

STORAGE TECHNOLOGY FOR AUTOMATED RACKING SYSTEMS

Ideas, concepts, solutions



SSI SCHAEFER – Quality supply-chain solutions



For decades SSI SCHAEFER has been one of the world's leading suppliers of high quality product solutions for warehouses, factories, offices, waste management and recycling. From containers and integrated shelving, to total workshop solutions or racking systems. From desk to multi-functional office facility – each is precisely matched to the other and can be expanded to complete modules at virtually any time to create entire factory and office systems.

International presence, experience and exemplary customer services are key benefits when it comes to planning and implementing modern strategies. Expert advice and outstanding service right from the outset. Many years of operating around the world have provided us with the expertise to develop, manufacture and install storage systems. A full range of services and perfect quality in compliance with

DIN EN ISO 9001 – all from a single source. Investment in modern machinery and advanced production technology, strict quality control and inspection procedures ensure high standards of quality now and in the future. This means you as the customer can rest assured that all SSI SCHAEFER products are certain to meet the most stringent requirements.

SSI SCHAEFER – Competence in supply-chain solutions



Competence in storage technology

- ▶ **SSI SCHAEFER – an experienced and reliable partner**
- ▶ **Maintaining maximum quality standards**
- ▶ **Professional project management**
- ▶ **In-house installation staff and worldwide on-site services and support**



Page 4–7

Products and applications

- ▶ **Automatically operated storage systems**
- ▶ **High-bay pallet racking and channel rack systems**
- ▶ **Automatic small parts warehouses / mini-load®**
- ▶ **Special storage facilities**



Page 8–33

Rack supported structure

- ▶ **What is a rack supported structure?**
- ▶ **Selecting the design option**
- ▶ **Advantages of the rack supported structure**



Page 34–37

System integration in the SSI SCHAEFER Group

- ▶ **Turnkey solutions for storage and logistics**
- ▶ **Automation and order-picking systems**



Page 38–43

Competence in storage technology

SSI SCHAEFER – an experienced and reliable partner

The need to exploit all potential savings, as well as to optimise complex logistics processes, has resulted in the considerably grown importance of efficient and fully automated storage and racking systems.

SSI SCHAEFER has been in demand as a partner in this sector internationally for decades, thanks to the wide-ranging and world-leading expertise. The volume of automated high-bay pallet rackings and small parts warehouses installed for well-known companies in many different sectors speaks for itself.

For many different areas of application, specialist teams at SSI SCHAEFER develop customer-oriented solutions to order. Every racking system is uniquely matched to the specific requirements of that particular project.

Take a look at a system at one of our reference customers!
We would be pleased to arrange a visit.





Maintaining maximum quality standards

From design to static layout through to construction and manufacturing. Each stage of the work is planned and implemented in-house at SSI SCHAEFER, with maximum quality levels being maintained throughout the entire project.

Thanks to strict adherence to international standards, including in particular any relevant regional legal requirements and situational factors (e.g. earthquake zones), our racking systems are well-regarded around the world.

The stock of large quantities of many different grades of steel from the steel service centre EMW, which also belongs to the company group, guarantees independence with regard to material supply, as well as design and scheduling flexibility.

The latest manufacturing processes at our in-house production sites with an unparalleled depth of added value, provide safety and reliability. All this combined makes SSI SCHAEFER a market leader and a strong partner for its customers, meeting the most stringent of requirements.



Competence in storage technology

Professional project management

Considerable emphasis is placed on the holistic and systematic planning of the overall running of the project at SSI SCHAEFER.

With large-scale construction projects in particular, carefully planned site organisation is of great importance. The building of temporary hard-surface routes for construction traffic, as well as storage and transport zones, are just as important as the correct manufacture of the appropriate installation surface or base plate for the racking. As early as the sales phase, you will receive full project details in the form of custom-designed construction site setup plans, load data and anchor specifications, which also provides you with reliability of planning and costs.

In addition, project managers with international experience ensure the transparent and smooth running of complex storage projects. They manage, coordinate and control the project from receipt of order through to handover to the customer. This includes core tasks of a project manager such as ensuring that the installation work progresses on schedule, as well as managing cooperation with all other organisations involved.





In-house installation staff and worldwide on-site services and support

In-house installation staff as well as our own subsidiary companies and offices in more than 50 countries provide additional on-site support, for example with regard to precise adherence to country-specific construction and safety regulations. An overview of all subsidiaries can be found on page 46.



Products and applications

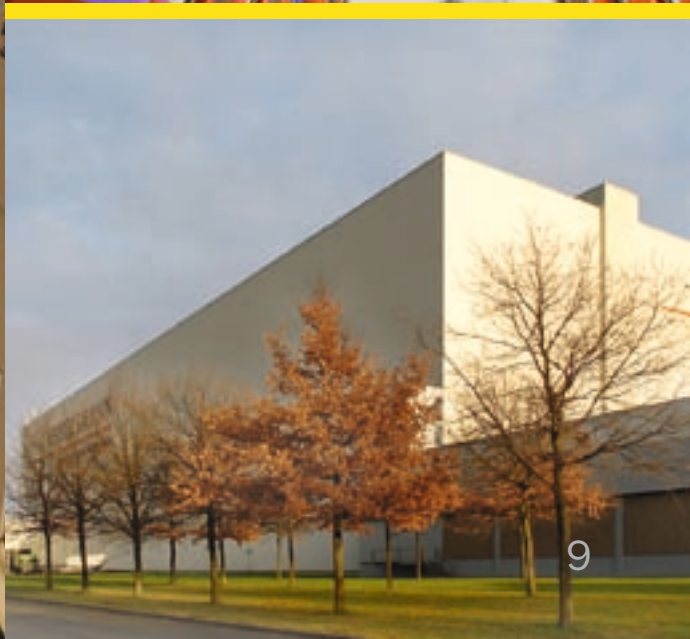
Automatically operated storage systems

High-bay rackings where goods are placed into or removed from storage in a fully automated way using computer-controlled storage and retrieval equipment – synonymous with SSI SCHAEFER.

SSI SCHAEFER designs high-bay pallet rackings and automatic small parts warehouses, as well as special storage systems. The customer may choose between two options – integration into halls or rack supported structures.



High-bay pallet racking and channel rack systems
Automatic small parts warehouses / mini-load®
Special storage facilities





Efficiency thanks to height.



High-bay pallet racking and channel rack systems

The handling of palletized goods is an important part of intralogistics. In this process, a highly varied range of pallet storage types fulfil tasks such as supply, buffering, preparation and order picking.

