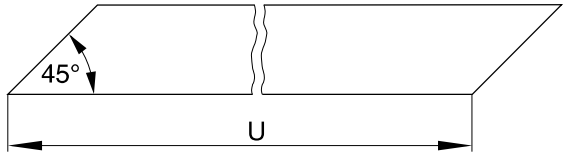
Calculation of the stretched length „U“



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.

Cylinder	Stretched length U		Gap
Ø D^{H11}	Piston	Tolerance	k
≤ 45	$U = \pi \cdot (D - S) - k$	± 0.25	1.8
> 45		± 0.40	3.5
> 80		± 0.60	4.4
> 100		± 0.80	5.6
> 125		± 1	6.6
> 150		± 1.20	8.0
> 180		± 1.40	9.5
> 215		± 1.60	12.0
> 270		± 1.80	15.5
> 330		± 2	19.0

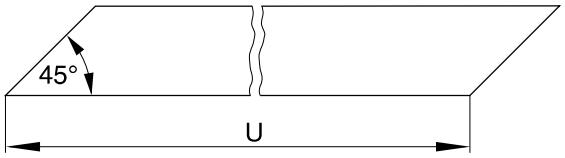
Selection of the guiding height H

The height H of the guiding tape has to be calculated for the worst possible conditions considering the maximum radial force. The specific load at the tape should in case of working temperatures of ≤ 100 °C not exceed q = 2.5 N/mm². The calculation of this figure is based on the area from the projection of the height H of the guiding tape multiplied by the cylinder diameter D. The maximum permissible radial force $F_{perm.}$ can be obtained with the formula:
$F_{perm.} = H \times D \times q_{perm.}$

Specific data can be found in the nomograph.

Example:
A guiding tape diameter D of 70 mm and a guiding tape height of 8 mm result in a maximum permissible radial force of 1.4 kN or 1400 N.

Calculation of the stretched length „U“

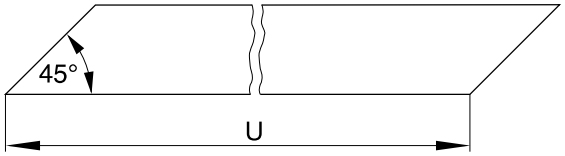


The length „U“ of the tape is to be calculated from the mean circumferential length less the clearance at the joint „k“. The k-values stated in the table are based on a temperature rise of 120 °C. (S = thickness of the guiding tape.)

Calculation of the stretched length „U“

Cylinder Ø D^{H8} Rod diameter d_{f7}	Stretched length U Piston	Rod	Tolerance	Gap k
≤ 45	$U = \pi \times (D - S) - k$	$U = \pi \times (d + S) - k$	± 0.25	1.8
> 45			± 0.4	3.5
> 80			± 0.6	4.4
> 100			± 0.8	5.6
> 125			± 1	6.6
> 150			± 1.2	8
> 180			± 1.4	9.5
> 215			± 1.6	12
> 270			± 1.8	15.5
> 330			± 2	19

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. (S = thickness of the guiding tape.)

Calculation of the stretched length „U“

Cylinder Ø D^{H8} Rod diameter d_{f7}	Stretched length U Piston	Rod	Tolerance	Gap k
≤ 45	$U = \pi \times (D - S) - k$	$U = \pi \times (d + S) - k$	± 0.25	1.8
> 45			± 0.4	3.5
> 80			± 0.6	4.4
> 100			± 0.8	5.6
> 125			± 1	6.6
> 150			± 1.2	8
> 180			± 1.4	9.5
> 215			± 1.6	12
> 270			± 1.8	15.5
> 330			± 2	19