

## Case Study Ossenberg GmbH August 2017



*The Kawasaki robot RS020N is the key element for the entire automated production.*

### **Strong Partner for Fast Growth: Walking Aid Manufacturer Ossenberg Uses Kawasaki Robots**

*In November 2016, the company Ossenberg decided to acquire two modern Kawasaki robots in order to improve automation. With clear results: The entire production volume has been increased from several 100 walking aids a day to more than 12,000.*

The Ossenberg GmbH in the Westphalian town of Rheine is a true hidden champion of the mobility industry with a tradition of more than 60 years. As the market leader for walking aids, Ossenberg develops, manufactures and distributes crutches, light metal canes and orthopaedic aids for global retailers.

Over the last ten years, the company was able to achieve two-digit growth rates. While only counting ten employees in 2007, Ossenberg has grown into a global company: The managing directors Carsten Diekmann and Frank Wieditz now lead a team of around 100 employees in Rheine. The modern production including polymer and metal processing as well shipping, warehousing and logistics is located completely on-site.

### **Industry 4.0: Flexible Manufacturing Processes are the Key**

Ossenberg has been implementing key aspects of Industry 4.0 for years: The company only produces its articles on an order basis and foregoes extensive warehousing in favour of an agile, demand-oriented production. Therefore great speed, short cycle times and fast shipping are decisive factors: Only eight minutes pass from accepting an order to starting production – less than 36 hours after placing the order, the final shipment will have arrived at its destination. The production depth of all necessary components amounts to 95 percent – only five percent are provided by additional suppliers.

Within most manufacturing industries a flexible production as part of the Industry 4.0 is still being discussed as a future-oriented success factor – at Ossenberg it has been the central standard for more than five years. Batch sizes of one as well as serial production can be handled easily and quickly, especially since Kawasaki robots have been introduced.

### **High Precision, Flexibility and Speed: High Performance Robots for Production**

In order to keep up with the fast company growth and the increased demand, the management at Ossenberg decided to introduce two robots for the central metal processing in 2016. In addition to a higher flexibility in production and easy handling of several pipe lengths, highest precision was among the most important criteria. Instead of drilling or punching the holes for height adjustment into the pipe as it has been done previously, the holes were to be milled. At the same time, the holes needed to be adaptable easily and quickly. The standard Ossenberg walking aids are available in 850 variants: In multiple colours, different materials and adaptable sizes and load capacities. This enormous product variance requires a high degree of flexibility.



*Ossenberg Managing Director Carsten Diekmann and Kawasaki General Manager Carsten Stumpf at the plant*

During a visit to an automotive supplier, Carsten Diekmann was able to experience the efficiency and trouble-free operation of Kawasaki robots at first hand. “Kawasaki Robotics has a very good reputation and many companies appreciate not only the modern technology, but also the flexibility, the local service and the special focus on small to mid-sized companies. While other manufacturers were not able or

willing to fit our particular needs, the Kawasaki team was able to consult us comprehensively and conduct preliminary tests”, Diekmann explains.

The lean design and internal cable routing of the Kawasaki robots convinced Ossenberg as well: The demand towards tidiness and a clean exterior of production plants has been on the rise for years, as Kawasaki Robotics General Manager Carsten Stumpf confirms: “Production sites with hidden cables and an appealing finish have become very important. From the customers’ perspective those factors illustrate the quality of the products. In order to fulfil this important demand in the best way possible, our robots can be integrated especially easily and cleanly.”

### **Successful Automation: From One Pipe in 5.5 Minutes to Six Pipes in 50 Seconds**

The Kawasaki robots at Ossenberg also need to meet highest demands regarding precision – a repeat accuracy during positioning of 0.1 mm, with a drilling accuracy of +0.05 mm, is essential for pipe processing. In comparison: During the riveting of airplane parts an accuracy of 0.3 mm is sufficient. Furthermore, the pipes should be deburred from the inside and the outside at the same time. “By working within the optimal motion range of the robot we are able to achieve

degrees of accuracy far below those mentioned in the catalogue,” explains Kawasaki Robotics Key Account Manager Andreas Bettenbrock, who managed the project.

Dietmar Fark, Managing Director of the special plant engineering company Rheima (part of the Ossenberg Group), worked closely with the Kawasaki engineers in order to guarantee optimal operations of the robots. This way, the plant was able to commence operations in November 2016 and instantly increase production volume and efficiency considerably. While processing a pipe took 5.5 minutes before, it is now possible to process six pipes in 50 seconds. “The automation made possible by the Kawasaki robots increased our output exponentially. And there is still room for more. Through specific process improvement we plan to decrease the time necessary for six pipes to 45 seconds,” explains Fark.

A RS020N Kawasaki robot placed in a central position connects each step of the pipe processing within a 6 x 9 m cell developed by Mr. Fark. After the pipes in their raw form have been supplied through an external shaft, cut to the right length and deburred, the welding seam will be turned to the right side in order to guarantee a precise alignment. Afterwards, the robot will move the pipes towards a fixation where an additional RS050N robot equipped with milling tools will mill the precisely positioned holes for height adjustment into the pipes from both sides.

The entire pipe processing plant is constructed in a modular fashion: This makes it possible to control the entire selection process via the interface of the plant control. This way, an uncomplicated, product-specific production of pipes is ensured. During the final step it is possible to automatically attach the spring-operated push buttons for height-adjustment. Depending on the product requirements, it is also possible to realize bending angles within the outer pipe component. This allows a highly flexible and economic production process of different components for manufacturing walking aids in multiple variants and shapes.



*The Kawasaki robot RS020N verbindet connects all steps of the process within the cell.*

Within a short time Ossenberg was able to increase their entire production volume to more than one million items per year. Today more than 10,000 walking aids – as opposed to 100 ten years ago – and 3,000 to 4,000 handles are manufactured daily as part of a three-shift operation. A decisive advantage of Kawasaki robots as part of the automated process: The production stability has been increased significantly and offers long-term job security to the employees in Rheine.

## Outlook



*The central RS020N robot supplies the prepared pipes to a specifically designed Kawasaki milling robot.*

Over the next few years the development of the site Rheine as well as the continuing expansion of the production volume remain high on Carsten Diekmann's agenda. Currently the concept for a new logistics centre is close to completion, which will establish a clear separation of warehouse and production. While Ossenberg has reached the maximum level of customers within the current production capacities, they are to be

increased from 10,000 to 20,000 articles a day shortly.

International demand is also on the rise: Ossenberg ships around 70 percent of its production to retailers in Germany and 30 percent internationally – with a rising tendency towards the latter. Aside from Europe and China the US market is a major focus of the growth course. The walking aid industry puts a great emphasis on innovation: Ossenberg is part of the development of robotic walking aids and support suits. With its "Smartstick" the company has developed a connected, GPS-supported walking cane, which offers additional security to elderly dementia patients through a sender unit and an emergency button.

Carsten Diekmann is convinced: "With our new logistics centre, increased automation and the central role of Kawasaki robots we are able to adapt our production to global demand, growing orders and continuing innovations quickly and in a dynamic way."