

## Design

Designed for use on one piece pistons, the five part assembly consists of an endless precision rubber moulded sealing element supported at each end with angle split support rings. The support rings are designed to accommodate split Polyacetal anti-extrusion bearing rings.

The design allows the anti extrusion bearing rings to react positively to increasing pressures. The final assembly provides a robust sealing unit designed to operate at higher pressures.

The seal is also suitable for existing two piece pistons of the same housing dimensions.

## Operating Conditions

Maximum Pressure		
Max Speed	Temp. Range	Temp. Range
m/s	-30°C to 80°C	-30°C to 100°C
<b>0.50</b>	400 Bar	300 Bar
<b>0.15</b>	500 Bar	400 Bar

These range parameters are Maximum simultaneous conditions.

Optimum service conditions are affected by temperature, speed, pressure, surface finish and extrusion gaps.

Refer to Appendix 1 for further information.

Continuous operating temperature for various fluids

NBR Rubber		
DIN	Hydraulic Fluid Description	°C
H	Mineral oil without additives	100
H-L	Mineral Fluid with anti corrosion and anti ageing additives	100
H-LP	Mineral oil as HL plus additives reducing wear, raising load	100
H-LPD	Mineral oil as H-LP but with detergents and dispersants	100
H-V	Mineral oil as H-LP plus improved viscosity temp.	100
HFA E	Emulsions of mineral oil in water. Water content 80-95%	55
HFA S	Synthetic oil in water. Water content 80-95%	55
HFB	Emulsions of water in mineral oil. Water content 40%	60
HFC	Aqueous polymer solutions. Water content 35%	60
HFD R	Phosphoric acid ester based	NS
HFD S	Chlorinated hydrocarbon based	NS
HFD T	Mixtures of HFD R and HFD S	NS
HEPG	Polyglycol based	NS
HETG	Vegetable Oil based	60
HEES	Fully synthetic ester based	NS

## Housing

For surface finish and recommended lead in chamfers refer to the illustration below. For housing dimensions and machining tolerances refer to the catalogue page of selected seal. Refer to Appendix 4 for value of tolerance symbols.

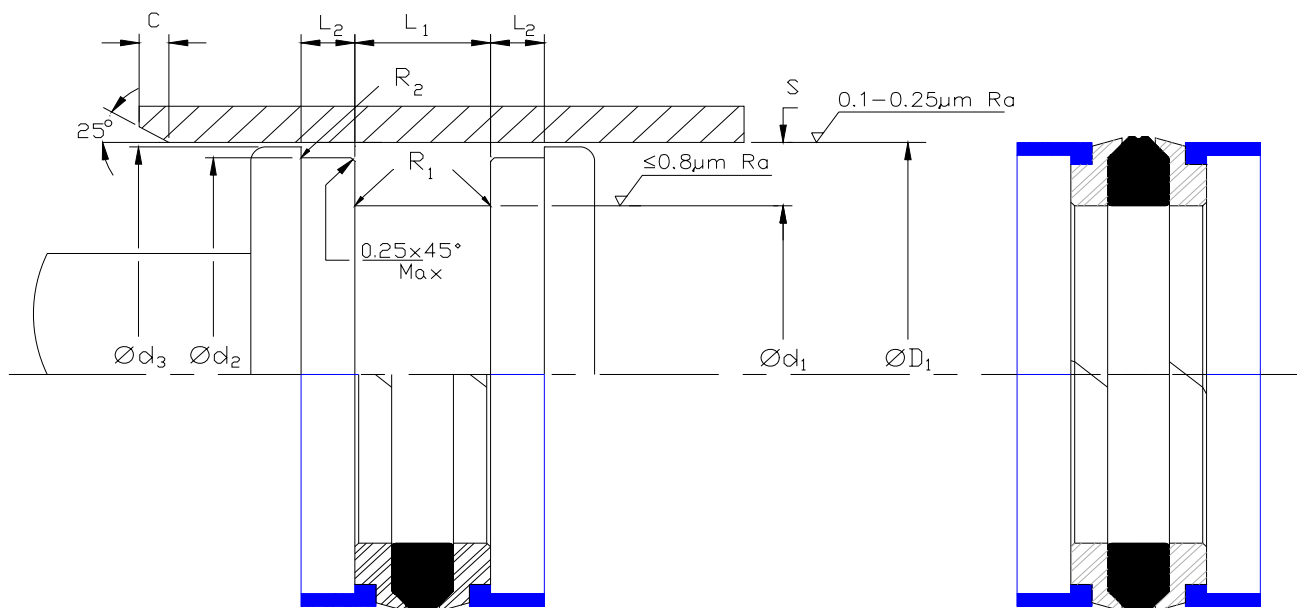
## Fitting

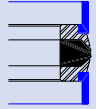
Fit seal onto the piston in the following sequence.

