

SSR

SWIVEL SEAL

ID Sealing

TECHNICAL DETAILS

The Hallite SSR is a double-acting, o-ring energized, rotary swivel seal designed to be used to seal inner diameters of shafts, rods, swivels, and other applications with rotating or oscillating movement. The SSR rotary seal has one or two machined grooves in the face ring, depending on the face ring cross-section, that function to improve sealing against the surface while trapping lubrication and reducing surface contact area, thereby reducing running friction. The o-ring serves to energize the seal face ring, exerting a designed downward force, and also provides static sealing of the housing.

Hallite's SSR rotary seal has a specially designed circular inner recess that provides for maximum o-ring contact area to the inner diameter of the seal face, thereby minimizing the possibility of sealing components spinning relative to each other. The standard SSR seal face includes pressure notches, which makes the seal very responsive to changes in pressure. Made from exclusive Hallite Armormlene® 711 or HCF PTFE materials, the SSR rotary seal is energy-efficient due to its low-friction qualities and eliminates any potential sticking on start-up.

High-performance Armormlene® materials, like 711, provide outstanding wear resistance and support a large range of temperature and media compatibilities. The SSR rotary swivel seal is designed for slow-speed rotary and swivel applications.



FEATURES

- High temperature rating, low-friction and wear resistant face-ring
- Good anti-extrusion resistance
- Compact groove design suitable for narrow spacing

Part Number Structure

SSRMR00550N711 _

SSR	M	R	00550	N	711	_
PROFILE DESIGNATION	UNIT OF MEASUREMENT M = Metric E = Inch	APPLICATION Refer to <i>Installation Recommendations</i> and use designator for desired application	ROD 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 (with notches) X = No notches



OPERATING CONDITIONS

	metric	inch
Maximum Speed	Up to 2.0m/sec	Up to 6.5ft/sec
Temperature Range*	-45 to 200°C	-49 to 392°F
Maximum Dynamic Pressure**	300 bar	4350 psi

*Dependent upon energizer used (NBR, FKM, etc.). **For pressures above 300 bar (4350 psi), contact Hallite Engineering. Application limit PV ≤ 25 bar m/s (40 bar for interrupted rotary).

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

SURFACE ROUGHNESS	metric			inch			RMR*
	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	-	-

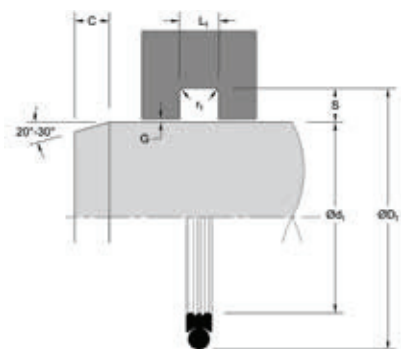
*Seal ratings are based upon capabilities of its matched material components. Hallite cannot rate seal performance when the seal is mixed with other manufacturers' energizers/components.

MATERIALS

MATERIAL FEATURES AND APPLICATIONS	FILLER	MATERIAL DESIGNATOR	COLOR	TEMPERATURE RANGE °C	TEMPERATURE RANGE °F	MAXIMUM DYNAMIC PRESSURE - BAR	MAXIMUM DYNAMIC PRESSURE - PSI
<p>ARMORLENE® 711</p> <ul style="list-style-type: none"> • 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	300 bar	4350 psi
<p>ARMORLENE® HCF</p> <ul style="list-style-type: none"> • Excellent in lubricating and non-lubricating hydraulic fluids (includes water) w/o zinc content • Not recommended for gas sealing applications • Not recommended for electrical conductive fluids 	Carbon Fiber Filled	HCF	Gray/Black	-73 to 260°C	-100 to 500°F	300 bar	4350 psi
<p>ARMORLENE® HCV</p> <ul style="list-style-type: none"> • Recommended for lubricating and non-lubricating fluids • Excellent for high-frequency and short-stroke applications • Not recommended for gas sealing applications • Not recommended for electrical conductive fluids 	High Carbon Fiber Filled	HCV	Gray/Black	-73 to 260°C	-100 to 500°F	300 bar	4350 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

