

Nanospinner^R
electrospinning device

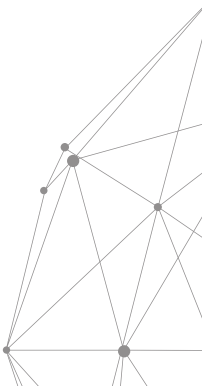


“Better control,
Better fiber formation...”



Why Electrospinning and Why Nanofibers?

The size of an electrospun fiber can be on the-nano scale and the fibers may possess nano-scale surface texture and porosity, leading to different behaviours and interactions compared to equivalent macro scale materials. The ultra-fine fibers produced by electrospinning are expected to have two main properties, a very high surface-to-volume ratio, and a relatively defect-free structure at the molecular level. This first property makes electrospun material suitable for activities requiring a high degree of physical contact, such as providing sites for chemical reactions, or the capture of small sized particulate materials by physical entanglement such as filtration. The second property should allow electrospun versions of materials to approach their theoretical maximum strength, leading to extremely competitive mechanical performance.





More functionality

More reliability

More security

NanoSpinner PilotLine

Step into industrial

Roll to roll
production

Programmable
control



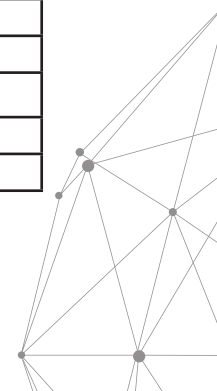
The Pilot Line is designed for precise product development processes. The model is specifically suited to universities and industrial R&D departments of companies engaged in electrospinning over long time intervals requiring in-situ parameter optimization. With the programmable touch screen control panel it is so easy to re-call the previous recipes and produce new samples within all same parameters thus will provide easy to compare results and creates logical steps for product development. This flexible, programmable, recipe re-call enabled system has long-term electrospinning capability and is supported by unique features.

UNIQUE PROPERTIES	BENEFITS
Bottom-up spinning	Prevents solvent dropping on sample media which causes defects on nanofiber web surface.
Programmable touch screen control panel	Easy to use, feedback info, precise control
Up to 30 concurrently feeding nozzles	High throughput nanofiber production for higher production capacity in less time.
470mm wide nanofiber coating	47cm width and 30meters long size wide area nanofiber samples even can be used for some of commercial applications.
Continuous roll to roll substrate winding collector system	10-100cm/minute precise speed control winding system available to produce up to 30meters continuous nanofiber coating.
Adjustable horizontal movement between 30-80mm and 5-50mm/sec	Precise adjustment of homogeneity for producing highly uniform samples in thickness.
Automatic adjustable spinning distance between 30-230mm. Nozzle to collector.	During the polymer solution optimization precisely adjusting the one of the most critical parameters as distance provides thinnest nanofibers.
Recipe saving and loading option	Easily recall of previous work parameters automatically. No need to adjust all parameters one by one manually.
Extra safety options	Safe-door lock and warning lights to prevent any electrical discharges.

GENERAL DESCRIPTION	
Model	NanoSpinner Pilot Line
Description	Semi Industrial Scale Multi Nozzle Electrospinning Unit
Spinning Type	Bottom-Up Spinning
Produced in	Turkey
CONSTRUCTION	
Chassis	Electrostatic Painted Sheet Metal
Feeding Area Material	PE 1000(High Density, Chemical resistant)
Collector Material	Stainless Steel
Windows	4 mm Transparent Glass
Total Weight	<300kg
Dimensions	W:1340 mm H: 1940 mm D: 970 mm

