Spi-Laminator™ 2345N

Automated Photovoltaic Module Laminator

Spire offers automated Spi-Laminator™ photovoltaic laminators with an active surface area of 230 cm x 450 cm. These laminators bond multiple layers of materials together with thermoplastic or thermosetting films, such as ethylene vinyl acetate (EVA) polymer. The processing chamber of each laminator has temperature, vacuum and atmospheric pressure capabilities, which are independently controlled to provide optimum processing conditions for particular materials and configurations including laminating glass superstrate, double glass, substrate, or flexible modules.

Spire's automated laminators can be integrated into your fully- automated module production line, or operated in manual mode. In automatic mode, a programmed process sequence consistently produces high quality modules and offers automated loading and unloading of modules. In manual mode, the controls can be operated as desired.

Binds multiple layers of materials together

FEATURES AND BENEFITS
The diaphragm sheet can be easily replaced thanks to a unique, quick-release clamping system
Four cylinders and an inverter-controlled motor lift the upper chamber horizontally, allowing quick solar module loading and unloading in automatic mode
Touch-screen operation allows quick set-up
Teflon-coated heating platens and release sheet extend diaphragm life
The laminator lower belt conveyor transfers solar modules smoothly
Brush unit automatically cleans excess EVA on transfer belt
Dry vacuum pump, and Siemens Step 7 PLC
Available 2% Uniformity, European voltage

CERTIFIED BY STR-R ISO 9001:2000 REGISTERED COMPANY

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Spi-Laminator 2345N Specifications	
Maximum Module Dimensions	230 cm x 450 cm x 1.5 cm (Optional 3 5 cm)
Power Consumption/ Utility Requirements	3Ph, 400V, 50/60Hz, 250A (174 KVA)
Compressed Air	< 0.4 MPa, 100 NL/min.
Length x Width	1045 cm x 584 cm
Height - Cover Closed	156 cm
Height - Cover Open	202 cm
Platen Temperature Uniformity	± 2% at 150ºC
Vacuum System	**Pressure:** Less than 1 Torr (133 Pa) **Speed:** Within 60 sec to reach 1 Torr (133 Pa)
Operating Temperature	**Temperature:** Up to 180ºC **Heating Rate:** Less than 30 min. from 30ºC to 150ºC
Diaphragm Clamping System	One touch, quick-release clamping system (no bolts, no tools)
Options	**Module Lift Up Pins:** Support pins are installed in platens to lift solar module up 3 mm to 5 mm **Cooling System:** Forced air cooling of modules on output conveyor **Deep Upper Chamber:** 3 5 cm
Operating System	PLC controlled Touch screen with color display 32 program memory capacity
Safety System	Light curtains and mechanical lock system for upper chamber