



SEALING BOOTS SELECTION GUIDE: HOW TO CHOOSE THE RIGHT BOOT FOR YOUR NEXT PROJECT



Since 1947, APM Hexseal Corporation has been mixing, milling, and molding innovative sealing solutions to best serve our customers. We develop and manufacture our sealing boots and bushings on-site in our New Jersey facility, proud to offer a product line of mostly American-manufactured components.

The APM Hexseal line of sealing boots ensures superior protection for switches against external contaminants and harsh environments. This selection guide will provide you with information on how to choose the right sealing boot for your application.

WHAT IS A SEALING BOOT?

One of the most common causes of switch failure is inadequate sealing. A component not properly sealed has the potential to be exposed to damaging external elements, such as water, dirt, grease, snow, and wind. In addition, pressure changes resulting from shifts in elevation or sub-aquatic submersion can wreak havoc on exposed electronics. Any contaminant can lead to the malfunction of a crucial part of the mechanical system and lead to costly downtimes and failures. Switches in mission-critical applications are particularly vulnerable. Utilizing the proper sealing boot can help avoid these failures and ensure that your equipment continues to function in top form when you need it.



Our sealing boots can protect your equipment from:

- Moisture
- Salt
- Dust
- Grime
- Grease
- Chemical products
- Gases

Different boots offer different protection capabilities. We manufacture boots to fit a multitude of switch types, and the boots can be made using a variety of application-appropriate elastomers. Particular elastomers work better for different exposure risks, and at APM Hexseal, we offer a variety of boot types and tailor them to your application's specifications.

HOW TO CHOOSE THE RIGHT BOOT

The process of selecting the proper boot for your equipment and application begins with identifying the type of switch you need to seal (toggle, pushbutton, rotary, rocker, etc.). APM Hexseal will create an internal datasheet based on the dimensional and mechanical information pertaining to that switch. Key information includes relevant details such as thread size and the plunger or bat handle height and diameter. Some varieties of boots safeguard circuit breakers, in which case you would need to confirm your breaker type and actuator so that we can determine their dimensions and throw distance.

Next, we would confirm the location of the switch and its exposure to environmental conditions. Will it be located inside or outside in the elements? Is the device subject to frequent cleanings or washdowns? Is there the potential of contamination from substances resulting from human interface, i.e., dirty hands or areas common to spills or food particles? We would also need to consider the surrounding climate and fluctuations in temperature and any other conditions that may affect the sealing boot.



Also, are there any specific characteristics you will need in a boot? For example, it may need to be highly corrosion resistant if it will potentially interact with jet fuel, hydraulic fluid, or cleansers. Will it need additional characteristics, such as an inner seal for added protection? Does the equipment need to comply with specific regulatory standards or rating criteria? What is the actuation frequency of the switch? Some switches are operated only occasionally, while others may be used a thousand times in a day or more.

Finally, we know that aesthetics can be important, so we provide silicone rubber in numerous colors and hues, including our line of glow-in-the-dark Illuma-boots, intended for use in emergency and loss-of-power situations. When the lights go out, the switches will remain illuminated for about 2 hours, allowing critical switches to be located, even in darkness.

Regardless of your requirements, APM Hexseal will collaborate closely with you from the design phase to the production of your sealing solution. From initial concept to final product, we will make certain that you have the right boot for your unique application requirements.

SEALING BOOT APPLICATIONS

A wide range of applications can benefit from sealing boots and their protection against outside contaminants, harsh environments, and other hazards. The application for a boot determines which type of boot and composition material are best suited for the project. Some of the industrial sectors that use these boots include:

The image displays 11 application categories, each represented by a green circular icon with a white line-art symbol, positioned above a dark blue rounded rectangular base containing the category name in white capital letters. The categories are arranged in three rows: the first row has four icons, the second row has four icons, and the third row has three icons.

