

MacrOring™ Seals from Apple Rubber

Our breakthrough process gives you large O-rings with greater strength and tighter tolerances



Seal it right. Right from Apple.™

APPLE RUBBER PRODUCTS

Large O-rings with breakthrough

When it comes to producing large O-rings for today's demanding applications, the old, unsophisticated method of slash and glue just can't cut it.

Now, Apple Rubber offers you the ultimate solution.

MacrOring™ seals have been developed by Apple Rubber in response to growing market demands for stronger, large O-rings with tighter tolerances.

What makes MacrOring™ seals a better choice?

MacrOring™ seals are the product of Apple Rubber's breakthrough manufacturing process for large O-ring seals. We developed a unique bonding process that actually molds the joint with proprietary adhesives and cures. This process produces a well-blended joint with little to no mismatch, while providing excellent flexibility.



As shown above, the MacrOring™ bond is virtually invisible.

A 45° scive cut is used on a cross section .375 or lower. For cross sections greater than .375 or when the material choice is silicone, a butt cut will be used

When should I consider MacrOring™ seals?

You should consider MacrOring™ seals when your static application requires a seal from 2" I.D. to 500" I.D. and beyond, in small or large production runs. If you require fast turnaround, most MacrOring™ orders are shipped within 24 hours.

Whether you currently use molded large O-rings or seals produced by conventional bonding methods, or are undecided as to which seal is best for your application, a MacrOring™ seal is the economical, superior quality choice.

< MacrOring™ seals are a cost-effective solution for a wide variety of static applications including seals for high-pressure tanks, lid seals, and face seals.

For example, Apple Rubber was able to replace fully molded silicone seals in a liquid storage tank with MacrOring™ seals, resulting in lower costs. In another case, a customer was able to purchase higher quality seals made with Apple's breakthrough process for the same price as seals produced by conventional methods. To help you make your own comparison, we can provide prototypes and samples for testing your application.

Can I get the quality I need in a MacrOring™ seal?

Superior quality is inherent in the breakthrough manufacturing process developed by Apple Rubber. While conforming to all ISO 9001 and AS9100 guidelines, strict process control at every step assures quality parts with the following inspections:

- **Cord Inspection** – We perform a full acceptance testing on all cord before it is used. All cord is sampled for durometer, density, tensile, elongation, and cross sectional measurement. Assure all certificates of conformance meet the required specification based down from our customers.
- **Completed Part Inspection** – Quality assurance testing is done on the O-ring after it is produced. Inner diameters are measured with fully calibrated measuring equipment.
- **Completed Quality Documentation** – For those high quality requirements, Apple Rubber can provide all the documentation you need: Statistical analysis, FMEA, PAPP, Control Plans and compliance to ASTM D2527.



^ Tensile strength testing is also available if necessary

ough quality MacrOrings

What materials are available?

The most popular materials are on hand for fast response.

Available materials are:

Material*	ASTM D2000	Durometer
Silicone	FC, FE	40-70
Nitrile	BF, BG, CH	40-70
Neoprene	BC, BE	40-70
Fluorosilicone	FK	50-80
Fluorocarbon	HK	75-90
Neoprene Sponge		low to medium density

*Special materials not listed here are available upon request.
Call for more information

Apple Rubber can also apply the same unique bonding process and quality systems to medium density, closed-cell sponge cord. Our sponge cord is available in Neoprene. Our bonding process ensures a flexible, not rigid joint.

Typically, sponge is used for dust and waterproofing applications including: cases, product displays, and other sealed, static environments.

What other related products and services are offered by Apple Rubber?

As a leading designer and manufacturer of seals and sealing devices, Apple Rubber has a broad range of capabilities to meet your O-ring and seal requirements.

These include:

- Cord
- Cord in precision cut lengths, both scive and butt cut

Can I get the sizes I need?

