



SEAL STUFF IN, SEAL STUFF OUT

Sealing Solutions from APM Hexseal



COVER IT, SEAL IT, PROTECT IT WITH SOLUTIONS FROM APM HEXSEAL

If you work with machinery in a hostile environment, you know the value of keeping your equipment in peak condition. After all, even the slightest flaw in your system could someday force you to take it out of commission altogether, leading to substantial financial and productivity losses.

One of the best ways to make sure that your machinery stays up and running in the face of adversity is to make sure that it's properly sealed. Of course, it's not always easy to determine whether the integrity of your seals are up to par.

So how can you tell when you have a problem? Better yet, how do you prevent the problem from occurring in the first place? If you need guidance on selecting the right sealing solution for your situation, the experts at APM Hexseal are here to help!

Causes of Equipment Failure

A hostile environment is a setting in which typical atmospheric conditions could damage a piece of equipment. These conditions can vary based on the equipment's location—but they can affect both indoor and outdoor machinery.

As you might expect, unsealed electrical devices are much more likely to succumb in hostile environments than other pieces of equipment. A switch box located outdoors, for example, could be exposed to hostile environmental conditions including precipitation, chemicals, moisture, prolonged sun or wind exposure, or sudden changes in air pressure or temperature.

Indoor equipment can also face similar challenges and risks. Common contaminants such as water, oil, fluids, salt, air, dust, dirt, grease, chemicals, and even spilled beverages can all cause your equipment to malfunction or fail.



Water



Oil



Salt



Air



Dust



Dirt



Grease



Chemicals



Beverages

There are three main causes of equipment failure in a hostile environment: **obsolescence, accidents, and surface degradation**. The most common is surface degradation, which is typically caused by corrosion and mechanical wear.

Corrosion is a particularly common type of surface degradation. When unsealed equipment is exposed to water or other fluids, the water will often cause the iron surfaces to rust. Additionally, water can increase the oxidation level in oil, which can change its pH and ultimately cause your machine to develop an acidic setting inside of it—encouraging further corrosion.

One way to easily avoid such corrosion issues is to perform routine preventative maintenance on your machine. The use of protective solutions is also essential in preventing your electrical devices from coming into contact with contaminants that can affect your machine.

At APM Hexseal, we have products that are specifically designed to keep your devices safe from these common sources of damage, no matter what environment they operate in. From sealed switches to self-sealing hardware to sealing boots, we have what you need to keep your equipment running for years to come.



Hostile Environments Where Problems Can Occur

Designed with versatility in mind, our broad array of sealing solutions can be found in a wide range of applications. Whether you need to keep contaminants out or keep toxins in, our products can form an impenetrable seal against any source of damage.

Some common dangers that our sealing products combat include:

- **Extreme temperatures** – Our products provide effective insulation against extreme heat and cold. Common applications include military vehicles and machinery, paving or plowing machines, construction and drilling equipment, outdoor/survival gear, and laboratory equipment.
- **Oil and chemicals** – Our sealing solutions can protect machinery against spills and leaks from oil and chemicals. Common applications include elevators, HVAC systems, and security systems, as well as scientific and agricultural instruments to prevent exposure to contaminants like fertilizers, inclement weather, and manure.
- **Food, beverages, and other fluids** – Everyone gets hungry and thirsty at some point during the day, but our products help prevent even the stickiest or greasiest lunches from interfering with your equipment's performance.
- **Water and weather** – Keeping water from seeping into your equipment can be challenging, but our products are used in applications as diverse as electrical panels, marine and boating equipment, outdoor construction equipment, and train steering systems.
- **Road salt** – No one likes a slick road in the winter, but sometimes the salts used to increase traction on the road can be even more damaging to vehicles and equipment over time. Our products can help protect cars and construction and utility vehicles from salt corrosion.
- **Air** – Preventing air from leaking out and causing a loss of pressure is especially important in applications such as pressure gauges and testing equipment.
- **Dirt, dust, and sand** – Keeping sediments out of your equipment is critical to maintaining its overall health. For mechanical equipment used outdoors such as construction machinery or military equipment used in harsh environments like deserts, sealing solutions can keep a number of applications free from dust, dirt, sand, sawdust, and other particles.

