LINARI NanoTech

“The world of nanofibers in your hands”

Ed.2020

ABOUT US

Our story began in 2003, when Eng. Stefano Linari decided to bring his ideas to life founding Linari Engineering Holding.

From the very beginning, we have been growing our knowledge synergically working with important European and international research centers in the field of physics, nanotechnologies, chemistry, and mechatronics.

The experience gained during the years lead to the creation of three branches of Linari Holding: Linari Nanotech, Linari Medical, and Linari Automation.
In all these fields we have been able to anticipate and successfully meet industries' needs using avant-garde technologies in industrial automation.

Today, Linari Nanotech is privileged to be recognized among the three best manufacturers in the world in the creation of electrospinning systems.

Our ability to follow all phases of the life cycle of a technological product, from design to manufacturing, makes us a partner of choice for those looking for high-quality products that are fully customizable.

Just the complete control of the mechanics, the sensors and the actuators, as well as the logic of control, enable us to respond efficiently and very quickly to any form of customization clients require for their needs.

By handling most of the production processes internally, high standards of quality, compliance with the delivery deadlines and excellent customer service are always guaranteed.

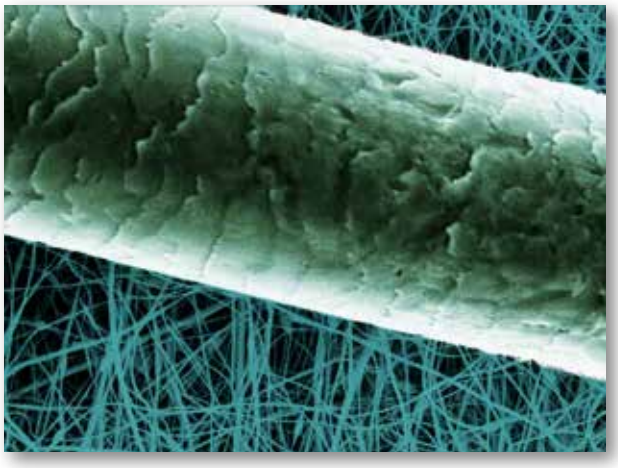
ELECTROSPINNING

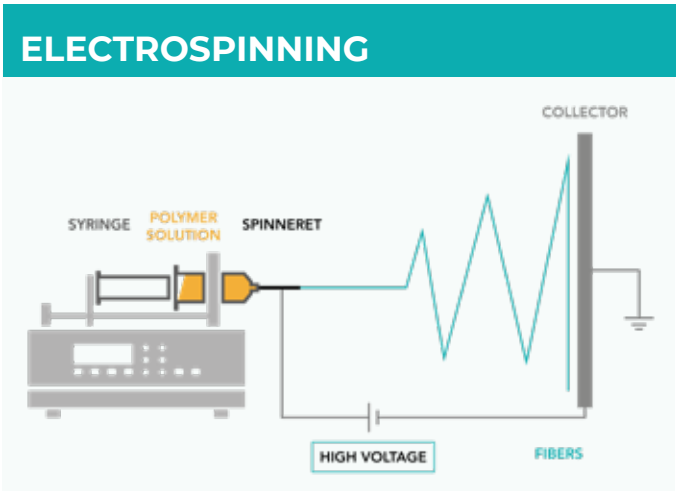
ELECTROSPINNING IN BRIEF

Future
is nano

Electrospinning is a polymer extrusion-based technology, popular for its ability to fabricate ultra-thin fibres of micrometer to nanometre in diameter.

If you're wondering how big a nanometre is, just consider that a **nanofibre of 100 nm is 500 times smaller than the width of a human hair.**





In brief, electrospinning process involves the use of polymers in solution, usually formed by its dissolution in a solvent.

The basic electrospinning setup involves:

- A high voltage supplier
- A set of capillary tubes with small needles
- A grounded metallic collecting plate or drum.

Electrically charged polymer jets are ejected from a needle and are attracted towards the grounded collecting instrument of choice.

