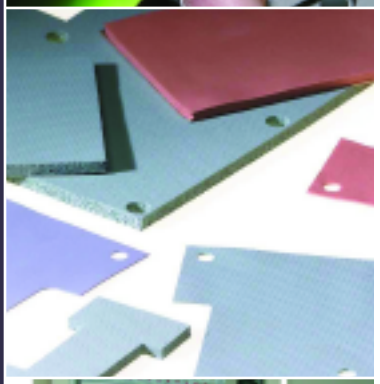
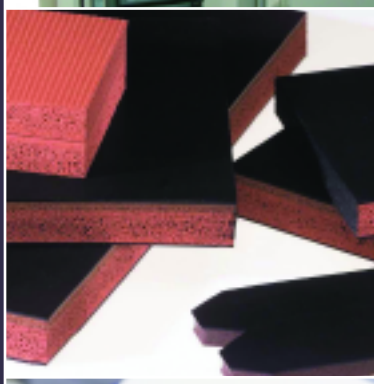
STOCKWELL ELASTOMERICS

PROVIDING SOLUTIONS TO DESIGN CHALLENGES
WITH HIGH PERFORMANCE ELASTOMERS

ANALYTICAL INSTRUMENTATION ■ TELECOMMUNICATIONS ■ MEDICAL DIAGNOSTIC
PORTABLE DATA ACQUISITION DEVICES ■ INDUSTRIAL CONTROLS ■ AEROSPACE





WHO WE ARE

About Us

Stockwell Elastomerics, Inc. provides high performance elastomeric components for demanding requirements in the technology equipment sector. Our mission is centered around increasing the competitiveness of our customers in our core markets by providing engineering support, such as application engineering assistance, material sampling, prototyping and fast-turn initial production.

Design Assistance, Prototyping and Fast Turn Initial Production to Support Engineering Requirements

Stockwell Elastomerics, Inc. combines customer service, manufacturing and prototyping facilities in one central location. On-site production facilities enable responsiveness – however, the real key is a company culture that understands that "the rubber gasket or cushioning pad is often the last component specified". We realize the success of our customers' product introductions may depend on our performance. Our applications engineering and design assistance team provides years of field-proven, on-the-job experience with elastomers and product performance requirements. We strive to continually improve on this capability.

Production Capabilities Dedicated to Needs of the Technology Equipment Sector

Our on-site production capabilities include: custom rubber molding, die cutting, compression and injection molding, adhesive lamination and water jet cutting services. While many companies in our industry have invested in off-shore facilities to reduce production costs, Stockwell Elastomerics has employed Lean Business practices to reduce set up times, ensure product integrity and permit lower quantity production runs. We strive to reduce waste from our production systems to provide improved lead times and value for our customers in the technology equipment sector.

We value our business relationships!

OUR CAPABILITIES

Dedication to Broad Production Capabilities versus High Volume Capacity

Stockwell Elastomerics has chosen to develop broad production capabilities to enable in-house, fast turn manufacturing of prototypes and low volume production runs to serve the needs of our customers in the Technology Equipment Sector. Our broad range of capabilities enables multiple approaches in solving design challenges and supporting initial production requirements. Stockwell Elastomerics has focused its capabilities to sustain specialty production rather than production of high volume commodity components.

Our on-site production capabilities include:

Water Jet Cutting to Support Prototyping and Production

Our Water Jet capabilities support prototype sampling, initial production and production requirements. These systems cut without abrasive additives, therefore our pure water system does not contaminate the edges of the gasket materials. Foam and sponge rubber from 0.032" to 2.00" thick and solid rubber up to 1.00" thick can be water jet cut.

Die Cutting of Gaskets and Cushioning Pads

Often the gaskets we provide as water jet cut samples are subsequently tooled up for die cutting production runs. Die cutting is often less costly than water jet cutting. The same electronic drawing file used to program the water jet cutters can be used to produce a steel rule cutting die. Stockwell Elastomerics provides gaskets and cushioning pads that are die cut or kiss cut on the adhesive release liner.

