TOPREGAL®

ASSEMBLY & OPERATING INSTRUCTIONS

Storage rack
Inclined shelving
Tire rack

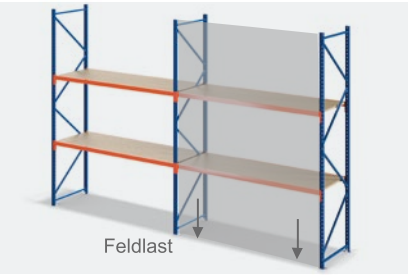
Type LR2000

All storage racks may only be loaded and unloaded by hand!

CONTENTS

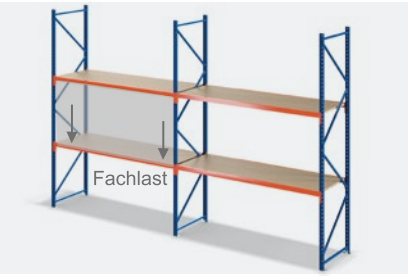
EXPLANATION OF TERMS

Unit load



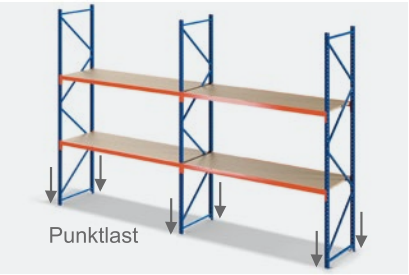
- Total load capacity between 2 horizontal bars
- Max. unit load capacity: 2000kg

Compartment load



- Total load capacity per beam level
- Max. compartment load: 500kg per level

Point load



- A load on the foundation generated by the upright
- Max. point load per foot plate for outer uprights: 500kg
- Max. point load per foot plate for inner uprights: 1000kg

Load capacity

The information on load capacity refers to a rack with at least 2 units and at least 2 compartment levels, which are attached approximately evenly in height.

OVERVIEW

UPRIGHT

A complete upright consists of two cold-rolled blue upright profiles and cross and diagonal struts, which are also painted blue.

Available standard upright depths are 40cm, 50cm, 60cm, 80cm, 100cm and 120cm.

The foot plates, M8x55mm bolt anchors and nuts required for assembly are always included.

STEEL SHELF

Steel shelf – 25mm thick – placed directly onto the beams and self-fixing due to the design of the stepped beam.

