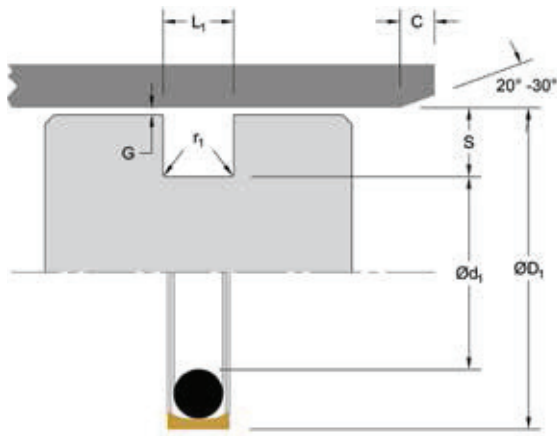




PDS

PISTON SEAL

Double-Acting

TECHNICAL DETAILS

The Hallite PDS is a double-acting low-friction piston seal solution for compact o-ring grooves, that extends the service range above what an o-ring alone is capable of supporting. The PDS is designed for light-duty applications, is particularly suited for small-diameter installations, and due to its size and design, is easy to install. High-performance Armorlene® materials, like HLX, provide outstanding wear and extrusion-resistance properties as well as large range of temperature and media compatibility.

Hallite's PDS is designed to be used in existing dynamic o-ring grooves and does not require any groove modification. A good choice for pneumatic and hydraulic equipment sealing needs, the PDS is proven to extend the service range and seal longevity over stand-alone o-ring installations.

This seal is available in a variety of Hallite's high-performance Armorlene® materials to suit a wide range of demanding applications.



FEATURES

- Compact design to save metal spacing
- Low breakout friction and elimination of stick-slip action
- Effective in pneumatic cylinder and light-duty hydraulic cylinder
- Can be used in standard AS-568 dynamic o-ring groove
- Fits groove dimensions per MIL-G-5514F
- Recommended for light-duty and small-diameter applications

Part Number Structure

PDSMR00700NHLX _

PDS	M	R	00700	N	HLX	—
PROFILE DESIGNATION	UNIT OF MEASUREMENT M = Metric E = Inch	APPLICATION Refer to <i>Installation Recommendations</i> and use designator for desired application	BORE DIAMETER Metric = mm X 10 Inch = inches X 1000	ENERGIZER MATERIAL Refer to <i>Energizer Table</i> for desired energizer material	PTFE MATERIAL Refer to <i>Material Table</i> for desired PTFE (face) material	SPECIAL FEATURE Blank = Std profile N = Notches



OPERATING CONDITIONS

	metric	inch
Maximum Speed	Up to 15.0m/sec	Up to 50.0ft/sec
Temperature Range*	-45 to 200°C	-49 to 392°F
Maximum Dynamic Pressure	350 bar	5000 psi

*Dependent upon energizer used (NBR, FKM, etc.).

NOTE

Data given are maximum values and can apply depending on specific application. Maximum ratings of temperature, pressure, or operating speeds are dependent on fluid medium, surface, gap value, and other variables such as dynamic or static service. Maximum values are not intended for use together at the same time, e.g. max temperature and max pressure. Please contact your Hallite technical representative for application support.

SURFACE FINISH RECOMMENDATIONS

	metric			inch			RMR*
SURFACE ROUGHNESS	μMRA	μMRZ	μMRT	μINRA	μINRZ	μINRT	
Dynamic Sealing Face ØD₁	0.05 - 0.2	1.3 max	2 max	2 - 8	52 max	78 max	60% - 90%
Static Sealing Face Ød₁	1.6 max	7 max	10 max	63 max	276 max	394 max	
Static Housing Faces L₁	3.2 max	10 max	16 max	125 max	394 max	630 max	

*RMR is measured at a depth of 25% of the Rz value based upon a reference level (zero line) at 5% material/bearing area.

