Four advantages of HEGLA's innovative laser diode heating solution

HEGLA's LSG system offers a new process that sees glass cutting twenty per cent faster whilst delivering a higher capacity - all on the same footprint.

The ongoing rise in the proportions of laminated safety glass used in glazed products is placing glass processors under increasingly tight constraints. More

The ProLam LSR can also be used as a component of a highly automated cutting line - together with, for example, the AdvaLam, by which to achieve even higher productivity.

The ProLam LSR is equipped with the laser diode heating system as standard, and features a high level of automation with flexibility as well as cutting results offering maximum edge quality.

stringent safety regulations have increased international demand. This all contributes to a more widespread use of LSG - part of the ProLam LSR equipment series and Hegla's latest glass-cutting technology which, together with its functional purposes, exhibits a stylistic architectural element as well.

FOCUSSED HEAT APPLICATION SHORTENS THE CUTTING PROCESS BY 20 PER CENT

The centrepiece of the process is a new, patented laser diode heating system that replaces conventional heating tubes. The added technical value is generated by the physical properties of the laser. The laser diodes consolidate the thermal energy of the laser, focus it on the scoring contour and apply it precisely to the film. Without any of the otherwise typical radiation losses into the air and surrounding glass, the film reaches the required transformation temperature much faster in comparison to what conventional techniques can offer. Having already been incised and broken out, the glass is pulled apart during the heating process and then cut as a knife passes through it. The diode strip is mounted in a fixed position above the cutting area, so it remains cool and needn't be folded away - which saves time. This position also means that the timing of the individual processing steps can overlap, thereby accelerating the overall process. "Many of our customers are already using the ProLam LSR. They're impressed with how much shorter their cutting steps have become. In terms of cuts per hour, the system achieves 20 to 30 percent higher productivity," reports HEGLA Managing Director Bernhard Hötger.

NO WAITING FOR THE NEXT CUTS

The thicker the LSG and film, the more time the laser can save for Hegla's customers. Energy consolidation and the very low radiation losses allow the heat to be focussed and applied along precise lines. When penetrating the glass, the laser retains more of its strength than conventional heaters, enabling the glass to be heated in a shorter time. "LSR technology features considerably lower heat loss into the surrounding pane and the air - resulting in a further two advantages that are even greater than we expected when we first started developing the product," says Bernhard Hötger. "Even when cutting thicker units, the glass only becomes warm to the touch at the edges. That means customers can move straight on to their next cut without waiting for the glass to cool down first."

HIGH-QUALITY GLASS EDGES

Consolidating the laser's thermal energy also offers another benefit in terms of edge quality. "When the glass is pulled apart, only the heated film in the cut is stretched. Tests at the Fraunhofer Institute have shown that the remaining laminate remains unchanged by the local application of heat - reducing

The precise application of heat energy and zero-offset dual cutting heads yields high edge quality without delamination.

the previous causes of subsequent delamination to a minimum.

SHORTER BOOT-UP TIME SAVES ENERGY

The laser diode strip is divided in half and, to save energy, each side is activated completely, or partially - depending on the length of the cut. The much shorter boot-up time also improves the system's carbon footprint. When the system reaches 20,000 operating hours or more, the diode strip has proven it requires less maintenance and is more durable than the conventional technology.

ADJUSTABLE TO SUIT SPECIFIC NEEDS

ProLam LSR comes equipped with a laser diode heating system as standard, while some existing systems in the ProLam series can be retrofitted as well. Other features, such as the Kombi variant with automatic edge deletion, a float cutting head and built-in breakout bars all add to the range of functions on offer. Hegla boraident also continues to offer non-destructive laser printing to give glass a bespoke, machine-readable marking. If the marking is applied before cutting takes place, the glass production process can be fully digitalized by scanning the code. This technology can be used for such purposes as triggering process steps during production, tracking workflows across the entire product life cycle, and reading the glass data using a scanner - even many years down the line. If required, additional information such as fire protection certificates can also be saved in the marking.

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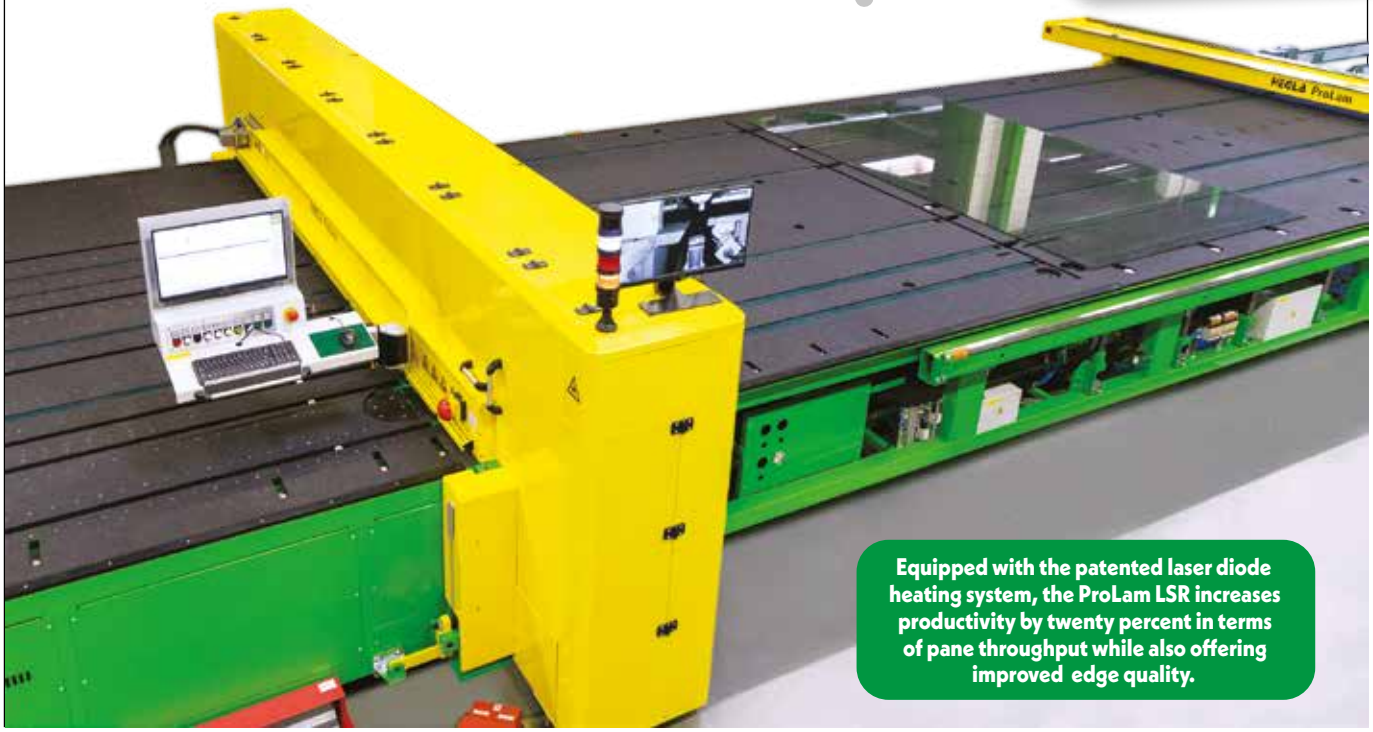

Equipped with the patented laser diode heating system, the ProLam LSR increases productivity by twenty percent in terms of pane throughput while also offering improved edge quality.