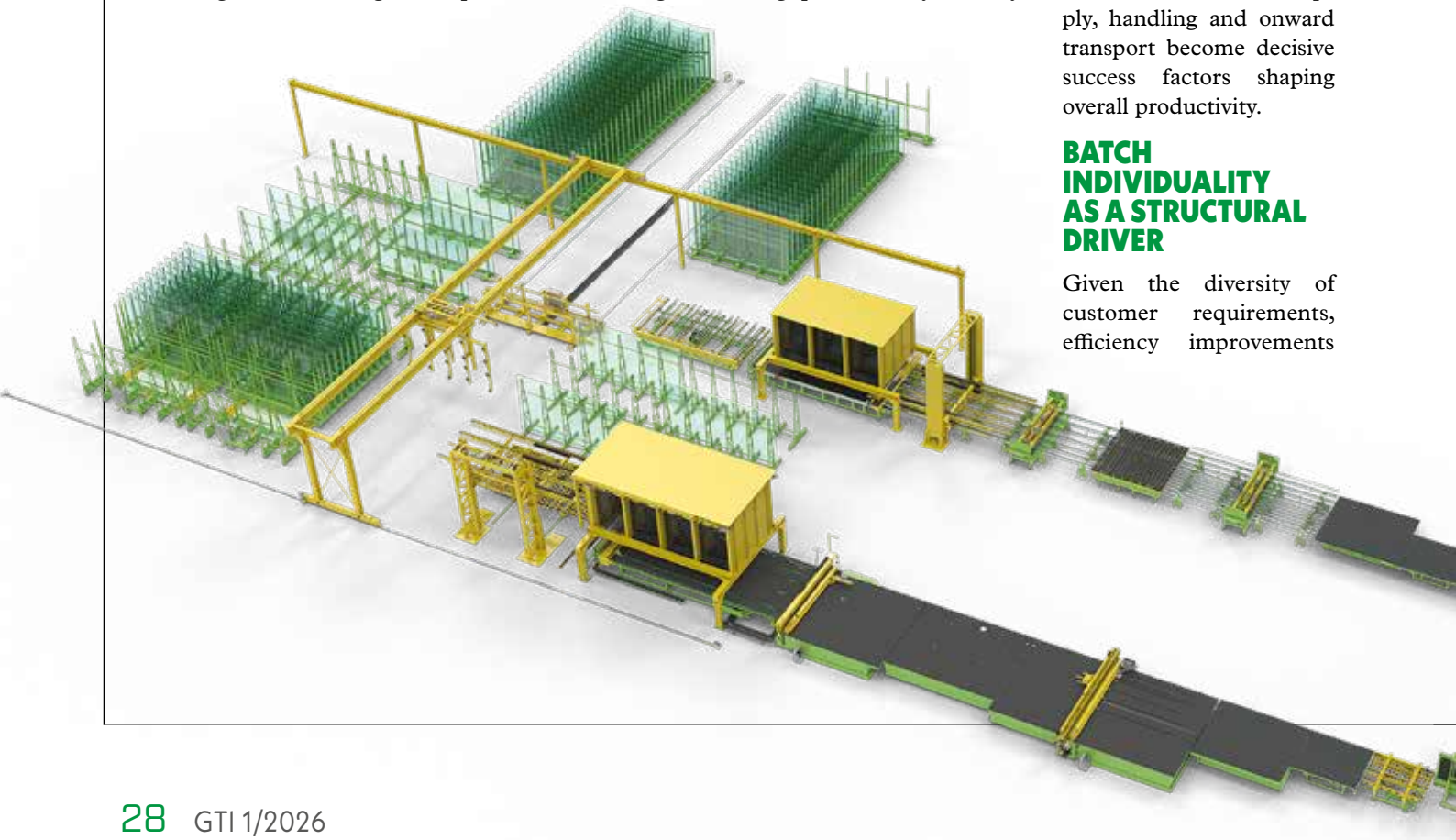
How HEGLA is improving shopfloor glass flows

Rising cost pressures, sustained price competition and the ongoing crisis in the construction industry have placed the glass industry under significant strain since 2021. In response, efficiency has emerged as a decisive strategic lever. According to Hegla Managing Director Bernhard Hötger, addressing these challenges requires more than evaluating system technology alone; it demands a comprehensive examination of how glass flows between individual processing stations across the shopfloor. In operations already equipped with high-quality machinery, the technological groundwork for coordinated processes is largely in place. The decisive gains in productivity, therefore, are increasingly realised within the operational environment of the shopfloor itself.

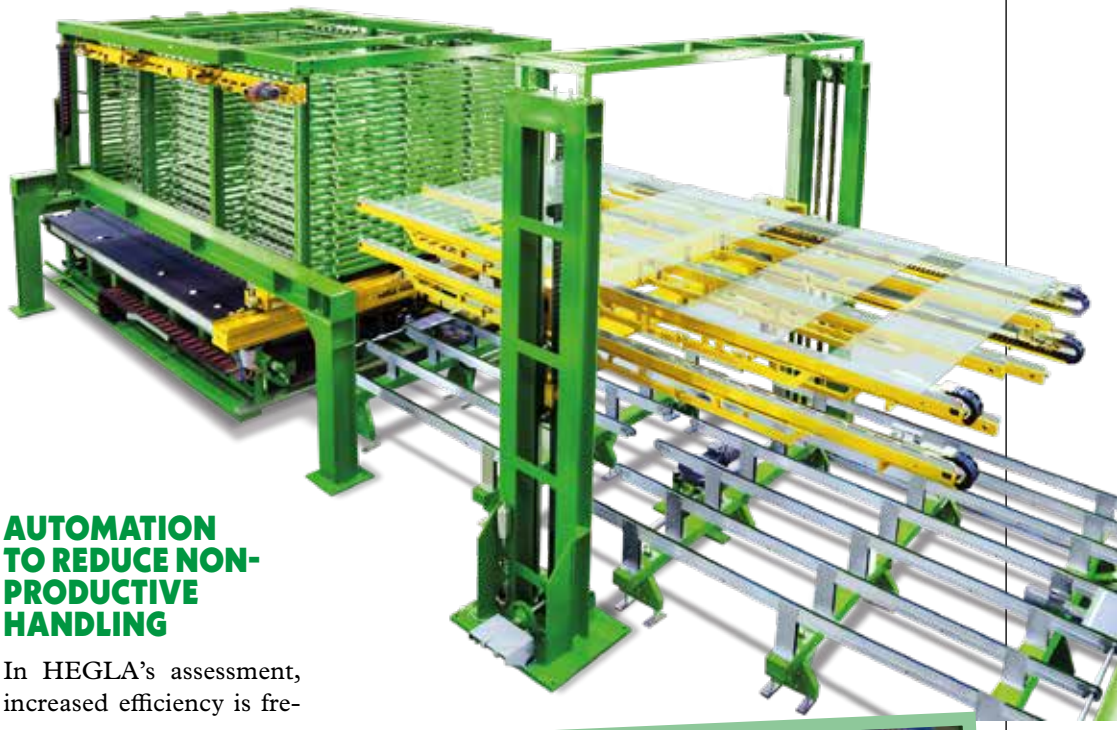
A defining characteristic of glass processing is the predominance of batch size one. Customer orders are rarely identical, limiting the feasibility of classic series production. While the cutting process may initially appear manageable, complexity escalates rapidly as orders diverge in coatings, glass thicknesses, edge processing requirements or subsequent finishing into toughened glass. When machinery performance is sufficient, Hegla identifies the optimisation of interlinked work steps as a central driver of efficiency. In this context, material supply, handling and onward transport become decisive success factors shaping overall productivity.



BATCH INDIVIDUALITY AS A STRUCTURAL DRIVER

Given the diversity of customer requirements, efficiency improvements

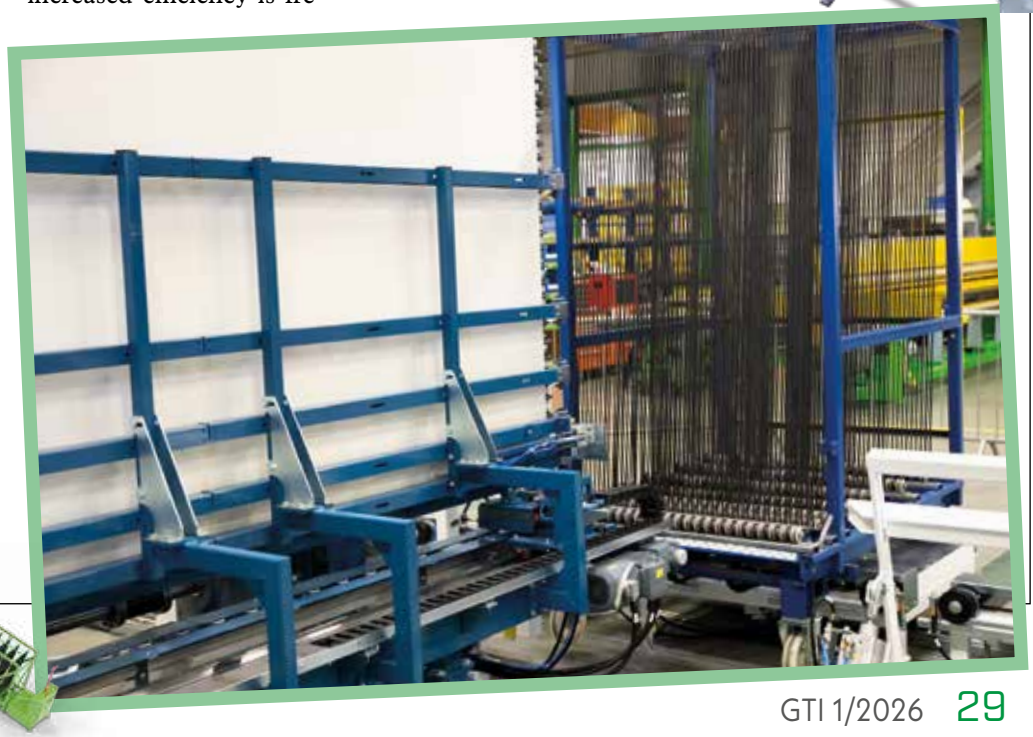
HEGLA demonstrates how targeted shopfloor analysis, automation and digital identification can all unlock new efficiency potential in glass processing. By optimising material flow, reducing non-productive handling and synchronising transport, the company enables higher value creation despite batch-size-one production and sustained market pressure.

