

Design

The Hallite 770 seal is a double acting compact, low friction seal for light to medium duty hydraulic cylinders. It has been designed to fit standard inch O ring housings. It comprises a tough self lubricated elastomeric face which is pre-loaded by a rectangular cross-section expander. It can be used on SG iron pistons or on a piston where there is an adequate remote bearing (see Hallite 506 and 533 bearings).

The standard material is only suitable for hydraulic mineral oil applications. Other material options are available for water based (HFA and HFB) fluids and synthetic esters (HEES). In certain sizes a Hythane face material option is available, particularly for intermittent single acting applications.

For full details and availability please contact your local Hallite Sales office.

Features

- Low breakout and operating friction level
- Excellent wear resistance
- Ideal for use with Hallite 506 or 533 GFN wear rings
- More tolerant to contamination
- Rapid recovery after assembly
- Operates on a wide range of surface finishes

Material

Standard material

Lubricated polyester elastomer (Cream 55D) ----- 2

Material options:

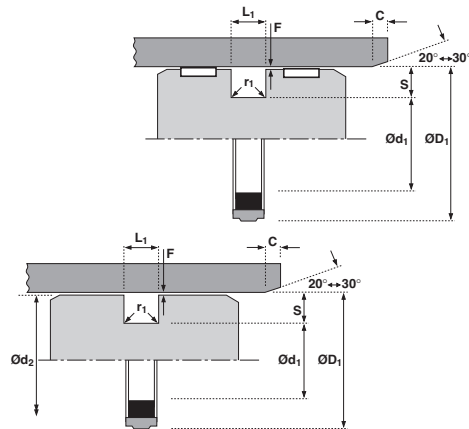
Polyester elastomer (Red 55D) ----- 0

Hydrolysis stabilised polyester elastomer (Grey 55D) ----- 1

Hydrolysis stabilised polyester elastomer (Red 72D) ----- 3

Hythane® 181 limited sizes available ----- 4

Technical details shown are for standard Cream 55D lubricated polyester elastomer



Technical details

Operating conditions

Maximum Speed
Temperature Range
Maximum Pressure

Metric

1.0 m/sec
-40°C +110°C
350 bar

Inch

3.0 ft/sec
-40°F +230°F
5000 p.s.i.

Maximum extrusion gap

Pressure bar
Pressure p.s.i.
Maximum Gap in

Figures show the maximum permissible gap all on one side using minimum rod Ø and maximum clearance Ø. Refer to Housing Design section.

| | | | |
|-------|-------|-------|-------|
| 100 | 160 | 250 | 350 |
| 1500 | 2400 | 3750 | 5000 |
| 0.030 | 0.025 | 0.020 | 0.010 |

Surface roughness

Dynamic Sealing Face ØD₁
Static Sealing Face Ød₁
Static Housing Faces L₁

| µmRa | µmRt | µinCLA | µinRMS |
|-------------|--------|----------|----------|
| 0.1 < > 0.4 | 4 max | 4 < > 16 | 5 < > 18 |
| 1.6 max | 10 max | 63 max | 70 max |
| 3.2 max | 16 max | 125 max | 140 max |

Chamfers & Radii

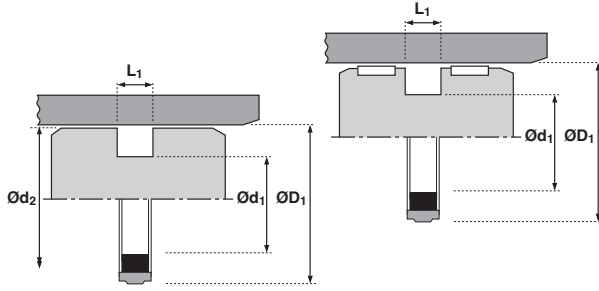
Groove Section ≤ S mm
Min Chamfer C in
Max Fillet Rad r₁ in

| | | |
|-------|-------|-------|
| 0.125 | 0.187 | 0.250 |
| 0.100 | 0.150 | 0.200 |
| 0.016 | 0.016 | 0.016 |

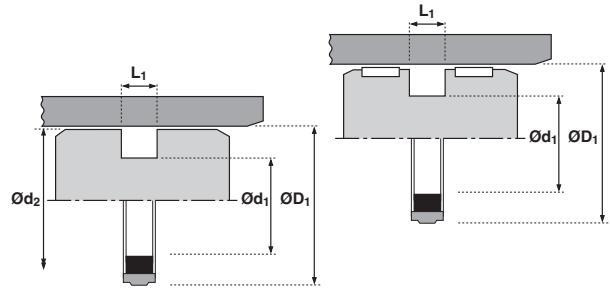
Tolerances

| in | ØD ₁ | Ød ₁ | Ød ₂ | L ₁ |
|----|-----------------|-----------------|-----------------|----------------|
| | +0.002 -0 | +0 -0.002 | +0 -0.001 | +0.005 -0 |





