

SCS MODULAR HIGH-PERFORMANCE STORAGE SYSTEM

Modularity and scalability at all levels



High Dynamics in the Most Confined Space

The Schäfer Carousel System (SCS) has established itself in the market as a modular and scalable system for high-speed single item picking. Numerous market leaders have already put their trust in this innovative system solution.

1,000 picks per hour, a storage density increased by 50%, and its modular system design make the SCS an adaptable and intelligent system solution for dynamic order picking processes with a very high performance level and maximum economic efficiency.

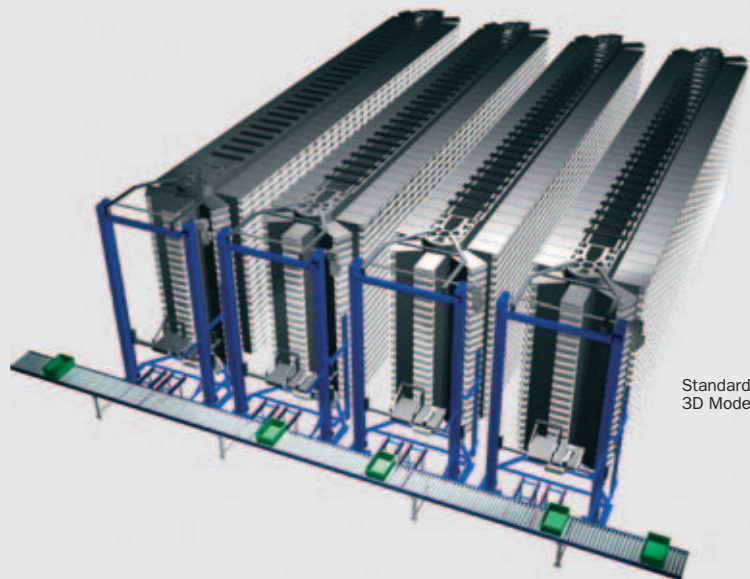
The combination of a high-performance conveying system and state-of-art control technologies facilitates up to 1,000 storage and retrieval operations per hour.

An ergonomic design and an efficient implementation of the "goods-to-man" principle are vital factors for guaranteeing continuously high throughput rates and low-fatigue working conditions.

Each operation is confirmed, guided and checked by a clear operator guidance system, which allows picking at a zero-error rate.



