

Photovoltaic Cell Module Laminator

MODELS: VL-1, VL-2 & VL-3



HINDHIVAC Photovoltaic cell module laminator model VL-1, VL-2 and VL-3 are designed to encapsulate interconnected photovoltaic solar cells and interconnecting wire to protect them from atmospheric humidity, dust, wind & other mechanical stresses. The solar cell module is laminated with EVA alongwith glass sheets to protect the module and inter connections.

The design of the laminator provides both manual and automatic operations. The equipment design provides total flexibility and is user friendly in selecting the desired programmed lamination & cure cycles.

The programmable logic controller and the instrumentation provided for time, vacuum, temperature and pressure gives freedom to change any of the above parameters at will & to establish process parameters best suited for user requirements.

Salient Features:

- Highly flexible design provides user friendly operation.
- Simultaneous and Independent read out of Vacuum Temperature
- Uniform platen Temperature and power distribution from 3 phase power control.
- Minimum temperature over-shoot due to PID and Thyristor phase angle controller.
- Continuous monitoring of platen heaters health by current monitoring of individual heaters circuits.
- Over temperature protection in case of control instrument failure to protect the platen temperature.
- Guaranteed Vacuum soak and lamination temperature before start of curing.
- Complete lamination, cure and cooling in one cycle. AUTO/MANUAL, mode selection with switch.
- Laminates variety of modules
- Pressure diaphragm evacuation and venting are independently controlled.
- Fast cooling cycles through large surface area water cooled heat exchanger.
- Advanced Engineering and selection of the material provides clamp free sealing of vacuum chambers.
- High capacity double stage vacuum pump provides fast vacuum cycles.

TECHNICAL SPECIFICATIONS

Parameters	Model: VL-1	Model: VL-2	Model: VL-3
1. Module dimension (mm)			
Length	1450	1200	1200
Width	760	445	520
Height (Max)	13	4,5	4,5
2. Max. operating temperature	150°C	150°C	150°C
3. Platen size	1500	1500	1500
L	800	1000	1200
W			
4. Laminating pressure (adj. 0-1 atm)	1 atm	1 atm	1 atm
5. Vacuum	<1m.bar	<1m.bar	<1m.bar
6. Equipment dimension (mm)			
Width	2100	2100	2190
Depth	1450	1450	1847
Height (top lid closed)	1190	1190	1242
Height (top lid open)	2100	2150	2410
7. Utilities required			
a. Electrical	415V AC, 50Hz, 3Ph. peak power 17KVA	415V AC, 50Hz, 3Ph. peak power 20KVA	415V AC, 50Hz, 3Ph. peak power 24KVA
b. Water	Filtered water at a pressure of 1-2 Kg/cm ² with a flow rate of 9-10 Lit/Min. and at inlet temperature of 25°C	Filtered water at a pressure of 1-2 Kg/cm ² with a flow rate of 10-12 Lit/Min. and at inlet temperature of 25°C	Filtered water at a pressure of 1-2 Kg/cm ² with a flow rate of 12-15 Lit/Min. and at inlet temperature of 25°C
c. Pneumatic supply	5-6 Kg/cm ²	5-6 Kg/cm ²	5-6 Kg/cm ²

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