



Automated carton live storage

In logistic solutions, fully or partially automated systems are always a good alternative to manual solutions if, without impairing flexibility, they lead to improved working conditions, to a reduction in order throughput times and picking errors, to permanent availability of goods and to a better utilisation of warehouse volume and floor space. Computer-monitored servicing is an additional benefit and allows permanent stock control.

The economic benefit due to savings in time is particularly apparent in the case of carton and pallet live storage systems and pallet racking.

A closed system improves security by preventing unauthorised access to goods.

Our close cooperation with renowned service vehicle and software manufacturers ensures that our automated installations run with optimum functionality and operational safety.

BITO

www.bito.com



**dm-drogerie markt
GmbH + Co. KG**
Distribution



Project realised in
cooperation with

swisslog



Features

- individual items are picked from integrated live storage lanes
- direct order picking from automated tray storage zone on top
- orders can be picked on two tiers
- automated replenishment
- manual picking
- products are picked with the help of a pick-by-light system
- integrated conveyors

Function

With more than 2400 retailers in eleven countries, the drugstore chain dm-drogerie markt is one of the leading suppliers in this sector. The company stocks many product lines in plastic bins and on plastic trays. Their 36 lane storage facility is serviced with fully automated stacker cranes that provide immediate replenishment to the supply zone and feed products into the flow lanes at operator picking height. Orders are picked directly into order-related bins that are transported on integrated conveyors.



Benefits

- short order throughput times
- increased picking performance
- ergonomic layout of operator workplaces
- fully automated facility servicing
- floor space occupation has been reduced by as much as 30%



Fully automate carton live storage CLS-A

Full utilisation of the available warehouse height and a very high storage density are only some of the advantages provided by automated carton live storage.

The racking installation can conveniently be serviced over the entire height at any time.

Fast access times and short travel routes result in an enormous increase in productivity. Computer-monitored warehouse management systems allow error-free order picking and permanent stock control.

A further advantage of BITO automated carton live storage is that all shelving and racking installations perfectly meet the requirements of loading and order picking trucks – a result of the close cooperation over many years between BITO and manufacturers of service vehicles.

BITO

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Product information

Frequent application

- supply and order picking store

Service options

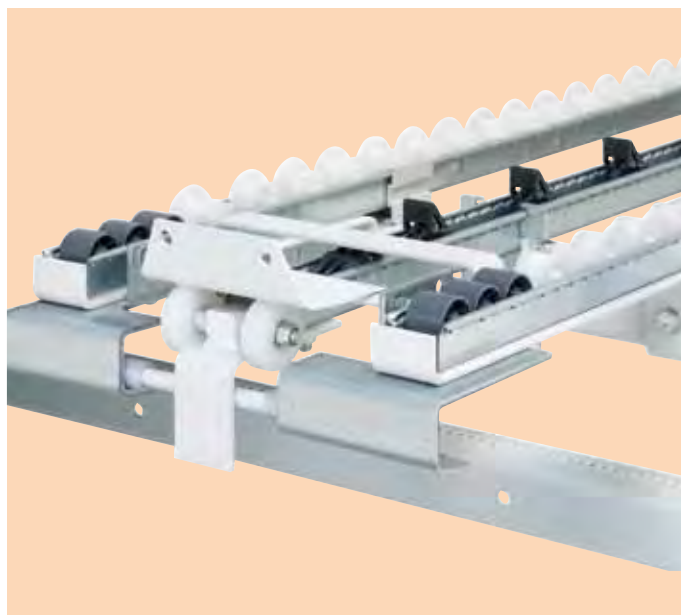
- fully automated replenishment and order picking

Storage options

- storage units, either short or long side facing

Surface/volume utilisation

- floor space occupation reduces by 20% and more
- optimum utilisation of the available warehouse height



Storage units

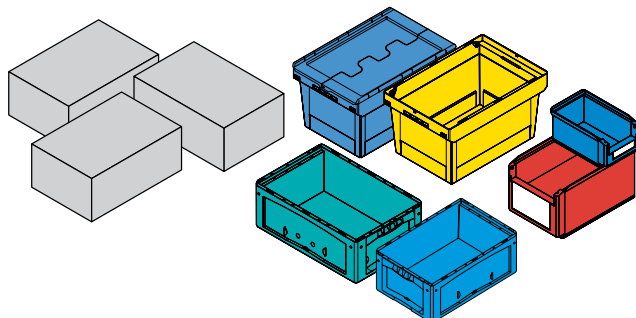
Plastic bins and containers as well as cardboard boxes up to a weight of 35 kg maximum each

Stock rotation frequency

- high stock turnover, short shelf life

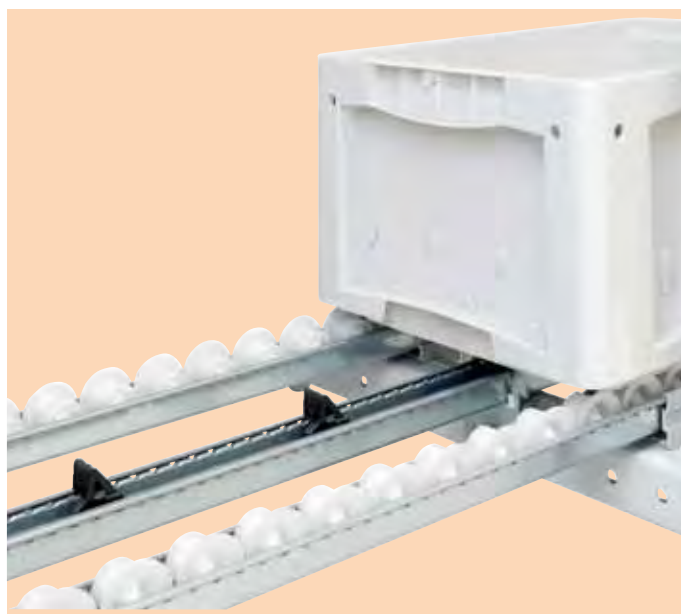
Stock characteristics

- A-items (fast movers)



As a manufacturer of a broad range of bin and container series, BITO is able to supply shelving and racking complete with the optimum storage and handling container for your goods.

BITO bins and containers are outstanding as to their functionality, rigidity and stability and have been perfectly adapted to the requirements of industrial shelving and racking.



BITO partners

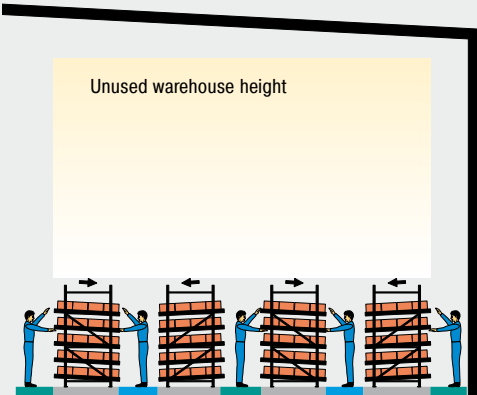
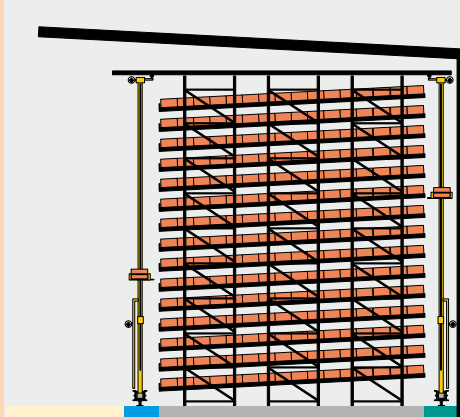
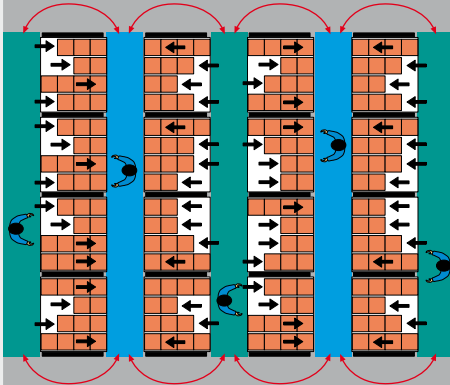
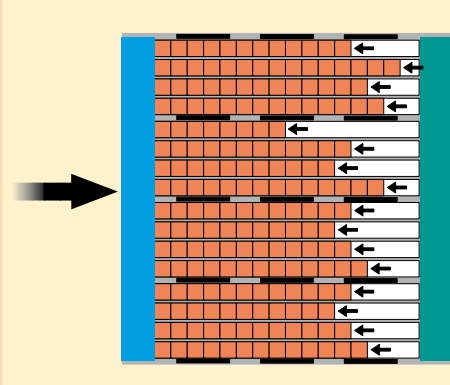
BITO shelving and racking systems are built for low tolerance applications as is required in automated environments. Our close cooperation over many years with service vehicle and software manufacturers guarantees our customers optimum functionality and operational safety.

