

Nanofibers & Electrospinning Accessories

ROTATING DRUM COLLECTOR

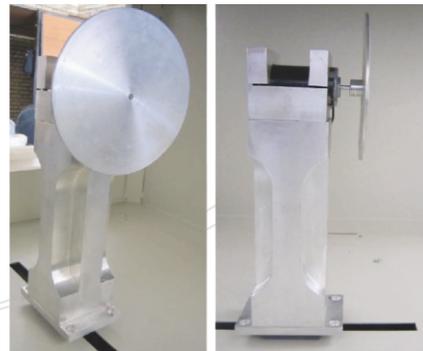
The rotating collector of electrospinning is used for collecting aligned nanofiber sheet. This is the simplest & the effective method to make aligned nanofibers. By using different length/ diameter ratio, with different rotating speed, an even fiber sheet or aligned fibers can be made. The rotating drum collector is used to change the orientation of the collected fibers and producing a homogenous nanofiber mats. This collection module consists of the rotating drum unit with a translational linear motion emitter. At low rotational speeds, the fibers are randomly deposited onto the surface of the drum. As the rotational speed of the drum is increased more than 3000 rpm, fibers are deposited on the surface in an aligned orientation.

- Drum size is 30 cm, and diameter 70 cm
- Maximum rotational speed is 3000 rpm



Disk collector

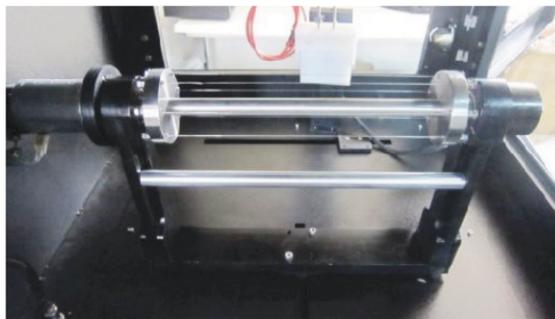
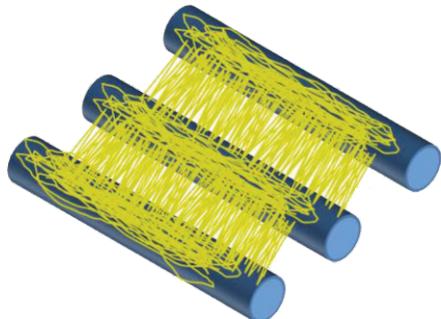
The disk collector is a device to make highly-aligned nanofiber samples. Spins higher alignment fibers than a drum collector.



ROTATING WIRE COLLECTORS

The rotating collector is composed of thin stainless steel wires arranged at the same distance from the axis of rotation. When the collector is rotated at very low speeds, fibers are also deposited between the conductive wires; the principle for the creation 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 can be much lower than those of the rotating drum collector.

Patterned nanofibrous mesh has been tested for some applications. Cell culture comparing proliferation of mouse osteoblastic cell between the patterned/textured nanofiber and randomly oriented nanofiber showed faster proliferation on the textured nanofiber membrane.



MANDREL COLLECTORS

The mandrel collector is a device to make tubular nanofiber samples. The mandrel collector contains a stage, controller and a set of mandrel collectors. The rotating mandrel collector can be used as a stand-alone collector and it can be integrated onto lab scale electrospinning machine. Included in this offer are 6 mandrels, 1, 2, 3, 4, 6 and 8 mm. The working length is 200 mm length. The rotational speed can be adjusted from 200-3000 rpm.



Coaxial electrospinning nozzle

Coaxial nozzle, where the nozzle comprises of an inner and outer orifice, is often associated with electrospinning core-shell fibers. However, the coaxial nozzle design has many other uses in electrospinning and the production of fibers. These include initiation and facilitation of electrospinning, controlling fiber quality, creating hollow fibers and reducing fiber diameter. The most popular bi-component electrospinning is coaxial electrospinning. Coaxial spinneret can produce Hollow nanofibers/microfibers, Core/Sheath nanofibers/microfibers. Using the coaxial electrospinning method, different characteristics from each polymer can be combined into one fiber. Some polymers with low spinnability could be spun using this spinneret. The one with good spinnability should be used as core fiber, and another one with low spinnability should be made to sheath. Non-spinnable materials such as oligomers, metal salts, enzymes, and liquids can also be immobilized in fibers to make functional nanofibers by coaxial electrospinning.

Coaxial eletrospinning is not limited to produce core/shell nanofibers, systems with buckling, drop-shape inclusions inside a continuous shell can also be made by controlling the viscosity of inner and outer solutions.