

E-Fiber

Modular electrospinning/electrospraying platform



EF100 - Electrospinning/electrospraying system

EF100 is an electrospinning/electrospraying complete plug & play solution for research and development applications and for users who require a modular upgradeable setup.

EF100 is a fully-customisable electrospinning/electrospraying platform consisting of injection stages and application-specific collectors (static or movable), for laboratory-scale manufacturing of polymeric nanofibrous matrices.

This device provides a powerful and highly versatile technique for the creation of various fibrous architectures with controlled fibre diameter and orientation. Its technology minimises influence on the electrospinning process.

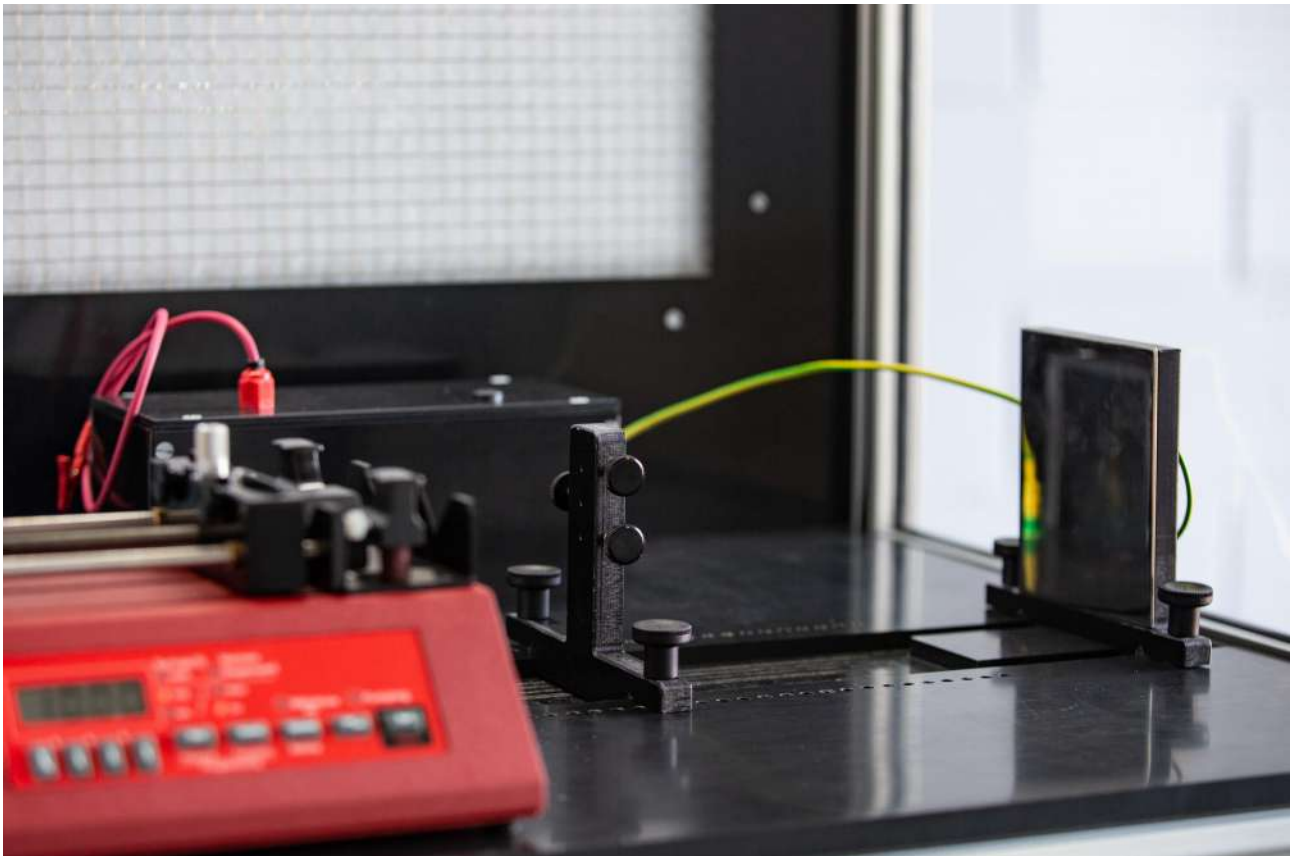
E-Fiber EF100 offers various technological solutions to accurately control each process guaranteeing batch-to-batch reproducibility and precise control of fibre parameters such as diameter, orientation and texture.

The equipment is user-friendly and safe thanks to the automatic safety devices that protects the operator during operations.

E-Fiber EF100 is a Desktop system that in its basic setup includes:

- cabinet with extraction fan
- high voltage power supply 0-40 kV
- control system with LCD console
- 1-channel syringe pump with external remote control
- manual distance adjusting
- spinneret and collector insulating support
- disposable kit

Disposable kit includes 2 stainless steel spinneret of 2 different diameters, 100 syringes, tygon/ptfe tubing (7.5m), polypropylene male and female luer connectors (15+15).



Standard system is installed in a cabinet equipped with an extraction fan.

