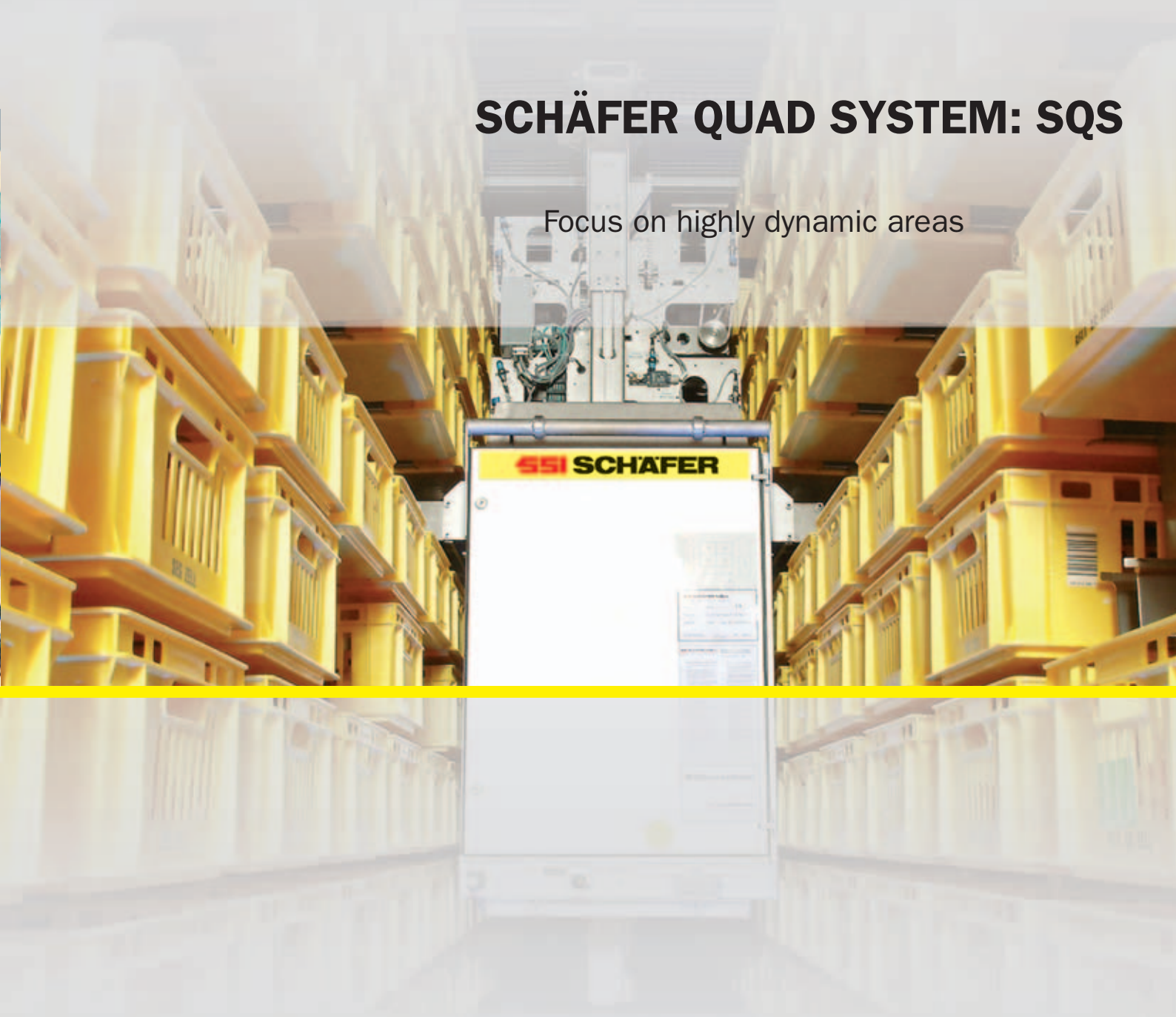


SCHÄFER QUAD SYSTEM: SQS

Focus on highly dynamic areas





SQS: Maximum dynamics in the most confined space

Due to changed market requirements and, not least, the predominance of small orders in e-commerce, highly dynamic storage logistics systems are required in order to meet the ever increasing demands with regard to throughput, item structures, and order picking volumes:

Shorter delivery times and deliveries in accordance with customer specifications necessitate shorter throughput and response times. Additionally, the more and more frequent "atomization" of orders leads to a high number of orders with low volumes of items.

The SCHÄFER QUAD SYSTEM, which was especially designed for such requirements, offers an efficient and at the same time flexible solution.

Extremely highly dynamic areas and functionalities, for example intermediate buffers in the production area, order picking areas, zone order picking or Goods to Man order picking, are tackled highly efficiently with the SQS.