Advantages of the system

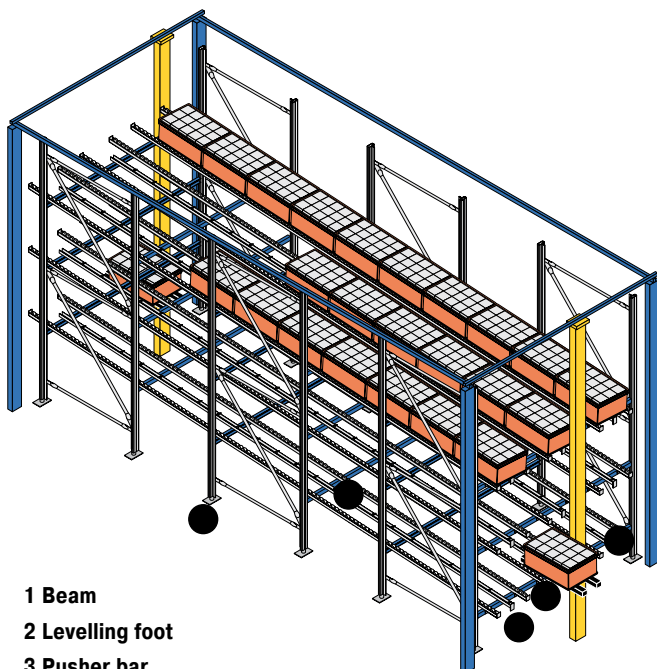
Advantages of automated carton live storage

- maximum utilisation of the available warehouse height with highbay racking constructions
- optimum floor space utilisation due to compact storage
- streamlined and automated operations
- fast and transparent procedures
- improved productivity due to fully automated, computer-monitored operations
- strict adherence to the FIFO principle (first-in – first out)
- link-up to warehouse management systems allows permanent stock control
- very efficient pusher bar system guarantees that all storage units move to the picking face
 - also those with poor travel characteristics

Economic evaluation

Conventional carton live storage	Automated carton live storage	Comparison
 <p>Unused warehouse height</p>		<p>The example on the left-hand side features a conventional carton live storage installation. Replenishment and order picking are done manually over a reach height of up to 2 metres.</p> <p>Our example on the right-hand side shows an automated carton live storage installation serviced by stacker cranes. The available warehouse height can be used to the optimum. Access and travel times are drastically reduced which increases productivity.</p>
		<p>The highbay construction allows to make full use of the warehouse height. Moreover, considerably less floor space is occupied due to the elimination of several replenishment and order picking aisles.</p>

Roller track with cylindrical rollers on a plastic axle

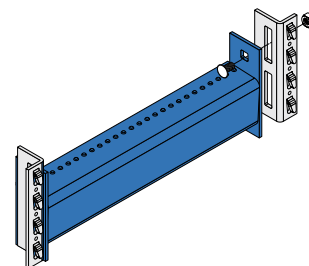


- 1 Beam
- 2 Levelling foot
- 3 Pusher bar
- 4 Track protector
- 5 End plate with clamping saddle

1 Beam

The beams can be adjusted at any height thus providing the optimum flow level in-c-line for your storage units. The ideal lane width can be obtained by clipping the roller tracks and dividers in 8.5 mm increments onto the indentations along the beam.

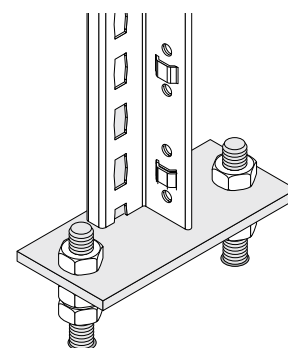
- continuous height adjustment



2 Levelling foot

Allows precise levelling to compensate floor unevenness. Essential for complying with narrow stacker crane tolerances.

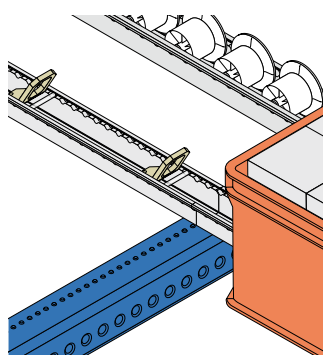
- compensates floor unevenness



5 Pusher bar

Storage units which get stuck in the middle of a lane cause disruptions in the workflow and often enough, it is difficult and time consuming to remove blocked units. The pusher bar ensures that all storage units are available at the picking face.

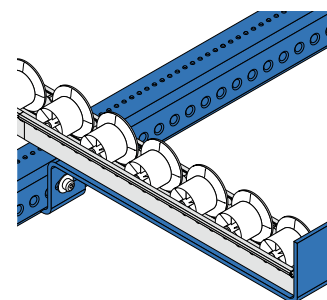
- mechanical device which pushes blocked storage units to the front without manual assistance



4 Track protector

This robust Z-shaped protector section with an integral end stop protects the protruding roller tracks from being damaged by the stacker crane which moves between the roller tracks.

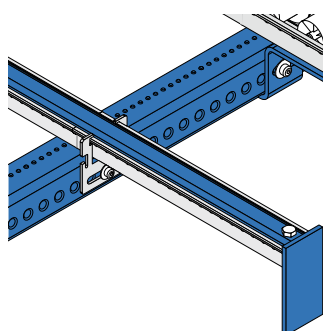
- provides protection for roller tracks
- serves as end stop for unit loads



5 End plate

The end plate is part of the pusher bar. It is pushed back by the stacker crane when a storage unit is collected. Strong spring pressure and suitably spaced protruding pawls return the bar to its original position and thereby push the goods forward even in installations with a very slight incline.

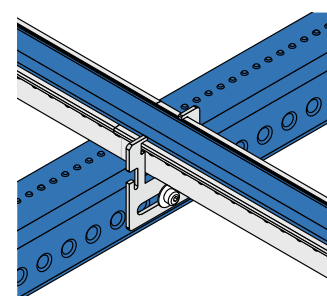
- easy operation of the pusher bar



6 Clamping saddle

The clamping saddle holds the pusher bar in its correct position. The saddle is provided with a plastic lining to reduce noise and friction.

- accommodates the pusher bar
- reduces noise



WÄSCHEGUT Industrial laundry



Features

- paperless order picking
- integrated conveyors
- fully automated loading and retrieval

Function

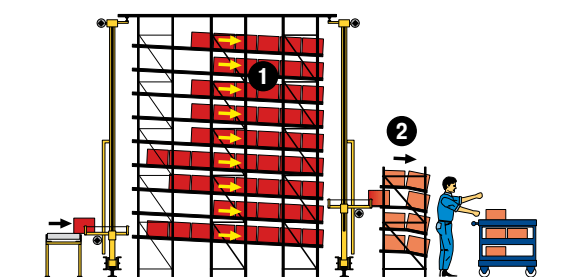
Single reference storage containers are transported on conveyors from the production area to the buffer store (1). This block only provides entire storage units which are loaded and retrieved by automatic stacker cranes. The stacker cranes are controlled by a central warehouse computer that also allocates the storage locations for the bins.

For order picking, the containers are relocated into the live storage block in front (2). The order picker picks the goods customer-based directly into the »MB« multi-purpose containers, registers the contents and identifies the container with a barcode label.



