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The new logistics centre for Schukat electronics started operation in Monheim am Rhein in the autumn of 2018.

A breath of fresh air for the supply chain

Schukat electronic optimizes its distribution with KNAPP's OSR Shuttle™ Evo

Overcoming the challenges of the times with innovation: To be able to offer its customers optimal service and support the tremendous company growth, the German specialist in electronic components and devices, Schukat electronic, built a state-of-the-art logistics centre at the company headquarters in Monheim am Rhein. Not only did Schukat electronic completely redesign their distribution processes, they also created enough new capacity to last them until the year 2030. This was achieved with an intelligent automation solution by KNAPP, with the new shuttle system OSR Shuttle™ Evo at its core.

SCHUKAT electronic

Location	Monheim am Rhein, Germany
Sector	Distribution, wholesale of electronic components and devices
In operation	since November 2018
Application	Supplying B2B customers in 50 countries with small, medium and large quantities; blanket and forward orders; 35,000 articles in stock; delivery within 24 hours
Solution	4 OSR Shuttle™ Evo rack line systems with 34 levels and 68 crosswise-running 2D-Shuttles; 2 Quad-Lifts. 64,000 storage locations; expandable to 10 rack line systems with 140,000 storage locations; performance and number of storage locations are scaled independently of each other. Length: 74 metres; height: 18 metres; 6 goods-to-person work stations (12 in final expansion); 20 kitting stations (40 in final expansion); stackers and destackers; customized KiSoft software with interface to SAP® EWM; shuttle performance: 1,380 double cycles per hour; work station performance 1,200 order lines per hour

Schukat electronic supplies its comprehensive range of electronic components and devices to B2B customers worldwide.

Focus on speed and precision

Schukat electronic, the German specialist in electronic components and devices, is a supplying partner to companies like Panasonic and a distributor to 10,000 B2B customers in 50 countries worldwide. Georg Schukat, owner of Schukat electronic, talks about the challenges and special features of his business as follows: *“In our business, speed and precision are of utmost importance. We have both the low-volume daily business, which is all about delivering from stock as fast as possible, and large-volume forward transactions. Here it’s all about delivering an individual customer shipment on a fixed date. In both areas of business, we aim to offer our customers the best possible service for the best prices. This also includes offering new, innovative services and expanding our product portfolio.”*

Logistics solution to support strong growth

Headquartered in Monheim am Rhein, the family-run company has been on a strong course of growth for years, recording gains of up to 10 percent each year. To support strong growth and offer customers optimal service, the company decided to make the largest investment in company history, expanding its existing logistics centre to span a total of 10,000 m². The company also selected cutting-edge automation technology by KNAPP.

The targets and requirements for the new logistics solution were as follows:

- Ability to triple the delivery performance
- Flexibility to expand storage capacity
- Required system availability of 98 % according to FEM 9.222
- Required shuttle availability of 99 %
- Create flexibility in the storage processes
- Create capacities for business growth up to the year 2030
- Utmost system stability for reliable outbound deliveries
- Opportunities to expand the article portfolio
- Reduced noise emissions; emission sound pressure level of 68 dB (A)
- Efficient, ergonomic design of employee work processes
- Error reduction; increased delivery quality
- Integration of new services for customers

The logistics centre started operation successfully in autumn 2018.

The automatic warehouse system offers uninterrupted availability for up to 130,000 articles such as components, power supplies, ventilators or semi-conductors.

New challenges need new solutions

An innovative spirit is one of the values and success factors for Schukat electronic, which is why the company is keen on new innovations in automated warehouse systems – the OSR Shuttle™ Evo by KNAPP – and is one of the first companies worldwide to use the technology. As a pioneer in shuttle technology, KNAPP has more than 15 years of experience gained from more than 250 implemented shuttle systems. The new generation of OSR Shuttle™ Evo is the evolutionary development of the proven shuttle technologies. KNAPP addresses the current trends in the industry, such as business developments that are difficult to plan for or rising demands for quality and performance. Schukat electronic must also address demands like these, as Managing Director Georg Schukat explains: *“To be able to respond to tomorrow’s business, we were looking for a highly-flexible overall solution. This is exactly the flexibility that we found in the new system approach of KNAPP’s OSR Shuttle™ Evo. Here, we have a unique opportunity to separate performance and storage capacity, where each can be separately increased as needed. Additionally, the high system stability and the commercial aspects of the system really spoke in favour of the OSR Shuttle™ Evo.”*

