

GORE® Portable Electronic Vents

FOR PRESSURE EQUALIZATION



PROFIT FROM UNPARALLELED AIRFLOW PERFORMANCE
AND GREATER RELIABILITY FOR YOUR DEVICES

INTRODUCING PRODUCT MODEL PE14 & PE15

Together, improving life



PROFIT FROM UNPARALLELED AIRFLOW PERFORMANCE AND GREATER RELIABILITY FOR YOUR DEVICES

Engineered to maximize airflow, ingress protection and acoustic performance.

When a device experiences temperature or altitude changes, a pressure differential between the external environment and the interior of the device can occur. This pressure differential can weaken the gaskets and seals within the device and eventually leads to lower resistance to liquid penetration. This also creates transducer bias, compromising acoustic performance.

The latest smart phones and many other consumer electronic devices are now made with a flexible, touch-sensitive screen that deflects inward. In an unvented device, this creates a very large pressure differential, causing a transducer bias that is easily heard during phone calls or when playing music. To avoid this problem, a significant amount of air must be evacuated from the device very quickly.



GORE® Pressure Vents are engineered for maximum airflow at the required level of ingress protection – optimizing venting material, vent size, free volume and target equalization time to provide the best pressure equalization solution without compromising acoustic performance.

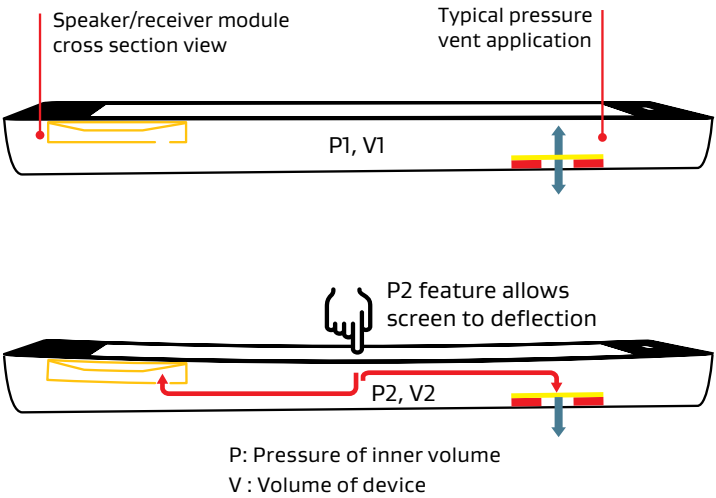
How can speaker/receiver bias occur?

Increased deflection of the enclosure (P2) puts pressure on the speaker/receiver diaphragm via the back cavity and is likely to cause distortion when in operation mode. This can happen when applying or releasing finger pressure.

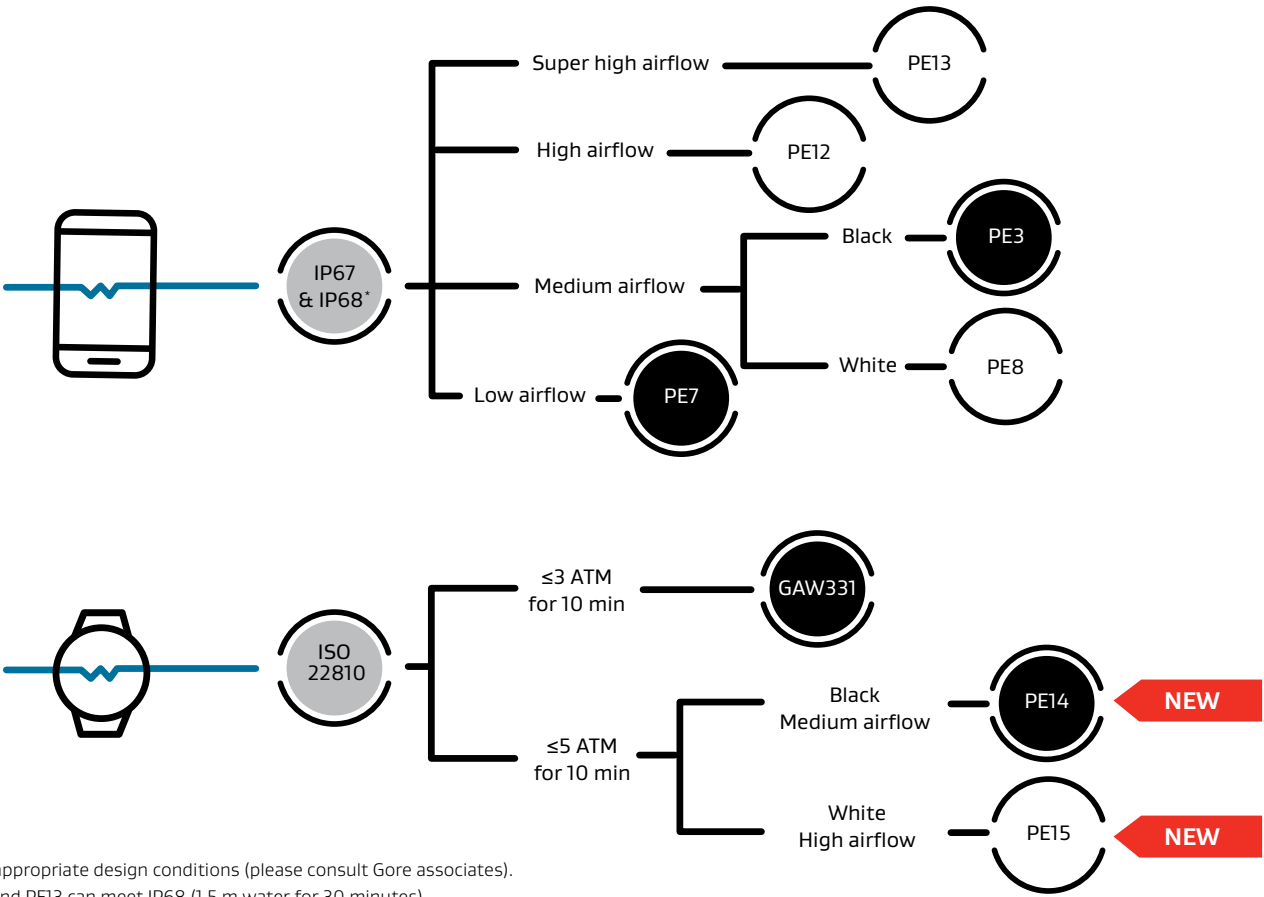
On compression:

- V2 is less than V1
- Speaker diaphragm displaces outwards
- Sudden P2 causes the vent to begin equalizing pressure
- Our vents provide pressure equalization that minimizes speaker distortion

Handset cross sectional view



Which product is right for you?

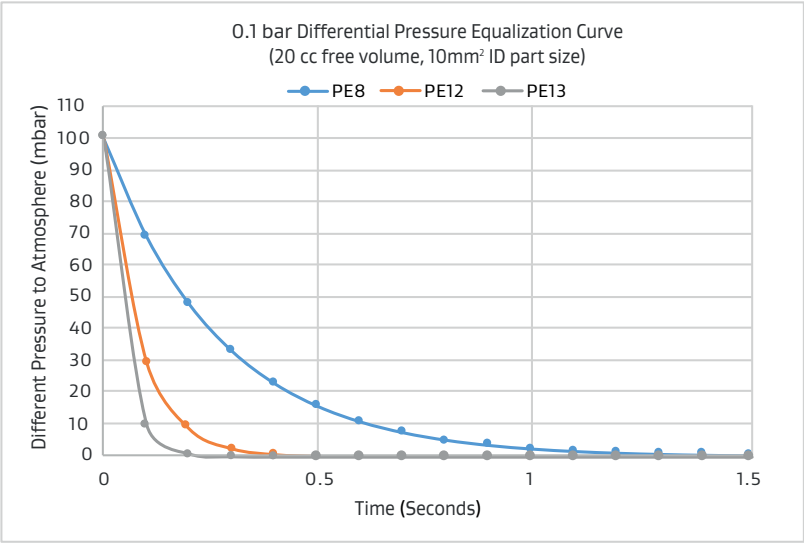


*With appropriate design conditions (please consult Gore associates).
PE12 and PE13 can meet IP68 (1.5 m water for 30 minutes).
Normally, PE3 and PE8 can meet IP67. For certain designs, IP68 (1.5 m water for 30 minutes) can be met.
PE7 can meet IP68 (2 m water for 1 hour).

Delivering next level airflow performance

The graph on the right shows the pressure venting capability of different GORE® Pressure Vents under a simulated condition – initial 0.1 bar differential pressure, 20 cc free volume and pressure vent active area size of 10 mm².

The data is provided for reference only. The actual device performance may vary – depending on factors such as location of pressure vents, housing opening sizes, and individual speaker/receiver performance.



