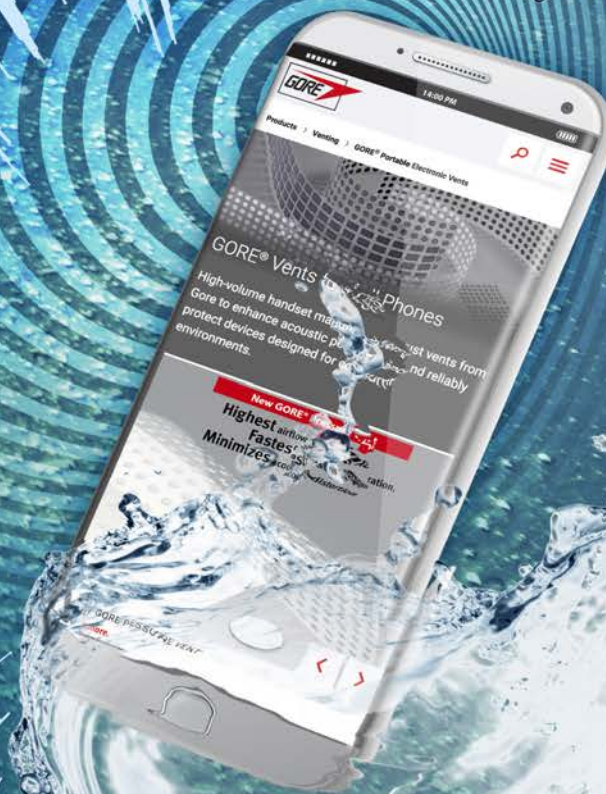




GORE® Portable Electronic Vents

FOR ACOUSTICS – IMMERSION APPLICATIONS



**ULTIMATE ACOUSTIC
PERFORMANCE
AND UNRIVALLED
SOUND DESIGN**

GORE® Portable Electronic Vents

FOR ACOUSTICS - IMMERSION APPLICATIONS

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, but apertures that let sound out also allow liquids to enter the device, and ultimately that creates 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 customers unable to choose the product that they really need. However...

Our 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

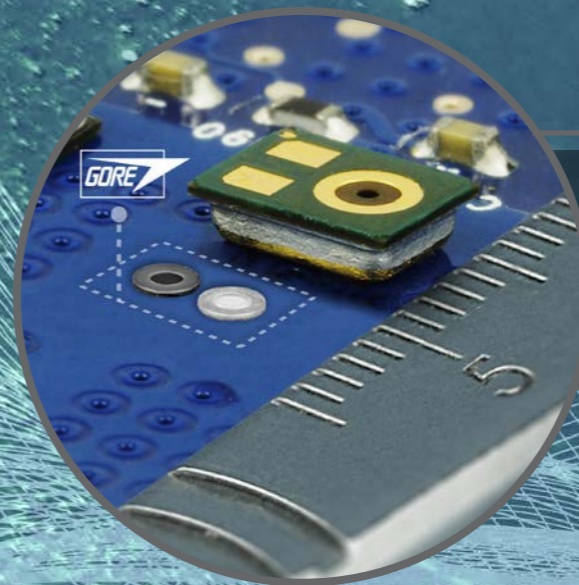
Today's consumers increasingly demand immersion-resistant handsets, wearables and other mobile electronic devices. Normally, reliable waterproofing involved a trade-off in audio quality however Gore provides optimum venting solution that balances the trade-offs among diverse challenges.

At Gore, we ensure that our products are subjected to rigorous Extended Water Entry Pressure (eWEP) testing. Furthermore, our matchless 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 extreme small inner diameter size 1.0mm, whilst ensuring IP68-rated protection without sacrificing acoustic performance.



