



ANLAGENBAU GMBH



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# AUTOMATIC STORAGE SYSTEMS

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FOR SHEET MATERIAL AND LONG-SPAN GOODS



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# THE STOPA COMPANY

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Over 1,900 storage systems installed worldwide



STOPA is a leading manufacturer of automated storage systems for sheet material and long-span goods in Europe. The product line ranges from stand-alone applications to integrated automated modules. With 40 years of practical experience, including the installation of complex plants, and more than 1,900 systems installed worldwide, this independent company possesses unique know-how with regards to product quality and process security, process automatization, and software development.

With STOPA storage systems, our customers can enjoy reliable material provisioning with high technical availability and significantly reduced search times, shorter equipping times, lower costs, and lower accident hazard due to ergonomic handling. This achievement is based upon the

use of high-quality components and solid design, combined with high availability of spare parts of a manufacturer in the German state of Baden-Württemberg. With our retrofit and after-sales services, we guarantee our customers worldwide a maximum of availability and investment security for decades in the future.

STOPA possesses a unique degree of know-how in the automated linkage of sheet metal processing machines, with proprietary software for the automated sequencing of processes. Interfaces to numerous well-known machine tools and installations simplify individual adjustment while at the same time reducing switching and equipping times.

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# 3 REASONS FOR CHOOSING STOPA

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## 1 INDIVIDUAL SOLUTIONS

STOPA solutions are tailored to specific requirements and individual customer wishes. Thanks to our expertise, you are guaranteed a smooth adaption to your special storage and material provisioning concept. For more planning reliability and future security.

## 2 INTELLIGENT AUTOMATIZATION

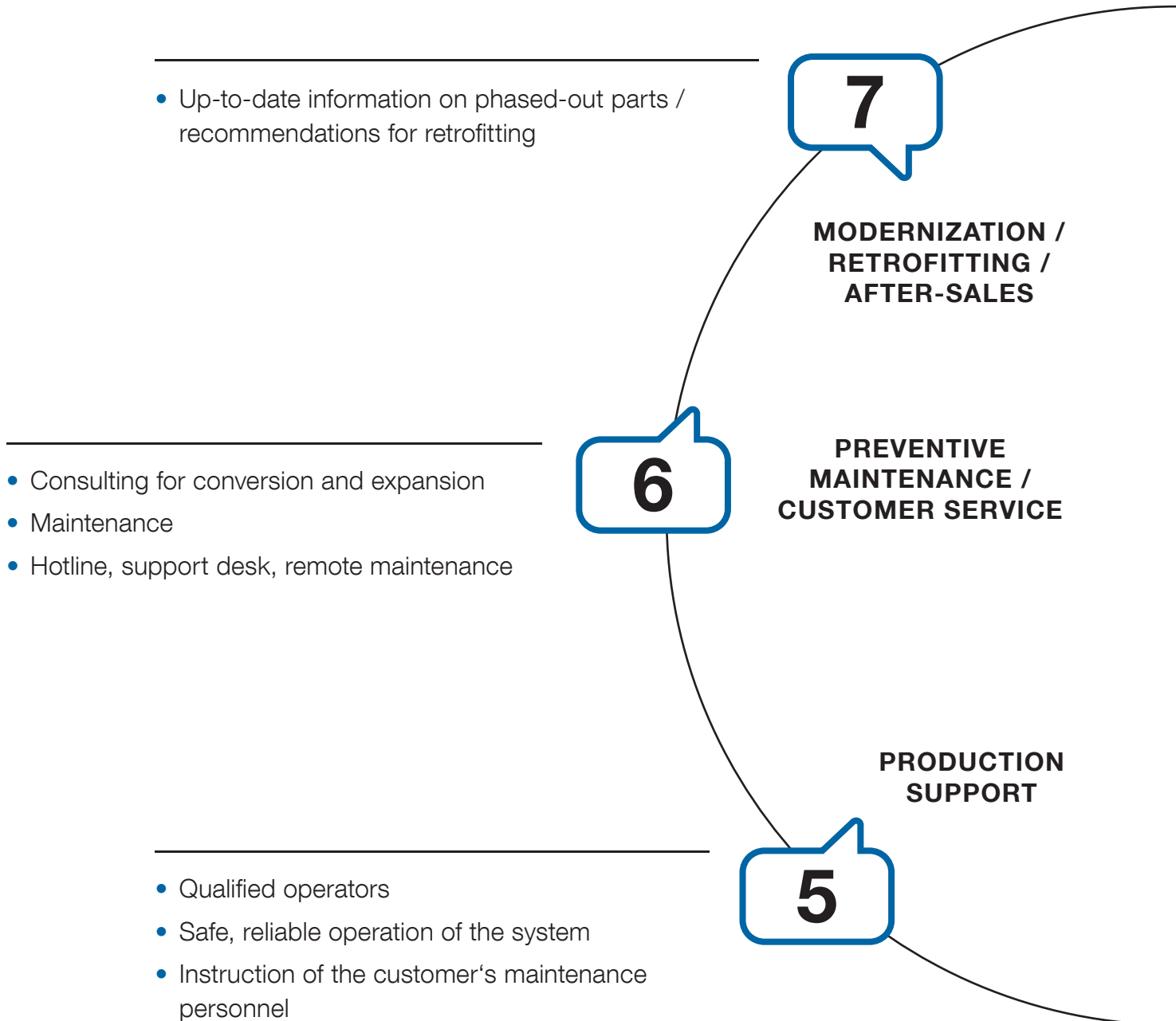
More than 1,900 systems installed world-wide – that's where STOPA gets its unique know-how in the automatization of intralogistic processes. A proprietary software platform provides interfaces to machine tools and plants.

## 3 WE'RE ALWAYS THERE FOR YOU

The STOPA experts are always there at your side. From the analysis of needs, to Best-Practice recommendations, all the way up to going live with the installations, preventive maintenance, and modernization. You thus are assured of having the most-qualified partner there to support you.

# RANGE OF STOPA SERVICES

Added value through customer-oriented solutions



**1**

**ANALYSIS**

- Analysis of the initial situation: Demands, space, material flow
- Potential analysis

**CONSULTING &  
PROJECT WORK**

**2**

- Customer-oriented approaches for solutions
- Benchmarking / Best-Practice recommendation
- „Rightsizing“ – to reflect future scenarios, too

**DESIGN**

**3**

- Mechanical design
- Electrical design
- Software / Warehouse management systems (WMS)
- Automatization

**PROJECT  
SUPPORT**

**4**

- One project manager
- Close support, from assembly to final acceptance



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# SHEET METAL STORAGE SYSTEMS

Modular systems for demand-based flow of materials





STOPA Storage Systems guarantee the optimized flow of materials (sheet material and long-span goods) in the manufacturing sector. Since it is integrated in software-based systems, the storage system acts as the interface between material storage and production units for the efficient supply of materials. But it is primarily demand-based scaling that is decisive for the economy and efficiency of wall-to-wall storage systems. Whether you need a single-tower storage facility like the STOPA TOWER Eco storage facility or a universal large-scale storage system for fully automatic handling: STOPA Storage Systems are characterized by user-oriented flexibility.



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# STOPA TOWER ECO

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For low-cost entry into the automated supply of sheet material



Whether you use it as a buffer or to store material for a production unit, the STOPA TOWER Eco is a superb addition to any production facility. It's the ideal „starter solution“ for smaller operations and job shops working with a large variety of materials of which only relatively small quantities need to be stored.

The shelf tower features fixed spacing between the shelves to ensure maximum loading density. By doubling the spacing, taller goods or pallets can be shelved. With bolted rests, stacking heights of 60 mm or 200 mm are possible.

## **Loading and Unloading / Operation:**

The material is loaded and unloaded directly on the Storage and Retrieval Unit.

Operation is intuitive, and is effected in the dead-man mode (optionally also with fully automatic mode). The sheet material is lowered on pins and aligned on the pallet.

Operation is from the control console: Simply select the desired shelf number and confirm by pushing the dead-man button.

## SYSTEM FEATURES

- Single-sided storage system by means of a tower with pull technology
- Goods carriers: low-profile pallet with plastic sliding rails
- MF and GF are available in seven different heights
- True dead-man operation
- Removal of the material directly from the load bar
- Support by the customer during installation possible



## THE BENEFITS AT A GLANCE

- Well-organized, space-saving storage
- Reduced damage to materials
- High-precision access to stored sheet materials
- Low-cost entry
- Quick Return-on-Investment

## TECHNICAL DATA

<b>STOPA TOWER Eco</b>		<b>Pallet format MF</b>		<b>Pallet format GF</b>	
Size W x L [mm]		1,250 x 2,500		1,525 x 3,050	
Effective payload per storage location [kg]		1,200		1,200	
Max. lifting speed [m/min]		8		8	
No. of pallets		See below table		See below table	
Building-support design		No		No	
Full integration, sheet metal processing machine		No		No	
<b>System height* MF</b>	<b>System height* GF</b>	<b>No. of pallets (WH 60 mm)</b>	<b>Load per leg (500 x 300 mm)</b>	<b>No. of pallets (WH 200 mm)</b>	<b>Load per leg (500 x 300 mm)</b>
3,043 mm	3,243 mm	16	60 kN	8	30 kN
3,603 mm	3,803 mm	20	75 kN	10	38 kN
4,163 mm	4,363 mm	24	90 kN	12	45 kN
4,723 mm	4,923 mm	28	110 kN	14	53 kN
5,283 mm	5,483 mm	32	128 kN	16	60 kN
5,843 mm	6,043 mm	36	153 kN	18	68 kN
6,403 mm	6,603 mm	40	180 kN	20	75 kN

\* Special heights are available, upon request.

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# STOPA TOWER MONO

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Excellent space utilization thanks to compact shelf tower design



The STOPA TOWER Mono is a flexible module for mid-sized and industrial companies.

Thanks to the compact design of its shelf tower, users are guaranteed the excellent utilization of their valuable production floor space – as a buffer facility or for storing materials. At the heart of the system is the Storage and Retrieval Unit with its extremely low-maintenance push/pull device. The chain lifting gear and load-independent travel measuring system guarantee outstanding positioning accuracy.

## THE BENEFITS AT A GLANCE

- Excellent space utilization
- Well-organized, space-saving storage
- High-precision access to stored sheet materials
- Reduced damage to materials
- Enhanced work efficiency



## SYSTEM FEATURES

- Single-sided storage system by way of a tower with pull technology
- Goods carriers: Pallet with rollers
- Effective payload: 3,000 kg or 5,000 kg
- Optional: Automatic operation
- Removal of the material directly from the load bar
- Available for all standard sheet formats\*

## Loading and Unloading / Operation:

The system is simply and reliably controlled from a central control console. That's because the screen displays all input operations in plain text format.

To remove the pallet from the bay, the draw hook engages in the driver. The sheet is removed for processing by means of a suction mechanism.

The monitoring functions and safety mechanisms guarantee trouble-free operation. The controller can also be equipped with a warehouse management function. This provides you with an optimized overview for stock management.

## TECHNICAL DATA

STOPA TOWER Mono	Pallet format MF	Pallet format GF	Pallet format XF
Size W x L [mm] *	1,250 x 2,500	1,525 x 3,050	2,032 x 4,064
Effective payload per storage location [kg]	3,000	3,000	3,000 / 5,000
Upper dead area [mm]	750	750	900
Lower dead area [mm]	400	400	500
Shelf pitch [mm]			
Material stack height 90 mm	185	185	245
Material stack height 130 mm	225	225	285
Material stack height 200 mm	295	295	355
System length [mm]	ca. 4,050	ca. 4,600	ca. 5,740
System width [mm]	ca. 3,250	ca. 3,800	ca. 5,800
Standard system height [m] **	8	8	8

\* Special formats available, upon request    \*\* Special heights are available, upon request

# STOPA TOWER FLEX

Entry into process-optimized production with fully automatic machine integration

In the sheet-metal processing industry, the flexible supply of materials having different formats and thicknesses is the prerequisite for process optimization.

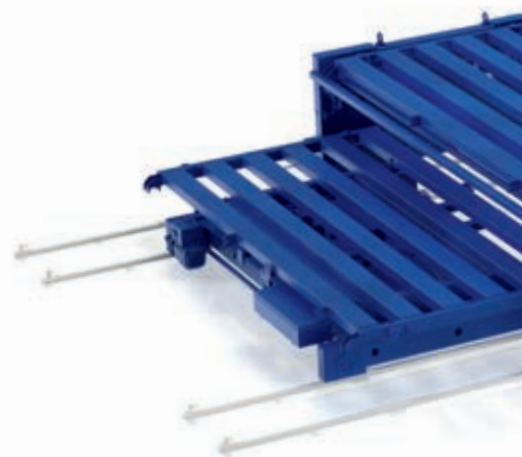
The STOPA TOWER Flex can achieve this task even in confined spaces. Initially, the system can be installed as a dual tower, or as a single tower with the option of subsequent retrofitting. With the compact design of the shelf tower, an economical system with perfect balance between storage capacity and floor space is created. To utilize the maximum available ceiling height, the stacking height of the shelf towers can be adjusted (also available with its own cladding for building-support).