Products and applications

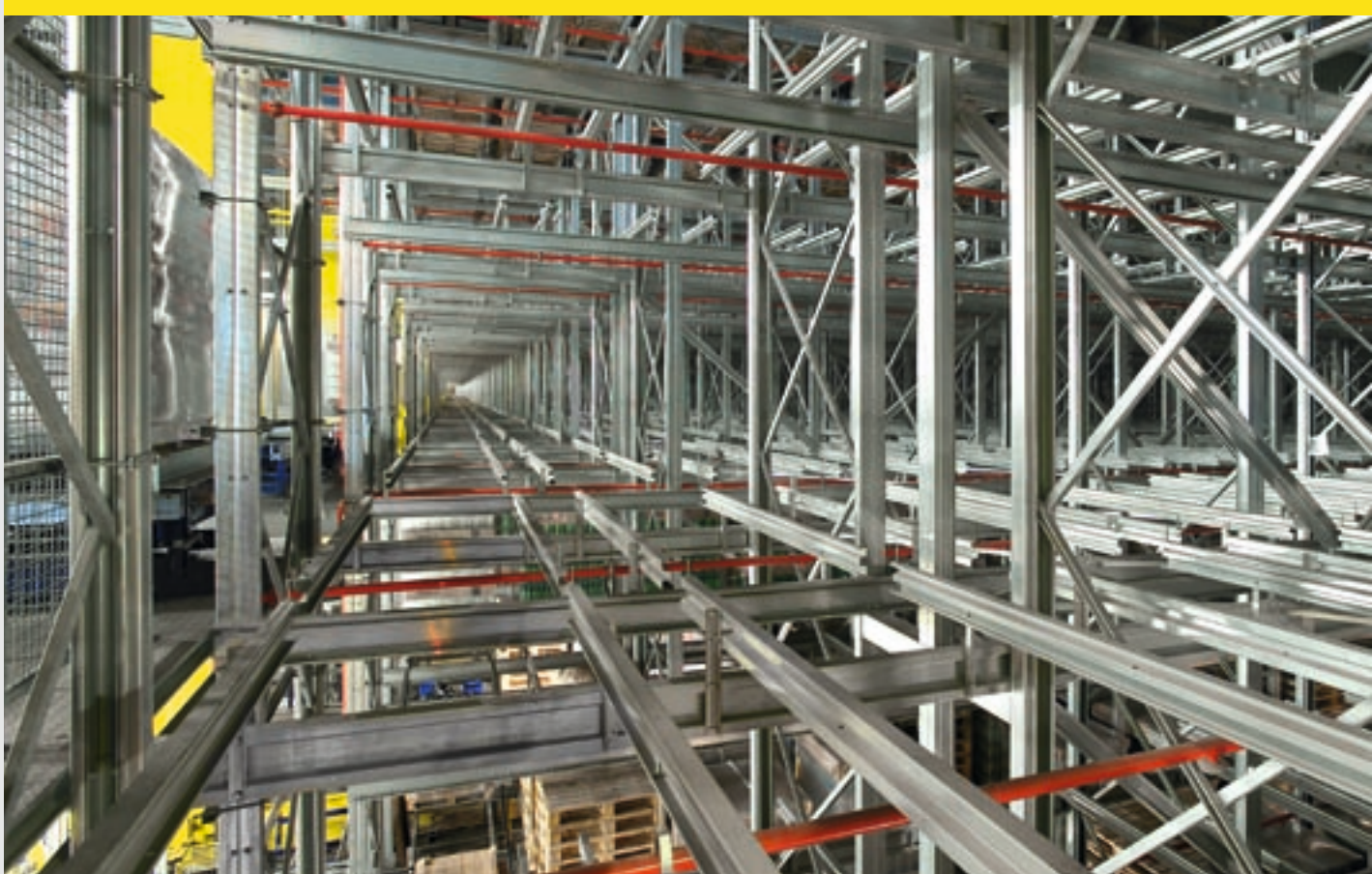
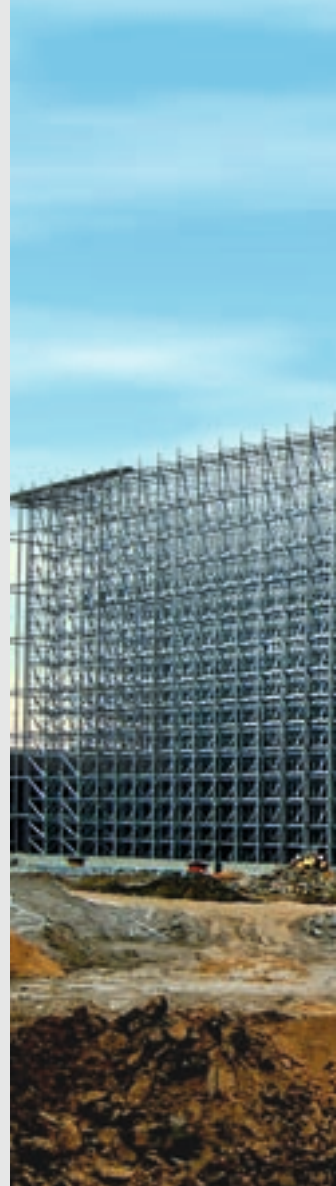
High-bay pallet racking technology

Depending on the number of items and the goods handling performance, an automated high-bay pallet racking system offers all the advantages of an efficient storage system: It saves space thanks to optimised space utilisation and ensures stock availability as well as efficient process chains.

Several pallet types, from Euro to special pallets, permit storing of different products.

The rack frames manufactured by SSI SCHAEFER can be used in a great variety of ways thanks to the various designs; they also allow various storage variants to be implemented, such as single-, double- and multiple-depth storage as well as single- and multi-location storage.

This represents a level of versatility that meets every possible requirement and which ensures security of investment in the long term. Even complex storage systems can be expanded or modified – even many years down the line. This makes SSI SCHAEFER a reliable partner.





Products and applications

Tried and trusted rack supported structure

In essence a distinction is made between storage systems set up in a hall, and what are known as rack supported structures. In this type of construction, the racking itself constitutes the load-bearing sub-construction for the roof and wall cladding, in other words, there is no need to build a separate hall.

Thanks to precision when it comes to details, and well-designed technology, SSI SCHAEFER is one of the few suppliers of automatic racking systems able to realise pallet rack supported structures of a height of over 40 m. This is a key competence of SSI SCHAEFER! The advantages of this construction method are numerous. Starting with shorter installation times – as the roof and wall cladding can be fitted at virtually the same time as the racking is being assembled – through to savings regarding foundation and building technology, as well as roof and wall surface areas.

A detailed explanation of the benefits of this design can be found on page 34.







