

Design

A robust assembly designed specifically for one piece pistons, the Hallite 53 double acting seal uses a rubber sealing element which has proved itself in service to be extremely wear resistant and capable of working most effectively in a wide variety of medium duty applications. The seal is also suitable for two piece pistons.

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

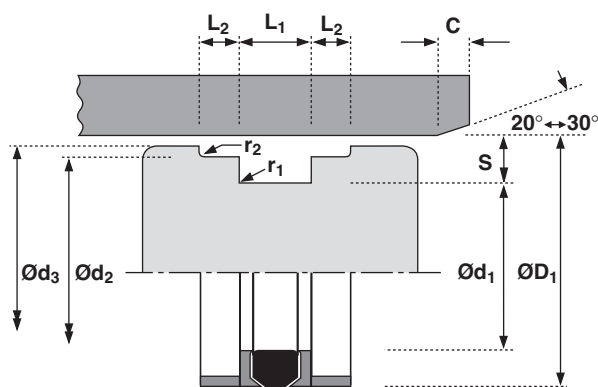
The nitrile rubber seal is designed to have its section compressed by the housing, to ensure a low pressure seal and, when pressurised, be protected from extrusion damage by the extending lips of the support ring. The support ring is manufactured from a tough flexible polymer and scarf cut for assembly.

The proportions of the range have been determined to give a satisfactory performance when used with the recommended operating conditions.

Note: Other sizes of this design are shown under Hallite 50, 64 and 68. Also see Hallite 753 for interchangeable sizes.

Features

- Well proven design
- Long life



Technical details

Operating conditions

Maximum Speed	0.5 m/sec
Temperature Range	-30°C +100°C
Maximum Pressure	500 bar

Inch

1.5 ft/sec
-22°F +212°F
7500 p.s.i.

Surface roughness

Dynamic Sealing Face Ød_1	0.1 < > 0.4
Static Sealing Face Ød_1 Ød_2	1.6 max
Static Housing Faces Ød_3 L_1 L_2	3.2 max

μmRa	μmRt
0.1 < > 0.4	4 max
1.6 max	10 max
3.2 max	16 max

μinCLA	μinRMS
4 < > 16	5 < > 18
63 max	70 max
125 max	140 max

Chamfers & Radii

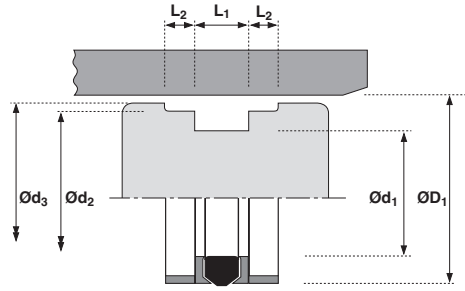
Groove Section $\leq S$ mm	5.0	7.5	8.0	10.0	12.5	15.0
Min Chamfer C mm	2.4	4.0	5.0	5.0	6.5	7.5
Max Fillet Rad r_1 mm	0.4	0.4	0.4	0.4	0.8	0.8
Max Fillet Rad r_2 mm	0.4	0.4	0.4	0.4	0.8	0.8
Groove Section $\leq S$ in	0.312	0.375	0.500			
Min Chamfer C in	0.156	0.187	0.217			
Max Fillet Rad r_1 in	0.016	0.016	0.032			
Max Fillet Rad r_2 in	0.016	0.016	0.032			

Tolerances

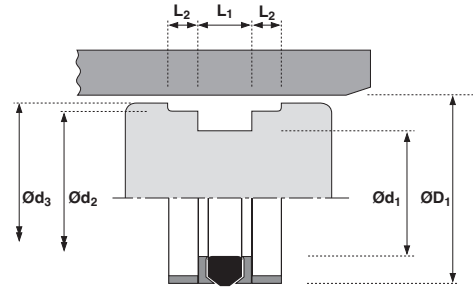
	ØD_1	Ød_1	Ød_2	Ød_3	L_1	L_2
mm	H11	h10	f9	h11	+0.4 +0.15	+0.1 -0
in	H11	h10	f9	h11	+0.016 +0.005	+0.004 -0