Custom-tailored flexibility and intelligent warehouse processes

This abundance of flexibility is made possible thanks to the special system architecture of the OSR Shuttle™ Evo, which decouples performance from storage capacity. The OSR Shuttle™ Evo at Schukat electronic is certainly designed for growth. In the first expansion phase, the system will comprise 4 rack line systems with 34 levels and 64,000 storage locations with 68 shuttles and 2 lifts automating the racks. *“In my view, the special charm of the solution lies in the asymmetrical scalability, which we could only achieve with the OSR Shuttle™ Evo. We call this approach ‘design on point’. This means that Schukat electronic can adapt the system as needed and can get the most commercially and performance-wise from the system in every stage of expansion. The number of storage locations can be increased by 150 % over the coming years, with the shuttle performance and the number of work stations doubled. Above all, this is ideal for the extensive and continuously growing range of electronic articles,”* explained Wolfgang Ferk from KNAPP Team System Solutions, who was responsible for the design. The flexible system architecture offers the company capacity for future growth and at project completion, there will be 10 rack line systems with 140,000 storage locations, 140 shuttles, 4 lifts as well as 12 goods-to-person work stations for efficient order processing.

The focus is on gearing up for the future. The innovative system approach of the OSR Shuttle™ Evo decouples performance from storage capacity. This means that both system and investment can be customized and expanded flexibly according to requirements.

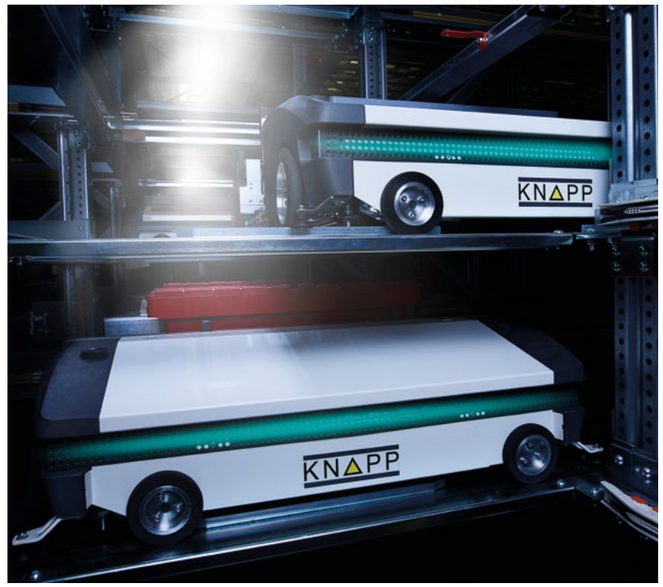
Maximum storage density and use of space for a broad range of goods

Optimal storage density and use of space was the name of the game when it came to designing the new shuttle system for the distribution centre in Monheim: The shuttle racks extend up to 74 metres in length and reach up to 18 metres in height – with the conveyor system included, the system has a length of 104 metres. Since there is no pre-zone with the OSR Shuttle™ Evo, the space saved is used for additional storage locations.

Schukat electronic uses the OSR Shuttle™ Evo as a central warehouse system, to efficiently store and pick their wide range of small parts such as power supplies, semi-conductors or ventilators, as well as to provide special services for customers. Currently, a total of 35,000 small parts are stored centrally in the OSR Shuttle™ Evo. Containers with a load of up to 50 kg can be stored in the system. Intelligent stock management is provided by SAP® EWM, which is connected to the warehouse control software KiSoft via an interface, not only making the creation of single-lot containers possible, but also allowing faster access to each individual container. The OSR Shuttle™ Evo further maximizes flexibility for Schukat electronic in that different containers can be used in the system. The following container types are used:

- Tall containers
- 2 flat containers stacked on top of each other
- Flat containers with up to 4 divisions
- Trays

A total of 64,000 physical storage locations are available in the system. For maximum storage density and optimal use of space, two flat containers can be stacked and stored in the racks, which significantly increases the available storage capacity. Additionally, using containers with four divisions means that up to 8 lots can be managed in one physical storage location.

