What is a headset driver and how does it affect sound quality?

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If you are a high-end user, looking for a quality, suitable headset, you will surely feel extremely surprised by the richness of brand and different design styles of the lines. Headphones are available in the market.And it is this abundance that can make you sometimes not know which one is suitable for your taste, especially if you are buying headphones for the first time.One thing to keep in mind is that the headset's specifications are not sure to tell whether it is right for you or not.To summarize a satisfactory headset, you can ask your friends who have sound knowledge or refer to this article to get an overview of the types of headphones. on the market today.

In general, the headset's specifications are relatively complex and highly academic, this post will explain some technical terms to help you get a more detailed view of one of the cities. The most important part of a regular headset is the headphone driver and how it affects the sound quality.

What is a driver driver?

First drill down into what specific headphones do, let's take a look at the key components and features that a headset must have.A headset so it can work will need drivers.The headset driver is a combination of a magnet, cone and diaphargm cone (with dimensions in millimeters), which converts electrical signals into sound waves that human ears can understand.They can be interpreted as a mini loudspeaker inside your ears.Driver also has many sizes from extremely small to very large and many different designs, this is the main factor affecting the sound quality of a headset.

A driver consists of 3 components:

1. A magnet creates a magnetic field.
2. Inductor: Move diaphargm to create the sound you hear when the current passes.
3. Diaphargm membrane: vibration to produce sound waves.

The driver has different shapes and sizes depending on the design of the housing (the part containing the driver) and the sound quality required.

How does the driver size affect sound quality?

There is a simple concept that we have to admit is that larger drivers will give better bass.However, that does not mean that headphones have larger drivers that produce better sound.There are many factors that we must consider carefully before talking about the sound quality of headphones.Here is everything you need to know about the size of the driver that affects the sound quality.

Is it better to be bigger?

Earphonesdriverstypically range in diameter from 8mm to 15mm whileheadphonesdriversrange in diameter from 20mm to 50mm.In general, the driver size determines the volume of the headset.

Many people believe that larger driver sizes will bring better sound quality.This is not entirely true, although it must be admitted that the larger diaphargm film will give a slightly cleaner bass band, but headphones with large drivers also tend to encounter difficulties in regenerating high frequency bands. (treble).

Although larger drivers are capable of creating better volume, this does not mean that they provide better sound quality.The quality and material of the new drivers bring huge differences.Take for example the Apple EarPod or any other small earbud, small sized headsets with very small drivers inside, but they provide sound quality that can compete with those from Other brands use larger drivers.

In addition, we can learn some interesting things from Audio-Technica.This Japanese sound company owns two high-end headset models: M40X and M50X.The M40X uses a driver with a diameter of 40mm while the M50X

uses a 45mm driver.So, you think that the M50X produces better sound by using larger drivers, right?Yes, but not completely.

Both models are tuned in very different directions.The M50X has a tuner, headphone pad and cover designed to deliver a powerful, rich sound quality, while the M40X is designed to be a lighter and more neutral sound.In both models of this headset, the type of pad used and the cover of the headset cup have more impact on the sound quality than the drivers used.

In short, the driver size greatly affects the sound quality and the frequency response range of the headphones.However, when buying a headset, you should not just rely on driver size factors.There are other factors such as the type of driver used and the frequency response range that greatly affects the sound quality rather than the size of the drivers.

Types of headset drivers

As mentioned earlier, the type of driver used in headphones greatly affects the sound quality.Below are the different types of drivers commonly used inearphone and headphone.

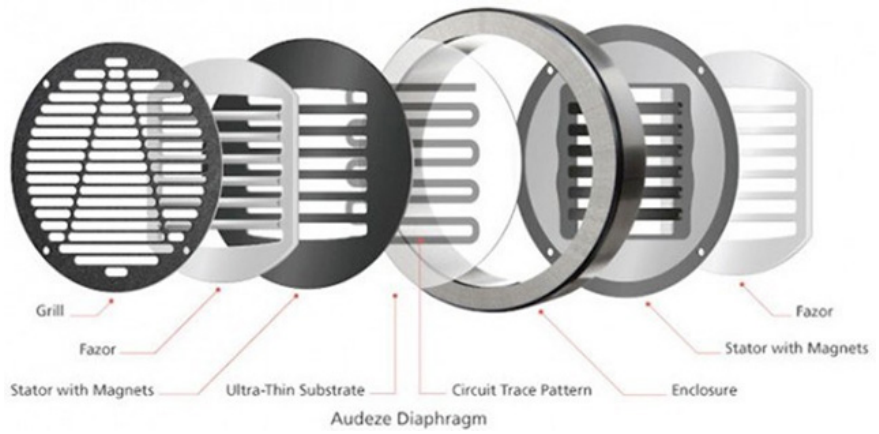
First, let me say a little bit about thesingle driver design (one driver) or multiple drivers that also increase the sound quality of the headphones that are most noticeable at the frequency response parameters.In the single driver design, the frequency response level is 20 Hz ~ 20 kHz, but when using multiple drivers this number can be pushed much higher, especially in expensive high-end headphones. .Headphone drivers are divided into five categories: dynamic, balanced armature, planar magnetic, electrostatic and magnetostriction (also called bone-conduction).

Dynamic driver

Driver dynamic is the most common type of design currently available in both professional, intermediate and advanced headphones.It is also the type of driver that has the lowest cost of processing, so it is easier to access to users with low spending.Dynamic drivers include neodymium magnets, inductors and diaphragm magnets, operating by using magnetism to transmit physical vibrations to diaphragm.These vibrations will form sound waves that reach the listener's ear.

