

## Rod/Piston seals

# Hallite



# 18

### TECHNICAL DETAILS

METRIC

INCH

#### OPERATING CONDITIONS

MAXIMUM SPEED  
TEMPERATURE RANGE  
MAXIMUM PRESSURE

0.5 m/sec  
-30°C + 100°C  
500 bar

1.5 ft/sec  
-22°F + 212°F  
7500 p.s.i.

#### MAXIMUM EXTRUSION GAP

PRESSURE bar  
MAXIMUM GAP mm  
PRESSURE p.s.i.  
MAXIMUM GAP in

Figures show the maximum permissible gap all on one side, for rod seals using minimum rod  $\varnothing$  and maximum clearance  $\varnothing$  and for piston seals using the minimum clearance  $\varnothing$  and maximum bore  $\varnothing$

160	250	400	500
0.4	0.3	0.2	0.1
2400	3750	6000	7500
0.016	0.012	0.008	0.004

#### SURFACE ROUGHNESS

DYNAMIC SEALING FACE - ROD  $\varnothing d_1$   
STATIC SEALING FACE - ROD  $\varnothing D_1$   
DYNAMIC SEALING FACE - PISTON  $\varnothing d_1$   
STATIC SEALING FACE - PISTON  $\varnothing d_1$   
STATIC HOUSING FACES  $L_1$

$\mu\text{mRa}$	$\mu\text{mRt}$	$\mu\text{inCLA}$	$\mu\text{inRMS}$
0.1 ↔ 0.4	4 max	4 ↔ 16	5 ↔ 18
1.6 max	10 max	63 max	70 max
0.1 ↔ 0.4	4 max	4 ↔ 16	5 ↔ 18
1.6 max	10 max	63 max	70 max
3.2 max	16 max	125 max	140 max

#### CHAMFERS & RADII

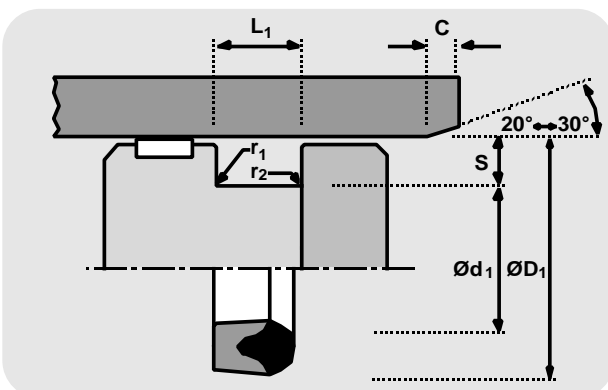
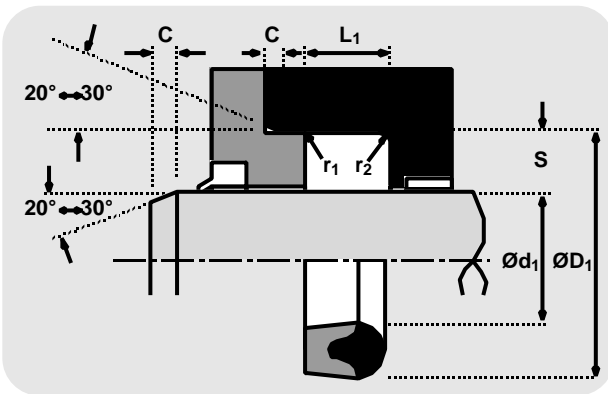
GROOVE SECTION S mm  
MIN CHAMFER C mm  
MAX FILLET RAD  $r_1$  mm  
MAX FILLET RAD  $r_2$  mm  
GROOVE SECTION S in  
MIN CHAMFER C in  
MAX FILLET RAD  $r_1$  in  
MAX FILLET RAD  $r_2$  in