Benefits

- substantial cost savings due to programmed operations
- transparent and accelerated material flow





CARLO COLUCCI
High-end textiles



Project realised in
cooperation with



PSB, Pirmasens



Features

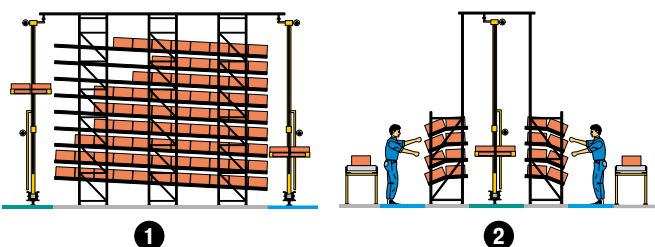
- paperless order picking
- integrated conveyors
- buffer stock with automated loading and retrieval
- order picking installation with automated loading and manual order picking

Function

The automated carton live storage installation (1) which serves as intermediate buffer stock is fed by an automated stacker crane with the cartons coming from the goods-in department. The cartons move unassisted on roller tracks to the picking face where they are automatically fed out upon demand by the second stacker crane and supplied for manual order picking (2).

Benefits

- highbay construction allows maximum utilisation of storage space
- increased productivity due to automated, computer-controlled stacker cranes
- strict adherence to the FIFO principle (first in – first out)





Automated bin and tray storage

Order picking installations based on the goods-to-operator principle are increasingly integrated into total logistic systems. The most common system is automated bin and tray storage (BITO type »AKL«) with individual positions for bins or for trays which are either loaded with several bins or equipped with dividers.

These installations are serviced by picking trucks which by their light weight construction and up-to-date control systems achieve a high performance ratio. This ensures continuous supply to work stations with goods to be picked and the uninterrupted return of bins to their storage location.

Automated bin storage systems are most frequently used in warehouses stocking many small size items of which only a limited quantity is picked at any one time.

BITO

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Product information

Frequent application

- small parts storage, order picking stores, buffer stores, production and supply stores, spare parts and tool storage

Service options

- fully automated loading and retrieval

Storage options

- single position storage with 1 or 2 positions in depth
- multi-position storage

Surface/volume utilisation

- very high



Bay with two storage positions in depth
(back-to-back storage)



Storage units

- plastic containers
- cardboard boxes
- plastic trays
- steel trays

Stock rotation frequency

- very high (A-items = fast movers) to medium (B-items)

Stock characteristics

- sorted into bins and containers or loose storage on trays



Customer specific solution



BITO partners

We realise our automated bin storage projects together with strong partners specialising in computer-controlled warehouse management/ automated steering as well as with logistics planners and general contractors. Our close cooperation over many years with these partners guarantees our customers optimum functionality and operational safety.



Extractable storage positions



Information material

For more information on this product, please contact us on

Tel.: +49 (0) 67 53 / 1 22-1 64

or ask for our DVD

"Dynamic storage"

Our **PRODUCT CATALOGUE** provides detailed information on our entire delivery programme.

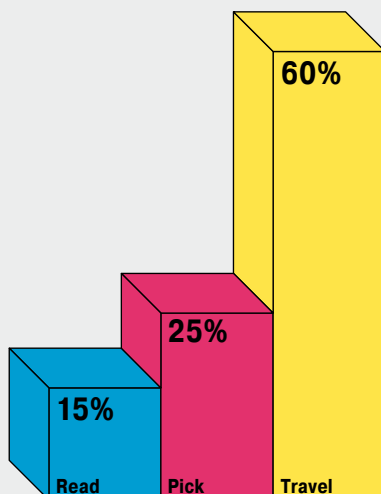
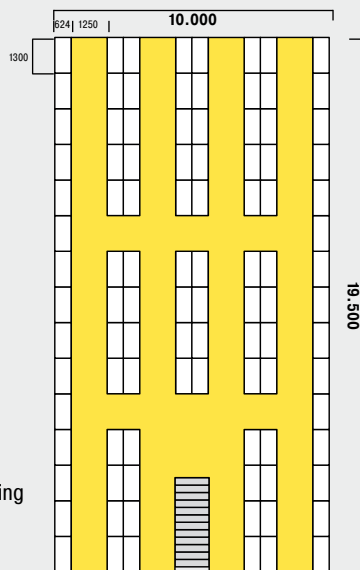
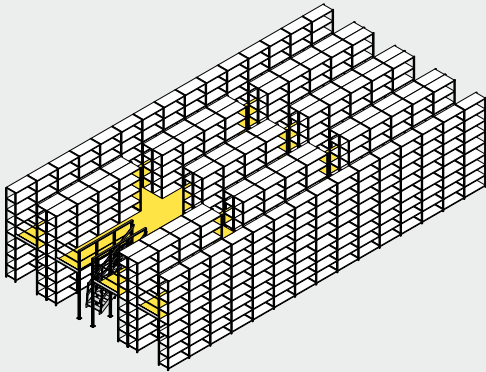
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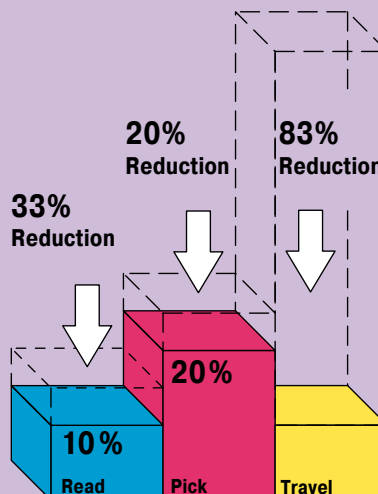
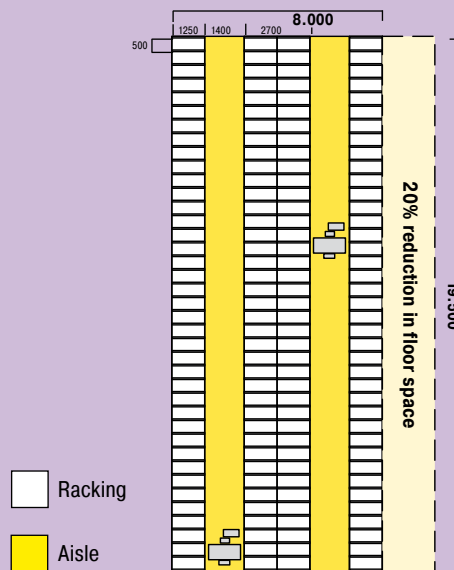
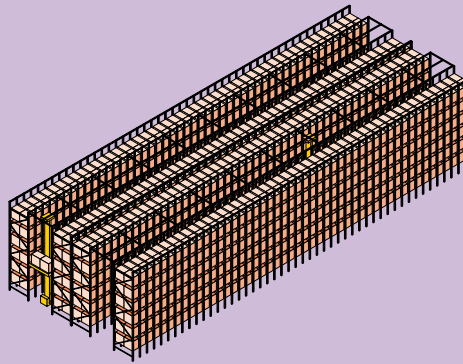
Outfeeder lanes transport goods to sorting/dispatch areas

Economic evaluation

**Conventional
two-tier shelving installation**



**Automated bin storage installation
BITO type »AKL«**



Comparison

For the sake of comparison, both installations are equipped with standard containers sized 600 x 400 x 220 mm.

Both installations have a storage capacity of some 3700 containers handled long side on. In the automated bin storage installation containers are stocked double deep.

In our example, the automated bin storage installation occupies 20% less floor space than the shelving installation.

The optimum ergonomic layout of the picking area in front of the automated bin storage installation cuts information and picking times. Almost no walking required for order pickers which reduces travel times considerably.

