

Semi-Automatic PUR Flat Lamination Line

Film & sheet single-side lamination with integrated
dust cleaning and protective film device

PUR reactive hot melt lamination of film and sheet materials on flat panels — precision glue coating, triple-stage dust cleaning, pneumatic laminating and in-line protective film application, combined in one continuous production line.

MODEL HE 1400 B



HE 1400 B — semi-automatic film & sheet PUR single-side flat lamination line

/ Application & Use

The HE 1400 B is a semi-automatic production line for single-side flat lamination of panels using PUR reactive hot melt adhesive. It processes both roll materials and rigid sheets in the same line, making it suitable for furniture panels, wall decoration panels, door panels, flooring and other flat board products.

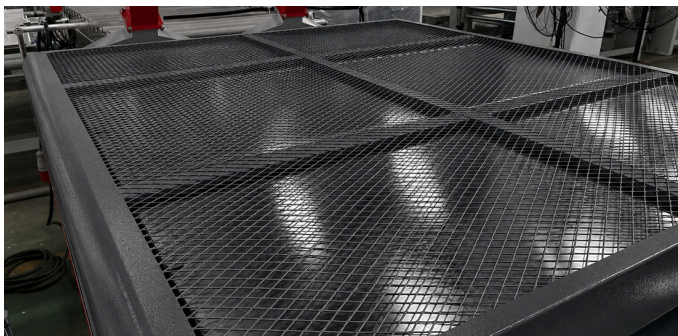
The line combines a pre-heating and triple-stage dust cleaning section, a precision five-roller PUR glue coating machine, a sheet feeding station with drying oven, a pneumatic film & sheet laminating machine with gantry-type film loading crane, and an outfeed section with film long-side trimming and protective film application. Working speed is 5–10 m/min, with a capacity of 3–5 panels per minute — approximately 800–1200 panels in a 9-hour working day.

/ Raw Materials

- **Base materials:** particle board, density board (MDF), bamboo fiber board, plywood, polymer plastic board, metal board, foam board and other flat panels.
- **Surface materials:** PET high-gloss / super-matt film, PVC film, PP film, aluminum film, HPL / CPL fireproof sheet, acrylic sheet — supplied in rolls or sheets.
- **Adhesive:** PUR reactive hot melt adhesive (a dedicated adhesive grade is required for transparent PET lamination).



Complete line, outfeed side — laminating machine, trimming and protective film section



