

ADVANCEMENTS IN MANUFACTURING

WITH HIGH-PRECISION LEVELING TECHNOLOGY FROM KOHLER

Blickle Räder+Rollen GmbH u. Co KG manufactures its products entirely in-house in order to reliably control quality and delivery dates. To ensure the optimum performance levels from the presses used on its production lines, Blickle has recently opted for leveling technology from KOHLER Maschinenbau GmbH in Lahr. The new strip leveling line is allowing Blickle to process material up to 12 mm thick for the very first time.



High-tech for mobility – the promise that Blickle Räder+Rollen GmbH u. Co KG – a family-owned company based in Rosenfeld, Baden-Württemberg/Germany – delivers through its global workforce of more than 950 people. With over 30,000 standard and many special products, Blickle is one of the world's leading companies in the wheels and rollers market.

Blickle Räder+Rollen GmbH u. Co KG is headquartered in Rosenfeld, a Swabian town lying between Stuttgart and Lake Constance in Germany. As a typical representative of the „Mittelstand“ – a collective term for globally successful SMEs from Germany – the family-owned enterprise has grown in just two generations from a small craft workshop to one of the world's leading suppliers of wheels and rollers, with annual sales of over 200 million euros and more than 950 employees around the world. The company holds more than 30,000 catalog products for a practically endless number of applications. Blickle has secured its outstanding position on the global market by implementing customer-specific solutions, for example rollers with a load-bearing capacity of up to 50 tons.

Equipped with its own state-of-the-art and high-performance production facilities, Blickle reacts quickly and flexibly to customer and market requirements. At the heart of its production operation are the 6 press lines with automatic strip feeding lines. The automatic stamping machines have a press force of up to 630 tons. Using progressive composite tools designed and manufactured in-house, Blickle produces steel and stainless steel components that can be incorporated directly into the automatic assembly line without any further processing. KOHLER Maschinenbau GmbH came out ahead of the competition to supply a strip leveling line following Blickle's recent decision to expand



Walter Wager (left), CEO at Blickle, and David Blickle (middle), third-generation junior director at Blickle, are comprehensively advised by Tobias Frank (right), expert for strip feeding lines and automation at KOHLER.

its production capacities. In accordance with the customer requirements, KOHLER supplied the line configured with coil loading chair, decoiler, strip leveling machine, and the strip transfer bridge to the downstream stamping and forming line. „In future, we will process 2,500 to 3,000 tons of steel per year on KOHLER's strip feeding line. It enables us to process sheet thicknesses of up to 12 mm, which had not previously been possible,“ explains Matthias Senn, assistant to the management board at Blickle.

A customer-specific system concept from start to finish

The stationary coil loading chair (type CS 8000) can be moved up and down by 700 mm in order to load



„Coil handling“ video accompanying the report on YouTube:
<https://youtu.be/DXoNKAzoi-Y>



coils weighing up to 8,000 kg on the mandrel of the movable coiler. The coil support of the loading chair has been shaped as a prism. To stabilize very narrow coils, KOHLER has also adopted plug-in tilt protection devices.

In accordance with Blickle's requirements, KOHLER supplied the coiler as a single-sided decoiler (type 8000.1 H). It has a load-bearing capacity of up to 8,000 kg and can accommodate coils with an outer diameter of up to 2,000 mm. The coil is fixed on the mandrel with an expansion range of 470 to 530 mm, or with the corresponding top shells, up to 630 mm. This is achieved by a tried-and-tested hydraulic sliding wedge system with automatic re-tensioning system, developed by KOHLER. In addition, two conical rollers hold the strip in its guide, which automatically position themselves according to the width of the respective strip.