Depending upon your needs, by using different loading and unloading stations, several production machines can be linked to one STOPA TOWER Flex.

According to customer needs, transport carts and scissors lifts (also in combination) can enter and exit the stations at all openings (on the face and longitudinal sides). Up to 11 stations are possible.

## THE BENEFITS AT A GLANCE

- Safe and durable due to a chain hoist with dual strain roller chain
- Low-maintenance push / pull device
- Storage and retrieval stations for entry / exit on the longitudinal and face side available
- Load-independent measuring system for exact height-positioning
- Interface to the controllers of your production machine(s)
- „In-time“ overview for stock management via linkage to Warehouse Management Systems (WMS)

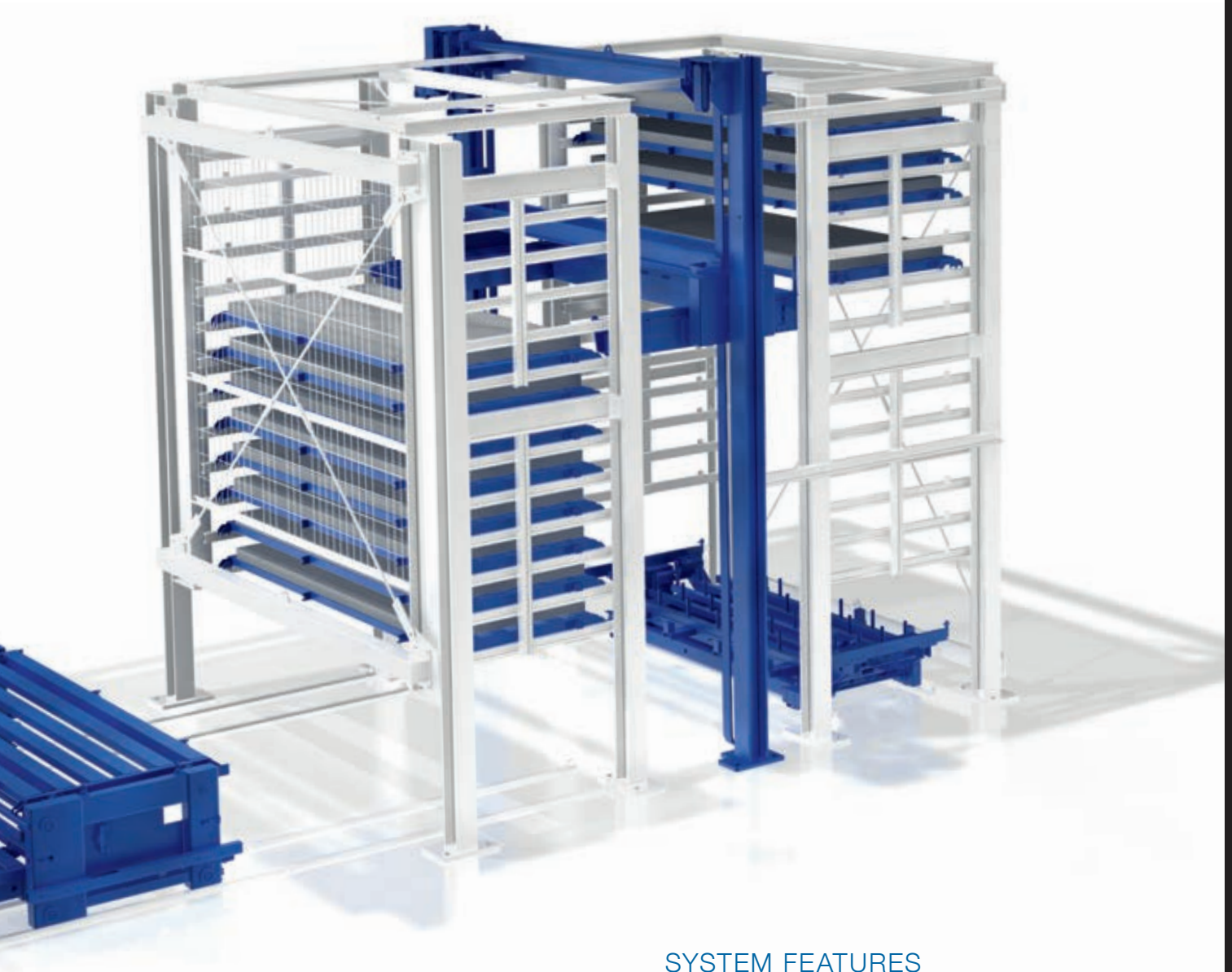


## TECHNICAL DATA

STOPA TOWER Flex	Palettenformat MF	Palettenformat GF	Palettenformat XF
Size W x L [mm] *	1,250 x 2,500	1,525 x 3,050	2,032 x 4,064
Effective payload per storage location [kg]	3,000	3,000	3,000 / 5,000
Standard system height [m] **	8 / 16	8 / 16	10 / 8
Max. lifting speed [m/min]	12 / 30	12 / 30	30
No. of pallets	< 150	< 150	< 80 / < 70
Building-support design	Optional	Optional	Optional

\* Special formats available, upon request

\*\* Special heights are available, upon request



## SYSTEM FEATURES

- Single- or double-sided storage system in the form of a tower with pull technology
- Goods carriers: Pallet or cassette with rollers
- Effective payload: 3,000 kg or 5,000 kg
- Available for all standard sheet formats\*
- Optional: Linkage of machines (see pg. 34)

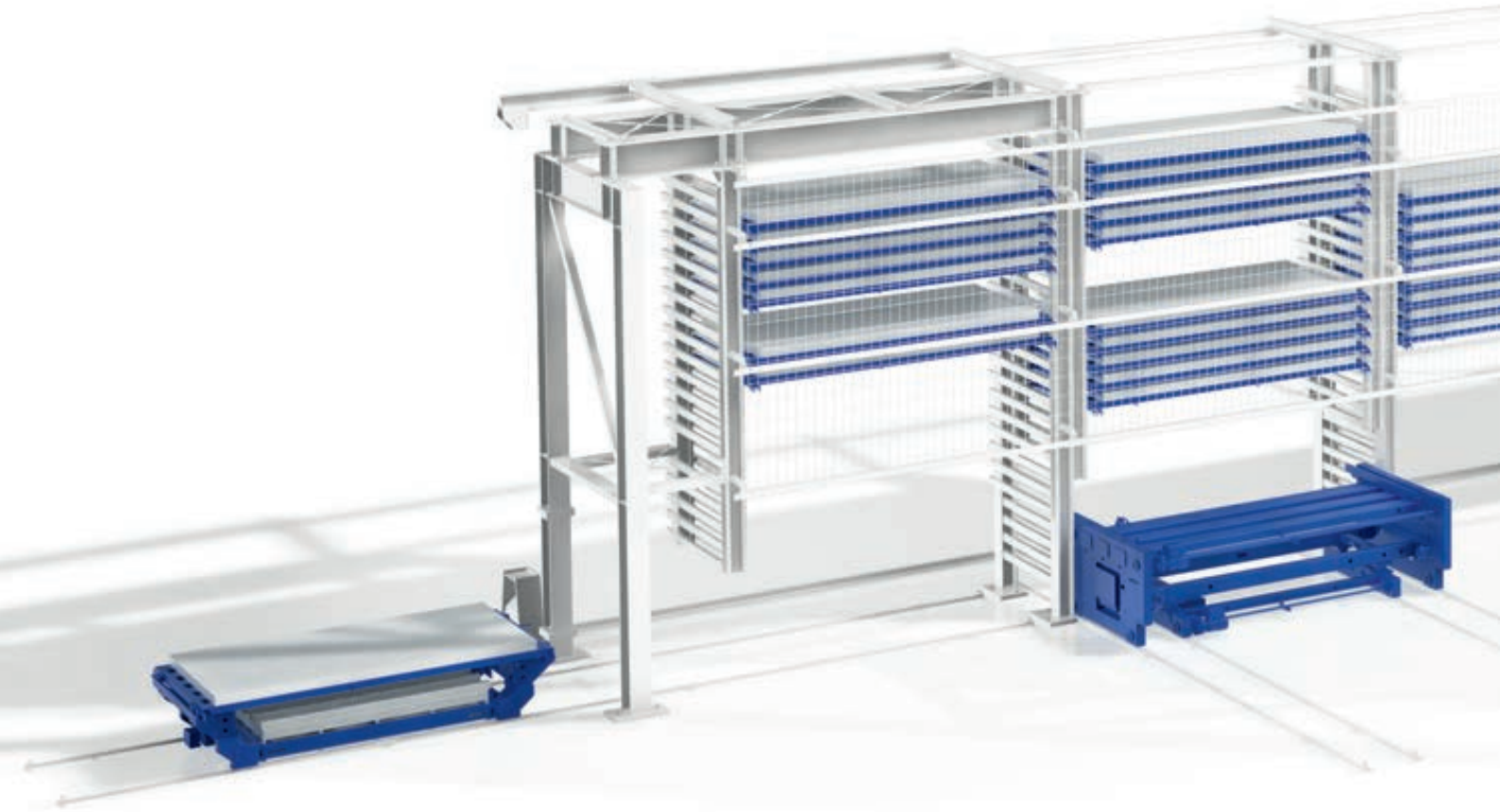


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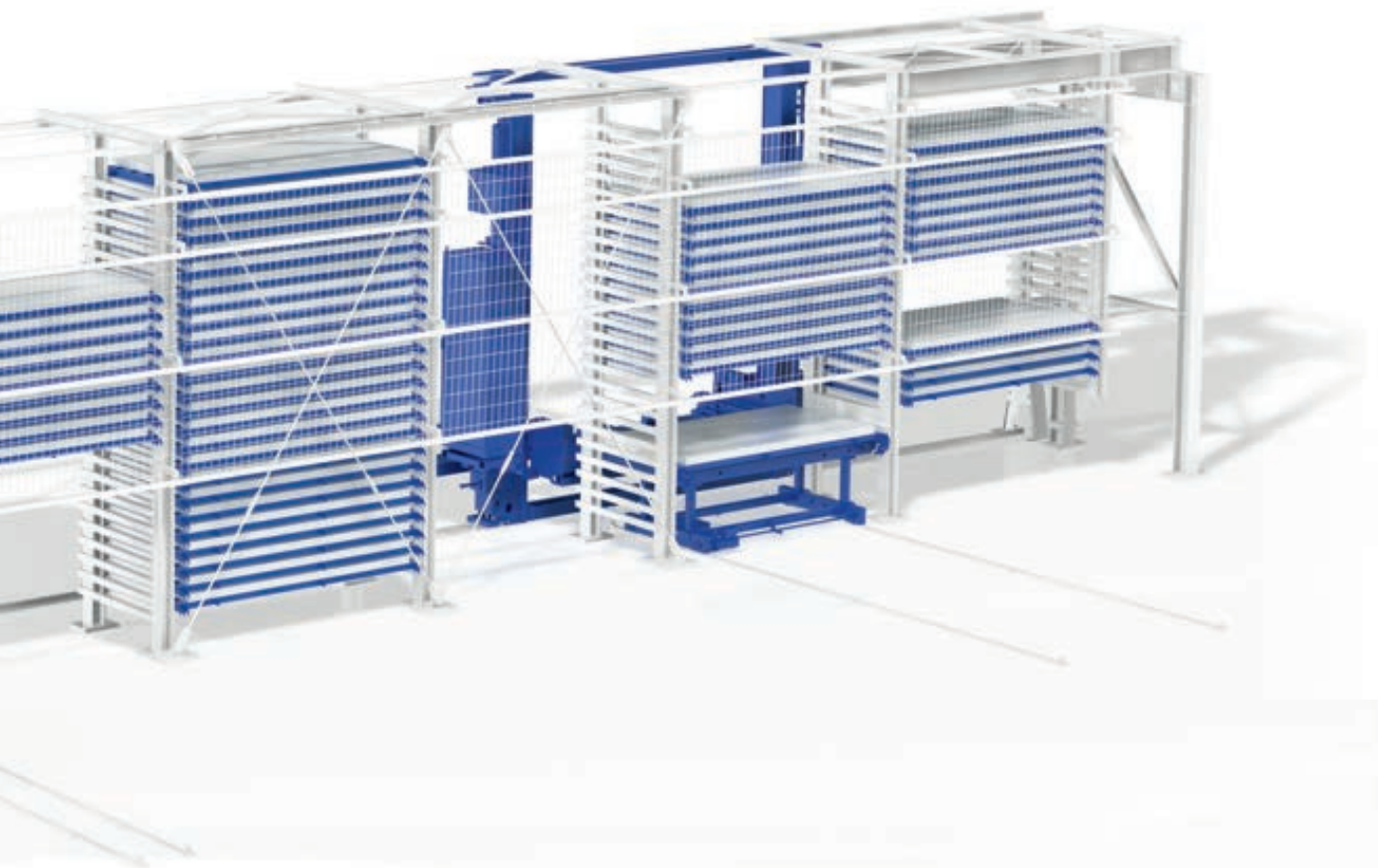
# STOPA COMPACT SERIES

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Maximum storage capacity with minimized floor space requirements for optimized efficiency







### Cost-Reduction Potentials at a Glance

All large-scale storage systems belonging to the STOPA COMPACT Series offer a wide range of saving and cost-cutting potentials:

- Reduced space and area costs
- Reduced cycle time with the STOPA COMPACT II
- Energy saving due to reduced weight with the STOPA COMPACT II
- New energy management, link coupling, optional feeding-back of energy
- Low servicing and maintenance costs
- Increased process reliability

The STOPA COMPACT is a space-saving, large-scale storage facility designed for the heightened requirements of industry. The STOPA COMPACT Series is especially suitable for:

- Low loading heights
- Maximum requirements with regards to the number of storage locations
- Max. energy efficiency requirements
- Pallet storage turned through 90°
- Different pallet formats

The STOPA COMPACT Series is an automatic sheet metal large-scale storage system for the latest logistics and production strategies. It synchronizes the procurement process, provision, and machines and thus transforms your warehouse into a logistics centre.