Adhesive Lamination onto Silicone Rubber, Poron® cellular urethane and other solid and sponge rubber materials

Stockwell Elastomerics has developed several priming systems to enable lamination of pressure sensitive adhesives onto silicone rubber and other difficult to bond to elastomers.

Liquid Injection Molding. LIM molding enables production of silicone rubber components from 10 durometer Shore A (very soft) to 70 durometer Shore A (firm). The fast cure cycles of LSR (liquid silicone rubber) enable the use of single or two cavity molds to support production. Stockwell Elastomerics utilizes cryogenic de-flashing to remove parting line flash to further improve sealing integrity and lead times.

Compression Molding is centered around molding gaskets from specialty silicones, fluorosilicones, fluoropolymers and electrically conductive compounds in support of technical applications in the medical equipment, instrumentation and aerospace industries.

Custom Fabrication
Stockwell Elastomerics has a long history of developing timely solutions on design projects that require the functionality of dissimilar materials in bonded cushioning pads or special gaskets.

We welcome customer visits to demonstrate our capabilities and discuss how we can help with your projects.

ANALYTICAL INSTRUMENTATION

Foam and Sponge Enclosure Gaskets
Analytical Instruments often require compressible door and panel gaskets to maintain environments inside chambers to ensure testing validity. Technical design requirements are often solved with fabricated Poron® cellular urethane and low out-gassing silicone foam gaskets. Samples are prototyped in various material densities and thicknesses by water jet cutting to validate the proper closures.

Molded Sealing Gaskets
Molded low durometer silicone (10, 20 and 30 durometer Shore A) gaskets provide a performance advantage over foam or sponge materials for easily compressed enclosure gaskets requiring superior sealing. Designs utilizing engineered plastic housings are attractive and cost less than metal housings. However, the available closure forces may be reduced due to hinge limitations and latch constructions, thereby requiring soft sealing gaskets. The key benefit to the use of a soft silicone molded sealing gasket is the option to incorporate sealing beads or round cross sections into the design to enhance sealing with low closure forces.

Fluoropolymer seals are molded for systems inside the instrument requiring chemical inert properties. Fluoropolymer sealing gaskets are often molded rather than fabricated to save on material cost, and custom molding permits round cross sections to improve sealing properties.

Electrical and Thermal
Design requirements for manufacturers of analytical instrumentation also include EMI shielding gaskets around display panels fabricated from electrically conductive silicone rubber or metallized coated fabrics to guard instruments against electro-magnetic interference in laboratory environments. Thermal interface pads may be needed to cool critical electronic components from excessive heat build-up.

The Analytical Instrumentation industry utilizes a broad cross section of Stockwell Elastomerics' materials and production capabilities. Testing chambers operate from extreme cold to very hot and chemical resistance is needed, testing the limits of material capabilities. We welcome the opportunity to be put to the test on your next project for high performance gaskets.

