

Piston Seal Double Acting

# Hallite 83



## FEATURES

- EFFICIENT SEALING
- LOW COST
- INTERCHANGEABLE WITH MOST COMPETITIVE DESIGNS
- ROBUST CONSTRUCTION
- LOW FRICTION
- SIMPLE MACHINING
- LONG LIFE
- EASY ASSEMBLY

## INSTALLATION

Fast assembly of the seal is carried out as follows:

The intermediate seal is stretched over the piston into the recess.

The split anti-extrusion rings are positioned with the concave face against the seal.

## MEDIA

Seals are suitable for mineral based hydraulic fluid, water soluble and water glycol fluids. The temperature for the standard range can be -40°C for intermittent use. Other materials are available which can extend the temperature range down to -60°C or up to +135 °C and to suit ester based or synthetic non-flammable fluids.

All our activities conform to the highest quality assurance systems. Hallite Seals International quality management systems are accredited to ISO 9001 and are approved by many of the world's foremost OEM's.



## OPERATING CONDITIONS

MAXIMUM WORKING PRESSURE				
MAXIMUM SPEED	TEMPERATURE RANGE	TEMPERATURE RANGE		
m/sec	-30°C + 80°C	-30°C + 100°C		
0.5	250 bar / 3750 p.s.i	160 bar / 2400 p.s.i.		
0.15	400 bar / 6000 p.s.i.	200 bar / 3000 p.s.i.		
SURFACE ROUGHNESS				
		µmRa	µmRt	µin CLA
DYNAMIC SEALING FACE	ØD <sub>1</sub>	0.1 to 0.4	4 max	4 to 16
STATIC SEALING FACE	Ød <sub>1</sub> , Ød <sub>2</sub>	1.6 max	10 max	63 max
STATIC HOUSING FACES	Ød <sub>3</sub> , L <sub>1</sub> , L <sub>2</sub>	3.2 max	16 max	125 max
CHAMFERS & RADII in				
SEALSECTION	S	0.187	0.250	0.375
MIN CHAMFER	C	0.156	0.187	0.250
MAX FILLET RAD	r <sub>1</sub>	0.010	0.016	0.016
MAX FILLET RAD	r <sub>2</sub>	0.010	0.016	0.016

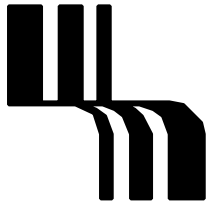
## Design

The Hallite Tri-Seal assembly offers the engineer many advantages when considering the design of cast iron, bronze, alloy etc. one-piece pistons in double-acting hydraulic cylinders, not the least being cost effectiveness with long and efficient seal life.

The Tri-Seal consists of two split plastic anti-extrusion rings and a nitrile synthetic rubber sealing member. Under pressure, the seal exerts a wedging action on the anti-extrusion ring, reducing the clearance between the cylinder bore and the piston, thus minimising the possibility of extrusion of the seal.

