



# Automotive Vents

FOR WELDABLE INSTALLATION

## Reliable protection for sensitive electronics in demanding operating conditions

### VENTING TO PRESERVE ELECTRONICS

To survive harsh operating conditions, automotive control units, sensors, actuators and motors need reliably-sealed enclosures. GORE® Automotive Vents can improve component reliability and service life. They reduce pressure differentials that can stress seals and gaskets, while blocking contaminants such as water, chemicals, salts, dirt and mud. As a qualified automotive partner, Gore delivers advanced venting technologies in a variety of forms to fit any application — weldable vents, snap-fit vents and adhesive vents.

### A COMPLETE VENTING PORTFOLIO

Weldable GORE® Vents save space, install easily and securely, and provide lasting hydrophobic and oleophobic protection for sensitive electronics. Three performance options, in multiple sizes, meet varied under-hood or under-carriage applications. Our engineering team can work with you to identify the optimal venting solution for each application.

- **High Airflow Series:** uses a multi-layer laminate construction to deliver our highest airflow and good chemical resistance, for use in typical operating temperatures from -40 °C to 125 °C. Available as cut discs in bags.
- **High Temperature Series:** offers our highest temperature- and chemical-resistance, in our thinnest format. The 100% ePTFE construction withstands operating temperatures from -40 °C to 160 °C. Available as cut disks on rolls.
- **NEW High WEP Series:** WEP (Water Entry Pressure) Resistance measures how much pressurized water a membrane can withstand before it leaks. The High WEP Series delivers nearly twice the WEP Resistance of our other weldable vents, along with high airflow and temperature resistance from -40 °C to 150 °C. 100% ePTFE construction. Available as cut disks on rolls.



### REALIZE THE BENEFITS OF GORE® AUTOMOTIVE VENTS WELDABLE SERIES

- **Highly compatible with** most plastic housing materials.
- **Low installed height** fits easily, even in very small or tightly-configured housings.
- **A complete portfolio** of venting options and sizes, to satisfy varied application requirements.
- **Installs easily and bonds securely** to housing, using standard welding methods and tools.
- **Sustained performance:** The GORE™ Membrane's high roll-off and temperature-, UV- and chemical-resistance reliably protect sensitive electronics even in harsh environments.



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Product Series	High Airflow					
Product Name (order number for samples)	AVS 47	AVS 49	AVS 50	AVS 51	AVS 52	AVS 26
Product Number (order number for series production)	AMP300056-00057	AMP300049-00080	AMP300125-00100	AMP300032-00117	AMP300066-00140	AMP200024-00060
Product Performance Characteristics						
Minimum water entry pressure (WEP) at standard ambient temperature and pressure	≥ 60 kPa / 30 sec					
Minimum airflow at standard ambient temperature and pressure	≥ 16.3 l / h / cm <sup>2</sup> at 7 kPa (≥ 46 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)					
Typical airflow at standard ambient temperature and pressure	~ 32.5 l / h / cm <sup>2</sup> at 7 kPa (~ 94 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)					
Operating temperature <sup>a)</sup>	T <sub>min</sub> = -40 °C T <sub>max</sub> = +125 °C					
Membrane characteristic	Hydrophobic and oleophobic					
Membrane construction	ePTFE-PET (multi-layer laminate construction)					
Design & Dimensions						
Vent Thickness	0.48 ± 0.09 mm					
Vent Diameter	5.70 mm	8.00 mm	10.00 mm	11.70 mm	14.00 mm	6.00 mm
Product Quantity/Form	4,000 pcs. / ESD-bag	2,000 pcs. / ESD-bag	2,000 pcs. / ESD-bag	5,000 pcs. / ESD-bag	4,000 pcs. / ESD-bag	7,500 pcs. / roll

## ENVIRONMENTAL PERFORMANCE

GORE® Automotive Vents Weldable Series has been extensively tested<sup>a)</sup> according to the following performance standards.

