

Batch size 1: robatherm invests in a combined cut-to- length and slitting line

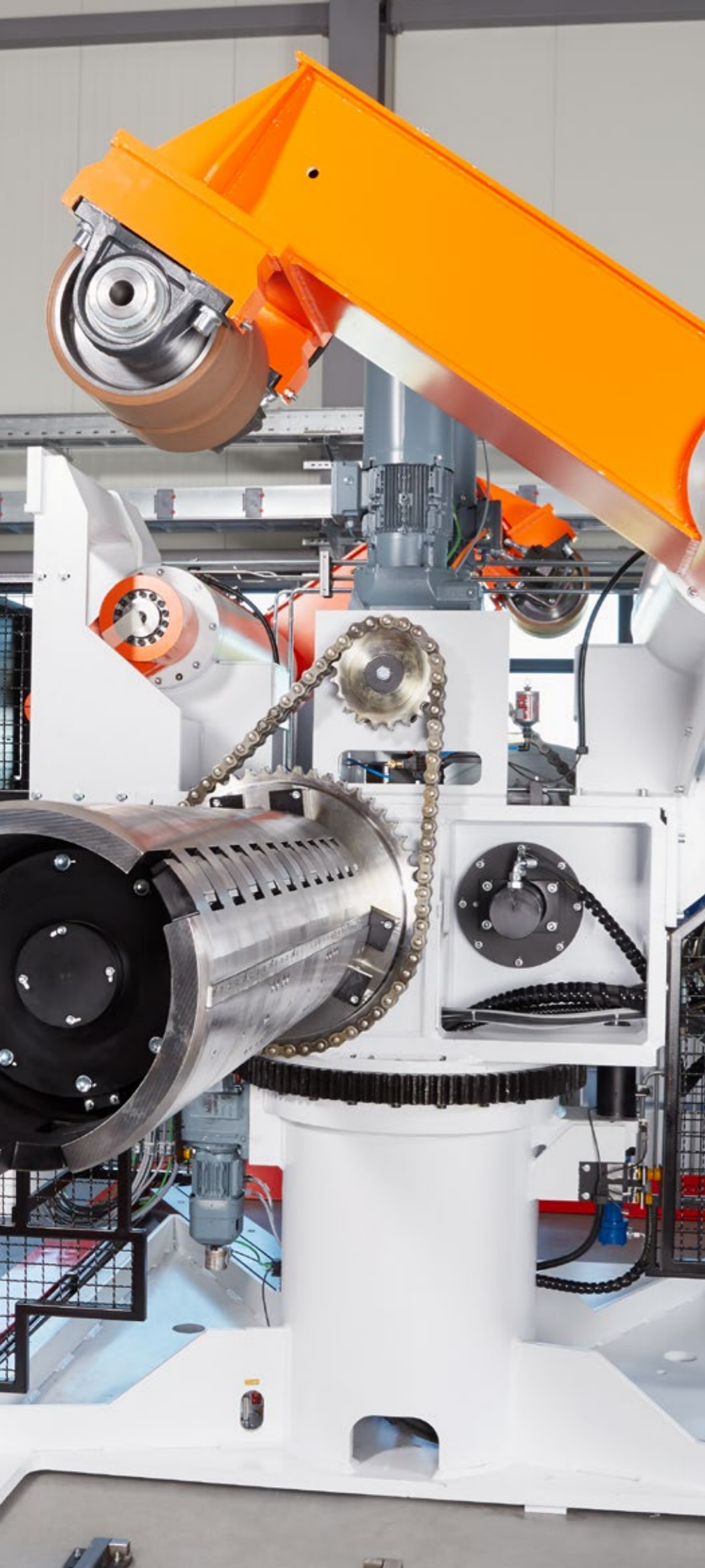
robatherm, a globally operating mid-sized company with 500 employees and headquarters in Burgau, Germany, made the decision in the fall of 2015 to invest in a combined cut-to-length and slitting line from KOHLER. Thanks to its innovative system concept and a good price/performance ratio, KOHLER was able to assert itself against prestigious European competitors.

robatherm supplies building ventilation systems with high standards for quality, safety and sustainability. The company consequently pursues a premium strategy in its worldwide activities, providing tailor-made air handling systems for facilities such as hospitals, indoor swimming centers, shopping centers and schools.

Sheet metal blanks for a modular machine concept

robatherm provides optimal solutions for customer housing and component requirements with its modular machine concept. The new KOHLER machine produces the sheet metal blanks for these housings. In late 2016, the combined cut-to-length and slitting line will be installed at the world's most modern production facility for air handling systems, providing even more flexibility and efficiency for the production of precision-cut blanks. The new line will enable robatherm to fulfill customer requirements more exactly, more quickly, and more efficiently, because the machine produces blanks from sheet metal coils and is designed for processing orders with batch size 1.





The core of the line:

A precision levelling machine

The core of the line is a 17-roller precision levelling machine, and it is equipped with intermediate rollers and hard-chrome-plated levelling rollers mounted in a bank adjustment system in order to meet the high demands placed on the surface finish (visible parts and paintability). The levelling rollers are braced both from above and below (6-high configuration) by generously-dimensioned supporting rollers with bearings at both ends in order to fulfill the high standard of evenness required for the blanks.

