Parker Solutions for Table Top Sterilizers
Solenoid Valves and Accessories
Parker FCDE

Who we are?
The Fluid Control Division in Europe (FCDE) is a division of Parker Hannifin, the global leader in motion and control technologies.

FCDE core competences are the development and manufacturing of an extremely diverse range of fluid control products, including solenoid valves and pressure regulators.

Where we are?
Our European headquarters are located in Geneva, this is also where our R&D, Marketing, Application Support and Product Management functions are located.

FCDE Products are mainly manufactured at locations in Carouge (Geneva - Switzerland) and Gessate (Milan - Italy).

The Parker Sales Companies and comprehensive distribution network support you, wherever you are.

History
Parker FCDE has been a leading player in the manufacturing and development of solenoid valve technologies for over 60 years, with continuous research and development bringing innovative solutions to the marketplace, for example leading the way in the utilisation of synthetic ruby for critical water applications or the unsurpassed reliability and precision of our pressure regulators. The expertise accumulated and developed through the years is evident in the superior quality of FCDE solutions.

Markets
Our products and solutions are typically designed for markets including Industrial Equipment, Industrial Automation, Mobile, Transportation, Life Sciences, Beverage dispensing and for Fluid and Process Control.

Benefits
The modular concept of our products, having separate solenoid valves and electrical parts, provides the customer with increased flexibility by allowing numerous combinations. This additional flexibility can enable distributors to greater reduce valve inventory levels, whilst retaining the same number of capabilities. Parker also has unrivalled experience in developing customised product solutions complying with the highest technical, environmental, energy and service life requirements.
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**WARNING - USER RESPONSIBILITY**

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.
Introduction

Parker Hannifin, the global leader in motion and control technologies, is your ideal partner offering a wide range of solutions for Sterilization.

A wide product offering with high quality standards is available, including Solenoid Valves, Pipes, Fittings and Filters.

Each product has been developed by our engineers taking care of answering with exclusive benefits to the functional needs.

Sterilisation Market

- Table top Medical sterilizers
- Dental sterilizers
- Medium capacity autoclaves (vessel up to 60l)
- B class sterilizers
Applications and Benefits

Applications

Sterilisation in dental, medical and veterinary studies is a key process to ensure the cleanliness of the tools which will be used by the doctor with the patient.

This process is regulated by precise norms, including EN13060.

Sterilisation process is made by specific equipment controlling water, demineralized water, air, steam and vacuum in order to ensure the right cleaning conditions of the tools.

Parker, the global leader in motion and control technologies, can provide you with a wide range of components for sterilizers, each of them with exclusive benefit.

Benefits

Our engineers have developed a wide product offering for the sterilizer market taking into consideration of the most critical aspects of the application, like steam resistance, vacuum resistance, life targets, application temperature.

All the products listed in this catalogue have been developed to ensure:

- Strong and reliable design given by proper selection of the materials and oversizing of the areas under mechanical stress,
- Right materials to ensure long life in contact with selected media,
- Vacuum resistant solutions,
- Wide range of configurations.
- Products are IMQ,RoHS,CE approved and possibly UL,VDE,NSF depending on reference.
Solenoid Valves Program

2/2 Normally Closed Solenoid Valves

Parker product portfolio includes 1/4” port size valves with different flow rates. The smooth design ensures good performances, optimization of flow rate, and excellent vacuum resistance during life.

A wide range of high temperature resistant H class coils with several voltages are available. FKM is the selected sealing compound giving the best performances when additives and cleaners are present in the circuit.

Typical application:
- **Filling**: Water loading of the steam generator and pump shut off line
- **Emptying**: Exhaust of the sterilization vessel

**Fluids**: Superheated water, Steam, cold water, air, vacuum

**Valve Body**: Moulded brass, CW817N UNI EN 12165:98

**Seals**: FKM

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**BRASS**

**PIE Pipe MOUNTING**

**NORMALLY CLOSED**

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Orifice Ø</th>
<th>Flow Factors</th>
<th>Admissible Differential Pressure Bar</th>
<th>Fluid Temp.</th>
<th>Seat Seal</th>
<th>Valve Order Number</th>
<th>Valve Type</th>
<th>Coil Type</th>
<th>Power (cold)</th>
<th>Dwg. No.</th>
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<td></td>
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<td>AC mbar</td>
<td>DC mbar</td>
<td>Max (MOPD)</td>
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<td>DC bar</td>
<td>°C</td>
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<td>140</td>
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<td>395448</td>
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<td>- 16 1</td>
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</tbody>
</table>

*Vacuum – working pressure given must be considered with vacuum applied at the outlet side of the valve (2) and no pressure applied simultaneously at the inlet side. We recommend to apply vacuum at the outlet side only.*

All dimensions are in mm

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Dimensional Drawing N° 1

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Solenoid Valves Program

2/2 Normally Open Solenoid Valves

Parker product portfolio includes 1/4” port size normally open valves to balance internal vs external pressure and hold pressure during the sterilisation cycle.

