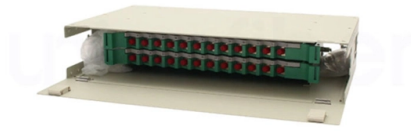


Principle of Automatic Tail Fiber Winding Machine



Article Overview

An automatic tail fiber winding machine operates by precisely controlling fiber tension and placement while winding fibers onto a rotating mandrel or spool, using automated systems for high-speed, uniform, and efficient production.

Core Principle

The automatic tail fiber winding machine works on the principle of controlled fiber deposition under tension. Fibers—such as glass, carbon, aramid, or optical fibers—are continuously fed from spools and guided onto a rotating mandrel or drum. The machine maintains stable tension throughout the process to prevent fiber breakage or uneven layering, ensuring uniform winding and optimal mechanical properties of the final product .

Key Components and Functions

- **Fiber Feeding System:** Automatically unwinds fibers from spools and directs them to the winding area. Some systems use pre-impregnated fibers (towpreg) for composite applications .
- **Tension Control Mechanism:** Sensors and feedback loops monitor and adjust fiber tension in real time, preventing slack or overstretching, which is critical for high-precision winding .
- **Rotating Mandrel or Drum:** The fibers are wound around a mandrel that rotates at controlled speeds. The mandrel may move linearly or follow programmed paths to c...

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White paper: Total Tail Control

Executive Summary When you have total tail control throughout the machine it clearly enhances production line efficiency. Valmet

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Filament winding for composite production | KraussMaffei

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