ENERGIZER TABLE

ENERGIZER MATERIAL (SHORE A)	ENERGIZER TYPE	ENERGIZER DESIGNATION	ENERGIZER OPERATING TEMPERATURE°C	ENERGIZER OPERATING TEMPERATURE°F
NBR - 70A	O-Ring	N	-30 to 100°C	-22 to 212°F
NBR - 70A Low temp.	O-Ring	L	-45 to 80°C	-49 to 176°F
FKM - 75A	O-Ring	F	-10 to 200°C	14 to 392°F
EPDM - 70A	O-Ring	E	-45 to 145°C	-49 to 293°F
HNBR - 70A	O-Ring	H	-25 to 150°C	-13 to 302°F
NBR - 90A	O-Ring	Q	-30 to 100°C	-22 to 212°F
HNBR - 90A	O-Ring	U	-25 to 150°C	-13 to 302°F
No Energizer*	None	X	-	-

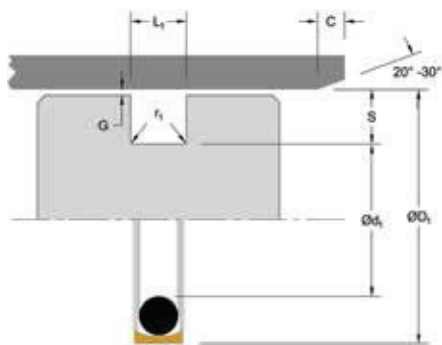
*Seal ratings are based upon capabilities of its matched material components. Hallite cannot rate seal performance when the seal is mixed with other manufacturers' energizers/components.

MATERIALS

MATERIAL FEATURES AND APPLICATIONS	FILLER	MATERIAL DESIGNATOR	COLOR	TEMPERATURE RANGE°C	TEMPERATURE RANGE°F	MAXIMUM DYNAMIC PRESSURE - BAR	MAXIMUM DYNAMIC PRESSURE - PSI
ARMORLENE® HLX • Standard material for hydraulic applications • High compressive strength • Excellent extrusion resistance • Extended wear resistance	Special Bronze Compound	HLX	Gold	-73 to 288°C	-100 to 550°F	350 bar	5000 psi
ARMORLENE® 711 • Excellent in all lubricating fluids and pneumatic applications • High chemical resistance • Excellent extrusion resistance • Excellent wear properties	25% Carbon Graphite	711	Black	-73 to 288°C	-100 to 550°F	350 bar	5000 psi
ARMORLENE® 700 • Excellent in all hydraulic fluids • Recommended for use with soft mating surfaces • Low friction and no stick-slip	Unfilled	700	White	-184 to 204°C	-300 to 400°F	200 bar	2900 psi

For other material options consult the Master Materials Index at the front of the catalog. If you do not find the material that you require, please contact your local Hallite sales office.



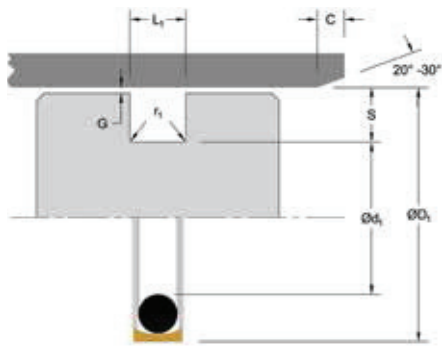


INSTALLATION RECOMMENDATIONS

metric

BORE DIAMETER ØD ₁ H9		GROOVE DIAMETER	GROOVE WIDTH	RADIUS	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*				O-RING CROSS SECTION
DIAMETER RANGE		Ød ₁ h9	L ₁ + 0.2	r ₁	C	S	Up to 20 bar	Up to 100 bar	Up to 200 bar	Up to 350 bar	O-Ring
Standard Duty Application - R	Light Duty Application - L										
5.0 - 13.9	14.0 - 24.9	D ₁ - 2.9	2.4	0.4	2.0	1.45	0.10	0.10	0.08	0.05	1.78
14.0 - 24.9	25.0 - 45.9	D ₁ - 4.5	3.6	0.4	3.0	2.25	0.15	0.15	0.10	0.07	2.62
25.0 - 45.9	46.0 - 124.9	D ₁ - 6.2	4.8	0.6	4.0	3.10	0.25	0.20	0.15	0.08	3.53
46.0 - 124.9	125.0 - 669.9	D ₁ - 9.4	7.1	0.8	6.0	4.70	0.35	0.25	0.20	0.10	5.33
125.0 - 669.9	670.0 - 999.9	D ₁ - 12.2	9.5	0.8	8.0	6.10	0.50	0.30	0.25	0.15	6.99
670.0 - 999.9	> 999.9	D ₁ - 15.0	10.0	1.0	1.0	7.50	0.60	0.40	0.30	0.20	8.40

*Radial Clearance G max. = maximum permissible gap all on one side using max. tube diameter and min. clearance diameter.



