

## GORE® Automotive Vents

for screw-in and snap-fit installation



# INCREASE DURABILITY AND PERFORMANCE OF AUTOMOTIVE ELECTRONICS

Choose rugged GORE® PolyVents for screw-in and snap-fit installation to help improve the reliability and longevity of automotive electrical and electronic modules (EEMs), including those used in high-voltage applications. These durable, easy-to-integrate vents rapidly equalize pressure imbalances and provide sustained protection against water, automotive fluids, salts, dirt and mud.

## GORE® Automotive Vents for screw-in installation

For power control units, converters, inverters, on-board chargers, ISGs, and e-axes/traction motors

- Can be removed for component maintenance
- UL94 V-0 rated housing and o-ring
- IPx9k rating — no protective wall needed
- For 3.0 mm housing walls with a counter nut, or 5.0 mm walls without a counter nut.

**Standard Series:** withstands typical automotive fluids and continuous temperatures up to 125 °C.

**High Airflow Series:** has 8x the typical airflow of our Standard Series, for very large components/electric motors/batteries for hybrids.

Both screw-in and snap-fit formats offer an independently-certified “Cleanliness Protected” (CP) option.

Ask us how that can help in high-voltage or ADAS applications, or anywhere you need to meet OEM Technical Cleanliness requirements.

## GORE® Automotive Vents for snap-fit installation

For controllers, sensors/actuators, motors and hybrid/electric components.

- Secure, permanent installation
- UL94 HB rated housing and o-ring
- Chamfered through-hole
- IPx9k rating with a protective wall
- For 3.5–4.0 mm thick housing walls

**Standard Series:** withstands typical automotive fluids and continuous temperatures up to 125 °C.

**High Temperature Series:** for long-lasting resistance to chemicals and mineral oils even after extended exposure to temperatures up to 150 °C.

**High Airflow Series:** has 5x the typical airflow of our Standard Series, for very large components/electric motors/batteries for hybrids.

**Compact Series:** robust protection in a low-profile design, for extremely small components. Scannable Digital Matrix Code (DMC) for 100% airflow check and enhanced traceability.

*Together, improving life*



|                                                               | Screw-In<br>Standard Series | Screw-In<br>High Airflow Series |
|---------------------------------------------------------------|-----------------------------|---------------------------------|
| <b>Product Name</b><br>(order number for samples)             | AVS 1190                    | AVS 1191                        |
| <b>Product Number</b><br>(order number for series production) | AMF301190                   | AMF301191                       |

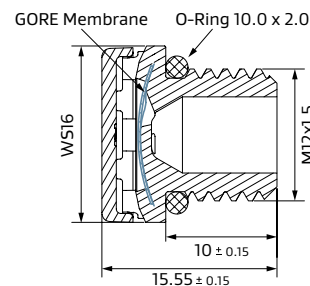
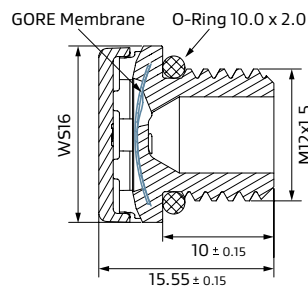


## Product Performance Characteristics

|                                                                                                 |                                                                                                |                                                                                                                                         |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Minimum Water Entry Pressure (WEP) <sup>1</sup><br>at standard ambient temperature and pressure | ≥ 60 kPa/30 sec                                                                                | > 20 kPa/30 sec                                                                                                                         |
| Minimum/Maximum Airflow<br>(by conversion to the normalized state 0 °C, 1013 hPa)               | Minimum: > 15 l/h at 7 kPa<br>Maximum: < 60 l/h at 7 kPa                                       | Minimum: > 205 l/h at 7 kPa<br>Maximum: < 520 l/h at 7 kPa                                                                              |
| Typical Airflow<br>(by conversion to the normalized state 0 °C, 1013 hPa)                       | ~ 35 l/h at 7 kPa                                                                              | ~ 285 l/h at 7 kPa                                                                                                                      |
| Ingress Protection (IP)                                                                         | <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• IPX6K, IPX9K</li> </ul> | <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• IPX6K</li> <li>• Depending on housing geometry: IPX9K</li> </ul> |
| Operating temperatures                                                                          | Tmin = -40 °C<br>Tmax = +125 °C                                                                | Tmin = -40 °C<br>Tmax = +125 °C                                                                                                         |
| Membrane characteristic                                                                         | Hydrophobic and oleophobic                                                                     | Hydrophobic and oleophobic                                                                                                              |
| Housing material                                                                                | Polyamide (PA66+PA6 Blend)                                                                     | Polyamide (PA66+PA6 Blend)                                                                                                              |
| O-ring material                                                                                 | Silicone                                                                                       | Silicone                                                                                                                                |
| O-ring color                                                                                    | Dark gray                                                                                      | Dark gray                                                                                                                               |
| Laser marking<br>for increased traceability                                                     | Yes                                                                                            | Yes                                                                                                                                     |

