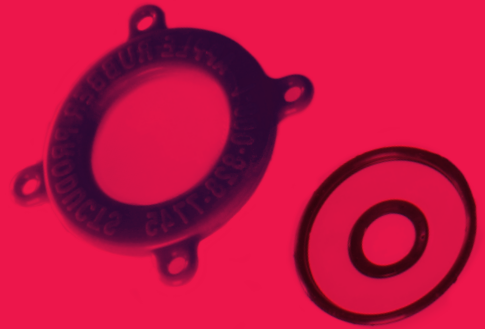


# FilterSeal™

A durable seal and efficient  
filter in one convenient part.



 Apple Rubber

[applerubber.com](http://applerubber.com)

# Combining Two Trusted Devices in One

One part, two functions, and countless advantages make up Apple Rubber FilterSeals™. By combining filtering mesh with a rubber seal profile, a FilterSeal™ is able to perform as a high-functioning seal with filtering capabilities. These seals can also be completely customizable to meet your exact needs. Simply changing the mesh material or size of the seal allows this device to filter everything from large particulates to water vapor.

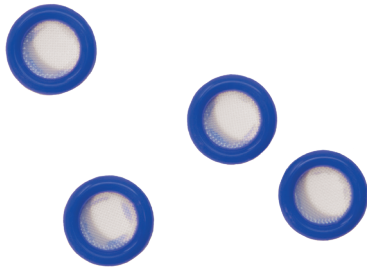
## Custom Design

Customizable to meet your unique specifications



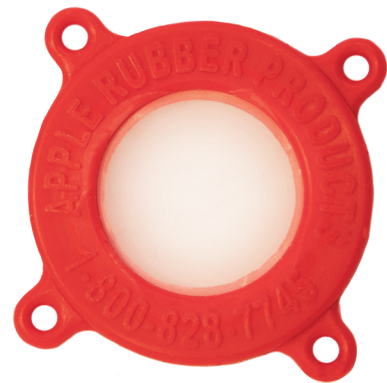
## All Shapes and Sizes

From a simple o-ring profile to complex housing seal configurations



**Cost and Time Saving**

Only one part to purchase and install



**Multi-Functional**

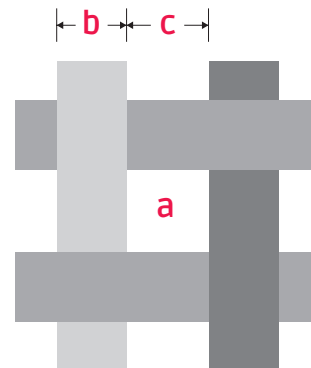
Simplifies your component into one efficient part instead of two, three or more

# FilterSeal™ Design

Picking the right sealing material and filter fabric is essential to having a successful FilterSeal™. It's important to ensure rubber is compatible with the fluid it comes in contact with. Filter mesh also needs to have the proper mesh opening to allow the right amount of fluid to flow and block the particulate being filtered.

Properties for Common Plastic Mesh*				
Material Properties	Unit	Nylon	Polyester	Peak
Tensile Strength	psi	55k - 97k	65k -108k	47k -108k
Elongation at Break	%	20-35	15 - 30	20 - 40
Working Temperature Dry	F	239	302	482
Abrasion Resistance		good	limited	good
Acid Resistance		good	limited	good
Alcaline Resistance		good	limited	good
Stability in Solvents		limited	good	good
Hydrolysis Resistance		good	limited	good
Mesh Size	µm	1 - 5000	1 - 5000	35 - 5000

\*Metal and fabric mesh can be used.



Open Area (a) [%]  
 $a = c^2 \times 100 / (c+b)^2$

- a. Open Area
- b. Yarn Diameter
- c. Mesh Opening

## Choosing the Right Fabric and Weave

The fabric that is molded with an elastomer is determined by a number of factors, such as:

- » Filtration requirements
- » Chemical compatibility
- » Corrosion resistance
- » Heat stable for molding
- » Burst strength
- » Flexibility
- » Particulate size

Apple Rubber offers a range of fabrics from which our engineers can help you choose from, including:

- » Polyester
- » Nylon
- » Stainless steel
- » Fabric weave

## The Trusted Sealing Solution, Right from Apple Rubber

FilterSeals™ are made in the USA and Apple Rubber sells direct, allowing for direct communication with a knowledgeable sales team and design engineers from one company.

## Design Engineering

Our engineers will work with you to create the ultimate FilterSeal™ for your application, recommending the most

effective elastomer, fabric and mesh pattern for your design. We can work with you through the beginning stages of product design and show you just how FilterSeals™ simplify assembly.

## Complete Manufacturing Capabilities

We utilize proprietary molding processes to manufacture your FilterSeals™, ensuring the highest quality and meeting your volume requirements.

## Unmatched Experience

Apple Rubber was among the first pioneers of the FilterSeal™ concept, and we have refined our designs with millions of units produced. Our combination of polymer science, mold design and insert molding excel us past our competitors.

## Superior Quality

Apple Rubber's quality system is certified to ISO 9001 and AS 9100. It is a testimony to our commitment to offering the highest quality seals available.

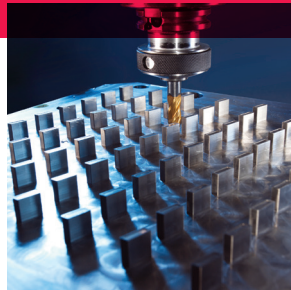


# Services

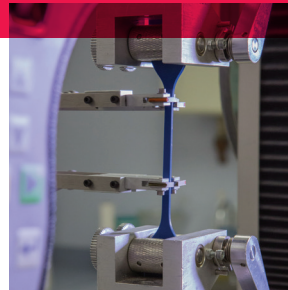
From design engineering and fast prototyping to customized quality assurance, Apple Rubber provides a personalized solution to ensure all of your project specifications are met. As the industries we serve evolve, we are focused on providing the best solutions for tomorrow as well as today.



ISO Class 7 (10,000) Cleanroom



Custom tooling and o-ring molds for fast prototyping



Advanced testing and quality control systems in AppleLab®



Sophisticated CAD systems for design engineering

## ISO Class 7 (10,000) Cleanroom

Apple Rubber's expanded facilities include our ISO Class 7 (10,000) Cleanroom of more than 1,000 square feet. We can perform complete cleanroom processes including production, cleaning and packaging.

## Complete Manufacturing

Apple Rubber's complete manufacturing capabilities mean fast response to your sealing needs for large or small runs. Whatever the requirement, Apple Rubber has the tools to get the job done.

- » Molding
- » Bonding
- » Transfer

## Direct Service

With Apple Rubber, you deal direct with the manufacturer and eliminate the middleman, giving you distinct advantages:

- » Manufacturing in the USA
- » Knowledgeable design engineers

## Prototyping

Custom-engineered prototypes are an Apple Rubber specialty. We utilize advanced processes and sophisticated CAD systems to drastically reduce the design and development cycle. Single cavity o-ring molds can be cut the same day for quick prototypes.

## AppleLab® Comprehensive Testing

We offer comprehensive, careful testing for your seals through AppleLab®, one of the most stringent quality assurance programs in the industry. We are the rare seal company to offer quality assurance that routinely includes both dimensional and material validation. And because we offer full documentation, our program may allow you to reduce or eliminate costly incoming inspection.

## Automated O-Ring Inspection

A fully automated o-ring inspection system allows for 100 percent inspection if required.

## 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
- Custom-molded 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



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