Dip Coater

Manual (https://downloads.ossila.com/manuals/dip-coater.pdf)

2 YEAR WARRANTY

(//cdn.shopify.com/s/files/1/0823/0287/products/dip-coater-featured-image.jpg?v=1625217479)

Power Cord Type [?]

Type F (EU)

Product Code **L2006A1-EU**

In stock for priority dispatch

Price **€2.415,00**

Qty. 1

EUR €

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2-year warranty | Expert support | Volume discounts | Free shipping | Pay 0% VAT

Precision dip coating coating machine

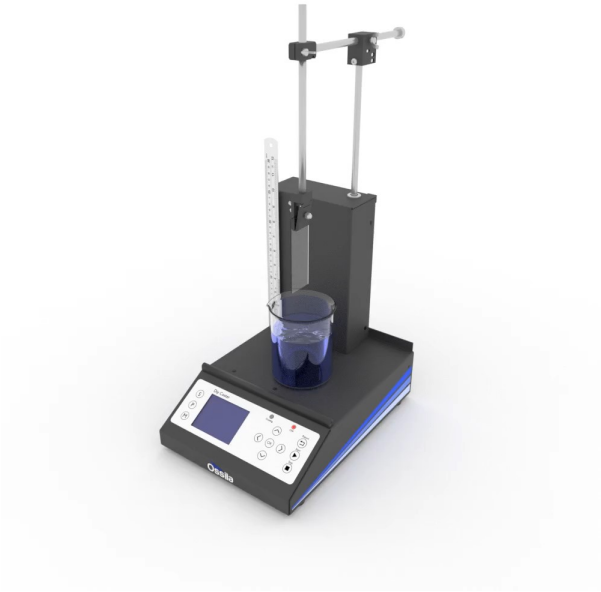
Produce high quality thin films every time with the Ossila Dip Coater.

Overview

Specifications

Accessories

The Ossila Dip Coater provides high-performance specifications and simple-to-use integrated software to give researchers the tools they need to coat high-quality films at a reasonable price.



To provide accurate movement, the Ossila Dip Coater uses the same high-precision stages as can be found in our **Slot-Die Coater (/products/slot-die-coater)** and **Syringe Pump (/products/syringe-pump)**. The result is a dependable machine which can consistently produce and reproduce high-quality films with ease, every time you use it.

Built-in software means that you can get started as soon as your dip coater arrives. Choose between two modes of operation: manual and automatic. The immersion and withdrawal of the Ossila Dip Coater system can be set independently and both constant and variable film thicknesses can be created. Programmes can be saved in 10 individual user profiles, each of which can store up to 20 routines, so that you can easily coat multiple substrates without needing to reconfigure the device each time.

In addition, having been designed by experienced materials scientists to solve common problems and frustrations encountered when dip coating, the Ossila Dip Coater has a number of sensible features (such as a quick-release clamp and magnetic ruler attachment) to improve workflow in the lab.

The Ossila Dip Coater comes with a **FREE 2-year warranty (/pages/warranty-information)** and our team are always happy to offer advice and support, so you can rest assured that should you require any assistance, help is available. Order today and enjoy **free worldwide shipping** (/pages/worldwide-shipping) and volume discounts on large orders.

Dip coating thin films

Dip coating is one of the most widely-used coating processes in industry and academia for producing thin films. To create a film, the substrate is first lowered into, and then withdrawn from, the solution. By controlling the speed of substrate withdrawal from solution using a programmable dip coater, you can vary the thickness of the deposited film. A high-precision motor means that the rate of withdrawal - and therefore the film thickness - can be controlled with a high degree of accuracy and reproducibility.

Because dip coating is suitable for roll-to-roll processing, it is used extensively in manufacturing. The Ossila Dip Coater allows researchers and academics to use the method in the lab. Dip coating is a straight-forward way of producing thin films, and it is therefore relatively easy to create high quality uniform coatings with little prior knowledge.

Key Features

High-Precision Motor

Building upon our motorised stages used in our slot-die coater and syringe pump, we have developed a motor with a high degree of accuracy and reproducibility. You can be sure that each time you coat your sample, you will get the same results every time.

Smooth Motion

With the micro-stepping motor, your substrate will be immersed and withdrawn using smooth and precise movements, ensuring high-quality film coatings.

Wide Range of Speeds

Our Dip Coater can withdraw a substrate from solution at rates varying from as low as 0.01mm/s to as high as

50mm/s. This gives a wide range of coating thicknesses - all from a single dip-coating system.

Variable Withdrawal Speeds

The speed of withdrawal can be varied across the substrate length. This enables you to produce thickness gradients across a film for the quick optimisation of film thicknesses.

Compact Size

The small footprint of the system enables you to perform measurements even in the smallest and busiest labs! With a total bench area of 20 cm x 30 cm, you can be assured that the Dip Coater will fit in your lab.

Sturdy, Non-Slip Design

With rubberised feet, the Dip Coater will remain in place where you want it to!

Simple-to-Use Software

The in-built software and controls on the Dip Coater have been designed to make it easy for you to programme an experiment. By setting the immersion speed, dwell time, withdrawal speed, and drying time, the entire dip coating process can be completed.