The smooth design ensures good performances, optimization of flow rate, and excellent vacuum resistance during life, efficient speed when valve is working to release pressure during sterilization cycle, in order to keep the temperature constant inside sterilizer vessel.

FKM is the selected compound giving the best performances when additives and cleaners are present in the circuit.

**Fluids:** Steam, air, vacuum

**Valve Body:** Moulded brass, CW617N UNI EN 12165:98

**Seals:** FKM

**Nozzle:** Stainless steel

**Sleeve and plungers:** Stainless Steel

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**BRASS PIPE MOUNTING NORMALLY OPEN**

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<td>ZH16 24DC</td>
<td>-</td>
<td>16</td>
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</tbody>
</table>

*Vacuum – working pressure given must be considered with vacuum applied at the outlet side of the valve (2) and no pressure applied simultaneously at the inlet side. We recommend to apply vacuum at the outlet side only.*

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All dimensions are in mm

Dimensional Drawing N° 2
## Solenoid Valves Program

### 3/2 Universal Solenoid Valves

139.2YV and 139.2LV.1 are the right products to ensure the diverting/mixing function before the vacuum pump. The 3.0 bar hold pressure ensures the valve to stay closed when sterilization cycle is running. The smooth design ensures good performances, optimization of flow rate, and excellent vacuum resistance during life.

A wide range of electrical part includes several voltage and high temperature resistant H class coils.

FKM is the selected sealing compound giving the best performances when additives and cleaners are present in the circuit.

**Fluids:** Superheated water, Steam, cold water, air, vacuum  
**Seals:** FKM  
**Valve Body:** Moulded brass, CW617N UNI EN 12165:98  
**Nozzle:** Stainless steel

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### Fluids and Seals

- **Fluids:** Superheated water, Steam, cold water, air, vacuum
- **Seals:** FKM
- **Nozzle:** Stainless steel

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### 3/2 Universal Solenoid Valves

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<tr>
<td>BSP</td>
<td>KV m³/h</td>
<td>KV l/min</td>
<td>Max (MOPD) AC bar DC bar mbar</td>
<td>°C</td>
<td>°C</td>
<td></td>
<td>AC W</td>
<td>DC W</td>
</tr>
<tr>
<td>1/4&quot;</td>
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<td>3 0 3 - 950 -10 140</td>
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<td>2016 24DC - 16 3</td>
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</tr>
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</table>

*Vacuum – working pressure given must be considered with vacuum applied at the outlet side of the valve (2) and no pressure applied simultaneously at the inlet side. We recommend to apply vacuum at the outlet side only.

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**BRASS PIPE MOUNTING**

**UNIVERSAL**

All dimensions are in mm

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**Dimensional Drawing N° 3**
Coils and Accessories

ZH Series - Standard Coil Bi-Frequency
H Class, IP65

These coils can be mounted with every Parker solenoid valves corresponding to the specified Coil Group. Coil manufactured with H Class copper wire, moulded in thermoplastic material polyester with 30% glass fiber. IP65 protection rate with EN 175301-803:2006-A. Three pin connector. This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive. DIN plug connector to be ordered separately (see coil accessories section).

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<th>Specification</th>
<th>High Temperature + High Power</th>
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<td>Ref. (without DIN plug)</td>
<td>ZH14/ZH16</td>
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<td><strong>Coil Group</strong></td>
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<tr>
<td><strong>Degree of protection</strong></td>
<td>IP65 according to IEC / EN 60529 standards (with DIN plug and gasket)</td>
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<td><strong>Class of insulation</strong></td>
<td>H 180°C</td>
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<tr>
<td><strong>Electrical connection</strong></td>
<td>The coil is connected with a 2 P + E plug according to EN 175301-803-A</td>
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<tr>
<td><strong>Ambient temperature</strong></td>
<td>ZH14/ZH16 -10°C to +80°C - The application is limited also by the temperature range of the valve.</td>
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<tr>
<td><strong>Elect. Power</strong></td>
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<tr>
<td>DC P (cold) 20°C</td>
<td>18 W</td>
</tr>
<tr>
<td>AC P (cold) 20°C</td>
<td>14 W</td>
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<tr>
<td><strong>Attraction cold</strong></td>
<td>33 VA</td>
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<tr>
<td><strong>Weight</strong></td>
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Voltages "Un"  

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<td>304100</td>
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To Order a Coil: Use 6 digits ordering number - Code Example: ZH16 for 24VDC = 304112
More voltage possibilities can be found in the table of voltage codes at the end of the coil section.