MEDICAL DIAGNOSTIC DEVICES

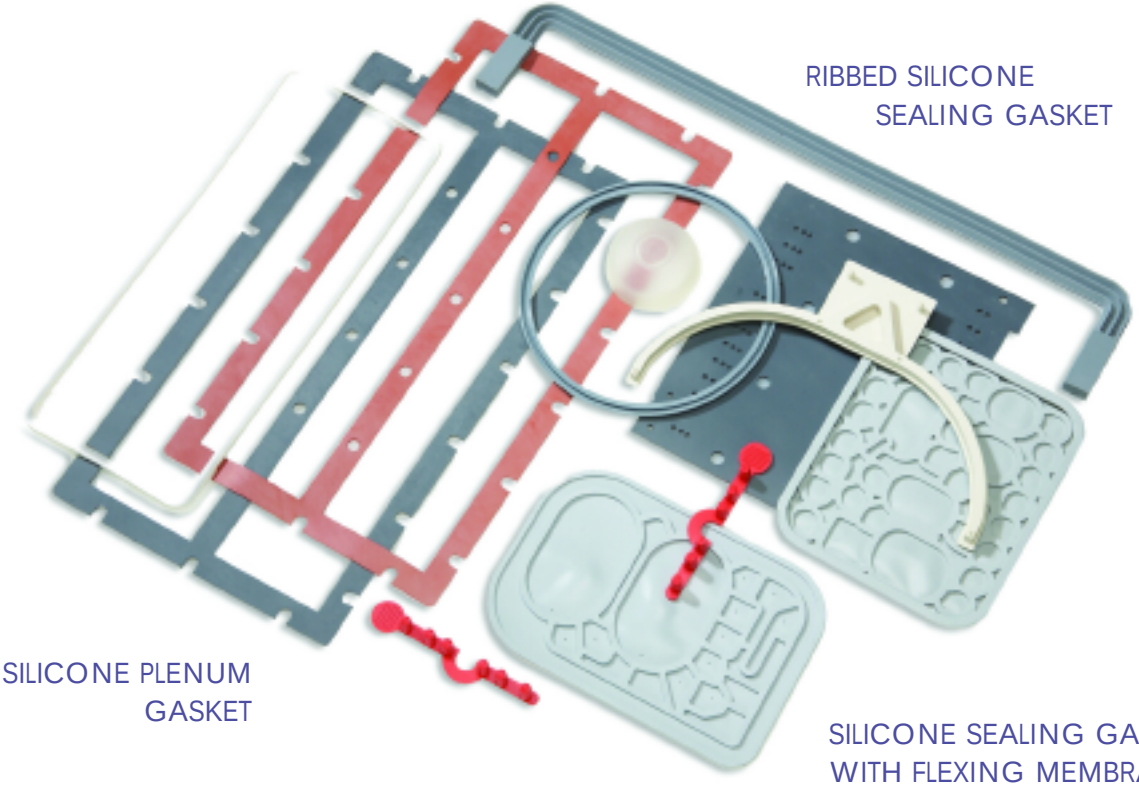
Custom Molded Silicone
Stockwell Elastomerics' core products for the Medical Diagnostics industry are compression molded silicone gaskets and injection molded liquid silicone rubber components with high performance flexing capabilities for mechanical requirements inside the device. Silicone rubber has gained broad acceptance in the medical equipment industry for its combined properties of resilience, age resistance and general inertness.

Fabricated Gaskets and Cushioning Pads
Medical Diagnostic Devices often require specialty foam gaskets for displays and dust filters. Liquid silicone rubber is available in sheets for fabricated solid gaskets, silicone foam gaskets and cushioning pads. Silicone foam meets the UL94V0 flame rating. Poron® cellular urethane and silicone foam sound and vibration cushioning pads are frequently specified to reduce noise in equipment designed for use near the patient.

Electrically Conductive Components
Similar to other electro-mechanical products, Medical Diagnostic devices often have requirements for EMI shielding gaskets to reduce emissions from devices and protect against interference from other units in hospital environments. Semi-conductive carbon-filled silicone rubber and neoprene gaskets and pads are available for ESD grounding needs.

Stockwell's Scope in Medical Equipment
Our focus in the medical equipment industry is limited to the mechanical requirements of the device. Stockwell Elastomerics does not provide components for implantation or in-body applications.

