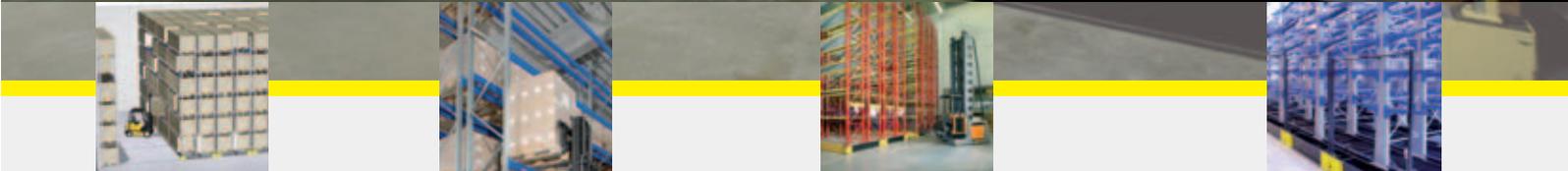


## **MOBILE RACKING SYSTEMS**

Storage systems for more product  
on less surface area





## MOBILE RACKING SYSTEMS IN THE SSI SCHAEFER GROUP



**FRITZ SCHAEFER, Neunkirchen, DE**

The product range of SSI SCHAEFER / FRITZ SCHAEFER GMBH – also the headquarters of the SSI SCHAEFER Group – comprises the core business of storage technology (rack steel construction for automated small part storage systems AKL and rack supported structures) as well as storage and transport containers, modular shelving systems, pallet and cantilever racking.



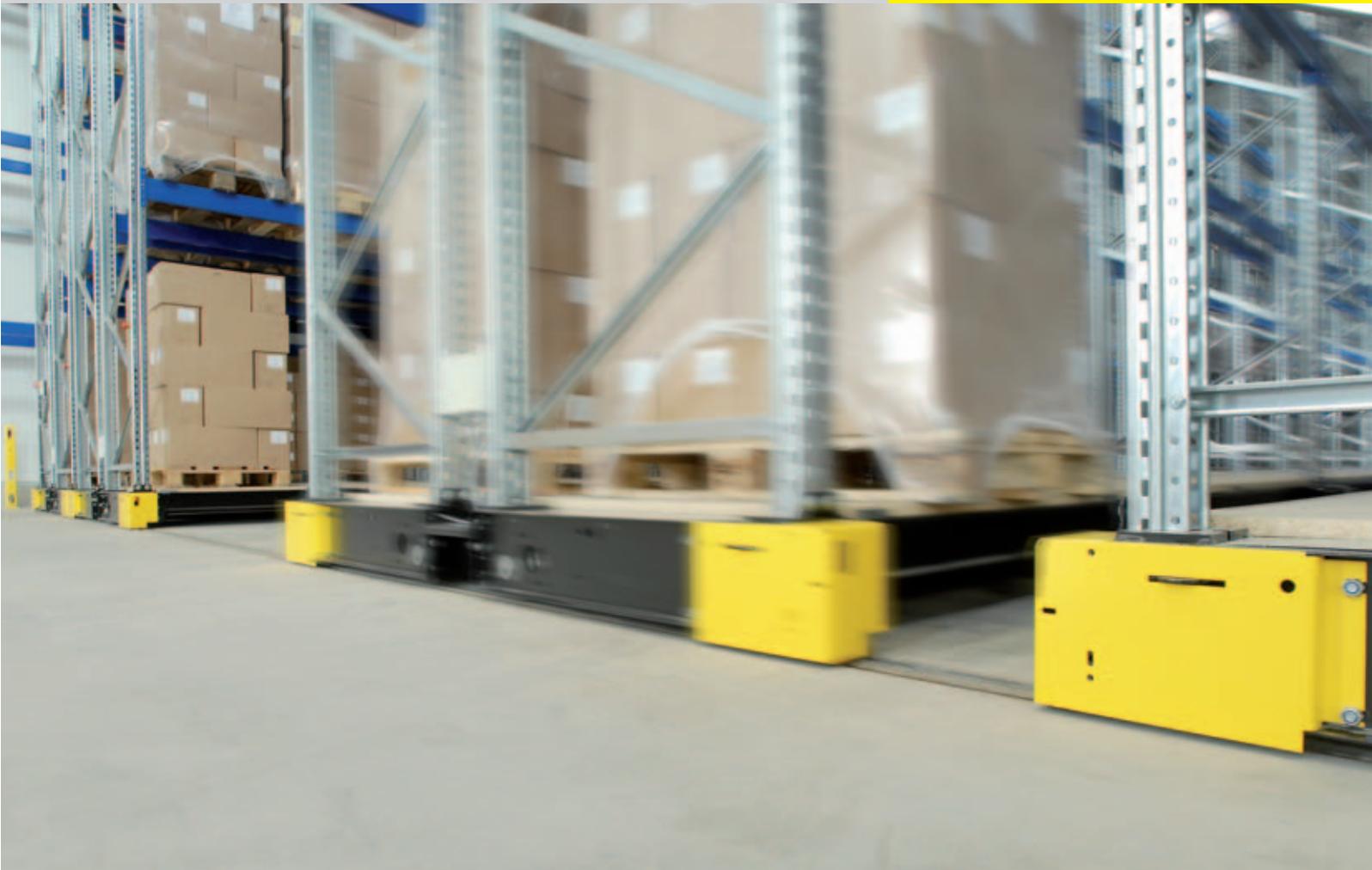
**SSI SCHAEFER, Neunkirchen, CH**

SSI SCHAEFER AG plans and implements conventional and fully automated mobile racking systems for the whole of the SSI SCHAEFER Group. The competence centre of the SSI SCHAEFER Group has implemented more than 2,500 mobile racking systems internationally. The range of products and services reaches from system planning and consultation through the installation of systems to custom-designed service packages.



**SSI SCHAEFER, plant Hranice, CZ**

SSI SCHAEFER S.R.O. production site Hranice in Czechia: in this production plant, the main products for automation such as mobile racking systems, storage and retrieval machines, pallet conveying systems and the SCS (Schaefer Carousel System) are made, pretested and shipped to the installation sites on time.



