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WÜRTH

Würth Industrie Service in Bad Mergentheim wants to offer their customers the best possible service by providing them with innovative solutions.

Strong partnership for innovative solutions

Würth sets new standards for industrial applications with its logistics partner KNAPP

Long-standing partners Würth Industrie Service and KNAPP have already implemented countless projects. Their common interest in innovation provides the best possible foundation for developing and implementing outstanding flexible solutions for industrial applications. By doing so, Würth Industrie Service in Bad Mergentheim, Germany, sets new standards with intelligent automation solutions time and time again. Together with KNAPP, the company acts as an innovative partner for their customers.

The use of advanced technology has clear advantages for Würth Industrie Service, such as increasing quality and productivity. The employees also benefit: Thanks to the smart use of automation technologies, the physical strain they are put under is reduced significantly. This creates a sophisticated working environment in which people and technology work hand-in-hand.



Location	Bad Mergentheim, Germany
Sector	Trade, C-parts management
Application	Supply of automated, customized logistics and procurement solutions to manufacturing industrial customers; Over 1.1 million industry-specific items ranging from connection and fastening elements to auxiliary and operating materials, including custom parts and drawing parts
Solution	OSR Shuttle™ with 12 rack line systems containing 360 shuttles operating on either 33 or 27 levels; 24 lifts; over 205,000 storage locations; rack height of 24 m; 20 multifunctional, ergonomic Pick-it-Easy work stations; 1 Pick-it-Easy Robot; 1 robot and 7 manual work stations for fast picking; 2 dispatch robots for palletizing small load carriers and 1 robot for palletizing packages; 4 Open Shuttles for container handling; approx. 10 km Streamline conveyor system; 6 lifts for vertical, flexible transport between all levels; tailor-made KiSoft software



Würth Industrie Service supplies modular logistics and procurement solutions for connection and fastening elements to industrial customers.

Expert in C-parts management

Würth Industrie Service is an independent subsidiary of the Würth group. The company is a family business which was founded in 1945 by Adolf Würth. The Würth group is the world market leader in their core business, offering professional fastening and mounting materials. The group currently comprises over 400 companies located in more than 80 countries. With over 77,000 employees, the Würth group generated a turnover of 13.6 billion euros in the business year 2018 (according to the preliminary group financial statements).

Within the Würth group, Würth Industrie Service in Bad Mergentheim is responsible for supplying the industrial sector, offering their customers modular logistics and procurement solutions for connection and fastening elements. The site in Bad Mergentheim has 1,640 employees. Their article range comprises more than 1.1 million items and custom parts for professionally handling industrial C-parts. The Kanban principle, among other things, is used for the supply process – the goods are delivered directly to the place of use in specially developed and patented Würth small load carriers (W-KLT®2.0).



Long-standing partnership a major factor in the collaboration



Prepared for future growth thanks to ingenious robot solutions



Best possible service for customers in industry



Ergonomic solutions support employees when carrying out difficult tasks

“As a supplier to the dynamic manufacturing industry, we always strive to provide the best possible service to our customers. We deliver C-parts just-in-time and all the way to the point of use at the production line of our customers. For these reasons and in order to be prepared for future growth, we have chosen KNAPP as a partner to advance our logistic capabilities.”



Helmut Eisenkolb, Head of Logistics, procurator and member of the management team at Würth Industrie Service

Innovative partner for industrial customers

The company aims to provide their customers with the best possible service. The innovative KNAPP technologies are used to process orders efficiently; in doing so, maximum safety, flexibility and system capacity play a central role. Together, Würth Industrie Service and KNAPP continually develop solutions to strengthen Würth's position on the market and prepare processes for future growth.

As a result, Würth Industrie Service is an innovative partner for their customers. Automation is also tremendously beneficial for employees as the automated systems take care of the physically demanding tasks and help create a pleasant working environment. Cutting-edge technologies are integrated to boost quality and productivity. Würth Industrie Service and KNAPP constantly work together to optimize the logistics processes in line with the requirements specific to this industry. In KNAPP, Würth has the ideal forward-looking partner with whom they can develop flexible solutions geared towards the future.