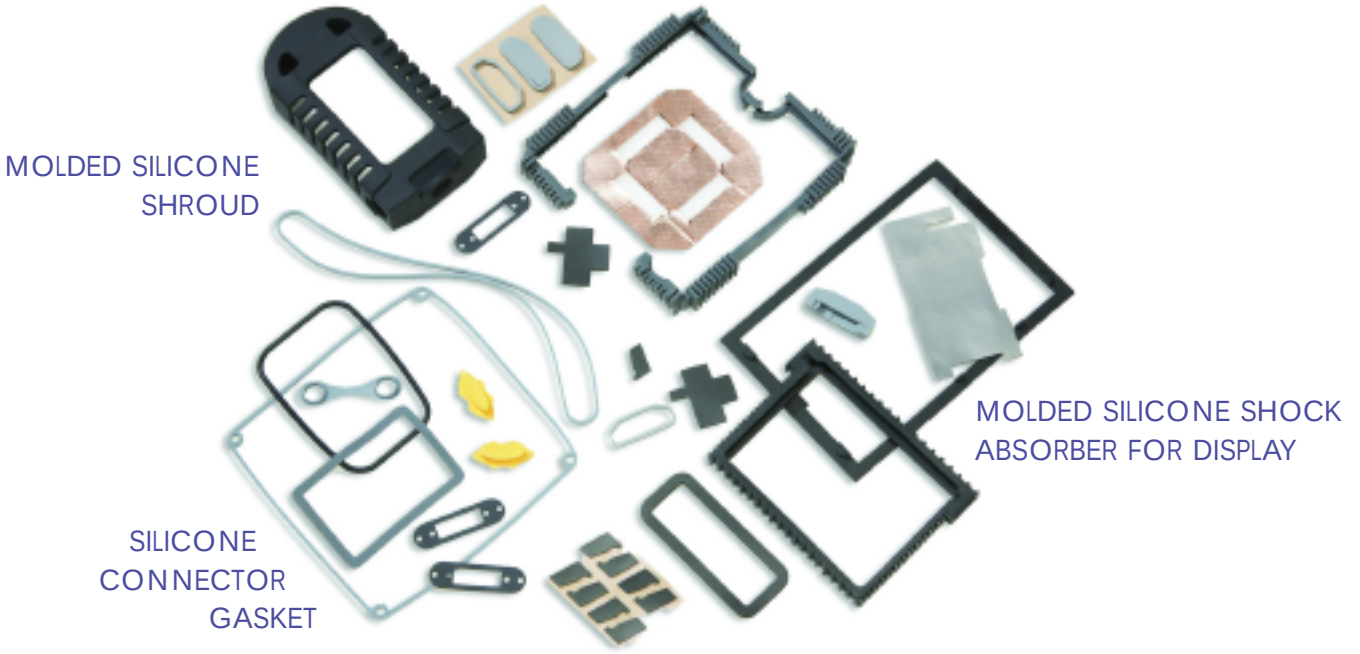
Our Commitment to Quality
Stockwell Elastomerics' Quality Management System is ISO9001-2000 registered. When requested, we can support requirements for APQP, including process capability studies, material certifications and test data.



RIBBED SILICONE SEALING GASKET

SILICONE PLENUM GASKET

SILICONE SEALING GASKETS WITH FLEXING MEMBRANES



PORTABLE DATA ACQUISITION, MEASURING & SENSING DEVICES

The Need for 'Ruggedization'
Portable Data Acquisition Devices such as scanners, tag readers, sensors and computing devices are often required to be 'ruggedized' – maintaining full functionality in outdoor conditions, food freezers, shipping terminals and warehouses with broad temperature extremes and moisture conditions. These units are either held-held, belt-suspended, mounted in a cradle or combinations of any of the above.

Sealing and Cushioning of Scanners and Readers
Stockwell Elastomerics regularly assists mechanical engineers in this growing and innovative business sector. Battery cover gaskets, door gaskets, and touchscreen gaskets are often fabricated from Poron® cellular urethane and silicone sponge. Thermal interface pads may be required for devices with higher power requirements. Smaller, battery-powered devices may require internal cushioning pads, such as in the battery compartment, to maintain power and functionality if the unit is dropped during use. Heavier devices may require a molded shock absorber to protect an LCD assembly or similar fragile component in the device. From our experience, the gaskets and cushioning pads are often the last components specified – and our sampling and prototyping capabilities exist to support this need.

