

Application report | Best practice



WILO Group and Erska

Highly automated production line for smart pumps

Wilo SE is one of the world's premium suppliers of pumps and pump systems for building technology, water management and industry. The company employees around 7,700 people around the world. As the innovative leader, Wilo is setting new standards and offering customers tailor-made products with a high degree of system efficiency and maximum energy saving. The target set: to be as customi-

sed as necessary and as efficient as possible. With smart solutions which connect people, products and services, the Wilo Group is on the way to becoming the digital pioneer of the branch. To achieve its ambitious targets, a highly automated manufacturing line of the type Erska selective soldering line VERSAFLOW 3/45 is used for electronics manufacturing.

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published in
productronic 11/2018
in Germany



Factory of the future: Wilo is developing its Dortmund headquarters into its No. 1 digital site and thus setting benchmarks in the entire pump industry.

Founded in Dortmund in 1872 as a copper and brass factory, the Wilo Group is now one of the world's leading manufacturers of high-quality pumps and pump systems, with 13 main production sites in Europe, Asia and America. At the moment, this translates into an efficient and customer-related network of 70 production and sales companies in more than 50 countries which are available to the Dortmund technology enterprise. Impressive milestones have been reached in the course of the 146 years of company history: In 1928 Wilo developed the world's first heating pump, in 2001 the pump specialist launched the first ever high-efficiency pump on the market, the first decentralised pump system followed in 2009. At the heart of the new digital products, systems and solutions is the smart pump Wilo-Stratos MAXO. A dynamic development – characterising the Wilo Group and describing the consistent progression from product to system supplier at the same time. This is behind the claim "Pioneering for you", which aims to achieve optimum quality of life by making efficient use of the valuable resource, water.

company continues to invest heavily in the future. International presence in a group with numerous additional agencies and an independent network of sales and service partners ensures that customer requirements and needs can be satisfied at any time, world-wide, to the highest quality. Thus, for example, Google had expressed the intention of covering the power demand for its data centers using only renewable energies in the foreseeable future. At the same time, great efforts are being made to enhance energy efficiency in the centres themselves, particularly with regards to the energy-intensive cooling of the servers. One indication of this is the choice for the location of the European Google data centre in Hamina, Finland. The deciding factor was not the price of electricity but the low mean temperature of 2°C and the direct vicinity of the Finnish sea. Because here, the server cooling is guaranteed using cold seawater, thus saving energy. The Wilo pumps "CronoLine-IL" make a decisive contribution to the ecology and economy of one of the main nodes in the global data highway. The result is one of the "greenest" data centers in the world.

WILO Group

facts and figures

Founded 1872

1.327 billion euros turnover

109.5 million euros investment

7,548 employees

Range of performance: Building Services, Water Management, Services

(as of 2016)

www.wilo.com

PERFECTLY MATCHED SOLUTIONS AVAILABLE WORLD-WIDE

The Wilo Group is consistently extending its international presence and is represented on all important markets. In 2017, turnover of more than 1.4 billion euros was generated – and with a total of 124.8 million euros for modern manufacturing technologies and new production sites and extensions, the



Electronics manufacturing at Wilo in Dortmund.

Enormous range of experience: Wilo Process Engineer Rüdiger Riedl, part of the company for more than 40 years, with Wilo colleague Ulrich Krämer (right) and Ersa Sales Engineer Stefan Wurster (centre).



Key data

Ersa VERSAFLOW 3/45:

High-end selective soldering system for integration in in-line manufacturing concepts

Mini-wave soldering for high flexibility or multi-wave soldering for high-volume applications

Use of up to 4 spray heads

Flexible line configuration thanks to modular design

CAD-Assistant for offline program creation

In order to implement such complex products, the Wilo Group works intensively in the background on the advanced development of processes in order to make these smarter all the time. Basic similarities with Ersa become apparent here: In order to reduce the storage times between delivery and supply and to reduce storage and process costs, both companies decided to set up a new logistics centre in the past. Like at Ersa, where the group-wide Kurtz Ersa central warehouse went into operation and a digitised and automated materials management system at the highest technological level guarantees supplies to customers and locations, central software and automation solutions in logistics are to make direct exchange of information with suppliers more efficient in future.

WILO AND ERSA: TRUSTING COOPERATION SINCE THE 1980S

Both companies regard digital transformation, one of the major challenges of our era, as a joint key factor. Meeting this change with foresighted actions

is essential for the future success of companies. Whether pump systems or electronics manufacturing – digitisation means a fundamental change to manufacturing technologies, work sequences and production processes, and offers completely new function and application options. For this reason, Wilo and Ersa are setting new benchmarks and pushing digital transformation on all levels.