Products and applications

Special features in detail

High quality materials combined with reliable corrosion protection ensure a virtually unlimited service life of the steel construction. Special anchor systems developed by SSI SCHAEFER offer customers all the advantages of modern anchor types. The amount of work required to set up the base plate is reduced to a minimum as the interface with the concrete construction is clearly defined and can therefore be worked on separately.

The specific type of warehouse construction and the lack of welded connections, protect against deformation and, as a result, additional tensions on the steel racking structure are prevented. Extremely critical tolerances are met and the performance of the system overall is increased. In addition to the steel construction, SSI SCHAEFER supplies a comprehensive range of accessories, such as platforms, steps, fences and other safety equipment.

All components are manufactured in-house and made-to-measure for the specific situation of the racking system. Additional trades tailored to fit the storage system, such as the roof and wall cladding, can also be purchased from SSI SCHAEFER in form of a total product package.

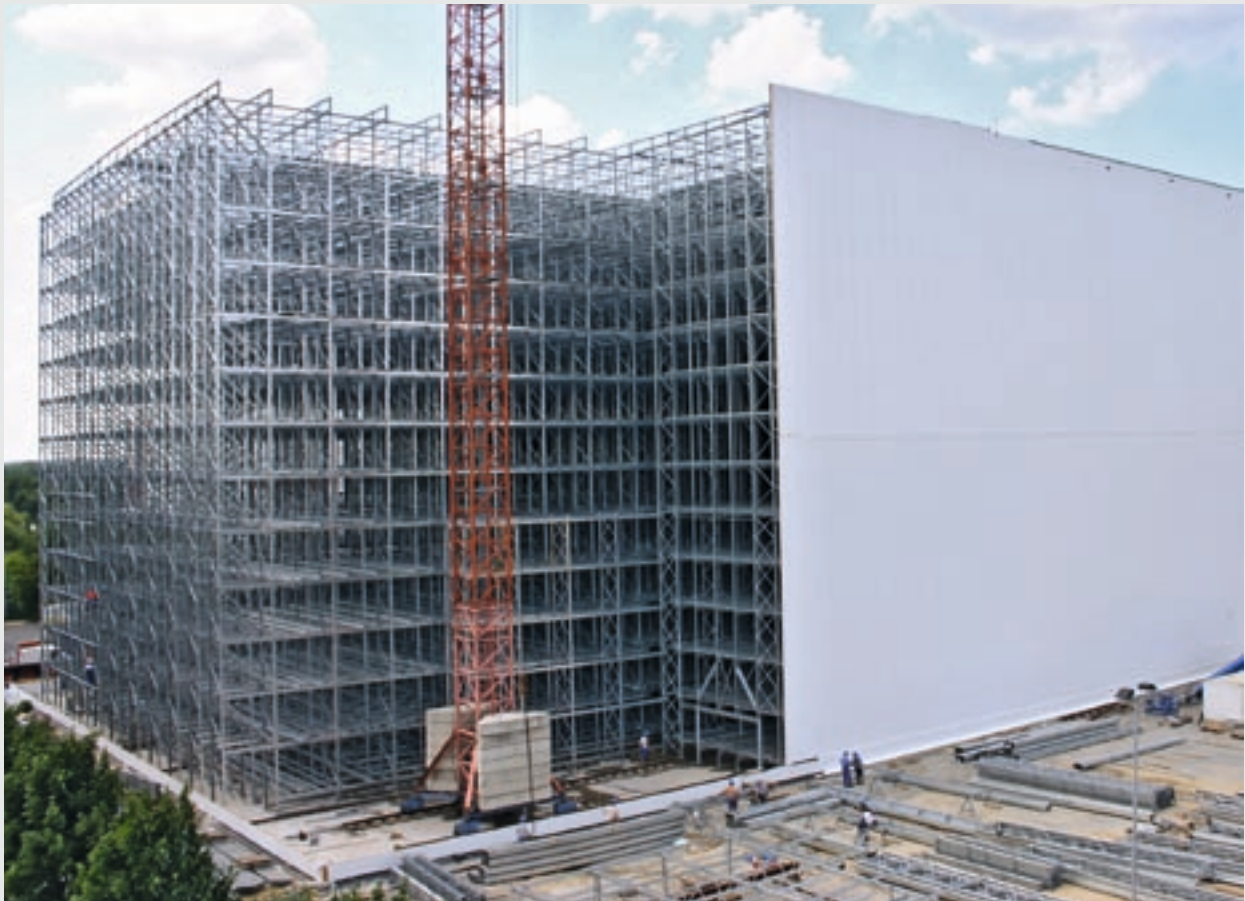


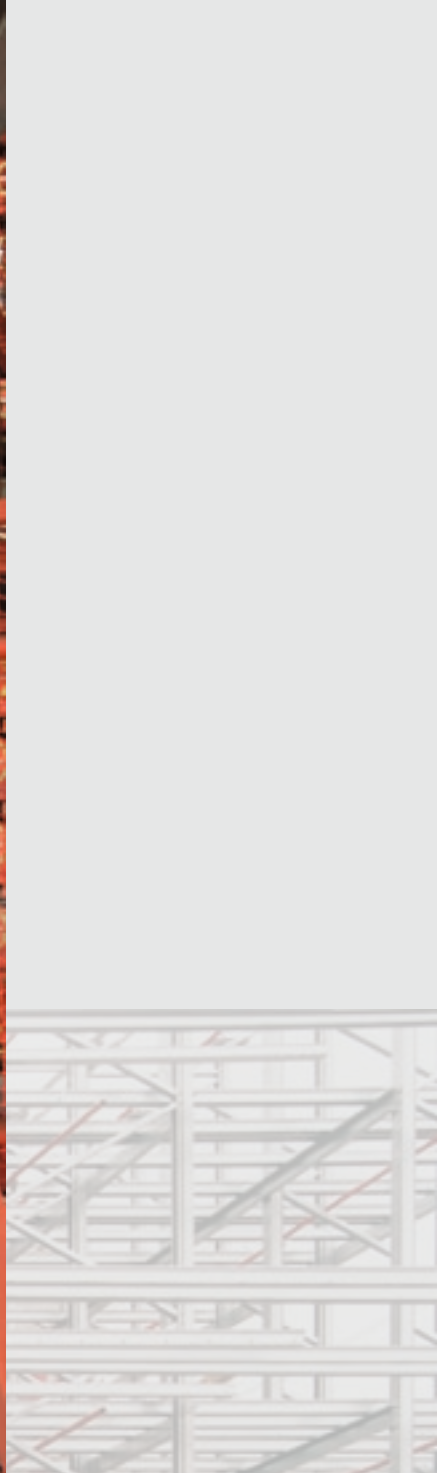
Channel warehouse technology

High stock volumes of individual items and a low number of product groups, such as in the beverage or food industry, call for channel warehouse technology. The goods are stored on rails in channels and moved into and out of storage using special conveyor technology, known as trolleys.

