



O.L. Seals A/S

Guide Rings

GuideStrip®



GuideStrip®

Is a very efficient guide for piston and piston rod. The use of GuideStrip ensures an accurate and smooth travel of sliding parts. It prevents metal-to-metal contact and scoring of the surfaces. Precise guiding and preservation of perfect surfaces are essential for trouble free functioning of the seals.

GuideStrip also protects the seal against diesel effect and, to some degree, prevents possible contamination from reaching the seal.



GuideStrip is available in a range of standard dimensions and at special dimensions at request.

Working Range

Load capacity

Depends on temperature. Dimensioning of GuideStrip is described below.

Temperature range

-50°C to + 180°C. For temperatures exceeding this temperature range, please contact your O.L. Seals distributor.

Velocity

Reciprocating up to 15 m/sec. Rotating up to 1 M/sec. Frequency up to 10 HZ.

Fluids

Kefloy® is compatible with virtually all fluids – liquids as well as gases. By selecting the right compound, it is possible to cover almost all fluids.

Availability

GuideStrips are delivered either in fixed lengths or in coils. Special thicknesses and widths are delivered on request.

Advantages

- Precise guiding
- Good wear resistance
- High load capacity
- Low friction
- No stick-slip
- Damping of vibrations
- Prevent migration of dirt
- Simple groove design
- Easy to install
- Compatible with virtually all fluids
- Available for all diameters
- Available in widths up to 100 mm

Material Selection Guide

Fluid	Mating surface	GuideStrip® compound
Hydraulic oil	Steel	Kefloy® 13
Motor oil	Chrome plated steel	Kefloy® 81
Grease	Cast iron	
Other mineral oils		
Water	Aluminium	Kefloy® 22
Water hydraulic	Stainless steel	Kefloy® 90
Steam	Bronze	
Non lubricating fluids	Soft metals	
Air, dry or lubricated	Steel	Kefloy® 22
	Chrome plated steel	Kefloy® 28
	Cast iron	Kefloy® 32
	Aluminium	Kefloy® 40
	Stainless steel	Kefloy® 90
	Bronze	
	Soft metals	

For other fluids or sealing surfaces, please consult your O.L. Seals distributor.

Seal Selection Guide

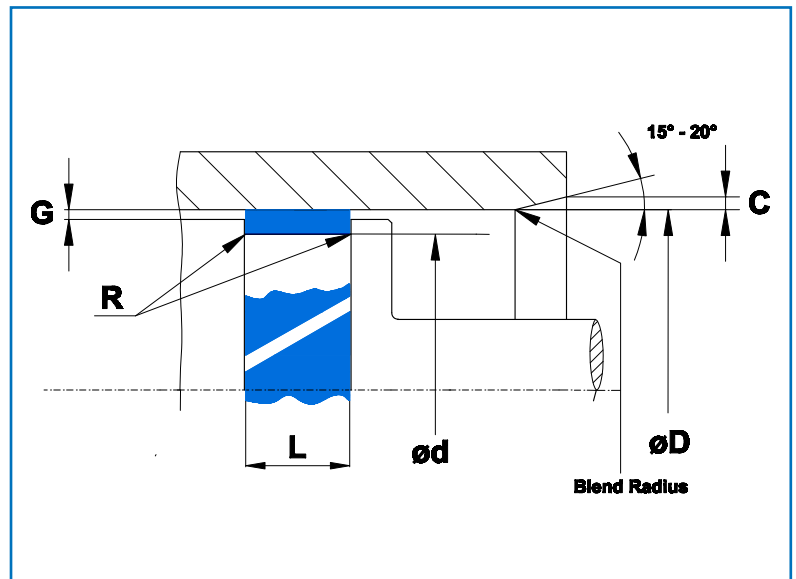
GuideStrip for Piston

Ordering Example

Piston diameter: 150.0 mm
 GuideStrip width: 19.5 mm
 GuideStrip Thickness: 2.5 mm
 Fluid: Oil
 Mating surface: Steel

