

# Discover our Product Range





## Your Partner for Sealing Technology

Trelleborg Sealing Solutions is a major international developer, manufacturer and supplier of seals, bearings and molded components in polymers. We are uniquely placed to offer dedicated design and development from our market-leading product and material portfolio: a one-stop-shop providing the best in elastomer, silicone, thermoplastic, PTFE and composite technologies for applications in aerospace, industrial and automotive industries.

With 50 years of experience, Trelleborg Sealing Solutions engineers support customers with design, prototyping, production, test and installation using state-of-the-art design tools. An international network of over 70 facilities worldwide includes over 20 manufacturing sites, strategically-positioned research and development centers, including materials and development laboratories and locations specializing in design and applications.

Developing and formulating materials in-house, we utilize the resource of our material database, including over 2,000

proprietary compounds and a range of unique products. Trelleborg Sealing Solutions fulfills challenging service requirements, supplying standard parts in volume or a single custom-manufactured component, through our integrated logistical support, which effectively delivers over 40,000 sealing products to customers worldwide.

Trelleborg Sealing Solutions facilities are certified according to current market-related quality standards. In addition to the established ISO 9001 standard, our facilities are certified to environmental, health and safety standards, as well as specific customer specifications. These certifications are in many cases prerequisites, allowing us to comply to all market segment requirements.

**ISO 9001**

The information in this brochure is intended to be for general reference purposes only and is not intended to be a specific recommendation for any individual application. The application limits for pressure, temperature, speed and media given are maximum values determined in laboratory conditions. In application, due to the interaction of operating parameters, maximum values may not be achieved. It is vital therefore, that customers satisfy themselves as to the suitability of product and material for each of their individual applications. Any reliance on information is therefore at the user's own risk. In no event will Trelleborg Sealing Solutions be liable for any loss, damage, claim or expense directly or indirectly arising or resulting from the use of any information provided in this brochure. While every effort is made to ensure the accuracy of information contained herewith, Trelleborg Sealing Solutions cannot warrant the accuracy or completeness of information.

**To obtain the best recommendation for a specific application, please contact your local Trelleborg Sealing Solutions marketing company.**  
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# Welcome to Trelleborg Sealing Solutions

## SEALING TECHNOLOGY

Trelleborg Sealing Solutions offers an outstandingly comprehensive sealing portfolio – a one-stop-shop providing the best in elastomer, silicone, thermoplastic, PTFE and composite technologies; solutions that feature in virtually every application conceivable within the aerospace, industrial and automotive industries.

## A WORLDWIDE PRESENCE

We are uniquely placed to offer a dedicated design and development service for sealing solutions; globally servicing, supporting and supplying customers through an unrivaled international network.

## COMMITMENT TO CUSTOMER, NEEDS LONG-TERM

Trelleborg Sealing Solutions is one of the world's foremost experts in polymer sealing technology. Using our expertise and experience, we facilitate customers in achieving cost-effective, durable solutions that match their specific business requirements.



**Trelleborg Sealing Solutions -**

**Your Partner for Sealing Technology**

Scan the QR-Code to watch the movie about our ability to add value and improve the business of our customers.



# A world leader in engineered polymer solutions

## THE TRELLEBORG GROUP



### **Trelleborg Coated Systems**

Leading global supplier of unique customer solutions for polymer-coated fabrics deployed in a variety of industrial applications.



### **Trelleborg Industrial Solutions**

Market leader in such industrial application areas as hose systems, industrial antivibration solutions and selected industrial sealing systems.



### **Trelleborg Offshore & Construction**

Leading global supplier of polymer-based critical solutions for deployment in highly demanding environments.



### **Trelleborg Wheel Systems**

Trelleborg Wheel Systems is a leading global supplier of tires and complete wheels for agricultural and forestry machines, materials handling and construction vehicles, and two-wheeled vehicles.



### **Trelleborg Sealing Solutions**

One of the world's leading developers, manufacturers and suppliers of precision seals. It supports its aerospace, industrial and automotive customers through over 20 production facilities and more than 50 marketing companies globally.

## BLUE DIMENSION™



At Trelleborg we believe that the benefits of our solutions stretch beyond functionality and business performance.  
**For more information scan the QR-Code or visit the website:**  
**[www.trelleborg.com](http://www.trelleborg.com)**



# Our Global Resources



**6,799**  
Employees

**82**  
worldwide  
locations

More than  
**2,000**  
proprietary material  
formulations

How local is your  
global seal supplier?



[www.global-but-local.com](http://www.global-but-local.com)



## Europe

-  7 R&D Centers
-  22 Marketing Companies
-  1 Logistics Center SCM
-  16 Manufacturing Sites
-  Damping Solutions
-  1 Automotive Hub
-  2 Aerospace Hubs

## Asia

-  1 R&D Center
-  16 Marketing Companies
-  3 Logistics Centers SCM
-  2 Manufacturing Sites
-  Damping Solutions
-  2 Automotive Hubs
-  2 Aerospace Hubs



# Products, Brands & Materials

Decades of experience designing and manufacturing polymer solutions has led Trelleborg Sealing Solutions to develop, manufacture and supply a range of unique materials and proprietary product designs, many of which have become industry standards. Development is ongoing, ensuring that our solutions meet the changing needs of our customers, as well as the latest industry trends and regulations.

## PRODUCTS



Fluid Sealing Systems



Static Seals



Bearings & Bushings



Rotary Seals



Medical Components



Pneumatic Seals



O-Rings



Engineered Molded Parts



Mechanical Face Seals  
(Heavy duty seals)



HiMod® FlatSeal™  
Gaskets



Brake Shims, Tuned  
Absorbers, Rubore® seals



Assembly Units



Liquid Silicone Rubber  
(LSR)



Customized Aerospace  
Sealing



Tubing & Hose

## WORLD RENOWNED NAMES UNITED

We own many of the longest established and leading names within the seal industry. These include:

- American Variseal
- Busak+Shamban
- Dowty Seals
- Chase Walton
- Forsheda
- GNL
- Impervia
- Nordex
- Orkot
- Palmer Chenard
- Polypac
- SSF
- SF Medical
- Shamban
- Silcofab
- Silcotech
- Skega
- Stefa
- Wills

## PROPRIETARY MATERIALS

Ongoing development has yielded some of the most successful sealing and bearing materials available:

- HiMod®
- Isolast®
- Turcite®
- Turel®
- HiPlast®
- Orkot®
- Turcon®
- Zurcon®



### One-Stop-Shop for Sealing Solutions

Scan the QR-Code or visit our website to find out more about our portfolio of solutions for industry-specific needs and applications.

[www.tss.trelleborg.com](http://www.tss.trelleborg.com)





# Your Industry



Aerospace



Agriculture



Automotive



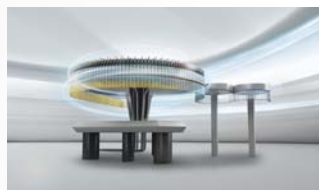
Construction & Mining Equipment



Fluid Power - Hydraulics



Fluid Power - Pneumatics



Food & Beverage



Healthcare & Medical



Manufacturing & Machine Tools



Marine Equipment & Construction



Oil & Gas



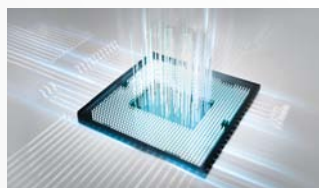
Processing Equipment



Renewable Energy & Power Generation



Robotics



Semiconductor



Water & Sanitary



**Accelerating performance in your industry**  
Scan the QR-Code or visit our website to find out more about our tailor-made solutions for your industry.  
**[www.tss.trelleborg.com](http://www.tss.trelleborg.com)**

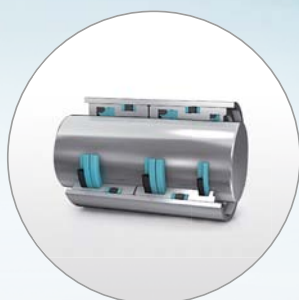




# Aerospace

Trelleborg Sealing Solutions is the world's leading supplier of sealing solutions to the aerospace industry with a history that goes back over 60 years.

For further literature, films and digital tools, please scan the QR-Code:



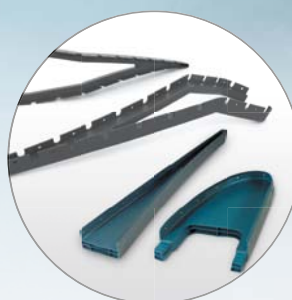
## Hydraulics & Actuation

- Market leading sealing solutions for Primary Flight Controls and Landing Gear
- Weight saving and seal friendly bearings for Landing Gear



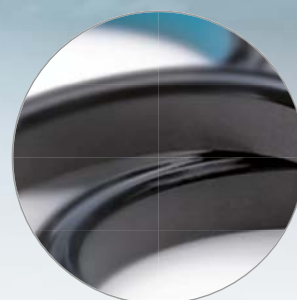
## Engine Seals

- Extensive knowledge of Fire Seal development
- In-house Fire Seal Test Rig
- Huge product portfolio for engine applications
- Expanding portfolio of high performance plastics



## Aerodynamic Seals

- Many years experience in the development and manufacture of wing seals



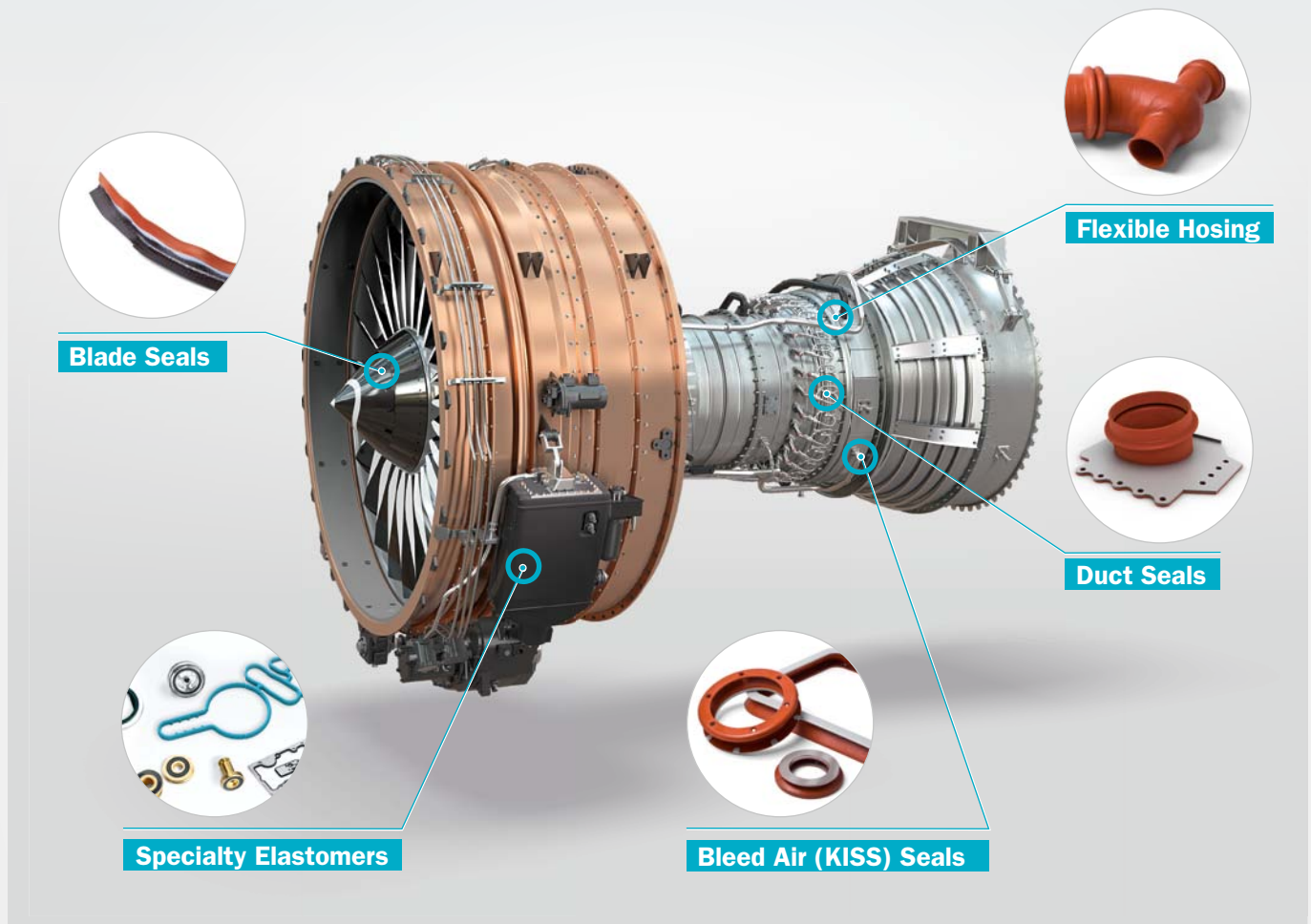
## Distribution

- Dedicated organization to handle the needs of the aftermarket
- Full support of our aftermarket products
- Efficient stock keeping and prompt deliveries





## APPLICATION HIGHLIGHT: ENGINE AND PYLON PRODUCTS



## MOST COMMON APPLICATIONS

### Hydraulics & Actuation

Flight control actuators, landing gear seals and bearings

### Engine Seals

High temperature sealing, jet turbine blade seals, rotary gearbox seals, engine airflow control seals

### Aerodynamic Seals

Wing seals, belly fairing seals, strakelet seals, winglet seals

## AEROSPACE GROOVE SELECTOR APP



This app covers two of the most important SAE aerospace groove standards for hydraulic systems, AS4716 Rev B and AS5857 Rev A. It makes it really easy to find the size of grooves and hardware, and indicates if the groove is suitable for a dynamic seal and/or a static seal. It also provides an instant conversion between inch and mm sizes. For more information scan the QR-Code or visit our website [www.tss.trelleborg.com](http://www.tss.trelleborg.com)



# Agriculture

Trelleborg Sealing Solutions is a long-standing expert in the off-highway industry, supplying complex sealing configurations primarily for the hydraulics of tractors and other farming equipment.



## Linear Seals

- Wide range of rod and piston seals
- Turcon® Stepseal® 2K
- Zurcon® Rimseal
- Turcon® Stepseal® V
- Zurcon® RU9
- Turcon® Glyd Ring® T
- Zurcon® Glyd Ring® D
- Zurcon® Scraper DA24

## Rotary Seals

- Standardized oil seals
- Pressure rotary seals in various materials for standardized glands
- Turcon® Roto L®
- Turcon® Roto Glyd Ring® S

## Guiding Elements and Static Seals

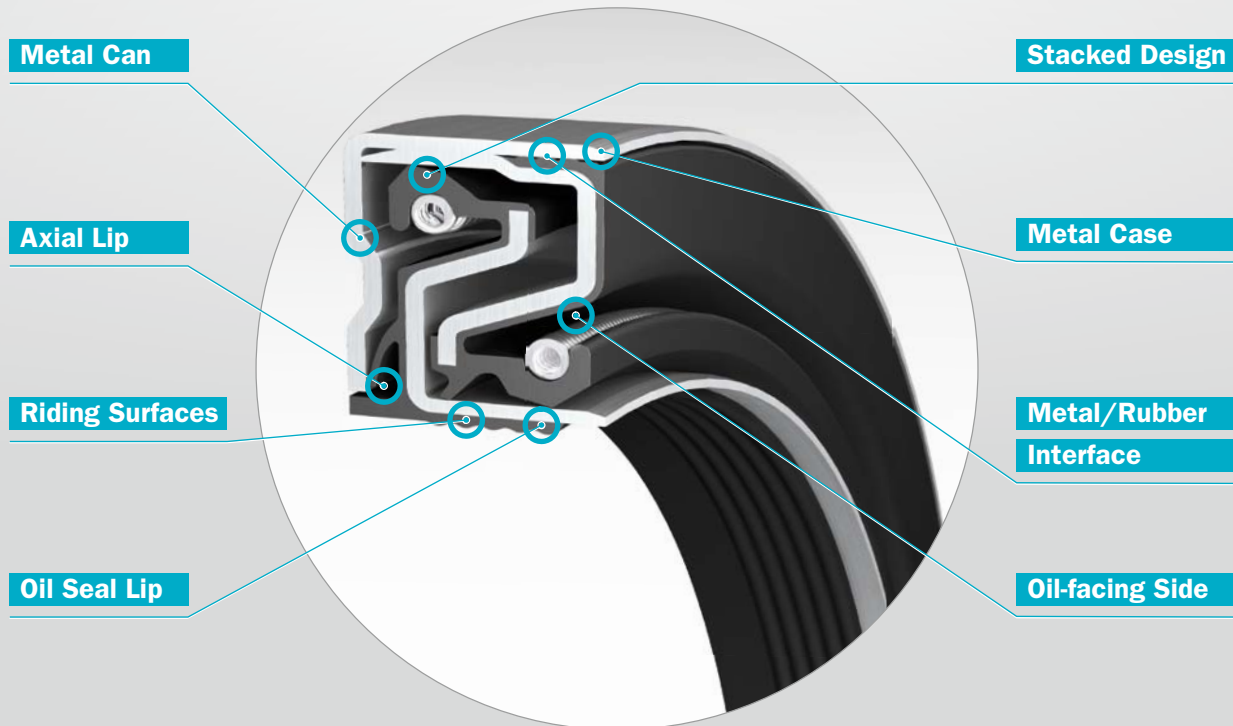
- Orkot®
- HiMod®
- Turcite®

## Materials

- Wide range of static seals in Elastomer, TPU, PTFE and Steel grades
- FKM iXLT V8T71
- Turcon® M12
- Zurcon® Z13, Z25
- Orkot® C480



## APPLICATION HIGHLIGHT: CASSETTE SEAL CSL 1500



## CASSETTE SEAL CSL 1500 FILM



Want to find out more about agriculture solutions? Then check out the Trelleborg Sealing Solutions Cassette Seal CSL 1500 movie by scanning the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)





# Automotive

Trelleborg Sealing Solutions is a leading supplier of advanced sealing solutions to automotive Original Equipment Manufacturers (OEMs) and their component suppliers.

For further literature, films and digital tools, please scan the QR-Code:



## O-Rings

- Temperature resistant, operating down to - 40 °C / - 40 °F
- Outstanding chemical resistance
- Industry compliant materials
- Extrusion resistance
- Compression-set resistance



## Molded Seals & Gaskets

- Complex shapes
- Advanced design capabilities
- Temperature and chemical resistant materials
- Exceptional production quality



## Rubore® Seals

- Cost saving design and handling capabilities
- Pressure resistance of more than 100 bar
- Provides for new design opportunities
- Saves weight & functional space



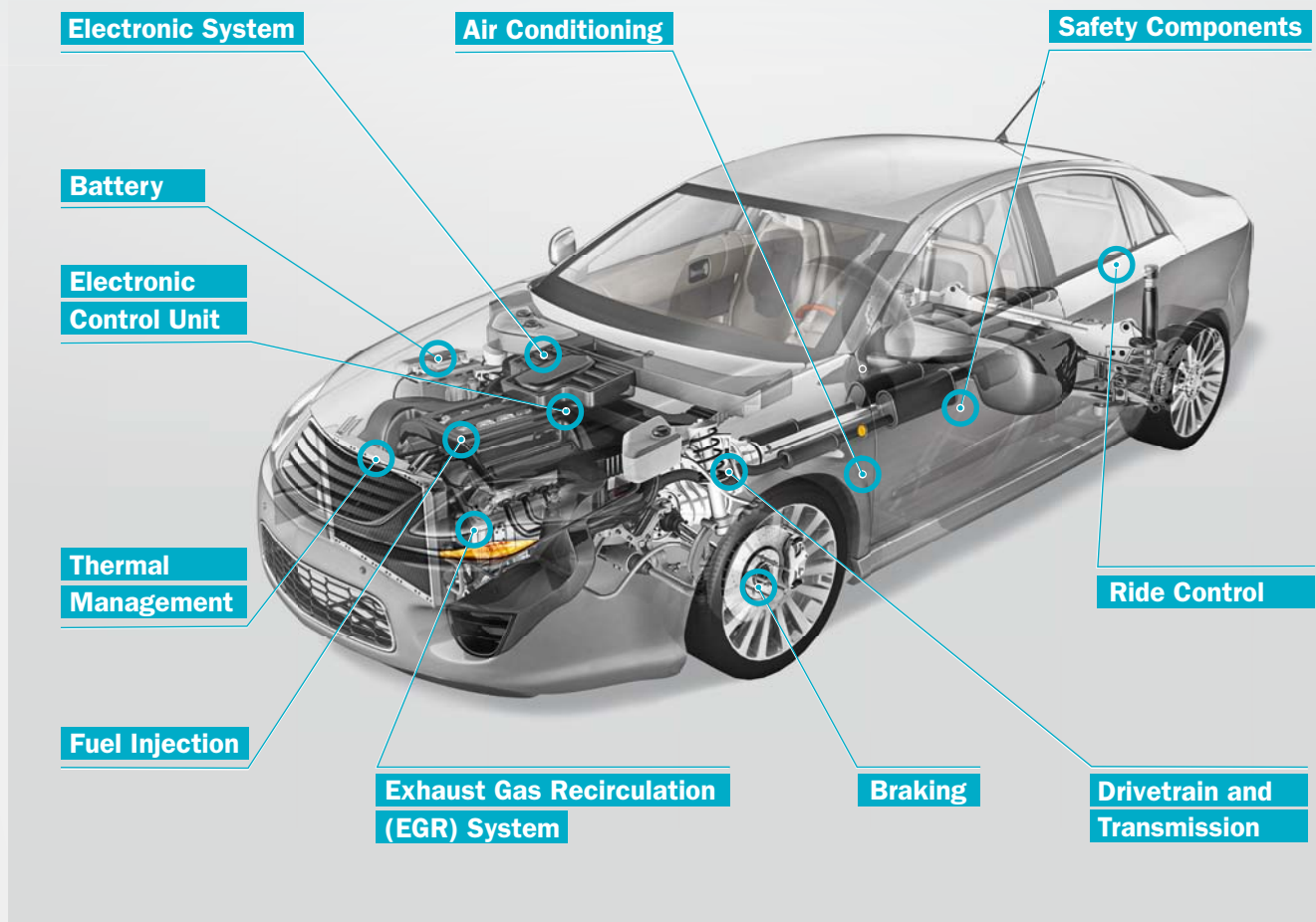
## LSR Components

- World class, highly automated LSR production capabilities
- Versatility in co-injection with engineered thermoplastics
- Feasibility of highly complex part geometries including multi-component hard-soft combinations processes





## MOST COMMON APPLICATIONS



## APPLICATION HIGHLIGHT: RUBORE® CAP SEAL

### Advantages of the Rubore® Cap Seal

Trelleborg's Rubore® Cap Seals offer considerable potential for cost and time savings as well as increased sealing performance compared to conventional sealing caps.

- No more adhesives needed in production
- Provides for an optimized assembly process
- Shorter cycle times during assembly
- Higher safety in low pressure applications
- Reliable assembly process
- No need for complex bore geometry
- Tested and released in automotive series applications
- Cost reduction compared to injection molded sealing caps



Camshaft housing with mounted sealing cap



Cross section of a Rubore® Cap Seal



# Construction & Mining Equipment

Trelleborg Sealing Solutions is a long-standing expert in the off-highway industry, supplying complex sealing configurations primarily for the hydraulics of a wide variety of construction equipment.

For further literature, films and digital tools, please scan the QR-Code:



## Linear Seals

- Wide range of rod and piston seals
- Turcon® Stepseal® 2K
- Zurcon® Rimseal
- Turcon® Stepseal® V
- Zurcon® RU9
- Turcon® Glyd Ring® T
- Zurcon® Glyd Ring® D
- Zurcon® Scraper DA24



## Rotary Seals

- Standardized oil seals
- Pressure rotary seals in various materials for standardized glands
- Turcon® Roto L®
- Turcon® Roto Glyd Ring® S



## Guiding Elements and Static Seals

- Orkot®
- HiMod®
- Turcite®



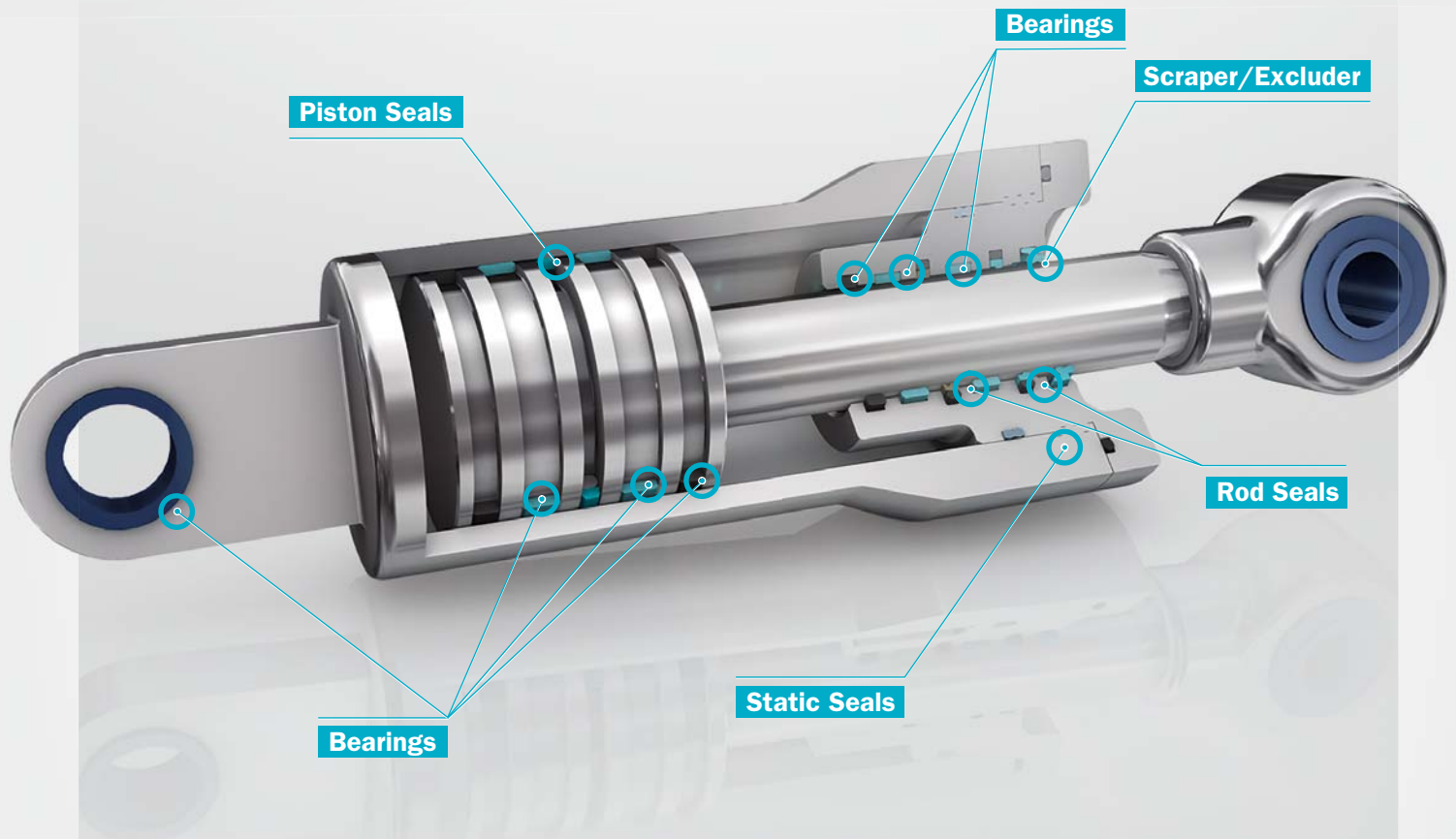
## Materials

- Wide range of static seals in Elastomer, TPU, PTFE and Steel grades
- FKM iXLT V8T71
- Turcon® M12
- Zurcon® Z13, Z25
- Orkot® C480





## APPLICATION HIGHLIGHT: HYDRAULIC CYLINDER



## MOST COMMON APPLICATIONS

### Excavators

- Work cylinders for excavators
- Piston of the hydraulic cylinder

### Tractors and other agricultural equipment

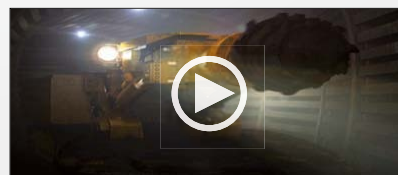
- Hydraulic transmissions
- Hydraulic steering gear

### Cranes

- Prehensile cylinder for loading cranes
- King journal revolving joint

## SEALING SOLUTIONS FOR MINING

Want to find out more about solutions for Construction & Mining Equipment? Then check out the Sealing Solutions for Mining film by scanning the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)

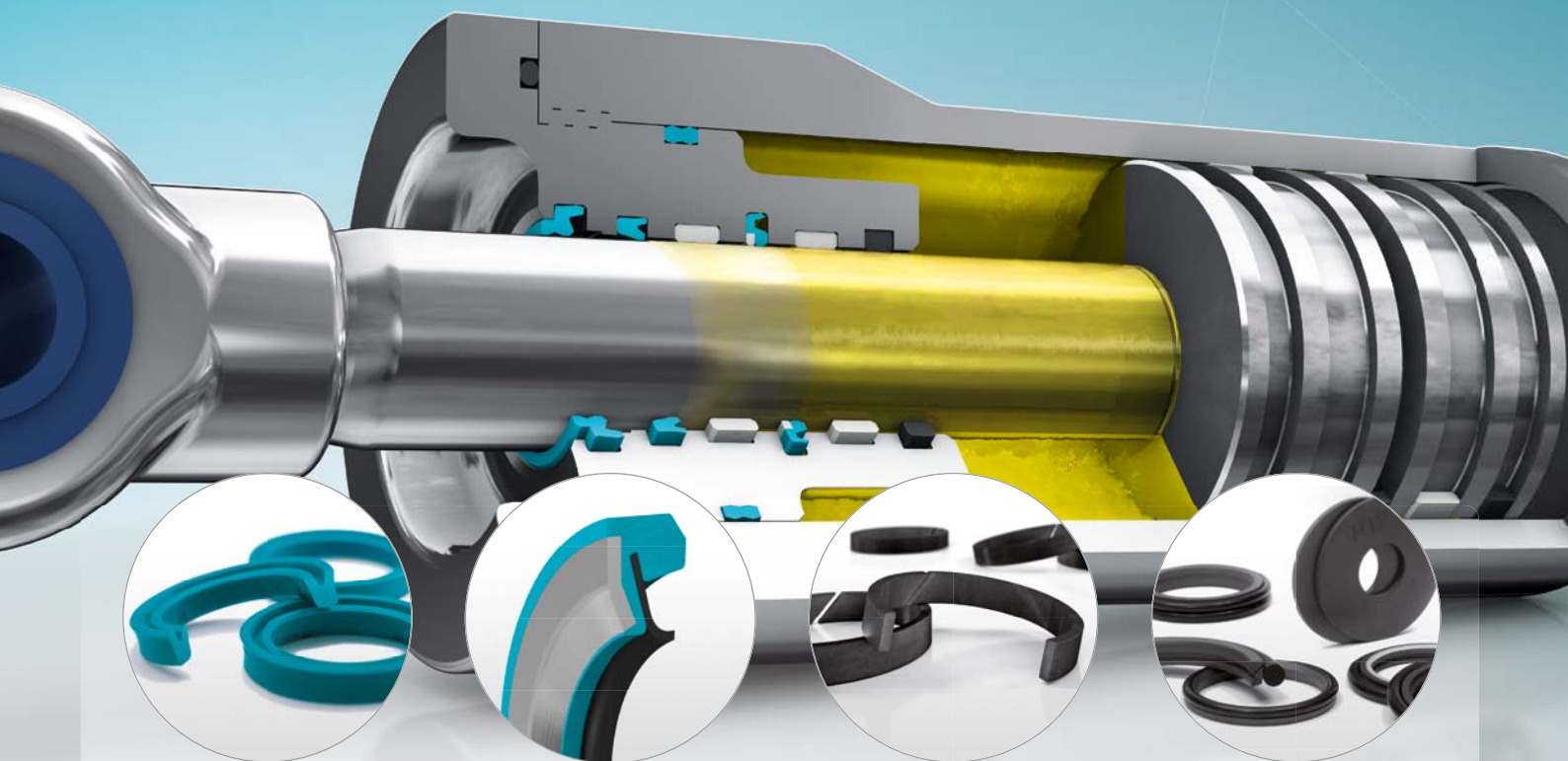




# Fluid Power – Hydraulics

Hydraulic applications are challenging for seals. Not only must the hydraulic seals prevent leakage of fluid from the cylinder, but hydraulic seals must also withstand high pressures, extreme temperatures and transverse forces within the cylinder.

For further information on  
Lubrication Management,  
scan the QR-Code:



## Linear Seals

- Wide range of rod and piston seals
- Turcon® Stepseal® 2K
- Turcon® Stepseal® V
- Turcon® Glyd Ring® T
- Zurcon® Buffer Seal LM
- Zurcon® Glyd Ring® D
- Zurcon® Scraper DA24

## Rotary Seals

- Standardized oil seals
- Pressure rotary seals in various materials for standardized glands
- Turcon® Roto L®
- Turcon® Roto Glyd Ring® S
- Turcon® Roto Glyd Ring® V

## Guiding Elements and Static Seals

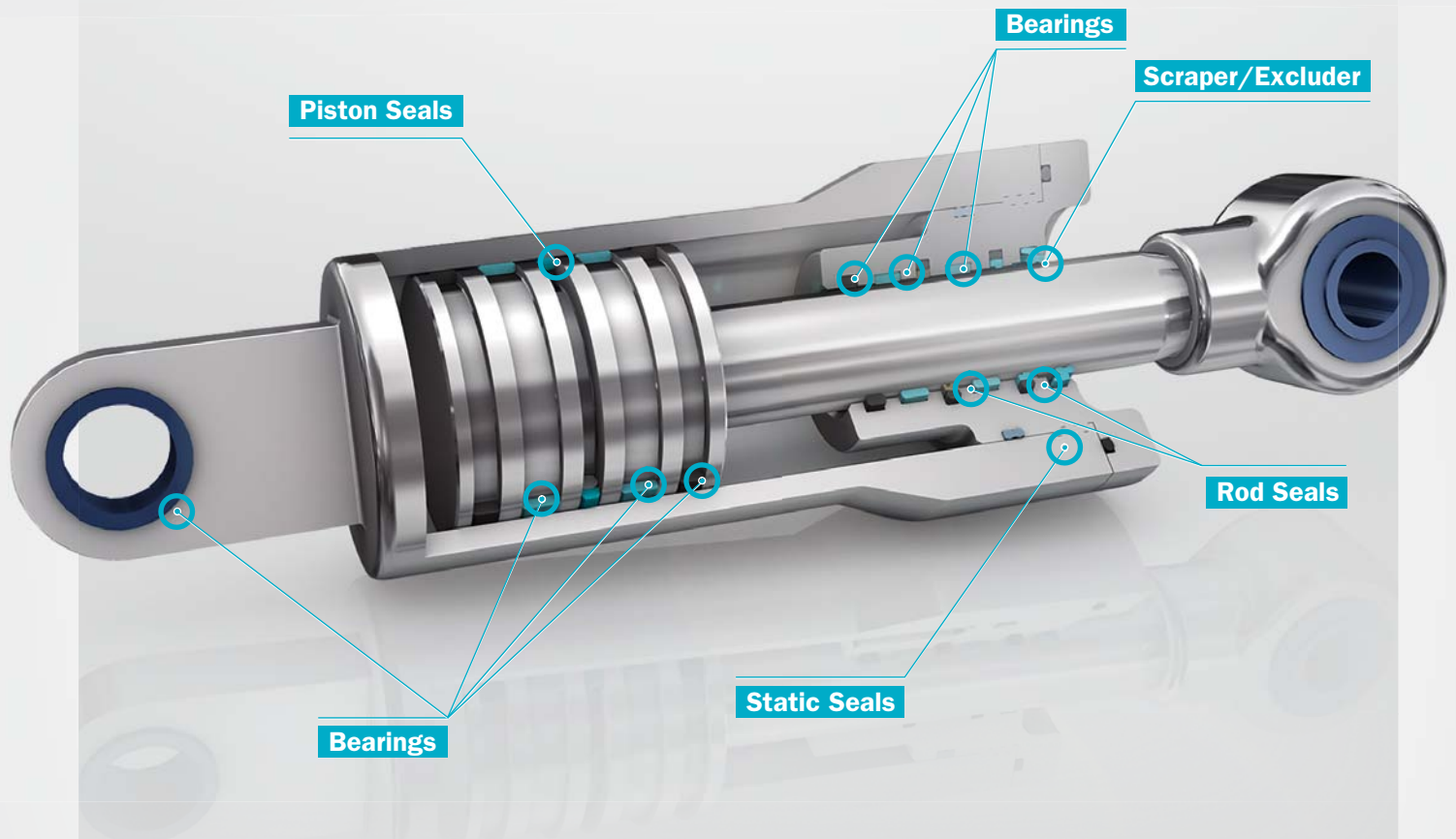
- Orkot®
- HiMod®
- Turcite®

## Materials

- Wide range of static seals in Elastomer, TPU, PTFE and Steel grades
- FKM iXLT V8T71
- Turcon® M12
- Zurcon® Z13 and Zurcon® Z25
- Orkot® C480



## APPLICATION HIGHLIGHT: HYDRAULIC CYLINDER



## MOST COMMON APPLICATIONS

<b>Excavators</b>	<b>Concrete pumps</b>
<b>Construction site vehicles</b>	<b>Hauling plants</b>
<b>Construction industry</b>	<b>Railroads</b>
<b>Agricultural machines</b>	<b>Mining</b>
<b>Tractors and other agricultural equipment</b>	<b>Cranes</b>

## HYDRAULIC SYSTEM CALCULATOR

The calculator interface includes the following input fields:

- Piston Rod Diameter
- Rod Diameter
- Stroke
- Pressure
- Oil Flow
- Barrel Side
- Rod Side
- Area
- Volume
- Force
- Time
- Velocity
- Output

For information about our Hydraulic System Calculator, scan the QR-Code or visit our website:  
[www.tss.trelleborg.com](http://www.tss.trelleborg.com)



# Fluid Power – Pneumatics

Pneumatic applications are used in many different market segments. Trelleborg Sealing Solutions offers a wide variety of materials and technical solutions, engineered to meet specific application needs.

For further  
product information,  
scan the QR-Code:



## Rod and Piston Seals

- Standard pneumatic seals
- Several profiles depending on the application
- Wide range of materials



## Engineered Molded Parts

- Customer specific unique designs
- Engineering capabilities
- FEA and rapid prototyping (hard and soft materials)



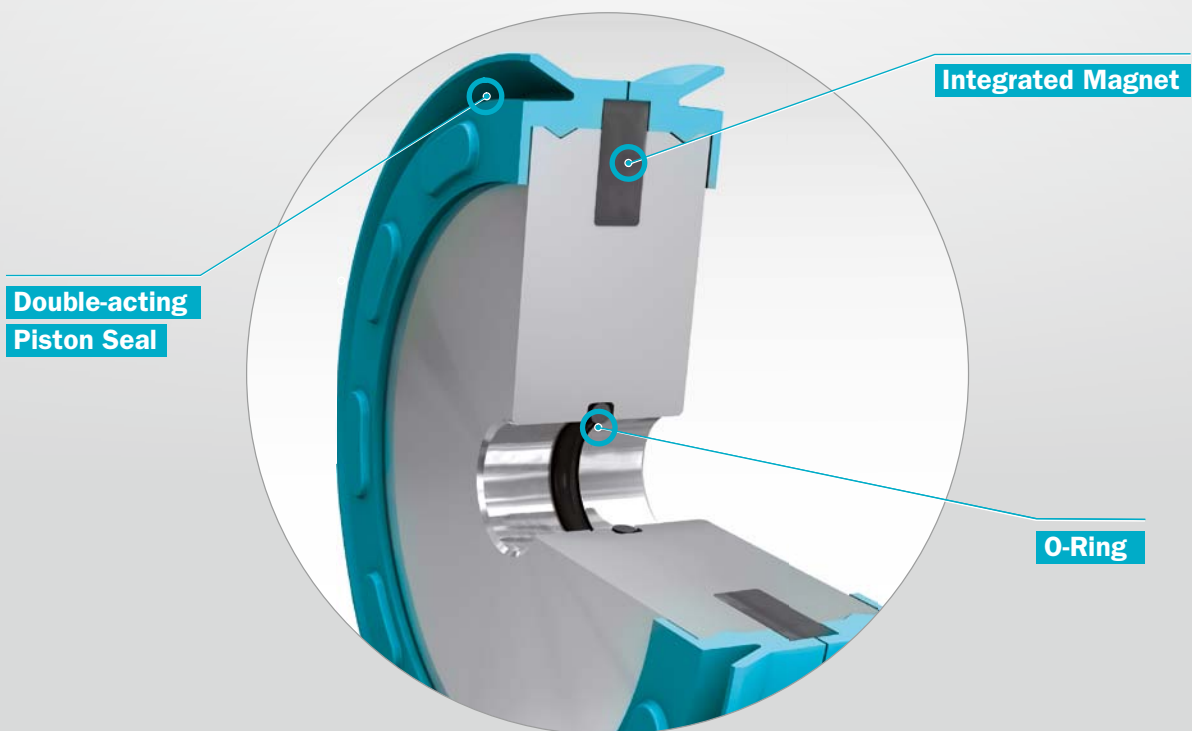
## Static Seals

- Wide range of static seals including O-Rings and Engineered Molded Parts
- Variety of materials suited to a range of applications





### APPLICATION HIGHLIGHT: COMPLETE MAGNET PISTON\*



\* This product can be adapted to customer requirements in terms of dimensions, design and magnetic field.

