Progress Group, 39042 Brixen, Italy

Rekers Betonwerk relies on innovative reinforcement technology with integrated logistics and software

Processing reinforcement highly efficiently and transporting it to the right position - Rekers Betonwerk achieves this fully automatically with modern machines, robots and customised software from Progress Group. Three robot-assisted EBA automatic stirrup benders, a state-of-the-art M-System mesh welding plant with bending system, innovative, fully automated transport logistics and software integration are in operation.

Overall concept for efficient production

Together with Progress Group, Rekers has implemented a unique overall concept for reinforcement automation. The required stirrups are automatically delivered to the processing stations for the bent reinforcement cages. This just-in-time delivery was required for the efficient completion of cage production - with the right stirrups, at the right time, in the right place.
Not only were robots planned for this, which remove the stirrups from the EBA automatic stirrup bender, but a completely new logistics solution was also designed. Several self-propelled vehicles transport the stirrups on racks to the cage production area - automatically, networked and accurately. All the necessary stirrups for the respective structural element are located on the transport rack. Rekers is therefore able to produce the reinforcement cages for flat and rod-shaped elements efficiently, and therefore with fewer personnel.

Ulrich Rekers, Managing Director of Rekers Betonwerk and Production Manager Andreas Frecken

Three automatic stirrup bending machines including automated logistics were put into operation at the headquarters in Spelle.

The three EBA automatic stirrup bender can cover diameters from 6 to 16 mm. One machine has a 3D bending device for the production of three-dimensional stirrups.

The removal robots automatically place the stirrups in the assigned position on the transport rack.

Optimisation of stirrup production

At the start of the modernisation, Rekers and Progress Group compared the existing data from previous years and then installed three new automatic stirrup benders. One of these machines also has a bending device for the production of 3D stirrups. The stirrup production can cover the required quantity per shift in diameters from 6 to 16 mm from coil - and all fully automatically. In the past, employees had to remove the stirrups and set them down by hand. This activity was not only dangerous, but also more cumbersome and can now be avoided by using robots. The new sophisticated data-driven transport concept also avoids or optimises many transport routes.

Automatic cage production with new mesh welding machine

The M-System mesh welding plant also processes diameters from 6 to 16 mm and can produce flexible reinforcement meshes. The welded meshes are automatically labelled and transported to the bending devices using a special transport unit. The required reinforcement cages can be produced automatically and just-in-time with the beam bending system and the simultaneously movable individual bending heads.

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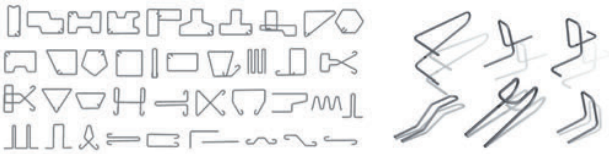
Stirrup benders with robot

- Fully automated
- Powerful
- Energy efficient

The EBA series with robot offers numerous innovations, such as automatic matrix changing, automatic labeling and a logistics solution with automatic transport of the stirrups.



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Modernisation – why with Progress?

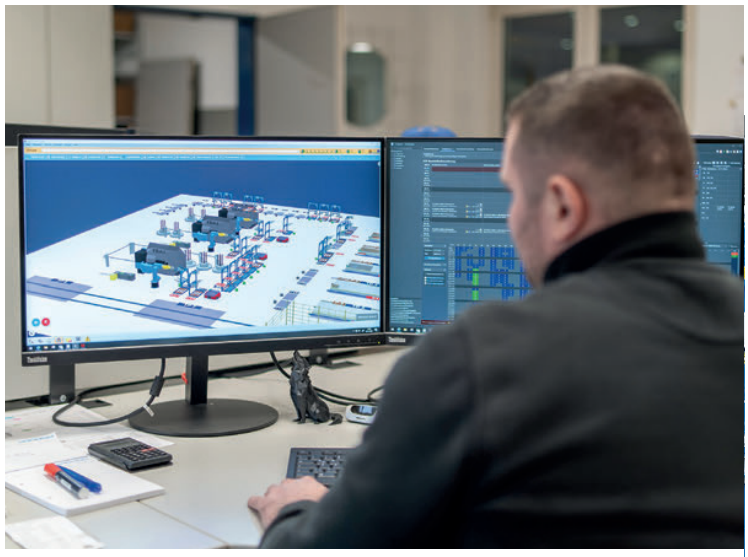
"When we started to rethink the topic of steel processing, Progress Group made a positive impression on us by immediately embracing this innovation. They were open to innovations", reports Ulrich Rekers, who is now the third generation to run the company, adding: "A good example of this is the robots for stirrup removal, which can also change the bending tool fully automatically." This means that no manual work step is necessary when changing the die. According to Mr Rekers, other manufacturers turned down this request, but Progress presented a 3D representation of a modified bending head within a few weeks. Rekers Betonwerk saw this as further confirmation of its decision to take the automation of its operations to a new level with Progress Group.