Flexible and efficient: maximum dynamics in the most confined space.

Advantages

- High throughput
- Individual delivery specifications are taken into consideration (Just in Time, Just in Sequence, sorting by store areas and sales regions, set time frames are taken into consideration)
- Can be flexibly extended and combined
- Maximum space utilization due to narrow bin spacing
- Utmost availability
- Simple, proven technologies

Scope of services

- Individual planning
- Integration into existing warehouse logistics
- Connection to existing ERP systems
- Complete handling of a project including training, service and maintenance



Dynamics from retrieval to order picking

The basic concept of SQS is based on the serving of bin racks by aisle-bound vehicles, which can retrieve and store up to four bins simultaneously using a special extracting device. Due to the high dynamics of high-performance drive and control technologies, the combination

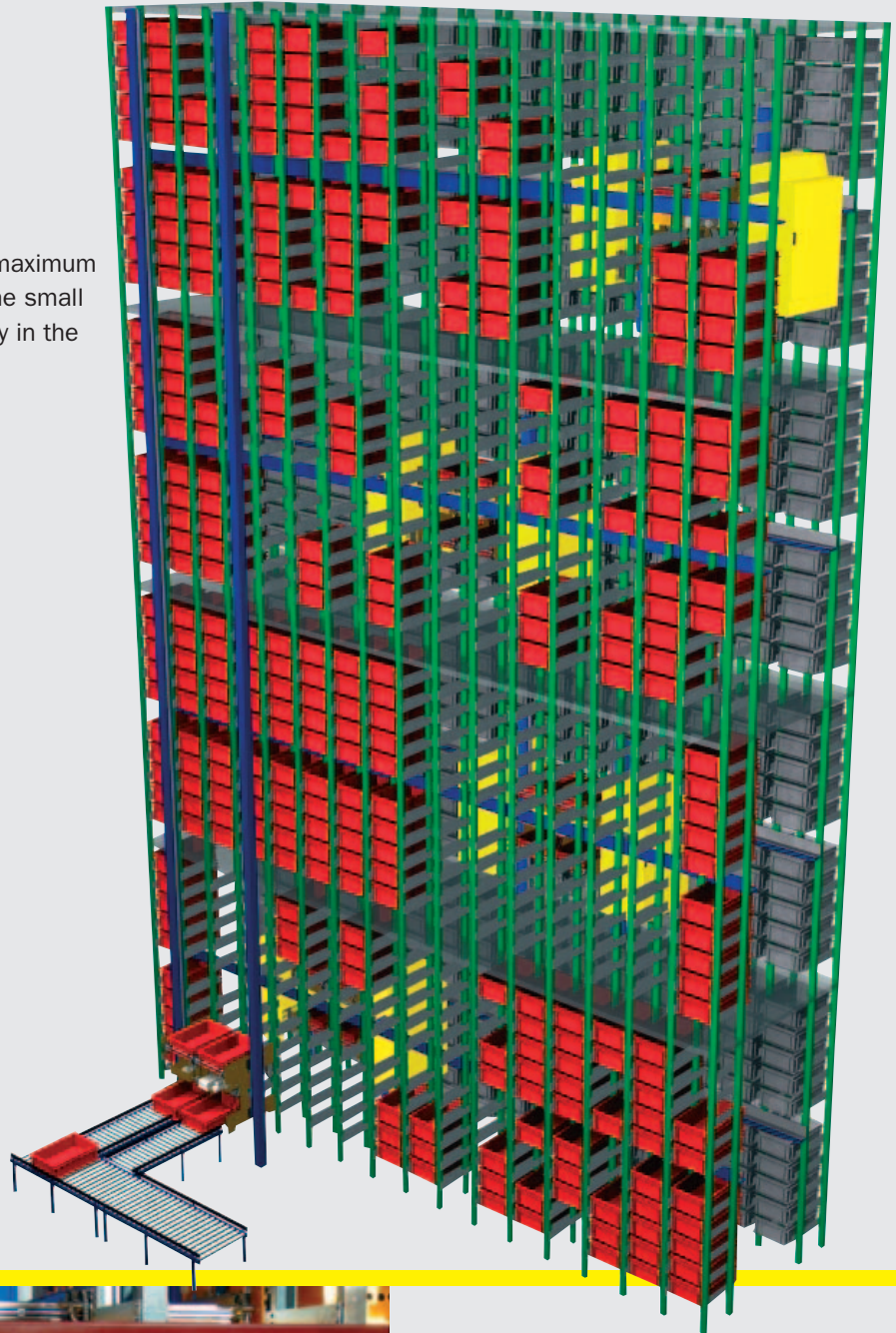
of several units in the relevant aisles leads to a high throughput and minimum handling times and - in connection with the narrow arrangement of the bins which is now possible in the racks - to a maximum utilization of the existing space.