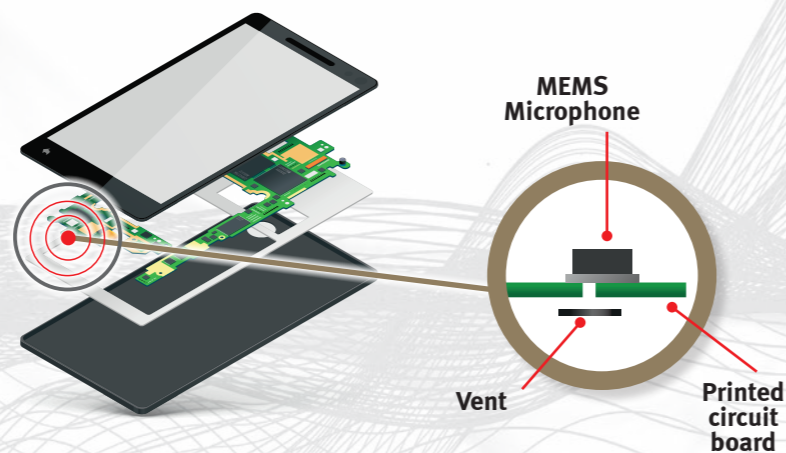
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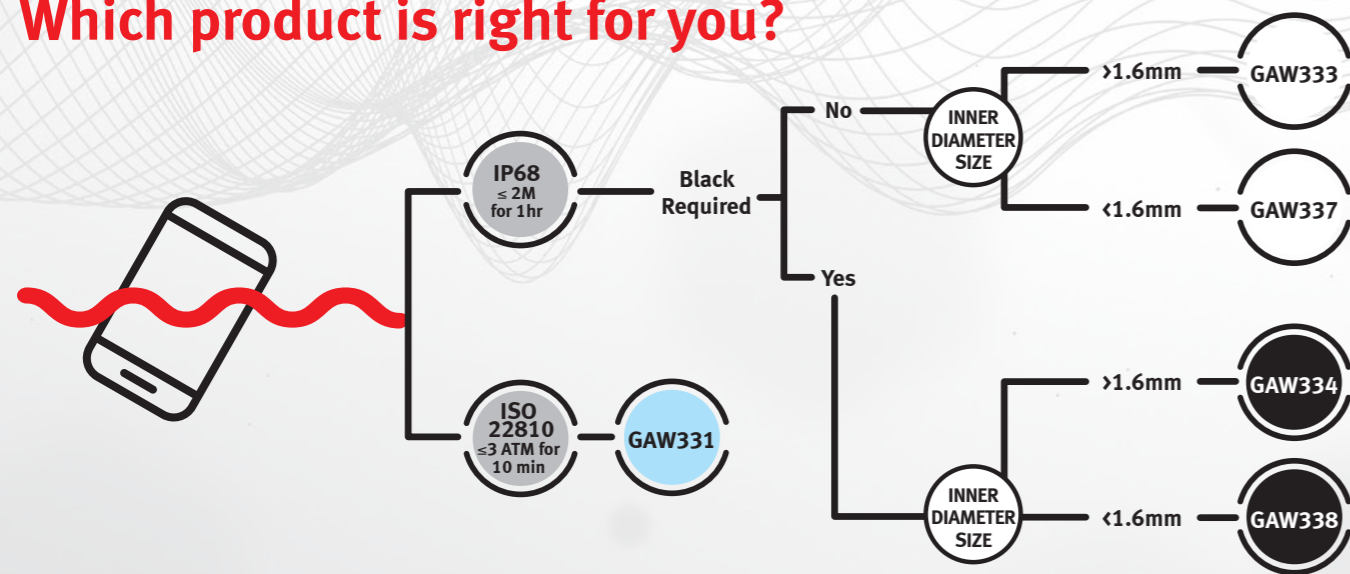
GORE: A SOLUTION LIKE NO OTHER

At GORE, we understand the effects that the type of acoustic transducer, vent size, acoustic chamber volumes and part spacing have on a device's performance.

