The guiding tape profile F3 is specially designed for use in hydraulic cylinders.

Advantages

- Vibration absorption effect.
- Very good emergency running properties in low-lube conditions.
- High load capacity (compressive strength), low wear and reduced friction due to special bronze additive in PTFE material.
- Dimensions according to ISO 10766.
- Also available as bulk material.
- Suitable for cylinder repairs.
- Ideally suited for large-diameter.
- Bulk material.
- Installation in closed and undercut housings.

Range of Application

Operating temperature	-100 to +200 °C
Surface speed	≤ 5.0 m/s

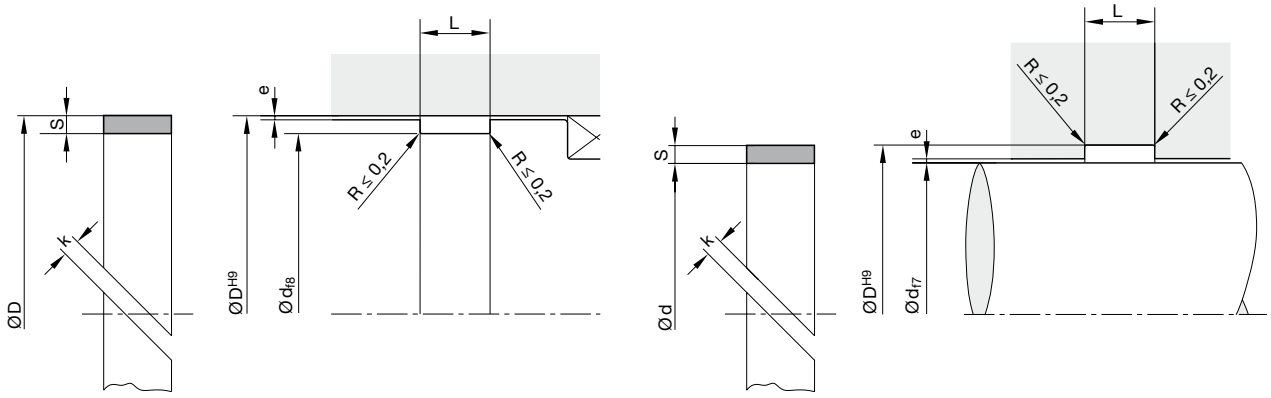
Compounds

Standard: Polon® 052, PTFE + 40 % bronze
On request: Polon® 062, PTFE + 60 % bronze

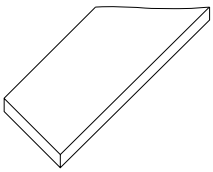
For cylinders made of alloys, light metal and high-grade steel, we recommend the use of compound Polon® 033 (PTFE + 25 % carbon).

Installation

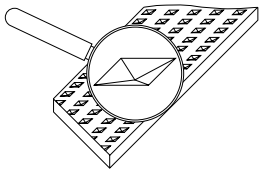
The gap dimensions “e” guarantee optimum service life of the guiding tapes. For the seals, however, the gaps as mentioned on the respective catalogue pages are to be considered when it is essential to observe full operating conditions (“Field of Application”) for the seals.



Surfaces

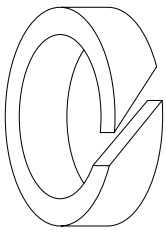


Guiding tape F3:
smooth (standard)

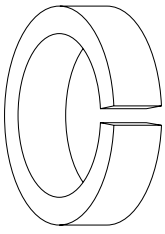


Guiding tape FW:
structured (on request)

