GUIDE BAND SF / KF
FOR AEROSPACE

GUIDE BAND SF (rod) resp. the version KF (piston) are non-metallic guide elements, either cut to size and ready for installation, or supplied as yard ware.

Applications
Guide Bands SF / KF can be used in all hydraulic fluids normally found in hydraulic systems such as oils and greases based on mineral oils, fire-resistant hydraulic fluids (HFD) and biodegradable hydraulic fluids (HETG, HEES, HEPG). We do not recommend to use guide bands SF in water or water based fluids (HFA, HFB, HFC). The maximum permissible operating temperature is 120 °C (248 °F).

Material

<table>
<thead>
<tr>
<th>Material</th>
<th>Designation</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze filled PTFE</td>
<td>PTFE B500</td>
<td>brown</td>
</tr>
</tbody>
</table>

VALUE TO THE CUSTOMER
- Low breakaway and running friction
- Compatible with most hydraulic fluids
- Suitable for standardized housings as per ISO 10766
GLAND DESIGN

Surface finish

<table>
<thead>
<tr>
<th>Peak-to-valley heights</th>
<th>$R_z$</th>
<th>$R_{\text{max}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sliding surface</td>
<td>0.05 to 0.3 µm (2 to 12 µinch)</td>
<td>≤2.5 µm (≤99 µinch)</td>
</tr>
<tr>
<td>Groove base</td>
<td>≤1.6 µm (≤63 µinch)</td>
<td>≤6.3 µm (≤248 µinch)</td>
</tr>
<tr>
<td>Groove sides</td>
<td>≤3.0 µm (≤119 µinch)</td>
<td>≤15.0 µm (≤591 µinch)</td>
</tr>
</tbody>
</table>

Material content $M_r > 50\%$ to max. 90\%, with cut depth $c = R_z/2$ and reference line $C_{\text{ref}} = 0\%$

Tolerances

<table>
<thead>
<tr>
<th>Diameter $D_i / d_i$</th>
<th>Profile thickness $H8 / h8$</th>
<th>Tolerance $–0.05$ mm ($–0.002$ Inch)</th>
</tr>
</thead>
</table>

The tolerance for dimensions $d$ and $D_i$ (SF) respectively $D$ and $d_i$ (KF) must be viewed in connection with the seal used. Diameter $D_i$ (SF) respectively $d_i$ (KF) stated in the table of dimensions must be considered exclusively in conjunction with the guide band. The corresponding diameter of the connected seal housing has to be adapted to the sealing element involved.

Cutting rolls to size

The dimensions indicated below are available as rolls ware from stock. Stretched length $L_2$ of sections cut to size must be determined in line with the formula of calculation. Gap $k$ arising after assembly is required for thermal expansion purposes. We recommend therefore that the guide bands are cut straight. Butt joint tips may be damaged by fissures. Our cutter (article No. 507228) makes it possible to cut sections to size in a time-saving and accurate manner.

Calculating stretched length $L_2$ for rods / pistons:

$L_2 = (D – S) \times 3.11 – 0.5 \quad / \quad L_2 = (d + S) \times 3.11 – 0.5 \ [\text{mm}]$

$L_2 = (D – S) \times 0.122 – 0.020 \quad / \quad L_2 = (d + S) \times 0.122 – 0.020 \ [\text{Inch}]$

L2 [mm] | Manufacturing tolerance [mm]
--- | ---
>20 to 80 (>0.787 ... 3.150 Inch) | max. 0.5 (0.020 Inch)
>80 to 250 (>3.150 ... 9.845 Inch) | max. 1.0 (0.039 Inch)
>250 to 500 (>9.845 ... 19.685 Inch) | max. 1.5 (0.059 Inch)
>500 to 1,000 (>19.685 ... 39.370 Inch) | max. 2.0 (0.079 Inch)
>1,000 to 2,000 (>39.370 ... 78.740 Inch) | max. 3.0 (0.118 Inch)
>2,000 to 4,000 (>78.740 ... 157.480 Inch) | max. 4.0 (0.157 Inch)

Surface load | Operating temperature
--- | ---
$p < 15 \text{ N/mm}^2$ (p < 2175 psi) | max. 20 °C (68 °F)
$p < 7.5 \text{ N/mm}^2$ (p < 1088 psi) | max. 80 °C (176 °F)
$p < 5 \text{ N/mm}^2$ (p < 725 psi) | ... 120 °C (248 °F)

Sliding speed, see sealing system.
GLAND DESIGN

Surface force
Pressure within the contact area between the guide and the counter surface is not linear. The guiding width required can be calculated by applying the formulas mentioned below on the basis of the projected area. The non-linear progression of the contact pressure process is taken into account in the surface pressure value. It may be advisable to reduce the loads by selecting a broader guide in individual cases to obtain an extended service life.

Installation diagram

Type SF

Type KF

The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

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