With the STOPA COMPACT Series, you benefit from saving and cost-cutting potentials and thereby help your production to achieve unprecedented levels of performance. With its clever logistics, the STOPA COMPACT Series secures your production success.

The system is available in two basic models: The STOPA COMPACT I is the basic system, and the STOPA COMPACT II is a further development.



# STOPA COMPACT SERIES

Greatest space utilization and highest efficiency for your production



## SYSTEM FEATURES

- Large-scale storage system with pull technology
- Single or double-rowed models
- Goods carriers: Pallet or cassette with rollers
- Available for all standard sheet metal formats and multi-format storage systems\*
- Automatic operation
- Entry / exit of the stations at all openings (on the face and longitudinal sides)
- Automatic linkage of machines possible
- Chaotic storage management with STOPA Warehouse Management Systems (WMS)
- Linkage to supervisory computer system possible

## THE BENEFITS AT A GLANCE

- Well-organized, space-saving storage
- Reduced damage to materials
- Dimensioning matched to specific needs
- Automatic linkage to processing machines
- „In-time“ overview for stock management via the Warehouse Management Systems (WMS)
- Green production
- Energy efficiency



## TECHNICAL DATA

STOPA COMPACT Series	STOPA COMPACT I			STOPA COMPACT II
	Pallet format MF	Pallet format GF	Pallet format XF	Pallet format GF
Size W x L [mm] *	1,250 x 2,500	1,525 x 3,050	2,032 x 4,064	1,525 x 3,050
Effective payload per storage location [kg]	3,000	3,000	3,000 / 5,000	3,000
Standard system height [m] **	11	11	11	11
Max. lifting speed [m/min]	30	30	30	30
Max. traversing speed [m/min]	200	200	200	200
No. of pallets	> 100	> 100	> 100	> 100
Building-support design	Optional	Optional	Optional	Optional

\* Special formats available, upon request

\*\* Special heights are available, upon request

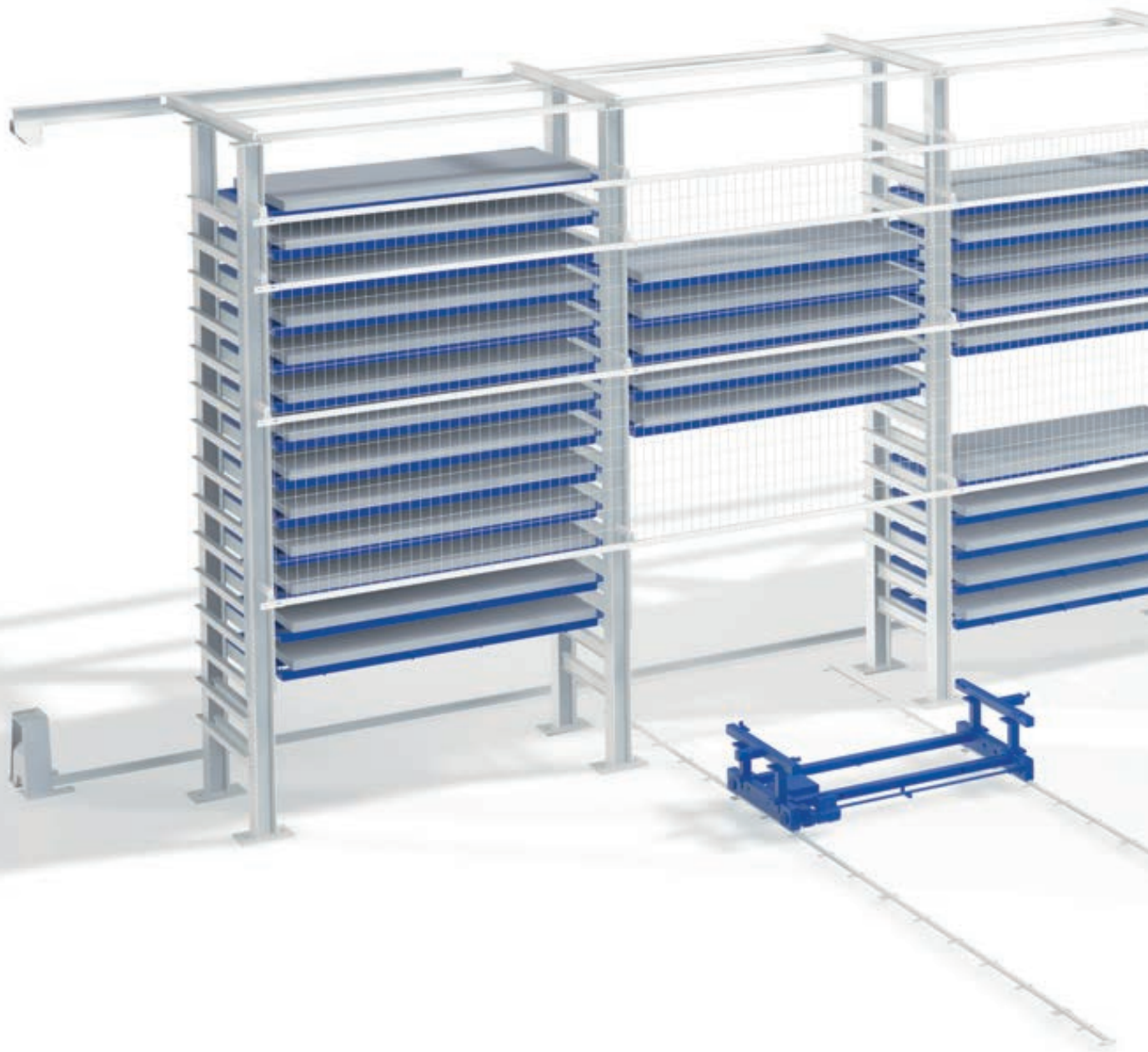


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# STOPA UNIVERSAL

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High flexibility due to modular design and software linkage

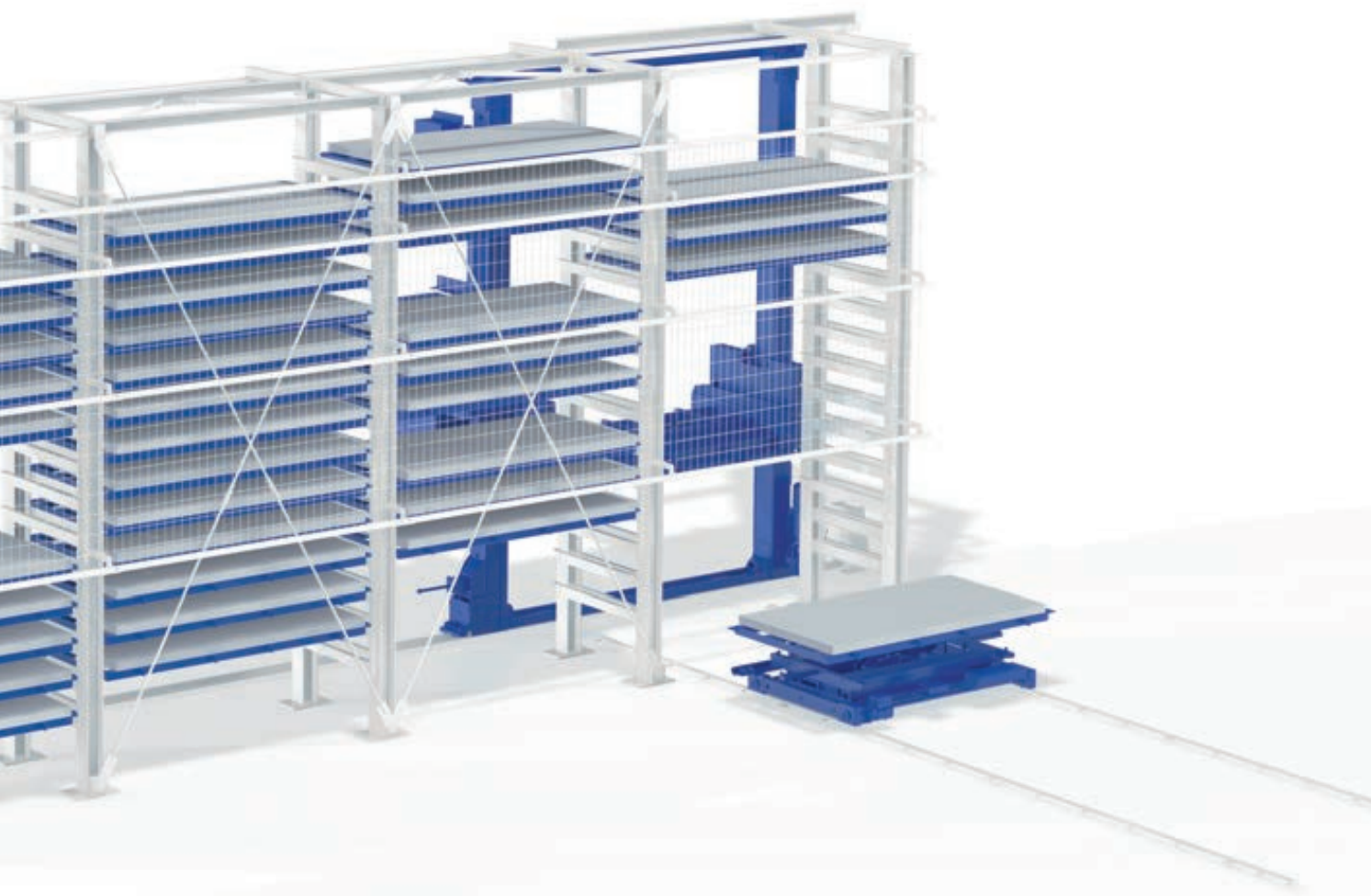


The STOPA UNIVERSAL large-scale storage system is especially suitable for the heightened requirements of industry:

- For very high construction heights
- If a large storage system is needed
- If you have a lot of stations
- If you have different pallet formats

Dimensioning matched to specific needs and automatic interfacing with peripheral systems are the hallmarks of

the STOPA UNIVERSAL. When integrated into software-based systems (Warehouse Management Systems or also ERP), the storage system acts as the interface between material provisioning, material flow, and the process machinery. A wide variety of materials with differing formats, stacking heights, and payloads are stored on special system pallets. The longitudinally driven Storage and Retrieval Unit with telescopic forks extending on both sides performs handling operations while preventing damage to the material, thus contributing to quality assurance.



## THE BENEFITS AT A GLANCE

- Well-organized, space-saving storage
- Reduced damage to materials
- Dimensioning matched to specific needs
- Automatic linkage to processing machines
- „In-time“ overview for stock management via the Warehouse Management Systems (WMS)
- Enhanced work efficiency



# STOPA UNIVERSAL

High flexibility due to modular design and software linkage



## Loading and Unloading / Operation:

The Storage and Retrieval Unit of the STOPA UNIVERSAL has been designed with the needs of the manufacturing industry in mind. It is based on a robust and reliable telescopic unit combined with an absolute travel measurement system for all axes. The stacking height check and the bay-occupied check feature further enhance system safety. Optical data transmission technology permits contact-free data transfer. The overhead bus bar ensures a reliable power supply. The travelling switchgear cabinet houses the control components. The Storage and Retrieval Unit is equipped with a plug-in manual control for the service mode.