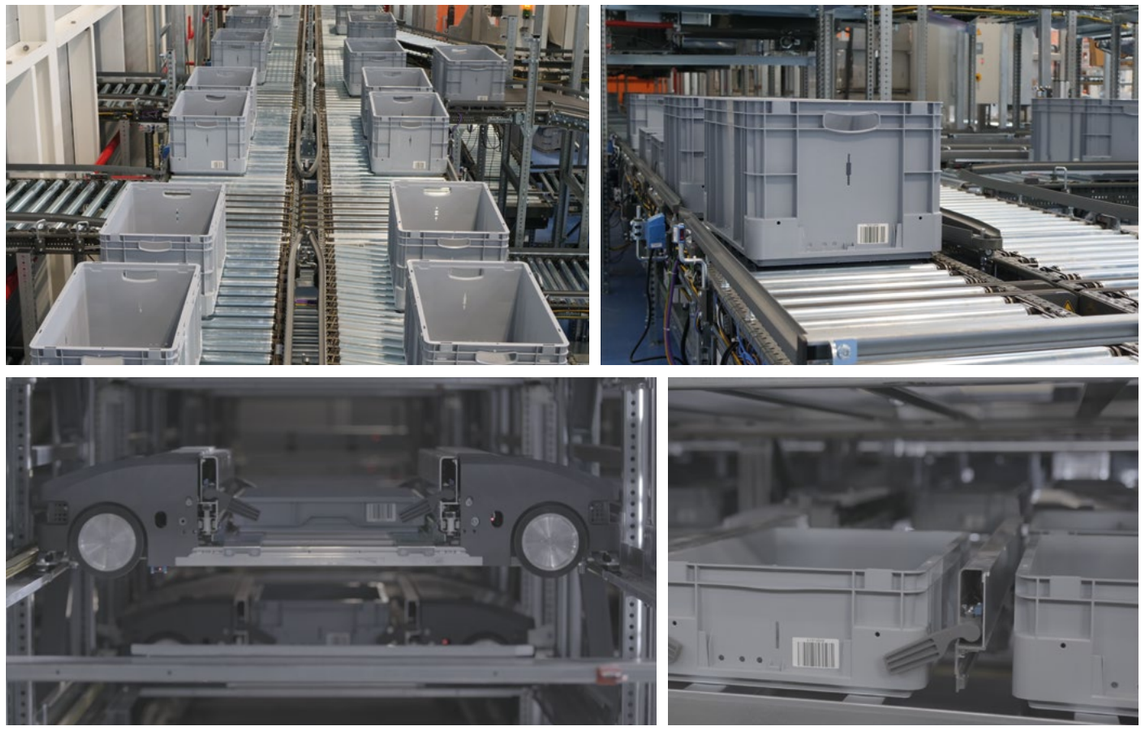


Running crosswise in the rack: The shuttles move between rack lines. This provides access to all the storage locations of one level.

All articles available at all times

There are two shuttles moving about in the rack on each level on the “shuttle highway”, which is a one-way system located at the front of the racks. Here, shuttles can move between the different aisles of one level. What this means is that every shuttle can serve every storage location on one level. This approach has tremendous advantages in terms of system reliability. Another special feature of this shuttle design is that every goods-to-person work station can access every article in the system. The result is an even workload at all the work stations, as well as increased availability.

Schukat electronic



Optimal storage density: The system handles different types of containers. Additionally, two flat containers can be stacked and placed together in one storage location. Dividing these containers into four compartments allows up to eight lots to be stored in one location.

Efficient processes for individual customer orders

The special strength of Schukat electronic is supplying customer-specific order sizes. Efficient order processing means that picking and packing are carried out in a multi-step process.

- **Retrieval:** The OSR Shuttle™ Evo retrieves the containers or stacked containers for picking. The shuttles achieve a performance of 1,380 double cycles per hour
- **Stacking/destacking:** When using flat containers, the required container is separated and the container that is not required is stacked with another container and put back into the system
- **Order picking:** At the goods-to-person work stations, employees pick the required quantities for an order
- **Assembling/kitting (make to order):** At downstream work stations, employees pack the orders according to customer-specific requirements and can also carry out value-added services such as labelling.
- **Preparation of customer-specific orders (make to stock):** Customer-specific orders are pre-finished and then stored back in the OSR Shuttle™ Evo. The orders are quickly retrieved from the system and immediately shipped as needed.

