



Automotive Vents

FOR ADHESIVE INSTALLATION

Protect and Preserve the Integrity of Electronic Components

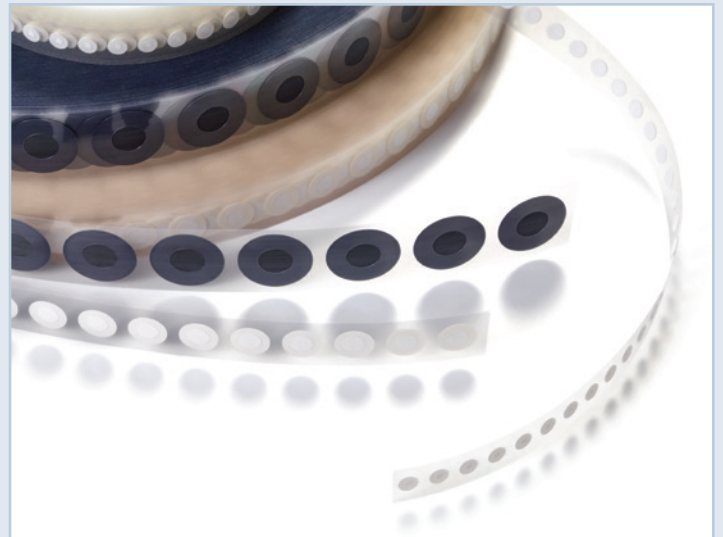
VENTING TO ENHANCE RELIABILITY

Harsh under-hood and under-carriage conditions can threaten the reliability of high-value electronic components like control units, sensors, actuators and motors. GORE® Automotive Vents improve component reliability and longevity. They allow continuous flow of air and gases, to equalize pressures and protect enclosure seals. They also protect electronics by blocking entry of contaminants like water, automotive fluids, salts, dirt and mud. As a qualified automotive partner, Gore delivers advanced venting technologies in weldable, snap-fit and adhesive constructions, to fit any application.

A PORTFOLIO OF ADHESIVE VENT SOLUTIONS

Low-profile, lightweight GORE® Adhesive Vents are the perfect fit for small, densely-configured electronics. They install easily, bond securely, provide lasting hydrophobic and oleophobic protection, and have excellent roll-off to maintain airflow. Choose from multiple sizes and configurations, or ask our engineering team to help you identify which is optimal for your application:

- **The High WEP Series:** These 100% ePTFE all-membrane vents provide our highest level of protection and durability in the harshest conditions. For small enclosures.
- **The High Airflow Series:** These laminate vents provide our highest airflow, for faster pressure equalization. For medium enclosures.
- **The High WEP/High Airflow Series:** With a smaller (5 mm) footprint, these 100% ePTFE all-membrane vents offer proven durability, the right balance of high WEP and high airflow, and defined lower-and-upper-limit airflow specs for predictable performance. For small enclosures.



REALIZE THE BENEFITS OF GORE® AUTOMOTIVE VENTS FOR ADHESIVE INSTALLATION

- **Streamline inventory** with this versatile portfolio: Varied sizes, airflow levels and WEP resistance levels meet multiple demands and applications.
- **Simplify component design:** these lightweight, low-profile vents fit in the tightest spaces.
- **Durable silicone adhesive bonds securely** and facilitates high-volume automated installation.
- **Sustained venting performance** with a high roll-off, thermally-stable and chemically-resistant membrane.



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Product Series	High WEP Series		
Product Name <small>(order number for samples)</small>	AVS 44 (S)	AVS 98 (S)	AVS 99
Product Number <small>(order number for series production)</small>	AVE20307	AVE20610	AVE20712
Product Quantity / Form	10,000 pcs. / roll	7,000 pcs. / roll	5,000 pcs. / roll
Product Performance and Characteristics			
Main vent functionality	Our highest level of protection and durability in the harshest conditions		
Minimum Water Entry Pressure* for properly-installed part	≥ 60 kPa / 30 sec (> 600 mbar / 30 sec)		
Minimum airflow** • for GORE™ Membrane material • for properly-installed part – ref	<ul style="list-style-type: none"> • 7.8 l/h/cm² @ 70 mbar • 0.5 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 7.8 l/h/cm² @ 70 mbar • 1.8 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 7.8 l/h/cm² @ 70 mbar • 2.6 l/h @ 7 kPa
Typical airflow** • for GORE™ Membrane material • for properly-installed part	<ul style="list-style-type: none"> • 12 l/h/cm² @ 70 mbar • 0.8 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 12 l/h/cm² @ 70 mbar • 2.8 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 12 l/h/cm² @ 70 mbar • 4.0 l/h @ 7 kPa
Operating temperature	T _{min} = -40 °C T _{max} = +150 °C		
Membrane characteristic	Hydrophobic and oleophobic		
Membrane type	100% ePTFE (AM2XE)		
Membrane construction	All-membrane, without backing material		
Pressure-sensitive adhesive	AD104E Silicone		
Housing size	Small to Medium		
Housing material	All typical metal and plastic housing materials		
Vent installation and mounting recommendations	Designed for automated Installation Use of a target frame is recommended		
Vent Design and Dimensions	AVS 44 (S)	AVS 98 (S)	AVS 99
	ID = 3.00 mm OD = 7.00 mm	ID = 5.50 mm OD = 10.00 mm	ID = 6.50 mm OD = 12.00 mm
	Vent Thickness: 0.30 mm		

* Measured at standard ambient temperature and pressure.