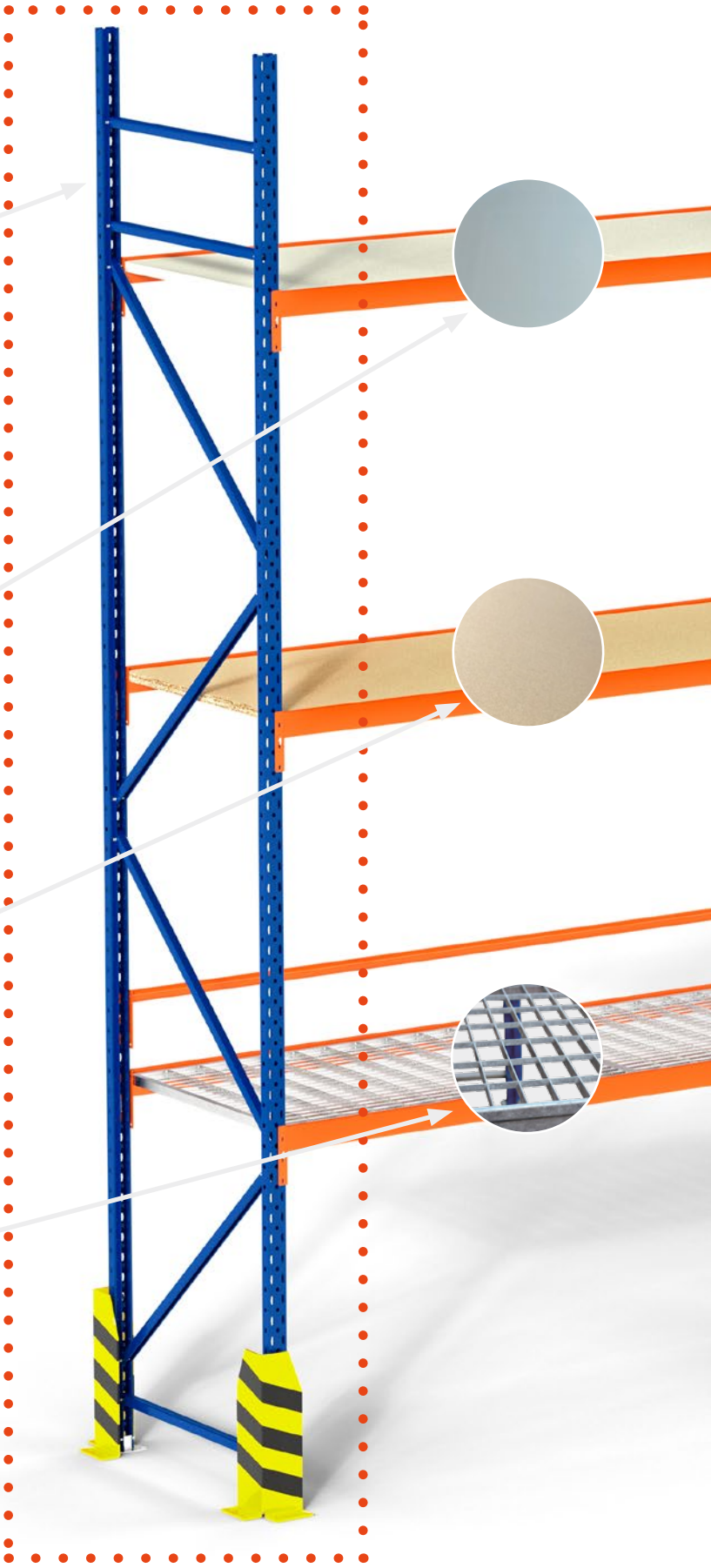
WOODEN SHELF

Chipboard – 25mm thick – placed directly onto the beams and self-fixing due to the design of the stepped beam.

GALVANISED MESH DECK

Galvanised mesh shelf – 25mm thick – placed directly onto the beams and self-fixing due to the design of the stepped beam.
The mesh size is 9.9 x 3.3cm.

Complete upright



BEAMS

Beams are the load carriers of a storage rack on which the shelf is placed. They can be attached individually in 5cm increments using the simple plug-in construction.

Beam lengths are available in 110cm and 220cm.

LOAD CAPACITY LABEL

Self-adhesive load capacity label with information on the load capacity – it corresponds to the specifications of the DGUV: 108-007 (formerly BGR 234) and is additionally displaying a TÜV-seal.

The load capacity label is always supplied and must be attached to the rack in a clearly visible place.

SAFETY & PROTECTION EQUIPMENT

L- and U-profile collision protection, as well as crash protection rails to prevent possible damage to the rack upright.
Available in 40cm and 80cm height.

GENERAL INFORMATION

Prevent dangers

The TOPREGAL product you have purchased is manufactured in accordance with the current state of the art and complies with the applicable regulations and rules. Despite all this, it can pose a danger to persons and property if:

- the rack is not properly assembled, improperly modified or converted.
- accessories used are not original ones.
- the safety regulations are not observed.

Therefore, every person involved in the assembly must read and follow the safety regulations and, if necessary, you should have them confirm this with a signature.

Accident prevention regulations

All relevant accident prevention regulations apply:

- Generally accepted safety regulations
- Country-specific provisions
- Guidelines for storage facilities and equipment of the respective country

Please note

Before assembly, commissioning or use, the information contained in these instructions must be observed in order to avoid hazards. If you need technical support, please contact us.

In order to avoid personal injury and damage to property, please observe the following:

- the DGUV 108-007 warehouse facility and equipment guidelines.
- the relevant workplace directives and regulations.
- the information from your safety officer
- the structural conditions and regulations, in particular the condition and load-bearing capacity of the floor.
- And ensure that the facilities are in good order and condition.
  Damaged or deformed components must be replaced immediately. If in doubt, stop assembly or use, secure the installation area and inform your safety officer.
- that loading may only be carried out after all assembly work has been completed.
- that the persons carrying out the assembly and conversion work are to be secured against falling in accordance with the UVV construction work (VBG 37 §12).
- protective clothing such as helmets, gloves, safety shoes, etc. must be worn during assembly and conversion.
- that the racks must be effectively protected against impact from forklifts or other vehicles.

