

A photograph of several glowing vacuum tube amplifiers mounted on a white electronic device. The tubes are illuminated from within, casting a warm, golden glow. One tube in the foreground is clearly visible, with its internal structure and filament glowing. The background is softly blurred, showing more tubes and the device's surface. The overall atmosphere is warm and nostalgic.

VACUUM TUBE AMPLIFIERS

What you need to know...

VOLUME

FEZZI

Why is it worth choosing a vacuum tube amplifier?

The sound from a tube amplifier provides warmth, dynamics, but above all, it is very natural.

If such a presentation of music is being expected, then the purchase of a vacuum tube based amplifier seems to be the right decision.

The commonly used transistor amplifiers are equipped with many corrective treatments, such as loudness, high or low tones correction, so as to warm up their somewhat stiff, edgy and cold audio presentation, as normally delivered by such devices. But we must keep in mind that such a modified presentation never is, and never will be true. It is only by using the mentioned treatments, 'gimmicks', that such equipment can pretend the intrinsic warmth of vacuum tube based equipment.

What kinds of tubes are available and what are the differences between them?

The most commonly used vacuum tubes in tube amplifiers are the **EL34**, **KT88** and **300b**. Some less popular ones are the EL84, ECL86, KT120, 6L6. Each of these are different in terms of power, construction, and sound.

What is the expected tube life?

In some of the best amplifiers, the World's most durable tubes are used. Russian tubes. Their durability is up to 10,000 hours, which is about **9 years**, assuming that we will be listening to music 3 hours a day, every day, 365 days per year.

The number as specified by the manufacturer, such as 10000 hours, does not necessarily mean that the tube will fail after such time. This is only a guar-

antee of the tube's emission parameters. After the time elapses, the power of the amplifier may, but not necessarily shall, lose some insignificant part of its full power capability, falling, for example, from 35W to 30W. Of course, it will still continue to operate correctly. Fezz Audio uses only Russian tubes.

Are vacuum tubes still produced and easily accessible?

Absolute tycoons in this field are the Russians. At their production plants such as **Electro-Harmonix**, **Tung-Sol**, **Genalex** and **Sovtek** they still produce high quality “glassware”, in quantities sufficient to cover the current demand. Prices, depending on model, range from several up to ten's, sometimes hundreds of dollars per piece.

Tubes used in Fezz Audio amplifiers are available and on continuous offer at all of our authorized Partner stores.

What follows is an example of the cost of replacing a set of tubes for a Fezz Audio Amplifier:

The “Silver Luna” model: 110 USD

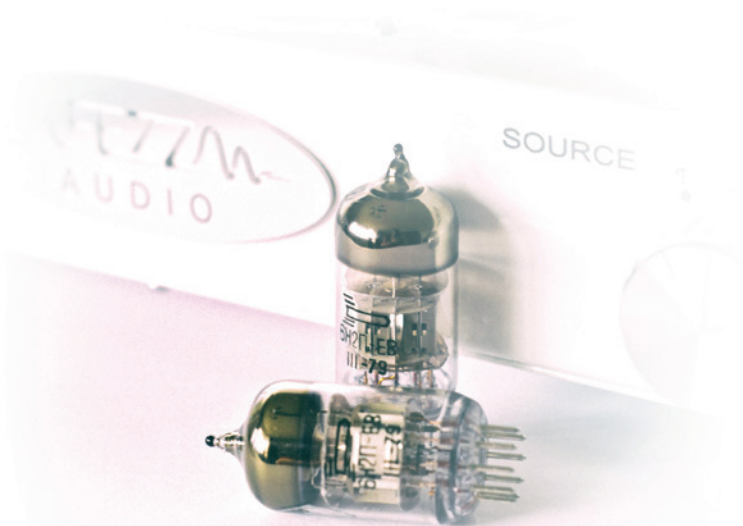
-(4 EL34 power tubes; 2x 12AX7 driver tubes);

The “Titania”: 180 USD

-(4x KT88 power tubes + 2x 12AX7 driver tubes);

The “Mira Ceti”: 240 USD

-(2x 300b + 2x 6SN7 driver tubes)



What are NOS (“New Old Stock”) tubes and is it worth it to purchase them?

There are also NOS tubes available on the market. “New Old Stock” tubes are those that have been produced many years ago, often preserved in their original packaging, and till this present day have not been used. NOS tubes should be purchased only from verified sources, with their parameters previously measured, and then sorted by pairs or by quadruples.