ROD DIAMETER Ød ₁ f8		GROOVE DIAMETER	GROOVE WIDTH	RADIUS	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*	NUMBER OF GROOVES
DIAMETER RANGE		ØD ₁ H9	L ₁ + 0.2	r ₁	C	S	Up to 300 bar	
Standard Duty Application - R	Light Duty Application - L							
6.0 - 18.9	19.0 - 37.9	d ₁ + 4.9	2.2	0.4	2.5	2.45	Tol H8/f7	0
19.0 - 37.9	38.0 - 199.9	d ₁ + 7.5	3.2	0.6	3.5	3.75	Tol H8/f7	1
38.0 - 199.9	200.0 - 255.9	d ₁ + 11.0	4.2	1.0	4.0	5.50	Tol H8/f7	1
200.0 - 255.9	256.0 - 649.9	d ₁ + 15.5	6.3	1.3	6.0	7.75	Tol H8/f7	2
256.0 - 649.9	650.0 - 999.9	d ₁ + 21.0	8.1	1.8	8.0	10.50	Tol H8/f7	2
650.0 - 999.9	-	d ₁ + 28.0	9.5	2.5	10.0	14.00	Tol H8/f7	2

At pressure >300 bar or greater contact Hallite Engineering.

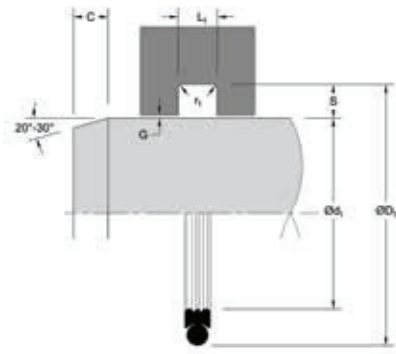
*Radial Clearance G max. = maximum permissible gap all on one side using min. rod diameter and max. clearance diameter.

inch

ROD DIAMETER Ød ₁ f8		GROOVE DIAMETER	GROOVE WIDTH	RADIUS	CHAMFER	GROOVE SECTION	RADIAL CLEARANCE G max*	NUMBER OF GROOVES
DIAMETER RANGE		ØD ₁ H9	L ₁ + .008	r ₁	C	S	Up to 4350 psi	
Standard Duty Application - R	Light Duty Application - L							
1.000 - 1.499	1.500 - 2.999	d ₁ + 0.193	0.087	0.015	0.098	0.096	Tol H8/f7	0
1.500 - 2.999	3.000 - 5.999	d ₁ + 0.295	0.126	0.015	0.138	0.147	Tol H8/f7	1
3.000 - 5.999	6.000 - 11.999	d ₁ + 0.433	0.165	0.015	0.157	0.216	Tol H8/f7	1
6.000 - 11.999	12.000 - 20.000	d ₁ + 0.610	0.248	0.035	0.236	0.305	Tol H8/f7	2
12.000 - 20.000	-	d ₁ + 0.827	0.319	0.035	0.315	0.413	Tol H8/f7	2

At pressure >4350 psi or greater contact Hallite Engineering.

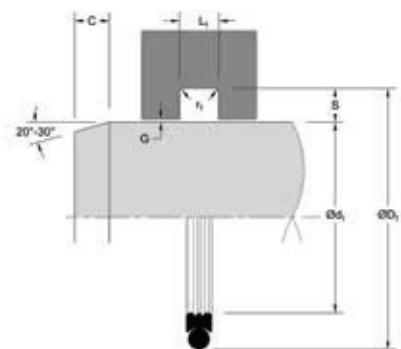
*Radial Clearance G max. = maximum permissible gap all on one side using min. rod diameter and max. clearance diameter.