Advantages of the system

General advantages of automated bin storage

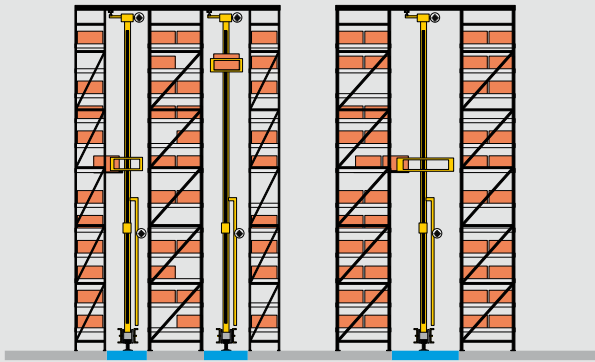
- goods-to-operator principle reduces access times; no walking, lifting, putting down etc.
- optimum utilisation of the available warehouse height with high bay racking constructions; high storage density = high storage capacity in a minimum of space
- modern warehouse management systems along with generally applied organisational procedures guarantee a very good availability of all product lines; permanent stock control
- every reference is directly accessible; high picking performance
- automated in- and outfeeding allows convenient handling even of heavy-weight storage units
- closed system prevents unauthorised access to goods

Specific advantages of BITO automated bin storage type »AKL«

- uprights can be supplied 30 mm, 50 mm, 60 mm and 80 mm wide for an optimum adaptation to different bay load requirements and building constraints
- beams can be adjusted in 6.25 mm increments which allows maximum utilisation of the building height
- maximum operational safety due to strict adherence to tolerances set up for production and assembly
- integration of sophisticated live storage technology into automated bin storage systems allows direct order picking from BITO »AKL« installations
- single source purchasing of racking + bins & containers + trays: we produce high quality plastic bins and containers as well as plastic and steel trays in our own plants!
- short-term delivery together with professional project implementation



1 Single position storage



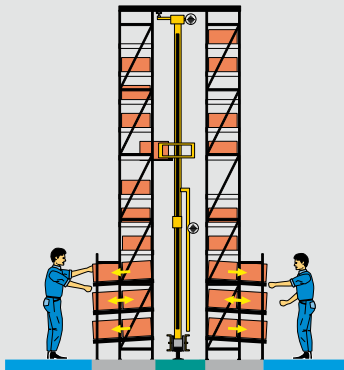
- stacker cranes take bins to central picking locations
- loading of the installation and bin return is done by automatic stacker cranes

The most common solution is single position storage. Reduced picking times and short travel routes combined with permanent stock control make this solution very efficient.

Your advantages:

- very good utilisation of the available storage volume
- continuous work flow

2 Integrated buffer stock



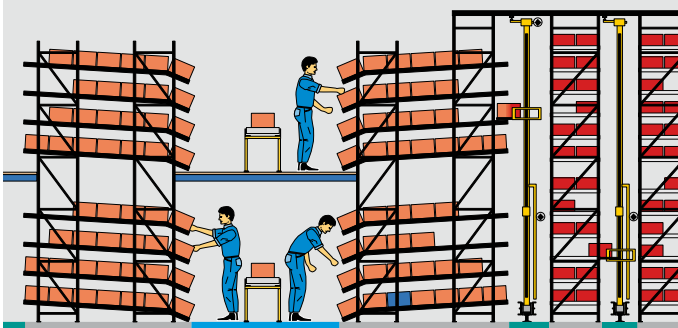
- installation integrates static buffer levels on top and live storage lanes at floor level height for direct order picking

The carton live storage lanes in reach height are fed by the bin buffer stock on top. This ensures that the order pickers are constantly supplied with goods.

Your advantages:

- short travel routes
- good utilisation of headroom
- suits computer-controlled warehouse management systems
- bins which are not empty are returned to their storage location
- order picking without paperwork (f. ex. with pick-by-light systems)

3 Separate buffer stock



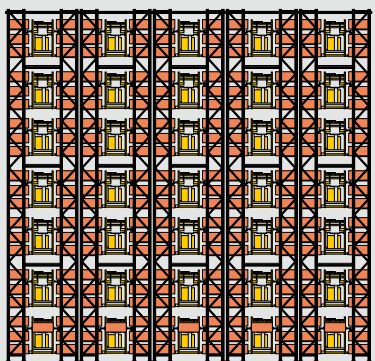
- a separate automated bin storage buffer supplies the carton live storage installation used for order picking
- both installations are serviced by automatic stacker cranes
- the installations are linked to a warehouse conveyor system

The automated bin storage installation is used as buffer stock from which the required product lines are automatically fed out into the carton live storage installation for order picking.

Your advantages:

- replenishment quantities and frequency depend on the stock taken out in the CLS order picking area
- maximum utilisation of headroom
- picking stations on all tiers are replenished simultaneously

4 AS/RS installation



- this facility is ideal for order picking, distribution and order consolidation
- in- and outfeeding with several stacker cranes per aisle

With several lifts and shuttles operating simultaneously, this highly dynamic system is ideal for achieving extremely short lead times.

Your advantages:

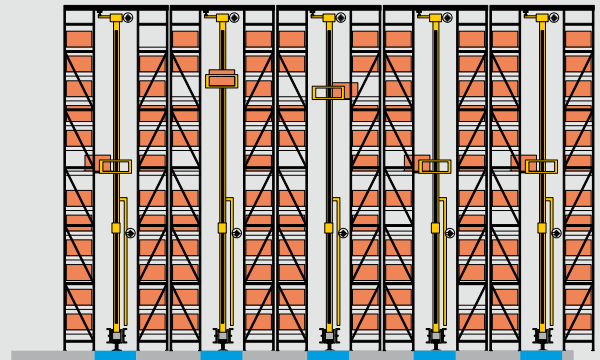
- high-capacity facility with up to 1000 bin/box lot movements per hour
- modular built which allows to expand the facility at any time
- several lifts and shuttles operating at the same time provide substantial gains in picking performance

5 Single position system

– single deep storage

Your advantages:

- stocks heavy-weight storage units
- short access times
- can be integrated into computer-controlled warehouse management systems
- maximum utilisation of headroom

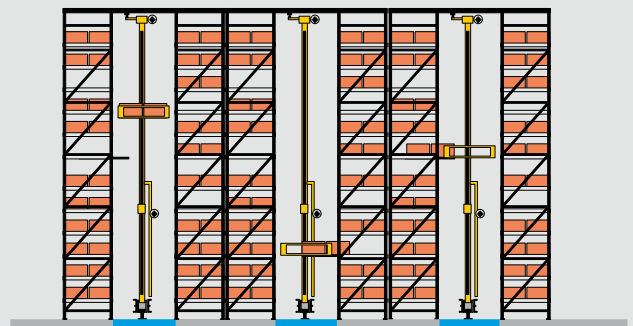


6 Single position system

– double deep storage

Your advantages:

- stocks medium to heavy-weight storage units
- optimum utilisation of available storage volume
- very economic due to double deep storage
- full use of stacker crane service capability

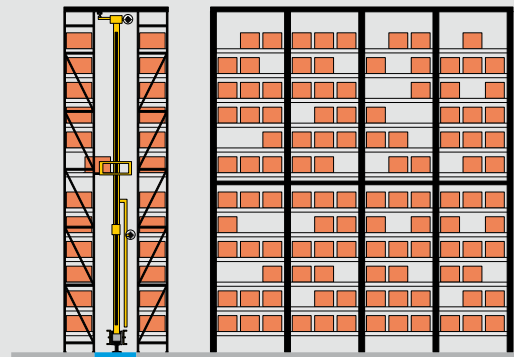


7 Multi-position system

- several containers next to each other in the same bay
- single or double deep storage

Your advantages:

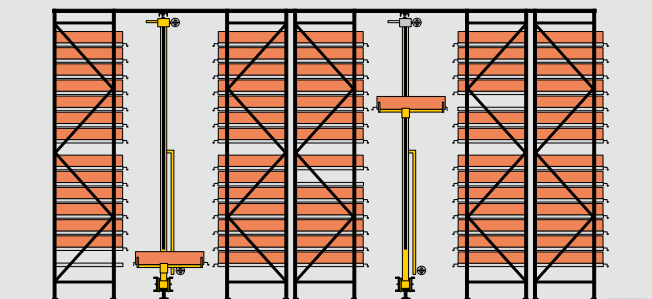
- stocks medium-weight storage units
- shelving construction allows full base support of containers and cartons