4.0	5.0	7.5	10.0	12.5	15.0	20.0
2.0	2.5	4.0	5.0	6.5	7.5	10.0
0.2	0.4	0.8	0.8	1.2	1.6	1.6
0.4	0.8	1.2	1.2	1.6	2.4	2.4
0.187	0.250	0.312	0.375	0.500	0.625	0.750
0.093	0.125	0.156	0.187	0.217	0.250	0.375
0.008	0.016	0.032	0.032	0.032	0.047	0.047
0.016	0.032	0.047	0.047	0.047	0.062	0.062

#### TOLERANCES

ROD  
PISTON

$\varnothing d_1$	$\varnothing D_1$	$L_1$ mm	$L_1$ in
f9	Js11	+0.25 -0	+0.010 -0
js11	H9	+0.25 -0	+0.010 -0



### DESIGN

A medium to heavy duty single acting seal, the Hallite 18 has shown itself over many years to be an effective and robust seal in a wide variety of applications.

The seal comprises a rubberised fabric U form base to which is bonded a rubber energiser.

The seal section is pre-loaded by the housing when installed to ensure effective sealing at low pressure. When the pressure increases the rubber energises the U form to increase the sealing area and hence the efficiency of the seal. The strength and durability of the rubberised fabric combines with its ability to retain lubricant keeping friction and wear to a minimum.

In a piston application the Hallite 18 should not be used back to back to make a double acting assembly.

### FEATURES

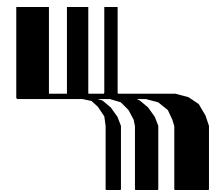
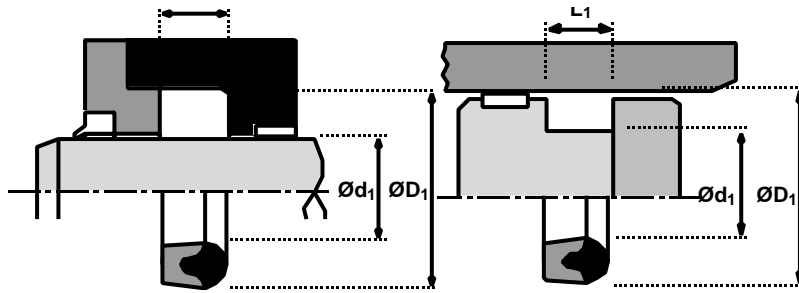
- THE ORIGINAL HALLITE FLUID SEAL
- GENERAL PURPOSE SEAL
- LONG LIFE

### NB:

Size lists give "on line" tolerances for rod applications.

# Hallite 18

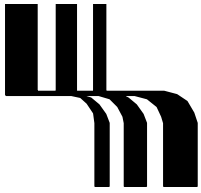
metric



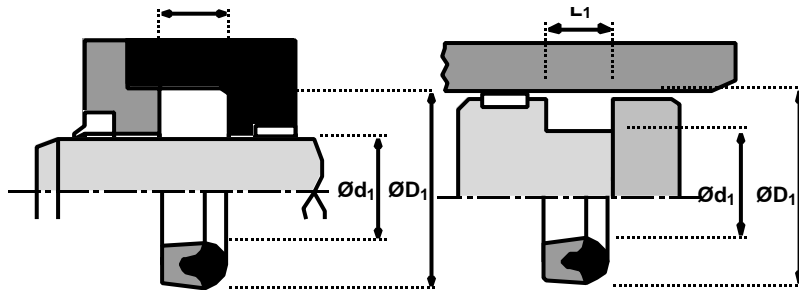
For bore tolerances refer to datasheet.

