



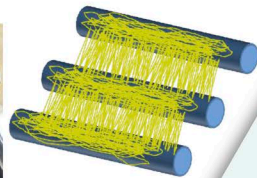
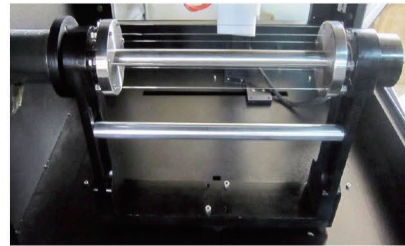
Rotating Drum Collector

In electrospinning, rotating collector is used to produce a uniform nanofibrous mat. This collection module consists of the rotating drum with a rotation speed control and display unit. Using this type of collector, randomly/oriented nanofibers are deposited onto the surface of the drum.



Disk Collector

Using this collector, nanofibrous threads or highly aligned nanofibers could be formed. Furthermore, the effect of linear speed on the fiber formation could be studied.



Rotating Wire Collector

The rotating wire collector is used to produce highly aligned nanofibers. It is composed of thin stainless-steel wires arranged at the same distance from the axis of the rotation. When the collector is rotating at very low speeds, fibers are also deposited between the conductive wires. The principle for the formation of aligned fibers is the same as in the case of the static patterned collector. At higher speeds, electrostatic and mechanical forces are combined, increasing the degree of alignment of the individual fibers. To achieve very good fiber alignment, the collector speeds could be much lower than those of the rotating drum collector.

Mandrel Collectors

Mandrel collector is a device to make tubular nanofibrous samples. The mandrel collector contains a stage, controller and a set of changeable mandrel collectors. The rotating mandrel collector could be used either as a stand-alone collector or could be integrated into lab-scale electrospinning machine. Six mandrels with the diameters of 2, 4, 6, 8 and 10 mm are included in this product.



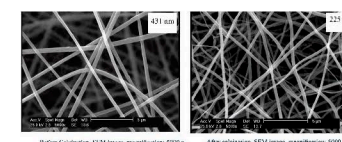
Wet Collector

Wet collector is designed for electrospinning of polymers which could not be dissolved in normal solvents. A typical example of these types of collectors is cellulose. Common solvent for cellulose is liquid crystals which do not evaporate during jet traveling. So instead of evaporation, coagulation mechanism is used to produce nanofibers from the electrospinning jet. For this purpose, a solution bath is used with the rotating drum to solidify the jet and get the final fibers.

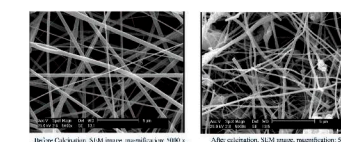
Specifications*

Collector type	Drum Collector	Disk Collector	Wet Collector	Wire Collector	Mandrel Collector
Application	Producing uniform nanofibrous mat	Producing parallel (aligned) fibers/fibrous threads	Wet electrospinning of polymers such as cellulose	Producing parallel (aligned) fibers	Producing nanofibrous tubular structures (artificial vessel, etc.)
Input power	100-240 VAC; 50-60 Hz				
Rotation speed	Up to 3000 rpm	Up to 3000 rpm	Up to 50 rpm	Up to 2500 rpm	Up to 2500 rpm
Length of collector	30 cm	N/A	16 cm	25 cm	20 cm
Collector diameter	8 cm	19.8 cm	10 cm	8 cm	2, 4, 6, 8 and 10 mm
Speed control	10-turn potentiometer				
Display	2 x 16 character LCD				

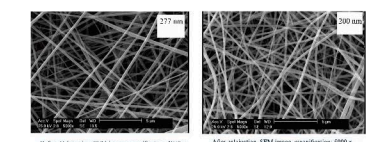
Inorganic and Organic Nanofibers



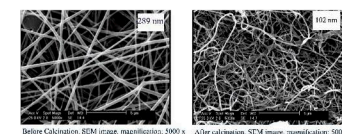
AL₂O₃ Nanofibers



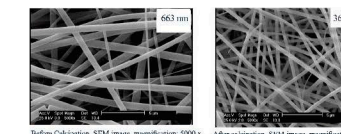
TiO₂ Nanofibers



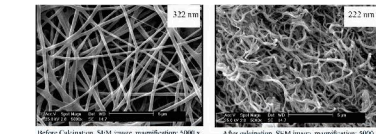
SiO₂ Nanofibers



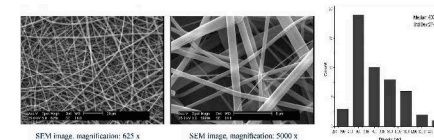
Fe₂O₃ Nanofibers



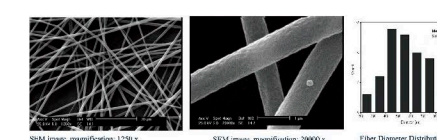
ZrO₂ Nanofibers



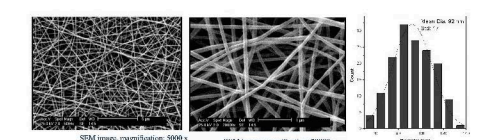
CeO₂ Nanofibers



Polyvinylpyrrolidone (PVP) Nanofibers



Poly (lactic acid) (PLA) Nanofibers



Poly (ε-caprolactone) (PCL) Nanofibers