ACCESSORIES: ELECTRICAL CONNECTORS

- **2 P + E DIN 43650A Plug**

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<tr>
<th>Max A</th>
<th>Cable Section</th>
<th>Nominal Voltage</th>
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<td>6-10 mm^2</td>
<td>250/300 V</td>
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All dimensions are in mm
How to Order a Complete Solenoid Valve

A complete solenoid valve is composed by 2 elements: the **valve** and the **coil**.

All the parts listed in this catalogue are supplied with the standard housing assembled. Therefore your selection process is easier: you have to choose the valve with corresponding coil at a given voltage from page 6 to 8 and use the 6 digit number to order the complete solenoid valve.

**Step 1**

Select the pressure vessel reference needed on pages 6-8.

**Ordering a product or a configuration not listed in the catalogue.**

When an application demands a combination of features not listed in the catalogue, please feel free to contact the closest Parker office. Parker personnel will assist in determining the applicability, availability and price of the new product.

**Step 2**

Select accessories at page 9 (optional)
Other Parker Products for Sterilizers

Quick Connect Couplings

BT Series - Nominal Diameter: 7 mm

Technical Description:
The BT series coupling system has been developed for use in medical, biotechnology, pharmaceutical and laboratory applications and uses only medical grade materials. The main components are molded in a clean room from virgin transparent USP Class VI polysulfone (PSU). The seals are made from platinum cured silicone. The locking pins are stainless steel. Only available as straight-through version.

Advantages:
Single handed operation. Audible click to indicate a secure connection. Transparent components allow visual control of the flow path. Completely smooth flow path without any dead spaces prevents cross-contamination. Ergonomic sleeve for easy operation with gloves.

Working Pressure:
- \( PB = 0 \) bar up to 4.5 bar
- Maximum Static Working Pressure with safety factor of 4 to 1

Working Temperature:
- -20°C up to +148°C
**Other Parker Products for Sterilizers**

**Quick Connect Couplings**

**Series 20 - Nominal Diameter: 2.7 = 6 mm²**  
**Series 21 - Nominal Diameter: 5 = 20 mm²**

**Technical Description:**

Mini industrial coupling, internationally used profile. Notable for a high flow and numerous application options with various media. Frequent use in minipneumatics, medical technology and chemistry/pharmacy.

**Advantages:**

Single handed operation. Small dimensions.

- **Working Pressure:**
  - PB = 35 bar
  - Maximum Static Working Pressure with safety factor of 4 to 1

- **Working Temperature**:  
  - -15°C up to +200°C (FKM) depending on the medium.

* At a temperature below -15°C and above +200°C special seals are available on request.

For more information on Quick Connect Couplings, please contact:

Parker Hannifin Manufacturing Germany GmbH & Co. KG  
Quick Coupling Division Europe - Daimlerstraße 7 - 71735 EBERDINGEN - Germany  
Phone: +49 7042 100 0 - Fax: +49 7042 100 147 - info.rectus@parker.com - www.rectus.de

**Instant Fitting**

**LIQUIfit™**

Leak-free instant fittings in a 100% bio-based compact body. LIQUIfit™ offers optimum performance suitable for contact with water, beverages and food, as well as being the most compact profile on the market. The many advantages of this range include EPDM patented sealing technology, full flow, no pumping effect and minimized internal retention.

**Technical Specifications**

**Working Pressure:**

- from -0.9 to 16 bar (depending on the product type)

**Working Temperature:**

- -10°C to +95°C (depending on the product type)

**Material Specifications**

- Body and threads: bio-based material
- Gripping ring: stainless steel
- Thread sealant: PTFE
- ‘D’ ring: EPDM

**DFD**  
**DI**  
**NSF 51**  
**NSF 61**  
**ACS**  
**WRAS**  
**NSF 37**  
**C H O I - 1**

For more information see catalogue CAT/0598.
Instant Fittings

**LF 3600 Nickel-Plated Brass**

The LF 3600 fittings range, a range of extremely robust fittings. Resisting temperatures of up to 150°C, and functioning at 99% vacuum at as high as 30 bar, the LF 3600 is the one and only brass instant fitting on the market capable of such a performance.

**Technical Specifications**
- **Working Pressure:** from 0.9 to 30 bar (limited to 20 bar for compact swivel elbows 3979, 3879)
- **Working Temperature:** -20°C to +150°C

**Material Specifications**
- **Body/Collet/Washer/Sub-base:** high phosphorus chemical nickel-plated brass
- **‘O’ ring:** FKM fluoroelastomer
- **NSF H1 grease**

For more information see catalogue BUL/0525.