MacrOring™ seals are available from 2" I.D. to 500" I.D. and beyond, and in cross sections from .070" to 1". We can custom engineer MacrOring™ seals to meet your specifications as well, and prototypes or samples can be produced within 24 hours.

I.D. Range (in.)	Tolerance (in.)
2.00 to 3.08	+/- .025
3.09 to 3.99	+/- .031
4.00 to 5.99	+/- .039
6.00 to 7.99	+/- .050
8.00 to 10.99	+/- .063
11.00 to 16.99	+/- .079
17.00 to 21.99	+/- .100
22.00 to 26.99	+/- .125
27.00 to 28.99	+/- .140
29.00 & over	to find the dimensional tolerance multiply by 0.6%

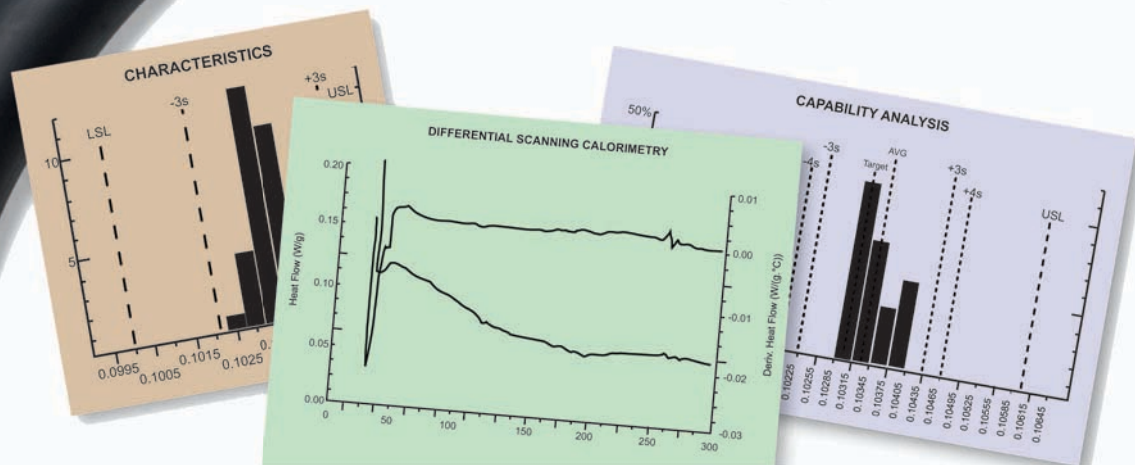
This quick reference guide is designed to provide dimensional inspection criteria for Thermobonded O-rings for which no customer requirements have been specified.

Cross Section Tolerances

Actual Cross Section	Tolerance (in.)	Actual Cross Section	Tolerance (in.)
.070	+/- .007	.275	+/- .010
.093	+/- .007	.313	+/- .012
.103	+/- .007	.375	+/- .012
.125	+/- .007	.437	+/- .016
.139	+/- .007	.500	+/- .016
.188	+/- .010	.625	+/- .020
.210	+/- .010	.750	+/- .030
.250	+/- .010	1.000	+/- .040

✓ Apple Rubber can provide complete quality assurance documentation for MacrOring™ seals, including dimensional and material validation, to your specifications.

Actual size
MacrOring™ seal. >



Look into the future of sealing at applerubber.com

Apple Rubber has created the seal industry's most comprehensive web site, applerubber.com, an unmatched resource to help you with all your sealing applications.

Visit today and discover these great features and more:

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

Our expanded interactive sizing tool allows you to search our extensive inventory of O-rings for the size you need, including AS568* standard sizes.

Material Selection Guide

Our Material Selection Guide shows the properties of every sealing material to ensure you choose the right seal for your applications.

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.

Gland Calculator

Our interactive Gland Calculator allows you to input your specific application measurements, resulting in the perfect gland calculation for your needs.

Products and Services

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

Contact Apple Rubber or visit our web site today and let us demonstrate how we can provide the ultimate custom sealing solution for your application.

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