- AGRICULTURE
- AUTOMOTIVE
- CONSTRUCTION
- ELECTRONICS
- ENERGY PRODUCTION
- FOOD HANDLING
- LIGHTING
- MARINE
- MEDICAL
- MILITARY AND AEROSPACE
- RENEWABLES

TYPES OF SEALING BOOTS

All of APM Hexseal's sealing boots have a 25-year shelf life or more and feature our trademark sealing rib, ensuring a firm, secure seal around the mounting panel. Our various high-performance sealing boot types include:

Toggle Boots



Toggle switches are one of the most popular forms of switches due to their simple back-and-forth actuation. [Toggle boots](#) are protective covers for this switch type, also referred to as a toggle bat, consisting of a single-component impermeable outer silicone seal, a molded-in threaded mounting nut of nickel or brass, and a panel-sealing rib.

Its lack of seams creates a dependable seal to protect the toggle switch from system degradation due to salt, fungi, oils, water, wind, and UV light. We also offer half Toggle boots, allowing for partial toggle exposure, and second inner seals in the event of a boot puncture. Our Toggle boots are well suited to heavy-duty applications in industrial sectors like the military or construction equipment.

Pushbutton Boots



Pushbutton switches are those which an operator will press down for actuation. While switches with an ingress protection (IP) rating safeguard against foreign matter infiltration, humidity, salt, and cleaning agents can still seep into actuator mechanisms, causing corrosion or fungal growth. Ice, debris, and dirt buildup on the actuator can also obstruct the switch's mobility.

[Pushbutton boots](#) had their first applications in the defense sector, as military hardware switches needed protection from various severe environments and temperatures, including deserts, oceans, jungles, and snowy or icy conditions. APM Hexseal's boots utilize silicone rubber in a single-piece design along with mounting nuts that completely encircle the switch's base, ensuring a complete 360° hermetic seal to reduce maintenance and the associated costs.