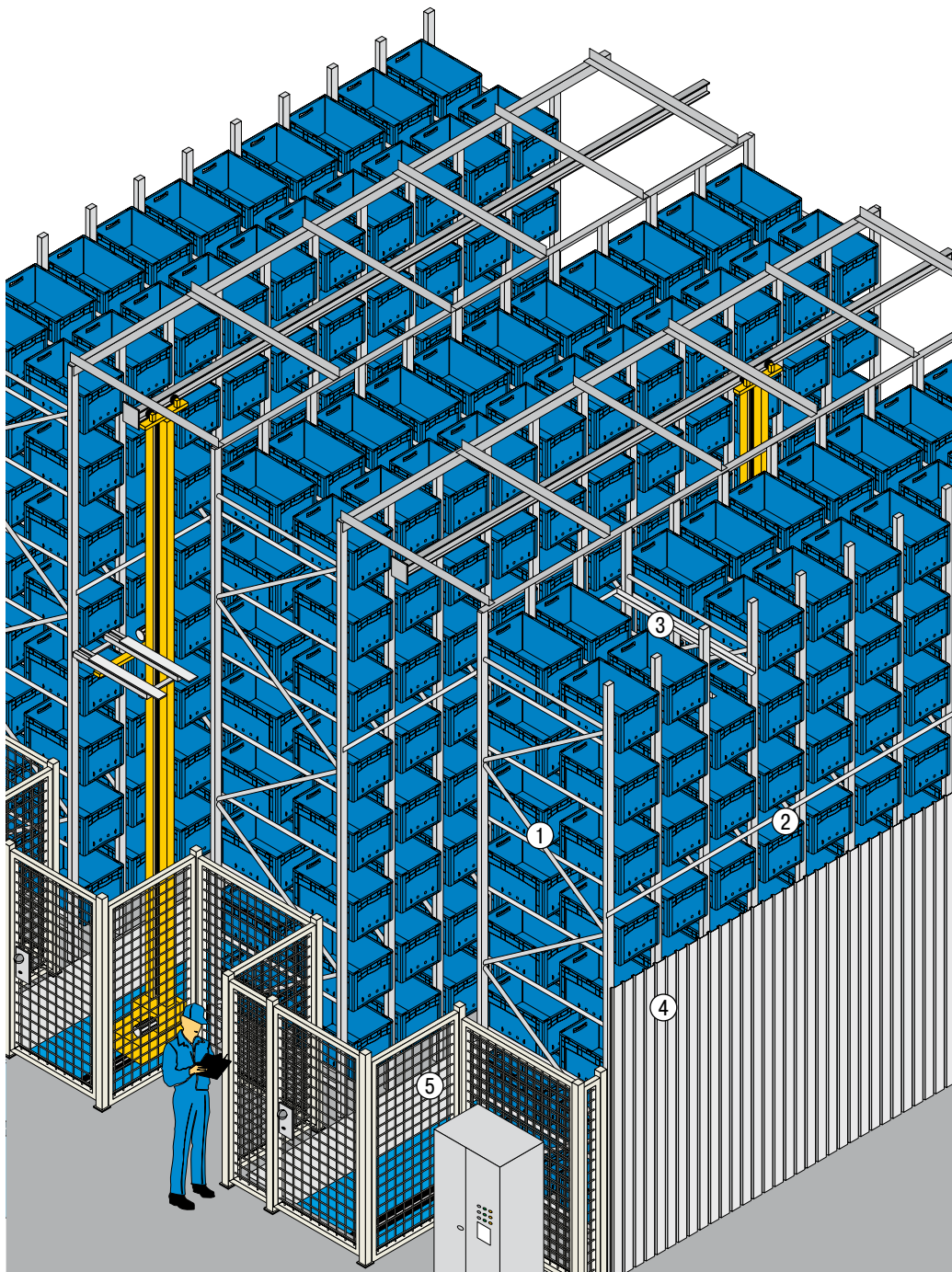


8 Shuttle-serviced system

Your advantages:

- stocks heavy-weight storage units
- push and pull technique allows high storage density
- several references can be stocked in the same storage location
- ideal for stocking a huge number of references





Additional equipment

As a rule, our automated bin storage installations are supplied with

- upper guide rails for stacker crane
- protective cladding around and access doors to stacker crane operation areas
- wire-mesh steel, corrugated steel sheet or plexiglass cladding
- sprinkler tube fixings

Load carriers

BITO plastic bins and containers are frequently used as storage units. In particular, the series

- **small parts containers »KLT«**
- **Euro stacking containers »XL«**

are ideally suited for this system on account of their design and especially adapted features. Equally suited are

- **multi-purpose containers »MB«**
- **stacking containers »BN«**
- **storage bins »SK«**

Apart from plastic bins and containers, trays are increasingly used.

BITO supplies plastic as well as steel trays made in their own plants.

For more information on load carriers refer to pages 84 to 89.

- 1 Frame
- 2 Longitudinal bracing
- 3 Support bar (for double deep storage)
- 4 Closed cladding
- 5 Wire-mesh cladding



Installation with double sided access



Integrated outfeeder tracks



Protective cladding

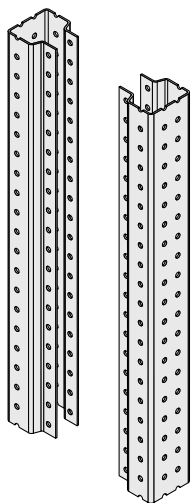


Automatic stacker crane

① Frames

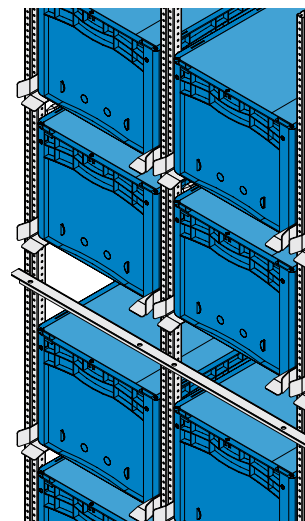
The system allows for frame heights of up to 15000 mm. All frame components are riveted. Depending on the intended frame load capacity, the uprights are 30, 45 or 60 mm wide. As a result, the inherent "waste" of storage space required by the installation itself is minimised.

- **high rigidity**

**② Bracing**

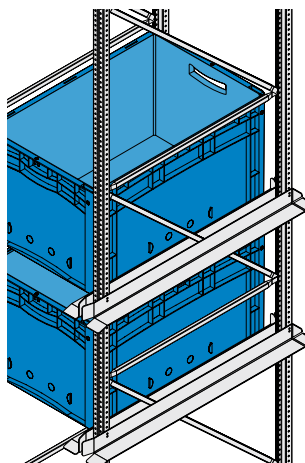
Sufficient bracing with horizontal and diagonal struts is required for the precise functioning of the bin storage installation. For this purpose, flat straps and galvanised sections are used.

- **high racking rigidity**

**Angled runners**

Bin or tray seats are 75 mm wide. The runners can be fitted in 6.25 mm increments and are supplied with integrated end stop at the rear. Material thickness depends on the intended load capacity. If required, the runners are supplied with flared entry guides.

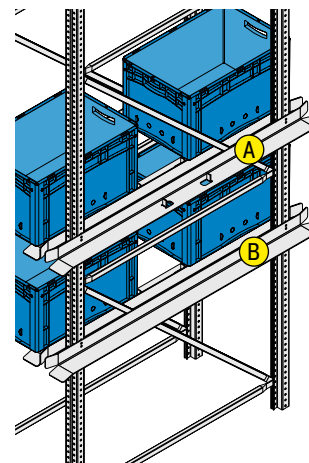
- **safe seating for bins and trays**
- **available for single and double deep storage**

**③ Double deep storage and access on both sides**

Depending on the intended load capacity, back-to-back racking may be equipped with just one - double deep - frame while the runners extend over the entire lane depth.

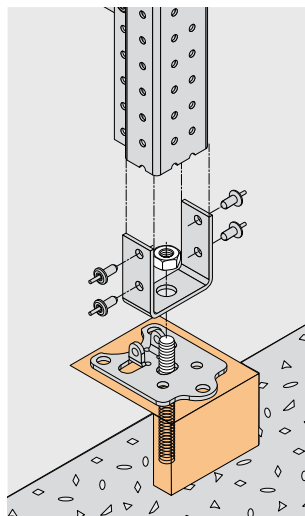
- **safe seating for bins and trays**

A - runners for double sided access come with a centre stop
B - runners for double deep storage are without centre stop

**Base plate**

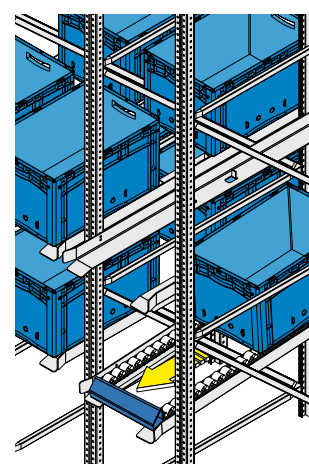
Base plates are ideally suited for installation levelling. They are fixed with chemical floor anchors and, preferably, undercast with shrink-free compound mortar.

