



# Protective Vents

Case History

## Improve Lighting Performance by Reducing Condensation



problem. A small hole in the housing wall would equalize pressure, but it would also provide easy access for contaminants such as insects, rain, dirt and dust. They needed a solution that would equalize internal pressure without creating a path for water and other contaminants to enter.

**“We found that GORE® Protective Vents are the only solution that can provide the durability and reliability that we need so that our customers receive the lighting performance they expect.”**

*Johann Schleritzko  
Managing Director of BEKA (Pty) Ltd*

### Situation

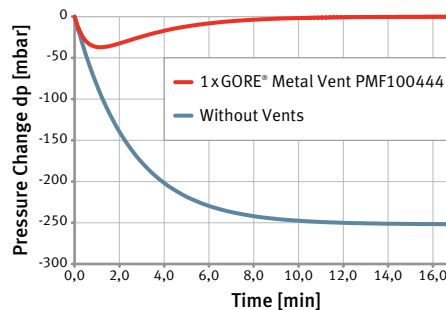
For more than 30 years, BEKA (Pty) Ltd of South Africa has been a leading manufacturer of high-quality lighting systems that maintain mechanical, operational and thermal integrity while reducing energy consumption and total cost of ownership. Designed specifically for large sports stadiums, the BEKA Stadialux XP floodlights are engineered with a robust die-cast aluminum housing sealed with silicone gaskets. During operation, the floodlights generate enough heat to raise the internal temperature to almost 125 °C. When the lights are turned off, the temperature quickly drops to ambient, often causing a change as much as 100 °C. This drop results in pressure differentials that can create an internal vacuum, so BEKA’s engineering team integrated a charcoal vent to equalize pressure. After approximately five years in the field, the output of the floodlights’ reflector systems had declined significantly.

### Challenge

BEKA’s engineering team tested the floodlights in the field and found moisture vapor inside the sealed housings. Over time, the recurring vacuums caused stress on the housing’s seals, which led to water vapor being drawn into the enclosure. As the vapor condensed, the water had no escape path, so it collected on the reflectors and compromised their output. The engineers realized that the charcoal vent did not provide IEC’s ingress protection level IP65 that they needed. They considered using more rugged seals, but this very expensive change would not ultimately solve the

### Solution

BEKA tested several alternatives and found that integrating a GORE® Protective Vent into the floodlight design yielded the best performance. Gore’s engineers collaborated with the BEKA team to understand the original floodlight design and evaluate the best location for the vent. They then calculated the amount of free space inside the housing to determine the most severe vacuum that could possibly occur.



*In the floodlight enclosure (with approximately 18 liters of free space), the 100°C temperature created a 250-mbar pressure drop in ten minutes. In non-vented housings, seals begin to leak around 70 mbar. The GORE® Metal Vent equalizes pressure and prevents the housing seals from leaking.*

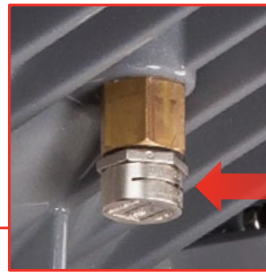
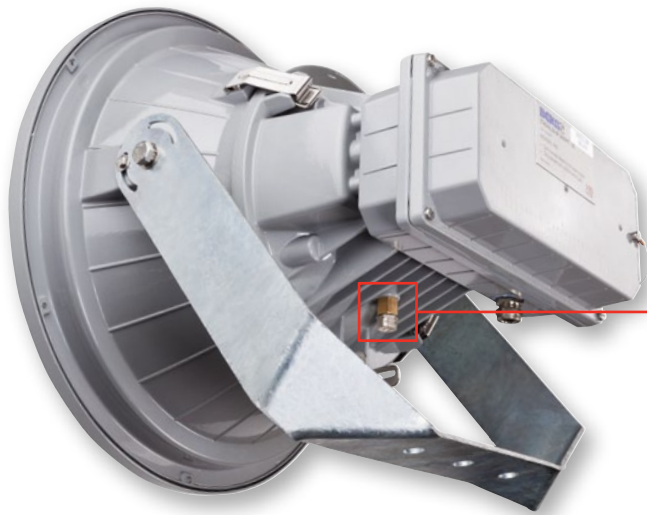
Based on this evaluation, Gore recommended the GORE® Metal Vent to eliminate the condensation that was reducing the reflector’s output. This vent provides continuous airflow to equalize pressure and prevent the vacuum, while blocking liquid and contaminant ingress. Also, the added durability of the metal vent meets BEKA’s requirements for hail protection and vandalism resistance.

According to Johann Schleritzko, Managing Director of BEKA (Pty) Ltd, “We engineer our lighting systems to ensure reliable performance for at least 25 years in every climatic condition. After extensive testing, we found that GORE® Protective Vents provide the durability and reliability our customers expect, and with Gore’s proven expertise in lighting applications, we are confident that their vents will last for the life of our products.”



# Protective Vents

GORE® Protective Vents | CASE HISTORY



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® Metal Vent is the best solution for the BEKA Stadi lux XP because of its high airflow and more rugged design.

## 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

## The Gore Advantage

Gore is a technology-driven company focused on product innovation. Well-known for waterproof, breathable GORE-TEX® fabric, the company's products have remained on the forefront of creative solutions because they are engineered specifically for challenging applications that require durable performance where other products fail.

For almost thirty years, Gore has delivered venting solutions for outdoor equipment installed throughout the world. Engineered with the latest materials and technology, Gore's vents are backed by years of research and testing to help extend product life and enhance reliable performance – all to ensure that they meet the application demands of today's technology.

Headquartered in the United States, Gore employs approximately 10,000 associates in 30 countries worldwide. In Europe, Gore started its first business operations only a few years after its founding in 1958. Learn more at [gore.com](http://gore.com).

### INTERNATIONAL CONTACTS

Australia	+61 2 9473 6800	Mexico	+52 81 8288 1281
Benelux	+49 89 4612 2211	Scandinavia	+46 31 706 7800
Brazil	+55 11 5502 7800	Singapore	+65 6733 2882
China	+86 21 5172 8299	South Africa	+27 11 894 2248
France	+33 1 5695 6565	South America	+55 11 5502 7800
Germany	+49 89 4612 2211	Spain	+34 93 480 6900
India	+91 22 6768 7000	Taiwan	+886 2 2173 7799
Italy	+39 045 6209 240	United Kingdom	+44 1506 460123
Japan	+81 3 6746 2572	USA	+1 410 392 4440
Korea	+82 2 393 3411		

\*IP ratings depend on the product housing's design. Please contact a Gore representative for more information.

**FOR INDUSTRIAL USE ONLY. Not for use in food, drug, cosmetic or medical device manufacturing, processing, or packaging operations.**

All technical information and advice given here 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.

BEKA Stadi lux XP is a trademark of BEKA (Pty) Ltd.

GORE, GORE-TEX and designs are trademarks of W. L. Gore & Associates.

© 2013 W. L. Gore & Associates, Inc.

### W. L. Gore & Associates, Inc.

401 Airport Road • Elkton, MD 21921 USA

Phone: +1 410 392 4440 • Toll free: +1 800 637 4449

Fax: +1 410 506 8749 • Email: [protectivevents@wlgore.com](mailto:protectivevents@wlgore.com)

[gore.com/protectivevents](http://gore.com/protectivevents)

