Pallet storage of the future

High dynamics and flexibility in the pallet storage with StoreBiter® 500-OLPS

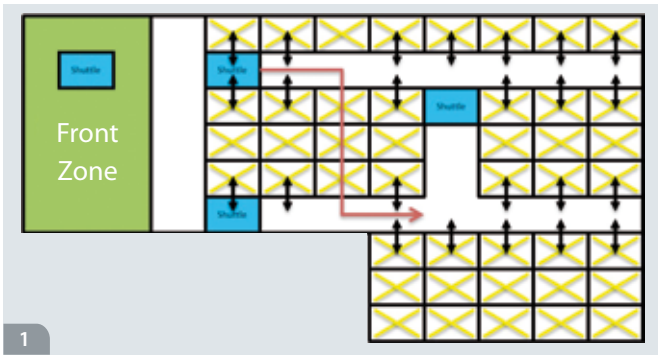
gebhardt®

Pallet shuttle storage system eliminating the need for front-zone conveyors

GEBHARDT delivers a pioneering concept in the area of pallet conveyor and storage technology with the StoreBiter® 500-OLPS pallet shuttle. With this innovation, the shuttle technology already established on the market in container and box conveyor technology is transferred to pallet storage systems.

Advantages

- High flexibility and scalability
- Throughput is independent of the storage size
- Front zone designs with the shuttles alone, or with conventional conveyor technology, both possible
- Optimised light-weight construction
- High energy efficiency - designed for continuous operation
- Single- and multiple-depth storage freely combinable
- Industrie 4.0 capable



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The pallet shuttle GEBHARDT StoreBiter® 500-OLPS combines the abilities of an automated storage and retrieval machine with (optionally) the property of a pallet shuttle or overhead monorail outside of the rack. This way, the new requirements of pallet storage and conveyor technology, such as high dynamics and flexibility, can be met. It will be possible to implement clearly higher throughputs, maximum system flexibility and a high scalability of the overall system through the StoreBiter® 500-OLPS in future.

The flexibility of storage can only be ensured if the devices are able to work autonomously within the storage and adjust to their environment. The new shuttle is not assigned firmly to a rack aisle, as compared to the pallet ASRS and, in contrast to the conventional pallet shuttles, does not rely on a mother vehicle, since both items limit flexibility too much. For this reason, the OLPS shuttle moves bidirectionally anywhere in the rack, as well in a front-zone. The new shuttle thus permits many storage concepts, no matter if in cooperation with or without pallet conveyor technology. Storage may take place in single or multiple depth, also in any combinations.

As shown in figure 1, the shuttle can change shelf aisles independently. If the shuttle is unloaded, the device moves within an occupied pallet channel. Thus, the best driving path can be determined and blocking can be avoided. Transverse orientated aisles need only be accessed by loaded shuttles. Vertical conveyors enable shuttles to change level. Several shuttles can act deadlock-free on any level and aisle.

The flexibility also goes all the way to the storage front-zone. The shuttles are able to leave the shelf via vertical conveyors to transport the goods from the storage place to the workplaces in the pre-zone, either with or without additional conveyor technology.

1
Storage overview

StoreBiter® 500-OLPS

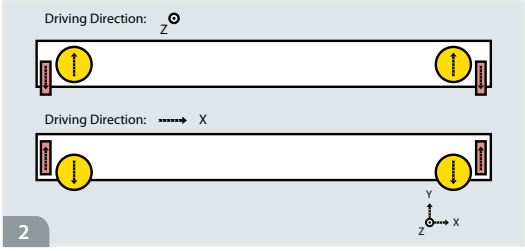
With the StoreBiter® 500-OLPS, GEBHARDT is offering a pioneering concept in the area of shuttle technology - higher throughputs and larger flexibility for the storage of pallets, mesh boxes and large containers.

