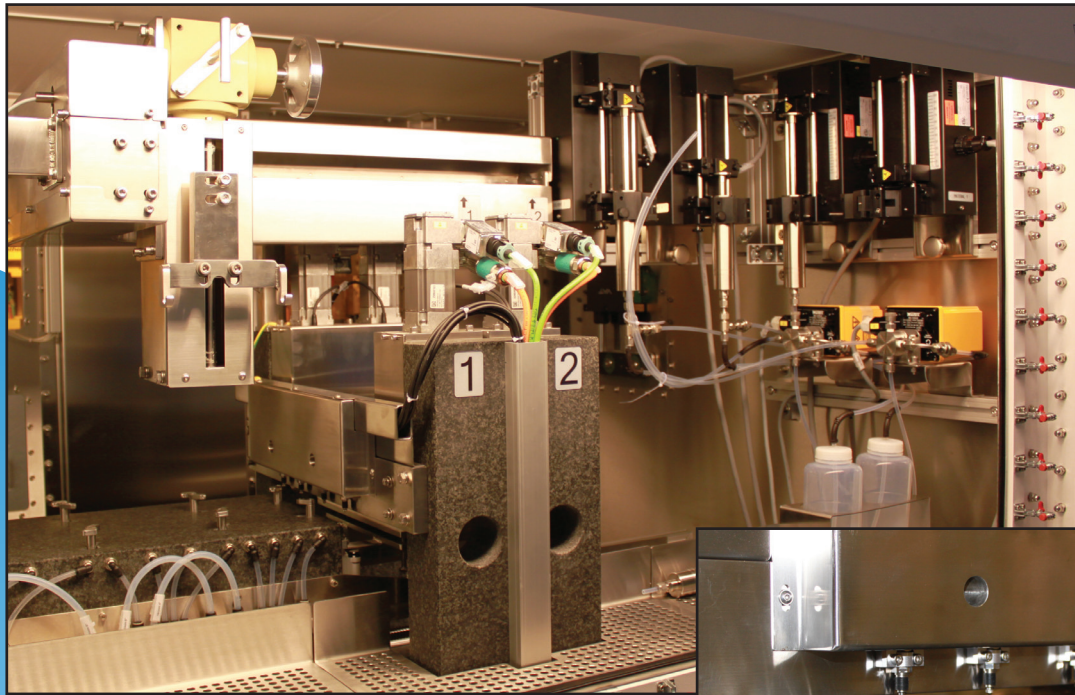


SLOT DIE COATER

HIGH PRECISION FUNCTIONAL LIQUID FILM COATING



THIN FILM TECHNOLOGY

- Highly efficient (material utilization > 90%)
- Multi-head configuration
- Pattern coating capability (stripes and rectangles)
- Coating of organic and inorganic (silver ink) wet films
- Wet film thickness range from 1 μm up to 200 μm^*
- Dry film thickness range from 15 nm up to 100 μm^*
- Main control with graphical user interface (GUI)
- For glass sizes from Gen 1 up to Gen 4.5
- Optimized for OLED lighting applications

