NANO-SPIN ADVANCED R&DHigh-Precision and Enclosed-Cabinet Electrospinning System

NANOFLOW X-37



"Device image is for illustration purposes only. Cabinet is custom-designed according to specifications."

NANO-SPIN ADVANCED R&D

High-Precision and Enclosed-Cabinet Electrospinning System

Nano-Spin Advanced R&D is a high-performance nanofiber production system specifically designed for university research laboratories, R&D centers, and institutes. With its flexible control capabilities, superior safety equipment, and wide range of modular accessory options, it is an ideal solution for the development of functional and hybrid nanofiber materials.

Key Features

- **Flexible & Independent Dual-Feeding:** The ability to perform simultaneous and stable electrospinning with two different solutions thanks to dual syringe pumps whose flow rates can be adjusted independently of each other. Feature to produce nanofibers with different flow rates from two syringes at the same time.
- **Hybrid Nanofiber Production Nozzle from Two Separate Nozzles:** Scanning syringe system featuring dual syringes. Dual syringe pumps have the capability to move back and forth simultaneously.
- **Full Digital Control:** Precise digital adjustment and simultaneous monitoring of 0–30 kV high voltage,flow rate, collector rotation speed, and linear scanning parameters.
- **Aligned (Oriented) and Homogeneous Nanofiber Production:** Oriented fibers via a high-speed rotating drum collector reaching up to 3,000 RPM; high-homogeneity coatings via a linear mechanism with a 200 mm scanning distance. Capability to produce nanofibers for large-area coatings using a drum with a diameter of 150 mm.
- **Environmental Control:** Instant measurement of temperature and humidity inside the working area,process monitoring via an integrated camera system, and active exhaust ventilation ensuring the safe removal of solvent vapors.

Technical Specifications

1. Cabinet & General Structure

- **Design:** Solute-resistant, enclosed cabinet structure offering a safe and controlled

- **Geometry:** Horizontal electrospinning architecture; adjustable needle-to-collector distance.
- **Lighting and Imaging:** In-cabinet lighting suitable for process observation and an integrated digital camera system.
- **Climate Sensors:** Built-in digital temperature and relative humidity measurement/display panel.
- **Ventilation:** High-flow exhaust system ensuring solvent vapors are transferred to an external discharge line.

2. High-Voltage Power Unit

- **Voltage Range:** 0 – 30 kV (Continuously adjustable, with digital display and monitorable).
- **Safety:** Overcurrent/high-voltage protection equipment and integrated protective grounding.

3. Solution Feeding System (Syringe Pump)

- **Syringe Pump:** At least 2 units (independently controllable).

- **Operating Mode:** Feeding performance ensuring high stability and continuity at very low flow rates.
- **Parameter Management:** Feeding volume, flow rate, and syringe diameter can be defined via the digital screen; working time can be monitored instantly.
- **Multi-Solution:** Special nozzle assembly suitable for hybrid nanofiber production with dual solutions.Core-shell material production capability.

4. Scanning and Collector Systems

- **Automatic Linear Scanning:** Robotic scanning mechanism ensuring homogeneous coating.

  Scanning Distance: At least 200 mm (Adjustable).

  - **Scanning Speed:** Digitally adjustable. Adjustable within the range of 0–50 mm/s.
- **Rotating Drum Collector:** Interchangeable structure for oriented nanofiber production.

  Rotation Speed: 0 – 3000 RPM (Adjustable).

- **Fixed Plate Collector:** Interchangeable plate for widespread and general coating applications.

    - **Usable Area:** At least 250 × 250 mm.

Included Accessories (Standard Package)

- 1 x Dual-Solution Hybrid Nanofiber Nozzle Assembly
- 1 x 21 G Electrospinning Needle / Nozzle
- 1 x Rotating Drum Collector Unit
- 1 x Fixed Plate Collector (250 × 250 mm)
- Process Monitoring Camera and Lighting Module
- Solvent Exhaust Hose and Connection Equipment

Quality, Certification, and Warranty

- **Quality Management:** The manufacturing company holds the ISO 9001:2015 Quality Management System certificate.

- **Calibration:** The high-voltage source and syringe pumps are delivered with Calibration Certificates issued by accredited organizations.

- **Warranty:** 2 (Two) Years Full Warranty against manufacturing, assembly, material, and workmanship defects. All troubleshooting services, including parts and labor, are free of charge during the warranty period.

- **Turnkey Installation:** The system is installed and tested on your site and delivered in working order; all basic functions are demonstrated practically during the acceptance stage.