

Role of Steel in the Development of Musical Culture

Some 90 years ago, an American company specialising in electric instruments, wondered how to improve the sound of the guitar, which was then not loud enough for a broad audience.



The answer was to create the world's first magnetic pickup*. Steel guitar strings then appeared, thus setting the stage for a kind of musical revolution.

How important is steel in musical instruments? The unique sound produced by the guitar pickup and steel strings has given rise to the development of new musical genres. Electric guitars with stainless steel strings have provided music lovers around the world with a bright and crystal clear sound that is amplified by the magnetic field of the guitar pickup. The sound of the instrument largely depends on the strings and magnetic parameters of an electric guitar.

The first electric guitars with steel strings were used for such musical styles as jazz, country, and swing. The sound of strings depends on their shape, the material they are made of, and the type of connection between the shape and material.

What does the string manufacturing process look like? Guitar strings are formed through an extrusion process. Here, hot or cold steel is pushed through a high-strength die with a hole of a particular diameter, depending on the size of string required. The tensile strength of steel plays an important role too, as it allows for very thin strings with an incredible sound.



Back in the 1930s, electric guitar string manufacturers opted for steel with a corrosion-resistant zinc coating, and this material choice went unchanged for decades. In the 1960s, however, the development of blues rock resulted in the need for thinner strings that deliver a clear and bright sound. Strings made of stainless steel are still used in music industry. In addition to perfect sound, such strings are resistant to corrosion and therefore last longer.

For maximum brightness, steel strings with a hex core are often used. It is a steel string of a hexagonal shape that

can be wrapped in another material. A string with such a core produces a brighter and firmer sound when compared with a round core string.

The market offers a great many varieties of strings for electric guitars. However, the basic ones are akin to the strings of acoustic guitars, in that they have a round or hexagonal core. Nowadays, rather strong super-alloys are used in addition to standard steel to make strings. Strings made from such materials are famous for their rich tone, meaty lows, and longer sound. They are a popular choice for amateur and professional musicians.

What else impacts the string sound, besides its core? Such components as gauges, metals, the type of windings and the coatings of the string are all important.

When it comes to steel, nickel steel is most widely used for electric guitars, which makes the sound warmer and brighter. Pure nickel with a classic vintage sound is also used for strings. Last but not least, stainless steel with high corrosion resistance and produces a bright, lasting sound is a very popular material. Titanium, cobalt, chromium and copper are also used.



How does the string coating change the sound? Coated strings first appeared in the late 1990s, when a thin polymer coating was applied to the string. Ultimately, it had a positive effect on the life of the string and a musician's tactile sense when playing. Nickel steel with NANO and POLY coatings is used for electric guitars. As a result, the sound is very balanced. Guitars with such strings are used to play jazz and rock.

Steel strings are often coated with pure nickel. Such strings produce a warm, vintage tone. The sound is very touching and rich and just what is needed for soul or blues.

When a non-alloyed steel core is coated with stainless steel, a guitar produces a stiff and cold yet very rich tone, which is the basis of rock music.

The 90-year history of the steel string with a round or hex core coated with corrosion resistant metal or uncoated still has a profound impact on the evolution of various music genres and styles. Without exaggeration, the electric guitar created back in the 1930s has changed music forever.

* A guitar pickup is a device that converts the vibrations of strings into an electrical current.