



Acoustic Vents

Maintain sound quality and protect sensitive electronics through high transmission venting materials

GORE® Acoustic Vents come in a variety of product forms for both dust and splash, and full immersion protection. Pre-cut, adhesive vents and unique custom vent designs are available.

SPECIFIC BENEFITS OF ACOUSTIC VENTS

- low resistance acoustic materials offer minimal transmission loss
- excellent dust and liquid barrier for indoor and outdoor applications
- quick recovery after liquid immersion
- robust adhesives that withstand challenging environments and adhere to different product surfaces
- standard and custom designs readily available
- easy installation through either manual or automated processes
- dust, splash and immersion protection to meet a range of IP standards up to IP68

ACOUSTIC PROTECTION

GORE® Acoustic Vents protect your device in challenging environments with minimal impact to sound quality. Gore vents provide an effective barrier against liquids, dust and dirt while minimizing transmission loss and attenuation. The result — improved reliability and longer product life for acoustic devices.

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 and application
- rapid sampling
- production flexibility



REALIZE THE BENEFITS OF GORE® ACOUSTIC VENTS:

- **Improved acoustic device performance** with maximum sound quality and protection from dust, liquids and other contaminants
- **Reliable hydrophobic and oleophobic membranes** to protect sensitive electronics
- **Reduced pressure build-up in acoustic systems**
- **Flexible design with custom design options** for easier installation and maintenance
- **Outstanding technical expertise** from Gore's engineering organization, currently supporting over 200 million installations worldwide



Acoustic Vents

PRODUCT INFORMATION: SERIES GAW111, GAW112 For Dust and Splash Applications

Material Performance	Series GAW111	Series GAW112
IP rating (IEC 529, 2nd)*	IP4x	IP4x, IP6x
Comparative water spray efficiency**	60%	75%
Minimum instantaneous water entry pressure	8 mbar	13 mbar
Typical airflow (dp = 0.7 mbar)	12300 ml/min/cm ²	3500 ml/min/cm ²
Average acoustic impedance (Impedance from 200-5000Hz, per ASTM 1050, modified)	45 rayls MKS	105 rayls MKS
Maximum transmission loss (Max. value between 200-5000Hz, per ASTM WK5285)	< 1 dB	< 2 dB

Product Characteristics	Series GAW111	Series GAW112
Material type	Cellulose/PET-Nonwoven	
Material characteristic	Oleophobic	
Material color	Dark gray	
Typical part thickness (see part design below)	0.18 mm	0.24 mm
Part orientation	Mount on the interior of the housing	

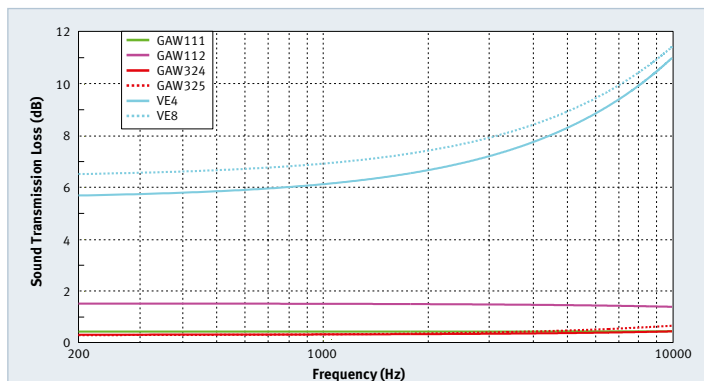
Environmental Performance	Series GAW111	Series GAW112
Adhesive temperature range	-40°C to 70°C	
Adhesive type	GA2021 acrylic	
RoHS***	Meets threshold requirements	

* IP ratings are product housing design dependent.