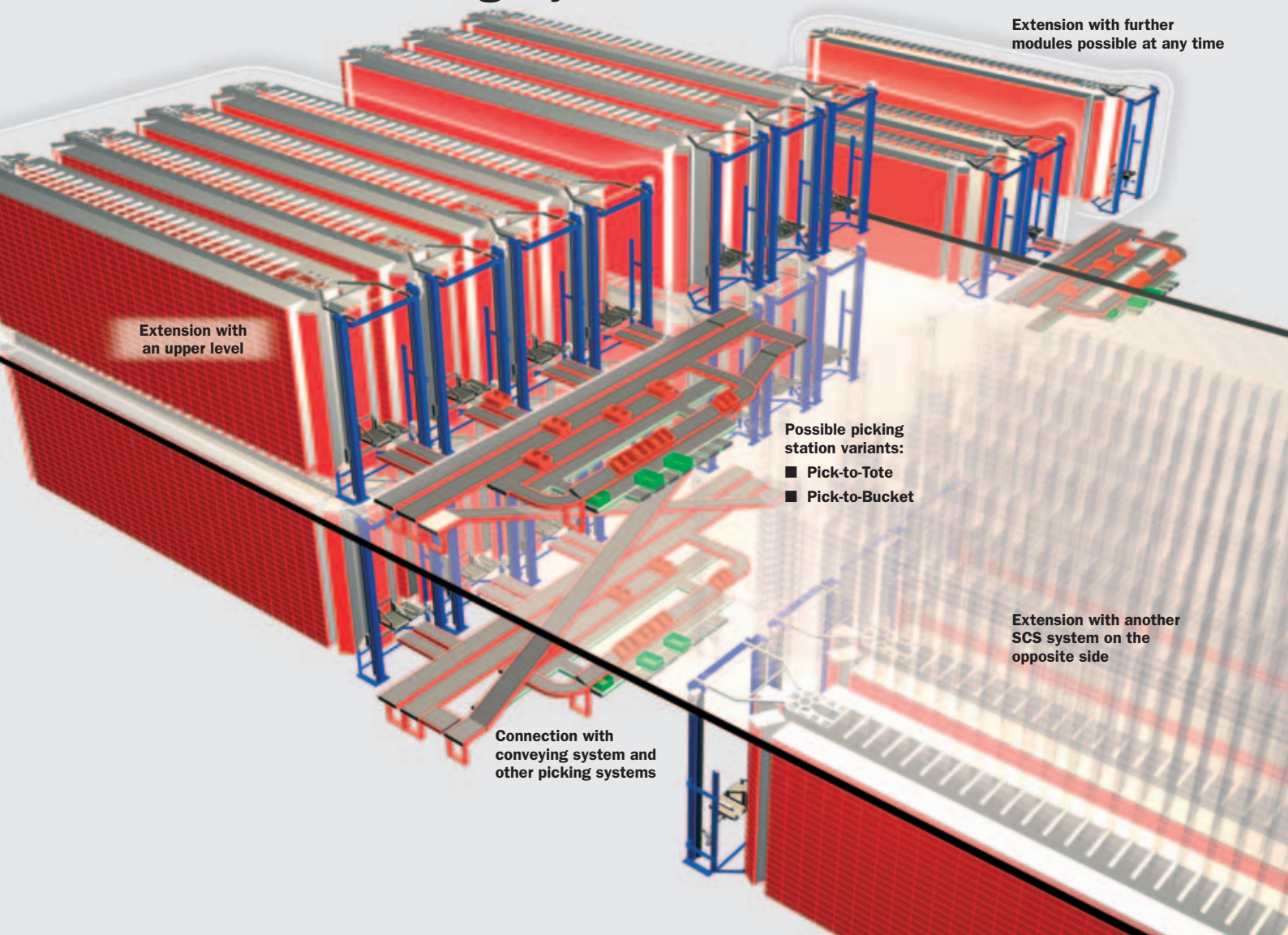
Storage tub retrieval and vertical transport by stationary lifting systems. By eliminating the conventional automatic storage and retrieval systems, the distance between the individual carousels can be reduced and a lot of space saved.



Standard SCS
3D Model



A Modular Concept for Individual Storage and Order Picking Systems



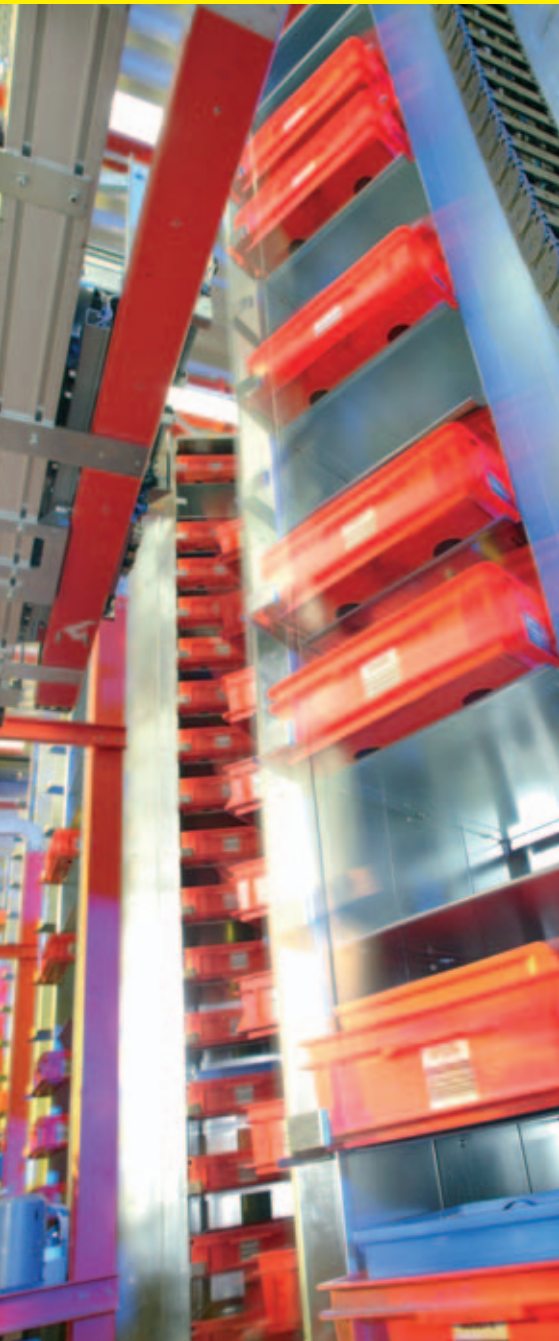
The system design combines the benefits of compact carousel systems with an innovative further development of conventional storage and retrieval systems.