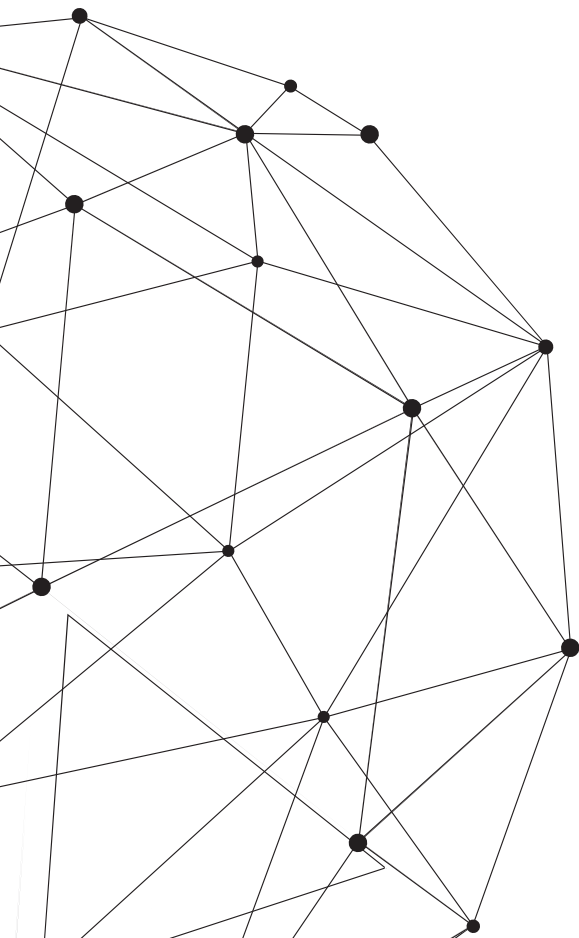
HIGH VOLTAGE POWER SUPPLY	
Produced In	Japan
Voltage Range	0- 40 kV
Voltage Precision	0.1 kV
Max. Current	3 mA
HIGH PRECISION MICROPUMP	
Flow Rate	0.1 - 1000 ml/h
Flow Rate Precision	0.1 ml
Available Syringes	1, 5, 10, 20, 50, 100, 200 ml

COATING AREA	
Collector Type	Continuous Substrate on Stainless Steel Plate
Fiber Deposition Width	500 mm
Substrate Winding Speed	max. 1 m/min - min. 0.1 m/min
Coating Homogeneity System	X-axis repetitive motion
Stroke & Speed of Coating Homogeneity System	Stroke: 30mm - 80mm, Speed: 5-50 mm/sec
SPINNING DISTANCE	
Distance Between Nozzle and Collector	30mm- 230mm
Distance Adjustment Precision	1mm



FEEDING AREA	
Number of Nozzle on Each Feeding Pipe Set	6 pcs
Number of Feeding Pipe Set	5 pcs
Number of Nozzle	30 pcs
Single Nozzle Production	Available
Feeding Pipe Material	Aluminium
Nozzle Material	Electrically Conductive Brass
Nozzle Inner Diameter	0.8mm(0.315")
Min. Required Solution for Single Nozzle Feeding	3ml
Min. Required Solution for Each Feeding Pipe Set	18ml
Min. Required Solution for Full Loading	95ml

AUTOMATION
Collector Block In/Out Motion
Emergency Stop Button
Safe Door On/Off Button
LED Illumination On/Off
Exhaust Fan On/Off
Winding On/Off
Winding Speed Adjustment
Coating Homogeneity System On/Off
Coating Homogeneity System Stroke Adjustment
Coating Homogeneity System Speed Adjustment
Spinning Distance Adjustment
Pump 1-2 On/Off
Flow Rate Adjustment
High Voltage Adjustment
Max. Current Limitation
Temperature Indicator
Relative Humidity Indicator

