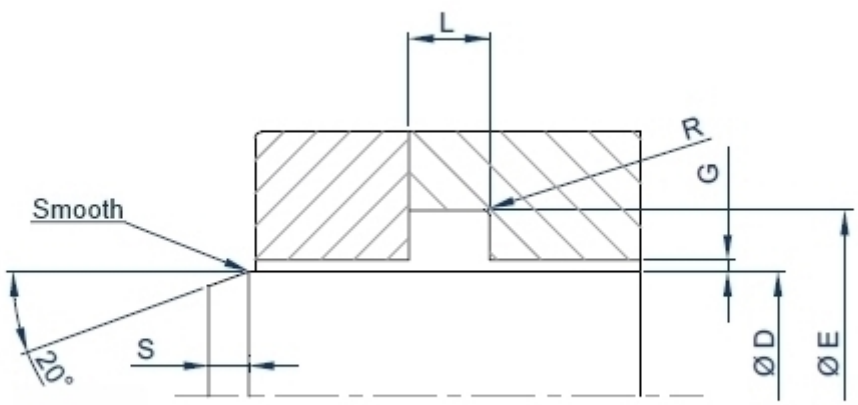
EnersealÂ® Spring Energized Seals |Energized rod seals



Spring Energized Seals Enerseal®,custom and standard dimensions available. Jacket in PTFE compound, PEEK, UHMW-PE, PU 54Sh.D. 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, Elgiloy, Hastelloy and **NACE approved Inconel X750**.
For the "V" shaped cross sections an optional EU-FDA approved Silicone filling is available.

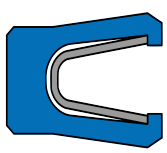
Enerseal® Spring enrgized seals for rod seling

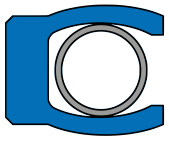
Spring Energized Seals Homepage

ASSEMBLY

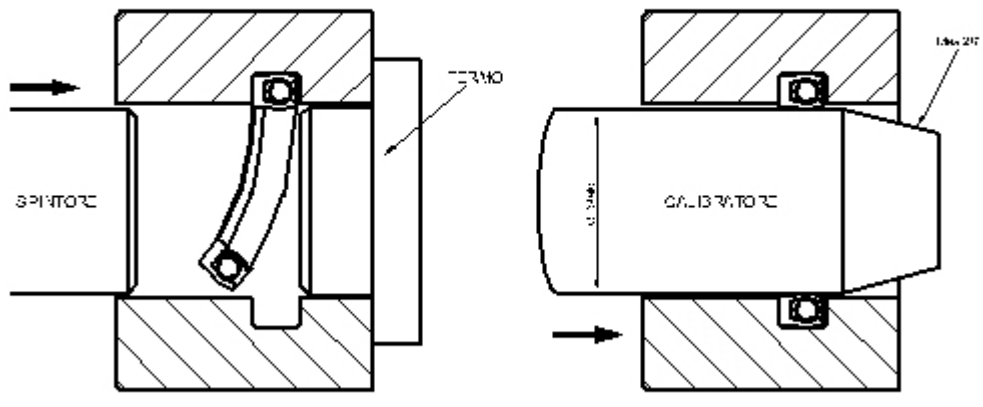
Spring energized seals are suitable for assembling in closed groove starting from a minimum rod diameter according with dimensional class and spring's shape.
Assembling requires skill and can be more or less difficult according with the position of the groove.

FOR THESE REASONS THE OPEN GROOVE ASSEMBLING IS ALWAYS STRONGLY RECOMMENDED

Enerseal V	dimensional class	Minimum Rod diameter
	GC	30
	LC	70
	HC	110
	NC	300
	MC	500
	RC	800

Enerseal Omega	dimensional class	Minimum Rod diameter
	GC	30
	LC	70
	HC	110
	NC	230
	MC	400
	RC	600

Spring Energized Seals OMEGA profile: ASSEMBLING IN CLOSED GROOVE



The assembling ram can be manufactured out of PA6 or POM
- Deform diametrically the seal and insert it in the hole
- Push the seal against the stop and let it partially snap in to the groove

- Gently pushing the ram, complete the insertion in to the groove
- Resize the seal inserting and rotating the calibrating tool