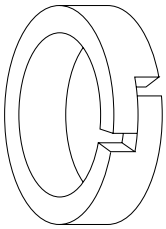
Type of cut



Type A
angle cut

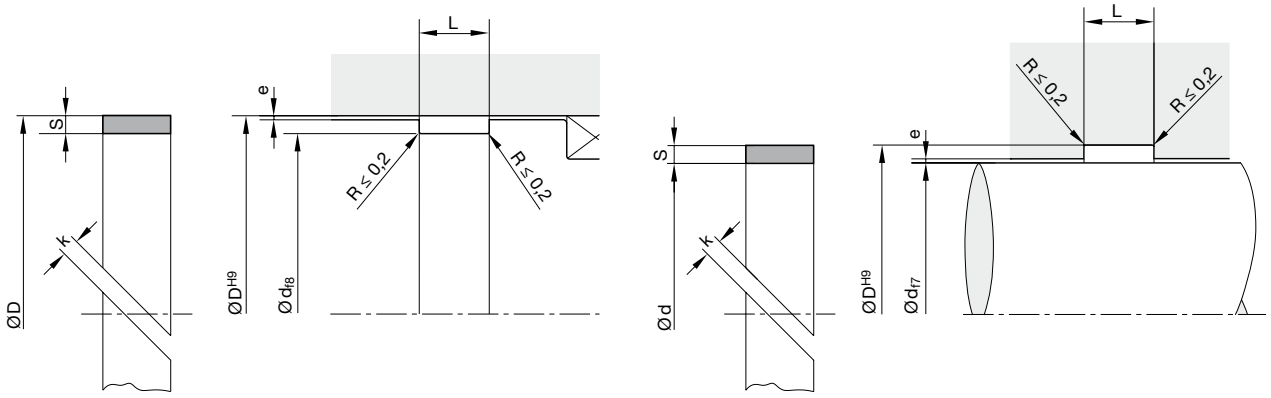


Type S
straight cut



Type Z
step cut

Types A and S are used for bearings where it is imperative that the system pressure is carried on to the seals. They are designed as “open bearing” with a well defined gap. Type Z is a closed bearing, which in certain applications is used as a combined seal and bearing.



Housing dimensions

Series No.	Recommended Ø range	Guiding tape	Groove			
	d/D (mm)	S (mm)	L (mm)	d (mm)	D (mm)	e (mm)
15063	≤ 50	$1.50^{+0.02}_{-0.03}$	$6.3^{+0.1}$	D - 3.0	d + 3.0	0.25
15081	≤ 50	$1.50^{+0.02}_{-0.03}$	$8.1^{+0.1}$	D - 3.0	d + 3.0	0.25
15100	≤ 50	$1.50^{+0.02}_{-0.03}$	$10.0^{+0.1}$	D - 3.0	d + 3.0	0.25
15150	≤ 50	$1.50^{+0.02}_{-0.03}$	$15.0^{+0.1}$	D - 3.0	d + 3.0	0.25
16025	≤ 50	$1.55^{+0.02}_{-0.03}$	$2.5^{+0.1}$	D - 3.1	d + 3.1	0.25
16040	≤ 51	$1.55^{+0.02}_{-0.03}$	$4.0^{+0.1}$	D - 3.1	d + 3.1	0.25
20063	≤ 50	$2.00^{-0.05}$	$6.3^{+0.1}$	D - 4.0	d + 4.0	0.30
20081	≤ 51	$2.00^{-0.05}$	$8.1^{+0.1}$	D - 4.0	d + 4.0	0.30
20097	> 50	$2.00^{-0.05}$	$9.7^{+0.1}$	D - 4.0	d + 4.0	0.30
20150	> 50	$2.00^{-0.05}$	$15.0^{+0.2}$	D - 4.0	d + 4.0	0.30
20200	> 50	$2.00^{-0.05}$	$20.0^{+0.2}$	D - 4.0	d + 4.0	0.30
25042	> 50	$2.50^{-0.05}$	$4.2^{+0.1}$	D - 5.0	d + 5.0	0.40
25056	> 50	$2.50^{-0.05}$	$5.6^{+0.1}$	D - 5.0	d + 5.0	0.40
25063	> 50	$2.50^{-0.05}$	$6.3^{+0.1}$	D - 5.0	d + 5.0	0.40
25081	> 50	$2.50^{-0.05}$	$8.1^{+0.1}$	D - 5.0	d + 5.0	0.40
25097	> 50	$2.50^{-0.05}$	$9.7^{+0.1}$	D - 5.0	d + 5.0	0.40
25150	> 50	$2.50^{-0.05}$	$15.0^{+0.2}$	D - 5.0	d + 5.0	0.40
25200	> 50	$2.50^{-0.05}$	$20.0^{+0.2}$	D - 5.0	d + 5.0	0.40
25250	> 50	$2.50^{-0.05}$	$25.0^{+0.2}$	D - 5.0	d + 5.0	0.40
25300	> 50	$2.50^{-0.05}$	$30.0^{+0.2}$	D - 5.0	d + 5.0	0.40