EF100 can be equipped with a TUV certified fume-hood with an active carbon filtered system (customizable for specific solvents and chemical agents).



EF100 - Accessories

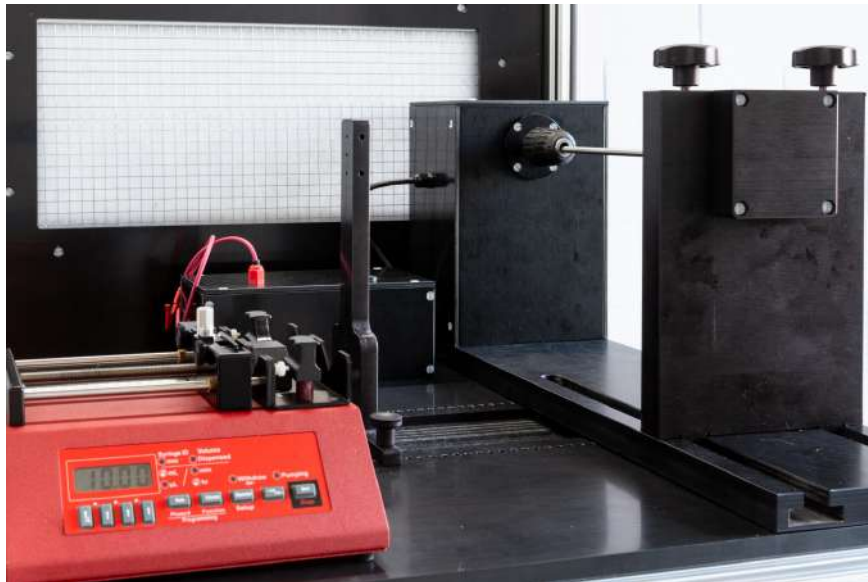
E-Fiber can be equipped and upgraded with a variety of accessories to extend and best fit user requirements and applications.

Interchangeable size rotating collector

Rotating collector used to electrospin cylindrical or big planar structures with oriented and non-oriented fibers (depending on rotation speed). This version can house cylindrical collectors (mandrels) with different diameters and lengths and, because it is highly flexible and versatile, it is ideal for research applications.

Entirely made with insulating materials, in order to avoid interferences with the electrical field and electrospinning process. Electronic feedback for a precise control over speed rotation, in order to grant highly reproducible batch-to-batch conditions. Supplied with 5 collectors of different diameters.

Standard parameters : adjustable speed between 50-1200 rpm, collectors up to 250mm length and 150mm diameter.

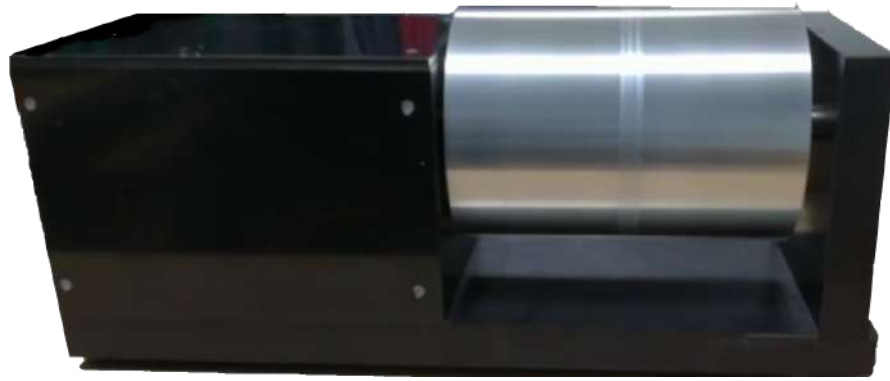


High speed rotating collector

A motor-driven cylindrical collector, used for electrospinning cylindrical or big planar structures with oriented and non-oriented fibers: this model can reach very high rotation speed.

Entirely made with insulating materials, in order to avoid interferences with the electrical field and electrospinning process. Electronic feedback for a precise control over speed rotation, in order to grant highly reproducible batch-to-batch conditions.

Standard Parameters : adjustable speed between 50-4000 rpm, collector 250mm length and 160mm diameter.



Multi Channel Syringe pump

Replaces the standard supplied syringe pump, useful for electrospinning of high quantity of solution through multiple syringes, big target collectors, or coaxial and triaxial spinneret.

Available with 2, 6 and 12 channels



Coaxial spinneret needle

Coaxial spinneret needle made of two coaxial needles, used to simultaneously electrospin up to two different polymers. This is generally used to create fibers whose core and shell are made of different materials. Ideal for research purposes. Detachable options for easy cleaning operations. Minimum dead volume.

