	3.2 max	16 max	125 max	140 max

Chamfers & Radii

	5.0	7.5	8.0	10.0	12.5	15.0
Groove Section $\leq S$ mm						
Min Chamfer C mm	2.4	4.0	5.0	5.0	6.5	7.5
Max Fillet Rad r ₁ mm	0.4	0.4	0.4	0.4	0.8	0.8
Max Fillet Rad r ₂ mm	0.4	0.4	0.4	0.4	0.8	0.8

Tolerances

mm	$\varnothing D_1$	$\varnothing d_1$	$\varnothing d_2$	$\varnothing d_3$	L ₁	L ₂
	H9	h9	h9	h11	+0.2 -0	+0.1 -0

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Design

A robust assembly designed specifically for one piece pistons, the Hallite 780 double acting seal uses a rubber sealing element that has proved itself in service to be extremely wear resistant and capable of working most effectively in a wide range of medium duty applications. The seal is also suitable for two piece pistons.

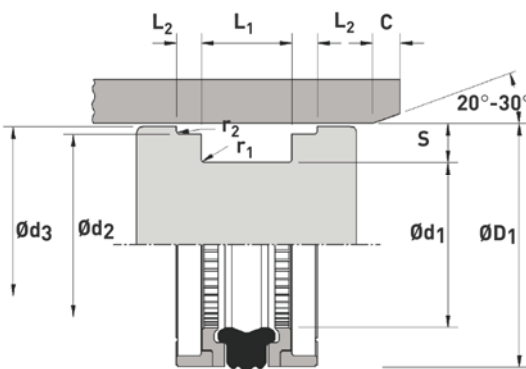
The assembly comprises a rubber sealing element, two split support rings and two split L-shaped bearings, one of each located either side of the seal.

The nitrile rubber sealing element is designed with multi-lips for efficient dynamic sealing with minimal low pressure friction and, when pressurised, be protected from extrusion damage by the extending lips of the support ring. The support ring is manufactured from a tough, flexible polymer and scarf cut for assembly.

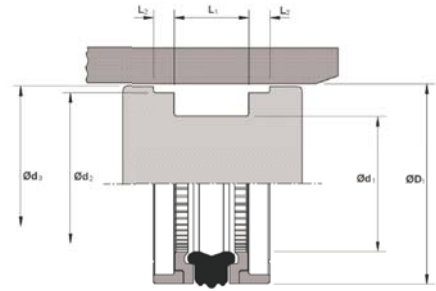
Both the L-shaped bearings and support rings are grooved to ensure that the fluid pressure properly energises the sealing element and to prevent the possibility of any pressure trapping within the seal assembly.