** Per APN Water Spray-001: Direct stream at 70ml/min at 10psi; 0% efficiency represents open condition.

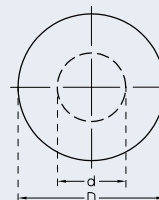
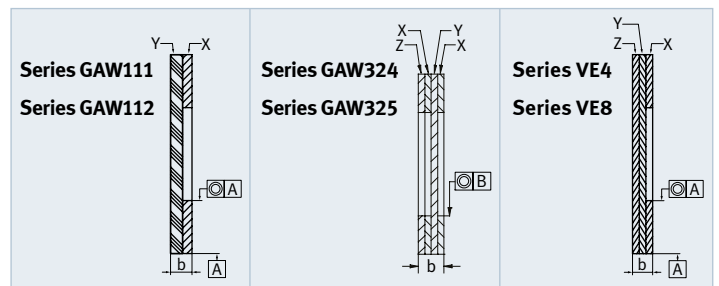
*** EU Directive 2002/95/EC (RoHS) amended by EU Commission Decision 2005/618/EC and EU Directive 2003/11/EC.

TRANSMISSION LOSS



Acoustic transmission loss tests were performed in accordance with a modified version of ASTM WK5285. The tests were performed using a 15 mm ID impedance tube and part size. The loss was estimated by measuring the acoustic intensity both upstream and downstream of the material. Acoustic transmission for compliant material is primarily controlled by attenuation and reflection. When dominated by attenuation, the loss is generally proportional to the measurement frequency. Results are typical and may vary depending on mounting conditions and part size.

PART DESIGN



D/d = Outer/Inner diameter
 A = Concentricity = 0.8 mm
 B = Concentricity = 1.5 mm
 Y = Membrane
 Z = Support material
 X = Adhesive
 b = Typical thickness (see table)
 Tolerance of diameters: +/- 0.25 mm

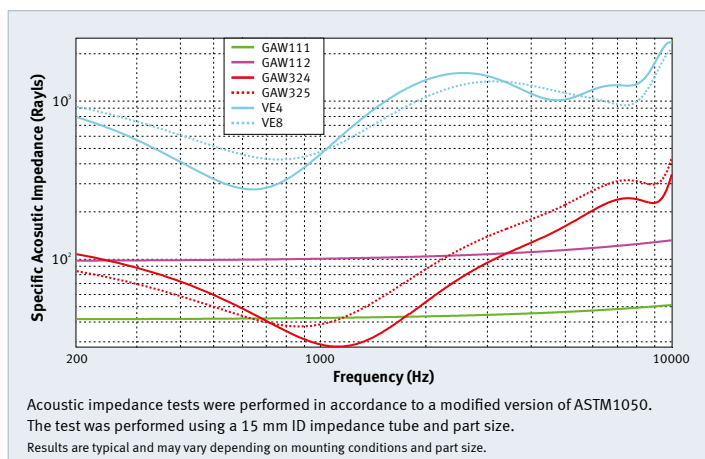
PRODUCT INFORMATION: SERIES GAW324, GAW325, SERIES VE4, SERIES VE8 For Immersion Applications

Material Performance	Series GAW324	Series GAW325	Series VE4	Series VE8
IP rating (IEC 529, 2nd)*	IP67, IP68**		IP64, IP67	
Minimum instantaneous water entry pressure	0.7 bar	1.0 bar	0.6 bar	0.4 bar
Typical airflow (dp = 70 mbar)	1000 ml/min/cm ²	900 ml/min/cm ²	4200 ml/min/cm ²	3300 ml/min/cm ²
Average acoustic impedance (Impedance from 200-5000Hz, per ASTM 1050, modified)	85 rayls MKS	120 rayls MKS	1050 rayls MKS	
Maximum transmission loss (Max. value between 200-5000Hz, per ASTM WK5285)	< 1 dB		< 9 dB	

Product Characteristics	Series GAW324	Series GAW325	Series VE4	Series VE8
Membrane type	ePTFE			
Membrane characteristic	Hydrophobic	Oleophobic	Hydrophobic	Oleophobic
Membrane color	Black		White	
Backing or support material	PET-Nonwoven			
Backing or support material color	Black		White	
Typical part thickness	0.36 mm		0.27 mm	
Part orientation	Mount on the interior or the exterior of the housing		Mount on the interior of the housing	