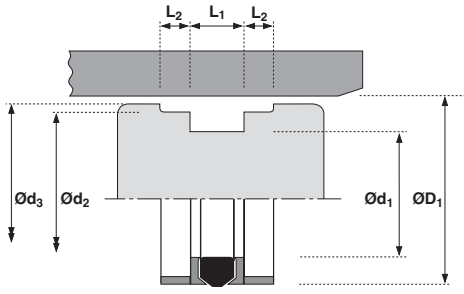
piston seals



ØD_1	TOL H11	Ød_1	TOL h10	Ød_2	TOL f9	Ød_3	TOL h11	L_1 + 0.4 + 0.15	L_2 + 0.1 - 0	PART No.
25	+0.13 +0.00	17	+0.00 -0.07	22.1	-0.020 -0.072	24.0	+0.00 -0.13	8.0	4.00	2249212
32	+0.16 +0.00	22	+0.00 -0.08	28.5	-0.020 -0.072	31.0	+0.00 -0.16	10.0	5.00	2249312
40	+0.16 +0.00	30	+0.00 -0.08	36.5	-0.025 -0.087	39.0	+0.00 -0.16	10.0	5.00	2249412
45	+0.16 +0.00	35	+0.00 -0.10	40.4	-0.025 -0.087	44.0	+0.00 -0.16	16.4	6.35	2199411
50	+0.16 +0.00	34	+0.00 -0.10	45.4	-0.025 -0.087	49.0	+0.00 -0.16	18.0	6.35	0209912
50	+0.16 +0.00	35	+0.00 -0.10	46.0	-0.025 -0.087	49.0	+0.00 -0.16	15.0	7.5	0074012
55	+0.19 +0.00	39	+0.00 -0.10	50.4	-0.030 -0.104	54.0	+0.00 -0.19	18.0	6.35	1352212
60	+0.19 +0.00	44	+0.00 -0.10	55.4	-0.030 -0.104	58.5	+0.00 -0.19	18.0	6.35	1361412
63	+0.19 +0.00	47	+0.00 -0.10	58.4	-0.030 -0.104	61.5	+0.00 -0.19	19.0	6.35	0209712
65	+0.19 +0.00	50	+0.00 -0.10	60.4	-0.030 -0.104	63.5	+0.00 -0.19	18.0	6.35	1350512
70	+0.19 +0.00	50	+0.00 -0.10	64.0	-0.030 -0.104	68.0	+0.00 -0.19	22.0	10.00	0075112
70	+0.19 +0.00	50	+0.00 -0.10	64.2	-0.030 -0.104	68.0	+0.00 -0.19	22.0	6.35	0075122
75	+0.19 +0.00	55	+0.00 -0.12	69.0	-0.030 -0.104	73.0	+0.00 -0.19	22.0	10.00	0075612
75	+0.19 +0.00	55	+0.00 -0.12	69.2	-0.030 -0.104	73.0	+0.00 -0.19	22.0	6.35	0075622
80	+0.19 +0.00	60	+0.00 -0.12	74.0	-0.030 -0.104	78.0	+0.00 -0.19	22.0	10.00	0073812
80	+0.19 +0.00	60	+0.00 -0.12	74.2	-0.030 -0.104	78.0	+0.00 -0.19	22.0	6.35	0073822
85	+0.22 +0.00	65	+0.00 -0.12	79.2	-0.030 -0.104	83.0	+0.00 -0.22	22.0	6.35	0075722
90	+0.22 +0.00	70	+0.00 -0.12	84.0	-0.036 -0.123	88.0	+0.00 -0.22	22.0	10.00	0075812
90	+0.22 +0.00	70	+0.00 -0.12	84.2	-0.036 -0.123	88.0	+0.00 -0.22	22.0	6.35	0075822
95	+0.22 +0.00	75	+0.00 -0.12	89.2	-0.036 -0.123	93.0	+0.00 -0.22	22.0	6.35	1352512
100	+0.22 +0.00	75	+0.00 -0.12	93.2	-0.036 -0.123	98.0	+0.00 -0.22	22.0	6.35	0073712
100	+0.22 +0.00	80	+0.00 -0.12	94.0	-0.036 -0.123	98.0	+0.00 -0.22	22.0	10.00	0083612
105	+0.22 +0.00	80	+0.00 -0.12	98.1	-0.036 -0.123	103.0	+0.00 -0.22	22.0	6.35	1352812
110	+0.22 +0.00	85	+0.00 -0.14	103.1	-0.036 -0.123	108.0	+0.00 -0.22	22.0	6.35	0091113