Ordering example piston guidance

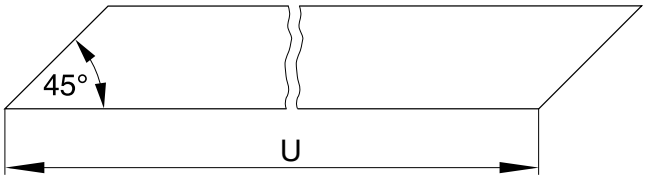
Mating surface	steel
Surface	smooth
Piston diameter	80 mm\
Groove	2.5 x 9.7 mm
a) by the metre	F3 0000 052 25097 A (9.7 x 2.5)
b) cut to length	F3 0800 052 25097 A (9.7 x 2.5 x 239.0)
F3	Profile
0800	Piston diameter x 10 (by the meter: 0000)
052	Compound
25097	Series no.

Ordering example rod guidance

Surface	structured
Rod diameter	50 mm
(Groove outer diameter	OD = ID + 2S)
Groove	2.5 x 6.3 mm

FW 0550 052 25063 A (6.3 x 2.5 x 160.0)

Calculation of the stretched length "U"



The length “U” of the tape is to be calculated from the mean circumferential length less the clearance at the joint “k”. The k values stated in the table are based on a temperature rise of 120 °C.

Cyl. Ø D^{H8}	Stretched length U			Gap
Rod Ø d_{f7}	Piston	Rod	Tol.	k
≤ 45	$U = \pi \cdot (D-S) - k$	$U = \pi \cdot (d+S) - k$	± 0.25	1.8
> 45			± 0.40	3.5
> 80			± 0.60	4.4
> 100			± 0.80	5.6
> 125			± 1.00	6.6
> 150			± 1.20	8.0
> 180			± 1.40	9.5
> 215			± 1.60	12.0
> 270			± 1.80	15.5
> 330			± 2.00	19.0

Selection of the axial guiding width L

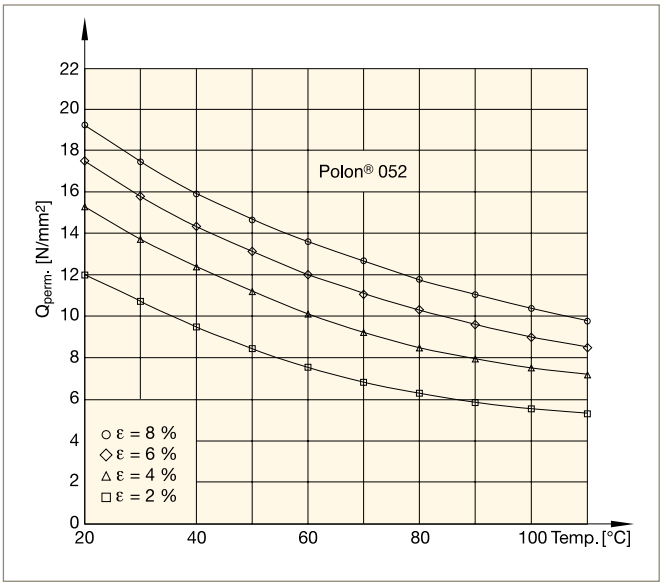
Choose the appropriate curve for the applicable guide tolerances. Note that the more precise the guidance the lower the value for the selected eps.
The following formula provides the minimum guidance width:

$$L \geq \frac{F}{Q\,(d_i - k \cdot \sqrt{2})}$$

d = inner diameter [mm]
k = gap [mm]
L = guidance width [mm]
$Q_{perm.}$ = permissible specific load [N/mm²]
F = lateral force [N]

We recommend that the largest possible guidance length always be used even if the calculation yields a smaller value.

Permissible specific load $Q_{perm.}$ in relation to temperature t and the respective permanent set ε for the compounds Polon® 052:



Permissible specific load $Q_{perm.}$ in relation to temperature t and the respective permanent set ε for the compounds Polon® 062: