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.

GORE® Automotive Vents for adhesive installation

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.

A versatile venting solution for all your exterior lighting needs:
- Reliably block ingress of 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.
- Suitable for all lamp types (LED, Xenon, Halogen) and for clear and colored lenses.
- Configured for most typical plastic and metal housing materials.

Together, improving life
**Headlamps**

<table>
<thead>
<tr>
<th>Product Name (order number for samples)</th>
<th>AVS 9</th>
<th>AVS 100</th>
<th>AVS 2</th>
<th>AVS 5</th>
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<tbody>
<tr>
<td>Order Numbers (Manual installation)</td>
<td>VE0020GMC</td>
<td>VE2084</td>
<td>VE0001VAP</td>
<td>VE2004</td>
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<tr>
<td>Order Numbers (Automated installation)</td>
<td>VE2068</td>
<td>VE2086</td>
<td>VE2051</td>
<td>VE2016</td>
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</tbody>
</table>

**Product Performance Characteristics**

- **Main vent functionality**
  - Condensation reduction
  - 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

- **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

- **Water Entry Pressure (assembly)**
  - > 345 mbar (> 5.0 psi) for 60 sec

- **Diffusion performance**
  - > 400 mg moisture/day
  - > 50 mg moisture/day
  - > 120 mg moisture/day

- **Operating temperatures**
  - – 40 °C to +125 °C

- **Membrane type**
  - 100% ePTFE (AM2XX)
  - 100% ePTFE (AM6XX)
  - Laminate (LM1XX): ePTFE/nylon woven
  - Laminate (LM2XX): ePTFE/nylon woven

- **Pressure-sensitive adhesive**
  - AD103 Silicone
  - AD104 Silicone
  - AD100 Acrylic

- **Vent mounting housing protection**
  - 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.

**Design & Dimensions**

<table>
<thead>
<tr>
<th>Outer dimensions (OD)</th>
<th>Inner dimensions (ID)</th>
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<td>OD = 19.05</td>
<td>ID = 8.89</td>
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**“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.
AVS 43 | AVS 15 | AVS 16 | AVS 17 | AVS 18 | AVS 22 | AVS 23
---|---|---|---|---|---|---
VE2049 | VE2029 | VE2021 | VE0013GMC | VE0012GMC | VE2094 | VE2096
VE2053 | VE2035 | VE2027 | – | – | VE2095 | VE2097

**Product Name**

- AVS 43
- AVS 15
- AVS 16
- AVS 17
- AVS 18
- AVS 22
- AVS 23

**Order Numbers**

- VE0020GMC
- VE2084
- VE0001VAP
- VE2004
- VE2049
- VE2029
- VE2021
- VE0013GMC
- VE0012GMC
- VE2094
- VE2096
- VE2068
- VE2086
- VE2051
- VE2016
- VE2053
- VE2035
- VE2027
- VE2095
- VE2097

**Order Numbers**

- (Manual installation)
- (Automated installation)

**Product Performance Characteristics**

- Condensation reduction
- Pressure equalization
- Dust/dirt/debris protection
- Water intrusion protection
- Condensation reduction
- Pressure equalization
- Dust/dirt/debris protection
- Water intrusion protection
- Condensation reduction
- 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
  - > 14.4 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

- Diffusion performance:
  - > 400 mg moisture/day
  - > 50 mg moisture/day
  - > 120 mg moisture/day

- Operating temperatures:
  - –40 °C to +125 °C

- Membrane type:
  - 100% ePTFE (AM2XX)
  - Laminate (LM1XX): ePTFE/nylon woven
  - Laminate (LM2XX): ePTFE/nylon woven

- Membrane characteristic:
  - Hydrophobic and oleophobic

- Pressure-sensitive adhesive:
  - AD103 Silicone
  - AD104 Silicone
  - AD100 Acrylic

**Vent mounting housing protection**

- Protective target frame is required for high pressure water spray resistance.

**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.

1. Based on Gore’s “Moisture Vapor Transmission Rate” (MVTR) test.
2. Housings made of high-water-absorption plastics (above 0.15% ASTM D570 – 24 hrs. at 23 °C) must be evaluated.
3. Suitable for curved/convex housings; specific geometry needs to be evaluated.
4. Not recommended for polypropylene housing materials.

Please contact your local GORE® Automotive Vents representative to request our updated installation guides for lighting applications.
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 is:
- chemically inert
- non-shedding
- UV-resistant
- temperature-resistant
- hydrophobic and oleophobic

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.

Our vents have been engineered with varied properties to fit in any automotive application. With technical support and testing centers in the US, Germany, Japan, Korea and China, our application engineers are easily accessible — and ready to work in close partnership with your design team, from product concept through manufacturing integration.

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