1950

1956

1960

1968

1970

1980

1985

1990

1998

2000

2005

2007

## THE BEGINNING – THE DEVELOPMENT – OUR VISION

**1956** Hans Ingold from Switzerland obtained the patent rights for the idea of “better space utilisation by means of mobile frames for racking and cupboards, to either reduce the required area by 40 % or to allow 85 % more storage capacity on such area”.

**1968** The traversing process was significantly improved thanks to the single-wheel drive unit. The previous operating principle using the tow principle with drawbar or chain was structurally more complex.

**1985** The mobile racking storage system begins a triumphant progress: The extensive capacity increase is particularly profitable in the food industry and provides a welcome compensation for the rapidly rising energy costs of cold and freezer storage.

**1998** A reorientation of the product ‘mobile racking system’ is initiated at SSI SCHAEFER: logistics services companies start operating extremely complex installations with 20 – 30.000 pallet locations. The experts assess that “mobile racking systems are the ideal storage concept for the dynamic changes in clients storage requirements”.

**2005** An important innovation phase at the competence centre of the SSI SCHAEFER Group was concluded successfully. Mobile racking systems are now also available as fully automated systems in combination with laser navigated high-bay stackers without operators. Due to the emerging synergism of efficient storage densification, high goods handling capacity 24 hours per day and minimised staff costs, the automated mobile racking system allows the highest possible economic efficiency.

**2007** SSI SCHAEFER sets new milestones with a new generation of mobile bases with unique benefits to the end user.



# Efficient space utilisation for optimum warehouse logistics thanks to mobile racking systems

## Pallet racking in conventional configuration



### Warehouse Comparison

■ Total area used	625 m <sup>2</sup>
■ Proportion for racking	223 m <sup>2</sup>
■ Proportion for aisles	402 m <sup>2</sup>
■ Floor space utilisation	36 %
■ Pallet locations	1.152

**Lost area 64 %**

## Mobile racking to gain in area utilisation



### Warehouse Comparison

■ Total area used	353 m <sup>2</sup>
■ Proportion for racking	223 m <sup>2</sup>
■ Proportion for aisles	130 m <sup>2</sup>
■ Floor space utilisation	63 %
■ Pallet locations	1.152

**Area gained 44 %**

## Mobile racking system for increased storage capacity



### Warehouse Comparison

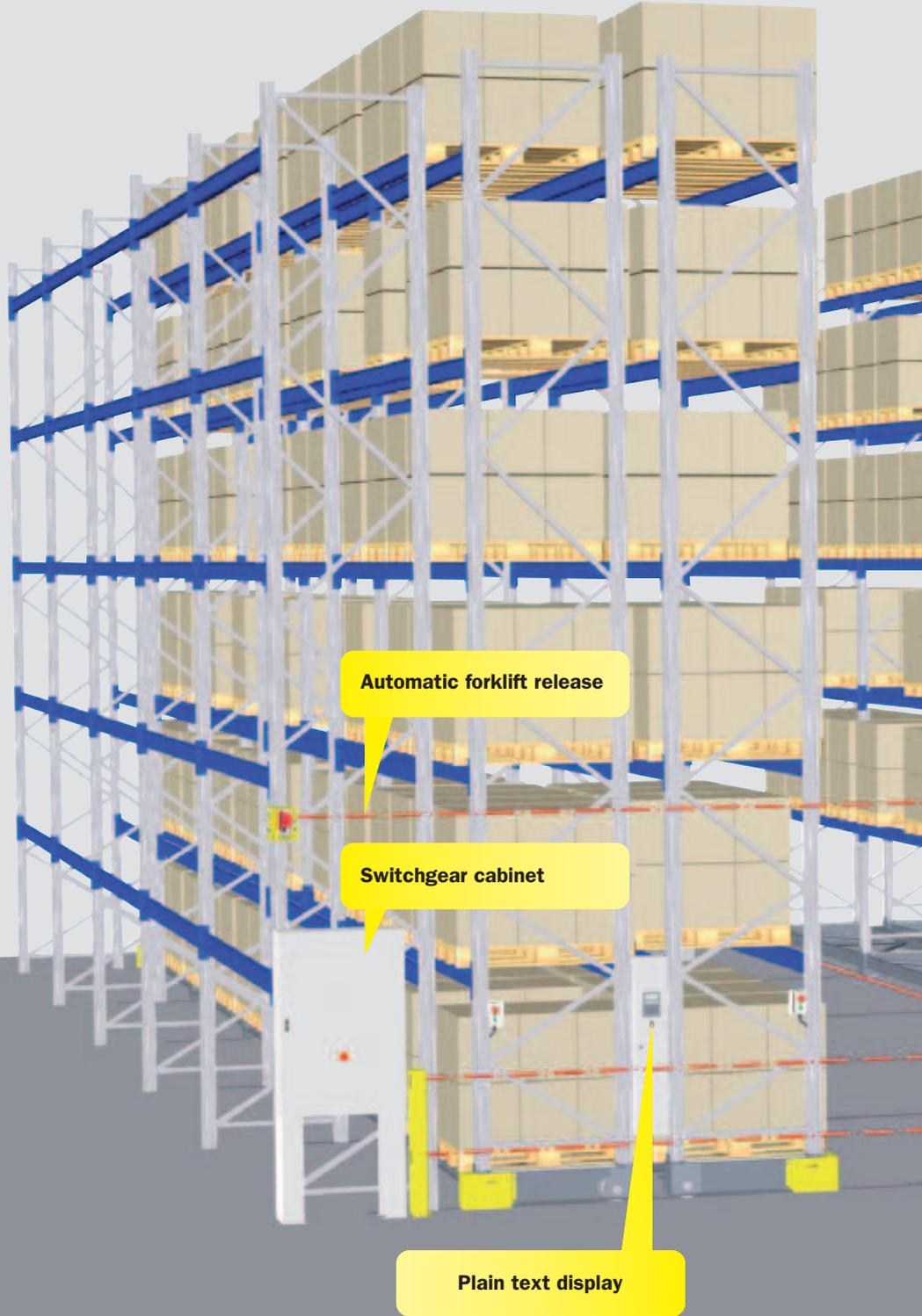
■ Total area used	625 m <sup>2</sup>
■ Proportion for racking	463 m <sup>2</sup>
■ Proportion for aisles	162 m <sup>2</sup>
■ Floor space utilisation	74 %
■ Pallet locations	2.304

