

F.W. STIEBICH METALLBAU

TUBE CURVATURE AS THE KEY TO PRODUCT QUALITY

Unparalleled design freedom

F.W. STIEBICH Metallbau GmbH is known in the German market for its unique steel structures, which it also builds for prestigious properties such as skyscrapers and shopping centers. With the help of the ELECT63 tube bender from BLM GROUP, it has further expanded its product range, opening up new market segments.

When they hear the name Customhands, motorcyclists' eyes light up. The specialty of this company, from Mühlheim am Main in Germany, is transforming conventional motorcycles into individual works of art. An essential element of the offer is the patented, individually adjustable handlebar systems.



Bending without any defects

The components of the handlebar systems consist mainly of laser cut and bent stainless steel tubes (DIN ISO 1.4404). For these products, the highest quality is barely sufficient. *“No customer would accept indentations, bends or shrinkage in the handlebar bends. In addition, many handlebars are chromed or powder-coated matte black at the customer’s request, and this in itself requires that the tubes have the highest surface quality,”* says Marc Stiebich, the managing partner of F.W. STIEBICH Metallbau GmbH based in Reiskirchen, just an hour’s drive north of Frankfurt. Marc, together with Customhands managing director German Kunkel, developed the innovative handlebar systems with a patented “connector”, thanks to which the connection point of the individual elements is not visible on the finished handlebars.

F.W.STIEBICH cuts tubes with an LC5 combined laser cutting system for tubes and sheets and then bends them with an ELECT63 tube bender. The two machines



from BLM GROUP are integrated with the “All-In-One” solution. *“Even with very complex workpieces, the two processes interact perfectly and the holes turn out to be in the right positions,”* reports Stiebich about daily production.

The booster plays a key role

The diameter of the handlebar tubes is 31.8 mm, their wall thickness is only 3 mm. Depending on the handlebar design, they need to be bent with tight spokes. That’s where the ELECT63 booster comes in. *“If thin-walled tubes with narrow radii are bent in conventional bending machines, distortions such as wrinkles in the bending areas usually occur. With the booster, we avoid this effect,”* Stiebich reveals.

Precision and Flexibility

Calibrating fixtures on an all-electric tube bender is an easier and more precise operation than on hydraulic tube benders. Stiebich: *“We have better control over*

the process, so we can bend much more accurately.”

Throughout the day and regardless of weather conditions, the ELECT63 bends with maximum stability and repeatability.

With BLM GROUP’s machines, the metal construction company also produces a wide range of other products. One example is e-bike racks with an integrated charging station, but ELECT63, among other things, is also used for the production of staircase handrails.

Its useful length is 6.5 meters, which is why STIEBICH can bend tubes up to six meters long, usually round, square and rectangular tubes made of steel, stainless steel and aluminum, but other sections and materials can also be used. Stiebich: *“We make all the handrail. Flexibility is essential in steel construction; we’ve been in this business for 35 years. A lot of products are similar, but there’s virtually nothing that’s repeated.”*

The ELECT63 can accommodate three bending attachments at the same time. With the right combination of equipment, F.W.STIEBICH can make several bends on each handrail: irregular bends, tight bends and variable radius bends. Even the most complex spiral staircase handrails are made in a single operation. *“When the handrail requires it, we use the LC5 to drill the holes into which the railing rods are inserted. It used to take one or two days to produce such handrails, but today we need about half an hour, depending on the situation,”* Stiebich says with satisfaction. Thanks to the precision with which the machines work, the subsequent assembly phase is also reduced to a minimum.

The calibration process is automated

BLM GROUP has created a database for its customers in which complete practical information about the behavior of materials in different processes is stored. The machines access this database and automatically calibrate the equipment based on the stored information. Customers need only to enter the order data and, depending on the case, some additional

parameters. If the machine is to change from producing motorcycle handlebars to new handrail models, on material not in the database, a single test is performed by bending a tube with 30°, 60° and 90° angles, measuring the angles with a conventional protractor and entering the correction data into the database, at which point the ELECT63 automatically adjusts. It is the B-Tools function that automatically optimizes the process by correcting the bends based on the information stored in the database about the material behavior in the bending process.

Optimal equipment

Tooling plays a key role, especially when it comes to challenging bends. With Tool Designer, BLM GROUP offers its customers a unique opportunity to automatically design bending tools on the control consoles of their bending machines and quickly create the complete set of tools needed. *“The rule of thumb for clamping jaws is that their length should be at least twice the diameter of the tube. Thanks to the booster, we were able to shorten the length of the clamping jaws to a length equal to the diameter of the tube. This gives us the opportunity to turn the tubes after the bends and then bend them in the opposite direction while minimizing the distance between the bends,”* Stiebich explains. F.W.STIEBICH’s ELECT63 is configured for right-hand bending, but can be converted for left-hand bending if necessary. *“By working with their machines, intelligent software solutions and innovative services, BLM GROUP gives us every opportunity to achieve the best results in metal construction,”* says Stiebich, emphasizing the importance of his partnership with the Italian group of companies. The extensively digitized process also enables automatic part measurement on your machines and thus 100% monitored production.