

Busline processing machine with low bending force



Overview

The Complete Guide to Busbar Machines: Types, Functions, CNC Different types of busbar machines, such as hydraulic busbar machines and CNC busbar machines.

Key Takeaways

Low-force busbar processing machines use advanced servo or hydraulic systems to bend copper and aluminum busbars efficiently while minimizing material stress. Key Features



Servo and Hydraulic Operation: Machines like the Bihler GRM-NC and Cosmec electric presses utilize servo-driven or hydraulic systems to perform bending with precise control, allowing low bending force while maintaining high accuracy and repeatability. These systems reduce mechanical stress on the busbar, preventing deformation or cracking, especially in thin or high-conductivity materials.

CNC Control and Automation: Modern busbar machines integrate CNC control to execute complex bending, punching, and cutting operations automatically. CNC programming ensures consistent bending angles and tolerances, which is crucial for high-volume production and complex geometries. Parameters can be adjusted via touch panels for flexibility.

Material Compatibility: These machines handle copper, tinned copper (Cu-ETP), and aluminum busbars, typically up to 4 mm thickness, with options for longer busbars exceeding 2,000 mm. Low-force bending is particularly beneficial for aluminum, which is softer and prone to deformation under high mechanical stress.

Modular and Multi-Function Designs: Some systems, such as the “Three-in-One” machines, combine cutting, punching, and bending in a single unit, reducing handling and setup time while maintaining low bending force. Modular forming tools, like Bihler's LEANTOOL, allow multiple bending steps with minimal tool components, enhancing efficiency and reducing material waste.

Precision and Tolerance: Machines with independent cylinder control or servo modules can achieve very low tolerances, ensuring that bends are accurate and repeatable without excessive force. This is essential for busbars used in high-performance battery systems, switchgear, and transformers.

Flexibility and Productivity: Fast tool changes and programmable sequences allow production of multiple variants without increasing bending force, supporting both small and large batch production. Radial or linear forming options provide material savings of up to 50% while maintaining low-force bending.

Applications

- Electrical switchgear and panel boards
- High and low-voltage substations
- Transformers and power distribution systems
- Battery systems for e-mobility
- Elevator and shipbuilding industries

Conclusion

For applications requiring low bending force, servo-driven CNC machines or hydraulic presses with modular forming tools are ideal. They combine precision, flexibility, and material efficiency while minimizing mechanical stress on copper or aluminum busbars, making them suitable for both high-volume industrial production and specialized custom components.

Article Content

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Reliable, accurate and versatile hydraulic busbar cutting, punching and bending machines designed for on-the-job site and in-plant

Busbar Processing Machine

Our busbar processing machines cover every core operation —

Busbar Bending Machine | CNC Busbar Processing Solutions

Belan's CNC busbar bending machine provides precision forming solutions for copper and aluminum busbars used in EV power

busbar machine

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Busbar bending machines play a crucial role in electrical panel manufacturing and industrial

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Choose state of the art portable busbar punching machines, bending machines, and cutting machines. Ideal for field service work

CNC busbar bending machine

A CNC busbar bending machine is a specialized piece of equipment designed to bend metal busbars with high precision and

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Always in search of technological evolutions aimed at providing excellent bending, busbar processing machine

Busbar Processing Machine One Workshop For Punching/Cutting/Bending Busbars Machine for

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