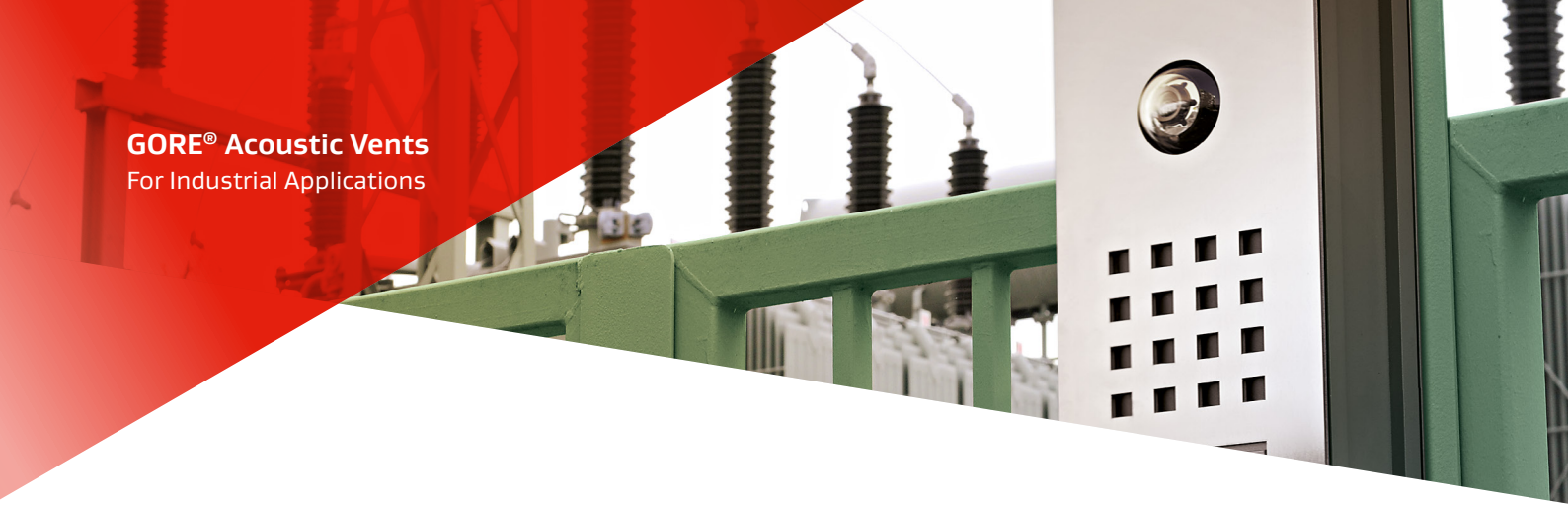


GORE® Acoustic Vents
For Industrial Applications

RELIABLE ACOUSTIC PROTECTION FOR SPEAKERS

Compared to other components, speakers and receivers are more vulnerable to factors that can compromise acoustic performance and device reliability.

More vulnerable to damaging contaminants

Speakers and receivers have larger apertures, so water, fluids and particles can enter more easily. Additionally, their permanent magnets attract metal particles that can accumulate on top of the speaker. The increasing mass and weight of these particles limits the sound pressure the diaphragm can produce, significantly degrading sound quality.

More effective protection from Gore

GORE® Acoustic Vents for Industrial Applications protect against this type of acoustic deterioration. We've applied our acoustic science expertise and innovative membrane technology to develop a new product that enhances vent performance, sound quality and device reliability while effectively preventing ingress of water, other fluids and particles. Gore's **Series 400 for Superior Fluids & Dust Protection** provides a remarkable combination of protection and acoustic performance.

