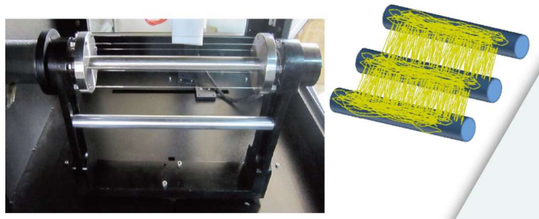
# Electrospinning Accessories

### Rotating Cylindrical Collector

In electrospinning, a rotating collector is employed to produce a uniform nanofibrous mat. This collection module features a rotating drum equipped with a rotation speed control and a display unit. By utilizing 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 can be formed. Additionally, the impact of linear speed on fiber formation can be investigated.



### Rotating Parallel Wire Collector

The rotating Parallel wire collector is utilized to produce aligned nanofibers. It consists of thin stainless-steel wires arranged equidistantly from the axis of the rotation. When the collector rotates at very low speeds, fibers are also deposited between the conductive wires. The mechanism for forming aligned fibers is similar to that of a static patterned collector. At higher speeds, the combination of electrostatic and mechanical forces enhances the alignment of individual fibers.

### Mandrel Collectors

The mandrel collector is a device designed for producing tubular nanofibrous mats. It consists of a stage, a controller, and a set of interchangeable mandrels. The rotating mandrel collector can function as a standalone unit or could be integrated into a lab-scale electrospinning machine. This product includes six mandrels with diameters of 2, 4, 6, 8, and 10 mm.



### Wet Collector

The wet collector is designed for electrospinning of polymers that cannot be dissolved in conventional solvents. A typical example of such polymers is cellulose. The common solvent for cellulose is liquid crystals, which do not evaporate during the jet's travel. Instead of evaporation, a coagulation mechanism is employed to produce nanofibers from the electrospinning jet. To achieve this, a solution bath is used in conjunction with the rotating drum to solidify the jet and yield the final fibers.

### Rotating Cylinder Collector Connected to High Voltage with Negative Polarity

In electrospinning, a cylindrical drum collector connected to a high voltage source with negative polarity is utilized to enhance the collection and alignment of nanofibers. This collector consists of a rotating drum that allows for the deposition of electrospun fibers onto its surface, creating a uniform nanofibrous mat. The application of negative voltage facilitates the attraction of positively charged polymer jets, ensuring efficient collection of the fibers as they are emitted from the electrospinning nozzle.

| Specifications* | | | | | |
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| **Collector type** | **Cylinder 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 | tubular structures (artificial vessel, etc.) |
| **Input power** | 100-240 V AC; 50-60 Hz | | | | |
| **Rotation speed** | 300 to 3000 rpm | 300 to 3000 rpm | 5 to 50 rpm | 250 to 2500 rpm | 250 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 × 16 character LCD | | | | |