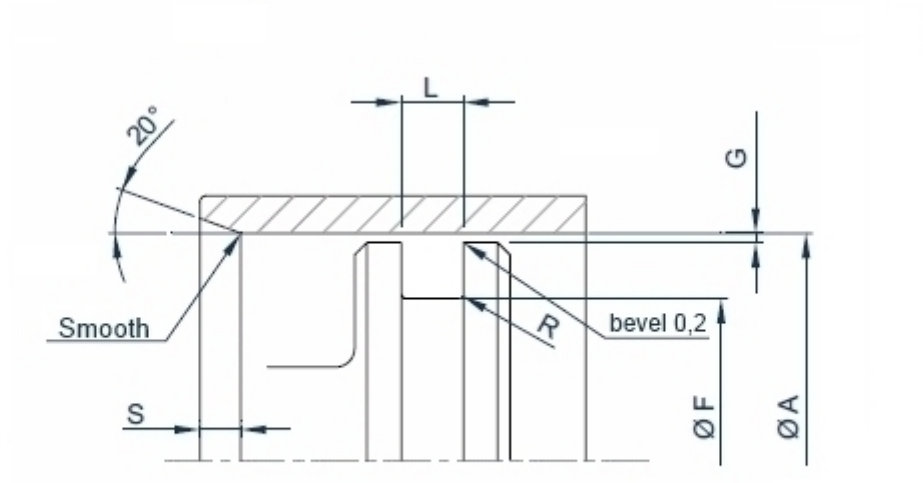




## Slipper ptfе Composite seals |Steplock®

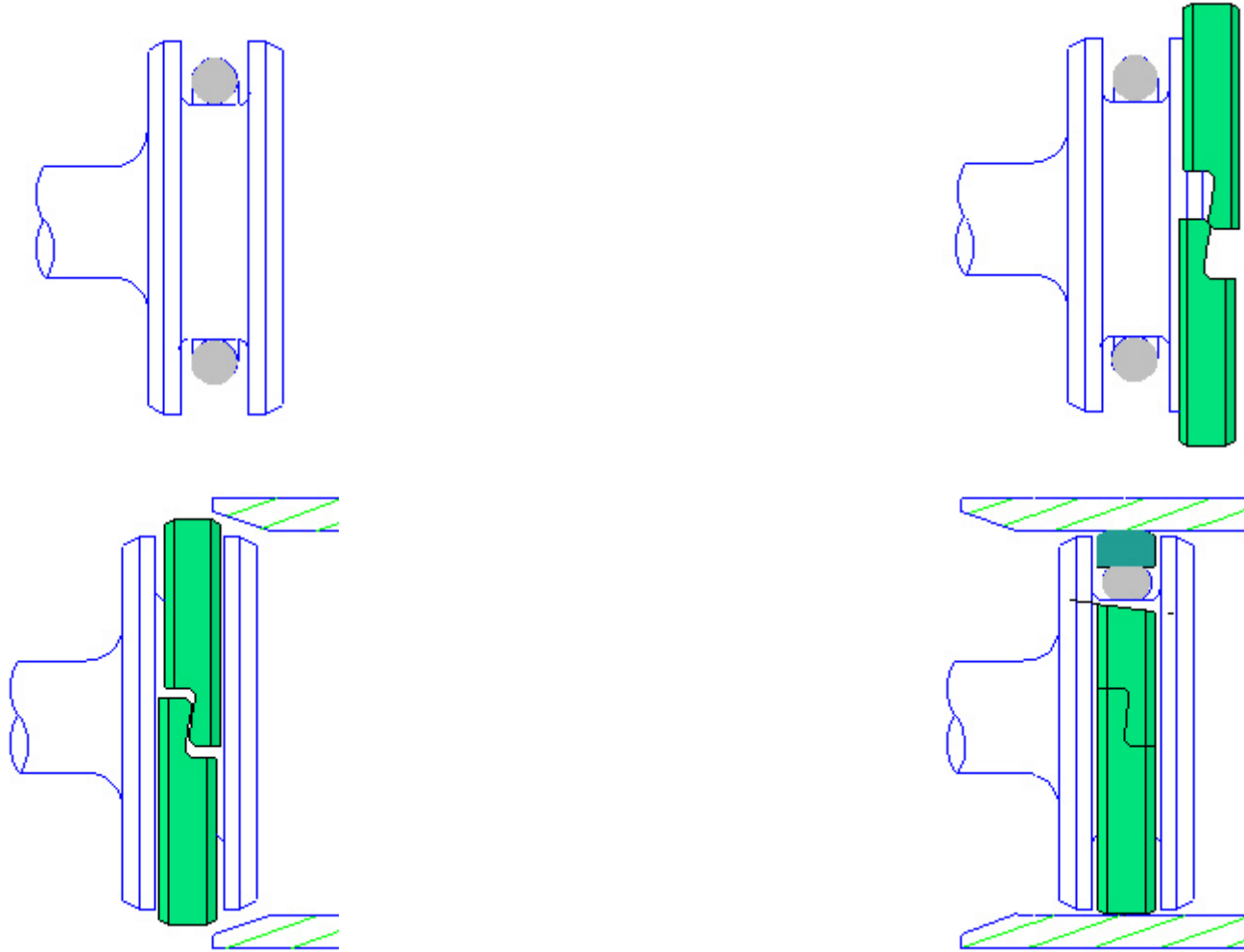


Steplock® Composite Slipper piston seals

Steplock® are interchangeable with NPS series in double-acting applications. The special Steplock® split design allows easy assembly with no equipment, keeps the Slipper in place, and ensures a perfect sealing. No resizing required.

## ASSEMBLY

### STEPLOCK® ASSEMBLING RESIZING NOT REQUIRED





## FINISHES

SURFACE FINISH ACCORDING WITH FLUID		
application	max Ra $\mu\text{m}$ dynamic surface	max Ra $\mu\text{m}$ static surface
CRYOGENICS	0,1	0,2
FREON HELIUM HYDROGEN	0,2	0,3
AIR NITROGEN ARGON METHANE FUELS	0.2	0.4
WATER OIL	0.3 - 04	0.6
ROTARY SEALS		
<b>Shaft surface</b> Ra 0.2 - 0.3 micron max. Rz 1.0 - 2.5 micron max. R max. < 4 micron	<b>Shaft hardness</b> 55 HRC min. for pressure up to 5 bar 60 HRC min. for pressure > di 5 bar 60 HRC for speed > 4m/sec	<b>Surface treating deep</b> 0.3 mm min.

## MATERIALS

Click compound's code to download the .PDF data sheet. Registration required.

HD Slippers code	Composition	Color	Approvals	ΔT °C	Description
<a href="#">N-020</a>	Virgin PTFE	white	<b>FDA</b> <b>NORSOK</b>	-268 +260	All purpose, low friction coefficient, extrusion withstanding.
<a href="#">N-009</a>	Ptfe-oxides	blue	<b>FDA</b>	-268 +260	All purpose on soft surfaces
<a href="#">N-031</a>	Ptfe-bronze	green-blue		-268 +260	High wear resistance, hidraulic seals
<a href="#">N-032</a>	Ptfe-carbon	black		-268 +260	High wear resistance, pneumatic and hydraulic seals
<a href="#">N-059</a>	Ptfe-carbographite	black		-268 +260	High wear resistance, hydraulic and pneumatic seals, hard surfaces