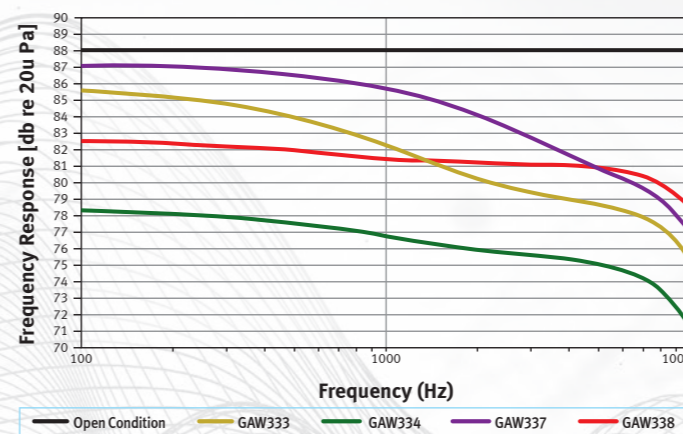
We can look at overall acoustic system designs, and acoustic test results from frequency response, distortion, rub and buzz, and impedance to help our customers engineer or troubleshoot a vent design.



Which product is right for you?



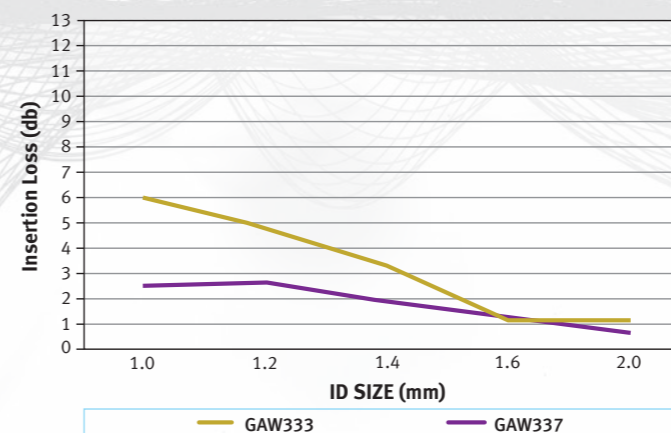
Acoustic Response at I.D. 1.0mm



» This graph evidences the enhanced acoustic response of the GAW33 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 flat response across the frequency range with a low insertion loss at high frequencies

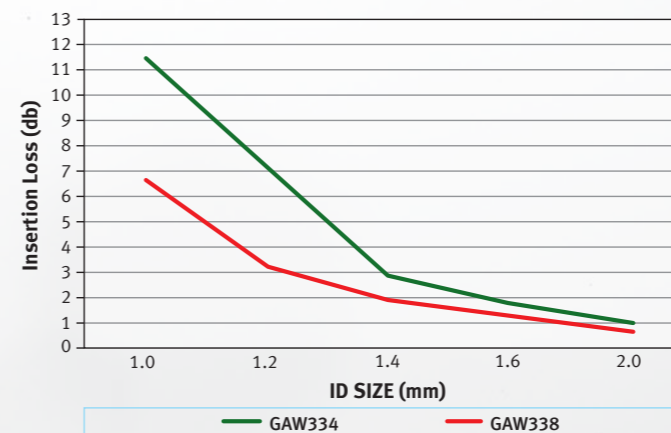
Acoustic Response of white products vs I.D. size @1KHz



» The GAW337 series evidences a lower insertion loss than the GAW333 at I.D. sizes smaller than 1.6mm, and this becomes more obvious when the I.D. size is reduced

» GAW337's insertion loss reduces more than half when compared to the GAW333 at I.D. of 1.0mm

Acoustic Response of black products vs I.D. size @1KHz



» GAW338 shows the lowest insertion loss of all the black vents, and this becomes more obvious when the I.D. size is reduced