### MOST COMMON APPLICATIONS

<b>Pneumatic drives</b>	<b>Automation technology</b>
<b>Compressors</b>	<b>Pneumatic devices</b>
<b>Pneumatic cylinders</b>	<b>Pneumatic valves</b>

# Food & Beverage

Trelleborg Sealing Solutions has been involved in sealing food & beverage applications since the 1960s. Based on unrivalled experience, the company has developed an outstanding range of sealing materials and products, certified against all global regulatory standards.

For further literature, films and digital tools, please scan the QR-Code:



## O-Rings

- Versatile sealing element
- Cost-effective solution
- Minimize hardware and design costs
- Compact design
- Easy installation
- Materials specific for food and beverage applications



## Molded Parts/ Liquid Silicone Rubber

- High product purity and cleanliness
- Custom-designed to application conditions
- Complex shapes, thin sections and parts with undercuts
- Flashless molding and fully automated production possible



## Linear & Rotary Seals

- Linear seals for dynamic or static applications
- Stick-slip free operation
- Very low friction
- Very good thermal resistance
- High resistance to wear and aging
- Long service life
- Universal chemical compatibility



## Bearings

- High load bearing capacity
- High wear resistance and long service life
- Very low friction
- Unique self-lubricating and composite materials available
- Universal chemical compatibility



## APPLICATION HIGHLIGHT: FILLING EQUIPMENT



**Seals for Filling Heads**



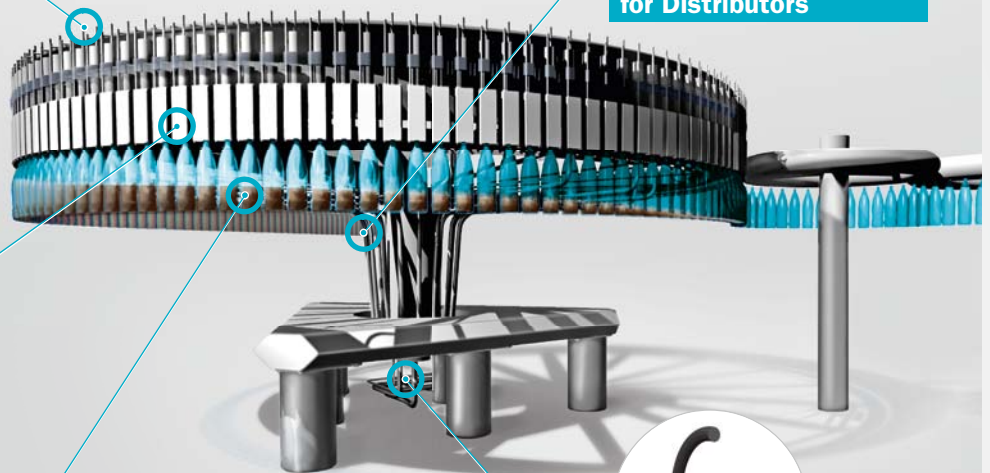
**Seals and Bearings  
for Distributors**



**Seals for Valves**



**Seals for Bottle Lifters**



**Seals for Hygienic  
Design Couplings**

## MOST COMMON APPLICATIONS

<b>Preparation equipment</b>	<b>Compressors</b>
<b>Fill, form &amp; seal equipment</b>	<b>Filling equipment</b>
<b>Valves</b>	<b>Pumps</b>
<b>Beverage dispensing</b>	<b>Processing &amp; packaging equipment</b>
<b>Small appliances</b>	

## SEALING MATERIALS SELECTOR

Material Specifications

NAME \* PROPERTIES APPROVALS

Material Group Abbreviation  
NBR

Material Group Designation  
Acrylonitrile-Butadiene Rubber

Common Material Group Trade Name  
Europrene®, Krynac®, Nipol N®, Per...

TSS Material Name  
Select

For information about the Sealing Materials Selector, scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)



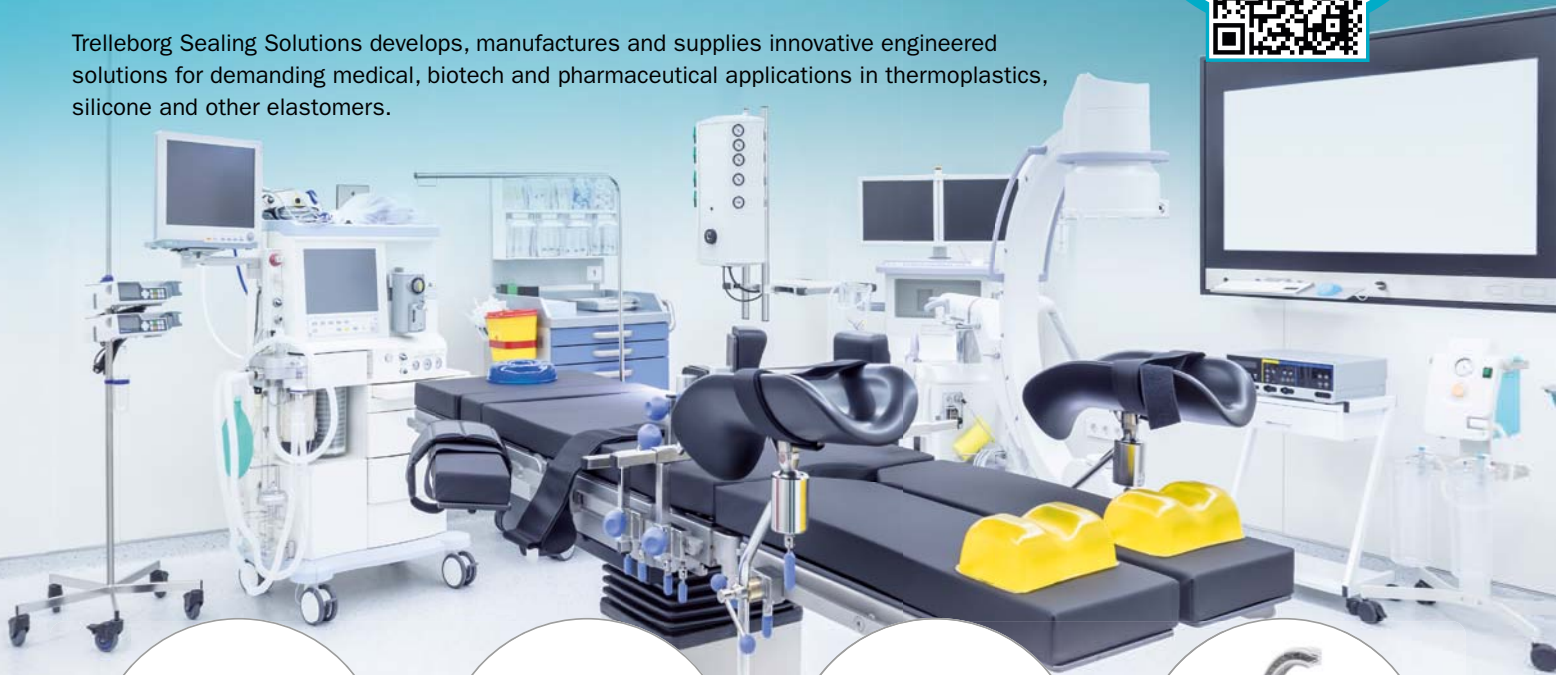


# Healthcare & Medical

For further literature, films and digital tools, please scan the QR-Code:



Trelleborg Sealing Solutions develops, manufactures and supplies innovative engineered solutions for demanding medical, biotech and pharmaceutical applications in thermoplastics, silicone and other elastomers.



## Liquid Silicone Rubber Components

- High precision shapes, thin sections, micro-size
- Ultra-clean parts
- Automated production
- High precision tool design and manufacture
- Wasteless and flashless manufacturing



## Silicone Tubing

- Biocompatibility
- Full traceability
- High precision and tight tolerances
- Cleanroom manufacturing
- Even and reliable delivery of fluids



## Rubber Molded Components

- Local support, design engineering, FEA
- Material development
- Product testing support
- High precision components

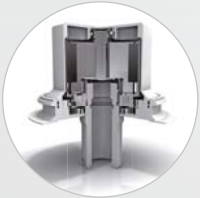


## Static, Linear and Rotary Seals

- Large material selection
- Excellent fluid compatibility
- Wide temperature and pressure range
- No compression set issues



## APPLICATION HIGHLIGHT

**Magnet Coupling****Profile Seal****Membranes****Bearings****Tubing**

## MOST COMMON APPLICATIONS

<b>Blood &amp; gas analyzers</b>	<b>Prosthetic knees</b>
<b>Anesthesia devices</b>	<b>MRI tables</b>
<b>Metered dose inhalers</b>	<b>Hemodialysis equipment</b>
<b>Combination products</b>	<b>Oxygen concentrators</b>
<b>Drug delivery pumps</b>	

## HEALTHCARE MATERIALS APP



For further information about the Healthcare Materials App & Web Tool, scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)



# Renewable Energy & Power Generation

Seals from Trelleborg Sealing Solutions provide proven performance in a wide variety of systems used in renewable energy equipment; in wind turbines, solar power, hydropower and wave energy systems.

For further literature, films and digital tools, please scan the QR-Code:



## Radial Oil Seals

- Optimal leakage control
- Outstanding resistance to heat and low temperature
- High resistance to wear
- Low friction and compression set
- Provided in kits for easier installation



## V-Rings®

- Frictional losses and heat kept to a minimum
- Excellent wear characteristics
- Extended seal life
- Easy to install without need for dismantling



## Hydraulic Seals

- Extensive product range sustains high pressures, temperatures and transverse forces
- Most important products for wind power applications:
  - Zurcon® U-Cup RU9
  - Slydring®
  - Turcon® Stepseal® V
  - Turcon® Stepseal® 2K
  - Zurcon® Rimseal
  - Turcon® Glyd Ring® T



## Specialized Materials

- Outstanding wear and long life in harsh environments
- Leak-free performance
- Wide temperature range
- Low maintenance
- Good resistance to extrusion



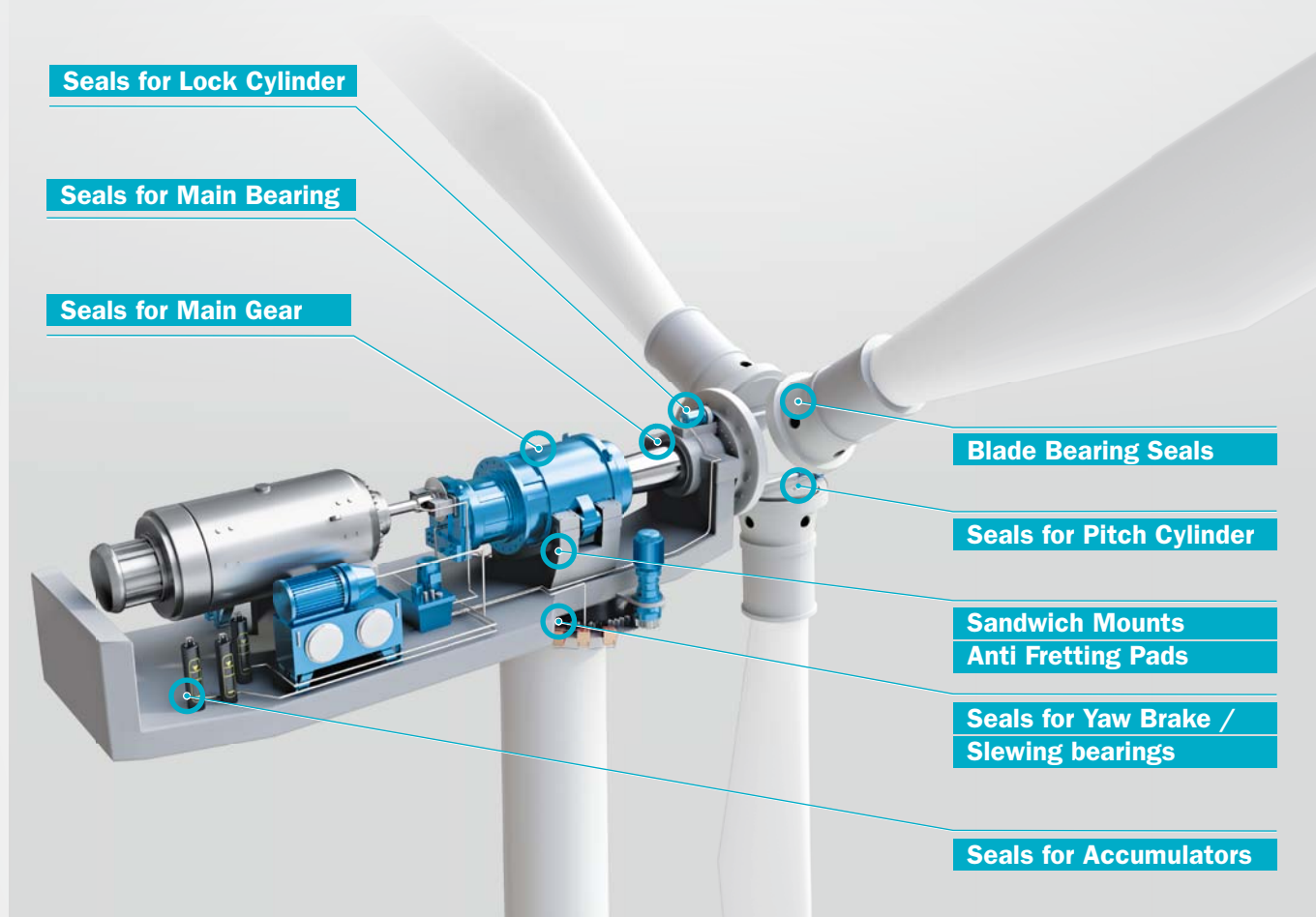
## Bearing Elements

- Hydrodynamic bearings for tidal power generation
- Connector bearings between hub and base
- Anti-fretting and damping pads between gear box and nacelle
- Slewing bearings to rotate hub





## APPLICATION HIGHLIGHT: HYDRAULICS & TRANSMISSION



## MOST COMMON APPLICATIONS

Hydraulic pitch cylinders	Hydraulic yaw brakes	Hydraulic rotor brakes
Hydraulic accumulators	Transmissions	Main bearing seal
Blade bearing seals	Hydronamic bearings	Interface bearing pads

# Robotics

Robotics components must support the unit in its daily operations, maintaining performance and reducing downtime. See some examples of how our products contribute to efficiency and reliability in robotics applications.

For further literature, films and digital tools, please scan the QR-Code:



## Rotary Seals

Rotary seals are used in components with oscillating or rotating parts to keep lubrication fluids in place while preventing the ingress of contaminants. Trelleborg Sealing Solutions components are proven to improve the life and long-term performance of your application, demonstrating superior low-friction properties and excellent resistance to wear.



## Pneumatic Seals

Pneumatic seals operate in dynamic applications, often at high speeds, generally with reciprocating motions. Trelleborg Sealing Solutions supplies a number of seals, wear rings and scrapers / wipers specifically engineered for pneumatic applications, where cylinders and valves are actuated by air. In addition, where a standard product type is not suitable, custom solutions can be developed.



## Hydraulic Seals

It is challenging to ensure seal life and performance in hydraulic applications. Not only must leak-free operation be achieved, but high pressures, temperatures and transverse forces must be sustained.



## Bearings & Bushings

Trelleborg Sealing Solutions is an expert, not just in seals, but in bearings too. In many cases, the use of plastics as the primary bearing material can give distinct advantages. Plastics offer the user design flexibility and superior performance capabilities, such as lighter weight components, noise reduction and lubrication-free use.

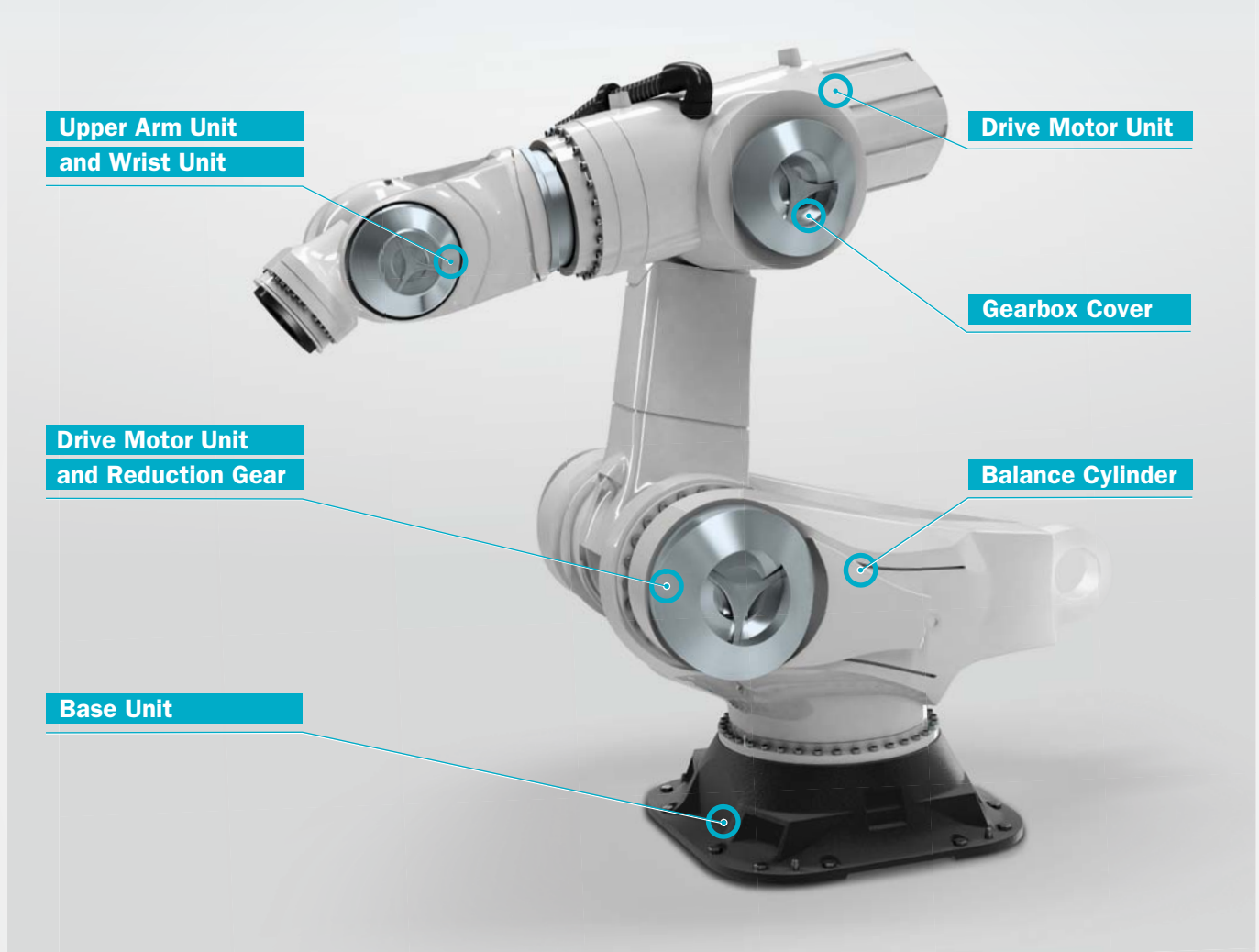


## Engineered Molded Parts

Trelleborg Sealing Solutions offers one of the broadest ranges of sealing elements on the market. Most of the time, the tried and tested method works, but sometimes a unique application requires a unique solution. Our team of engineers will support you in the development of a customized engineered molded part designed to suit your individual needs.



## MOST COMMON APPLICATIONS

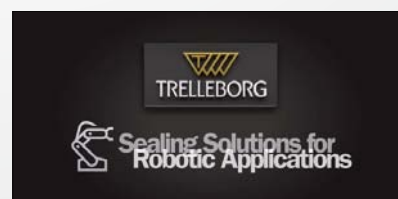


## APPLICATIONS BY INDUSTRY

<b>Industrial robotics</b>	<b>Medical, surgical, healthcare robotics and powered exoskeletons</b>
<b>Construction, disaster recovery, probe robotics</b>	<b>Surveillance, household, entertainment robotics</b>
<b>Drones, personal mobility robotics</b>	<b>Robotics related components</b>

## ROBOTICS AUGMENTED REALITY APP

To easily access the Robotics AR app download our AR Literature App. Just search for the AR Literature App on Apple iTunes or Google Play or scan the code.





# Processing Equipment

Frequently there is a requirement for materials carrying a certificate of approval, such as FDA, BAM or 90/128 EEC. At Trelleborg Sealing Solutions, we aim to satisfy these requirements for our customers.

For further literature, films and digital tools, please scan the QR-Code:



## Static Seals

- Temperature, chemical and extrusion resistant
- Low compression set
- Many industry compliant materials
- Example: O-Rings



## Linear Seals

- Low friction
- Wear, temperature and extrusion resistant
- Outstanding chemical resistance
- Ability to cross over ports at pressure
- Example: S-Stack



## Rotary Seals

- Many Turcon® materials available
- Temperature resistant
- Low friction
- Wear resistant with self-lubricating seal materials
- Abrasion and shock resistant
- Example: Roto Variseal®

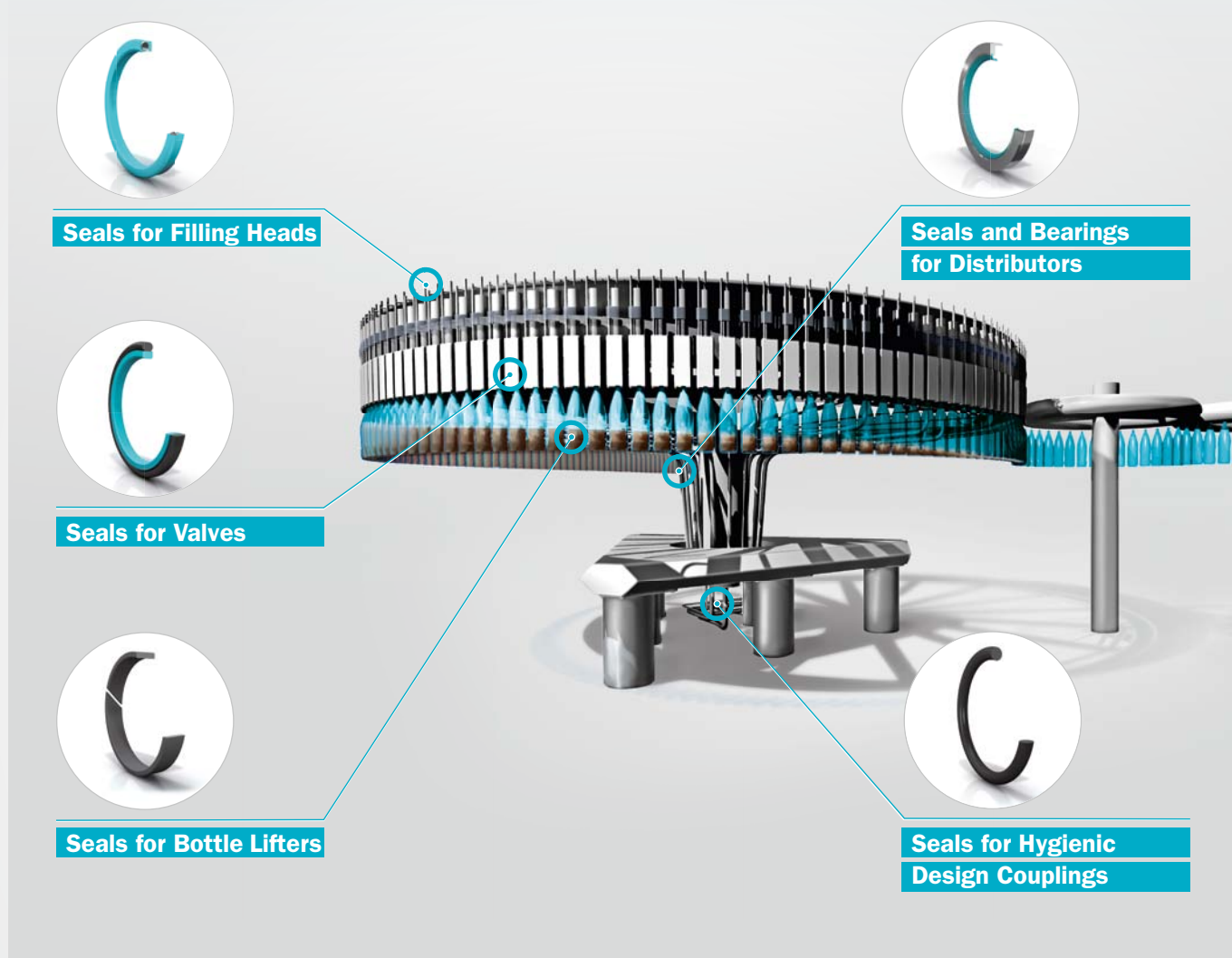


## Bearings

- Heavy duty materials with outstanding chemical resistance
- Low wear with high load carrying capability
- Low deformation, resulting in controlled equipment movement
- Example: Orkot® Slydring®



## APPLICATION HIGHLIGHT: FILLING EQUIPMENT



## MOST COMMON APPLICATIONS

<b>Valves</b>	<b>Heat exchangers</b>	<b>Pipes</b>
<b>Containers</b>	<b>Separators</b>	<b>Decanters</b>
<b>Mixers</b>	<b>Compressors</b>	<b>Pumps</b>



# Water & Sanitary

Trelleborg Sealing Solutions finds the optimal balance in sanitary and heating sealing applications between cost-effectiveness and seal life.

For further literature, films and digital tools, please scan the QR-Code:



## O-Rings/Static Seals

- Versatile sealing element
- Cost effective solution
- Minimize hardware and design costs
- Compact design
- Easy installation
- Materials specific for food and beverage applications



## Molded Parts/Liquid Silicone Rubber

- High product purity and cleanliness with cleanroom manufacturing
- Custom-designed to application conditions
- Complex shapes, thin sections and parts with undercuts
- Flashless molding and fully automated production possible



## Linear & Rotary Seals

- Linear seals for dynamic or static applications
- Stick-slip free operation
- Very low friction
- Very good thermal resistance
- High resistance to wear and aging
- Long service life
- Universal chemical compatibility



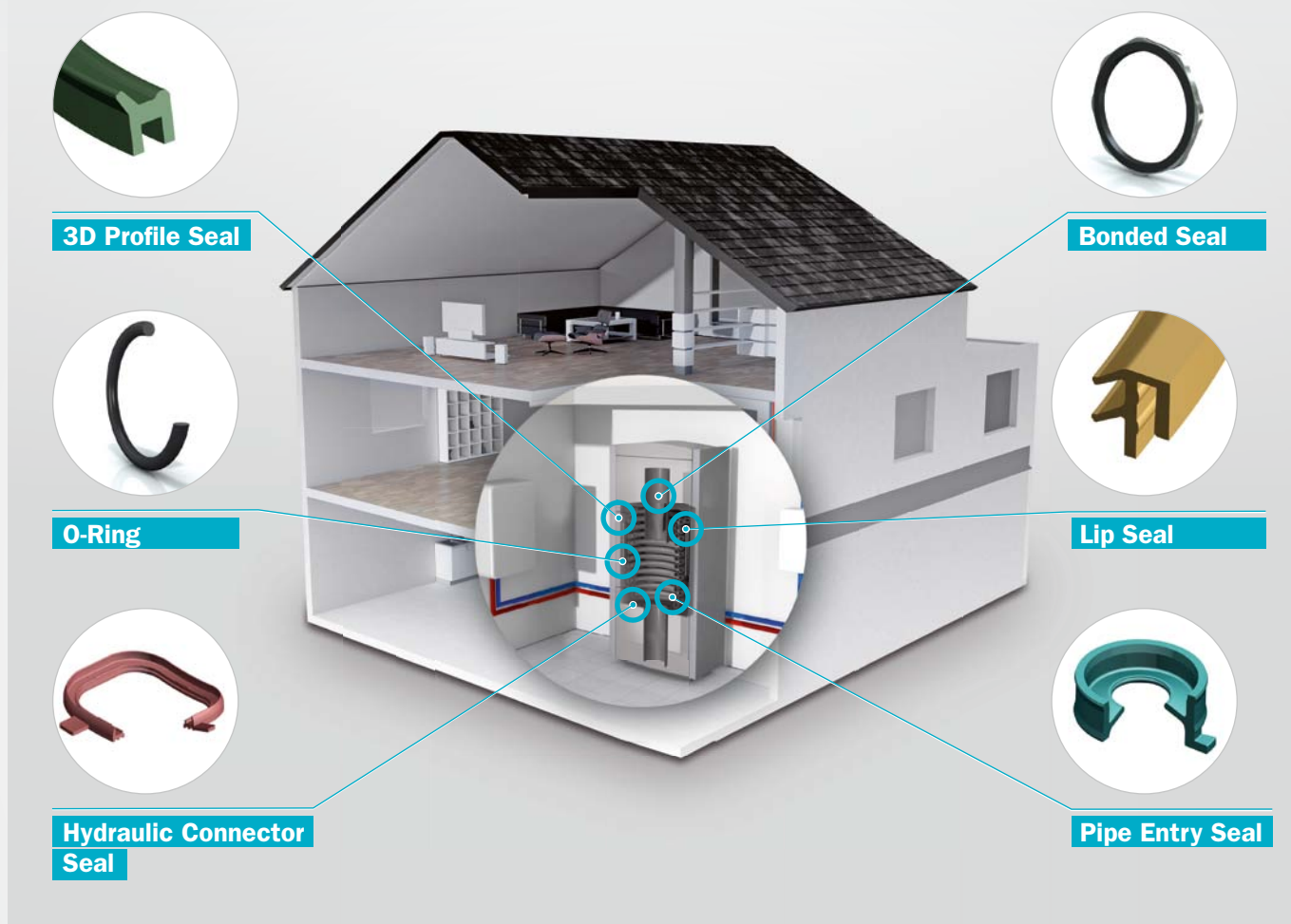
## Bearings

- High load bearing capacity
- High wear resistance and long service life
- Very low friction characteristics
- Unique self-lubricating and composite materials available
- Universal chemical compatibility





## APPLICATION HIGHLIGHT: HEATING SYSTEM & PUMPS



## MOST COMMON APPLICATIONS

### Heating technology

Engineered Molded Parts, Static Seals, Wear Rings, Rubber-to-metal Parts

### Valves

Engineered Molded Parts, Static Seals, Wear Rings, Rubber-to-metal Parts

### Fittings

Static Seals, O-Rings, Engineered Molded Parts

### Shower heads, taps & faucets

Engineered Molded Parts, also available as 2-Component parts

### Flow sensors

Static Seals, O-Rings, Engineered Molded Parts

# Manufacturing & Machine Tools

We offer our know-how and long-standing experience on standard products, project development and realization of solutions for specific sealing systems with unique requirements.

For further literature, films and digital tools, please scan the QR-Code:



## Linear Seals

- Wide range of rod and piston seals
- Turcon® Stepseal® V in Turcon® M12
- Zurcon® RU 9 in Z20
- Turcon® Glyd Ring® T in Turcon® T46
- Zurcon® Glyd Ring® D in Zurcon® Z13
- Zurcon® Scraper DA24 in Z25



## Rotary Seals

- Standardized oil seals
- Pressure rotary seals in various materials for standardized glands
- Turcon® Roto L®
- Turcon® Roto Glyd Ring® S



## Guiding Elements and Static Seals

- Orkot®
- HiMod®
- Turcite®

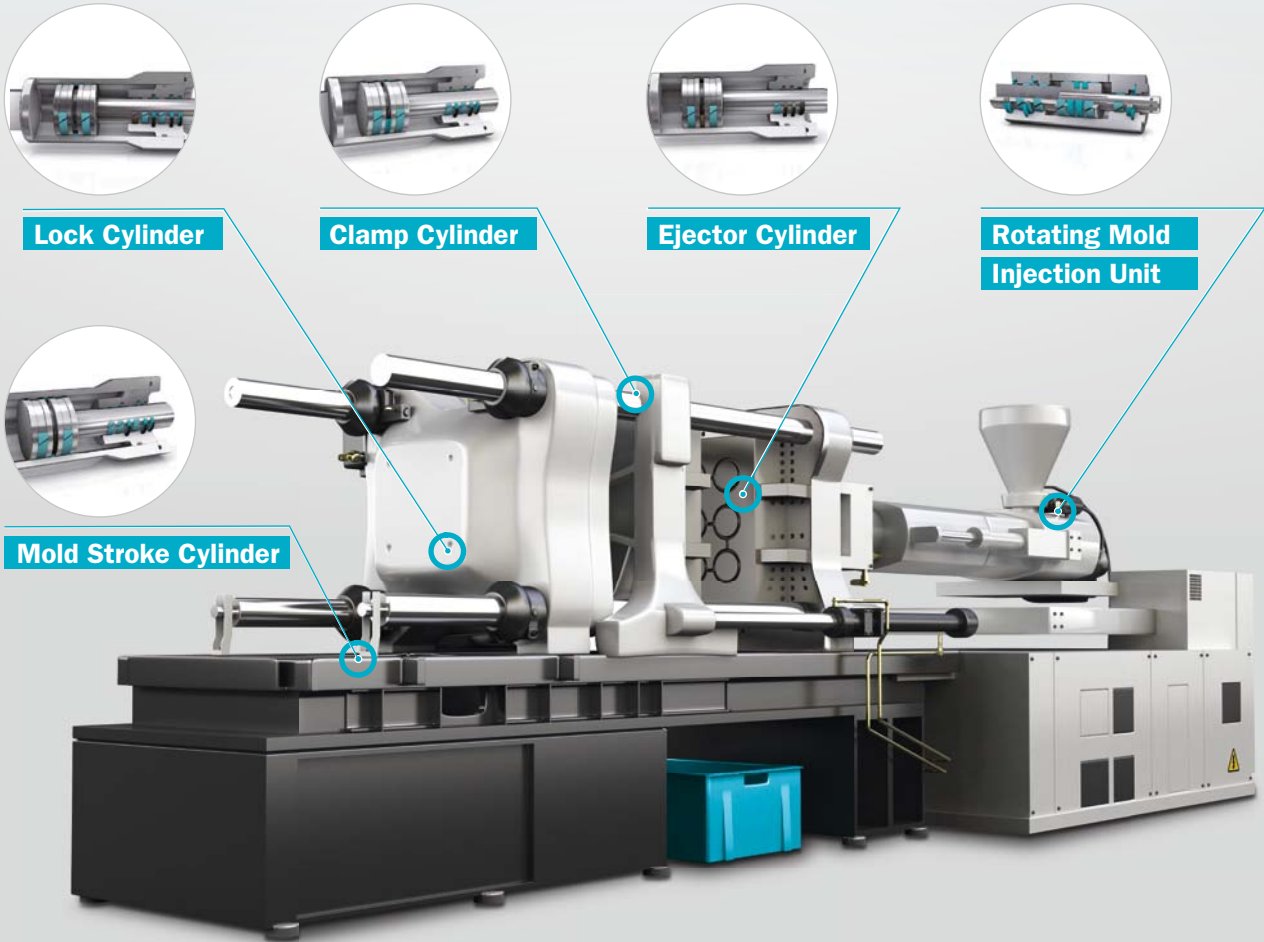


## Materials

- Wide range of static seals in elastomer, TPU, PTFE and steel grades
- FKM iXLT V8T71
- Turcon® M12
- Zurcon® Z13, Z25
- Orkot® C480



## APPLICATION HIGHLIGHT: INJECTION MOLDING MACHINE



## MOST COMMON APPLICATIONS

### Presses

Machines for the metal, wood, textile and paper industries

Casting, foaming, blowing and extruding machines

Component finishers

## HYDRAULIC SYSTEM CALCULATOR

For information about our Hydraulic System Calculator, scan the QR-Code or visit our website:  
**[www.tss.trelleborg.com](http://www.tss.trelleborg.com)**





# Semiconductor

Our extensive range of innovative seal materials and products gives exceptional sealing integrity in the most demanding of semiconductor manufacturing environments.

For further literature, films and digital tools, please scan the QR-Code:



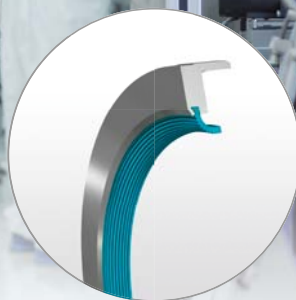
## O-Rings/Static Seals

- Wide range of O-Rings that balance cost-effectiveness with performance
- Cleanroom manufacturing
- FlexiMold™ – Large diameter O-Rings and other sealing profiles without dedicated tool set-up
- Variseal® NW – Flange seal with exceptional chemical resistance



## Complex Engineered Molded Parts

- Advanced design capabilities
- Complex shapes
- Rubber-to-metal and rubber-to-plastic options
- High purity products



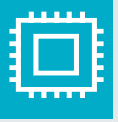
## Rotary Seals

- Low friction to facilitate reduced power loss and friction-induced heat
- Dry running capability
- Turcon® material compatible with virtually all media
- Example: Turcon® Varilip® PDR

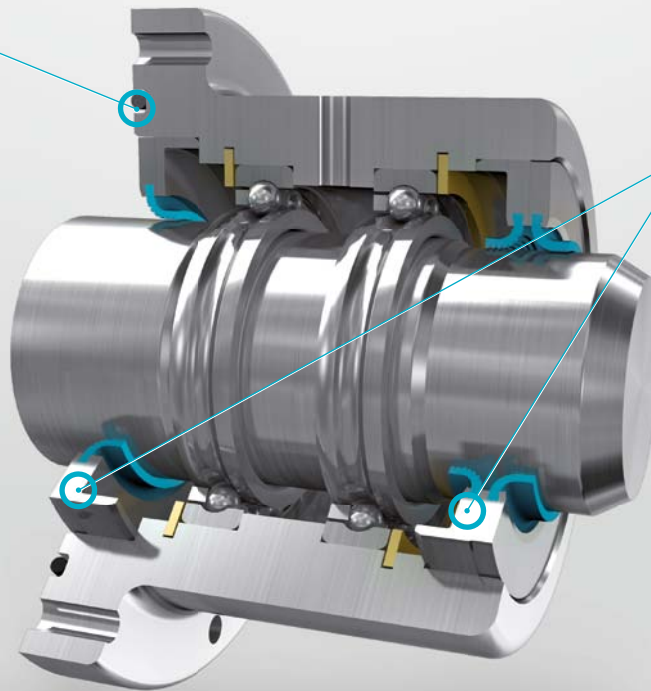


## Materials

- Extensive range of high-performance materials
- Isolast® FAB Range (FFKM)
- Unique Turcon® PTFE based compounds for dynamic and rotating applications
- Almost universal chemical resistance
- Ultra-high purity compounds
- Resistance to dry and wet process chemistry

**APPLICATION HIGHLIGHT: VACUUM PUMP**

**Isolast® FFKM or  
FKM O-Ring**



**Turcon® Varilip® PDR**

**MOST COMMON APPLICATIONS**

**Aggressive plasma processes**

**Wet chemical processes**

**Thermal processes**

**Sub fab processes**

# Oil & Gas

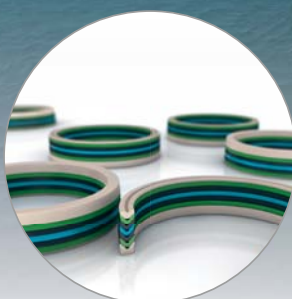
Seals from Trelleborg Sealing Solutions provide proven performance in a wide variety of systems used in exploration, refining, production and completion activities.

