GORE® Portable Electronic Vents

FOR ACOUSTICS – IMMERSION APPLICATIONS

ULTIMATE ACOUSTIC PERFORMANCE
AND UNRIVALLED SOUND DESIGN

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UNDERSTANDING ACOUSTIC & WATER RESISTANCE CHALLENGES

The Gore Solution

Gore's design and engineering team utilize their market-leading expertise to ensure that our vents provide minimal insertion loss and peak performance, even after exposure to water.

GORE® Acoustic Vents combine the latest technological advancements with the best design expertise to achieve a product that provides the ultimate in protection and acoustic performance. With over a decade of experience and designs in thousands of portable electronics devices, Gore is uniquely qualified to provide and develop optimal venting solutions for a variety of applications.

Whatever the barrier to development, Gore has seen it and solved it; we are the solution.

Rising Above Acoustic Challenges

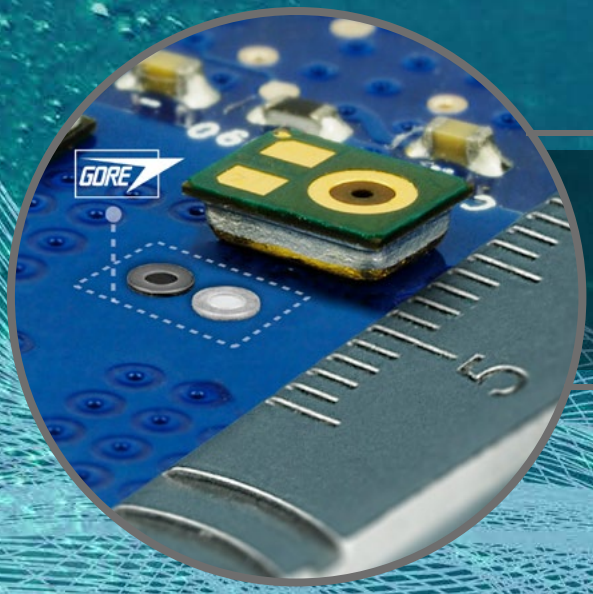
To enable sufficient sound transmission, devices require apertures. However, apertures can often let sound out and allow liquids to enter devices, ultimately creating performance and reliability issues.

Engineered from expanded polytetrafluoroethylene (ePTFE), GORE® Acoustic Vents facilitate optimal transmission of air and sound, while effectively repelling water, other fluids and particulates.

Design Flexibility

Too often the aesthetics and part sizes of venting systems are fixed, and this often leaves designers unable to choose the product that they really need. However...

Gore's vast range of design options really sets us apart. A choice of precision part sizes and a variety of colours ensure that every aspect of your specification can be met.



Water Resistance Performance

Today's consumers increasingly demand immersion-resistant handsets, wearables and other mobile electronic devices. Normally, reliable waterproofing involves a trade-off in audio quality, however Gore provides optimum venting solution that balances the trade-offs among diverse challenges.

At Gore, we ensure that our products are subjected to rigorous Extended Water Entry Pressure (eWEP) testing. Furthermore, our expert engineering capabilities enable us to develop oleophobic materials that effectively repel oils, sweat, cleaning solutions and other common fluids that threaten ordinary vent materials and device reliability.

Reliable Installation

Integrating portable electronic vents with your products can sometimes be a technical nightmare. The size, quantity and specification requirements can mean that installation can cost valuable time and money.

Choosing Gore will drive down development time by providing an easy and reliable vent installation route through either manual or automated processes. We currently support over 1 billion installations globally.

GORE® Acoustic Vents can provide great acoustic performance even with the extremely small inner diameter size 1.0mm, while ensuring IP68-rated protection without sacrificing acoustic performance.