## SYSTEM FEATURES

- Single or double-rowed storage system
- Goods carriers: Pallet or cassette
- Effective payload: 3,000 kg or 5,000 kg
- Available for all standard sheet metal formats and multi-format storage systems\*
- Max. system height: Dependent upon on-site conditions!
- Automatic operation
- Automatic linkage of machines possible
- Chaotic storage management with STOPA Warehouse Management Systems (WMS)
- Linkage to supervisory computer system



## TECHNICAL DATA

STOPA UNIVERSAL	Pallet format MF	Pallet format GF	Pallet format XF
Size W x L [mm] *	1,250 x 2,500	1,525 x 3,050	2,032 x 4,064
Effective payload per storage location [kg]	3,000	3,000	3,000 / 5,000
Standard system height [m] **	11	11	11
Max. lifting speed [m/min]	23	23	23
Max. traversing speed [m/min]	200	200	200
No. of pallets	> 100	> 100	> 100
Building-support design	Optional	Optional	Optional

\* Special formats available, upon request    \*\* Special heights are available, upon request



# STORAGE SYSTEMS / LONG-SPAN GOODS SHELVING SYSTEMS

Especially in production areas with limited space, beam-shaped long-span goods are difficult to handle. STOPA offers three shelving systems for long-span goods, with entry / exit of the stations at all openings (on the face and longitudinal sides) for the flexible storage and retrieval of long-span goods having a length of up to 6,400 mm. For the economical storage of long-span goods, storage systems with up to 1,000 storage locations are available. Links to all standard machines for processing long-span goods can be taken for granted, as can an optional stock management or an ERP link. STOPA long-span shelving systems can also be designed to provide building support.



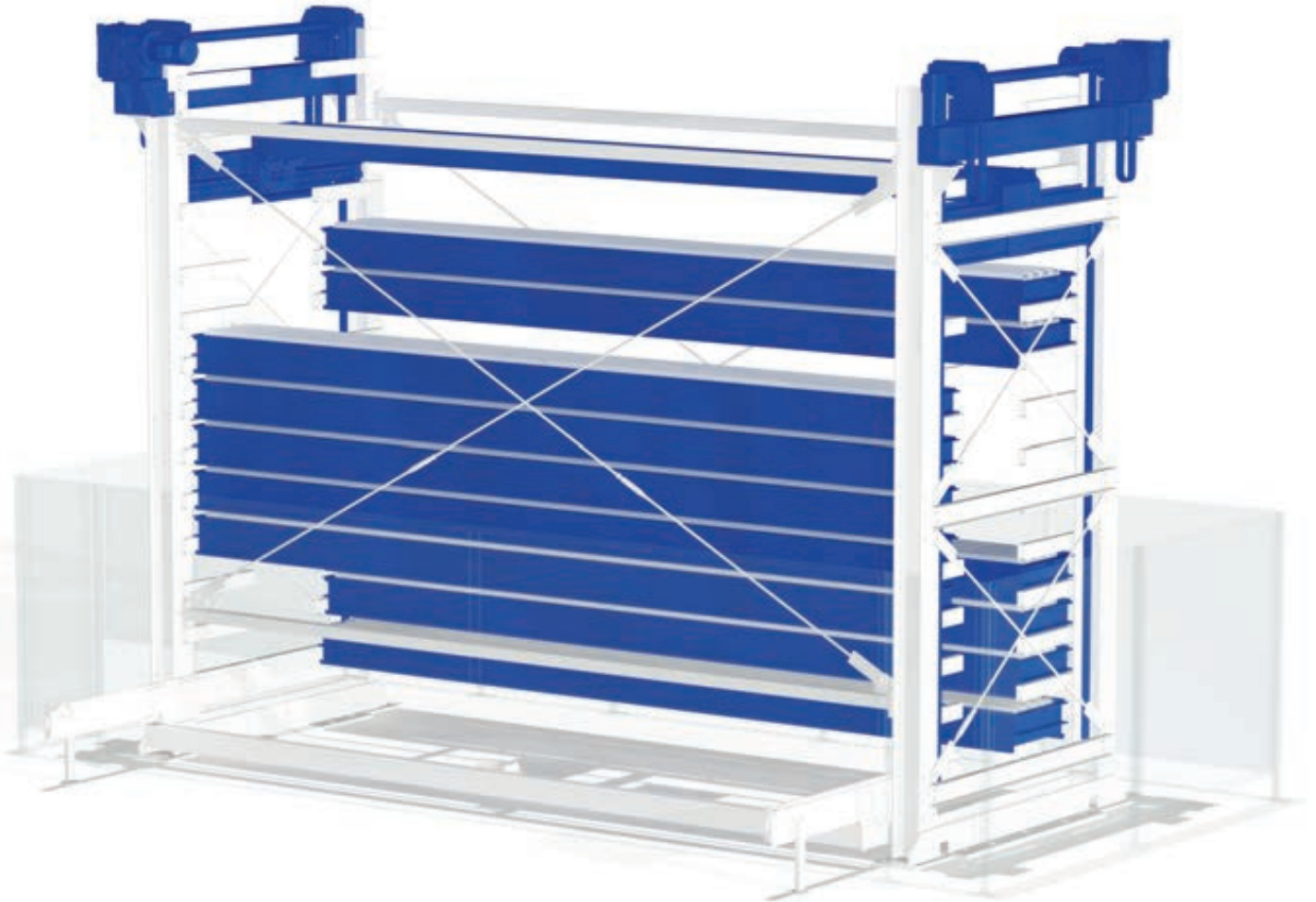


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# LG-T TOWER

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Space-saving entry level system to automatic provisioning of beam-shaped long-span goods



The LG-T Tower Shelving System for Long-Span Goods is used for the efficient shelving of beam-shaped materials having a length of up to 6,400 mm. The material is stored in cassettes.

The storage system's compact design – available as a self-supporting model and with building support – represents an optimized relation between storage

capacity and space requirements. As an entry-level installation, the system can be set up as a single or dual tower. The second tower can be added retroactively. Depending upon the given production concept, several upstream machines can be provisioned using by loading and unloading stations.

## SYSTEM FEATURES

- Double-sided storage system with lifting technology
- Goods carriers: Model with self-supporting cassette
- Effective payload per cassette: 3,000 kg
- For goods having a length of up to 6,400 mm
- Automatic operation
- Stations: Entry / exit at all openings (on the face and longitudinal sides)
- Optional: Linkage of machines
- Optional: Building-support design
- Optional: ERP link
- Stock management: Standard



## USE

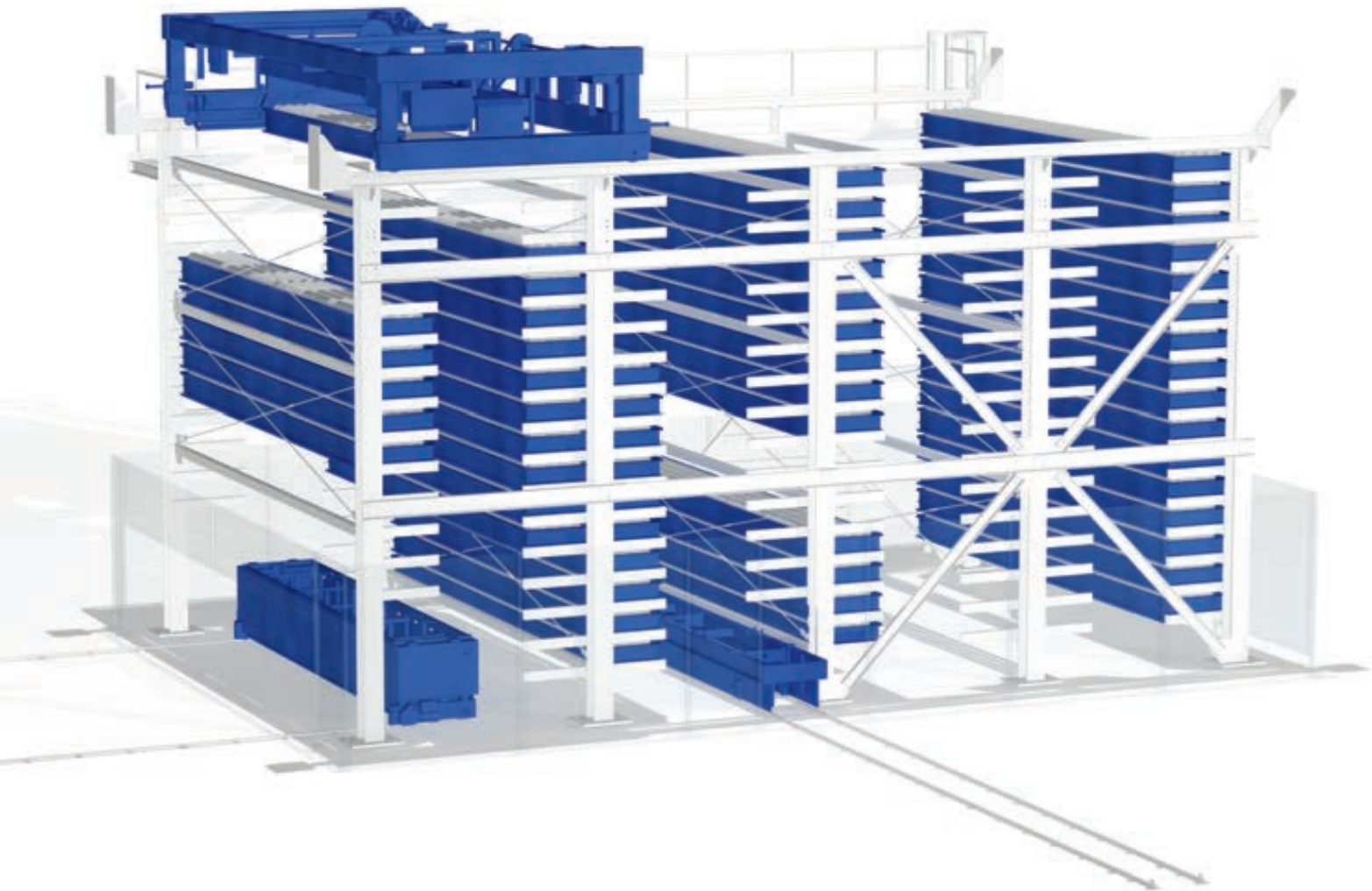
- Up to 80 cassettes
- Small footprint
- Low number of directly linked machines

## TECHNICAL DATA

Storage length [mm]	Approx. 6,400
Effective payload per storage location [kg]	3,000
System height [m]	Upon request
Max. lifting speed [m/min]	16
No. of pallets	< 80
Building-support construction	Optional
Linkage of processing machine	Yes
Stations	Entry / exit at all openings (on the face and longitudinal sides)
Automatic control	Standard
Stock management	Standard
ERP link	Optional

# LG-B BRIDGE

Efficient space utilization with maximum exploitation of storage capacity



## SYSTEM FEATURES

- Large-scale shelving system with overhead traversing Storage and Retrieval Unit
- Goods carriers: Cassette
- Effective payload per cassette: 3,000 kg
- For goods having a length of up to 6,400 mm
- Automatic operation
- Stations: Entry / exit at all openings (on the face and longitudinal sides)
- Stock management: Standard
- Optional: Linkage of machines
- Optional: Building-support design
- Optional: ERP link



Compact arrangement – perfect operability:  
 The LG-B Bridge Shelving System for Long-Span Goods is a high-performance installation featuring an impressive amount of storage capacity. Up to 1,000 cassettes can be emplaced in a space-saving manner. That's because the overhead Storage and Retrieval Unit traverses the system from above, so a special passageway is not needed. This high-performance system is designed for linkage with several machines having a corresponding workflow. With automatic control.

## USE

- Up to 1,000 cassettes
- Medium to large number of directly linked machines



## TECHNICAL DATA

Storage length [mm]	Approx. 6,400
Effective payload per storage location [kg]	3,000
System height [m]	Upon request
Max. lifting speed [m/min]	30
No. of pallets	< 1,000
Building-support construction	Optional
Linkage of processing machine	Yes
Stations	Entry / exit at all openings (on the face and longitudinal sides)
Automatic control	Standard
Stock management	Standard
ERP link	Optional



# LG-U UNIVERSAL

Optimal utilization of space for confined locations, with maximum storage capacity



## SYSTEM FEATURES

- Large-scale shelving system with telescopic fork technology
- Single or double-rowed models
- Goods carriers: Cassette
- Effective payload per cassette: 3,000 kg
- For goods having a length of up to 6,400 mm
- Automatic operation
- Stations: Entry / exit at all openings (on the face and longitudinal sides)
- Stock management: Standard
- Optional: Linkage of machines
- Optional: Building-support design
- Optional: ERP link

## USE

- Up to 600 cassettes
- For narrow footprints
- For short cycle times
- Medium number of directly linked machines





Saving time by optimizing the flow of material – that is the decisive factor for the economic shelving, storage, and retrieval of long-span goods. The LG-U Universal Shelving System for Long-Span Goods offers numerous features and specifications for the long-term improvement of your intralogistic processes. Besides the significant expansion of storage capacity, in particular sequences and

processes for the storage of long-span goods are optimized. For optimized material flow, a large number of stations is possible. A longitudinally driven Storage and Retrieval Unit with telescopic forks capable of being extended on both sides take care of handling. Automatic control is standard. It is also possible to retrofit for a double-row solution.