| ØD ₁ | TOL | Ød ₁ | TOL | Ød ₂ | TOL | L ₁ | TOL | PART No. |
|-----------------|------------------|-----------------|------------------|-----------------|------------------|----------------|------------------|----------|
| 0.750 | +0.002 -0.000 | 0.508 | +0.000 -0.002 | 0.747 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 481771_ |
| 0.875 | +0.002 -0.000 | 0.633 | +0.000 -0.002 | 0.872 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 481781_ |
| 1.000 | +0.002 -0.000 | 0.758 | +0.000 -0.002 | 0.997 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 481791_ |
| 1.125 | +0.002 -0.000 | 0.883 | +0.000 -0.002 | 1.122 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 481801_ |
| 1.250 | +0.002 -0.000 | 1.008 | +0.000 -0.002 | 1.247 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 455441_ |
| 1.375 | +0.002 -0.000 | 1.133 | +0.000 -0.002 | 1.372 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 471691_ |
| 1.500 | +0.002 -0.000 | 1.258 | +0.000 -0.002 | 1.497 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 471701_ |
| 1.625 | +0.002 -0.000 | 1.383 | +0.000 -0.002 | 1.622 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 471711_ |
| 1.750 | +0.002 -0.000 | 1.508 | +0.000 -0.002 | 1.747 | +0.000 -0.001 | 0.187 | +0.005 -0.000 | 471721_ |
| 2.000 | +0.002 -0.000 | 1.630 | +0.000 -0.002 | 1.997 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 455351_ |
| 2.125 | +0.002 -0.000 | 1.755 | +0.000 -0.002 | 2.122 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 471731_ |
| 2.250 | +0.002 -0.000 | 1.880 | +0.000 -0.002 | 2.247 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 471741_ |
| 2.500 | +0.002 -0.000 | 2.130 | +0.000 -0.002 | 2.497 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 449001_ |
| 2.750 | +0.002 -0.000 | 2.380 | +0.000 -0.002 | 2.747 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 481751_ |
| 2.875 | +0.002 -0.000 | 2.505 | +0.000 -0.002 | 2.872 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 481761_ |
| 3.000 | +0.002 -0.000 | 2.630 | +0.000 -0.002 | 2.997 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434941_ |
| 3.250 | +0.002 -0.000 | 2.880 | +0.000 -0.002 | 3.247 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434951_ |
| 3.500 | +0.002 -0.000 | 3.130 | +0.000 -0.002 | 3.497 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434961_ |
| 3.750 | +0.002 -0.000 | 3.380 | +0.000 -0.002 | 3.747 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434971_ |
| 4.000 | +0.002 -0.000 | 3.630 | +0.000 -0.002 | 3.997 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434981_ |
| 4.250 | +0.002 -0.000 | 3.880 | +0.000 -0.002 | 4.247 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 434991_ |
| 4.500 | +0.002 -0.000 | 4.130 | +0.000 -0.002 | 4.497 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 435001_ |
| 4.750 | +0.002 -0.000 | 4.380 | +0.000 -0.002 | 4.747 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 435011_ |



| ØD ₁ | TOL | Ød ₁ | TOL | Ød ₂ | TOL | L ₁ | TOL | PART No. |
|-----------------|------------------|-----------------|------------------|-----------------|------------------|----------------|------------------|----------|
| 5.000 | +0.004 -0.000 | 4.630 | +0.000 -0.002 | 4.997 | +0.000 -0.001 | 0.281 | +0.005 -0.000 | 435021_ |
| 5.250 | +0.004 -0.000 | 4.778 | +0.000 -0.002 | 5.247 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435032_ |
| 5.500 | +0.004 -0.000 | 5.028 | +0.000 -0.002 | 5.497 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435042_ |
| 6.000 | +0.004 -0.000 | 5.528 | +0.000 -0.002 | 5.997 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435052_ |
| 6.250 | +0.004 -0.000 | 5.778 | +0.000 -0.002 | 6.247 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435062_ |
| 6.500 | +0.004 -0.000 | 6.028 | +0.000 -0.002 | 6.497 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435072_ |
| 7.000 | +0.004 -0.000 | 6.528 | +0.000 -0.002 | 6.997 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435082_ |
| 8.000 | +0.004 -0.000 | 7.528 | +0.000 -0.002 | 7.997 | +0.000 -0.001 | 0.375 | +0.005 -0.000 | 435112_ |

**Seal & Design
Able Division**
5533 Steeles Avenue West Unit 11
Toronto, Ontario M9L 1S7
Ph: (416) 741-0750
Gasket@AbleSealAndDesign.com

**Seal & Design
Corporate Headquarters**
4015 Casilio Parkway
Clarence, NY 14031
Ph: (716) 759-2222
Info@SealAndDesign.com
www.SealAndDesign.com

**Seal & Design
Higbee Division**
6741 Thompson Rd N
Syracuse, NY 13221
Ph: (315) 432-8021
Sales@Higbee-Inc.com