For further literature, films and digital tools, please scan the QR-Code:



## Static Seals

- Temperature, compression set, chemical and extrusion resistant
- Industry regulation compliant materials
- Example: Turcon® Wedgpak®



## Linear Seals

- Low friction
- Temperature, wear, extrusion and chemical resistant
- Welded PEEK rings in large diameters
- Example: Turcon® V-Stack



## Rotary Seals

- Installation friendly
- Low friction
- Wear resistant with self-lubricating seal materials
- Abrasion resistant
- Shock resistant
- Example: Turcon® Roto Glyd Ring® II



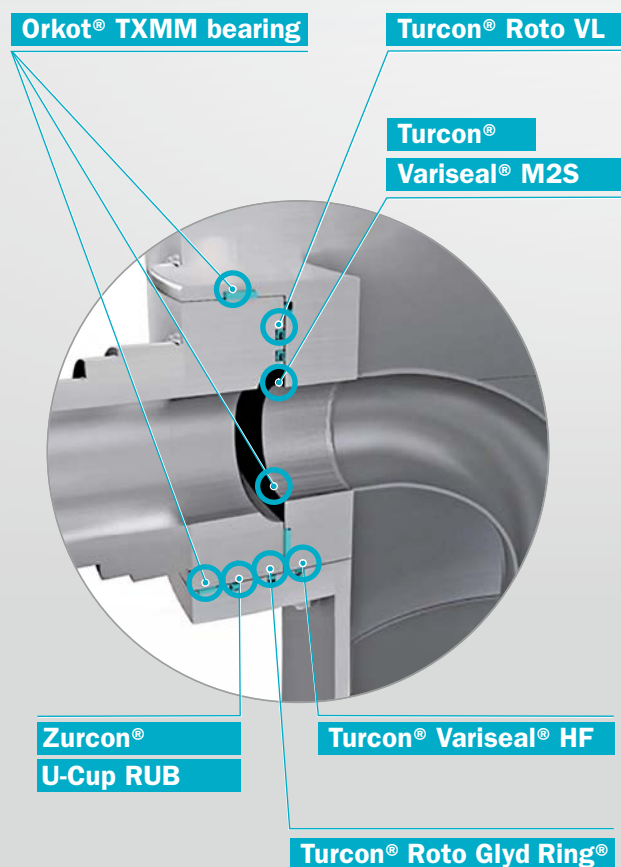
## Bearings

- Heavy duty, chemical resistant materials
- Low wear with high load carrying capability
- Low deformation, resulting in controlled equipment movement
- Example: Orkot® or Slydring®

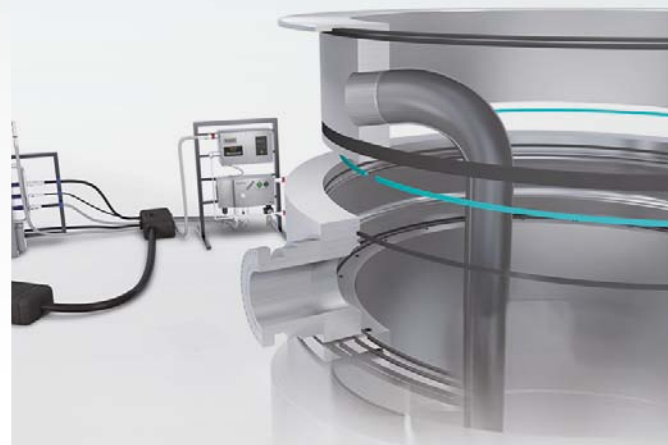




## APPLICATION HIGHLIGHT: SWIVEL



## APPLICATION HIGHLIGHT: SEALWELDING™



Revolutionary seal welding technology allows seals to be welded in-situ on an FPSO platform, eliminating the need for the vessel to disconnect and return to shore



Swivel seal is leaking in operation.



Opened swivel stack reveals damaged seal on-site.



Damaged seal is removed and replacement seal is split and fitted into groove.



Turcon® Variseal® is welded to correct diameter using the Trelleborg Sealing Solutions proprietary SealWelding™ process.



SealWelding™ process is complete, equipment is removed and the Turcon® Variseal® is successfully installed and ready for service.

## MOST COMMON APPLICATIONS

Gate & ball valves: on surface and subsea trees	Actuators on subsea valves	FPSO swivel stacks
Downhole completion tools	Blow out preventers	Measuring / logging while drilling tools
Drilling: tension cylinder systems	Reservoir sampler tools	Plug / packer setting tools

# Marine Equipment & Construction

Several parts of Trelleborg Group, including Trelleborg Sealing Solutions, have been active within the marine and shipping industries for over 25 years.

For further literature, films and digital tools, please scan the QR-Code:



**Rudder Bearings**

- Long service life
- Dry running or lubricated
- Can be used in all rudder designs
- Classification approvals
- Extensive reference base
- SEAL compliant
- Fast delivery



**Propeller Shaft Bearings**

- Different grades to suit environmental requirements
- Patented key design
- Can be shipped as raw material or as finished bearings
- Low coefficient of friction during start and stop



**Deck Machinery**

- High load capability
- Dry running or grease lubricated
- Low friction
- Maintenance free



**Crane**

- Easy installation via freeze fitting
- High load capability
- Accepts misalignment
- Low stick-slip effects
- Custom design

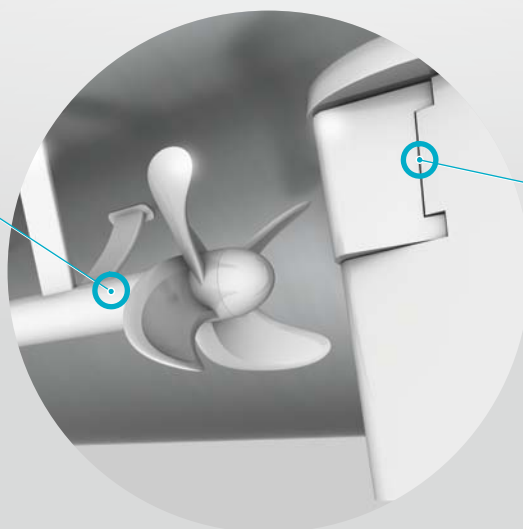


## APPLICATION HIGHLIGHT: PROPELLER SHAFT AND RUDDER BEARINGS



### Water-lubricated propeller shaft bearings

- No need for lubricants, which can be an environmental risk
- Maintenance-free long service life
- Orkot® and bronze cassettes for easy assembly



### Rudder bearings

- Grease-lubricated, dry or wet operation
- Highest approved bearing loads with Classification Societies
- Fast track support with dedicated order hotline

## APPLICATION HIGHLIGHT: STERN ROLLER BEARINGS

- Variable friction ensures turning of roller with low or high loads
- Slow and fast momentum
- SEAL compliant
- Wear resistant



## MOST COMMON APPLICATIONS

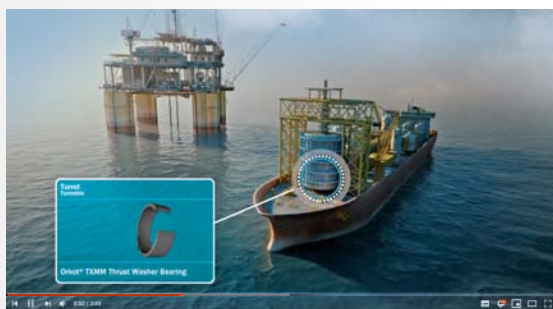
Propeller shaft bearings	Stern roller bearings	Hydrofoil wing bearings
Vessel stabilizer bearings	Deck machinery	Sea crane bearings
Rudder bearings	Hatch pad covers for container vessels	Shaft coupling covers



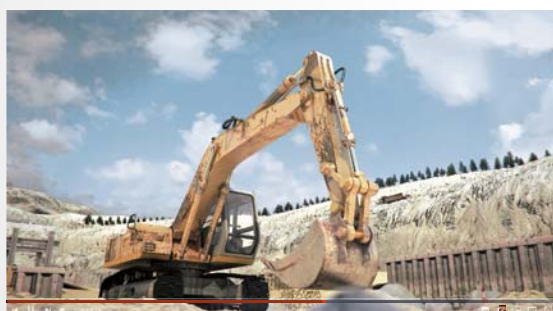
# Films & Animations

## SEEING IS BELIEVING

Complex sealing configurations can feature a large number of sealing elements. Trying to illustrate these on a 2-D page is difficult and can never properly show their function or characteristics. Trelleborg Sealing Solutions uses the latest graphic technologies to produce 3-D animations of applications and typical sealing solutions for them.



View at  
[YouTube.com/  
trelleborgseals](https://www.youtube.com/trelleborgseals)



View at  
[tss.trelleborg.com/  
films](https://tss.trelleborg.com/films)



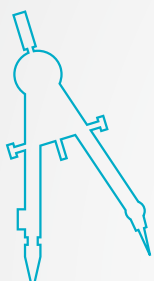
### Films and Animations online

A range of films specific to different industries and products are available to view on the Trelleborg Sealing Solutions website or via YouTube.

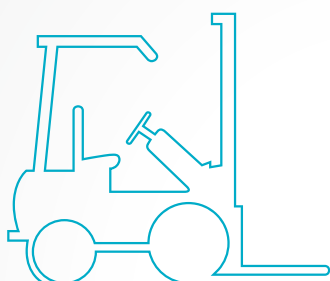


# Simplify Your Business Service PLUS

Service PLUS aims at uniting various enhanced solutions across the entire value chain, simplifying the processes of engineering, logistics, manufacturing and aftermarket for the customer.



Engineering



Logistics



Manufacturing



Aftermarket



## SPECIAL HANDLING

Special Handling bundles an assortment of individual packaging solutions together with additional services that optimize the mounting and handling of seals.



## ADVANCED DELIVERY

Our Advanced Delivery services simplify your stock replenishment process by managing your different vendors and stock levels – be it through a Kanban system or complete C-Part Management.



## ENGINEERING SUPPORT SERVICES

Trelleborg provides world-class expert support for your engineering needs, from extensive design & compound competence to leading edge product testing.



## ASSEMBLY

Trelleborg is willing and able to offer pre-assembled parts put together by specially trained staff, delivered directly to you.



## QUICKSEAL

QuickSeal covers your short-notice needs for sealing solutions, whether you require a prototype, functional sample or a small batch rapidly.



## DIGITAL TOOLS

Online resources and apps developed to make an engineer's life easier.

Discover our wide range of digital tools at [www.tss.trelleborg.com](http://www.tss.trelleborg.com)





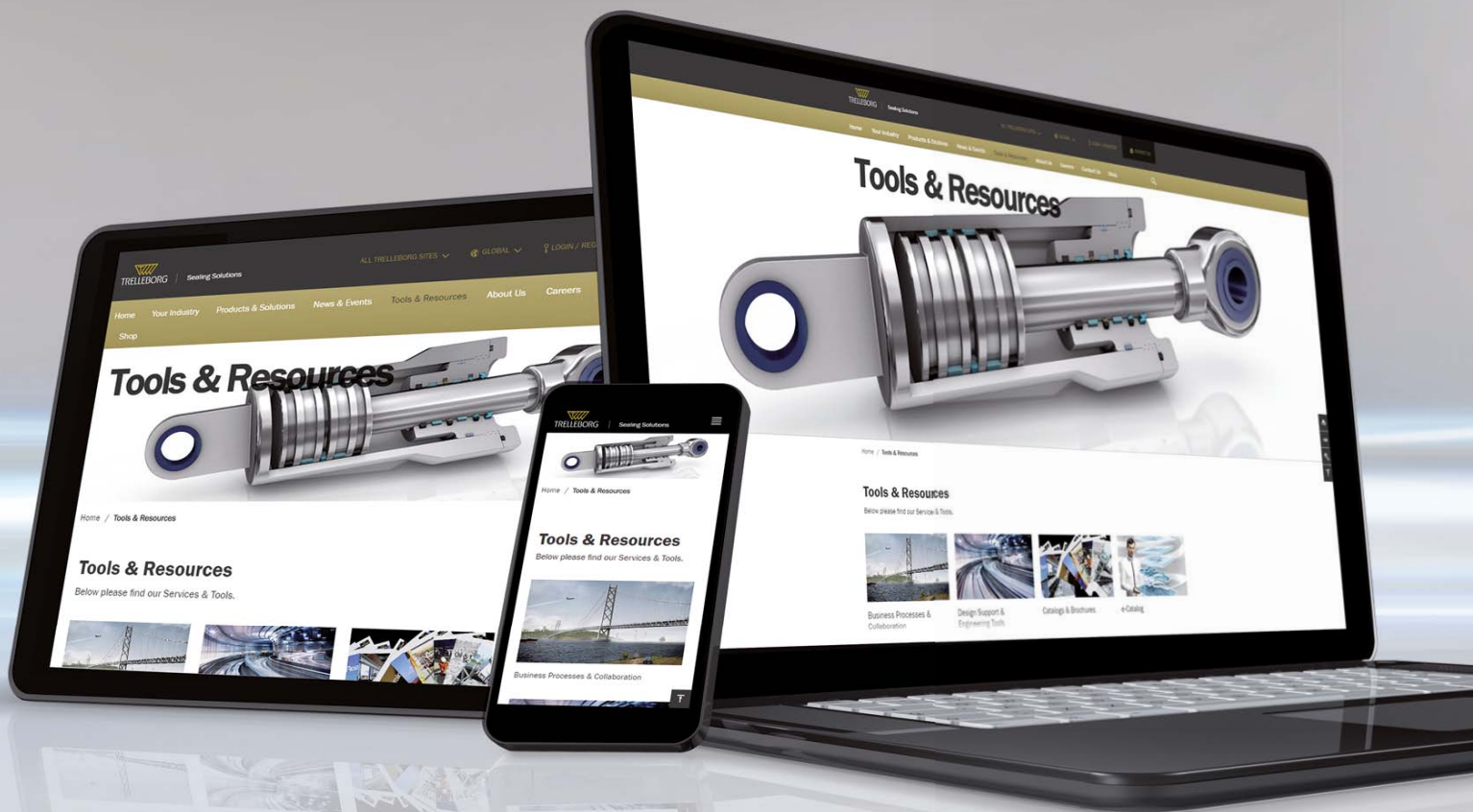


Scan the QR-Code to  
learn how you can  
simplify your business  
with Service PLUS:



# Tools & Resources

	Website Tools & Services	Mobile Apps	Technical Library
 <p><b>Mechanical Design Assistance</b></p>	 Aerospace Groove Selector  Hydraulic System Calculator  Area & Volume Calculator  O-Ring Calculator	 Aerospace Groove Selector  Hydraulic System Calculator  Area & Volume Calculator  Fluid Mechanics Calculator  Mechanical Engineering Calculator	 Technical Articles
 <p><b>Standards / Conversions / Norms</b> For table: Non Austenitic steel (Rockwell B Hardness Range)</p>	 ISO Fits & Tolerances  Universal Converter  Hardness Converter	 ISO Fits & Tolerances  Universal Converter  Fluid Mechanics Calculator	
 <p><b>Learning / Knowledge</b></p>	 e-Learning on Sealing Technology	 Installation Instructions  Technical Glossary  Fluid Mechanics Calculator  AR Literature App  In the Groove	 Whitepapers  Webinars  Technical Articles
 <p><b>CAD / Drawings</b></p>	 CAD Services	 CAD Models	
 <p><b>Material Selection</b></p>	 Chemical Compatibility Check  Material Search  Healthcare Materials  Tube & Hose Selector	 ISO Fits & Tolerances  Sealing Materials Selector	 Webinars
 <p><b>Product Selection</b></p>	 Aerospace Groove Selector  Electronic Catalog  O-Ring Calculator  Sealing Solutions Configurator  Technical Proposals Online  Rotary Seal Selector	 O-Ring Selector  Shim Selector  Tube & Hose Selector  Rotary Seal Selector	 Webinars  Technical Articles



## TOOLS & RESOURCES ONLINE



Trelleborg Sealing Solutions offers a wide range of tools & resources that support engineers and purchasers in their daily business. For more information, scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)





### Aerospace Groove Selector



The Aerospace Groove Selector helps to find the sizes of grooves and hardware and indicates if the groove is suitable for a dynamic and/or a static seal. It also provides an instant conversion between inch and mm sizes.

### AR Literature App



Unlock interactive content in printed media from Trelleborg Sealing Solutions with the Augmented Reality Literature App.

Learn more about our innovative products and solutions by interacting with augmented reality components in diverse printed media. Download the app and scan pages with AR Icons to get access to interactive animations, videos and technical information.

### Area & Volume Calculator



This mobile app makes it quick and easy to calculate the area and volume of predefined geometrical shapes.

The formula used to calculate the area or volume is displayed and parameters can be entered in a range of metric and imperial units.

### CAD Models



This app allows users to view, rotate and zoom to examine Trelleborg Sealing Solutions products in 3-D, as well as send CAD files to any email address, wherever you may be.

### CAD Service



The CAD Service offers easy access to download technical drawings in 2-D and 3-D and in any file format available, ready to import directly into your CAD software.

### Chemical Compatibility Check



Which material is best suited to your application?

The easy-to-use Chemical Compatibility Check allows you to quickly find out which materials are compatible with the media used in your application.

### Fluid Mechanics Calculator



This app covers a wide variety of fluid mechanics topics and serves as a reference for the analysis, design, maintenance and operation of fluid related systems.

It quickly provides results for different fluid mechanics equations, including those used in civil, structural, pipe flow and engineering. The app is relevant for students, engineers, analysts and researchers working in the fields of automotive, aerospace, biotechnology, fluid power, marine, mining and oil & gas.

### e-Learning on Sealing Technology



These comprehensive e-Learning lessons teach the basics of sealing technology, available to you 24 hours a day.

### Electronic Catalog



The Electronic Catalog offers a high-powered, convenient search tool: you can search for seals by item number, type of seal or by operating conditions.

Additionally, once you know the product you require, you can then request a quotation online. A simple-to-use service lets you load up a shopping cart and send it through to your local marketing company for quotation.

### Hardness Converter



The Hardness Converter lets you easily convert between popular scales used to measure the hardness for metallic materials.

You can switch between DIN EN ISO18265:2003 and ASTM E-140-07 standards.

### Healthcare Materials



This app for the healthcare and medical industry offers a quick and easy overview of which materials are compatible with different environments.

### Hydraulic Sytem Calculator



Hydraulic System Calculator helps you design a solution around the cylinder which may involve motor, pump, orifice and pipe calculations. The application is in compliance with ISO 3320, ISO 3321 & ISO 4393.

### in the groove magazine



View all issues of Trelleborg Sealing Solutions *in the groove* magazine that provides the latest news, products and services from the world of seals.

Available as a print edition, an interactive pdf and a tablet app.

### Installation Instructions



Installation instructions usually feature a series of written steps with diagrams, which aren't always clear or easy to follow.

Included in the app are videos, guides and transcripts, making installation easier, quicker and more accurate than ever.

### ISO Fits & Tolerances



An intuitive tool to quickly look-up ISO Fits & Tolerances. Upon entering the nominal diameter needed, simply select the tolerance classes for bore and shaft.

The app then provides the complete ISO fits definition with all relevant values including the type of fit. Tolerances are shown for the most commonly used ISO tolerance classes.

### Material Search



Need information on a particular material? The convenient Material Search Tool allows you to search our materials in two ways:

Material name - Search our various elastomer compounds by material name, group or selected properties.

Product type - Quickly find our preferred standard materials for O-Rings, Quad-Rings and V-Rings.

### Mechanical Engineering Calculator



An excellent tool offers over 244 formulas in 16 categories, with more being added every update.

Categories include mathematics, physics and mechanical engineering. To perform calculations, just choose a formula and enter the required variables. The app will then calculate and display the result.

**O-Ring Calculator**

The O-Ring calculator offers engineers and professionals a quick and easy way to calculate O-Ring dimensions and the appropriate housing layout in accordance with the international O-Ring standard ISO 3601.

**O-Ring Selector**

When a user enters installation specifications into the O-Ring Selector app such as the bore or rod/shaft diameter, the app quickly calculates O-Ring and housing dimensions in both metric and inch.

In addition, the app recommends O-Ring sizes according to ISO 3601, so you know exactly which part you need.

**Rotary Seal Selector**

There are many factors in rotary applications, such as lubrication conditions, cooling and hardware surface, which have an impact on the seal type and material.

The Rotary Seal Selector app was developed with this in mind and is designed specifically to help you select the best rotary seal for your application.

**Sealing Materials Selector**

The Sealing Materials Selector allows you to easily search Trelleborg Sealing Solutions materials. By simply entering material specifications, for example, the material group, in combination with your required parameters, the app instantly proposes the right materials for your requirements.

In addition, you can filter down your search based on chemical compatibilities, institute approvals or product type for O-Rings, Quad-Rings and V-Rings.

**Sealing Solutions Configurator**

Need help finding out which seals work best in your application? Try out the Sealing Solutions Configurator!

This Sealing Solutions Configurator provides you with the most suitable solutions for your application. Just select the industry and application then enter the operating parameters to get recommended sealing solutions.

**Shim Selector**

The Shim Selector is designed to give brake NVH test engineers quick and easy access to the extensive range of shim materials used for elimination of specific brake noise problems.

With only a few parameter inputs, such as temperature and frequency, the Shim Selector will propose the optimal solution for the given noise problem.

**Technical Articles**

A collection of technical articles on a range of engineering and industry topics. Experts share their insights on the latest advances in sealing technology and engineered products.

**Technical Proposals Online**

Technical Proposals Online (TPO) is a tool designed to enhance the cooperation between our Trelleborg Sealing Solutions engineers and you, our customer. This is what the TPO offers you:

- A proposed sealing solution for your application, complete with application and product images
- A full range of technical data regarding products, materials and installation information
- A central storage and management portal for all your technical proposals

**Technical Glossary**

This app provides definitions of more than 2,000 terms from the world of sealing technology and engineering.

Not just about seals, the app aims to provide a comprehensive resource for all your engineering needs, to make life a little easier.

**Tube & Hose Selector**

Specifically developed for the healthcare and medical industry, the Tubing and Hose Selector app simplifies choosing the correct tubing and hose based on input parameters such as material and pressure, giving the information instantly and removing the need to search through catalogs.

**Universal Converter**

By simply selecting the dimension and entering the value for conversion, the app offers a wide range of engineering and scientific units for each dimension.

**Webinars**

Our webinars provide an educational resource on topics relevant to sealing technology and engineered products and applications.

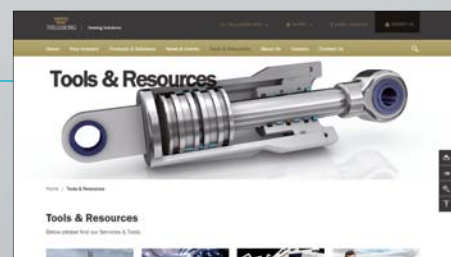
They cover practical, targeted topics taught by experts in their field.

**Whitepapers**

Trelleborg Sealing Solutions experts provide an in-depth look at new developments related to sealing technology and engineered products.

**TOOLS & RESOURCES ONLINE**

Trelleborg Sealing Solutions offers a wide range of tools & resources that support engineers and purchasers in their daily business. For more information, scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)



# Design Support & Engineering Tools

## ONLINE TOOLS MAKE LIFE EASIER

Trelleborg Sealing Solutions has developed a number of online tools that make the working life of an engineer specifying seals easier. All these industry-leading tools are available free-of-charge from the Trelleborg Sealing Solutions website at [www.tss.trelleborg.com](http://www.tss.trelleborg.com). To use these advanced services all you have to do is register on the Members Area.

There is also a continually increasing range of innovative engineering apps available for smartphones, both for iOS and Android devices. Just search for "Trelleborg" in the App Store or GooglePlay to find the tools to optimize your daily productivity.

## Materials Search and Chemical Compatibility Check

These two programs allow you to find out the compatibility of sealing materials with hundreds of different media and help identify the most suitable material for your application.

- + Very good suitability
- Good suitability
- Limited suitability
- ✗ Unsuitable
- ? Insufficient information



## Sealing Solutions Configurator

The Sealing Solutions Configurator is the first tool of its kind offered by any seal supplier. It allows engineers to identify a proven sealing solution for their specific application in just four easy steps.

## 4.0 Proposal Introduction

Dear Hilde Heens

Thank you for your call. We have had a look sealing solution to your application.

### 7.1.3 TSS Item No. and installation dimensions

1. Turcite® / Zurcon® GR6901000-T47

Slydring®

Rod Diameter dH=100.0

Groove Diameter D2=105.0

Groove Width L2=9.7

\*otB Slydring®

GR73A1000-C3

\*ster dH=100.0

\*H=105.0

## Technical Proposals Online

Enhance your communication with Trelleborg Sealing Solutions with the Technical Proposals Online tool. Instantly access all your proposed solutions anywhere at any time and benefit from quicker dialog with our sealing specialists.





## ISO Fits & Tolerances

Our Fits & Tolerances Calculator allows you to easily determine type of fits using the tolerances according to DIN ISO 286. In addition, upon entering the nominal diameter the tool calculates lower and upper limit deviations plus the maximum and minimum interferences dependent on the selected tolerance classes for bore and shaft.



## Versatile CAD Service

The CAD download facility provides thousands of drawings of a wide range of seals. It gives the option of 2- or 3-dimensional files in a range of formats to suit most commonly used CAD systems.

## Hydraulic System Calculator

Hydraulic System Calculator helps you design a solution around the cylinder which may involve motor, pump, orifice and pipe calculations. The application is in compliance with ISO 3320, ISO 3321 & ISO 4393.



## Rotary Seal Selector

The Rotary Seal Selector allows you to search through the wide range of rotary seals and materials available based on application conditions and offers detailed information on installation and seal capabilities.



## O-Ring Calculator

An industry-leading tool, the easy to use O-Ring calculator includes sizing capabilities, compression forces, design parameter recommendations and complete measurements. Results and comments may be printed, shared or filed as PDF.



Discover our design support  
and engineering tools at  
[www.tss.trelleborg.com](http://www.tss.trelleborg.com)



# Mobile Tools & Apps

We understand the needs of engineers on the go. Check out our latest mobile tools and apps, ranging from an O-Ring calculator to unit and hardness converters. Just search for "Trelleborg" in the App Store or Google Play to find the tools to optimize your daily productivity.

Discover our wide range of mobile tools and apps at [www.tss.trelleborg.com](http://www.tss.trelleborg.com)

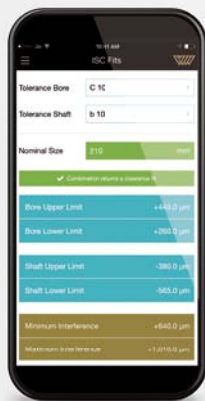


MANY MORE APPS available

Available on the APP STORE



Android App on Google Play



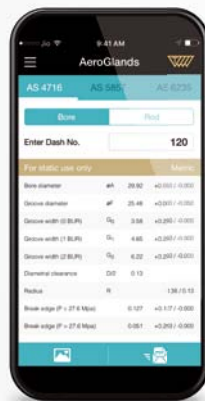
## ISO Fits & Tolerances

Simply enter the nominal diameter and select the tolerance classes for bore and shaft to find the complete ISO fits definition with all relevant values including type of fit, with handy graphs to illustrate the classes by bore and shaft.



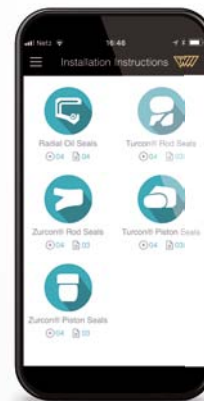
## Mechanical Engineering Calculator

The Trelleborg Sealing Solutions Formula Calculator offers over 244 formulas in 16 categories, with more being added in upcoming updates. Categories include the fields of mathematics, physics and mechanical engineering.



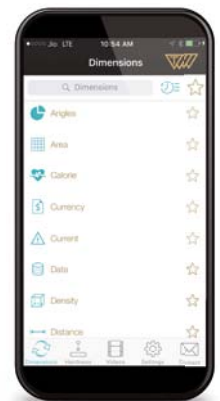
## Aerospace Groove Selector

This app covers two of the most important SAE aerospace groove standards for hydraulic systems, AS4716 Rev B and AS5857 Rev A, making it really easy to find the size of grooves and hardware needed.



## Installation Instructions

Videos demonstrate the best practice methods for installing seals, providing all relevant documentation within the interface, guiding you to a successful installation of Radial Oil Seals and Turcon® and Zurcon® rod and piston seals.



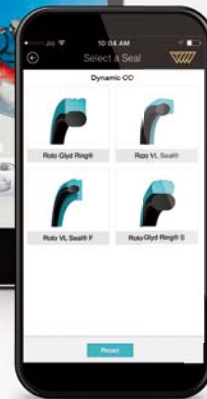
## Universal Converter

By simply selecting the dimension and entering the value for conversion, the app offers a wide range of engineering and scientific units for each dimension.



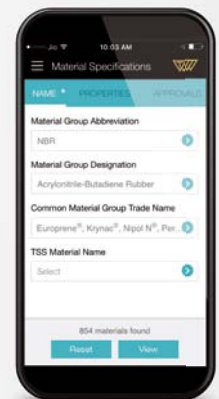
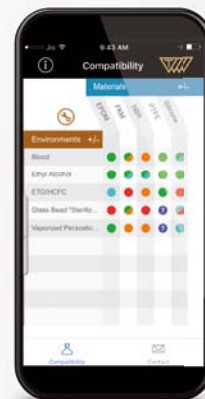
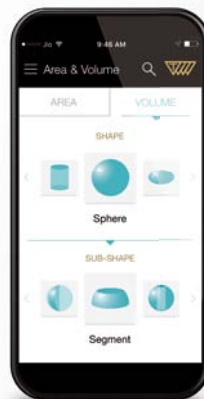
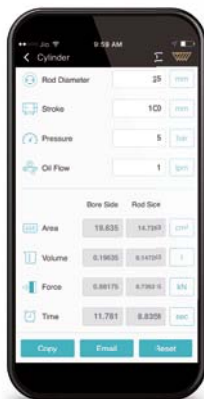
### in the groove

Our *in the groove* magazine provides news, technical and product information on seals, as well as insights into the markets they are used in. The magazine is also available in print and as an interactive PDF.



### Rotary Seal Selector

Bring the popular Rotary Seal Selector webtool with you! Quickly search through Trelleborg Sealing Solutions rotary seals and materials for the optimum product for your application conditions while on the move.



### O-Ring Selector

When a user enters installation specifications into the O-Ring Selector app, such as the bore or rod/shaft diameter, the app quickly calculates O-Ring and housing dimensions in both metric and inch.



### Hydraulic System Calculator

Hydraulic System Calculator helps you design a solution around the cylinder which may involve motor, pump, orifice and pipe calculations. The application is in compliance with ISO 3320, ISO 3321 & ISO 4393.



### Area and Volume Calculator

Speeds up and simplifies calculating the area and volumes of more than 80 geometric shapes. The app supports both metric and imperial units and conveniently displays the formulas used. Fill your shape with solids or liquids, choosing from 1500 different materials, to calculate the weight.



### Healthcare Materials

View a quick and easy overview of the compatibility of 34 materials with 35 chemical environments that are commonly encountered in the healthcare and medical industries. Select up to 20 materials and environments at once to produce a chart rating each material from "excellent" to "not recommended".



### Sealing Materials Selector

Enter material specifications and required parameters, such as application temperature or hardness, to receive instant material proposals. The app features filters to limit searches based on chemical compatibility, institute approvals and product type and data sheets can be requested from within the interface.



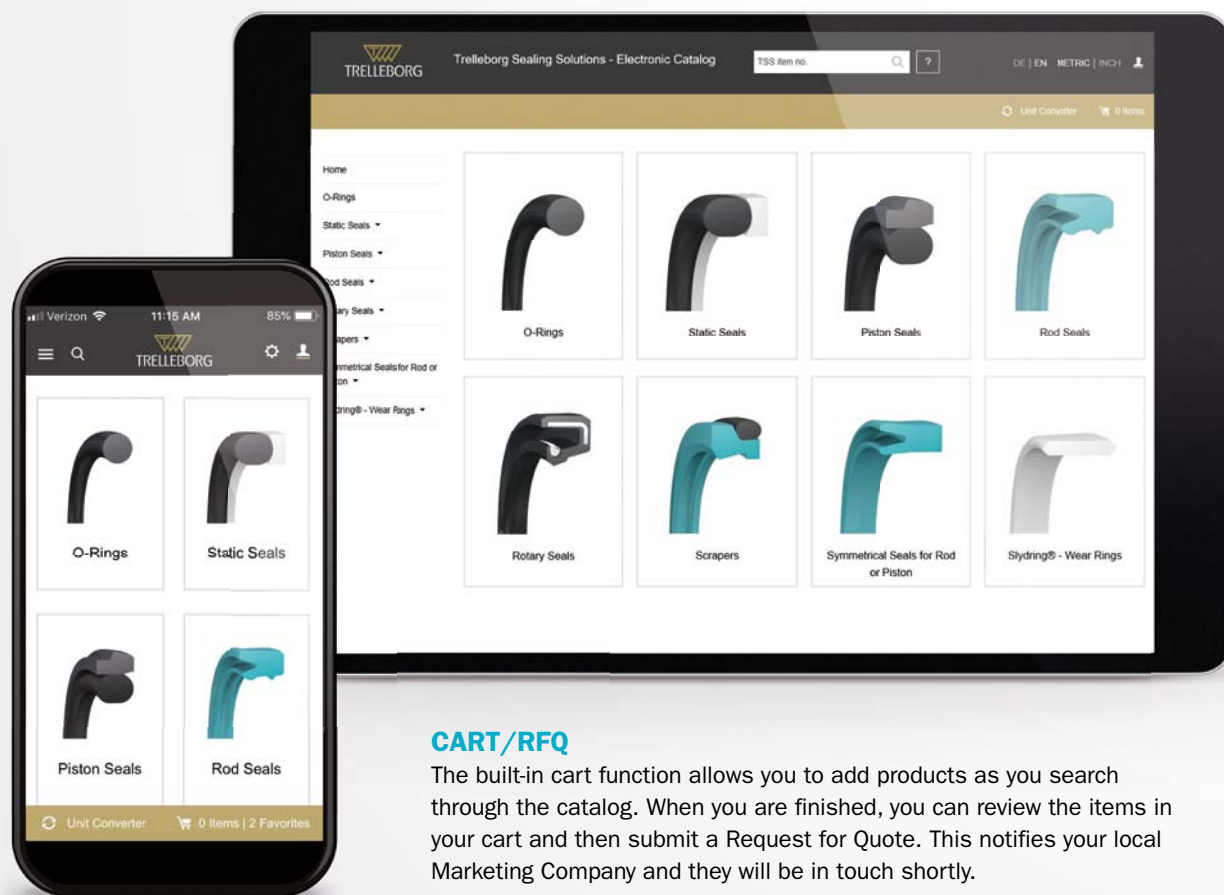
# Electronic Catalog

Discover the  
Electronic Catalog  
online as an app or  
on our website



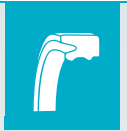
The Electronic Catalog is a user-friendly service that connects you to the broad range of products Trelleborg Sealing Solutions offers. The products are arranged based on product type and product group, making it easy to find the exact one you need.

Many functions are also included within the Electronic Catalog that allow you to understand product capabilities, compare similar seals, request a quote and much more. The Electronic Catalog is available from the Trelleborg Sealing Solutions website and in the App Store and GooglePlay for mobile use.



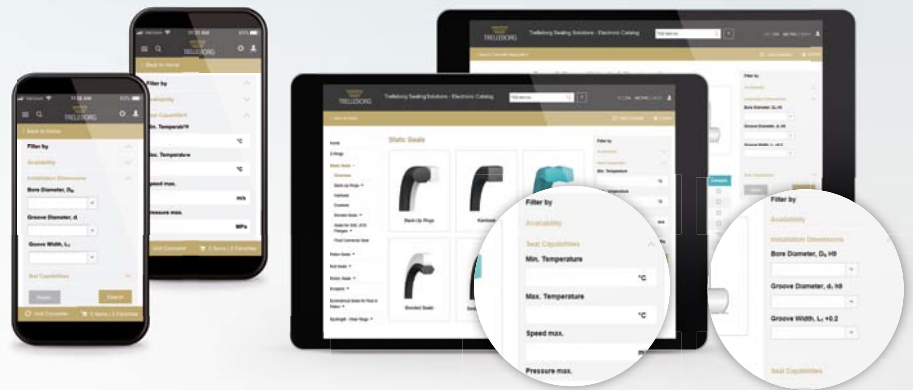
## CART/RFQ

The built-in cart function allows you to add products as you search through the catalog. When you are finished, you can review the items in your cart and then submit a Request for Quote. This notifies your local Marketing Company and they will be in touch shortly.



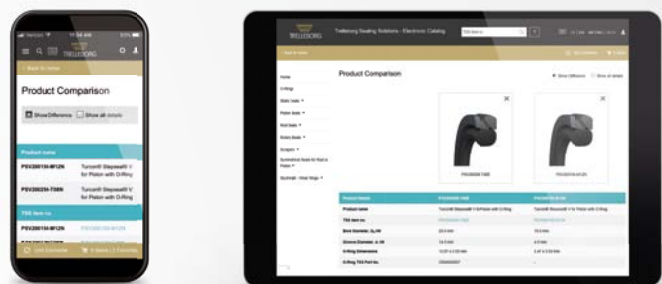
## FILTERING

If you have specific operating conditions that the seal must meet and/or installation dimensions, the Electronic Catalog offers a filtering function within the product groups. Here you can input your temperatures, pressure, speed and various installation dimensions to filter products that can meet your needs.



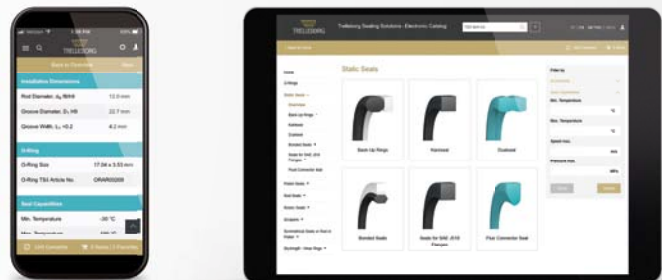
## PRODUCT COMPARISON

When looking through the catalog, you can choose to compare multiple products. The product comparison function allows you to select which products you are interested in, and then puts all relevant information into a table for your review. You can even choose to display all product details side by side or to only show the fields where they differ.



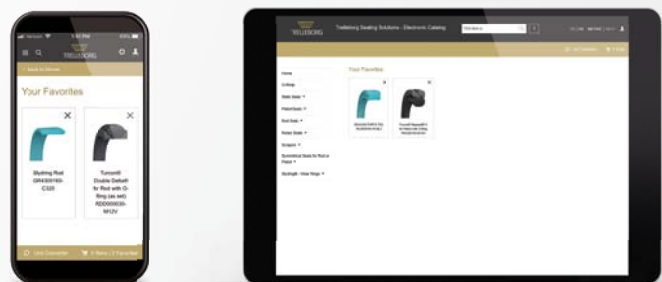
## PRODUCT INFORMATION

Detailed product information is available for each part number. Once you select a specific part number, you will be able to see its installation dimensions, seal capabilities, related catalogs and other information. From this page, registered users can access the material data sheets that are applicable to the part number.



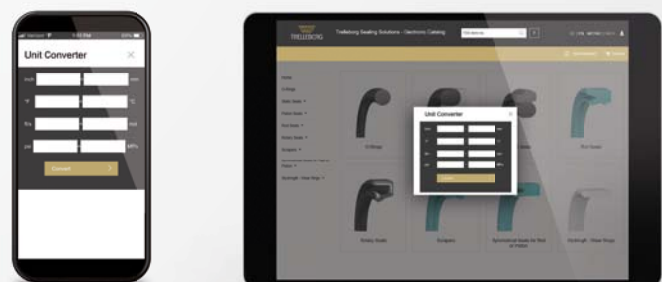
## ADD TO FAVORITES

Do you have a part that you frequently look up or need information on? You can now save any of our part numbers as a favorite that is linked to your account. Anytime you log in to the Electronic Catalog, your favorites will be a click away!



## UNIT CONVERTER

If you are looking at a product and need to know the conversion between metric and imperial, you can use the Unit Converter tool that is available at the top of the screen for web users and at the bottom for mobile.



# O-Rings

For further  
product information,  
scan the QR-Code:



## O-RING CALCULATOR



The easy to use O-Ring Calculator includes sizing capabilities, compression forces, design parameter recommendations and complete measurements.

**For more information scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)**

TRELLEBORG									
O-Ring Calculator									
Material Selection			Radial Groove Sealing			Axial Sealing			
Material	Size	Material	Size	Material	Size	Material	Size	Material	Size
NBR	10	NBR	10	NBR	10	NBR	10	NBR	10
Material	Size	Material	Size	Material	Size	Material	Size	Material	Size
NBR	10	NBR	10	NBR	10	NBR	10	NBR	10
Material	Size	Material	Size	Material	Size	Material	Size	Material	Size
NBR	10	NBR	10	NBR	10	NBR	10	NBR	10
Material	Size	Material	Size	Material	Size	Material	Size	Material	Size
NBR	10	NBR	10	NBR	10	NBR	10	NBR	10





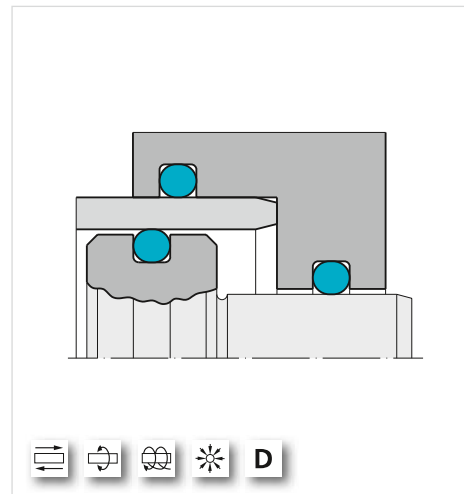
## Elastomeric O-Ring

**MATERIAL:** Elastomeric

A double-acting seal for static and dynamic applications. Available in various materials including NBR, FKM, EPDM, chloroprene, silicone and fluorosilicone. Available to ISO 3601, AS 568 and other recognized standards.