- **easy levelling**
- **solid fixing with chemical floor anchors**

**Outfeeder tracks**

If an automated bin storage installation is also used for order picking, it is very convenient to have outfeeder tracks at various positions along the shelving front. For this purpose, appropriate lengths of roller tracks are fixed onto the angle runners.

- **easy re-stocking of bins and trays after order picking**





Thermote & Vanhalst
Spare parts for lift trucks



Project realised in
cooperation with



VanDerLande Industries

BEEWEN

Beewen (RGB)



Features

- installation used as despatch buffer
- multi-position storage
- integrated carton live storage installation
- order memory

Function

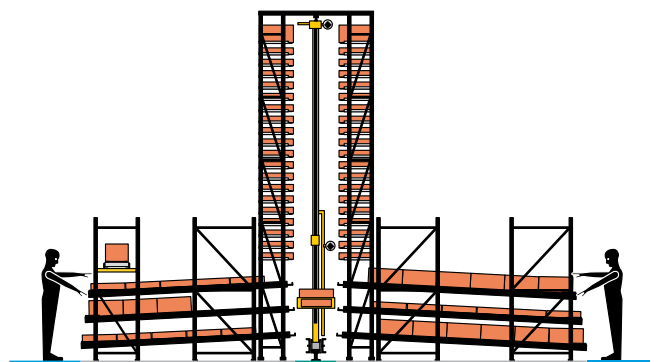
The installation combines a spare parts buffer stock and a carton live storage area for order picking. All references pertaining to a customer order are picked automatically from the upper static part and are fed out into the customer dedicated live storage lanes at floor level height.

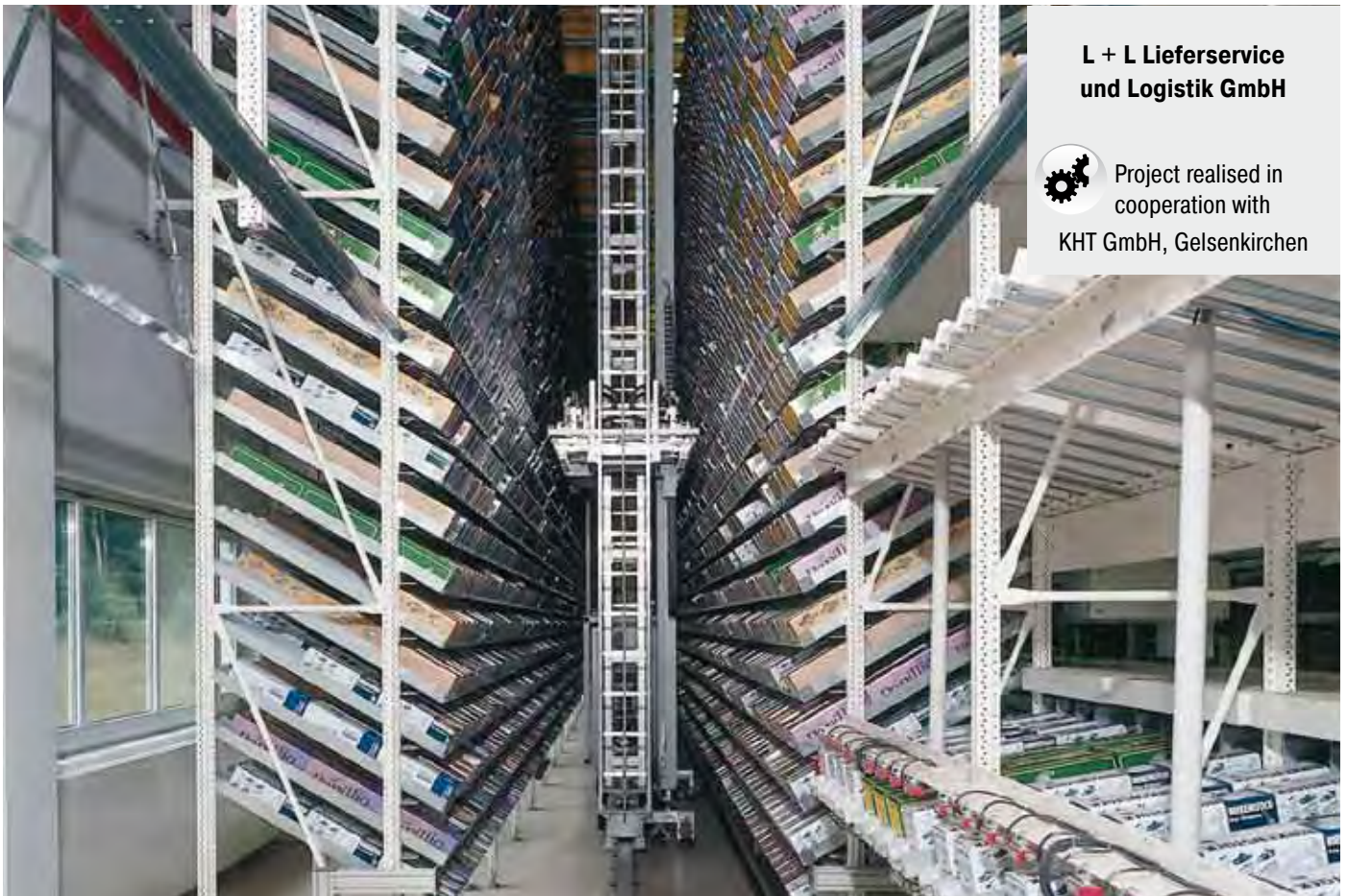
After an order is complete, the goods are retrieved from the lanes, packed and prepared for dispatch.



Benefits

- extremely short lead times due to order memory system
- the system works without expensive conveyor and sorter technology





**L + L Lieferservice
und Logistik GmbH**



Project realised in
cooperation with
KHT GmbH, Gelsenkirchen

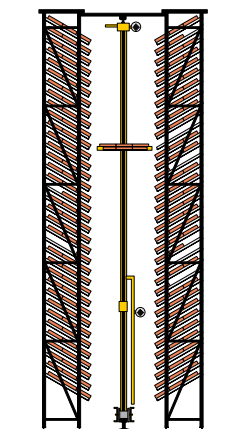


Installation features

- multi-position storage
- buffer store which at the same time serves as order picking store via integrated conveyors

Function

The 35600 lanes are serviced according to the push-back principle. A special stacker crane is able to feed in or out 3 cartons in depth. Due to the lane incline, the cartons move automatically into the picking position.



Benefits

- the fully automated installation replaces several conventional order picking areas
- increased storage capacity
- improved picking performance

Berker GmbH & Co.KG
Manufacturer of electronic switches and systems



Project realised in cooperation with



TGW GmbH, Wels



Installation features

- central store which is linked to picking locations with conveyors
- double deep storage
- storage in BITO »KLT« small parts containers
- BITO steel trays

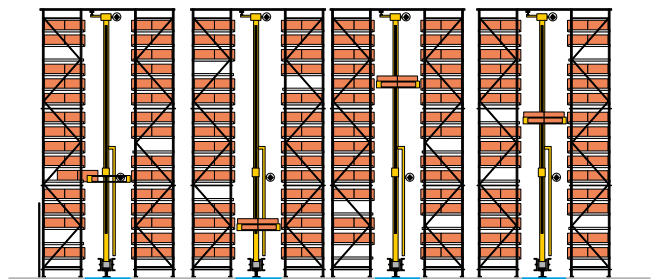
Function

Different order volumes and intervals and the enlarged product range made it necessary to set up an automated bin storage installation in order to cope with the increasing demand. Each stacker crane is able to handle 4 orders simultaneously. With every stacker crane run, two containers or two trays are transported to the picking locations. In total, the stacker cranes operating in the four aisles of the installation have a capacity of 530 double picks per hour. This allows to process more orders within a shorter period of time.