## TECHNICAL DATA

Storage length [mm]	Approx. 6,400
Effective payload per storage location [kg]	3,000
System height [m]	Upon request
Max. lifting speed [m/min]	30
No. of pallets	< 600
Building-support construction	Optional
Linkage of processing machine	Yes
Stations	Entry / exit at all openings (on the face and longitudinal sides)
Automatic control	Standard
Stock management	Standard
ERP link	Optional




# STATIONS

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STOPA Stations guarantee the perfect interaction between your storage facility, the individual production machines, and all downstream processes. All stations are adapted to customer processes. By combining individual components, smooth processes and shorter cycle times are achieved. Our constant developmental work ensures that our stations get better and better, with more and more options.

The large number of stations and aids enable you to expand your storage facility so as to be able to fully exploit your completely automatic warehouse for sheet metal or long-span goods – e.g., with regards to the storage of raw materials and the provisioning of materials and finished parts to fully automatic processing machines and manual workplaces.



# OVERVIEW OF STATIONS

	STOPA ECO	STOPA MONO	STOPA FLEX
Deposition frame			■
Lifting to long-span station			
Unpacking table	■	■	■
Base plates			■
Double cart			■
Rotary station			■
Storage and retrieval station for long-span goods			
Storage pedestals	■	■	
STOPA EPAL Carrier			■
Long-span cassettes			
Picking Tower			■
Buffer station / Pallet transfer unit			
Pallet quick changer			■
Scissor Lifting Table (SLT)			■
STOPA Pallet Insertion Tool			■
System pallet	■	■	■
Tandem changer			■
Transport cart			■
Incoming goods			■
WIRELESS CART			■

STOPA COMPACT	STOPA UNIVERSAL	STOPA LG-T	STOPA LG-U	STOPA LG-B
■	■			
		■	■	■
■	■			
■	■	■	■	■
■	■			
■	■			
		■	■	■
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# UNPACKING TABLE

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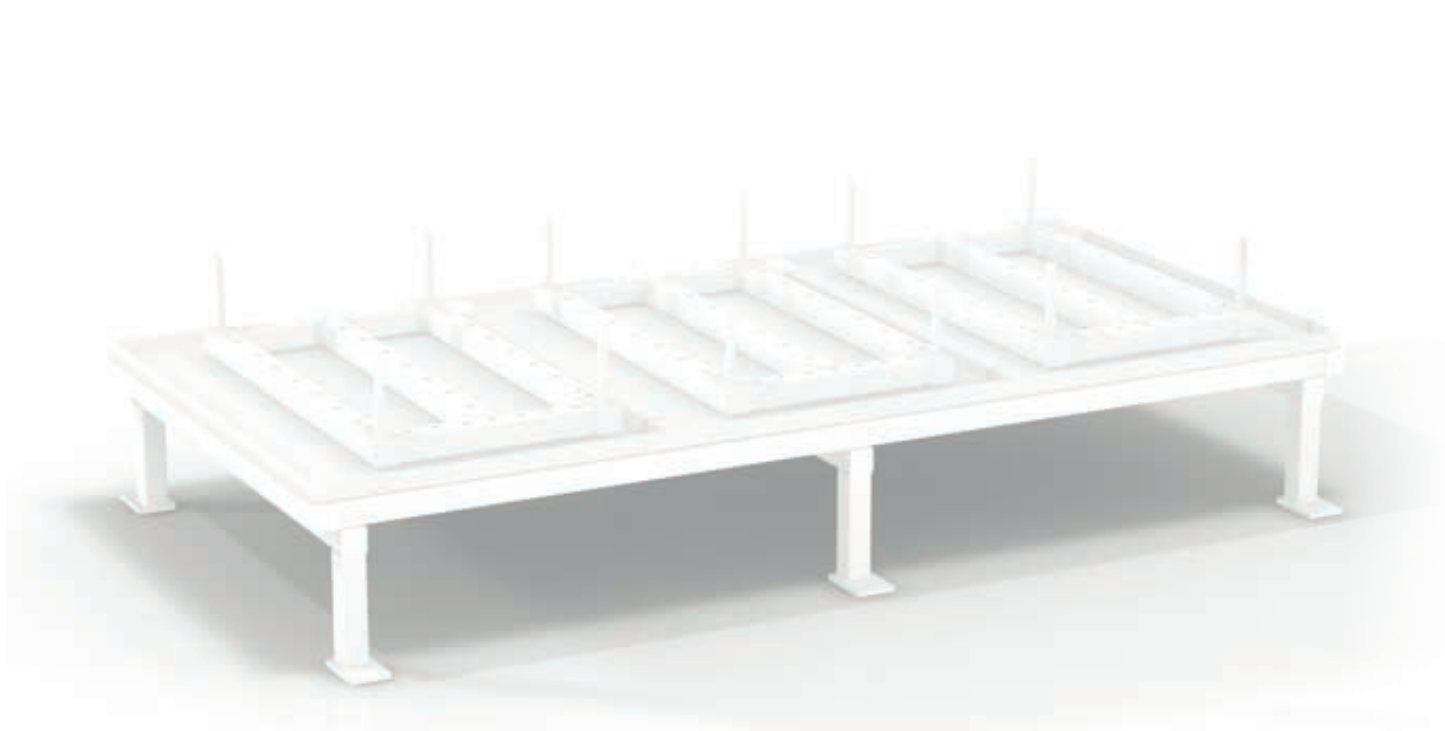
Ideal helper for unpacking raw sheet metal and removing from pallets

The STOPA Unpacking Table is the ideal helper, and accelerates the process of simply unpacking stacks of raw sheet metal and/or of separating the stacks and removing them from the carrier pallets (which are usually made of wood).

The positionable pin carts on the unpacking table and its ergonomic height enable optimal placement of the stack of raw sheet metal onto the pins. At the same time, the wooden pallets are suspended freely in the air and are held to the stack only by the packaging. When this packaging is then removed, the wooden pallets fall down onto the table. The raw sheet metal can now be simply brought to the incoming goods station using a forklift or crane.

## SYSTEM FEATURES

- For separating raw sheet metal and wooden pallet
- Solid table with freely traveling pin frame
- Available for all standard sheet formats



# PEDESTALS

Supplying materials to defined work positions

So-called pedestals are used to bring system pallets with raw sheet metal or finished parts to predefined work positions. They can be combined with any desired cart – provided it is equipped with a lifting unit. The use of pedestals allows the needed material to be brought to a predefined height without long-term blocking of the cart. This makes it possible to serve even several pedestals in series with just a single lifting cart. This permits parallel working at several different positions, leading to the efficient utilization of storage capacity and shorter cycle times.

They are also suitable for manual stations, insofar as pedestals can be used outside of a machine's automatic zone or outside of the storage facility and because they are available in predefined ergonomic heights.



## SYSTEM FEATURES

- Different heights possible
- Only in combination with scissor lifting table / WIRELESS CART
- Positionable loading surfaces possible
- Several pedestals can be used in series

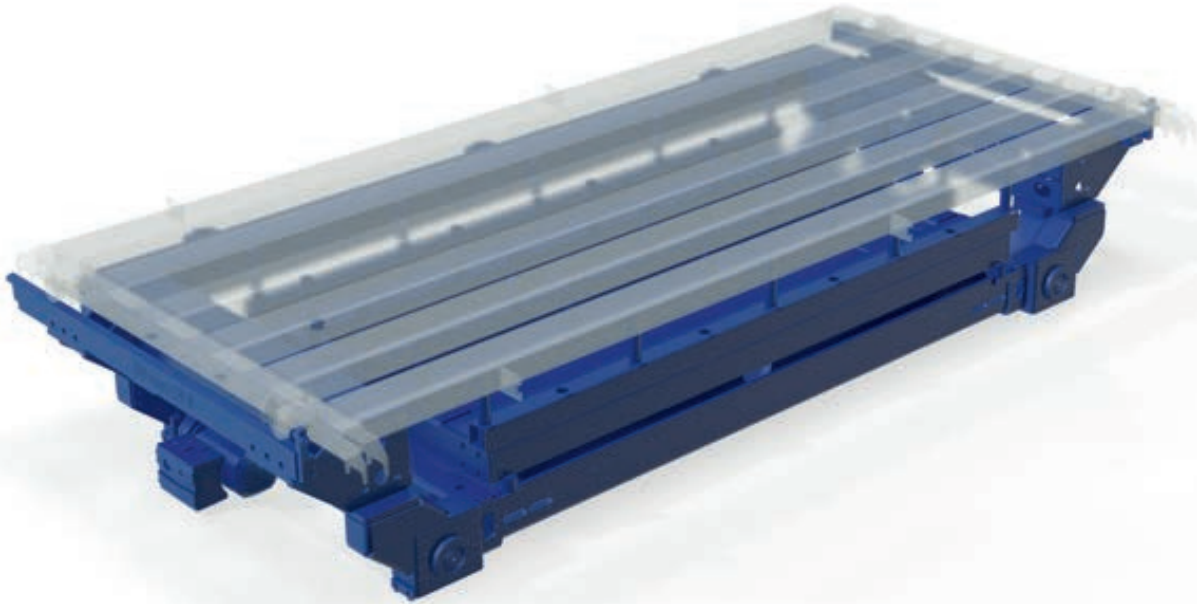


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# INCOMING GOODS

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Lowerable pins ensure problem-free storage



The purpose of the incoming goods station is to simplify the storage process for raw sheet metal. The pins enable the uncomplicated storage of the material by means of forklifts or cranes. The lowerable pins make it possible to also use the station for outgoing goods. The pallet lies on rails and is locked in place pneumatically. As a rule, the carriage's rails are installed under the floor. When not in use, the carriage stands ready in the warehouse so that the area is free for forklifts or similar equipment.

## SYSTEM FEATURES

- Model with entry / exit at all openings (on the face and longitudinal sides) available
- Available for all usual sheet metal formats and multiformat warehouses
- Optional coordinate corner pins at the carriage for exact positioning of the raw sheet metal
- Positionable pins for convenient loading by forklift or similar equipment
- Fixed height
- Can be used as outgoing goods station
- Suitable for system pallets and STOPA EPAL Carriers
- Manually loadable

## Storage Sequence

1. The carriage stands with an empty system pallet outside of the warehouse.
2. The positionable pins are lifted between the pallet pipes.
3. The raw sheet metal package is placed onto the pins by forklift or crane and then placed into the coordinate corner.
4. The pins are lowered and the material placed onto the system pallet.
5. The carriage drives into the warehouse and transfers the pallet to the Storage and Retrieval Unit (SRU).



# STORAGE PEDESTALS

Storage aid for Tower Eco and Tower Mono

## SYSTEM FEATURES

- Can be positioned manually
- With pins for storing raw sheet metal
- Only for Tower Eco or Mono
- Available for all standard sheet formats



The storage pedestal aids in the storage of stacks of sheet metal. Its four rollers are spring-cushioned. When not loaded, the steel frame is pressed upwards and can be shifted. When loaded, the steel frame lowers and the steel feet are planted firmly on the floor.

## Storage Sequence

1. The storage pedestal is brought into the pre-defined position (markings and two electronic contacts on the floor help alignment).
2. The loading traverse positions an empty pallet on the storage pedestal so that the pins extend out over the pallet.
3. The stacker lowers the stack onto the pins.
4. The loading traverse returns to its upper position. At the same time, the stack is placed onto the pallet and can now be stored without damage.

