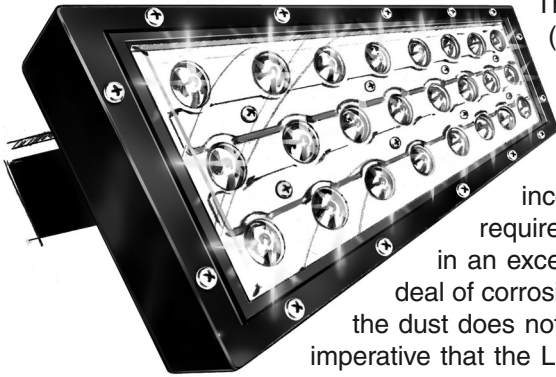


SEALING SOLUTIONS

APM HEXSEAL®
When Just Fastening Isn't Enough®

SEELSKREW® Self-Sealing Fasteners

SEALING LED FIXTURES & OTHER OPTO DEVICES



The use of LEDs is finding its way into a myriad of electrical lighting (indoor/outdoor) and electronics equipment — some of which were not even imaginable just a few years ago. One such unexpected application is for large area illumination that was formerly dominated by incandescent, halogen, and arc lighting. For example, one leading outdoor lamp fixture company has successfully developed an outdoor ceiling mounted fixture incorporating numerous LEDs per fixture with day and night power output requirements controlled by micro circuits. These sealed enclosures were installed in an exceptionally long automobile tunnel. Typical of all tunnels of this kind, a great deal of corrosive, penetrating concrete dust is formed over a period of time. To assure that the dust does not reach the LED fixture's internal control circuit or coat the LED's lens, it is imperative that the LED fixture be reliably sealed to operate for 15 years of continuous service without maintenance. To meet this requirement, APM high-pressure self-sealing SEELSKREWS®

were chosen and installed around the LED fixture's perimeter. Because these special stainless steel sealing fasteners feature an embedded silicone O-Ring, captured under the head in an asymmetrical groove, they are capable of sealing to 20,000psi internal/external against dust, dirt and moisture. For maintenance purposes, they can be frequently re-installed without degradation to the silicone O-Ring. APM also offers self-sealing bolts, nuts, rivets and a unique self-sealing washer that seals to 100psi. For applications that are subject to high vibration, a number of self-locking enhancements are also offered along with different O-Ring materials for operation in a wide variety of hostile environmental conditions. All APM self-sealing/locking fasteners are UL Recognized, RoHS compliant and contain no mercury. *Self-Sealing fasteners are the ideal partner for optimizing your next LED architectural fixture design — indoors and outdoors.*

Non-Illumination Applications — LEDs are more than just about light, they're also about heat. Considerable heat is generated by LED arrays as demonstrated by the new LED lamp replacements for incandescent lighting now marketed by leading lamp manufacturers. Each design requires elaborate heat sink technology. LEDs that generate UV to cure ink in printing equipment also generate heat and APM Hexseal self-sealing screws are being used to seal the water jackets that cool the LEDs. Here too, APM self-sealing fasteners are an ideal sealing solution as they can easily handle temperatures to +500°F (+260°C).

NIGHT VISION GOGGLES NEED TO BE HELD TOGETHER IN ALL KINDS OF HOSTILE CONDITIONS

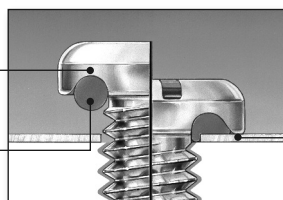
Whether operating on the ground, in high altitudes, or in high-pressure submersible conditions — night vision goggles not only have to be reliably sealed, they need to be field-maintenance friendly. That's why leading night vision equipment manufacturers have selected APM's high-pressure self-sealing SEELSKREWS® to do the job. Because of the patented O-Ring embedded design that captures the O-Ring in an asymmetrical groove (located under the screw's head) — a perfect metal-to-metal seal is achieved. The design also affords multiple reuse without appreciable degradation to the silicone O-Ring, whether operating in wet, dry, dirty or dusty environments. Unlike anaerobic thread liquid sealants, these fasteners are easy to remove and reuse. It's a fast one-step process — no chemical fumes to breathe, no environmental disposal problems, no primers required (therefore no curing time), no special training required regarding location or number of drops, etc.



How Self-Sealing Fasteners Work

O-Ring Seats in Asymmetrical Groove

Pre-assembled silicone O-Ring is compressed into clearance hole



360° Metal-to-Metal Surface Contact



APM

Secured. Sealed. Safe.™

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