Ød1	TOL f9	ØD1	TOL Js11	L1 +0.25-0	PART No.
6	-0.013 -0.049	14	+0.05 -0.05	6.0	0202200
8	-0.013 -0.049	16	+0.05 -0.05	6.0	0202400
10	-0.016 -0.059	18	+0.06 -0.06	6.0	0202500
12	-0.016 -0.059	20	+0.07 -0.07	6.0	0202600
12	-0.016 -0.059	25	+0.07 -0.07	10.0	0615800
14	-0.016 -0.059	24	+0.07 -0.07	7.5	0202700
15	-0.016 -0.059	25	+0.07 -0.07	7.5	0202800
16	-0.016 -0.059	26	+0.07 -0.07	7.5	0615900
18	-0.016 -0.059	28	+0.07 -0.07	7.5	0202900
20	-0.020 -0.072	30	+0.07 -0.07	7.5	0200500
22	-0.020 -0.072	30	+0.07 -0.07	6.0	0817600
22	-0.020 -0.072	32	+0.08 -0.08	7.5	0203300
25	-0.020 -0.072	40	+0.08 -0.08	11.0	0472800
28	-0.020 -0.072	43	+0.08 -0.08	11.0	0204300
30	-0.020 -0.072	45	+0.08 -0.08	11.0	0204400
30	-0.020 -0.072	50	+0.08 -0.08	14.0	0282100
32	-0.025 -0.087	47	+0.08 -0.08	11.0	0204600
35	-0.025 -0.087	45	+0.08 -0.08	7.5	0052300
35	-0.025 -0.087	50	+0.08 -0.08	11.0	0474600
36	-0.025 -0.087	44	+0.08 -0.08	6.0	1204900
36	-0.025 -0.087	51	+0.10 -0.10	11.0	0978800
40	-0.025 -0.087	50	+0.08 -0.08	10.5	0202000
40	-0.025 -0.087	55	+0.10 -0.10	11.0	0475000

Ød1	TOL f9	ØD1	TOL Js11	L1 +0.25-0	PART No.
45	-0.025 -0.087	60	+0.10 -0.10	11.0	0979400
45	-0.025 -0.087	65	+0.10 -0.10	14.0	0281700
50	-0.025 -0.087	60	+0.10 -0.10	7.5	0179300
50	-0.025 -0.087	65	+0.10 -0.10	10.0	0208400
50	-0.025 -0.087	65	+0.10 -0.10	11.0	0383800
50	-0.025 -0.087	70	+0.10 -0.10	14.0	0294600
55	-0.030 -0.104	65	+0.10 -0.10	8.0	0242600
56	-0.030 -0.104	76	+0.10 -0.10	14.0	0646100
60	-0.030 -0.104	72	+0.10 -0.10	9.5	1397700
60	-0.030 -0.104	80	+0.10 -0.10	14.0	0294900
63	-0.030 -0.104	83	+0.11 -0.11	14.0	0646300
65	-0.030 -0.104	80	+0.11 -0.11	11.0	0740700
70	-0.030 -0.104	90	+0.11 -0.11	14.0	0296000
75	-0.030 -0.104	90	+0.11 -0.11	12.0	0740600
75	-0.030 -0.104	95	+0.11 -0.11	14.0	0412700
80	-0.030 -0.104	95	+0.11 -0.11	12.0	0732700
80	-0.030 -0.104	100	+0.11 -0.11	14.0	0295100
90	-0.036 -0.123	110	+0.11 -0.11	10.0	0306700
90	-0.036 -0.123	110	+0.11 -0.11	14.0	0071700
90	-0.036 -0.123	110	+0.11 -0.11	15.0	0712400
100	-0.036 -0.123	115	+0.11 -0.11	12.0	0740500
100	-0.036 -0.123	120	+0.11 -0.11	14.0	0296100
100	-0.036 -0.123	125	+0.13 -0.13	19.0	0418600



For bore tolerances refer to datasheet.