Product Information

Application	Smartphones, Two-Way radios, Scanners					Wearables		
Characteristics/ Performance	PE13	PE12	PE8	PE3	PE7	GAW331	PE14	PE15
IP rating (IEC 529, 2nd) ^a	IP67, IP68 ^b	IP67, IP68 ^b	IP67 ^c		IP67, IP68 ^d	IP67, IP68	IP67, IP68	IP67, IP68
ISO rating (ISO 22810)	N/A	N/A	N/A		N/A	30m water @ 10 min ^g	50m water @ 10min ⁱ	50m water @ 10min ⁱ
Typical airflow (dp = 70 mbar)	19,000 ml/min/cm ²	10,000 ml/min/cm ²	3,300 ml/min/cm ²		290 ml/min/cm ²	270 ml/min/cm ²	270 ml/min/cm ²	380 ml/min/cm ²
Reference thickness ^e	0.24 mm	0.24 mm	0.27 mm		0.34 mm	0.28 mm	0.29 mm	0.29 mm
Adhesive type ^f	Silicone/Acrylic	Silicone/Acrylic	Acrylic		Silicone	Acrylic	Acrylic	Acrylic
Membrane type	ePTFE							
Membrane characteristic	Oleophobic							
Membrane color	White			Black				White
Support material	PET	PET Non-woven			None	PET		
Part orientation	Internal mount with ePTFE facing environment				Mount on the interior or exterior of the housing	Internal mount with ePTFE facing environment	Internal mount with ePTFE facing environment and back pressure on captive ring is required	
Adhesive temperature range	-40 °C to 100 °C					-40 °C to 85 °C		
RoHS ^h	Meet threshold requirements							

^a IP ratings depend on housing design and part size.

^b Extended immersion testing: 1.5 m water immersion for 30 minutes.

^c PE8 and PE3 can meet IP68 (1.5 m water @ 30 minutes) with certain custom design conditions. Please contact Gore associates for details.

^d Extended immersion testing: 2 m water immersion for 1 hour. PE7 can also meet IP65 and IP66 under external mount condition only.

^e Actual thickness may vary due to the compressibility of nonwoven, ePTFE and adhesive layers.

^f A wide range of options available as a custom product.

^g Extended immersion testing: 30 m water immersion for 10 minutes with part I.D. 1.6 mm/O.D. 4.2 mm.

^h 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.

ⁱ Extended immersion testing: 50 m water immersion for 10 minutes with back pressure on captive ring.

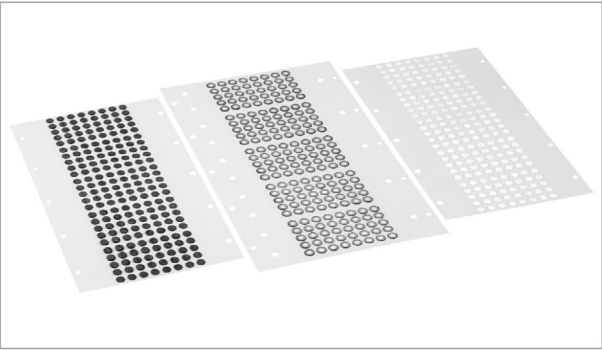
This information is based on our current level of knowledge and does not constitute a representation or warranty beyond those contained in our standard terms and conditions.

Design Considerations

Predicting the conditions your product will encounter can be difficult, so our application engineers will work with you to ensure the right vent is selected.

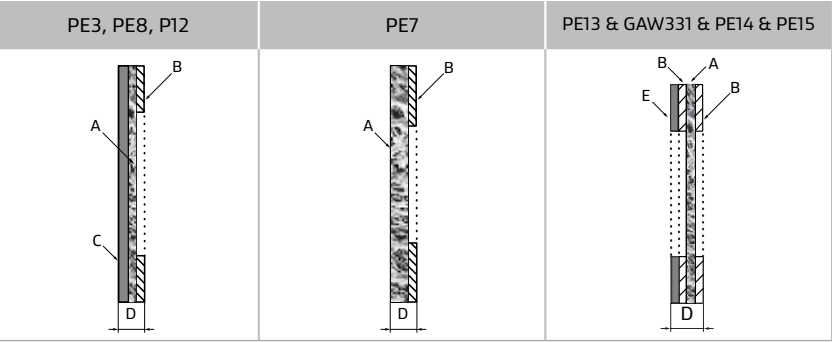
Factors that might be considered include:

- Product dimensions (device air volume)
- How your product will be used
- Potential altitude changes
- Minimum and maximum temperatures it may face
- Time between minimum and maximum temperature exposures
- Target equalization time
- Required liquid, particulate and contaminant protection levels
- Vent mounting surfaces and required adhesives



GORE® Pressure Vents are available with various water resistance, airflow and color options.

