



# IMPROVE LIGHTING RELIABILITY BY EQUALIZING PRESSURE

*Together, improving life*



## Situation

S&D International Co., Ltd. (“S&D”) is a leading Korean luminaire manufacturer that partners with global lighting companies to provide a wide range of high-quality products. The Moon Light is designed to float on water, and the temperature inside the light can rise up to about 60 °C from the extreme heat during the day. However, the cold water at night can cause the temperature inside the light to drop to 20 °C.

## Challenge

These daily temperature fluctuations caused extreme pressure differentials inside the Moon Light’s housing, resulting in constant stress on the seals. Over time, this allowed water and harsh contaminants to enter the housing causing the seals to fail. As a result, the electronics inside the lights were compromised, and they also began to fail. Further complicating the situation, maintenance and repair were very difficult because the lights float on water.

Since the design could not be modified, S&D’s product development team considered drilling a small hole in the housing to help equalize pressure. However, water and harsh contaminants could still enter the housing — including dirt, dust, insects, heavy rain, and hail. They also considered tightening the seals with more screws, but there was no guarantee that this would solve the problem long-term. Ultimately, the team decided they needed a reliable solution that could be easily retrofitted into the existing design to equalize pressure rapidly while preventing water and harsh contaminants from entering the housing. Because these lights were already installed on water, they needed to identify, test, and integrate their solution quickly.

## Solution

Kwang-Hyun Na, S&D’s Assistant Manager of Development, contacted Gore to provide assistance in selecting the best venting solution to solve their application needs quickly. Gore’s engineers collaborated with S&D’s product development team to understand the specific challenges, provide several venting samples, and test alternative designs — all to ensure that the right vent was selected for their Moon Lights.



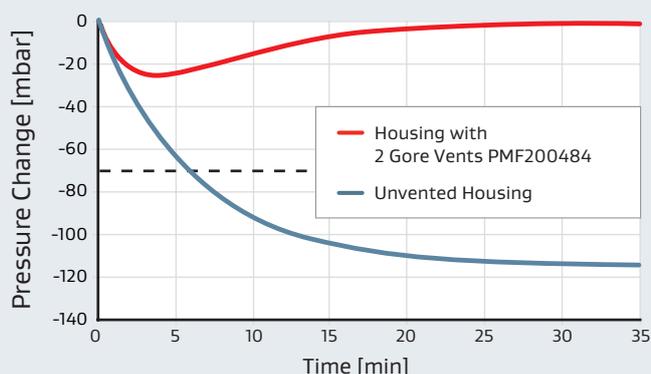
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“The durability and high performance of the GORE® Protective Vent quickly solved our problem and ultimately improved customer satisfaction with our Moon Lights.”

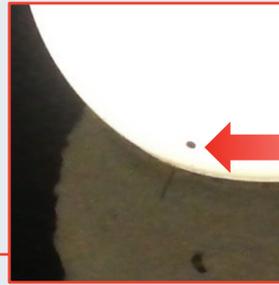
– Kwang-Hyun Na  
Assistant Manager of Development at S&D International Co., Ltd.

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Housing Pressure Change Over Time



Temperatures inside the Moon Light’s housing can reach 60 °C, and can drop to 20 °C causing extreme pressure differentials. Without a vent, the pressure can reach 115 mbar, which eventually causes the seals to leak and water and contaminants to enter the housing. Using a GORE® Protective Vent provides continuous airflow to equalize pressure rapidly and prevent contamination.



Available in a variety of designs, sizes and product forms, GORE® Protective Vents equalize pressure, prevent contamination and reduce condensation in a variety of applications. The GORE® Protective Vent with snap-fit construction (PMF200484) is the best solution for S&D International Co., Ltd. because of its robust design with high airflow and easy installation.

The team determined the best position for the vent in the existing design to minimize the effect on the aesthetics and maximize protection and airflow. Initial testing indicated that due to the size and large amount of free space inside the housing, an airflow of 5000 ml/min was needed to equalize pressure differentials and prevent the seals from leaking during daily temperature fluctuations. To solve these issues, Gore's engineers recommended the GORE® Protective Vent with snap-fit construction (PMF200484). Each Moon Light required two vents that were quickly and easily retrofitted into their existing design.

According to Kwang-Hyun Na, Gore's global team responded quickly with resources to evaluate the problem and provide a robust solution. "Gore's knowledge of luminaires and the issues we were encountering helped us solve our problem with minimum interruption in production."

## 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](https://gore.com/protectivevents).



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GORE® Protective Vent(s) are manufactured under the generic industrial ISO 9001 quality system. No other certifications can be provided by Gore for this GORE® Protective Vent. All technical information given is based on Gore's previous experiences and/or test results. Gore gives this information to the best of its knowledge, but assumes no legal responsibility. Customers are asked to check the suitability and usability in the specific application, since the performance of the product can only be judged when all necessary operating data are available. The above information is subject to change and is not to be used for specification purposes. Gore's terms and conditions of sale apply to the sale of the products by Gore..

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