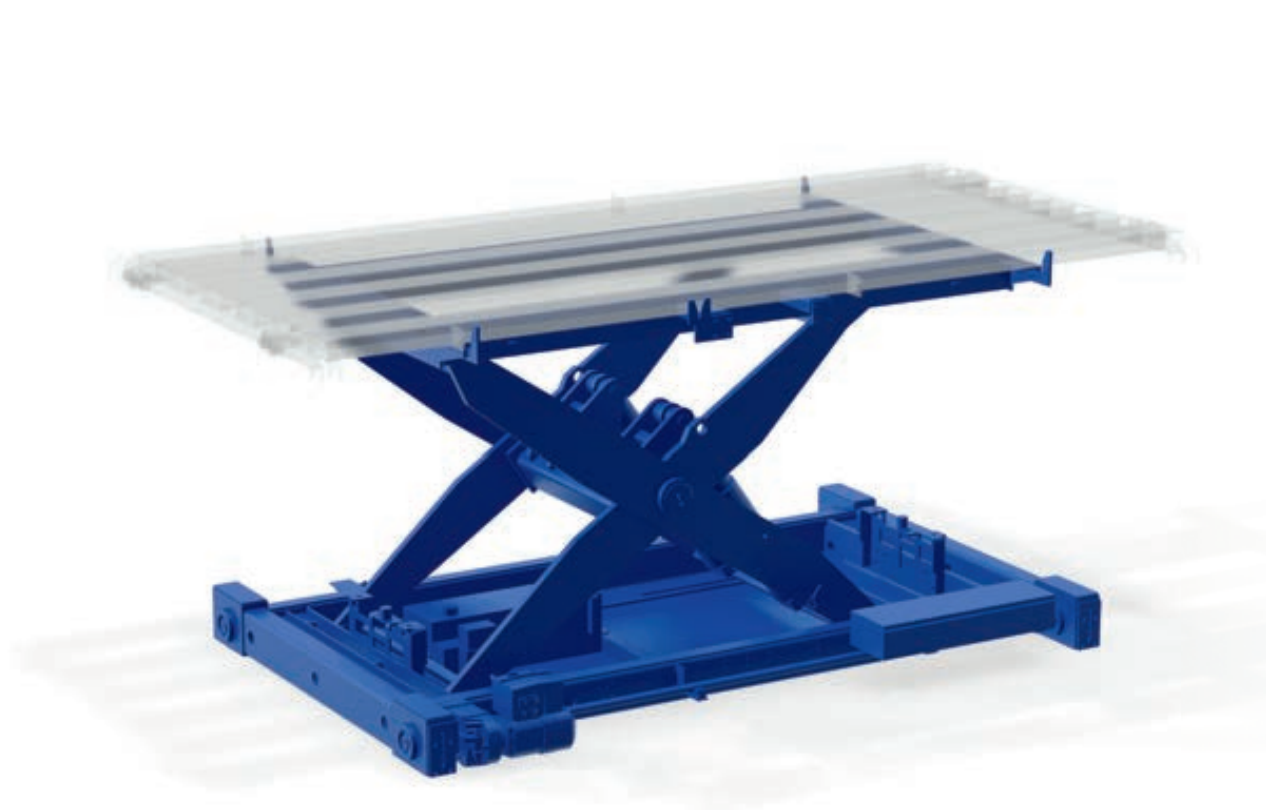


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# SCISSOR LIFTING TABLE (SLT)

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Individually usable transport car with lifting / lowering mechanism



Due to its low height and excellent function, the scissor lifting table is suitable for a variety of uses. The loss of storage space is thus minimized. Despite this, it can bring the system pallet to any desired working height. By combining it with downstream pedestals, the scissor lifting table can serve several work positions in series without a problem – both manual and automatically linked workplaces.

## SYSTEM FEATURES

- Model with entry / exit at all openings (on the face and longitudinal sides) available
- Available for all standard sheet metal formats and multi-format storage systems
- Variable height
- Can be combined with upper cart
- Offers option to serve pedestals
- Lowest loss of storage space due to low height
- Can be expanded with tandem changer
- Can be expanded with pallet quick changer
- Suitable for system pallets and STOPA EPAL Carriers



Wide range of linkage options due to individually adjustable height.

In combination with pedestals, several different positions can be served by just a single cart.



# TRANSPORT CART

Transport cart for the automatic provisioning of sheet metal

## SYSTEM FEATURES

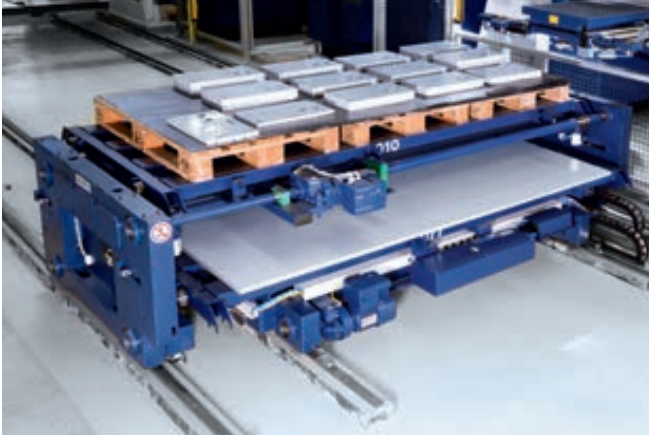
- Fixed heights
- Different heights possible
- Model with entry / exit at all openings (on the face and longitudinal sides) available
- Can be combined as lower cart with upper cart
- Dead-man or automatic mode
- Available for all standard sheet metal formats and multi-format storage systems
- Suitable for system pallets and STOPA EPAL Carriers

The transport cart is a classic component of outgoing goods. It is delivered with a predefined height, and supply system pallets with raw sheet metal and finished parts to a machine or a workplace. Both low heights for automatically linked sheet metal processing machines, but also ergonomic working heights for manually operated work positions are possible with this transport cart.



# DOUBLE CART (UPPER / LOWER CART)

Parallel loading and unloading of machines



As a rule, the double cart is used for the parallel loading and unloading of sheet metal processing machines. It thus consists of two components: the lower cart and the upper cart. This leads to shorter cycle times and the efficient use of the machine and/or the storage system and of any downstream processes. The lower cart can be designed as a transport cart with a fixed height, or as a Scissor Lifting Table (SLT).



## SYSTEM FEATURES

- Consists of a lower cart and an upper cart
- Standard model is two transport cars (upper / lower cart) with a fixed height
- Lower cart as scissor lifting table possible
- Parallel loading and unloading
- Quick cycle times
- Low loss of space
- Can be used both for supplying machines with raw sheet metal and for the return storage of finished parts
- Available for all standard sheet formats
- Suitable for system pallets and STOPA EPAL Carriers
- Entry / exit on the face side possible
- Both dead-man mode and automatic operation

# ROTARY STATION

Flexible coordinate corner possible



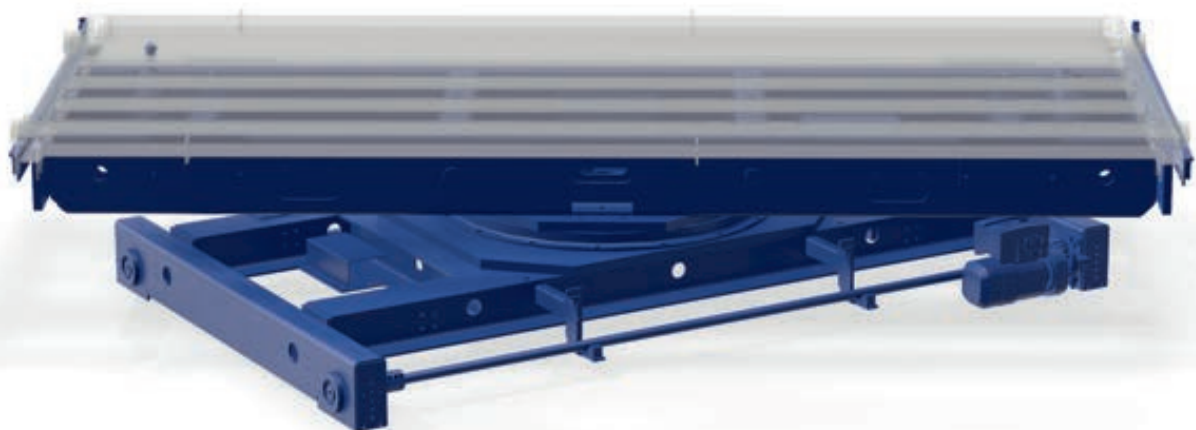
## SYSTEM FEATURES

- For more-flexible positioning of machines
- Can be used both for supplying machines with raw sheet metal and for the return storage of finished parts
- Available for all standard sheet formats
- Suitable for system pallets and STOPA EPAL Carriers
- Version with scissor lifting table possible
- 360° rotation possible
- Both dead-man mode and automatic operation

As a rule, rotary stations are used whenever the coordinate corner at various machines cannot be reprogrammed immediately or at all. In such cases, the rotary station makes precise processing still possible.

Additionally, the rotary station can transport pallets between very narrow passageways or between two storage units with a displaced coordinate corner.

The ideal solution in confined spaces or when the layout of machines would otherwise make it difficult to transport pallets between two storage units.



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# TANDEM CHANGER

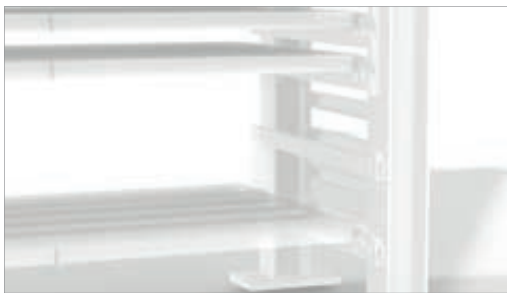
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Second transfer unit made of steel for shorter cycle times

After the transport orders are entered, the Storage and Retrieval Unit brings the system pallet – including the material – to the preliminary storage bay.

The scissor lifting table with the lifting and lowering position retrieves the pallet from the preliminary storage bay and transports it outside for removal of the material. During this time, the Storage and Retrieval Unit (SRU) brings another pallet to the now-unoccupied preliminary storage bay.

The lowest rack, made of steel, serves as a return storage station. After the „return storage“ order is issued, the scissor lifting table travels into the safety area and deposits the pallet in the lowest rack, the return rack. The SRU accepts the system pallet and again stores it in the storage tower. After the SRU has retrieved the pallet and placed it in return storage, the scissor lifting table retrieves a pallet from the preliminary storage bay and transports the new system pallet outside.



## THE BENEFITS AT A GLANCE

- Quicker material provisioning cycle because the storage pallet is already located at the preliminary storage bay
- Possible for loading and unloading cycles



# PALLET QUICK CHANGER

Buffer function for ultra-fast material handling

After the transport orders are entered, the Storage and Retrieval Unit brings the system pallet(s) – including the material – to preliminary storage bays 1 and 2. The scissor lifting table with the lifting and lowering position retrieves the pallet from preliminary storage bay 2 and transports it outside for removal of the material.

A new system pallet is readied on preliminary storage bay 2 by chain conveyor at preliminary storage bay 1. A new system pallet can then be buffered at position 1.

The lowest rack, made of steel, serves as a return storage station. After the „return storage“ order is issued, the scissor lifting table travels into the safety area and deposits the pallet in the lowest rack, the return rack. The SRU accepts the system pallet and again stores it. The scissor lifting table travels back to preliminary storage bay 2 and retrieves a new system pallet, and then transports it outside.

## THE BENEFITS AT A GLANCE

- Decoupling of the loading and unloading cycles from the SRU by direct access of the SLT to the preliminary storage bay
- Possible for the loading and unloading cycle



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# PALLET TRANSFER UNIT / BUFFER STATION

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Independent commissioning of pallets



## SYSTEM FEATURES

- Pallet commissioning in a single block, independent of the Storage and Retrieval Unit (SRU)
- Can be combined with SLT or transport cart
- Quicker cycle times
- Automatic operation
- Prebuffering of pallets possible

The pallet transfer unit operates independently of the Storage and Retrieval Unit (SRU) and can commission pallets within a steel construction block. To do this, the SRU stores the necessary pallets in advance in the corresponding steel construction block. With a time-lag, the pallet transfer unit fills the linked cart while the SRU is busy at a different position.

This technology accelerates process sequences because the linked cart is no longer dependent upon the SRU for its supply of pallets.

# PICKING TOWER

Provisioning of the most-varied materials on a separate system pallet

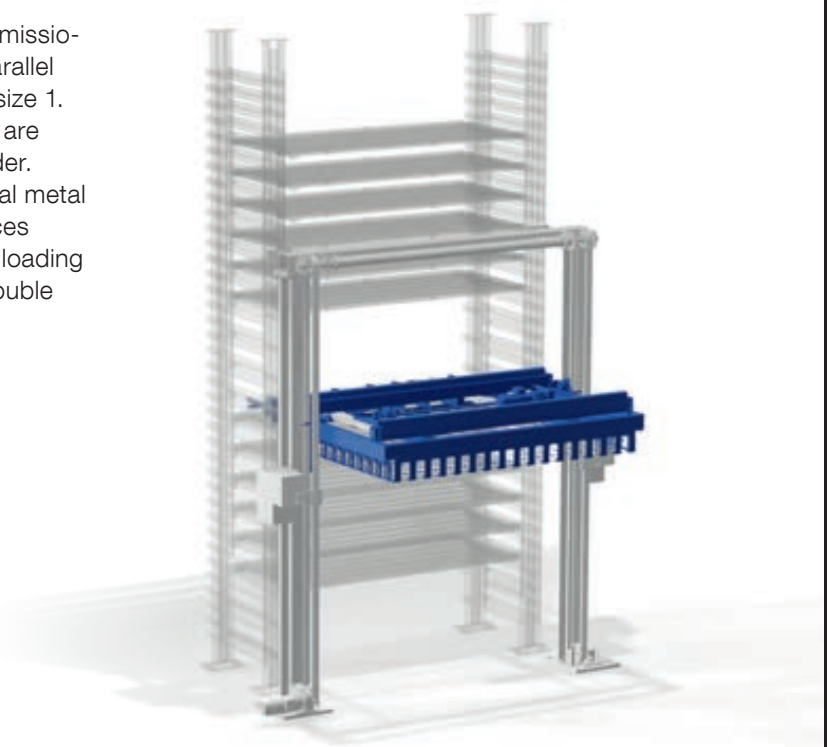
The STOPA PICKING TOWER is used for the commissioning of sheet metal stacks of all composition in parallel to main production, e.g., for the production of lot size 1. In doing so, all of the parts belonging to the order are produced and processed together, as a single order. A suction traverse dynamically transports individual metal sheets from the preliminary storage bays and places them onto a commissioning pallet. The unwanted loading of double sheets is prevented by the integrated double sheet recognition feature.

