

Bearings

Technical details

Metric

Inch

Operating Conditions

Maximum Speed	5.0 m/sec
Temperature Range	-50°C +200°C

15.0 ft/sec
-58°F +390°F

Typical Physical Properties

Specific Gravity		3.1
Compression Stress at Yield	23°C	20 MN/m ²
Compression Stress at Yield	80°C	9 MN/m ²
Coefficient of Thermal Conductivity		2.5 W/mK
Coefficient of Thermal Expansion	Length & Thickness	
	6.5 x 10 ⁻⁵ per °C	

	3.1
73°F	2900 p.s.i.
176°F	1300 p.s.i.
	1.4Btu/hft°F

Coefficient of Dynamic Friction	Dry	Lubricated
	0.25	0.05

Bearing Strip Tolerances

L ₁	S
-0.1 -0.5	+0.03 -0.05

Surface Roughness

	µmRa	µmRt
Dynamic Sealing Face Ød ₁ ØD ₁	0.4	4 max
Static Housing Faces ØD ₂ L ₁ Ød ₂	3.2 max	16 max

	µinCLA	µinRMS
	16	18
	125 max	140 max

Housing Details & Tolerances

Rod	Ød ₁	f9
	ØD ₂ =Ød ₁ +2S	up to: Ø80 H10 above: Ø80 H9
	ØD ₃ =Ød ₁ +G	G min / max
Piston	L ₁	-0 + 0.2
	ØD ₁	H11
	Ød ₂ =ØD ₁ -2S	f9
	Ød ₃ =ØD ₁ -G	G min / max
	L ₁	-0 + 0.2

G min controls the minimum metal to metal clearance between the gland and rod or bore and piston.

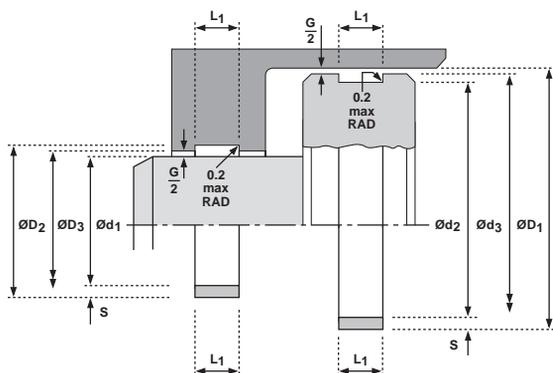
G max controls the maximum extrusion gap seen by a seal associated with the bearing.

Typically, G min should be 0.7mm / 0.028" but can be reduced when required by the extrusion gap for the seal and the build up of tolerances.

The absolute minimum metal to metal clearance recommended is 0.1mm / 0.004"

For applications not using a seal G max - see overleaf.

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Features

- Low friction
- Infinite length range
- Easy installation
- Extremely flexible

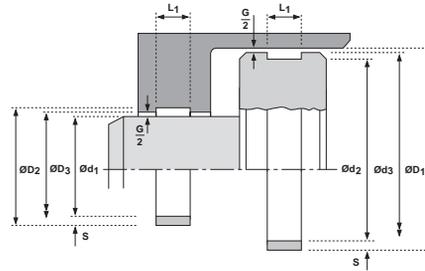
Design

Hallite 78 bearing strip has the ability to support side loads and eliminate 'stick slip' between moving parts. The accurately dimensioned rectangular cross section is produced from a special combination of PTFE and Bronze materials. It has excellent heat resistance and strength to resist creep, making it suitable for bearings with reciprocating, oscillating or rotary movement, whether lubricated or not. Our standard range of cross section sizes are proportioned to be wrapped around a wide range of rod or piston diameters. Installation of the bearing is an easy task. Calculate and measure length L₂ (see overleaf), cut the strip with a sharp blade and fit to the groove. If required we will be pleased to supply bearings to your sizes. Independent testing has established the typical properties which make the Hallite 78 worthwhile considering for many applications other than hydraulic or pneumatic cylinders. When using the compressive stress at yield in your calculation it is suggested a 4:1 factor of safety is applied.

The material is compatible with hydraulic mineral oil, lubricating oil, water based and synthetic fire resistant fluids and lubricating grease. Although the material is rated at 200°C, the recommended maximum temperature for bearing applications is 60°C. Inch sizes are also available

Please send us details of your application for advice on this or any other problem where the Hallite 78 may solve your bearing problem.

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Ø RANGE		L ₁	S	G MAX	G MIN	W	PART NUMBER
Ød ₁	ØD ₁						
8 - 20	10 - 25	2.5	1.55	AS REQUIRED BY THE SEAL EXTRUSION GAP (see note below)	0.6	1.5 - 1.0	6663000
8 - 20	10 - 25	4.0	1.55		0.6	1.5 - 1.0	6663100
20 - 75	25 - 80	5.6	2.50		0.7	1.5 - 1.0	6663200
35 - 300	40 - 320	9.7	2.50		0.7	3.5 - 1.5	6658800
35 - 300	40 - 320	10.0	2.00		0.7	6.0 - 2.0	6663300
120 - 900	125 - 900	15.0	2.50		0.8	6.0 - 2.0	6658900
120 - 900	125 - 900	15.0	2.00		0.8	8.0 - 4.0	6663400
200 - 900	200 - 900	20.0	2.00		0.8	8.0 - 4.0	6663500
200 - 900	200 - 900	20.0	2.50		1.0	8.0 - 4.5	6663600
300 - 900	300 - 900	25.0	2.50		1.0	8.0 - 6.0	6663700

For applications not using a seal G Max can be :

S	G Max
1.55	1.0
2.00	1.1
2.50	1.6

Cutting strip to length

Calculate the developed length of the strip, L₂ (the developed length is the circumferential length of the centre line of the strip when installed).

For piston mounting :

THE DEVELOPED LENGTH = π X (CYLINDER BORE DIAMETER - STRIP SECTION) - REQUIRED SPLIT

i.e. $L_2 = \pi \times (\text{ØD}_1 - S) - W$

For gland mounting :

THE DEVELOPED LENGTH = π X (ROD DIAMETER + STRIP SECTION) - REQUIRED SPLIT

i.e. $L_2 = \pi \times (\text{Ød}_1 + S) - W$

Cut to length, (L₂), using a sharp knife.

Bearing strip cutting angle