More specifically, the magnetism of neodymium magnets will turn the coil into an electromagnet, creating a magnetic field based on current flowing through it.The choke is firmly attached to the diaphragm membrane so when it oscillates the diaphragm will oscillate and produce sound.Because the method works so simply, the driver is very easy to pull and doesn't require too much power, but it is also the most affected driver model from distortion when operating at high volume levels (non-linear distortion).).The notion that larger drivers produce better bass is not applicable to**dynamic drivers**.

Planar Magnetic Driver

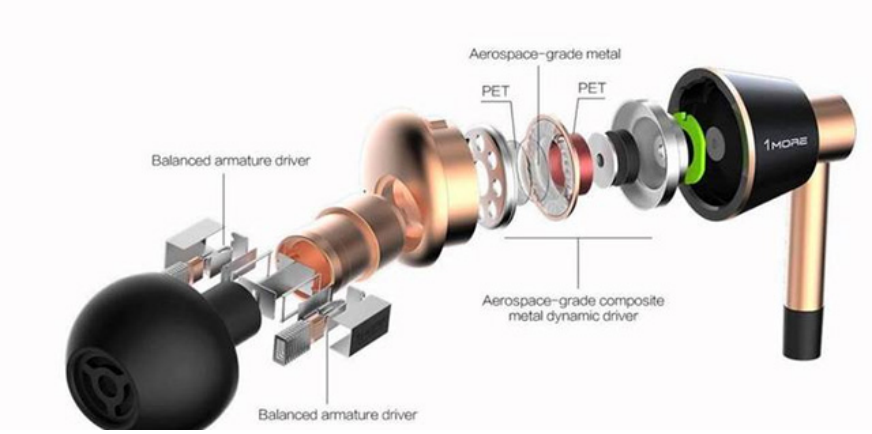


Planar magnetic drivers often appear in hooded headphones that have an open earcup back.This type of driver has a method that works quite similar to dynamic drivers when using magnetic fields to produce sound.However, instead of using inductors, the diapharm membrane of the planar magnetic driver is directly affected by the

magnet magnetic field.To ensure that the oscillation of the diaphragm is uniform, the magnet in planar magnetic driver design is usually quite large and makes the headset heavier.Planar magnetic headphones also require higher power to pull so users are often recommended to use a dedicated amplifier with this type of driver.

For these reasons, planar magnetic headphones are not suitable for portable needs like for dynamic headphones.Its price is also higher (sometimes a lot) compared to dynamic headphones.This type of driver also offers excellent sound quality with deep and virtually no distortion bass, praised by audiophiles as an absolute quality norm.

Balanced Armature Driver



BA drivers possess much smaller sizes than dynamic drivers and easily fit in IEM headset products.They also have higher processing fees than dynamic drivers, so they rarely appear in cheap headphones.The main component of the BA driver consists of a coil between two magnets.The magnetic fields of these two magnets will determine the oscillation of the coil when current is passed.In no-load mode, the coil will be in a balanced position between the two magnets, this is a 'balanced' state (as in the Balanced Armature name).

Driver BA can be tuned to a desired frequency range and then combined with many other BA drivers to create a complete driver system for the headset, or combine the dynamic driver into a hybrid driver design.With the standard hybrid driver design, the dynamic driver takes on the bass range and the BA driver handles the rest.Constructing a BA driver also does not use the exhaust hole as in a dynamic driver, thus providing a tight sound level and giving the overall sound a higher level of detail.

Electrostatic Driver

The electrostatic driver works a lot different from dynamic or planar magnetic, using a polarizing design (- / +) to push the diaphragm membrane through gas molecules.This driver design is quite complex and difficult to pull, requiring professional and expensive amplifier devices.Needless to say the reader knows the electrostatic driver will have very high machining costs and is only available in high-end headphones.

Magnetostriction (Bone-Conduction) driver

Bone-conduction headphones do not need to be directly worn on the ear canal but can still be transmitted through the jawbone to the inner ear of the head.It may sound like a fantasy, but the bone-conduction headphones line has started to appear quite a lot in the mid-high segment, mainly aimed at sports users.Some bone-conduction earphones in Japan also have a water-resistant feature specifically for swimmers.

In general, the bone-conduction headset's sound quality is not really impressive and is much like wearing a small speaker on the face.However, it is very convenient to use in necessary cases when users cannot wear a regular headset.Bone-conduction technology is also being studied in medicine for people with hearing loss or loss.

Which type should you buy?

This depends on your personal taste, music tastes, and your budget as well.If you're a party lover and want something that brings a vibrant, explosive sound, look for headphones that use dynamic drivers.But if you plan to use headphones only for gaming, you probably won't care much about bass or mid-lows.Give yourself headphones that use balanced armature drivers.

If you are an audiophile, an audiophile will definitely be able to choose a suitable headset.But if you're simply a qualified person with no money and you want to experience top-notch audio, the advice here is the planar magnetic and electrostatic drivers.

Hope readers will have some useful knowledge to consult before buying a suitable headset for themselves.

See more:

1. To protect the hearing, clean the earpiece
2. How to use both headset and speaker simultaneously on the computer
3. Instructions for converting headphones and speakers on Windows 10
4. Using headphones properly to prevent hearing damage