Benefits

- fast and on-time delivery to all customers
- more orders from a widened product range can now be handled





Schrauben Jäger

Wholesaler of screws, bolts
and accessories



Project realised in
cooperation with



psb GmbH, Pirmasens

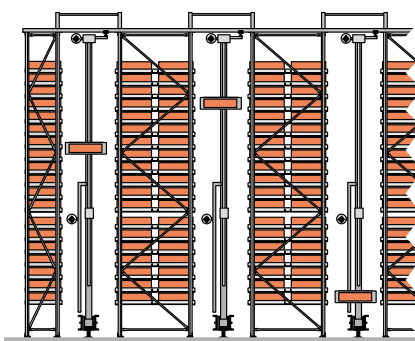


Installation features

- storage on trays
- used as buffer and order picking store
- conveyors at the short side of the installation link buffer store to order picking locations

Function

The trays accommodate cartons filled with bolts and fixing elements. In- and outfeeding is done with automatic stacker cranes.



Benefits

- high storage capacity in a very limited space
- immediate product availability
- substantially increased picking performance
- short order throughput times, paperless order picking
- computer-controlled batch monitoring



Stacking containers in Euro-footprint, series »XL«

ESD
conductive version
upon request

5
year
warranty



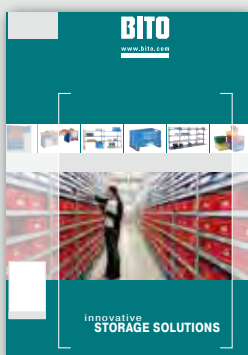
Storage in Euro-sized BITO »XL« containers is the most cost efficient load carrier option for automated bin storage installations. With its extra large volume, the ergonomically designed open handgrips and a minimum base deflection of the ribbed base and double base variations, this container is a reliable solution for applications inside warehouses as well as outside.



red**dot**



More information...



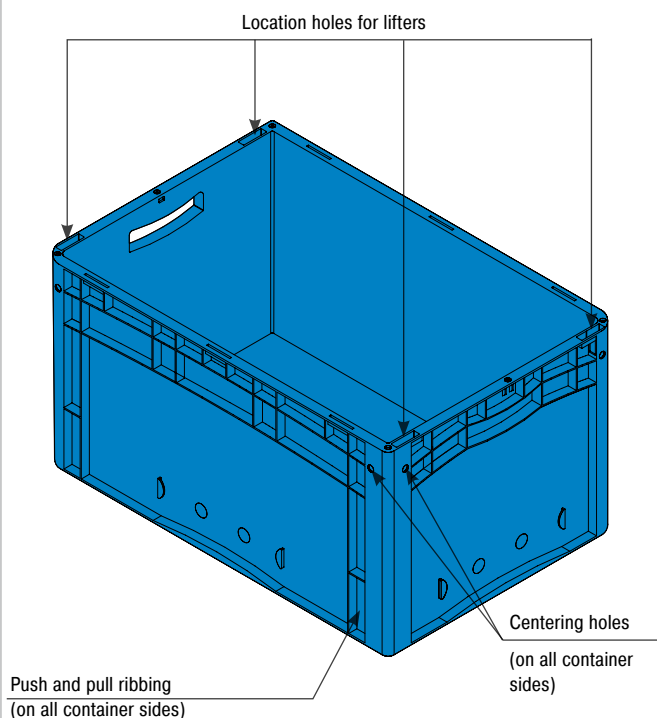
For more information on BITO stacking containers »XL« as well as on our entire range of products refer to our PRODUCT CATALOGUE.

Just contact us on +49-(0) 67 53 / 1 22-1 64 !

Euro-sized stacking containers XL

also refer to page 198

Constructive features for use in automated bin storage



Advantages

- numerous container variations and sizes
- broad range of accessories
- container subdivision with insertable bins or with longitudinal/cross dividers
- barcode label areas on the short sides
- high rigidity due to reinforcing ribs
- security tags provide access control



Volume

The XL container features a particularly large internal volume due to its optimised side wall construction.

- large volume due to its optimised side wall construction



Ribbed base

The ribbed base variation carries up to 50 kg with a base deflection of not more than 5 mm.

- very robust make
- load capacity of up to 50 kg*
- maximum base deflection 5 mm*



Euro-sized dimensions

All container dimensions are adapted to the size of Euro pallets. This allows regrouping of deliveries and further transport without the need for re-packing the goods.

Stacking loads:

400 x 300 mm = 250 kg

600 x 400 mm = 300 kg

- adapted to the size of Euro pallets
- no repacking of goods



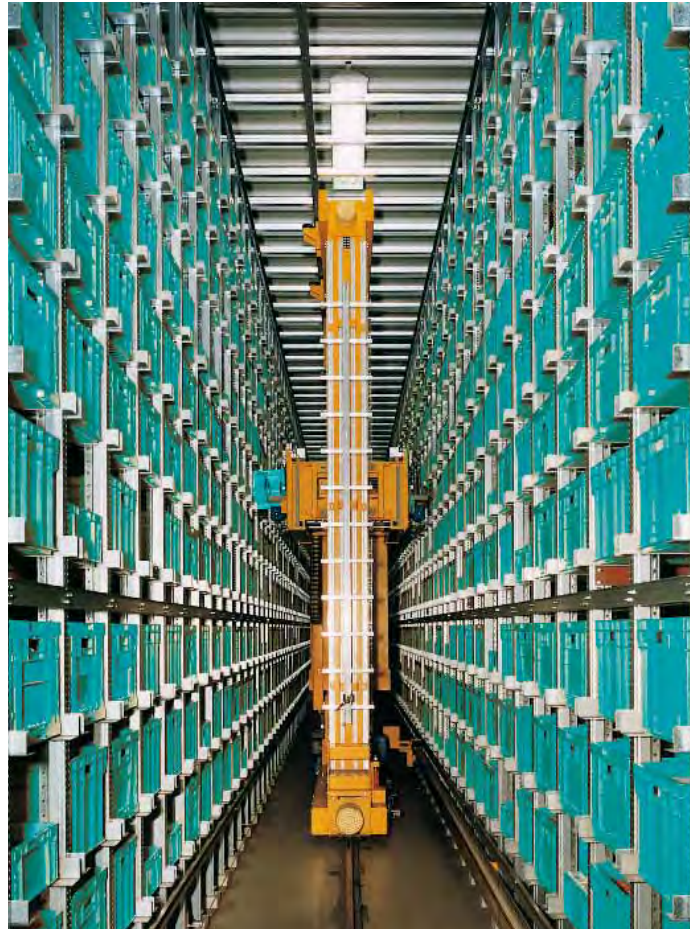
Double base

The double base variation has a load capacity of up to 50 kg along with a minimal base deflection of not more than 2 mm. The smooth base finish makes for particularly good travel characteristics on conveyors.

- very robust make
- load capacity of up to 50 kg*
- maximum base deflection 2 mm*



* All load capacities indicated refer to UDL, storage in length direction and an ambient temperature of 23 °C.



BITO Small parts containers »KLT«

ESD
conductive version
upon request

5
year
warranty

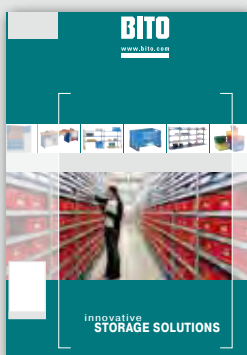


The BITO »KLT« container meets the requirements of a modern warehouse environment in an ideal way. With its reinforced corner construction and the three different base versions, the container can take high load capacities. The very rigid ribbed and double base variations allow narrow tolerance handling as is required for automated bin storage installations and for troublefree and space saving servicing with all types of automatic stacker cranes.

Sophisticated constructive features allow automatic and accurate pulling, lifting, lowering and centering. For identifying the container or its contents, the container can be barcode labelled or equipped with data transmission devices in the corner areas or in the ribbed base.



More information...