Protection of Air and Chemical Monitoring Sensors
Air Monitoring and Chemical Analysis Devices are no longer just used in the laboratory under ideal conditions. Designers are ruggedizing these devices for monitoring and reporting chemical spills and protecting first responders. These devices often require molded seals and heavier shock isolation capability to survive the punishment one might expect in emergency situations. Flame-rated and high temperature silicone rubber often replaces neoprene sponge and Poron® cellular urethane for these gasket applications.

Water Jet Cut Prototypes
The accumulated production tolerances of molded plastic housings, doors and covers may cause situations where the original gasket concept has to be changed. Our water jet capability exists to support your requirements for fast turn gasket samples prior to the start of production. We inventory a broad range of gasketing and cushioning materials to support our rapid response to these common situations.

TELECOMMUNICATIONS EQUIPMENT

Outdoor Enclosure Gaskets
Telecommunications cabinets, enclosures and base stations require access panel, air intake and door gaskets fabricated from materials that provide long term weather sealing, withstand exposure to harsh conditions (wind-driven rain, extreme low and high temperatures,) and meet UL94V0 flame ratings.

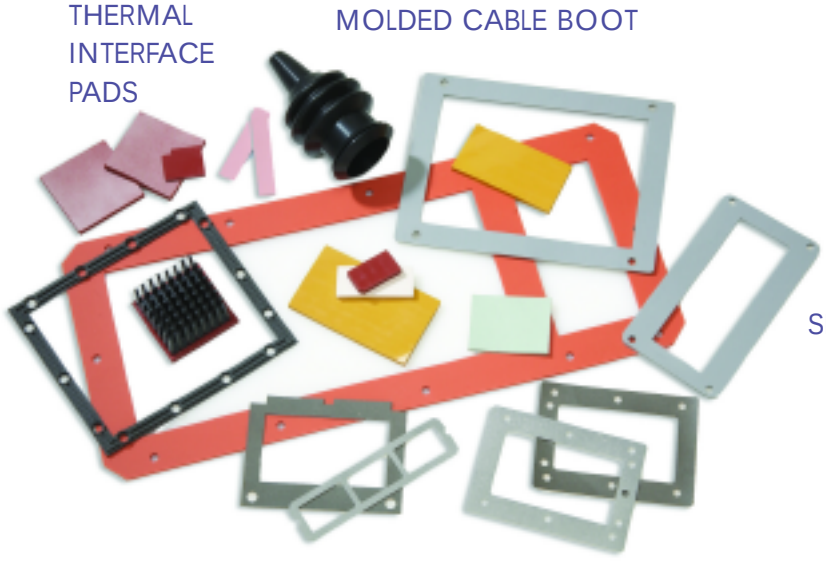
Stockwell Elastomerics provides silicone foam gaskets with pressure sensitive adhesive backings to ensure long term reliability in telecom cabinets and panels installed in remote locations and elevations. With proper deflection, these silicone foam products resist moisture intrusion and perform well after being subjected to broad temperature cycles for many years.

Air Plenum and Air Flow Management Gaskets
Air plenums and air diverting assemblies inside telecom enclosures are enhanced by compressible gaskets with long term compression set resistance. Since flame ratings are critical to the telecommunications equipment sector, silicone foam would be our first recommendation. Closed cell sponge such as Ensolite® and neoprene may be specified for requirements where long term sealing is secondary to cost.

Thermal Management
In most electronic systems, heat build up is the enemy. As electronic components have become more sensitive, thermal interface pads are utilized to manage heat build-up. Stockwell Elastomerics provides compressible thermal "Gap Fillers" from .020" to .250" thick for effective heat transfer from the system. Thermally conductive Gap Fillers are formulated from soft silicone with evenly dispersed fillers, and are designed to meet the UL94V0 flame rating.