The small aisle width of only 850 mm enables maximum utilization of existing storage space or, due to the small space required, offers savings potentials already in the planning phase of new projects.

Basic properties

- Up to five SQS vehicles in one aisle, arranged above each other
- Maintenance platforms between every two SQS levels. Accessibility of the system for maintenance personnel or for the manual handling of bins as an emergency strategy
- Connection of SQS via lifts with transfer of bins from lift to rack row:
 - Lift cycles independent from SQS cycles – maximum performance
 - Sequencing of bins during outfeed
- Serving flow racks, static order picking locations
- Dynamic order picking locations with "presenter"

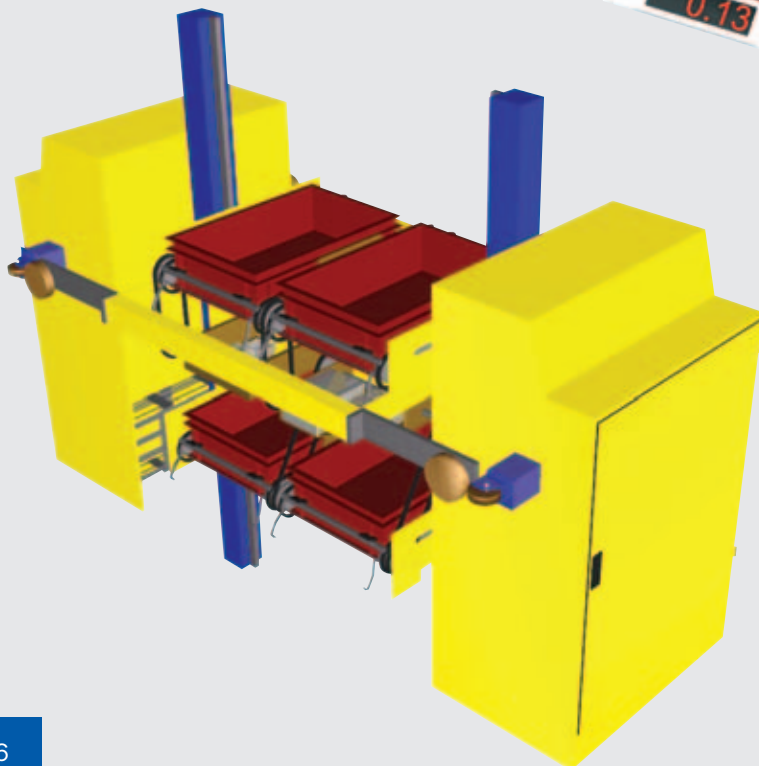
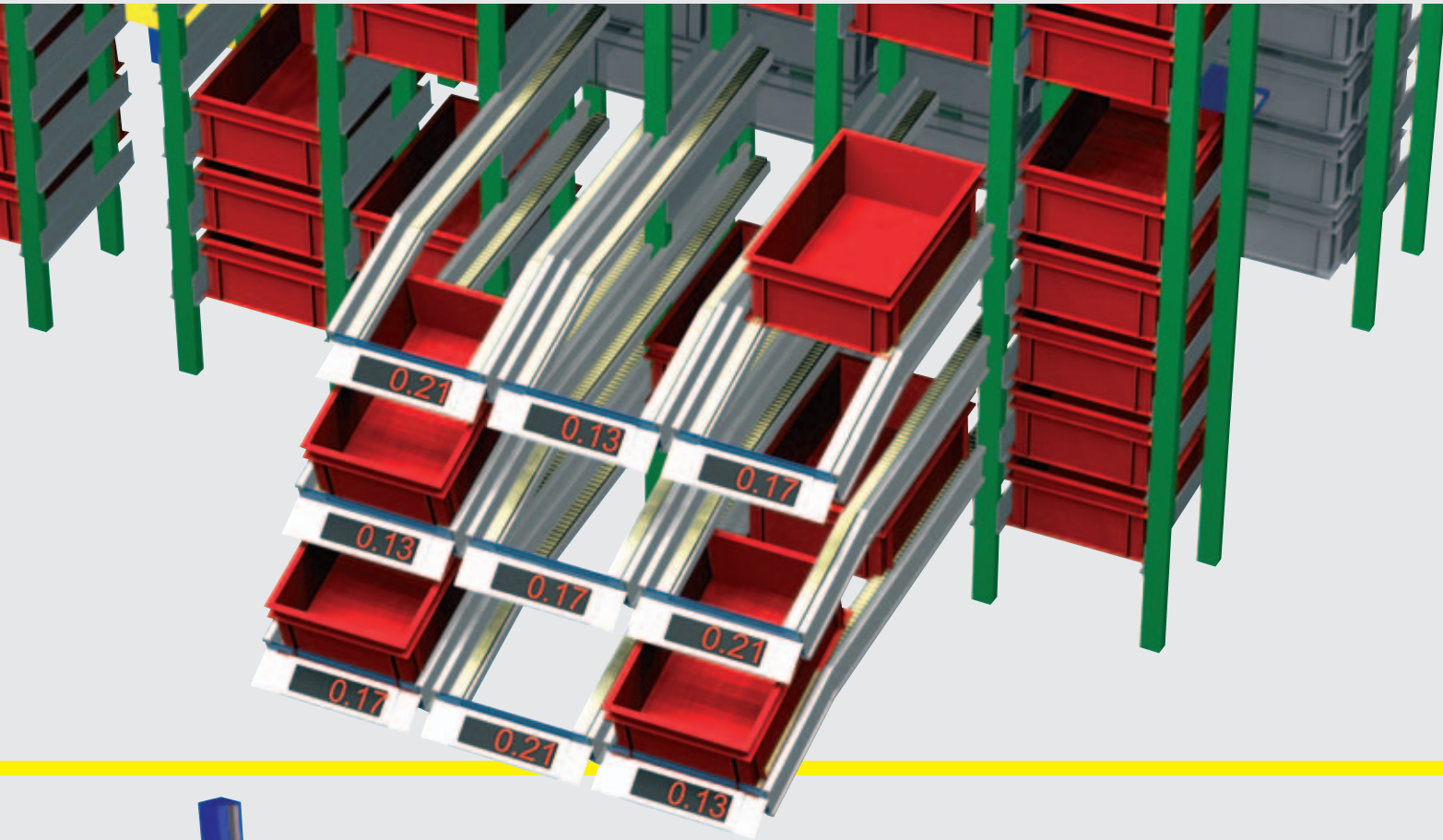