To be able to take this complex path, the pump manufacturer is using production systems from Ersa, which are 100% reliable at all times for all electronics manufacturing applications – after all, the assemblies produced must work reliably in smart pumps and pump systems all over the world under the toughest of conditions. The electronics manufacturing plant in Dortmund makes products for all plants world-wide and relies without compromise on know-how and quality “made in Germany”. The Wilo Group and Ersa started their constructive cooperation as far back as in the 1980s.

Electronics manufacturing precisely under control: Wilo Process Engineer Ulrich Krämer (rear) and Ersa Sales Engineer Stefan Wurster (front) at the Ersa VERSAFLOW 3/45.



View of the Wilo electronics manufacturing with Ersa VERSAFLOW 3/45.





Free view of the soldering process: Ersa VERSAFLOW 3/45 in the Wilo production.

They see their cooperation more as a trusting partnership than as a traditional customer-supplier relationship. Wilo has already used selective and wave soldering lines from Ersa for demanding soldering tasks in the past. "Through the numerous technologically demanding projects we have been involved in together, we have been able to develop joint standards which will be a great help in mastering future projects and give us the edge over our competitors. It is particularly important to understand what the needs of our customers and optimization within the soldering process are," says Ersa Sales Engineer Stefan

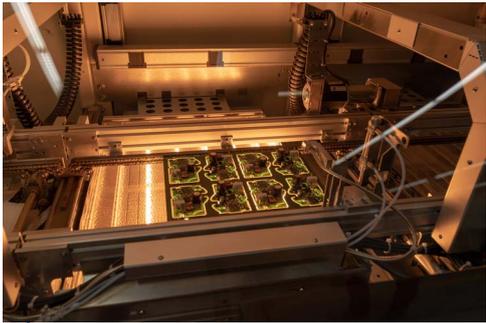
Wurster. The fact that the team in Dortmund has very good knowledge of the soldering process and has already been able to gain experience in the field of selective soldering made a product problem-solving process possible with Ersa which was productive in every respect.

ERO-FAULT STRATEGY:
MULTI-WAVE SELECTIVE SOLDERING
LINE VERSAFLOW 3/45

Last year, the four-strong Wilo team responsible for industrialization and manufacturing technologies, Rüdiger Riedl, Ulrich Krämer, Roger Unsenos and Michael Menczyk, put a highly automated line from Ersa into operation for the first time.

This had been preceded by a call for tender with several participants bidding for the contract. Following an intensive process, Ersa was once again able to convince those responsible at Wilo on account of its technological lead in the field of selective soldering, particularly through the precise process control and monitoring.

Ready for soldering: equipped PCBs in the Wilo manufacturing line.



Eight-fold board without soldering frame: soldering process in the VERSAFLOW 3/45.



Good business partners for many years: Wilo and Ersa.



— A VERSAFLOW 3/45 multi-wave selective soldering line is now in use, and has been integrated perfectly into the overall concept designed by the pump manufacturer thanks to a high degree of automation for the production of large quantities. "One of the project's special challenges was the large component mix to be produced using the new production line. The thermal requirements during heating and cooling of the ceramic components played a major role. We determined all the necessary process parameters in advance at the Ersa application center in Wertheim, without blocking important production capacities," says Rüdiger Riedl, manufacturing engineer at Wilo.

At the same time, Wilo was pursuing the target of a zero-fault strategy by integrating an intelligent, highly automated production line. Whichever way you look

at it: a stable soldering process is the key. The complex automation covers the in-line concatenation of the production lines for transport of an eight-fold board without soldering frame. Thanks to the standards created together in the past and numerous comprehensive preliminary tests at the application and demo center at the Ersa site in Wertheim am Main, important solutions for potential problems were found at the early stages of the project. This enabled a fast and problem-free ramp-up with very few adaptations to the soldering process following initial operation. Wilo process planner Ulrich Krämer considers the project an outstanding example for the long-term cooperative partnership between the two companies: "From initiation to completion, the project with Ersa ran as smoothly as anyone could wish – looking forward to next time!" ■

— *Sophisticated workflows: Wilo Process Engineer Ulrich Krämer (front) and Ersa Sales Engineer Stefan Wurster closely monitor the tiniest of details to ensure smooth production.*



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