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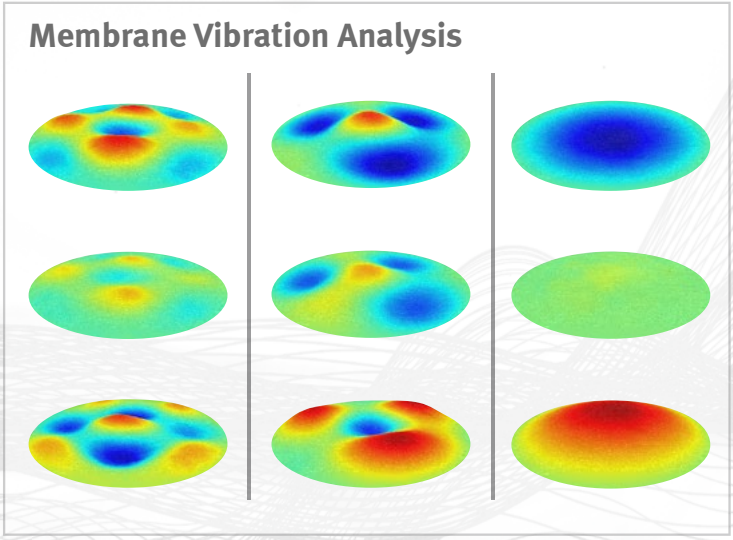
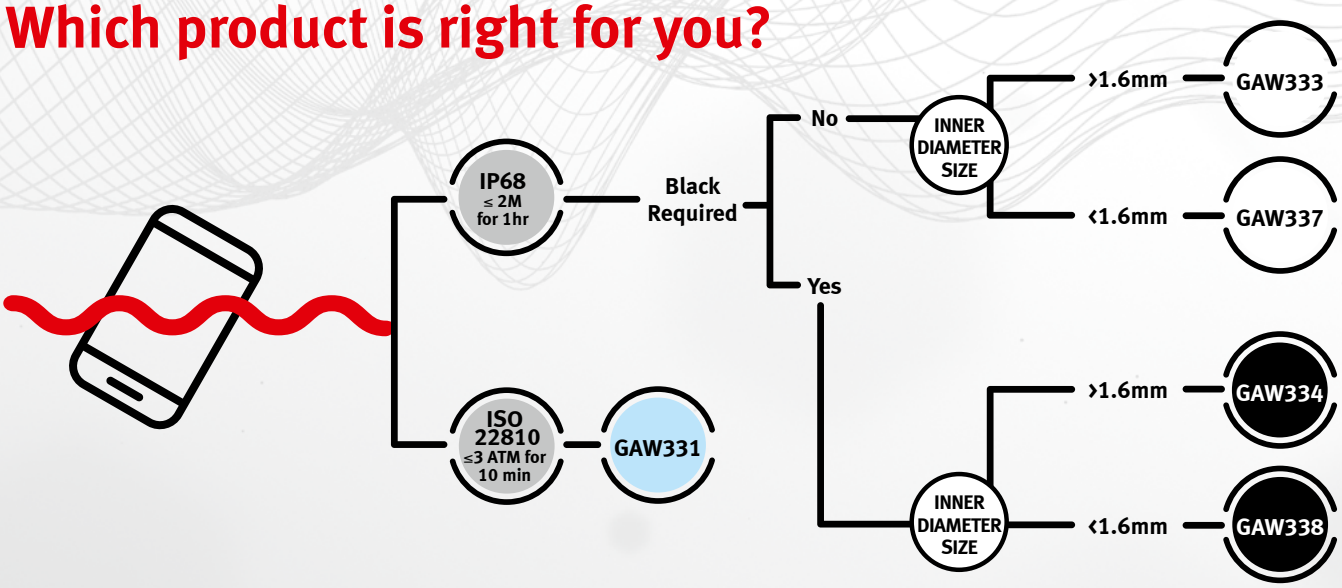
ACCELERATED DEVELOPMENT:
GORE'S ACOUSTIC MODELLING

At Gore our wealth of extensive technical experience has provided us with the ability to utilize advanced acoustic modelling technology. This enables us to understand and measure how audio signals are transmitted, and ultimately fast-track the development process.