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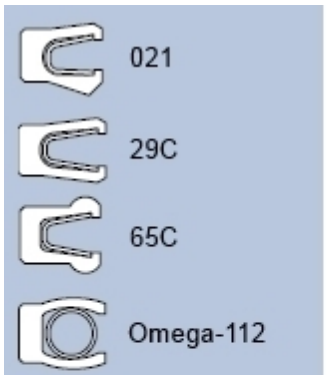
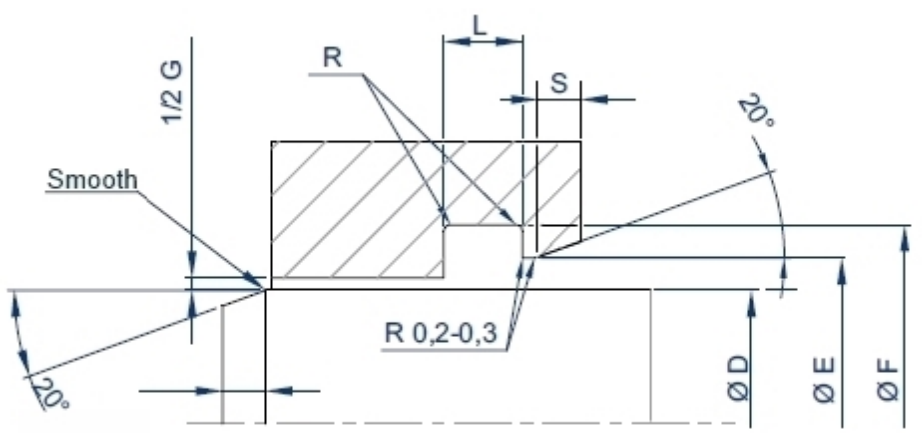
Spring Energized Seals can also be installed in SEMI-OPEN GROOVE





Housing class	D rod	F groove diameter	L standard	L* reinforced heel	E step diameter	R	S	G max clearence			
	f7	H9		H12	H12			Bar/20	100	200	400
GC	3 - 20	D + 2.9	2.4	3.8	F - 0.8	0.3	2.5	0,20	0,10	0,08	0,05
LC	15 - 240	D + 4.5	3.6	4.65	F - 1.2	0.4	2.5	0,25	0,15	0,10	0,08
HC	25 - 400	D + 6.2	4.8	5.7	F - 1.4	0.6	3	0,35	0,20	0,15	0,08
NC	45 - 650	D + 9.4	7.1	8.5	F - 1.6	0.8	5.5	0,50	0,25	0,20	0,10
MC	80 - 1100	D + 12.2	9.5	11.2	F - 1.8	0.8	8.5	0,60	0,30	0,25	0,10
RC	150 - 1200	D + 18,75	13,4	15,8	F - 2,5	0,8	10	0,8	0,30	0,25	0,10

*Always choose reinforced heel when pressure exceeds 200 bar

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		-268 +260	All pourpose on soft surfaces
N-095	Tfm	white	FDA	-268 +260	Low creep, better strength.
N-031	Ptfe-bronze	green-blue		-268 +260	High wear resistance, hidraulic seals
N-032	Ptfe-carbon	black		-268 +260	High wear resistance, pneumatic and hydraulic seals
N-197	Ptfe-carbographite	black	NORSOK	-268 +260	High wear resistance, hydraulic and pneumatic seals
N-043	Ptfe-graphite	black	FDA	-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	D rod diameter*	E groove	L standard	L heavy**	L BK***	R	S	G max diametral gap			
	f7	H9		H12				Bar/20	100	200	400
GC	3 - 40	D + 2,9	2,4	3,8	5,3	0,3	2,5	0,20	0,10	0,08	0,05
LC	6 - 240	D + 4,5	3,6	4,65	6,2	0,4	2,5	0,25	0,15	0,10	0,07
HC	10 - 400	D + 6,2	4,8	5,7	7,7	0,6	3	0,35	0,20	0,15	0,08
NC	20 - 650	D + 9,4	7,1	8,5	10,8	0,8	5,5	0,50	0,25	0,20	0,10
MC	35 - 1200	D + 12,2	9,5	11,2	14,7	0,8	8,5	0,60	0,30	0,25	0,10
RC	150 - 1200	D + 18,75	13,4	15,8	20,5	0,8	8,5	0,80	0,30	0,25	0,10

* Any diameter within the range
** Always choose heavy (reinforced) heel when pressure exceeds 200 bar
*** Backup version for higer pressure and/or temperature.

Coding example

housing class NC
profile code 021
bore 100
materials: jacket Neuflon 020 spring Aisi 301

Enerseal NC - 021 - 100 - N-020 - 301

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	**Shaft hardness**	**Surface treating deep**
Ra 0.2 - 0.3 micron max. Rz 1.0 - 2.5 micron max. R max. < 4 micron	55 HRC min. for pressure up to 5 bar 60 HRC min. for pressure > di 5 bar 60 HRC for speed > 4m/sec	0.3 mm min.