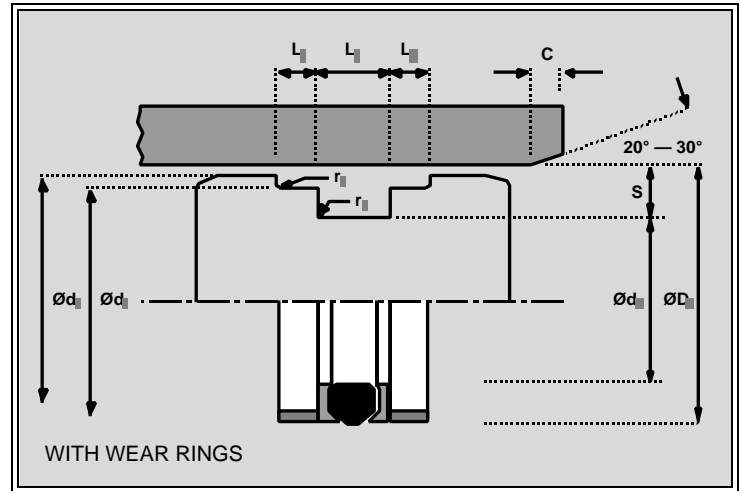
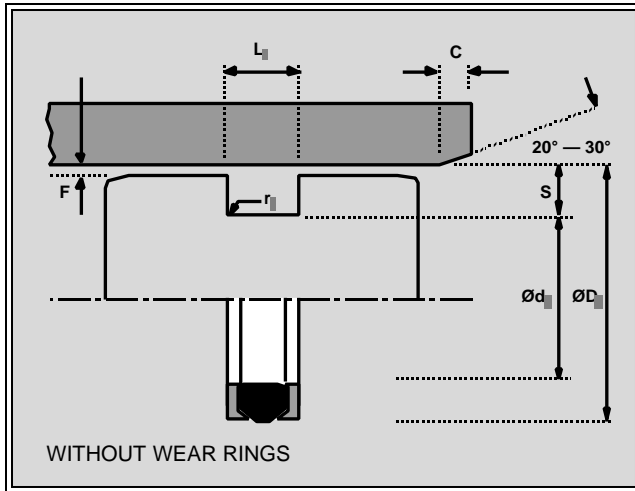
Wear rings are also available for this assembly, allowing the designer to benefit from the following advantages :

- Eliminate metal to metal contact in the bore
- One piece steel piston
- Improved alignment for optimum seal life
- Smoother operation



# Hallite 83

INCH



BORE DIA ØD <sub>1</sub>	TOL	HOUSING DIA Ød <sub>1</sub>	TOL	BEARING DIA Ød <sub>2</sub>	TOL	PISTON DIA Ød <sub>3</sub>	TOL	HOUSING LENGTH L <sub>1</sub> TOL ± 0.005	BEARING LENGTH L <sub>2</sub> TOL + 0.004 - 0	PART NUMBER
1.500	+0.005 -0.005	1.125	+0.005 -0.005	1.321	-0.001 -0.003	1.450	+0.005 -0.005	0.452	0.250	6111910*
2.000	+0.005 -0.005	1.500	+0.005 -0.005	1.821	-0.001 -0.003	1.950	+0.005 -0.005	0.587	0.250	2326310*
2.500	+0.005 -0.005	2.000	+0.005 -0.005	2.321	-0.001 -0.004	2.450	+0.005 -0.005	0.587	0.250	2122010*
3.000	+0.005 -0.005	2.500	+0.005 -0.005	2.774	-0.001 -0.004	2.940	+0.005 -0.005	0.587	0.250	2122110*
3.250	+0.005 -0.005	2.750	+0.005 -0.005	3.023	-0.001 -0.004	3.190	+0.005 -0.005	0.587	0.250	2327610*
3.500	+0.005 -0.005	3.000	+0.005 -0.005	3.274	-0.001 -0.005	3.440	+0.005 -0.005	0.587	0.250	2122210*
4.000	+0.005 -0.005	3.250	+0.005 -0.005	3.773	-0.001 -0.005	3.940	+0.005 -0.005	0.780	0.250	2326410*
5.000	+0.005 -0.005	4.250	+0.005 -0.005	4.713	-0.001 -0.005	4.910	+0.005 -0.005	0.780	0.375	2326510*
6.000	+0.005 -0.005	5.250	+0.005 -0.005	5.713	-0.001 -0.005	5.910	+0.005 -0.005	0.780	0.375	2326610*

\* When ordering Type 83 with wear rings please replace the last digit of the part number with 9.  
eg : Type 83 2.500 x 2.000, without wear rings part number 2122010, with wear rings 2122019

Note : For availability of sizes not listed please consult your local Hallite sales department.

## EXTRUSION GAP

Please note that the figures shown for the extrusion gap F relate to the maximum permissible, worst case situation with the gap all on one side.

Note also that extrusion is closely linked to pressure and temperature and that in general, the smaller the gap the better the seal performs.

MAXIMUM EXTRUSION GAP F				
PRESSURE	p.s.i.	2400	3750	6000
MAXIMUM GAP	in	0.024	0.020	0.016