Compared to a conventional, automatic high-bay pallet racking system, the rate of space utilisation of a channel warehouse is greater. This is why refrigerated warehouses requiring a considerable amount of power are often designed as channel warehouses. Even extreme temperatures as low as -30°C can be withstood by the steel constructions from SSI SCHAEFER.

Around the world, SSI SCHAEFER has numerous reference sites with channel warehouse technology, both in the field of refrigerated and frozen storage, as well as in normal temperature applications.







Sophisticated, flexible and user-friendly.



Automatic small parts warehouses / mini-load®

The term ‘automatic small parts warehouse’ stands for frequent goods handling, or in other words, the inward storage of small parts with a high access frequency.

Small parts warehouse technology

An automatic small parts warehouse is ideal for the storage of small items, for example in containers.

Entire warehouse systems full of small parts are controlled via computer. Unmanned automatic storage and retrieval systems remove the goods from the compartments and transport them to an order picking station or a conveyor system link-up.

As small parts warehouses are planned to conform the narrowest of tolerance specifications, this racking type places the highest of demands in terms of manufacturing precision and accuracy of installation – a further core competence of SSI SCHAEFER ensuring a high level of system availability.







Products and applications

Short routes between stored goods and order picking staff

Goods preparation is carried out in a particularly flexible way thanks to the use of flow channels. These are manufactured and designed in-house by SSI SCHAEFER for the specific features of small parts warehouses. The advantages of flow channels, such as rapid direct access to the goods being picked, are especially relevant to sectors where an increased level of flexibility is required.

Numerous well-known companies, such as those in the food industry, pharmaceutical and medicine wholesalers or mail-order companies, are all well represented among the clientele of SSI SCHAEFER.



Products and applications

Variable usage

Small parts systems are extremely variable and versatile. Storage options in a small parts warehouse include single- and multi-location storage (the latter can also be used as a flexible shelving system), as well as various options for the inward storage of parts, from single- to double-depth through to multi-depth storage, such as is the case with a channel warehouse design. All system variants can be implemented without and with load carriers, such as containers or trays.

Depending on the load carriers and storage and retrieval system, the stored goods are conveyed from the individual compartments using lifting, gripping and pulling technologies. In our reference list you will find a range of highly varied installations using equipment from all the well-known storage and retrieval system manufacturers.

Naturally all the advantages of the rack supported structure can also be found in an automatic small parts warehouse. A detailed explanation of the benefits of this design can be found on page 34.

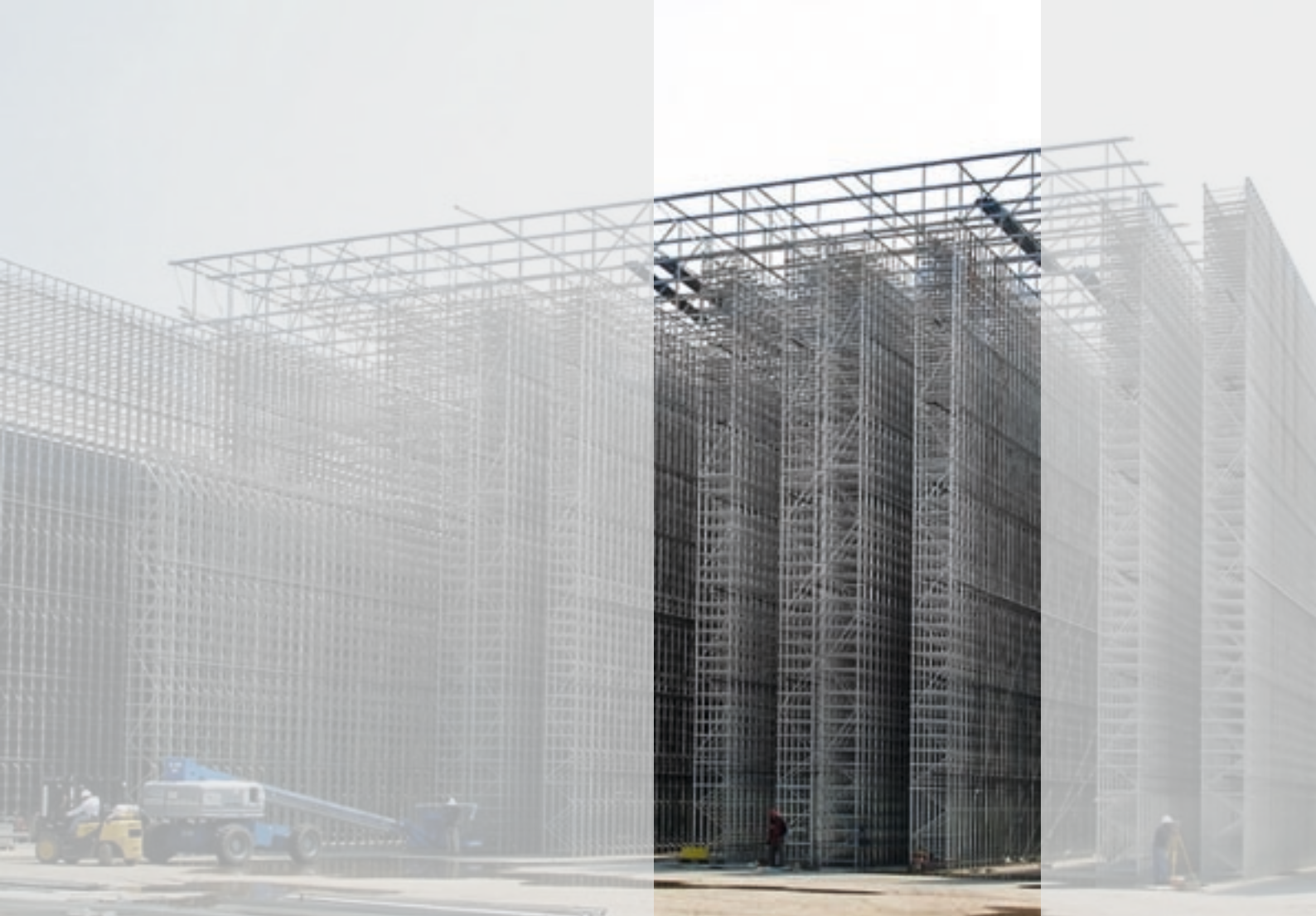
Another specialist area at SSI SCHAEFER is the implementation of a small parts warehouse with multiple vertical levels. Two or more storage and retrieval systems are positioned above one another in this case, which achieves an additional increase in efficiency.

