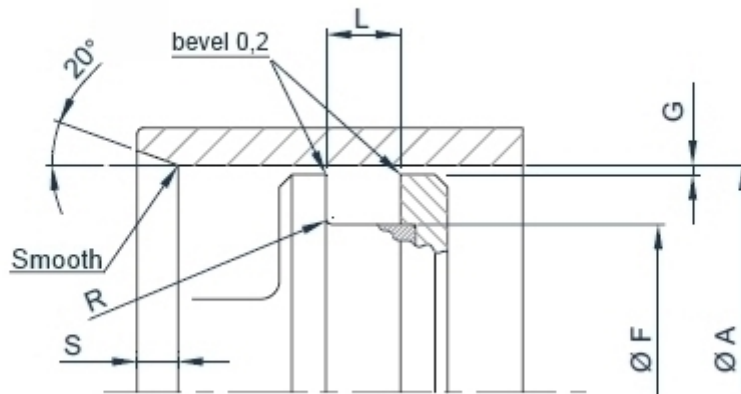


Enerseal® Spring Energized Seals | Energized Piston Seals



Spring Energized Seals Enerseal®, custom and standard dimensions available. Jacket in PTFE compound, PEEK, UHMW-PE, PU. Jackets and electro-welded springs are designed and realized within the company, so that HD has the complete control of the production process. Spring are available in Aisi 301 302, Hastelloy, **NACE approved Inconel X750 and Elgiloy for cryogenics.**

For the "V" shaped cross sections an optional EU-FDA approved Silicone Filling is available.

Enerseal® Spring Energized Seals for on piston housing

[back to
Spring
Energized
Seals
Homepage](#)



AVAILABILITY

To check the availability:

- choose profile and compound from the drop-down menu
- input the desired housing class
- input the desired diameter

Once obtained the availability, a request for quotation can be sent.



MATERIALS

Click compound's code to download the .PDF data sheet (login requested)

| HD Slippers code | Composition | Color | Approvals | ΔT °C | Description |
|---------------------------|-----------------------------|------------|---------------|---------------|--|
| N-009 | Ptfe-oxides | blue | FDA | -268 +260 | All pourpose on soft surfaces |
| N-095 | Tfm | white | | -268 +260 | Low creep, better strength. |
| N-031 | Ptfe-bronze | green-blue | | -268 +260 | High wear resistance, hidraulic seals |
| N-032 | Ptfe-carbon | black | NORSOK | -268 +260 | High wear resistance, pneumatic and hydraulic seals |
| N-197 | Ptfe-carbographite | black | | -268 +260 | High wear resistance, hydraulic and pneumatic seals |
| N-043 | Ptfe-graphite | black | | -268 +260 | High wear resistance, low friction coefficient. |
| N-060 | Ptfe-glass fibre | blue | FDA | -268 +260 | All pourpose on hard surfaces |
| N-067 | Ptfe-glass fibre | white | FDA NORSOK | -268 +260 | High wear and creep resistance |
| N-033 | Ptfe-glass fibre MoS2 | gray | FDA | -268 +260 | Fit for hard surfaces |
| N-103 | Ptfe-Carbon fibre | black | | -268 +260 | Fit for hard surfaces |
| N-102 | Ptfe-Liquid crystal polymer | beige | FDA - EU | -268 +260 | Food & Pharma, fit for soft surfaces |
| N-088 | Ptfe-polyimide | yellow | | -268 +260 | Fit for soft surfaces |
| N-074 | PEHMW | white | FDA | -140 +80 | High wear and extrusion resistance |
| N-155 | PVDF | white | FDA | -30 +140 | High modulus |
| P95-A252 | Polyurethane | blue | FDA | -50 +105 | Extrusion and wear withstanding, low friction coefficient |
| P95-VI251 | Polyurethane | violet | FDA | -30 +115 | CIP (clean in place) fluids compatible |
| P95-R198 | Polyurethane | red | | -30 +125 | Extrusion and wear withstanding, low friction coefficient, high temperatures |
| P95-AR255 | Polyurethane | orange | | -30 +135 | Extrusion and wear withstanding, low friction coefficient, higher temperatures |
| P95-G253 | 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 P95-A112