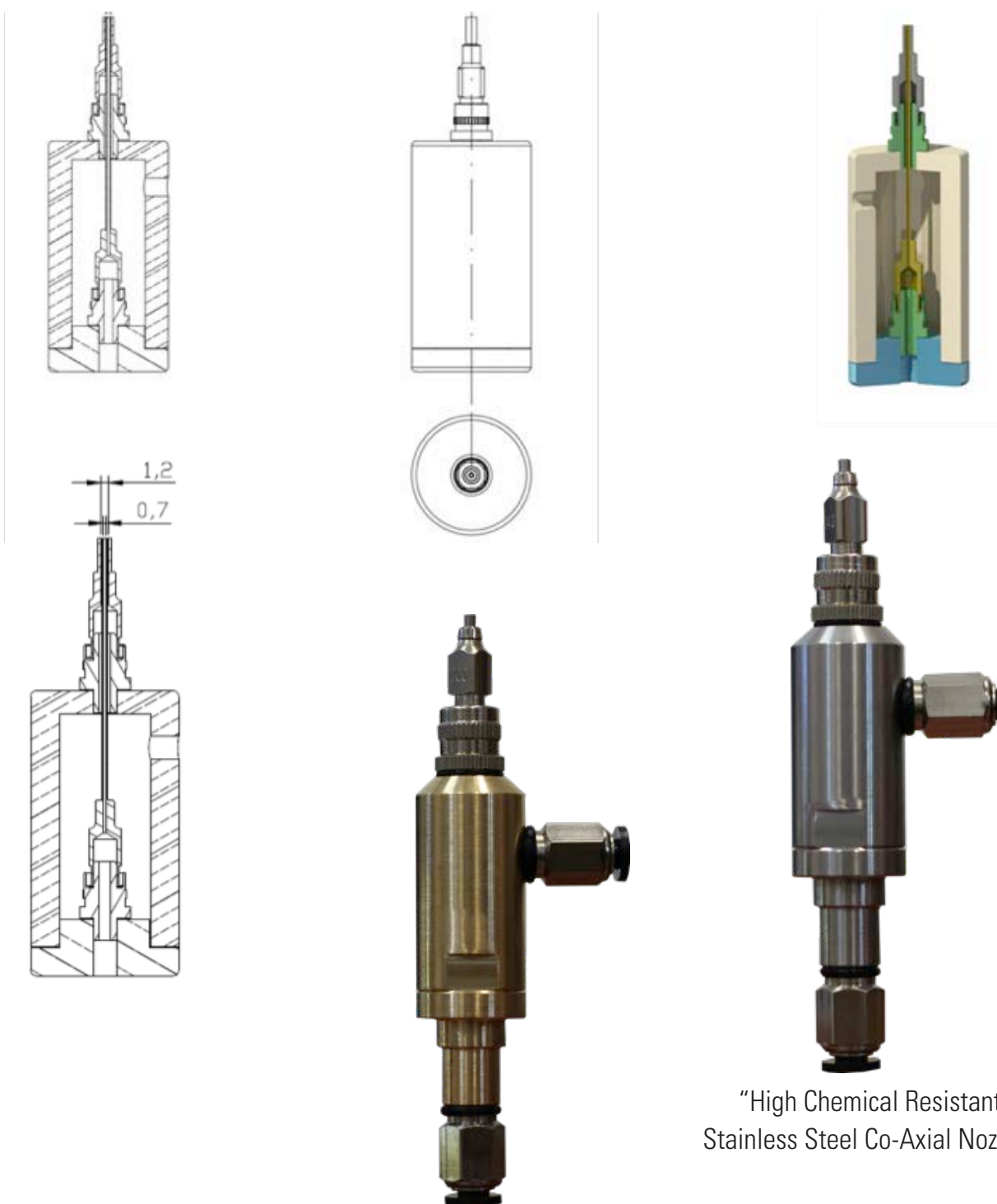




Step into
industrial production of
nanofibers

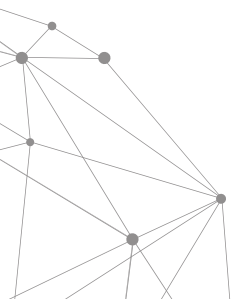
Co-Axial Nozzles (Brass & High Chemical Resistant Stainless Steel)

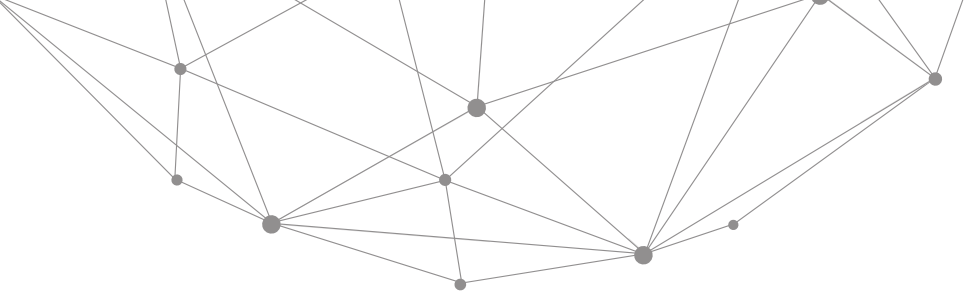
The Co-Axial Nozzles allows for the infusion of two different solutions at the same time to obtain core-shell nanofiber structures. It can be used with the Inovenso range of electrosp spinners as well as any other compatible model. The Luer-lock design allows for easy cleaning and maintenance and its only requirement is for two independent pump mechanisms.