Solution highlights

- OSR Shuttle™ with approximately 200,000 locations for storage, consolidation, sequencing, dispatch buffering and picking
- 20 multifunctional, ergonomic Pick-it-Easy work stations for goods-to-person order processing
- Pick-it-Easy Robot for fully-automatic article picking
- Robot for fast picking all types of containers directly from the pallet
- Robots for palletizing all types of containers ready for dispatch
- Robot for palletizing cartons
- Open Shuttles that autonomously transport goods



The OSR Shuttle™ provides approximately 200,000 storage locations with maximum storage capacity and flexibility.

OSR Shuttle™ – automated storage system for highly-dynamic processes

The high-performance OSR Shuttle™ is at the centre of the solution. The system offers maximum storage capacity as well as flexibility, and fulfils all the requirements of an automated storage system:

- Storage
- Consolidation
- Sequencing
- Dispatch buffering
- Picking

What's more, a large number of different containers, trays and carrier units can be handled.

With a total of 12 rack line systems and 360 shuttles, the system offers storage locations for approximately 200,000 trays. The OSR Shuttle™ supplies both the multifunctional Pick-it-Easy work stations and the Pick-it-Easy Robot. KNAPP's software programme KiSoft sends the trays in the correct sequence to the work stations based on the order data. The right sequence is also crucial for dispatch: To ensure that every article ends up in the right place on the shipping pallet, the orders are sorted across over 20 dispatch buffer lines before being moved onwards to be palletized. Transport through the various warehouse areas is covered by KNAPP's high-performance conveyor system Streamline. Since the customers are supplied according to the Kanban principle, articles are partly transported as bulk material in the containers. These load units demand high precision in the control system of the conveyor system.



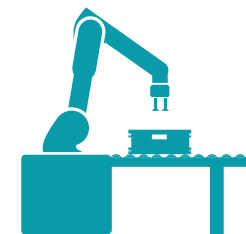
OSR Shuttle™:
Ø 85.000 double cycles per day



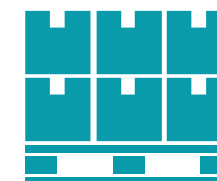
Pick-it-Easy Robot:
Picks up to 7,000 items per day



Pick-it-Easy work stations:
Process up to Ø 17,500
trays per day



Robot for fast picking:
Loads up to 3,500 trays
per day



Robots for dispatch palletization:
Palletize up to 6,400
containers per day

“KNAPP is a partner with whom we can discuss at eye-sight. Together, we translate the requirements we face in our markets into new concepts by jointly adapting existing and developing new technologies.”

Helmut Eisenkolb,
Head of Logistics, procurator and member of the
management team at Würth Industrie Service



Container picking for supplying customers according to the Kanban principle takes place at 20 ergonomic Pick-it-Easy work stations.

Pleasant working conditions with Pick-it-Easy

One of the biggest challenges facing this sector is presented by the heavy nature of most of the articles. Trays with cargo weighing up to 50 kg have to be transported. The processing of heavy articles received an overhaul to relieve the strain placed on employees; 20 multifunctional Pick-it-Easy work stations with a special ergonomic design were integrated into the solution. The work stations are supplied from the OSR Shuttle™ according the goods-to-person principle. In other words, employees automatically receive the goods at the work stations in the correct sequence. This boosts both efficiency and the picking quality. The work stations may be identical, but they in fact fulfil six different functions: picking, checking, emptying and merging, as well as carrying out tasks for incoming and outgoing goods.

Characterized by their unique design – the KiDesign – the work stations in the Pick-it-Easy series combine ergonomics, efficiency and quality in a single work station. The surfaces of the Pick-it-Easy work stations are made from materials that are pleasant to touch. Anti-fatigue mats and an adjustable work area also create an ergonomic working environment for employees, which enables them to achieve the best possible performance with a minor amount of physical effort. User-friendly software interfaces assist employees with order processing. Thanks to the work stations' ergonomic design, strenuous tasks such as lifting, bending and reaching are significantly reduced as the goods are always supplied at an ergonomic height. What's more, employees no longer need to walk great distances in the warehouse.



Man and machine share the workload in the warehouse of the future. The Pick-it-Easy Robot works at a rate of 300 picks per hour and therefore provides its human colleagues with considerable relief when it comes to carrying out strenuous work.

