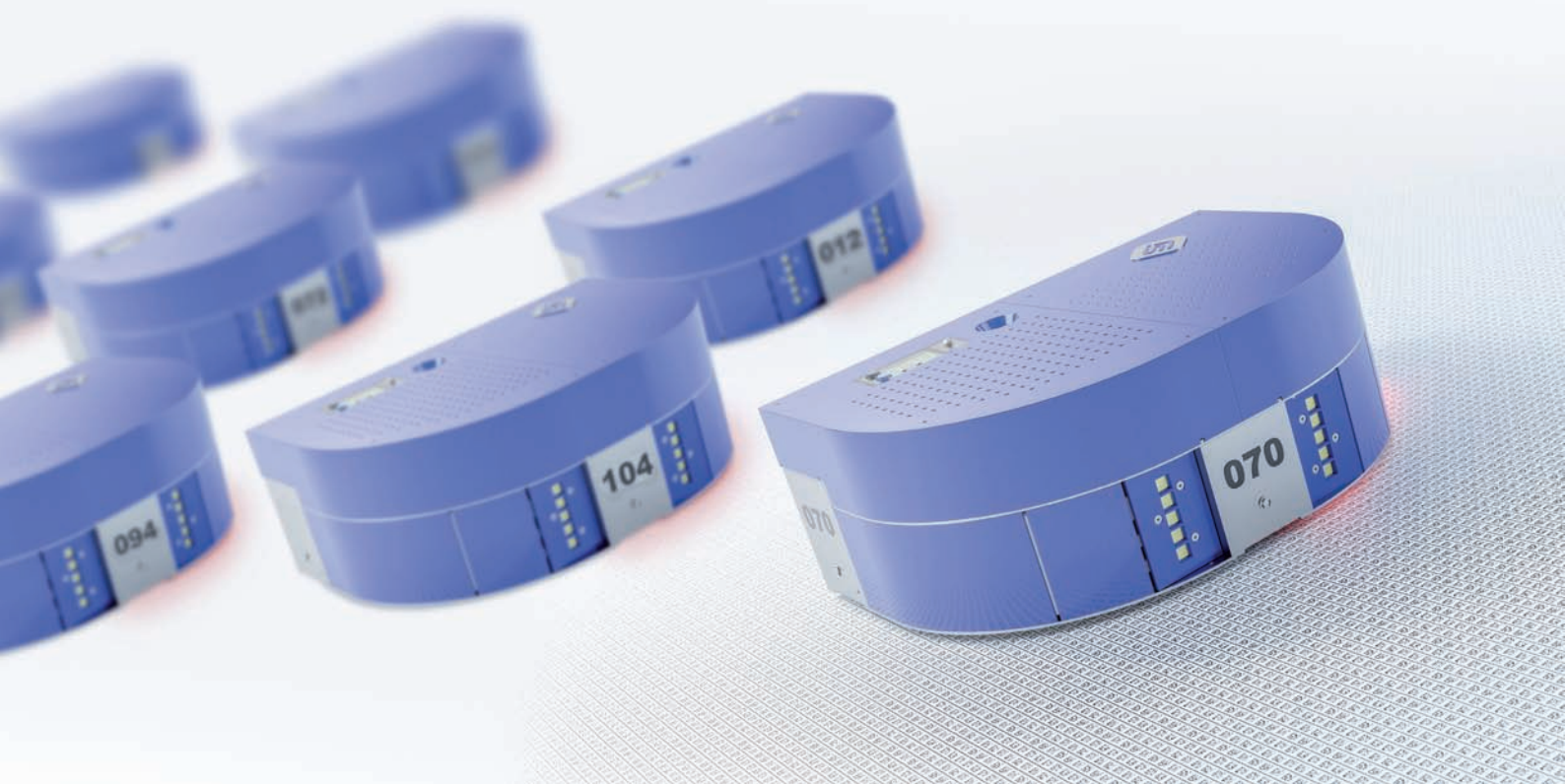


PRESS RELEASE



STOROJET
NEXT LEVEL STORAGE

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Made in Germany



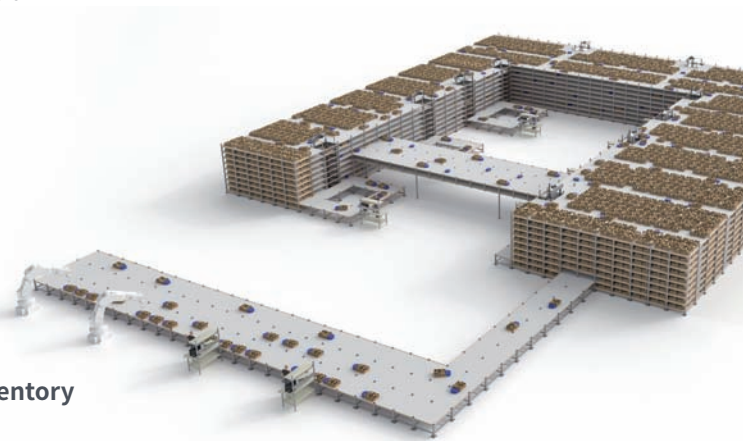
STOROJET - Next Level Storage

Innovation leadership proven once again: Telejet and ICO present „STOROJET“, a revolutionary warehouse and order picking system, at the Logimat 2019.