ASSEMBLY PREPARATION

All original TOPREGAL components used to stabilise the warehouse equipment must be installed without exception. These include in particular frame components, unit assemblies, diagonal struts, beams, floor anchors, screws/fastening elements and safety pins. During assembly one should ensure that the screws are not over-tightened. The screws must be hand-tightened and tightened later using suitable tools such as a cordless drill or a wrench.

Planning

Before the racks are assembled, the area intended for them is measured and the position of the rows of shelves is recorded. Ensure that the rows of racks are aligned. Tape measure and chalk line are best suited for this.

Testing of floor and floor tolerances

Before setting up rack systems, check the following:

- whether the load-bearing capacity of the floor is suitable for safely withstanding the intended loads. If in doubt, consult a specialist and have the load capacities determined.
- The responsibility for the correctness of the information lies with the client.

Assembly

Racks may only be set up and converted by specially instructed persons in compliance with the assembly and operating instructions supplied by us. Racks may only be converted when they are not loaded.

TECHNICAL REGULATIONS

Basic structure

All load specifications refer to a rack row with at least 2 units. At least two compartments (4 beams) must be attached to each unit. The compartment heights must be kept approximately the same for all compartments. If the compartment height differs from unit to unit by more than 10%, the maximum unit load capacity is reduced.

The uprights are connected to the foot plate by screw connections and then fixed to the floor.
The beams are attached by simple plug-in construction with safety pin.

Collision protection

Corner areas and passages must be protected by collision protection with a yellow/black hazard label which is not connected to the rack. (see DGUV: 108-007)

Safety distances

During assembly, the exact location of the rack must be marked on the floor beforehand. The necessary safety distance to building components (e.g. wall, column) and corridors must be observed. (see DGUV: 108-007)

Labelling

Labelling using a load capacity label is compulsory. These labels are included in the delivery volume.

Plumb installation

The rack must be aligned plumb. Deviations of the rack uprights from the plumb line in longitudinal and depth direction of the racks must not exceed 1/200 of the rack upright height. Levelling plates can be used to compensate for uneven floors. The individual uprights within a row of racks must be aligned.

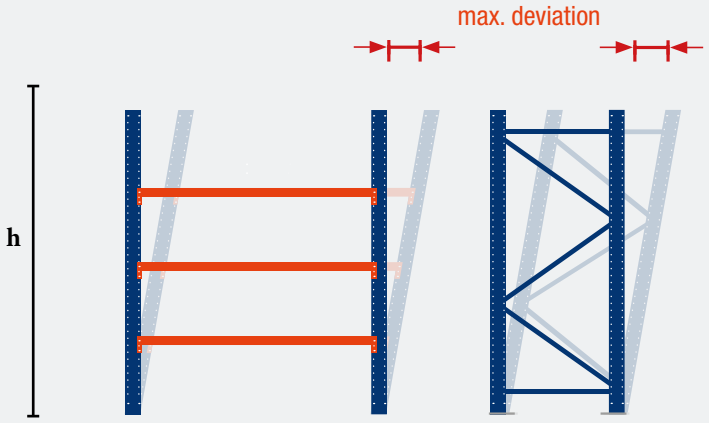
If the height of the top shelf above the floor is more than 5 times the rack depth, it must be secured against tipping, e.g. by anchoring to the floor. Suitable bolt anchors are included in the delivery volume. The shelves may only be loaded after assembly has been completed.

Example: Rack upright height 4 metres

$$\frac{\text{Shelf height h}}{200} = \text{max. deviation}$$

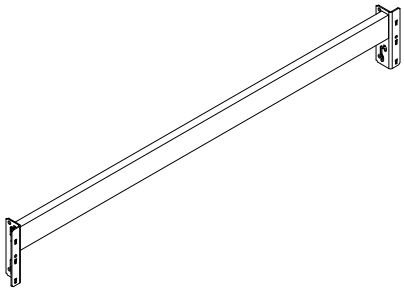
$$\frac{400\text{cm}}{200} = 2\text{cm}$$

In this example, the maximum deviation in longitudinal and transverse direction must therefore not exceed 2cm.