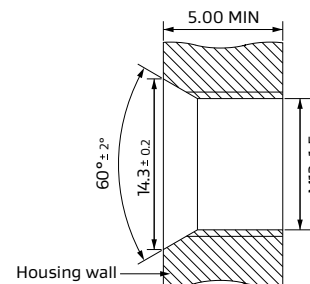
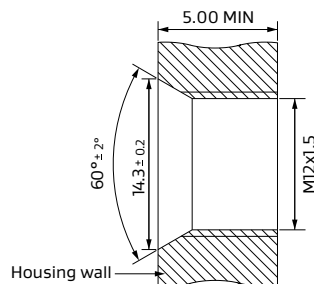
## Design & Dimensions

Units are in mm



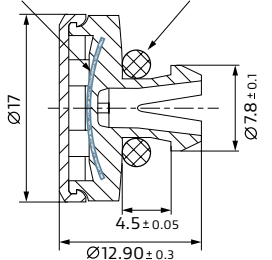
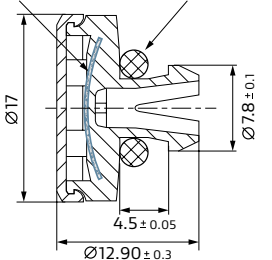
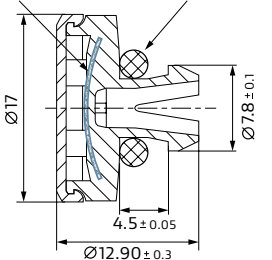
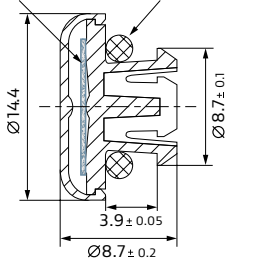
## Recommended Installation

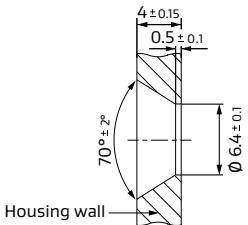
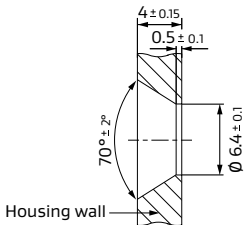
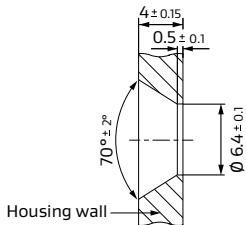
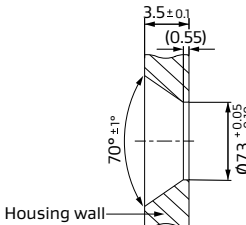
Please contact your  
Gore representative  
for more detailed  
installation drawings.



1. WEP (Water Entry Pressure) Resistance: WEP Resistance measures how much pressurized water a membrane can withstand before it leaks.

| Snap-Fit<br>Standard Series                                                                                                   | Snap-Fit<br>High Temperature Series                                                                                           | Snap-Fit<br>High Airflow Series                                                                                        | Snap-Fit<br>Compact Series                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| AVS 14                                                                                                                        | AVS 67                                                                                                                        | AVS 70                                                                                                                 | AVS 200                                                                                                                       |
| AMF300114                                                                                                                     | AMF300167                                                                                                                     | AMF300070                                                                                                              | AMF300200                                                                                                                     |
|                                              |                                              |                                       |                                            |
| > 60 kPa/30 sec                                                                                                               | > 60 kPa/30 sec                                                                                                               | > 30 kPa/30 sec                                                                                                        | > 80 kPa/60 sec                                                                                                               |
| Minimum: > 15 l/h at 7 kPa<br>Maximum: < 60 l/h at 7 kPa                                                                      | Minimum: > 15 l/h at 7 kPa<br>Maximum: < 60 l/h at 7 kPa                                                                      | Minimum: > 105 l/h at 7 kPa<br>Maximum: < 260 l/h at 7 kPa                                                             | Minimum: > 15 l/h at 7 kPa<br>Maximum: < 45 l/h at 7 kPa                                                                      |
| ~35 l/h at 7 kPa                                                                                                              | ~35 l/h at 7 kPa                                                                                                              | ~160 l/h at 7 kPa                                                                                                      | ~28 l/h at 7 kPa                                                                                                              |
| <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• Depending on housing geometry: IPX6K, IPX9K</li> </ul> | <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• Depending on housing geometry: IPX6K, IPX9K</li> </ul> | <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• Depending on housing geometry: IPX6K</li> </ul> | <ul style="list-style-type: none"> <li>• IP68 (1 m for 1 h)</li> <li>• Depending on housing geometry: IPX6K, IPX9K</li> </ul> |
| $T_{min} = -40\text{ °C}$<br>$T_{max} = +125\text{ °C}$ (+140 °C for max 168 hrs)                                             | $T_{min} = -40\text{ °C}$<br>$T_{max} = +150\text{ °C}$                                                                       | $T_{min} = -40\text{ °C}$<br>$T_{max} = +125\text{ °C}$                                                                | $T_{min} = -40\text{ °C}$<br>$T_{max} = +140\text{ °C}$                                                                       |
| Hydrophobic and oleophobic                                                                                                    | Hydrophobic and oleophobic                                                                                                    | Hydrophobic and oleophobic                                                                                             | Hydrophobic and oleophobic                                                                                                    |
| PBT-I-GF30 hydrostabilized                                                                                                    | PBT-I-GF30 hydrostabilized                                                                                                    | PBT-I-GF30 hydrostabilized                                                                                             | PBT-I-GF30 hydrostabilized                                                                                                    |
| EPDM 40 IRHD-M                                                                                                                | Silicone 50 IRHD-M                                                                                                            | EPDM 45 IRHD-M                                                                                                         | Silicone 50 Shore A                                                                                                           |
| Black                                                                                                                         | Red                                                                                                                           | Black                                                                                                                  | Red                                                                                                                           |
| Yes                                                                                                                           | Yes                                                                                                                           | Yes                                                                                                                    | Yes                                                                                                                           |