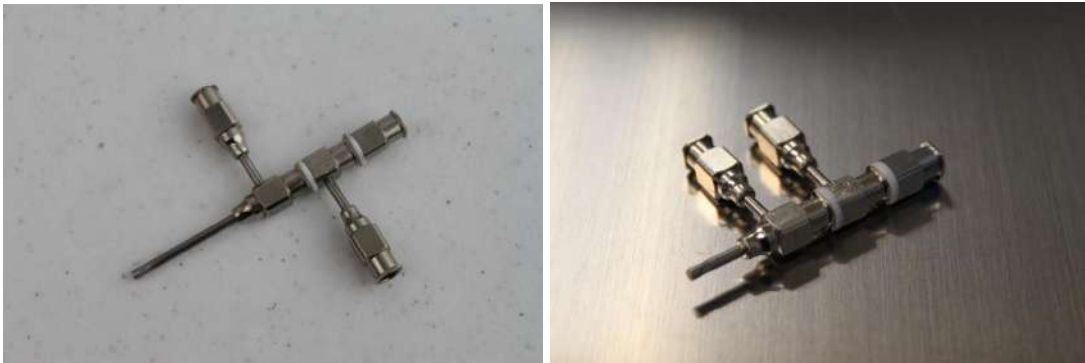
Fully customizable and made according to customer specifications (need at least a dual channel syringe pump or 2 single channel syringe pumps).



Triaxial spinneret needle

Triaxial spinneret needle, made of three coaxial needles, used to simultaneously electrospin up to three different polymers. Generally used to create fibers with cores and shells made of different materials. Ideal for research purposes. Detachable options for easy cleaning operations. Minimum dead volume.

Fully customizable and made according to customer specifications. (need at least a six channel syringe pump).



Climate control unit - Humidity reduction

E-Fiber EF100 system can be equipped with an external humidity reduction module, in order to control environmental parameters on your working area, with a real time monitoring. This module dehumidifies the air of the working area, and keeps it constant during your electrospinning session. Humidity is directly visualized on the control user interface.

Parameters : humidity reduction up to 20% RH, working range: 0 – 100% RH, Dehumidification performance 1.6 kg/h @ 60% RH.



Climate control unit - Full environmental control

E-Fiber EF100 system can be equipped with an external full control module, in order to control environmental parameters on your working area, with a real time monitoring. This module controls temperature and humidity of the air of the working area, and keeps it constant during your electrospinning session. You can directly manage your setpoint of °C and RH% on the control user interface.

Parameters :

Setting Range: Tenv/+45°C – 20/60 % RH,

Working range: +18/+25°C – 40/80% RH,

Heating power: 3 kW, Dehumidification power: 2kW,

Air volume effective: 180 m3/h



Disposable kit

The disposable kit includes:

- 2 stainless steel spinneret of different diameters
- 100 syringes
- tygon/ptfe tubing (7.5m)
- polypropylene male and female luer connectors (15+15).



TECHNICAL DATA

General Information

Dimensions	800 mm x 700 mm x 1300 mm (W x D x H)
Weight	approx. 50 kg
Cable Length	AC power supply 1.5 meters
User interface	LCD with voltage and current monitor (default) Pump button on/off High voltage on/off Touch screen (on request, default with Climate Control Unit)
Emergency Button	Yes
Safety switch (interlock)	Yes
Main power	110-240 Vac ~ 50/60Hz

High-voltage power supply (CE and UL mark)

Voltage *	Single High Voltage power supply 0÷40kV
Polarity *	Positive (default) Negative can be customized on request
Power *	30W for high voltage power supply (higher power on request)
Current *	0,75 mA max
Arc and Short-circuit protection	Yes
Safety Interlock	Yes
Voltage Accuracy	± 2%
Voltage Stability	0,01% per 8h
Regulatory Approvals	Compliant to 2004/108/EC EMC Directive Compliant to 2006/95/EC Low Voltage Directive

* Fully customizable features

Syringe pump

Non programmable

Channels	1
Syringe	up to 60 mL
Infusion rates	from 0.73µL/hr (1mL syringe) to 1500mL/hr (60mL syringe)
Dispensing accuracy	+/- 1.00 %

Programmable

Channels	1
Syringe	up to 60 mL
Flow rates	from 0.73 μ L/hr (1mL syringe) to 2100mL/hr (60mL syringe)
Dispensing accuracy	+/- 1.00 %

Collector

Shape *	square
Size *	120 [W] x 130 [D] mm (default) 200[W] x 200 [D] mm (on request)
Material *	stainless steel
Spinning Distance	50 ÷ 300 mm

Spinneret

Spinneret type	Single spinneret
Spinneret range size*	30G up to 10G
Length*	50 mm
Material	stainless steel

* Fully customizable features

Safety

Interlock system	On door opening, Safe/Normal mode
Emergency button switch	Mushroom red button
Fume extraction	Enclosure with extraction fan Maximum extracted volume 108 m ³ /h
External fume extraction connection	80 mm
Filtering option	TUV certified fume-hood with active carbon filter (optional) Maximum filtered volume 300 m ³ /h
In Force legislations	LVD 2014/35/UE 2006/42/CE

ORDERING DETAILS

Product code EF100

Standard Options:

EF100 w non-programmable syringe pump	EF100-HV4P-CS120130-SP1N
EF100 w programmable syringe pump	EF100-HV4P-CS120130-SP1P
EF100 w collector 200x200 mm	EF100-HV4P-CS200200-*

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