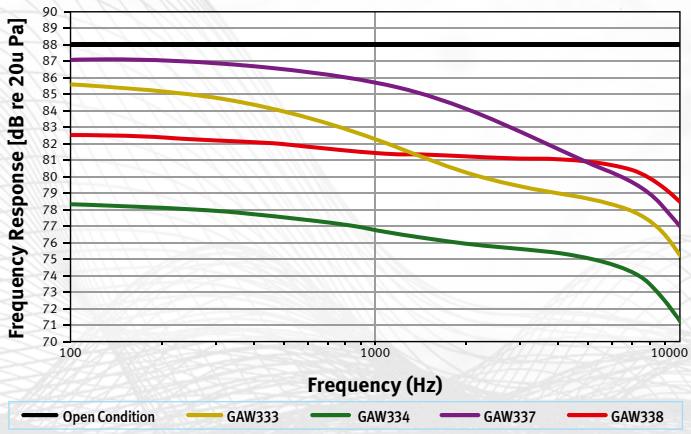
We can model acoustic system designs, sound frequency response and impedance to help our customers' engineer or troubleshoot a vent design for the most robust acoustic solution.



Which product is right for you?

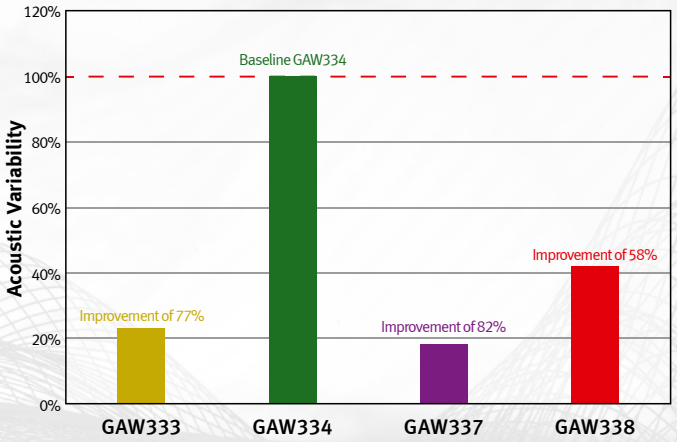


Acoustic Response at I.D. 1.0mm



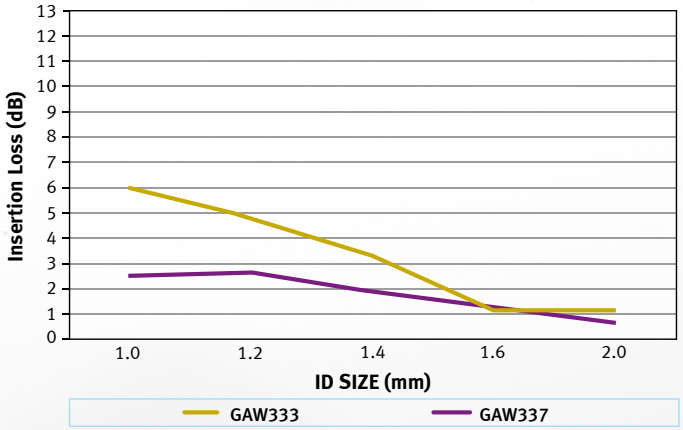
- This graph highlights the enhanced acoustic response of the GAW337 and GAW338 vent series compared to GAW333 and GAW334 at an inner diameter (I.D.) of 1.0mm
- The GAW337 series delivers the lowest insertion loss compared to other venting products, while the GAW338 series offers a relatively flat response across the frequency range with a low insertion loss at high frequencies

Acoustic Variability Differences (%) compared with GAW334 at I.D. 1.0mm at 1kHz



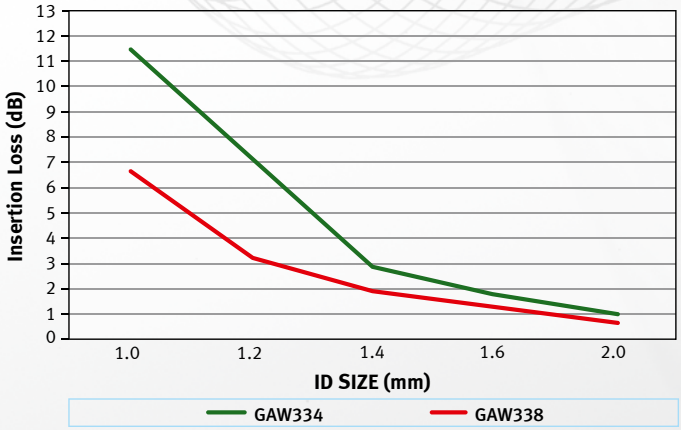
- This graph compares the acoustic variability percentage of all acoustic vents compared with GAW334 at an inner diameter size of 1mm
- The GAW333, GAW337 and GAW338 series maintain low acoustic variation even at the extremely small I.D. size of 1mm