Rod/Piston seals

# Hallite 18 metric

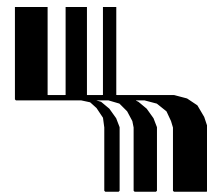
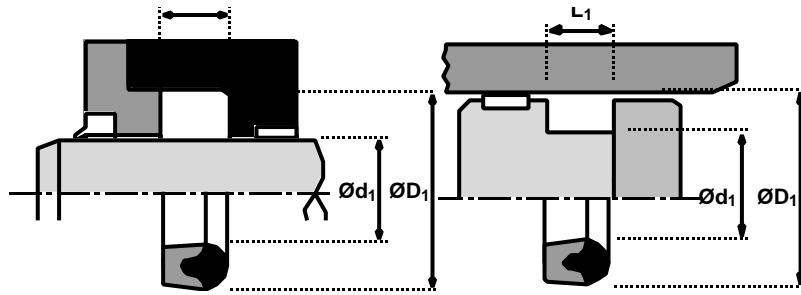
Ød <sub>1</sub>	TOL f9	ØD <sub>1</sub>	TOL Js11	L <sub>1</sub> +0.25-0	PART No.
110	-0.036 -0.123	125	+0.13 -0.13	11.0	0558300
110	-0.036 -0.123	135	+0.13 -0.13	19.0	0304300
115	-0.036 -0.123	135	+0.13 -0.13	14.0	0639900
120	-0.036 -0.123	140	+0.13 -0.13	12.0	0250500
120	-0.036 -0.123	145	+0.13 -0.13	19.0	0070400
125	-0.043 -0.143	150	+0.13 -0.13	19.0	0070500
130	-0.043 -0.143	145	+0.13 -0.13	11.3	0634500
135	-0.043 -0.143	160	+0.13 -0.13	19.0	0080400
140	-0.043 -0.143	160	+0.13 -0.13	14.0	0304600
140	-0.043 -0.143	165	+0.13 -0.13	19.0	0080500
150	-0.043 -0.143	170	+0.13 -0.13	14.0	0303300
160	-0.043 -0.143	180	+0.13 -0.13	15.0	1283100
160	-0.043 -0.143	190	+0.15 -0.15	24.0	0136100
175	-0.043 -0.143	200	+0.15 -0.15	19.0	0838800

Ød <sub>1</sub>	TOL f9	ØD <sub>1</sub>	TOL Js11	L <sub>1</sub> +0.25-0	PART No.
180	-0.043 -0.143	210	+0.15 -0.15	24.0	0087200
200	-0.050 -0.165	220	+0.15 -0.15	15.0	1284100
200	-0.050 -0.165	230	+0.15 -0.15	24.0	2010000
220	-0.050 -0.165	250	+0.15 -0.15	22.0	0958900
250	-0.050 -0.165	280	+0.16 -0.16	24.0	1055500
270	-0.056 -0.186	300	+0.16 -0.16	24.0	0094800
280	-0.056 -0.186	310	+0.16 -0.16	24.0	0094900
300	-0.056 -0.186	330	+0.18 -0.18	24.0	0095000
320	-0.062 -0.212	360	+0.18 -0.18	30.0	1054000
360	-0.062 -0.212	400	+0.18 -0.18	30.0	1054300
380	-0.062 -0.212	420	+0.20 -0.20	30.0	0095100
400	-0.062 -0.212	440	+0.20 -0.20	30.0	0095200
420	-0.068 -0.223	460	+0.20 -0.20	30.0	0095300

Rod/Piston seals

# Hallite 18

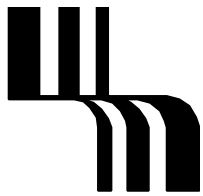
inch



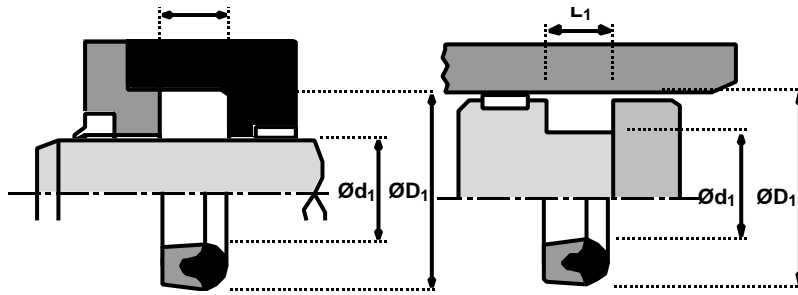
For bore tolerances refer to datasheet.