N-031
N-032 N-060 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
emulsions

N-032
N-060 N-074

N-032
N-060 N-074

N-009
N-043 N-074

N-032
N-074

N-009
N-032 N-074

Drugs and food

N-074
N-102 N-043 N-060 N-095
P95-B113

N-009
N-074 P95-B113

N-102
N-009 P95-B113

N-009
N-074 P95-B113

N-009
N-074 P95-B113

Air

N-032

N-032

N-032

N-032

N-032



| | | | | | |
|-----------------|----------------------------|-----------------------------|-----------------------------|----------------|-----------------------------------|
| | N-031 N-043 N-074 P95-A112 | N-043 P95-A112 | N-009 N-043 N-074 P95-A112 | N-074 P95-A112 | N-009 N-043 N-074 P95-A112 |
| Steam | N-032 N-043 | N-032 | N-009 N-032 N-043 | | N-032 N-009 N-043 |
| Acids and Bases | N-032 N-074 | N-032 N-043 N-074 | | | N-009 N-032 N-043 N-074 |



SEAT

| housing class | A | F | L | L* | L** | R | S | G | | | |
|---------------|-------------------|-----------------|----------|-------|------|-----|-----|--------------------|------|------|------|
| | dimensional range | groove diameter | standard | heavy | BK | | | max. diametral gap | | | |
| | H8 | h9 | | H12 | | | | Bar/20 | 100 | 200 | 400 |
| GP | 6 - 20 | A - 2.9 | 2.4 | 3.8 | 5.3 | 0.3 | 2.5 | 0,20 | 0,10 | 0,08 | 0,05 |
| LP | 10 - 240 | A - 4.5 | 3.6 | 4.65 | 6.2 | 0.4 | 2.5 | 0,25 | 0,15 | 0,10 | 0,07 |
| HP | 16 - 400 | A - 6.2 | 4.8 | 5.7 | 7.7 | 0.6 | 3 | 0,35 | 0,20 | 0,15 | 0,08 |
| NP | 28 - 650 | A - 9.4 | 7.1 | 8.5 | 10.8 | 0.8 | 5.5 | 0,50 | 0,25 | 0,20 | 0,10 |
| MP | 45 - 1100 | A - 12.2 | 9.5 | 11.2 | 14.7 | 0.8 | 8.5 | 0,60 | 0,30 | 0,25 | 0,10 |
| RP | 150 - 1200 | A - 18.75 | 13.4 | 15.8 | 20.5 | 0.8 | 8.5 | 0,80 | 0,30 | 0,25 | 0,10 |

*Always choose heavy (reinforced) heel when pressure exceeds 200 bar

** Backup version for higher pressure and/or temperature

Coding example

housing class NP
 profile code 022
 bore 100
 materials: jacket Neuflon 020 spring Aisi 314

Enerseal NP - 022 - 100 - N-020 - 314

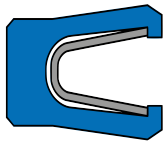
ASSEMBLY

Spring energized seals are suitable for assembling in closed groove starting from a minimum rod diameter according with dimensional class and spring's shape.

Assembling requires skill and can be more or less difficult according with the position of the groove.