Thanks to a flexible construction, modern features and drastic cost optimisation, which are based on a new approach and out-of-the-box thinking, a modular, industry 4.0-suitable solution for warehouse automation has been developed, reducing picking times by at least 30 to 80%!

HIGHLIGHTS

- ▶ Massive reduction of picking times between 30 and 80%.
 - ▶ Optimised space utilisation in height (1.8 to 10m), area and geometry
 - ▶ Flexible expandability and adaptability during ongoing operation
 - ▶ Energy-saving system with low operating costs
 - ▶ Improved theft protection and documentation
 - ▶ Simple operation, low training expenditure
 - ▶ Pick-by-Light support for order pickers
 - ▶ Simplified storage of new products or returns
 - ▶ Continuous optimisation of storage locations
 - ▶ Individually configurable product carriers
 - ▶ Transport of heterogeneous goods
 - ▶ High process reliability of the bearing positions
- Prepared for inventory at the touch of a button, continuous inventory
- ▶ Inexpensive implementation - Made in Germany
 - ▶ Ready for industry 4.0



We have all seen the impressive pictures of 20 metre or more high warehouses, where autonomous storage and retrieval machines remove transport containers or boxes with goods and place them on conveyor belts or roller conveyors that lead to the picking station or even robots that bring entire racks to the picking location. The fact is, however, that the necessary investment sums for this can only be financed by large mail order or manufacturing companies. In addition, the high energy consumption of such solutions should also not be forgotten.

Medium-sized businesses

However, the increase in order quantities in the mail order business, the modernisation of modern production processes for „batch size 1“ and

additive processes such as 3D printing, offer opportunities for many small and medium-sized companies.

There is no question that they also need warehouses but the reality is, for the most part, different, especially since most products are small and whole pallets are rarely handled on a constant basis.

As in these cases humans work as both the warehouse manager and order picker, this results in the warehouses being equipped not only with shelves of a maximum height of 2 metres but also with the necessary aisles and transport routes in place. The height restriction results from the usual maximum handling height without the need for steps or ladders.



As the product range grows, this type of storage typically increases in size, resulting in gradually increasing picking and order-picking times that quickly reach over 60/70 seconds per product. With the loads that need to be handled and the strenuous distances the employees have to walk, it is no longer possible to speak of “pleasant working conditions”. Increases in costs and error frequency are logical consequences and the warehouse becomes inefficient. These aspects become even more apparent when returned goods are re-stored. Even organisational optimisations such as multi-stage picking do not have much effect.

Similar problems can be observed in spare parts warehouses that supply to production.

As a start-up or a small or medium-sized company, one can legitimately raise the question of whether there is an affordable, forward-looking, industry 4.0-imaging solution. The answer, now, is yes!

A new approach

The company Telejet (development), which has been a successful „Innovation Incubator” for over 20 years, has dealt with the particulars of the problem and presents, at the Logimat 2019, in cooperation with ICO Innovative Computer (distribution) an approach, which justifiably claims to be “revolutionary”: STOROJET - the world ‘s first automated multi-storey area shelving system.

„Storage“ has been rethought - the basic statement has remained: The shelf remains the best solution for storing very heterogeneous products that differ in size, shape, characteristics, look and other parameters.

What characterises a warehouse?

- Defined storage spaces for goods on the shelves.
- Defined transport routes for handling.
- Transport elements to bring goods to the picking.
- Data technology and coding in various forms.

What is a warehouse supposed to achieve?

- A fast, efficient Store-and-Pick
- The fastest possible delivery to customers or the following production stage
- Efficient space utilisation
- Cost-effective picking
- Ergonomically optimal work for the employees
- Energy-saving use of resources

Based on the above requirements, Telejet and ICO have developed a fundamentally new approach based on a core: the Navigation Shelf Board, whose surface is completely printed with coding. Roughly speaking, storage areas and paths can be built in a defined raster format.

In more detail, this means that in a shelving system between 1.8 and up to 10 m in height, with levels mounted one above the other (vertical distance between 17-100 cm), many product carriers are stored closely, moved, coupled and uncoupled using compact storage robots. Depending on the products to be stored, the shelves can be equipped with individual compartments.

The different levels of the flexible shelving system are connected by several lifts and allow the robots not only horizontal but



also vertical mobility. The robots are not rail-bound and can move freely. They orient themselves using the codes on the Navigation Shelf Boards and are coordinated by the central system via radio. The storage robots are the size of a domestic use mowing robot but have far more power and a considerable transport capacity.

The individual shelving areas, of the self-contained shelving system, have a footprint of 1.2 x 1.6m and are connected by steel columns. On the basis of these floor areas, individual racking systems can now be realised in form and height, depending on the conditions in the warehouse. For example, a U- or L-shape can be designed parallel to a production line in addition to a classic cuboid.