Acoustic Response of white products vs I.D. size at 1kHz



- The GAW337 series has lower insertion loss than the GAW333 at I.D. sizes smaller than 1.6mm, and this becomes more evident when the I.D. size is reduced
- GAW337's insertion loss is more than 3dB lower when compared to the GAW333 at I.D. of 1.0mm

Acoustic Response of black products vs I.D. size at 1kHz



- GAW338 shows the lowest insertion loss of all the black vents, and this becomes more evident when the I.D. size is reduced
- Insertion loss of GAW338 is almost 6dB lower when compared to GAW334 at I.D. size of 1.0mm

The tests represent the response from a typical MEMS microphone system in GORE laboratory with representative sample size. Performance may vary depending on the design of the device.

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Product Information

Characteristics/ Performance	Series GAW333 [a]	Series GAW334 [a]	Series GAW337 [a]	Series GAW338 [a]	Series GAW331 [a]
IP rating (IEC 60529)[b] Extended immersion test conditions	IP67; IP68 (2 m water @ 1 hr)	IP67; IP68 (2 m water @ 1 hr)	IP67; IP68 (2 m water @ 1 hr)	IP67; IP68 (2 m water @1 hr)	IP67; IP68 [c] (10 m water @1 hr)
ISO rating (ISO 22810)	N/A	N/A	N/A	N/A	30 m water @ 10 min[d]
Insertion loss @ 1kHz[e] (I.D. 1.6 mm)	‹ 1.5 dB	‹ 1.8 dB	‹ 1.3 dB	‹ 1.3 dB	‹ 4 dB
Membrane type	ePTFE				
Membrane characteristic	Hydrophobic	Oleophobic	Hydrophobic	Oleophobic	Oleophobic
Membrane color	White	Black	White	Black	Black
Support material	PET				
Adhesive temperature resistance	-40°C to 85 °C	-20°C to 85°C	-20°C to 85°C	-20°C to 85°CC	-40°C to 85°C
Adhesive type	Acrylic				
RoHS[f]	Meets threshold requirements				

a Patent issued: US6512834C1

b IP ratings for assembled devices depend on the design of the product housing.

c Part I.D. 3.0 mm / O.D. 6.0 mm.

d Part I.D. 1.6 mm / O.D. 4.2 mm.

e Tested using a typical MEMS microphone system. Design of assembled device will affect performance.

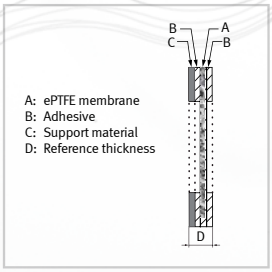
f To the best of our knowledge, the parts listed above do not have any restricted substances above the maximum concentration values listed in RoHS Directive 2011/65/EU. This information is based on our current level of knowledge and does not constitute a representation or warranty beyond those contained in our standard terms and conditions.

Standard Parts

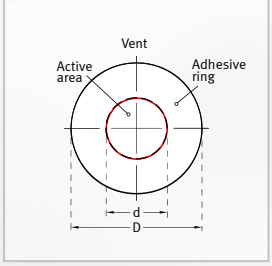
Transducer Type	Dimension (mm)			Part Number				
	Inner	Outer	Reference Thickness*	Series GAW333	Series GAW334	Series GAW337	Series GAW338	Series GAW331
Microphone	1.4	3.0	0.36	-	-	GAW3371.43.0	GAW3381.43.0	-
	1.6	3.2	0.31	GAW3331.63.2	GAW3341.63.2	-	-	-
	1.6	4.2	0.28	-	-	-	-	GAW33102.4*
	2.0	3.6	0.31	GAW3332.03.6	GAW3342.03.6	-	-	-
	2.4	5.0	0.31	-	GAW3342.45.0	-	-	-
	3.0	6.0	0.31	-	GAW3343.06.0	-	-	-

* Nominal aggregate thickness of all layers (adhesive/membrane/support material) of finished part. Actual thickness may vary due to construction of finished part and compressibility of materials.

