

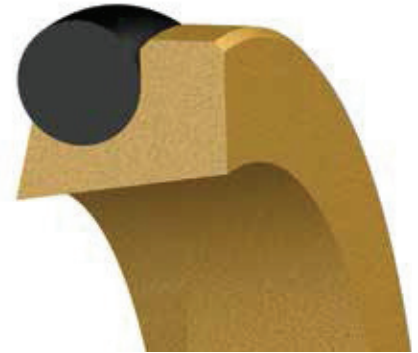
# ELA

## WIPER/EXCLUDER

Single-Acting

### TECHNICAL DETAILS

The Hallite ELA rod wiper/excluder uses a single aggressive wiping lip that provides ingress protection. The ELA wiper uses an o-ring energizer to keep the wiper centered, helping to compensate for potential side-to-side movement in the application. Typically made from exclusive Hallite Armorlene® materials, this seal is capable of high-speed applications and eliminates any potential for stick-slip. The ELA wiper is a low-friction design, making it an energy-efficient choice. The ELA wiper follows ISO 6195, Type D dimensions.



### FEATURES

- Low friction and elimination of stick-slip
- Excellent in high-speed applications
- More stable design for application with excessive side-to-side movement on rod

### Part Number Structure

ELAMR00400NHLX \_

<b>ELA</b>	<b>M</b>	<b>R</b>	<b>00400</b>	<b>N</b>	<b>HLX</b>	_
<b>PROFILE DESIGNATION</b>	<b>UNIT OF MEASUREMENT</b> M = Metric E = Inch	<b>APPLICATION</b> Refer to <i>Installation Recommendations</i> and use designator for desired application	<b>ROD DIAMETER</b> Metric = mm X 10 Inch = inches X 1000	<b>ENERGIZER MATERIAL</b> Refer to <i>Energizer Table</i> for desired energizer material	<b>PTFE MATERIAL</b> Refer to <i>Material Table</i> for desired PTFE (face) material	<b>SPECIAL FEATURE</b> Blank = Std profile

## OPERATING CONDITIONS

	metric	inch
<b>Maximum Speed</b>	Up to 4.0m/sec	Up to 13.0ft/sec
<b>Temperature Range*</b>	-45 to 200°C	-49 to 392°F

\*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

SURFACE ROUGHNESS	metric			inch			RMR*
	µMRA	µMRZ	µMRT	µINRA	µINRZ	µINRT	
<b>Dynamic Sealing Face Ød<sub>1</sub></b>	0.05 - 0.2	1.3 max	2 max	2 - 8	52 max	78 max	60% - 90%
<b>Static Sealing Face ØD<sub>1</sub> and ØD<sub>2</sub></b>	1.6 max	7 max	10 max	63 max	276 max	394 max	
<b>Static Housing Faces L<sub>1</sub></b>	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
<b>NBR - 70A</b>	O-Ring	N	-30 to 100°C	-22 to 212°F
<b>NBR - 70A Low temp.</b>	O-Ring	L	-45 to 80°C	-49 to 176°F
<b>FKM - 75A</b>	O-Ring	F	-10 to 200°C	14 to 392°F
<b>EPDM - 70A</b>	O-Ring	E	-45 to 145°C	-49 to 293°F
<b>HNBR - 70A</b>	O-Ring	H	-25 to 150°C	-13 to 302°F
<b>NBR - 90A</b>	O-Ring	Q	-30 to 100°C	-22 to 212°F
<b>HNBR - 90A</b>	O-Ring	U	-25 to 150°C	-13 to 302°F
<b>No Energizer*</b>	None	X	-	-

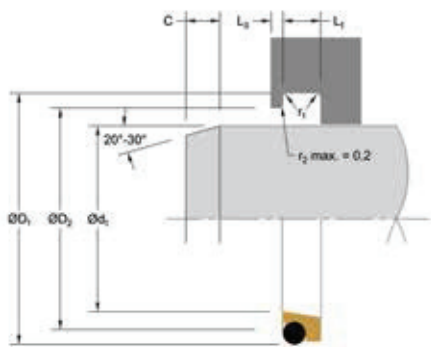
\*Seal ratings are based upon capabilities of its matched material components. Hallite cannot rate seal performance when the seal is mixed with other manufacturers' energizers/components.