**APPLICATIONS:** general purposes

Ø Range	Pressure Range	Temperature Range	Velocity
from 0.5 mm	200 MPa	-60 °C +200 °C	0.5 m/s
from 0.02 in	29,000 psi	-75 °F +390 °F	1.6 ft/s



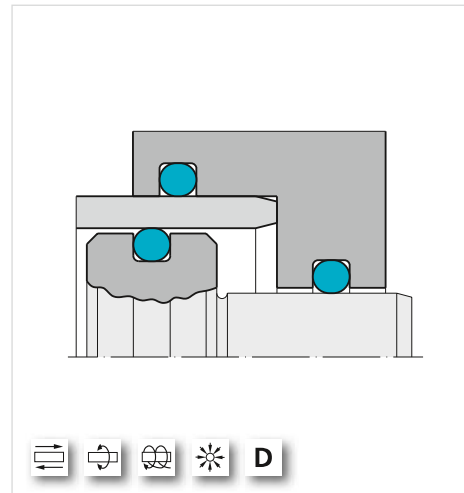
## Polyurethane O-Ring

**MATERIALS:** Zurcon®, Polyurethane

Polyurethane O-Rings are especially suited wherever O-Rings are subject to dynamic loads. This includes, for example, applications in hydraulics, pneumatics and in a wide range of other critical areas. In many cases, polyurethane O-Rings are used instead of NBR due to their high mechanical strengths.

**APPLICATIONS:** hydraulics, abrasion resistance

Ø Range	Pressure Range	Temperature Range	Velocity
from 2.5 mm	200 MPa	-30 °C +100 °C	–
from 0.1 in	29,000 psi	-20 °F +210 °F	–



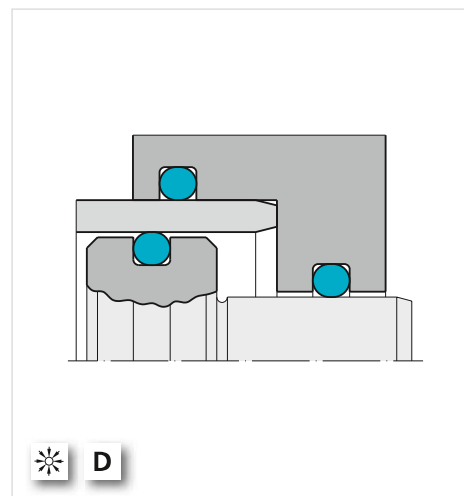
## FlexiMold™ O-Ring

**MATERIAL:** Elastomeric

Fleximold™ is a proprietary manufacturing technology, that allows the manufacturing of large, high quality O-Rings without the leadtime and cost associated with dedicated tooling. Compared to conventional techniques such as the splicing of extruded cord, this process ensures full visual and dimensional integrity. Tolerances according to ISO 3601-1, class B apply for the inside diameters and cross sections. (Available in Isolast FFKM compounds)

**APPLICATIONS:** general purpose, large dimensions

Ø Range	Pressure Range	Temperature Range	Velocity
0.6 mm – infinite	200 MPa	-40 °C +325 °C	–
0.023 in – infinite	29,000 psi	-40 °F +617 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



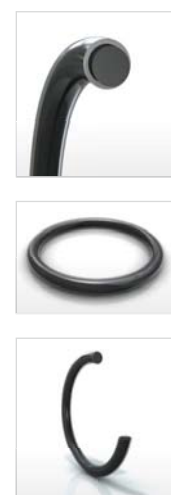
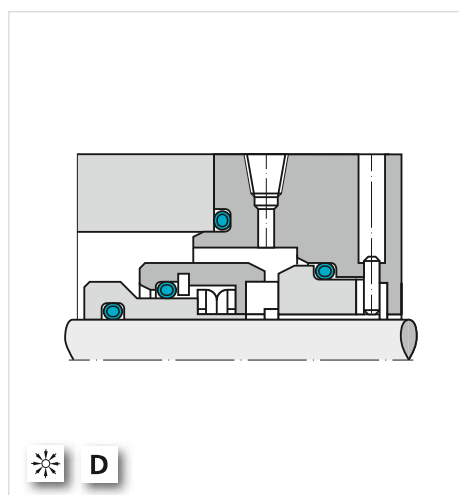
## FEP O-Ring

**MATERIALS:** Elastomeric, Other Polymeric

This encapsulated O-Ring is produced from silicone or fluorocarbon with a seamless FEP jacket. These seals can solve sealing problems due to their chemical resistance coupled with elastic properties and low friction. Available to ISO 3601, AS 568 and BS 4518 and other standards including hollow and square sections. Available in both inch and metric sizes.

**APPLICATIONS:** chemical industry, aggressive media

Ø Range	Pressure Range	Temperature Range	Velocity
from 7.7 mm	25 MPa	-60 °C +200 °C	–
from 0.300 in	3,625 psi	-75 °F +390 °F	–



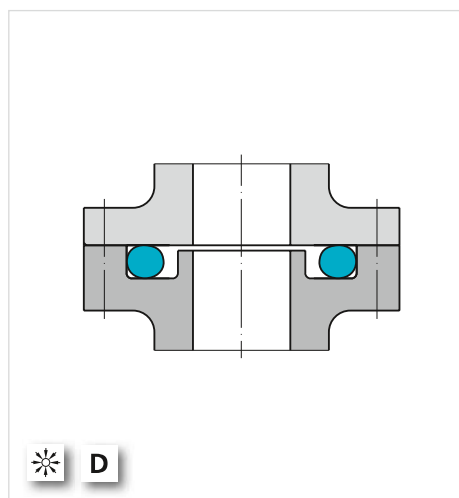
## PTFE O-Ring

**MATERIAL:** PTFE

For axial static face or flange-type applications. Resistant to practically all chemicals and to high temperatures. Available in any required size.

**APPLICATIONS:** chemical industry, aggressive media

Ø Range	Pressure Range	Temperature Range	Velocity
0.5 – 1,000 mm	40 MPa	-200 °C +260 °C	–
0.02 in – 39 in	5,800 psi	-325 °F +500 °F	–



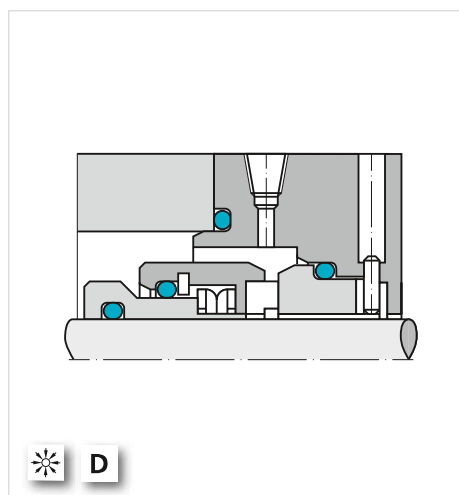
## Isolast® FFKM Perfluoroelastomer O-Ring

**MATERIAL:** Elastomeric

Isolast® is Trelleborg Sealing Solutions proprietary perfluoroelastomer. It combines the elastic properties of fluorocarbon (FKM) with the outstanding chemical resistance and the high temperature stability of PTFE. Isolast® seals can be used for applications in high temperature service up to +325 °C / +615 °F. Isolast® O-Rings are available in metric and inch dimensions to ISO 3601 and AS 568 for various applications in Oil and Gas, Semiconductor, Aerospace and chemical processing Industry.

**APPLICATIONS:** chemical industry, aggressive media, high temperatures

Ø Range	Pressure Range	Temperature Range	Velocity
from 0.8 mm	200 MPa	-40 °C +325 °C	–
from 0.031 in	29,000 psi	-40 °F +615 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = **S** Double-acting = **D**

# Static Seals

For further  
product information,  
scan the QR-Code:







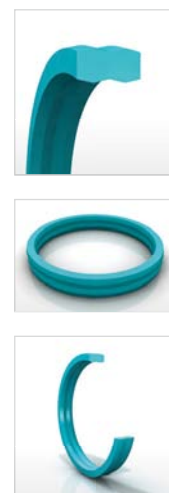
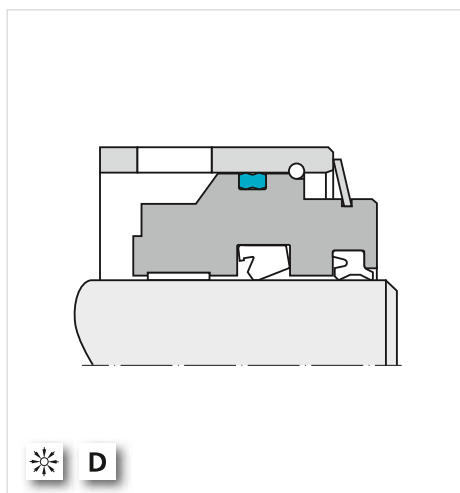
## Zurcon® Dualseal

**MATERIAL:** Zurcon®

Zurcon® Dualseal is a sealing element for static applications and a highly effective alternative to an O-Ring and Back-up Ring combination. The main advantages are resistance to twisting, stability at pulsating pressures and low contamination risk. Zurcon® Dualseal is easy to install and guarantees long service life. Recommended for heavy duty applications in cylinders and valves.

**APPLICATIONS:** mobile hydraulics, twist-free

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 280 mm	50 MPa	-35 °C +110 °C	–
0.236 in – 11 in	7,250 psi	-30 °F +230 °F	–



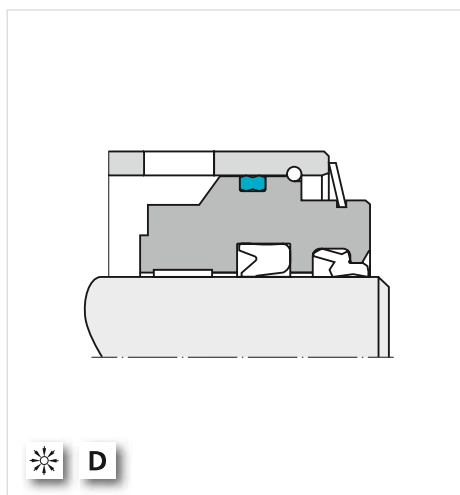
## Elastomeric Dualseal

**MATERIAL:** Elastomeric

Developed to address fluid power industry requirements, the Elastomeric Dualseal is a one-piece alternative to O-Rings and Back-up Rings for static sealing. As a single component, it can easily retrofit existing standard ISO 3601-1/AS 568 O-Ring groove sizes and provides improved performance in most applications.

**APPLICATIONS:** mobile hydraulics, resistant to twisting

Ø Range	Pressure Range	Temperature Range	Velocity
2 – 658 mm	0 – 21 MPa	-30 °C +100 °C	–
0.070 in – 26 in	0 – 3,000 psi	-22 °F +212 °F	–



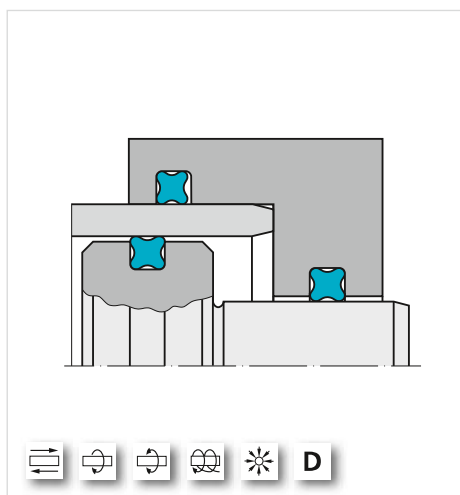
## Quad-Ring® Seal / X-Ring

**MATERIAL:** Elastomeric

A double-acting four lip seal for static and dynamic applications. Available in a wide range of elastomer compounds. Provides higher seal efficiency and lower friction than conventional O-Rings.

**APPLICATIONS:** general purpose, twist-free

Ø Range	Pressure Range	Temperature Range	Velocity
1 – 660 mm	40 MPa	-30 °C +200 °C	0.5 m/s (up to 2 m/s rotary)
0.039 in – 26 in	5,800 psi	-20 °F +390 °F	1.6 ft/s (up to 6.5 ft/s rotary)



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



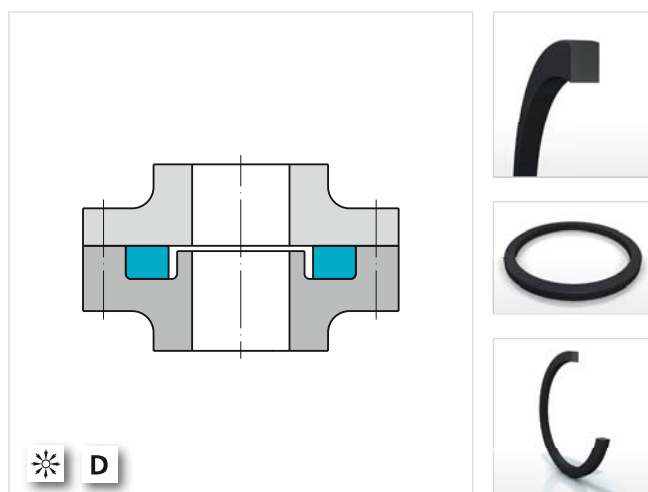
## Kantseal

**MATERIAL:** Elastomeric

Kantseal is an elastomer square sectioned ring for static applications. Mostly used on flanges to SAE standards and covers, it has a high sealing efficiency and keeps its shape. Available in nitrile (NBR) and fluorocarbon (FKM).

**APPLICATIONS:** general purpose for flanges, axial static

Ø Range	Pressure Range	Temperature Range	Velocity
5 – 456 mm	50 MPa	-30 °C +200 °C	–
0.197 in – 18 in	7,250 psi	-20 °F +390 °F	–



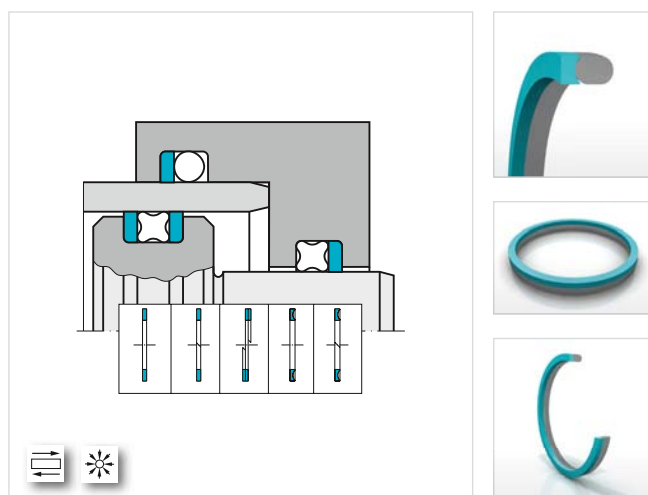
## Back-up Ring

**MATERIALS:** Turcon®, Zurcon®, HiMod®, PTFE, Elastomeric, Polyurethane, Other Polymeric

Back-up Rings are installed together with O-Rings and Quad-Ring® Seals / X-Rings to prevent gap extrusion in applications above 5 MPa / 725 psi. Available in spiral, cut or uncut designs in filled or unfilled PTFE, Turcon®, elastomers and thermoplastics based on ISO 3601, AS 568.

**APPLICATIONS:** general purpose for o-ring and Quad-Ring® Seals / X-Rings

Ø Range	Pressure Range	Temperature Range	Velocity
from 2.9 mm	250 MPa	-200 °C +260 °C	0.5 m/s
from 0.115 in	36,250 psi	-325 °F +500 °F	1.6 ft/s



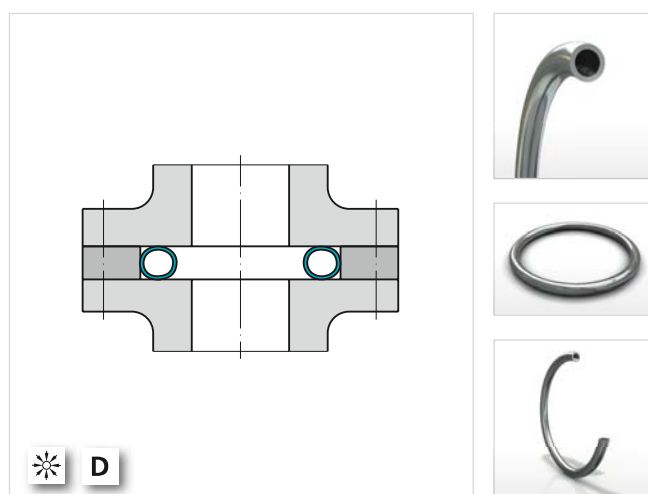
## Wills Rings® O

**MATERIAL:** Metal

Wills Rings® O are metal O-Rings for static face-sealing applications that give reliable performance over a large temperature range for gases and liquids. Extreme high pressures and vacuums can be sealed with Wills Rings® O giving long life and excellent corrosion resistance. Available as pressure-filled, pressure-actuated, non-pressurized and solid seals, in mild and stainless steel, copper and Inconel® 600 materials.

**APPLICATIONS:** general purpose sealing, extreme conditions, flange applications

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 3,000 mm	1,000 MPa	up to +850 °C	–
0.315 in – 118 in	145,000 psi	up to +1,560 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



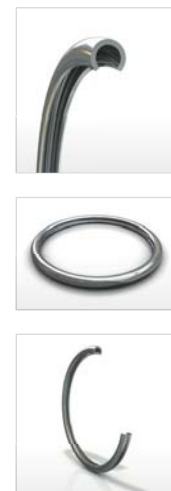
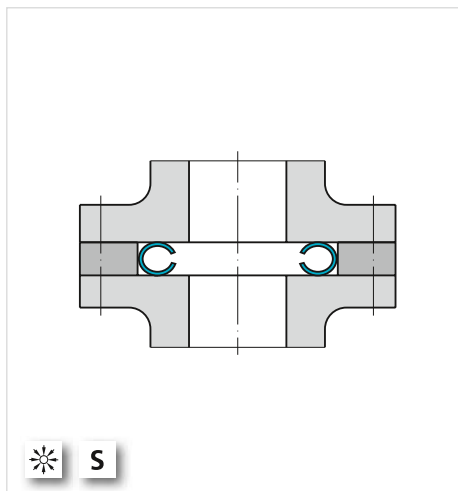
## Wills Rings® C

**MATERIAL:** Metal

Wills Rings® C are metal C-Rings used for almost any static face sealing applications. They give reliable performance over a large temperature range in liquids and can also seal high pressures and vacuums. Wills Rings® C exhibits greater spring back and elasticity than Wills Rings® O. This characteristic provides more effective sealing where thermal expansion of the seal housing is found.

**APPLICATIONS:** general purpose sealing, extreme conditions, flange applications

Ø Range	Pressure Range	Temperature Range	Velocity
20 – 500 mm	200 MPa	up to +750 °C	–
0.787 in – 19.5 in	29,000 psi	up to +1,380 °F	–



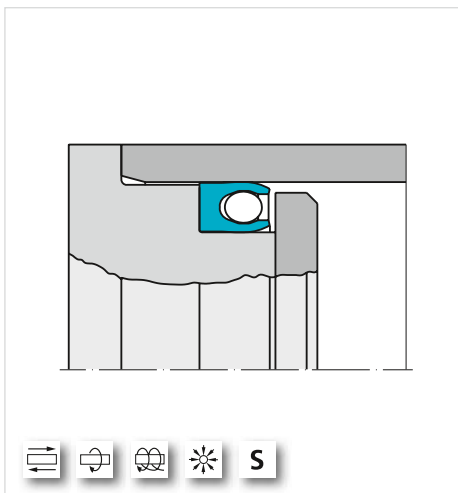
## Turcon® Variseal® H

**MATERIALS:** Turcon®, Zurcon®

A single-acting sealing element comprised of a U-shaped Turcon® ring and a coiled metallic energizing spring. The seal has a high specific sealing force and gives gas-tight sealing even at low temperatures. Resistant to most liquids and chemicals it has unlimited shelf life. Used for radial static or slightly dynamic applications, the seal is available in versions for cryogenic service.

**APPLICATIONS:** chemical industry, gasket fittings, gas sealing

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 3,300 mm	40 MPa	-100 °C +200 °C	–
0.118 in – 130 in	5,800 psi	-150 °F +390 °F	–



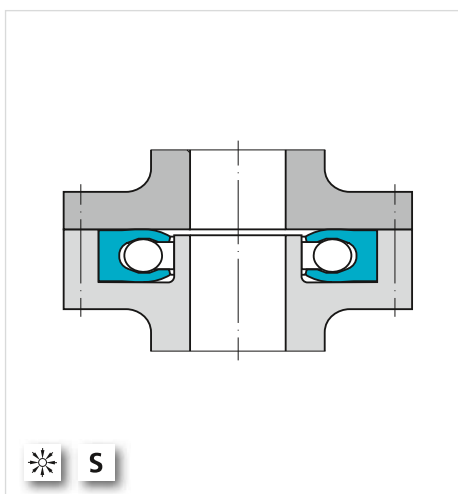
## Turcon® Variseal® HF

**MATERIALS:** Turcon®, Zurcon®

A single-acting face sealing element comprised of a U-shaped Turcon® ring and a coiled metallic energizing spring. The seal has a high specific sealing force and gives gas-tight sealing even at low temperatures. Resistant to most liquids and chemicals it has unlimited shelf life. Used for inside or outside sealing, the seal is available in versions for cryogenic service.

**APPLICATIONS:** chemical industry, flange fittings, gas sealing

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 3,300 mm	60 MPa	-150 °C +200 °C	–
0.118 in – 130 in	8,700 psi	-240 °F +390 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





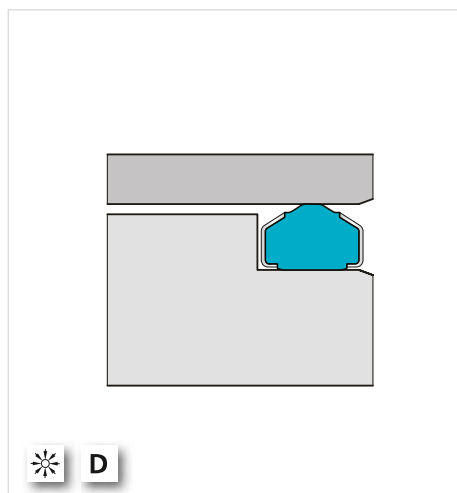
## Metal End Cap (MEC) Seal

**MATERIALS:** Elastomeric, Metal

Elastomer chemically bonded onto 2 steel caps. This provides high level of extrusion resistance.

**APPLICATIONS:** oil and gas welhead, tubing and casing hanger

Ø Range	Pressure Range	Temperature Range	Velocity
50 – 600 mm	100 MPa	-20 °C +177 °C*	–
1.969 in – 23.622 in	15,000 psi	-4 °F +350 °F*	–



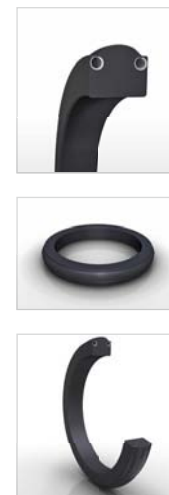
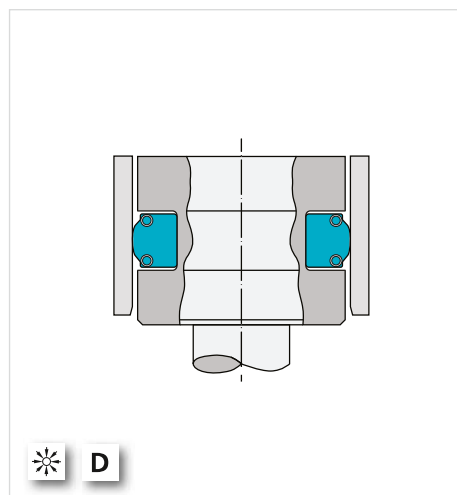
## XploR™ S-Seal

**MATERIALS:** Elastomeric, Metal

Profiled elastomer seal with 2 intergral anti-extrusion springs.

**APPLICATIONS:** oil and gas welhead, tubing and casing hanger

Ø Range	Pressure Range	Temperature Range	Velocity
50 – 600 mm	103.4 MPa	-20 °C to +200 °C	–
1.969 in – 23.62 in	15,000 psi	-4 °F to +392 °F	–



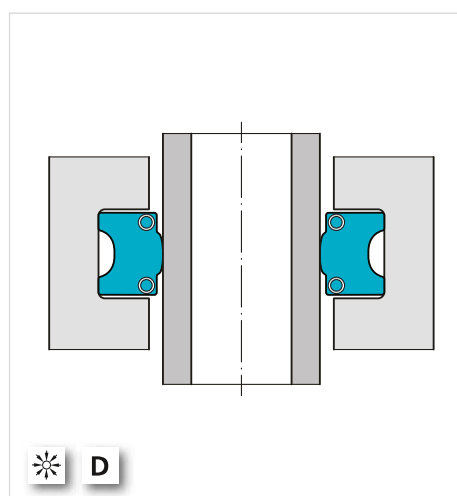
## XploR™ FS-Seal

**MATERIALS:** Elastomeric, Metal

Profiled elastomer seal with 2 intergral anti-extrusion springs. Designed to take up large tolerances on mating hardware.

**APPLICATIONS:** oil and gas welhead, tubing and casing hanger

Ø Range	Pressure Range	Temperature Range	Gap Covered
50 – 600 mm	103.4 MPa	-20 °C to +200 °C	–
1.969 in – 23.62 in	15,000 psi	-4 °F to +392 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



## Flange Seals

**MATERIAL:** Zurcon®

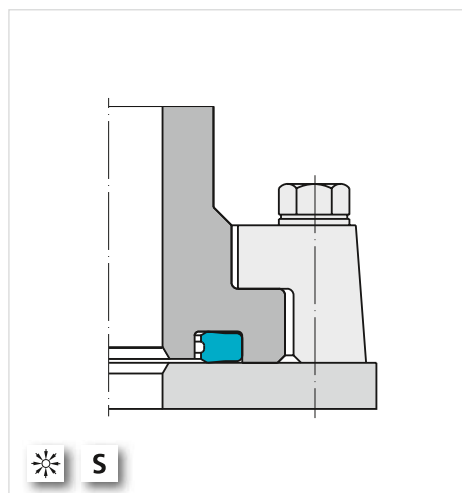
SAE Flange Seals provide high functional security and can easily be mounted and dismounted. They are used in a variety of applications including hydraulics, press manufacturing and materials-handling. SAE Flange Seals corresponding to SAE J 518 are available in three different variants: O-Rings, Rectangle Seals and Zurcon® Flange Seals DRV5

**APPLICATIONS:** mobile hydraulics, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Velocity
15 – 50 mm	42 MPa	-35 °C +110 °C*	–
0.59 in – 2 in	6,000 psi	-30 °F +230 °F*	–

\* -50°C to 110°C for Zurcon® Z22 version

\* -55°F to 230°F for Zurcon® Z22 version



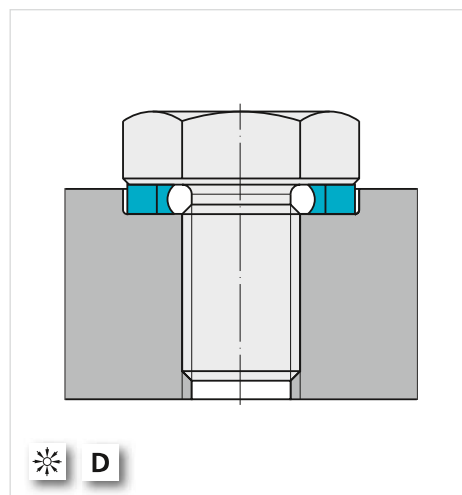
## Bonded Seal

**MATERIALS:** Elastomeric, Metal

These are sealing discs that seal threads and flange joints. The discs consist of a metallic ring and a rubber sealing pad bonded together. Available in metric and inch dimensions.

**APPLICATIONS:** general purposes, general machine operation, automotive industry

Ø Range	Pressure Range	Temperature Range	Velocity
M2.5 – M125	100 MPa	-30 °C +200 °C	–
1/8 in – 2 1/2 in	14,500 psi	-20 °F +390 °F	–



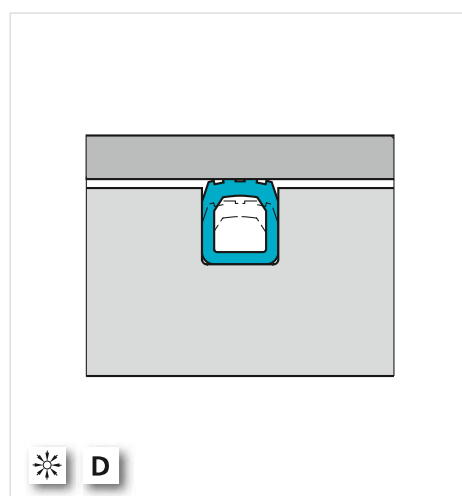
## Airseal

**MATERIAL:** Elastomeric

Airseals are tubular elastomer seals activated by internal pressurization (inflatable seals) with air, water or other media. Airseals are used wherever reliable sealing of accesses to plants, containers and rooms are required. They represent a technically improved alternative to the standard contact pressure seals and can be easily adapted to match the surface to be sealed.

**APPLICATIONS:** chemical industry, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Gap Covered
50 – 4,000 mm	1 MPa	-50 °C +220 °C	1 – 76 mm
2 in – 157 in	145 psi	-55 °F +430 °F	0.04 in – 2.99 in



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D

# Hydraulic Seals – Piston Seals

For further  
product information,  
scan the QR-Code:



## HYDRAULIC SYSTEM CALCULATOR



Our Hydraulic System Calculator helps you to calculate areas and volumes in the cylinder, extraction and retraction forces, time velocity and outflow.

**For more information scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)**



Units of measurement: ☒ Metric ☐ Inches Formulas



Piston / Bore Diameter:  mm

Rod Diameter:  mm

Stroke:  mm





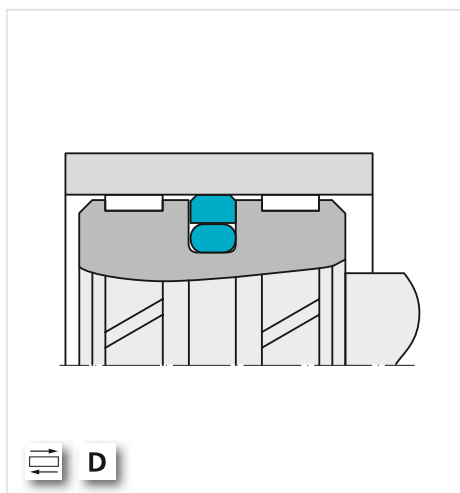
## Turcon® Glyd Ring®

**MATERIALS:** Turcon®, Zurcon®

Turcon® Glyd Ring® is a double-acting O-Ring energized piston seal for dynamic applications. Turcon® Glyd Ring® provides low friction with no stick-slip, minimal break out force and high wear resistance. Main application is actuator cylinders. Installed in grooves to ISO 7425.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.315 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



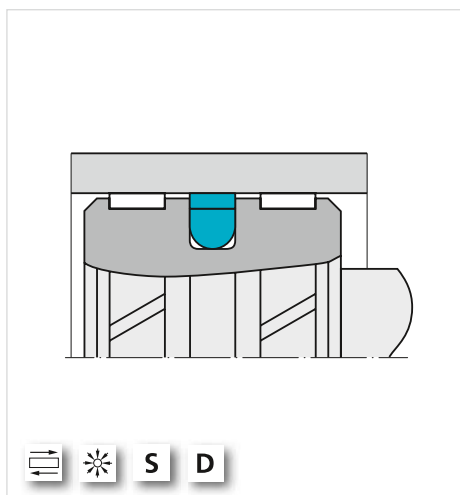
## Turcon® Glyd Ring® II

**MATERIALS:** Turcon®, Zurcon®

The Turcon® Glyd Ring® II is a double-acting, bi-directional seal for demanding applications. It consists of a permanently bonded elastomer energizer and a PTFE-based seal ring to form a one-piece seal.

**APPLICATIONS:** a bonded one-piece seal for all industries with demanding applications which require a custom solution

Ø Range	Pressure Range	Temperature Range	Velocity
2.5 – 1,016 mm	60 MPa	-60 °C +200 °C	15 m/s
0.100 in – 40.0 in	8,700 psi	-76 °F +392 °F	50 ft/s



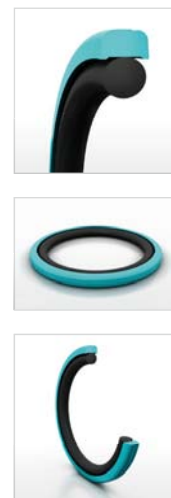
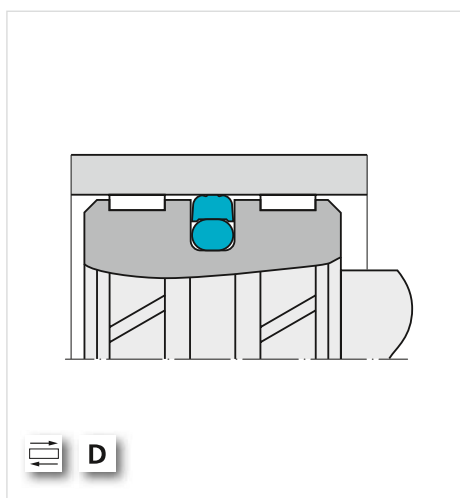
## Zurcon® Glyd Ring® D

**MATERIAL:** Zurcon®

Zurcon® Glyd Ring® D is a double-acting seal consisting of a premium polyurethane Zurcon® Z13 seal ring and an elastomer O-Ring as the energizing element. The innovative D-shaped design optimizes contact pressure and the two special grooves incorporated keep an oil reservoir for adequate lubrication that minimizes heat generated by friction forces.

**APPLICATIONS:** construction machinery, earth moving equipment, mobile hydraulics, truck cranes, forklifts

Ø Range	Pressure Range	Temperature Range	Velocity
–	up to 60 MPa	-30 °C +110 °C*	0.5 m/s
–	8,700 psi	-22 °F +230 °F	1.6 ft/s



\* Depending on O-Ring Energizer Low Temperature can decrease to -45°C (-50°F)

**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



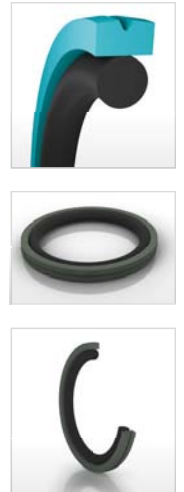
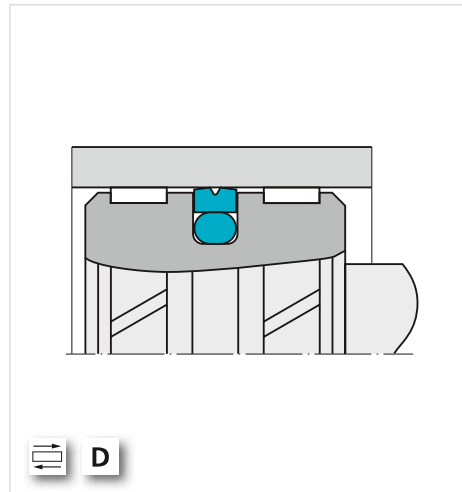
### Turcon® Glyd Ring® Hz

**MATERIALS:** Turcon®, Zurcon®

Turcon® Glyd Ring® Hz is a symmetric, double-acting seal which has design features to allow improved performance over a standard Turcon® Glyd Ring® in high frequency, short stroke applications.

**APPLICATIONS:** high frequency, short stroke applications

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 999.99 mm	30 MPa	-45 °C +200 °C	15 m/s
0.315 in – 39.4 in	4,350 psi	-50 °F +390 °F	50 ft/s



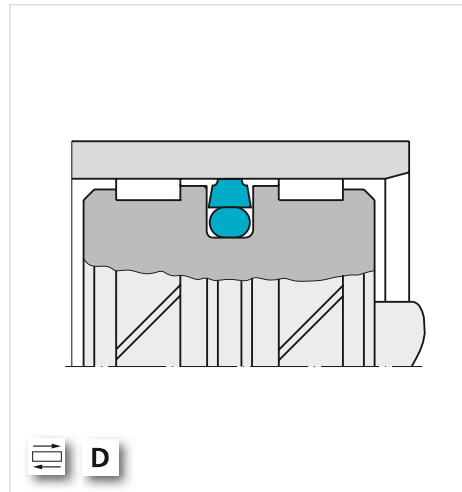
### Turcon® Glyd Ring® T

**MATERIALS:** Turcon®, Zurcon®

Turcon® Glyd Ring® T provides optimum leakage control and good resistance to extrusion. The seal is a double-acting O-Ring energized piston seal for dynamic applications. Installed in grooves to ISO 7425, it has excellent friction characteristics with no stick-slip, minimal break-out force and high wear resistance.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.315 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



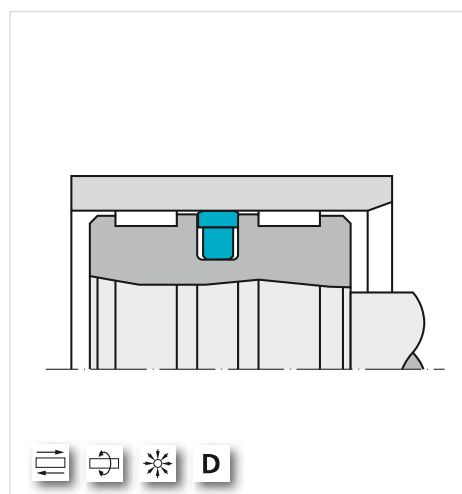
### Zurcon® Glyd Ring® P

**MATERIAL:** Zurcon®

The double-acting Zurcon® Glyd Ring® P is a combination of a Zurcon® based material slipper-seal with a step cut and an energizing rectangular elastomer ring. The high strength of Zurcon® means there can be a two-times larger extrusion gap compared with Turcon® materials. The step cut in the ring is necessary for installation in closed grooves and to give flexibility to this very stiff material.

**APPLICATIONS:** mobile hydraulics, construction machinery

Ø Range	Pressure Range	Temperature Range	Velocity
45 – 190 mm	50 MPa	-30 °C +110 °C	1 m/s
1.75 in – 7.5 in	7,250 psi	-20 °F +230 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



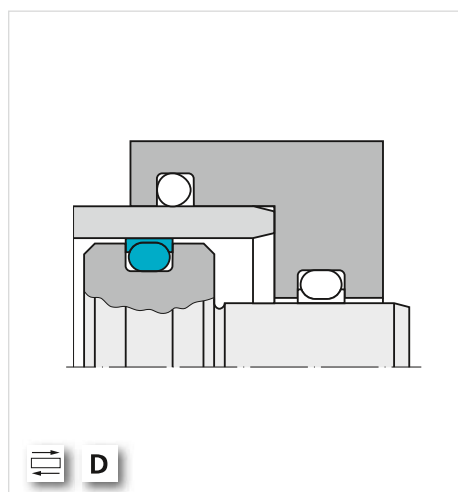
## Turcon® Double Delta®

**MATERIALS:** Turcon®, Zurcon®

The Turcon® Double Delta® is a double-acting sealing element which is energized by an elastomer O-Ring. The Turcon® Double Delta® seal can be fitted in existing O-Ring grooves (US standard AS 568 A, MIL-P-5514) and it demonstrates good friction properties, stick-slip-free starting and excellent dry-running. The Turcon® Double Delta® is used in light and medium-duty industrial hydraulics.

**APPLICATIONS:** hydraulics, light hydraulics, medium hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
4 – 2,700 mm	35 MPa	-45 °C +200 °C	15 m/s
0.157 in – 105 in	5,075 psi	-50 °F +390 °F	50 ft/s



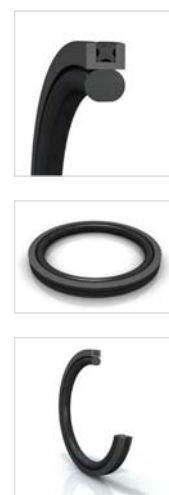
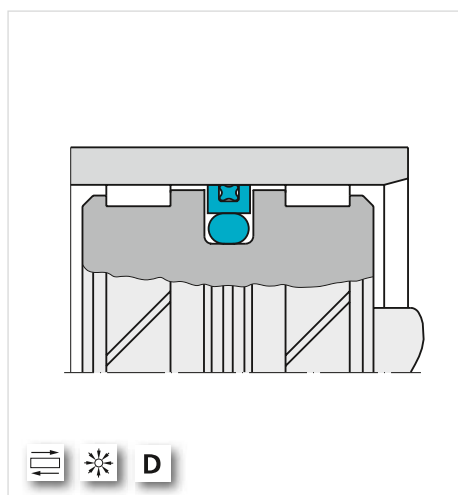
## Turcon® AQ Seal®

**MATERIALS:** Turcon®, Zurcon®, Elastomeric

A double-acting O-Ring energized seal developed for sealing between two media such as fluid and gas. It incorporates a limited footprint Quad-Ring® Seal / X-Ring inset into the dynamic sealing face. Installed in grooves to ISO 7425.

**APPLICATIONS:** hydraulics, medium operation, piston accumulators

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 700 mm	50 MPa	-45 °C +200 °C	2 m/s
0.625 in – 27.5 in	7,250 psi	-50 °F +390 °F	6.5 ft/s



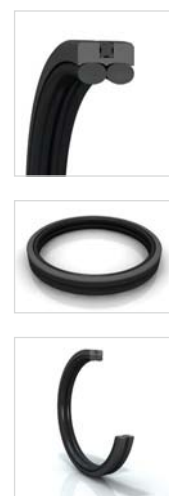
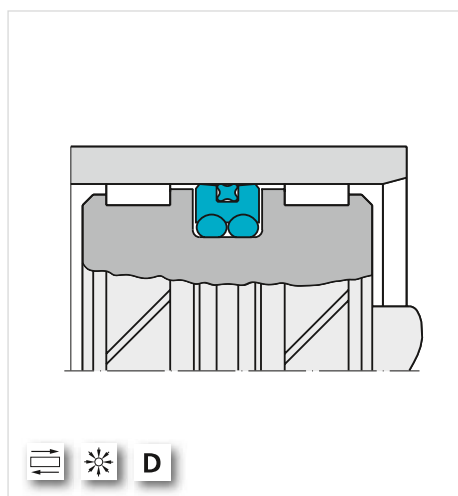
## Turcon® AQ Seal® 5

**MATERIALS:** Turcon®, Zurcon®, Elastomeric

A further development of the standard Turcon® AQ Seal®, the double-acting Turcon® AQ Seal® 5 incorporates an elastomer Quad-Ring® Seal / X-Ring and an elastomer or polyurethane Bean Seal in the dynamic sealing face. It is energized by two O-Rings to improve sealing behavior.

