



Automotive Vents

FOR EXTERIOR AUTOMOTIVE LIGHTING

Protect and Maintain Lamp Performance and Longevity

Effective protection from contaminants is the key to preserving the clarity, brilliance and longevity of high-value automotive lighting.

GORE® Automotive Vents for adhesive installation reliably protect all types of exterior lighting assemblies. They equalize pressures, reduce condensation and block contaminants, to keep lights performing brilliantly. And, these space-saving vents easily fit in ever-more-compact housings.

A COMPLETE VENTING PORTFOLIO

Choose from a full range of sizes and performance options – available for automated, semi-automated and manual installation.

FOR HEADLAMPS

- **AVS 9:** With millions installed, these vents have become a global standard for nearly any type of headlamp.
- **AVS 100:** Faster, easier and more forgiving installation, as well as greater resistance to high-pressure sprays.

FOR REAR AND FOG LAMPS

- **AVS 2 or AVS 5:** A global standard for reliable pressure equalization at temperatures up to 125 °C. Two sizes available.
- **AVS 43:** Extra-high airflow quickly equalizes large pressure differentials in housings with large internal air volumes.
- **AVS 15 or AVS 16:** For extra durability and adhesion at higher temperatures up to 150 °C. Two sizes available.

FOR REAR AND SPECIALTY LAMPS

- **AVS 17 or AVS 18:** A global standard for typical operating temperatures up to 85 °C. Two sizes available.
- **AVS 22 or AVS 23:** For higher-temperature applications up to 125 °C. Two sizes available.



REALIZE THE BENEFITS OF GORE® AUTOMOTIVE VENTS FOR EXTERIOR LIGHTING APPLICATIONS

- Reliable barrier protection against fine dust, dirt and road debris, as well as water splashes and sprays.
- Integrated oleophobic protection withstands automotive fluids, detergents and washing products.
- Reduced condensation due to more effective moisture vapor transmission.
- Easy to integrate using automated, semi-automated or manual installation processes.
- A versatile solution for all lamp types (LED, Xenon, Halogen) and for clear and colored lenses.
- Configured for most typical plastic and metal housing materials.



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There's a lot to consider in choosing your vent: lamp type and position on the vehicle, housing size and vent placement within the housing, environmental challenges, and more.

We can help you sort it out! Talk to your Gore representative to assess how these criteria can guide you to the right vent for your specific needs.



HEADLAMPS



REAR AND FOG LAMPS



REAR AND SPECIALTY LAMPS

| PRODUCT NAME (order number for samples) | AVS 9 | AVS 100 | AVS 2 | AVS 5 | AVS 43 | AVS 15 | AVS 16 | AVS 17 | AVS 18 | AVS 22 | AVS 23 |
|--|-----------|---------|-----------|--------|--------|--------|--------|-----------|-----------|--------|--------|
| Order numbers | | | | | | | | | | | |
| Manual installation | VE0020GMC | VE2084 | VE0001VAP | VE2004 | VE2049 | VE2029 | VE2021 | VE0013GMC | VE0012GMC | VE2094 | VE2096 |
| Automated installation | VE2068 | VE2086 | VE2051 | VE2016 | VE2053 | VE2035 | VE2027 | — | — | VE2095 | VE2097 |
| | | | | | | | | | | | |