|                                                                                                                                                                                      |                                                                                                                                                                                       |                                                                                                                                                                                        |                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>GORE Membrane O-Ring 5.23 x 2.62</p>  <p>Ø17<br/>Ø7.8 ± 0.1<br/>4.5 ± 0.05<br/>Ø12.90 ± 0.3</p> | <p>GORE Membrane O-Ring 5.23 x 2.62</p>  <p>Ø17<br/>Ø7.8 ± 0.1<br/>4.5 ± 0.05<br/>Ø12.90 ± 0.3</p> | <p>GORE Membrane O-Ring 5.23 x 2.62</p>  <p>Ø17<br/>Ø7.8 ± 0.1<br/>4.5 ± 0.05<br/>Ø12.90 ± 0.3</p> | <p>GORE Membrane O-Ring 6.70 x 2.13</p>  <p>Ø14.4<br/>Ø8.7 ± 0.1<br/>3.9 ± 0.05<br/>Ø8.7 ± 0.2</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                |                                                                                                                                                                 |                                                                                                                                                                  |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Housing wall<br/>4 ± 0.15<br/>0.5 ± 0.1<br/>70° ± 2°<br/>Ø 6.4 ± 0.1</p> |  <p>Housing wall<br/>4 ± 0.15<br/>0.5 ± 0.1<br/>70° ± 2°<br/>Ø 6.4 ± 0.1</p> |  <p>Housing wall<br/>4 ± 0.15<br/>0.5 ± 0.1<br/>70° ± 2°<br/>Ø 6.4 ± 0.1</p> |  <p>Housing wall<br/>3.5 ± 0.1<br/>(0.55)<br/>70° ± 1°<br/>Ø 7.3 ± 0.05<br/>-0.10</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Environmental Performance

GORE® Automotive Vents for screw-in and snap-fit installation have been extensively tested according to the following performance standards. Please contact your Gore representative for more detailed information.

### 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 500 cycles

### Ice-Water-Shock Resistance Test

(not applicable for AMF300070)

Vent resistance to repeated thermal shock by submersion in ice water

**METHOD:** ISO 16750-4

**TEST CONDITIONS:**

- heating to  $T_{max}$  for 60 minutes
- rapid submersion in 5% NaCl ice water for 5 minutes
- 20 cycles

### Climate Resistance Test

Vent durability in hot, humid environments

**METHOD:** DIN-EN-60068-2-67

**TEST CONDITIONS:**

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

### Vibration and Mechanical Shock Resistance Test

Vent performance after exposure to mechanical shocks at various temperatures

**METHOD:** ISO 16750-3

Product performance depends on sinusoidal and temperature profile, pulse shape and duration, number of shocks and peak acceleration. Compact Series meets the harshest severity levels.

### Fluid Resistance Test

Vent protection against typical automotive 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.

### Temperature Resistance Test

Vent durability under high and low temperature conditions

**METHOD:** ISO 16750-4

**TEST CONDITIONS:**

- $T_{max}$  for 2,000 hours
- $T_{min}$  for 168 hours

### Salt Spray Resistance Test

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

**METHOD:** DIN EN 60068-2-11

**TEST CONDITIONS:**

- Profile Ka

## 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)

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