

CUSTOM ELASTOMERIC SEALS



APM HEXSEAL[®]
SEALING SPECIALISTS

for COMMERCIAL, INDUSTRIAL & MILITARY ELECTRICAL-ELECTRONICS APPLICATIONS

APM CUSTOM ELASTOMERIC MOLDING CAPABILITY IS ALL ABOUT SEALING

For more than half a century, APM has been 100% focused on the development and production of internal and external sealing solutions for electrical and electronics applications, from automatic test equipment to automation, from marine to military, from relatively simple to complex geometric configurations, many requiring bonding to metal components. A typical example: External environmental sealing boots for switches, potentiometers, encoders and circuit breakers, cross linked to brass/aluminum mounting nuts. This particular sealing solution became so popular that today a full line of

sealing boots are marketed under the HEXSEAL® brand name. Millions have been sold worldwide and carry the UL Recognized symbol with an IP 66/68 rating. Drawing upon our experience with precision transfer and injection molding using a wide range of elastomers, metal-to-metal bonding and coating treatments, APM offers a FAST-TRACK method for quick response and economical sealing solutions. You could not ask for a more responsive manufacturing partner. Our experienced staff can provide product design assistance, tooling and fabrication services from concept to production.

FAST-TRACK PROTOTYPING TO PRODUCTION — FOUR METHODS TO CHOOSE FROM

Method 1: Send us your part and we will analyze it and prepare a drawing for your approval, to be followed up with a quotation. Or...

Method 2: Send us your part and either hard copy drawing or any of the following digital formats: .pdf, .dwg, or .dxf for evaluation and quote. Or...

Method 3: Send us the end product that requires a custom seal. We will design a seal, submit it to you for approval, followed up with a quotation. Or...

Method 4: Any combination of the above.

Your specification should include:

- Type
- Environmental conditions
- Contact with fluids (lubricants, solvents, other)
- Durometer
- Temperature
- Components, inserts to be bonded if applicable

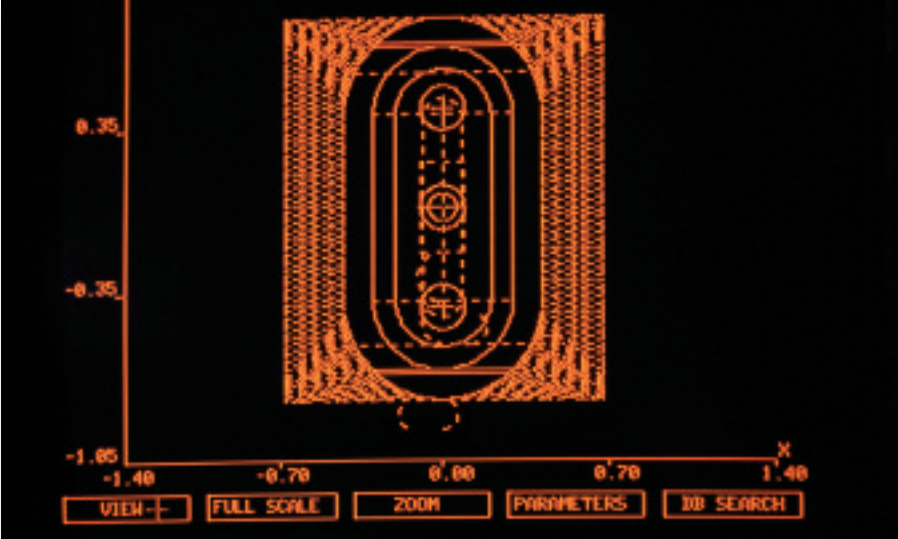
Engineering Design

APM HEXSEAL's technical staff works with, or as, your design engineering team to develop a reliable, cost-effective seal which meets your unique application needs. Working within the context of your overall system design, our product and manufacturing engineers will create a sealing solution which addresses your performance and cost objectives.



Tooling and Prototype Development

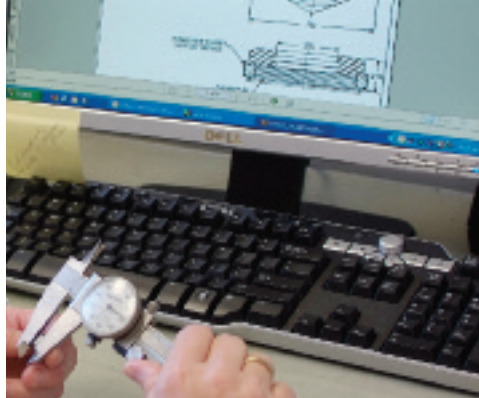
Our in-house tool designers will fabricate “soft” tooling and provide prototype parts for your evaluation. This intermediate step permits fine-tuning of the seal design to minimize component cost and optimize performance. And eliminates “surprises” upon delivery of production parts.