PART NUMBER RANGE (METRIC)*

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
12.0	16.9	2.2	SSRMR00120****
14.0	18.9	2.2	SSRMR00140****
15.0	19.9	2.2	SSRMR00150****
16.0	20.9	2.2	SSRMR00160****
18.0	22.9	2.2	SSRMR00180****
20.0	27.5	3.2	SSRMR00200****
22.0	29.5	3.2	SSRMR00220****
25.0	32.5	3.2	SSRMR00250****
28.0	35.5	3.2	SSRMR00280****
30.0	37.5	3.2	SSRMR00300****
32.0	39.5	3.2	SSRMR00320****
35.0	42.5	3.2	SSRMR00350****
36.0	43.5	3.2	SSRMR00360****
40.0	51.0	4.2	SSRMR00400****
42.0	53.0	4.2	SSRMR00420****
45.0	56.0	4.2	SSRMR00450****
48.0	59.0	4.2	SSRMR00480****
50.0	61.0	4.2	SSRMR00500****
52.0	63.0	4.2	SSRMR00520****
55.0	66.0	4.2	SSRMR00550****
56.0	67.0	4.2	SSRMR00560****
60.0	71.0	4.2	SSRMR00600****
63.0	74.0	4.2	SSRMR00630****
65.0	76.0	4.2	SSRMR00650****
70.0	81.0	4.2	SSRMR00700****
75.0	86.0	4.2	SSRMR00750****
80.0	91.0	4.2	SSRMR00800****
85.0	96.0	4.2	SSRMR00850****

metric			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.2	
90.0	101.0	4.2	SSRMR00900****
95.0	106.0	4.2	SSRMR00950****
100.0	111.0	4.2	SSRMR01000****
105.0	116.0	4.2	SSRMR01050****
110.0	121.0	4.2	SSRMR01100****
115.0	126.0	4.2	SSRMR01150****
120.0	131.0	4.2	SSRMR01200****
125.0	136.0	4.2	SSRMR01250****
130.0	141.0	4.2	SSRMR01300****
135.0	146.0	4.2	SSRMR01350****
140.0	151.0	4.2	SSRMR01400****
150.0	161.0	4.2	SSRMR01500****
160.0	171.0	4.2	SSRMR01600****
170.0	181.0	4.2	SSRMR01700****
180.0	191.0	4.2	SSRMR01800****
190.0	201.0	4.2	SSRMR01900****
200.0	215.5	6.3	SSRMR02000****
210.0	225.5	6.3	SSRMR02100****
220.0	235.5	6.3	SSRMR02200****
230.0	245.5	6.3	SSRMR02300****
240.0	255.5	6.3	SSRMR02400****
250.0	265.5	6.3	SSRMR02500****
280.0	301.0	8.1	SSRMR02800****
300.0	321.0	8.1	SSRMR03000****
320.0	341.0	8.1	SSRMR03200****
350.0	371.0	8.1	SSRMR03500****
360.0	381.0	8.1	SSRMR03600****
400.0	421.0	8.1	SSRMR04000****



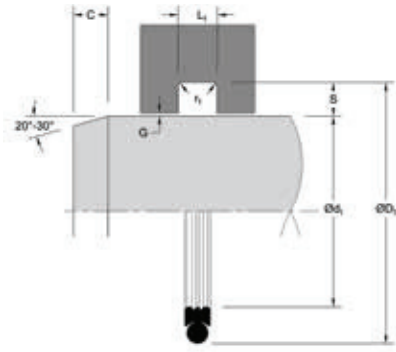
PART NUMBER RANGE (METRIC)*

metric			PART NUMBER
$\varnothing D_1$	$\varnothing d_1$	L_1	
Tol. H9	Tol. H9	Tol. +0.2	
420.0	441.0	8.1	SSRMR04200****
450.0	471.0	8.1	SSRMR04500****
480.0	501.0	8.1	SSRMR04800****