**APPLICATIONS:** hydraulics, fluid/gas separation, mobile hydraulics, heavy operation

Ø Range	Pressure Range	Temperature Range	Velocity
40 – 700 mm	60 MPa	-30 °C +200 °C	3 m/s
1.5 in – 27.5 in	8,700 psi	-22 °F +390 °F	10 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





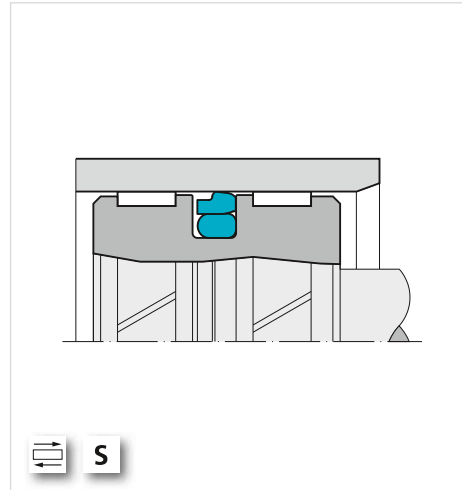
### Turcon® Stepseal® 2K

**MATERIALS:** Turcon®, Zurcon®

A single-acting O-Ring energized piston seal for dynamic applications installed in closed grooves, including grooves to ISO 7425. Turcon® Stepseal® 2K offers high sealing efficiency, low friction with no stick-slip, minimal break out force and high wear resistance. Optimum sealing characteristics are achieved by installing in a tandem Turcon® Stepseal® or Rimseal arrangement together with a double-acting scraper. Available in Turcon® or Zurcon® materials.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.315 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



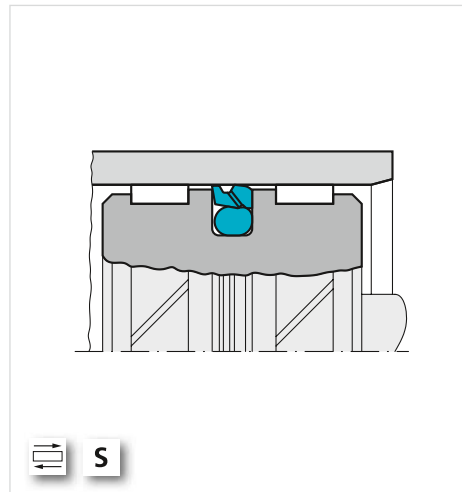
### Turcon® Stepseal® V

**MATERIALS:** Turcon®, Zurcon®

A single-acting O-Ring energized piston seal with hydrostatic pressure relief channel for dynamic applications. It prevents pressure trapping between seals under all service conditions. Installed in closed grooves, including grooves to ISO 7425, Turcon® Stepseal® V offers high sealing efficiency. It also has low friction with no stick-slip, minimal break out force and high wear resistance.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
15 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.600 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



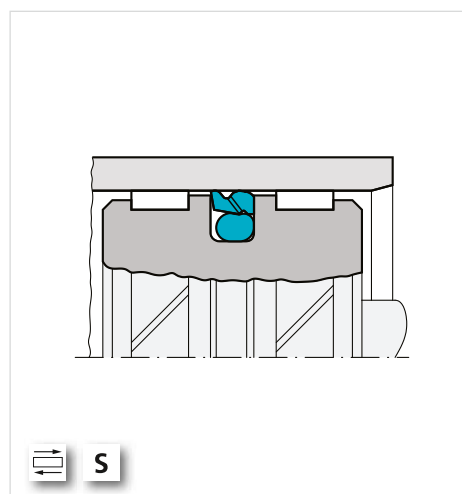
### Turcon® Stepseal® V LM (Lubrication Management)

**MATERIALS:** Turcon®, Zurcon®

A single-acting O-Ring energized piston seal with hydrostatic pressure relief and Lubrication Management. Lubrication Management reduces friction and improves protection of the hardware and the seals. Turcon® Stepseal® V LM provides balanced sealing efficiency with low friction, no stick-slip, minimal break-out force and high wear resistance. The seal is preferably used together with a Turcon® or Zurcon® piston seal as a secondary element.

**APPLICATIONS:** lubrication management, mobile hydraulics, wind turbines, injection molding machines, presses

Ø Range	Pressure Range	Temperature Range	Velocity
15 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.600 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



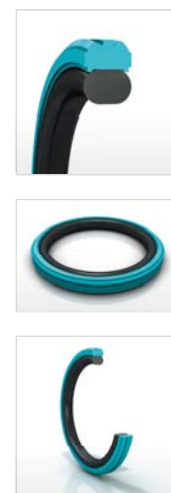
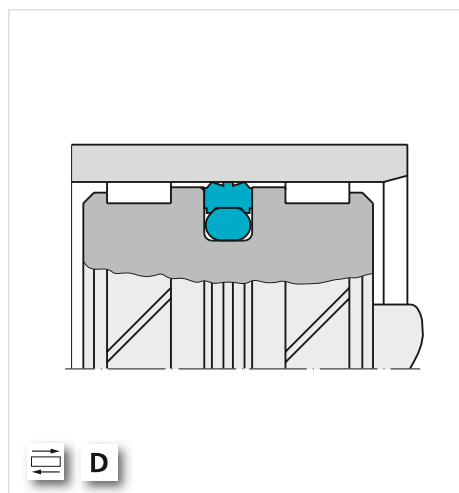
## Zurcon® Wynseal

**MATERIAL:** Zurcon®

A double-acting O-Ring energized piston seal in injection molded polyurethane for dynamic applications. Installed in grooves to ISO 7425, Zurcon® Wynseal offers high sealing efficiency, and is tear and abrasion resistant.

**APPLICATIONS:** hydraulics, light hydraulics, medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 250 mm	25 MPa	-35 °C +110 °C	0.8 m/s
0.625 in – 10 in	3,626 psi	-30 °F +230 °F	2.6 ft/s



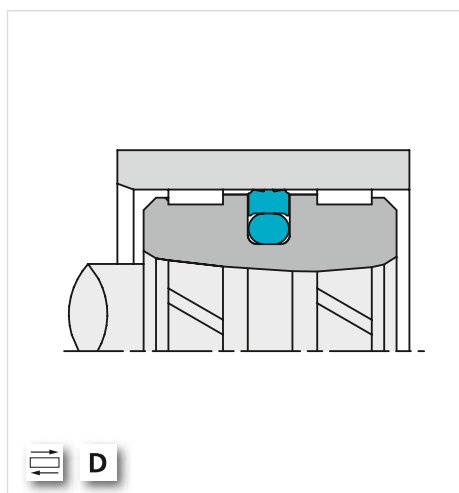
## Zurcon® Wynseal M

**MATERIALS:** Turcon®, Zurcon®

A double-acting O-Ring energized piston seal for dynamic applications in a machined version. All diameters up to 2,700 mm / 105 in. Installed in grooves to ISO 7425. High sealing efficiency in tear and abrasion resistant Zurcon® polyurethane. Also available in Turcon® materials.

**APPLICATIONS:** hydraulics, light hydraulics, medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 2,700 mm	50 MPa	-45 °C +200 °C	10 m/s
0.315 in – 100 in	7,250 psi	-50 °F +390 °F	33 ft/s



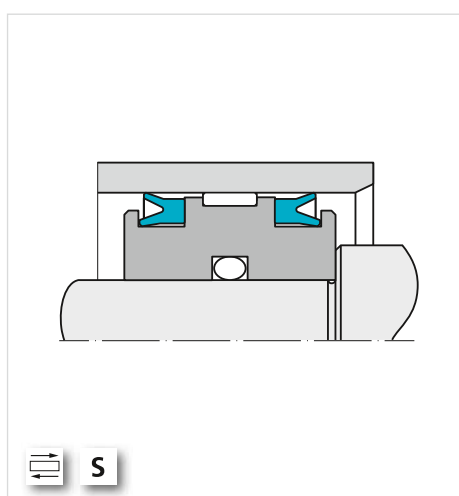
## Zurcon® U-Cup

**MATERIAL:** Zurcon®

Zurcon® U-Cup is a single-acting polyurethane piston seal that is available in a wide range of sizes. The seal is suitable for assembly into closed grooves and mainly used in light-duty cylinder applications in mobile equipment.

**APPLICATIONS:** fluid power, hydraulic cylinders, general maintenance

Ø Range	Pressure Range	Temperature Range	Velocity
14 – 250 mm	40 MPa	-35 °C +110 °C	0.5 m/s
0.550 in – 10 in	5,800 psi	-30 °F +230 °F	1.6 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



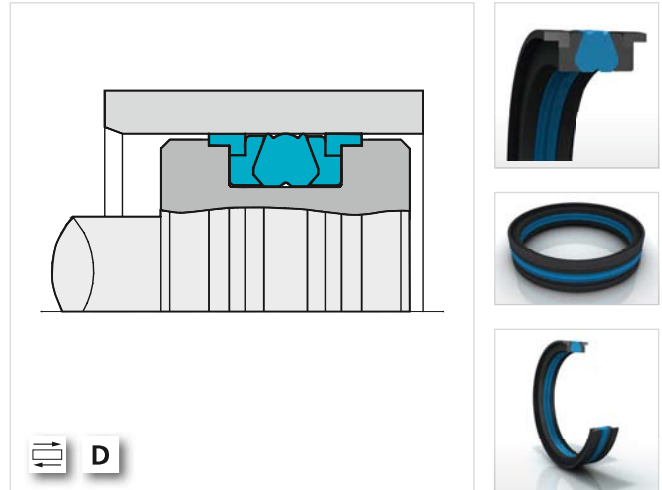
### Compact Seal POLYPAC® DBM

**MATERIALS:** Zurcon®, HiMod®, Elastomeric, Other Polymeric

Double-acting compact piston seal assemblies consisting of an elastomer piston seal, two thermoelastomeric Back-up Rings and two thermoplastic wear rings. They are installed in closed grooves.

**APPLICATIONS:** hydraulics, standard cylinder, light to medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
20 – 250 mm	35 MPa	-35 °C +100 °C	0.5 m/s
0.800 in – 10 in	5,075 psi	-30 °F +210 °F	1.6 ft/s



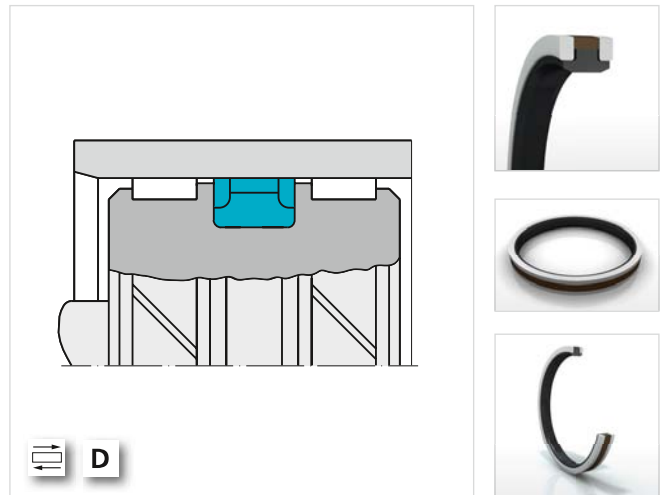
### POLYPAC® PHD/CST Seal

**MATERIALS:** Turcon®, Zurcon®, PTFE

A heavy duty compact double-acting piston seal, the Polypac® PHD/CST Seal is an elastomer energized PTFE assembly. It gives stability, wear resistance, sealability, low friction and a maintenance-free long life. HiMod® Back-up Rings are specially designed to protect the seal ring from extrusion, even in the most demanding applications. Available in metric and inch sizes.

**APPLICATIONS:** hydraulics, mobile hydraulics, construction machinery

Ø Range	Pressure Range	Temperature Range	Velocity
50 – 180 mm	40 MPa	-45 °C +135 °C	1.5 m/s
2 in – 7 in	5,800 psi	-50 °F +275 °F	5 ft/s



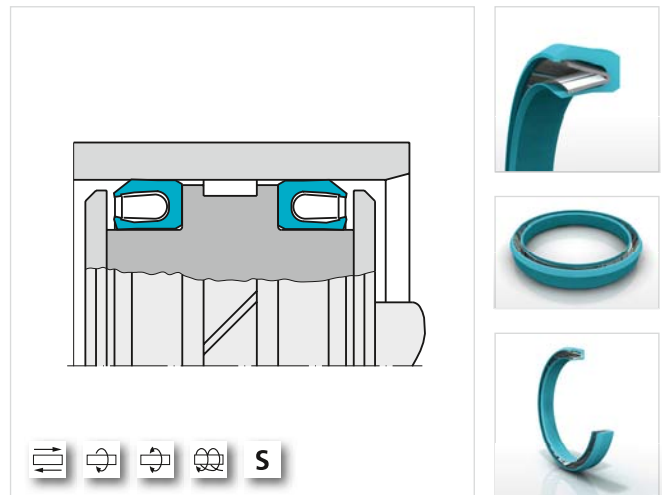
### Turcon® Variseal® M2

**MATERIALS:** Turcon®, Zurcon®

A single-acting sealing element comprised of a U-shaped Turcon® ring and metallic energizing finger spring. It offers low friction with no stick-slip, minimal break out force and high wear resistance. Resistant to most liquids and chemicals, it has an unlimited shelf life.

**APPLICATIONS:** hydraulics, chemical industry, aggressive media

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 3,300 mm	D: 20 MPa S: 40 MPa	-70 °C +300 °C	L: 15 m/s R/O/H: 1.3 m/s
0.236 in – 130 in	D: 2,900 psi S: 5,800 psi	-95 °F +570 °F	L: 50 ft/s R/O/H: 4.2 ft/s



S = Static, D = Dynamic, L = Linear, R/O/H = Rotary/Oscillating/Helix

**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





## Turcon® Variseal® W2

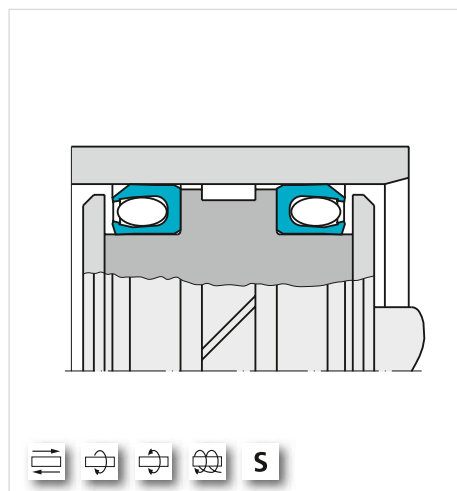
**MATERIALS:** Turcon®, Zurcon®

Turcon® Variseal® W2 is a single-acting rod seal energized by a slantcoil spring. The advantage of the Turcon® Variseal® W2 lies in its low friction and relatively constant preloading force over a relatively large deformation range. The seal is used wherever friction has to be kept within a narrow tolerance zone, for instance in pressure switches.

**APPLICATIONS:** chemical industry, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 3,300 mm	D: 20 MPa S: 40 MPa	-70 °C +300 °C	L: 15 m/s R/O/H: 1.3 m/s
0.118 in – 130 in	D: 2,900 psi S: 5,800 psi	-95 °F +570 °F	L: 50 ft/s R/O/H: 4.2 ft/s

S = Static, D = Dynamic, L = Linear, R/O/H = Rotary/Oscillating/Helix



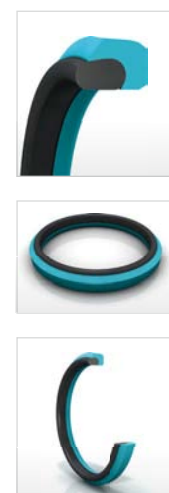
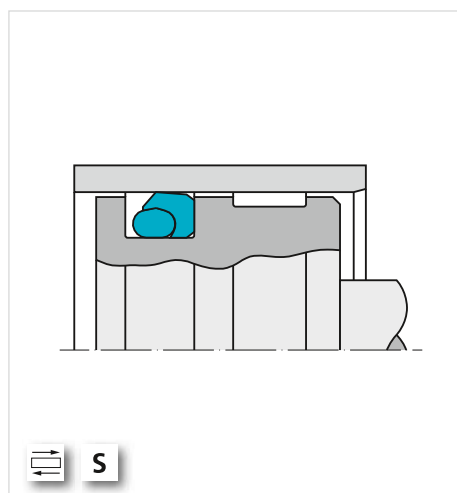
## Turcon® VL Seal®

**MATERIALS:** Turcon®, Zurcon®

The Turcon® VL Seal® is a single-acting L-shaped Turcon® seal with an elastic energizer for dynamic applications. Its design provides low friction, no stick-slip effect, high wear resistance. It features the Turcon® Stepseal® back pumping effect and is also available in Zurcon®. The seal can be installed in a standard O-Ring groove.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 2,700 mm	60 MPa	-45 °C +200 °C	15 m/s
0.400 in – 105 in	8,700 psi	-50 °F +390 °F	50 ft/s



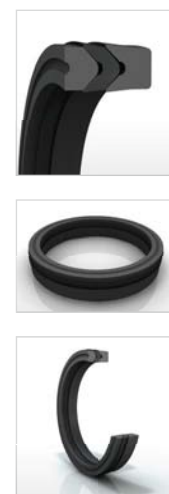
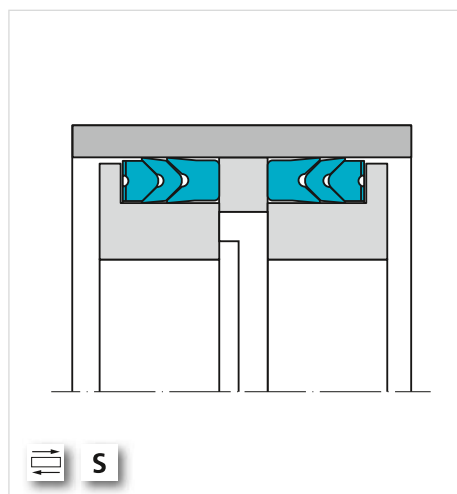
## POLYPAC® Veepac

**MATERIAL:** Elastomeric

Polypac® Veepac is an assembly of fabric-reinforced, highly wear resistant, chevron sealing rings with a support ring and a pressure energizing ring. The seals are designed with preloaded radial lips to provide excellent sealing. They are very robust, not sensitive to surface finish and dimensionally adjustable. They are especially suited to applications where there is risk of damage and contamination.

**APPLICATIONS:** hydraulic cylinders, machine presses, mining, steel mills, water management

Ø Range	Pressure Range	Temperature Range	Velocity
40 – 250 mm	40 MPa	-30 °C +200 °C	0.5 m/s
1.5 in – 10 in	5,800 psi	-20 °F +390 °F	1.6 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



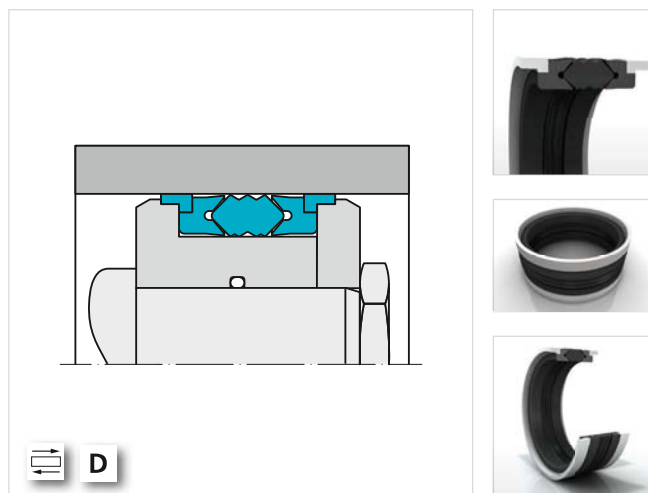
## POLYPAC® Selemaster DSM

**MATERIAL:** Elastomeric

A double-acting compact piston seal with an integrated Back-up Ring and guide ring. The multi-lip elastomer seal element is backed on both sides with fiber-reinforced profile rings. Recommended for high pressure applications and where vibration occurs.

**APPLICATIONS:** hydraulic cylinders, presses mining, steel mills, water management

Ø Range	Pressure Range	Temperature Range	Velocity
45 – 360 mm	70 MPa	-40 °C +130 °C	0.5 m/s
1.75 in – 14 in	10,150 psi	-40 °F +270 °F	1.6 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = **S** Double-acting = **D**

# Hydraulic Seals – Rod Seals

For further  
product information,  
scan the QR-Code:



## HYDRAULIC SYSTEM CALCULATOR



Our Hydraulic System Calculator helps you to calculate areas and volumes in the cylinder, extraction and retraction forces, time velocity and outflow.

**For more information scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)**



Units of measurement: ☒ Metric ☐ Inches Formulas



Piston / Bore Diameter:  mm

Rod Diameter:  mm

Stroke:  mm





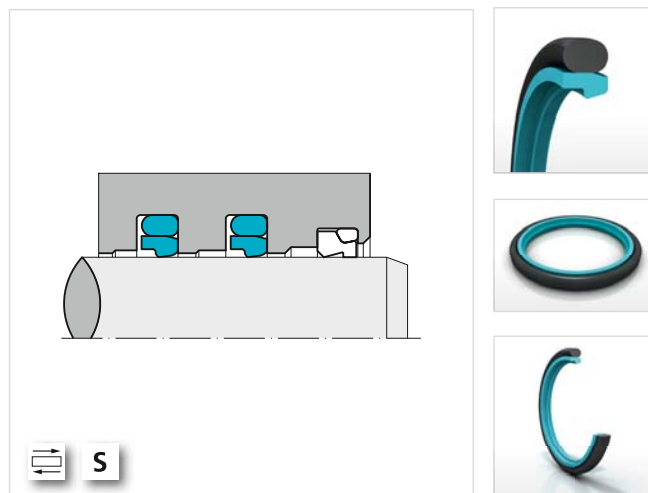
## Turcon® Stepseal® 2K

**MATERIALS:** Turcon®, Zurcon®

A single-acting, O-Ring energized rod seal for dynamic applications, Turcon® Stepseal® 2K can be installed in closed grooves including grooves to ISO 7425. It offers high sealing efficiency, low friction with no stick-slip, minimal break out force and high wear resistance. Optimum sealing characteristics are achieved by installing in a tandem Turcon® Stepseal® or Rimseal arrangement together with a double-acting scraper. Available in Turcon® or Zurcon® materials.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.120 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



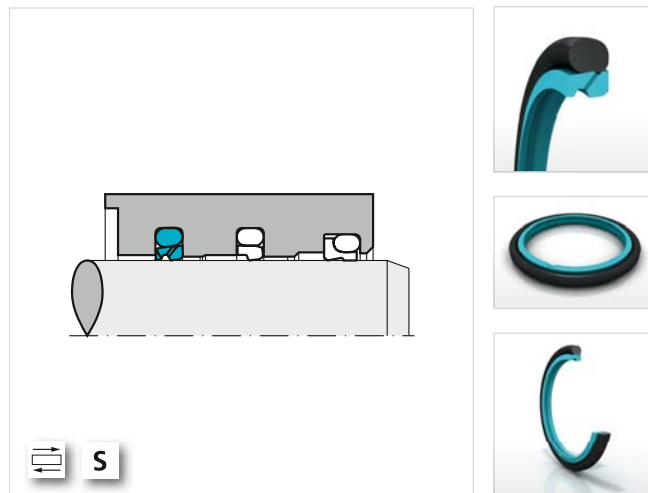
## Turcon® Stepseal® V

**MATERIALS:** Turcon®, Zurcon®

A single-acting, O-Ring energized rod seal with hydrostatic pressure relief channel for dynamic applications. Prevents pressure trap between seals under all service conditions. Installed in closed grooves including grooves to ISO 7425, Turcon® Stepseal® V offers high sealing efficiency. It also gives low friction with no stick-slip, minimal break out force and high wear resistance.

**APPLICATIONS:** hydraulics, machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
12 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.500 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



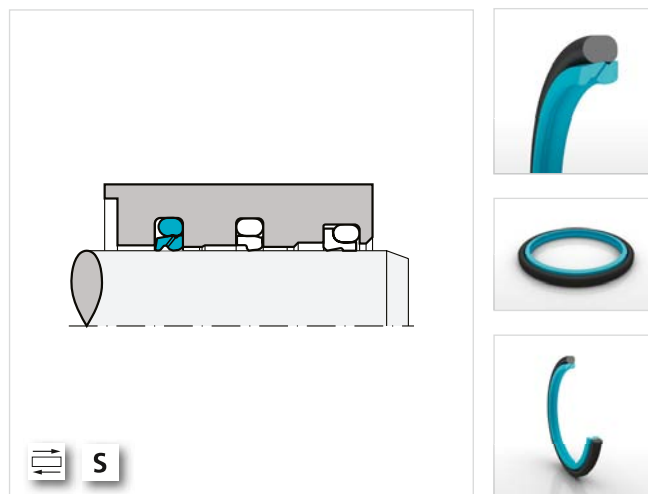
## Turcon® Stepseal® V LM (Lubrication Management)

**MATERIALS:** Turcon®, Zurcon®

A single-acting O-Ring energized rod seal with hydrostatic pressure relief and Lubrication Management. Lubrication Management reduces friction and improves protection of the hardware and the seals. Turcon® Stepseal® V LM provides balanced sealing efficiency with low friction, no stick-slip, minimal break-out force and high wear resistance. The seal is preferably used together with Turcon® or Zurcon® rod seal as a secondary element.

**APPLICATIONS:** lubrication management, mobile hydraulics, wind turbines, injection molding machines, presses

Ø Range	Pressure Range	Temperature Range	Velocity
12 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.500 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



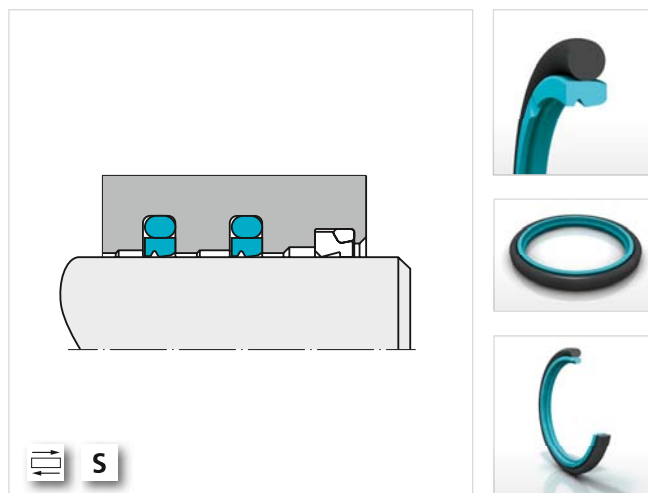
## Turcon® Stepseal® 2A

**MATERIALS:** Turcon®, Zurcon®, Polyurethane

Turcon® Stepseal® 2A has all of the excellent performance characteristics of Turcon® Stepseal® 2K with additional design features to protect against tilting as a result of back pressure.

**APPLICATIONS:** industrial hydraulics, mobile hydraulics, machine tools, hydraulic press, injection molding presses

Ø Range	Pressure Range	Temperature Range	Velocity
18 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.709 in – 102.4 in	8,700 psi	-50 °F +390 °F	50 ft/s



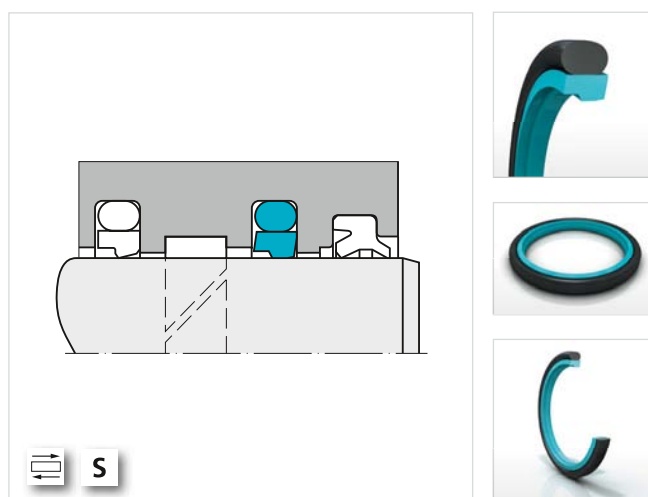
## Zurcon® Rimseal

**MATERIAL:** Zurcon®

Zurcon® Rimseal is a single-acting rod seal energized by an elastomer O-Ring with high static and dynamic tightness. Installation spaces are identical to those used for the Turcon® Stepseal® 2K, making Zurcon® Rimseal an ideal secondary system element. Applications include rod seals with redundant sealing systems and double wipers in mobile hydraulics, machine tools and injection molding machines.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 2,200 mm	60 MPa (in tandem)	-45 °C +110 °C	5 m/s (in tandem)
0.315 in – 87 in	8,700 psi (in tandem)	-50 °F +230 °F	16 ft/s (in tandem)



## Zurcon® Rimseal IM

**MATERIAL:** Zurcon®

Zurcon® Rimseal IM is a single-acting rod seal energized by an elastomer O-Ring with good static and dynamic tightness. It is optimized for injection molding technology and improves contact pressure distribution with improved back-pumping and extrusion behavior. Installation grooves are identical to those used for Turcon® Stepseal® 2K, making Zurcon® Rimseal an ideal secondary seal. Zurcon® Z13 allows the seal to withstand higher temperatures and many hydraulic media.

**APPLICATIONS:** hydraulics, construction machinery, mobile hydraulics, machine tools

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 999.9 mm	60 MPa (in tandem)	-30 °C +110 °C*	5 m/s (in tandem)
0.315 in – 39 in	8,700 psi (in tandem)	-22 °F +230 °F	16 ft/s (in tandem)

\* Depending on O-Ring Energizer Low Temperature can decrease to -45°C (-50°F)



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



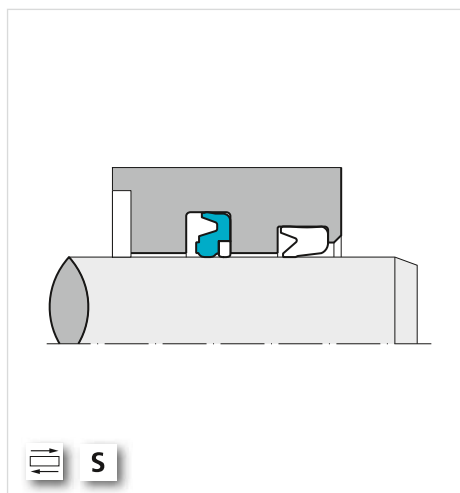
## Zurcon® Buffer Seal LM

**MATERIAL:** Zurcon®

In heavy-duty applications, leak-free performance and good service life cannot be assured by a single seal; therefore, specially developed system seals are arranged in series, building a tandem configuration. This innovative design incorporates large radius rounded edges on the seal ring and Back-up Ring that lower contact pressure, allowing a thicker amount of fluid to lubricate and activate the secondary seal.

**APPLICATIONS:** earth moving equipment, mobile hydraulic, construction machinery

Ø Range	Pressure Range	Temperature Range	Velocity
40 – 140 mm	40 MPa	-35 °C +110 °C	1 m/s
2 in – 8 in	5,800 psi	-30 °F +230 °F	3.2 ft/s



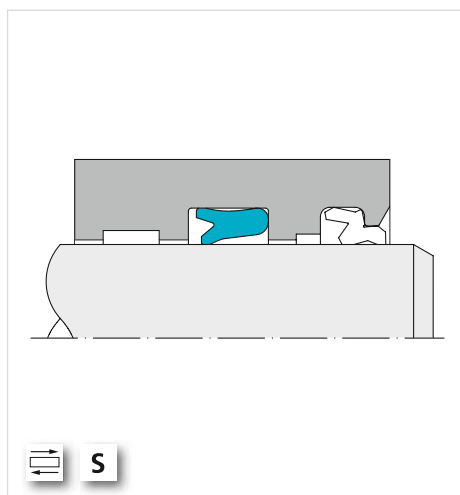
## Zurcon® U-Cup RU9

**MATERIAL:** Zurcon®

Rod seals are particularly exposed to pressure and friction and a long service life is a specific requirement of piston rods. Zurcon® U-Cup RU9 can offer this with its outstanding wear and extrusion resistance. It is also compatible with virtually all media, has a wide operating temperature range, and gives low friction. It has compact installation dimensions and is easy to assemble. Can be used as a stand alone element with limitation to 40 MPa or in a tandem system with pressure up to 50 MPa.

**APPLICATIONS:** hydraulic cylinder, mobile hydraulics, industrial hydraulic

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 140 mm	50 MPa	-35 °C +110 °C	0.5 m/s
0.375 in – 8 in	7,250 psi	-30 °F +230 °F	1.6 ft/s



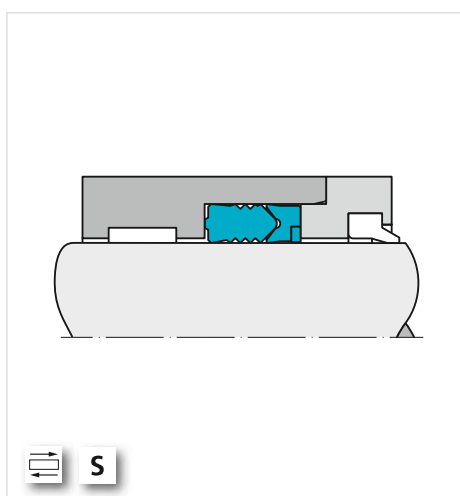
## POLYPAC® Selemaster SM

**MATERIAL:** Elastomeric

Compact rod seal designed for Veepac grooves and high pressure applications. The multi-lip elastomer sealing element is supported by a fiber-reinforced back with an integrated Back-up Ring.

**APPLICATIONS:** hydraulic cylinders, presses, mining, steel mills, water management

Ø Range	Pressure Range	Temperature Range	Velocity
27 – 360 mm	70 MPa	-40 °C +130 °C	0.5 m/s
1.06 in – 14 in	10,150 psi	-40 °F +270 °F	1.6 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





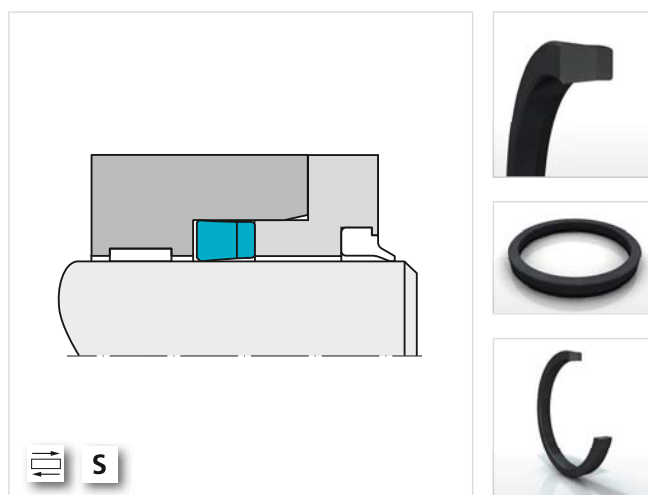
## Polypac® Balsele

**MATERIAL:** Elastomeric

A single-acting compact seal comprised of an elastomer sealing lip, supported by a fiber-reinforced back with optional integrated plastic Back-up Ring for high pressure applications. Recommended for use in standard hydraulic cylinders, presses and mobile hydraulics.

**APPLICATIONS:** hydraulic cylinders, presses, mobile plant

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 1,200 mm	40 MPa	-30 °C +130 °C	0.5 m/s
0.394 in – 47 in	5,800 psi	-20 °F +270 °F	1.6 ft/s



## Zurcon® L-Cup

**MATERIAL:** Zurcon®

A single-acting rod seal, Zurcon® L-Cup is an alternative to the U-Cup. It is a highly effective sealing system offering optimized sealing performance and extended service life. With exceptionally low friction properties, it has high wear resistance, back pumping ability along with high static and dynamic tightness.

**APPLICATIONS:** hydraulics, standard cylinders

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 270 mm	40 MPa	-35 °C +110 °C	0.5 m/s
0.315 in – 10.5 in	5,800 psi	-30 °F +230 °F	1.6 ft/s



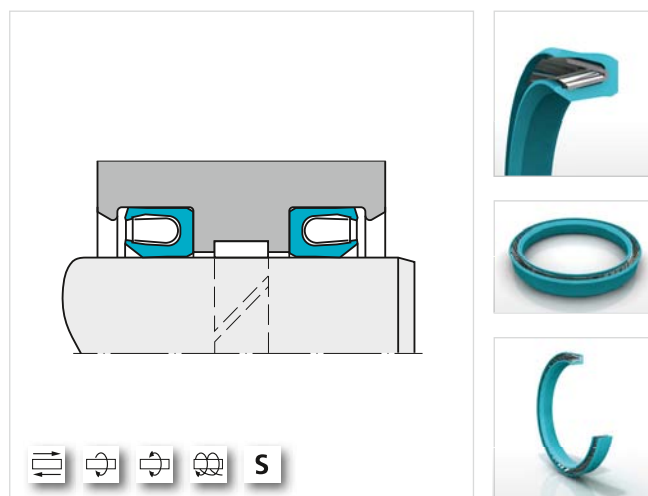
## Turcon® Variseal® M2

**MATERIALS:** Turcon®, Zurcon®

A single-acting sealing element comprised of a U-shaped Turcon® ring and metallic energizing finger spring. It offers low friction with no stick-slip, minimal break out force and high wear resistance. Resistant to most liquids and chemicals, it has unlimited shelf life.

**APPLICATIONS:** hydraulics, chemical industry, general mechanical applications, aggressive media, food and beverage

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 3,300 mm	S: 40 MPa D: 20 MPa	-70 °C +300 °C	L: 15 m/s R/O/H: 1.3 m/s
0.118 in – 130 in	S: 5,800 psi D: 2,900 psi	-95 °F +570 °F	L: 50 ft/s R/O/H: 4.2 ft/s



S = Static, D = Dynamic, L = Linear, R/O/H = Rotary/Oscillating/Helix

**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = **S** Double-acting = **D**



## Turcon® Variseal® W2

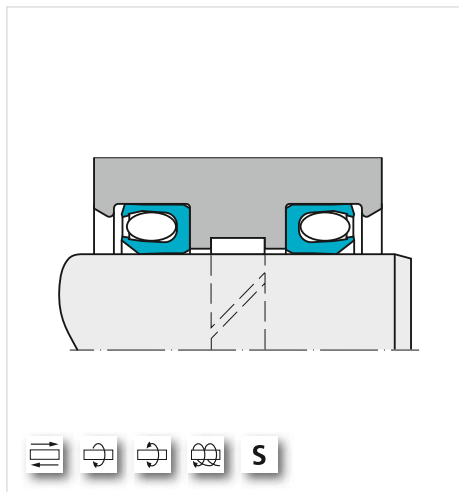
**MATERIALS:** Turcon®, Zurcon®

Turcon® Variseal® W2 is a single-acting rod seal energized by a special Slantcoil® spring. The advantage of the Turcon® Variseal® W2 lies in its low friction and relatively constant preloading force over a relatively large deformation range. The seal is used wherever friction has to be kept within a narrow tolerance zone, for instance in pressure switches.

