



Krzysztof Strzelecki, Production Coordinator, Instytut Mechaniki (left) and Piotr Niżyński, Head of Maintenance, Instytut Mechaniki.

A SMOOTH PROCESS

ISMR SAYS: *“Polish sheet metal specialist, Instytut Mechaniki, relies on ARKU machines to service its growth.”*

Instytut Mechaniki in Poland purchased levelling, deburring and edge-rounding machines from ARKU to improve its efficiency, quality and processes.

When young companies establish themselves in old factory buildings, a very special dynamic can emerge. One example is Polish job shop, Instytut Mechaniki. The sheet metal specialist relies on ARKU machines to service its growth.

Up to 1989, Jelcz commercial vehicles employed tens of thousands of people. However, the truck manufacturer has shrunk drastically and is now a niche supplier. Numerous other companies have now settled on its huge factory site, not far from Wrocław. These include the IM Group with around 1,350 employees. It includes sheet metal processor, Instytut Mechaniki, and sister companies Kompozyty Jelcz-Laskowice and, at a different location, Kompozyty Stanowice.

At Instytut Mechaniki, around 500 employees produce sheet metal assemblies,

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frames and racks primarily for the rail industry but also sometimes for cars, buses or street cars. Its customers include well known manufacturers such as Bombardier, Alstom and Stadler. Deliveries are made not just to Poland but also to England, Germany, Norway, Brazil and Switzerland. The job shop handles all processing from cutting, forming, machining, welding and painting to gluing and assembly.

Levelling and deburring

The company is growing and those responsible for production are continuously reaching their capacity limits. Instytut Mechaniki therefore approached German

surface finishing specialist, ARKU, four and a half years ago.

“At the time, we were primarily looking for a solution for levelling,” reported Krzysztof Strzelecki, Production Coordinator, Instytut Mechaniki. He wanted to be able to process increased quantities and came across the Baden-Baden-based machine tool manufacturer on the Internet.



Instytut Mechaniki's offices in Jelcz-Laskowice, Poland.

“The inquiry came to me via our website,” recalled Raphael Goldbach, who is responsible for sales in Poland for ARKU.

During a visit to Baden-Baden, Strzelecki and his colleague Piotr Niżyński, head of maintenance at Instytut Mechaniki, wanted to carry out levelling tests. However, when he was on a visit to ARKU, the production coordinator discovered another type of machine: the EdgeBreaker® series for deburring sheet metal components.

“We saw what the EdgeBreaker® could do and then turned the procurement into a project,” confirmed Strzelecki.

Instytut Mechaniki not only ordered a levelling machine but also an EdgeBreaker® 4000 deburring machine.

Part processing with the FlatMaster® 55

A FlatMaster® 55 has been working in the job shop’s production department for four years now. The precision levellers in this series are suitable for levelling punched, laser and flame-cut parts. The FlatMaster® 55 model can handle a wide range of material thicknesses of between 0.6 and 16mm. The passage width can reach up to 1650mm.

“The machine has servo-hydraulic levelling gap control and hydraulic overload protection to protect the drive and levelling unit. This allows us to achieve reliable and reproducible results,” explained Goldbach.

The employees generally process all sheet-metal parts made of steel and stainless steel that are not too thick or too wide for the roller leveller. “This applies to around 70 per cent of our parts,” explained Strzelecki.

Before levelling, the sheets are cut with laser or plasma and deburred on an EdgeBreaker®.

“After levelling, we either already have a finished product or the parts are sent for bending and possibly welding,” added Niżyński.

The EdgeBreaker® 4000 proved so successful that Instytut Mechaniki ordered an EdgeBreaker® 2000 just two years later. The two machines are basically intended for different tasks. The EdgeBreaker® 4000 is designed for removing thick burrs after flame cutting. The machine processes these thick primary burrs with a heavy-duty grinding drum. A further unit with transverse brushes then removes the smaller secondary burr and rounds the edges at the same time. Processing the thick metal parts on both sides in a single pass, confirmed ARKU, saves over 50 per cent of the time compared to machines that work only single-sided.



