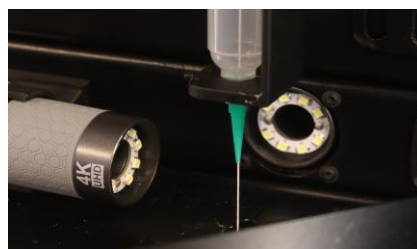


Yarn Coating & Curing Machine

Advancing E-textile Research



The Yarn Coating & Curing System is a compact inline platform enabling precise and continuous ink coating for the creation of functional yarns.

A nozzle-based coating head ensures controlled multilayer deposition and ensures high ink efficiency. Compatible with any ink suitable for screen-printing.

Features a vertically integrated curing module to streamline production.

The modular design allows for quick and simple change of functionality. For example, the thermal curing module can be easily swapped for a UV curing module enabling yarn coating with UV curable inks.

Technical Specifications

Dimensions * (W x H x D)	Weight (kg)	Single-Phase Power Requirements	Current Rating (A)	Vented Extraction	Air Supply	Environment
600 x 1300 x 600 mm 23.6 x 51.18 x 23.6 inch	~100	200 – 240 V AC, 50 Hz 100 – 127 V AC, 60 Hz	13 (240 V) 15 (110 V)	Required	No	15°C to 28°C RH 20 – 70%

Drive System

Motor	Step Angle	Max Speed
Bipolar stepper + encoder	1.8° with micro- stepping	300 RPM

Heating System

Heater Type	Heating Zones	Max Temp Accuracy	Temp. Control
Quartz halogen, tungsten	2**	300°C ±0.2%	Front panel or USB

Imaging System

Camera	Light	Status
Dual 4K cameras	Adjust. light	3-stack signal tower

Coating Capabilities

Yarn Types	Monofilament and multifilament
Nozzle Diameters	95 µm to 1600 µm
Ink Viscosity Range	≥ 1000 mPa·s
Yarn Tension Range	0.3 – 2.3 N
Maximum Yarn Travel Speed	18.6 m/min (with a 20 mm yarn spool)
Ink Efficiency	0.34 g per 10 m of yarn***

Link to demo [video](#):



*Additional configurations available as benchtop and floor-standing (see Configurations tab)

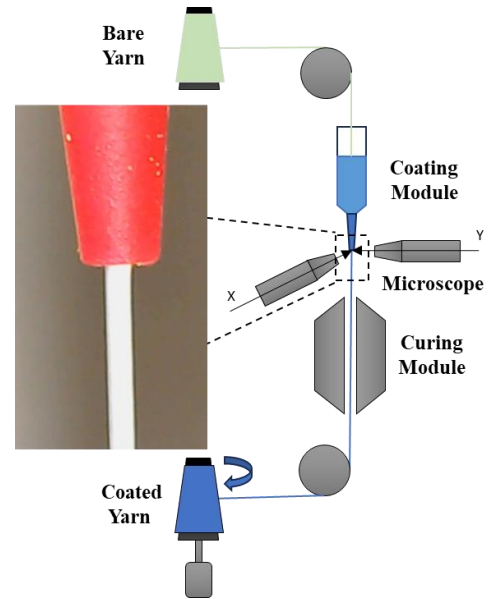
**Number of heating zones can change depending on size (see Configurations tab)

***For 30 µm coating onto a 200 µm nylon yarn using standard dielectric ink

Features

- ✓ **Modular Design** – Custom arrangement for functionality expansion
 - UV Curing module
 - Yarn Winding module (*coming soon*)
- ✓ **Integrated Curing** – Inline IR/UV curing for streamlined coating
- ✓ **Compact** – Small and configurable footprint to fit any lab space
- ✓ **Speed & Thickness Control** – Adjustable coating speed and interchangeable nozzles for versatile applications and ink rheology
- ✓ **Wide Ink Compatibility** – Any ink with viscosity above 1000 mPa·s
- ✓ **Vertical Coating** – Uniform coating application without stressing the yarn

Operating Principle



Configurations

	Standard	Benchtop	Floor-standing
Height (H)	1300 mm / 51.2 inch	902 mm / 35.5 inch	1970 mm / 77.6 inch
Heating Zones	2	1	Up to 5
Temperature profile	Yes	No	Yes
Co-axial coating in a single run	No	No	Yes
Max yarn speed*	3.5 m/min	1.75 m/min	8.75 m/min
Graphical illustration			

*For a thermally cured dielectric ink, coating thickness 30 μm .