Double Acting Piston Seal

D-Ring

Metric

Design

Claron D-Ring Seals are designed as high pressure, low friction Double-acting piston seals for use in heavy duty hydraulic cylinders.
The seals high pressure resistance makes it suitable for use in heavy duty applications where shock loads and pressure spikes occur, as found in mobile plant equipment.
The inclusion of radial grooves on the P.T.F.E. element allows rapid response to bi-directional pressure changes.

Materials

Standard materials are Bronze Filled P.T.F.E. Outer Ring with a Nitrile O-Ring Energiser but both the outer sealing element and the energiser are available in a wide range of high performance materials to suit a variety of applications.
The application parameters should be carefully considered prior to selecting suitable materials from the tables.
Consult Claron for further advice.

Operating Range

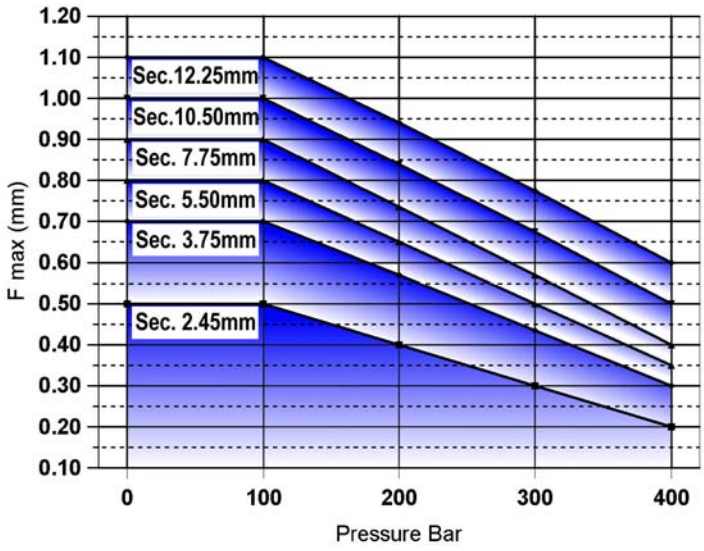
Temp. -54°C to 200°C Dependent upon O-Ring Material used
Pressure upto 800 bar
Velocity upto 15m/s
These range parameters are maximum conditional values
Optimum service conditions are affected by temperature, speed pressure, surface finish and extrusion gaps.
Refer to Appendix 1 section for further information.

Operating Conditions

Maximum Working Pressure for “Standard” seal applications using specified tolerances.

Temp. range	Temp. range
-30°C to 80°C	80°C to 120°C
400bar	350 bar

Diametral Clearance F shown in the graph to the right is calculated as the maximum permissible extrusion gap, allowing for movement due to side load, for various pressures and temperatures up to 80°C.
The use of a suitably selected Claron bearing ring will effectively reduce the **Radial clearance** to a value nearer to F/2 thus increasing the pressure capability of the seal.
The maximum seal extrusion gap should be calculated allowing for all tolerances, movement and cylinder expansion.
For pressures **>** 400 bar, the seal extrusion gap should be reduced by utilising smaller tolerances.
e.g H8 for Cylinder bore, f8 for piston diameter and P.T.F.E tape seating diameter.



Range Of Installation Dimensions

The full range of diameters applicable to the “Standard and “Light” Duty Sections are shown in the table below

Housing		Cylinder Bore	
Section	Width	Standard	Light (/1)
7.75	6.30		70 to 132.9
10.50	8.10	95 to 320	