Static as well as dynamic order picking locations can be equipped, for example with Pick by Light.

Dynamics can be planned

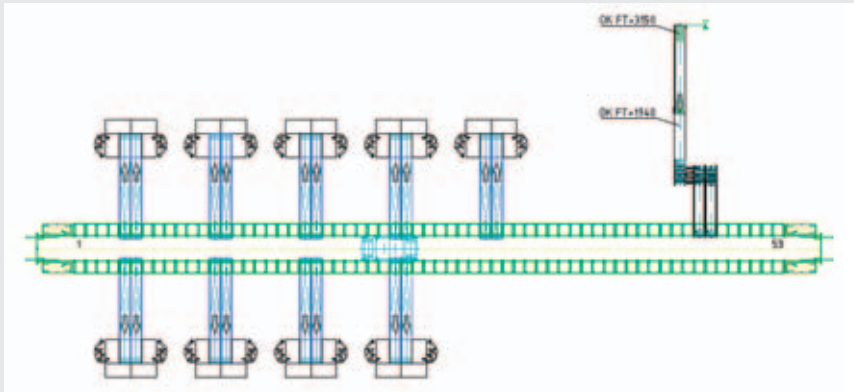
We are geared to the needs of our customers

- Production isolated from shipping (parallelism of processes)
- High degree of automation and minimum manpower requirements
- Larger number of items with fewer inventories
- Reduce the space needed for logistics and peripheral equipment (integrate compact systems into existing infrastructures)
- Flexible and extendable technology (modular systems)
- Utmost availability (ensuring the ability to deliver by redundant systems or simple emergency strategies)
- Optimized investment and maintenance costs



- Maximum speed 5.0 m/s
- Maximum acceleration 2.8 m/s²
- Maximum lift speed 2.0 m/s
- Double cycles approx. 230 bins/h
- Single cycles approx. 280 bins/h
- Load suspension device with quadruple extracting device
- Hoist unit to serve up to five rack levels below and above the running level
- Lifting height up to 2.9 m for single-deep storage

Connection of SQS to other storage areas can optionally be provided by spur tracks (see illus. below) or lifts. The required throughput can be adapted to the relevant needs by the individual number of shuttle vehicles.



System advantages

- Extreme concentration of performance - optimal space utilization
- Compared to SRM, clearly higher throughput of the individual shuttle vehicle
- Several shuttle vehicles per rack aisle -> multiplication of throughput with the same number of aisles or same throughput with significantly fewer aisles
- Low approach dimensions, small bin spacing due to compact design; modularly extendable
- Running rail and busbar integrated into the rack
- Uniquely high availability and flexibility. SQS can easily be replaced (e.g. by a spare unit). Aisles can be changed regularly, for instance with shuttle vehicles in the front zone



The flexible design of the SQS enables the combination of different solutions, e.g. order picking in flow racks and by "Pick by Light" or the use of static as well as dynamic order picking positions.