Features

- Well proven design
- Long life



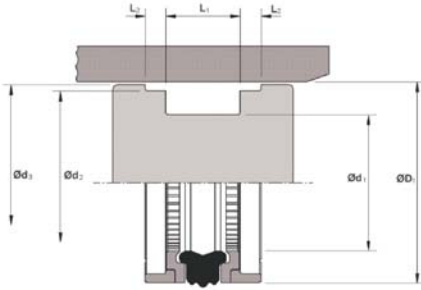
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ØD ₁	TOL H9	Ød ₁	TOL h9	Ød ₂	TOL h9	Ød ₃	TOL h11	L ₁ + 0.2 - 0	L ₂ + 0.1 - 0	PART No.
25	+0.05 +0.00	15	+0.00 -0.04	21.00	+0.00 -0.05	24.0	+0.00 -0.13	12.0	4.00	5003710
25	+0.05 +0.00	16	+0.00 -0.04	22.00	+0.00 -0.05	24.0	+0.00 -0.13	13.5	2.10	5003810
30	+0.05 +0.00	21	+0.00 -0.05	27.00	+0.00 -0.05	29.0	+0.00 -0.13	13.5	2.10	5003910
32	+0.06 +0.00	22	+0.00 -0.05	28.00	+0.00 -0.07	31.0	+0.00 -0.16	15.5	2.60	5001420
32	+0.06 +0.00	22	+0.00 -0.05	28.50	+0.00 -0.05	30.5	+0.00 -0.16	16.4	6.35	5001410
35	+0.06 +0.00	25	+0.00 -0.05	31.00	+0.00 -0.06	34.0	+0.00 -0.16	15.5	2.60	5001520
35	+0.06 +0.00	25	+0.00 -0.05	31.40	+0.00 -0.06	33.5	+0.00 -0.16	16.4	6.35	5001510
40	+0.06 +0.00	24	+0.00 -0.05	35.40	+0.00 -0.06	38.5	+0.00 -0.16	18.4	6.35	5001310
40	+0.06 +0.00	30	+0.00 -0.05	35.40	+0.00 -0.06	38.5	+0.00 -0.16	16.4	6.35	5004010
45	+0.06 +0.00	29	+0.00 -0.05	40.40	+0.00 -0.06	43.5	+0.00 -0.16	18.4	6.35	5000710
45	+0.06 +0.00	31	+0.00 -0.06	41.00	+0.00 -0.06	44.0	+0.00 -0.16	15.5	2.60	5004110
45	+0.06 +0.00	35	+0.00 -0.06	40.40	+0.00 -0.06	43.5	+0.00 -0.16	16.4	6.35	5001610
50	+0.06 +0.00	34	+0.00 -0.06	45.40	+0.00 -0.06	48.5	+0.00 -0.16	18.4	6.35	5000810
50	+0.06 +0.00	34	+0.00 -0.06	46.00	+0.00 -0.06	49.0	+0.00 -0.16	20.5	3.10	5000820
50	+0.06 +0.00	38	+0.00 -0.06	46.00	+0.00 -0.06	49.4	+0.00 -0.16	20.5	4.20	5004810
55	+0.07 +0.00	39	+0.00 -0.06	50.36	+0.00 -0.07	53.5	+0.00 -0.19	18.4	6.35	5000910
55	+0.07 +0.00	39	+0.00 -0.06	51.00	+0.00 -0.07	54.0	+0.00 -0.19	20.5	3.10	5000920
60	+0.07 +0.00	44	+0.00 -0.06	55.40	+0.00 -0.07	58.5	+0.00 -0.19	18.4	6.35	5001010
60	+0.07 +0.00	44	+0.00 -0.06	56.00	+0.00 -0.07	59.0	+0.00 -0.19	20.5	3.10	5001020
60	+0.07 +0.00	48	+0.00 -0.06	56.00	+0.00 -0.07	59.4	+0.00 -0.19	20.5	4.20	5004910
63	+0.07 +0.00	47	+0.00 -0.06	58.40	+0.00 -0.07	61.5	+0.00 -0.19	18.4	6.35	5001110
63	+0.07 +0.00	47	+0.00 -0.06	58.40	+0.00 -0.07	61.5	+0.00 -0.19	19.4	6.35	5001120
63	+0.07 +0.00	47	+0.00 -0.06	59.00	+0.00 -0.07	62.0	+0.00 -0.19	20.5	3.10	5001130

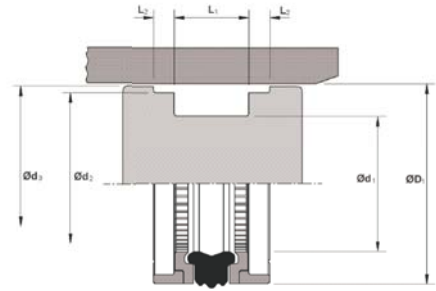
Piston seals metric

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ØD ₁	TOL H9	Ød ₁	TOL h9	ØD ₂	TOL H9	Ød ₃	TOL h11	L ₁ + 0.2 - 0	L ₂ + 0.1 - 0	PART No.
63	+0.07 +0.00	51	+0.00 -0.07	59.00	+0.00 -0.07	62.4	+0.00 -0.19	20.5	4.20	5005010
65	+0.07 +0.00	50	+0.00 -0.06	60.40	+0.00 -0.07	63.5	+0.00 -0.19	18.4	6.35	5001210
70	+0.07 +0.00	50	+0.00 -0.06	64.20	+0.00 -0.07	68.3	+0.00 -0.19	22.4	6.35	5000210
70	+0.07 +0.00	54	+0.00 -0.07	66.00	+0.00 -0.07	69.0	+0.00 -0.19	20.5	3.10	5004210
70	+0.07 +0.00	58	+0.00 -0.07	66.00	+0.00 -0.07	69.4	+0.00 -0.19	20.5	4.20	5005110
75	+0.07 +0.00	55	+0.00 -0.07	69.20	+0.00 -0.07	73.3	+0.00 -0.19	22.4	6.35	5000310
75	+0.07 +0.00	59	+0.00 -0.07	71.00	+0.00 -0.07	74.0	+0.00 -0.19	20.5	3.10	5004310
80	+0.07 +0.00	60	+0.00 -0.07	74.15	+0.00 -0.07	78.3	+0.00 -0.19	22.4	6.35	5000110
80	+0.07 +0.00	62	+0.00 -0.07	76.00	+0.00 -0.07	79.0	+0.00 -0.19	22.5	3.60	5004410
80	+0.07 +0.00	66	+0.00 -0.07	76.00	+0.00 -0.07	79.4	+0.00 -0.19	22.5	5.20	5005210
85	+0.09 +0.00	65	+0.00 -0.07	79.15	+0.00 -0.07	83.3	+0.00 -0.22	22.4	6.35	5000410
90	+0.09 +0.00	70	+0.00 -0.07	84.15	+0.00 -0.09	88.3	+0.00 -0.22	22.4	6.35	5000510
90	+0.09 +0.00	76	+0.00 -0.07	86.00	+0.00 -0.09	89.4	+0.00 -0.22	22.5	5.20	5005310
95	+0.09 +0.00	75	+0.00 -0.07	89.15	+0.00 -0.09	93.3	+0.00 -0.22	22.4	6.35	5000610
100	+0.09 +0.00	75	+0.00 -0.07	93.15	+0.00 -0.09	98.0	+0.00 -0.22	22.4	6.35	5001710
100	+0.09 +0.00	80	+0.00 -0.07	95.00	+0.00 -0.09	98.0	+0.00 -0.22	25.0	6.30	5004710
100	+0.09 +0.00	82	+0.00 -0.09	96.00	+0.00 -0.09	99.0	+0.00 -0.22	22.5	3.60	5004510
100	+0.09 +0.00	86	+0.00 -0.09	96.00	+0.00 -0.09	99.4	+0.00 -0.22	22.5	5.20	5005410
105	+0.09 +0.00	80	+0.00 -0.07	98.10	+0.00 -0.09	103.0	+0.00 -0.22	22.4	6.35	5001810
110	+0.09 +0.00	85	+0.00 -0.09	103.10	+0.00 -0.09	108.0	+0.00 -0.22	22.4	6.35	5001910
115	+0.09 +0.00	90	+0.00 -0.09	108.10	+0.00 -0.09	113.0	+0.00 -0.22	22.4	6.35	5002010
120	+0.09 +0.00	95	+0.00 -0.09	113.10	+0.00 -0.09	118.0	+0.00 -0.22	22.4	6.35	5002110
125	+0.10 +0.00	100	+0.00 -0.09	118.10	+0.00 -0.09	123.0	+0.00 -0.25	25.4	6.35	5002310