**APPLICATIONS:** chemical industry, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 3,300 mm	S: 40 MPa D: 20 MPa	-70 °C +300 °C	L: 15 m/s R/O/H: 1.3 m/s
0.118 in – 130 in	S: 5,800 psi D: 2,900 psi	-95 °F +570 °F	L: 50 ft/s R/O/H: 4.2 ft/s

S = Static, D = Dynamic, L = Linear, R/O/H = Rotary/Oscillating/Helix



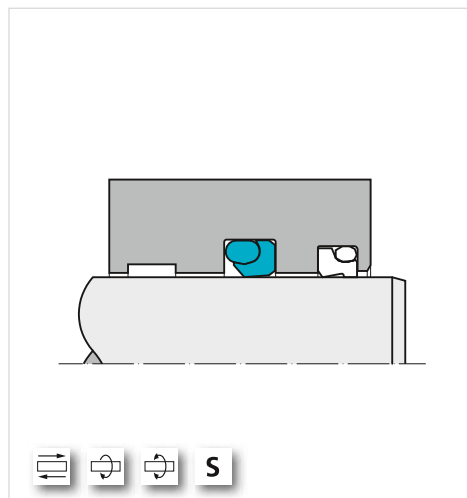
## Turcon® VL Seal®

**MATERIALS:** Turcon®, Zurcon®

A single-acting L-shaped Turcon® seal with an elastomer energizer for dynamic applications. The design provides low friction, no stick-slip, high wear resistance and features the Turcon® Stepseal® back pumping effect. Available in Turcon® and Zurcon® materials. Installed in standard O-Ring groove.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.236 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



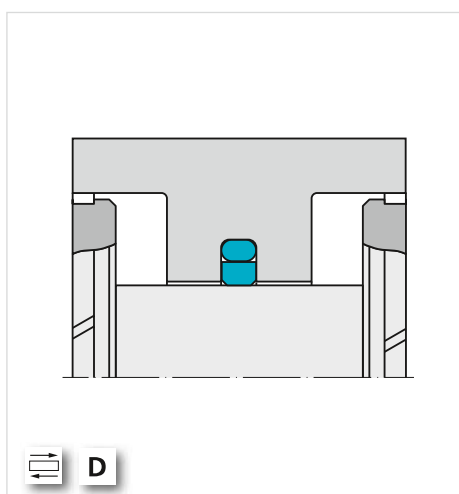
## Turcon® Glyd Ring®

**MATERIALS:** Turcon®, Zurcon®

Turcon® Glyd Ring® is a double-acting O-Ring energized rod seal for dynamic applications. It provides low friction with no stick-slip, minimal break out force and high wear resistance. Installed in grooves to ISO 7425.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.118 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



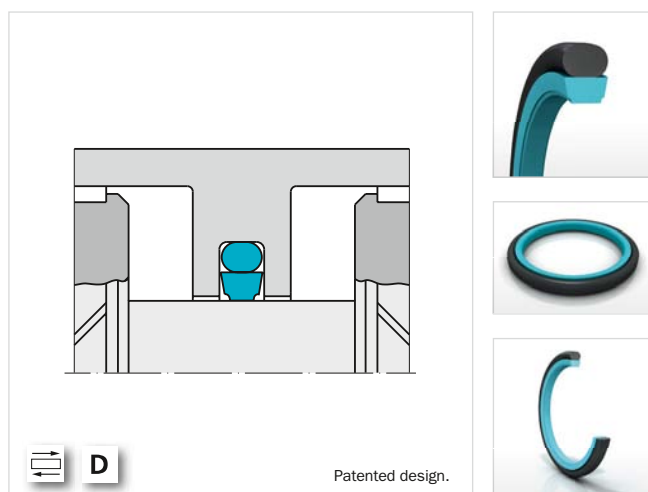
## Turcon® Glyd Ring® T

**MATERIALS:** Turcon®, Zurcon®

A further development of the Turcon® Glyd Ring® T provides improved leakage control and better resistance to extrusion. It is a double-acting O-Ring energized rod seal for dynamic applications that can be installed in grooves to ISO 7425. It offers low friction with no stick-slip, minimal break out force and high wear resistance.

**APPLICATIONS:** hydraulics, general machine operation, machine tools, mobile hydraulics

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 2,600 mm	60 MPa	-45 °C +200 °C	15 m/s
0.118 in – 102 in	8,700 psi	-50 °F +390 °F	50 ft/s



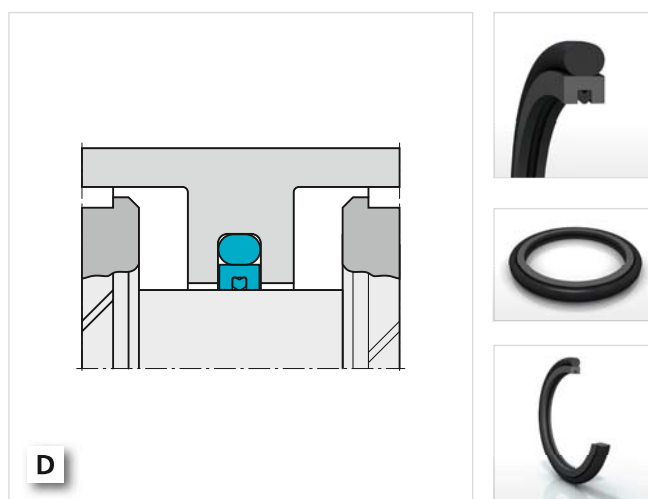
## Turcon® AQ Seal® with Bean Seal

**MATERIALS:** Turcon®, Zurcon®

A double-acting O-Ring energized seal developed for sealing between two media such as fluid and gas. It incorporates a limited footprint polyurethane Bean Seal inset into the dynamic sealing face. Installed in grooves to ISO 7425.

**APPLICATIONS:** hydraulics, general machine operation, fluid/gas separation, medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
18 – 2,200 mm	50 MPa	-45 °C +110 °C	2 m/s
0.725 in – 87 in	7,250 psi	-50 °F +230 °F	6.5 ft/s



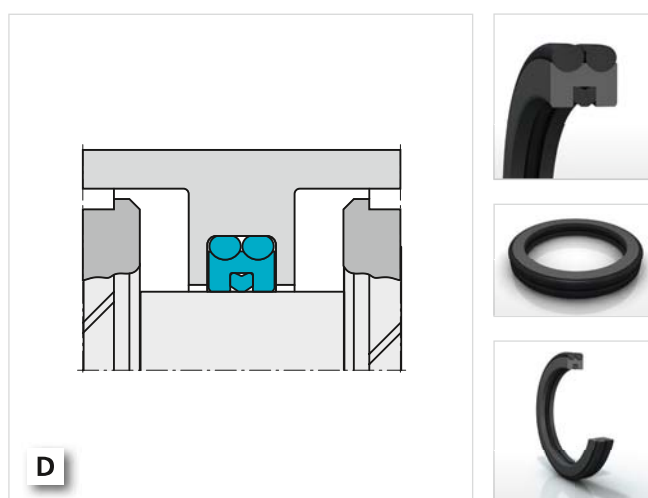
## Turcon® AQ Seal® 5 with Bean Seal

**MATERIALS:** Turcon®, Zurcon®

A further development of the standard Turcon® AQ Seal® double-acting seal with a polyurethane Bean Seal in the dynamic sealing face. It is energized by two O-Rings to improve sealing behavior.

**APPLICATIONS:** hydraulics, fluid/gas separation, mobile hydraulics, heavy operation

Ø Range	Pressure Range	Temperature Range	Velocity
32 – 2,200 mm	60 MPa	-45 °C +110 °C	3 m/s
1.275 in – 87 in	8,700 psi	-50 °F +230 °F	10 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



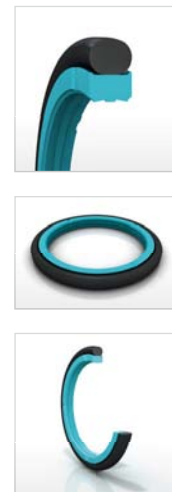
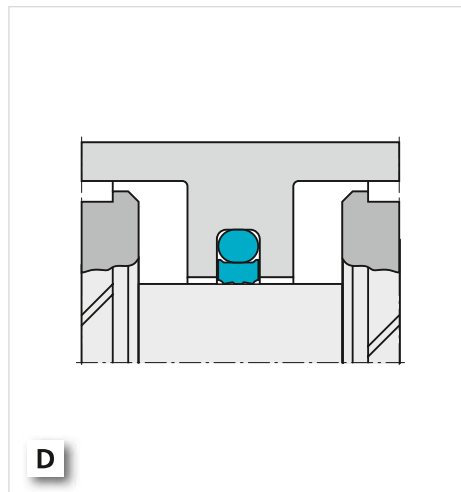
## Zurcon® Wynseal M

**MATERIALS:** Turcon®, Zurcon®

A double-acting O-Ring energized rod seal for dynamic applications in a machined version for all diameters up to 2,600 mm / 102 in. It can be installed in grooves to ISO 7425 and provides high sealing efficiency in tear and abrasion resistant Zurcon® polyurethane. Also available in Turcon® materials.

**APPLICATIONS:** hydraulics, light hydraulics, medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 2,600 mm	50 MPa	-45 °C +200 °C	10 m/s
0.120 in – 102 in	7,250 psi	-50 °F +390 °F	33 ft/s



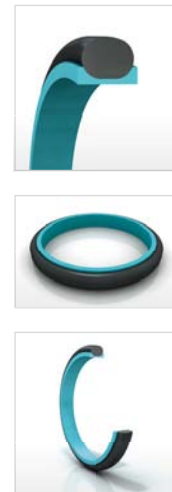
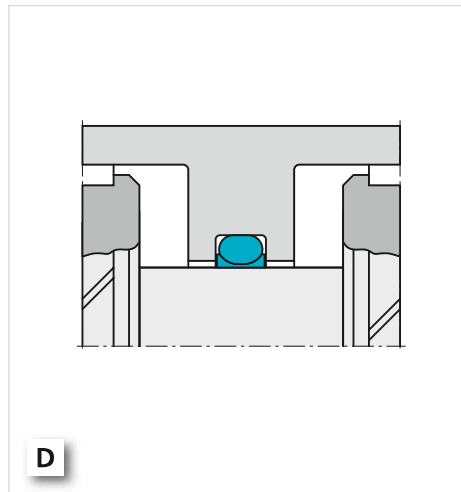
## Turcon® Double Delta®

**MATERIALS:** Turcon®, Zurcon®

The Turcon® Double Delta® is a double-acting sealing element which is energized by an elastomer O-Ring. The Turcon® Double Delta® seal can be fitted in existing O-Ring grooves (US standard AS 568 A, MIL-P-5514) and demonstrates good friction properties, stick-slip free starting and excellent dry-running. The Turcon® Double Delta® is used in light and medium-duty industrial hydraulics.

**APPLICATIONS:** hydraulics, light hydraulics, medium duty

Ø Range	Pressure Range	Temperature Range	Velocity
2 – 1,000 mm	35 MPa	-45 °C +200 °C	15 m/s
0.080 in – 39 in	5,000 psi	-50 °F +390 °F	50 ft/s



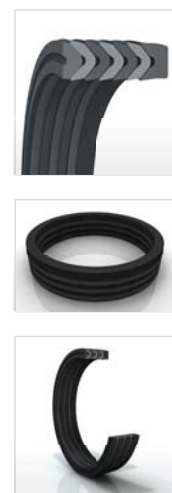
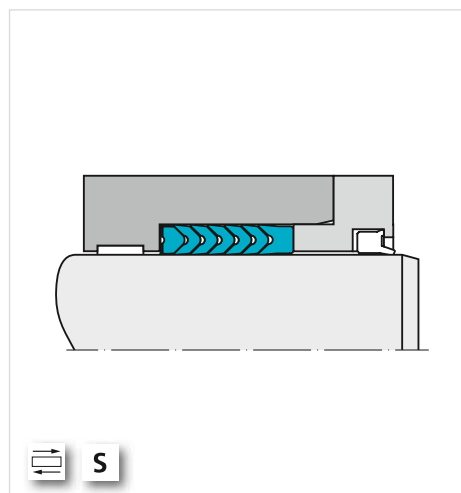
## POLYPAC® Veepac

**MATERIAL:** Elastomeric

Polypac® Veepac is an assembly of fabric-reinforced, wear resistant, chevron sealing rings with a support ring and pressure energizing ring. Polypac® Veepac seals are designed with preloaded radial lips to provide good sealing. They are very robust, insensitive to sealing surface finish and dimensionally adjustable. They are especially suited to applications where there is risk of damage and contamination.

**APPLICATIONS:** hydraulic cylinders, presses, mining, steel mills, water management

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 700 mm	40 MPa	-30 °C +200 °C	0.5 m/s
0.394 in – 28 in	5,800 psi	-20 °F +390 °F	1.6 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





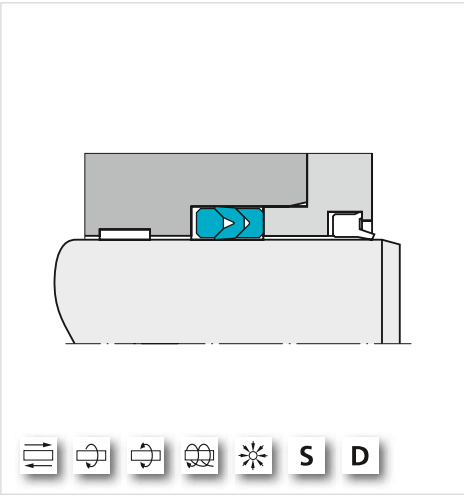
**Turcon® V-Stack (Chevron Seal)**

**MATERIALS:** Turcon®, Zurcon®

Turcon® V-Stack is a multi-element lip seal which provides high sealing efficiency due to a combination of seal elements.

**APPLICATIONS:** industrial hydraulics, oil and gas applications

Ø Range	Pressure Range	Temperature Range	Velocity
18 – 2,700 mm	140 MPa	-45 °C +260 °C	2 m/s
0.709 in – 106.3 in	20,000 psi	-50 °F +500 °F	6.5 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = **S** Double-acting = **D**

# Hydraulic Scrapers

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## HYDRAULIC SYSTEM CALCULATOR



Our Hydraulic System Calculator helps you to calculate areas and volumes in the cylinder, extraction and retraction forces, time velocity and outflow.

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Units of measurement ☒ Metric ☐ Inches

Formulas



Piston / Bore Diameter  mm

Rod Diameter  mm

Stroke  mm



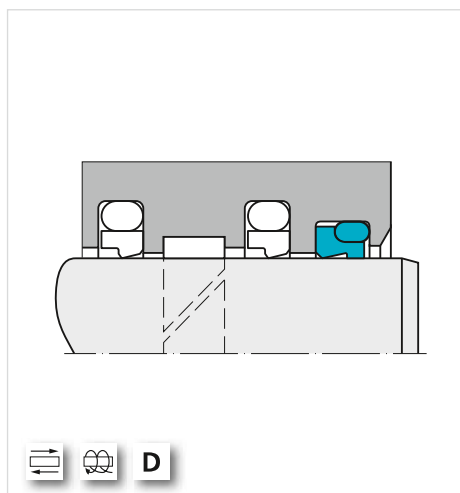
## Turcon® Excluder® 2

**MATERIALS:** Turcon®, Zurcon®

A double-acting O-Ring energized scraper that prevents the ingress of mud or other contaminants, increasing effective system service life. It has a secondary sealing capability for use with back pumping performance seals such as Turcon® Stepseal® 2K and Zurcon® Rimseal.

**APPLICATIONS:** light hydraulics, machine tools

Ø Range	Temperature Range	Velocity
6 – 2,600 mm	-45 °C +200 °C	15 m/s
0.236 in – 102 in	-50 °F +390 °F	50 ft/s



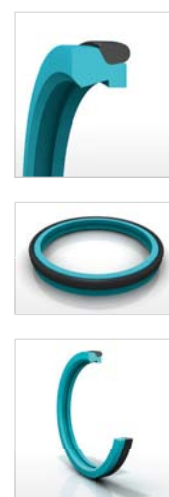
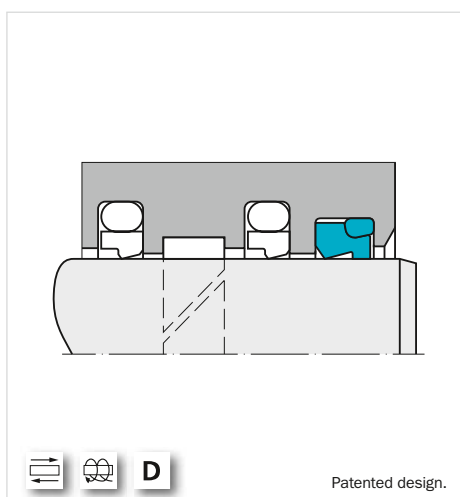
## Turcon® Excluder® 5

**MATERIALS:** Turcon®, Zurcon®

A double-acting O-Ring energized scraper which prevents the ingress of mud or other contaminants, increasing effective system service life. It has a secondary sealing capability for use with back pumping performance seals such as Turcon® Stepseal® 2K and Zurcon® Rimseal. It is ideal for heavy duty mobile hydraulics applications. Primarily available in Turcon® or Zurcon® materials.

**APPLICATIONS:** medium hydraulics, mobile hydraulics

Ø Range	Temperature Range	Velocity
20 – 2,600 mm	-45 °C +200 °C	15 m/s
0.787 in – 102 in	-50 °F +390 °F	50 ft/s



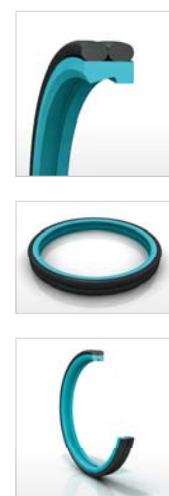
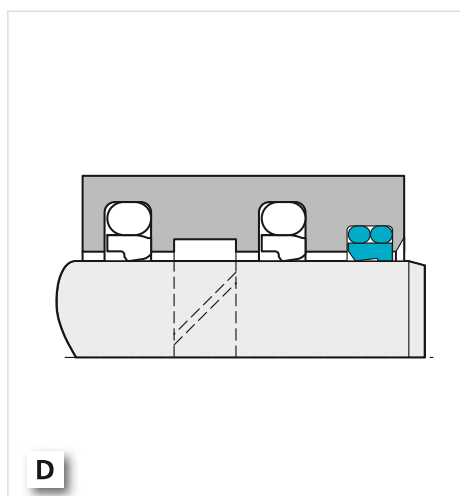
## Turcon® Excluder® F

**MATERIALS:** Turcon®, Zurcon®

Double-acting O-Ring energized scraper which prevents the ingress of mud or other contaminants to increase system service life. Used in light and medium-duty industrial hydraulics. Offers easy installation in small diameters. Secondary sealing capability for use with back pumping performance seals such as Turcon® Stepseal® 2K and Zurcon® Rimseal. Available in Turcon® or Zurcon® materials.

**APPLICATIONS:** hydraulics, machine operation, machine tools, medium duty

Ø Range	Temperature Range	Velocity
19 – 1,000 mm	-45 °C +200 °C	15 m/s
0.750 in – 39 in	-50 °F +390 °F	50 ft/s



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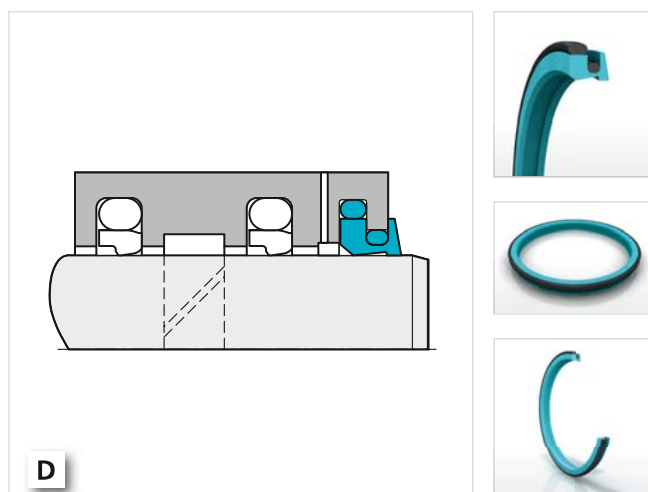
## Turcon® Excluder® G

**MATERIALS:** Turcon®, Zurcon®

Double-acting O-Ring energized scraper which prevents the ingress of contaminants to increase effective system service life in medium to heavy-duty hydraulics. Advanced scraping lip prevents dirt from being trapped in front of the scraper element. Secondary sealing capability for use with back pumping performance seals such as Turcon® Stepseal® 2K and Zurcon® Rimseal. Available in Turcon® or Zurcon® materials.

**APPLICATIONS:** hydraulics, machine operation, mobile hydraulics, heavy duty

Ø Range	Temperature Range	Velocity
100 – 1,000 mm	-45 °C +200 °C	5 m/s
4 in – 39 in	-50 °F +390 °F	16 ft/s



## Turcon® Excluder® S

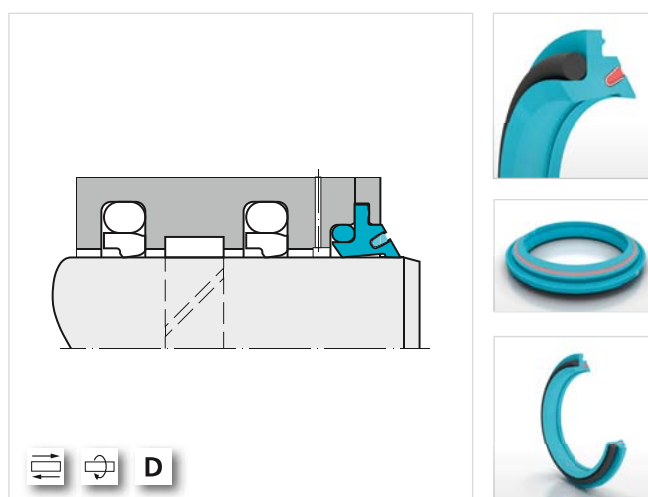
**MATERIALS:** Turcon®, Zurcon®

Turcon® Excluder® S is a double-acting O-Ring energized scraper for linear dynamic applications for installation in open grooves. Turcon® Excluder® S has a V-Spring activated scraping lip for optimal scraping effect.

**APPLICATIONS:** mining equipment, hydraulic presses, steelworks, heavy construction machinery, marine constructions, offshore installations, water works

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 2,600 mm	1.5 MPa	-60 °C* up to +200 °C*	up to 5 m/s*
–	217.5 psi	-76 °F* up to +390 °F*	up to 16 ft/s*

\* Dependant on material



## Turcon® Excluder® SN (Notch)

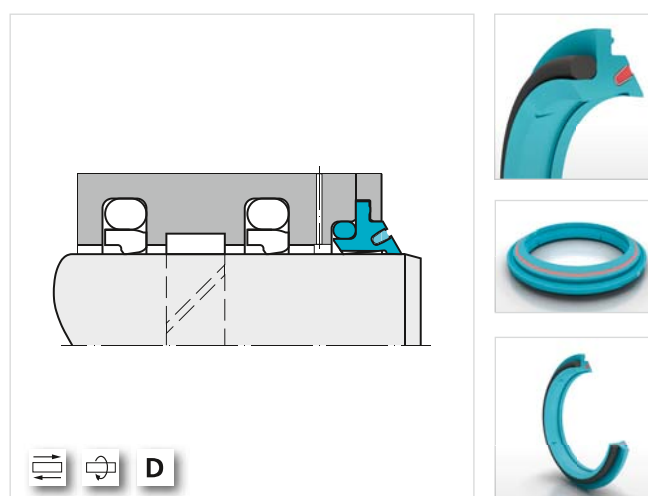
**MATERIALS:** Turcon®, Zurcon®

Turcon® Excluder® SN is a double-acting O-Ring energized scraper for linear dynamic applications for installation in open grooves. Turcon® Excluder® SN has a V-Spring activated scraping lip for optimal scraping effect and the internal sealing lip has an axial notch for relieving the pressure under the scraping lip.

**APPLICATIONS:** mining equipment, hydraulic presses, steelworks, heavy construction machinery, marine constructions, offshore installations, water works

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 2,600 mm	1.5 MPa	-60 °C* up to +200 °C*	up to 5 m/s*
–	217.5 psi	-76 °F* up to +390 °F*	up to 16 ft/s*

\* Dependant on material



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





## Turcon® Excluder® SR (2 x O-Ring)

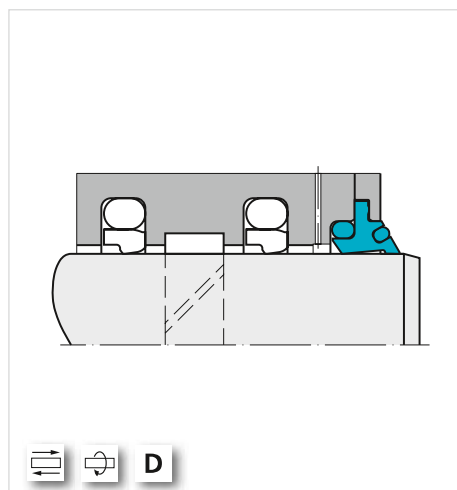
**MATERIALS:** Turcon®, Zurcon®

Turcon® Excluder® SR is a double-acting O-Ring energized scraper for linear dynamic applications for installation in open grooves. Turcon® Excluder® SR has an O-Ring activated scraping lip for optimal scraping effect.

**APPLICATIONS:** mining equipment, hydraulic presses, steelworks, heavy construction machinery, marine constructions, offshore installations, water works

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 2,600 mm	1.5 MPa	-60 °C* up to +200 °C*	up to 5 m/s*
–	217.5 psi	-76 °F* up to +390 °F*	up to 16 ft/s*

\* Dependant on material



## Zurcon® Excluder® Z

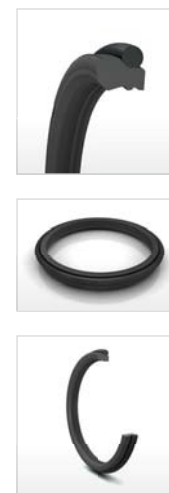
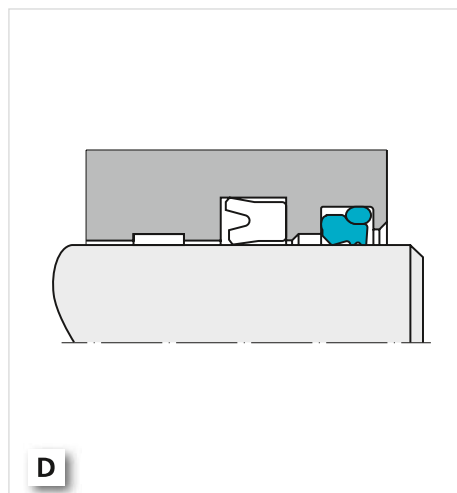
**MATERIAL:** Zurcon®

A double-acting O-Ring energized scraper which prevents the ingress of contaminants, increasing effective system service life in heavy-duty mobile hydraulics applications. It has a secondary sealing capability for use with back-pumping performance seals such as Zurcon® RU9 and Zurcon® Rimseal IM. The design is optimized for injection molding technology and guarantees increased scraping and sealing due to optimized rod contact force distribution. It is ideal for heavy duty mobile hydraulics applications.

**APPLICATIONS:** hydraulics, construction machinery, mobile hydraulic, truck cranes

Ø Range	Temperature Range	Velocity
Designs available from 12 mm – 400 mm	-30 °C to +110 °C*	Up to 2 m/s
–	-22 °F to +230 °F	6.5 ft/s

\* Depending on O-Ring Energizer Low Temperature can decrease to -45°C (-50°F)



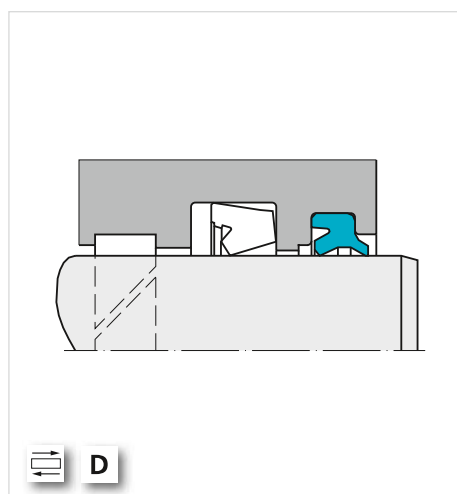
## Zurcon® Scraper DA22

**MATERIAL:** Zurcon®

A double-acting scraper with a sealing and scraping lip in injection molded polyurethane that can be installed in grooves to ISO 6195 type C. For applications in conjunction with seals that give back pumping performance, such as Turcon® Stepseal® 2K and Zurcon® Rimseal.

**APPLICATIONS:** hydraulics, general purpose, industrial hydraulics, ISO 6195 housing

Ø Range	Temperature Range	Velocity
5 – 180 mm	-35 °C +100 °C	1 m/s
0.197 in – 7 in	-30 °F +210 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



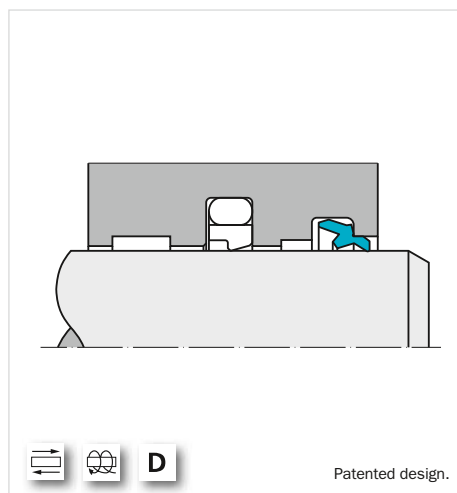
## Zurcon® Scraper DA24

**MATERIAL:** Zurcon®

The Zurcon® Scraper DA24 is a double-acting polyurethane scraper for severe operating conditions and heavy dirt attack. It is especially suitable for construction machinery and mobile hydraulics. It can be used where there is side pressure on the piston rod.

**APPLICATIONS:** hydraulics, mobile hydraulics

Ø Range	Temperature Range	Velocity
45 – 290 mm	-35 °C +100 °C	1 m/s
1.6 in – 11 in	-30 °F +210 °F	3 ft/s



Patented design.



## Zurcon® Scraper DA24 Venting

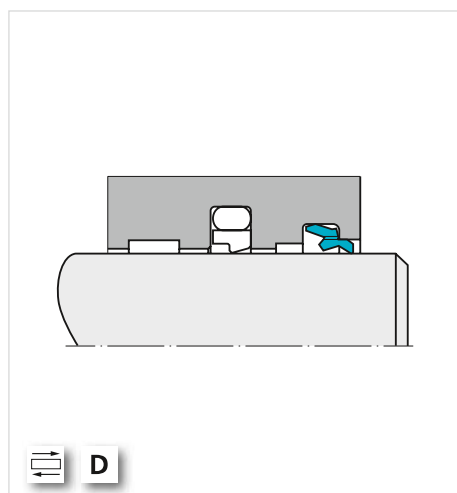
**MATERIAL:** Zurcon®

Zurcon® Scraper DA24 is a new double-acting thermoplastic polyurethane scraper design for severe operating conditions and heavily contaminated environments, enhancing overall performance. Axial holes through the section operate as pressure relief valves, allowing oil to be released in the case of overpressure without any risk of dirt ingress.

**APPLICATIONS:** construction machinery, agriculture- and forestry machinery, mobile hydraulics, high attack of dirt, side steering of piston rod

Ø Range	Max. Pressure MPa (psi)	Temperature Range	Velocity
–	Standard: 5 (725)	-35 °C +100 °C	Up to 1 m/s
–	Venting: 2 (290)	-30 °F +210 °F	3 ft/s*

\* At high strokes and higher speed, please contact your local Trelleborg Sealing Solutions marketing company.



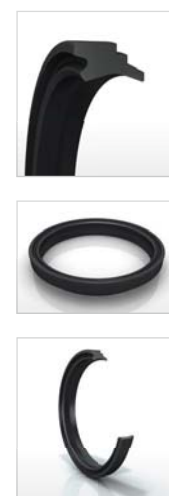
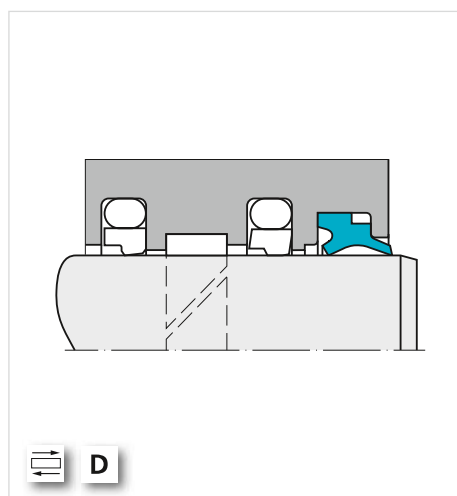
## Zurcon® Scraper DA17

**MATERIAL:** Elastomeric

A double-acting scraper with both a sealing and a scraping lip in NBR. For applications in conjunction with seals that give back pumping performance, such as Turcon® Stepseal® 2K and Zurcon® Rimseal.

**APPLICATIONS:** hydraulics, general purpose

Ø Range	Temperature Range	Velocity
10 – 440 mm	-30 °C +100 °C	1 m/s
0.394 in – 17 in	-20 °F +210 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



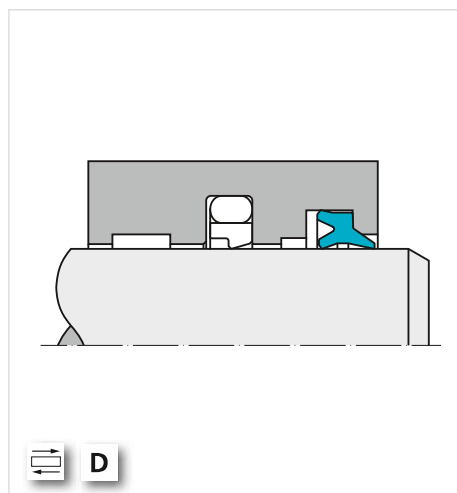
## Zurcon® Scraper DA27

**MATERIAL:** Elastomeric

The double-acting rubber Zurcon® Scraper DA27 is designed for large diameter hydraulic applications. With its "heavy" cross section it is a natural extension of scraper DA17 for diameters over 400 mm / 15.75 in. The DA27 scraper is produced by vulcanizing the required diameter from a 600 mm / 24 in master mold.

**APPLICATIONS:** hydraulics, industrial hydraulics, presses

Ø Range	Temperature Range	Velocity
400 – 2,600 mm	-30 °C +100 °C	1 m/s
15.75 in – 102 in	-20 °F +210 °F	3 ft/s



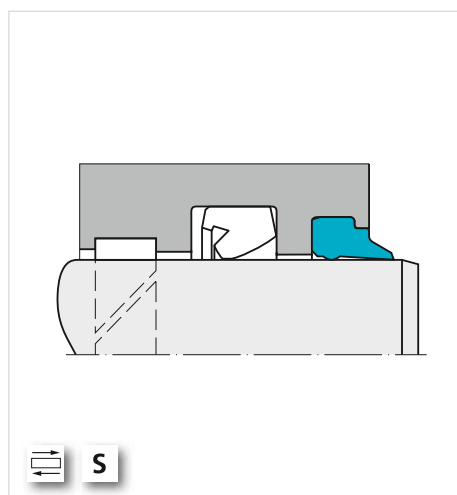
## Zurcon® Scraper ASW

**MATERIAL:** Zurcon®

Injection molded polyurethane scraper with one scraping lip and inner support bead that gives improved seating in the groove. It has good abrasion and tear resistance.

**APPLICATIONS:** hydraulics, general purpose

Ø Range	Temperature Range	Velocity
8 – 125 mm	-35 °C +110 °C	1 m/s
0.315 in – 5 in	-30 °F +210 °F	3 ft/s



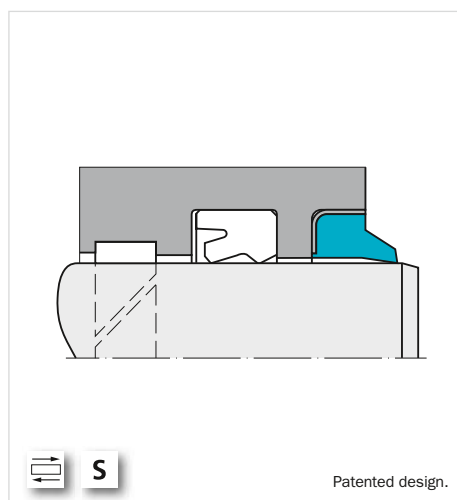
## Scraper WSA

**MATERIALS:** Elastomeric, Metal

Metal caged Scraper with an NBR lip. For installation in open grooves including grooves to ISO 6195 Type B.

**APPLICATIONS:** hydraulics, general purpose

Ø Range	Temperature Range	Velocity
6 – 270 mm	-30 °C +110 °C	1 m/s
0.236 in – 10.5 in	-20 °F +230 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



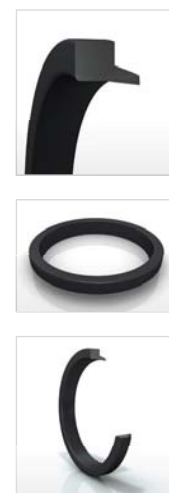
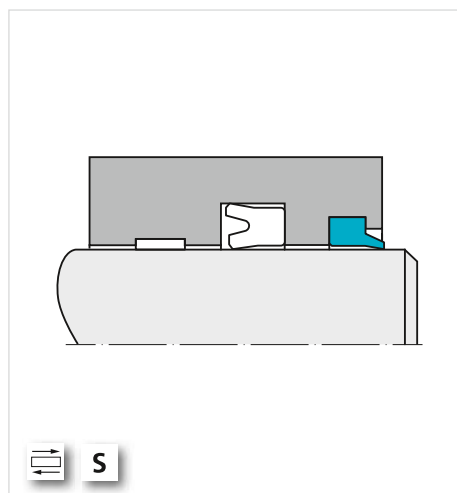
## Scraper WRM

**MATERIAL:** Elastomeric

Scraper WRM is a single-acting, heat-molded elastomer scraper. It possesses a comb-profile sealing surface on its outer diameter which guarantees a firm seat in the groove. It is easy to install in closed grooves.

**APPLICATIONS:** hydraulics, general purpose

Ø Range	Temperature Range	Velocity
12 – 260 mm	-30 °C +110 °C	1 m/s
0.472 in – 10.25 in	-20 °F +230 °F	3 ft/s



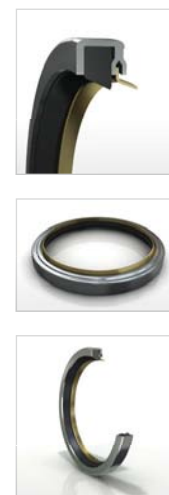
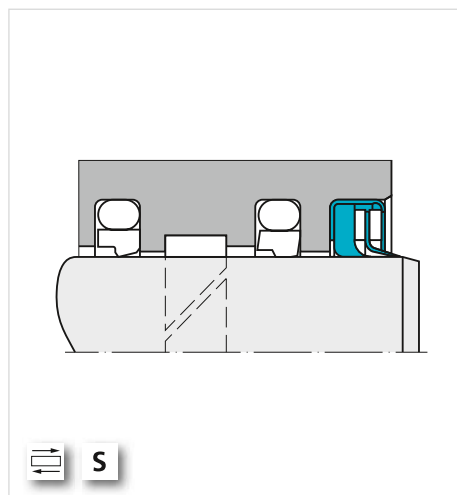
## Metal Scraper

**MATERIALS:** Elastomeric, Metal

Metal scraper consists of a thin spring brass scraper lip in tandem with an NBR wiping lip encased in a steel shell. It is capable of removing dried or frozen mud, tar, ice and other contaminants from the rod. Also available in Stainless Steel with an FKM wiper lip.

**APPLICATIONS:** hydraulics, general purpose

Ø Range	Temperature Range	Velocity
12 – 220 mm	-40 °C +120 °C	1 m/s
0.472 in – 8.5 in	-40 °F +250 °F	3 ft/s



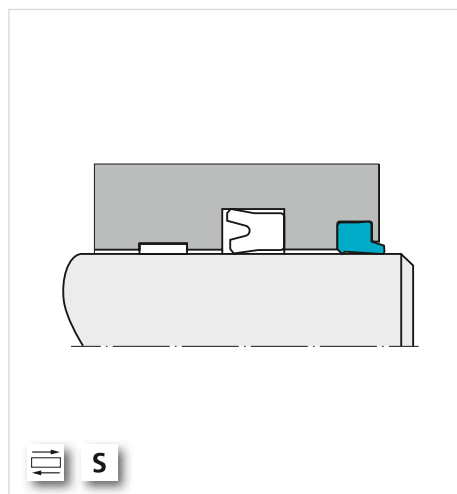
## Zurcon® Scraper WAE

**MATERIALS:** Turcon®, Zurcon®, Polyurethane

The Zurcon® Scraper WAE is a single-acting polyurethane scraper. The special feature of this scraper is an additional support on the inner surface. It prevents tilting or twisting of the scraper. At the same time this support improves seating in the groove, preventing the ingress of contaminants via the back of the scraper. This represents a technical improvement compared to similar scraper types.

**APPLICATIONS:** industrial hydraulics, mobile hydraulics

Ø Range	Temperature Range	Velocity
18 – 2,600 mm	-35 °C +100 °C	1 m/s
0.500 in – 102.4 in	-31 °F +212 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





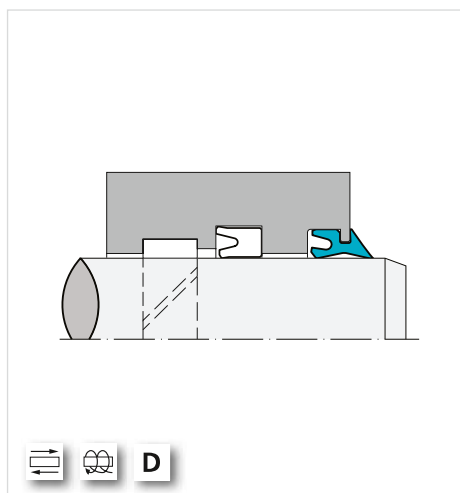
## Zurcon® Heavy Duty Scraper WAE

**MATERIAL:** Zurcon®

Zurcon® Heavy Duty Scraper WAE provides improved scraping performance under heavy contaminated environments. Represents a technical improvement compared to the standard single-acting WAE scraper.