Technical Properties

- Dimensions: 1250x990x190mm (for Euro-pallet storage)
- Speed: up to 2.5 m/s
- Range: approx. 100m
- Payload: 1400kg
- Best use of space and area with single- & multiple-depth storage

Effectiveness

The new shuttle permits many storage concepts. This may be high-performance ones as well as storages with low throughputs. The size of the storage system plays only a subordinate role, since the variables size and throughput are not directly connected in contrast to RBG stores. The shuttle is equipped with two wheel pairs per direction and is thus able to change the running direction independently. The wheel pairs are moved up and down vertically to use only the wheels needed.



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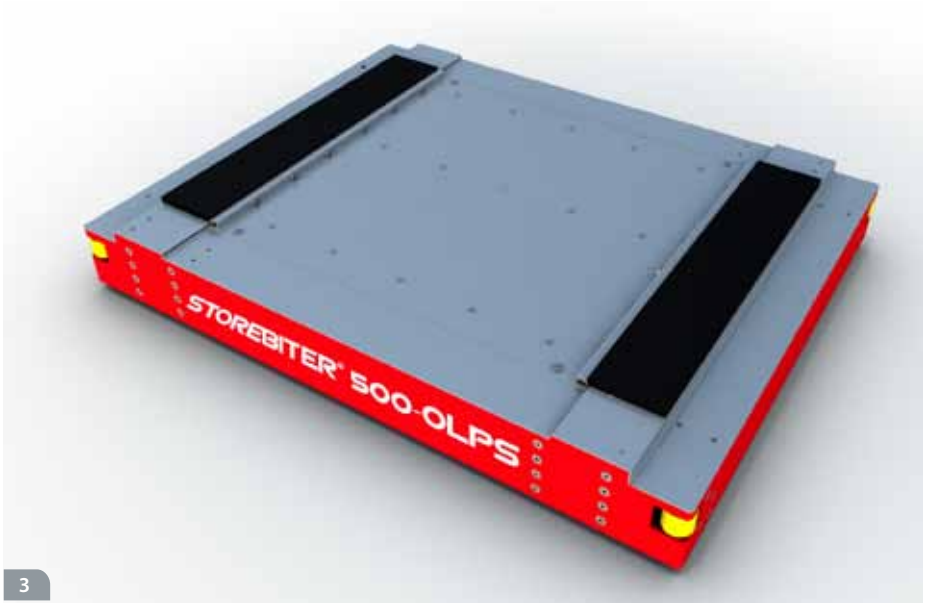
Power supply & energy efficiency

Since the power rails to be placed may be very long, resulting in high costs, the power supply of the StoreBiter® 500-OLPS is based on modern Ultracap technology. These Ultracaps can be charged quickly in the rack as well as in the front-zone. Thus, the loading time is not to be considered an additional waiting time, and the shuttle availability remains high. The new mechanical system reduces the number of installed motors, which has further positive effects on the reduction of the purchasing costs and the empty weight. The biggest advantage is the low dead weight of the shuttle as compared to pallet RBG, which makes the ratio between dead weight and max. payload only 1:4.5.



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Result

As with shuttles in automatic small parts storage, these StoreBiter® 500-OLPS shuttles permit higher throughputs, flexibility and energy efficiency compared to conventional Pallet ASRS systems. A higher output can be achieved by several shuttles working at the same time. Since the number of shuttles can be adjusted to the customer requirements, high flexibility and scalability is guaranteed. Furthermore, the energy use per pallet movement is much better due to the clearly lower dead weight of a shuttle. In contrast to ASRS systems, the weight of a shuttle is independent of the storage height. Higher shelf handling systems therefore do not increase energy consumption. Finally, a higher availability of the entire system Is possible, since the failure of one shuttle will only lead to standstill of a very limited part of the system.

Control

The shuttle's autonomous control system allows for quick and easy changes to the work areas outside of the rack without reprogramming. A temporary change of the pre-zone layout due to increased order volumes can be put into practice quickly. This control also permits the shuttles to determine the best driving path on their own. The smart control system permits the overall system to work effectively and without blocking. The software can be flexibly connected to many WMS systems and offers high flexibility.

2
Drive directions of the StoreBiter® 500-OLPS

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StoreBiter® 500-OLPS

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