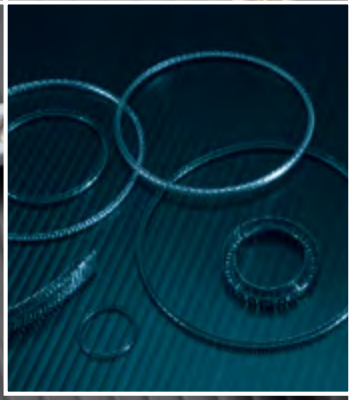
CoorsTek
Amazing Solutions.®



TETRAFLUOR® ADVANCED POLYMERS

www.coorstek.com

Phone number

for the Americas:

+1.310.322.8030

Europe:

+44.797.655.9414

Asia:

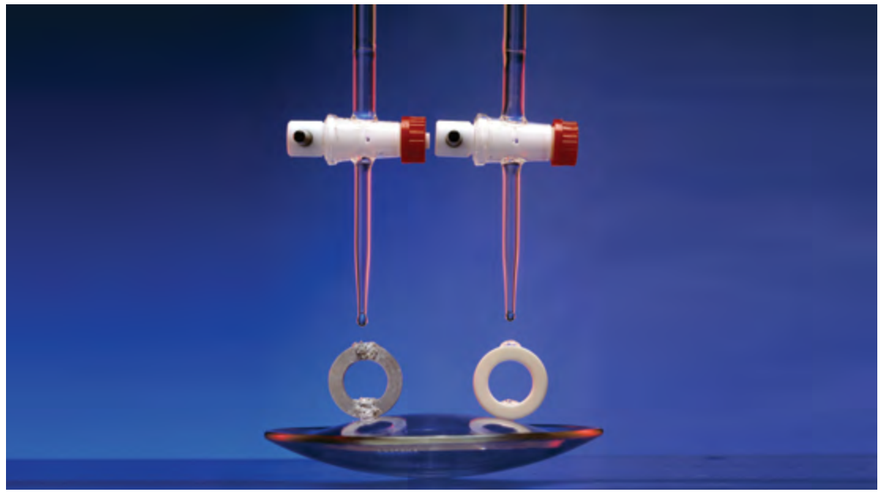
+81.359.921.1231

ADVANCED POLYMERS

Excellence in Advanced Polymers
CoorsTek leads the industry leader in the design and manufacture of high performance, non-metallic materials and components. Our Polymer Group, established in 1956 as a PTFE processor and precision machining company, evolved into a highly technical organization credited with major breakthroughs in the areas of sealing and bearing technology. As a diversified manufacturer of high performance fluoroplastics and other engineered non-metallic materials, our products are used in a variety of industrial, medical, aerospace, aircraft, and process-equipment applications.

Material Selection
In addition to all the standard materials of the industry, CoorsTek has developed a selection of over 100 proprietary Tetralon® materials formulated to offer superior performance characteristics in specific applications:

- Cryogenic to high temperature
- Vacuum to high pressure
- Static to high speed
- Self-lubrication, corrosion resistance, low friction, low wear, low deformation, heat dissipation
- Formulated to meet or exceed FDA, USDA, and NSF requirements



Application Expertise
Our staff of design and application engineers offers extensive experience in the field of high performance-material applications in seal, bearing, and machined component environments. For over forty years, our expertise in the application of advanced polymer materials in dynamic applications has offered design and manufacturing engineers a cost-effective approach to optimum-performance component design.

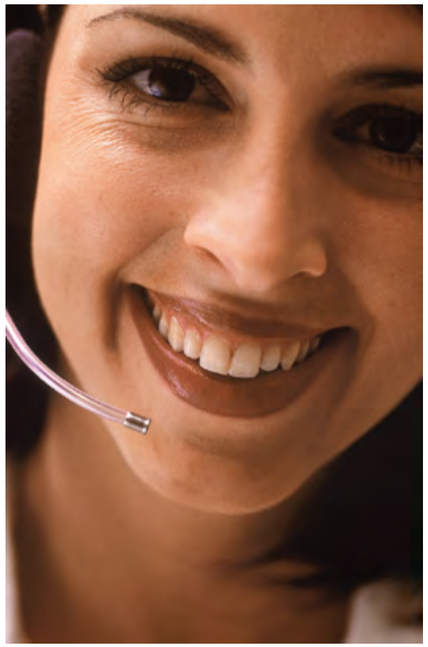
Advanced Materials Processing
We utilize the full benefit of our internally developed process technologies for the fabrication of our advanced polymers, composites, and engineered plastic components. Our experienced production team can efficiently process orders ranging from low-volume prototype requirements to high-volume production quantities. CoorsTek – pioneering new ways to meet the needs for our customers through the use of innovative processes and fabrication technologies.

