

CUBE Inline⁺ for highest flexibility and efficiency

Long business relationship faces a new challenge

Preh, which initially established a foothold in the electronics industry after its founding in 1919 and has now been active as an automotive supplier for more than 25 years, achieved sales of more than 1 billion euros in 2016. Preh has its headquarters in Bad Neustadt a. d. Saale and employs over 6,000 people worldwide at its locations in Europe, North America and Asia.

In 2015, Preh approached Inertec, a selective soldering systems manufacturer, with a special assignment. A business relationship between the two companies had already existed since Inertec's founding in 1992. The medium-size company, which is based in Kreuzwertheim and employs 49 people, has firmly established itself on the global selective soldering market, distributing its products around the world with support from 30 representatives in total. Besides its existing product portfolio, the thing that distinguishes Inertec is its willingness to take on very complex, customer-specific requests. With this prerequisite, and after comparing other competitors, Inertec was Preh's first choice for optimising its existing soldering process for battery control units.



CUBE Inline⁺

New technology not only for the customer but also partly for the manufacturer...

There is probably no better way to describe the project, which was approved after a long technology meeting at Inertec. Originally, modification of an already existing soldering system was planned. This plan was later rejected, however, due to various comparisons and an exact calculation, and the decision was made to develop a system from Inertec's CUBE Inline series, with the new ActiveFlow concept.

ActiveFlow technology involves a selective dip soldering process, which is only available for Inertec systems. It was developed in order to achieve a high throughput and at the same time meet the extremely high soldering quality requirements. The question of an optimal energy input into the assembly to be soldered is also a point of discussion and is perfectly implemented by this concept. Better temperature management, minimising the thermal influences and reducing tool costs are examples of some of the additional benefits of this process.



The primary difference of ActiveFlow compared with other selective dip systems on the market is that the solder is actively circulated in the soldering head. The circuit board, or the workpiece carrier, is transported to the soldering unit, where it is precisely positioned by special fixing pins. The components on the circuit board are correctly set by an integrated pressure pad. As soon as the



product is positioned, a cavity plate, which covers the soldering bath and the soldering head in order to guarantee a perfect nitrogen atmosphere, is lowered and exposes the soldering head accordingly. Then the entire soldering transport segment is placed on the soldering pre-position; the last 2 mm up to the soldering head are approached slowly, and the soldering process begins.

After the components have been soldered with the circuit board, the solder level in the soldering head is systematically reduced, which corresponds to a "pull off" in selective dip soldering. This process achieves a perfect shape of the solder joints.

After an adjustable waiting time, the entire soldering transport segment is lifted again, the cavity plate moves back to its upper position, the components and circuit board are released by the pressure pad, and the soldered product is transferred to the machine outlet.

An 18-month process begins, from planning to integration

"We were aware that it would take time to deploy a completely new system," says Justin Oppelt, Head of Electronics Production at Preh. And he was quite right. The system requested by Preh contains not only the new ActiveFlow concept but also some customer-specific features, and thus it was not a standard system from Inertec.

The planning and design of the system was coordinated jointly, and from the start of the system's construction at Inertec to delivery of the machine to Preh, there was a constant exchange of information between both parties.

Even after the soldering system arrived in Bad Neustadt, the project was still far from complete. Further visits by Inertec took place, in order to organise the integration in the best possible way. "Whenever we needed support, there was someone there," says Oppelt, in praise of the Inertec technicians responsible for the project. Training the Preh staff members and familiarising them with the system took place on site in coordination with Inertec employees. Together the biggest hurdles were overcome, and the system now produces around 15 shifts per week in a three-shift cycle.

Oppelt confirms: "Inertec met all of our requirements, despite a fixed portfolio. This fits well with the typical flexibility that Preh offers its customers – car manufacturers. All in all, those are best prerequisites for our future cooperation."

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