Environmental Performance	Series GAW324	Series GAW325	Series VE4	Series VE8
Salt spray: 7 day test (DIN 50021-SS:1988-06/ ASTM B117)	Not tested		No penetration of salt crystals through the membrane into the housing	
Adhesive temperature resistance	- 40°C to 100°C		- 40°C to 70°C	- 40°C to 100°C
Adhesive type	GA2025 acrylic		GA2021 acrylic	GA2025 acrylic
RoHS***	Meets threshold requirements			

ACOUSTIC IMPEDANCE



* IP ratings are product housing design dependent.

** Extended immersion testing: 2 meter immersion for 1 hour.

*** EU Directive 2002/95/EC (RoHS) amended by EU Commission Decision 2005/618/EC and EU Directive 2003/11/EC.

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.

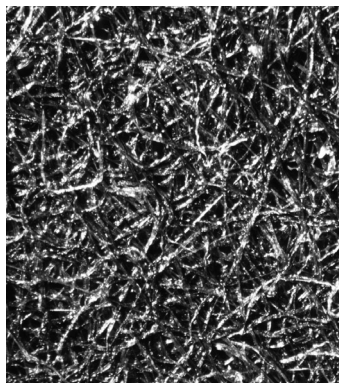


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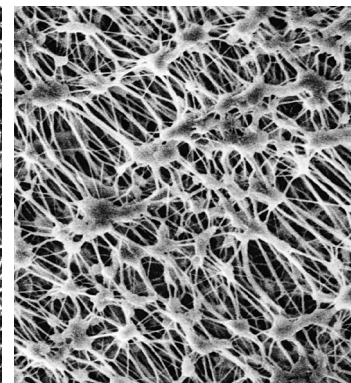
THE SCIENCE BEHIND THE SOLUTION

GORE® Acoustic Vents offer protection for both dust and splash, and immersion applications. GORE® Acoustic Vents for dust and splash applications incorporate Gore's unique non-woven resistive acoustic materials. These materials have a tortuous non-woven structure that provides an effective barrier from contaminants with little impact on sound quality. GORE® Acoustic Vents for immersion applications incorporate a membrane of expanded polytetrafluoroethylene (ePTFE) that protects in even the harshest environments while quickly and easily responding to sound pressure waves. Whether it's for a dust and splash or immersion application, there is a GORE® Acoustic Vent matched to the level of protection that you need.

MATERIAL STRUCTURE



Non-woven material



ePTFE membrane

AVAILABLE STANDARD PARTS

Part Dimensions	Packaging		GAW111	GAW112	GAW324	GAW325	Series VE4	Series VE8
ID (d) x OD (D) vent diameter mm	Parts across carrier	Carrier width (mm)	Part number					
3.0 x 6.0	6	55			GAW3240306	GAW3250306		
3.3 x 7.6	8	88	GAW1110308	GAW1120308			VE40308	VE80308
4.0 x 8.0	3	40			GAW3240408	GAW3250408		
5.0 x 9.4	2	35			GAW3240509	GAW3250509		
5.5 x 10.2	5	69					VE40510	VE80510
6.4 x 12.7	3	50	GAW1110613	GAW1120613				
8.0 x 14.0	4	71					VE40814	VE80814
9.0 x 19.0	3	69	GAW1110919	GAW1120919			VE40919	VE80919
12.5 x 21.5	2	52					VE41221	VE81221
12.7 x 25.4	2	60	GAW1111325	GAW1121325				
20.0 x 29.0	2	67	GAW1112029	GAW1122029			VE42029	VE82029

Please contact Gore for the detailed *Installation and Handling Guidelines for Acoustic Vents*.

CUSTOM DESIGNS

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

INTERNATIONAL CONTACTS

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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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