

CYLINDER COLLECTOR



FLAT COLLECTOR



UP TO 12 NOZZLES



SINGLE NOZZLE



NS24 is a fully automated high-throughput electrospinning machine for laboratory scale applications. The parameters can be controlled by the automation system via 7 inch touch screen panel to make precise researches. The NS24 electrospinning device was developed by Inovenso for advanced laboratory applications prior to pilot and industrial applications. There are 12 nozzles on the device, and 376,8x280mm sized uniform samples can be produced. In the standard machine there is a 120 mm diameter by 280 mm length rotating drum collector and a 130mm by 370mm flat collector.

The drum collector can be rotate up to 2000 RPM thus it is possible to obtain well-aligned nanofibers. This system is designed to be used with core-shell nozzles to obtain bicomponent products and rotating mill collector to obtain tubular nanofiber membranes. Also according to the needs of the user, temperature and humidity control system can be added to the system.

# NS24

<b>Description</b>	Programmable Touch Screen Control Multi Nozzle Electrospinning Unit
<b>Spinning-Type</b>	Bottom-Up Spinning

## CONSTRUCTION

<b>Chasis</b>	Electrostatically Painted Steel
<b>Feeding Area Material</b>	PE 1000 (High Density, Chemical resistant)
<b>Collector Material</b>	7000 Series Aluminum Alloy, Stainless Steel
<b>Total Weight</b>	<140kg (Can change if extra optional parts are included)
<b>Dimensions</b>	710mm x 765mm x 1170mm

## HIGH VOLTAGE POWER SUPPLY

<b>Voltage Range</b>	0- 40 kV
<b>Voltage Precision</b>	0,1 kV
<b>Voltage Display</b>	By Touch Screen

## HIGH PRECISION MICRO PUMP

<b>Flow Rate</b>	0.01-1000 ml/h
<b>Flow Rate Precision</b>	0.01 ml/h
<b>Available Syringes</b>	Standard 1, 5, 10, 20, 50 and 60ml

## FEEDING AREA

Number of Nozzles on Each Feeding Pipe Set	4 pcs
Number of Feeding Pipe Sets	Up to 3 Sets
Number of Nozzles	Up to 12 Nozzles (Also possible to use with single nozzle)
Single Nozzle Production	Available
Feeding Pipe Material	Aluminium
Nozzle Material	Electrically Conductive Brass
Nozzle Inner Diameter	0.8mm
Compatible with Standard Syringe Nozzles	YES
Minimum Required Solution for Single Nozzle Feeding	0,5ml
Minimum Required Solution for Each Feeding Pipe Set	8,5ml
Minimum Required Solution for Full Loading	23,6ml

## COLLECTOR

Drum Collector:	
Material	Aluminum
Dimensions of Drum (D x L)	120mm x 280mm
Fiber Deposition Area	376.8mm x 280mm
Drum Rotating Speed	100-2000 RPM (Able to produce aligned nanofibers.)
Surface Speed (cm/s)	62,8 cm/s - 1256 cm/s
Coating Homogeneity System	X-axis repetitive motion
Stroke of Coating Homogeneity System	Adjustable Between 5mm and 120mm
Speed of Coating Homogeneity System	Adjustable Between 2 and 10mm/sec

## SPINNING DISTANCE

Distance Between Nozzle and Collector	40mm-240mm
Distance Adjustment Precision	1 mm
Distance Adjustment Method	

## STATIONARY PLATE COLLECTOR

Material	Stainless Steel
Distance Adjustment Precision	370mm x 130mm

## AUTOMATION

Touch Screen	7 inch
Data Saving and Recall	√ (Optional)
System Power Button	√
Emergency Stop Button	√
Safe Door Button	√
LED Illumination On/Of	√
Exhaust Fan On/Of	√
Cylinder Rotation On/Of	√
Digital Cylinder Speed Indicator	√
Coating Homogeneity System On/Of	√
Coating Homogeneity System Stroke Adjustment	√
Coating Homogeneity System Speed Adjustment	√
Spinning Distance Adjustment	√
Digital Spinning Distance Indicator	√
Pump On/Of	√

High Voltage Adjustment	√
Digital High Voltage Indicator	√
Digital Temperature Indicator	√
Digital Relative Humidity Indicator	√

## TECHNICAL REQUIREMENTS

Power	110-120VAC or 220-240 VAC @ Max 6A
Grounding	External Grounding Line
Area	Table

## EXPERIENCED POLYMERS

Polyurethane	Solved in DMF and THF
Polybenzimidazole	Solved in DMA with particle additives
Polycarbonate	Solved in DMF
Polyacrylonitrile	Solved in DMA and DMF
Polyvinyl Alcohol	Solved in Pure Water
Polylactic Acid	Solved in DMF
Polyethylene Oxide	Solved in HCl
Nylon 6.6, Polyamid 6.6	Solved in Formic Acid
PVC	Solved in THF
Poly Lactic co Glycolic Acid	Solved in DMF