ØD_1	TOL H11	Ød_1	TOL h10	Ød_2	TOL f9	Ød_3	TOL h11	L_1 + 0.4	L_2 + 0.15	L_2 + 0.1 - 0	PART No.
115	+0.22 +0.00	90	+0.00 -0.14	108.1	-0.036 -0.123	113.0	+0.00 -0.22	22.0	6.35		0084222
120	+0.22 +0.00	95	+0.00 -0.14	113.1	-0.036 -0.123	118.0	+0.00 -0.22	22.0	6.35		0090012
125	+0.25 +0.00	100	+0.00 -0.14	118.1	-0.036 -0.123	123.0	+0.00 -0.25	25.0	6.35		0087522
130	+0.25 +0.00	105	+0.00 -0.14	122.6	-0.043 -0.143	128.0	+0.00 -0.25	25.0	9.52		0089622
135	+0.25 +0.00	110	+0.00 -0.14	127.6	-0.043 -0.143	133.0	+0.00 -0.25	25.0	9.52		0091222
135	+0.25 +0.00	110	+0.00 -0.14	128.0	-0.043 -0.143	133.0	+0.00 -0.25	25.0	12.70		0091212
140	+0.25 +0.00	115	+0.00 -0.14	132.6	-0.043 -0.143	138.0	+0.00 -0.25	25.0	6.35		0091032
140	+0.25 +0.00	115	+0.00 -0.14	132.6	-0.043 -0.143	138.0	+0.00 -0.25	25.0	9.52		0091022
145	+0.25 +0.00	120	+0.00 -0.14	137.6	-0.043 -0.143	143.0	+0.00 -0.25	25.0	9.52		0091422
150	+0.25 +0.00	125	+0.00 -0.16	142.6	-0.043 -0.143	148.0	+0.00 -0.25	25.0	9.52		0091522
150	+0.25 +0.00	125	+0.00 -0.16	143.0	-0.043 -0.143	148.0	+0.00 -0.25	25.0	12.70		0091512
155	+0.25 +0.00	130	+0.00 -0.16	147.6	-0.043 -0.143	153.0	+0.00 -0.25	25.0	9.52		0091622
160	+0.25 +0.00	135	+0.00 -0.16	152.6	-0.043 -0.143	158.0	+0.00 -0.25	25.0	9.52		0089922
165	+0.25 +0.00	140	+0.00 -0.16	158.0	-0.043 -0.143	163.0	+0.00 -0.25	25.0	12.70		1257612
170	+0.25 +0.00	145	+0.00 -0.16	161.7	-0.043 -0.143	168.0	+0.00 -0.25	25.0	12.70		0088012
175	+0.25 +0.00	150	+0.00 -0.16	166.7	-0.043 -0.143	173.0	+0.00 -0.25	25.0	12.70		1260712
180	+0.25 +0.00	155	+0.00 -0.16	171.7	-0.043 -0.143	178.0	+0.00 -0.25	25.0	12.70		0091712
190	+0.29 +0.00	165	+0.00 -0.16	181.7	-0.050 -0.165	188.0	+0.00 -0.29	25.0	12.70		1270012
195	+0.29 +0.00	170	+0.00 -0.16	186.7	-0.050 -0.165	193.0	+0.00 -0.29	25.0	12.70		1265412
200	+0.29 +0.00	170	+0.00 -0.16	192.0	-0.050 -0.165	197.0	+0.00 -0.29	30.0	15.00		1270112
200	+0.29 +0.00	175	+0.00 -0.16	191.6	-0.050 -0.165	198.0	+0.00 -0.29	25.0	12.70		0089712
220	+0.29 +0.00	190	+0.00 -0.19	212.0	-0.050 -0.165	217.0	+0.00 -0.29	30.0	15.00		1714810
250	+0.29 +0.00	220	+0.00 -0.19	242.0	-0.050 -0.165	247.0	+0.00 -0.29	30.0	15.00		1264312
280	+0.29 +0.00	250	+0.00 -0.19	272.0	-0.056 -0.186	277.0	+0.00 -0.32	30.0	15.00		1261712



