

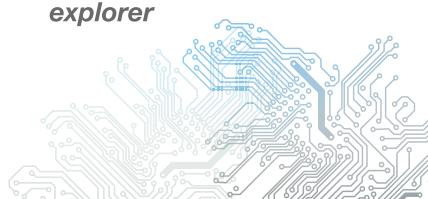
explorer 801

The explorer 801 is a modular roll-to-roll slot-die coating system with integrated drying and atmosphere control, enabling reproducible coating of perovskite and functional layers.



801

explorer



Modular Roll-to-Roll Perovskite Slot-Die Coater with Integrated Drying and Atmosphere Control

The explorer 801 perovskite slot-die coater features integrated drying and atmosphere control, enabling roll-to-roll coating for advanced R&D and scalable pilot production of functional PV layers.

Applications

- ✓ Pilot coating for perovskite and thin-film PV layers
- ✓ Process development with stop-and-go and low dead volume
- ✓ Scalable pilot coating on flexible substrates (e.g. PET, PEN, PI)
- ✓ Barrier, planarization and encapsulation layers for device integration

Coating Technology

Precision slot-die
Interchangeable heads
Heated backing roller

Drying & Atmosphere

Air knife
Pre-oven hot plates
Hot-air
IR/NIR ready
Controlled dry-air

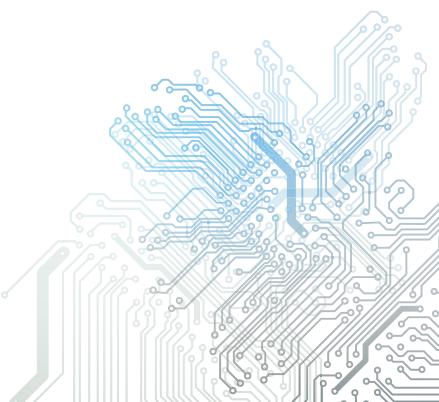
Web Handling & Automation

Precision tension control
Bidirectional path
Splice station
Recipe-based processing



Technical Data

Coating technology:	Slot-die coating, variable number of stations
Slot-die station:	Variable head widths (50 - 300 mm), 8-12 o'clock, automated Z & θ (1 µm steps), heated backing roller up to 70 °C (±1 °C)
Air knives:	Adjustable position/angle, 0.1 - 30 mm standoff, 0.1- 6 bar, up to 200 L/min, flow and pressure controlled
Drying/anneal:	2000 mm hot-air dryer, double-sided, up to 200 °C, IR/NIR-ready, pre-oven hot plates
Atmosphere & emission control:	Enclosure with regulated dry air ≥ 5 % RH, exhaust capture/filtration via activated carbon.
Substrate pre-treatment:	Corona treatment
Web handling & control system:	Bidirectional transport, edge guiding, tension control (load cells), 3" cores, max roll Ø 500 mm / 30 kg
Options:	Cutter/splice station with vacuum table, support-tape path for delicate films
Substrate size:	Up to 300 mm web width
Substrate compatibility:	Flexible polymer films (e.g. PET, PEN, PI)
Process speed:	0.1 - 10 m/min.
Data Exchange:	OPC UA, SQL database
Multi-step recipe:	Supported
Recipe control:	User-specific recipe management for precise process control
Dimension (L x W x H):	Configuration dependent (varies by number of modules)
Weight:	Configuration dependent (varies by number of modules)



Technologies & Options

- Precision Slot-Die Coating:** Interchangeable 50–300 mm heads, angular position 8–12 o'clock, automated Z & θ fine adjustment (1 µm steps), heated head and backing roller up to 70°C for maximum coating precision.
- Intelligent Web Transport:** Servo unwind/rewind, load-cell tension control, bidirectional web path, stop-and-go processing, air turn bars, edge guiding and corona/de-ionization for clean, repeatable handling (3" cores, max roll Ø 500 mm / 30 kg).
- Automation & Data:** Intuitive control interface with recipe-based automation, stepwise sequencing (e.g., pump infuse/withdraw synchronized with web motion), live monitoring and alarm history, full parameter and climate logging, SQL database handling for process and machine parameter, OPC UA data exchange, secure remote support.
- Optional Integrated Printing Unit:** On request, the system can be equipped with an additional printing module such as gravure, flexographic or rotary screen. It is configured in addition to slot-die coating, enabling hybrid process sequences such as multilayer coatings with integrated printing steps. Integration is tailored to customer requirements and aligned with the process layout.
- Modular Drying & Atmosphere Control:** Pre-oven hot plates and 2000 mm hot air oven (top/bottom zones) up to 200 °C, IR/NIR-ready, process enclosure with regulated dry air ≤ 5 % RH
- Cutter & Splice Station / Support Web (Optional):** Integrated cut/insert with vacuum table for quick splicing; optional support-tape path for delicate films.