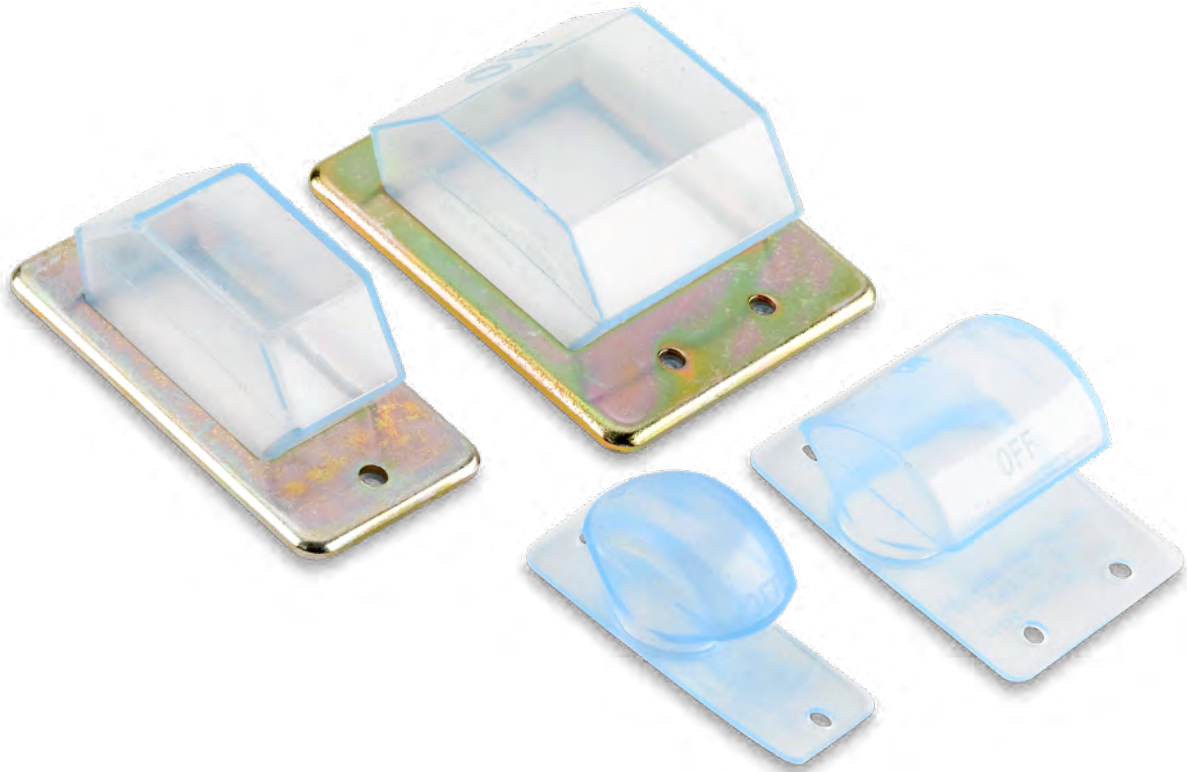
Rotary Boots



Rotary switches require a twisting motion for actuation rather than pushing or compressing. This makes them hard to seal as the space that allows for the rotary switches to turn is vulnerable to contamination from dirt, debris, and undesired fluids, particularly in high-impact or heavy-duty applications for industries such as transportation or energy generation. This contamination can cause erratic switch operation or even system failure.

[Rotary boots](#) help to limit these dangers by keeping the region around the switch free of debris and impurities while providing full rotary actuation. Our rotary boots consist of an open silicone boot with a threaded, nickel-plated brass mounting nut, which we have specially designed to withstand friction while creating a corrosion-resistant, durable seal around the mounting panel and rotating shaft.

Circuit Breaker Boots



Contamination within lever-actuated circuit breakers can cause short circuits and fires. With mission-critical functionality, these levers require durable seals for harsh environmental conditions. APM Hexseal offers both front- and back-of-panel boot styles with a sealing rib that runs the circumference of the flange's underside for a high-quality seal.

[Circuit breaker](#) boots protect breaker levers both indoors and out from extreme temperatures, corrosive chemicals, weather, and moisture. Circuit breaker boots function well in the agricultural and electronics sectors, among others. Their vibration resistance also lends them to automotive and transportation applications.

Rocker Boots



A rocker switch is a seesaw-like switch with on/off capabilities. [Rocker boots](#) will not feature a threaded mounting nut, frame, or insert, as rocker switches do not use a threaded mounting bushing. We design them so that installers can mount them on the rocker switch before they install the switch itself. Transparent silicone construction allows operators to easily view the switch position.

SEALING BOOTS FROM APM HEXSEAL

Standard or custom [sealing boots](#) from APM Hexseal provide robust switch protection, assuring the safety, dependability, and overall function of a system and its internal and external components. Keeping your requirements and budget in mind, we can often suggest alternate types of mounting to save time and space. Whether helping you choose one of our standard boots, designing a new boot from scratch, or retrofitting one of our standard boots to accommodate a specific need, we are here to help you achieve your goal. Our sealing boots are tough, reliable, and reusable, a small investment that can pay big dividends. When failure is not an option, cover it, seal it, and protect it. [Ask the Experts](#) or [Request a quote](#) today.



LEARN MORE

If you're looking to extend the life of your equipment and keep your operations running smoothly, look no further than APM Hexseal. Since 1947, we've been a leader in developing and manufacturing sealing solutions that prolong the life of switches and circuit breakers in hostile environments. We offer a wide variety of silicone switch covers and sealing hardware, including a complete line of reusable, self-sealing fasteners and sealing washers.

From self-sealing boots and fasteners in a wide array of elastomer options, to a full design and manufacturing team for custom engineered sealing solutions, including sealed switches, sealing boots, waterproof switches, pushbutton boots, rocker switches—we have what you need to maximize performance from every component. To learn more about our offerings, contact us today and let us help you find the perfect sealing solution. Ask the experts at APM Hexseal!

EVER BETTER.

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