EMI Shielding Gaskets
Electrically conductive materials such as nickel-graphite filled silicone rubber or silver plated aluminum filled silicone rubber can be molded or fabricated into gaskets that provide long term EMI shielding and weather sealing. Conductive silicone elastomers are available with an electrically conductive acrylic adhesive backing. Gaskets fabricated from thermally conductive silicone sponge with aluminum foil wrapped edges provide a combination EMI shielding / thermal management gasket.

Broad Production Capabilities.
Designers of Telecommunications Equipment have benefited from Stockwell Elastomerics' multi-faceted production capabilities. With on-site custom rubber molding, die cutting, water jet cutting, fabrication assembly and adhesive lamination we can approach a design challenge from many directions.



SILICONE FOAM AND SPONGE WITH ADHESIVE BACKING

PORON® CELLULAR URETHANE WITH ADHESIVE BACKING

SILICONE FOAM AIR FILTER GASKETS

AIRFLOW MANAGEMENT

Airflow management in enclosures, in clean rooms and through HEPA Filters requires gasketing materials that are readily compressed, yet provide a long term positive sealing force – not taking a permanent deformation over time. This property is compression set resistance.

Enclosure Gaskets

Airflow management requirements inside enclosures and clean rooms used by the pharmaceutical and semi-conductor industries call for gaskets that are easily deflected (soft), close off air flow, yet resist taking a permanent compression set. Poron® cellular urethane gaskets, with adhesive backings are available in a wide range of firmness and thicknesses ranging from .012" up to .500". Despite the higher cost of Poron® over traditional closed cell neoprene sponge, we would urge the designer to evaluate the excellent compression set properties of Poron® cellular urethane over certain closed cell sponge products. Stockwell Elastomerics provides adhesive backed gaskets for the enclosure industry in slit-to-width rolls or cut to size.

Cabin Air Filter Gaskets

Air Flow Management gaskets used in HEPA filter assemblies for aircraft cabin air purification are often made from silicone foam. Silicone foam does not support fungus and meets Federal Aviation Regulations for flame resistance and smoke generation – along with UL94V0. To reduce material costs, we provide adhesive backed gaskets in slit to width rolls or in fold-out configurations. Contact us for samples to demonstrate these cost saving options.

Air Plenum Gaskets

Air plenums and other air diverting assemblies inside enclosures are enhanced by compressible gaskets with long term compression set resistance. Poron® cellular urethane and silicone foam are often selected for these requirements. If there are anticipated moisture concerns, closed cell silicone sponge may be specified.

Stockwell Elastomerics carries a full range of compressible Poron® cellular urethane, silicone foam and closed cell silicone sponge products. Pressure sensitive adhesives are applied on site to ensure the correct combination of properties available for your application.