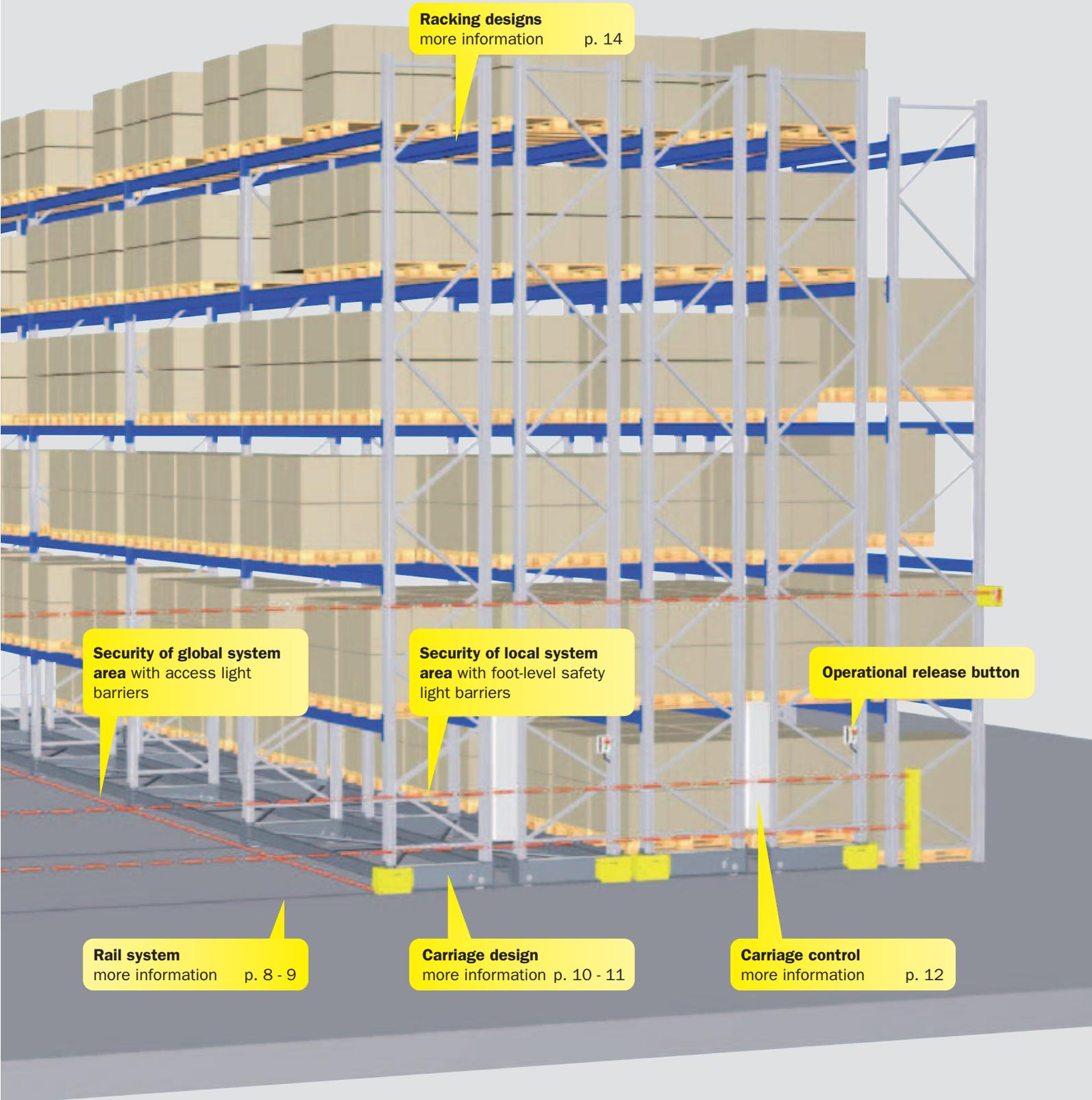
**Capacity gained 100 %**

# SSI SCHAEFER mobile racking systems

An unbeatable complete system

Designed according to standards and regulations for maximum safety and operating comfort





**Racking designs**  
more information p. 14

**Security of global system area**  
with access light barriers

**Security of local system area**  
with foot-level safety light barriers

**Operational release button**

**Rail system**  
more information p. 8 - 9

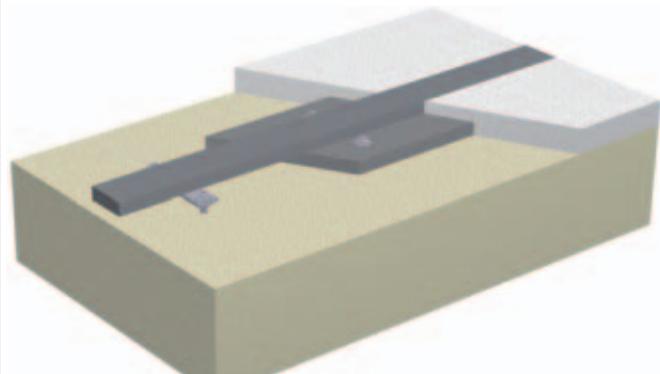
**Carriage design**  
more information p. 10 - 11