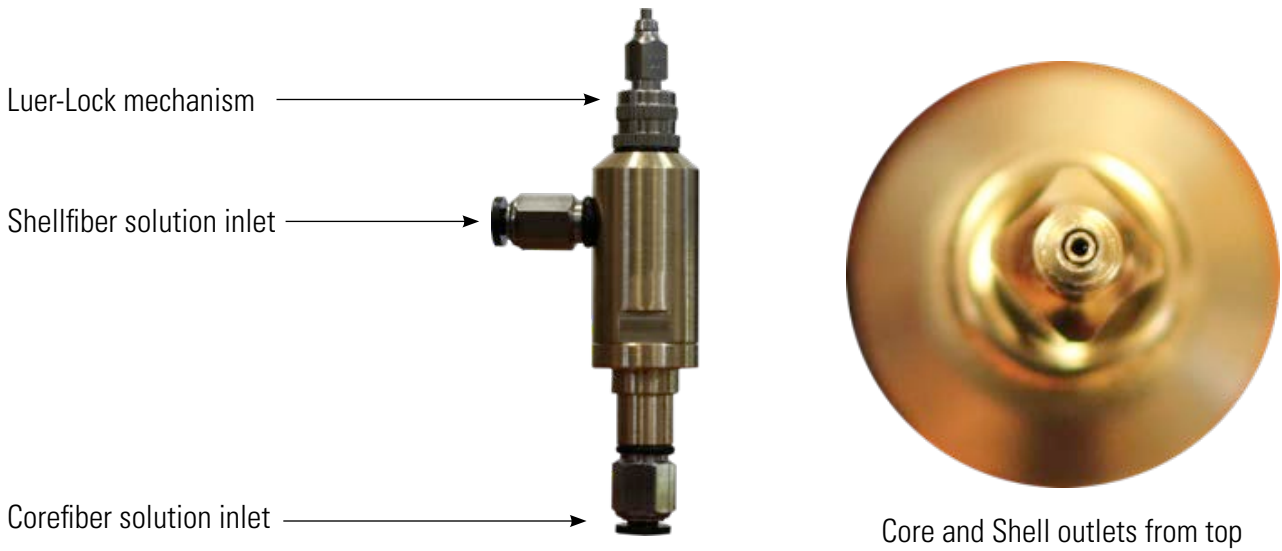
"Brass Co-Axial Nozzle"

"High Chemical Resistant
Stainless Steel Co-Axial Nozzle"

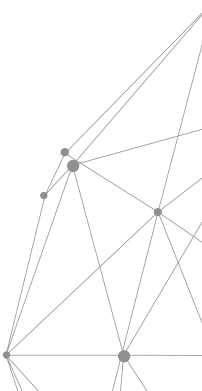
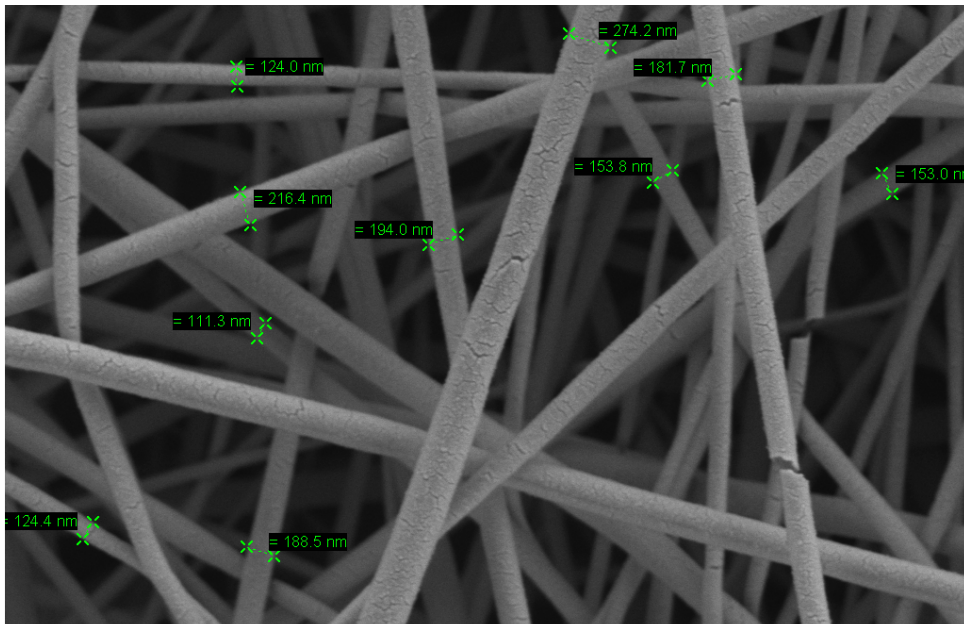




Co-Axial option package includes a Co-Axial nozzle, PE tubing for solution distribution from the pumps to the nozzle and an additional micropump.



Bicomponent Fiber formation with the Co-Axial Nozzles





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Turkey
Discover
the potential