Software is used to define which areas are to be regarded as pathways and which as parking areas.

It is immediately obvious that the STOROJET approach allows a successive warehouse build-up without having to

completely replan conveyor lines every time! Compared to ground-based systems, the packing density of the warehouse is directly increased because existing storage areas are always optimally utilised. Nothing stands in the way of a cost-effective modular extension, neither for the shelving nor for the operational robots.

One might argue that the use of automatic storage robots is not a new idea - that 's right but size and flexibility make all the difference. Head of Development, Dr. Klaus Jeschke, sums up: „Instead of a pallet, a large box or an entire shelf, our compact STOROJET only brings the „shelf board“ with the required goods - this is efficient, fast and saves massive amounts of energy!”

Example of a typical process

To illustrate a whole spectrum of technical intricacies it is necessary to play through a typical sequence.

Thousands of different parts ranging in size from a few centimetres to just under 1 metre - which typically fit on a shelf - are stored in a STOROJET warehouse.

Let 's imagine that an order, made up of several products, has been requested.

The picker sees the current packing list on his monitor. Several robots receive the order in advance in order to maintain an uninterrupted flow of goods to people. They travel the distance to the lifts and are lowered to the correct level. They then automatically navigate to the position of the respective goods carriers and dock to them. Using their carriageway, they head back to the assigned output point with the goods carrier and line up at hip height. .

The goods to be removed are illuminated directly, in the respective compartment of the goods carrier, by a light sensor (Pick-by-Light) mounted above and only need to be removed. The barcode is scanned by the picker when the article is removed, checked by the system for correctness and then packaged.

With this information, the system knows which storage position is now free and lets the robot return the goods carrier to the storage position and bring the next order. The procedure is the same for the re-storage of returns.

The robot „knows“ and controls where to go, which route to use, which warehouse position it needs and to which picking station it is headed for by continually reading and using the codes underneath it as well as the advanced navigation and coordination algorithms.

Even with larger warehouses, this works continuously and almost in less time than it takes to describe the process.

The robot also knows how to help itself: If, for example, an employee moves the goods carrier during storage or retrieval, the robot corrects and uses the codes to find the right path again; even dirt or stains do not confuse it.

As there are always several robots in continual use, a regular flow of goods is achieved that functions quickly and reliably and



largely supports or relieves employees. Depending on the required load, the system can be scaled by the robots during operation. If required, the robots recharge their long-lasting energy reserves themselves during operation at permanently installed charging points and report directly back to duty.

This new approach leads to an automated storage system with multidimensional flexibility: from space utilisation to heterogeneity of goods to scaling in shift operation and fault tolerance - and all this in a price range which allows small and medium-sized companies to implement it into their projects.

At the picking station, the goods carriers convince with a further trend-setting feature. They are completely accessible from above and thus offer the best conditions for using fully automatic robot arms (manipulators) for the picking process depending on the user's requirements.

If this step is taken, the developers are convinced that it is even possible to reduce human picking times by 100%.

Side effects

In addition, there are other positive side effects such as a significantly less time-consuming and in some cases even genuine continuous „inventory at the touch of a button“. There is also improved anti-theft protection because nobody can reach into the deeper interior of the shelving system and the visible external surfaces do not reveal what they contain. As there is only one access point to the warehouse, process reliability is increased and the necessary documentation is simplified - follow-up costs are reduced. The amount of training required for this new system is minimal and discussions about a „structured or chaotic warehouse“ become obsolete. Since the robot only picks up and brings the required goods, time-consuming and energy-consuming „rearrangement“ is no longer necessary.

Much more than prototype status

It is crucial to note that we are not talking about a feasibility study or a prototype status here. Such a warehouse, at our partner Speedy GmbH, has impressively proven its capabilities for over 2 years of productive operation.

We recommend watching this system live or to get comprehensive advice from the developer.

About us

At the beginning of 1991, Klaus Jeschke Hard- und Software, founded in 1982, became TELEJET Kommunikations GmbH (development) and ICO Innovative Computer GmbH (sales / support). These companies have more than 35 years of experience in the IT industry.

TELEJET GmbH, based in Königstein/Taunus, has been developing and manufacturing electronic components for its own sales department and for well-known national and international customers since 1992. The development and production fields of the company range from PCB design to special telecommunications components such as modems and least-cost routers to complex programming for complex automations.

The broad portfolio of ICO Innovative Computer GmbH covers servers, storage & PCs, industrial computers, point-of-sale, auto-ID and IT services and offers both standard products and individual solutions. More than 120 employees (including 8 trainees) ensure the satisfaction of more than 16,000 customers.

Innovative in-house developments are also among the strengths of TELEJET and ICO. In addition to the well-known tariff manager or the successful web resetter, the STOROJET - Next Level Storage - is now being added after years of development and extensive testing: the automated multi-storey storage and order picking system Made in Germany.

More information at www.storojet.com

Pictures



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