



**DALEX - SPECIALIST FOR AUTOMATION PROCESSES -
CUSTOMIZED SPECIAL SYSTEMS PERFECTLY INTEGRATED
INTO THE WORKFLOW**

Interlinked total solutions for a wide variety of applications

Higher productivity, quality and flexibility, customized manufacturing, shorter cycle times, efficient work processes, lower inventory costs - the Smart Factory brings many advantages. However, standard machines quickly reach their limits in these networked processes. DALEX Schweißmaschinen GmbH & Co. KG from Wissen is a sought-after expert for highly complex manufacturing cells, automated systems and interlinked overall solutions that are individually tailored to the requirements of the user.

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Competent plant interlinking

For all this to function efficiently, machines, systems, logistics and other processes must be optimally networked and coordinated with each other. Dipl. Ing. Horst Müller, authorized signatory and sales manager at DALEX Schweißmaschinen GmbH & Co. KG: „In addition to the actual processing machines and the semiautomatic or fully automatic feeding of components, many other work steps often have to be integrated and considered in plant interlinking.

These include, for example, parts buffers between the individual processing steps, smooth product changeovers, automated quality and dimensional checks, and detection of non-standard parts in order to reject them directly. Part identification for traceability or process analysis is also a possible part of plant interlinking."

The focus of the complex manufacturing cells designed by DALEX has mostly been welding technology - such as resistance welding, MAG or laser welding. This is hardly surprising, considering that high-quality welding technology has been the company's specialty and thus core competence for more than 100 years. Increasingly, however, the experts are also developing and building special systems with a high degree of automation for a wide variety of applications - even those that do not require welding tasks. Over the years, they have built up a great deal of expertise in press-fit, testing and marking processes as well as a wide range of assembly steps: on the one hand, by expanding the team with competent specialists from the field of automation technology and, on the other hand, through a network of well-known and competent supply partners, for example for robot technology, who contribute their knowledge to the complete solution.

In the special systems, DALEX uses high-quality cameras for various tasks: „For example, a system can be automatically loaded out of a simple collection container by means of a camera-guided robot. Or the position of the component is automatically corrected when it is inserted into a mold. For automated quality control, for example, high-resolution cameras with telecentric lenses are used. With the help of a robot, they measure the finished parts and register every optical deviation. In this way, the system can easily sort out faulty parts,” says Horst Müller.

Always focusing on the holistic manufacturing process

„In order to integrate a highly complex special system into the existing workflow, the experienced engineers and technicians in our modern and flexible project planning and design department work closely with purchasing, work preparation and suppliers in „simultaneous engineering“. In doing so, they always focus on the user's holistic manufacturing process,” says Horst Müller. „One example: many users have already used certain robot systems several times in their production and, because of the knowledge they already have, understandably also want to work with them in the new system. That's why, in close coordination with the customer, we use different robot types depending on the requirements and also program them ourselves. This is a central component in finding a solution and makes integration into existing processes much easier.“

Top quality right from the start

Regardless of whether welding technology is used or not, DALEX applies the highest quality standards in the design of its highly complex special systems. To achieve this, the experts rely on a high level of vertical integration and high-quality components from renowned brand manufacturers. „Made in Germany“ is the guiding principle to which the Wissen-based company is committed. Extensive quality assurance tests are also carried out during production. Before the systems leave the factory, they are tested for functionality in a test bay. In the case of complex robot lines, for example, cycle time evaluations and interfering edge examinations are backed up by prior robot simulation. When it comes to using welding technology, DALEX even has an additional asset up its sleeve - its in-house Technology Center: „Here we can comprehensively clarify all welding aspects in advance. With the spot, projection, longitudinal and transverse seam roll welding systems and manual tongs there, we test the task-related welding parameterization. This is possible for almost all cases. In this way, we keep the technical risk for our customers as low as possible even before the investment is made,“ adds Horst Müller.

Conclusion

With its many years of experience, DALEX has made a name for itself as a development partner for the automation of processes and the construction of highly complex manufacturing cells in numerous industries, such as the automotive and its supplier industries, household technology, the furniture industry, aerospace and commercial vehicle technology. Thanks to a deep understanding of the ramified interrelationships in manufacturing processes, customized solutions with streamlined processes are created - perfectly integrated into the existing workflow. This ensures high product quality and productivity.



Semi-automatic and fully automatic feeding of the main product and small parts as well as downstream stacking and palletizing of the finished parts are an integral part of a complex overall solution.



The fully automated overall solution from DALEX includes parts logistics, i.O/n.i.O. outfeed, mirror-image design for simultaneous production of left and right parts, and the space-saving control cabinet arrangement on a platform arranged above the system.



As a partner for large line builders, DALEX is used to designing and building components, assemblies and cell solutions of large lines that take into account all necessary interface definitions.



DALEX's highly complex production lines include not only welding processes, but also press-fit, testing and marking processes as well as upstream and downstream assembly steps.