

Case study

Mazzucchelli 1849 sets its sights on data-driven energy efficiency



With a trigeneration system from Centrica Business Solutions, the company takes further strides towards sustainability while maintaining its focus on data monitoring.

Mazzucchelli 1849, a long-established company based in the Varese area of Italy, was among the first to realise the importance of using plastics for everyday objects in the early 1900s. Over the years, the company has specialised in the manufacturing of semi-finished products, initially using celluloid and then cellulose acetate. It now has a turnover of approximately €75 million and employs 450 people across two plants. It also operates two production sites in China which employ an additional 600 people.

The renovated plant in Castiglione (Varese), which will house both the staff and production activities that are currently based in Venegono, occupies a surface area of approximately 50,000 m², which includes a new two-storey 10,000 m² building.



Electrical power generated



Percentage of electrical energy requirement met



Tons of CO₂ saved per year

“We are leaders in manufacturing semi-finished products made from cellulose acetate, a material commonly used in the fashion industry for the production of spectacle frames,” explains Alberto Bianchi, General Manager of Mazzucchelli 1849. “Our distinguishing feature is our ability to create 3D colour effects and designs in materials, using cellulose acetate to reproduce the typical effects of natural materials like wood, animal horn and tortoiseshell. This capacity enables us to work with major fashion brands, supplying them with designer acetate sheets.”

‘Streamlining objective’

Mazzucchelli 1849’s production processes require a significant amount of energy, both electrical and thermal in particular. Until recently, old turbine systems were used to generate this energy, also supplying nearby companies in the highly industrial area where the company is based. Recently, the company has changed its approach, shifting its focus to efficiency and sustainability, and deciding to concentrate its production activities in a single plant. This will drastically reduce the thermal energy distributed to third parties, with the aim of falling below the threshold of the EU’s Emissions Trading System (ETS) and adding a second trigeneration system to support the first engine currently in operation at the Castiglione plant.

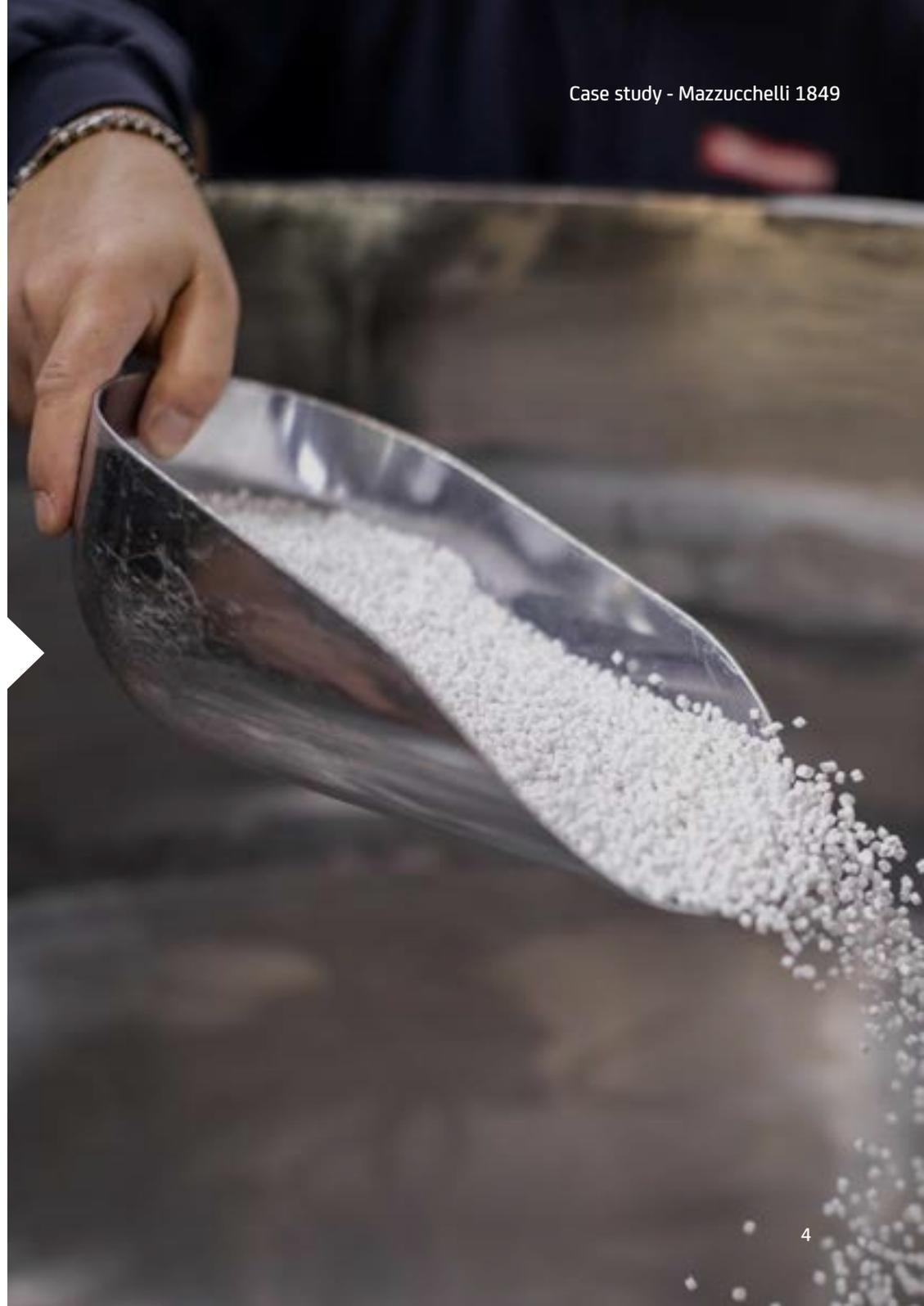
“Our experience in energy management and the expertise of Centrica Business Solutions, particularly in the analysis and installation phases, represented a winning combination, creating a synergy that is difficult to find”.

