



How DiMAT tools can enhance operations in glass industry

Hegla-Hanic

Milosz Majewski, 28th April 2025

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The architectural glass industry is experiencing rapid growth and development. Notable examples such as the Nordstan shopping center and Vaghuset Business Centre in Gothenburg, Sweden, showcase the increasing prevalence of free-formed 3D and bent glass as prominent elements in modern construction. However, the manufacturing sector faces a significant challenge in keeping pace with architects' innovative designs, creative solutions, and striking façades.

Hegla-Hanic, a German company specializing in enterprise resource planning (ERP) and manufacturing execution system (MES) software for the glass industry, collaborates with its group partners, Hegla GmbH and Boralndent GmbH, to provide comprehensive solutions for glass processing, laser marking, storage, and management. We anticipate future developments of intelligent tools for the industry.

The primary objective of the DiMAT pilot project, in collaboration with Fraunhofer IMW, is to support innovative glass forming processes and to digitalize all necessary data. Laser bending represents a novel approach to manufacturing processes, presenting both significant opportunities and challenges. Precise glass cutting, adherence to exact dimensions, and controlled temperatures are critical.

DiMAT facilitates a learning process focused on proactive problem-solving and the early identification of potential issues. It provides a methodology for visualizing and comprehending data originating from intelligent machinery as feedback from production processes.

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This can be leveraged to refine parameters, establish a clear correlation between actions and their outcomes, learn from past errors, and prevent their recurrence. Currently, we are in the phase of integrating approved Key Performance Indicators (KPIs) with relevant data, enabling direct connectivity with our ERP and MES systems.

DIMAT tools today and tomorrow

Currently, our focus is on supporting innovative glass forming; however, DiMAT offers a broader range of potential applications, limited only by creative exploration. Numerous other processes, such as tempering, can be integrated. It is widely recognized that safety glass represents the future of the industry. Tempering is a thermally controlled process designed to enhance glass strength. Achieving the desired properties necessitates the careful setting of parameters, which are governed by established norms and certifications. Any alteration to these parameters can impact glass quality, for example, its flatness.

The DiMAT digitalization tool has the potential to establish a correlation between parameter changes and glass quality, facilitating the derivation of meaningful conclusions. Furthermore, it can serve as a valuable tool for training new employees. Companies across the industry face the challenge of onboarding new personnel who require a specific and often unique body of knowledge. DIMAT can facilitate the development of structured programs to support the growth and development of these companies.

Challenges and opportunities

A data-driven decision-making process represents the optimal approach to operational efficiency. The well-established Six Sigma methodology provides a framework for designing, measuring, analyzing, improving, and controlling processes. DiMAT tools can significantly contribute to standardization and sustainability through a unified methodology. However, this approach also presents certain challenges. The glass manufacturing process is inherently complex, requiring the seamless integration of raw materials, machinery, processes, personnel, and software. The multitude of factors to consider necessitates the processing and reliable interpretation of substantial amounts of data. Accuracy is paramount in this context, demanding considerable time and effort for design, testing, and comprehensive documentation.

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