D-Ring

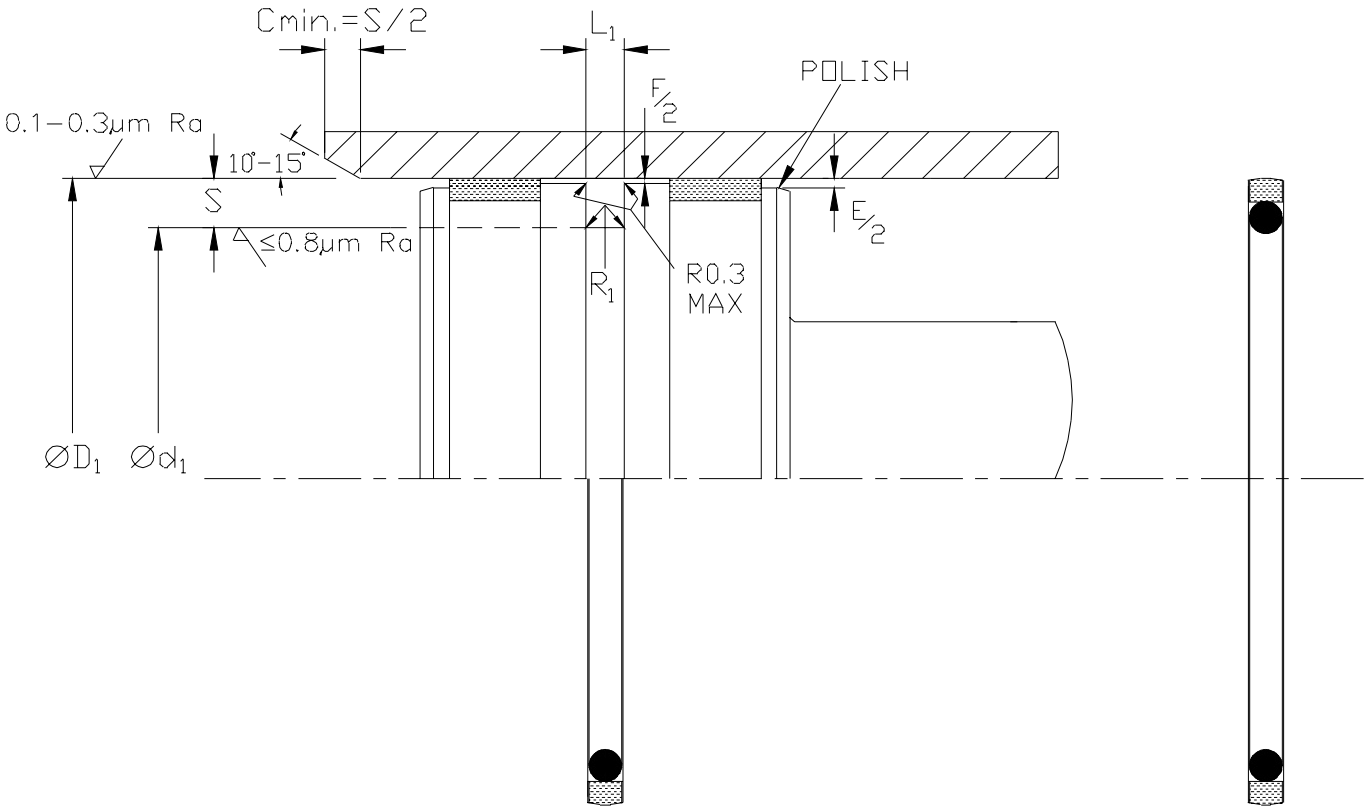
How To Order

When ordering, prefix the size reference with the style required and use the suffix shown in the material application tables.

e.g. D-Ring Standard section in Bronze filled material for 70mm diameter **D0700/B**
D-Ring Light duty section in Glass filled material for 70 mm diameter **D0700/1G**
For O-Ring energiser materials other than Nitrile, use suffix shown in material table.
e.g Flourocarbon material (FKM), **D0700/B/FKM**

Housing

For surface finish and lead in chamfers refer to the illustration below. For Housing dimensions and tolerances refer to the table of recommended sizes, and Appendix 4 for value of tolerance symbols.



For F/2 values see note and tables

For E/2 values refer to P.T.F.E. Guide Tape

Fitting

For the seal to function correctly it is important that care is taken during fitting.
For details refer to Appendix 3.