**APPLICATIONS:** construction machinery, mobile hydraulic equipment, vertical mounted cylinders, agriculture machinery, forestry machinery

Ø Range	Pressure Range	Temperature Range	Velocity
19 – 1524 mm	5.5 MPa	-60 °C +130 °C	2 m/s
0.750 in – 60 in	800 psi	-76 °F +270 °F	6.5 ft/s



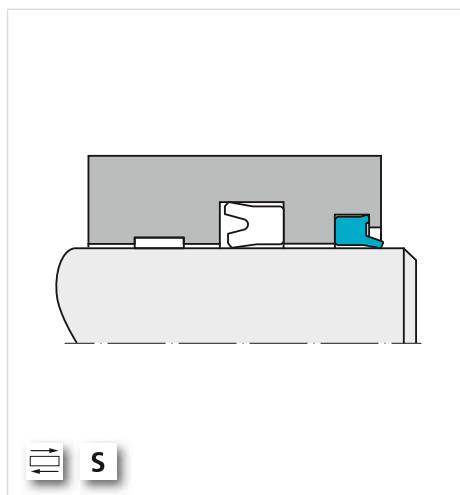
## Zurcon® Scraper WNE

**MATERIAL:** Zurcon®

A single-acting polyurethane scraper with a static sealing lip to prevent any water or dirt ingress into the sealing groove. It is recommended for applications in mobile hydraulics and agricultural machinery.

**APPLICATIONS:** agricultural machinery, mobile hydraulics

Ø Range	Temperature Range	Velocity
4 – 280 mm	-35 °C +100 °C	1 m/s
0.157 in – 11 in	-30 °F +210 °F	3 ft/s



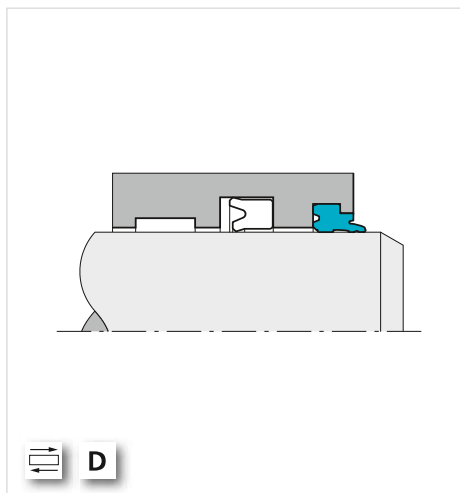
## Zurcon® Scraper WNV

**MATERIAL:** Zurcon®

Zurcon® Scraper WNV is a double-acting scraper. Its dynamic scraping lip is specially designed with an additional inward sealing edge to keep the residual oil film in the system. If the volume of this oil film can not be back-pumped by the main rod seal, a pressure build-up will be prevented by lifting the scraper lip to reduce pressure. The static sealing lip and edge ensure against ingress of dirt and fluids.

**APPLICATIONS:** agricultural machinery, mobile hydraulics, ISO standard, cylinders

Ø Range	Temperature Range	Velocity
16 – 100 mm	-35 °C +100 °C	1 m/s
0.625 in – 4 in	-30 °F +210 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



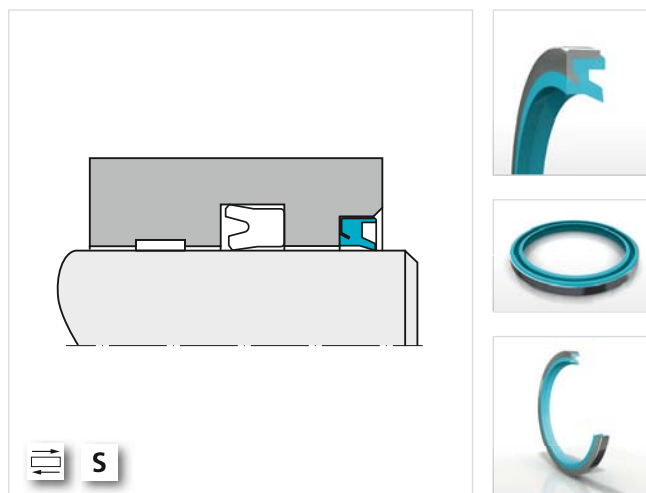
## Zurcon® Scraper SWP

**MATERIAL:** Zurcon®

A single-acting Zurcon® scraper encased in a steel carrier, Zurcon® Scraper SWP gives excellent wear resistance and is easily installed into open grooves. The scraper is recommended for mobile hydraulic applications and as a rotary link pin seal.

**APPLICATIONS:** mobile hydraulics, construction machinery, link-pin sealing

Ø Range	Temperature Range	Velocity
25 – 190 mm	-35 °C +100 °C	1 m/s
1 in – 7.5 in	-30 °F +210 °F	3 ft/s



## Turcon® Variseal® M2S

**MATERIALS:** Turcon®, Zurcon®

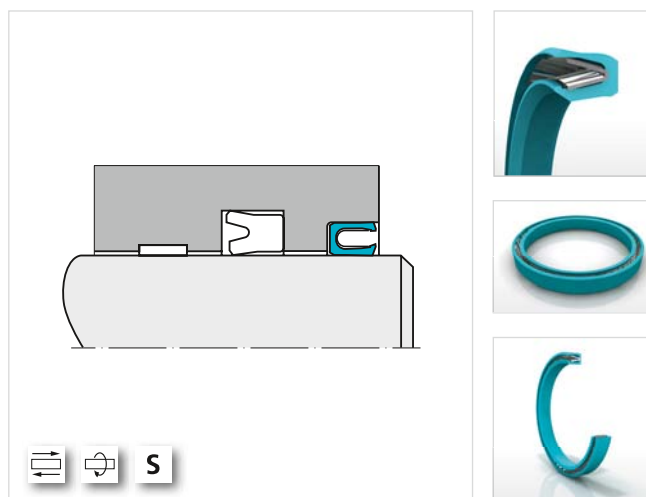
A single-acting sealing element comprised of a U-shaped Turcon® ring and metallic energizing finger spring. It offers low friction with no stick-slip, minimal break out force and high wear resistance. Effective as a scraper and resistant to most liquids and chemicals.

**APPLICATIONS:** marine and subsea, scraping marine growth, high temperature, low temperature and cryogenic, high speed hydraulics in dirty environments

Maximum Pressure MPA (psi)	Material	Temperature Range*	Velocity
Dynamic: 20 (2,900)	T40	-70 °C to +260 °C	Reciprocating up to 15 m/s
Static: 40 (5,800)**	T40 (Hiclean)	-45 °C to +260 °C	Rotating up to 1.27 m/s
	Z80	-70 °C to +93 °C	Reciprocating up to 2 m/s

\* -196 °C possible with custom designs

\*\* 207 MPa (30,000 psi) possible with custom designs



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D

# Hydraulic Wear Rings

For further  
product information,  
scan the QR-Code:



## HYDRAULIC SYSTEM CALCULATOR



Our Hydraulic System Calculator helps you to calculate areas and volumes in the cylinder, extraction and retraction forces, time velocity and outflow.

**For more information scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)**

Units of measurement ☒ Metric ☐ Inches

Formulas



Piston / Bore Diameter  mm

Rod Diameter  mm

Stroke  mm



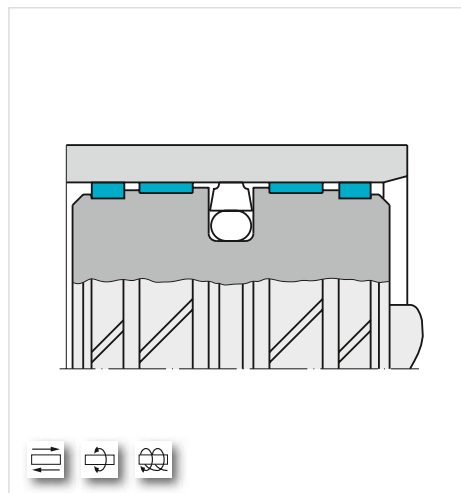
## Turcite® Slydring®

**MATERIAL:** Turcite®

Turcite® Slydring® prevents metal-to-metal contact between piston / rod and bore / gland, absorbing transverse loads. Turcite® material gives good load capacity with low friction and stick-slip-free operation. The Slydring® protects critical sealing lips from contamination and dieseling effects. Cost-effective, it allows designers freedom in hardware material selection. Higher static loads are permissible.

**APPLICATIONS:** hydraulics, general purpose, standard cylinders

Ø Range	Radial Bearing Pressure	Temperature Range	Velocity
8 – 4,200 mm	15 MPa	-60 °C +200 °C	15 m/s
0.315 in – 165 in	2,200 psi	-75 °F +390 °F	50 ft/s



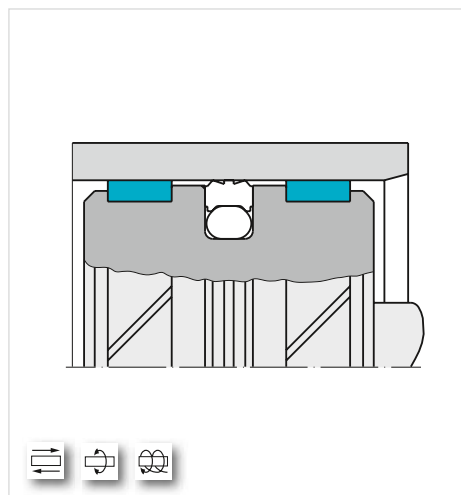
## HiMod® Slydring®

**MATERIAL:** HiMod®

HiMod® Slydring® prevents metal-to-metal contact between piston / rod and bore / gland, absorbing transverse loads. The modified polymeric material provides an economical solution for applications with medium transverse loads, while giving good wear and compression properties. The Slydring® is easily installed by snap-fitting and offers good dry-running and wiping performance. Higher static loads are permissible.

**APPLICATIONS:** hydraulics, general purpose, standard cylinders, mobile hydraulics

Ø Range	Radial Bearing Pressure	Temperature Range	Velocity
8 – 915 mm	50 MPa	-40 °C +135 °C	1 m/s
0.315 in – 36 in	7,200 psi	-40 °F +275 °F	3 ft/s



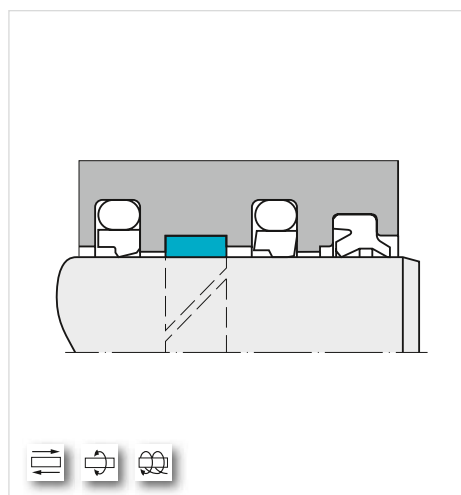
## Orkot® Slydring®

**MATERIAL:** Orkot®

Orkot® Slydring® prevents metal-to-metal contact between piston / rod and bore / gland, absorbing high transverse loads. Orkot® is a resin-impregnated, fine weave fabric material with added lubricants. It is capable of withstanding high side loads, damping vibrations and embedded foreign particles. Higher static loads are permissible. Special materials are available with operating temperatures up to +250 °C / +482 °F.

**APPLICATIONS:** hydraulics, general purpose, standard cylinders, mobile hydraulics

Ø Range	Radial Bearing Pressure	Temperature Range	Velocity
8 – 1,500 mm	120 MPa	-60 °C +130 °C	1 m/s
0.315 in – 59 in	17,400 psi	-75 °F +270 °F	3 ft/s

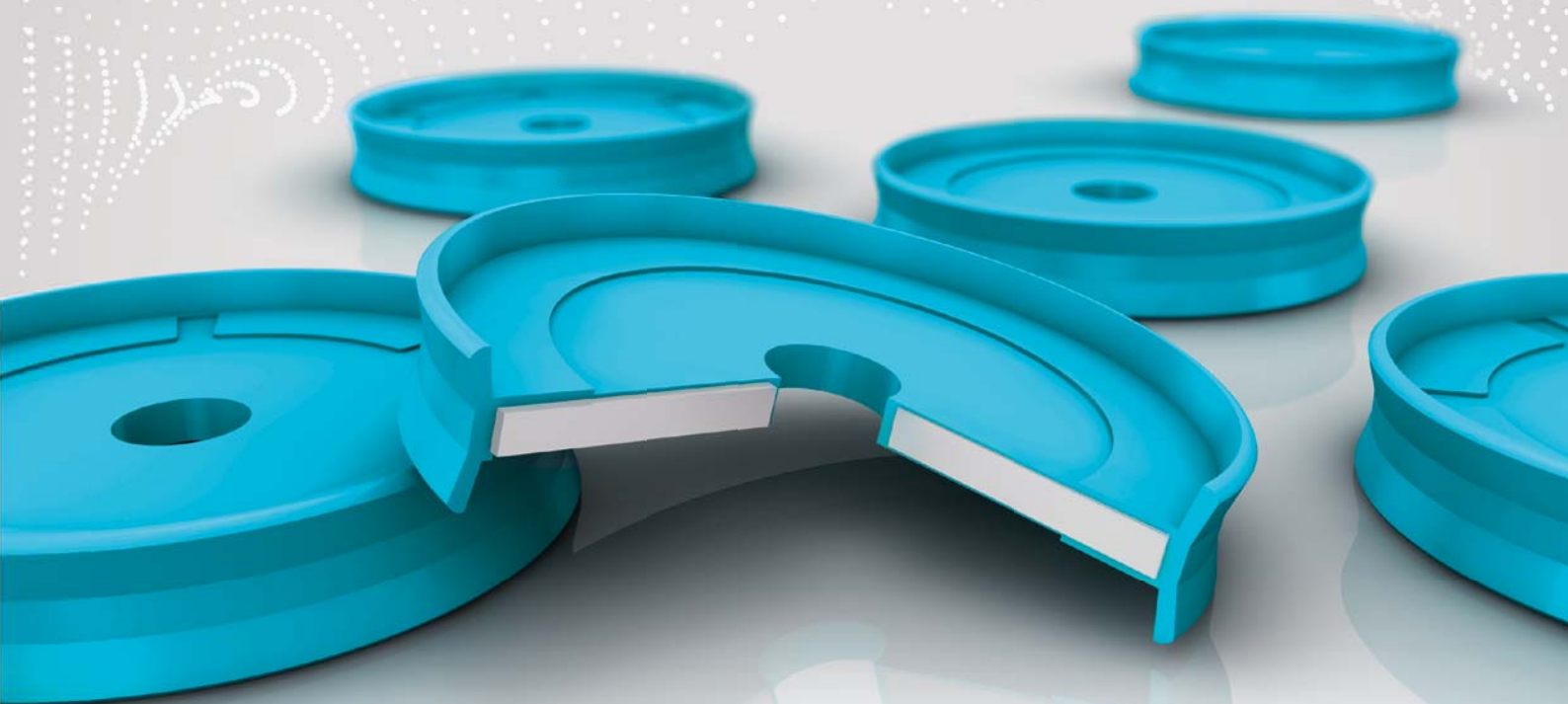


**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



# Pneumatic Seals

For further  
product information,  
scan the QR-Code:



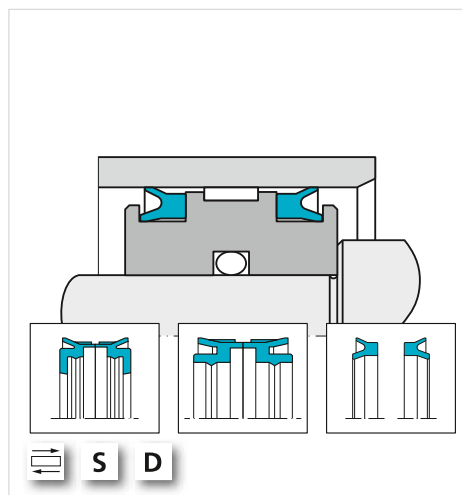


## Pneumatic Piston Seal

**MATERIALS:** Zurcon®, Polyurethane

The pneumatic product range offers single- and double-acting seals for piston applications. Made from extremely wear resistant material including Zurcon® polyurethane and FKM, these seals fit into small housings and are easily installed. The pneumatic piston seal range is recommended for standard and pneumatic cylinders with dry air.

Ø Range	Pressure Range	Temperature Range	Velocity
4 – 250 mm	1.6 MPa	-40 °C +85 °C	1 m/s
0.157 in – 10 in	232 psi	-40 °F +185 °F	3 ft/s

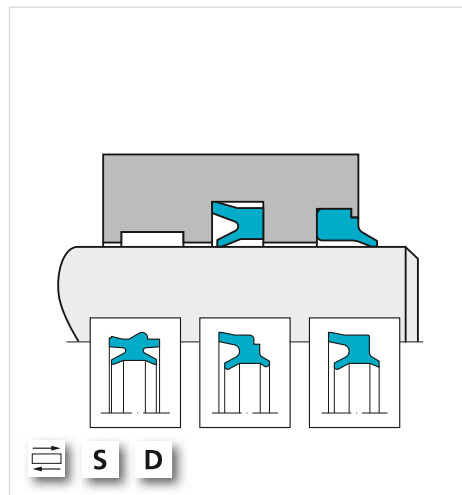


## Pneumatic Rod Seal and Rod Seal - Scraper Combination

**MATERIALS:** Zurcon®, Elastomeric, Polyurethane

Pneumatic rod seals are available as lip seals and rod seal/scraper combinations for closed and open housings. Special materials provide high abrasion resistance and low friction cost-effectively. They are recommended for applications in standard cylinders, installed with a separate scraper or as rod seal/scraper combination for dry air.

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 100 mm	1.6 MPa	-40 °C +150 °C	up to 5 m/s
0.118 in – 4 in	232 psi	-40 °F +300 °F	up to 16 ft/s

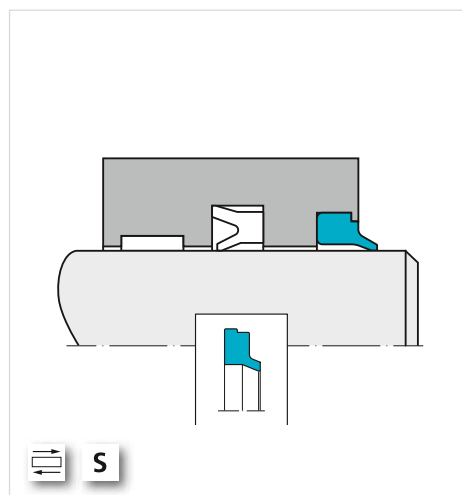


## Pneumatic Scraper / Scraper for Guiding Units

**MATERIAL:** Polyurethane

These two versions of scrapers snap easily into open or semi-open grooves. Their special flexible lip design protects the cylinder from contamination. Where space is at a premium, the 3 mm / .118 in long type AWBB, is recommended (guiding units only).

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 60 mm	–	-40 °C +80 °C	up to 4 m/s
0.236 in – 2.5 in	–	-40 °F +175 °F	up to 13 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D

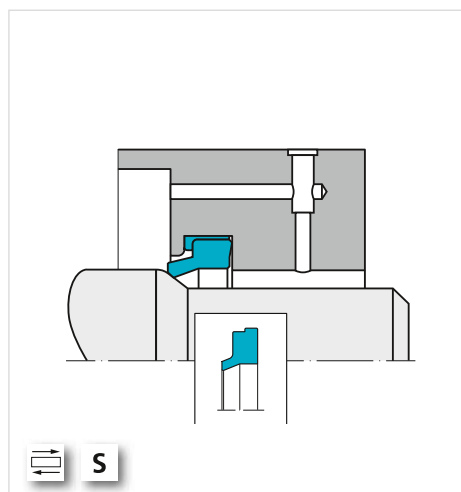


## Pneumatic Cushioning Seal

**MATERIALS:** Zurcon®, Polyurethane

Cushioning seals provide end-of-stroke damping in pneumatic cylinders, eliminating the need for check valves. These polyurethane, high performance seal elements are user-friendly and provide an automatic centering check valve function and easy, snap-in installation.

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 60 mm	1.6 MPa	-40 °C +110 °C	1 m/s
0.236 in – 2.5 in	232 psi	-40 °F +230 °F	3 ft/s

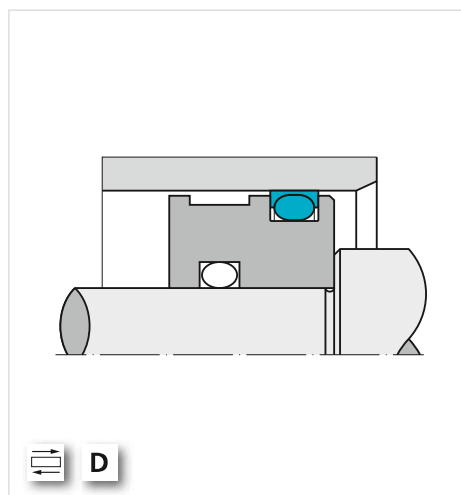


## Pneumatic Glyd Ring® for Piston and Rods

**MATERIALS:** Turcon®, Zurcon®

Double-acting Glyd Ring® is available as piston or rod seal and is comprised of a slipper seal and an energizing O-Ring. This means less installation space is required. Different material combinations provide solutions suitable for special pneumatic applications where minimum static and dynamic friction, low stick-slip, high speed performance or wide temperature range are required.

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 2,700 mm	1.6 MPa	-30 °C +200 °C	5 m/s
0.118 in – 106 in	232 psi	-20 °F +390 °F	16 ft/s

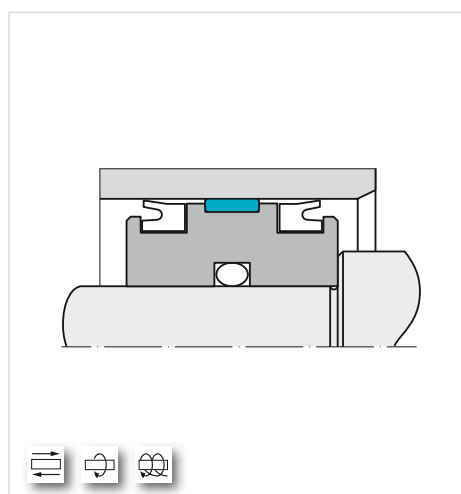


## Pneumatic Wear Ring for Pistons and Rods

**MATERIALS:** Turcon®, Zurcon®, HiMod®

A complete range of seals and bearings for pneumatics including the most common dimensions for pistons and rods. The guide rings are made of a specially developed, self-lubricating plastic material to provide low friction, wear resistance, long term compression stability and excellent service life.

Ø Range	Pressure Range	Temperature Range	Velocity
8 – 250 mm	40 MPa	-40 °C +110 °C	1 m/s
0.315 in – 10 in	5,800 psi	-40 °F +230 °F	3 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = **S** Double-acting = **D**

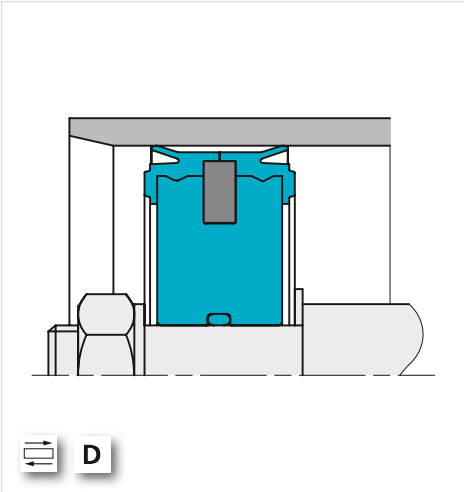


Complete Magnet Piston

MATERIALS: Elastomeric, Polyurethane, Metal

The Complete Magnet Piston fulfills a large number of technical requirements within the pneumatics industry with its double-acting operation, dynamic sealing capability, guidance feature and mechanical end cushioning. An NBR O-Ring statically seals the rod while an integrated magnet detects position.

Ø Range	Pressure Range	Temperature Range	Velocity
32 – 100 mm	1.6 MPa	-40 °C +80 °C	up to 1 m/s
1.25 in – 3.94 in	232 psi	-40 °F +175 °F	up to 3 ft/s

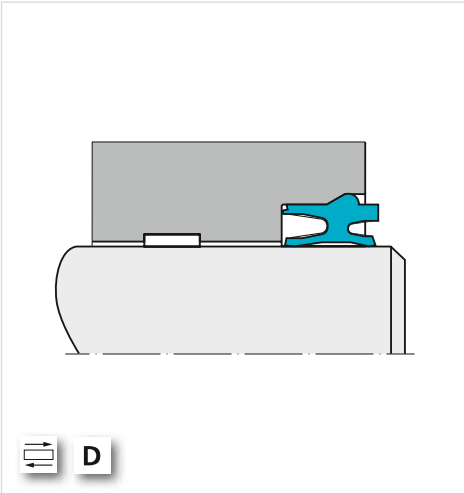


Pneumatic Seals ARV

MATERIAL: Zurcon®

Asymmetric Variseal® type seal with spring energized sealing lip and scraper lip. Suitable for poor lubrication, high speeds or foodstuff applications (FDA compliant). Very good protection against dirt ingress and Hi-Clean version available with Silicone-filled spring cavity prevents contaminants from being entrapped. A special groove and seal design allows fast installation either automatically or manually.

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 25 mm	1.6 MPa	-30 °C +80 °C	<= 5 m/s
0.39 in – 0.98 in	232 psi	-22 °F +176 °F	16 ft/s



KEY TO APPLICATIONS: Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





## Rubber-to-Metal and Rubber-to-Plastic Bonded Parts

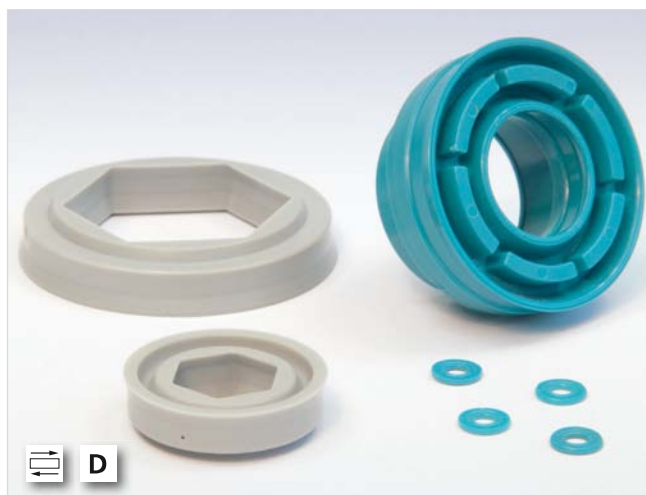
For certain applications custom seals are most suited. As your development partner, Trelleborg Sealing Solutions can work with you to design, develop and supply rubber-metal parts and bonded seals to your requirements.

Metals such as brass, aluminum, steel or stainless steel can be offered with bonding to all elastomer types.



## Special and Customized Solutions in Polyurethane

Polyurethane materials have excellent elastic properties and abrasion resistance. Outstanding tensile strength and low compression set offers numerous possibilities for sealing applications within the pneumatic industry. As your development partner, Trelleborg Sealing Solutions can work with you to design and develop products suited to your requirements.








## Engineered Molded Parts

**MATERIAL:** Elastomeric

Specialized molded parts with small profiles and specific cross sections can be offered according to ISO 3301-1/M1.

Custom-molded parts and static seals are manufactured to close tolerances in a wide range of engineered materials. These are developed in conjunction with Trelleborg Sealing Solutions to the specific requirements of the customer.



**KEY TO APPLICATIONS:** Reciprocating =  Rotary =  Oscillating =  Helix =  Static =  Single-acting = **S** Double-acting = **D**

# Rotary Seals

For further  
product information,  
scan the QR-Code:

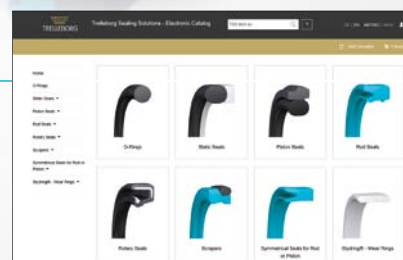


## ROTARY SEAL SELECTOR



The Rotary Seal Selector allows you to find suitable products for your application's specific conditions from the wide range of rotary seals and materials available.

**For more information scan the QR-Code or visit our website: [www.tss.trelleborg.com](http://www.tss.trelleborg.com)**





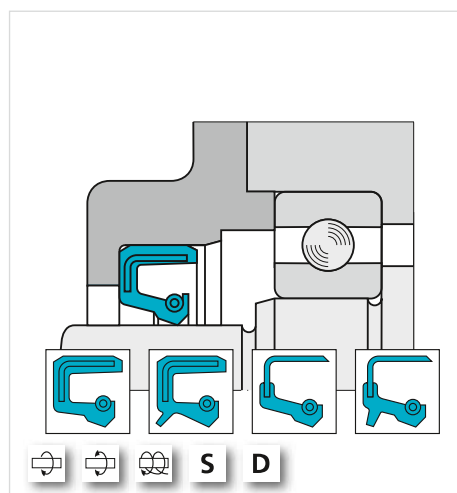
## Radial Oil Seal

**MATERIAL:** Elastomeric

Radial oil seals are designed for sealing shafts and spindles. Providing long-lasting sealing efficiency, they consist of a rubber sealing lip, metal case and a spiralled tensioning spring. Available with or without external dust lip, they are self-retained in an open groove to ISO 6194 and DIN 3760. Versions come without the spring for grease applications, for use as a scraper or for helical movement.

**APPLICATIONS:** general purpose, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Velocity
4 – 1,800 mm	1 MPa	-40 °C +200 °C	30 m/s
0.157 in – 71 in	145 psi	-40 °F +390 °F	100 ft/s



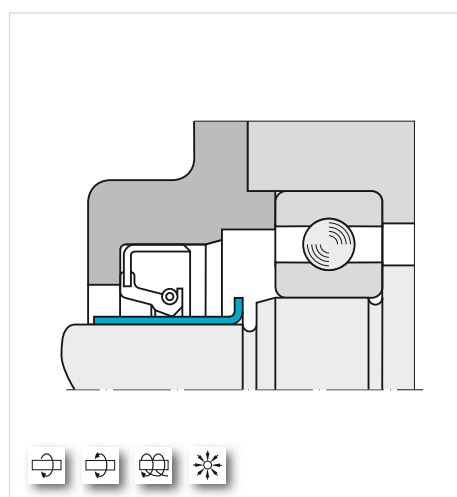
## Shaft Repair Kit

**MATERIAL:** Metal

Suitable for the repair of worn shafts or for original equipment manufacturing to avoid the need to harden the shaft. Shaft repair kits are thin-walled stainless steel sleeves which do not require any modification to the existing seal sizes. Tools for installation on the shaft are included in the kit.

**APPLICATIONS:** repair of worn shafts, for non-hardened shaft

Ø Range	Pressure Range	Temperature Range	Velocity
12 – 200 mm	–	–	–
0.472 in – 8 in	–	–	–



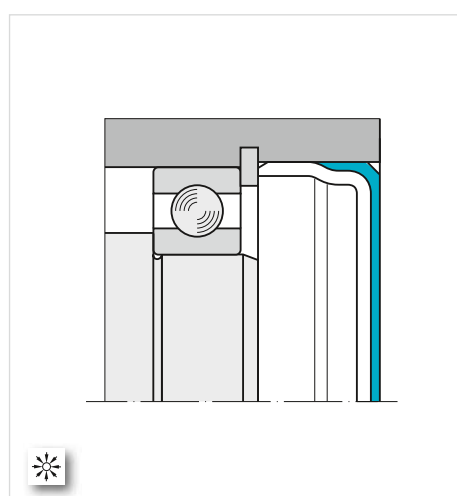
## Sealing Cap

**MATERIALS:** Elastomeric, Metal

Sealing Caps consist of a metal cap which has been rubber coated. They are used to plug seal gaps or holes. They are often used as a substitute for sealing flanges and covers in gear manufacturing.

**APPLICATIONS:** gear manufacturing

Ø Range	Pressure Range	Temperature Range	Velocity
16 – 180 mm	–	-30 °C +200 °C	–
0.63 in – 7 in	–	-20 °F +390 °F	–



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



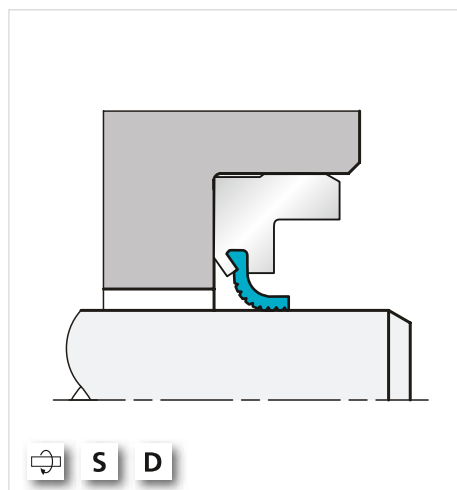
## HiSpin® PDR RT

**MATERIALS:** Turcon®, PTFE

Running in dry, moist or lubricated environments, HiSpin™ PDR RT meets ever growing demand for seal integrity at increasingly higher rotational speeds. The seal has excellent sealing characteristics at speeds of up to at least 60 meters per second. A combination of a unique material, an innovative manufacturing process and specialized sealing lip design, reduces the friction by up to 75 % when compared to traditional PTFE seals, leading to a significant reduction in power consumption.

**APPLICATIONS:** automotive, electric motors

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 100 mm	0.2 MPa	-55 °C +260 °C	60 m/s
0.3937 in – 3.937 in	29 psi	-67 °F +500 °F	196.85 ft/s



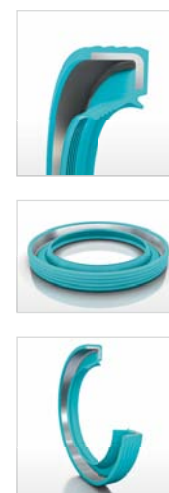
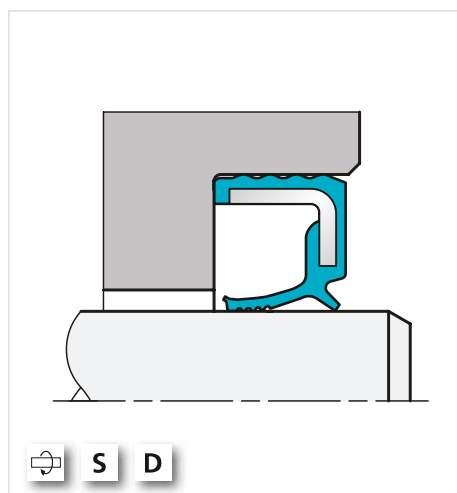
## HiSpin® HS40

**MATERIALS:** Elastomeric, Metal

Providing outstanding low friction capabilities, HiSpin™ HS40 meets the demanding conditions of automotive high-speed electric motors. A unique hydrodynamic feature helps reduce frictional torque, while oil back-pumping leads to improved sealing performance without causing any shaft damage. Our proprietary XLT elastomer material ensures outstanding performance in a wide range of temperatures and lubrication conditions.

**APPLICATIONS:** automotive, electric motors

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 350 mm	0 MPa	-45 °C +200 °C	40 m/s
0.3937 in – 13.7795	0 psi	-49 °F +392 °F	131.23 ft/s



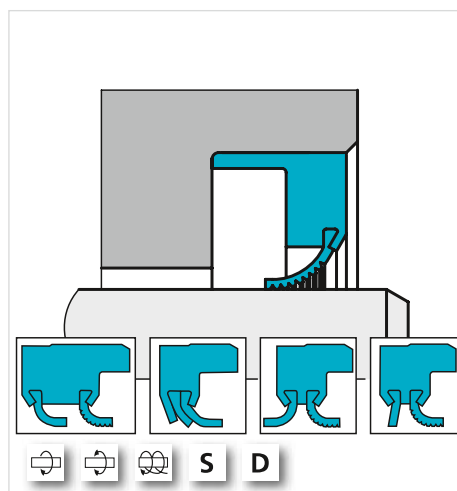
## Turcon® Varilip® PDR

**MATERIALS:** Turcon®, Metal

Turcon® Varilip® PDR seals are PTFE rotary shaft lip seals suitable for high surface speeds with low pressure. They provide stick-slip-free running with low friction and wide media and temperature range compatibility.

**APPLICATIONS:** general purpose, general mechanical applications, compressors, vacuum pumps, gearboxes

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 170 mm	1 MPa	-60 °C +200 °C	60 m/s
0.438 in – 4.25 in	145 psi	-75 °F +390 °F	197 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





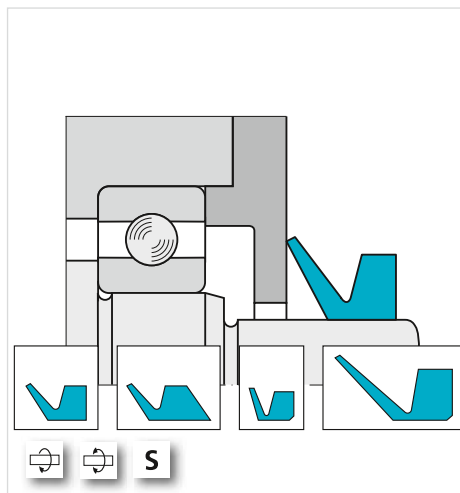
## Forsheda™ V-Ring

**MATERIAL:** Elastomeric

The Forsheda™ V-Ring fits directly onto the shaft and seals axially against a counterface, such as shaft collar, thrust washer or bearing face. Its light lip pressure generates low friction.

**APPLICATIONS:** general purpose, general mechanical applications

Ø Range	Pressure Range	Temperature Range	Velocity
3 – 11,500 mm	–	-40 °C +200 °C	12 m/s
0.118 in – 452 in	–	-40 °F +390 °F	40 ft/s



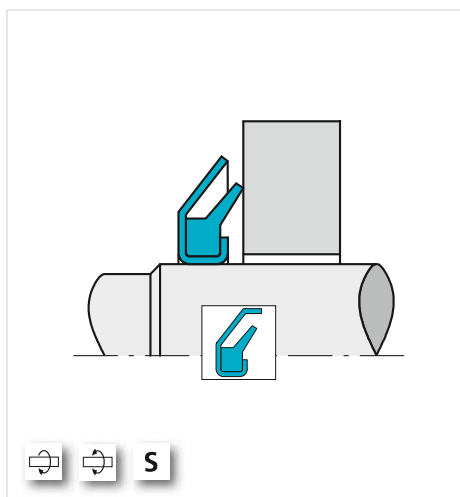
## GAMMA Seal

**MATERIALS:** Elastomeric, Metal

The GAMMA Seal is an axial rotary seal that excludes contamination, moisture and grease. It consists of an elastomer sealing lip contained in a metal carrier. This design copes with arduous static and dynamic conditions in mobile hydraulics and power transmission applications.

**APPLICATIONS:** mobile hydraulics, power transmission

Ø Range	Pressure Range	Temperature Range	Velocity
10 – 225 mm	–	-30 °C +200 °C	10 m/s
0.394 in – 9 in	–	-20 °F +390 °F	32 ft/s



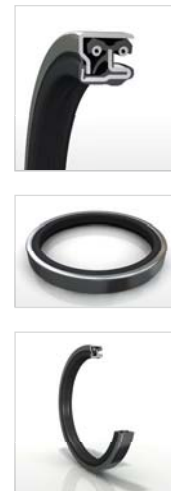
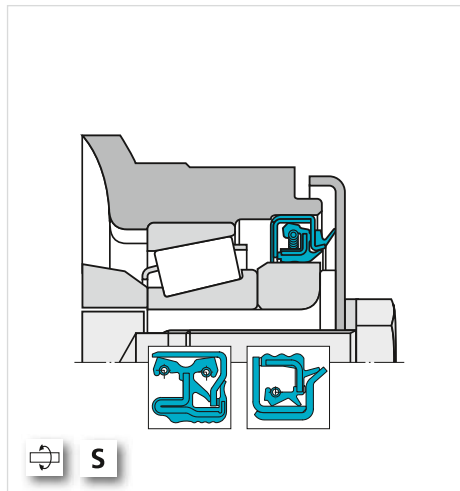
## STEFA System 500 / 3000 / 5000 Cassette Seal CSL 1500

**MATERIALS:** Elastomeric, Metal

The STEFA System is a completely enclosed seal providing the functions of oil seal, wear sleeve and dust protection in one unit. It has been developed to meet the ever increasing requirements of long service life, high functional reliability, environmental safety and easy installation. STEFA System 500 / 3000 / 5000 Cassette Seals are used in heavy duty vehicle axles, hubs and industrial gearboxes.

**APPLICATIONS:** mobile hydraulics, construction machinery

Ø Range	Pressure Range	Temperature Range	Velocity
90 – 320 mm	0.05 MPa	-30 °C +200 °C	15 m/s
3.5 in – 12.5 in	7 psi	-20 °F +390 °F	50 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



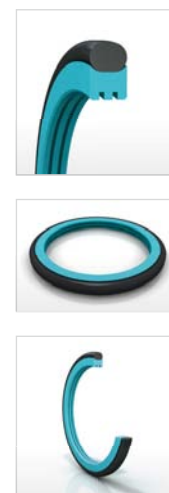
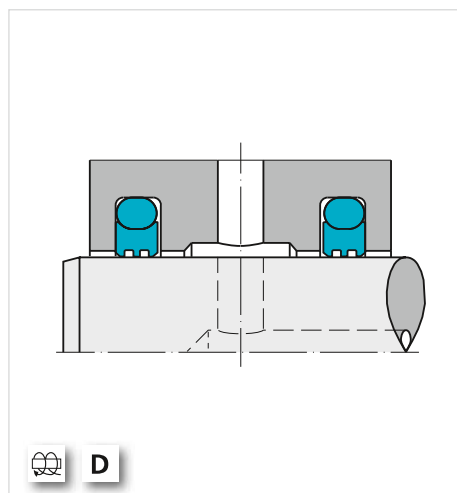
## Turcon® Roto Glyd Ring®

**MATERIAL:** Turcon®

A double-acting O-Ring energized seal designed for rotating, oscillating and helically moving pistons, rods and shafts. It is installed in grooves to ISO 7425 and is available in a single-acting version for higher rotating speeds.

