



# Fluoropolymers for the Oil and Gas Industry

## *Sealing and Engineered products for Harsh Environments*

ElringKlinger is a world leader in the development of high performance fluoroplastic PTFE materials and product solutions. With over 50 years experience across a wide range of markets, our

combined expertise and technical advantage provides innovative world class customised solutions specifically for the Oil and Gas Industry. Our materials perform in the harshest of sub-sea and

surface environments and are designed to minimise downtime and maximise production within a safe and dependable support infrastructure.



Upstream markets and completion technologies provide their own particularly complex and chemically aggressive challenges. High pressure high temperature (HPHT) solutions often present the greatest technical challenges however; low pressure low temperature (LPLT) applications can be equally demanding when high sealing efficiency is required. Material selection and product design are critical in both cases and is why our customers depend on the experience and know how of the engineers and material technologists at ElringKlinger.

#### **Main product solutions:**

- Spring energised u rings
- PTFE radial shaft seals
- Bellows
- Diaphragms
- Chevron sets/V-Packings
- Tubes
- Composite seals
- Guide systems
- Piston assemblies
- Piston rings

#### **Material certifications:**

Our materials fulfil Oil and Gas Industry standards e.g. NORSOK.

#### **Typical applications:**

- ROV's
- Pumps
- Compressor Systems
- Valves
- FPSO swivel stacks
- High voltage connection systems
- Well head connectors
- Blow out preventers (BOP)
- Emergency shutdown valves (ESDV)

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Kunststofftechnik

In dynamic applications the life of a product is, in most cases, relative to the wear that occurs during service. Materials which therefore have lower abrasion rates will provide the most reliable, long term solutions. With over 500 different compound specifications to choose from, the engineers at ElringKlinger have the unique ability to offer a no-compromise solution which will withstand comparison to all other peer group materials. In addition to the product itself, it is also critically important to ensure that the surrounding

hardware and in particular the dynamic interface, are designed correctly. ElringKlinger has a wealth of experience specifying the optimum surfaces for their materials to run against. The combination of hardness, surface texture, geometric tolerance and/or surface coating all need to be perfectly aligned if the maximum seal performance is to be achieved.

In static applications, spring energised seals are often used to replace elastomer solutions in order to extend the operational

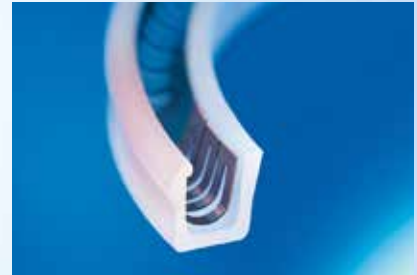
capability of a particular piece of equipment. PTFE materials have the advantage of greater chemical compatibility, thermal capacity and extrusion resistance which often limit the application boundaries of a product when an elastomer solution is used. PTFE materials are compatible to virtually all chemical compounds found in the extraction, distribution and processing of oil and gas products.



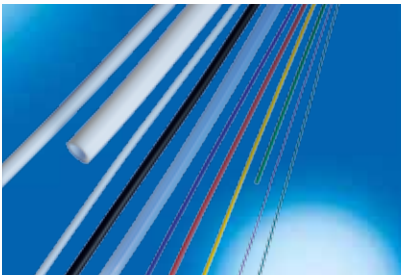
*Rotary Shaft Seals*



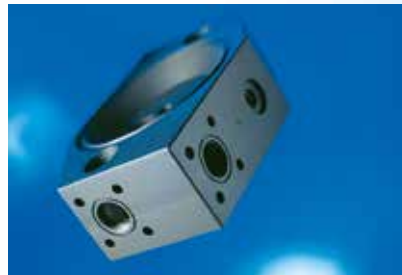
*Chevron Sets/V-Packings*



*Spring Energized Seals*



*Tubings & Hoses*



*Pump Housings*



*Diaphragms*



*Tank Linings with PTFE Laminates*



*Laminates*

#### **Custom designed solutions**

ElringKlinger has an unrivalled reputation for providing superior product solutions with a 'no compromise' attitude. When a custom design is the only solution, we work collaboratively with our customers from a design concept through to a tested and validated final product. Our product

development and support teams are there to ensure that the completion of a project is on time, on budget and to the correct specification so that it fulfils the requirements of the final application. All materials, product design, test and manufacturing phases are controlled within our dedicated production facilities which

gives us a unique opportunity to deliver a successful end to end service. Our business philosophy revolves around partnerships, honesty and integrity and is underpinned with a support network which ensures our customers receive products where and when they require them.

ElringKlinger Kunststofftechnik GmbH  
Etzelstraße 10 | D-74321 Bietigheim-Bissingen  
sales.ekt@elringklinger.com | www.elringklinger-kunststoff.com  
UK Sales Representative: Dave Sampson, dave.sampson@elringklinger.com

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