Multi-location storage



Double-depth storage





Tray storage



Products and applications

Versatile load carriers

This demonstrates just how flexible the use of automatic small parts warehouses is, and how versatile their load carriers are. They are all manufactured by SSI SCHAEFER and can be modified for individual needs and situations. From various container designs to different tray versions, each either made from plastic or sheet steel. Specific custom solutions can also be implemented according to your specifications.

Virtually all load carrier types have been developed on the basis of countless practical applications. This results in safety, because tried and trusted usage is better than any test.

As a rack structure combined with made-to-measure load carriers, we offer you a cost-effective range of products. Contact us now! Our staff is available to advise you.







In principle you can store absolutely anything.



Special storage facilities

The interesting part comes in mastering challenging projects, like storing heavy or bulky goods, based on advanced technology and in implementing an optimised system that meets the requirements.

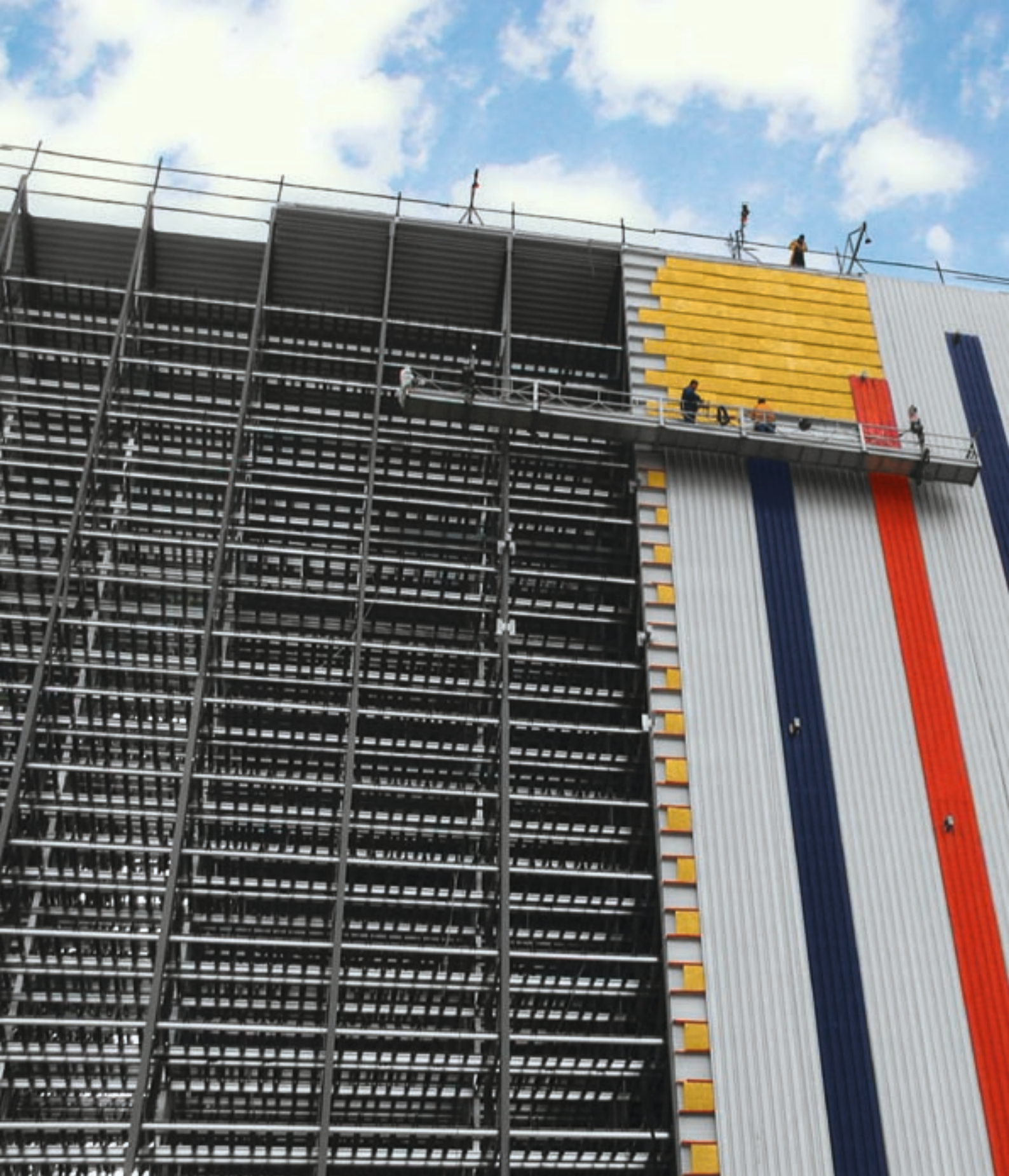
Special storage technology

Special items for storage require special solutions. Whether it comes to storing coils, vehicle bodywork or other bulky and heavy parts, SSI SCHAEFER is your specialist for made-to-measure special solutions and extraordinary projects in warehouse technology, which are customised down to the finest detail.

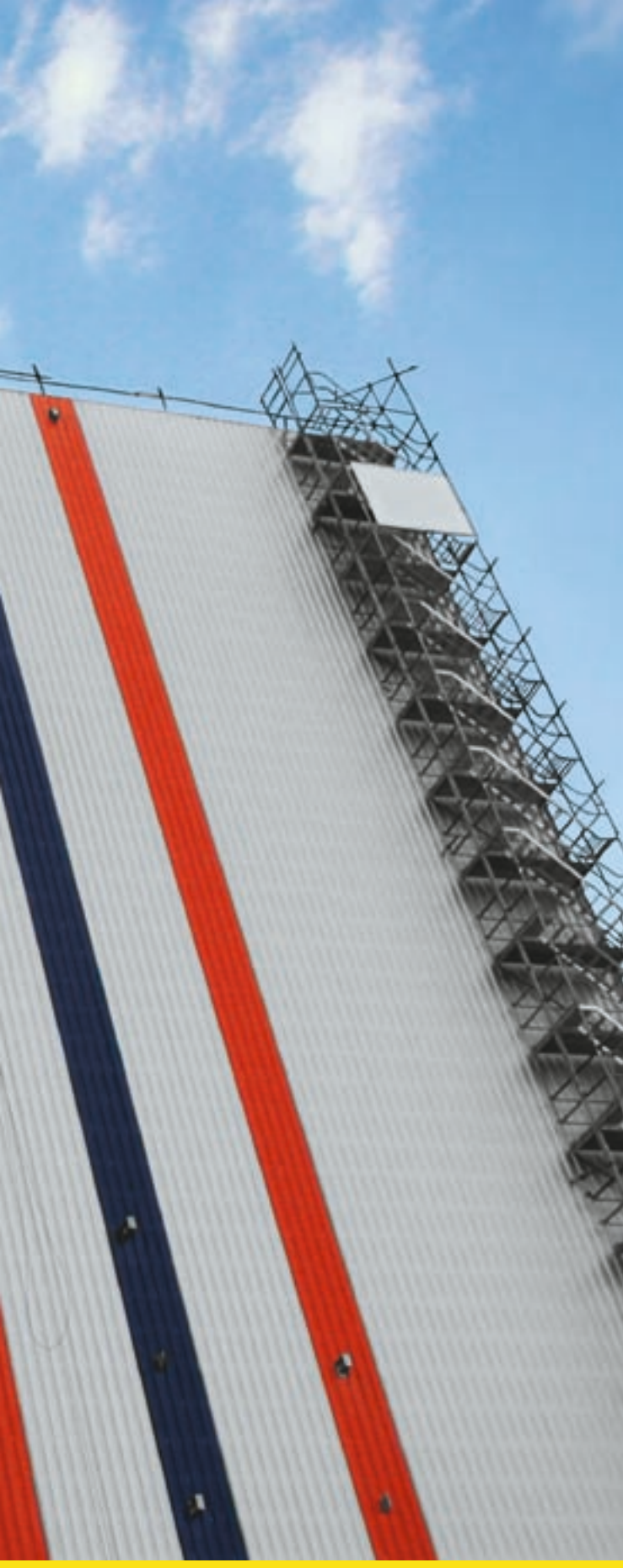
SSI SCHAEFER has implemented various special storage projects in the past, and is standing by to assist you as an experienced partner.