Ød <sub>1</sub>	TOL f9	ØD <sub>1</sub>	TOL Js11	L <sub>1</sub> +0.010 -0	PART No.
0.375	-0.0005 -0.0019	0.750	+0.003 -0.003	0.281	1379300
0.500	-0.0006 -0.0023	0.875	+0.003 -0.003	0.281	0406700
0.625	-0.0006 -0.0023	0.875	+0.003 -0.003	0.187	1435600
0.625	-0.0006 -0.0023	1.000	+0.003 -0.003	0.281	1247600
0.750	-0.0008 -0.0028	1.093	+0.003 -0.003	0.281	1364200
0.750	-0.0008 -0.0028	1.250	+0.003 -0.003	0.375	0403700
0.812	-0.0008 -0.0028	1.375	+0.003 -0.003	0.500	0413800
0.875	-0.0008 -0.0028	1.375	+0.003 -0.003	0.375	0401300
1.000	-0.0008 -0.0028	1.375	+0.003 -0.003	0.250	0282600
1.000	-0.0008 -0.0028	1.500	+0.003 -0.003	0.375	0422400
1.125	-0.0008 -0.0028	1.500	+0.003 -0.003	0.375	0525100
1.125	-0.0008 -0.0028	1.625	+0.003 -0.003	0.281	0287000
1.125	-0.0008 -0.0028	1.750	+0.003 -0.003	0.437	0778200
1.250	-0.0010 -0.0034	1.625	+0.003 -0.003	0.281	0282400
1.250	-0.0010 -0.0034	1.875	+0.003 -0.003	0.437	0404100
1.375	-0.0010 -0.0034	2.000	+0.004 -0.004	0.437	0778400
1.500	-0.0010 -0.0034	2.000	+0.004 -0.004	0.281	1447800
1.500	-0.0010 -0.0034	2.125	+0.004 -0.004	0.437	0967600
1.500	-0.0010 -0.0034	2.375	+0.004 -0.004	0.687	0403100
1.625	-0.0010 -0.0034	2.250	+0.004 -0.004	0.437	1432600
1.687	-0.0010 -0.0034	2.500	+0.004 -0.004	0.625	1382600
1.750	-0.0010 -0.0034	2.250	+0.004 -0.004	0.312	1404300
1.750	-0.0010 -0.0034	2.375	+0.004 -0.004	0.437	0939800

Ød <sub>1</sub>	TOL f9	ØD <sub>1</sub>	TOL Js11	L <sub>1</sub> +0.010 -0	PART No.
1.875	-0.0010 -0.0034	2.500	+0.004 -0.004	0.437	0867200
2.000	-0.0012 -0.0041	2.625	+0.004 -0.004	0.437	1371000
2.000	-0.0012 -0.0041	2.750	+0.004 -0.004	0.562	1369100
2.250	-0.0012 -0.0041	2.875	+0.004 -0.004	0.437	0424300
2.250	-0.0012 -0.0041	3.000	+0.004 -0.004	0.562	1098400
2.375	-0.0012 -0.0041	3.000	+0.004 -0.004	0.469	0716600
2.500	-0.0012 -0.0041	3.000	+0.004 -0.004	0.312	0641200
2.500	-0.0012 -0.0041	3.250	+0.004 -0.004	0.562	0782400
2.750	-0.0012 -0.0041	3.500	+0.004 -0.004	0.562	0437800
3.000	-0.0012 -0.0041	3.750	+0.004 -0.004	0.562	0410500
3.250	-0.0014 -0.0048	4.000	+0.004 -0.004	0.562	1407700
3.500	-0.0014 -0.0048	4.000	+0.004 -0.004	0.375	1468200
3.500	-0.0014 -0.0048	4.250	+0.004 -0.004	0.562	1128800
3.750	-0.0014 -0.0048	4.500	+0.004 -0.004	0.500	1414800
4.000	-0.0014 -0.0048	4.875	+0.005 -0.005	0.656	1424100
4.000	-0.0014 -0.0048	5.000	+0.005 -0.005	0.750	0443000
4.250	-0.0014 -0.0048	5.250	+0.005 -0.005	0.750	0892200
4.500	-0.0014 -0.0048	5.250	+0.005 -0.005	0.469	0447800
4.500	-0.0014 -0.0048	5.500	+0.005 -0.005	0.750	0133200
5.000	-0.0017 -0.0056	6.000	+0.005 -0.005	0.750	1367000
5.250	-0.0017 -0.0056	6.000	+0.005 -0.005	0.562	0487700
5.500	-0.0017 -0.0056	6.500	+0.005 -0.005	0.750	1164100
6.000	-0.0017 -0.0056	7.000	+0.005 -0.005	0.750	1188800