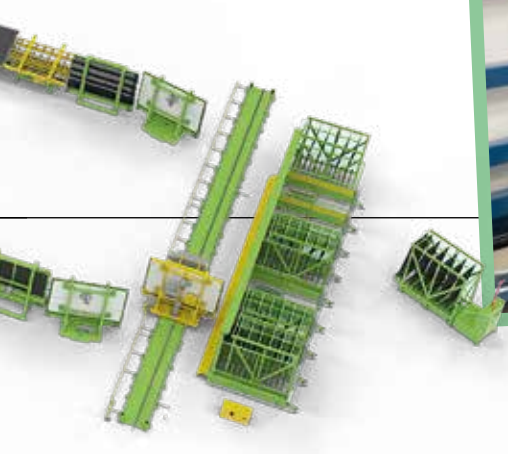


depend heavily on a structured analysis of individual shopfloor processes. Hegla emphasises that such an analysis must account not only for machinery but also for order structure and handling logic. The process begins at individual work steps and gradually expands to include adjacent areas, with a particular focus on dependencies and non-productive times. For smaller production runs, this may reveal optimisation potential in glass supply to the cutting system. Where loading is performed manually or semi-manually, automatic expanded storage systems can eliminate operator intervention. Glass is placed directly onto the machine and supplied to downstream stations without cycle-time losses, increasing the proportion of value-adding activity.

AUTOMATION TO REDUCE NON-PRODUCTIVE HANDLING

In HEGLA's assessment, increased efficiency is fre-





quently linked to higher levels of automation. One recurring source of non-value-adding time is remnant handling at the cutting table. Manual removal or feeding of remnants interrupts production and creates variability in downtime. This challenge intensifies in facilities managing hundreds of glass variants, particularly when handling high-quality panes. Automatic remnant handling systems allow panes to be stored above the cutting table without interrupting the cycle, preserving surface quality and maintaining continuous availability for subsequent cutting operations.

DIGITAL IDENTIFICATION AND SYNCHRONISED FLOW

As the shopfloor analysis extends further, internal glass transport and synchronised material supply become focal points. Continuous production requires panes to arrive at each station precisely in line with the cycle. Individual marking -such as laser marking- supports this process by reducing mix-ups, which Hegla identifies as a major recurring risk along-

side breakage and manual handling. By scanning QR code markings at processing stations, follow-up processes can be initiated and confirmed, while each semi-finished product retains a unique digital identity. This identification forms the foundation for digitalising glass processing operations.

System-controlled loading onto harp racks represents a further step in reducing handling time, glass damage and sorting errors. Panes are placed automatically into predefined storage slots and can be retrieved by subsequent stations without operator involvement. When combined with automated transport solutions such as self-driving AGVs, harp racks can be collected from the cutting table in exact synchronisation with production cycles. Sorting stations rearrange cut pieces according to downstream demand, ensuring a continuous and traceable glass flow. Position tracking via SCADA systems enables full transparency across the shopfloor.

For highly complex production environments with large volumes, Hegla describes fully automated sorting systems as delivering the highest added value. These systems connect processing stations directly -either via harp racks or direct links- creating an unmanned, continuous glass supply. Sorting storage decouples process dependencies and unlocks further potential for remnant reduction. Through dynamic, continuous optimisation, both productivity and value creation on the shopfloor can be systematically increased.

Bernhard Hötger underscores that every production process is unique and that non-productive times carry different weight within each operation. This makes in-depth analysis of processes and dependencies essential. In many cases, Hegla observes that even small, coordinated measures can deliver measurable efficiency gains. Step-by-step optimisation plans, developed in collaboration with machine and software partners, enable glass processors to respond flexibly to market pressures while strengthening long-term competitiveness.

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