QUALITY ASSURED

Resin to Finished Part
At CoorsTek, quality control is more than just checking a finished part.

- Quality assurance is a continuous process beginning at the raw material stage. All resins and materials are tested for essential physical properties prior to processing.
- We assure total quality by internally processing our own materials.
- We achieve total continuity from part to part and product to product by using statistical process control (SPC) methods to assure total customer satisfaction.
- Our analytical laboratory capabilities provide data on our material's physical tribological and electrical properties.
- Our facility is ISO 9001 and AS9100 certfied and has FAA PMA approval. We are also qualified under NADCAP for non-destructive testing.

We pride ourselves on our self-release authority granted by the major aerospace corporations.



Responsive Customer Support
At CoorsTek, we pride ourselves on our unsurpassed customer support.

- **Rapid-response** product engineering, component quotations, prototype, and production order delivery, we support our customers and the products they purchase.
- **We work closely** with our customers on new applications with innovative product designs and on existing component applications with product value analysis and recommended product modifications for specific applications.
- Our team of design and applications engineers has **extensive experience** in overcoming the demanding requirements of industrial and aerospace hydraulic, pneumatic, and mechanical systems.
- Our **design support team** is one of the most comprehensive in the field with more than 75 years experience in advanced polymer-based material and sealing applications.
- Using 3D CAD and Finite Element Analysis we meet the challenge of providing our customers with custom-designed, superior-performance components.

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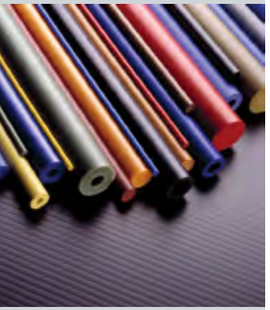

The unique properties of Tetralon materials offer component solutions in many high-performance seal and bearing applications where temperature, lubrication, corrosion, friction and wear are critical factors.

TETRALON® BEARINGS

Self lubricating plain bearings in sleeve, flange, thrust, and custom configurations offering superior performance in a vast array of application areas.

Benefits
- Self lubricating
- Chemical compatibility
- Low friction & wear properties
- Wide temperature range
- Superior electrical properties
- Weight and space reduction
- Reduced hardware/system cost

Applications
- Food processing equipment
- Vacuum chambers
- Chemical process equipment
- Water treatment
- Hydropower facilities
- Aggressive media applications
- Marine deck machinery
- Semiconductor equipment
- Pulp & paper process equipment
- Computer peripherals
- Packaging equipment

ELASTOMER-ENERGIZED SEALING

Elastomer-energized PTFE seals have many years of successful operation in hydraulic and pneumatic systems. The polymer-based dynamic sealing element is used with an elastomer acting as a static energizer. Available in custom designs and 13,000 standard inch and metric sizes conforming to industrial and military specifications.

Benefits
- Easy installation into closed o-ring grooves
- Low friction, no stick-slip
- Operates without lubrication
- Bi-directional or unidirectional sealing

Applications
- Reciprocating pistons and rods
- Hydraulic/pneumatic cylinders, actuators and valves

WEARRING™ BEARINGS

Thin-wall guide bearings traditionally utilized in hydraulic/pneumatic cylinders and valves to prevent metal to metal contact between moving components. Available in all Tetralon materials including Tetralon 935, for use in excessive side-load applications.

Benefits
- Withstands extreme side loads
- Thin-wall section – easy installation
- Centers and maintains alignment of piston/ cylinder bore and rod/rod gland
- Optimizes seal performance
- Extends component life

Applications
- Hydraulic and pneumatic cylinders
- Hydraulic/pneumatic actuators and valves

METAPLAST® II SPRING-ENERGIZED PTFE SEALS

Exceptionally durable, our specially designed PTFE-based sealing jacket, Metaplast II spring, and a patented metallic C-shaped spring conform the Metaplast II spring seal. Available in eight standard cross sections for O-ring and custom groove designs in diameters from 1/8" to 60", and 3.25mm to 1500mm.

