



The precision leveling machine convinces with high rigidity. Depending on the operation up to 21 leveling rollers in different diameter ranges can be installed.

ECONOMIC LEVELING: NEWEST GENERATION STRIP FEEDING LINE CONVINCES IN THE FIELD

GLOBAL PLAYER KERN-LIEBERS HAS CHOSEN KOHLER FOR
LEVELING OF STRIP STEEL FOR STAMPED PARTS

Efficiency, sustainability and economy: This is the foundation KOHLER uses to drive the further development of its machines and lines forward. The company relies on proven technology paired with innovation and new design with the new generation strip feeding line. Kern und Liebers GmbH & Co. KG, technology leader in manufacturing highly complex parts and assemblies, invested in two identical strip leveling systems at the same time for its facilities in China and India.



Located in Schramberg, KERN-LIEBERS is one of the large independent family owned companies in Germany. The group manufactures precision products out of strip steel and wire at over 40 locations worldwide with more than 7.700 employees. In approx. two thirds of all passenger cars there is a part from KERN-LIEBERS.

As supplier to the automotive, textile and consumer product industry the company generates a yearly turnover of nearly € 700 million.

The new KOHLER strip leveling lines at the sites Taicang (China) and Tumkur (India) play a large role in the flexibility of the customer specific production, the process safety and in making the most of the potential for optimization. Stamped parts which KERN-LIEBERS produces for its customers must fulfill high quality standards and meet strict specifications. This requires that the sheets are leveled and relieved of stress before punching and bending. Only precision leveled sheets build a base for tool-friendly further processing in highest quality without cost intensive rework.

”Continuously increasing customer demands inspire KOHLER again and again to look for new technological solutions and to implement these successfully.”

Volker Ihling, Head of Sales Strip feeding lines at KOHLER

The strip leveling lines at KERN-LIEBERS level aluminum and steel with a thickness of 1,5 – 12 mm and a width of 50 – 450 mm. The coil loading chair and decoiler have a capacity of 5 tons. The decoiler is designed so that that the strip can be decoiled from the top and the bottom. Following the customers demand, KOHLER integrated a so called nibbler – a device for cutting material – between the decoiler and the leveling machine. This allows to cut the already decoiled strip in front of the leveling machine manually. This comes in handy especially when a coil is not processed completely. In such a case only the cut strip between leveling machine and decoiler has to be rewound not however the portion which is in the leveling machine or in the strip loop – time savings not to be underestimated. The strip transfer on both lines is above floor. To ensure that the leveling and support rollers can be cleaned and maintained in an uncomplicated manner both strip leveling lines were equipped with the proven advanced cleaning system from KOHLER. With this system the upper respectively lower sliding plate with leveling and support rollers can be moved out

Facts regarding the strip leveling lines and material at KERN-LIEBERS:

- Strip leveling lines:
- Coil loading chair, capacity 5 tons
- Decoiler with lateral movement, capacity 5 tons, designed for decoiling from the top and the bottom
- Leading in device, designed for decoiling from the top and the bottom
- Nibbler- slitting device, between decoiler and leveling machine, for strip thickness of up to 12 mm
- Precision leveling machine with 21 leveling rollers chromium plated, roller diameter 65 mm
- Direct drive for leveling rollers
- Advanced cleaning and quick change device
- Pinch rollers with own direct drive
- Strip transfer bridge, above floor

Material to be leveled:

- Aluminum
- Strip steel
- Tensile strength: up to 600 N/mm²
- Material thickness: 1,5 – 12 mm
- Material width: 50 – 450 mm

of the machine via motor independent of each other. Cleaning can now be done effortlessly by a KERN-LIEBERS associate.

Innovation, precision and economics go hand in hand

Center piece of the strip leveling line is the precision leveling machine guarantying best leveling quality with high rigidity and 21 hard chromium plated leveling rollers. This leveling machine does not use the regular distribution gearboxes for driving the leveling rollers. Instead KOHLER uses an energy efficient drive system with direct drive without cardan shafts. This reduces maintenance efforts significantly as the absence of cardan shafts no longer requires an oil bath lubrication. And: the innovative direct drive of the leveling rollers increases the leveling range with material processing that goes easy on the surface at the same time. It is also used for the pinch rollers meaning that also here no cardan shafts are used for driving. The consequent implementation of the new drive concept lowers the energy consumption – saving cost in operation.

The line is controlled via Siemens S7 TIA and is operated by a state of the art operating panel with touch screen. The intelligent machine control is Industry 4.0 ready, has an OPC-UA interface and can be integrated in existing communication environments.

All KOHLER machines have wide support rollers: these have a significantly longer lifetime and in comparison with the market

standard slimmer support rollers do not have to be exchanged as often. Additionally the leveling quality is increased.

KOHLER pairs proven technology with innovation and new design on the new generation strip leveling lines. On the one side the drive concept was renewed on the other the design was modernized and optimized. The new strip leveling machine required nearly 20% less floor space. This reduces space requirements significantly.

Special attention was given to an easy accessible and neat inside area. Should inspection or maintenance work be required, the drive motors are easy accessible.

More flexibility through options

KOHLER strip leveling lines can be equipped flexibly: material with a thickness from 0,2 – 14 mm and a width from 50 – 2100 mm can be processed. The precision leveling machines can be delivered with up to 21 leveling rollers. Depending on the application the diameter is between 40 and 65 mm. Intermediate rollers can be added optionally. They allow for gentle processing of sensitive surfaces. The 9” display can optionally be exchanged by a 15” version. Also a machine cover can be added. Individual configurable strip loops can also be equipped.

Lines with conventional drive can also be delivered with leveling rollers having a diameter from 18 – 30 mm. The product portfolio encompasses strip leveling lines in long and short version for strip widths from 35 to 2,000 mm and thickness from 0,1 to 12 mm, upgradeable with camber leveling devices. ■



Coil loading chair and decoiler can be delivered with a capacity of up to 35 tons.

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