Strip thicknesses of up to 12 mm require an automatic threader. Threading is supported on the one hand by a pressure roller, which prevents the coil from springing open when the coil lacing is removed, and on the other hand by a holding-down roller and a strip lead-in wedge. „We can control both from the operator panel simply, quickly, and conveniently,“ explains Senn. „Additionally, the threading is very safe. It offers the best possible protection – to people and materials alike.“

Hydraulic concept reduces costs

„As far as hydraulics are concerned,“ says Senn, „for the first time we have installed a servo-motor hydraulic pump that adjusts the pump output according to the oil volume required by changing the speed. This makes a significant contribution to cutting energy usage.“

Tobias Frank, an expert in strip leveling lines and automation at KOHLER, confirms this assessment: „Thanks to this proven hydraulic concept from KOHLER, we can deliver a welcome advantage in the economic efficiency of the entire line.“ The cost savings are essentially two-fold: on the one hand less energy is needed during operation, and on the other, the customer only needs a smaller – and therefore more cost-efficient – hydraulic pump at the time of the initial investment.

Strip leveling with maximum precision

The centerpiece of the KOHLER strip feeding line is the ultra-precise strip leveling machine, which in this case is a 65.800/9 model. It is equipped with a set of double pinch rollers and nine hardened and finely ground leveling rollers, each with a diameter of 65 mm. Further advantages include the adjustment of the roller frame to the respective strip thickness with a precision of 0.01 mm and the cleaning and quick-change device developed by KOHLER that has proven its worth in many lines. Here the roller bearing and the roller supporting are mounted on a guide plate. After the powered raising of the upper roller



Blickle processes several thousand tons of steel and steel materials every year in its own production facilities. In order to meet future requirements, the company recently invested in a modern and efficient strip leveling line from KOHLER Maschinenbau GmbH.

„A coil change on the KOHLER strip feeding line,“ says Senn, „usually takes around 8 minutes and runs completely smoothly.“ Depending on the product to be manufactured, this happens at Blickle about eight to ten times a day.

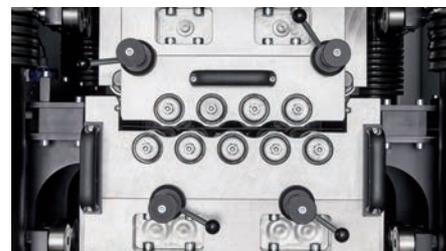
Matthias Senn, Assistant to the Management Board Blickle Räder+Rollen GmbH u. Co. KG

frame, the guide plate moves sideways out of the machine by means of an electric motor. The front roller bearing bar is removed and the rollers are taken out of the rear fixed bearing, so that the rollers and supporting rollers can be cleaned easily and quickly outside the machine. For Matthias Senn, the time saving is also decisive here: „In just a few minutes, our operator has cleaned the leveling rollers and supporting rollers.“ The line's Expert Calculation System optimizes the roller frame setting according to the individual material parameters by means of an exact precalculation and is adapted to machines with PLC control and visualization systems.

After the leveling process, the strip is passed via the loop guidance to the downstream press or punching machine. The loop guidance is designed as a loop with a radius of 2,000 mm and was simultaneously designed by KOHLER as an optional strip transfer table, whereby the strip is then transferred horizontally.

Investment with a view to the future

Walter Wager, CEO of Blickle Räder+Rollen GmbH u. Co. KG, sees the investment in the KOHLER strip leveling line as a means of helping to secure the company's future while simultaneously expanding its current production capacities; not least because the ability to now process sheets up to 12 mm thick will allow the Blickle product range to



The strip leveling machine from KOHLER is equipped with a set of double pinch rollers and nine hardened and finely ground leveling rollers, each with a diameter of 65 mm. The processing width is designed for 800 mm and the adjustment accuracy is 0.01 mm.



The strip is transferred to the downstream press or punching machine via a loop pit with a radius of 2,000 mm. If required, the strip can be transferred horizontally via a strip transfer table.

grow even further. Looking back, he notes: „The entire project with KOHLER, including the advice and technical support that was tailored exactly to our needs, was managed excellently“. Senior managers in Rosenfeld can rest easy knowing that KOHLER stands ready in Baden-Württemberg to continue to provide advice and support.