Part no P-25-195-1500A-13
 Piston _____
 GuideStrip thickness x 10 _____
 GuideStrip width x 10 _____
 Bore diameter x 10 _____
 Cut type _____
 Compound no _____

GuideStrip length:
 $L = 3.115 \times (150.0 - 2.5) - 1.0 = 458.5 \text{ mm}$



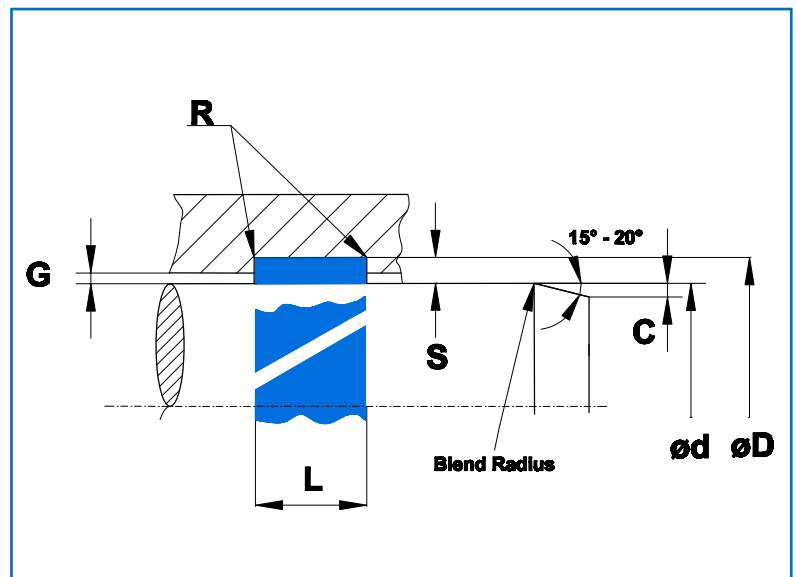
GuideStrip for Rod

Ordering Example

Rod diameter: 50.8 mm
 GuideStrip width: 9.5 mm
 GuideStrip Thickness: 2.0 mm
 Fluid: Water
 Rod material: Hard chromed steel

Part no R-20-095-0508Z-22
 Rod _____
 GuideStrip thickness x 10 _____
 GuideStrip width x 10 _____
 Rod diameter x 10 _____
 Cut type _____
 Compound no _____

GuideStrip length:
 $L = 3.115 \times (50.8 + 2.0) - 1.0 = 163.5 \text{ mm}$



Ordering example on GuideStrip

25-145-13 Standard type.
 25-145-13C with chamfered edges.
 25-145-13D With chamfers and diamond pattern on both side.

Ordering example on GuideStrip in cutting length

S-25-095-Z-13D-162.30 L = 162.30 mm

Dimensioning of GuideStrip

When calculating the force a GuideStrip can carry, use formula:

$$F = d \times T \times Ps$$

- F: Force carrying capacity of one GuideStrip
d: Internal diameter of GuideStrip
T: Width of GuideStrip
Ps: Specific load capacity of GuideStrip material at the actual working temperature. Is found from Load-Temperature diagram.

Example:

Guidetrip R-25-148-0800A-13
Working temperature 80°C

- d = 80 mm
T = 14,8 mm
Ps = 10 N/mm²
F = 80 mm x 14,8 mm x 10 N/mm² = 11.840 N

Deformation

Deformation under load is found from Load-Deformation diagram.

Friction

Coefficient of friction is influenced by a great number of factors such as surface finish, fluid, load and velocity.

As a rule the following coefficients of friction can be used:

- Lubricated applications: $\mu = 0,08$
Unlubricated applications: $\mu = 0,12$

Calculation of length

To allow for thermal expansion GuideStrip is made slightly shorter than the circumference of the part they guide. This leaves a small gap X.

Internal applications (for rod)

$$L = 3,115 (\varnothing d + W) - 1,0$$

$\varnothing d$ = Rod diameter W = GuideStrip thickness

External applications (for bore)

$$L = 3,115 (\varnothing D - W) - 1,0$$

$\varnothing D$ = Bore diameter W = GuideStrip thickness

Cut Types

GuideStrip can be furnished with three different types of cut – A, B or Z.