More often than not, due to “Collector” reasons, their prices might be even higher than for similar tubes of current production. It is definitely worth trying them out, listening to them so as to find out how they sound in our amplifier.

Replacing the tubes and the sound of the amplifier

Each replacement of tubes results in a change in the sound of the amplifier. In practice, this gives us infinite possibilities in terms of modeling its sound. Tubes -fitted into the amplifier by the factory - are most often the most universal ones, that is to say that they will work well with the widest possible scope of repertoire. If the most often played genre will be classic music, then it is worth looking around for tubes that are suggested, recommended especially for classic. If, on the other hand, we rather prefer sharper Rock tunes, we then need to look around for more Rock’n’Roll type of tubes.

The internet is abundant with various tube rankings, with specific suggestions as to which tubes are best suited for a particular genre of music. One must keep in mind that most amplifiers are equipped with two kinds of tubes. The bigger ones – power tubes, and the smaller control tubes. In search of optimal sound, we do not recommend a replacement of all of

the tubes simultaneously, at once, because in such a case we will not be able to objectively evaluate the sonic attributes of the individual tubes. So first we exchange, for examples sake, the driver tubes, and then the power tubes, or vice versa.

On what tubes will the amp run at its best?

Many tube amplifier designs are nowadays considered as legends. Alas, it is impossible to determine which of them is the top, ultimate, best one. Fans of the EL34 tubes will claim that it is the Kondo Overture PM2 amplifier; in turn KT88 fans will claim that it is the McIntosh 275, whereas fans of the 300b will indicate the Air Tight ATM-300. One thing is certain - the best tube amplifier is the one that we decide to consider as optimal for and within our own audio system. In order to listen to classics - it will be a great choice to select an amplifier based on 300b tubes; for jazz and blues - probably one based on the EL34, and for Rock - most probably an irreplaceable choice will be based on the KT88 tubes.

POWER – Will 35 Watts be enough?

The power of a tube amplifier is often a lot less than that of a transistor amplifier. You may even come across tube amplifiers of literally few Watts worth of power, which in comparison to the tens or hundreds of watts per channel in transistor amplifiers – may seem exceptionally weak. Not so. Tube amplifiers offer lot better dynamics and therefore, with less available power, they can often play louder than multiple times stronger transistor amplifiers.



Which loudspeakers are best for a tube amplifier?

Choosing a set of loudspeakers for a tube amplifier does not significantly differ in principle from choosing loudspeakers for a transistor amplifier. And as the most important thing, there still remains the necessity to conduct a listening test and make a choice based on a subjective selection of such a sound that we personally find most satisfying. In particular though, it is worth to consider loudspeaker sets with an efficiency of about **90dB**.

Does a tube amplifier consume a lot of energy?

When considering a purchase of a tube amplifier, you should also ask yourself about the consumption of energy. Which one is more energy efficient – a tube or a transistor amplifier? In such a case it turns out that there is no general rule. Low power

tube amplifiers consume a similar amount of energy to a transistor amplifier. However, looking at tube amplifiers of a higher power, it turns out that their power consumption may turn out to be 2-3 times bigger as compared to a similarly rated “transistor“. Within the constructs of Fezz Audio, energy losses have been minimized thanks to the use of very high efficiency of toroidal transformers.

Can I use a tube amplifier in a home theater system?

Yes, a stereo tube amplifier may constitute a great supplement to a home theater system. If our tube amplifier is equipped with the **HT** (Home Theater) signal input option, and if your receiver has a pre-out signal output, then we can use the tube amplifier as a power amplifier to drive our front loudspeakers. All models of Fezz Audio amplifiers may be optionally equipped with a HT input.

What is “Bias”?

Tube amplifiers require so called “bias adjustment”, or in other words, a setting of the correct tube idle current. Both automatic or manual bias adjustment scenarios are possible. This simple operation can be performed on your own, within just a matter of minutes. But in some of the best amplifiers, such bias adjustment is carried out fully automatically and does not require any user intervention. Fezz Audio amplifiers may be equipped with automatic bias control and regulation.

Push-pull amplifier a single Ended SET

SThese are two different tube amplifier design types. The main difference is the amount of tubes used within the amplifier. A SET – “Single Ended” amplifier has one power tube per channel, whereas the Push-Pull has two. Specifically, this impacts both

the output power and the sonic signature of the device. SET’ are known to have a delicate, very natural tone, warm and subtle. Push-pull is characterized by great dynamics and an exceptionally strong, well-controlled bass range.





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FezzAudio

ul. Mazowiecka 20

16-001 Księżyno/Poland

www.fezzaudio.com