* Depending on material

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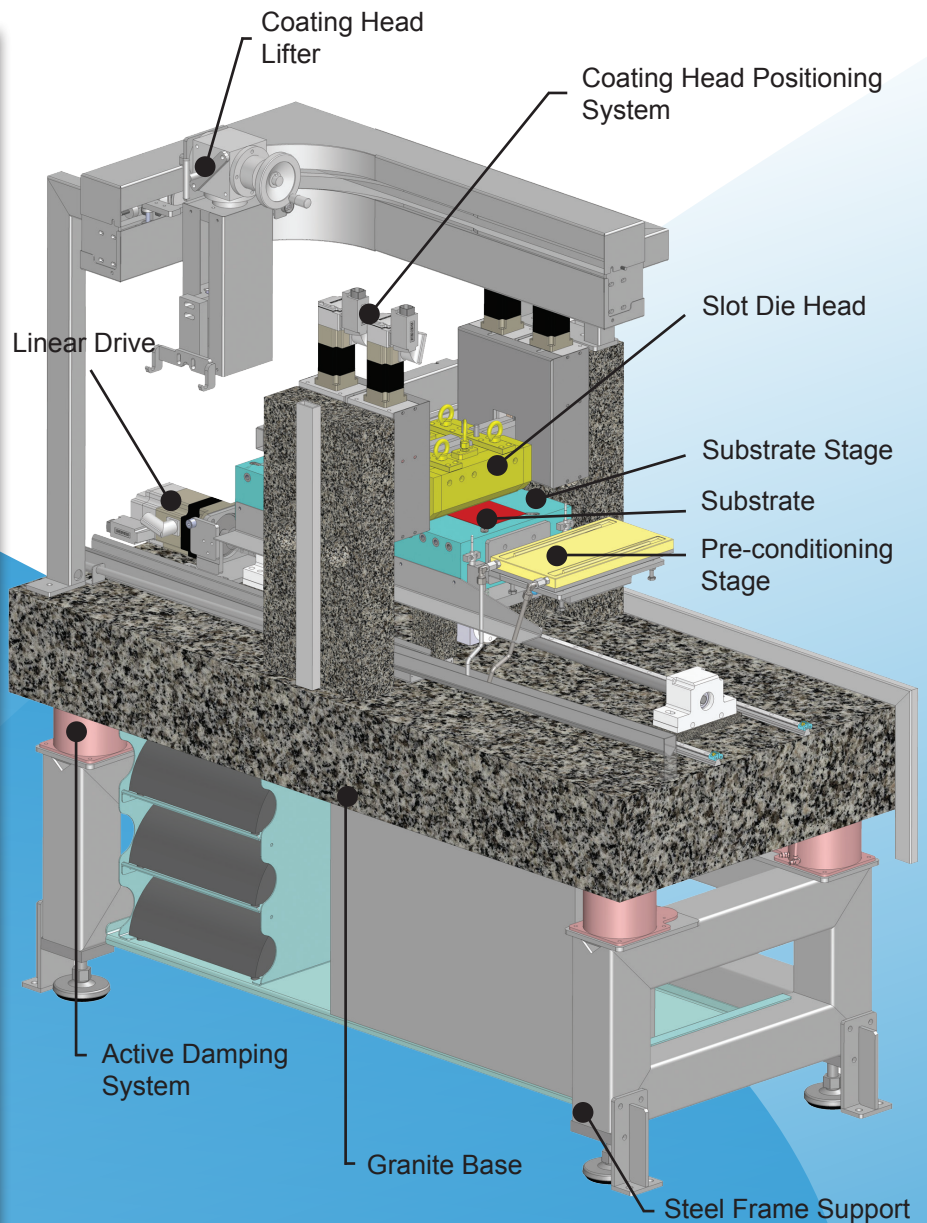
Nowadays, organic electronic applications see a growing demand for high performance technical coatings. In addition, manufacturers of OLED panels face an ever increasing pricing pressure from competing technologies. In order to cope with this situation variable panel costs have to be reduced where as the product quality needs to remain stable.

This is especially true in OLED lighting applications in which cost intensive materials are coated on large areas with highly uniform coatings, where a minimum waste of material is required.

Unlike other established coating techniques slot die coating addresses exactly both of these issues with exceptional material utilization as well as homogeneous coatings. Using an optimized coating stage design and a sophisticated slot die head geometry, along with precisely machined components, MBRAUN and its partners adapted slot die coaters to the strict thin film property requirements in organic lighting applications.

During the process, active organic components are either dispersed or dissolved in an aqueous or organic solvent and applied onto the substrate by forcing it through a highly precise, extremely thin slot. Moving the substrate at a constant speed while the stationary slot die head applies the material, a highly uniform wet film is achieved. Subsequent drying evaporates the solvent resulting in a homogeneous layer of less than 100 nm (depending on solid material content). In an optimized process layer, dry film thicknesses down to 15 nm are possible.

The coating quality (next to the material properties) is mainly influenced by the mechanical precision of the coater components. A highly accurate die coating head, a controlled material flow and coating speed as well as a constant coating gap are prerequisites to obtain ultra thin layers.



SLOT DIE COATER Technical Data:

Substrate Stage	Granite base with active damping system; receiving pins; vacuum grooves for substrate fixation; stage flatness tolerance $\pm 2 \mu\text{m}$
Die Head Stage	Multi-head configuration available; motorized die head positioning system (positioning precision $\pm 1 \mu\text{m}$) with integrated die-2-glass auto-alignment (coating gap accuracy $\pm 3 \mu\text{m}$)
Die Head.....	Noncorrosive stainless steel; slit opening precision $\pm 1.5 \mu\text{m}$
Dispense Pump.....	Programmable syringe pump; flow rate from 0.0001 $\mu\text{l/hr}$ to 220 ml/min; flow rate accuracy $\pm 0.35\%$; reproducibility 0.05%
Control Unit	Siemens S7-300 with touch panel (Mitsubishi control on request)
Film Properties	Material utilization > 90 % Wet film thickness from 1 μm up to 200 μm (depending on material) Dry film thickness from 1 μm up to 200 μm (depending on material) Viscosity range from 1 mPas up to 25.000 mPas



Scan this QR Code with your smart phone's bar code reader to download more information including product video.

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