

Resin coating machine with open application tray

Open resin coating systems

(paper coating, color printing & application of adhesives varnishes)

A resin solution is pumped from a reservoir into an open application tray and back into the reservoir. The tray contains an application roller which applies the resin to a carrier material. The resin circuit ensures that the application roller is always supplied with fresh, homogeneous resin.

The uniform distribution of the resin on the carrier material is key to determining the quality of the final product. For cost-effective production, the resin layer should be no thicker than necessary.

Because the tray is open, the solvent gradually evaporates causing the viscosity to increase over time. The ViscoScope® viscometer measures the viscosity throughout the process and displays any changes. Depending on the integration design of the ViscoScope® viscometer, solvent can be added automatically or manually to adjust the viscosity back to the optimum level.

Installation

The sensor should be installed in a flow through cell. This can be mounted, e.g. directly on the coating system, a stable stand, or a trolley. The inflow and outflow of the flow through cell are connected using couplings and flexible hoses which integrate it into the resin circuit. If possible, the flow through cell should be installed in the inflow pipe close to the application tray as this will enable it to measure the state of the resin currently flowing into the tray. The chamber size of the flow through cell is adapted to the flow rate, hose diameter, and type of pump. This creates optimum and consistent conditions for the measurement process and ensures the readings taken are reproducible.

ViscoScope® Viscometer configuration

- ✓ Sensor: VA-100C-LT with 1,5" NPT thread – 1.4404/316L
- ✓ Calibration range: 0 – 1.000 mPa.s x g/cm³
- ✓ Flow chamber: chamber DN50; in- and outflow 1" with Camlok couplings sensor connection 1,5" NPT
- ✓ Transmitter: VS-D250 with 2 analog outputs (viscosity + process temperature), mounted into a control cabinet on a DIN rail

Process conditions

- ✓ Temperature: 20 - 30°C
- ✓ Pressure: up to 5 bar
- ✓ Process connection: 1" flexible hosts
- ✓ Hazardous area: none
- ✓ Flow rate: up to 100 liter / min
- ✓ Pump: membrane pump



ViscoScope® sensor VA-100C-LT (1,5" NPT-thread) and adapter flange DN80 PN40



VS-D250 with 2 analog outputs

Benefits

- ✓ Cost savings due to elimination of laboratory or cup measurements
- ✓ Optimum addition of solvent, improved layer distribution, and layer thickness
- ✓ Complete process documentation
- ✓ A well-known Belgian laminate manufacturer increased product quality and reduced rejects. Automatic solvent addition is in the planning stage.

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