

What is a headphone housing? The importance of headphone housing design.

Discover what headphone housings are and the role they play in shaping sound quality. Learn how to choose the optimal headphones for the most comfortable wearing experience.

Many users often focus only on the internal specifications while overlooking the external design, leading to ear pain, stuffiness, or sound leakage during prolonged use. The main cause of this problem usually lies in the housing design. This article will help you understand what headphone housing is and how to choose audio equipment with a design that best suits your gaming and daily work needs.

Key points

1. The headphone housing is the outer shell that not only protects the components but also determines the sound quality, durability, and wearing experience.
2. Closed-back designs provide maximum sound insulation, while open-back designs offer a wider, more spacious soundstage.
3. The design and materials of the headphone housing directly affect sound quality, comfort, and passive noise isolation.
4. Housing choice should be based on needs: Closed-back for gamers needing sound insulation, Open-back for home users needing comfort.

1. What is a headphone housing?

1.1. Basic Definition

The headphone housing is the outer shell that encloses the entire audio device. This part acts as a sturdy armor protecting the electronic components and the driver (speaker diaphragm) inside, determining the durability, shape, and user's handling experience.



Housing is the outer casing of the headphones, protecting the components and affecting durability and design.

1.2. The role of housing

1. **Component protection:** The outer casing helps protect against physical impacts and prevents dust and sweat from entering the internal microcircuits.
2. **Acoustic Chamber Design:** The hollow space inside the headphone housing directly determines the resonance and quality of the bass range.
3. **Ergonomics optimization:** The outer shell design determines the fit with the ear canal structure, supporting effective passive noise isolation.



The housing affects the fit and sound isolation of the headphones.

2. Classification of housings by headphone type and design

2.1. For compact earphones (Earphones and TWS)

In-ear headphones typically feature a minimalist design for portability. This design is divided into two main styles to meet different listening needs.

1. **Earbuds:** Featuring an open design that sits lightly on the earlobe, they offer comfort during extended wear but are prone to sound leakage.
2. **In-ear :** The earpiece is designed with a sound-conducting tube that fits deep into the ear canal, combined with rubber ear tips, providing effective passive sound isolation.



In-ear headphones feature a deep-fitting tube housing combined with ear tips for excellent sound isolation.

2.2. For over-ear headphones (Headphones and Gaming Headsets)

Over-ear headphones have very large earcups that completely cover the user's ears. Based on their outer shell structure, these devices are divided into three basic types.

1. **Closed-back:** The outer casing completely encloses the speaker diaphragm, preventing sound leakage and effectively blocking out surrounding noise. This type of headphone is very popular in the eSports community.
2. **Open-back:** The headphone housing features a perforated mesh design, allowing for maximum airflow and creating an extremely wide soundstage.
3. **Semi-open:** A clever compromise design between the two types above, delivering an airy sound while still retaining the powerful impact of the bass range.

Criteria	Closed-back	Open-back
Sound insulation	Completely sealed	Very low (sound leaks out)

sound field	Concentrated, narrow	Spacious and airy.
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3. Common materials used in housing manufacturing today

3.1. ABS and Polycarbonate Plastics

Material	Weight	Durability	Acoustic characteristics	Cost
ABS plastic	Light	Rather	Standard	Ordinary people
Metal	Heavy	Very high	Good vibration and noise reduction	High
Acrylic/Resin	Light	Rather	Excellent sound insulation	Very high
Natural wood	Medium	Rather	Warm bass resonance	High

ABS and polycarbonate plastics are common materials used in mainstream headphones and modern gaming gear. Their standout features include their ultra-light weight and ability to be molded into complex ergonomic designs.

3.2. Metals (Aluminum, stainless steel)

The metal material provides rigidity and effectively reduces vibration and interference when the speaker diaphragm is operating at high power. This design creates a premium look, but the drawback is that it is quite heavy when worn for extended periods.



The sturdy metal housing provides good vibration dampening but can feel heavy when worn for extended periods.

3.3. Acrylic and Resin (Virgin Plastics)

These two specialized materials are commonly found in expensive custom IEM headphone models. Thanks to their ability to precisely mold to the user's ear, acrylic/resin headphone housings offer excellent passive noise isolation.

3.4. Natural wood

Natural wood possesses a unique sound resonance capability, helping to make the bass range warm and smooth. This material is commonly used in specialized headphones designed specifically for audiophiles.



Wooden housings provide a warm, smooth sound, often used in audiophile headphones.

4. The impact of housing on the actual user experience.

4.1. Sound Quality and Space (Soundstage)

The materials used to construct the housing directly affect the quality of sound transmitted to the ear. The harder the casing material, the better it can suppress excess vibrations, resulting in a more detailed and clear sound range.

In addition, the design of the enclosure, whether closed or open, directly shapes the soundstage. An open enclosure allows sound to spread naturally, providing a realistic feeling similar to listening to external speakers.

4.2. Wearing experience and comfort

1. **Overall weight:** The headphone casing, made of heavy materials, will put pressure on the top of the head and cause neck strain during continuous use.
2. **Surface design:** If the edges of the outer shell are not meticulously rounded, they can easily press against the ear cartilage, causing pain.
3. **Ventilation:** The earcup design with ventilation grooves keeps the earcups cool and prevents sweating during extended gaming sessions.