Typical industrial applications:

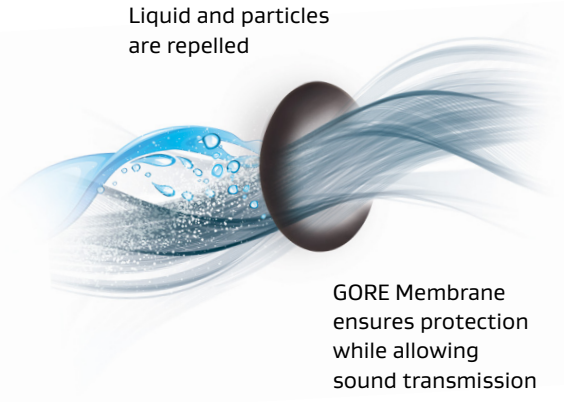
- Outdoor intercom
- Human/machine interface devices
- Interactive information displays
- Two-way radios (industrial use)
- Smart farming
- Robotic devices



Gore offers vents in a range of sizes and colors. See page 3 for the dimensions and configurations of GORE® Acoustic Vents for Industrial Applications.

Together, improving life

Rising above acoustic challenges



Liquid and particles are repelled

GORE Membrane ensures protection while allowing sound transmission

Series 400 for Superior Fluids & Dust Protection—Our most advanced ingress protection enables outstanding acoustic performance

Series 400 eliminates the typical trade-offs between reliable waterproofing and superior sound quality. It provides both a high level of ingress protection and superior sound quality, offering a balanced solution for even the harshest environments.

Liquid protection that exceeds typical Ingress Protection standards

Using Gore protocols, we tested Series 400 against the IPx8 standard. The result: No water leakage while submerged at 2 meters for 30 minutes! Series 400's oleophobic membrane also effectively repels oils, common industrial fluids and cleaning solutions that can threaten devices that use ordinary vent materials. With this level of protection, Series 400 could mean longer-lasting devices.

Particle protection that meets today's needs

Of course, Series 400 has been qualified to meet the IP6x dust-proof performance standard. Additional Gore test protocols that better reflect real-world conditions also show how well this vent performs in assembled devices. For example, Series 400 can protect against a wide range of particles—even those associated with poor air quality, such as smog and dust particulates which may be only 1-10 µm in size.

Series 200 for Splash & Dust Protection—Good environmental protection combined with enhanced broadband acoustic transparency

Series 200 is for industrial devices that face dust and splash hazards yet require very good acoustic performance. Our membrane maintains sound-wave integrity, so it delivers reliable environmental protection without compromising sound quality.

Protects against sprays and particles

Series 200's oleophobic non-woven membrane provides a higher level of spray protection at a given level of acoustic performance. Its three-dimensional tortuous path structure also traps small particles much more efficiently than ordinary woven mesh vents. By providing a more effective barrier to particles of varied sizes and shapes while protecting against acoustic degradation, Series 200 can enhance both speaker longevity and device reliability.

Characteristics / Performance	Series 212	Series 412
Water protection: IP rating (IEC 60529)[1]	IPx4	IPx4, IPx5, IPx6, IPx7, IPx8[2]
Comparative water spray efficiency[3]	75%	100%
Dust protection: IP rating (IEC 60529)[1]	IP5x	IP6x
Membrane type	Cellulose /PET non-woven	ePTFE
Membrane characteristic	Oleophobic	
Reference thickness[4]	0.33 mm	0.25 mm
Membrane color	Dark gray	White
Support material	N/A	PET Non-woven
Recommended part orientation	Mount on interior of housing	
Adhesive temperature resistance	–40 °C to 75 °C	–40 °C to 80 °C
Adhesive type installation	Silicone based	
EU-RoHS[5]	Meets threshold requirements	

1. IP ratings for assembled devices depend on the design of the product housing. IPx5, IPx6 feasible with adequate protection grill or cap.
2. Test parameters IPx8: 2.0 m water @ 30 min (AVP4122029: 1.5 m water @ 30 min).
3. Per Gore Water-Spray-VSZ-WI-026: based on IEC60529 - IPx4, test plate: thickness: 2.0 mm; hole: 2.54 mm, average spray protection efficiency 0% efficiency represents open conditions; 100% represents waterproof
4. Nominal aggregate thickness of all layers. Actual thickness may vary due to the compressibility of materials.
5. To the best of our knowledge, the parts listed above do not have any restricted substances above the maximum concentration values listed in RoHS Directive 2011/65/EU. This information is based on our current level of knowledge and does not constitute a representation or warranty beyond those contained in our standard terms and conditions.