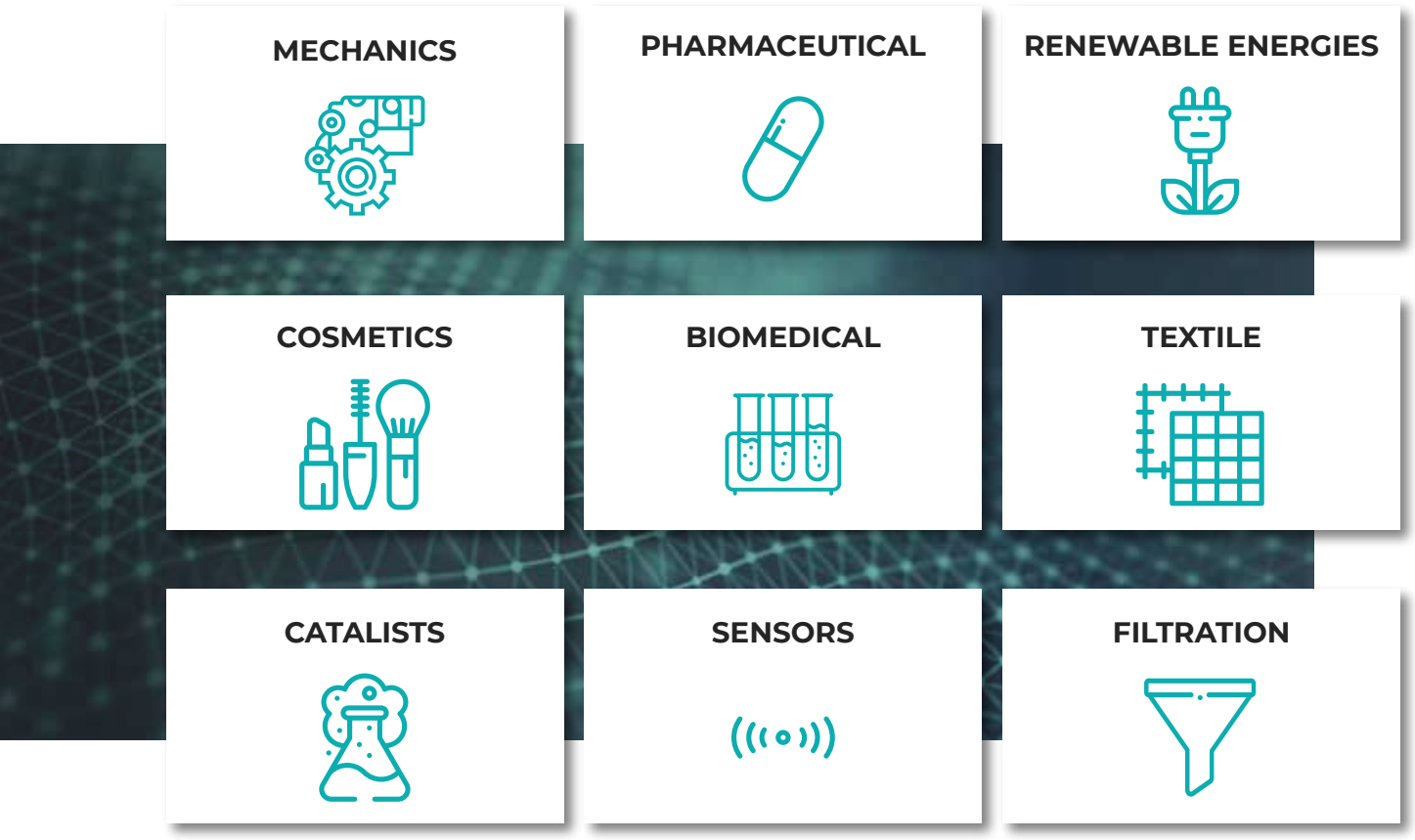
During this ejection, solvents will be evaporated off, leaving the solidified strand of polymer to collect on either the plate or drum.