Alberto Bianchi, General Manager, Mazzucchelli 1849

“On our journey towards sustainability,” states Bianchi, “we had already replaced one gas turbine that generated electrical energy, the exhaust of which was used to produce vapour and then used in various stages of the production process, with a 2.5 MW endothermic engine. With Centrica Business Solutions we have taken a second significant step, installing a new 2 MW engine.”

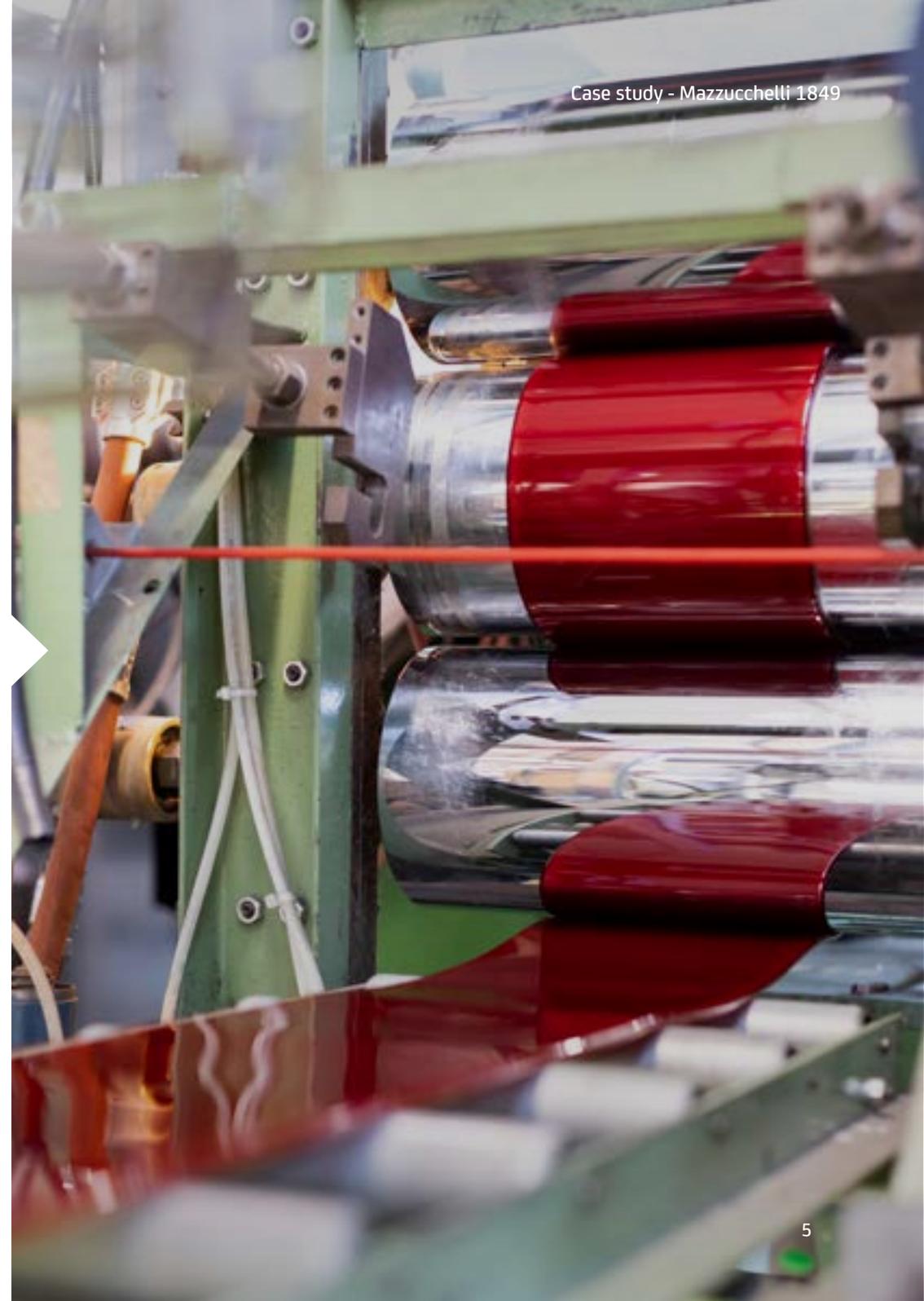
Savings and efficiency with “turnkey” trigeneration

Mazzucchelli 1849 selected Centrica Business Solutions based on its solid expertise and proven experience in projects of this type: “We were looking for a partner, not just a supplier,” says Bianchi. “This type of system requires an exceptionally high level of competence, especially in the design and installation phases. What’s more, in our case, there was an additional critical issue, given the complexity of the production site and the layout of the systems and buildings. That was why we were looking for an organisation that could work with our technicians to identify optimal installation and systems solutions, including a means of connection to the 100 kW photovoltaic system installed on the roof of the building.”



Centrica Business Solutions was responsible for installing and connecting the 2 MW trigeneration system with a lithium bromide absorption system for the production of cooling energy to supply the new facility. “By doing so,” explains Bianchi, “we are able to produce electrical energy, to pre-heat the water used in the production process and cool the facility in hot weather.”

Despite not yet having the official data available, Mazzucchelli 1849 forecasts a significant saving with regard to consumption of gas in particular, but above all, considerable optimisation in terms of energy management, given that the endothermic engines of the trigeneration system are much more efficient than the old gas turbines and the maintenance cost is considerably lower. The system, as it is currently configured, will enable the company to produce 50% of the electrical energy required for the manufacturing processes and reduce CO₂ emissions by 4700 tons a year.



Solar energy and data are the future

Digital technology will be fundamental to the future of Mazzucchelli 1849 since, in addition to expanding the solar panel system on the large surfaces at the renovated plant, the company has embarked on the specific activity of monitoring energy consumption. “Setting the correct KPIs will allow us to define very specific objectives in relation to production,” concludes Bianchi. “Through sensors and algorithms we will be able to calculate, for example, how much of an impact energy costs have on every kilogram of product that leaves the plant, laying the foundations for genuine efficiency improvements in energy consumption, water consumption and use of raw materials. In this respect, Centrica Business Solutions products are already equipped with optimal measurement capabilities which will therefore be integrated into our system.”



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