A compact issue.



What is a rack supported structure?

A rack supported structure is one where the racking constitutes the load-bearing sub-construction for the roof and wall cladding. This type of racking offers several advantages thanks to its design – on the one hand during the setup phase, and on the other hand during subsequent operation.

Rack supported structure

Selecting the design option

The range of design versions of racking systems is extremely varied. Ranging from a fully automated high-bay rack supported structure to a manually operated shelving system, installed in a hall, a large number of combined designs exists between these two options. Especially important is the basic choice between a rack supported structure and an indoor warehouse, as choosing a rack supported structure may produce significant advantages.

Which design offers the optimum solution essentially depends on various parameters and needs to be evaluated on a case by case basis. The first step here is the basic definition of the customer's objectives and requirements. Followed by more in-depth data analyses and feasibility checks, also considering the context of relevant external factors, through to the actual process of weighing up design-related benefits.

This decision-making process can be explained clearly with the help of the example given below of the two racking designs of a **fully automated high-bay pallet rack supported structure and a **manually operated indoor pallet warehouse**:**

1st phase

Customer requirements ...

... in particular with regard to the type of goods, storage capacity and goods handling performance.

2nd phase

Specifying the type of operation ...

... as part of the pre-planning process/ concept study with the basic data acquired in the first phase.

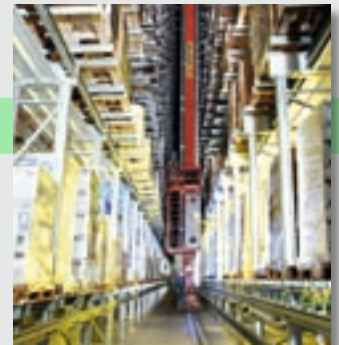
3rd phase

Selecting the equipment ...

... depending on a cost/ efficiency analysis.



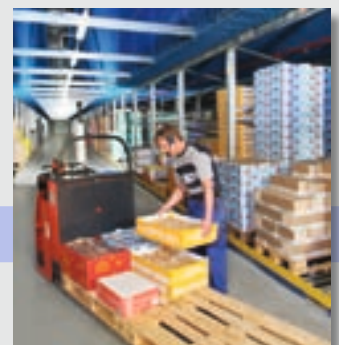
Automatic



Unmanned, fully automated storage and retrieval system



Manual



Manually operated equipment, e.g. fork lift truck

Advantages of the rack supported structure

Compact design

Space-saving in the area of construction site utilisation, base plate as well as the roof and wall cladding.

Foundation

Simple base foundations thanks to load distribution across multiple rack uprights.

Installation time

Setting up the roof and wall cladding at virtually the same time as assembling the racking system, easy fitting of storage and retrieval equipment and conveyor technology, shortening the amount of time before the system can be used.

Building-related operating costs

Lower costs for building technology (e.g. air conditioning, lighting), cleaning and wear due to the normally unmanned operation.

Depreciation

Attractive depreciation options.

4th phase

Determining the precise warehouse geometry ...

... taking into account other external factors, such as regional regulations or legal conditions.

5th phase

Determining the warehouse design ...

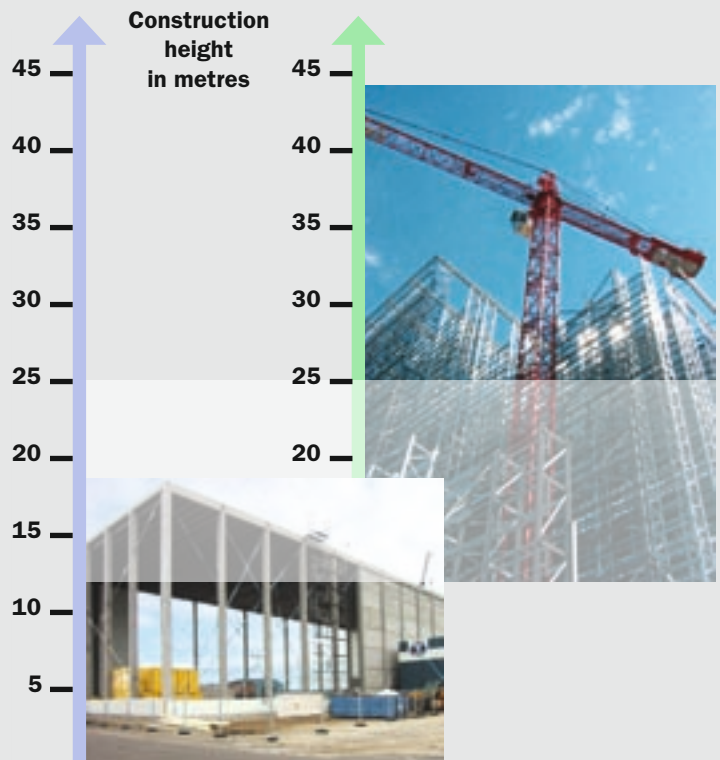
... after evaluating the design-related benefits of the rack supported structure (see above).