Saved Recipes

The dip coater is capable of saving up to 20 different coating recipes. This saves time by allowing you to store working recipes for future use - perfect for busy labs, where multiple scientists share the same piece of equipment!

Full Colour Display

In any lighting condition, you can easily read the Dip Coater's coloured screen. The angled screen has been cleverly designed for comfortable viewing in the lab.

In-Built Safety

Ensuring the highest degree of safety, the Dip Coater has a crash detection system built into the software. This will detect when the substrate or arm crashes into the base of the coater or a beaker. Upon detecting this, the motor will stop. This reduces the chance of damaging your samples, glassware, or the Dip Coater itself.

Quick-Release Clamp

Our quick release clamp design allows the user to quickly load and unload samples onto the dip coater arm.

Magnetic Attachment for Rulers

Built-in magnets are strategically located beside the clamp, so you can conveniently secure a metal ruler (included) in place for storage or for easy measurement.

The Ossila Dip Coater can be used for gradient coating

In-built Software

The Dip Coater's in-built software (no PC required) is easy to use and allows for both manual and automated control.

Manual coating allows you to set the immersion and withdrawal of the system independently. The system has a total of 10 individual user profiles, with each profile allowing a total of 20 unique recipe programmes to be saved.

For automated coating, the immersion and withdrawal speeds can be set independently. If variable thicknesses across the substrate are needed, a gradient of withdrawal speed can be set across the substrate length. Both the time that the substrate is immersed for and the time of drying can be controlled, while the routine can be repeated using the 'Repeat Cycles' function.

Additionally, the Dip Coater has multiple in-built safety features, including a software-based crash detection system. This will stop the movement of the system if it detects the crashing of the substrate into a beaker - saving the user from damage to the sample or beakers.

The Ossila Dip Coater is controlled via the front panel

Applications of Dip Coating

Dip coating can be used in a number of applications, including:

- Self-Assembled Monolayers
- Sol-Gel Coatings
- Thin-Film Electronics
- Protein Coatings

- Gas Sensing
- Microporous Foams
- Highly-Aligned Nanowire and Nanotube Arrays
- Oriented Crystallisation

Dip coating is especially well suited to research on protein coatings, protective coatings, and tribiological coatings. The method is an extremely versatile way of coating thin films on flat or tube shaped surfaces.

Getting Started with the Ossila Dip Coater

Dip coating theory

Dip coating utilises the behaviour of the solution meniscus, at the withdrawal point of the substrate from the solution bath, to control the thickness and properties of the deposited film. The interaction between the gravitational force acting on the withdrawn solution, the capillary forces of the solution, the surface tension, and inertial forces ultimately determine the amount of solution deposited onto the substrate. Although there are many factors involved in determining the strength of these forces and how an equilibrium between them is reached, almost all of these are constant for a given solution.

More information on the theory of dip coating can be found in our **dip coating theory guide (https://www.ossila.com/pages/dip-coating)**.

Dip coating film thickness equation

The thickness of the films formed during dip-coating is most closely given by the Landau-Levich equation.

Dip coating thickness equation

The values c, ρ, γ and η are properties of the deposited solution; where c is a constant that is dependent upon the behaviour of a solution, ρ is the density of the solution, γ is the surface tension at the liquid-air interface, and η is the viscosity of the solution. The value g is the gravitational constant and U is the withdrawal speed.

Please note that in practical circumstances, these equations do not give completely accurate theoretical determinations for thin-film thicknesses. This is because the exponent of the withdrawal speed can vary due to solution properties. When trying to optimise the processing conditions, calibration curves should be taken for the solution in use.

Our **dip coating theory guide (https://www.ossila.com/pages/dip-coating)** includes more details on the theoretical thin-film thicknesses, the interaction of the capillary and gravitational forces, and behaviour of the wet film during the withdrawal and drying phase.

Support and Articles

WRITTEN GUIDE

Dip Coating: Practical Guide to Theory and Troubleshooting

Dip coating is a simple and effective technique which is commonly used in manufacturing across a wide range of different industries. Within research and development, it has become an important coating method for the fabrication of thin

Read more...

(/pages/dip-coating)

WRITTEN GUIDE

Solution-Processing Techniques: A Comparison

When it comes to depositing highly-uniform wet thin films, there are many different solution-processing techniques capable of producing high-quality films at low cost.

Read more...

(/pages/solution-processing-techniques-comparison)

WRITTEN GUIDE

Large-Scale Deposition of Organic Solar Cells

Whilst organic photovoltaic (OPV) efficiencies have exceeded 14% in research, the majority of proposed systems are small-scale devices manufactured using spin coating which wastes large amounts of materials, and is a batch processing technique.

Read more...

(/pages/opv-large-scale-deposition)

View All Dip Coating Resources

Wet thin film coating techniques use a liquid precursor to coat a material evenly across the surface of a substrate by first forming a near-atomically thin wet film. Compared to other deposition methods, wet thin film coating is inexpensive and produces high quality films with relative ease.

Read more...

(https://www.ossila.com/pages/wet-thin-film-coating?filter=dip-coater)

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