



Protective Vents

ADHESIVE VENTS

Standard and custom designs for flexible integration

GORE® Protective Vents come in a variety of product forms, including screw-in vents, press-fit vents, snap-in vents, o-rings, adhesive vents and acoustic vents.

SPECIFIC BENEFITS OF ADHESIVE VENTS

- versatile installation options allow vents to be adhered internally or externally without compromising the product design aesthetics
- robust adhesives that withstand challenging environments and adhere to different product surfaces
- quick venting recovery after liquid immersion
- low profile that is ideal for enclosures with limited spaces
- easy installation through manual or automated processes
- standard and custom sizes readily available
- material options to meet IP64, IP66, IP67 and IP68 protection standards

VENTING FOR PROTECTION

GORE® Protective Vents are the leading solution for pressure equalization, condensation reduction and acoustic protection because they vent and protect. Gore vents provide a barrier against liquid, dust and dirt, while allowing the product to breathe during changing environmental conditions. The result – improved reliability and longer product life for sensitive electronics and sealed enclosures.

With proven expertise in the industry for over 20 years, Gore's products set new standards for reliability and performance. Gore responds to the demands of an industry with fast-changing design cycles by offering:

- global R&D and engineering support
- range of materials for every environment
- rapid sampling
- production flexibility



REALIZE THE BENEFITS OF GORE® PROTECTIVE VENTS:

- **Rapid equalization of pressure** to reduce stress on enclosure seals
- **Reliable hydrophobic and oleophobic membranes** to protect sensitive electronics from water, salts and other corrosive liquids
- **Flexible design** for easier installation and maintenance
- **Outstanding technical expertise** from Gore's engineering organization, currently supporting over 200 million installations worldwide



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PRODUCT INFORMATION

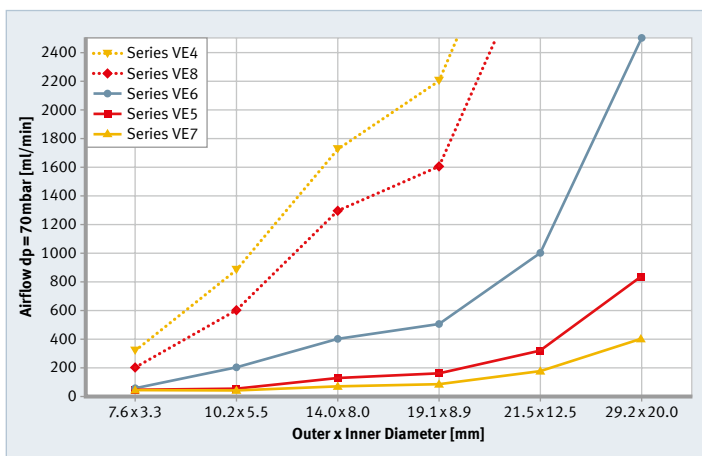
Material Performance	Series VE4	Series VE5	Series VE6	Series VE7	Series VE8
IP rating (IEC 529, 2nd)*	IP64, IP67	IP64, IP67, IP68**		IP65***, IP66***, IP67, IP68**	IP64, IP67
Minimum instantaneous water entry pressure	0.6 bar	1.7 bar	1.1 bar	0.6 bar	0.4 bar
Typical airflow — see chart below (dp = 70 mbar)	4200 ml/min/cm ²	330 ml/min/cm ²	980 ml/min/cm ²	290 ml/min/cm ²	3300 ml/min/cm ²

Product Characteristics	Series VE4	Series VE5	Series VE6	Series VE7	Series VE8
Membrane type	ePTFE				
Membrane characteristic	Hydrophobic	Oleophobic			
Membrane color	White			Black	White
Backing material	PET nonwoven			None	PET nonwoven
Backing material color	White	Black	White	None	White
Typical thickness (see diagram below)	0.27 mm	0.30 mm	0.38 mm	0.34 mm	0.26 mm
Part Orientation	Mount on the interior of the housing			Mount on the interior or exterior of the housing	Mount on the interior of the housing

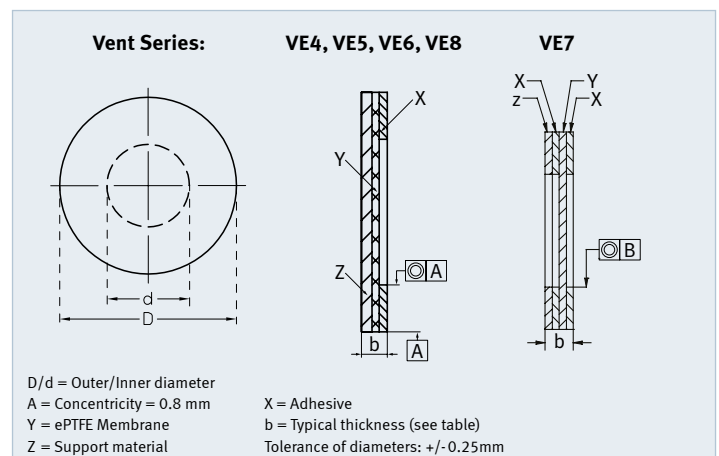
Environmental Performance	Series VE4	Series VE5	Series VE6	Series VE7	Series VE8
Salt Spray: 7 day test (DIN 50021-SS:1988-06/ ASTM B117)	Pass ¹				
Salt Spray: 30 day test (DIN EN ISO 9227)	Not tested			Pass ¹	Not tested
Adhesive temperature range	-40°C to 70°C	-40°C to 100°C		-40°C to 125°C	-40°C to 100°C
Adhesive type	GA2021 acrylic	GA2025 acrylic		GA3006 silicone	GA2025 acrylic
RoHS****	Meets threshold requirements				

- * IP ratings are housing design and part size dependent.
- ** Extended immersion testing: 2 meter immersion for 1 hour.
- *** External mount only.
- **** EU Directive 2002/95/EC (RoHS) amended by EU Commission Decision 2005/618/EC and EU Directive 2003/11/EC.
- ¹ No penetration of salt crystals through the membrane into the housing.

