

# Medical Sealing Solutions

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The industry's highest-quality rubber seals.



# What it Means to be Medical Grade

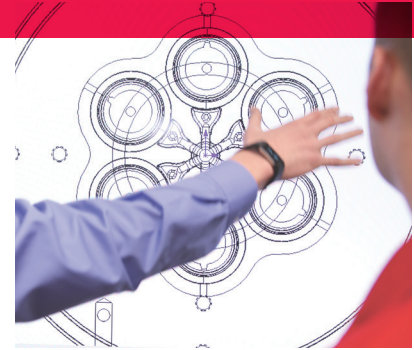
Today's advanced medical procedures and treatments have placed rigorous new requirements on medical equipment and devices. Seals and other parts in medical products are now exposed to a wider range of chemical and temperature environments than ever before. Furthermore, the move towards smaller devices has driven down the size of components, including seals. With silicone parts and seals from Apple Rubber you're ensured a robust and high-quality final product.



Class 10,000 (7) Clean Room



Full quality-control processing



In-house design engineering department

## Why Apple Rubber?

As a leading designer and manufacturer of seals and sealing devices, Apple Rubber has the experience, the products and design engineering capabilities to deliver the exact silicone solution for your medical applications.

- » Buy direct from our USA-headquartered, fully integrated (design, manufacturing and quality) facility
- » Extensive range of silicone seals and part – o-rings, gaskets, face seals, housing seals, filter seals, custom shapes and more
- » More than 30 years of seal experience
- » We work with leading material suppliers including Dow, Wacker, Momentum, Elkem, ShinEtsu and NuSil
- » Lot traceability
- » We comply with the Restriction of Hazardous Substances (RoHS) European environmental directive
- » Leader in small-scale application
- » Durometer range of 10-80 Shore A
- » Implantable-grade silicone available
- » FDA, ISO 10993 or USP Class 6 grades available
- » Composite seals combining silicone with plastic, metal or mesh material
- » Expert prototyping and fast turnaround
- » A variety of colors available
- » Advanced production systems
- » 3-D CAD design capabilities and full engineering assistance
- » ISO 9001 certified

# Products

Apple Rubber is capable of delivering virtually any type of custom seal or part for your medical applications. From silicone, Viton® fluoroelastomer (FKM) and EPDM rubber, Apple Rubber's stable of elastomers feature improved chemical resistors, excellent heat resistance and low permeability to gases.

## Silicone Seals and Parts

From simple seals to the most complex silicone parts, Apple Rubber utilizes a host of sophisticated technologies and processes – including LIM capabilities – to consistently manufacture the high-quality silicone components you demand.

- » Seals for medical appliances
- » O-Rings for dialysers
- » Medical pump seals
- » IV Components
- » Feeding devices
- » Seals for non-implantable medical devices
- » Full range of medical grade materials available
- » Certification to USP Class VI requirements is available

## MicroMedical Silicone Seals and Parts

For your microminiature medical applications, Apple Rubber offers seals from .990 mm (.039") I.D. or C.S. down to .305 mm (.012") I.D. We bring you the largest selection of microminiature o-ring sizes available anywhere, many from stock for immediate delivery.

## Custom Seals and Shapes

Custom-designed unusual, all-rubber shaped seals to meet exact specifications, including microminiature shapes, are an Apple Rubber specialty. Examples include molded inserts, bushings, poppets and connector seals. Custom shapes and seals are available in silicone and a wide variety of materials. Our custom-engineered composite seals — incorporating the seal and another component into one part — help ease installation and reduce assembly costs. These include complicated parts such as rubber bonded to metal, plastic or filter material.





## Class 10,000, ISO Class 7, Certified Cleanroom

Apple Rubber's expanded cleanroom facilities reflect our commitment to meeting our customers' increased demands for cleanroom processing, including LIM, Quality Assurance and lot traceability. Our cleanroom is certified to the following standards:

- » Testing and monitoring of cleanroom areas to prove continued compliance was conducted in accordance with the Recommended Practices detailed in IEST-RP-CC006.3 and in accordance with ISO 14644-2 specifications.
- » The following cleanroom areas were certified to have met ISO 14644-1 particle count standards during production manufacturing:
  - Main cleanroom – Class 7 (10,000) in a mode of operation at .5 microns
  - Inspection room – Class 7 (10,000) in a mode of operation at .5 microns

Apple Rubber earned both ISO 9100 and AS 9100. These certifications are a testimony to our commitment to offer the highest-quality parts and seals available.

## Cleanroom Highlights

- » Dedicated inspection area
- » Complete processing including production, washing and packaging area
- » Multiple injection molding machines, primarily for Liquid Silicone Rubber, available for plastic and rubber
- » Separate, fully automated ultrasonic parts cleaning area



# The Future of Sealing

Apple Rubber has created the seal industry's most comprehensive web site, [applerubber.com](http://applerubber.com). This unmatched resource will help you with all your sealing applications.

## Fast Search Tool

Use our innovative tool to search by keyword for the sealing info you need. The search function is at the top of each page for easy access and fast results.

## O-Ring Search Tool

Interactive tool allows you to search our extensive inventory of o-rings for the size you need, including AS568B standard sizes.

## Request a Quote

Need a quote for your seal requirements? Use our convenient online request form and get the quote you need – fast and easy from Apple Rubber.

## Engineering Assistance Request

Need design help? Use our convenient EAR form online to receive quality engineering assistance from Apple Rubber. Complete as much information as possible, click the submit button and we'll respond to your request as quickly as possible.

## Seal Design Guide

Apple Rubber wrote the definitive book on sealing and now you can access it online. Includes interactive formulas, calculations, rules of thumb and so much more.

## Tech Tips

Access articles and recommendations you can use as a basis for determining the proper seal or o-ring for your application.

## We Take Requests

You can request a quote, engineering assistance, literature and more from our web site.

## Information on Products and Services

Learn more about all of our products and services, including literature that you can download.

## Contact Apple Rubber

or visit our website today and let us demonstrate how we can provide the ultimate custom sealing solution for your application.

## One Source for All Your Sealing Needs

Apple Rubber stocks AS568 and ISO 3601 standard sizes, most common metric sizes, plus a wide variety of non-standard o-ring sizes. Our materials meet mil-spec, medical and automotive specifications.

Apple Rubber offers expert custom molding for non-standard rubber products. With in-house tooling, we save more time and resources compared to offshore operations. We offer expertise at any level of production, from prototype to high volume tooling.

When you call Apple Rubber, you deal directly with the manufacturer. Our experienced staff provides complete and comprehensive service to help you get the correct product for your application.

## Full Line of Quality Apple Rubber Products

### Products:

O-Rings — standards, metrics, MicrOrings®, MacOrings®  
LSR (Liquid Silicone Rubber)  
Composite seals (rubber bonded to plastic or metal)  
Custom-molded seals and shapes  
Medical seals  
Thermobonded seals  
FilterSeal™  
Military specs  
Standard and exotic materials

### Services:

Design capabilities  
Prototyping and production runs  
Full quality-control laboratory  
Class 10,000 (7) Cleanroom  
ISO 9001 / AS 9100 Certifications  
ITAR Registered



310 Erie Street  
Lancaster, New York 14086  
P (716) 684-6560  
F (716) 684-8302  
info@applerubber.com

For more information or  
to order call 1-800-828-7745  
or visit [applerubber.com](http://applerubber.com).