## SYSTEM FEATURES / STANDARD CONFIGURATION

- Number of commissioning pallets: 2  
max. stack height: 130 mm
- Number of raw sheet pallets: 5  
max. loading height: 130 mm
- Compatible sheet thicknesses: 0.5–8 mm
- Maximum height: 8 m

## CONTROL FEATURES

- Autonomous system (can be retrofitted)
- PROFINET
- Own computer (SPS)
- Own user interface utilizing Visual Studio (with context menus)
- Interface via TCP / IP and digital inputs / outputs
- Safety coupling via standard cable
- The orders for commissioning come from the supervisory Storage Management System



## THE BENEFITS AT A GLANCE

- Commissioning of sheet metal stacks of any given composition in parallel to main production
- The order is completely precommissioned and then sent to the machine for further processing
- Lot size 1 parts can be economically commissioned
- Boost in productivity
- High safety and low service costs due to optimized design

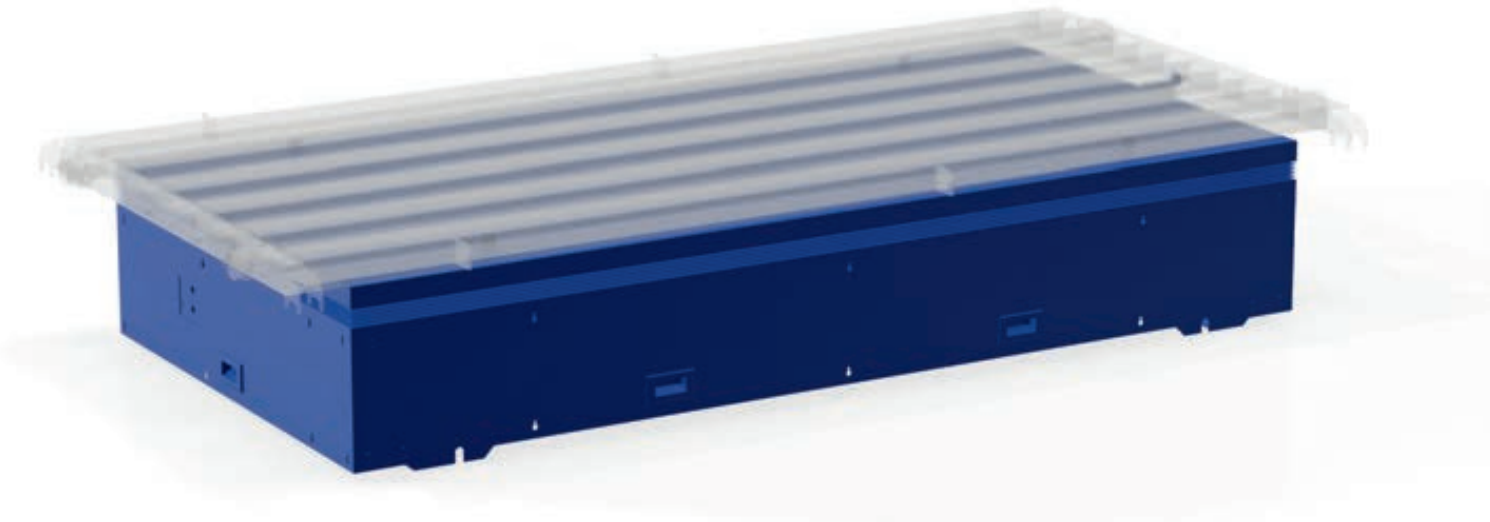


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# WIRELESS CART

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Rail-guided, wireless transport system with auxiliary battery power



The STOPA WIRELESS CART can lift pallets with a load of up to 3 tons out of the steel shelf and place them on a pedestal outside the shelf blocks. The worker can for example manually remove finished parts from the pallet, without the risk of tripping over the rails or the cable drag chain.

The STOPA WIRELESS CART handles its orders without any cable link. It obtains its power from the latest lithium battery. As its capacity runs out, the cart moves automatically (automatic movement is possible only in a secure area) onto a floor contact and recharges, under the fully automatic control of the battery management system.

## SYSTEM FEATURES / STANDARD CONFIGURATION

- Max. effective payload: 3 tons
- Compatible pallet formats: GF (1,525 x 3,050 mm)
- Max. lift: 260 mm
- Operating voltage: 24 V DC
- Battery type: Lithium technology

## CONTROL FEATURES

- PROFIsafe
- Battery management system
- Dependable wireless transmission
- Digital and analog inputs / outputs
- Traversing speed can be controlled by DC motor controller

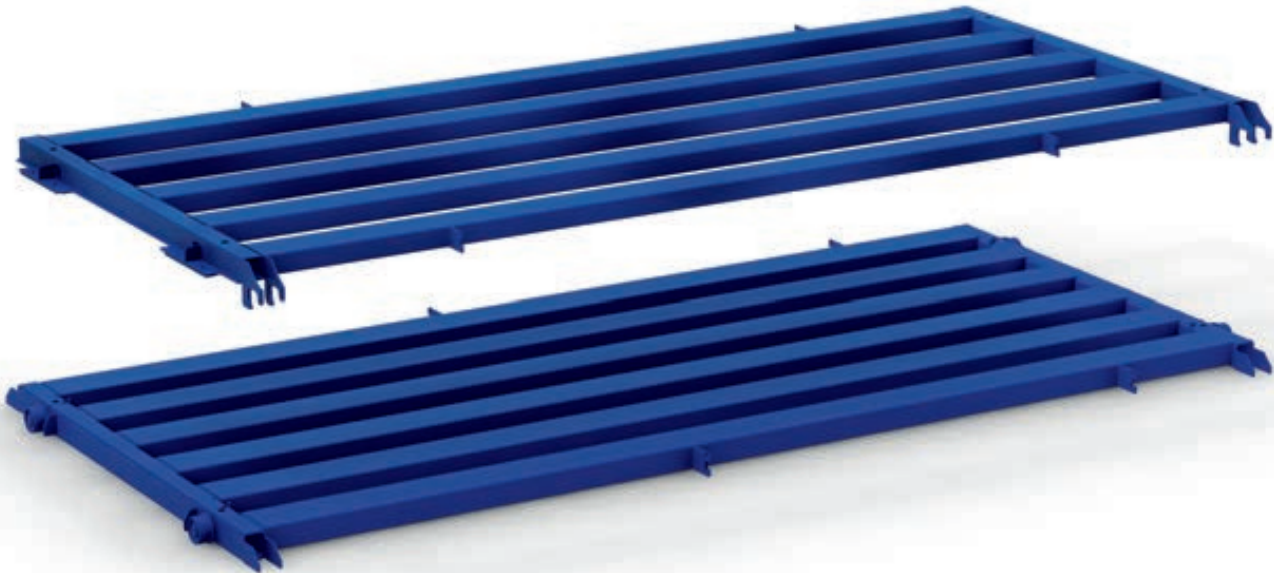


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# SYSTEM PALLET

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Standard transport medium for raw sheet metal and finished parts



## SYSTEM FEATURES

- Available for all standard sheet formats
- Can be expanded with base plates
- Effective payload: 3,000 kg or 5,000 kg

The system pallets for sheet metal storage systems are available in predefined sizes for all standard sheet metal formats and (depending upon actual requirements) for 3 or 5 tons of effective payload. The support rollers mounted on the face side are self-supporting, and guarantee easy handling for the operator. Additionally, the wear and tear of the system pallets in daily use is minimized.

The individual system pallets have different designs to suit different types of storage systems.

In the case of the system pallets for UNIVERSAL, support brackets are used instead of the lateral support rollers used for the STOPA COMPACT system pallets. In the case of the system pallets for TOWER Eco, guide rails are instead used.

STOPA system pallets are compatible with all standard STOPA stations. Optionally, the system pallet can be equipped with pallet stops which facilitate loading of the pallet and also serve to prevent slippage.

In combination with various different base plates, it is possible to also store small parts and grid boxes or EUR-Pallets on the system pallets.



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# BASE PLATES

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Accessory for system pallets to store small parts

As a rule, base plates are used to store small parts (which would normally fall through the pallet tubes) and also grid boxes or wooden pallets. For this reason, the pallets are available in several different models.



## STACKABLE

- Variant of the normal base plate
- Can be lifted onto the incoming goods cart by pins
- Corresponding gaps for forklift tines at the bottom
- Can be removed by forklift and employed independent of the storage facility



## EUR-PALLET / GRID BOX

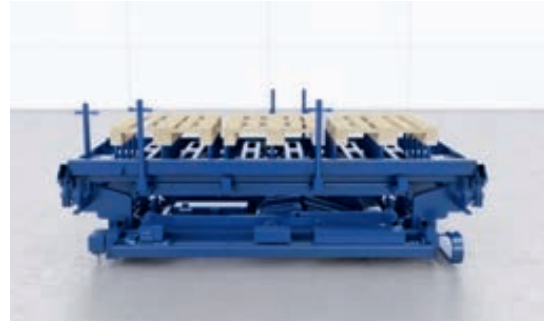
- Variant of the normal base plate
- Centering on the top suitable for EUR-Pallet or grid box



# STOPA EPAL CARRIER

Special pallet for space-saving storage of EPAL-EUR-Pallets

The STOPA EPAL Carrier permits the return storage of sheets on EPAL-EUR-Pallets. In the empty state (when loaded only with EPAL-EUR-Pallets), no second shelf bay is filled here. A further advantage is that normally no base plates are needed. The EPAL-EUR-Pallets are sunk into the STOPA EPAL Carrier.



## THE BENEFITS AT A GLANCE

- No loss of storage space when the EPAL-EUR-Pallet is empty
- Greater net stacking height (approx. 50 % in case of double)
- No base plates usually required
- No slippage of EPAL-EUR-Pallets
- Easy insertion and removal of EPAL-EUR-Pallets



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# STORAGE / RETRIEVAL STATION FOR LONG-SPAN GOODS

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Transport cart for supplying of long-span goods



Long-span goods are transported to the respective stations using the transport cart for long-span cassettes. The transport cart can enter / exit the station at all openings (on the face and longitudinal sides). The station and / or the corresponding processing machine can thus be installed with greater flexibility. The transport car is available in different heights suitable to the given work position.

## SYSTEM FEATURES

- Model with entry / exit at all openings (on the face and longitudinal sides) available
- Dead-man or automatic mode
- Semi-automatic linkage of machines
- Can be expanded with lifting function



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# LIFTING TO STATION

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Unit for simple loading / unloading by forklift



Transport carts for long-span cassettes can be equipped with a lifting unit to facilitate the storage and retrieval of rod-like materials. This is because the material can be lifted in a bundle onto the pins by forklift. The pins then lower and deposit the bundle of material into the cassette. Without this lifting unit, the stations could be loaded only through the use of loops.

In the case of manual storage, the material can be re-positioned using the lifting unit. This permits ergonomic operation.