Double Acting Piston Seal Metric

D-Ring

Nominal Dimensions & Machining Tolerances

Claron Part No.	H9 $ØD_1$	h9 $Ød_1$	L_1 +0.2 -0.0	S Nom Sec	R_1 Max	F/2 Max
D0700/1B	70.00	54.50	6.30	7.75	0.90	0.40
D0750/1B	75.00	59.50	6.30	7.75	0.90	0.40
D0800/1B	**80.00**	**64.50**	**6.30**	**7.75**	**0.90**	0.40
D0850/1B	85.00	69.50	6.30	7.75	0.90	0.40
D0900/1B	90.00	74.50	6.30	7.75	0.90	0.40
D0950/1B	95.00	79.50	6.30	7.75	0.90	0.40
D1000/1B	**100.00**	**84.50**	**6.30**	**7.75**	**0.90**	0.40
D1050/1B	105.00	89.50	6.30	7.75	0.90	0.40
D1100/1B	110.00	94.50	6.30	7.75	0.90	0.40
D1150/1B	115.00	99.50	6.30	7.75	0.90	0.40
D1200/1B	120.00	104.50	6.30	7.75	0.90	0.40
D1250/1B	**125.00**	**109.50**	**6.30**	**7.75**	**0.90**	0.40
D1300/1B	130.00	114.50	6.30	7.75	0.90	0.40
D0950/B	95.00	74.00	8.10	10.50	0.90	0.50
D1000/B	100.00	79.00	8.10	10.50	0.90	0.50
D1050/B	105.00	84.00	8.10	10.50	0.90	0.50
D1100/B	110.00	89.00	8.10	10.50	0.90	0.50
D1150/B	115.00	94.00	8.10	10.50	0.90	0.50
D1200/B	120.00	99.00	8.10	10.50	0.90	0.50
D1250/B	**125.00**	**104.00**	**8.10**	**10.50**	**0.90**	**0.50**
D1300/B	130.00	109.00	8.10	10.50	0.90	0.50
D1350/B	135.00	114.00	8.10	10.50	0.90	0.50
D1400/B	140.00	119.00	8.10	10.50	0.90	0.50
D1450/B	145.00	124.00	8.10	10.50	0.90	0.50
D1500/B	150.00	129.00	8.10	10.50	0.90	0.50
D1550/B	155.00	134.00	8.10	10.50	0.90	0.50
D1600/B	**160.00**	**139.00**	**8.10**	**10.50**	**0.90**	**0.50**
D1650/B	165.00	144.00	8.10	10.50	0.90	0.50
D1700/B	170.00	149.00	8.10	10.50	0.90	0.50
D1800/B	180.00	159.00	8.10	10.50	0.90	0.50
D1900/B	190.00	169.00	8.10	10.50	0.90	0.50
D2000/B	**200.00**	**179.00**	**8.10**	**10.50**	**0.90**	**0.50**
D2100/B	210.00	189.00	8.10	10.50	0.90	0.50
D2200/B	220.00	199.00	8.10	10.50	0.90	0.50
D2300/B	230.00	209.00	8.10	10.50	0.90	0.50
D2400/B	240.00	219.00	8.10	10.50	0.90	0.50
D2500/B	250.00	229.00	8.10	10.50	0.90	0.50
D2600/B	**260.00**	**239.00**	**8.10**	**10.50**	**0.90**	0.60

Nominal Dimensions & Machining Tolerances

Claron Part No.	H9 $ØD_1$	h9 $Ød_1$	L_1 +0.2 -0.0	S Nom Sec	R_1 Max	F/2 Max
D2700/B	270.00	249.00	8.10	10.50	0.90	0.60
D2800/B	280.00	259.00	8.10	10.50	0.90	0.60
D2900/B	290.00	269.00	8.10	10.50	0.90	0.50
D3000/B	300.00	279.00	8.10	10.50	0.90	0.60
D3200/B	**320.00**	**299.00**	**8.10**	**10.50**	**0.90**	0.60

DIMENSIONS IN BOLD TYPE CONFORM TO ISO 7425-1 :1988