Sandblasting treatment of medical devices

Product Overview

Sandblasting (also known as abrasive blasting) is a surface treatment process widely used in the manufacturing of medical devices to enhance cleanliness, texture, and functional performance. By propelling fine abrasive materials at high velocity, sandblasting effectively removes contaminants, creates uniform surface finishes, and improves adhesion for coatings. This process is critical for ensuring the reliability, durability, and biocompatibility of medical instruments and implants.

Applications in the Medical Industry

Sandblasting is utilized across various medical device applications, including:

1.Orthopedic & Dental Implants

- Creates micro-rough surfaces on titanium or cobalt-chrome alloys to promote osseointegration (bone bonding).
- Enhances the grip and stability of dental screws and prosthetic components.

2.Surgical Instruments

- Removes oxidation, burrs, and residues from stainless steel tools, ensuring sterility and smooth operation.
- Provides a non-reflective matte finish to reduce glare during procedures.

3. Medical Electronics & Components

- Prepares surfaces for coatings or adhesives in devices like pacemakers and sensors.
- Improves corrosion resistance in reusable equipment.

4.Catheters & Guidewires

- Texturizes surfaces for better lubricity or friction control.

Advanced R&D Technologies

Our sandblasting solutions incorporate cutting-edge innovations to meet stringent medical standards:

- **Precision Abrasive Selection**

1. Uses biocompatible media (e.g., aluminum oxide, glass beads, or silicon carbide) to avoid contamination.
2. Particle size and pressure are customized for delicate or rigid substrates.

- **Automated & Controlled Process**

1. CNC-guided blasting ensures consistency for high-volume production.
2. Closed-loop systems minimize dust and recycle abrasives for cost efficiency.

- **Surface Characterization**

Post-blast analysis via SEM (Scanning Electron Microscopy) or profilometry validates roughness (Ra/Rz) and cleanliness per ISO 13485.

- **Eco-Friendly Innovations**

Dry ice or biodegradable abrasives reduce waste and chemical use.