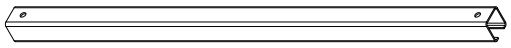


A Upright profile

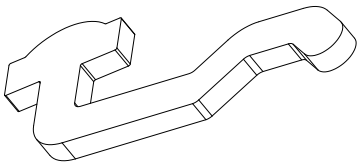
E beam



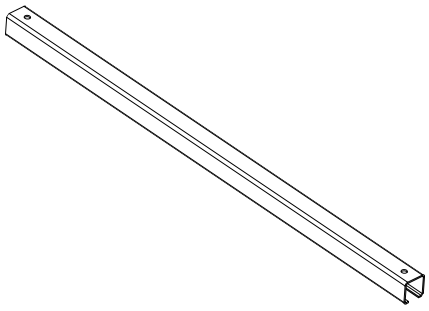
B Cross strut



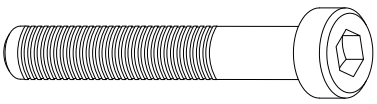
F safety pin



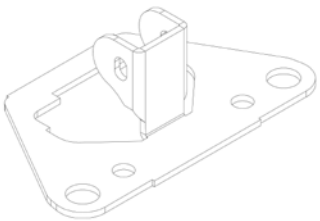
C Diagonal strut



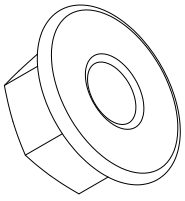
G M5x35mm Allen screw



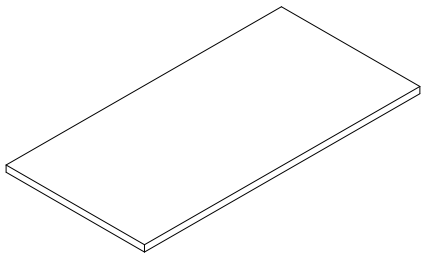
D Foot plate



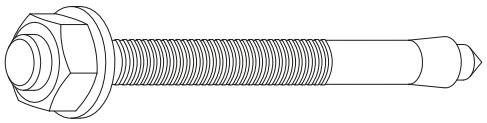
H M5 nut



I Shelf



J Bolt anchor



SUPPORT BARS

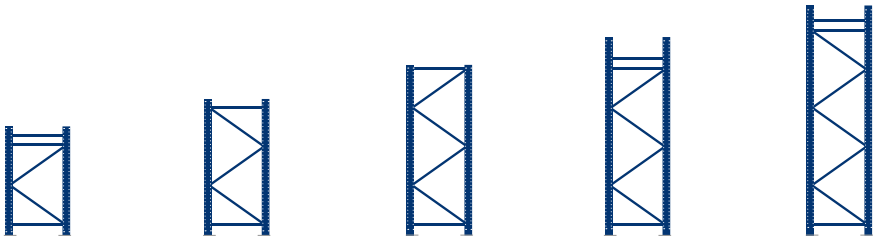
- Support bars are used on racks with depths of 100cm and 120cm
- 120cm-deep shelves need: 1 support bar for shelf lengths of 110cm; 2 support bars for shelf lengths of 220cm.
- For lengths of 110cm, insert the support bar in the middle; for lengths of 220cm, insert the support bars 60cm from the rack uprights (see photos).

AVAILABLE SHELVES

	Wooden shelf	Steel shelf	Galvanised mesh deck	Multiplex	Tyres / without shelf	Kanban shelf
Load per level	500kg	500kg*	500kg	500kg	400kg	300kg
Length	110 / 220cm	110 / 220cm	110 / 220cm	110 / 220cm	110 / 220cm	110 / 220cm
Depth	40, 50, 60, 80, 100, 120cm	60, 80, 120cm	60, 80, 120cm	60, 80cm	40, 50, 60, 80	40, 60, 80cm

