



EFFICIENCY OF
LED LUMINAIRES
SIGNIFICANTLY
INCREASED

Situation

WE-EF is an exterior lighting specialist that develops, manufactures and markets high-quality luminaires for outdoor use with a focus on innovative optical systems, good thermal management and high IP ratings. Its aim is to design lighting that demonstrates extreme longevity and efficiency even in the face of adverse climatic conditions. This poses a particular challenge in the case of the LEDs that WE-EF uses in its newer post-mounted street and area lighting luminaires.

Challenge

For its VFL500 LED series, WE-EF uses RFC® Reflection Free Contour technology to achieve the highest possible optical efficiency. The conventional flat-glass cover is replaced by a UV-stabilized, clear, contoured acrylic panel that follows the shape of the lens. The RFC® technology ensures that light from the lens always hits the inside of the cover at a 90-degree angle of incidence. This reduces reflection losses and increases lighting efficiency by up to 5 percent. To achieve this level of efficiency, pressure fluctuations in the housing must be avoided in order to prevent a vacuum. Caused by the enormous temperature differences between the LEDs, which heat up during operation, and the cooler ambient air, such pressure fluctuations would cause the acrylic cover to deform and so alter the illumination characteristics of the emitted light.

Solution

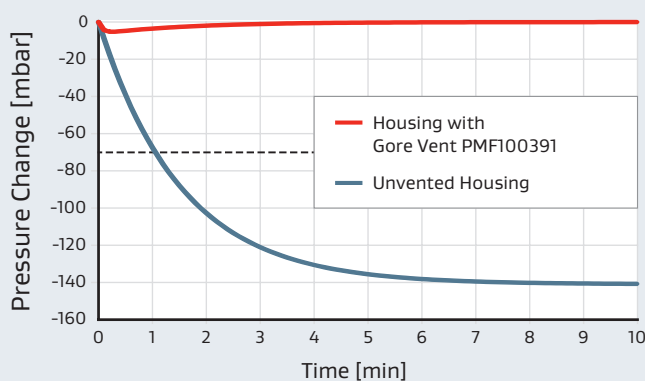
This undesired effect can be prevented using a vent to equalize the pressure, thereby ensuring the acrylic cover retains its original shape. To achieve the desired efficiency, WE-EF integrates Gore PolyVents M12 x 1.5 HA (PMF100391) in all of its VFL500 series LED street and area lighting luminaires. Back while the product was still in development, WE-EF decided to opt for the screw-in vent with high air flow membrane. This meant the vent could be incorporated into the luminaire housing in such a way that it remained invisible from the outside and did not impact the overall design. With the built-in vent, pressure fluctuations are equalized reliably and



“Our use of Gore vents in our products has since become a defining mark of their quality, and it’s something we also use in our marketing. Gore is instrumental in ensuring our products stand for long-lasting quality, and strengthens our competitive position in the market.”

– Thomas Müller, General Sales Manager WE-EF

Housing Pressure Change Over Time



Temperatures inside a VFL500 luminaire can easily reach +65 °C, but can drop to +15 °C in the space of 10 minutes during a storm. In a vented housing, this causes no pressure differential because the vent allows the pressure to equalize easily. Without a vent, the housing is subjected to a pressure of -140 mbar, which causes dirt and moisture to be sucked in via the seal.



GORE® Protective Vents are available in many different sizes and designs and can be easily integrated into new or existing design structures. With its high-airflow membrane, the screw-in PolyVent M12 x 1.5 HA is the ideal venting solution for WE-EF's VFL500 luminaire series.

less strain is put on the seals, ensuring the sensitive interior electronics are protected against moisture penetration for decades. "Just like our luminaires, what characterizes Gore vents is their long service life," explains General Sales Manager Thomas Müller. "We've not had a single product failure so far and we're very satisfied with this particular solution."

By fitting Gore vents, WE-EF is able not only to greatly increase the longevity of the entire lighting system, but also to guarantee the reliability of the newly employed RFC® technology and thus assure the efficiency of the luminaire. This added value is a convincing selling point for the exterior lighting specialist's customers. Effective protection of the components inside the housing is a must if the luminaires are to work without failing for more than 20 years. "We ensure our products achieve an IP66 rating, which gives our electronics and LEDs a rated life of 60,000 hours," says Thomas Müller. "The only way to do this is with a highperformance venting solution and reliable seals."

Diverse Product Line Engineered for Simple Integration

GORE® Protective Vents are manufactured in many different sizes and shapes, making it easy to choose the right vent for any application. These vents are easy to integrate into new or existing designs to meet the needs of a broad range of applications and markets. For example, these vents:

- Tolerate temperatures ranging from -40 °C to 125 °C
- Perform to protection standards up to IP69K
- Provide maximum protection for applications in harsh environments through molded plastic or metal vents
- Install easily by being adhered, threaded, snapped or welded to a variety of enclosure materials

About Gore

W. L. Gore & Associates is a global materials science company dedicated to transforming industries and improving lives. Since 1958, Gore has solved complex technical challenges in demanding environments — from outer space to the world’s highest peaks to the inner workings of the human body. With more than 11,000 Associates and a strong, team-oriented culture, Gore generates annual revenues of \$3.8 billion.

Gore develops products and technologies that address complex product and process challenges in a variety of markets and industries, including aerospace, automotive, pharmaceutical, mobile electronics and more. Through close collaboration with industry leaders across the globe, Gore enables customers to design their products and processes to be safer, cleaner, more productive, reliable, durable and efficient across a wide range of demanding environments.

Learn more at gore.com/protectivevents.



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