

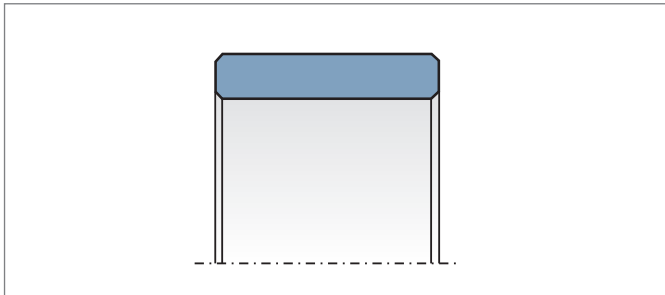
MERKEL®

GUIDE BAND SF / KF

METER GOODS KFB-9287



Merkel® Guide Band SF (rod) and the KF (piston) version are non-metallic guide elements, either custom cut to size for direct assembly or available as **meter goods – type KFB-9287** suitable for rod and piston.



VALUE TO THE CUSTOMER

- Low friction
- Stick-slip-free operation
- Suitable for standardized housings as per ISO 10766

Applications

Merkel® Guide Band 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.

Material

Material	Designation	Color
PTFE-bronze compound	PTFE B500	brown



FEATURES AND TECHNICAL PROPERTIES

Surface Finish

Parameter	Tolerance [μm]		
	Sliding Surface	Groove	Groove Sides
R_a	0,05 ... 0,3 μm	$\leq 1,6 \mu\text{m}$	$\leq 3,0 \mu\text{m}$
$Rz1_{\text{max}}$	$\leq 3,0 \mu\text{m}$	$\leq 6,3 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

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

Tolerances

Diameter D_1 / d_1	Profile Thickness [mm]
H8 / h8	-0,05

The tolerance for dimensions d and D_f (SF) respectively D and d_1 (KF) must be viewed in connection with the seal used. Diameter D_1 (SF) respectively d_1 (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.

L2 [mm]	Manufacturing Tolerance [mm]
>20 ... 80	... 0,5
>80 ... 250	... 1,0
>250 ... 500	... 1,5
>500 ... 1.000	... 2,0
>1.000 ... 2.000	... 3,0
>2.000 ... 4.000	... 4,0

Surface Load	Operating Temperature
$p < 15 \text{ N/mm}^2$... 20 °C
$p < 7,5 \text{ N/mm}^2$... 80 °C
$p < 5 \text{ N/mm}^2$... 120 °C

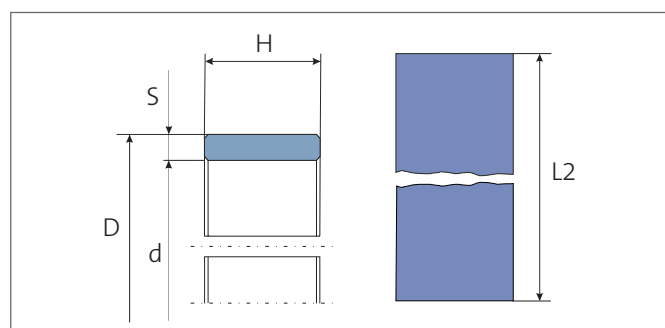
Note: The permissible sliding speed is based on the specifications of the assigned sealing system.

Design Notes

Please see the general design notes in our Technical Manual.

Cut to size from meter goods for type KFB-9287

The following band dimensions are available as meter goods from stock. The stretched length $L2$ of cut pieces is to be determined according to the calculation formula. The gap k that arises after assembly is necessary due to the thermal expansion that occurs. It is recommended to make the stripes with a straight cut. With an oblique joint, damage to the tips due to chipping is possible. A cutting gauge (Article No. 507228) allows for time-saving and precise cutting



Calculating stretched length L2:

$$L2 = (D - S) \times 3,11 - 0,5 \quad (\text{rod})$$

$$L2 = (d + S) \times 3,11 - 0,5 \quad (\text{piston})$$

Groove Length L [mm]	Band Thickness S [mm]	Article No.
8	2,5	24226174
9,7	2,5	24102775
10	2,5	24102563
12	2,5	24099191
15	2,5	24102564
20	2,5	24076217
25	2,5	24107955
15	4	24160019
20	4	24238052
25	4	24148093

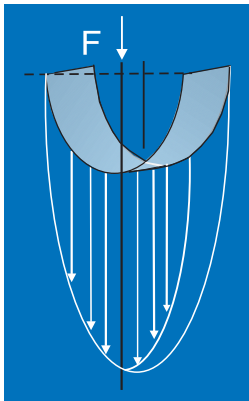


FEATURES AND INSTALLATION

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.

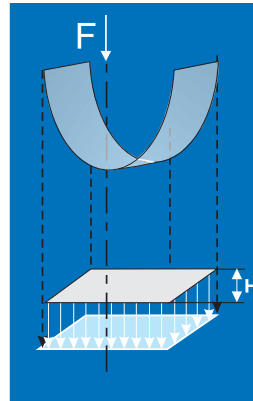


$$F_{\max} = P \times A$$

$$A = d \times H$$

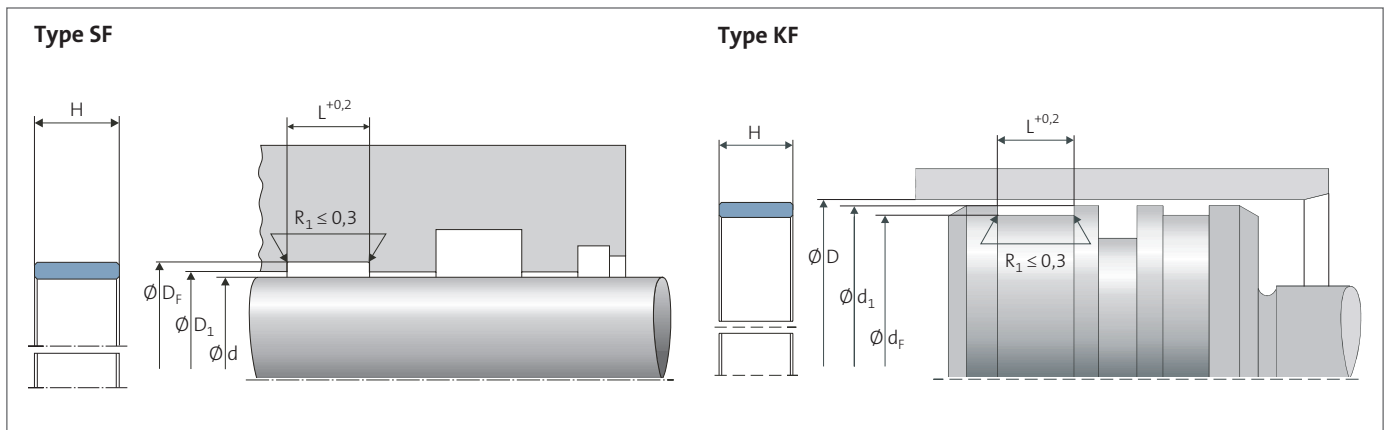
$$H = F / (d \times P)$$

H = Width of guide band [mm]
 F = Radial loads [N]
 A = Projected area [mm²]



P = Permissible surface pressure [N/mm²]
 d = Rod diameter (rod guide) resp. piston diameter (piston guide) [mm]

Installation Diagram



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.