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ØD ₁	TOL H9	Ød ₁	TOL h9	Ød ₂	TOL h9	Ød ₃	TOL h11	L ₁ + 0.2 - 0	L ₂ + 0.1 - 0	PART No.
130	+0.10 +0.00	105	+0.00 -0.09	123.10	+0.00 -0.10	128.0	+0.00 -0.25	25.4	6.35	5002420
130	+0.10 +0.00	105	+0.00 -0.09	122.60	+0.00 -0.10	128.0	+0.00 -0.25	25.4	9.50	5002410
135	+0.10 +0.00	110	+0.00 -0.09	127.60	+0.00 -0.10	133.0	+0.00 -0.25	25.4	9.50	5002510
140	+0.10 +0.00	115	+0.00 -0.09	133.00	+0.00 -0.10	138.0	+0.00 -0.25	25.4	6.35	5002220
140	+0.10 +0.00	115	+0.00 -0.09	132.60	+0.00 -0.10	138.0	+0.00 -0.25	25.4	9.50	5002210
145	+0.10 +0.00	120	+0.00 -0.09	137.60	+0.00 -0.10	143.0	+0.00 -0.25	25.4	9.50	5002610
150	+0.10 +0.00	125	+0.00 -0.10	142.60	+0.00 -0.10	148.0	+0.00 -0.25	25.4	9.50	5002710
155	+0.10 +0.00	130	+0.00 -0.10	147.60	+0.00 -0.10	153.0	+0.00 -0.25	25.4	9.50	5002810
160	+0.10 +0.00	130	+0.00 -0.10	152.60	+0.00 -0.10	158.0	+0.00 -0.25	25.4	9.50	5004610
165	+0.10 +0.00	140	+0.00 -0.10	157.60	+0.00 -0.10	163.0	+0.00 -0.25	25.4	9.50	5002910
170	+0.10 +0.00	145	+0.00 -0.10	161.70	+0.00 -0.10	168.0	+0.00 -0.25	25.4	12.70	5003010
175	+0.10 +0.00	150	+0.00 -0.10	166.70	+0.00 -0.10	173.0	+0.00 -0.25	25.4	12.70	5003110
180	+0.10 +0.00	155	+0.00 -0.10	171.70	+0.00 -0.10	178.0	+0.00 -0.25	25.4	12.70	5003210
185	+0.12 +0.00	160	+0.00 -0.10	176.70	+0.00 -0.10	183.0	+0.00 -0.25	25.4	12.70	5003310
190	+0.12 +0.00	165	+0.00 -0.10	181.70	+0.00 -0.12	188.0	+0.00 -0.29	25.4	12.70	5003410
195	+0.12 +0.00	170	+0.00 -0.10	186.70	+0.00 -0.12	193.0	+0.00 -0.29	25.4	12.70	5003510
200	+0.12 +0.00	175	+0.00 -0.10	191.60	+0.00 -0.12	198.0	+0.00 -0.29	25.4	12.70	5003610