Product Performance Characteristics

| | | | | | | | | | | | |
|---|--|---------------------|--|------------------------|--|-----------------------------------|--|-----------------------------------|--|-----------------------|---------------------------------------|
| Main vent functionality | <ul style="list-style-type: none"> Condensation reduction Pressure equalization Dust / dirt / debris protection Water intrusion protection | | <ul style="list-style-type: none"> Condensation reduction Pressure equalization Dust / dirt / debris protection Water intrusion protection | | <ul style="list-style-type: none"> Condensation reduction Pressure equalization Dust / dirt / debris protection Water intrusion protection | | <ul style="list-style-type: none"> Pressure equalization Dust / dirt / debris protection Water intrusion protection Condensation reduction | | <ul style="list-style-type: none"> Pressure equalization Dust / dirt / debris protection Water intrusion protection | | |
| Minimum airflow (per part) at 70 mbar (1 psi) | > 22.2 l/h | > 19.9 l/h | > 3.0 l/h | > 4.8 l/h | > 11.2 l/h | > 3.0 l/h | > 4.8 l/h | > 4.1 l/h | > 6.5 l/h | > 4.1 l/h | > 6.5 l/h |
| Typical airflow (per part) at 70 mbar (1 psi) | 45.4 l/h | 40.8 l/h | 6.3 l/h | 9.7 l/h | 32.9 l/h | 6.3 l/h | 9.7 l/h | 9.3 l/h | 14.4 l/h | 9.3 l/h | 14.4 l/h |
| Water Entry Pressure (assembly) | > 345 mbar (> 5.0 psi) for 60 sec | | > 345 mbar (> 5.0 psi) for 60 sec | | > 345 mbar (> 5.0 psi) for 60 sec | > 345 mbar (> 5.0 psi) for 60 sec | > 345 mbar (> 5.0 psi) for 60 sec | > 345 mbar (> 5.0 psi) for 60 sec | | | |
| Diffusion Performance* | > 400 mg moisture /day | | > 50 mg moisture /day | > 120 mg moisture /day | > 50 mg moisture /day | > 50 mg moisture /day | > 120 mg moisture /day | > 50 mg moisture /day | > 100 mg moisture /day | > 50 mg moisture /day | > 100 mg moisture /day |
| Outer dimensions (OD) | 19.50 mm x 40.00 mm | 27.90 mm x 27.90 mm | 12.70 mm | 19.05 mm | 12.70 mm | 12.70 mm | 19.05 mm | 12.70 mm | 19.05 mm | 12.70 mm | 19.05 mm |
| Inner dimensions (ID) | 9.50 mm x 30.00 mm | 16.50 mm x 16.50 mm | 7.11 mm | 8.89 mm | 7.11 mm | 7.11 mm | 8.89 mm | 7.11 mm | 8.89 mm | 7.11 mm | 8.89 mm |
| Operating temperature | -40 °C to 125 °C | | -40 °C to 125 °C | | -40 °C to 125 °C | | -40 °C to 150 °C | | -40 °C to 85 °C | | -40 °C to 125 °C |
| Membrane type | 100% ePTFE (AM2XX) | | 100% ePTFE (AM2XX) | | 100% ePTFE (AM6XX) | | 100% ePTFE (AM2XX) | | Laminate (LM1XX): ePTFE / nylon woven | | Laminate (LM2XX): ePTFE / nylon woven |
| Membrane characteristic | Hydrophobic and Oleophobic | | Hydrophobic and Oleophobic | | Hydrophobic and Oleophobic | | Hydrophobic and Oleophobic | | Hydrophobic and Oleophobic | | |
| Pressure-sensitive adhesive | AD103 Silicone | | AD103 Silicone | | AD103 Silicone | | AD104 Silicone ² | | AD100 Acrylic ³ | | AD103 Silicone |
| Vent mounting housing protection ¹ | Protective target frame IS REQUIRED for high pressure water spray resistance. | | Protective target frame is NOT REQUIRED for high pressure water spray resistance. | | Protective target frame IS REQUIRED for high pressure water spray resistance. | | Protective target frame IS REQUIRED for high pressure water spray resistance. | | Protective target frame IS REQUIRED for water spray resistance. Vent MUST BE INSTALLED in protected area. | | |

Vent Design and Dimensions

| | | | | | | | | | | | |
|-----------------|--|--|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Units are in mm | | | | | | | | | | | |
| | | | AVS 2 ID = 7.11 OD = 12.70 | AVS 5 ID = 8.89 OD = 19.05 | AVS 43 ID = 7.11 OD = 12.70 | AVS 15 ID = 7.11 OD = 12.70 | AVS 16 ID = 8.89 OD = 19.05 | AVS 17 ID = 7.11 OD = 12.70 | AVS 18 ID = 8.89 OD = 19.05 | AVS 22 ID = 7.11 OD = 12.70 | AVS 23 ID = 8.89 OD = 19.05 |

* Based on Gore's "Moisture Vapor Transmission Rate" (MVTR) test.

