

Flexibility

Dynamic

Balance

Efficiency

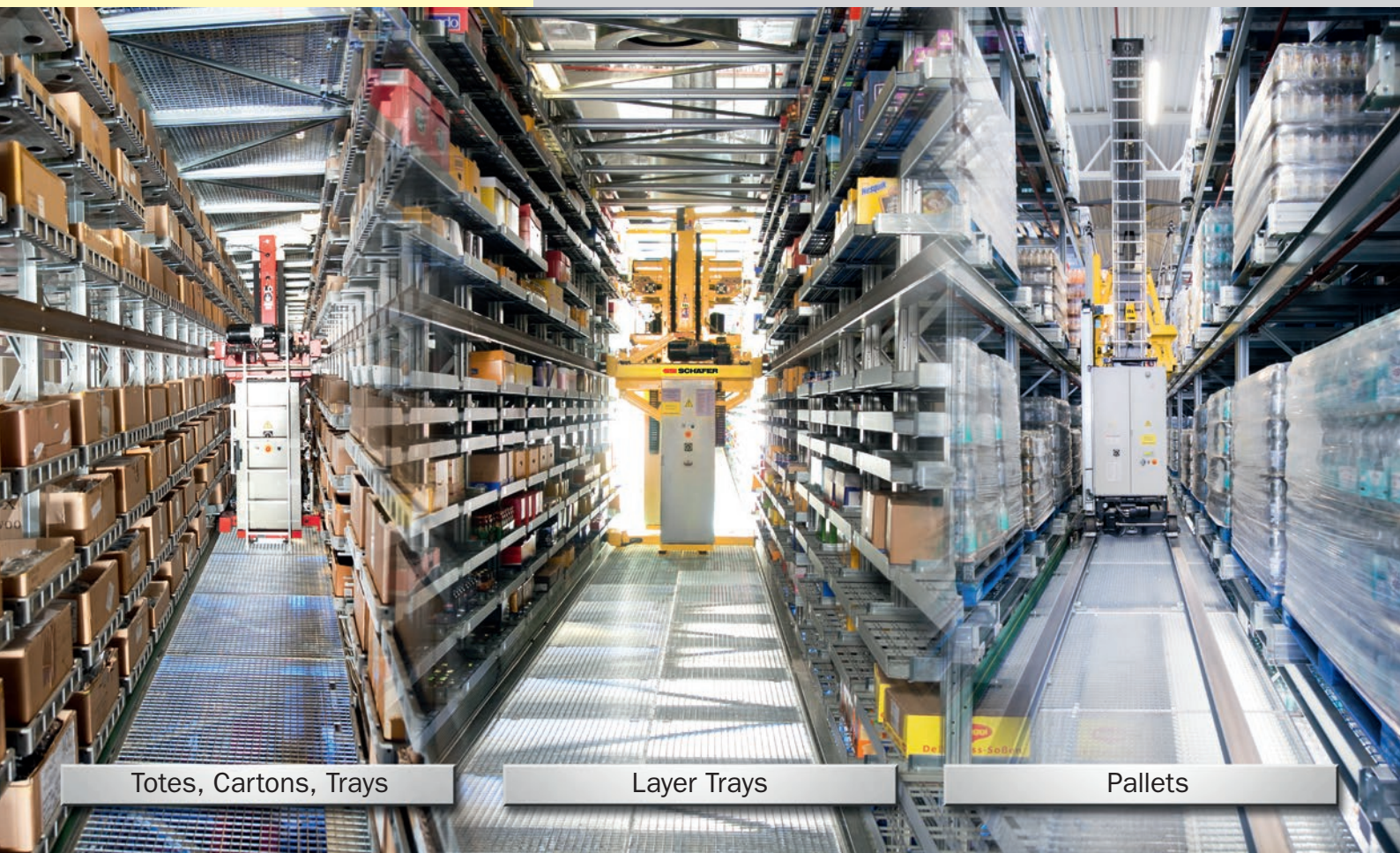
Buffering
Storage

Sequencing



3D-MATRIX Solution®

Highly Dynamic Sequencing
Without Bottlenecks



Totes, Cartons, Trays

Layer Trays

Pallets

Storage, Buffering, and Sequencing in One Single System

With the innovative concept of the 3D-MATRIX Solution®, SSI SCHAEFER offers a highly dynamic system solution for the storage and picking of totes/cartons/trays, layer trays, and pallets. The unique combination offers maximum flexibility and future-oriented scalability.