Automatic cleaning reduces maintenance effort

For the preventive cleaning of the levelling rollers each time the coil is changed, the levelling machine is equipped with an automatic felt cleaning device that removes dirt and metal particles from the levelling rollers fully automatically during the coil change process. This felt cleaning unit makes it possible for the machine operator to have the levelling rollers get cleaned automatically, without requiring any additional servicing personnel. This significantly increases the service life of the levelling rollers, which is a result of the prevention of friction deposits, and also reduces operational costs for maintenance.

On levelling machines that are equipped with the combined cleaning and quick-change device, it is also possible to slide the upper or lower levelling roller group completely out of the machine to the operator side within two or three minutes, allowing a visual inspection of the levelling rollers. If metal deposits are found on the levelling rollers, the latter can be dismounted, cleaned and remounted again within 15 to 20 minutes.

This device makes it possible to completely replace and clean the levelling rollers, intermediate rollers and supporting rollers within two or three hours during regular maintenance. This saves a considerable amount of time, increasing machine availability in comparison to conventional levelling machines.

— Double decoiler

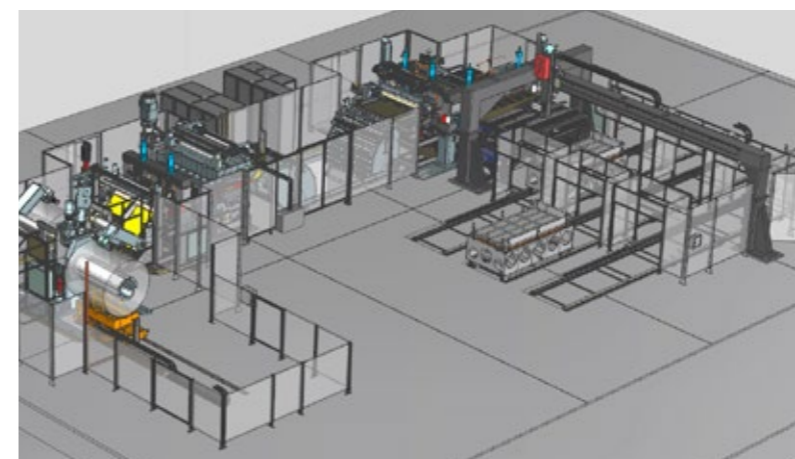
Short set-up times

The configuration of the combined cut-to-length and slitting line includes a coil loading car for loading the coil on the coiler mandrel and a double decoiler, making it possible to re-equip the machine as quickly as within 7–10 minutes between the last cut of the finished order to the first cut of the new order at the cut-to-length shear. Following the decoiler at the infeed of the machine, there is a leading-in device for safe insertion of the leading end of the strip into the strip feed driver. The first layers of the coil can be cut off with the help of a scrap shear to prevent any dirt found on the beginning of the strip from being fed into the levelling machine. The scrap pieces are discharged automatically and unmixed via a scrap chute into one of two scrap containers. This is then followed by the precision levelling machine.

Full flexibility for blanks

Downstream of the levelling machine, the strip is fed through a strip loop with transfer tables that are tilted horizontally for mounting the strip. Subsequently, the strip is fed to the high-performance drive unit, which advances the strip in the desired blank length at a rate of up to 17 blanks per minute, feeding it to the hydraulically-driven production cut-to-length shear. There the strip is cut into blanks of the desired length. A gripper feed unit then picks up the blank and transports it, correctly aligned at a right angle, to the hydraulically-driven production slitting shears. This then cuts the blanks to the required width. A blank feeder then transfers the blanks to one of the three blank stacking wagons, placing it safely in the correct position in the waiting carrier.

With the help of the blank feeder, up to 17



— System layout:
 – Coil loading car – Double decoiler – Leading-in device
 – Cropping shear – Precision levelling machine – Strip loop
 – High-performance drive unit – Production cut-to-length shear
 – Gripper feed unit – Production slitting shears
 – Blank feeder – Three blank stacking wagons

individual blanks with a maximum size of 1500 mm width and 3000 mm length can be deposited on the three blank stacking wagons. Here, the stacks of blanks can be efficiently transported away from the production line for further processing.

Continuous production without system stop

The width of the strips that are cut can be changed from blank to blank so that orders with a batch size of 1 can be processed. When one order is completed, the next order can be produced and placed on the next free blank stacking wagon without halting the system. At the same time, the wagon from the first stack location is processed and then brought back into position with an empty carrier. In this way, production can operate continuously.

The blank stacking wagons can be loaded and unloaded independently. This makes it possible to achieve fast turnaround in the stacking area so the machine can operate without interruption, increasing the productivity of the line.

Just-in-time requirements fulfilled

The individual processing tasks are transferred to the KOHLER machine from the robatherm ERP system according to the production plan, where they are then executed so that the blanks are available just-in-time for completing the corresponding production orders.

At the end of this year, performance and preliminary acceptance testing will be carried out under production conditions at KOHLER in Lahr. At the same time, the customer's operating and maintenance personnel will be trained on the machine. Subsequently, the machine will be installed and commissioned at

robatherm in Burgau. In short, the production line is tailored according to the customer's needs and fulfills the essential requirements demanded by just-in-time processing.

If you have any questions or are interested in further information, please contact us directly, or arrange an appointment for a non-binding consultation with our technical sales department.



— Example of a combined cleaning and quick-change device



— Double decoiler with two expansion ranges without additional expansion elements