Hallite

87

Design

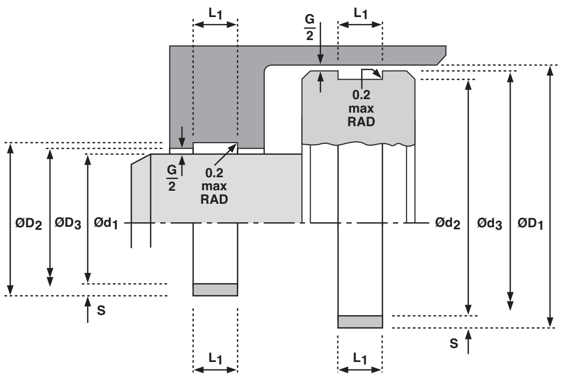
Hallite 87 bearing strip has the ability to support side loads and eliminate 'stick slip' between moving parts. The accurately dimensioned rectangular cross section is produced from a special combination of PTFE and Bronze materials. It has excellent heat resistance and strength to resist creep, making 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 87 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.

Please send us details of your application for advice on this or any other problem where the Hallite 87 may solve your bearing problem.

Features

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



bearings

Technical details

	Metric		Inch	
Operating conditions				
Maximum Speed	5.0 m/sec		15.0 ft/sec	
Temperature Range	-50°C +200°C		-58°F +390°F	
Typical Physical Properties				
Specific Gravity		3.1		3.1
Compression Stress at Yield	23°C	20 MN/m2	73°F	2900 p.s.i.
Compression Stress at Yield	80°C	9 MN/m2	176°F	1300 p.s.i.
Coefficient of Thermal Conductivity		2.5 W/mK		1.4Btu/hft°F
Coefficient of Thermal Expansion	Length & Thickness			
	6.5×10^{-5} per °C			
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**	**µinCLA**	**µinRMS**
Dynamic Sealing Face $Ød_1$ $ØD_1$	0.4	4 max	16	18
Static Housing Faces $ØD_2$ L_1 $Ød_2$	3.2 max	16 max	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
	L_1	-0 + 0.2
Piston	$ØD_1$	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.

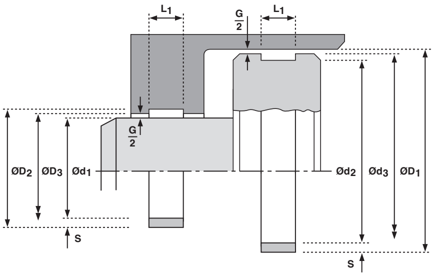
G max controls the maximum extrusion gap seen by a seal associated with the bearing.

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.

Hallite



Ø RANGE Ød1	ØD1	L1	S	G MAX	G MIN	W	PART NUMBER
8 - 20	10 - 25	2.5	1.55	AS REQUIRED BY THE SEAL EXTRUSION GAP (see note below)	0.6	1.0 - 2.0	6663000
8 - 20	10 - 25	4.0	1.55		0.6	1.0 - 2.0	6663100
20 - 75	25 - 80	5.6	2.50		0.7	2.0 - 3.5	6663200
35 - 300	40 - 320	9.7	2.50		0.7	2.5 - 7.0	6658800
35 - 300	40 - 320	10.0	2.00		0.7	2.5 - 7.0	6663300
120 - 900	125 - 900	15.0	2.50		0.8	5.0 - 18.0	6658900
120 - 900	125 - 900	15.0	2.00		0.8	5.0 - 18.0	6663400
200 - 900	200 - 900	20.0	2.00		0.8	7.0 - 18.0	6663500
200 - 900	200 - 900	20.0	2.50		1.0	7.0 - 18.0	6663600
300 - 900	300 - 900	25.0	2.50		1.0	10.0 - 18.0	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

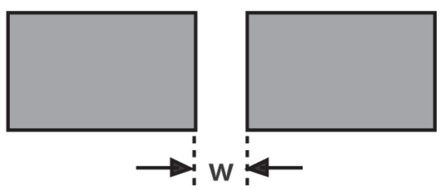
Calculate the developed length of the strip, L_2 (the developed length is the circumferential length of the centre line of the strip when installed).

for piston mounting :
the developed length = π x (cylinder bore diameter - strip section) - required split
i.e. $L_2 = \pi \times (ØD_1 - S) - W$

for gland mounting :
the developed length = π x (rod diameter + strip section) - required spilt
i.e. $L_2 = \pi \times (Ød_1 + S) - W$

Cut to length, (L_2), using a sharp knife.

Bearing strip cutting angle



Alternative