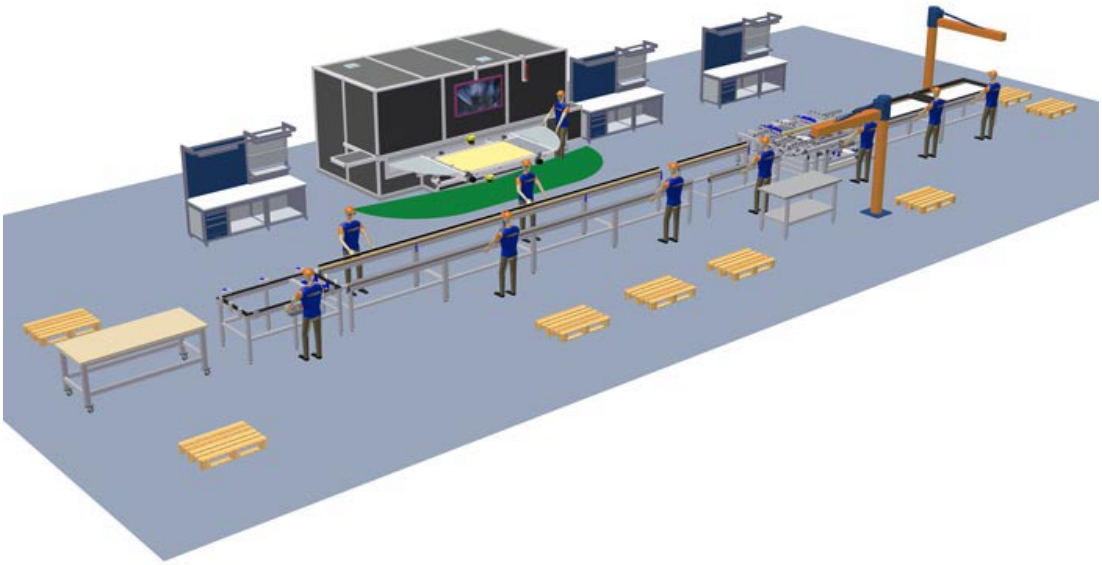
Signs point to expansion

New concept for solar collector fabrication

For more than 12 years, MiniTec GmbH & Go. KG has been one of the pioneers in the fabrication of photovoltaic production lines. In this area, the manufacturer has established an outstanding reputation in numerous installations with respect to reliability, flexibility and the shortest possible lead times. A great deal of experience in PV technology combined with groundbreaking technology from MiniTec Schweiz in laser welding technology are the basis for the latest production line at MiniTec.



After moving into the attractive new company facilities in Schönenberg-Kübelberg (Pfalz), MiniTec is using the production facilities freed up in Waldmohr for the construction of a production line for the latest generation of flat solar thermal collectors. The new production line was designed as a competence centre for solar production. The goal of the centre is to provide customers with practical experience in collector fabrication and to support the continual improvement of assembly methods based on empirical evidence.

The modular structure of the line permits different degrees of automation depending on customer needs. The heart of the system is the laser welding machine from MiniTec Schweiz. Together with its partner Sunlaser Consulting GmbH, MiniTec Schweiz AG not only has a great deal of competence in plant construction, but also extensive application know-how. The customer has access to experienced specialists for every problem – from the economical design of plants to verification of optimum materials for the finished

product. This comprehensive knowledge is entirely available to customers in the new centre.

Customer can obtain a license for the mature flat collectors certified by Solarkeymark upon request, with the corresponding assembly line. This process can eliminate the roughly 2 years of lead time for construction, testing, and certification otherwise required.

Technology from MiniTec is ground-breaking because it joins the absorber pipes to the absorber plate with no visible welding seam and at up to 300 N/cm on the surface. In addition to improved appearance in comparison with other welding processes, the undamaged surface also has a significantly higher energy efficiency. The join can withstand the high temperatures in high-efficiency modern flat collectors, and the process has entirely solved the problem of the aluminium/copper material combination. Especially that advantage makes laser fabrication attractive. Anyone using aluminium as the material for the absorber plates can cut costs considerably, in view of the lower raw material prices in comparison with copper, with equivalent or even improved product quality and lower weight. At a produced absorber area of 50,000 m² per year, the use of the laser welding system already pays off in comparison with conventional ultrasound welding techniques.
Laser welding systems (LWS) are offered in three construction forms: as a carousel welding system for full-surface absorbers with meander-shaped fixed endless tubes, or prefabricated copper tubing harps. The systems can be equipped with one laser welding source, or up to four, depending on customer needs. In the highest power class with four laser sources, the LWS can reach a welding speed of over 30 m/min. That corresponds to a yearly capacity of 400,000 m²/year in two-shift operation.
The second version is available as a laser portal system for large absorbers of up to 6000x1400 mm with the above features, as well as a system for absorber fin production from coil for dimensions of up to 6000x160 mm in a continuous process, with a yearly capacity of 450,000 m^2.

An ideal complement

The great experience of the Palatine company MiniTec in assembly technology and factory automation for the photovoltaic industry can now also be used for solar collector production. The serious challenges of the future regarding safe, environmentally friendly power supply can be met with uniform, rational solutions. The bundled competence of Sunlaser Consulting and MiniTec in product planning and material selection, system design and construction, as well as practical applications and ongoing further

development, is a guarantee for optimum quality at the best possible cost-effectiveness. That results in solutions which correspond exactly to the needs of collector manufacturers.