**APPLICATIONS:** hydraulics, general purpose, rotary applications

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 2,500 mm	30 MPa	-45 °C +200 °C	2 m/s
0.236 in – 98 in	4,350 psi	-50 °F +390 °F	6.5 ft/s



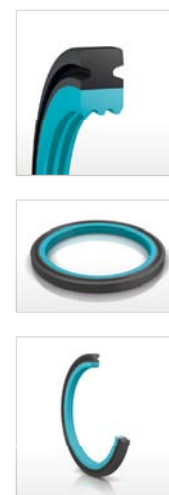
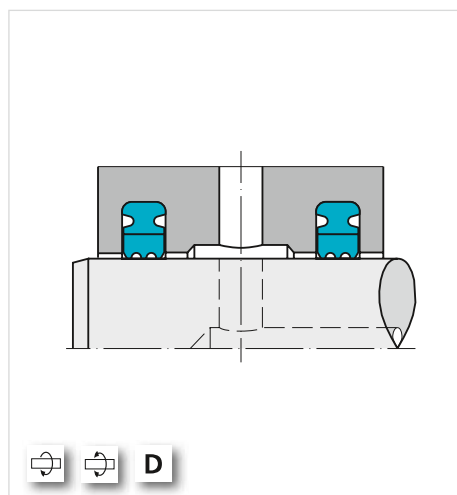
## Turcon® Roto Glyd Ring® II

**MATERIALS:** Turcon®, Zurcon®

The Turcon® Roto Glyd Ring® II is a double-acting, bi-directional seal for demanding applications. In rotary applications, the Turcon® Roto Glyd Ring® II offers outstanding stability in the gland hardware. It consists of a permanently bonded elastomer energizer and a PTFE-based seal ring to form a one-piece bonded construction that gives increased service life by preventing the seal's PTFE-based sealing ring from spinning with the shaft against the elastomer energizer.

**APPLICATIONS:** a bonded one-piece seal for demanding rotary applications which require a custom solution

Ø Range	Pressure Range	Temperature Range	Velocity
2.5 – 1,016 mm	35 MPa	-60 °C +200 °C	2.5 m/s
0.100 in – 40.0 in	5,000 psi	-76 °F +392 °F	8 ft/s



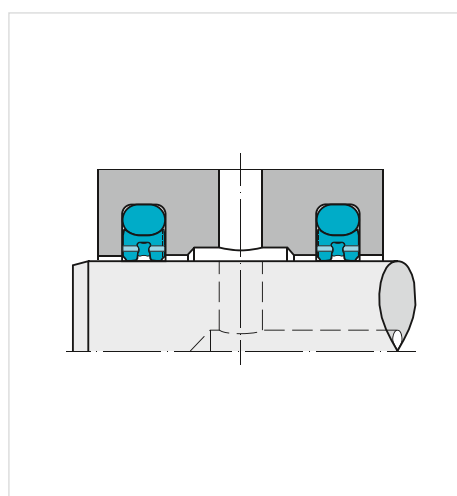
## Turcon® Roto Glyd Ring® V

**MATERIALS:** Turcon®, Zurcon®

A built-in valve function bypasses the upstream “leg” facing the pressure. This ensures that only the downstream “leg” is pressurized and sealing, whereas the upstream part of the seal is pressure-balanced and does not contribute to torque. This reduces the contact surface to improve friction, wear resistance and tightness.

**APPLICATIONS:** machine tool industry, mainly machining centers, hydraulic swivels, rotary connections, with swivel, movement, hydraulic rotators, robotics, manipulators, indexing tables

Ø Range	Pressure Range	Temperature Range	Velocity
Shaft 35 to 500 mm Bore 22 to 500 mm	30 MPa	+100 °C (up to +150 °C at lower PV-values)	2 m/s
–	4,350 psi	+212 °F (up to +302 °F at lower PV-values)	6.5 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



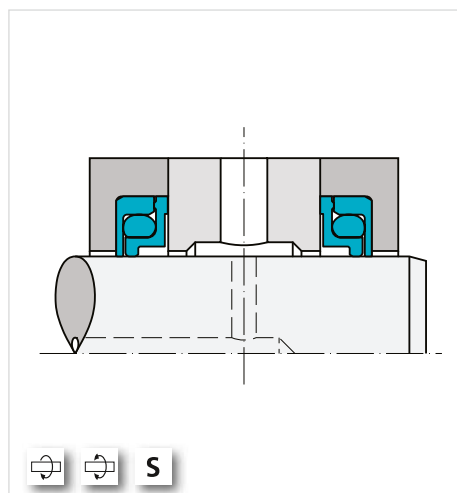
## Roto Glyd Ring® DXL

**MATERIALS:** Turcon®, Zurcon®

Roto Glyd Ring® DXL provides outstanding friction performance and extrusion protection in high pressure applications and those subject to high PV values.

**APPLICATIONS:** hydraulic swivels, downhole tools, rotating control devices, top drives, hydraulic motors

Ø Range	Pressure Range	Temperature Range	Velocity
13 – 380 mm	70 MPa	-30 °C +150 °C	5 m/s Rotating
0.500 – 15 in	10,150 psi	-22 °F +302 °F	16.4 ft/s Rotating



## Turcon® Roto Variseal®

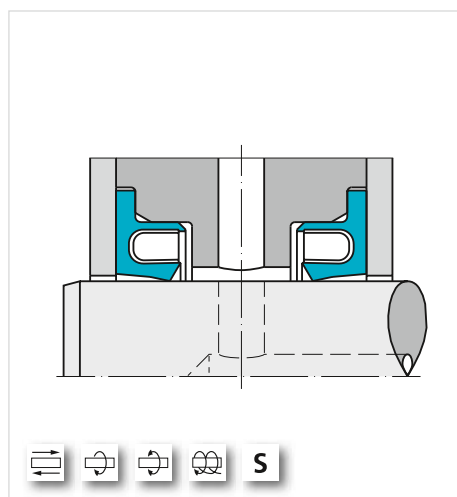
**MATERIALS:** Turcon®, Zurcon®

A single-acting sealing element comprised of a U-shaped Turcon® ring and metallic energizing finger spring. It offers low friction with no stick-slip, minimized break out force and high wear resistance. Its constrained flange eliminates potential seal rotation and it is resistant to most liquids and chemicals. Unlimited shelf life.

**APPLICATIONS:** general mechanical applications, chemical industry

Ø Range	Pressure Range	Temperature Range	Velocity
5 – 3,300 mm	S: 25 MPa D: 20 MPa	-70 °C +300 °C	L: 15 m/s R: 2 m/s
0.197 in – 130 in	S: 3,625 psi D: 2,900 psi	-95 °F +570 °F	L: 50 ft/s R: 6.5 ft/s

S = Static, D = Dynamic, L = Linear, R = Rotary

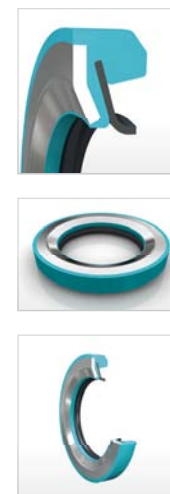
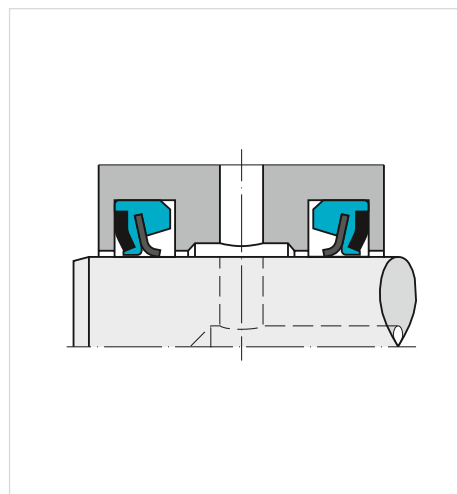


## Turcon® Roto L

The Turcon® Roto L seal is engineered to extend the life time of Central Tire Inflation Systems by lowering friction, also saving energy and fuel. This is achieved by only sealing when it is required during tire pressure adjustment. The seal body is available in NBR, HNBR and FKM materials and the sealing lip in Turcon® M12 and Turcon® M83.

**APPLICATIONS:** drive, automotive, agriculture, off-highway

Ø Range	Pressure Range	Temperature Range	Velocity
shaft 10 mm to 400 mm	0 – 9 bar	-40 °C +200 °C	25m/s (PV11bar/m/s)
–		-50 °F +390 °F	82 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



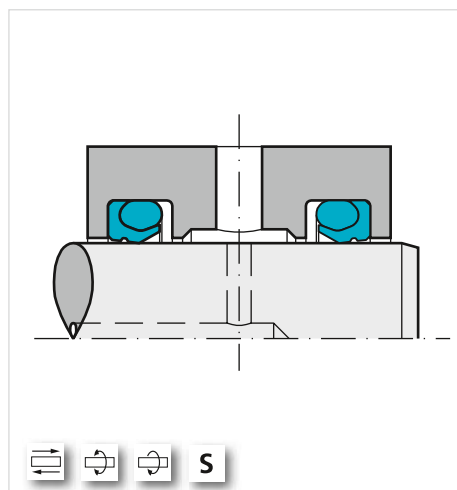
### Turcon® Roto VL Seal®

**MATERIALS:** Turcon®, Zurcon®

Single-acting seal for rotary, turning and oscillating movements for pistons, rods and shafts in a wide range of machinery. The O-Ring activated L-shaped Turcon® or Zurcon® seal element gives optimized low frictional static and dynamic sealing performance. Offers high wear and chemical resistance depending on seal and O-Ring material. Installed in closed, standard O-Ring grooves.

**APPLICATIONS:** hydraulics, general rotary machine applications, construction, swivels and rotary connections

Ø Range	Pressure Range	Temperature Range	Velocity
6 – 2,600 mm	30 MPa	-45 °C +200 °C	2 m/s
0.236 in – 102 in	4,350 psi	-50 °F +390 °F	6.5 ft/s



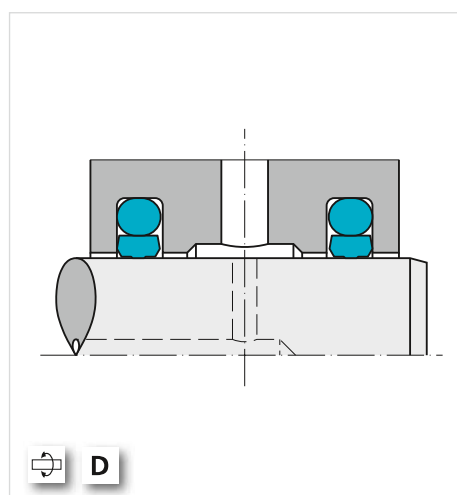
### Zurcon® Roto Glyd Ring® S

**MATERIAL:** Zurcon®

Double-acting O-Ring energized seal designed for oscillating moving pistons, rods and shafts. It offers low friction performance in rotary transmission lead throughs and indexing tables.

**APPLICATIONS:** machine tools, rotary connections

Ø Range	Pressure Range	Temperature Range	Velocity
12 – 2,700 mm	40 MPa	-30 °C +100 °C	6.5 MPa x m/s
0.472 in – 106 in	5,800 psi	-20 °F +210 °F	2,916 psi x ft/s



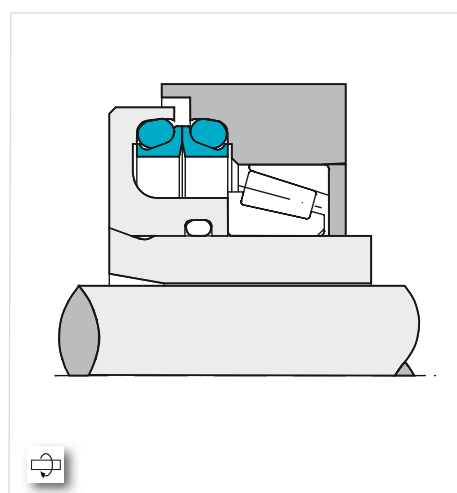
### Mechanical Face Seals

**MATERIAL:** Metal

Mechanical Face Seals are a special form of mechanical seals. They are also known under other designations, such as lifetime seals, floating seals, duo cone seals, toric seals and heavy duty seals.

**APPLICATIONS:** tracked vehicles, tunnel boring machines, heavy trucks, conveyor systems

Ø Range	Pressure Range	Temperature Range	Velocity
45 – 750 mm	0.3 MPa	-45 °C +200 °C	3 m/s
1,772 in – 29.5 in	43.5 psi	-50 °F +390 °F	10 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D





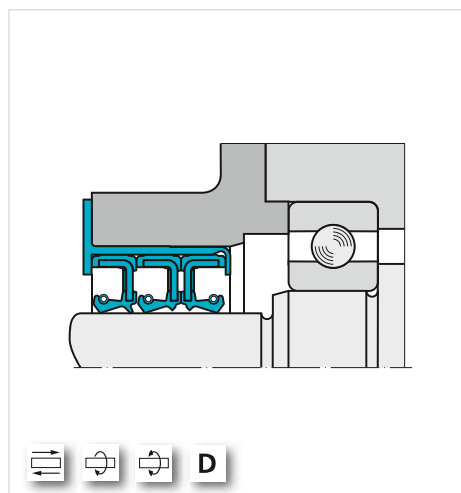
## Cartridge-ROS

**MATERIALS:** Elastomeric, Polyurethane, Metal

Cartridge-ROS is a metal cartridge containing two or three tailored Radial Oil Seals, additional Turcon® or Zurcon® seals and a greasing pack, combining in a single package several features for easier assembly and removal during maintenance.

**APPLICATIONS:** marine propellers, polluted environments, heavy duty industries

Ø Range	Pressure Range	Temperature Range	Velocity
shaft: 30 to 200 mm	-0.5 to 6 bar	-50 °C +130 °C	4 m/s
–		-58 °F +266 °F	13 ft/s



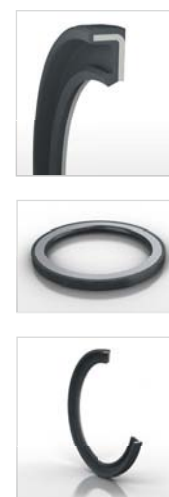
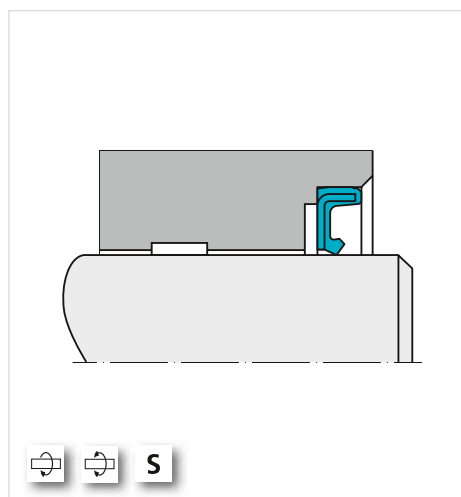
## HP20 Rotary Oil Seal

**MATERIALS:** Elastomeric, Metal

HP20 is an elastomeric rotary oil seal suitable for sealing medium to high hydraulic oil pressure at low to medium shaft speeds. Available in FPM and HNBR for standard and low temperature environments.

**APPLICATIONS:** hydraulics, motors and pumps, mobile hydraulics, heavy operation

Ø Range	Pressure Range	Temperature Range	Velocity
shaft: 17 to 300 mm	0 to 200 bar	-30 °C +100 °C	4 m/s
–	max PV = 140	-20 °F +210 °F	13 ft/s



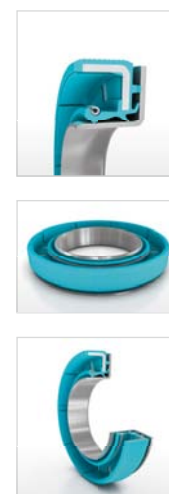
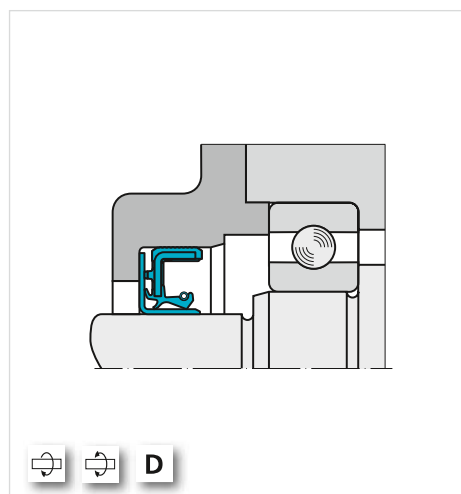
## HS-APJ Cassette Seal

**MATERIALS:** Elastomeric, Metal

The HS-APJ Cassette Seal is an evolution of the APJ Cassette Seal, suitable for high speed applications. It includes a sleeve, usually made from stainless steel, that simplifies customer hardware, and a Radial Oil Seal with integrated axial V-Rings. Supplied pre-greased.

**APPLICATIONS:** robotics, high speed, gearboxes exposed to polluted, environments, propeller shafts

Ø Range	Pressure Range	Temperature Range	Velocity
shaft: 30 to 180 mm	–	-30 °C +130 °C	8 m/s
–		-20 °F +266 °F	26 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



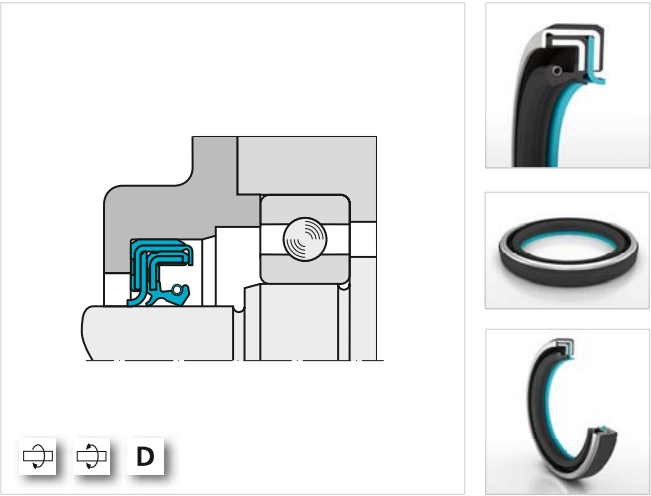
**Skyseal**

**MATERIALS:** Turcon®, PTFE, Elastomeric, Metal

Skyseal combines the benefits of an elastomeric rotary oil seal with advantages of a Turcon® Varilip® PDR on the air side within a single, compact seal.

**APPLICATIONS:** actuators and gearboxes, exposed to external contaminants, and pressurized gasses

Ø Range	Pressure Range	Temperature Range	Velocity
shaft: 17 to 200 mm	-0.5 to 3 bar	-50 °C +100 °C	8 m/s
–		-58 °F +210 °F	26 ft/s



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D

# Bearings & Bushings

For further  
product information,  
scan the QR-Code:





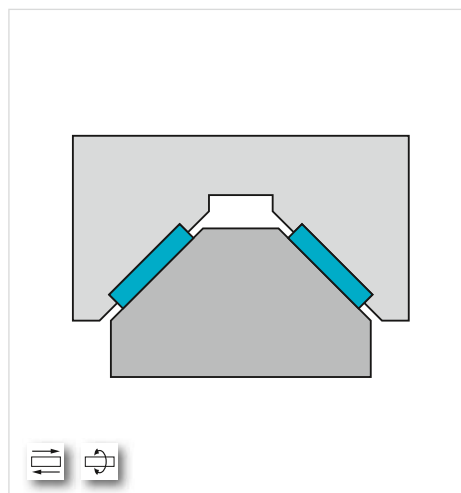
## Turcite® -B Slydway®

**MATERIAL:** Turcite®

Turcite® -B Slydway® is a low friction linear bearing strip C for use primarily on the ways and gibs of machine tools. It provides low friction, stick-slip-free operation, long life and minimum wear. It is installed using a two-part epoxy resin after cleaning and degreasing the bare metal surface thoroughly. The seal is dimensionally stable, maintenance-free and can be operated with or without lubrication.

**APPLICATIONS:** chemical industry, aggressive media

Ø Range	Radial Bearing Pressure Range	Temperature Range	Velocity
–	9 MPa	up to +260 °C	1 m/s
–	1,300 psi	up to +500 °F	3 ft/s



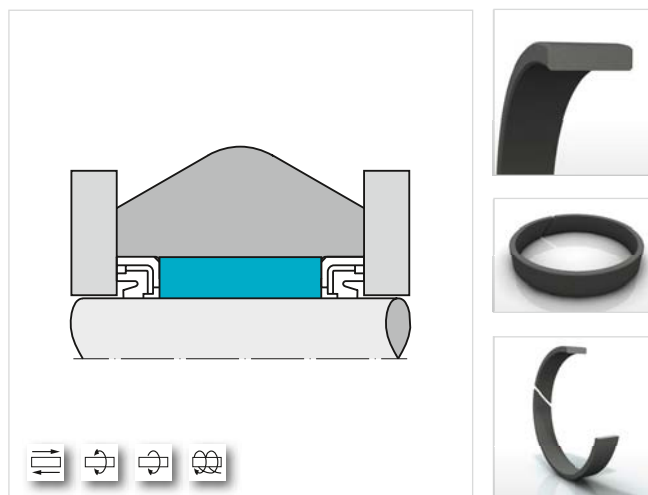
## Turcite® Bearings

**MATERIAL:** Turcite®

High load bearings made from Turcite® are dimensionally stable, wear resistant and provide excellent performance under dry and boundary lubrication conditions.

**APPLICATIONS:** general mechanical applications

Ø Range	Radial Bearing Pressure Range	Temperature Range	Velocity
2 – 3,000 mm	15 MPa	-60 °C +200 °C	15 m/s
0.079 in – 118 in	2,200 psi	-75 °F +390 °F	50 ft/s



## Orkot® Marine and Hydro Bearings

**MATERIAL:** Orkot®

Orkot bearings offer significant advantages over traditional metal bearings. All are dimensionally stable, have excellent wear resistance and outstanding low-friction characteristics, giving them unrivalled performance in dry running conditions or with boundary lubrication. With virtually no swell in seawater, they are ideal for marine and hydropower applications.

**APPLICATIONS:** marine, hydropower

Ø Range	Radial Bearing Pressure Range	Temperature Range	Velocity
2 – 3,000 mm	S: 120 MPa D: 90 MPa	-60 °C +250 °C	6 m/s
0.079 in – 118 in	S: 17,400 psi D: 13,000 psi	-75 °F +480 °F	20 ft/s

S = Static, D = Dynamic



**KEY TO APPLICATIONS:** Reciprocating = Rotary = Oscillating = Helix = Static = Single-acting = S Double-acting = D



# Engineered Seals, Gaskets & other Parts

For further  
product information,  
scan the QR-Code:





### Engineered Molded Parts

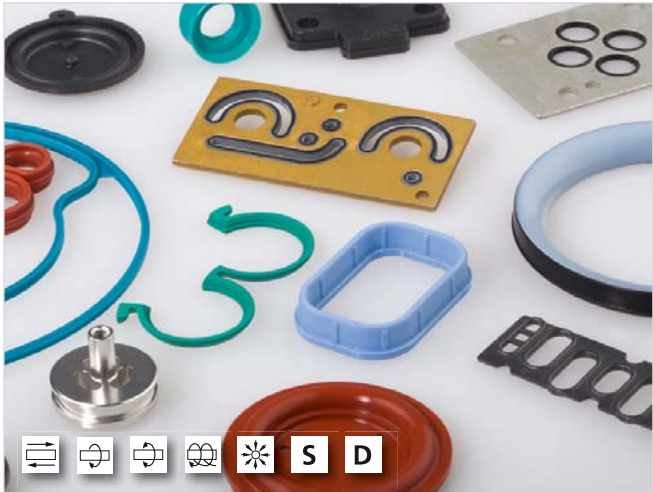
**MATERIALS:** Elastomeric, Polyurethane, Other Polymeric

Customized seals and other components in a wide range of standard and specialized elastomers, including Isolast®, are manufactured to close tolerances for all types of industries and applications. As your development partner, Trelleborg Sealing Solutions can work with you to design, develop and supply custom engineered molded parts to suit your application requirements.

**Temperature Range**

up to +325 °C

up to +615 °F



### Engineered PTFE Components

**MATERIAL:** PTFE

A wide range of filled and unfilled engineered PTFE components are made available to all types of industry. They include valve seats, pump diaphragms, chevron packings, nozzles, bellows, guides, bearings and electrical insulators. These are developed in conjunction with Trelleborg Sealing Solutions to the specific requirements of the customer.

**APPLICATIONS:** various custom applications

**Temperature Range**

up to +260 °C

up to +500 °F



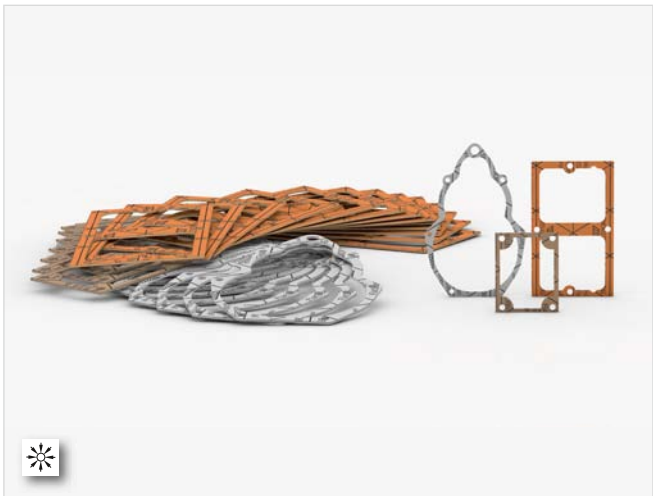
### Engineered HiMod® FlatSeal™

**MATERIALS:** Elastomeric, Polyurethane, Other Polymeric

Flat gaskets are primarily fitted in flanges and widely used in sanitary and industrial applications. A range of material types are available to meet specific requirements and regulations for different industries.

**APPLICATIONS:** chemical and processing industries

Pressure Range	Temperature Range
up to 25 MPa	-210 °C +1,000 °C
up to 3,625 psi	-345 °F +1,832 °F



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## Rubber-to-Metal and Rubber-to-Plastic Bonded Parts

**MATERIALS:** PTFE, Elastomeric, Other Polymeric, Metal

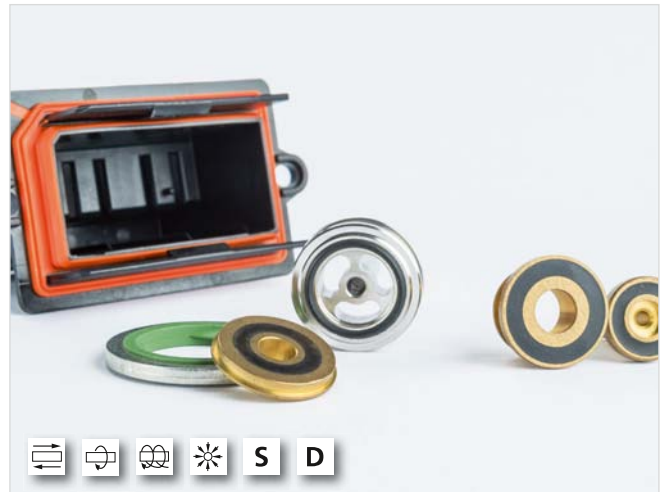
In many applications, a composite molded part has advantages in terms of technical robustness, quality, performance and total cost of ownership. Bonding of either standard or specialized elastomers, including Isolast®, is feasible with a large variety of metals and thermoplastics. As your development partner, Trelleborg Sealing Solutions can work with you to design and develop products to suit your application requirements.

**APPLICATIONS:** various custom applications across all industries from a wide range of materials

### Temperature Range

-60 °C +325 °C

-75 °F +615 °F



## Rubber and Rubber-to-Metal Bonded Gaskets

**MATERIALS:** Elastomeric, Metal

Precision homogeneous or rubber-to-metal bonded gaskets are custom molded from a variety of elastomers for high-performance engine and other applications. Metals such as cold-rolled or stainless steel, brass or aluminum can be offered bonded to any elastomer. As your development partner, Trelleborg Sealing Solutions can work with you to design, develop and supply gaskets to suit your application requirements.

### Temperature Range

-60 °C +325 °C

-75 °F +615 °F



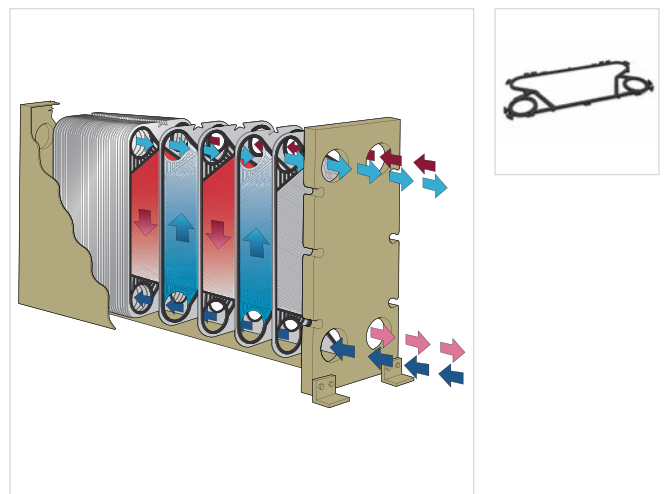
## Plate Heat Exchanger gaskets

**MATERIALS:** NBR, HNBR, EPDM, CR, IIR, FKM, AFLAS, VMQ

Plate heat exchangers offer a highly efficient means of heating or cooling fluid media. Plate heat exchangers employing gaskets between the heating and cooling plates are widely used in many type of industry including chemical processing, oil and gas, food and beverage, HVAC, refrigeration, etc.

**APPLICATIONS:** chemical processing, food and beverage, HVAC, oil and gas, refrigeration, marine

Ø Range	Pressure Range	Temperature Range
Length: up to 2900 mm or higher (by joining) Width: up to 1450 mm	0 to 50 bars	-60 °C +200 °C
Length: up to 114 in or higher (by joining) Width: up to 57 in	0 to 725 psi	-76 °F to +390 °F



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## Ground Balls

**MATERIAL:** Elastomeric

Ground Balls are rubber spheres of high dimensional accuracy. They guarantee sealing without leaks, are resistant to dirt and produce little noise. Ground Balls are used primarily as sealing elements in non-return check valves to seal against hydraulic fluid, water or air.

**APPLICATIONS:** check valves

### Temperature Range

-30 °C +200 °C

-20 °F +390 °F



## Diaphragms

**MATERIALS:** PTFE, Elastomeric, Polyurethane, Other Polymeric, Metal

Diaphragms are available in many designs, in a variety of homogeneous or fabric-reinforced elastomers. Challenging applications are solved through composite design and material technology, including the application of PTFE and other barrier materials for chemically aggressive environments. Plastic or metal-to-rubber bonding can be incorporated assembly and provide precision control of movement or pressure.

**APPLICATIONS:** pumps, valves, regulators and actuators

Pressure Range (Not reinforced)	Pressure Range (Not reinforced)	Temperature Range
up to 0.05 MPa	10 MPa	-50 °C +325 °C
up to 7 psi	1,450 psi	-55 °F +615 °F



## Custom-made HiMod® High Modulus Plastics

**MATERIAL:** HiMod®

A wide range of high performance, high modulus thermoplastics are available for use as custom-molded components, reinforcing rings and Back-up Rings. Grades can optimize operation on structural, chemical, electrical and high performance bearing applications.

### Temperature Range

up to +300 °C

up to +570 °F



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## Liquid Silicone Rubber (LSR) Molded Parts

**MATERIAL:** Elastomeric

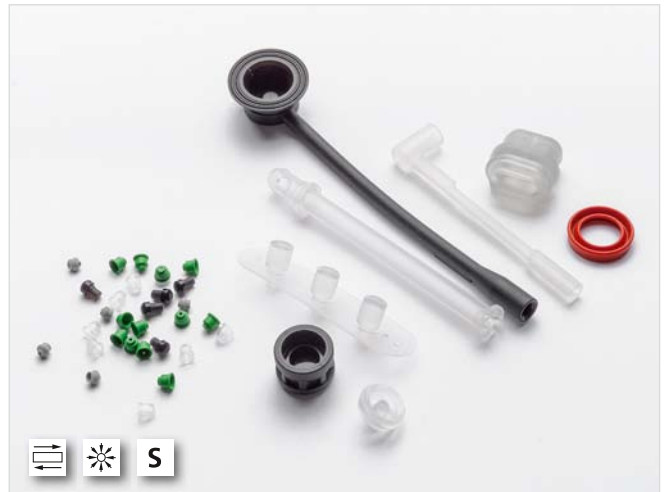
High-precision LSR parts, often delicate or micro-sized, are increasingly specified across many industrial sectors including medical and pharmaceutical, household appliances, electrical, and electronic. High-precision toolmaking and state-of-the-art fully automated liquid injection molding are the basis for custom-engineered parts into applications where consistent precision, quality and performance reliability in high quantities are critical in application.

**APPLICATIONS:** custom applications including life, sciences, food and pharmaceutical, sanitary and automotive

### Temperature Range

-40 °C +175 °C

-40 °F +350 °F



## Two Component (2C) Liquid Silicone Rubber (LSR) Parts

**MATERIALS:** Elastomeric, Other Polymeric

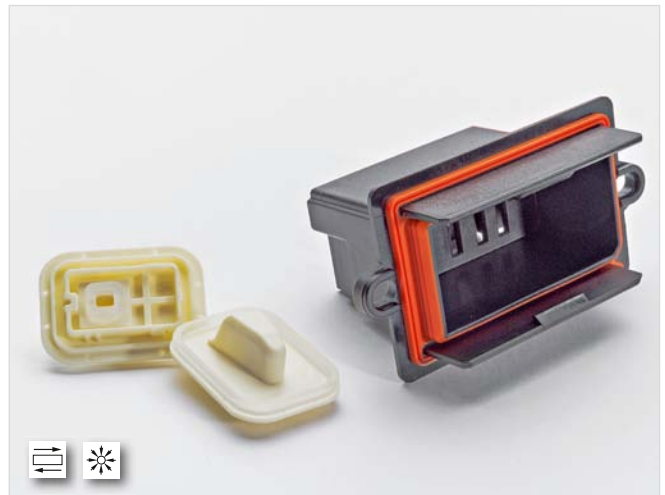
Specialized tool design and process engineering are the foundation of our advanced two-component injection technology, allowing the design and production of complex, high-precision hard-soft or soft-soft product solutions. 2C solutions allow the integration of multiple functions into a single robust component. It increase design latitude and eliminate the need for secondary handling and assembly operations.

**APPLICATIONS:** various custom applications including life, sciences, food and pharmaceutical and automotive

### Temperature Range

-40 °C +175 °C

-40 °F +350 °F



## Silicone Hose and Tube

**MATERIAL:** Elastomeric

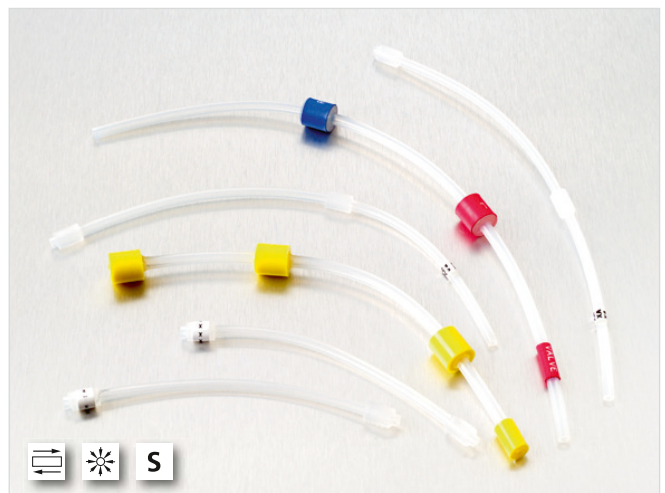
A comprehensive range of platinum cured silicone hose and tube is produced to stringent performance and purity standards demanded by Life Sciences, biotechnology and pharmaceutical markets. PharmaTube™ is used either as singular tube or value-added tube sets and assemblies. Trelleborg Sealing Solutions can work with you to design, develop and supply a solution to suit your application requirements.

**APPLICATIONS:** medical tubing and profiles, reinforced hose, and related value-added assemblies

### Temperature Range

-40 °C +175 °C

-40 °F +350 °F



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## Silicone Braided Hose – single

**MATERIAL:** Elastomeric

A comprehensive range of platinum or peroxides cured silicone braided hose is produced to the most stringent performance and purity standards demanded in the life Sciences, biotechnology, pharmaceutical and Food & Beverage markets. PharmaSil™ and NutraSil™ is used either as singular or double polyester braided hose and can be supplied with SilFit™ permanent or reusable fittings. Single or double braided hose or value-added Hose assemblies with fittings can be used in a wide variety of applications such as media bulk transfer, food dispensing and higher pressure fluid transfer applications.

**APPLICATIONS:** healthcare and medical

Pressure Range	Temperature Range
379 kPa – 1206 kPa	-62 °C +260 °C
55 – 175 psi	-80 °F +500 °F



## Silicone Braided Hose – double

**MATERIAL:** Elastomeric

A comprehensive range of platinum or peroxides cured silicone braided hose is produced to the most stringent performance and purity standards demanded in the life Sciences, biotechnology, pharmaceutical and Food & Beverage markets. PharmaSil™ and NutraSil™ is used either as singular or double polyester braided hose and can be supplied with SilFit™ permanent or reusable fittings. Single or double braided hose or value-added Hose assemblies with fittings can be used in a wide variety of applications such as media bulk transfer, food dispensing and higher pressure fluid transfer applications.

**APPLICATIONS:** healthcare and medical

Pressure Range	Temperature Range
772 kPa – 1378 kPa	-62 °C +260 °C
112 – 200 psi	-80 °F +500 °F



## Rubore® Seals

**MATERIALS:** PTFE, Elastomeric, Metal

The Rubore® process is a unique rubber-metal layering technology permitting complex seal designs that have never before been possible. Rubore® Seals provide overall cost benefits, reducing weight and frequently eliminate the need for surface finishing and after treatments. The stiffness of the product reduces handling costs and logistics requirements, and makes automated seal installation achievable.

**APPLICATIONS:** rubber-metal composite for custom, made applications, various possible, geometries and designs

Temperature Range
-40 °C +165 °C
-40 °F +329 °F



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# Surface Finishing

For further information,  
scan the QR-Code:





## Flexcoat™ coatings

**MATERIALS:** Zurcon®, Elastomeric, Polyurethane

Micro-thin, high-performance coatings and surface modification provide the ultimate choice, maximizing friction characteristics during assembly and in dynamic applications. Most of the assembly and application professionals provide a UV-indicator. This is highlighted under ultraviolet lamps.

**APPLICATIONS:** computer controlled, secure processes, water-based

### Temperature Range

-40 °C +175 °C

-40 °F + 350 °F



## Flexcoat™ colored coatings

**MATERIALS:** Zurcon®, Elastomeric, Polyurethane

The primary function of any coating is to improve the friction characteristics of an elastomer seal. In addition, colored coatings enable effective differentiation of seals and 100 percent detection in production and assembly process.

**APPLICATIONS:** computer controlled, secure processes, water-based

### Temperature Range

-40 °C +150 °C

-40 °F +300 °F

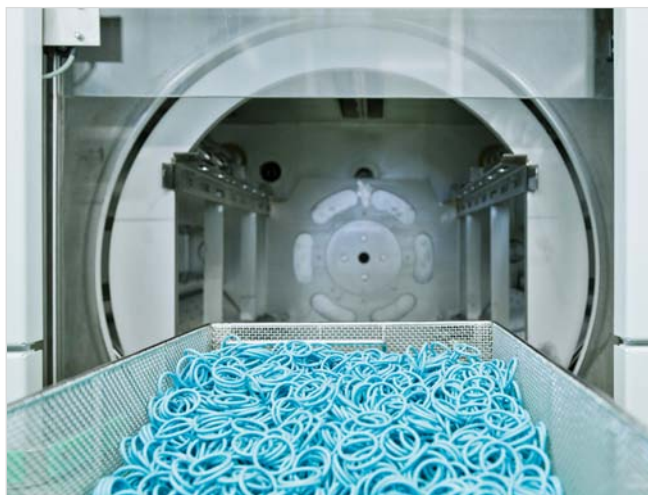


## Flexclean™ cleaning solutions

**MATERIALS:** Zurcon®, PTFE, Elastomeric, Polyurethane

Elastomeric seals can be offered in clean conditions to various cleanliness standards. These include seals free of paint wetting impairment substances (PWIS-free), maximum allowed particle sizes of 400 µm or 200 µm based on ISO 16232 or seals washed and packed in a cleanroom class 5 according to ISO 14644-1.

**APPLICATIONS:** computer controlled, secure processes



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Trelleborg is a world leader in engineered polymer solutions that seal, damp and protect critical applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Sealing Solutions is a leading developer, manufacturer and supplier of precision seals, bearings and custom-molded polymer components. It focuses on meeting the most demanding needs of aerospace, automotive and general industrial customers with innovative solutions.

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