<a href="#">N-197</a>	Ptfe-carbographite	black	<b>NORSOK</b>	-268 +260	High wear resistance, hydraulic and pneumatic seals
<a href="#">N-043</a>	Ptfe-graphite	black	<b>FDA</b>	-268 +260	High wear resistance, low friction coefficient.
<a href="#">N-103</a>	Ptfe-carbon fibre	black	<b>FDA</b>	-268 +260	High wear resistance, low friction coefficient, hard surfaces.
<a href="#">N-077</a>	Ptfe-glass fibre-MoS <sub>2</sub>	gray		-268 +260	Of general use, in lubricated applications, rotary seals
<a href="#">N-060</a>	Ptfe-glass fibre	blue	<b>FDA</b>	-268 +260	All purpose on hard surfaces
<a href="#">N-067</a>	Ptfe-glass fibre	white	<b>FDA</b> <b>NORSOK</b>	-268 +260	High wear and creep resistance
<a href="#">N-102</a>	Ptfe-Liquid crystal polymer	beige	<b>FDA - EU</b>	-268 +260	Food & Pharma, soft surfaces
<a href="#">N-088</a>	Ptfe-poliimide	yellow		-268 +260	High wear resistance. Soft surfaces
<a href="#">N-074</a>	PEHMW	white	<b>FDA</b>	-140 +80	High wear and extrusion resistance
<a href="#">P95-A252</a>	Polyurethane	blue	<b>FDA</b>	-50 +105	Extrusion and wear withstanding, low friction coefficient
<a href="#">P95-VI251</a>	Polyurethane	violet	<b>FDA</b>	-30 +115	CIP (clean in place) fluids compatible
<a href="#">P95-R198</a>	Polyurethane	red		-30 +125	Extrusion and wear withstanding, low friction coefficient, high temperatures
<a href="#">P95-AR255</a>	Polyurethane	orange		-30 +135	Extrusion and wear withstanding, low friction coefficient, higher temperatures
<a href="#">P95-G253</a>	Polyurethane MoS	gray		-30 +105	Extrusion and wear withstanding, lower friction coefficient