Mechanical Equipment

As technology continues to evolve, so do the mechanical systems and structures found in our buildings. In fact, many common mechanical systems are now outfitted with computerized and automated mechanisms to help optimize their performance.



With these technological upgrades, however, there also comes an increased risk of system failures and malfunctions because these sophisticated technologies are very sensitive to external conditions.

The greater the exposure to hostile environments, the higher the risk of failure.

For example, elevators, HVAC systems, and security systems are all heavily utilized mechanical systems now supported by automated technologies. Since these systems are often used 24/7, they're even more susceptible to breaking down. Common causes for failure include contamination from oil and foreign materials, vibrations, metal fatigue, operator error, and electrical disturbances.

Electrical Equipment

Along the same lines, the breakdown of electrical equipment can be equally as catastrophic for your facility. With the loss of electrical power can also come the loss of productivity—which can eventually translate into lost customers and income.

An electrical system's enclosures, panels, circuit breakers, and cables are so interdependent that a short circuit in one component can impact the entire system. Common causes of malfunction in electrical systems include loose connections, contaminants such as dust and moisture, supply line surges, insulation deterioration, and overload conditions.



Malfunctions in both mechanical and electrical equipment are one of the biggest problems affecting manufacturers. When they occur, they can have lasting effects not only on business operations, but on a company's overall profits, as well. One of the easiest and most cost-effective ways to avoid these challenges is to protect your equipment with the proper sealing solutions. As the saying goes, "An ounce of prevention is worth a pound of cure."

At APM Hexseal, we have a variety of products that will protect your equipment from potential breakdowns. Below are just a few of the sealing products in our line, in addition to our custom-engineered capabilities and solutions:



Sealing Boots and Bushings



- **Toggle boots** – Our toggle boots for switches provide a straightforward, back-and-forth actuation, making them easy to operate. Sold in several different designs, all of our toggle boots have our signature sealing rib to ensure that your equipment is protected.
- **Pushbutton boots** – Our pushbutton boots are specially designed to protect switches of all styles and sizes that use a push or press motion.
- **Rotary boots** – Our rotary switch boots are known for their unique twisting motion and their ability to withstand the friction created by the shaft's rotation—without restricting the actuation's motion.
- **Circuit breaker boots** – Our circuit breaker boots are designed to not only protect these critical components from short circuiting, but to extend their lifespan, reinforcing the stability of the entire electrical system.
- **Rocker boots** – Made from our unique transparent silicone RUBRGLAS®, our rocker boots are designed to be installed on the switch prior to the switch installation.
- **Bushing seals** – Our bushing seals pack all the sealing power of a boot, but focus on the mounting hole as opposed to the switch.

Sealing Hardware



- **Seelscrews® and Seelbolts®** – Our self-sealing screws and bolts offer a reliable, reusable seal that will prevent any contaminants from interfering with your equipment.
- **Seelnuts®** – Our self-sealing hexagonal nuts have a single-piece design that creates a more consistent and reliable seal.
- **Seeloc® Washers** – Our washers are made of molded silicone rubber that bonds to specially formed stainless steel washers. These reusable washers are ideal for applications that require periodic maintenance or adjustments.

If one of these products won't quite get the job done, we can work with you to find a personalized solution. At APM Hexseal, we have an array of [custom capabilities](#) available to help you build just the product for you and your application. From design to finished product, our team is committed to providing customized solutions that work for our customers and fit any specifications—making sure that your component is protected from nearly every kind of contaminant.

LEARN MORE

Since 1947, we've been the leader in developing and manufacturing sealing solutions that prolong the life of sensitive electronic and mechanical components and systems in hostile environments. We offer a wide variety of elastomeric 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 ready for custom engineered sealing solutions, we have what you need to maximize performance from every component. To learn more about our offerings and capabilities, contact us today and let us help you find the perfect sealing solution. Ask the Experts at APM Hexseal!

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