Automation to combat the shortage of skilled labour

With the data-driven automation of production, Rekers is also tackling the increasingly acute shortage of skilled labour. According to the company, it was able to save around 10 employees and thus close a gap in required personnel.

Steelbos - the software solution for reinforcement production with automated logistics

The steelbos software solution, also from Progress Group, supplies the mesh welding plant with the production data and controls the stirrup production and logistics so that the stirrups are manufactured correctly and transported to the right place. The CAD data is automatically adapted to the machine in the system and assigned just-in-time to the existing machines. The mobile production module was also integrated with a total of five stationary screen terminals in the production area. This makes interaction between employees and software much easier. This means that the employee has the right information at the right time, can recognise details of the product drawing more precisely by zooming in and



With the steelbos software solution, the entire production process can be organised more efficiently and controlled and monitored from anywhere.

can dispense with paper documents in production. steelbos is also used to control stirrup logistics with the automated guided vehicle system and to map warehouse management. The fork-lift truck drivers also use the software on mobile devices to interact with the reinforcement logistics and accept pick-up orders.

What is the biggest advantage of digitalization?

If a change needs to be made, the employee can intervene directly and make changes at short notice. This makes production more flexible and easier to control and also allows bottlenecks to be recognised and rectified in good time. All of this makes for better planning and production optimisation, which not only saves time but also material.

The new M-System mesh welding machine with a total of 9 welding heads ensures flexible mesh production.

The screen terminals make it easier for employees to control and plan production and ensure paperless production.

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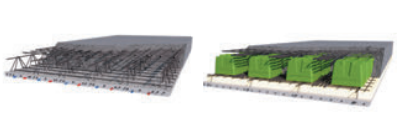
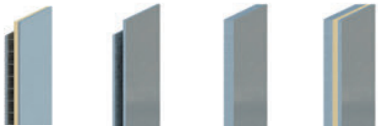
Carousel Plants





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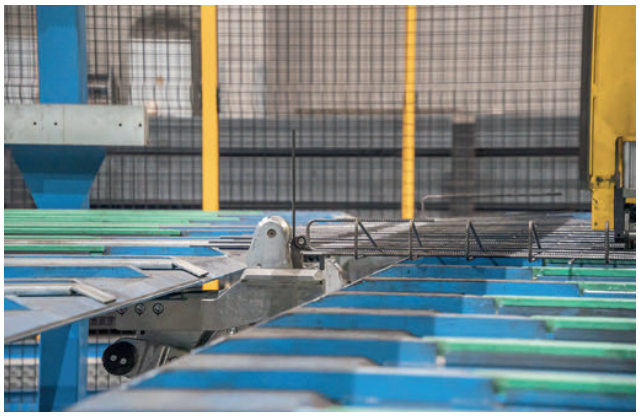

The M-System is equipped with several individual bending heads, which enable the automated production of different cage shapes.

The beam bending system can automatically change the bending dies during ongoing production.

Digitalization – from tradition to the future

Digitisation has a long tradition at Rekers. The father of the current managing partner already initiated a number of projects in this area in the 1970s. Rekers is also aware of the importance of digitalization today, for example to counteract the increasingly acute staff shortage at an early stage. However, digitisation also offers great opportunities regarding the sustainable optimisation of structural elements, which the company would like to make good use of. After all, it is not only the carbon footprint of a cubic metre of concrete or a tonne of steel that is important, but also the optimal use of the material by means of digitised production.

Rekers Betonwerk was founded over 100 years ago by Gerd Rekers and is now managed by the third generation of the Rekers family. The company has developed from a pure construction company into an industrial prefabricator of concrete elements. The focus in production is on structural precast elements such as columns, beams, girders and wall panels. The company is one of the largest market players in this sector in Germany. It also specialises in the production of prefabricated garages, which are sold throughout Germany.

Sustainability as a key factor

Ulrich Rekers is convinced that the topic of sustainability will occupy us massively over the next few years and change the way we work. The company says it is well prepared for this challenge. In recent years, the company has been working continuously on optimising the concrete mix, reducing its own energy consumption in the plant and modernising production. This is confirmed by the CSC sustainability certification that the company has received.

Successful cooperation

Ulrich Rekers is the managing partner of Rekers Betonwerk and has been with the company for over 20 years. His conclusion on the automation of reinforcement production: "Of

View of the prefabricated garages and precast concrete elements in Rekers' external warehouse at the headquarters in Spelle.

course, with systems of this complexity and innovation, you can't expect everything to work from day one, but the investment is definitely worth it. The collaboration with Progress was always constructive and open, and in the end, we got a very good result."

Production Manager Andreas Frecken adds: "At the beginning, when integrating the data, there were a few stumbling blocks that we had to clear away in parallel to full operation. We have received a lot of support from the highly motivated people at Progress and from our own employees, who both familiarised themselves with a new concept and got stuck in. The collaboration was great!" ■

Video to the report

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