For bore tolerances refer to datasheet.



Rod/Piston seals

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inch

$\varnothing d_1$	TOL f9	$\varnothing D_1$	TOL Js11	$L_1$ +0.010 -0	PART No.
6.500	-0.0017 -0.0056	7.000	+0.005 -0.005	0.375	1431600
6.500	-0.0017 -0.0056	7.750	+0.006 -0.006	1.000	1192700
7.000	-0.0017 -0.0056	8.000	+0.006 -0.006	0.875	6501200
7.000	-0.0017 -0.0056	8.125	+0.006 -0.006	0.750	1054100
7.000	-0.0017 -0.0056	8.250	+0.006 -0.006	1.000	1219200
7.500	-0.0020 -0.0065	8.750	+0.006 -0.006	1.000	0418100
8.000	-0.0020 -0.0065	9.000	+0.006 -0.006	0.750	1269400
8.000	-0.0020 -0.0065	9.250	+0.006 -0.006	1.000	0455700
8.500	-0.0020 -0.0065	9.750	+0.006 -0.006	1.000	1332300
9.000	-0.0020 -0.0065	10.250	+0.006 -0.006	1.000	0437500
9.500	-0.0020 -0.0065	10.750	+0.006 -0.006	1.000	1320400
10.000	-0.0022 -0.0073	11.250	+0.006 -0.006	1.000	0452200
10.500	-0.0022 -0.0073	11.750	+0.006 -0.000	1.000	1331300
11.000	-0.0022 -0.0073	12.250	+0.006 -0.006	1.000	1331000
11.500	-0.0022 -0.0073	12.750	+0.007 -0.007	1.000	1331800
12.000	-0.0022 -0.0073	13.250	+0.007 -0.007	1.000	1329100

$\varnothing d_1$	TOL f9	$\varnothing D_1$	TOL Js11	$L_1$ +0.010 -0	PART No.
13.000	-0.0024 -0.0083	14.250	+0.007 -0.007	1.000	0864800
14.000	-0.0024 -0.0083	15.250	+0.007 -0.007	1.208	0174900
14.500	-0.0024 -0.0083	16.000	+0.008 -0.008	1.500	1345000
15.000	-0.0024 -0.0083	17.000	+0.008 -0.008	1.500	1345300
16.500	-0.0027 -0.0088	17.750	+0.008 -0.008	1.000	1318800
17.000	-0.0027 -0.0088	17.750	+0.008 -0.008	0.625	1345900
18.000	-0.0027 -0.0088	19.250	+0.008 -0.008	1.250	1314500
19.000	-0.0027 -0.0088	20.750	+0.009 -0.009	1.312	1342200
20.000	-0.0030 -0.0099	21.500	+0.009 -0.009	1.750	0093600
21.500	-0.0030 -0.0099	23.500	+0.009 -0.009	1.750	0150500
23.000	-0.0030 -0.0099	25.000	+0.010 -0.010	1.500	0158700
27.000	-0.0031 -0.0110	29.000	+0.010 -0.010	1.500	2003500
30.000	-0.0031 -0.0110	32.000	+0.011 -0.011	1.500	2109700
38.000	-0.0034 -0.0124	39.500	+0.011 -0.011	1.125	0159200

# Notes