- 1- Rubber Sealing Element
- 2- Support Rings
- 3- Polyacetal bearing rings.

It is important that care be taken in fitting the seal within its housing.

Refer to Appendix 3 for check list.



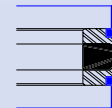
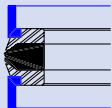


## Nominal Dimensions &amp; Machining Tolerances

Claron Part Number	H10 ØD <sub>1</sub>	h9 Ød <sub>1</sub>	h9 Ød <sub>2</sub>	h11 Ød <sub>3</sub>	+0.63 +0.38 L <sub>1</sub>	+0.1 -0.0 L <sub>2</sub>	Nominal S	Minimum C	Maximum R <sub>1</sub>	Maximum R <sub>2</sub>
* SPS 125094/2	32	24	28.00	31.40	15.12	3.20	4.0	2.5	0.4	0.2
* SPS 157125/1	40	32	36.00	39.40	15.12	3.20	4.0	2.5	0.4	0.2
SPS 157094	40	24	35.40	38.65	18.00	6.35	8.0	5.0	0.4	0.2
SPS 196133	50	34	45.40	48.65	18.00	6.35	8.0	5.0	0.4	0.2
SPS 196133/4	50	34	46.00	49.40	20.12	3.10	8.0	5.0	0.4	0.2
SPS 196149	50	38	46.00	49.40	20.12	4.20	6.0	5.0	0.4	0.2
<b>SPS 196157/1</b>	<b>50</b>	<b>40</b>	<b>47.00</b>	<b>49.00</b>	<b>12.50</b>	<b>4.00</b>	<b>5.0</b>	<b>2.5</b>	<b>0.4</b>	<b>0.4</b>
SPS 216153	55	39	51.00	54.40	20.12	3.10	8.0	5.0	0.4	0.2
SPS 236173	60	44	55.40	58.65	18.00	6.35	8.0	5.0	0.4	0.2
SPS 236173/4	60	44	56.00	59.40	20.12	3.10	8.0	5.0	0.4	0.2
SPS 236177	60	45	55.40	58.65	22.12	6.35	7.5	5.0	0.4	0.2
SPS 236188	60	48	56.00	59.40	20.12	4.20	6.0	5.0	0.4	0.2
SPS 248185	63	47	58.40	61.65	19.00	6.35	8.0	5.0	0.4	0.2
SPS 248185/4	63	47	59.00	61.50	20.12	3.10	8.0	5.0	0.4	0.2
SPS 248200	63	51	59.00	62.40	20.12	4.20	6.0	5.0	0.4	0.2
<b>SPS 248208/1</b>	<b>63</b>	<b>53</b>	<b>60.00</b>	<b>62.00</b>	<b>12.50</b>	<b>4.00</b>	<b>5.0</b>	<b>2.5</b>	<b>0.4</b>	<b>0.4</b>
SPS 255196	65	50	60.40	63.65	18.00	6.35	7.5	5.0	0.4	0.2
SPS 275196	70	50	64.15	68.35	22.00	6.35	10.0	5.0	0.4	0.2
SPS 275216	70	55	64.15	68.35	22.12	6.35	7.5	5.0	0.4	0.2
SPS 275212/4	70	54	66.00	68.50	20.12	3.10	8.0	5.0	0.4	0.2
SPS 275228	70	58	66.00	69.40	20.12	4.20	6.0	5.0	0.4	0.2
SPS 295248	75	63	71.00	74.40	20.12	4.20	6.0	5.0	0.4	0.2
SPS 314236	80	60	74.15	78.35	22.00	6.35	10.0	5.0	0.4	0.2
SPS 314244/4	80	62	76.00	78.50	22.12	3.60	9.0	5.0	0.4	0.2
SPS 314255	80	65	74.15	78.35	22.12	6.35	7.5	5.0	0.4	0.2
<b>SPS 314255/1</b>	<b>80</b>	<b>65</b>	<b>76.00</b>	<b>78.50</b>	<b>20.00</b>	<b>5.00</b>	<b>7.5</b>	<b>4.0</b>	<b>0.4</b>	<b>0.4</b>
SPS 314259	80	66	76.00	79.40	22.12	5.20	7.0	5.0	0.4	0.2
SPS 354275	90	70	84.15	88.35	22.00	6.35	10.0	5.0	0.4	0.2
SPS 354275/1	90	70	84.15	88.35	29.62	6.35	10.0	5.0	0.4	0.2
SPS 354299	90	76	86.00	89.40	22.12	5.20	7.0	5.0	0.4	0.2
SPS 393295	100	75	93.15	98.00	22.00	6.35	12.5	6.5	0.4	0.2
SPS 393314	100	80	94.15	98.35	29.62	6.35	10.0	5.0	0.4	0.2
<b>SPS 393334</b>	<b>100</b>	<b>85</b>	<b>96.00</b>	<b>98.50</b>	<b>20.00</b>	<b>5.00</b>	<b>7.5</b>	<b>4.0</b>	<b>0.4</b>	<b>0.4</b>
SPS 393338	100	86	96.00	99.40	22.12	5.20	7.0	5.0	0.4	0.2
SPS 433334	110	85	103.10	108.00	22.00	6.35	12.5	6.5	0.4	0.2
SPS 433354	110	90	103.10	108.00	29.62	6.35	10.0	5.0	0.4	0.2
SPS 472393	120	100	113.10	118.00	29.62	6.35	10.0	5.0	0.4	0.2
SPS 492393	125	100	118.00	123.00	25.00	12.70	12.5	6.5	0.4	0.2
SPS 492393/1	125	100	118.00	123.00	25.00	6.35	12.5	6.5	0.4	0.2
SPS 492425	125	108	121.00	124.00	26.12	5.70	8.5	5.0	0.4	0.2
SPS 511433	130	110	123.08	128.00	29.62	6.35	10.0	5.0	0.4	0.2
SPS 629531	160	135	152.60	157.00	25.00	9.52	12.5	6.5	0.4	0.2
SPS 629551	160	140	151.40	158.50	24.62	12.50	10.0	5.0	0.4	0.2

