

Two Color Tube Filling and Sealing Machine



This fully automatic dual-color tube filling and heat-sealing machine is designed for industries such as cosmetics, personal care, pharmaceuticals, and food. Ideal for products using tubes as packaging, this machine is compatible with various tube materials like all-plastic, plastic-laminated, and aluminum-plastic composite tubes. It efficiently fills products like ointments, creams, gels, or viscous liquids into tubes, then performs heat sealing, coding, and trimming to produce uniform, high-quality finished products.

Working Process:

Automatic Tube Loading

Automatically feeds tubes into the workstation, ensuring stability and a seamless production flow.

Mark Recognition and Positioning

Uses a German optical mark sensor and a high-precision drive system, with a stepper motor (or optional servo motor for precision applications), to ensure the correct alignment of printed graphics and text for consistent, quality labeling and alignment.

Internal Cleaning (Optional)

Offers an internal cleaning feature using compressed air to remove dust or particles, supporting hygienic filling, especially for pharmaceuticals and high-purity products.

Dual-Color Filling System

The twin-filling system supports dual-color filling or the simultaneous filling of two different materials. The nozzle penetrates deeply into the tube, allowing staged filling from the bottom up, which ensures no overflow and stable filling. This system is perfect for layered or dual-color products and achieves an accuracy of $\leq\pm0.5\%$, maximizing product uniformity and minimizing waste.

Heat-Sealing and Cooling System

Utilizes a Swiss-imported hot air generator to evenly heat the tube's inner walls, paired with a cooling water jacket to stabilize the outer walls. This combination ensures an evenly heated, firm seal on the inside, with a smooth, visually appealing finish on the outside. The sealing style can be selected as straight-line or custom-shaped, depending on branding requirements.

Coding and Cutting

After sealing, the machine codes the tube for batch or production date traceability, enhancing product tracking. The cutting system offers both flat and arc cutting options, ensuring neat edges and a polished appearance.

Product Discharge

After sealing, coding, and cutting, finished tubes are automatically discharged for downstream packaging or inspection, ensuring efficient production continuity.

Operating Principle:

Managed by an advanced PLC control system, the machine performs each step – loading, mark recognition, filling, heat sealing, coding, and cutting – with precision. All settings can be digitally adjusted through the touch screen, which makes it adaptable to various product specifications. During sealing, the internal and external walls are precisely heated and cooled to secure a robust internal seal while maintaining a clean outer appearance.

Key Features:

- Multifunctional Design: Integrates automatic tube loading, mark positioning, dual-material filling, heat sealing, coding, and cutting to optimize production.
- Dual-Color Filling System: Supports dual-material filling, allowing for visually distinct or layered products. With a filling accuracy of $\leq\pm0.5\%$, it reduces material waste and ensures precise product volumes.
- Efficient Sealing Technology: Combined heating and cooling mechanisms ensure uniform heat distribution, a strong internal seal, and a clean, attractive outer seal for premium packaging requirements.
- User-Friendly Control Panel: The touch screen interface offers easy-to-adjust parameters, streamlining operation changes between different product types.
- Enhanced Cleanliness Options: Multi-stage air filtration ensures clean, pollutant-free compressed air. Optional internal cleaning supports pharmaceutical and hygienic standards.
- Accurate Mark Positioning: German optical detection with high-precision actuators guarantees accurate mark alignment, meeting the strict quality standards of high-end products.
- Flexible Sealing and Cutting Options: Allows for both straight-line or custom sealing patterns, with flat or arc cutting, enhancing packaging aesthetics and brand differentiation.

Technical Specifications:

- Production Capacity: 60-80 tubes per minute
- Filling Volume: 2-250 ml
- Tube Diameter: 10-55 mm
- Tube Length: 50-220 mm

- Filling Accuracy: $\leq \pm 0.5\%$
- Sealing Heating Method: Internal heating + cooling water jacket
- Main Motor Power: 1.5 KW
- Heat Sealing Power: 3 KW
- Working Air Pressure: 0.6 MPa
- Dimensions: 2270 mm \times 960 mm \times 2100 mm
- Weight: 1250 kg