Innovative Technology for Glass Panels,
Glass Lamination, Solar Modules

BÜRKLE

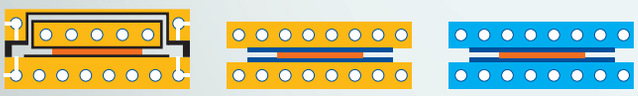
LAMINATION LINES

EASY-LAM IFL

For glass panel lamination

THE BÜRKLE IFL PROCESS
(IFL = INLINE FLAT LAMINATION)

- Much faster lamination of glass panels compared to autoclave processes
- Applicable for Inline processes to enable highest automation
- Highest lamination quality due to homogenous double sided heating and flat press design to avoid "edge pinching"
- High flexibility for different glass panel built ups, short set-up times for product changes
- Possibility to laminate with particulary low pressure



Vacuum flat press **Flat press** (optional) **Flat press**

- Fastest glass panel lamination
- Homogeneous double sided heating and cooling
- Maximum flexibility for different lamination foils and different glass thicknesses
- An approved large-scale production technology. Well suited for very thin glass lamination, and for combination of thin glass / thick glass lamination

The Bürkle IFL process is a multi-step lamination process.

- **First step: double-sided heated vacuum flat press**
- **Second step: double-sided heated flat press (optional)**
- **A double-sided cooled flat press is used for cooling.**

The glass panels are transferred into the machine in batches via the loading conveyor. During the first lamination step, the air between the layers of the glass panel is removed under vacuum of < 1mbar. Then the layers are (pre) laminated by applying pressure with the heated flat press all within a tact time that is usually less than 10 minutes. For thick glass applications a second lamination step is recommended for final lamination under double sided heating.

After lamination, the glass panels are transferred into a double sided cooled cooling press. Here they are cooled down under controlled conditions to allow a defined process stop and for further processing.

The flat press design allows uniform, parallel pressing and practically eliminates the "edge pinch" effect at the edges of the module. The double sided heating ensures a faster lamination, homogenously from both sides, and thus minimizing any remaining stress in the module after lamination.

Useful lamination area [mm]	2100 x 4200, others on request
Heating medium	Thermal oil in combination with steel heating platens
Temperature accuracy [°C]	< ± 2
Cooling unit	optional
Cooling	double side cooling platen

Why to choose Bürkle

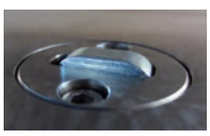
PRODUCTIVITY

- Short Cycle times (high throughput)
- High Yield
- Low TCO
- Reduced Power Consumption
- Reduced Factory Space Requirements
- Optionally available Ramp-up support with Bürkle technicians

LAMINATION QUALITY

- Homogenous thermal oil heating system

- Double-sided heating and cooling
- Flat press to avoid "edge pinch"
- Including pin system with pins that can be even lifted during panel feed-in



- Overpressure to avoid bubbles at high temperature

FLEXIBILITY

- Suited for a wide range of panel sizes and thicknesses
- For a wide range of encapsulates such as PVB, EVA, TPO, POE, etc.
- Solutions for laminated glass (VSG), Safety glass, Smart glass, PV-Modules or Display glass
- High flexibility to use different glass thicknesses
- Lamination of very thin glass (<1mm each glass)
- Lamination of thin glass to thick glass
- Optionally: membrane kit for special panel built-ups

HIGHEST UPTIME

- Robust design and built for 24/7 operation, with easy access for maintenance
- Supported by Bürkle worldwide Field Service Team and in-house experts via Burkle Remote Service System (BRSS)
- User friendly GUI with touch screen

THE UNIQUE BÜRKLE ADVANTAGE

- Process development at the headquarter in Germany
- Lamination Service for test panels
- Process support at customer's site

BÜRKLE

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