**Carriage control**  
more information p. 12

# Modern innovative rail construction

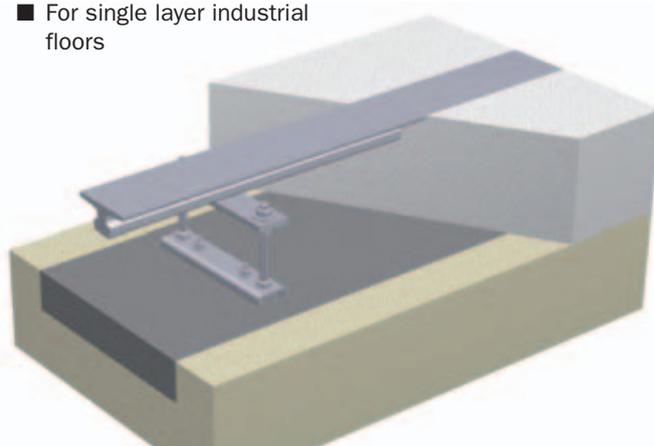
## For installation in multi-layer floors

- For existing floors
- For load-bearing ceiling constructions
- In cut-outs



## For installation in single-layer floors

- For new buildings, both ambient and cold storage
- For single layer industrial floors



## Precision work during installation

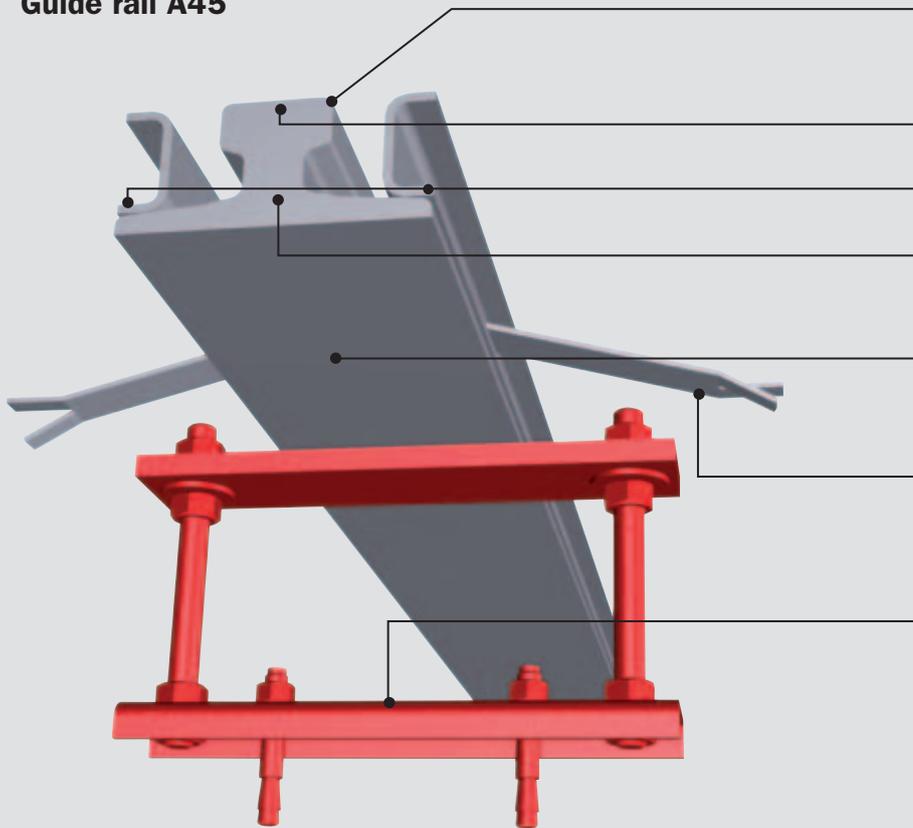
- Levelling mounting brackets every 600 / 1.000 mm
- Installation supervised by experienced supervisors worldwide
- **Installation reports** for customers safety and sub-contractors



# Quality characteristics

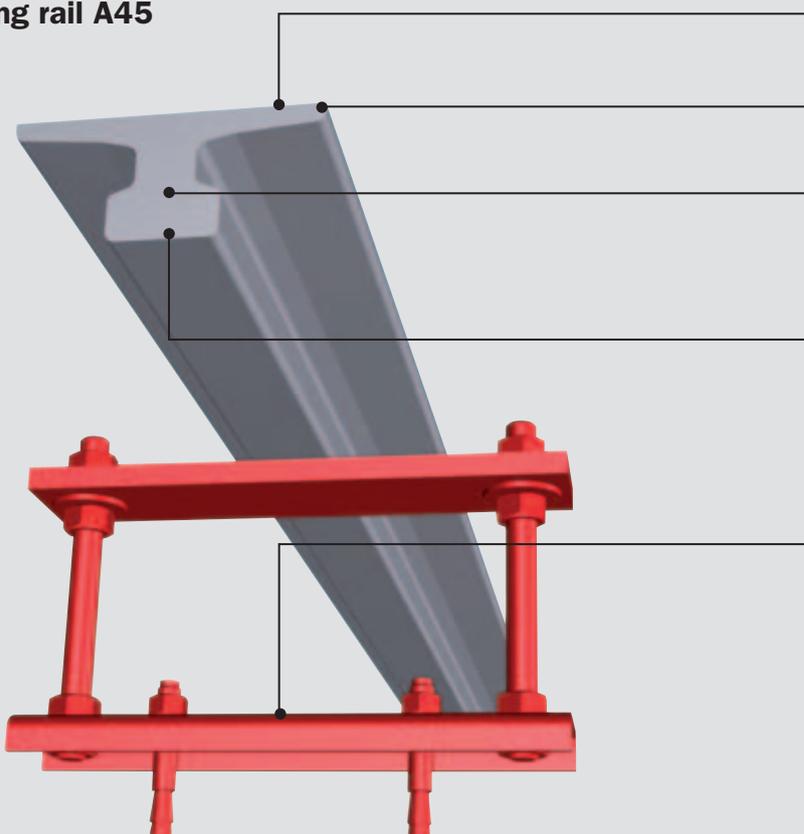
Shape and quality of the rail system for mobile racking systems are **the** distinguishing features of durability & safety

## Guide rail A45



- Round edges, harmless to forklift wheels
- Guideway for wheel with double flange
- Floor connection profile
- Rail profile A45 made from high strength steel with high inherent stiffness
- Large supporting surface provides minimum ground pressure
- Anchoring of the floor connection profile in distances of 300 mm
- Massive levelling mounting brackets in distances of 1.000 mm