AEROSPACE AND DEFENSE

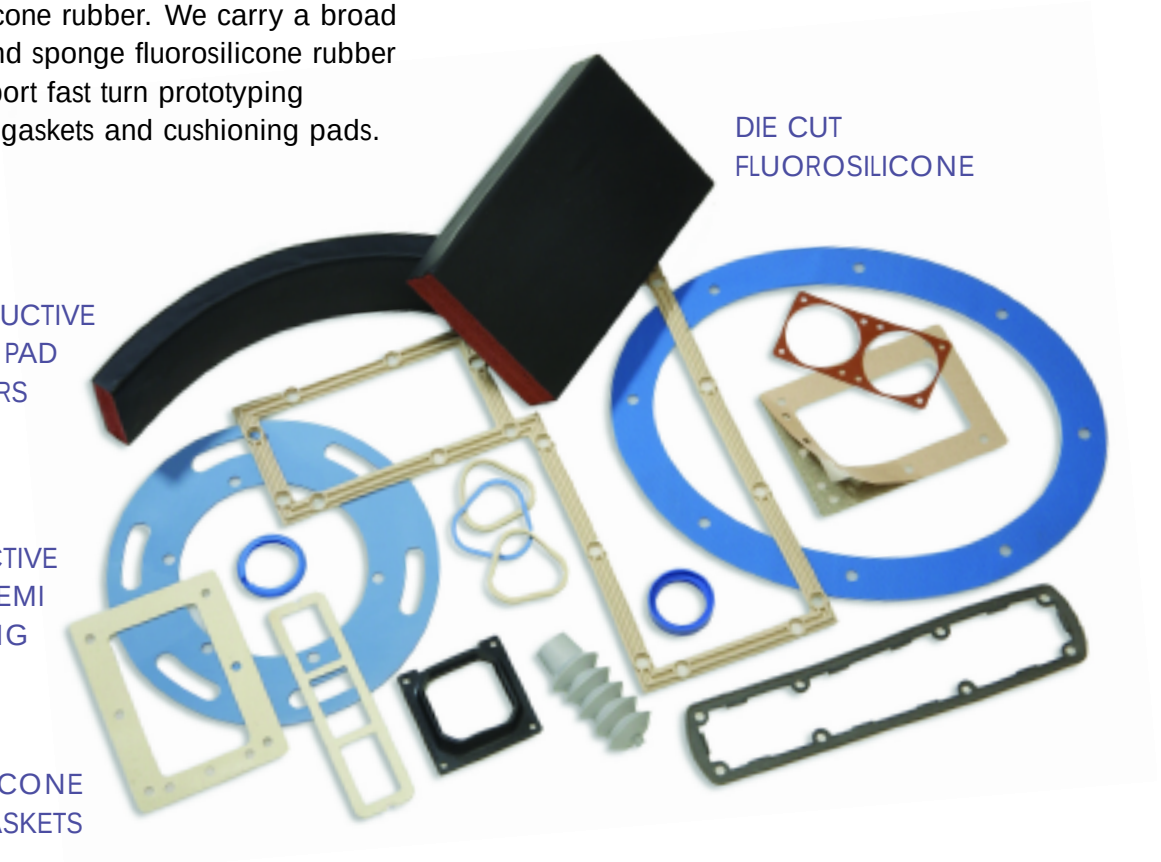
Stockwell Elastomerics has served the Aerospace and Defense Electronics industries for decades. We have grouped requirements based on recent activity as follows:

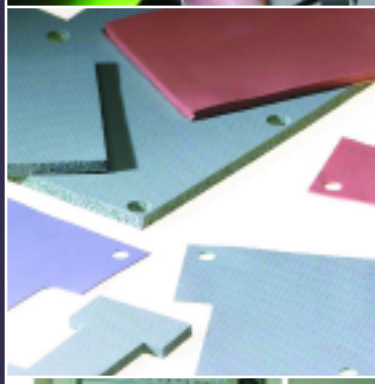
Gaskets for Defense Electronics
In response to requirements for more portability in combat support equipment, applications include battery door gaskets, cover gaskets and cushioning pads used to protect ground or vehicle mounted communications, data acquisition, radar and sensing devices. With requirements for system performance in severe weather, long term aging and EMI shielding, conditions that often push the limits of commercially available materials, silicone and fluorosilicone compounds are typically specified as gasket materials to meet these performance demands. These high performance elastomers can be compounded to be electrically conductive (EMI shielding and ESD protection) and thermally conductive.

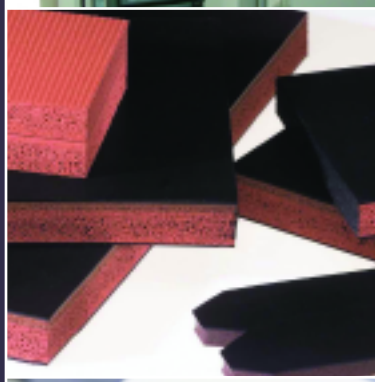
Gaskets for Aircraft and Aerospace
Aerospace and aircraft needs for materials that resist fluids such as Jet Fuel, Skydrol and PAO, along with harsh weather and sun, often require fluorosilicone rubber. We carry a broad range of solid and sponge fluorosilicone rubber materials to support fast turn prototyping requirements for gaskets and cushioning pads.