Your new co-workers are state-of-the-art robots

At Würth Industrie Service in Bad Mergentheim, robots are already part of the team. They handle some of the processes in the logistics centre fully automatically so that there's no need for employees to carry out strenuous work. Helmut Eisenkolb explains some of the reasons behind the decision to make use of robots, *"We aim to provide our employees with an attractive working environment. We also want to be an innovative partner for our customers. By using cutting-edge technology, we not only achieve both, we are also in the position to improve our quality and productivity."*

Reliability with the Pick-it-Easy Robot

The employees at the 20 multifunctional Pick-it-Easy work stations enjoy solid support. The Pick-it-Easy Robot picks orders fully automatically and relieves its human colleagues from strenuous tasks. While employees primarily prepare orders at the Pick-it-Easy work stations for supplying customers according to the Kanban principle, in order words, unpacking parts from their packaging and emptying them into designated containers, the robot takes care of picking pack units. Doing so ensures that the available resources are used most efficiently within the process.

The robot picks articles weighing up to 3.5 kg and is incredibly reliable. Intelligent error handling and consistently high performance ensure that the tasks are completed with the desired quality around the clock. As part of this, screws, nuts and other parts are handled with particular care.

How it works:

- ① The robot uses intelligent Vision technology to detect which article is located in the source container.
- ② It picks up the article with a gripper and place them gently in the designated spot in the target container.



In addition to the 7 manual work stations for fast picking, a robot now also helps to relocate the articles for storage in the OSR Shuttle™.



The Open Shuttles in the goods-in area avoid obstacles completely independently.

From the pallet to the tray with just one grip

Most of the articles are picked directly from the pallet, a process that takes place at the work stations for fast picking. At these work stations, the orders from the high-bay racking are picked from the pallet to trays ready for storage in the OSR Shuttle™. This involves processing large quantities and heavy loads. For this reason, Würth Industrie Service also chose to use a robot for this task. The robot picks the goods that were already emptied into containers for storage. It picks up the container and moves it to a labelling unit where the container receives a designated label for the specific customer. In addition to this, automatic RFID allocation also takes place. After this, the container is placed on a tray which is transported onwards automatically by the container conveyor system.

Palletizing made easy

When assembling shipping pallets in the Kanban area, the sequence of the small load carriers on the pallet is a decisive factor. In the container palletizing area, the containers, which have already been picked, labelled and consolidated in the shuttle system, are palletized according to customer request. Allocation is achieved using RFID technology. Two robots work independently of each other to prepare the pallets quickly and reliably for delivery to the customer. KiSoft Pack Master transmits the correct retrieval sequence to the OSR Shuttle™ so that the articles are supplied in the correct sequence for picking. This pre-defined packing pattern mirrors the storage locations and the corresponding pickup sequences at the customer. This saves time and means less walking – thereby also reducing costs.

Another robot for palletizing cartons at the packing line rounds off the fully-automatic team. It palletizes dispatch cartons, which are grouped logically before being placed on the target pallets to minimize walking distances.

Speeding through the warehouse with autonomous transport robots

Three Open Shuttles operating in the goods-in area reduce the physical strain on employees. The free-moving Open Shuttles process all transport tasks completely autonomously without any optical or physical aids. They plan their route independently with the help of navigation technology that is based on natural contour detection. Thanks to their individual and swarm intelligence, the Open Shuttles are always there where the work is.

The driverless transporters convey trays with articles from the goods-in area to the conveyor system infeed point, where the trays are transferred for storage into the OSR Shuttle™. This provides great relief to the employees working in the goods-in area, because they no longer need to manually transfer the containers to the conveyor system. The Open Shuttles independently plan their routes and avoid obstacles. In the goods-in area, the paths for forklift trucks and employees must remain free and the Open Shuttles, therefore, are an ideal alternative to a static conveyor system.