High, long



Squat, flat



Over a certain construction height, the rack supported structure is the sensible option for economic reasons. There are virtually no limits in terms of building upwards.



State-of-the-art complex systems.



Efficient automation solutions

*Modern IT, conveyor
and order picking
systems ensure the
reliability of goods
transport processes
and thus the consistent
availability of the
stored goods.*

System integration in the SSI SCHAEFER Group

Turnkey solutions for storage and logistics

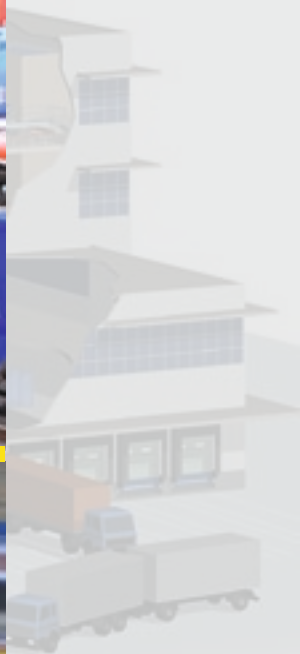
The comprehensive range of products tailored to meet the needs of the marketplace ensures individually customised logistics solutions and the efficiency, optimisation and cost-effectiveness of the customer's specific business processes. Defined interfaces of the solution components provide a significant degree of flexibility and form the basis for the latest technology that expands alongside growing requirements.

With the expertise and experience from implementing a variety of projects worldwide, SSI SCHAEFER delivers innovative and proven components for holistic and complex logistics management concepts.

General contracting
Planning and consultancy
Project management

System modernisation and conversion
IT and automation systems
After-sales service and maintenance





SSI SCHÄFER NOELL GMBH

i_Park Klingholz 18/19
D-97232 Giebelstadt, Germany
Phone +49/(0) 93 34/9 79-0
Fax +49/(0) 93 34/9 79-100
eMail info@ssi-schaefer-noell.com

System integration in the SSI SCHAEFER Group

Automation and order-picking systems

The integration of the latest electrical and control technologies ensures the implementation of efficient transport and conveyor processes, as well as the coordination and cooperation of all conveyor technology components with one another.

Comprehensive, self-explanatory visualisation tools form the material flow system and reflect the usage capacity of the system components. This means that the processes in incoming and outgoing goods handling, supply provision or preparation for dispatch can be viewed at a glance.




SSI SCHÄFER PEEM GMBH

Fischeraustraße 27
A-8051 Graz/ Austria

Phone +43/3 16/60 96-0

Fax +43/3 16/60 96-457

eMail sales@ssi-schaefer-peem.com



Highly dynamic
order picking systems

Storage and retrieval systems
for pallets, corlettes, etc.

Conveyor technology for pallets,
containers, cartons and trays



Container handling systems

Paperless order picking systems

Sorting and distribution systems

Expert advice in Germany

HEAD OFFICE

NEUNKIRCHEN/SIEGERLAND

Fritz Schäfer GmbH
Storage Systems
Fritz-Schäfer-Str. 20
D-57290 Neunkirchen, Germany
Phone +49/(0) 27 35/70-3 41
Fax +49/(0) 27 35/70-3 09
eMail va@ssi-schaefer.de

www.ssi-schaefer.de

BERLIN

Fritz Schäfer GmbH
Berlin office
Kienhorststr. 59
D-13403 Berlin, Germany
Phone +49/(0) 30/41 70 64-0
Fax +49/(0) 30/41 70 64-55
eMail GS.Berlin@ssi-schaefer.de

HAMBURG

Fritz Schäfer GmbH
Hamburg office
Barkhausenweg 11
D-22339 Hamburg, Germany
Phone +49/(0) 40/53 80 72-0
Fax +49/(0) 40/53 80 72-18
eMail GS.Hamburg@ssi-schaefer.de

BREMEN

Fritz Schäfer GmbH
Bremen office
Hanna-Kunath-Str. 15 (Airport City)
D-28199 Bremen, Germany
Phone +49/(0) 4 21/4 68 91-0
Fax +49/(0) 4 21/4 68 91-23
eMail GS.Bremen@ssi-schaefer.de

HANOVER

Fritz Schäfer GmbH
Hanover office
Kugelfangtrift 4
D-30179 Hannover, Germany
Phone +49/(0) 5 11/63 97 93 70
Fax +49/(0) 5 11/63 97 93 99
eMail GS.Hannover@ssi-schaefer.de

CHEMNITZ

Fritz Schäfer GmbH
Chemnitz office
Winklerstraße 20
D-09113 Chemnitz, Germany
Phone +49/(0) 3 71/43 25 60
Fax +49/(0) 3 71/4 32 56 15
eMail GS.Chemnitz@ssi-schaefer.de

MANNHEIM

Fritz Schäfer GmbH
Mannheim office
Heppenheimer Straße 31-33
D-68309 Mannheim, Germany
Phone +49/(0) 6 21/66 90 04-0
Fax +49/(0) 6 21/66 90 04-77
eMail GS.Mannheim@ssi-schaefer.de

DORTMUND

Fritz Schäfer GmbH
Dortmund office
Brennaborstr. 17
D-44149 Dortmund, Germany
Phone +49/(0) 2 31/65 29 77
Fax +49/(0) 2 31/65 28 04
eMail GS.Dortmund@ssi-schaefer.de

MUNICH

Fritz Schäfer GmbH
Munich office
Geisenhausener Straße 18
D-81379 München, Germany
Phone +49/(0) 89/74 84 87-0
Fax +49/(0) 89/74 84 87-77
eMail GS.Muenchen@ssi-schaefer.de

DÜSSELDORF

Fritz Schäfer GmbH
Düsseldorf office
Dresdener Str. 162
D-40595 Düsseldorf, Germany
Phone +49/(0) 2 11/9 70 78-0
Fax +49/(0) 2 11/9 70 78-8
eMail GS.Duesseldorf@ssi-schaefer.de

NUREMBERG

Fritz Schäfer GmbH
Nuremberg office
Wetterkreuz 20
D-91058 Erlangen, Germany
Phone +49/(0) 91 31/4 80 06-0
Fax +49/(0) 91 31/4 80 06-50
eMail GS.Nuernberg@ssi-schaefer.de

FREIBURG

Fritz Schäfer GmbH
Freiburg office
Industriestr. 57
D-79194 Gundelfingen, Germany
Phone +49/(0) 7 61/5 03 65-0
Fax +49/(0) 7 61/5 03 65-20
eMail GS.Freiburg@ssi-schaefer.de

STUTTGART

Fritz Schäfer GmbH
Stuttgart office
Schorndorfer Str. 21
D-70736 Fellbach, Germany
Phone +49/(0) 7 11/5 10 99 49-0
Fax +49/(0) 7 11/5 10 99 49-20
eMail GS.Stuttgart@ssi-schaefer.de



At your service, around the world

A strong partner worldwide

We make being easily accessible for our customers a top priority. This is why we have offices around the world with subsidiaries and sales partners. Our production sites around the globe guarantee a consistent focus on our customers. The use of the latest production technologies ensures direct contact with the marketplace and powerful service capabilities.