Thanks to its scalable and modular design, the SCS standard system is available at short notice, easy to adapt to individual requirements and immediately ready for operation. These features ensure short implementation times and a lasting investment protection.

In case of increased capacity requirements and order volumes, changed ABC distribution or higher performance rates, the modular SCS system can easily be adapted by adding further modules or individual aisles.

Thanks to its space- and resource-saving design, the SCS system is able to compensate workload fluctuations from the economic point of view.

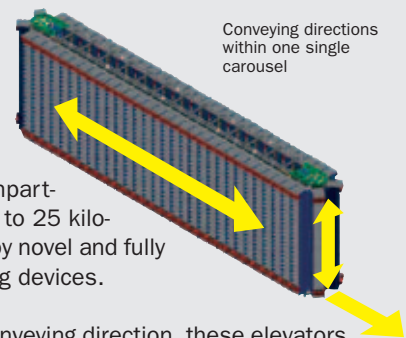




What makes the SCS so unique?

Thanks to the “goods-to-man” principle being consistently implemented, unproductive time is eliminated. The standard SCS system consists of four rotating carousels, each equipped with a decoupled automatic storage and retrieval unit. Its dense, space-saving structure provides a capacity of up to 6,000 storage tubs within a standard system of 4 carousels. Other positive features of the system are its nearly unlimited flexibility with regard to product diversity and its huge economic efficiency.

The standard storage tub is at the basis of each standard module basically representing an automatic small parts storage system (mini-load). The SCS standard tubs of SSI Schäfer's own production can be divided into a maximum of 16 compartments and have a load capacity of up to 25 kilograms. The storage tubs are handled by novel and fully automated elevators with load carrying devices.



Moving in vertical and/or horizontal conveying direction, these elevators retrieve the storage tubs from their storage locations along the four aisles and transfer them to the conveying system (loop) integrated into the carousel. This loop takes the storage tubs to the order picking stations.

The decoupled movements achieved in this way allow to double the number of storage and retrieval cycles when compared to other conventional systems on the market. Moreover, replenishment processes can be perfectly integrated into order picking operations without any loss in efficiency.

Standard SCS Equipment

- Storage control software
- Up to 6,000 storage locations
- 4 elevators
- 4 carousels
- Order picking station

Performance

- Up to 1,000 double cycles or storage/retrieval operations per hour
- Real-time stock inventory

Arrangement / Layout

- Modules may also be arranged on 2 levels
- Pre-zone: may be arranged at the front or at the side

Performance Data

■ System height	max. 4.9 m
■ System width	10.5 m
■ System length (incl. conveyor lane and elevator)	10.4 m – 15.9 m
■ Surface area (6,000 tubs)	166 m ²
■ Aisle speed	max. 0.6 m/s
■ Aisle acceleration	max. 0.2 m/s ²
■ Aisle performance*	250 double cycles/h
■ System performance*	1,000 double cycles/h
■ Tub size	max. 600 x 400 mm, different heights
■ Tub weight	max. 25 kg
■ Distributed load	approx. 1,000 kg/m ²
■ Connected load, carousel + elevator	8 KW

*depending on the length of the aisle

Implemented Projects

Industrial Parts Supplier, Germany:

The storage system consisting of four carousels has been integrated into the existing material flow process and is used as a sequencing buffer for order totes prior to shipping.