# MATERIALS

MATERIAL FEATURES AND APPLICATIONS	FILLER	MATERIAL DESIGNATOR	COLOR	TEMPERATURE RANGE °C	TEMPERATURE RANGE °F
<b>ARMORLENE® HLX</b> <ul style="list-style-type: none"> <li>Standard material for hydraulic applications</li> <li>High compressive strength</li> <li>Excellent extrusion resistance</li> <li>Extended wear resistance</li> </ul>	Special Bronze Compound	HLX	Gold	-73 to 288°C	-100 to 550°F
<b>ARMORLENE® HCF</b> <ul style="list-style-type: none"> <li>Excellent in lubricating and non-lubricating hydraulic fluids (includes water) w/o zinc content</li> <li>Not recommended for gas sealing applications</li> <li>Not recommended for electrical conductive fluids</li> </ul>	Carbon Fiber Filled	HCF	Gray/Black	-73 to 260°C	-100 to 500°F
<b>ARMORLENE® 702</b> <ul style="list-style-type: none"> <li>Excellent in lubricating and non-lubricating hydraulic fluids</li> <li>Good low-friction properties</li> <li>Excellent extrusion resistance</li> <li>Good chemical resistance</li> </ul>	Glass Molybdenum Disulfide	702	Gray	-73 to 260°C	-100 to 500°F
<b>ARMORLENE® 711</b> <ul style="list-style-type: none"> <li>Excellent in all lubricating fluids and pneumatic applications</li> <li>High chemical resistance</li> <li>Excellent extrusion resistance</li> <li>Excellent wear properties</li> </ul>	25% Carbon/Graphite	711	Black	-73 to 288°C	-100 to 550°F
<b>ARMORLENE® 700</b> <ul style="list-style-type: none"> <li>Excellent in all hydraulic fluids</li> <li>Recommended for use with soft mating surfaces</li> <li>Low friction and no stick-slip</li> </ul>	Unfilled	700	White	-184 to 204°C	-300 to 400°F
<b>748 - UHMWPE</b> <ul style="list-style-type: none"> <li>Excellent impact resistance</li> <li>Good dielectrical properties</li> <li>Excellent abrasion resistance</li> <li>Low coefficient of friction</li> </ul>	Standard	748	Translucent	-184 to 82°C	-300 to 180°F
<b>HU5 - POLYURETHANE, 55D</b> <ul style="list-style-type: none"> <li>Positive position load holding</li> <li>Excellent extrusion resistance</li> <li>Excellent wear resistance</li> <li>Available up to 2540mm (100 inches) diameter</li> </ul>	Standard	HU5	Yellow	-20 to 115°C	-4 to 240°F
<b>HU9 - POLYURETHANE, 95A</b> <ul style="list-style-type: none"> <li>Positive position load holding</li> <li>Excellent extrusion resistance</li> <li>Excellent wear resistance</li> <li>Available up to 2540mm (100 inches) diameter</li> </ul>	Standard	HU9	Red	-20 to 115°C	-4 to 240°F

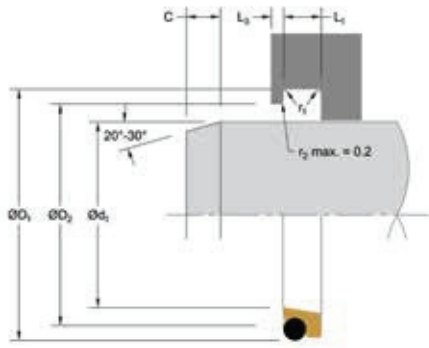
For other material options consult the Master Materials Index at the front of the catalog. If you do not find the material that you require, please contact your local Hallite sales office.





