Edge computing quantum leap sees MAPPI collaborating with SIEMENS

As glass tempering technology leader, MAPPI worked jointly with SIEMENS recently to introduce its Edge Computing, which enhances communication, efficiency, control and data security for tempering furnaces. The innovation also ensures higher productivity, better quality, optimum consumption and improved maintenance - all while revolutionising security in glass manufacturing.

The intricate relationship between glass processing and technology has always been distinctive. For one thing, the art of working with glass -especially tempering it- demands specific techniques and tools. Then there's the fact that such processes are challenging to standardise, being tailored precisely to the unique needs of individual clients. Compounding this complexity, new variants in thickness, colour and properties are all intro-

duced annually - creating a dynamic landscape.

HARNESSING INNOVATION

Here technology emerges as a crucial ally for glass manufacturing inasmuch as it offers flexibility, consistent quality, cost optimisation and waste minimisation. Indeed pursuing this goal has been the primary objective of Mappi - not just recently but right since it started out three decades ago. Each Mappi furnace boasts flexibility, user-friendly simplicity and optimal energy consumption management. That achievement is rendered possible through top-tier materials, unconventional design and an extensive use of electronics - all of which present ever more ambitious challenges.

Today, the new frontier is marked by optimising integration between machinery and the entire production cycle, thereby transcending the boundaries of Industry 4.0.

Such optimisation comes with ambitious digitization by which networks are traversed by created data streams. However, as we now understand, 'data flow' can equate with 'risk.' Every gateway through which thousands of pieces of information pass may become a potential threat as hunting ground for cyber attackers, whether for data theft, patent infringement, or disrupting production. Consequently, even in what may seem a field far removed from glass tempering, the race for innovation and security is underway.

DATA PROTECTION

Dedicated to the security of its clients, Mappi has chosen to invest its research in Edge Computing, an innovative computing paradigm referring to networks and devices located at or near the user. Here data gets collected and processed by such machines as tempering furnaces and production cycle management systems that will then control, plan and optimise the entire supply chain. Edge Computing involves processing data closest to the point of generation, thus allowing for higher speeds and volumes while yielding immediate results and real-time action. This also enables the company to retain data internally - so enhancing security.

MAPPI EDGE COMPUTING (MEC)

This is Mappi's power-packed enhancement package, developed in collaboration with Siemens. Here, for the first time, a tempering furnace can communicate seamlessly and reliably - combining efficiency, control, planning, data security and response speed.

That said, this does not exclude the option to use all or part of the data in Cloud systems for exchange with other systems or ERPs. The system involves using more data, faster processing, and with the help of artificial intelligence, it can conduct predictive checks on the machine.

In terms of tangible benefits, MEC translates into four critical areas of improvement - all of which are vital for profitability within every glassworks, namely:

HIGHER PRODUCTIVITY

MEC optimises workflows, maximises production capacity and produces more efficiently, eliminating time and resource wastage without compromising flexibility - which is rather enhanced.

BETTER QUALITY

MEC selects parameters for optimal glass quality, regardless of the desired outcome, and compares and verifies them with tempered glass. This way, the system learns and acts in a continuous improvement process.
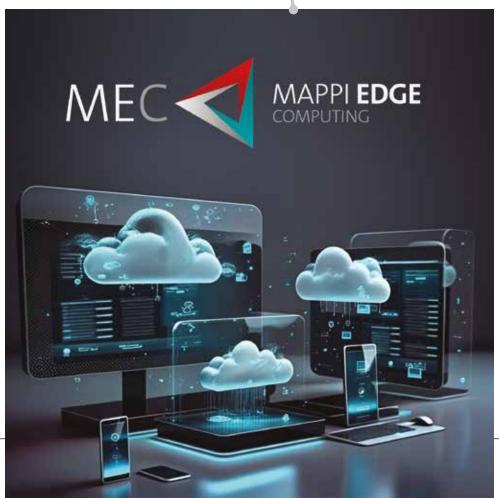
OPTIMUM CONSUMPTION

MEC measures and continuously monitors energy consumption very precisely, providing insights into usage as well as ways to enhance performance through continuous fine-tuning policies.

GREATER MAINTENANCE

MEC, through a network of sensors, monitors maintenance-prone areas and will issue advance warnings if intervention is needed, thereby preventing problems and machine downtime and resulting in substantial production cost savings.

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