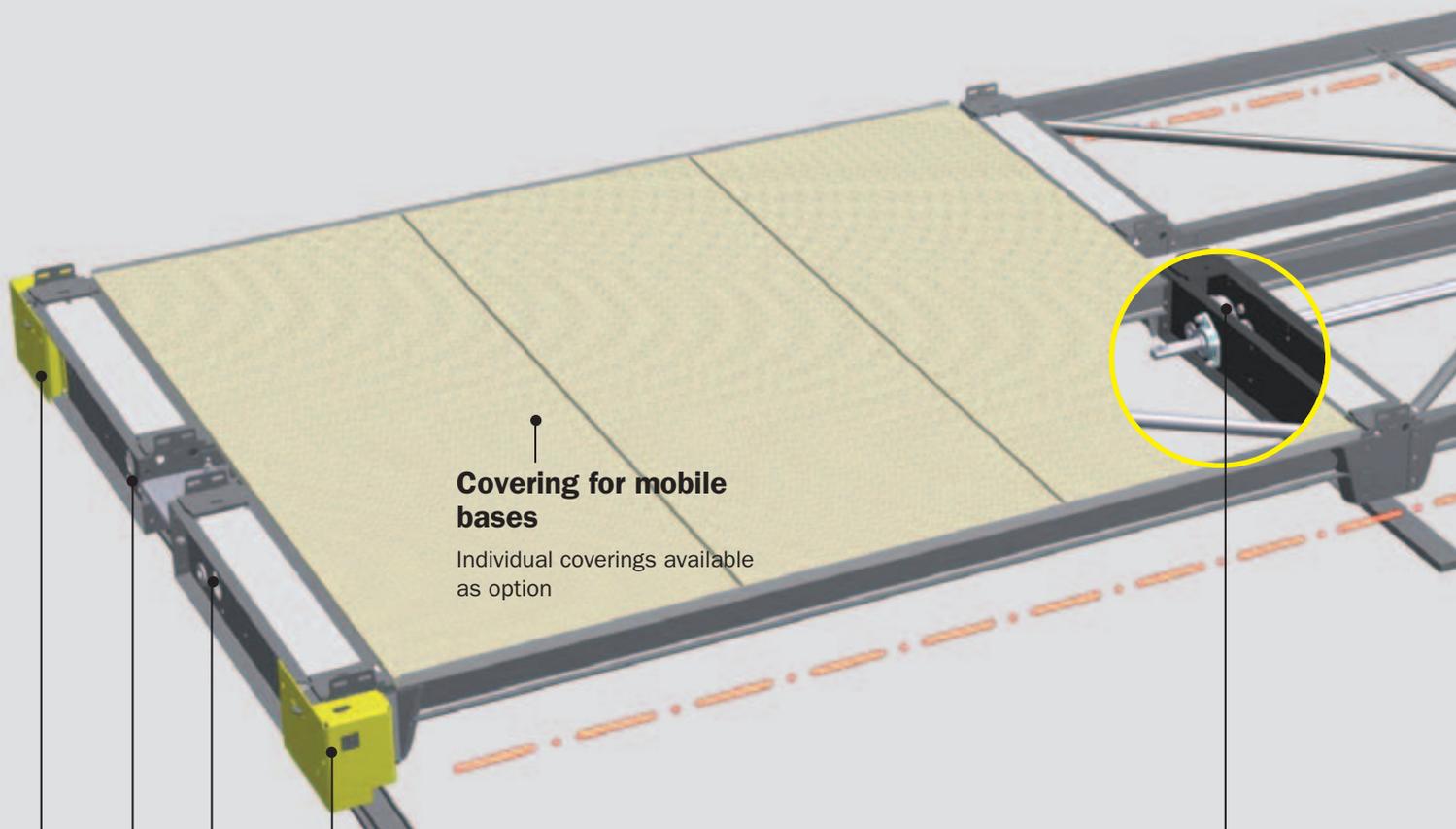
## Running rail A45



- 125 mm wide running surface
- Vertical floor connection
- Rail profile A45 made from high strength steel with high inherent stiffness
- Continuous anchoring due to the profile shape
- Massive levelling mounting brackets in distances of 1.000 mm

# Ahead of the times – Innovation and engineering of a new construction method

A concept from practical long term experience with technology of the future



### Covering for mobile bases

Individual coverings available as option



### The four-wheel travelling mechanism

Advantage for supporting structure planning:  
Loads affecting the floor are reduced due to the four wheels.



**Guide wheel:**  
Safe double wheel flange

### The bearing design

Total wear reduction:  
Four raceways of the groove ball bearings (closed version) avoid one-sided loading.



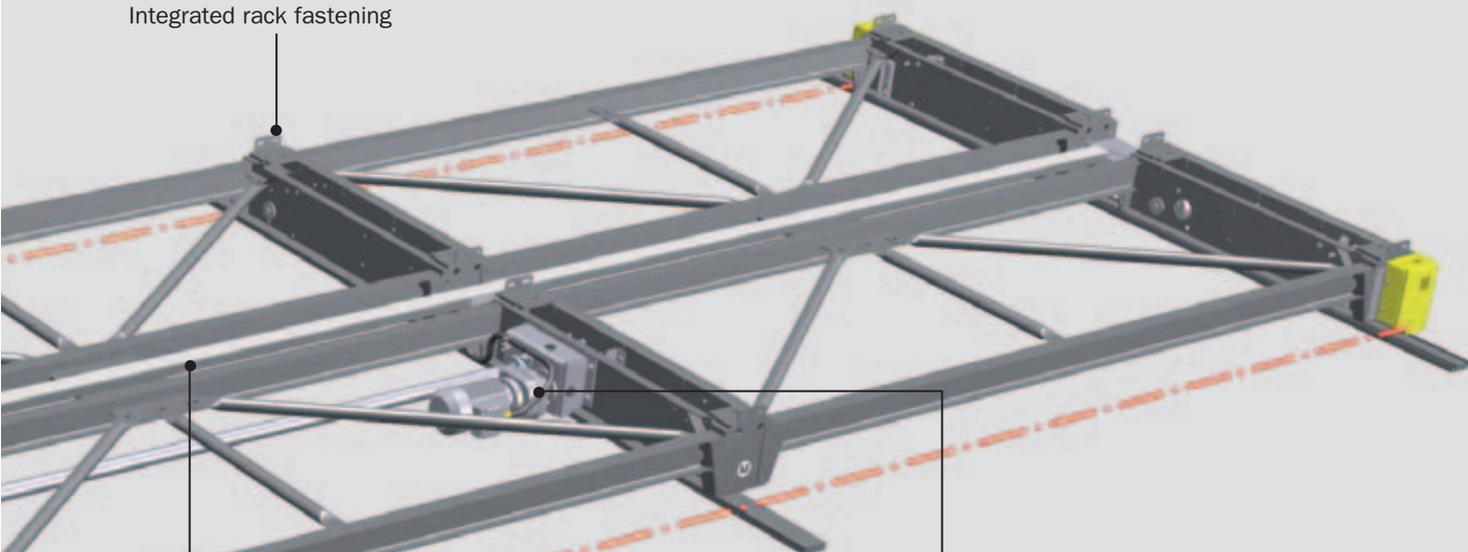
**Running wheel:**  
Cambered running wheels

