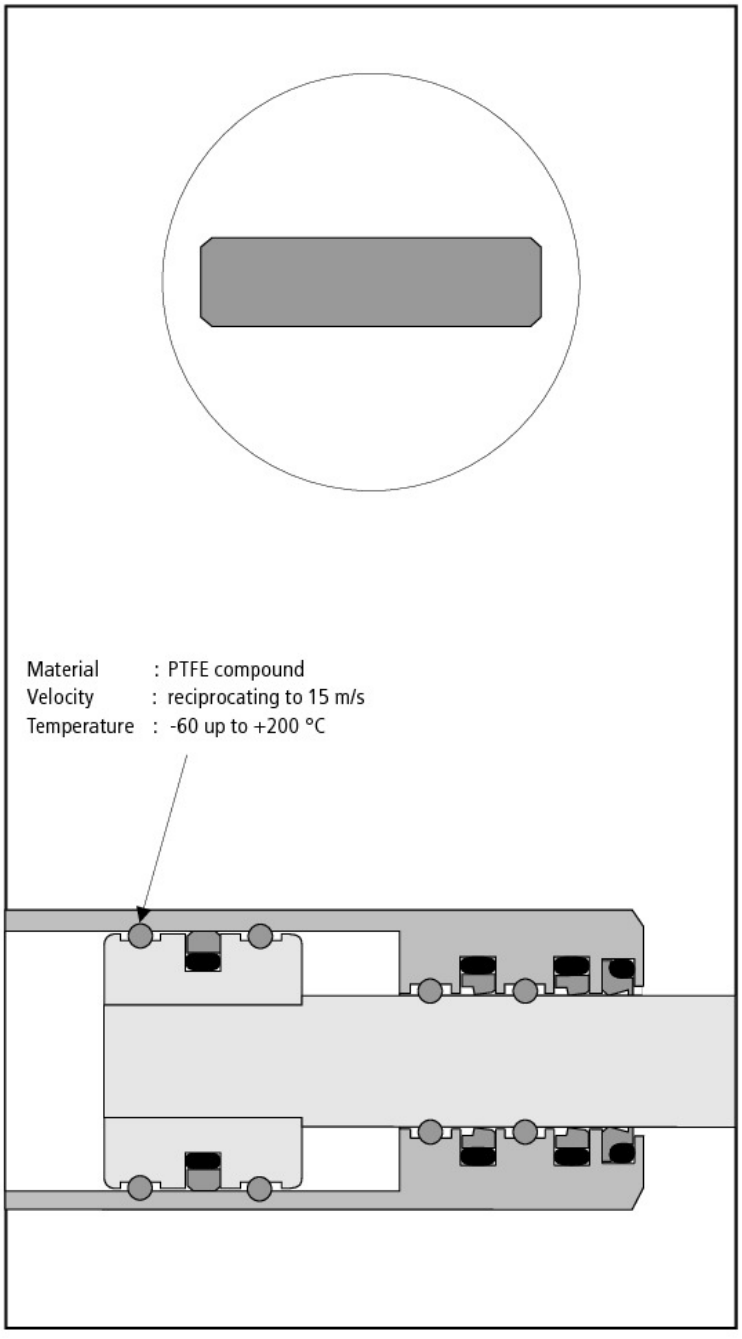
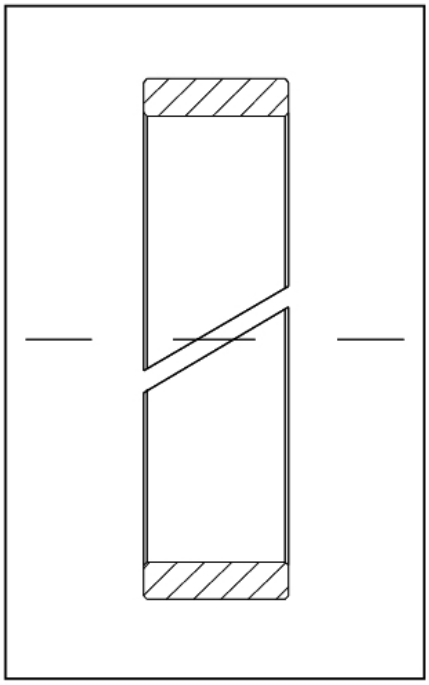
Slide bands are preferentially used in hydraulic and pneumatic cylinders. They assist sliding of pistons and rods, avoid metallic contact between sliding parts, and absorb transverse forces. Sliding bands from PTFE materials excel in their outstanding glide characteristics and high thermal and chemical resistance. Their use enhances service life and functional reliability of seals and cylinders.

Special Features:

- Very good frictional behaviour
- No stick slip effect even at low velocities
- Potting of dirt particles possible
- Good damping of mechanical vibrations
- Good wiper action
- No metallic contact due to plastic/metal material combination
- Available as cut out pieces or ready for assembly sizes
- Extensive sizes range





Slide Band

The slide band has a rectangular cross section and is provided with a chamfer on all edges. Thus, non-permissible edge pressures in the groove corners are avoided. The chamfer also serves to simplify assembly.

