

Stiebel Eltron uses DS AUTOMOTION AGV for flexible Heat Pump Assembly: On the Driverless Path to Decarbonization

DS Automation

DS Automation is a global technology leader in mobile robotics for in-plant logistics and assembly applications. The company has over 40 years of experience in the development and production of mobile robots and the associated fleet management systems, which are used as AGV (automated guided vehicle) and AMR (autonomous mobile robot) solutions, among others.

A key success factor is keeping the core competencies and technologies in-house and continuously developing them further. More than 60 software experts develop state-of-the-art solutions such as the NAVIOS fleet management system and the ARCOS navigation and control software.

With adaptable products, innovative solutions and comprehensive services, DS Automation is a reliable partner for its customers to improve their efficiency and competitiveness. In doing so, the company offers extensive automation and industry know-how and the best possible consulting and planning support.

Besides its organization in the US, it is also located in Austria, Germany and France and employs more than 260 people. Furthermore, DS Automation operates worldwide as an independent company of the SSI Schaefer Group.

For more information, please visit www.ds-automation.com



Contact Information

691, N. Squirrel Road, Suite 119
Auburn Hills, MI 48326, USA
+1 / 248 / 370 8950

info@ds-automation.com

www.ds-automation.com

www.youtube.com/@DSAutomationGmbH

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Growth & Impact



Area requirement reduction

OSCAR omni allowed us to reduce the area required for the buffer storage by 50 percent



Used for transport as well as administrative activities

NAVIOS fleet manager software not only allocates transports to vehicles but also takes care of the administration of the buffer storage



Expansion

Heat pump production automation will in a next step be extended to include final assembly



MHI

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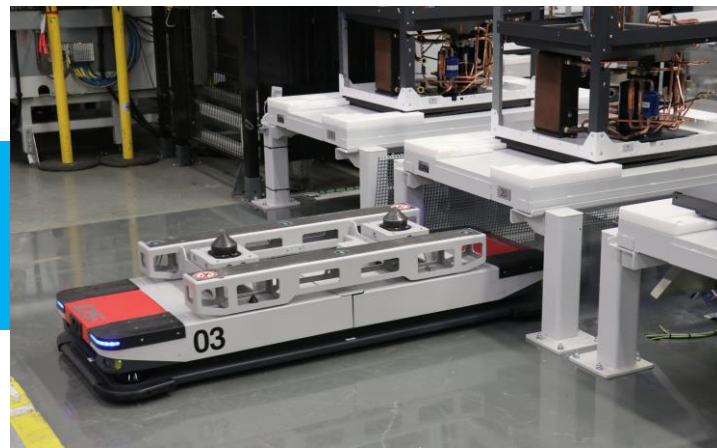
“Driverless transport using OSCAR omni allowed us to reduce the area required for the buffer storage by 50 percent.” says Roman Flegel, M. Sc., Streamlining Process Engineer, Stiebel Eltron GmbH & Co KG

The issue

For the company Stiebel Eltron, increasing environmental and climate awareness in recent years has led to a continuous rise in demand for its heat pump heaters, which consume only a fraction of electrical energy compared to conventional devices and thus significantly reduce CO2 emissions. The variety of products and the associated fluctuations in demand have pushed the model-based production lines to their limits. Manual assembly of the heat pumps on assembly trolleys from workstation to workstation was time-consuming and the concept was not very flexible. The different processing times and models made transport to the various workstations difficult, especially for brazing the cooling circuit.

The solution

To solve these problems, a multiline system with DS Automotion was implemented. The first two manual workstations were connected with a push-chain conveyor to allow the work steps up to the set-up of the compressors in the same cycle. For the longer and model-specific processing times during brazing of the refrigeration circuit, a driverless transport system (AGV) with the override AGV OSCAR omni was used.



The AGV transports the heat pumps to soldering, evaporator assembly, the test chamber and finally to a buffer store. From there, the heat pumps are again transported by AGV to a transfer station where wiring, insulation and housing assembly take place. A permanently installed conveyor system takes over the transport to the individual workplaces. Due to the limited space available, it was necessary for the AGV in the buffer warehouse to act in an area-moving manner. The choice fell on DS Automotion GmbH, which, based on the utility analysis, is best adapted to the required flexibility. The AGV control system from DS Automotion not only manages the allocation of transports to the vehicles, but also the buffer storage. The provision of the required material to the soldering workstations is also handled by OSCAR omni. The NAVIOS control system calculates the travel orders for the AGVs by using data from both the ERP system and the conveyor system. This integration enables efficient and coordinated control of the AGVs throughout Stiebel Eltron's production plant.

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