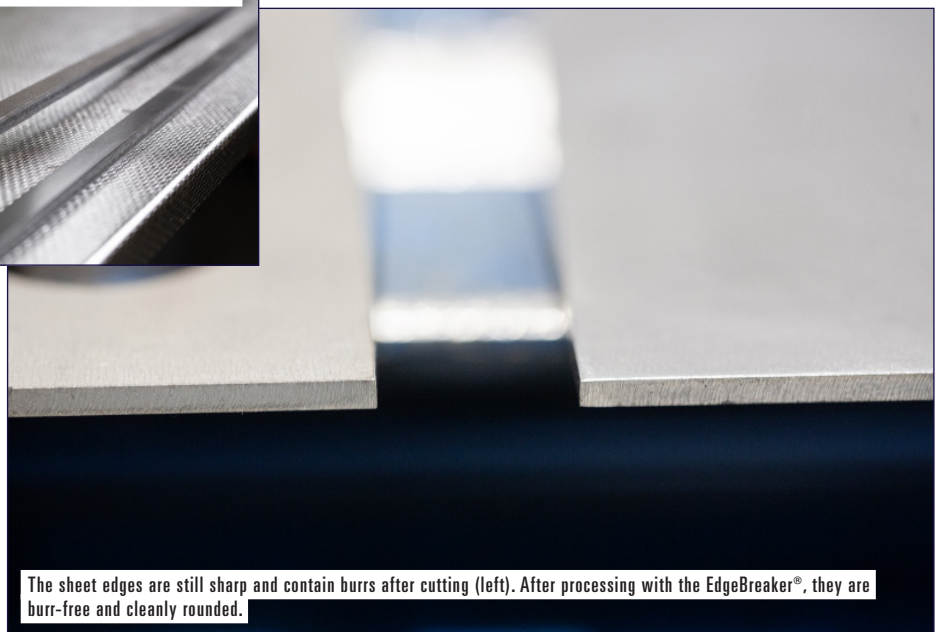
Working with the deburring machine, instead of angle grinders, makes life much easier for the employees at Instytut Mechaniki.



The FlatMaster® 55 handles the levelling of most parts at Instytut Mechaniki.



Parts levelled with the FlatMaster® 55 are not only straight, but also free of residual stresses. This makes them easier to weld.



The sheet edges are still sharp and contain burrs after cutting (left). After processing with the EdgeBreaker®, they are burr-free and cleanly rounded.

FOCUS ON SURFACE FINISHING



The EdgeBreaker® deburring machine.

The smaller EdgeBreaker® 2000 model is designed for efficient edge rounding after punching or laser cutting. Cross-running brush carriers can be outfitted with various tools. This allows users to determine the right balance between deburring and rounding. This system also works on both sides.

The two different deburring machines also help Instytut Mechaniki to strictly separate the steel and stainless steel materials during processing.

“We just process steel on the EdgeBreaker® 4000 while stainless steel and aluminium is only processed on the EdgeBreaker® 2000,” outlined Niżyński. Aluminium can also be processed on this EdgeBreaker® 2000 because it has a wet extraction system.

Efficiency and flow

The process for Instytut Mechaniki’s production staff has also significantly improved now.

“We used to deburr manually with angle grinders. Now we have more safety, more cleanliness and less noise for the employees,” confirmed Niżyński.

Dust and impurities pollute the halls far less than before. The

machines are also more efficient, he reported.

“Previously, six employees were involved in levelling. Now, it’s one to two,” he confirmed.

Deburring is similar, even if it is more difficult to quantify. Process reliability and quality are also higher with the machines than with manual work. The quantities processed are currently around 560 tons.

However, the decision to purchase a second EdgeBreaker® machine reflected well on ARKU as a manufacturer.

“The collaboration developed very well right from the start,” reported Niżyński. Raphael Goldbach also helps with service, for example when it comes to finding the right spare parts. This, said Goldbach, is a key differentiator that keeps the partnership strong between ARKU and Instytut Mechaniki. ■



Krzysztof Strzelecki (left), and Piotr Niżyński.

About ARKU

ARKU, founded in 1928 as a family-owned company, is a global specialist in roller levellers and press feeding technology with nearly 60 years of experience. It offers an extensive range of high-capacity and precision levellers, as well as deburring and edge rounding machines. Part-handling solutions for levelling and deburring machines are also included. With its headquarters in Baden-Baden, Germany, and ISO-certified facilities in Cincinnati (USA) and Kunshan (China), the company operates in more than 30 countries. ARKU offers roll-processing services in its three levelling and

deburring centre locations with its machines. The full product range comprises precision levellers; deburring and edge-rounding machines for parts; automated part handling via robots; in-line levellers; cut-to-length lines; press feeding lines and coil entry lines for roll formers. ARKU also provides engineering expertise to many manufacturing industry sectors as well as laser job shops and others.



The ARKU machines have enabled Instytut Mechaniki to significantly expand its capacities. Quality and process reliability have also increased.

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