# Perfect in every detail – for increased operational safety and durability

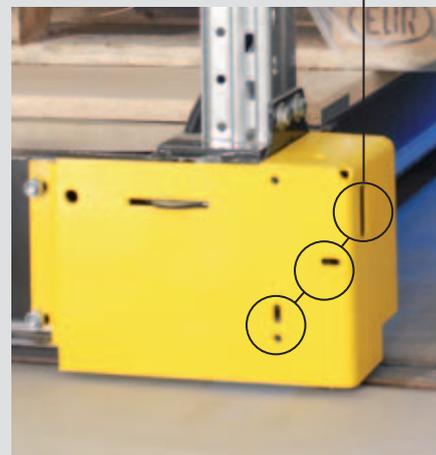
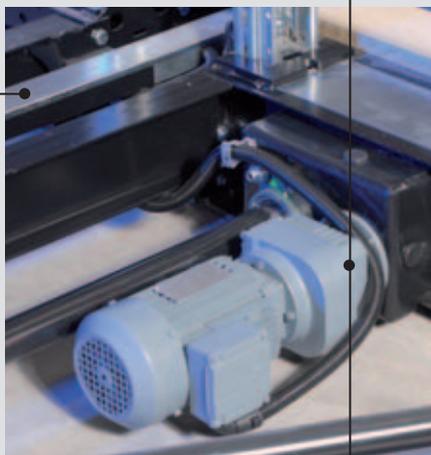
The new generation, based on four decades of experience in mobile racking system building

## Rack fastening

Integrated rack fastening



Sensor adjustment from the outside



## The centre beam

Robust, welded centre beam: Complete torsional stiffness and dimensional stability.

## Robust

Hot-rolled IPE beams: Guaranteed stability also under heavy forklift operation!

## The electric drive

High performance drive concept: Two gear stages in direct gearing with matched motor control.

## Component protection

Effective protection of components: Light barriers and distance sensors protected under robust covers.

Excellent quality due to laser accuracy and state of the art machining

# Intelligent system control – more performance through modular design



## Standard operational functions

- Global system positioning protected by photoelectric access barrier (type tested photoelectric safety barrier)
- Local system positioning protected by base-mounted photoelectric barriers on both sides of each rack (type tested photoelectric safety barrier)
- Emergency off switch on every operating panel
- Manual release system with release storage
- Rack movement control via the operating panel on each rack
- Manual emergency operation system
- Permanent system status display in plain text
- Movement time control
- Drive unit control
- Display element control
- Operation time counter

Every SSI SCHAEFER racking system is equipped with a modern Siemens S7-300 SPC control system. A modular design concept enables customised systems built around client requirements.



## Customised drive control system

- Drive control via intelligent terminal with motor power monitoring
- or*
- Frequency-controlled drive control (soft start / soft stop) to protect goods in storage

# Options



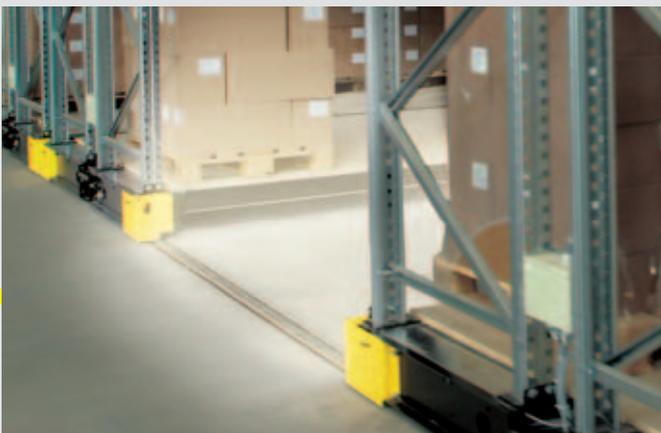
## Remote control for rack aisles

- By pressing a button on the remote control unit, which can be mobile or fixed to the forklift, the aisle to be opened is selected by radio frequency
- Integrated automatic forklift release



## Control options distance controls

- For the creation of order picking aisles
- As night park facility in cold and freezer storage areas
- As access for fire prevention



## Control option aisle lighting

- Reduced energy consumption due to pre-activated lighting (supply of potential-free contacts through SSI SCHAEFER)
- The lights have to be placed parallel to the mobile rack lines for this to be achieved



## Coverings for mobile bases

- Chipboard
- Steel or mesh decks

## Additional options

- Forklift identification
- System operation from rear
- Interface for WMS
- Modem
- Optical warning
- Acoustic pre-warning

# The storage goods determine the racking system

Strong and flexible racking systems for pallets and long goods storage as essential components in economical mobile racking systems



## Pallet racking

for example, to store

- Pallets
- Bins
- Containers
- Furniture trolleys
- Octabins
- Coils
- Reels
- Barrels



## Cantilever racking

for example, to store

- Bar steel
- Storage trays
- Sheet metal
- Bodywork parts
- Plate goods
- Long material
- Bulky material
- Structural profiles

# Pallet conveying

In combination with mobile racking systems

## **Pallet conveying systems – essential link between components of a modern and efficient intralogistics.**

The entire component range of the SSI SCHAEFER pallet conveyors is available for optimum planning and structuring of functional ranges and their linking through transport technology.