PDS

PISTON SEAL

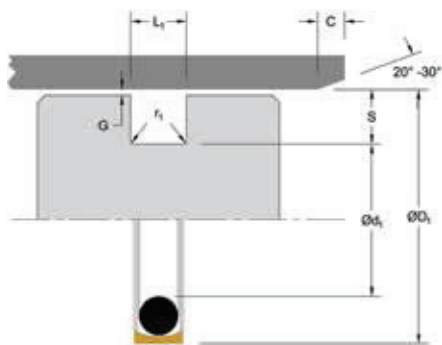
Double-Acting

PART NUMBER RANGE (METRIC)*

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
6.0	3.1	2.4	PDSMR00060****
8.0	5.1	2.4	PDSMR00080****
9.0	6.1	2.4	PDSMR00090****
10.0	7.1	2.4	PDSMR00100****
11.0	8.1	2.4	PDSMR00110****
12.0	9.1	2.4	PDSMR00120****
12.7	9.8	2.4	PDSMR00127****
14.0	9.5	3.6	PDSMR00140****
15.0	10.5	3.6	PDSMR00150****
16.0	11.5	3.6	PDSMR00160****
18.0	13.5	3.6	PDSMR00180****
20.0	15.5	3.6	PDSMR00200****
22.0	17.5	3.6	PDSMR00220****
24.0	19.5	3.6	PDSMR00240****
25.0	18.8	4.8	PDSMR00250****
25.4	19.2	4.8	PDSMR00254****
27.0	20.8	4.8	PDSMR00270****
28.0	21.8	4.8	PDSMR00280****
30.0	23.8	4.8	PDSMR00300****
32.0	25.8	4.8	PDSMR00320****
35.0	28.8	4.8	PDSMR00350****
40.0	33.8	4.8	PDSMR00400****
42.0	35.8	4.8	PDSMR00420****
45.0	38.8	4.8	PDSMR00450****
48.0	38.6	7.1	PDSMR00480****
50.0	40.6	7.1	PDSMR00500****
50.8	41.4	7.1	PDSMR00508****
52.0	42.6	7.1	PDSMR00520****

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
55.0	45.6	7.1	PDSMR00550****
56.0	46.6	7.1	PDSMR00560****
60.0	50.6	7.1	PDSMR00600****
63.0	53.6	7.1	PDSMR00630****
65.0	55.6	7.1	PDSMR00650****
70.0	60.6	7.1	PDSMR00700****
75.0	65.6	7.1	PDSMR00750****
80.0	70.6	7.1	PDSMR00800****
85.0	75.6	7.1	PDSMR00850****
90.0	80.6	7.1	PDSMR00900****
95.0	85.6	7.1	PDSMR00950****
100.0	90.6	7.1	PDSMR01000****
110.0	100.6	7.1	PDSMR01100****
115.0	105.6	7.1	PDSMR01150****
120.0	110.6	7.1	PDSMR01200****
125.0	112.8	9.5	PDSMR01250****
130.0	117.8	9.5	PDSMR01300****
135.0	122.8	9.5	PDSMR01350****
140.0	127.8	9.5	PDSMR01400****
150.0	137.8	9.5	PDSMR01500****
160.0	147.8	9.5	PDSMR01600****
170.0	157.8	9.5	PDSMR01700****
180.0	167.8	9.5	PDSMR01800****
190.0	177.8	9.5	PDSMR01900****
200.0	187.8	9.5	PDSMR02000****
210.0	197.8	9.5	PDSMR02100****
220.0	207.8	9.5	PDSMR02200****
230.0	217.8	9.5	PDSMR02300****





PART NUMBER RANGE (METRIC)*

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
240.0	227.8	9.5	PDSMR02400****
250.0	237.8	9.5	PDSMR02500****
280.0	267.8	9.5	PDSMR02800****
300.0	287.8	9.5	PDSMR03000****
320.0	307.8	9.5	PDSMR03200****
350.0	337.8	9.5	PDSMR03500****
400.0	387.8	9.5	PDSMR04000****

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
420.0	407.8	9.5	PDSMR04200****
450.0	437.8	9.5	PDSMR04500****
480.0	467.8	9.5	PDSMR04800****
500.0	487.8	9.5	PDSMR05000****
600.0	587.8	9.5	PDSMR06000****
650.0	637.8	9.5	PDSMR06500****

*Please contact Hallite for custom sizes, material selection, or seal design.