



ACS Material Equipment Series

MicroSpin™ Microfluidic Electrospinning Machine

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I. Product Overview

1) Main Unit



Photo of MicroSpin™ Microfluidic Electrospinning Machine

II. Product Features

The MicroSpin™ Microfluidic Electrospinning Machine integrates the principles of electrospinning and microfluidic spinning, using diversified microfluidic chips as its core. Through precise digital microfluidic control, a newly designed electrospinning-microfluidic integrated machine has been developed. This system combines the capability of electrospinning to produce ultrafine fibers with the ability of microfluidics to create highly ordered fibers.

By employing precise digital microfluidic control, it can achieve multi-level structures and multi-composition hybrid fibers, while also retaining the conventional function of preparing ultrafine fibers with electrospinning. This versatility allows the system to serve multiple purposes.

Additionally, it enables in-situ fiber chemical synthesis through microfluidic chips, incorporating both physical and chemical processes into the spinning operation.

Key Features

- Multi-axis system with precise control.
- Supports a wide range of spinnable materials.
- Enables ordered alignment of fiber arrays as required.
- Precision advancement mechanism ensures uniform fiber formation.

- Controllable fiber diameter and array structure.
- Multiple receiving devices for flexible and diverse applications.

III. Product Specifications

Product Name	MicroSpin™ Microfluidic Electrospinning Machine	
SKU#	EMSES001	
Jenners Microfluidic Pump	Selectable syringe size range (mL)	0.5 - 200
	Injection speed range	0.1 μl/h - 681.73ml/min
High-Voltage Spinning Power Supply	0~50KV, digital display, overcurrent protection, overvoltage protection	
Chip	Diverse designs of internal channel shapes and configurations	
Slider Stroke	X 200mm, Y 200mm, Z 100mm	
Spinning Receiver	Three-Axis System: X, Y, Z axes can operate simultaneously	
Control System	Industrial-Grade Motion Control System: Ensures long-term stable operation, computer-controlled for various operation modes	
Receiving Device	Microfluidic spinning receiver, gas spray continuous winding receiving device. Capable of producing flat films with dimensions no smaller than 300mm*800mm. Multiple receiving methods are available for selection.	
Moving Speed	0~500 mm/s Position repeatability ±0.01mm	
Thermal Curing System	Operation Power: 200W	
Polymer Temperature Control System	Temperature control range: RT~ 100 °C Accuracy: ± 1 °C	
Chamber Temp and Humidity Control System	Humidity Accuracy : ±3% RH Temperature Accuracy: ±0.5°C	
Safety System	Insulating materials ensure cleanliness and safety, equipped with door switch sensors and emergency stop buttons	
Power Supply	AC: 220V±10%, 50Hz	
Operating Environment	Room temperature and pressure under static conditions	
Rated Power	1000W	
Configuration Description	Includes 1 main machine, 1 Microfluidic Pump, 1 Microfluidic Chip, 1 Microfluidic Needle, 1 High Voltage Power Supply and 1 Electrically Controlled Platform.	

IV. Application

- **Pharmaceutical:** Drug carriers, hemostatic materials, high-performance masks
- **Tissue Engineering:** Artificial blood vessels, artificial cartilage tissue; artificial skin
- **Filtration Materials:** Air filters, water purification filters, filter cartridges
- **Cosmetics:** Face masks, skin cleansers
- **Flexible Wearables:** Liquid crystal displays, light-emitting OLEDs, flexible screens
- **Nanomaterials:** Quantum dot fibers, photonic crystal fibers; monodisperse microspheres

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