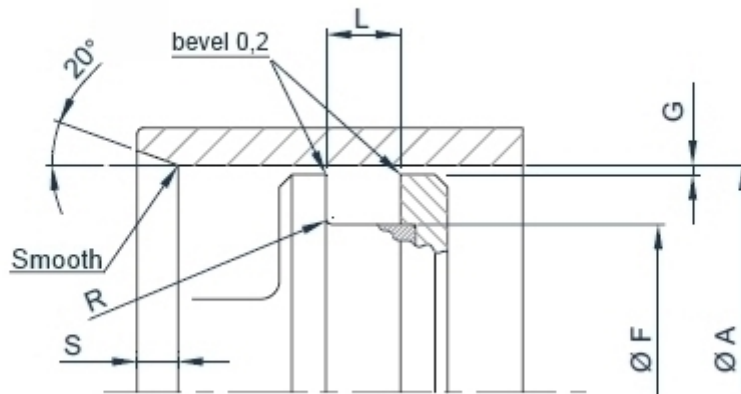


Enerseal® Spring Energized Seals |Energized Piston Seals



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

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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

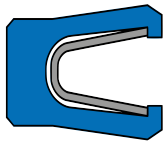
ASSEMBLY

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

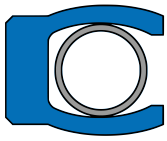


dimensional class

Minimum bore diameter

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

Enerseal Omega

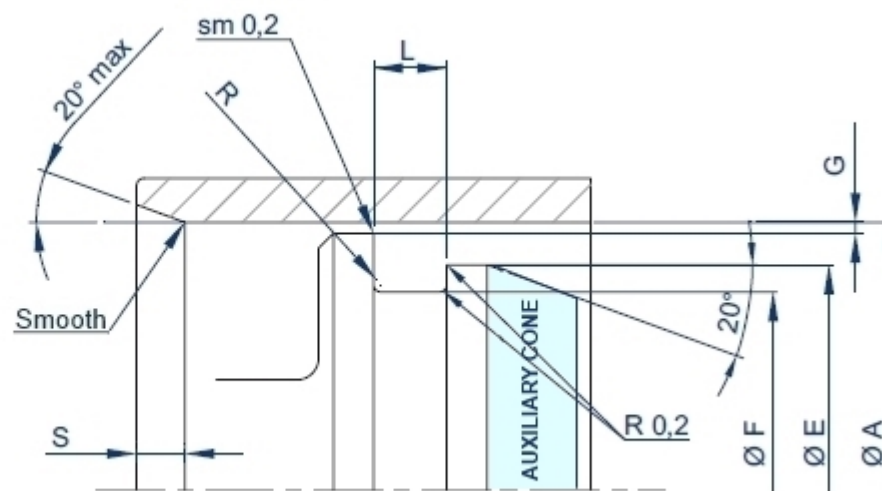
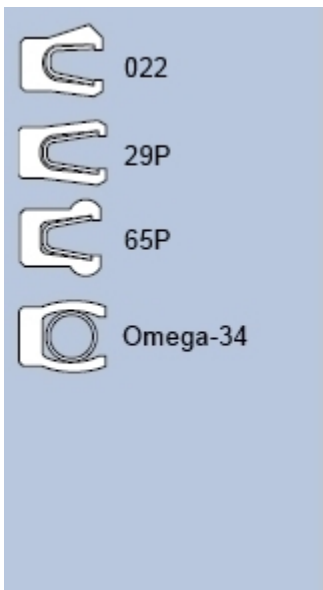


dimensional class

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.