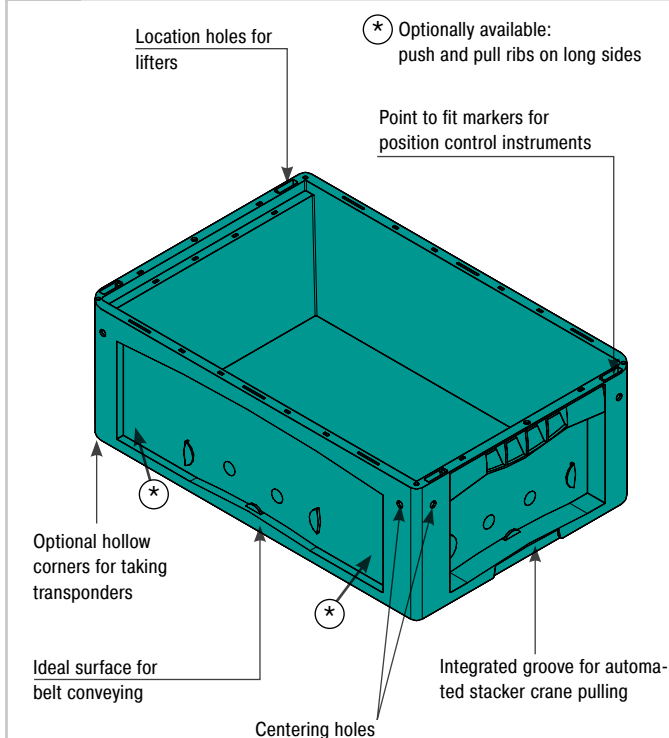
For more information on BITO small parts containers »KLT« as well as on our entire range of products refer to our PRODUCT CATALOGUE.

Just contact us on +49-(0) 67 53 / 1 22-1 64 !

Small parts containers KLT

also refer to page 200

Constructive features for use in automated bin storage



Advantages

- many container sizes
- broad range of accessories
- container subdivision with insertable containers, longitudinal/cross dividers and divider strips
- tamper evident security tags
- company logos can be applied by screen/tampon print, injection moulding or hot stamping



Standard base

Depending on the container dimensions, load capacities range from 25 kg to 50 kg.

The smooth base finish makes the container ideal for transport on conveyors.

- **load capacity 25 - 50 kg*** depending on container dimensions



Conveyor technology

Troublefree operation on all conveyor systems. Outstanding travel characteristics on roller tracks, roller conveyors, on belt and chain conveyors, transfer lines, etc.

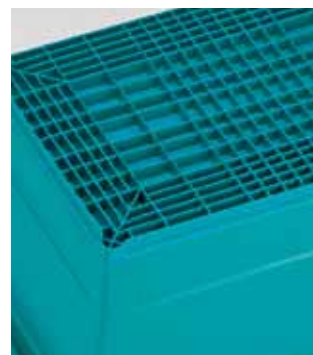
- **optimum travel characteristics**
- **low noise travelling**



Ribbed base

Containers with ribbed base have a load capacity of up to 50 kg with a base deflection of less than 1 mm.

- **load capacity of up to 50 kg***
- **base deflection = < 1 mm***



Transport

The container dimensions are perfectly adapted to the pallet sizes available on the market. This allows an optimum use of lorry freight space. High stacking loads of up to 500 kg – with and without lid.

- **very good stacking stability**
- **high stacking loads**
- **adapted to the size of Euro pallets**



Double base

Containers with a double base have a load capacity of up to 75 kg with a base deflection of less than 1 mm.

The smooth base finish makes the container ideal for transport on conveyors.

- **load capacity of up to 75 kg***
- **base deflection = < 1 mm***



* All load capacities indicated refer to UDL, storage in length direction and an ambient temperature of 23 °C.

BITO Plastic trays



On account of their versatility, trays are becoming increasingly used in automated bin storage installations. As trays can accommodate bins as well as cardboard boxes, they are suited for a wide range of products.

All plastic trays are manufactured by BITO.



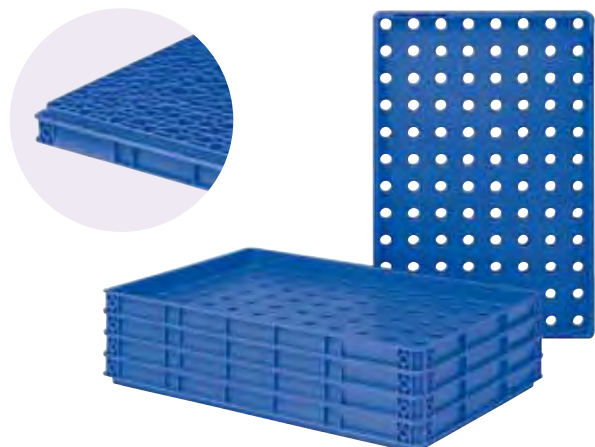
Advantages

- tray serves as “adapter“ for storage units and unit loads sized 670 x 410 mm, 640 x 426 mm, 600 x 400 mm and 400 x 300 mm which by their characteristics would not be suited for stacker crane/conveyor handling or automated bin storage
- easy in-feeding of cartons – even if damaged
- safe storage of bins which have not been designed for automated storage
- suited for use with all types of stacker cranes
- conveyor-friendly smooth base finish ensures low noise travelling; special ribbing makes sure that there is no base deflection even when the tray is fully loaded
- double base (sandwich base) upon request



Tray subdivision with Euro-sized bins

for trays sized 640 x 426 mm



BITO Steel trays

Steel trays are used for heavy-weight loads. Bended push and pull rails ensure optimum handling. Moreover, recessed areas on the long sides for barcode labels and punched bridges for inserting a collar make this tray an allrounder for automated bin storage.

Useful accessories such as insertable bins for tray subdivision as well as collars for added height widen the range of applications.

The steel trays together with their accessories are manufactured by BITO.



Advantages

- tray serves as “adapter” for loads which by their characteristics would not be suited for conveyors and automated bin storage
- easy in-feeding of cartons – even if damaged
- safe storage of plastic bins and containers
- suited for all types of stacker cranes
- easy subdivision by insertable bins and collars with longitudinal and cross dividers
- collars increase a tray’s standard height from 38 mm to as much as 400 mm
- very low base deflection
- load capacities range from 50 kg to 300 kg
- pressure-joined corners



Tray subdivision with EURO-sized bins

with insertable bins and collars with longitudinal and cross dividers





Automated pallet racking

In many cases, automated or partially automated systems are a clever alternative to manually serviced installations. Computer-controlled warehouse management systems provide permanent stock control and the economic advantage due to savings in time is particularly evident with **automated carton and pallet live storage as well as with pallet racking**. Moreover, the closed system prevents unauthorised access to the goods on stock.

Further advantages are:

- shorter order throughput times
- lower error rate
- constant availability of goods
- gain in floor space and storage volume

BITO's longstanding cooperation with renowned stacker crane manufacturers guarantees our customers optimum functionality and operational safety of our solutions.

BITO

www.bito.com

Pallet racking

As a rule, automated pallet racking installations are realised as fully automated systems and, in most cases, serve as buffer or supply store. As a system specific feature, the P & D stations located at the short sides of a racking run have to be mentioned. In these stations, complete pallet loads are deposited before in-feeding into the racking or after out-feeding for further transport to production facilities, order picking areas or the goods-out department.



Storage on solid shelves at Papstar, a manufacturer of disposable tableware and party supplies



Stacker cranes with curved track routing



Order picking / retrieval area at Papstar



Stacker crane serviced highbay installation



Pallet racking being loaded at Papstar. At floor level height, pallets are loaded into live storage lanes to supply the order picking area.

Automated pallet live storage





Müller Milch
Dairy products

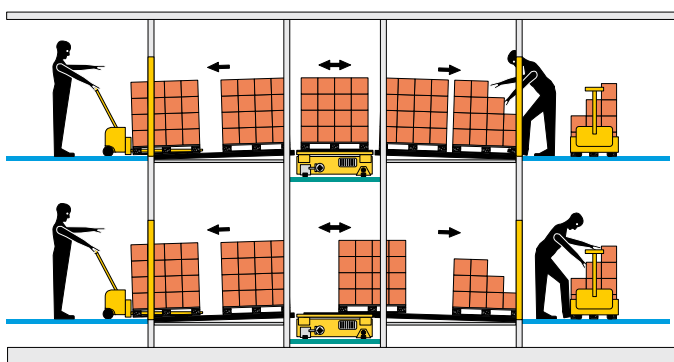


Features

- infeeding of complete pallet loads with a chain feeder
- retrieval of individual storage units off the pallet
- picked goods are transported with a picking trolley

Function

Loading is done automatically by a mobile feeder system. The order picker always has a second pallet in reserve. As soon as this reserve pallet has moved to the picking face, the buffer storage position is replenished. The picking position is equipped with a triple track roller conveyor unit with ride-on steel sheets between the tracks for hand pallet truck retrieval.



Benefits

- continuous order picking of complete pallet loads as well as of individual storage units