

EMI-Shielded O-Rings and Seals

Superior sealing and
EMI suppression in one.



 **Apple Rubber**

applerubber.com

From portable medical devices to consumer electronics and laptops, electronic enclosures require cost-effective, high performance EMI shielding. Now, Apple Rubber offers custom designed, EMI-Shielded o-rings and seals for a variety of electronic applications. Apple Rubber provides an alternative to metallic coating of parts and other methods utilized for EMI shielding, while delivering a reliable sealing solution.

Sealing and Shielding In One

Made with conductive, particle-filled elastomers, our o-rings and seals provide high EMI shielding effectiveness in an environmental or pressure seal. The microscopic particles establish a conductive path within the elastomer to create a versatile seal for use in EMI suppression.

Particle fillers include silver, copper, nickel and graphite. Elastomers can be formulated in a range from 7 to .002 resistances in ohms centimeters. These materials are low outgassing with low TML and CVCM to help prevent interference with electrical contacts.

The Right Solution for Your Industry

Our EMI-shielded seals are designed to provide a conductive interface or seal for applications in a variety of industries including:

- » Telecommunications
- » Military
- » Medical
- » Aerospace
- » Automotive
- » Consumer and industrial electronics

Available Fillers

- » Silver/Glass
- » Silver/Nickel
- » Silver/Aluminum
- » Silver/Copper
- » Carbon silver
- » Pure silver

Available Elastomers

- » Silicone
- » Fluorosilicone
- » EPDM





Custom-Designed for Your Exact Specifications

Apple Rubber offers seals utilizing commercial grade and military grade shielding elastomers and can produce EMI-shielded seals in an unlimited variety of shapes and sizes. We have a broad range of experience in the electronics industry and offer the design engineering capabilities to deliver the exact solution for your applications.

- » Composite seals combining elastomers with plastic, metal or mesh material
- » MicrOring® EMI-shielded microminiature seals and o-rings
- » Molded inserts
- » Expert prototyping and fast turnaround
- » Advanced production systems
- » ISO 900, AS 9100 Certified
- » You buy direct from our USA plant

Conductive Elastomer Specifications

| Filler | Units | Method | Carbon | Nickel Graphite | Nickel Graphite | Silver Aluminum | Silver Aluminum | Pure Silver | Pure Silver | Nickel Graphite |
|---|---------------|--------|----------|-----------------|-----------------|-----------------|-----------------|--------------|----------------|-----------------|
| Polymer | | ASTM | Silicone | Silicone | Fluorosilicone | Silicone | Fluorosilicone | Silicone | Fluorosilicone | EPDM |
| Volume Res. | Ohm-cm | | 7 | 0.1 | 0.1 | 0.008 | 0.012 | 0.002 | 0.002 | 5 |
| Operating Temp. (C) | Min | | -55 | -55 | -55 | -55 | -55 | -55 | -65 | -30 |
| | Max | | 200 | 150 | 150 | 160 | 160 | 160 | 160 | 100 |
| Hardness | Shore A | D2240 | 70 | 30 - 70 | 65 | 65 | 70 | 65 | 75 | 75 |
| Specific Gravity | g/ccm | D792 | 1.2 | 1.95 | 1.95 | 2 | 2 | 2 | 2 | 2.1 |
| Compression Deflection | % (min) | | 3.5 | 3.5 | 3 | 3.5 | 3.5 | 2.5 | 3.5 | 2 |
| Tensile Strength | psi | D412 | 650 | 150 | 150 | 200 | 180 | 300 | 250 | 200 |
| Elongation | % (min) | D412 | 100 | 100 | 100 | 100 | 60 | 200 | 100 | 75 |
| Compression Set | % | D395 | 40 | 35 | 25 | 32 | 30 | 45 | 60 | 40 |
| 22 Hours at 100°C | | | | | | | | | | |
| Tear Strength | lbs/in | D624 | 40 | 40 | 35 | 30 | 35 | 50 | 40 | 70 |
| Shielding Effectiveness as tested per Mil-DTL-83528 | 100 MHz | | 80 | 100 | 100 | 120 | 120 | 120 | 120 | 90 |
| | 500 MHz | | 80 | 100 | 100 | 120 | 120 | 120 | 120 | 90 |
| | 2 GHz | | 60 | 100 | 100 | 115 | 115 | 120 | 120 | 80 |
| | 10 GHz | | 50 | 100 | 100 | 115 | 115 | 120 | 120 | 80 |

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™, MacrOrings™
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.

