

**Compact bevelling machines from Metabo in practical test at Unger Steel Group in Austria**

**Perfect surface after one process**

**Nine compact bevelling machines from Metabo have been in continuous use at the Unger Steel Group in the Austrian Oberwart. Their special application: Prepare edges of bores with a quality surface finish which will fulfil the highest protection against corrosion after coating.**

At Unger Steel Group in Austria there are no solutions off the shelf. The family business plans and creates individual steel constructions for reputable customers worldwide. Sometimes the customers have very special requirements, such as K+S AG (former Kali und Salz AG), who have commissioned Unger to construct a large production building: 4,500 tons of steel will be processed here by Unger. "Steel and salt – a sensitive combination", explains production leader Enrico Kalischnig: "This means extremely high requirements for the corrosion protection; In other words, the highest corrosion protection class C5 applies here." It This standard ordinarily applies only to components exposed to extreme weather situations - for example ship or port railings.

The steel parts get a triple coating, the layer must be at least 320 microns. "With steel components with sharp edges there is the problem of thinning at the edges - the coating becomes thinner and irregular at these spots", says Kalischnig. "Therefore, the optimal preparation of edges for the coating plays a paramount role for this project." A real challenge for Kalischnig and his team. Previously they used an angle grinder to process edges, a countersink was used in bores. However, the chamfers created in this way were not uniform enough to prevent the coating from thinning at the edges. In particular, when it comes to bores, precise working is required, since the connectors of steel constructions are very susceptible to corrosion. The countersink, however, reached its limits very quickly when used continuously. "During countersinking we had relatively short lifetimes and high wear of the tools. Furthermore the application was unwieldy and time-intensive", remembers Kalischnig. This was not a good solution for the thousand bores that the Unger team has to prepare for the coating in this project.

### **Bevelling machines as problem solvers**

When visiting a supplier, Kalischnig saw the capability of the compact bevelling machines from Metabo. The KFM 9-3 RF and the cordless counterpart KFM 18 LTX 3 RF were developed by the Nuertingen power tool manufacturer especially for the precise processing of metal such as chamfering and rounding of drilled and punched edges, chamfering of pipes and the deburring of contoured sheet metal. The compact tools cut 45 degree chamfers up to four millimetres and radii from two to three millimetres. "The radius is the optimal shape for our application. The rounded edges at the bores permit a uniform coating. Once we saw this, we immediately knew that we should be able to ensure the required corrosion protection", explains Kalischnig. On the spot, he ordered three test machines from Metabo and commissioned the Manager for Assembly and Welding, Johann Winkler, to thoroughly test the milling machines.

"We were quickly convinced", reports Winkler. "Operation is very easy, and the machine is comfortable to use even during longer applications. We progress significantly faster than with a countersink - and all this with a perfect result: The surfaces of the radii are clean and uniform, we do not have to rework. The job is done after only one operation." The universal cutter head can be set easily and without using tools, and the switching from radius to chamfer can be done without having to change the reversing plate. Thanks to integrated stop points, the cutting depth can be set quickly and easily down to one tenth of a millimetre. It remains in the desired position during operation.

### **Passed its fire test**

Although the team was impressed by the bevelling machines from the beginning, the fire test was still pending. "The central question was, if the coating really has the quality required in corrosion protection class C5 afterwards", says Kalischnig. „However, then the first part came from the coating process and the result was perfect. These machines have really solved our problem." From that moment onwards, nine compact bevelling machines have been in continuous use at Unger. The employees cut the edges of the bores in both plates and large beams for several hours a day. Front and rear side of a steel plate with six bores can be done in just 60 seconds with the machine. The powerful 900 Watt Marathon-motor supplies the power required. Weighing only 2.5 kg, the machine is particularly light and compact. "The

beveling machines are very compact, making us much more mobile than before. This is an advantage especially for bulky components. The robustness is also a plus point, since the beveling machines must withstand quite a lot. Moreover, the indexable inserts have a high tool life so that our costs for wear parts have decreased sharply", says Winkler. The edges are now processed on side directly after the cut - and therefore the components are immediately ready for further processing.

"The metal-processing industry is one of our most important core target groups", stresses Katja Stark from Product Management Metal at Metabo. "We hold extensive talks with users and have established that the mobile edge processing with high surface quality is a challenge – consequently we have developed a special solution with the beveling machines. Like all Metabo machines they are designed for demanding continuous use. In industry for example we also use many angle grinders and therefore know the requirements very well."

### **Increasing demands**

In particular, industrial companies are confronted with ever increasing requirements, explains Kalischnig, who has been working in the industry for 17 years. "For example there are an increasing number of standards for us steel constructors to meet. Moreover, Unger has numerous certifications, so it is of particular importance that we meet all requirements 100 percent." The sensibility of the builders has increased extremely, especially when it comes to liability topics. It is therefore all the more important to deliver precise results and to be as productive as possible in the process. "The easiest way to do this is to use the right tools for the right applications. There is always a way somehow. However when there is a machine - like in the case of our K+S project - which is precisely tailored to an application then this is the best solution."

Kalischnig also sees potential for the new large beveling machines from Metabo for the preparation of weld seams, which Unger has tested a short while ago. They can be used to achieve chamfer angles from 0 to 90 degrees up to a chamfer height of 15 millimetres at 45 degrees. "The great advantage compared to angle grinders and cutting torches is the high surface quality. This is also due to the fact that the material remains cold during the removal", says Winkler. "Heat changes the structure of the steel and causes an increase in the hardness of the surface. This is not ideal, especially in terms of corrosion protection.

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Moreover, slag is generated that must obviously be removed again. All this is avoided when working with bevelling machines. The surface quality is excellent - therefore it is of great interest to us."

**Link to application video on Youtube:** <https://www.youtube.com/watch?v=8Toe9dkLgx0>

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At the Austrian Unger Steel Group, compact bevelling machines from Metabo are in continuous use for several hours a day. Photo: Metabo



Before (left), after (right): the main application at Unger is the cutting of a radius for bores in steel components in preparation for a high-quality corrosion protection coating. Photo: Metabo

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The compact beveling machines are comfortable to use and can be adjusted easily without using tools. The edges of six bores in a steel structure sheet are cut within 60 seconds. Photo: Metabo



The compact machines help the workers at Unger to quickly process even bulky steel components in different working positions.

Photo: Metabo



4,550 tons of steel and thousands of bores - robustness and long service life of the beveling machines are an important prerequisite for the use in industrial operation. **Photo: Metabo**

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Have thoroughly tested the beveling machines from Metabo:  
Production Manager Enrico Kalischnig (left) and Johann Winkler, Head of  
Department Assembly and Welding. Photo: Metabo

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that the source is stated.

### About Metabo

Metabowerke GmbH in Nürtingen is a traditional manufacturer of power tools and supplier of accessories for professional users. Under the Metabo brand name, the full-range supplier provides machines and accessories mainly for the core target groups of metal trade and industry as well as building trade and renovation. Founded in 1924 in the Swabian town of Nürtingen, Metabo today is a medium-sized company which also produces in Shanghai, China. In addition to its headquarters in Nürtingen, the business has 25 subsidiary sales companies and more than 100 importers, ensuring an international presence. Almost 1,900 people work for Metabo worldwide, and in 2016, they generated a turnover of 423 million Euro. More information about the Metabo company and its products can be found at [www.metabo.com](http://www.metabo.com)

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