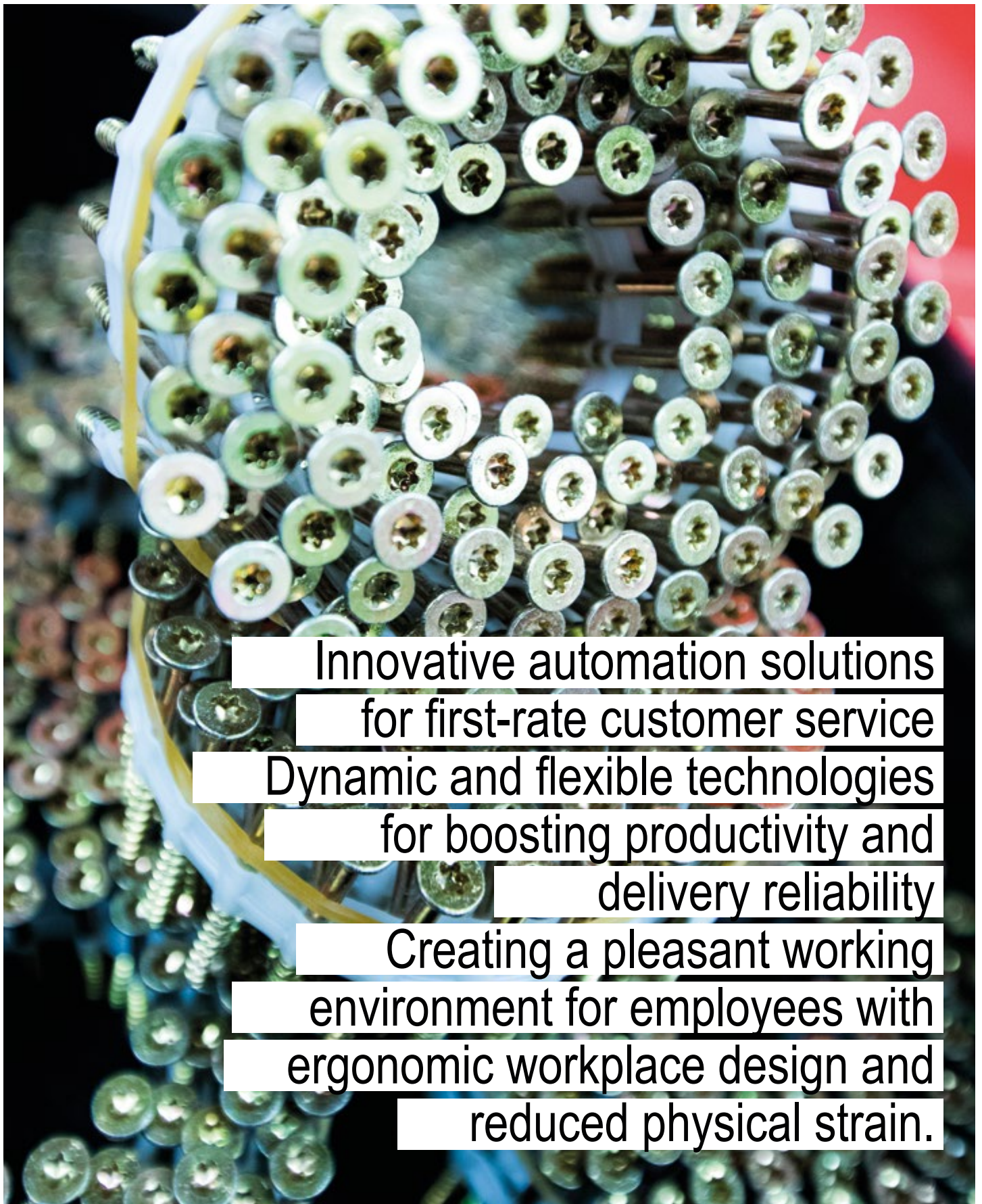
Small load carriers are placed on the shipping pallets in the right sequence fully automatically by two robots.



Another process is automated with a robot for palletizing cartons.

Communication is everything – software is the key

How do all team members in a highly automated warehouse know when to do a specific task? By assigning daily work in such a way that each team member – whether it be a person or a machine – takes on those responsibilities that suit their skills. The integrated KiSoft software solutions that communicate with the higher-level warehouse management system of Würth forward the work orders in accordance with the workload and individual skills. As early as during order start, the software determines how the goods should be distributed on the shipping pallets and which robot is responsible for which tasks – the trays, containers and cartons arrive precisely in this sequence in the respective areas. KiSoft also instructs the robot colleagues where to place the article on the load carrier. A wide variety of software modules are in use to ensure smooth operation. Real-time analysis guarantees maximum transparency and facilitates on-going optimization of all processes.



Innovative automation solutions
for first-rate customer service
Dynamic and flexible technologies
for boosting productivity and
delivery reliability
Creating a pleasant working
environment for employees with
ergonomic workplace design and
reduced physical strain.

More information:

Würth Industrie Service



Pick-it-Easy Robot



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