FOR THESE REASONS THE OPEN GROOVE ASSEMBLING IS ALWAYS STRONGLY RECOMMENDED

Enerseal V

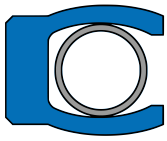


dimensional class

Minimum bore diameter

| | |
|----|-----|
| GP | 35 |
| LP | 50 |
| HP | 70 |
| NP | 105 |
| MP | 140 |
| RP | 200 |

Enerseal Omega

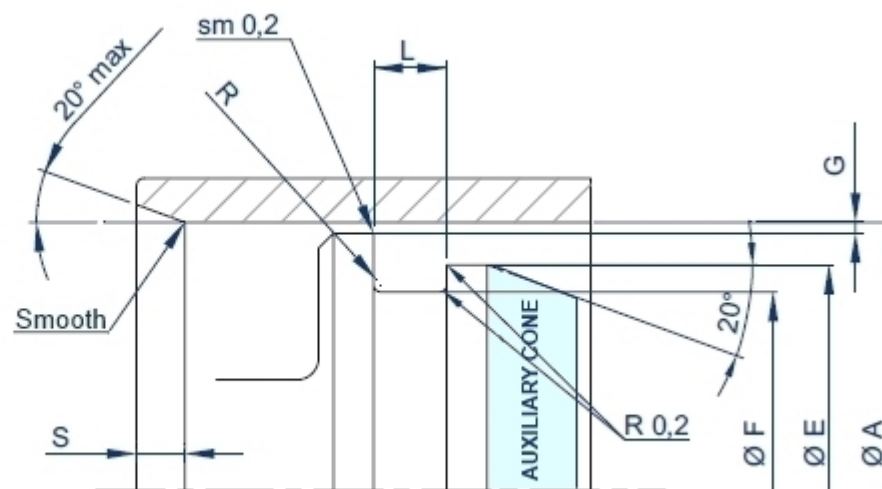
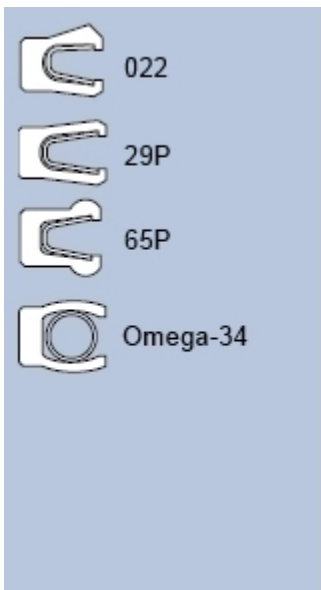


dimensional class

Minimum bore diameter

| | |
|----|-----|
| GP | 20 |
| LP | 35 |
| HP | 50 |
| NP | 75 |
| MP | 95 |
| RP | 120 |

Spring Energized Seals can also be installed in SEMI-OPEN GROOVE



The assembling cone can be manufactured out of PA6 or POM. If needed pre-heat the seal in water or oil (max 100°C). Snap the seal in



to the groove as quick as possible, then resize.

| Housing class | A dimensional range | F groove diameter | L standard | L* reinforced heel | E step diameter | R | S | G max clearance | | | |
|---------------|------------------------|----------------------|---------------|-----------------------|--------------------|-----|-----|--------------------|------|------|------|
| | | | | | | | | Bar/20 | 100 | 200 | 400 |
| | H8 | h9 | | H12 | h12 | | | Bar/20 | 100 | 200 | 400 |
| GP | 6 - 20 | A - 2,9 | 2.4 | 3.8 | F + 0.8 | 0.3 | 2.5 | 0,20 | 0,10 | 0,08 | 0,05 |
| LP | 15 - 240 | A - 4.5 | 3.6 | 4.65 | F + 1.2 | 0.4 | 2.5 | 0,25 | 0,15 | 0,10 | 0,07 |
| HP | 25 - 400 | A - 6.2 | 4.8 | 5.7 | F + 1.4 | 0.6 | 3 | 0,35 | 0,20 | 0,15 | 0,08 |
| NP | 45 - 650 | A - 9.4 | 7.1 | 8.5 | F + 1.6 | 0.8 | 5.5 | 0,50 | 0,25 | 0,20 | 0,10 |
| MP | 80 - 1100 | A - 12.2 | 9.5 | 11.2 | F + 1.8 | 0.8 | 8.5 | 0,60 | 0,30 | 0,25 | 0,10 |
| RP | 150 - 1200 | A - 18,75 | 13,4 | 15,8 | F + 2,5 | 0,8 | 10 | 0,80 | 0,30 | 0,25 | 0,10 |

*Always choose reinforced heel when pressure exceeds 200 bar



FINISHES

| SURFACE FINISH ACCORDING WITH FLUID | | |
|---|---|---|
| application | max Ra μm dynamic surface | max Ra μm 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 | | |
| Shaft surface Ra 0.2 - 0.3 micron max. Rz 1.0 - 2.5 micron max. R max. < 4 micron | Shaft hardness 55 HRC min. for pressure up to 5 bar 60 HRC min. for pressure > di 5 bar 60 HRC for speed > 4m/sec | Surface treating deep 0.3 mm min. |