## SYSTEM FEATURES

- For the storage or retrieval of bundles or crates by forklift
- For improved material removal of deep cassettes

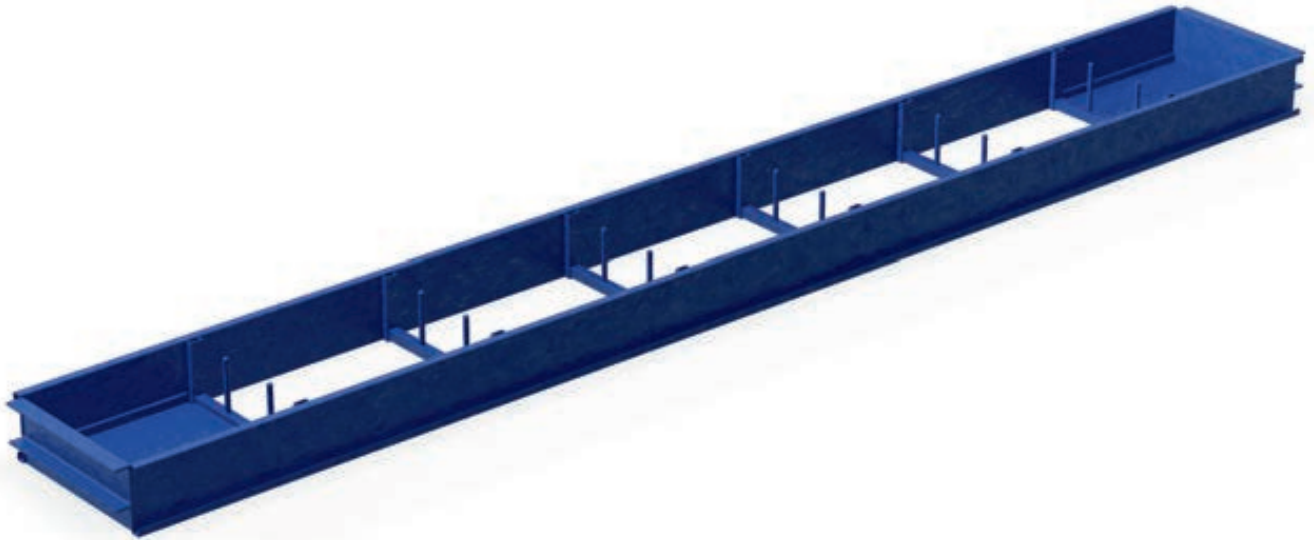


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# LONG-SPAN CASSETTES

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Standard transport medium for tubular and rod-like materials



The cassettes for long-span goods are available in defined lengths and widths. The given LH (loading height) can vary. Up to a length of approx. 6,400 mm, virtually all conceivable rod-like materials can be stored. The long-span cassettes can also be equipped with plugged-in bolts which ensure that several different materials can be stored separately in just a single cassette. This makes the use of cassettes extremely flexible.

## SYSTEM FEATURES

- For the storage of various different materials
- Different models possible
- Plugged-in bolts to separate different materials



# STOPA PALLET INSERTION TOOL

Storage aid for STOPA system pallets



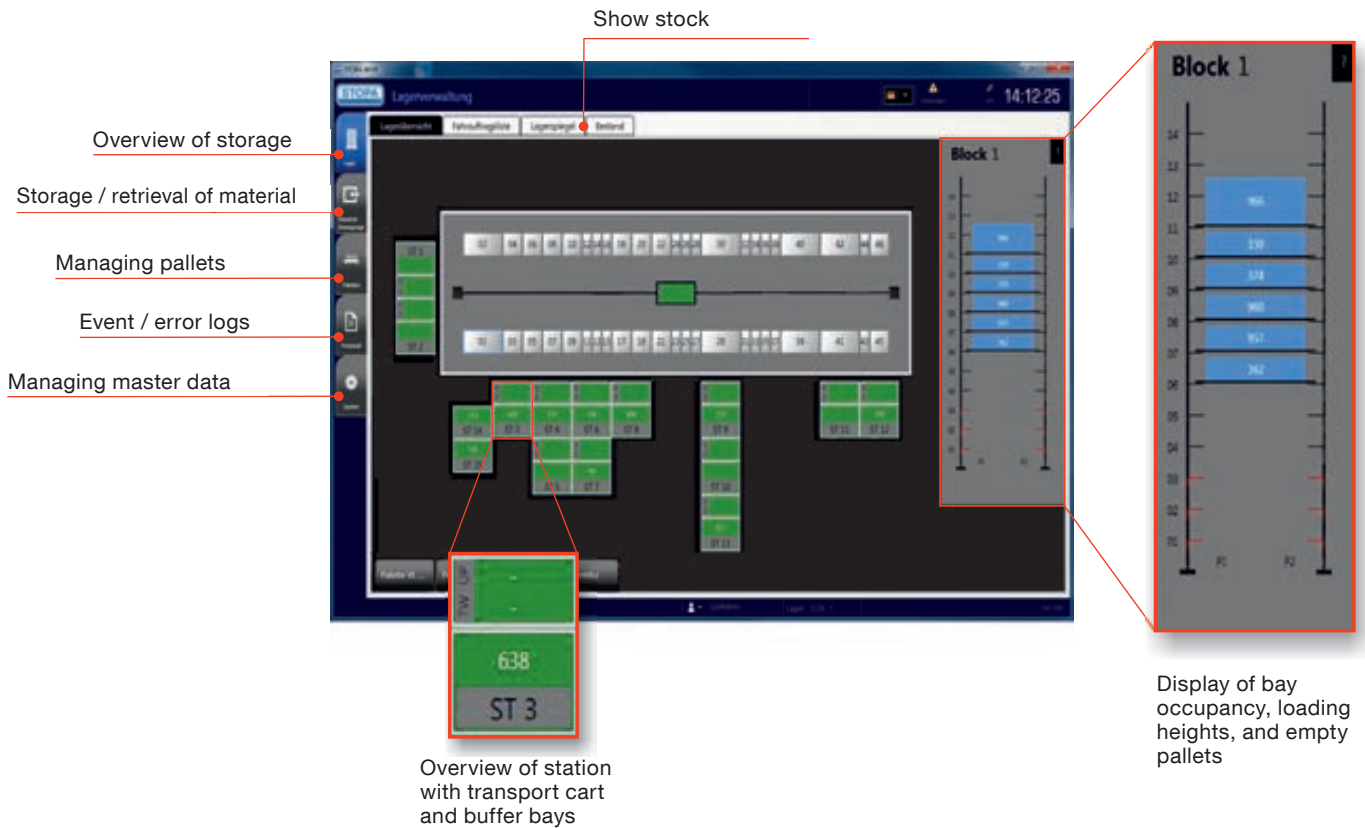
The STOPA PALLET INSERTION TOOL allows, for the first time, STOPA standard system pallets to be stored by the operator. This storage aid is attached to a forklift. When the unit is then lowered over a stack of pallets, the uppermost pallet is arrested on its rollers and can be lifted. This is then lowered at the incoming goods station, at which time the pallet is optimally positioned on the station and the arresting mechanism is released automatically.

## THE BENEFITS AT A GLANCE

- No damage to paint job during storage
- Only one person necessary for the storage procedure
- Extremely safe, since the pallet can't slip
- The pallet is optimally positioned on the station
- The pallet can be directly taken from the pallet stack



# WAREHOUSE MANAGEMENT SYSTEMS



The STOPA Software Management System (SMS) is a high-performance management system for managing your automatic storage facilities. It is characterized by easy operation, quick configuration, and an affordable price.

The modular design means that we can offer three different versions of the STOPA Software Management System (SMS): the „Tower System,“ „SMS Basic,“ and SMS Extended.“ It is possible to upgrade the individual versions at any time.

Besides managing your stock, STOPA SMS also transmits the transport orders to the storage controller and monitors the transports.

A clearly arranged and intuitive user interface guarantees easy interaction with the workers. In the overview, one can quickly and comprehensively check the status of the individual work stations. All transport orders and movements of stock are recorded and logged in the transaction journal. Corresponding interfaces are provided for the integration of existent production machines.

## TOWER SYSTEM

The „Tower System“ version offers all of the functions you need to operate a single-tower or double-tower station serving as a stationary storage bay. In the case of stationary storage bays, each pallet is allocated to a fixed storage bay. The loading heights are likewise fixed, and are defined during the configuration step.

## SMS BASIC

The „SMS Basic“ version offers the functions featured by the „Tower System,“ but also the option of managing additional storage blocks. The goods are stored in stationary storage bays, i.e., the storage positions of the pallets and the loading heights are defined and their designs established.

## SMS EXTENDED

The „SMS Extended“ version is the most-comprehensive version. It contains all of the functions needed to operate and manage one or more high-bay warehouses. Additionally, the „Extended“ version is also capable of so-called „chaotic storage management.“



# CUSTOMER SERVICE

## SUPPORT

### WITHOUT Maintenance Contract

MONDAY – FRIDAY 8:00 a.m. – 6:00 p.m.,  
service@stopa.com

Billed after first 15 minutes of consulting

Phone +49 (0) 7841 704 149

Fax +49 (0) 7841 704 192

Invoiced remote diagnosis / remote access

Phone +49 (0) 7841 704 149

### Maintenance and Servicing

ONSITE

Servicing invoiced according to cost

### WITH Maintenance Contract

MONDAY – FRIDAY 7:00 a.m. – 8:00 p.m.,  
SATURDAY 8:00 a.m. – 2:00 p.m.

service@stopa.com

### EXPANDED ACCESS

Free of charge via our company service hotline

MONDAY – FRIDAY 7:00 a.m. – 5:00 p.m.,  
SATURDAY 8:00 a.m. – 2:00 p.m.

Free remote diagnosis / remote access

### Maintenance and Servicing

- Regular maintenance for flat fee. Spare parts invoiced according to cost
- Annual UVV inspection according to German Accident Prevention Regulations (BGV D6)
- Telephone support: Guaranteed response time within 2 hrs after initial report
- Servicing: Guaranteed response time onsite after clarification with the customer
- 24 / 7 Emergency contact in the event of major disaster by e-mail: service@stopa.com

### Spare Parts Support

MONDAY – FRIDAY 8:00 a.m. – 8:00 p.m.,  
service@stopa.com

Phone +49 (0) 7841 704 149

Fax +49 (0) 7841 704 192

- 10 years supply of spare parts after date of initial operation
- Research in the case of phase-outs, free of charge when ordered
- Orders until 3:00 p.m. > national delivery by 9:00 a.m. on the next workday
- Direct courier for emergencies possible

## TRAINING ASSISTANCE

- Training of operating personnel
- Onsite production monitoring
- Training of new operating personnel

## CONSULTING

- Agreeing upon a timetable for scheduled repairs
- Newsletters about possible optimization
- Information about the status of the installation

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# RETROFIT

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Modernization for enhanced efficiency

## Project Development

STOPA Retrofit has two main objectives. On one hand, to guarantee the availability of the installation for the future. On the other hand, we also pursue the strategic goal of enhancing efficiency through modernization. Because processes and sequences often evolve over the course of time.

The economic benefit of modernization is obvious: In comparison with the purchase of new equipment, existent installations can be brought up to the latest technological standards by replacing obsolete parts and adding new, technologically advanced components.

As a rule, this yields a measurable ROI within a year. The same performance is achieved, with significantly lower costs in relation to the cost of the purchase of new equipment. Additionally, time-consuming peripheral effects can be avoided.

## New Control

With STOPA Retrofit, we offer the operators of older storage systems onsite analysis and an expertise on the current condition and risks, thus providing them with a decision-making basis for modernization and retrofitting measures. The focus is on control technology and the electrical drives. Dangerous bottlenecks caused by insufficient spare parts supply are addressed in advance.

Furthermore, the retrofitting of modern control and automatization technology can also significantly boost the productivity of your installation. And you can re-attain conformity with the latest machine and work safety regulations.

## New Electric Drive

For many control and drive components, spare parts have been hard to come by after ten years or more. As a result, electrical motors have to be rewound or completely replaced. That inevitably means lengthy and expensive design modifications and downtimes.

Retrofitting electrical drives before it becomes urgent is an affordable alternative. Given the proper timely planning, your installation can be modernized with practically no idling times. Further, it is often possible to activate enormous productivity reserves through the use of up-to-date drive technology. And your installation can re-attain conformity with the latest work safety regulations.

## Refurbished Mechanical Components

In the context of a STOPA retrofit, we perform an onsite tolerance analysis of all moving parts (e.g., chains, bearings, guides, hydraulic cylinders, etc.). On the basis of measurement and condition logs, we can help you re-attain your original condition or even significantly enhance the performance of your installation – e.g., through the optimized integration of the components into the production processes, including reliable, long-term spare parts supply.

## Carrying Out the Retrofit

Careful planning of the retrofit process minimizes idling times and production bottlenecks. Our many years of experience in retrofitting are the foundation for meeting deadlines and reliable production.

### PHASE 1

#### Analysis

#### Consulting

#### Finding a solution

- Customer requirements regarding the system after the retrofit
- Recording the system's current situation
- Analysis of the modernization options
- Recording the technical details
- System review:  
Mechanical, electrical parts, control, linkage with host / process optimization, and remaining system service life
- Presentation of the retrofit concept
- Comparison with the purchase of a completely new system
- Cost / benefit analysis

### PHASE 2

#### Planning

#### Preparation

#### Implementation

- Detailed project planning
- Defining the conversion scenario
- Detailed planning of the time window during which the system shall be converted
- Ensuring the shortest possible system downtime
- Assembly and installation
- Commissioning
- Training the staff during „live operation“

### PHASE 3

#### Spare parts

#### Service

#### Help desk

- Ensuring spare parts supply
- Lower maintenance costs
- Extension of the maintenance cycle
- Simplified troubleshooting
- Troubleshooting / support through remote maintenance tools via modem / Internet link
- Downtime minimization
- Higher availability





STOPA Anlagenbau GmbH  
Storage Systems Division

Industriestraße 12  
77588 Achern-Gamshurst  
Germany

Tel. +49 7841 704-0  
Fax +49 7841 704-190

Mail: [info@stopa.com](mailto:info@stopa.com)  
[www.stopa.com](http://www.stopa.com)

