

# 87

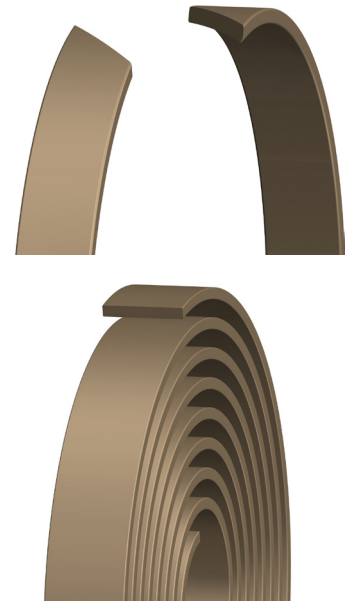
## BEARING

Bronze-Filled PTFE

### DESIGN

The Hallite 87 bronze-filled PTFE bearing strip is designed to provide an extremely effective, hard wearing, and easy-to-use bearing solution for lubricated or non-lubricated reciprocating, oscillating, and slow rotary movement applications. Hallite recommends using the Hallite 87 in light-duty applications and particularly for small diameters where the flexibility of the strip makes installation into a groove easier.

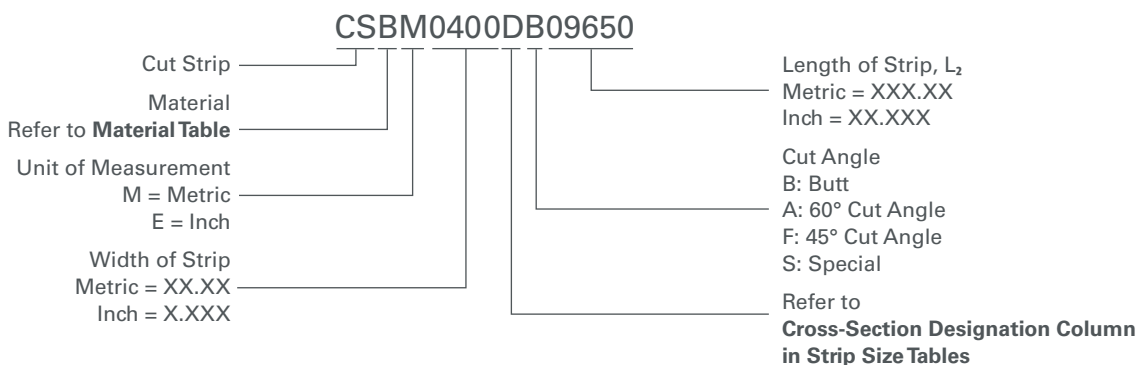
The low friction PTFE material reduces 'stick slip' between moving parts. The material is compatible with hydraulic mineral oil, lubricating oil, water based and synthetic fire resistant fluids and lubricating grease. It has excellent heat resistance and strength to resist creep. Although the material is rated at 200°C (390°F), the recommended maximum temperature for bearing applications is 60°C (140°F).



### FEATURES

- Ultra low friction
- Infinite length range
- Low stick slip
- Extremely flexible
- Easy to install

### PART NUMBER STRUCTURE FOR INDIVIDUAL BEARING



## TECHNICAL DETAILS

OPERATING CONDITIONS	METRIC	INCH
Maximum Speed	5.0 m/sec	16 ft/sec
Temperature Range	-50°C +200°C	-58°F +390°F

### NOTE

Data given are maximum values and can apply depending on specific application. Maximum ratings of temperature, pressure, or operating speeds are dependent on fluid medium, surface, gap value, and other variables such as dynamic or static service. Maximum values are not intended for use together at the same time, e.g. max temperature and max pressure. Please contact your Hallite technical representative for application support.