Items in **BOLD** are to suit ISO 6547 Housings

Items marked \* comprise of sealing element and two split bearing rings only



Nominal Dimensions & Machining Tolerances

Claron Part Number	H10	h9	h9	h11	+0.025" +0.015"	+0.004 -0.000	Nominal S	Minimum C	Maximum	
	ØD <sub>1</sub>	Ød <sub>1</sub>	Ød <sub>2</sub>	Ød <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>			R <sub>1</sub>	R <sub>2</sub>
SPS 175112	1.750	1.125	1.570	1.698	0.750	0.250	0.312	0.156	0.008	
SPS 200137	2.000	1.375	1.820	1.948	0.750	0.250	0.312	0.156	0.008	
SPS 225162	2.250	1.625	2.069	2.197	0.750	0.250	0.312	0.156	0.008	
SPS 237175	2.375	1.750	2.194	2.322	0.750	0.250	0.312	0.156	0.008	
SPS 250187	2.500	1.875	2.319	2.446	0.750	0.250	0.312	0.156	0.008	
SPS 262200	2.625	2.000	2.443	2.571	0.750	0.250	0.312	0.156	0.008	
SPS 275200	2.750	2.000	2.522	2.685	0.937	0.250	0.375	0.187	0.008	
SPS 300225	3.000	2.250	2.772	2.935	0.937	0.250	0.375	0.187	0.008	
SPS 325250	3.250	2.500	3.021	3.184	0.937	0.250	0.375	0.187	0.008	
SPS 325262	3.250	2.625	3.021	3.184	0.775	0.245	0.312	0.156	0.008	
SPS 350275	3.500	2.750	3.271	3.434	0.937	0.250	0.375	0.187	0.008	
SPS 350285	3.500	2.850	3.272	3.460	0.775	0.295	0.325	0.156	0.008	
SPS 375300	3.750	3.000	3.520	3.683	0.937	0.250	0.375	0.187	0.008	
SPS 400325	4.000	3.250	3.770	3.933	0.937	0.250	0.375	0.187	0.008	
SPS 400337	4.000	3.375	3.772	3.960	0.775	0.245	0.312	0.156	0.008	
SPS 450350	4.500	3.500	4.229	4.422	1.250	0.250	0.500	0.218	0.015	
SPS 500400	5.000	4.000	4.709	4.902	1.250	0.375	0.500	0.218	0.015	
SPS 500425	5.000	4.250	4.772	4.960	0.963	0.245	0.375	0.187	0.008	
SPS 600500	6.000	5.000	5.709	5.902	1.250	0.375	0.500	0.218	0.015	