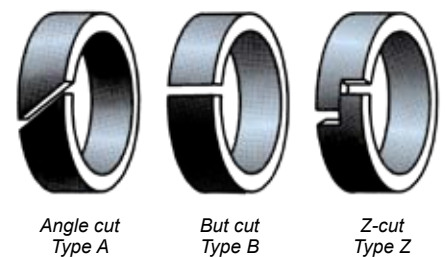
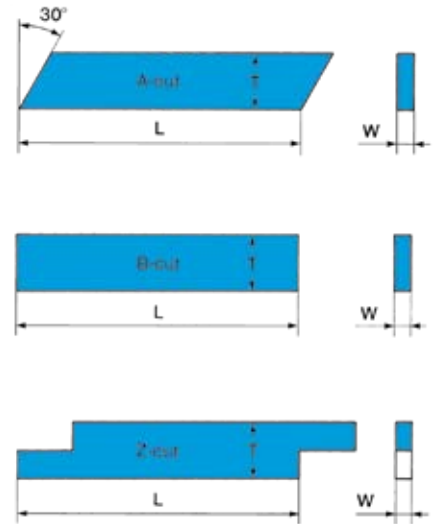
- A: Angle cut 30° – For reciprocating applications
B: But cut 90° – For rotating applications.
Z: Step cut – For special applications.

GuideStrip Thickness

For ease of installation thin sections of GuideStrip should be used for small diameters.

For diameters below 25 mm, GuideStrip thickness of 1,5 mm is recommended.

For diameters below 40 mm, GuideStrip thickness of 2,0 mm is recommended.



Important Note

The limits of pressure, temperature and velocity are individual maximum values. Heat generated by the friction may cause local increase of temperature. The cooling possibilities for the system determines the combinations of maximum values.



Installation dimensions

GuideStrip	W GuideStrip thickness	T GuideStrip Width	S Groove Depth	L Groove Width	R Radius	G Radial Gap	D Extern. Dia.	D Intern. dia
Type no.				+0.2/-0	Max.		H8	h8
15-030	1.5	3.0	1.5	3.2	0.3	See clearance for actual seal.	d+3.0	D-3.0
20-040	2.0	4.0	2.0	4.2	0.3		d+4.0	D-4.0
20-054		5.4		5.6				
20-061		6.1		6.3				
20-079		7.9		8.1				
20-095		9.5		9.7				
20-148		14.8		15.0				
20-195		19.5		20.0				
20-245		24.5		25.0				
20-295		29.5		30.0				
20-395		39.5		40.0				
20-495	49.5	50.0						
25-040	2.5	4.0	2.5	4.2	0.3		d+5.0	D-5.0
25-054		5.4		5.6				
25-061		6.1		6.3				
25-079		7.9		8.1				
25-095		9.5		9.7				
25-148		14.8		15.0				
25-195		19.5		20.0				
25-245		24.5		25.0				
25-295		29.5		30.0				
25-395		39.5		40.0				
25-495	49.5	50.0						
25-595	59.5	60.0						
30-054	3.0	5.4	3.0	5.6	0.3		d+6.0	D-6.0
30-061		6.1		6.3				
30-079		7.9		8.1				
30-095		9.5		9.7				
30-148		14.8		15.0				
30-195		19.5		20.0				
30-245		24.5		25.0				
30-295		29.5		30.0				
30-395		39.5		40.0				
30-495		49.5		50.0				
40-195	4.0	19.5	4.0	20.0	0.3	d+8.0	D-8.0	
40-245		24.5		25.0				
40-295		29.5		30.0				
40-395		39.5		40.0				
40-495		49.5		50.0				
50-195	5.0	19.5	5.0	20.0	0.3	d+10.0	D-10.0	
50-245		24.5		25.0				
50-295		29.5		30.0				
50-395		39.5		40.0				
50-495		49.5		50.0				