**LF 3900/LF 3800**

LF 3900: a range of instant fittings in full 316L stainless steel, with FKM seals, for optimum resistance to aggressive environments. LF 3800: a range of instant fittings in 316L stainless steel with 303 (collet) and FKM seals, for elemental chemical resistance and competitive price positioning.

**Technical Specifications**
- **Working Pressure:** from 0.9 to 30 bar (limited to 20 bar for compact swivel elbows 3979, 3879 and 3989/3889)
- **Working Temperature:** -20°C to +150°C

**Material Specifications**
- **Body/Collet/Washer/Sub-base:** stainless steel 316L (LF 3900) stainless steel 303 (LF 3800)
- **Sub-base:** stainless steel 316L
- **‘O’ ring:** FKM

For more information see catalogue CAT/0598.

**Universal Compression Fittings**

Universal compression fittings are designed to solve all fluid distribution problems and provide a complete system of fittings suited to all types of tubing (copper and stainless steel) and valve assemblies thanks to the flexibility offered by the vast range of accessories: olives, sleeve nuts, reducers, tube adaptors.

**Technical Specifications**
- **Working Pressure:** up to 150 bar (depending on the product type)
- **Working Temperature:** up to 150°C (depending on the product type)

**Material Specifications**
- **Body/Olive**: brass or stainless steel
- **Body/Olive**: available in lead-free brass (<0.2%) upon request

For more information see catalogue CAT/0524.
Other Parker Products for Sterilizers

Tubing

Advanced PE
Made from high-grade polyethylene, “Advanced PE” tubing ensures the best balance between flexibility and pressure/temperature resistance. Resistant to a wide range of aggressive chemical agents. Complies with international regulations and certifications for food and drinking water and standard W270 regarding micro-organism growth on materials. Available in nine colours and eight diameters.

Technical Specifications

<table>
<thead>
<tr>
<th>Working Pressure:</th>
<th>Working Temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>from -0.9 to 16 bar (depending on temperature and product type)</td>
<td>-15°C to +95°C</td>
</tr>
</tbody>
</table>

FEP
Parker Legris fluoropolymer tube (FEP) is food quality and provides excellent resistance to aggressive and corrosive agents and to high temperatures. It has a surface hardness of 55° shore D.

Technical Specifications

<table>
<thead>
<tr>
<th>Working Pressure:</th>
<th>Working Temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>from -0.9 to 22 bar (depending on temperature and product type)</td>
<td>-40°C to +150°C</td>
</tr>
</tbody>
</table>

PFA
A Comprehensive Range of PFA Tubing for Perfect Adaptability
High purity grade PFA for our clear tubing to cover all applications. Standard grade PFA for our coloured tubing for circuit identification and special requests.

Extreme Versatility for All Technical Applications

Technical Specifications

<table>
<thead>
<tr>
<th>Working Pressure:</th>
<th>Working Temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>from -0.9 to 35 bar (depending on temperature and product type)</td>
<td>-196°C to +260°C</td>
</tr>
</tbody>
</table>

For more information see catalogue CAT/0598.
At Parker, we’re guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374

**Aerospace**

**Key Markets**
Aircraft
Aerospace
Aerospace
Airframe automation
Life science & medical
Machine tools
Packaging machinery
Transportation & automotive

**Process Control**
Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & refurbishment
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/food/wastewater

**Climate Control**
Agribusiness
Construction machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

**Key Products**
Control systems & components
Fluid conveyance systems & components
Fluid metering & delivery devices
Fuel systems & components
Fuel tank sensing systems
Hydraulic systems & components
Thermal management
Wheels & brakes

**Electromechanical**
Aerospace
Factory automation
Life science & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery & converting
Primary metals
Semiconductor & electronics
Textile
Wire & cable

**Key Products**
AC/DC drives & systems
Electric actuators, robotic & drives
Electrohydraulic actuation systems
Electromechanical actuation systems
Linear motors
Slipper motors, servo motors, drives & controls
Structural excitations

**Fluid & Gas Handling**
Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

**Key Products**
Check valves
Conectors for low pressure
fluid conveyance
Deep sea umbilicals
Diagnostics equipment
Hose couplings
Industrial hose
Measuring systems & power cables
PTE: hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings

**Pneumatics**
Aerospace
Conveyor & material handling
Factory automation
Life science & medical
Machine tools
Packaging machinery
Transportation & automotive

**Key Products**
Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors

**Filtration**
Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

**Key Products**
Analytical gas generation
Compressed air filters & dryers
Engine oil, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & reverse filters
Microfiltration
Oil mist filters
Water desalination & purification filters & systems

**Sealing & Shielding**
Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

**Key Products**
Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EV e-shielding
Gasketing & precision cut, fabricated elastomeric seals
High temperature metal seals
Hydrodynamic & inverted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical wires
Silicone tubing & extrusions
Thermal management
Vibration damping
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