Product Manufacturing

Upon your approval of final prototypes, our in-house tooling group will fabricate production molds and economically produce your high-quality custom seal with either heat transfer, injection or LIM molding technologies.

APM has solved tough problems with designs proven to work. A sampling of our custom sealing solutions are presented in this brochure. We trust they will provide an overview of our design competence and custom capabilities. We invite your inquiry and look forward to being of service.



Application: Remote Automotive Keyless Entry Control



Sealing Problem:

- Seal the perimeter between mating top and bottom component covers.
- Seal and color-code three printed circuit board-mounted pushbutton switches.
- Provide a transparent viewing window for monitoring the PCB-mounted, battery-status LED.
- Render the entire unit submersible.

APM Design Solution:

A single-piece tri-color (black, green and clear) silicone rubber seal, geometrically-contoured to the control's housing and internal electronic components. The seal, housing and circuit board are held together by one of APM HEXSEAL's patented, reusable self-sealing fasteners.

Application: Outdoor Audio System Keypad



Sealing Problem:

- Seal and protect keypad from all kinds of weather conditions, dust, dirt, moisture.
- Must tolerate sunlight and exposure to ozone.
- Should be a single piece design.
- Provide transparent viewing window that permits easy keypad operation.

APM Design Solution:

A single-piece seal, precision molded with crystal-clear silicone rubber that nests neatly in a perimeter groove on the keypad's front plate assembly.

Application: Security System Access Keypad



Sealing Problem:

- Geometric compatibility with pushbutton switch array.
- Protect keypad from weather, water, dust, dirt and cleaning solvents.
- Tolerate sunlight and exposure to ozone.
- Provide durable switch identification designations.
- Provide excellent tactile feedback of switch actuation.

APM Design Solution:

A fitted, single-piece, custom-colored seal molded from a specially-formulated rubber with durable, recessed, high-contrast switch legend markings.

Application: Programmable Digital Panel Meter



Sealing Problem:

- Protect DPM's front programming switches from water, oils, grease, dirt and cleaning solvents.
- Permit easy reading of DPM's switch markings.
- Resist discoloring in presence of sunlight.
- Not compromise programming ease.
- Single-piece design.

APM Design Solution:

A full-bezel soft seal fabricated from a special transparent rubber formulation. Form-fit design seals panel cut-out in which DPM is mounted, while permitting operation of the unit's programming switches through the soft, flexible seal.

Application: Lighted Pushbuttons for Military Aircraft



Sealing Problem:

- Prevent penetration of moisture from fog or salt spray.
- Tolerate kerosene, alcohol and light detergents.
- Ensure pushbutton actuator remains attached to switch body under high-impact shock of up to 1,500 G's.
- Permit actuation of pushbutton.
- Permit viewing of lighted indicator and switch legend.

APM Design Solution:

A snap-on, single-piece bezel seal consisting of a custom stainless steel frame over which is molded a durable, chemically-resistant elastomer.

Application: Missile Launch Control Circuit Breaker



Sealing Problem:

- Protect circuit breaker from weather, salt spray, dust and dirt.
- Permit easy resetting of tripped circuit breaker.
- Permit viewing of circuit breaker status.
- Resist yellowing or other discoloration due to aging or exposure to sunlight.
- Meet stringent test requirements of MIL-B-5423.

APM Design Solution:

A custom-molded boot made of APM's proprietary, transparent elastomer (RubRGlas™) and a painted steel frame featuring filled engraved legends. The boot and frame are secured to the circuit breaker using APM's patented reusable self-sealing fasteners (SEELSKREWS™).

Application: Food Processing Equipment



Sealing Problem:

- Meet cleanliness and corrosion-resistant requirements of the food and beverage processing industry.*
- Protect pushbutton actuator from frequent washdowns.
- Provide mechanical advantage to actuate the pushbutton control.
- Seal the panel cutout in which the pushbutton is mounted.

APM Design Solution:

A unitary pushbutton switch seal assembly consisting of a durable, fluorosilicone rubber boot encased in a stainless-steel actuator housing.

