

# ELECTRORIS

## ELECTROSPINNING

Electroris® is a registered setup to prepare polymeric/ceramic nanofibers with diameter range of 50 nm to a few microns.

Electroris® electrospinning setup mainly consists of main body including syringe pump, spinneret and collector system and high voltage power supplier.

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## Features

- Various polymers and composites have the potential to be electruspun.
- The process is easy and economical.
- Many different polymer types such as synthetic, biodegradable and natural polymers and/or polymer/composite may be processed by Electroris®.
- Needleless and needle-based

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## Advantages

- Efficient electro-spinning, easy operation and maintenance
- Wide range of applications: filtration, environment, cosmetics, medicine, hygiene, energy, IT, Nano composites, barriers and protective clothing

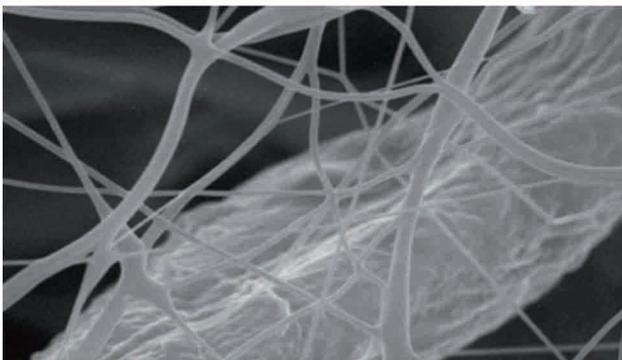


Two different types of Electroris® are available.

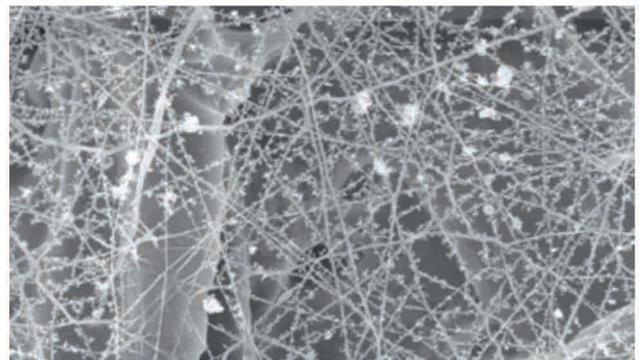
1. PC controllable which uses software for computer controlling of electrospinning parameters including injection rate of polymer solution, working distance, rotating speed of collector drum, working temperature (room temperature to 45°C) and working time.

2. Keypad controllable which employs a panel for controlling of electrospinning parameters including injection rate of polymer solution, working distance, rotating speed of collector drum, working temperature (room temperature to 45°C) and working time.

Electroris® supplies sufficient safety scheme for users with respect to the handling of a high voltage power supply and chemical solvents.



SEM image of Electrospun nanofibers of PEO at 25 kV, 0.01 ml/min



SEM image of PAN nanofibers at 24 kV, 0.01 ml/min

## SPECIFICATIONS

Dimensions	70×70×60 cm
Weight	50±1 kg
Power requirements	200-240 V AC, 50/60Hz, single-phase
Spinnerets	
Number of attachable needles	2
Electrospinning distance	5-20 cm
Spinneret scanning rate	0-2500 mm/min
Motion Range (spinneret position)	0-30 cm
Syringe Pump Polymer solution injection rate	0.5 ul/h (syringe diameter=1 mm) - 500 mL/h (syringe diameter=25 mm)
Modes of Operation	Constant Flow Rate and Volume Dispense
Collector	
Drum rotation speed	0-3000 rpm
Length of drum	30 cm
Drum diameter	8 cm
Collector with minus voltage up to -20 kV (optional)	
High voltage	
0-35 KV DC, Positive Polarity, precise adjustable (0-50kV Optional)	
Digital Voltage Monitoring	
Digital Current Monitoring (Optional)	
Heating system	room temperature to 50°C

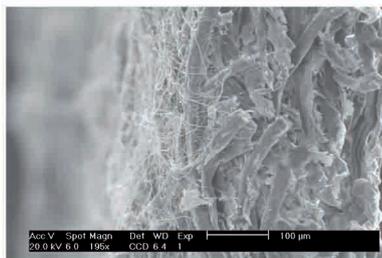


### Industrial nanofiber production line:

Nanorassam is an industrial scale polymer, ceramic, or composite nanofibers manufacturer machine.

Nanorassam can produce nanofibers in large scale for several applications like:

- Filters(air, oil, water, ...)
- Medical masks
- Wound dressing tissues
- Tissue engineering scaffolds
- Sensors



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## Applications

- Filtration
- Textile manufacturing
- Artificial organ components
- Tissue engineering
- Implant materials
- Drug delivery
- Wound dressing
- Medical textile materials
- Composites
- Energy storage
- Catalyst and enzyme carriers
- Sensors
- Tissue engineering scaffolds
- Electrodes of Li-ion batteries
- Solar cell and fuel cell electrodes
- Optoelectronics
- Photoluminescence
- Supercapacitors