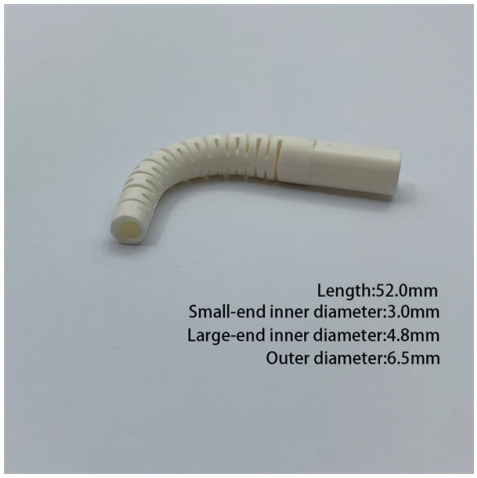
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What is a high-voltage control busbar



Overview

In electric power distribution, a busbar (also bus bar) is a metallic strip or bar, typically housed inside switchgear, panel boards, and busway enclosures for local high current power distribution, transmission, or switching substations. They are also used to connect high voltage equipment at electrical switchyards, and low-voltage equipment in battery banks.

Key Takeaways

High-voltage control busbars receive power from upstream sources, typically transformers, and distribute it to high-voltage equipment within substations or switchgear systems.Power Origin

High-voltage busbars are fed directly from the main power source, which is usually a high-voltage transformer that steps up or steps down voltage levels to match the system requirements . The transformer output is connected to the busbar, allowing it to act as a central junction where incoming electrical power is collected and then distributed to various outgoing feeders or high-voltage equipment such as circuit breakers, capacitors, and other switchgear components .

Function in High-Voltage Systems

The busbar serves as a conductor network that interconnects multiple high-voltage devices, ensuring efficient power distribution while minimizing losses due to its large cross-sectional area and high conductivity . In outdoor or high-voltage installations, busbars are often bare and supported by insulators, such as ceramic columns, to maintain electrical isolation and mechanical stability .

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Materials and Construction

High-voltage busbars are typically made from copper or aluminum, sometimes in alloy forms (e.g., Al-Mg-Si), and can be tubular, solid, or stranded depending on current-carrying requirements . They are connected to equipment terminals using specialized connectors—bronze for copper-copper, aluminum alloy for aluminum-aluminum, and bi-metallic connectors for copper-aluminum connections—to prevent corrosion and ensure reliable electrical contact .

Summary

In essence, the high-voltage control busbar originates from the main transformer or incoming feeder lines, acting as a central hub that collects electrical power and distributes it to connected high-voltage equipment. Its design, material, and connection methods are optimized for mechanical strength, electrical efficiency, and system reliability .

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