Press Release

Support for the Chinese Megaproject: Solar Glass Production with Grenzebach Pattern Glass Lines

Grenzebach
Maschinenbau GmbH

Albanusstraße 1-3
86663 Asbach-Bäumenheim

Contact:
Lisa Reitschuster
Phone: +49 906 982-2068
lisa.reitschuster@grenzebach.com

China shares the worldwide goal to protect the environment, reduce CO_2 emissions, and focus on renewable energies. With the help of Grenzebach, new pattern glass production facilities are being built for this purpose, specially designed to manufacture solar panels.

China's leadership places a clear emphasis on renewable energies: on September 22, 2020, China's President Xi Jinping announced to the UN General Assembly that his country would set its climate targets even higher in the future – which means a consistent shift away from fossil energy sources. The Chinese goal is to reach peak CO_2 emissions before 2030 and CO_2 neutrality before 2060. To do this, China is rapidly ramping up wind and solar farms, among other things. From 2021 to 2030, the government plans to add 80 to 160 gigawatts of solar capacity annually. This implies a sharp increase in demand for solar glass, and the glass manufacturer will have to respond to it. In China alone, the installation of more than 160 pattern glass lines specifically for the solar market is planned.

New and redesigned Products in Grenzebach's Pattern Portfolio

Grenzebach is well prepared for this immense demand. For decades, the company have been supplying plants for the production of flat glass. In this context, Grenzebach supports glass manufactures with complete production lines from the hot end to the cold end and is well known – in China, as in other countries – as a reliable, high-quality supplier, especially of high-grade float and pattern glass equipment. In order to meet the increasing demand for solar glass, the pattern glass portfolio has been extensively redesigned and completed with new technology to a state-of-the-art product line. With this pattern product line, Grenzebach is supporting its customers as they strive to execute the Chinese megaproject and meet the related targets. The background: for photovoltaic applications, ultra-clear glass with high light transmission, a light focusing structure and low light reflection is used. This meets the need even better than float glass with an unstructured surface.

Pattern glass is also called rolled glass because its thickness and surface structure is given by a pair of rollers. In this process, the molten glass flows out of the furnace and accumulates in front of this pair of rollers. The thickness of the glass is adjusted by the slot, which is determined by the distance between the two rollers. The top roller may have a pattern – hence "pattern glass." For the production of solar glass, a special pattern is used so that sunlight falling in the module is focused towards the solar cell and thus increasing the efficiency of the module.

Nowadays, melting furnaces with up to 1,200 tons of glass melting capacity are installed in new and more advanced pattern glass lines. Since the downstream process steps cannot handle such a quantity on their own, each furnace typically supplies several cold end lines.

Innovative Pattern Glass: The Technology has been optimized from End to End

Grenzebach has not only mastered this process but perfected it. The company's reputation, experience and expertise form the basis for a highly innovative pattern glass concept. "We listened to the market and learned from the experience," as James Shang, CEO of Grenzebach Machinery Jiashan says. "So we optimized and right-sized our pattern glass production facilities 100 percent in accordance with our customers' needs."

This involves a brand-new design of the pattern glass production line. The complete plant is designed for performance, cost-efficiency, and the specific demands of the Chinese solar glass market.

All these demands are not easy to reconcile. The manufacturing process requires a great deal of know-how and equipment that is guaranteed to work reliably. For example: In order to supply high-quality base glass for the solar module, the edges have to be precisely cut to a specific format and the sheets then stacked neatly. At Grenzebach, customers can rely on everything working smoothly. The company supplies both hot and cold end technology – in other words, the complete production line with all components from the annealing lehr to cold end with conveyor, cutting and stacking technology. High efficiency and flexibility are ensured by reliable equipment, such as robots with high stacking accuracy. Downstream of the cutting line, Grenzebach also supplies conveyor and automation technology to transport the raw glass for further processing. In this step, for example, edges are ground and prepared for later use in the solar module. At this point, cutting precision pays off again by increasing grinding efficiency and cycle time and reducing the cost of expensive grinding material.

James Shang underlines the company's good standing in the Chinese market: "We have a really good relationship with all our Chinese customers; we know the demands of the market and are happy to support our customers with our new pattern glass lines now."

A wide Range of Pattern Glass Variants can be delivered

With Grenzebach's pattern glass lines, glass thicknesses from 1.5 to 6 mm are possible. Manufactured glass plates range from 1,200 mm x 2,400 mm to 2,650 mm x 2,800 mm – matches perfect for Chinese solar panels. The capacity of one line varies typically from 125 to 300 tons per day.