Part Cross-Section



- A: ePTFE membrane
- B: Adhesive
- C: Non-woven support material
- D: Reference thickness
- E: PET support material

Standard Parts

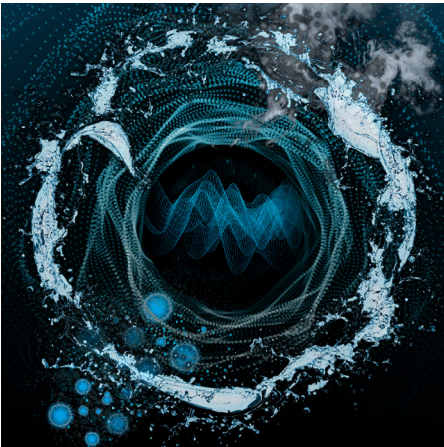
Dimension (mm)		Part Number							
Inner Diameter	Outer Diameter	PE13	PE12	PE8	PE3	PE7	GAW331	PE14	PE15
1.6	4.2	—	—	—	—	—	GAW3310204	—	—
2.0	5.0	PE130205	PE120205	PE80205	PE30205	—	—	—	—
3.0	6.0	PE130306	PE120306	PE80306	PE30306	PE70306	—	—	—
5.5	10.2	—	—	PE80510	—	PE70510	—	—	—
1.6	3.8	—	—	—	—	—	—	PE141.63.8	PE151.63.8
2.0	4.2	—	—	—	—	—	—	PE142.04.2	PE152.04.2

Available in custom and standard sizes to give manufacturers greater design flexibility – to either reduce the number of pressure vents used in their devices, or reduce the size of pressure vents for devices with limited internal space – without reducing effectiveness.

Gore applications engineers are also available to assist in selecting the right solution for your specific application requirements.

Why GORE® Portable Electronic Vents?

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



Product and Application Leadership

With over 20 years of industry expertise and over 3 billion vents sold, Gore provides the optimum venting solution to OEM manufacturing chains. Grounded in a deep understanding of acoustic science – reinforced by years of experience in material sets and capabilities research – we are specialists at balancing the trade-offs between diverse problems such as adverse environments, contamination prevention and acoustic performance.



Reliable Performance

At Gore, we make a commitment to every customer that our products will "do what we say they will do", and we stand behind that promise. Every product must adhere to the highest standards because their quality, performance and reliability impact not only our reputation, but our customers' reputation too. To ensure products are "fit for intended use" a comprehensive understanding of the end-use application is required, as well as pertinent test requirements.



Local Sales and Technical Support

Our outstanding local sales and technical teams across the globe offer value-added services, provide technical support and collaborate with OEMs and their contract manufacturers to develop differentiated products and ensure there are no surprises before or after product launch.

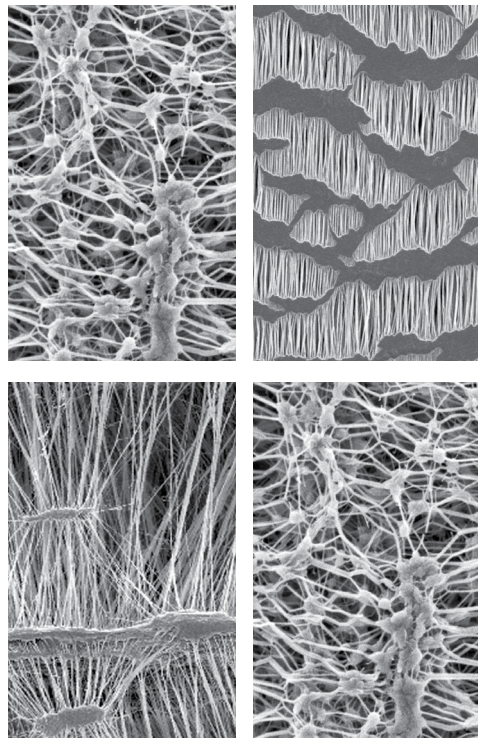


Trustworthy Partner

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

The GORE™ Membrane: The heart of our venting technology

Gore is the world leader in understanding expanded polytetrafluoroethylene (ePTFE) and its capabilities. Our ability to engineer ePTFE to include specific physical properties enables us to develop high performance products for challenging environments.



OUR KNOWLEDGE OF FLUOROPOLYMERS AND OUR ADVANCED ENGINEERING CAPABILITIES ARE AT THE HEART OF A WIDE RANGE OF REMARKABLE MATERIALS.

GORE® Portable Electronic Vents

W.L. Gore & Associates

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 10,500 Associates and a strong, team-oriented culture, Gore generates annual revenues of \$3.7 billion.

Contact Us

For additional assistance, please contact a Gore representative.

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