** Measured at standard ambient temperature and pressure. This is a calculated value from material airflow.

WEP (Water Entry Pressure) Resistance:

WEP Resistance measures how much pressurized water a membrane can withstand before it leaks.

ENVIRONMENTAL PERFORMANCE

GORE® Automotive Vents have been extensively tested according to the following performance standards.

Please contact your Gore representative for more detailed information.

Temperature Resistance Test

Vent durability under low and high temperature conditions

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- T_{max} for 500 hours

Thermal Shock Resistance Test

Vent durability under changing temperature conditions

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- cycling temperatures between T_{min} and T_{max} within 30 seconds
- 30 minutes conditioning at each temperature
- minimum 200 cycles



	High Airflow Series	High WEP/High Airflow Series
AVS 107 (S)	AVS 97 (S)	AVS 110
AVE20919	AVE90610	AVE60205
4,000 pcs. / roll	10,000 pcs. / roll	6,000 pcs. / roll
	Faster pressure equalization from our highest airflow	Our best balance of high WEP + high airflow
	≥ 34.5 kPa / 60 sec (> 345 mbar / 60 sec)	≥ 50 kPa / 30 sec (> 500 mbar / 30 sec)
<ul style="list-style-type: none"> • 7.8 l/h/cm² @ 70 mbar • 4.8 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 65.5 l/h/cm² @ 70 mbar • 15.5 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 15.9 l/h/cm² @ 70 mbar • 0.5 l/h @ 7 kPa
<ul style="list-style-type: none"> • 12 l/h/cm² @ 70 mbar • 7.4 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 73.0 l/h/cm² @ 70 mbar • 17.3 l/h @ 7 kPa 	<ul style="list-style-type: none"> • 38.2 l/h/cm² @ 70 mbar • 1.2 l/h @ 7 kPa
	T _{min} = -40 °C T _{max} = +150 °C	T _{min} = -40 °C T _{max} = +125 °C
	Hydrophobic and Oleophobic	Hydrophobic and Oleophobic
	ePTFE / PET (LM9XE)	100% ePTFE (AM6XJ)
	Laminate, with backing material	All-membrane, without backing material
	AD104E Silicone	AD103E Silicone
	Medium	Small
	All typical metal and plastic housing materials	All typical metal and plastic housing materials
	Designed for automated installation Use of a target frame is recommended	Designed for automated installation Use of a target frame is recommended
AVS 107 (S)	AVS 97 (S)	AVE 6
ID = 8.89 mm OD = 19.05 mm	ID = 5.50 mm OD = 10.00 mm	ID = 2.00 mm OD = 5.00 mm
	0.30 mm	0.34 mm

Ice-Water-Shock Test

Vent resistance against repeated thermal shock by submersion in ice water

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- heating to +125 °C for 60 minutes
- rapid submersion in 5% NaCl ice water for 5 minutes
- 20 cycles

(AVS 110 for external mount only)

Climate Resistance Test

Vent durability in hot, humid environments

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- 85 °C temperature
- 85% relative humidity
- 1,000 hours

Salt Spray Resistance Test

Vent resistance to salt, water and mist over an extended period

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- according to IEC 60068-2-52
- severity level 5 equals a test period of four weeks

Liquid Contamination Test

Vent protection against chemical loads

METHOD:

- ISO 16750-5

Product performance depends on application method (i.e., cotton cloth, brush, spray, immersion, pouring) and the specific contaminant applied.

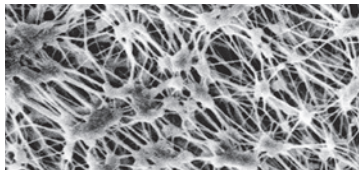


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WHY THE GORE™ MEMBRANE MATTERS

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

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.

GORE® Automotive Vents have been engineered with varied properties to fit in any automotive 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.

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 W. L. GORE & ASSOCIATES

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 approximately 10,000 Associates and a strong, team-oriented culture, Gore generates annual revenues that exceed \$3 billion. www.gore.com.

INTERNATIONAL CONTACTS

Australia	+61 2 9473 6800	Mexico	+52 81 8288 1281
Benelux	+49 89 4612 2211	Scandinavia	+46 31 706 7800
China	+86 21 5172 8299	Singapore	+65 6733 2882
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 2570	USA	+1 410 506 7812
Korea	+82 2 393 3411		

W. L. Gore & Associates GmbH

Hermann-Oberth-Str. 26 • 85640 Putzbrunn • Germany
Tel.: +49 89 4612 2211 • Fax: +49 89 4612 2302
E-mail: ipd-deutschland@wlgore.com

gore.com/autovents

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