Please contact your Gore representative for more detailed information.

### WEP (Water Entry Pressure) Resistance:

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

<sup>a)</sup> Tests were performed using GORE® Vents welded to PBT and PA6.6 plastic with 30% glass content.

### Thermal Shock Resistance Test

Vent durability under changing temperature conditions

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- cycling temperatures between T<sub>min</sub> and T<sub>max</sub> within 30 seconds
- 30 minutes conditioning at each temperature
- 500 to 1,500 cycles, depending on product series

### Ice-Water-Shock Test

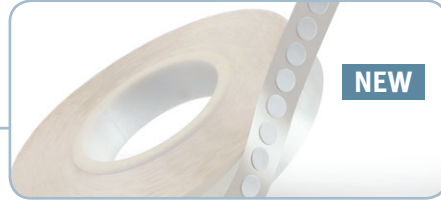
Vent resistance to repeated thermal shock by submersion in ice water

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- heating up to +150°C for 60 minutes, depending on product series
- rapid submersion in 5% NaCl ice water for 5 minutes
- 20 cycles



### High Temperature

### High WEP

AVS 108	AVS 39	AVS 28	AVS 29	AVS 406	AVS 408	AVS 410	AVS 412	AVS 414
AMP200082-00080	AMP200069-00100	AMP200055-00120	AMP200023-00140	AMP400060-00060	AMP400080-00080	AMP400100-00100	AMP400120-00120	AMP400140-00140
≥ 60 kPa / 30 sec				≥ 110 kPa / 300 sec				
≥ 4.5 l / h / cm <sup>2</sup> at 7 kPa (≥ 12.5 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)				≥ 15 l / h / cm <sup>2</sup> at 7 kPa (≥ 43 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)				
~ 9.6 l / h / cm <sup>2</sup> at 7 kPa (~ 28 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)				~ 25 l / h / cm <sup>2</sup> at 7 kPa (~ 72 cm <sup>3</sup> / min / cm <sup>2</sup> at 1.22 kPa)				
T <sub>min</sub> = -40 °C T <sub>max</sub> = +160 °C				T <sub>min</sub> = -40 °C T <sub>max</sub> = +150 °C				
Hydrophobic and oleophobic				Hydrophobic and oleophobic				
100% ePTFE construction				100% ePTFE construction				
0.195 ± 0.06 mm				0.440 ± 0.06 mm				
8.00 mm	10.00 mm	12.00 mm	14.00 mm	6.00 mm	8.00 mm	10.00 mm	12.00 mm	14.00 mm
6,000 pcs. / roll	5,000 pcs. / roll	4,000 pcs. / roll	3,900 pcs. / roll	4,900 pcs. / roll	3,900 pcs. / roll	3,200 pcs. / roll	2,700 pcs. / roll	2,400 pcs. / roll

#### Temperature Resistance Test

Vent durability under low and high temperature conditions

METHOD:

- ISO 16750-4

TEST CONDITIONS:

- T<sub>max</sub> for 2,000 hours
- T<sub>min</sub> for 1,000 hours

#### 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.

#### 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 four-week test period)

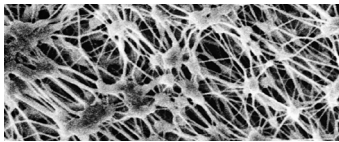


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## WHY THE GORE™ MEMBRANE MATTERS

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](http://gore.com/autovents)

## ABOUT W. L. GORE & ASSOCIATES

Well-known for its waterproof, breathable GORE-TEX® fabric, Gore is a technology-driven company focused on product innovation. We engineer creative solutions that deliver reliable performance fabrics and implantable medical devices to industrial manufacturing components and aerospace electronics. Gore products remain at the forefront of creative solutions

because they are engineered especially for challenging applications where other products fail. Founded in 1958, Gore employs approximately 10,000 associates in 30 countries worldwide.

**Learn more at [gore.com](http://gore.com).**

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