TYPICAL AIRFLOW OF STANDARD DESIGNS



PART DESIGN



INSTALLATION RECOMMENDATIONS

1. Orient part on a smooth, vertical surface where water or other contaminants won't pool.
2. Make sure the mounting area is free from jagged or rough edges that could damage the vent.
3. Ensure surfaces are clean and free from oils or other contaminants. Operators should wear gloves when handling vents.
4. Apply light finger pressure directly to the adhesive ring area to seal the vent to the housing (do not touch center of the vent area).
5. Allow 24 hour dwell time before using or testing.
6. A target ring is recommended for accurate placement.
7. VE7 series parts can be installed on internal or external surfaces. All other vent series' should be mounted on interior housing surfaces with the membrane side facing the external (liquid) environment.



GORE® Protective Vents can be easily dispensed — manually and automatically.

Blank areas on the carrier are possible as a result of in-process inspection. Please contact Gore for the detailed *Installation and Handling Guidelines for Adhesive and Acoustic Vents*.

AVAILABLE STANDARD PARTS

Part Dimensions ID (d) x OD (D) vent diameter mm	Packaging		Series VE4	Series VE5	Series VE6	Series VE7	Series VE8
	Parts across carrier	Carrier width (mm)					
3.3 x 7.6	8	88	VE40308	VE50308	VE60308	VE70308	VE80308
5.5 x 10.2	5	69	VE40510	VE50510	VE60510	VE70510	VE80510
8.0 x 14.0	4	71	VE40814	VE50814	VE60814	VE70814	VE80814
8.9 x 19.1	3	69	VE40919	VE50919	VE60919	VE70919	VE80919
12.5 x 21.5	2	52	VE41221	VE51221	VE61221	VE71221	VE81221
20.0 x 29.0	2	67	VE42029	VE52029	VE62029	VE72029	VE82029

CUSTOM DESIGNS

Gore engineers can assist in designing a solution that meets your specific application requirements, such as part size, adhesive, and performance characteristics. For more information on custom part design, please contact a Gore representative.



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THE SCIENCE BEHIND THE SOLUTION

GORE® Protective Vents incorporate a membrane of expanded polytetrafluoroethylene (ePTFE). Its microporous structure allows for the free passage of gases and vapors while at the same time preventing water, dust and salt crystals from entering the enclosure. GORE® Protective Vents can be designed with a variety of specific properties for maximum performance in any venting application.

The ePTFE GORE™ Membrane is:

- chemically inert
- UV-resistant
- non-shedding
- temperature-resistant

ABOUT W. L. GORE & ASSOCIATES, INC.

Gore is a leading manufacturer of thousands of advanced technology products for the electronics, fabrics, industrial and medical markets. Perhaps best known for its waterproof and breathable GORE-TEX® fabric, the company's portfolio features a diverse array of innovations, including everything from guitar strings to life-saving cardiovascular devices. Gore is headquartered in Newark, DE, and is one of a select few companies to appear on all of the U.S. "100 Best Companies to Work For" lists since the rankings were introduced in 1984. Visit www.gore.com to learn more.

INTERNATIONAL CONTACTS

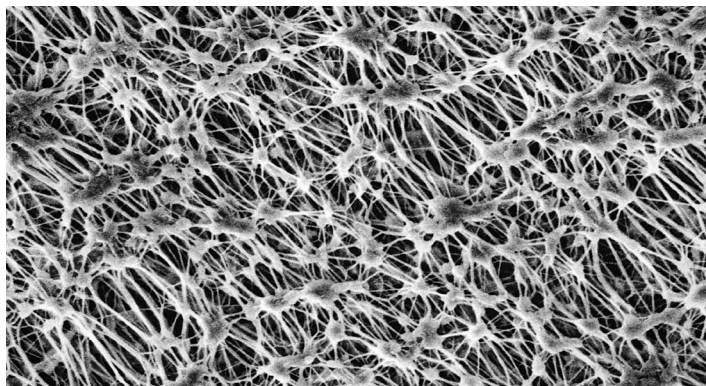
Australia	61.2.9473.6800	Mexico	52.81.8288.1281
Benelux	49.89.4612.2211	Scandinavia	46.31.706.7800
China	86.21.5172.8299	Singapore	65.6733.2882
France	33.1.5695.6565	South America	55.11.5502.7800
Germany	49.89.4612.2211	Spain	34.93.480.6900
India	91.22.6768.7000	Taiwan	886.2.8771.7799
Italy	39.045.6209.240	United Kingdom	44.1506.460123
Japan	81.3.6746.2572	USA	1.410.392.4440
Korea	82.2.393.3411		

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MEMBRANE STRUCTURE



ROHS INFORMATION

W. L. Gore & Associates declares that the products listed above are below the thresholds as established in EU Commission Decision 2005/618/EC amending EU Directive 2002/95/EC (ROHS) and Directive 2003/11/EC for these substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE) including:
 - Pentabromodiphenylether (PentaBDE)
 - Octabromodiphenylether (OctaBDE)
 - Decabromodiphenylether (DecaBDE)

This RoHS statement is based on the best of our knowledge as of this date of issue and W. L. Gore & Associates makes no warranties, express or implied, and assumes no liability in connection with the use of this information.

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