The customer demand is definitely impressive: A large number of lines have already been ordered and will be delivered in the course of the year. The first customer has purchased twenty lines at once, which will be installed in spring 2021. As standard, the schedule of customer projects from idea to completion is around eight months. Standardization and series production have enabled Grenzebach to shorten delivery times and support customers with even better in their ambitious projects. But that is far from the end: Grenzebach also takes care of maintenance and service, and this over the entire lifecycle of the line. The experts at Grenzebach's manufacturing site in Jiashan close to Shanghai support Chinese plant operators in making optimum use of the pattern glass lines and furthermore, can also supply spare parts at short term.

A big Win for the Environment

With its solar glass lines for China, Grenzebach is not only making a major contribution to the use of "green" energy in East Asia, but is also helping to avoid additional energy demand elsewhere: Local production means fewer overseas and overland transports are required - and that in turn means a further, significant reduction in climate-damaging emissions. This makes these plants an investment in the future in the best sense of the word.

The Chinese goal is to reach peak CO_2 emissions before 2030 and CO_2 neutrality before 2060. To do this, China is rapidly ramping up wind and solar farms, among other things - which leads in turn to increased demand for glass for solar panels.

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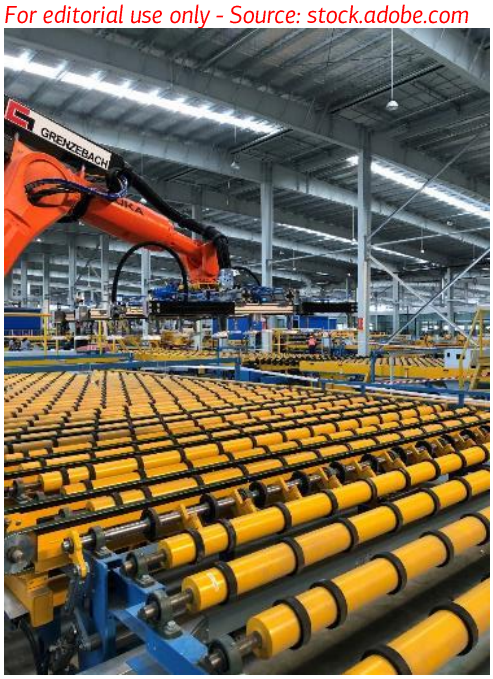
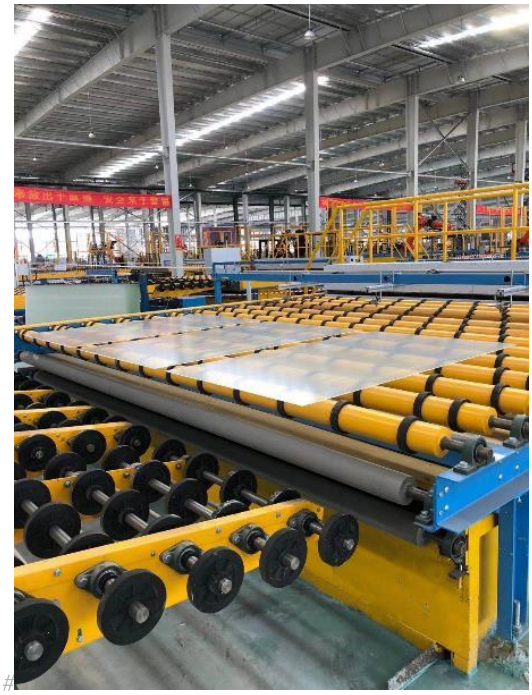


High efficiency and flexibility in pattern glass production are ensured by reliable equipment, such as robots with high stacking accuracy.
Source: Grenzebach



With Grenzebach's pattern glass lines, glass thicknesses from 1.5 to 6 mm are possible. Manufactured glass panes range from a minimum of 1,200 mm x 2,400 mm to a maximum of 2,650 mm x 2,800 mm – matches perfect for Chinese solar panels.

Source: Grenzebach

Grenzebach is a leading automatization solution provider for the global glass, building material and intralogistics market. In addition, the company develops new application areas, such as Friction Stir Welding, the automatization of industrial additive manufacturing and digital networking. The digitization platform SERICY allows customers to develop their own future-proof digital know-how. Grenzebach ranks among the international technology leaders in its markets. The global manufacturing footprint with production sites in Germany, Romania, the US and China, as well as additional worldwide locations ensure customer support on-site. More than 3,000 systems installed in more than 55 countries stand for quality and reliability. Since the company opened its doors 60 years ago, it has been owned by the founding family. With an export ratio of more than 90 percent, Grenzebach is a global player.