TYPICAL PHYSICAL PROPERTIES	METRIC	INCH
Specific Gravity	3.1	3.1
Compression Stress at Yield	20 MN/m <sup>2</sup> @ 23°C	2900 psi @ 73°F
Compression Stress at Yield	9 MN/m <sup>2</sup> @ 80°C	1300 psi @ 176°F
Coefficient of Thermal Conductivity	2.5 W/mK	1.4 Btu/hft°F
Coefficient of Thermal Expansion - Length & Thickness	6.5 x 10 <sup>-5</sup> per °C	3.6 x 10 <sup>-5</sup> per °F
Coefficient of Dynamic Friction on Steel Surface (0.2 µmRa) / (8 µinCLA)	Dry 0.25	Dry 0.25
	Lubricated 0.05	Lubricated 0.05

### NOTE

Hallite recommends applying a 4:1 factor of safety when using the compressive stress at yield in your bearing load calculation.

HOUSING DETAILS & TOLERANCES		
Rod	Ød <sub>1</sub> , mm	f9
	ØD <sub>2</sub> = Ød <sub>1</sub> + 2S mm	≤ Ø80 H10 > Ø80 H9
	ØD <sub>3</sub> = Ød <sub>1</sub> + G mm	G min / max
	L <sub>1</sub> , mm	+0.20 -0
Piston	ØD <sub>1</sub> , mm	H11
	Ød <sub>2</sub> = ØD <sub>1</sub> - 2S mm	h8
	Ød <sub>3</sub> = ØD <sub>1</sub> - G mm	G min / max
	L <sub>1</sub> , mm	+0.20 -0

### NOTE

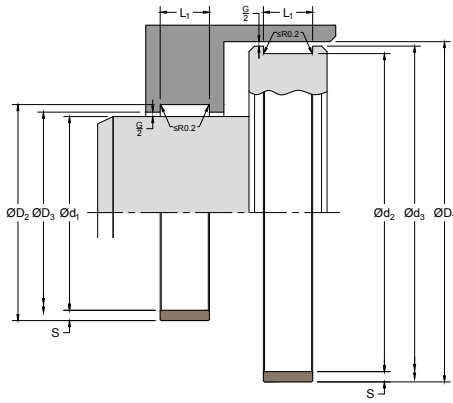
G min controls the minimum metal-to-metal clearance between the gland and rod or between bore and piston. G max controls the maximum extrusion gap seen by a seal associated with the bearing. Typically, G min should be 0.70 mm (0.0280 in) but can be reduced when required by the extrusion gap for the seal and the build-up of tolerances. The absolute minimum metal-to-metal clearance recommended is 0.10 mm (0.004 in). More information can be found in the Housing Designs and Extrusion Gaps pages at the front of the catalogue. For applications not using a seal G max, see part number range in the following pages.

SURFACE ROUGHNESS	µmRa	µmRz	µmRt	µinRa	µinRz	µinRt
Dynamic Sealing Face Ød <sub>1</sub> , ØD <sub>1</sub>	0.4	1.6 max	4 max	16	63 max	157 max
Static Sealing Face ØD <sub>2</sub> , L <sub>1</sub> , Ød <sub>2</sub>	3.2 max	10 max	16 max	125 max	394 max	630 max

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### IDENTIFICATION & INSTALLATION

Part numbers for continuous lengths are given in the Standard Strip Size and Additional Strip Size tables and are purchased by the metre.

If a cut length for a particular housing is required, please use the part number structure on the first page of the Hallite 87 data sheet and use the tables below to identify the part designators that correspond to the type of product you require.

When ordering please clearly state whether cut lengths or a continuous length is required.

Our standard range of cross section sizes are proportioned to be wrapped around a wide range of rod or piston diameters.

### CUTTING STRIP TO LENGTH

Instructions for cutting bearing strip to size:

1. 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.