Please contact your local GORE® Automotive Vents representative to request our updated installation guides for lighting applications.

¹ Housings made of high-water-absorption plastics (above 0.15% ASTM D570 – 24 hrs. at 23 °C) must be evaluated.

² Suitable for curved / convex housings; specific geometry needs to be evaluated.

³ Not recommended for polypropylene housing materials.

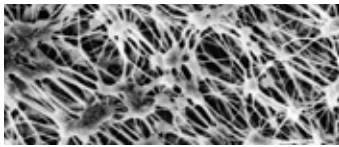


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WHY THE GORE™ MEMBRANE MATTERS

Only GORE® Automotive Vents incorporate the performance benefits of the GORE™ Membrane. Made of expanded polytetrafluoroethylene (ePTFE), it's engineered with billions of pores. These pores are 700X larger than an air molecule, to ensure reliable airflow and pressure equalization. Yet at 20,000X smaller than a drop of water, these pores effectively block entry of liquids, dirt and debris.

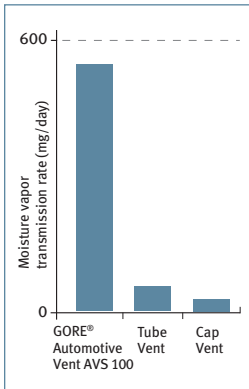


The GORE™ Membrane magnified 40,000 times.

THE GORE™ MEMBRANE IS:

- chemically inert
- non-shedding
- UV-resistant
- temperature-resistant
- hydrophobic and oleophobic

“MOISTURE VAPOR TRANSMISSION RATE” TEST



The easiest way to demonstrate the performance of venting components in relation to moisture transfer is to carry out a moisture vapor transmission rate (MVTR) test. This involves filling a vessel with 100 ml of water, sealing it airtight, and fitting it with a venting product. The container is weighed daily for two weeks under laboratory conditions (22 °C, 50% humidity) in order to measure the volume of water that has diffused every day.

WHAT GORE® AUTOMOTIVE VENTS CAN OFFER YOU

GORE® Automotive Vents deliver innovative technology, backed by decades of research and testing. Our product portfolio has proven itself in the harshest environments: literally billions of our vents have been installed in automotive applications worldwide. Today, virtually every global OEM trusts GORE® Automotive Vents to extend the reliability and longevity of their exterior lighting, electronics and powertrain products and assemblies.

Since GORE® Automotive Vents can be engineered with varied properties, they can be customized for your application. We have technical support and testing centers in the US, Germany, Japan, Korea and China, so our application engineers are easily accessible – and ready to work in close partnership with your design team, from product concept through manufacturing integration.

STORAGE AND HANDLING RECOMMENDATIONS

W. L. Gore & Associates recommends that adhesive parts be stored in cool dry conditions (22 °C / 50% RH) and out of direct sunlight. Adhesive Vents are most easily removed from the product carrier within one year of packaging date.

CONTACT US to discuss options and solutions for your newest application.

Call your local Gore representative or send your inquiry from our website:

gore.com/autovents

ABOUT GORE

W. L. Gore & Associates is a global materials science company dedicated to transforming industries and improving lives. Founded in 1958, Gore has built a reputation for solving complex technical challenges in the most demanding environments – from revolutionizing the outerwear industry with GORE-TEX® fabric to creating medical devices that improve and save lives to enabling new levels of performance in the aerospace,

pharmaceutical and mobile electronics markets, among other industries. The company is also known for its strong, team-oriented culture and continued recognition from the Great Place to Work® Institute. Headquartered in Newark, Del., Gore employs approximately 9,500 Associates and generates annual revenues that exceed \$3 billion. www.gore.com

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