Part Cross-Section



Round Part Design



Why GORE® Portable Electronic Vents?

Leading OEMs select Gore because our products and services enable them to develop differentiated and innovative products with low development and supply chain risk in a fast-paced, highly competitive market.

Product and Application Leadership

Grounded in a deep understanding of material science and acoustics, Gore provides the optimum venting solution. We balance the trade-offs between diverse problems such as adverse operation environments, immersion events and acoustic performance.

Global and Localized Sales and Technical Support

With outstanding worldwide technical and service support, our local sales and technical teams collaborate with OEMs and their contract manufacturers to ensure there are no surprises before or after product launches.

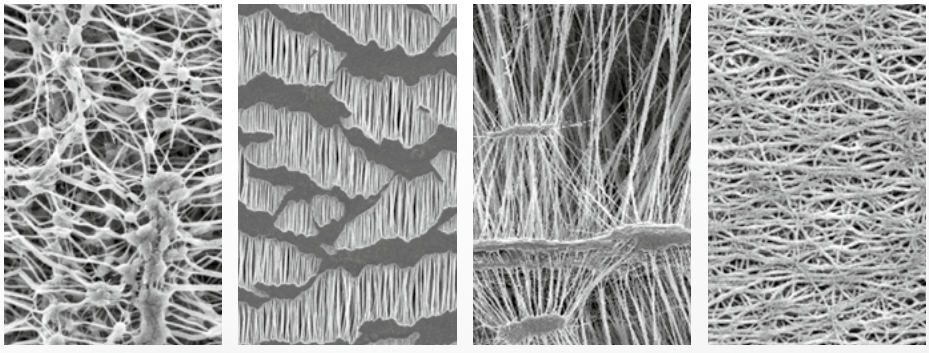
Reliable Performance

Our testing labs – where our scientists and engineers study acoustics and have developed thousands of material technology patents – represent a significant investment made by Gore to ensure our products work as expected every time.

Trustworthy Partner

Our global supply chain is robust and agile enough to provide short lead times, consistent quality and sufficient capacity for the largest programs and fastest ramps.

The GORE™ Membrane: The heart of our venting technology



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

What gives our vents their superior performance qualities is expanded polytetrafluoroethylene (ePTFE), the remarkably versatile polymer is at the heart of our products.

Gore is the world leader in understanding ePTFE and its capabilities. For each implementation, we use the GORE™ Membrane to engineer an ePTFE membrane structure, with a variety of different properties, tailored for various challenging applications.

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W. L. Gore & Associates

W. L. Gore & Associates is a global materials science company dedicated to transforming industries and improving lives. Founded in 1958, Gore has built a reputation for solving complex technical challenges in the most demanding environments — from revolutionizing the outerwear industry with GORE-TEX® fabric to creating medical devices that improve and save lives to enabling new levels of performance in the aerospace, pharmaceutical and mobile electronics markets, among other industries. The company is also known for its strong, team-oriented culture and continued recognition from the Great Place to Work® Institute. Headquartered in Newark, Del., Gore employs approximately 10,000 Associates and generates annual revenues that exceed $3 billion.

GORE® Portable Electronic Vents

Gore is the global leader in venting solutions for portable electronic consumer devices. Our acoustic and pressure venting technology provides our customers with optimal venting solutions, balancing the tradeoffs amongst problems such as adverse operating environments, immersion events, acoustic performance, space constraints, device assembly challenges and cost. Furthermore, our acoustic modelling capabilities enables our customers to accelerate the development of robust acoustic solutions, while our resilient and agile global supply chain enables us to support the largest programs and provide the fastest ramps.

Contact Us

For additional assistance, please contact a Gore representative.

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