Benefits
- Controls friction
- Easily installs into closed grooves
- Eliminates compression set
- Withstands high-frequency vibrations
- Wide temperature range
- High/Low pressure
- For fluid & gas media

Applications
- Rotary, reciprocating, oscillating, static
- Piston, rod, & shaft seals
- Inside and outside face seals
- Cylinders, actuators, valves, pumps, rotary swivels, and manifolds

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TETRAFLEX® PISTON RINGS

Patented one-piece piston ring with unique step cut joint. While the Tetraflex Piston rings employ either a metallic wave spring or a flat-ribbon energizer, the Tetraflex II Piston ring makes use of an enclosed expander clip which easily facilitates handling and installation. We can also make individual designs for all military and industrial hydraulic systems.

Benefits

- Very low friction
- Wide operating temperature, pressure, and fluid ranges
- Permits true floating-piston configurations
- Compensates for out-of-round, oversize bore, & cylinder breathing conditions

Applications

- Servo Actuators
- Hydraulic cylinders

POLYMER O-RINGS

Available in virgin PTFE, filled PTFE, modified PTFE, UHMW, filled UHMW and our propietary Tetralon® materials – over 370 standard sizes with diameters from 1/32" to 56"

Benefits

- Excellent static sealing properties
- Wide operating temperature range
- Excellent media compatibility
- Low permeability

Applications

- Chemical, medical and scientific industries
- Food product environment

PTFE BACKUP RINGS

Rings are designed to eliminate extrusion of elastomer o-rings in hydraulic and pneumatic sealing systems. Solid, scarf-cut, and spiral cut designs in standard, military, extended military and industrial sizes.

Benefits

- Low friction
- Eliminates o-ring and seal extrusion
- Extends service life of seals in high pressur applications

Applications

- High pressure dynamic/static sealing
- Hydraulic and pneumatic systems
- High pressure valves/actuators

METALLIC STATIC SEALS

Our metallic static seals are V-shape inside and outsid face seals to fit o-ring grooves. Over 460 standard-size OD's from 1/4" to 24". All are coated for improved surface conformity.

Benefits

- Available in a variety of materials including:
  - KR Monel®
  - Inconel® X and Inconel 718
  - 17-4 PH and 17-7 PH stainless steel
  - Hastelloy® X
- Three designs interchangable with rubber o-rings, vacuum installations, and metal o-rings

Applications

- Hard vacuum to 10,000 psi
- Cryogenic to 1000° F (540° C)

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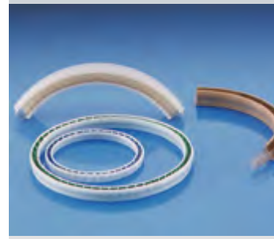

Our analytical laboratory can provide data on our material's physical, tribological, and electrical properties. Please request these results when placing order.

PRECISION-MACHINED COMPONENTS

We offer ultra-precision machined, non-metalic components. As a key supplier to many major aircraft, aerospace, and industrial equipment manufacturers, our capabilities are as diverse as the industries we serve. From the tight tolerance, smooth surface finish requirements of the semiconductor industry to the large diameter, heavy use components of the process industries, we ensure world-class quality and customer satisfaction.

TETRALON®-SEALED BEARINGS

Incorporates proprietary seal and plain bearing technology into one component. Eliminates ingress of contaminants into bearing area. Offers a cost-effective approach to increased bearing life and simplicity of installation.

Applications

- Aggressive media environments
- Difficult seal/bearing installation applications

EXTRUDED & MOLDED TUBES & RODS

Available in virgin PTFE, filled PTFE, modified PTFE, UHMW, filled UHMW and our proprietary Tetralon materials. Outside diameters from 3/16" to 60".

OpX™

CoorsTek exclusive OpX manufacturing and quality system

PTFE GASKETS

Custom thickness in diameter to 24"

PTFE BALLS

Standard sizes from 3/4" to 4" diameters

SKIVED TAPE

Available in virgin PTFE, filled PTFE, modified PTFE, UHMW, filled UHMW and proprietary Tetralon materials. Thicknesses from 0.002" to 0.250". Slit widths to 24".

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Technology
Materials
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