Research Laboratory Coater - RLC

infinityPV ApS offers a broad range of coating and printing equipment from the low budget small footprint coating systems to the large manufacturing systems for printed functional materials such as solar cells, fuel cells, transistors, LEDs, sensors and much more. The **RLC** is the creative starting point where films can be made using your materials and inks through a wide choice of deposition techniques (slot-die, flexo, knife, bar, etc.). The Research Laboratory Coaters are turn-key systems starting from the simple single axis slot-die coating set-up where functionality and complexity can be gradually added.

The RLC have a small foot print and present an open platform that is easily adaptable to all the great experiments that have not been carried out yet. You can fit them almost everywhere in the lab, in the fume cupboard, on the bench and in the glovebox.

Key Highlights:

infinityPV research laboratory coaters are unique in many ways:

- Side operation and easily expandable
- Working area 280 x 100 mm^2 or 280 x 160 mm^2
- Touch screen operation and free software for PC control
- 3-axis motorized with computer control
- Hotplate and gradient heating zone plates available
- Integrated syringe pumping systems supporting gradients and dilution experiments
- Low laboratory footprint that easily fits in a glovebox
- The side operation makes glovebox operation very easy
- Operates from a single phase 110-240VAC 50/60Hz power supply
- Fully CE-approved and compliant
- Slot-die, heated slot-die, knife, flexo and bar coating possible
- Turn-key system
- Fast industry 4.0 ready software package and interfacing to robotics

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A compact coating/printing unit

The Research Laboratory Coater is a very compact side operated coating and printing unit that with its small footprint easily fits in a laboratory or even in a glovebox. The RLC is turn-key systems starting from the simple single axis slot-die coating set-up where functionality and complexity can be gradually added.

Wide choice of deposition techniques

With the RLC you get a wide choice of possible deposition opportunities. The RLC can be equipped with all our laboratory slot-die heads (enable slot-die coating of up to 150 mm in width), heated slot-die heads, knife coating units, bar coating units and flexo printing unit.

Drying thin films

The RLC has option for integrated hot plate that allows for easy drying of the processed thin films directly on the unit. The RLC can be equipped with standard hot plate (up to 90 °C) or high temperature hot plate (up to 140 °C) or hot plate with different temperature zones/gradient.

Syringe pump

The RLC has an integrated syringe pump that works together with the RLC unit 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. Up to 4 pumps can be combined for advanced gradients and dilution experiments.

Software

The infinityPV CCC software opens up entirely new dimensions within the field of laboratory scale coating and printing. The accuracy and repeatability are hitherto unseen when combined with the RLC 3DPrint platform. It becomes possible to plan your coating and printing in advance such that a very large parameter space can be covered quickly.

Heated vacuum chuck

The heated vacuum chuck for the RLC allows workholding of thin foils and substrates with high precision and minimum deformation during coating and printing. The ultra-smooth diamond milled surface enables precision coating and homogenous drying over large areas.

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RLC Selection Guide

There are five overall RLC designs: **RLC Print**, **RLC Full**, **RLC Complete**, **RLC Wide** and **RLC 3DPrint**.

	RLC Print	***RLC Full***	***RLC Complete***	***RLC Wide***	***RLC 3DPrint***
Working widt: 280 mm x 100 mm	✓	✓	✓		✓
Working widt: 280 mm x 160 mm				✓	
Touch screen control	✓	✓	✓	✓	✓
Software control	✓	✓	✓	✓	✓
Single axis motion controller (fwd/rev)	✓	✓	✓	✓	
3-axis motor control (side registration, up/down, fwd/rev)					✓
Mount for coating and printing units	✓	✓	✓	✓	✓
Linear ball rails	✓	✓	✓	✓	✓
Linear ball rails (cross web)		✓	✓	✓	✓
Single syringe pump	✓	✓	✓	✓	✓
Digital micrometers units for two-point head to substrate distance readout	(✓)	(✓)	(✓)	(✓)	
40 mm slot-die head (10 mm single slot)	✓	✓	✓	✓	✓
65 mm slot-die head (50 mm working width)	(✓)	(✓)	✓	(✓)	(✓)
115 mm slot-die head (100 mm working width)	(✓)	(✓)	✓	(✓)	(✓)
165 mm slot-die head (150 mm working width)				(✓)	
Simple flexographic roller system	(✓)	(✓)	✓	(✓)	(✓)
Bar coater unit	(✓)	(✓)	✓	(✓)	(✓)
Knife coater unit	(✓)	(✓)	(✓)	(✓)	(✓)
Air knife	(✓)	(✓)	(✓)	(✓)	(✓)
Heated slot-die head		(✓)	(✓)	(✓)	(✓)
Heating controller for heated slot-die head		(✓)	(✓)	(✓)	(✓)
Standard hot plate (RT-90 C)		✓		✓	✓
High temperature hot plate (RT-140 C)		(✓)	✓	(✓)	(✓)
Hotplate with different temperature zones/gradient		(✓)	(✓)	(✓)	(✓)
Heated vacuum chuck for workholding of foils		(✓)	(✓)	(✓)	(✓)
Dual, triple, quadruple syringe pump for gradients		(✓)	(✓)	(✓)	(✓)

Elements in brackets are obtainable as extra options

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