More than 3,800 storage locations allow buffering of the orders prepared throughout the day and expecting delivery.



Leading American Retail Company, USA:

The 16 carousels arranged on two levels contain 1,000 storage tubs each. Each of the four workstations is served by a cluster consisting of four carousels. The conveying system transports the storage tubs containing the articles from both levels to the picking stations.



Pharmaceutical Wholesaler, Spain:

The SCS system, a combined solution of Pick-to-Tote and Pick-to-Bucket workstations, is part of the picking loop including also an automatic picking system for fast moving products.



Mail Order Company, Germany:

Buffer for returned goods combined with order picking, consisting of 25 carousels and 10 workstations.

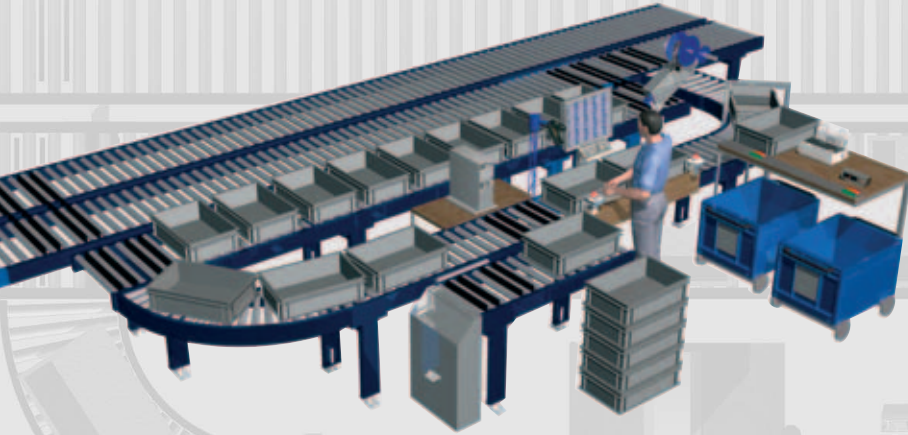


Logistics Service Provider of Media Products, Germany:

Storage and order picking system with a total of 18 carousels and 6 workstations. More than 10,000 articles picked per hour.

Efficient Order Picking Stations of Highly Ergonomic

An ergonomic design and a consistent implementation of the "goods-to-man" principle are vital factors for guaranteeing continuously high throughput rates and non-fatigue working. Pick-by-Light and Put-to-Light systems provide for a clear operator guidance where each picking operation is confirmed, guided and checked.



Advantages:

- Reduced order processing times
- Picking productivity increased by factor 6 – 10, with picking error rate being simultaneously reduced to almost zero
- Receipt, accurate administration and checking of a wide range of products
- High storage density
- Monitoring of expiration dates
- Batch tracing

Fields of Application:

- Medium and slow moving products, small parts of different dimensions and geometry (pharmaceutical products, cosmetics, electronic components, media, food, standardized small parts)

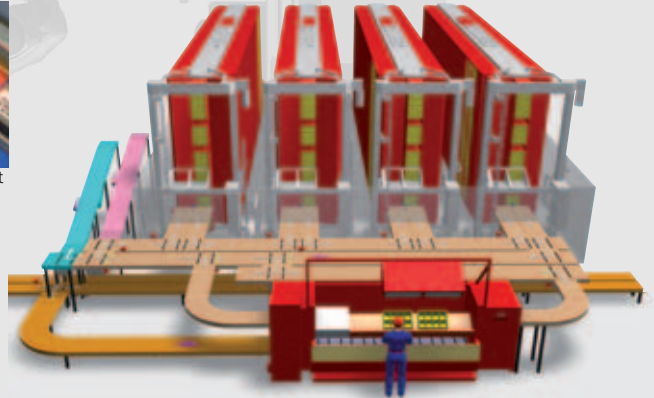
Thanks to this optimization of work processes, the pick rate per operator can be increased up to 1,000 picks per hour and the error rate reduced to almost zero.