Protective mesh guarding over the laminating section

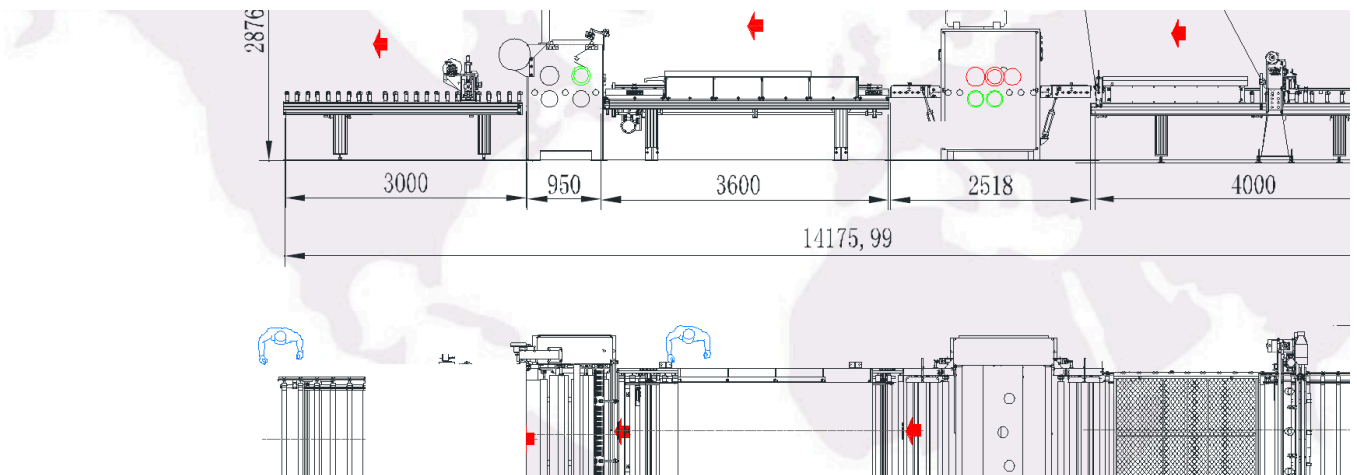


Conveyor rollers $\varnothing 56 \times 1410$ mm on sealed bearings

/ Structure and Configuration

- 1 **Infeed conveyor 4 m + pre-heating oven 1.8 m + dust cleaning group — 27.75 kW.** Rubber roller conveyor table $\phi 56 \times 1410$ mm with independent 0.75 kW belt drive and cushion guide for automatic panel positioning; fully enclosed infrared pre-heating oven, 3 independently and steplessly adjustable lamp groups, 27 kW total. Dust cleaning: triple belt-brush cleaner (2 upper + 1 bottom ring brush belts, 0.55 kW brushing drive, electrostatic water spraying device), high-power dust blower with 1220 mm air knife (1.5 kW) and pre-cut self-adhesive dust sticky roller for final panel surface cleaning.
- 2 **Precision PUR glue coating machine, 5 main rollers — approx. 30 kW.** Coating and bottom silicone rollers $\phi 240 \times 1400$ mm; dosing steel roller $\phi 216 \times 1400$ mm, chrome-plated; sweeping steel roller $\phi 240 \times 1400$ mm with ceramic surface. Transmission 4x1.5 kW + 0.75 kW, lifting 0.37 kW, oil heating 3x7.5 kW with roller surface temperature uniformity within $\pm 3^\circ\text{C}$. Electric panel thickness adjustment, simultaneous two-side manual glue amount adjustment; glue consumption 15–40 g/m² depending on scraping roller use. Copper gear plate structure for clean, leak-free operation; all rollers reversible for easy cleaning.
- 3 **Conveyor + sheet feeding table + oven, 3.6 m — 9.75 kW.** Conveyor rollers $\phi 56 \times 1410$ mm installed obliquely with side guide; transmission 0.75 kW; infrared heating oven 9 kW for glue surface temperature compensation at low ambient temperature. Sheet positioning with manual placement and foot-switch control, for sheets of 2440 / 2750 mm length.
- 4 **Film & sheet laminating machine + film loading crane — 7.92 kW.** Silicone laminating roller $\phi 240 \times 1400$ mm and chrome-plated steel roller $\phi 240 \times 1400$ mm with pneumatic pressing; transmission 3x1.5 kW; infrared film pre-heating 2.5 kW; electric panel thickness adjustment 0.37 kW. Gantry-type film loading crane (0.55 kW) with lateral travel; air-expansion film shaft with manual deflection adjustment. Automatic panel detection (stops without following panel, restarts automatically), anti-pinch stopper and emergency brake.
- 5 **Outfeed conveyor + film long-side trimming + protective film device — 1.3 kW.** Motor drive 0.55 kW; upper and lower natural rubber laminating rollers $\phi 120 \times 1300$ mm; release-paper aluminum roller $\phi 75 \times 1400$ mm; air-expansion shaft with pneumatic brakes and manual cylinder thickness adjustment. Applies a protective film after PVC lamination against scratching and contamination (customer logo printing on the protective film is possible); tension-decoupled from the main line to avoid speed mismatch.
- 6 **PUR hot melt machine, 55-gallon drum unloader — 15 kW.** Output capacity 30 kg/h; glue drum 55 gallons (190 kg); 2 heated transfer hoses; motor speed 0.5–60 rpm; dimensions 1660x650x2240 mm, weight 305 kg; 380 V, 50/60 Hz; compressed air max 8.0 kg/cm².

Whole-line stepless electrical speed control by frequency conversion; PLC and touch screen operation. Equipment control, safety protection and marking implemented in accordance with the general safety rules for woodworking machine tools.



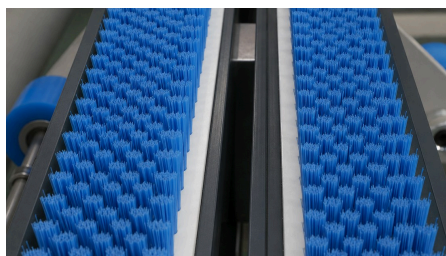
Working schematic — semi-automatic film & sheet lamination line; line direction (left / right) is configured to suit the workshop layout.

/ Technical Data

Model	HE 1400 B
Type	Semi-automatic film & sheet PUR single-side flat lamination line
Panel size	1220 × 2440 / 2750 mm
Panel thickness	3–60 mm
Max. panel weight	100 kg
Max. coil width	1300 mm
Working speed	5–10 m/min
Capacity	3–5 panels/min — approx. 800–1200 panels per 9-hour day
Glue consumption	15–40 g/m ² (with / without scraping roller)
Hot melt supply	30 kg/h output, 55-gallon (190 kg) drum unloader
Transmission power	33 kW
Heating power	61 kW
Total installed power	approx. 94 kW
Power supply	380 V, 50/60 Hz, three-phase
Compressed air	max. 8.0 kg/cm ²
Control	PLC + touch screen, whole-line frequency-conversion speed control
Line dimensions (L×W×H)	14.5 × 3.5 × 3.3 m
Line weight	approx. 5 t
Note	Automatic trimming requires panel thickness of 9 mm or above



High-power dust blowers with air knife



Ring brush belts of the dust cleaner



Trimming and outfeed conveyor section

Supplier

PROMACH LTD, Bld Bogdan Voyvoda 1, 7002 Ruse, Bulgaria — VAT Nr. 208555296
www.promach-machinery.com | contact@promach-machinery.com
BG +359 87 6832151 | RO +40 755 023 024