THE TECHNICAL ISSUE

Transition from metalworker to "Sheet metal service provider"

Matyssek Metalltechnik on route for success with Cloos

Technical Issue of S. Nuechtern-Baumhoff, Carl Cloos Schweisstechnik GmbH, Haiger Photos: CLOOS

HAIGER/STADTOLDENDORF – Matyssek Metalltechnik GmbH in Stadtoldendorf specialises in the technical design and manufacture of housings and claddings for industry. For welding, the company has relied for years on Carl CLOOS Schweißtechnik GmbH in Haiger. Now a new automated robot system guarantees optimum quality and efficient production processes.

Around 75 engineers, technicians and specialists are engaged in the production of individual parts and assemblies made of aluminium-, steel-, and stainless steel sheer for machine- and systems technology, medical- and laboratory technology and the electronics industry at Matyssek Metalltechnik in Stadtoldendorf in the south of Lower Saxony. The core competence of the family company however lies in the manufacture of machine housings, soundproofing canopies and control cabinets. These kinds of constructions can easily be 16 meters long or six meters high. Since 2007 a disused military site with a total area of 5.5 hectares has offered the space required.

For a long time it was inconceivable that the Lower Saxony firm would be operating at dimensions of this magnitude. The grandfather of the current managing director Dirk Matyssek founded the company on 1st November 1930 as an agricultural machinery workshop. Work was carried out entirely by hand until the fifties, at which time the firm converted to a metalwork shop. It was not until the seventies, however, that the first industry contacts were made. Initially the company made handling equipment for in-house material flows, adding in sheet metal parts in the eighties. Since 1993 the company has been purely a sheet-metal supplier.

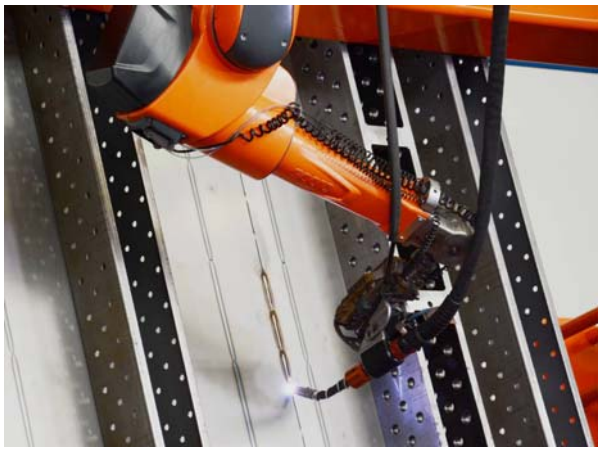
Dirk Matyssek joined the firm 15 years ago. Since then he has been growing the industrial housing specialism and the associated fine sheet metal-processing. Matyssek Metalltechnik not only supplies the production, but also intensive development and construction work related to housing constructions and sound protection solutions. "We are continually investing in our machinery fleet in order to meet the increasing requirements of our customers for complexity and quality," says Matyssek. Turnover and employee numbers have multiplied in the last few years with more intelligent order acquisition, state-of-the-art production technology and expert production. More than 2,000 tonnes of metal sheet pass through the different production areas of cutting, bending, welding, powder coating and assembly per year.

New robot system offers maximum flexibility

When it comes to welding technology, Matyssek relies wholly on Cloos. The highlight of this production area is the new Cloos robot system for automated welding. There are also at least a dozen Cloos manual welding machines in operation.

The new robot system offers maximum flexibility – an important precondition given the wide product range at Matyssek.

The new robot system consists of two stations and a 7-axis robot, model QRC-E 350. The first station is primarily engaged in welding large machine support frames, while smaller housings and assemblies are processed on the second station. The robot is fixed to a floor-mounted linear track and can travel back and forth flexibly between the two stations. The range of the 7-axis robot simplifies and accelerates the welding of the complex workpieces.



The reach of the 7-axis robot means that it can be easily guided around corners or into niches.

As the welding head can be easily guided around corners or into niches there is a substantial reduction in the setup- and positioning time. The robot is also fitted with a torch-changing system. This allows the use of different welding processes depending on the application. An important precondition for the huge range of products at Matyssek. The company focuses first and foremost on small runs in different materials. The high-tech Qineo Champ 450 welding power source is additional contributor to the flexibility of the system. It is suitable for different applications and materials and for different welding processes.

The turn/tilt positioner always positions the complex workpiece perfectly for welding.

Cold Weld permits innovative housing design

The system operates mainly with the MAG cold weld process in which a very special pulse form is generated with an alternating current which has an extremely low heat input. Due to this type of heat-reduced kind of arc welding the welding process can be optimally controlled. The increased deposition rate results in enormous welding speeds for the thin sheet metals of between 1 and 4 mm which are processed at Matyssek. At the same time the material is exposed only to minimal heat so that the original material properties remain largely unchanged. This reduces any reworking to a minimum.

The first impression of a new machine is given by the housing. Therefore ambitious machine engineers communicate the performance strengths of their technology through innovative housing design. The sheet metal processor is naturally expected to implement correspondingly complex forms at a reasonable cost. By reducing the welding and finishing times, the Cold Weld process enables the production of complex housing designs which are absolutely beyond the scope of conventional welding technologies.

Two assembly stations and offline programming save time

Two-station assembly means that the system can be loaded at alternate ends. At one end employees can remove the welded workpieces, check the quality of the welding and reload the system while the welding process takes place at the other end. This results in enormous time-savings over the entire process. The offline programming of the robot system with the RoboPlan software from Cloos also saves time. A new program can be produced simultaneously in RoboPlan even while the system is in production. RoboPlan allows welding-, search-, travel paths and tools to be defined on 3D models. Welding parameters and other functions required for the running of the program are then defined with the resulting program only then being transferred via a network connection to the robot controller and only optimised at the workplace.

The increased deposition rate of the Cold Weld process results in enormous welding speeds in the case of thin plates.

Investment pays off

Formerly the components at Matyssek were welded exclusively by hand which often led to production hold-ups. Investment in state-of-the-art robot welding systems has enabled the company to significantly accelerate its production processes and achieve precisely reproducible welding results. Matyssek is now able to meet the demands of its customers for increased productivity and quality. Employees also benefit from better conditions as the robots undertake the physically heavy work and the general hazards of arc radiation and welding fumes are also reduced. Employees can therefore concentrate more on process monitoring.

Matyssek also depends on Cloos to train its staff in welding. Courses guarantee a solid grounding in robotic- and welding technology. In the well-equipped modern Cloos training centre, customers and employees acquire the required programming and handling knowledge. In groups they undergo well-prepared training on true-to-life workpieces to learn the special requirements of robot- and welding technology.

Matyssek also intends to invest in new technologies in the future. "Innovation is always necessary to enable us to offer our customers technology- and cost-optimal solutions", says the managing director. Matyssek Metalltechnik is designing its own product range of modular housings and claddings so as to be able to offer favourable solutions even for smaller demands.

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