ØD_1	TOL H11	Ød_1	TOL h10	Ød_2	TOL f9	Ød_3	TOL h11	L_1 +0.016 +0.005	L_2 +0.004 -0	PART No.
2.000	+0.007 +0.000	1.375	+0.000 -0.004	1.821	-0.001 -0.003	1.950	+0.000 -0.007	0.750	0.250	6593410
2.250	+0.007 +0.000	1.625	+0.000 -0.004	2.071	-0.001 -0.004	2.200	+0.000 -0.007	0.750	0.250	6593510
2.500	+0.007 +0.000	1.875	+0.000 -0.004	2.321	-0.001 -0.004	2.450	+0.000 -0.007	0.750	0.250	6593610
2.750	+0.007 +0.000	2.000	+0.000 -0.005	2.524	-0.001 -0.004	2.690	+0.000 -0.007	0.937	0.250	6593710
3.000	+0.007 +0.000	2.250	+0.000 -0.005	2.774	-0.001 -0.004	2.940	+0.000 -0.007	0.937	0.250	1377612
3.250	+0.009 +0.000	2.500	+0.000 -0.005	3.023	-0.001 -0.004	3.190	+0.000 -0.009	0.937	0.250	6593910
3.500	+0.009 +0.000	2.750	+0.000 -0.005	3.274	-0.001 -0.005	3.440	+0.000 -0.009	0.937	0.250	0082412
3.750	+0.009 +0.000	3.000	+0.000 -0.006	3.524	-0.001 -0.005	3.690	+0.000 -0.009	0.937	0.250	2361010
4.000	+0.009 +0.000	3.250	+0.000 -0.006	3.773	-0.001 -0.005	3.940	+0.000 -0.009	0.937	0.250	0082313
4.250	+0.009 +0.000	3.500	+0.000 -0.006	4.024	-0.001 -0.005	4.187	+0.000 -0.009	0.937	0.250	0082211
4.500	+0.009 +0.000	3.500	+0.000 -0.006	4.232	-0.001 -0.005	4.428	+0.000 -0.009	1.250	0.250	6594210
4.750	+0.010 +0.000	3.750	+0.000 -0.006	4.463	-0.001 -0.005	4.660	+0.000 -0.010	1.250	0.375	2360910
5.000	+0.010 +0.000	4.000	+0.000 -0.006	4.712	-0.001 -0.005	4.910	+0.000 -0.010	1.250	0.375	6594310
5.500	+0.010 +0.000	4.500	+0.000 -0.006	5.213	-0.002 -0.006	5.410	+0.000 -0.010	1.250	0.375	6594410
6.000	+0.010 +0.000	5.000	+0.000 -0.006	5.713	-0.002 -0.006	5.910	+0.000 -0.010	1.250	0.375	6594510