



Saint-Gobain relies on Manz know-how for new laser process

ACTILAZ™

Reutlingen, October 17, 2018. German high-tech equipment manufacturer Manz AG served as technology partner to French industrial group Compagnie de Saint-Gobain in developing a new laser process for surface treatment of heat-insulating glass for several years – alongside laser specialist TRUMPF GmbH + Co. KG. In implementing ACTILAZ™, Manz draws on its many years of expertise in its thin-film solar business segment.

ACTILAZ™ uses "laser annealing" to increase the efficiency of metallic coatings on very large glass substrates such as those required for architectural applications. From the very beginning, the development goal of Saint-Gobain's extended development partnership with TRUMPF and Manz was to improve the thermal insulation properties of the glass while at the same time maximizing light transmission. The world's first ACTILAZ™ equipment has been in operation at the Saint-Gobain site in Cologne since 2016. The French glass manufacturer uses it to produce its new ECLAZ high-performance thermal insulation glass for windows, verandas and fully glazed high-rise facades.

As a high-tech equipment manufacturer with many years of expertise in the production of thin-film solar modules, Manz was responsible for three technological sub-projects during the development of ACTILAZ™: the conveyor section for the glass substrate, which is up to 3.30 meters wide and features exceptionally consistent synchronization, high-precision kinematic control of the laser optics including all sensors and inline metrology, and overall integration of all individual parts into a production-ready system that can easily be integrated into existing production lines for flat glass.

"The Saint-Gobain equipment built with us in Cologne is unique in its size and design. By integrating the overall ACTILAZ system, Manz has contributed a great deal of experience in the handling and processing of large-scale glass substrates, experience it gained, for example, producing thin-film solar modules or displays," explains Dr. Claus Kuhn, Head of Thin-Film-Solar at Manz.



In the newly developed ACTILAZ™ process, a silver coating only a few micrometers thick on the glass substrate is heated very briefly over the total width of 3.2 meters with a laser line less than 100 micrometers wide using TruDisk lasers from TRUMPF connected in series. The coating changes from an amorphous to a crystalline state, positively impacting its insulation properties with almost no change in light transmission. The quality of the coating depends on ensuring the most constant transport speed possible for the glass substrate, which weighs up to 750 kilograms, and the most constant energy input as possible from the lasers. Manz has integrated Trumpf's multi-directional laser optics into a bridge - equipped with high-precision kinematics and cooling units - in the conveyor section, including all beam protection devices.

"In developing ACTILAZ™, Manz also used its experience in the solar sector to break new technological ground, for example in laser light protection or the necessary cooling systems. The process is fully compatible with current production lines in the glass industry and can therefore be easily integrated," says Hannes Reinhardt, head of Manz's Solar business segment.

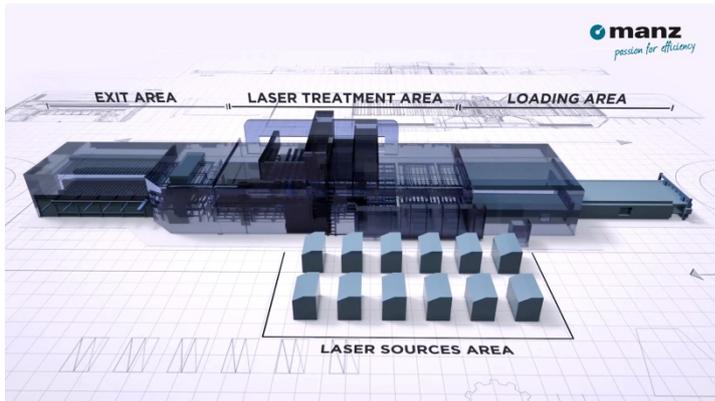
Saint-Gobain is already working on further new products based on the ACTILAZ™ technology and is making the process available to other market operators via licenses.

Technological highlights of the ACTILAZ laser process co-developed by Manz:

- Modular design and scalable in terms of power and length of the laser line
- Can be used for flat glass substrates with typical dimensions of 3.2 meters wide and 6 meters long
- Laser energy homogeneity of over 90 percent
- Laser line with an image scale of 3.30 meters in length and a line width of less than < 0.1 millimeters
- Laser light output of up to 144 kW, multiple deflections of each individual laser
- Working speed of the conveyor section: up to 25m/min
- Inline metrology for temperature fluctuations, cooling water regulation and generated scattered light enable automatic corrections in the process and therefore consistently high quality and output

- ACTILAZ-coated ECLAZ glass from Saint Gobain has up to a 20 percent higher reflectivity of interior heat inwards, while offering a very high level of transparency

Image:



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Company profiles:

Manz AG – passion for efficiency

As a leading global high-tech equipment manufacturer, Manz AG, based in Reutlingen, Germany, is a pioneer of innovative products in fast-growing markets. Founded in 1987, the company has expertise in five technology sectors: automation, laser processing, and metrology, as well as wet chemical and roll-to-roll processes. These technologies are deployed and continuously developed by Manz in three strategic business segments: "Electronics," "Solar," and "Energy Storage."

The company has been listed on the stock exchange in Germany since 2006 and currently designs and manufactures products in Germany, China, Taiwan, Slovakia, Hungary, and Italy. It also has sales and service branches in the USA and India. Manz AG currently employs around 1,700 people, about half of whom are based in Asia. With the claim "passion for efficiency", Manz makes the following service promise to its customers active in dynamic, future-oriented industries: To offer production systems with the highest degree of efficiency and innovation. The company's comprehensive expertise in the development of new production technologies, along with the equipment required, make a significant contribution to reducing production costs for end products and making these accessible to a broad range of buyers around the world.



SAINT-GOBAIN

Saint-Gobain designs, manufactures and distributes materials and solutions which are key ingredients in the wellbeing of each of us and the future of all. They can be found everywhere in our living places and our daily life: in buildings, transportation, infrastructure and in many industrial applications. They provide comfort, performance and safety while addressing the challenges of sustainable construction, resource efficiency and climate change.

More than 179,000 employees in 67 countries generate a revenue of 40.8 billion euros.

Further information on Saint-Gobain on <https://www.saint-gobain.com/en> or on our Twitter account @SaintGobainME.

Public relations contact

Manz AG

Axel Bartmann

Tel.: +49 (0)7121 – 9000-395

Fax: +49 (0)7121 – 9000-99

Email: abartmann@manz.com

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