Discover more!

https://www.linarinanotech.com
/blogs/news/electrospinning-for-beginners

FIELDS OF APPLICATION

The potential of nanofibers is being explored in different application fields:



In the last years, we are experiencing an increase in requests, as electrospinning is becoming more and more popular throughout the globe.

OUR PRODUCTS

Linari Nanotech offers a wide portfolio of products and services, to allow clients to buy all the necessary for their electrospinning setup in a single place.
Not only do we design electrospinning machines, but we also sell electrospinning chamber, pumps, needles, high voltage generators, and tubes and fittings.

STARTER KIT

The perfect machine to start exploring nanofibers' world

R&D DEVICES

Sophisticated set ups, for more precise electrospinning techniques

RT ADVANCED

Advanced and industrial scale electrospinning machine

ELECTROSPINNING CHAMBER

Take control of the electrospinning environment, in order to get consistent and repeatable results.

ACCESSORIES

Expand the capacity of your electrospinning machines with our wide range of accessories as collectors, needles and core-shell equipment.

OUR PRODUCTS

1 - STARTER KIT

Easy to instal

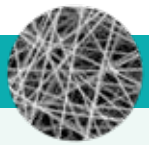
Ready to use

Our starter kits are the perfect machines for beginners who want to explore the world of nanofibers.

Thanks to the absence of spatial restrictions, you'll be able to rearrange your equipment to create any electrospinning configuration you may require, adding devices and accessories as your experience grows.

" Start obtaining your random and aligned fibers! "

RANDOM



KIT includes:
High voltage generator;
Control unit;
Syringe pump:
Needles:
Glass syringes:
Multiple needles;
Static collector set.

ALIGNED

KIT includes:
High voltage generator;
Control unit;
Syringe pump:
Needles:
Glass syringes:
Multiple needles;
Rotary unit and drum collector.

OUR PRODUCTS

1 - STARTER KIT

aligned

Easy Drum

It's from the clients' need to create aligned fibers that the Easy Drum born. Compared to other rotary systems on the market, this machine allows the user to detach the collector, with the advantage of simply replacing it and allowing the creation of tubular structures. By simply moving the mandrels in fact, the collector can be removed without the need of cutting your fibers substrate.

Control panel

Rotatory unit

Collector

Not included

Let's see it in action!

Watch it on youtube

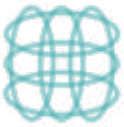
https://www.youtube.com/watch?v=psHjvYVqxz8

OUR PRODUCTS

2 - 2D SPIN

extra Precise fibers

aligned



random

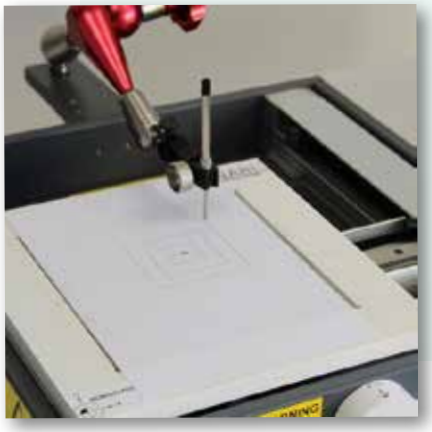
For near-field or melt electrospinning, we designed the 2D Spin.

With this XY table, you can obtain extra precise fibers drawing the trajectory of the plane collector.

Compared to other solutions on the market, this system allows you to program the collector trajectory on an excel sheet or using the G code, a standard code regulated by an ISO (also automatically generated from CAD programs), setting up movements on an XY table and its speed.

“ Draw the trajectory of your collector! ”

2D SPIN



Let’s see it in action!

Watch it on youtube

https://www.youtube.com/watch?v=1IUL-itgPjY

OUR PRODUCTS

3 - ELECTROSPINNING ROTO - TRANSLATION UNIT

Uniform
substrate of fibers

Proceeding with their researches, clients started to ask us a system to obtain a uniform substrate of fibers.

After a first-generation or roto translation systems, we have launched a roto translating unit.

This high tech system combines the rotary and translation movement of the collector to create a uniform substrate of both random or aligned fibers, by simply changing the configuration.