Limited performance of conventional warehouses

Standard warehouse systems are typically designed for retrieval in the direction of the X-axis which is towards the front of the aisles.

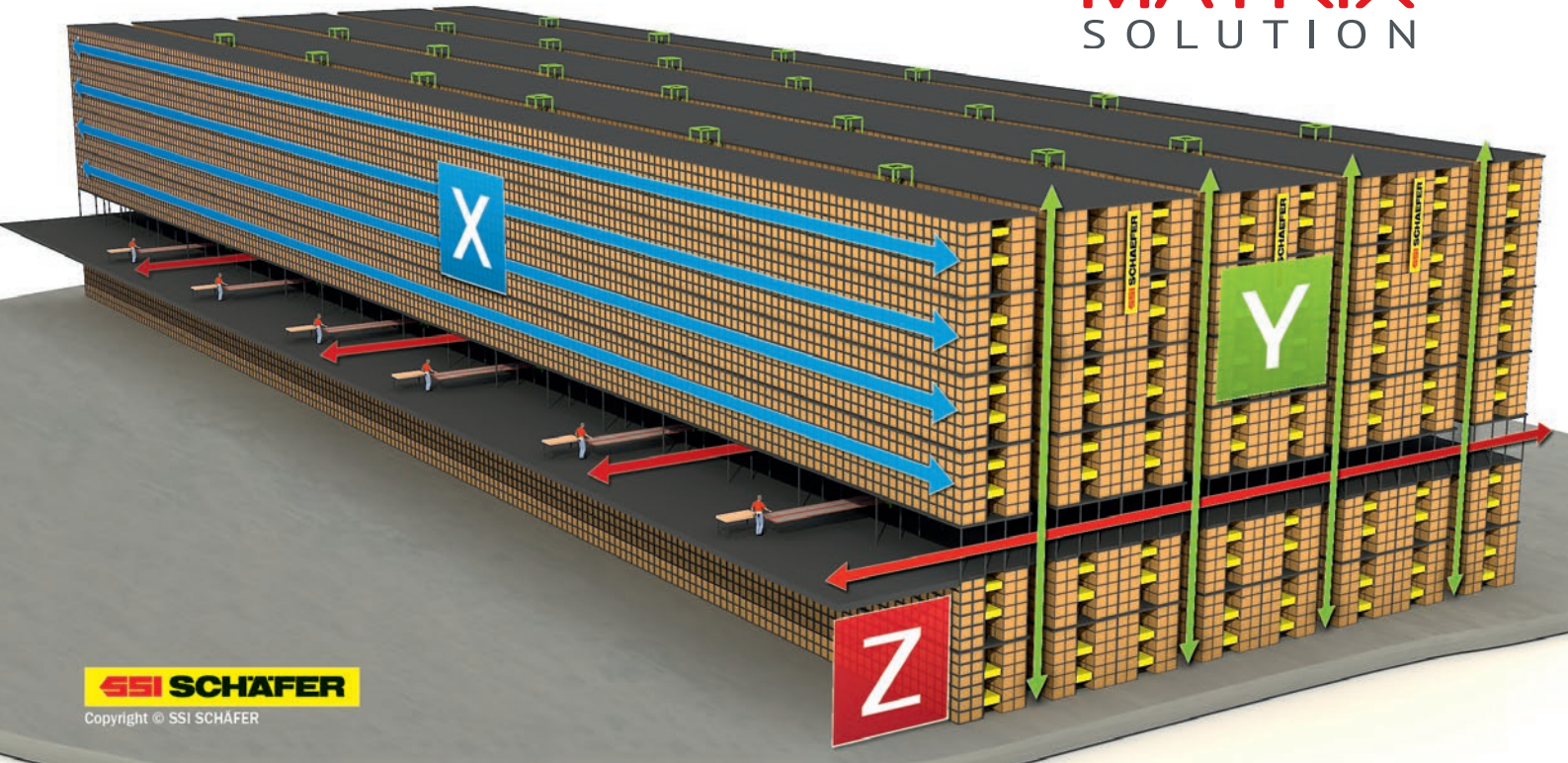
The vertical approach of the conveying systems on the Y-axis is performed by means of storage and retrieval machines or lifts. The storage and retrieval machines or shuttle cars are equipped with load handling devices which directly access the storage positions (Z-axis movement). The load carriers taken out of the storage compartments are handed over to the conveying systems or transfer stations by means of storage and retrieval machines.

