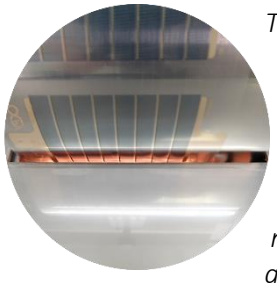
TR2RC - Industrial Coater

infinityPV ApS offers a complete series of laboratory equipment for preparing and testing novel solar cell technologies. We have extensive experience with scaling up manufacture of novel PV starting from square millimeter devices and up to kilometer long rolls for printed solar cells. Bridging this gap requires a number of rational steps and tools. The TR2RC is an industrial coater that allows you to prepare solar cells using roll and roll-to-roll coating methods by various drying and curing conditions (hot air, IR and UV). It allows for both slot-die coating of active layers and carrier transporting layers, but also flexographic printing of the back electrode. The system comes as a basic platform that can be configured together with you to suit your needs. The desk sized unit is mounted on wheels and is easily transported around the industrial laboratory and can either be operated inside a walk-in fume cupboard or with point extraction. We also offer a hood system for the TR2RC so that it can be operated anywhere safely - all you need is a point of exit for a 100 mm diameter extraction hose.

Key highlights:

From Roll to R2R coating

With the R2R option the TR2RC provides the opportunity to coat on short pieces of foil all the way up to 100 meters of foil making it perfect for material/device research and laboratory production of modules. The TR2RC hereby bridging the gap between laboratory and full scale OPV production.



Diversity in drying

The TR2RC has a heated drum, which works perfect for carrying out small scale experiments on short pieces of foil. With the R2R option follows our advanced oven system that allows for multiply drying possibilities such as hot air, hot inert gas, IR and UV. The compact and powerful oven system highly mimics the drying applied in industrial manufacturing and permits high speed when coating in R2R mode.

Syringe pump

The TR2RC has an integrated syringe pump that works with the system and enables control over the pumping rate and the wet thickness of the applied ink. It is ideal for low viscosity inks and slot-die coating.

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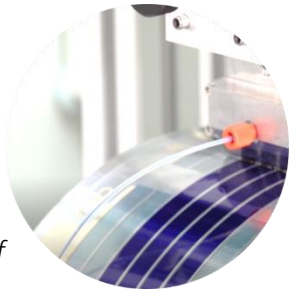
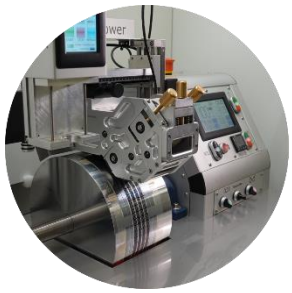
Compact

The TR2RC comes on wheels, which makes it easy to move around. The compact design measures only 100 cm width x 70 cm depth x 135 cm height and it therefor fits the most walk-in fume cupboards. The unit can also be operated outside the fume cupboard as it can be made with an extraction cabinet that only needs connection to point extraction in the laboratory.

Slot-die coating

The TR2RC comes as standard with a one stripe slot-die head that works for both high and low viscosity inks. This is perfect for single device preparation when testing new inks in the device stack. Large slot-die heads are easily mounted on the TR2RC such as our four or eight stripe slot-die heads that allow for fast preparation of modules in pilot scale.



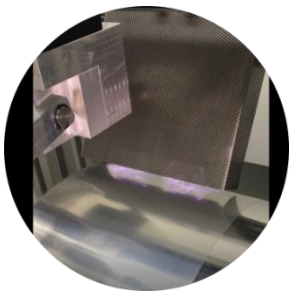


Flexographic printing

For the TR2RC we have both the simple and the advanced flexographic system. The simple flexographic roller system can be used for printing many types of materials when preparing single devices among others the back silver for inverted geometry device. The advanced flexographic system is specially designed for R2R printing.

Plasma

The plasma option can be applied for pretreating of foil, which is advantageous when working with low surface energy substrates. The plasma treatment can enhance the wettability of the ink on the foil and hereby allows for a better control of the wet thickness and homogeneity of processed layer.



Service and support:

We offer service using phone or skype during our opening hours and on request we can offer service on a 24/7 basis. We guarantee shipping of spare parts to Europe, US and RoW within 2 working days.

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Options and installation

The TR2RC comes in a basic configuration to which options can be added according to the needs. It can easily be upgraded at any later stage. A number of extra printing coating methods can be added.

	TR2RC basic	TR2RC print	TR2RC scaled	TR2RC full	TR2RC atex	**TR2RC complete**
Stainless steel table and 3 feet coating	✓	✓	✓	✓	✓	✓
Heated roller (20-140 °C)	(✓)	✓	✓	✓	✓	✓
Slot-die head		✓	✓	✓	✓	✓
Syringe pump		✓	✓	✓	✓	✓
Simple flexographic roller system		✓	✓	✓	✓	✓
Advanced flexographic printing system			✓	✓	(✓)	✓
Capacity for 100-meter rolls			✓	✓	(✓)	✓
Plasma unit (80-100 mm wide)						✓
Hot-air drying unit				✓	(✓)	✓
IR drying unit				✓	(✓)	✓
UV drying unit				✓	(✓)	✓
Inert gas option for drying under inert atmosphere						✓
Laminator for pressure sensitive adhesives						✓
Laminator for UV curing adhesives						(✓)
Laminator for hotmelt adhesives						(✓)
R2R IV-tester and switcher (single channel)						✓
Extraction cabinet					✓	(✓)
Full atex					✓	
Training		✓	✓	✓	✓	✓
Materials and foil for OPV manufacture		✓	✓	✓	✓	✓
Tool kit		✓	✓	✓	✓	✓
Computer monitoring and datalogging	(✓)	(✓)	(✓)	(✓)	(✓)	✓
Touch screen	✓	✓	✓	✓	✓	✓

Elements in brackets are obtainable as extra options

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2017-11-17