Splash & Dust Protection
Series 212

P/N	ID [mm]	OD [mm]	Parts across carrier
AVP2120713	6.5	13.0	8
AVP2120919	9.0	19.0	6
AVP2121325	13.0	25.0	4
AVP2122029	20.0	29.0	4

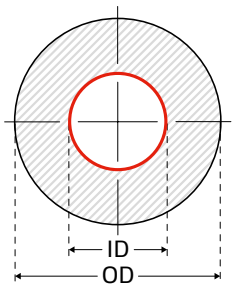
Packaging: Supplied on rolls

Superior Fluids & Dust Protection
Series 412

P/N	ID [mm]	OD [mm]	Parts across carrier
AVP4120713	6.5	13.0	8
AVP4120919	9.0	19.0	6
AVP4121325	13.0	25.0	4
AVP4122029	20.0	29.0	4

Packaging: Supplied on rolls

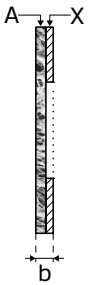
Design and Dimensions



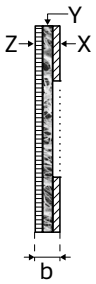
OD/ID = Outer/Inner diameter
= Active area
= Adhesive ring
A = Non-woven material
X = Adhesive
Y = ePTFE membrane
Z = Backer
b = Reference thickness

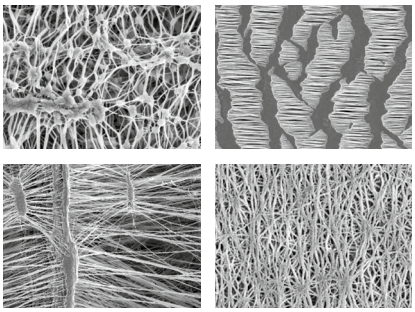
See Product Characteristics table
Tolerance of dimensions: ± 0.20 mm

Series 212



Series 412

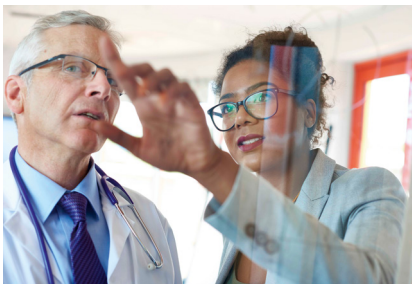




Our knowledge of fluoropolymers and our advanced engineering capabilities are at the heart of a wide range of remarkable materials.

The GORE Membrane: The heart of our venting technology

What gives our vents their superior performance qualities is expanded polytetrafluoroethylene (ePTFE). Gore invented this remarkably versatile polymer, and its capabilities are at the heart of all our products. Our company's expertise is in tailoring the structure and properties of ePTFE to create a wide range of GORE Membranes that are engineered to meet the challenges of diverse—and demanding—applications.



A materials science company dedicated to transforming industries and improving lives.

About Gore

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 more than 13,000 Associates and a strong, team-oriented culture, Gore generates annual revenues of $5.3 billion.

Gore develops products and technologies that address complex product and process challenges in a variety of markets and industries, including aerospace, automotive, pharmaceutical, mobile electronics and more. Through close collaboration with industry leaders across the globe, Gore enables customers to design their products and processes to be safer, cleaner, more productive, reliable, durable and efficient across a wide range of demanding environments.

Learn more at gore.com/protectivevents

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GORE® Protective Vent(s) are manufactured under the generic industrial ISO 9001 quality system and the ISO 14001 environmental management system. No other certifications can be provided by Gore for this GORE® Protective Vent. All technical information given is based on Gore's previous experiences and/or test results. Gore gives this information to the best of its knowledge, but assumes no legal responsibility. Customers are asked to check the suitability and usability in the specific application, since the performance of the product can only be judged when all necessary operating data are available. The above information is subject to change and is not to be used for specification purposes. Gore's terms and conditions of sale apply to the sale of the products by Gore.

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