### CHOOSING Neuflon-ptfe compound ACCORDING WITH FLUID AND SURFACE

#### SURFACES

Steel HEC>=30-45  
Temp. Mart. Inox Steel  
Cast Iron HRB<=200  
Steel HRC>=45  
Cast Iron HRB>200

Galvanic or chemical  
surfacing HV>=700  
Chromium Bronze

Bronze  
Brass

Treated  
Aluminium

Aust. Inox Steel  
Glass

#### FLUIDS

#### NEUFLON-ptfe compounds (standard in bold)

Hydraulic oil  
Transmission oil  
Fire resistant syntetic  
hydraulic oil

**N-031**  
N-032 N-060 N-077 P95-A112

**N-031**  
N-032 N-060 N-077 P95-A112

**N-009**  
N-043 N-032 P95-A112

**N-032**  
N-074 P95-A112

**N-009**  
N-032 N-074 P95-A112

Water and oil/water

**N-032**

**N-032**

**N-009**

**N-032**

**N-009**



emulsions	N-060 N-077 N-074	N-060 N-077 N-074	N-043 N-074	N-074	N-032 N-074
Drugs and food	<b>N-009</b> N-102 N-020 N-043 N-060 N-074 N-088 P95-B113	<b>N-009</b> N-074 P95-B113	<b>N-102</b> N-009 P95-B113	<b>N-009</b> N-074 P95-B113	<b>N-009</b> N-074 P95-B113
Air	<b>N-032</b> N-031 N-043 N-074 P95-A112	<b>N-032</b> N-043 P95-A112	<b>N-032</b> N-009 N-043 N-074 P95-A112	<b>N-032</b> N-074 P95-A112	<b>N-032</b> N-009 N-043 N-074 P95-A112
Steam	<b>N-032</b> N-043	<b>N-032</b>	<b>N-009</b> N-032 N-043		<b>N-032</b> N-009 N-043
Acids and Bases	<b>N-032</b> N-059 N-074	<b>N-032</b> N-043 N-074			<b>N-009</b> N-032 N-043 N-074

#### ELASTOMER ACCORDING WITH FLUID

FLUID	ELASTOMER
HYDRAULIC OIL - TRANSMISSION OIL	NBR
FIRE RESISTANT SYNTETIC HYDRAULIC OIL	EPDM
WATER AND WATER/OIL EMULSIONS	NBR
FOOD AND DRUG	MVQ
AIR	NBR
STEAM	EPDM - FFKM
ACIDS AND BASES	FKM - FFKM



## SEAT

Housing class	A cylinder bore range		F groove diameter		L groove width	R	S min	G*			
	suggested	available	hydraulics	pneumatics				max. radial gap			
								H8	h9	H12	Bar 50
N2	35-39,9	35-250	A- 7,5	A- 8,0	3,2	0,6	2,2	0,8	0,6	0,5	0,3
N3	40-79,9	35-450	A- 11	A- 11,5	4,2	0,8	2,6	1,2	0,7	0,5	0,3
N4	80-132,9	40-650	A- 15,5	A- 16,5	6,3	1	5,6	1,4	0,7	0,6	0,4
N5	133-400	130-1200	A- 21	A- 22,3	8,1	1,5	8,2	1,5	0,8	0,6	0,4

$G^* = G1 + G2 + G3$   
 G1 = Max. initial clearance  
 G2 = Clearance by elastic deformation of the components under pressure  
 G3 = Clearance due to the foreseen wear of the guiding elements

### Coding example

profile code StepLock  
 bore 100  
 housing class N4  
 materials: Neuflon 031 O-Ring NBR

**StepLock 100 N4 N-031 NBR**