

## PRODUCT INFORMATION

# Spring Energised Elastomer and Polymer U Rings

Spring-energized seals are single acting sealing elements primarily used for sealing reciprocating pistons and rods. Other uses include rotary, swiveling and static applications. The seal consists of two components:

- An outer sealing element made of high-strength plastic (e.g. PTFE, PE-UHMW)
- An integral spring (e.g. high-grade/stainless steel, Hastelloy®(3) and Elgiloy®(3))

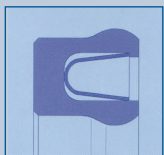
After installation in the groove, the seal is pre-energized by the spring. The inherent pre-loading of the plastic groove seal (memory effect) and pre-loading of the spring assure the desired sealing performance even in case of low system pressures.

Since the seal is installed with the open side towards the higher system pressure, the sealing effect increases as system pressure rises. The steel spring has the additional purpose of compensating wear of the sealing lips to assure that a predefined contact pressure is maintained at constant levels throughout the seal's service life.

To cover the widest possible range of pressures and temperatures two basic seal types have been developed URS & CRS. These differ in terms of their housing geometries and, in particular, in terms of spring design and spring characteristics.



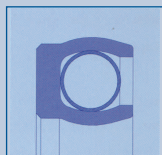
### Standard Types URS | CRS



URS - Piston and Rod Seal | Shaft Seal

For gaseous media.

Chamfered sealing lip with large wear reserve; even with rotary and swiveling applications.



CRS - Piston and Rod Seal | Static Seal

Very good sealing performance with high pressures. Static sealing action and/or for slow-moving applications.





### Seal Benefits

- Outstanding dry-running characteristics
- Low wear
- Low friction
- Variable friction conditions through choice of spring characteristics
- Extremely low breakaway forces even after prolonged rest times
- No stick-slip even with low sliding speeds
- High dimensional stability
- High chemical and thermal resistance
- No volumetric change by swelling or shrinkage
- Compact seal, suitable for O-ring assembly spaces acc. To ARP 568 A, DIN 3771 and ISO 3601/1
- Good cost-benefit ratio
- Dimensions from Ø 2 to Ø 3000 mm available
- Very good wiping effect with abrasive media such as paints and lacquers



### Spring-energized seals are used in a wide range of industrial applications:

- Automotive industry, e.g. direct fuel injection systems
- General manufacturing/mechanical engineering, e.g. CNC machines, compressors and vacuum pumps as well as tank systems
- Aerospace applications including landing gear systems
- Food processing industry in packaging machines and metering systems
- Medical and laboratory/analytical technology in chromatography and endoscopy
- Painting technology in paint valves
- Adhesives industry, e.g. as needle valve seals
- Hydraulics/pneumatics in valves, solenoid valves, cylinders and pumps of all types
- Offshore technology for petroleum and natural gas seals
- Chemical plant and equipment technology, e.g. in apparatus and container engineering



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For advice in a wide range of applications involving leakage, friction and wear,

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