2a. For piston applications:

$$L_2 = \pi \times (\text{Ø}D_1 - S) \times 0.99 - 0.8\text{mm}$$

2b. For rod applications:

$$L_2 = \pi \times (\text{Ø}d_1 + S) \times 0.99 - 0.8\text{mm}$$

3. Cut to length,  $L_2$ , using sharp knife.

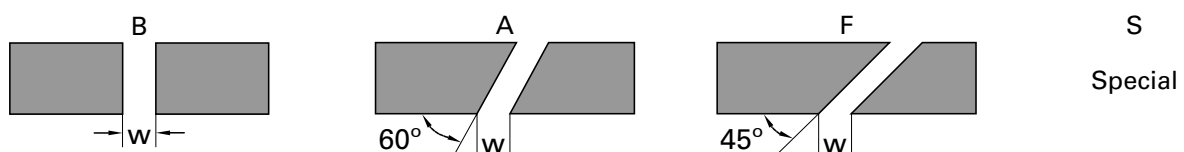
It is recommended that the standard cutting angle is used for the majority of applications.

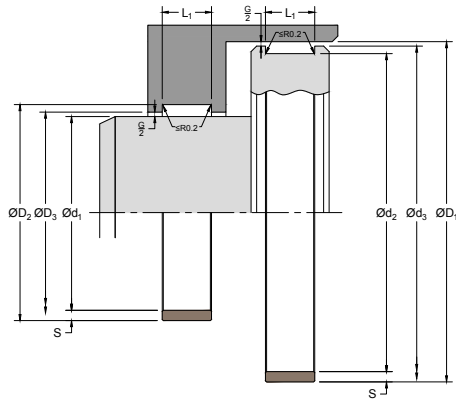
### MATERIAL TABLE

This product comes in a number of material options to extend operating conditions. Contact your local Hallite technical team to decide which is best for your application. Use the part designator in the table below as the last digit of the part number to specify material choice when ordering. For further material details, please refer to the Hallite Material Table.

MATERIAL OPTIONS	Name	Type	Colour	Part Designator
Standard	Bronze-Filled	Bronze	B	10
Optional	Bronze/MoS <sub>2</sub>	Dark Bronze	T	11
Optional	Carbon-Filled	Black	C	12
Optional	Carbon-Filled (BAM Certified)	Black	G	16

### BEARING STRIP CUT ANGLE





## STANDARD STRIP SIZES

METRIC								
Ød <sub>1</sub> RANGE	ØD <sub>1</sub> RANGE	L <sub>1</sub>	S	Cross-Section Designation	G MAX	G MIN	W	Part No.
8 - 20	10 - 25	2.5	1.55	D	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	D		0.6	1.0 - 2.0	6663100‡
20 - 75	25 - 80	5.6	2.50	G		0.7	2.0 - 3.5	6663200‡
35 - 300	40 - 320	9.7	2.50	G		0.7	2.5 - 7.0	6658800‡
120 - 900	125 - 900	15.0	2.50	G		0.8	5.0 - 18.0	6658900‡
200 - 900	200 - 900	20.0	2.50	G		1.0	7.0 - 18.0	6663600
300 - 900	300 - 900	25.0	2.50	G		1.0	10.0 - 18.0	6663700‡
<b>NOTE</b>	For applications not using a seal, G Max can be:				Part numbers suffixed ‡ indicate cross-sections to ISO 10766.			
	S	G Max	S	G Max				
	1.55	1.00	3.00	1.60				
	2.00	1.10	4.00	2.0				
	2.50	1.60						

## ADDITIONAL STRIP SIZES

METRIC			
L <sub>1</sub>	S	Cross-Section Designation	Part No.
5.60	1.50	C	8772000
6.00	4.00	K	8772100
6.30	2.00	E	8772200
6.30	2.50	G	8772300
8.00	1.50	C	8772400
8.00	2.00	E	8772500
8.00	4.00	K	8772600
9.70	4.00	K	8772700
10.00	2.00	E	6663300
10.00	2.50	G	8772800
12.00	2.00	E	8772900
12.00	2.50	G	8773000
15.00	2.00	E	6663400
20.00	2.00	E	6635000
25.00	3.00	H	8773100
30.00	3.00	H	8773200
50.00	2.00	E	8773300