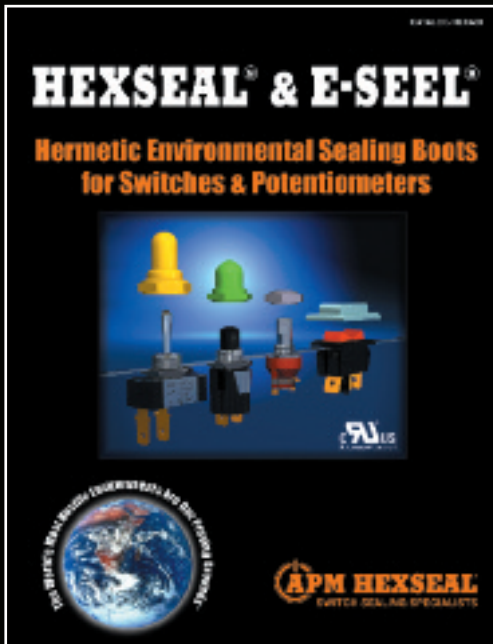
*Other industry applications: Equipment for meat packing, dairy processing, fast-food and commercial cooking equipment, pharmaceutical, medical/dental, hydraulic lift mechanisms on trash and other hauling vehicles' controls, remote crane & locomotive controls, sewage equipment, underwater/marine, agricultural, car wash, and military equipment controls.

Application: Wherever Electrical/Electronics Equipment Has To Be Sealed From Hostile Environments

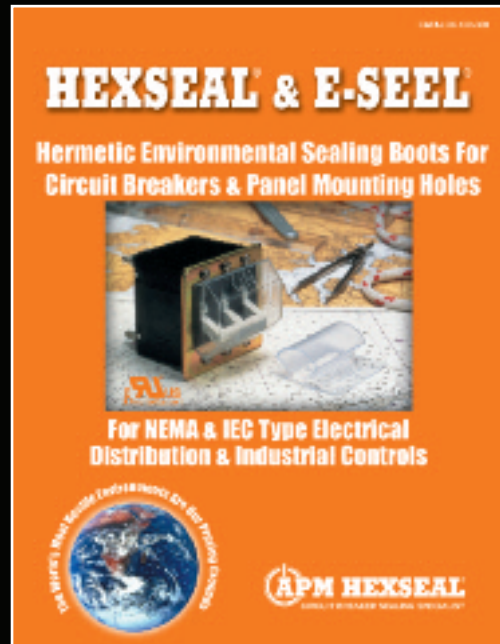


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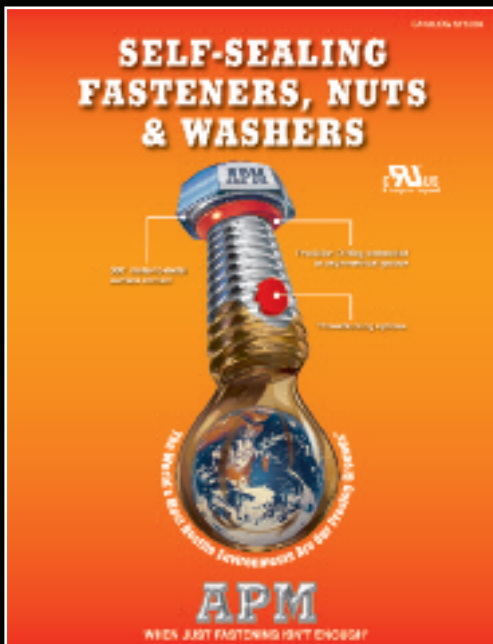
CATALOGS FOR OTHER APM HEXSEAL SEALING PRODUCTS



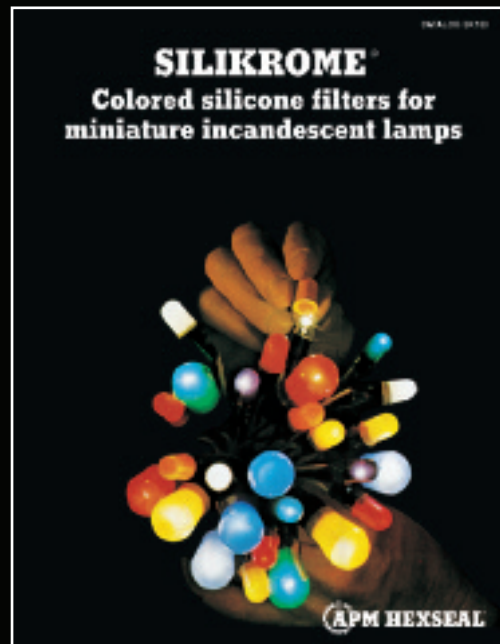
Switch & Potentiometer Boots
Catalog HEX



Circuit Breaker Boots
Catalog CB



Self-Sealing Fasteners
Catalog SF



Incandescent Lamp Colorizing Filters
Catalog SK



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