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

PART NUMBER RANGE (INCH)*

inch			PART NUMBER
$\varnothing D_1$	$\varnothing d_1$	L_1	
Tol. H9	Tol. H9	Tol. +0.008	
1.000	1.193	0.087	SSRER01000****
1.125	1.318	0.087	SSRER01125****
1.250	1.443	0.087	SSRER01250****
1.375	1.568	0.087	SSRER01375****
1.500	1.795	0.126	SSRER01500****
1.625	1.920	0.126	SSRER01625****
1.750	2.045	0.126	SSRER01750****
1.875	2.170	0.126	SSRER01875****
2.000	2.295	0.126	SSRER02000****
2.125	2.420	0.126	SSRER02125****
2.250	2.545	0.126	SSRER02250****
2.375	2.670	0.126	SSRER02375****
2.500	2.795	0.126	SSRER02500****
2.625	2.920	0.126	SSRER02625****
2.750	3.045	0.126	SSRER02750****
2.875	3.170	0.126	SSRER02875****
3.000	3.433	0.165	SSRER03000****
3.125	3.558	0.165	SSRER03125****
3.250	3.683	0.165	SSRER03250****
3.375	3.808	0.165	SSRER03375****
3.500	3.933	0.165	SSRER03500****
3.625	4.058	0.165	SSRER03625****
3.750	4.183	0.165	SSRER03750****
3.875	4.308	0.165	SSRER03875****
4.000	4.433	0.165	SSRER04000****
4.125	4.558	0.165	SSRER04125****
4.250	4.683	0.165	SSRER04250****
4.375	4.808	0.165	SSRER04375****



PART NUMBER RANGE (INCH)*

inch			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.008	
4.500	4.933	0.165	SSRER04500****
4.625	5.058	0.165	SSRER04625****
4.750	5.183	0.165	SSRER04750****
4.875	5.308	0.165	SSRER04875****
5.000	5.433	0.165	SSRER05000****
5.125	5.558	0.165	SSRER05125****
5.250	5.683	0.165	SSRER05250****
5.375	5.808	0.165	SSRER05375****
5.500	5.933	0.165	SSRER05500****
5.625	6.058	0.165	SSRER05625****
5.750	6.183	0.165	SSRER05750****
5.875	6.308	0.165	SSRER05875****
6.000	6.610	0.248	SSRER06000****
6.250	6.860	0.248	SSRER06250****
6.500	7.110	0.248	SSRER06500****
6.750	7.360	0.248	SSRER06750****
7.000	7.610	0.248	SSRER07000****
7.250	7.860	0.248	SSRER07250****
7.500	8.110	0.248	SSRER07500****
7.750	8.360	0.248	SSRER07750****
8.000	8.610	0.248	SSRER08000****
8.250	8.860	0.248	SSRER08250****
8.500	9.110	0.248	SSRER08500****
8.750	9.360	0.248	SSRER08750****
9.000	9.610	0.248	SSRER09000****
9.250	9.860	0.248	SSRER09250****
9.500	10.110	0.248	SSRER09500****
9.750	10.360	0.248	SSRER09750****

inch			PART NUMBER
ØD ₁	Ød ₁	L ₁	
Tol. H9	Tol. H9	Tol. +0.008	
10.000	10.610	0.248	SSRER10000****
10.500	11.110	0.248	SSRER10500****
11.000	11.610	0.248	SSRER11000****
11.500	12.110	0.248	SSRER11500****
12.000	12.827	0.319	SSRER12000****
12.500	13.327	0.319	SSRER12500****
13.000	13.827	0.319	SSRER13000****
13.500	14.327	0.319	SSRER13500****
14.000	14.827	0.319	SSRER14000****
14.500	15.327	0.319	SSRER14500****
15.000	15.827	0.319	SSRER15000****
15.500	16.327	0.319	SSRER15500****
16.000	16.827	0.319	SSRER16000****
16.500	17.327	0.319	SSRER16500****
17.000	17.827	0.319	SSRER17000****
17.500	18.327	0.319	SSRER17500****
18.000	18.827	0.319	SSRER18000****
18.500	19.327	0.319	SSRER18500****
19.000	19.827	0.319	SSRER19000****
19.500	20.327	0.319	SSRER19500****
20.000	20.827	0.319	SSRER20000****

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