Rocket Motor Pads
Solid Fuel Rocket motors are cushioned and protected from potential ESD build-up issues in storage and ground transportation with fabricated conductive grounding pads. Stockwell Elastomerics custom fabricates conductive grounding pads from age resistant silicone sponge rubber and carbon filled conductive silicone rubber materials. These specialty materials provide cushioning that remains consistent over a broad temperature range and retains surface conductivity for safe ESD grounding to the metal chock or carriage – even after years of sun and outdoor exposure. Our RTV60-CON conductive adhesive is provided to bond the conductive pads to ground support equipment. Contact us for samples.

These industries are a sampling of the technical markets served by Stockwell Elastomerics. We frequently assist engineers, providing prototypes and material samples for leading edge technology driven projects. Our mission is essentially helping engineers to meet their design goals.







ABOUT OUR MATERIALS

Stockwell Elastomerics' core business is fabrication and molding of silicone rubber and high performance materials.

Silicone Rubber is a versatile elastomer, withstanding temperature extremes, aging, sunlight and conditions that would deteriorate traditional rubber compounds. Silicone can be compounded to meet UL94 flame ratings and accepts additives for electrical conductivity and thermal conductivity.

- Solid Silicone Rubber
- Closed Cell Silicone Sponge Rubber
- Closed and Open Cell Silicone Foam
- High Purity LSR Base Solid Silicone
- Electrically Conductive Silicone for EMI Shielding
- Thermally Conductive Silicone
- Semi-Conductive Silicone for ESD Protection

Poron® cellular urethane foam is produced by Rogers Corporation. The Poron® product family stands by itself as a product platform. Poron® sets the standard for compression set resistance and product consistency.

Additional Elastomeric Materials:

- Closed Cell Sponge, neoprene, blended neoprene, EPDM, ESD conductive and PVC/Nitrile blends
- Solid Rubber such as Neoprene, Buna-N, EPDM, Semi-conductive (ESD) Neoprene
- Formex™ electrical insulating polypropylene.
- Pressure Sensitive Adhesives: acrylic, silicone, rubber-based, electrically conductive acrylic, thermally conductive acrylic and VHB™ acrylic foam.

VENDOR PARTNERS

Without strong vendor partnerships, our ability to serve our customers would be diminished. Some of our strategic vendor partners include:

- Rogers Corporation, Poron® Materials and Bisco Silicones
- St. Gobain Performance Plastics (Silicone)
- Rubatex and Rubberlite Closed Cell Sponge
- West American Rubber Company (Warco)
- Adchem Corporation
- 3M Corporation
- General Electric (Momentive) Silicones
- Wacker Silicones

CONTRIBUTING TO THE COMPETITIVENESS OF OUR CUSTOMERS IN THE TECHNOLOGY SECTOR

Who We Are

Stockwell Elastomerics is a privately held, custom manufacturer located in Philadelphia, Pennsylvania. Our core competence is fabricating and molding silicone rubber and related high performance elastomers. We are the only 'custom rubber products' manufacturer of our size with in-house die cutting, compression & injection molding, custom fabrication and water jet cutting. Our broad production capabilities enable multiple approaches to solving design challenges.

What We Do

Stockwell Elastomerics provides gaskets, custom components and elastomeric materials for requirements where performance is critical to the function of the equipment. We provide design assistance, material samples and prototypes for engineers and designers of equipment in the Technology Sector. We have observed that gaskets and cushioning pads are often the last item specified – we strive to support our customers in the critical initial production stages of product development.

STOCKWELL ELASTOMERICS

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