With this unit, safe and ready to use, you can electrospin any type of organic, synthetic or ceramic polymer.

Nanofibers are characterized by a high reproducibility over time and by a uniform thickness along the axis of the collector.

ROTO TRANSLATION UNIT

The unit includes:
High voltage generator;
Roto Translating Collector;
Dielectric Support;
Electrospinning Chamber;
Needles,
Syringe electrical insulation,
Glass Syringe;
Teflon tubes with male/female fittings.

OUR PRODUCTS

4 - 3D SPIN

needle/collector
distance controlled

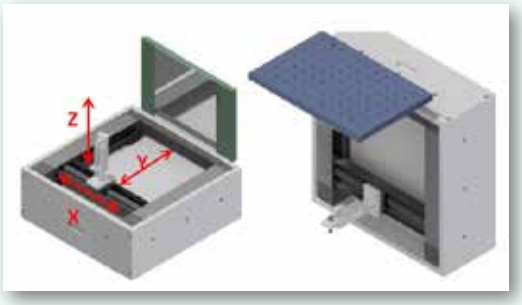
A complete solution for those in need to control the distance between needle and collector during the whole electrospinning process. Setting up the position of the needle, you can deposit fibers with different thickness on your collector. Moreover, that allows you to increase the distance between needle and collector if a longer trajectory is required for solvent evaporation.

Thanks to the G-code interpreter you'll be able to draw the desired trajectory of the table through a CAD software. The CSV interpreter allows you to create work programs in a simple way through spreadsheets.

random

aligned

BASIC CONFIGURATION



WITH ROTATORY COLLECTOR

The unit includes:
2D spin
HV Generator 40kV
Vertical Support
Plate Collector
PVC Modular Support
Syringe Pump
Luer Needles
Multiple Needles
Glass Syringes
Electrospinning Station Hood

The unit includes:
2D spin
HV Generator 40kV
Vertical Support
Plate Collector
PVC Modular Support
Syringe Pump
Luer Needles
Multiple Needles
Glass Syringes
Electrospinning Station Hood
Easy drum

OUR PRODUCTS

5 - RT ADVANCED

The most technologically advanced electrospinning machine for industrial production.

RT ADVANCED

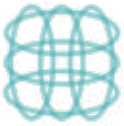
Access&Visibility
on three sides

Automatic
needles cleaning

high level
Protection

Compact
dimension

aligned



random

speed up to
5000 rpm

The peculiarity of this system is that the collector stays fixed, while the syringes move on the vertical axis.
This technology, combined with the vertical collector and the machine weight of 300kg, allows reaching a speed up to 5000 rpm without causing oscillation.

up to
8 materials

Work with up to 8 different materials at the same time using only three independent high-voltage generators.

RT ADVANCED

OUR PRODUCTS

5 - RT ADVANCED

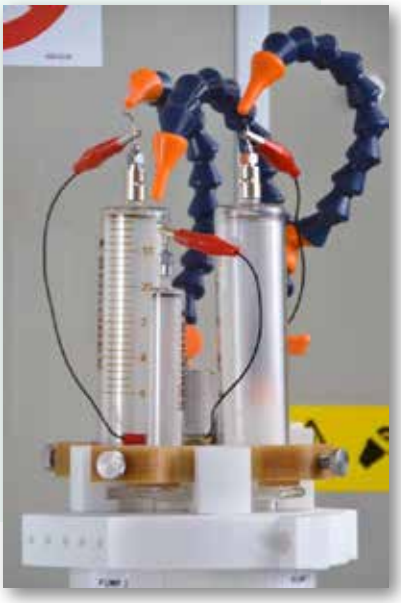
RT ADVANCED

Real time
quality control

Being the fibers extremely soft and thin, calipers or micrometers are not suitable to measure the number of nanomaterials produced. Through the optical system of Omron technology, we can now monitor in real-time the thickness of the fibers, to an accuracy of 10 nanometers.

environmental
Control

RT ADVANCED



Remote Control
intuitive touch screen

Efficient
no solution loss

Thanks to its special design and the absence of tubes, you won't have any waste of material.