The ability to understand the language and culture in question is the best possible way to offer efficient project management, high quality system integration and first class support.

This global network continuously provides us with valuable ideas for the latest new developments, product improvements and improvements in the customer service arena. This ensures fast response times to be able to meet the needs of our customers expertly and on an ongoing basis.

Contact us – at a location near you.

A complete list of all the current contact information for our subsidiaries, offices and contractual partners can be found on our website under the “Contact” menu option

www.ssi-schaefer.com

In the “News” section you will find information on a number of interesting topics and the latest projects being implemented.



Austria, Wels



Belgium, Zaventem



Netherlands, Arnhem



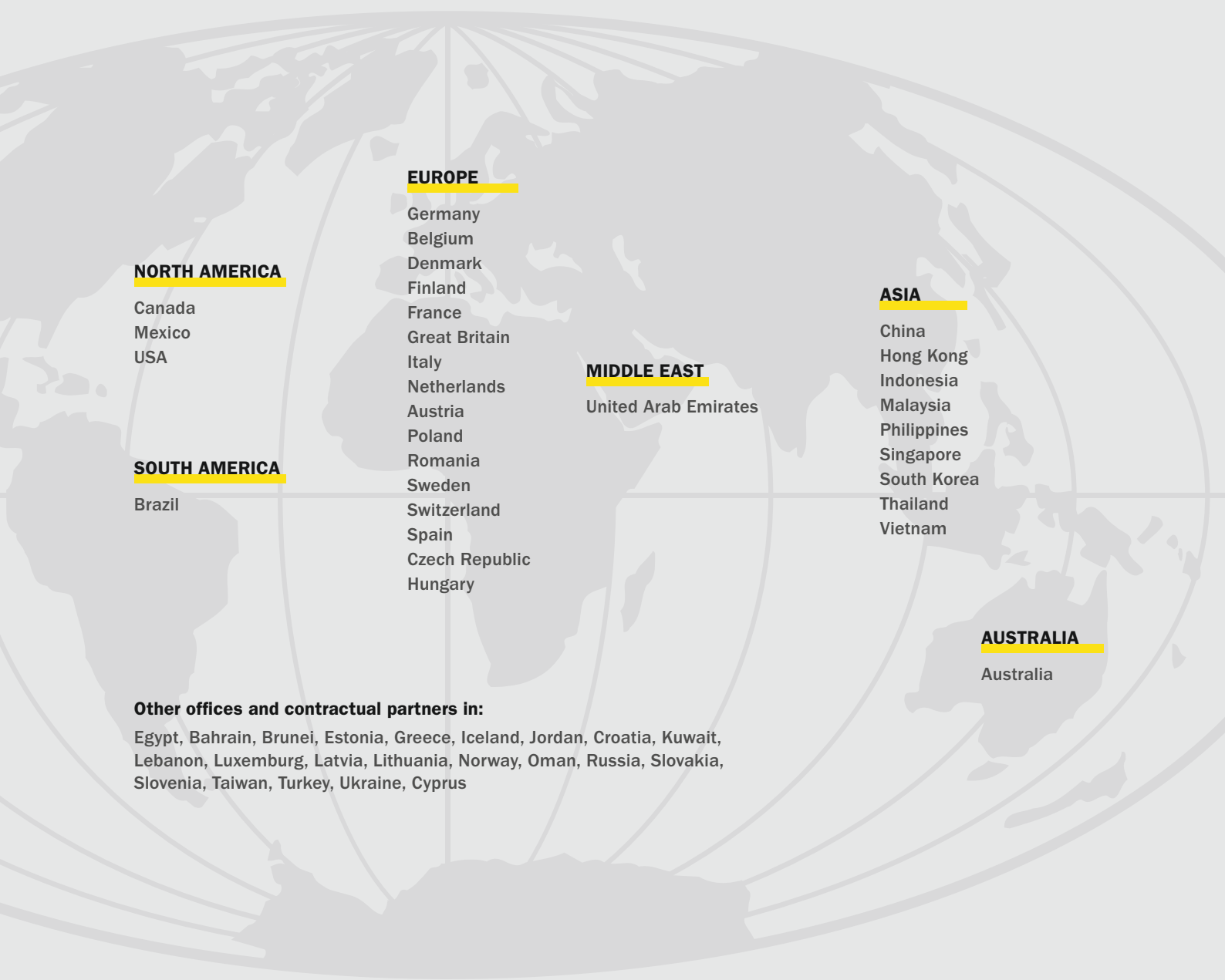
Switzerland, Neunkirch



France, Yutz



Czech Republic, Hranice



NORTH AMERICA

Canada
Mexico
USA

SOUTH AMERICA

Brazil

EUROPE

Germany
Belgium
Denmark
Finland
France
Great Britain
Italy
Netherlands
Austria
Poland
Romania
Sweden
Switzerland
Spain
Czech Republic
Hungary

MIDDLE EAST

United Arab Emirates

ASIA

China
Hong Kong
Indonesia
Malaysia
Philippines
Singapore
South Korea
Thailand
Vietnam

AUSTRALIA

Australia

Other offices and contractual partners in:

Egypt, Bahrain, Brunei, Estonia, Greece, Iceland, Jordan, Croatia, Kuwait, Lebanon, Luxemburg, Latvia, Lithuania, Norway, Oman, Russia, Slovakia, Slovenia, Taiwan, Turkey, Ukraine, Cyprus



Sweden, Malmö



USA, Charlotte



Canada, Brampton



Singapore



China, Kunshan



Malaysia, Johor



SSI SCHÄFER

FRITZ SCHÄFER GMBH

Manufacturing plants for warehouse,
factory and office equipment,
waste management and recycling

Fritz-Schäfer-Straße 20
D-57290 Neunkirchen/Siegerland

Phone: +49 / (0) 27 35 / 70-1

Fax: +49 / (0) 27 35 / 70-3 96

eMail: info@ssi-schaefer.de

www.ssi-schaefer.de



Anl_en 0208-052008-sch/052008
Printed in Germany by WAZ-Druck, Duis-
burg, © by SSI SCHÄFER. We reserve the
right to make technical modifications to any
of the products shown in this catalogue.
Any colour deviations of the products from
the original are due to printing technology.
This catalogue is supplied E&OE.