Slide bands are produced in various cross-sections as cut-out pieces. They are also available as cuttings (elongated lengths), suitable to every piston and rod diameter. The gap (m) is to be specially taken into account to ensure safe function and undisturbed operation of the seal. As a rule, the ends are provided with bevel cut. A straight cut or Z- cut are also possible.

Materials Overview

55: Modified PTFE + bronze - Good compression resistance, very high anti wear characteristic and inherent stability, outstanding shear characteristic, good thermal and chemical resistance. Used in hydraulics for intermediate to very heavy loads.

30: Modified PTFE + carbon - Good thermal and chemical resistance. Used in hydraulics for intermediate applications and also in pneumatics.

Material Data						
Compound	55			30		
Temperature [°C]	30	90	150	30	90	150
Max. compress. resist. dynamic	15	10	7	8	6	4

Calculations

Designing and sizing of slide ring for dynamic applications is dependent to a large extent on the radial force and the associated deformation of the slide material, slide gap and the service temperature. The value of dynamic compressive strength is to be considered taking the above factors into account. In practice, it is advantageous to include a factor of safety.

$$B_{min} \geq \frac{F_R \cdot S}{\sigma_{zul.\,dyn.} \cdot D_n} \quad [mm]$$

Where:

B_{min} = min. width of slide ring [mm]
F_R = max. radial load [N]
$\sigma_{zul.dyn}$ = permissible dynamic compression strength [N/mm²]
S = safety factor

Example:

$$B_{min} \geq \frac{4000 \cdot 2}{15 \cdot 63} \approx 8{,}5$$

Rod diameter	D_n	=	63 mm
Max. radial load	F_R	=	4 kN
dyn. compress. strength	$\sigma_{zul.dyn}$	=	15 N/mm²
Safety factor	S	=	2

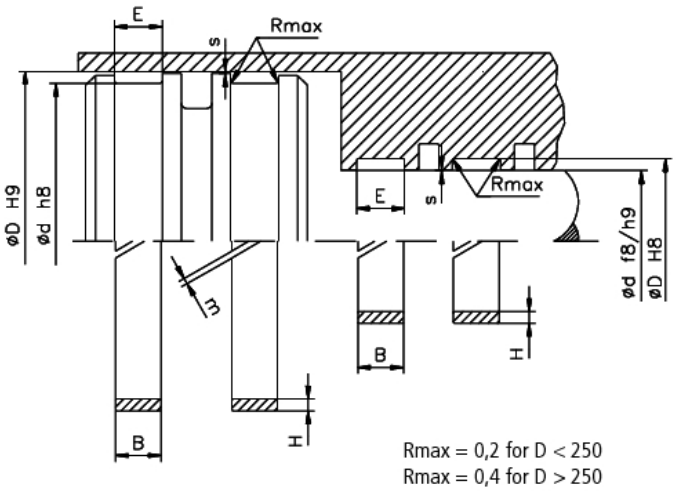
In accordance with above calculations, a choice can be made as
1 Sliding band for groove width of 9.7 mm (part N°. HF425 0630-16-55P)
2 Sliding bands for groove width of 5.6 mm (part N°. HF425 0630-14-55P)
To achieve as much of a slide in length as possible, incorporation of two slide in bands is recommended.

PTFE slide bands have proven their superiority for use in pistons and piston rods for hydraulic and pneumatic cylinders. Particularly in the case of cylinders under variable loads, very small or large stroke speeds and fluctuating temperatures, these slide bands are preferentially used (e.g. mobile hydraulics, machine tool and presses manufacturing, agricultural machinery, vehicle and trucks industry etc.).

Good mechanical characteristics of slide materials coupled with their ability to absorb dirt particles present in the pressure medium and good frictional behaviour guarantee long service life even in tough and demanding service conditons.

BEARING ELEMENTS

HF 410 TO HF 440



Limitations on Use

Velocity	: reciprocating to 15 m/s
Temperature	: -60 to +200 °C
Compr. strength, dyn.	: comp. 55 max. 15 N/mm²
	comp. 30 max. 8 N/mm²

Media for Use

Mineral oil based pressure fluids, flame resistant fluids (HFA, HFB, HFC), non-polluting pressure fluids (Bio Oils), water, air, etc.