All components – such as chain conveyors, roller conveyors, 90-deg turning units, turntables, vertical conveyors, transfer vehicles, pallet dispenser, etc. – are standardised at the highest level, however, can be adapted fast and individually to customer demands.

The modular design of the SSI SCHAEFER conveyor components ensure variable system designs, short production and delivery times, high reliability and ruggedness, easy maintainability and complete compatibility between components.

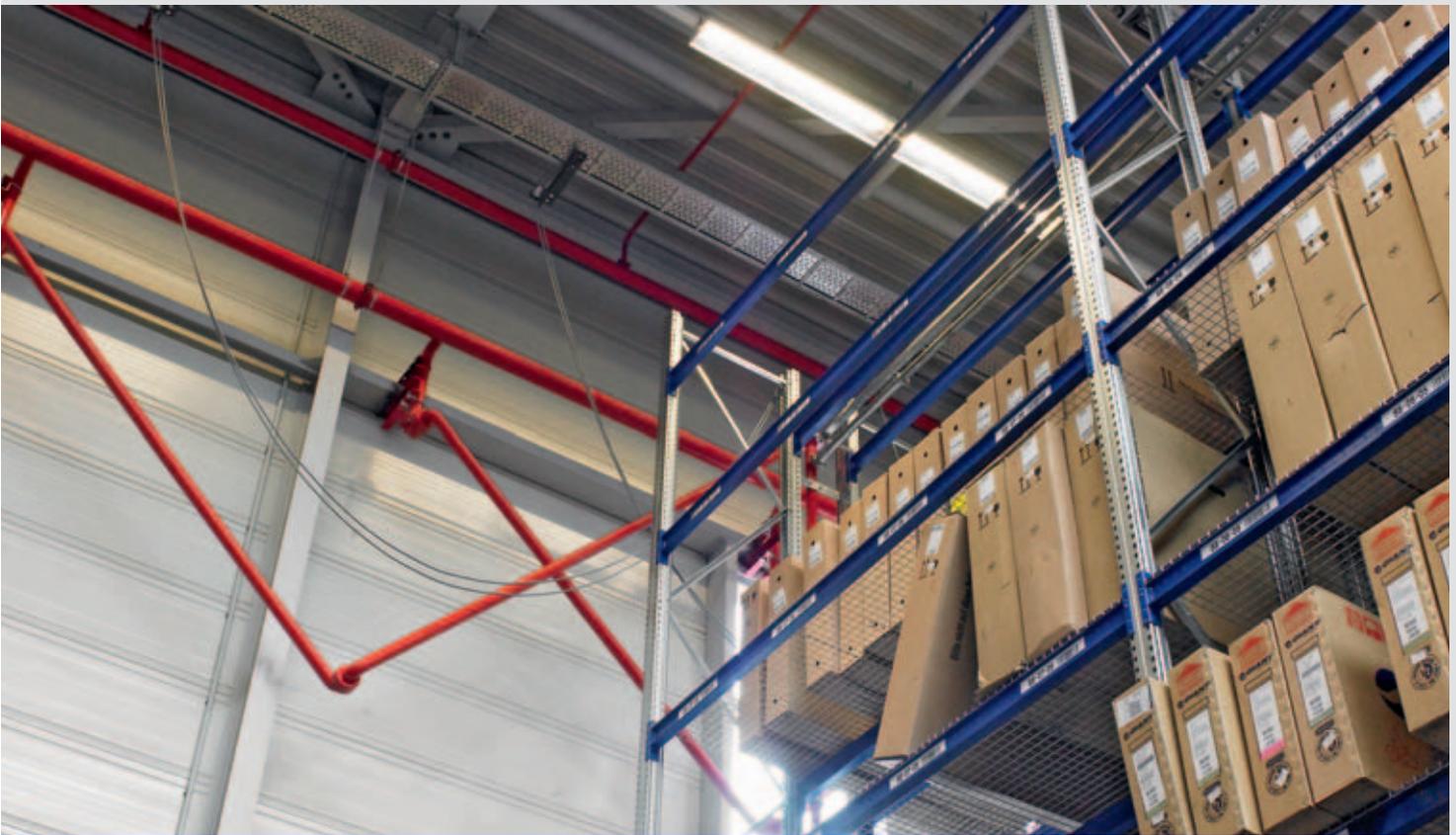
Combined with in-house production we can achieve fast manufacturing and delivery times, perfect quality assurance and continuous product development.

**State-of-the-art logistics...  
from SSI SCHAEFER just right for your requirements!**



# Fire Protection

Equipment with moveable sprinkler systems



▲ Sprinkler feed with scissor feed

◀ Flexible sprinkler feed

# Customer Service & Support

## 24 hours a day. 365 days every year. Worldwide.

High availability and long service life, economical operation and fast assistance in the event of a failure – customer oriented after-sales service and regular maintenance work are the most important approaches in optimising the operating times and operational reliability of equipment and systems.

SSI SCHAEFER has followed these principles with the creation of a service and maintenance network that is available worldwide. Continuous accessibility, fault clearance via modem or on location and preventative maintenance for mechanical equipment and control systems are part of the range of services offered by SSI SCHAEFER.

With customer specific service and maintenance models as well as innovative spare part concepts, our service team takes care of highest operational safety, minimum down times and maximum customer satisfaction.