» Insertion loss of GAW338 is reduced to almost half 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 (2 m water @ 1 hr)
ISO rating (ISO 22810)	N/A	N/A	N/A	N/A	30 m water ^d @ 10 min
Insertion loss @ 1kHz ^e	< 1.5 dB (I.D. 1.6 mm)	< 1.8 dB (I.D. 1.6 mm)	< 1.3 dB (I.D. 1.6 mm)	< 1.3 dB (I.D. 1.6 mm)	< 4 dB (I.D. 1.6 mm)
Membrane type	ePTFE				
Membrane characteristic	Hydrophobic	Oleophobic	Hydrophobic	Oleophobic	Oleophobic
Membrane color	White	Black	White	Black	Black
Support material	PET	PET	PET	PET	PET
Adhesive temperature resistance	-40°C to 85 °C	-20°C to 85°C	-20°C to 85°C	-20°C to 85°C	-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.

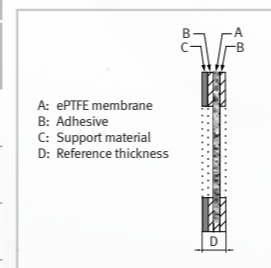
Standard Parts

Transducer Type	Dimension (mm)			Part Number				
	Inner	Outer	Reference Thickness**	Series GAW333	Series GAW334	Series GAW337	Series GAW338	Series GAW331
Round Microphone (Round Active Area)	1.6	3.2	0.31	GAW3331.63.2*	GAW3341.63.2	-	-	-
	1.6	4.2	0.28	-	-	-	-	GAW3310204*
	2.0	3.6	0.31	GAW3332.03.6*	GAW3342.03.6	-	-	-
	2.4	5.0	0.36 0.31	-	GAW3342.45.0	-	-	-
	3.0	6.0	0.36 0.31	-	GAW3343.06.0	-	-	-
	4.0	8.0	0.36 0.31	-	-	-	-	-
Square Microphone (Square Active Area)	2 x 2	4 x 4	0.31	-	-	-	-	-

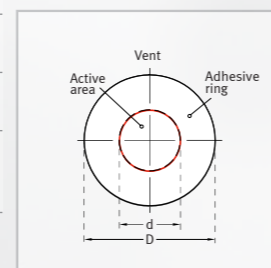
* Indicates parts with PET support material; all others have PET-nonwoven support material.

** 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.

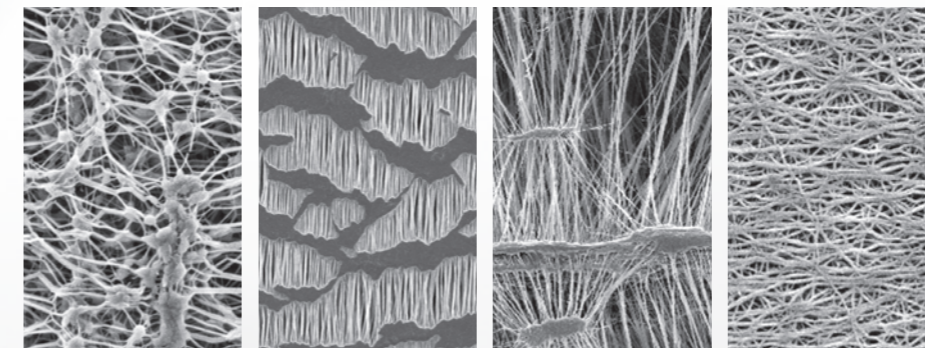
Reliable Performance

Our testing labs including acoustics along with thousands of material technology patents, scientists and engineers are significant investments made by GORE to ensure our products work as expected, each and 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 noteworthy engineering capabilities is 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® Vents

For almost thirty years, Gore has delivered venting solutions for applications such as automotive, electronic systems, telecommunications, security, heavy-duty vehicles, solar, lighting, chemicals and agricultural packaging.

Engineered with the latest materials and technology, Gore’s vents are backed by years of research and testing to help extend product life and enhance reliability, meeting the demands of today’s technology.

We don’t just provide manufacturers with vents; we offer partnership and a complete venting solution, from product design to testing to support. The result: maximum performance in diverse challenging applications.

Contact Us

For additional assistance, please contact a Gore representative.

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