Split Sizes

Split size "s" is dependent on the included sealing variant.
Recommended ring split "m" as per the follow. Table:

Bore diameter mm	Rod diameter mm	Ring split m mm
≤ - 24,9	≤ - 19,9	1,0 - 1,5
25 - 44,9	20 - 39,9	1,5 - 2,0
45 - 79,9	40 - 74,9	2,0 - 4,0
80 - 129,9	75 - 124,9	3,0 - 5,0
130 - 349,9	125 - 299,9	4,0 - 6,0
350 - 1000,0	300 - 1000,0	5,0 - 8,0

H -0,05	B -0,2	E +0,1	Length per roll/approx. meters	Part N°.
1,00	10,00	10,20	30	HF410 0000-38-55P
1,50	2,40	2,50	20	HF415 0000-10-55P
1,50	3,90	4,00	20	HF415 0000-12-55P
1,50	5,50	5,60	20	HF415 0000-14-55P
1,50	5,80	6,00	20	HF415 0000-64-55P
1,50	6,00	6,30	20	HF415 0000-66-55P
1,50	9,50	9,70	20	HF415 0000-16-55P
1,50	10,00	10,20	20	HF415 0000-38-55P
1,50	12,70	13,00	20	HF415 0000-76-55P
1,50	14,80	15,00	20	HF415 0000-18-55P
1,50	15,00	15,20	20	HF415 0000-42-55P
1,55	2,40	2,50	19	HF416 0000-10-55P
1,55	3,90	4,00	19	HF416 0000-12-55P
1,55	4,90	5,00	19	HF416 0000-62-55P
2,00	4,90	5,00	15	HF420 0000-62-55P
2,00	5,00	5,20	15	HF420 0000-32-55P
2,00	5,40	5,50	15	HF420 0000-34-55P
2,00	8,00	8,20	15	HF420 0000-36-55P
2,00	10,00	10,20	15	HF420 0000-38-55P
2,00	12,00	12,20	15	HF420 0000-40-55P
2,00	15,00	15,20	15	HF420 0000-42-55P
2,00	20,00	20,30	15	HF420 0000-44-55P
2,00	25,00	25,40	15	HF420 0000-46-55P
2,00	30,00	30,30	15	HF420 0000-48-55P
2,00	40,00	40,50	15	HF420 0000-50-55P
2,00	45,00	45,60	15	HF420 0000-52-55P
2,00	50,00	50,60	15	HF420 0000-54-55P
2,00	60,00	60,60	15	HF420 0000-56-55P
2,50	4,00	4,20	12	HF425 0000-30-55P
2,50	4,90	5,00	12	HF425 0000-62-55P

H -0,05	B -0,2	E +0,1	Length per roll/approx. meters	Part N°.
2,50	5,50	5,60	12	HF425 0000-14-55P
2,50	6,10	6,30	12	HF425 0000-66-55P
2,50	7,90	8,10	12	HF425 0000-68-55P
2,50	9,50	9,70	12	HF425 0000-16-55P
2,50	12,00	12,10	12	HF425 0000-72-55P
2,50	12,50	12,70	12	HF425 0000-74-55P
2,50	14,80	15,00	12	HF425 0000-18-55P
2,50	19,50	20,00	12	HF425 0000-78-55P
2,50	24,50	25,00	12	HF425 0000-20-55P
2,50	29,50	30,00	12	HF425 0000-79-55P
2,50	34,50	35,00	12	HF425 0000-82-55P
2,50	39,50	40,00	12	HF425 0000-84-55P
2,50	40,00	40,20	12	HF425 0000-85-55P
2,50	59,50	60,00	12	HF425 0000-86-55P
3,00	4,60	4,80	9	HF430 0000-60-55P
3,00	9,50	9,70	9	HF430 0000-16-55P
3,00	11,80	12,00	9	HF430 0000-70-55P
3,00	12,60	12,80	9	HF430 0000-75-55P
3,00	14,80	15,00	9	HF430 0000-18-55P
3,00	20,00	20,30	9	HF430 0000-44-55P
3,00	24,50	25,00	9	HF430 0000-20-55P
3,00	25,00	25,30	9	HF430 0000-46-55P
3,00	30,00	30,20	9	HF430 0000-80-55P
3,00	39,50	40,00	9	HF430 0000-84-55P
3,50	15,00	15,20	8	HF435 0000-42-55P
3,50	30,00	30,20	8	HF435 0000-80-55P
4,00	7,80	8,00	8	HF440 0000-68-55P
4,00	9,50	9,70	8	HF440 0000-16-55P
4,00	20,00	20,30	8	HF440 0000-44-55P

Further sizes and an extensive range of inch measurement diagrams available on request.

Example for ordering Cut out Pieces:

e.g.: slide band cut out in PTFE/bronze 2.5 x 9.5 mm

HF 425 0000 - 16 - 55P - ...

Profile
Cut out piece
Code for axial width
Standard material
HME internal code

Material Key:

Slide band
30P - PTFE carbon
55P - PTFE bronze

Example for ordering Ready to use cut outs:

e.g.: piston slide band 2.5 mm for cylinder Ø 63 mm; groove width 9.7 mm

HF 425 0580 - 16 - 55P - ...

Profile
Groove diameter x 10
Code for axial width
Standard material
HME internal code

Material Key:

Slide band
30P - PTFE carbon
55P - PTFE bronze

e.g..: Rod slide band 2.5 mm for rod Ø 50 mm; groove width 9.7 mm

HF 425 0500 - 16 - 55P - ...

Profile
Rod diameter x 10
Code for axial width
Standard material
HME internal code

Note: Standard ready to use cut outs are delivered by factory with bevel cut (standard) with due consideration to split "m".

Issue
01 | 05