The workstation is able to meet any required warehouse functionality: order picking, goods-in procedures, returned goods handling, inventory or other product administration activities.

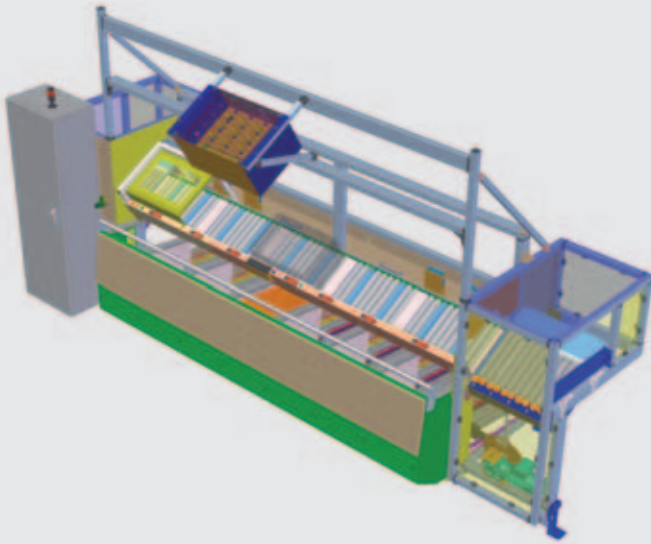


Pick-by-Light

Within short processing times, the completely picked order totes are prepared for loading and shipping in accordance with the shipping requirements. Process control is carried out by SSI Schäfer's warehouse management system.

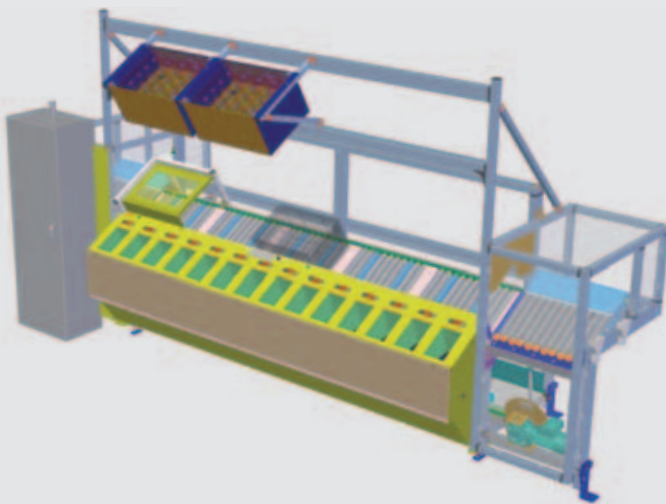
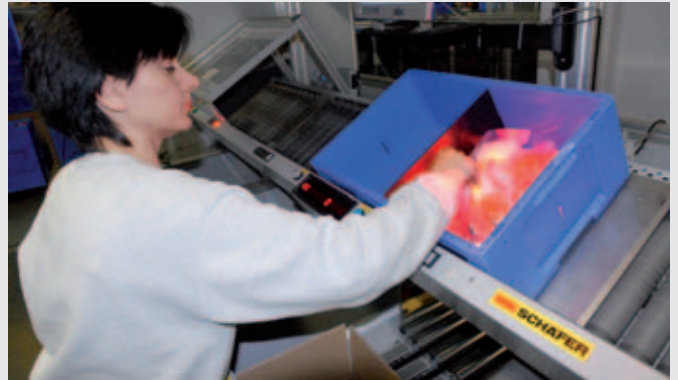


Design



Pick-to-Tote:

This ergonomically designed workstation serves for faultless picking of different articles (large, heavy and/or sensitive articles), guaranteeing a high picking performance and the most delicate product handling. In this variant of picking, the articles are put directly into the transport unit (tote, carton).



Pick-to-Bucket:

Order picking decoupled from the order tote. In this variant, light products suitable for dropping are placed into a collecting slot.





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