By separating picking from the time-consuming customer-specific packing, Schukat electronic can make full use of the performance capability of the system and, at the same time, offer customers customized service. The flexibility of the OSR Shuttle™ Evo has an immediate and positive effect on Schukat electronic's customers.

Maximal ergonomics with the goods-to-person principle

In the first expansion phase, six goods-to-person work stations will be available at which 1,200 order lines can be processed per hour – this capacity is to be doubled as part of a future expansion. The goods-to-person principle used at the picking work stations combines efficiency, ergonomics and quality in order processing, as Georg Schukat explains: *"Statistics showed us that without automation technologies, our employees had to walk up to 10 kilometres per shift in order to fulfil our performance goals. Naturally, this is unacceptable, so we are now using the goods-to-person principle for order processing. This type of working is less physically strenuous for our employees, and they can also process orders faster, which increases throughput."* With goods-to-person picking, the containers are brought to the employees in the right sequence and at an ergonomic height. This reduces the physical strain on them and simultaneously boosts efficiency and picking quality.

KNAPP excelled at working in a collaborative manner with all the partners involved and with our team. We received very positive feedback about our work with KNAPP from the other suppliers too. That really proves that we chose the right partner. During this project, we really did all pull together, which made the implementation of the project possible in a short amount of time.

Georg Schukat, Managing Director, Schukat electronic

Partnership is the key to success

Getting a new technology like the OSR Shuttle™ Evo up and running is a huge challenge. It is possible, however, with the right mix of experience, an innovative spirit, a portion of courage and partnership between equals. These are values that Schukat electronic and KNAPP both share. *"I am proud to say that I still find it fun to strike out in new directions,"* says Managing Director Georg Schukat. *"This is why working with KNAPP was so interesting for us. KNAPP recognized that their customers have ideas and demands, and they are willing to actively work on these tasks and to forge new paths. We also value collaboration with customers and suppliers over the long term – values we share with KNAPP."* Wolfgang Ferk agrees. He works at KNAPP in Sales and accompanied Schukat electronic during the sales phase, adding, *„Open communication and a hands-on mentality are important to us, especially for a project like this where we are integrating a new technology. Schukat electronic placed their bets on our new OSR Shuttle™ Evo with the knowledge that an innovation always comes with a certain amount of risk. We are truly thankful for their trust and are delighted that we could successfully realize the project together."*

Flexibility in order processing that directly impacts the customer. The orders are efficiently picked without error at the goods-to-person work stations. Customer-specific packing and other value-added services are carried out at a separate pack station.

Technical data OSR Shuttle™ Evo

Rack	Up to 200 m long; up to 24 m high; systems are stackable and can be flexibly scaled
Shuttles	running lengthwise: 4 m/s | 1m/s²; running crosswise: 2 m/s | 1m/s²; several shuttles per level for scalable performance; New design; mobile telescope arms
Lifts	Double-deck type; flexible positioning in the rack system; low noise
Load carriers	Containers, trays and cartons with outer dimensions: 250 mm x 250 mm to 850 mm x 650 mm; cargo up to 50 kg
Storage type	Single to multiple-deep storage; cartons stored directly in the racks
Work stations	Pick-it-Easy series with the new Pick-it-Easy Evo work station; Pick-it-Easy Robot
Software	KiSoft or SAP® EWM by KNAPP; complete visualization using KiSoft SCADA
Processes	Storage, picking, buffering (consolidating) of goods and raw materials, refilling, supplying manual and automated warehouse areas, sequencing and creating a 100 % sequence directly from the racks

OSR Shuttle™ Evo

Unsurpassed combination of many advantages

Bespoke design: Performance, costs, number of storage locations and spatial requirements can be scaled independently of each other.

Maximum flexibility when it comes to expanding the system (shuttles, lifts, aisles, work stations can be added as and when needed)

Optimal system availability is achieved through high system redundancy

Pre-zone is eliminated and sequencing directly from the racks is made possible

Economical all-in-one solution that includes software

For more information:
knapp.com/evo

Schukat electronic

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