## INSTALLATION RECOMMENDATIONS

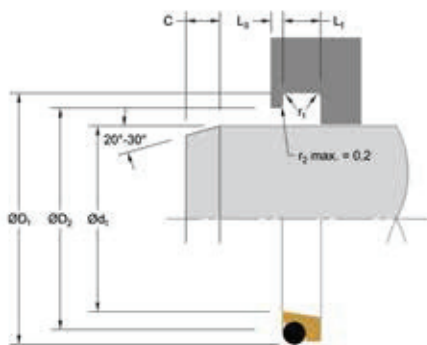
metric						
ROD DIAMETER $\varnothing d_1$ f8/h9	GROOVE DIAMETER	GROOVE WIDTH	BORE DIAMETER	RADIUS	CHAMFER	O-RING CROSS SECTION
DIAMETER RANGE	$D_1$ H9	$L_1 + 0.2$	$D_2$ H11	$r_1$	C	O-Ring
Standard Duty Application - R						
6.0 - 11.9	$d_1 + 4.8$	3.7	$d_1 + 2.7$	0.4	3.0	1.78
12.0 - 64.9	$d_1 + 6.8$	5.0	$d_1 + 3.5$	0.4	4.0	2.62
65.0 - 249.9	$d_1 + 8.8$	6.0	$d_1 + 4.0$	0.4	6.0	3.53
250.0 - 419.9	$d_1 + 12.2$	8.4	$d_1 + 4.5$	0.4	8.0	5.33
420.0 - 649.9	$d_1 + 16.0$	11.0	$d_1 + 5.2$	0.4	8.0	6.99
650.0 - 900.0	$d_1 + 20.0$	14.0	$d_1 + 6.6$	0.4	8.0	8.40



## PART NUMBER RANGE (METRIC)\*

metric				PART NUMBER
Ød <sub>1</sub>	ØD <sub>1</sub>	L <sub>1</sub>	ØD <sub>2</sub>	
Tol. f9/h9	Tol. H9	Tol. +0.2	Tol. H11	
4	8.8	3.7	6.7	ELAMR00040****
5	9.8	3.7	7.7	ELAMR00050****
8	12.8	3.7	10.7	ELAMR00080****
10	14.8	3.7	12.7	ELAMR00100****
12	18.8	5.0	15.5	ELAMR00120****
14	20.8	5.0	17.5	ELAMR00140****
15	21.8	5.0	18.5	ELAMR00150****
18	24.8	5.0	21.5	ELAMR00180****
20	26.8	5.0	23.5	ELAMR00200****
24	30.8	5.0	27.5	ELAMR00240****
25	31.8	5.0	28.5	ELAMR00250****
28	34.8	5.0	31.5	ELAMR00280****
30	36.8	5.0	33.5	ELAMR00300****
32	38.8	5.0	35.5	ELAMR00320****
35	41.8	5.0	38.5	ELAMR00350****
38	44.8	5.0	41.5	ELAMR00380****
40	46.8	5.0	43.5	ELAMR00400****
42	48.8	5.0	45.5	ELAMR00420****
45	51.8	5.0	48.5	ELAMR00450****
48	54.8	5.0	51.5	ELAMR00480****
50	56.8	5.0	53.5	ELAMR00500****
55	61.8	5.0	58.5	ELAMR00550****
60	66.8	5.0	63.5	ELAMR00600****
65	73.8	6.0	69.0	ELAMR00650****
70	78.8	6.0	74.0	ELAMR00700****
75	83.8	6.0	79.0	ELAMR00750****
80	88.8	6.0	84.0	ELAMR00800****
85	93.8	6.0	89.0	ELAMR00850****

