BAYONET PLUG™ BANANA CONNECTOR

The Bayonet Plug™ is a totally new approach to loudspeaker cable connection. The Bayonet Plug™ represents a complete rethinking of the basic structure of the banana plug, and offers enhanced electron flow, improved signal flow, and higher resolution in a banana plug compatible form. The design priority from the outset was sound quality first, balanced by structural integrity, a secure locking mechanism, and absolute compatibility with existing binding posts.

There are significant shortcomings in typical banana plug connectors. Most banana plugs use the conductive element as the locking system. By doing so, conductive performance of the connector is often neglected in favour of the mechanical means of connection.

Consider the following banana plug designs:

- A split-pin design where the conductor pin is sliced into 2 or 4 elements thereby creating a frictional springing action to lock within the binding post
- A barrel spring where separate leaf contact portions are arranged in a cylindrical fashion around the conductive pin, compressing on entry and frictionally holding the pin within the binding post
- A single compression type spring that forces a hollow pin against the inside of the binding post
- A hollow thin-wall tube pin, split down one long side, that makes frictional contact via the inherent springing nature of the metal material used i.e. beryllium copper

All the above designs provide a secure connection; but sound quality is compromised both as a result of the conductive shortcomings of the mechanism itself or the materials chosen for the task.

Almost all of the above banana plugs are made from beryllium copper or gold plated brass with a conductivity rating of 28% IACS (International Annealed Copper Standard). As a comparison, the high purity copper used in most loudspeaker cables has a conductivity rating of at least 100% IACS. Because of this low conductivity, we believe standard banana plugs can compromise electron flow.

The large cross-section of many brass banana plugs can also cause phase errors and smearing due to skin effect — where high frequency signals travelling on the surface of the conductor are conveyed faster than low frequency signals travelling at varying depths and speeds within the metal itself. The result is often a slow, bass heavy, smeared sound. In contrast, the hollow thin-wall tube pin can be compromised through a lack of mass–where the wall thickness doesn't support the large current flow from amplifier to speaker. The result is often a lightweight, bright sound. And finally, the split pin plug and the barrel spring plug can induce eddy current distortion where the signal is conveyed through multiple contact points.

The Bayonet Plug ™ offers an elegant solution to the problems that plague standard—and even deluxe—banana plugs across the board; and provides a faster, cleaner signal of high purity and detail.

To achieve this we use a conductive pin of ideal thickness and mass—with minimal skin effect problems, and whose locking means is via a non-conductive frictional pressure insert and coupling spring rather than via the conductive pin itself. The conductive pin is machined from either high-purity tellurium copper (over 90% IACS) or pure silver (106% IACS) to ensure maximum conductivity. This provides up to 320% greater conductivity than gold plated brass plugs.

It is our contention that the Bayonet Plug™ is not only the best sounding banana plug available, but it also outperforms many spade connectors, and in some cases even bare wire connection. The vast majority of spade connectors are produced from low-conductive brass, and are often poorly shaped for the best transfer of electrons. Bare wire connection (to binding posts) doesn't always provide the ideal surface area contact, and the bare wire is also prone to oxidation.

It is important to note that the overriding design goal—the most salient theme in the overall process—was superior sound quality in a banana plug compatible connector. Secondly, it was important that this design also incorporate a positive locking mechanism that would offer secure connection without degrading sound quality.

The Bayonet Plug's™ innovations and refinements include:

- Incorporating high conductivity materials such as tellurium copper or pure silver exclusively in the construction
- Optimising mass and thickness of the conductive element to enhance electron flow
- Proprietary locking mechanism utilising a nonconductive frictional pressure insert and coupling spring to secure connection rather than the conductive pin itself
- Attention to the mechanical aspects of the design to ensure the ultimate connection with all banana plug compatible binding posts

BAYONET PLUG™ BANANA PLUG

Features comparison vs. typical banana connectors

Standard banana connectors	Bayonet Plug™ (tellurium copper)	Bayonet Plug™ (4-nines pure silver)
Gold plated brass or phosphor bronze with a conductivity rating of often less than 28% IACS (International Annealed Copper Standard).	A contact element machined from high-purity tellurium copper (over 90% IACS) for excellent conductivity. Provides up to 320% greater conductivity than gold plated brass binding posts.	A contact element machined from 4-nines pure silver (106% IACS) to provide ultimate conductivity.
Typified by large cross sectional or hollow thin wall designs where thickness and mass not optimised for signal integrity. Sound quality and electron flow compromised.	Conductive pin of ideal thickness and mass — to support current flow and to minimise skin effect problems. The result is a clean, open sound with improved detail.	Conductive pin of ideal thickness and mass — to support current flow and to minimise skin effect problems. The result is a clean, open sound with improved detail.
Heavy plating of gold over a nickel substrate. This is often a cause of poor sound quality as electrons flow through 3 dissimilar metals with differing electrical and conductive properties.	Direct 24k gold plating (no nickel substrate) to prevent oxidation — and not to influence sound quality.	Unplated. Treated with Caig PreservIT antioxide solution.
Split-pin, barrel leaf, cylindrical, or expanding mechanisms — all using compression and/or friction to secure connector. Conducting surfaces also serve as locking mechanisms. Compromised sonic performance.	Proprietary locking mechanism utilises nonconductive frictional pressure insert and coupling spring to secure connection rather than the conductive pin itself. Secure connection without sonic degradation.	Proprietary locking mechanism utilises nonconductive frictional pressure insert and coupling spring to secure connection rather than the conductive pin itself. Secure connection without sonic degradation.

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