**SSI SCHAEFER Hotline – your direct link, 24 hours per day, everyday.**

### Our range of services

- 24 hour hotline
- Global spare parts management
- Planning and execution of service contracts
- User training on location
- Preventive maintenance
- Service contracts



# Fully automated mobile racking systems



The combination of optical vehicle navigation with the tried and tested technology of mobile racking systems makes it possible:

**The fully automated mobile racking system!**

A brief summary of the essential strengths of the integrated fully automated system:

- Maximum storage capacity within a given space
- ...or...
- minimum space requirement for a specified storage capacity
- Floor space utilisation up to about 80 %
- Direct access to all pallet locations
- **Considerable reduction in staff costs**
- High goods handling capacity due to intelligent storage strategies
- Optimum adaptation to logistic procedures
- **Highest economic efficiency**
- Highest system availability
- Easily expandable due to enlargement of the vehicle fleet
- Can be adapted flexibly to current handling rate and storage capacity requirements







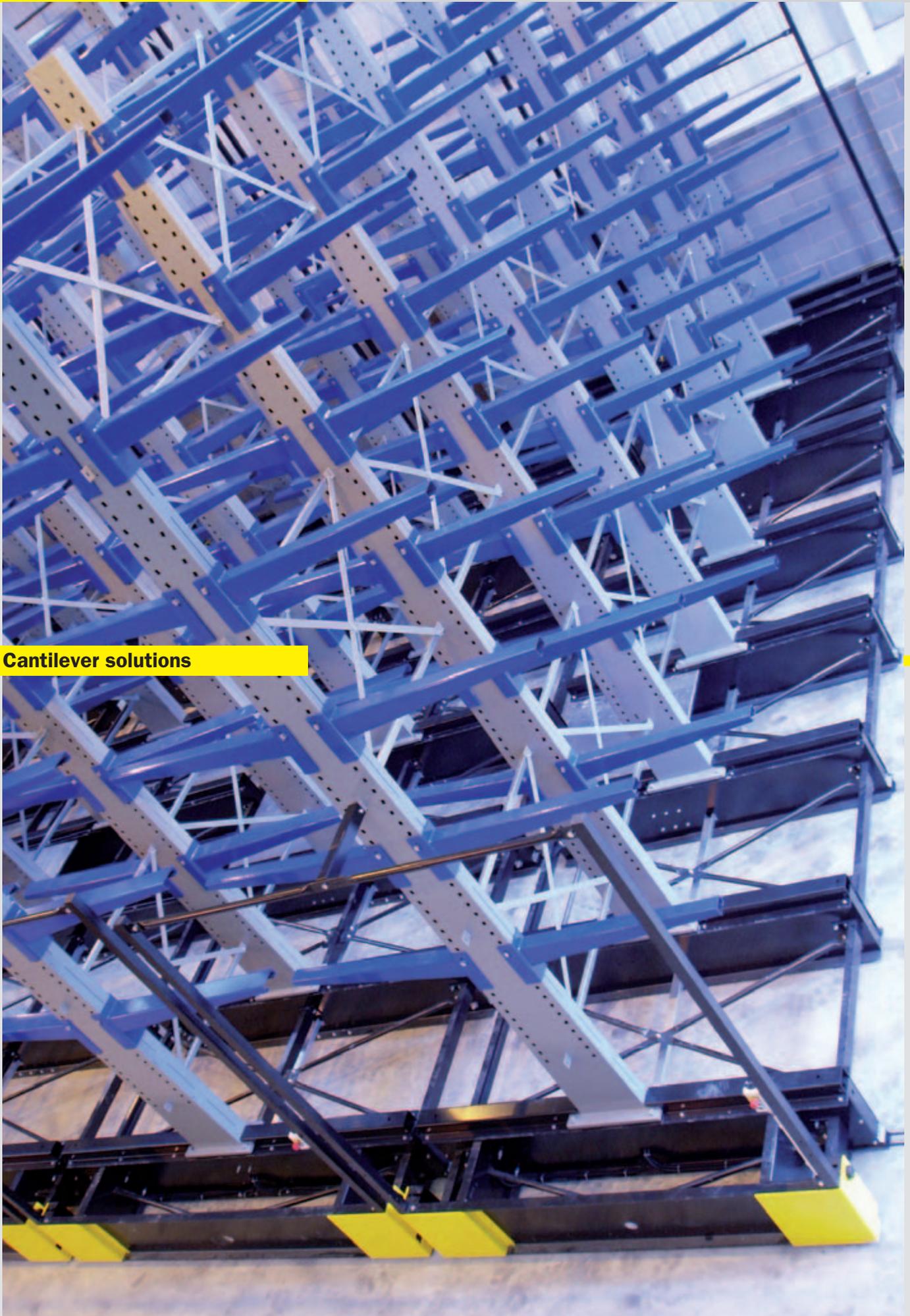
**Furniture industry**



**Food industry**



Deep freeze storage



Cantilever solutions

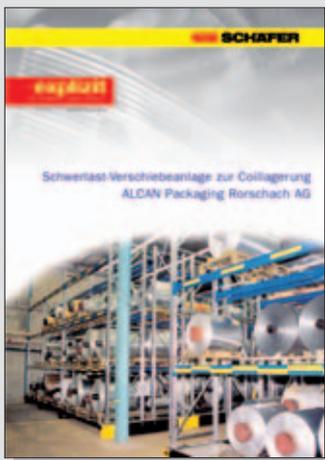
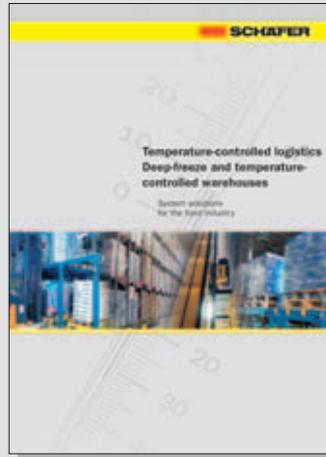
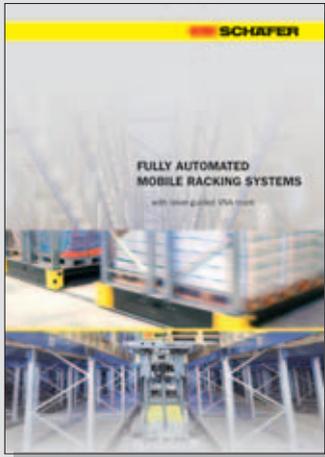


**Logistics services companies**



**Coil and special load carriers**

## Extract of our brochure series



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