metric				PART NUMBER
Ød <sub>1</sub>	ØD <sub>1</sub>	L <sub>1</sub>	ØD <sub>2</sub>	
Tol. f9/h9	Tol. H9	Tol. +0.2	Tol. H11	
90	98.8	6.0	94.0	ELAMR00900****
95	103.8	6.0	99.0	ELAMR00950****
100	108.8	6.0	104.0	ELAMR01000****
110	118.8	6.0	114.0	ELAMR01100****
120	128.8	6.0	124.0	ELAMR01200****
125	133.8	6.0	129.0	ELAMR01250****
130	138.8	6.0	134.0	ELAMR01300****
140	148.8	6.0	144.0	ELAMR01400****
150	158.8	6.0	154.0	ELAMR01500****
160	168.8	6.0	164.0	ELAMR01600****
170	178.8	6.0	174.0	ELAMR01700****
175	183.8	6.0	179.0	ELAMR01750****
180	188.8	6.0	184.0	ELAMR01800****
190	198.8	6.0	194.0	ELAMR01900****
195	203.8	6.0	199.0	ELAMR01950****
200	208.8	6.0	204.0	ELAMR02000****
210	218.8	6.0	214.0	ELAMR02100****
220	228.8	6.0	224.0	ELAMR02200****
230	238.8	6.0	234.0	ELAMR02300****
240	248.8	6.0	244.0	ELAMR02400****
250	262.2	8.4	254.5	ELAMR02500****
260	272.2	8.4	264.5	ELAMR02600****
270	282.2	8.4	274.5	ELAMR02700****
280	292.2	8.4	284.5	ELAMR02800****
290	302.2	8.4	294.5	ELAMR02900****
300	312.2	8.4	304.5	ELAMR03000****
310	322.2	8.4	314.5	ELAMR03100****
320	332.2	8.4	324.5	ELAMR03200****



**PART NUMBER RANGE (METRIC)\***

metric				PART NUMBER
Ød <sub>1</sub>	ØD <sub>1</sub>	L <sub>1</sub>	ØD <sub>2</sub>	
Tol. f9/h9	Tol. H9	Tol. +0.2	Tol. H11	
330	342.2	8.4	334.5	ELAMR03300****
340	352.2	8.4	344.5	ELAMR03400****
350	362.2	8.4	354.5	ELAMR03500****
360	372.2	8.4	364.5	ELAMR03600****
370	382.2	8.4	374.5	ELAMR03700****
380	392.2	8.4	384.5	ELAMR03800****
390	402.2	8.4	394.5	ELAMR03900****
400	412.2	8.4	404.5	ELAMR04000****
410	422.2	8.4	414.5	ELAMR04100****
420	436.0	11.0	425.2	ELAMR04200****
430	446	11.0	435.2	ELAMR04300****
440	456	11.0	445.2	ELAMR04400****
450	466	11.0	455.2	ELAMR04500****
460	476	11.0	465.2	ELAMR04600****

metric				PART NUMBER
Ød <sub>1</sub>	ØD <sub>1</sub>	L <sub>1</sub>	ØD <sub>2</sub>	
Tol. f9/h9	Tol. H9	Tol. +0.2	Tol. H11	
470	486	11.0	475.2	ELAMR04700****
480	496	11.0	485.2	ELAMR04800****
490	506	11.0	495.2	ELAMR04900****
500	516	11.0	505.2	ELAMR05000****
520	536	11.0	525.2	ELAMR05200****
550	566	11.0	555.2	ELAMR05500****
570	586	11.0	575.2	ELAMR05700****
600	616	11.0	605.2	ELAMR06000****
620	636	11.0	625.2	ELAMR06200****
640	656	11.0	645.2	ELAMR06400****
650	670	14.0	656.6	ELAMR06500****
700	720	14.0	706.6	ELAMR07000****
800	820	14.0	806.6	ELAMR08000****
900	920	14.0	906.6	ELAMR09000****

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