Indipendent
pumps

Thanks to this feature, multiple configurations are possible:

- Obtain core-shell fibers
- Set up consequential syringe emptying
- Obtain needle punch fibers

OUR PRODUCTS

6 - ELECTROSPINNING STATION HOOD

A station designed to fit all your electrospinning components in one place, whilst remaining easily accessible and compact, simple to use and ensures a high level of safety for the user.

Prevent interferences

A special attention is dedicated to raw materials. Our hood is made with laminate and covered wood, to avoid interferences of metallic elements that alter the fibers' trajectory.

STATION HOOD

Customizable options

For the scientist spinning with various materials or wishing to be able to have tight control over their fiber size, quality, and uniformity, it may be necessary to have a more regulated environment for electro-spinning.

Available options:

- °C and humidity monitor + Heater
- Air Recycle System
- Air Aspiration System

Safety

With the Linari electrospinning hood, your safety is reassured:

- Automatic high voltage generator cut off system.
- Over pressure relief trap
- Grounding of all metal components
- Plexiglass sliding door
- 10m3/h ventilation system.

OUR PRODUCTS

7 - COAXIAL NEEDLE EQUIPMENT

With coaxial needles, you gain the ability to spin two or more polymers simultaneously within the same fiber. This can allow for the production of a fiber with an inner shell and outer core.

Work with interchangeable and customizable tips.

If you don't need to have replaceable tips, this is the right accessory for you.

MODULAR KIT

SEALED KIT

Modular kit includes:
Dielectric support
Adapter
Sealing kit
Base
Tip

Sealed kit includes:
Dielectric support
Adapter
Sealing kit
Sealed Coaxial needle

OUR PRODUCTS

8 - ACCESSORIES

PIPES & FITTINGS

ADAPTER

TUBINGS

Teflon and PVC tubings for every electrospinning configuration

COLLECTORS

ALUMINUM CYLINDER

Cylindrical collector designed to guarantee a successful electrospinning process. Available in different sizes to allow the creation of tubular structures with different diameter.

WIRE DRUM

Drum collector to produce very thin fibers.Thanks to the few contact points, you can easily peel your fibers, even of little thickness.

STEEL PLATE

Collect mats of randomised fibers.

ALUMINUM DISK

Collect orderly nanofiber structures both on its lateral and the circular surfaces.

OUR PRODUCTS

8 - ACCESSORIES

MODULAR SUPPORTS

Available in different materials and shapes.
Choose your favourite one and easily set your electrospinning setup.

PTFE / ALUMINIUM / PCV

VERTICAL

SYRINGES & PUMPS

MULTIPLE NEEDLE

Speed up your productivity

SYRINGES

Glass and ceramic Syringes

PUMPS

Independent pumps single or double channel

NEEDLES

Different needles sizes and shapes

COSTUMER SERVICE

Excellent costumer service

after sales Assistance

In order to guarantee our clients a great purchase experience, we invest a lot of resources and energy in our service and after-sales assistance. We give that a central role in our company strategy, as we believe it represents a foundation for future growth.

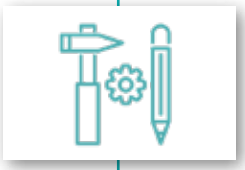
We care about providing assistance before, during and after purchase.

A highly qualified team is always on hand to help customers choosing their electrospinning equipment.

Linari Nanotech offers an accurate after-sales service too, guaranteeing high-quality professional support

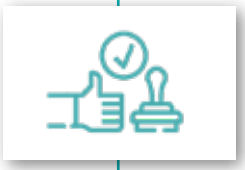
We are here for you

One of our consultants will be here to help discuss your specific needs.



Customize your products

Our expert team of engineers will assist you with any customization you may need.



Easy & user friendly machines

Our machines are designed to be easy to setup and ready to use.

After sales assistance

We are here to provide you with assistance throughout life of your machines.

“Trust someone with experience”

CONTACT US

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