Choose housings with the right weight, material, and breathability for comfortable wear over extended periods.

4.3. Passive sound insulation capabilities

Passive noise isolation depends entirely on the sealed design of the headphone housing and the manufacturer's build quality. A headphone with a tightly fitting housing will provide better sound isolation. This allows gamers playing FPS games to clearly hear even the footsteps of their opponents.

5. Guide to choosing headphone housing according to your needs

5.1. For eSports gamers

Most professional gamers prefer gaming headsets with a unibody plastic casing.

1. Closed-back headphones are recommended to ensure good sound isolation in noisy computer labs.
2. ABS or polycarbonate shells are preferred to optimize weight and prevent neck fatigue during competition.
3. You can check out specialized gaming gear ecosystems from ASUS ROG, Logitech, or Razer.

5.2. For working professionals and students

This user group needs something lightweight, flexible, and convenient for their daily commutes.

1. Wireless in-ear headphones (TWS) are a suitable choice for office and school environments.
2. It's important to choose headphone models with an ergonomic design that completely covers the ears to prevent them from falling out during exercise.
3. Prioritize a matte plastic casing over a glossy one for scratch resistance and fingerprint resistance.

5.3. For streamers and those working from home

People who work from home or stream games often have to wear headphones continuously for 8 to 12 hours a day.

1. It's best to choose open-back headphones so that your ears can always breathe naturally.
2. The open shell structure allows air circulation, preventing stuffiness and fungal infections in the ear canal.
3. The weight of the shell should be evenly distributed across the straps to minimize pressure on the top of the head.



Streamers and those working from home should prioritize open-back headphones.

6. How to clean and maintain headphone housings for long-lasting durability.

6.1. Regular cleaning methods

Regular cleaning of the headphone casing helps maintain its aesthetic appeal and extends its lifespan.

1. Use a soft, dry microfiber cloth to wipe away dirt and sweat from the surface of the casing.
2. Use a small cotton swab to clean the joint grooves and the perforated mesh sound vent area.
3. Do not use strong cleaning solutions or rubbing alcohol as these will strip away the scratch-resistant coating.

6.2. Preservation methods to prevent spoilage

You should avoid exposing your headphones to direct sunlight, as high temperatures will make the plastic casing brittle and cause it to yellow quickly. For optimal protection, consider using a dedicated headphone stand. Properly hanging your headphones will prevent the casing from being dented or damaged by accidental impacts on the table.



You should place your headphones on a stand when not in use to protect the device.

7. Buy genuine gaming and work headsets at GearVN.

GearVN specializes in providing high-end PCs, laptops, PC components (RAM, CPU, SSD, etc.), and gaming equipment (monitors, headphones, keyboards, mice, etc.) to meet all the needs of gamers and technology users. In particular, GearVN stands out with advantages such as:

1. **Diverse products and optimized configurations:** GearVN offers a wide selection from major brands such as ASUS, Razer, Logitech, Akko, HyperX, Corsair, etc. All products are carefully selected.

2. **Competitive pricing and numerous promotions:** GearVN regularly runs attractive promotions and discounts on special occasions. You can easily own your desired device at the best price, along with attractive gifts or flexible installment payment options.
3. **Reliable warranty and after-sales service policy:** When shopping at GearVN, you can rest assured with our clear warranty policy and dedicated technical support team. Our experienced specialists are always ready to advise you on choosing the right product and answer any questions you may have during use.
4. **Convenient shopping experience:** Whether you want to experience our products in person at our showrooms or shop online through our website with fast delivery service, GearVN offers maximum convenience.

GearVN contact information :

1. **Website :** gearvn.com
2. **Hotline :** 1900.5301



Buy reliable, high-quality headphones at GearVN.

8. Frequently Asked Questions

8.1. Should you replace or repair headphone housings yourself?

You should not attempt to open the headphone casing yourself at home without the right tools. If the headphone casing is accidentally cracked or broken, take the product directly to an authorized service center for safe replacement of the component.

8.2. Can metal headphone housings cause electric shocks?

Electrical leakage from metal headphone casings is very rare among genuine audio devices. Major brands always apply a thick layer of insulating paint and electrostatic plating to the outer surface.

If you experience a slight tingling sensation in your earlobe, the real cause often stems from the PC power supply (PSU) or the system's power outlet not being properly grounded according to safety standards.

8.3. How to choose the right housing for someone who wears glasses?

People who wear glasses should choose headphones with housings that have soft, highly elastic ear cups and an ergonomic design that fits comfortably. This helps reduce pressure on the glasses frame, preventing ear pain when used for extended periods.

See more:

1. What is stereo sound? What is the difference between stereo and mono?
2. What is headphone impedance? A guide to choosing the right headphones.
3. What is active noise cancellation (ANC) technology? How does it work?

Headphone housings are not just decorative shells; they directly determine durability, sound quality, and comfort during prolonged use. Choosing the right housing design will allow you to fully enjoy your entertainment experience without any hindrance. Visit your nearest GearVN showroom to experience the actual form and design of genuine audio equipment for yourself.

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