As the complete material flow of the warehouse converges to these few retrieval points and components, the system dynamics of the warehouse are limited by the transfer stations, the performance of the lifts, as well as the conveying system loops.

The four main problems of conventional warehouses

1. The system intrinsic limited number of lifts results in retrieval and storage bottlenecks.
2. As a consequence, the number of transfer stations is limited, thus decoupling the processes in the horizontal and vertical axes is only conditionally possible.
3. When shuttles are used to increase the performance of the aisles, there will be significant bottlenecks on the conveying system loops in the pre-zone.
4. Due to the nature of the system, sequencing will only be possible by additional and downstream sequencing systems.

With the patented 3D-MATRIX Solution®, SSI SCHAEFER opens up a new dimension of automated warehouse systems. The modular concept provides highly dynamic system solutions for the storage and picking of individual items (piece picking), cases, layer trays, and whole pallets. With a 3D-MATRIX Solution® from SSI SCHAEFER, users from any industry can benefit from significantly higher efficiencies and long-term value for the investment. With the unique design of the 3D-MATRIX Solution®, warehouse systems are open in all directions eliminating bottlenecks and restrictions known in classic system solutions. Advantages that numerous users already profit from.



The Revolutionary Approach of the 3D-MATRIX Solution®

With the 3D-MATRIX Solution® SSI SCHAEFER put into practice a highly dynamic warehouse organization while eliminating any bottlenecks. The movements of the transport media in the warehouse in X-, Y- and Z-direction are separated from one another and carried out simultaneously. The system concept for totes, layer trays, or pallets works with different shuttle systems. The requested load units are moved to lift transfer stations and buffered there.

Thanks to the innovative design of the 3D-MATRIX Solution®, the warehouse system already does all the sequencing. This means storage, buffering, and sequencing are done in one single system. The quantity of retrieval and storage lines in the Z-direction installable consecutively on the X-axis is arbitrary, as well as the quantity of used lifts and work stations.

Characteristics of the 3D-MATRIX Solution®

Access to all items at any time without a decrease in the performance

Individual access of the lifts to the transfer stations

The warehouse system already does **all the sequencing**. This means storage, buffering, and sequencing are done in one single system

Almost **any number** of picking and shipping stations can be individually **configured**

Warehouses can be **easily extended** in length, width, and height during ongoing operation

Individual plant layouts are possible just by using the flexible lifts. Warehouse processes and picking are performed independently in different areas or on different levels

Advantages for intra-logistics

▶ Eliminates the need to ABC classify inventory

▶ The load units put in the buffered transfer positions can be directly retrieved in a sequenced way by the Matrix lifts

▶ The number of storage and retrieval lines that can be placed in a row on the X-axis in the Z-direction, as well as used in the lifts, is arbitrary

▶ The necessary load units can be forwarded to every work station – independently and in sequence

▶ The system is unaffected by changing order structures and adjustable item ranges providing a safe long-term investment

▶ Unlimited variations in the design of the warehouse and the formation of work stations with unhindered maintenance and service accessibility

Highly Dynamic Storage Systems in Practice

For the first time the requirements of convertible warehouse systems have been implemented into automated system solutions through the use of SSI SCHAEFER's 3D-MATRIX Solution®. This innovative design provides the users of trays, layers, and pallets with the ultimate flexibility and long-term value for the investment.

Distribution Center for Supplier of Fashion Jewelry:
beeline, Cologne (GER)



Distribution Center with Deep-Freeze Conditions (-28 °C):
Migros-Verteilbetrieb Neuendorf AG, Neuendorf (CH)



Distribution Center for Food Retailer:
Lidl Stiftung & Co. KG, Kirchheim (GER)



Fully Automated Distribution Center for Food Retailer:
ES3, York, Pennsylvania (USA)



Highly Efficient Compact Warehouse for Beverage Manufacturer:
Gerolsteiner Brunnen GmbH & Co. KG, Gerolstein (GER)



US-American Sub-supplier Chain for Services in the Food Industry