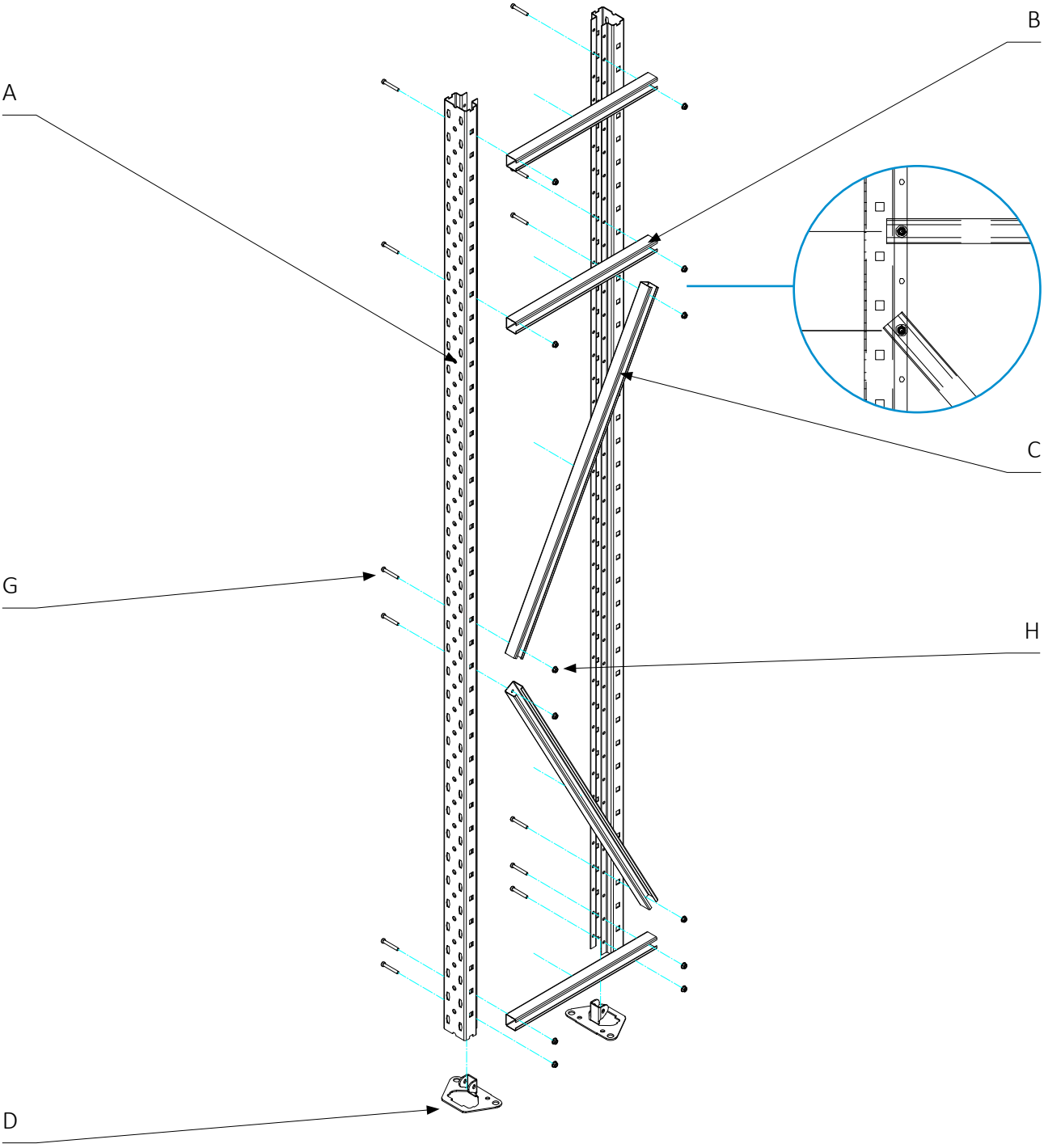
*Avoid shock loads when loading by hand as this can damage the steel shelf

OVERVIEW RACK UPRIGHTS



Height	2m	2.5m	3m	3.5m	4m
Depth	Depth 40, 50, 60, 80, 100, 120cm				
Unit load	2000kg	2000kg	2000kg	2000kg	2000kg
Number of cross struts	3	2	2	3	3
Number of diagonal struts	2	3	4	4	5
Colour	RAL 5005	RAL 5005	RAL 5005	RAL 5005	RAL 5005

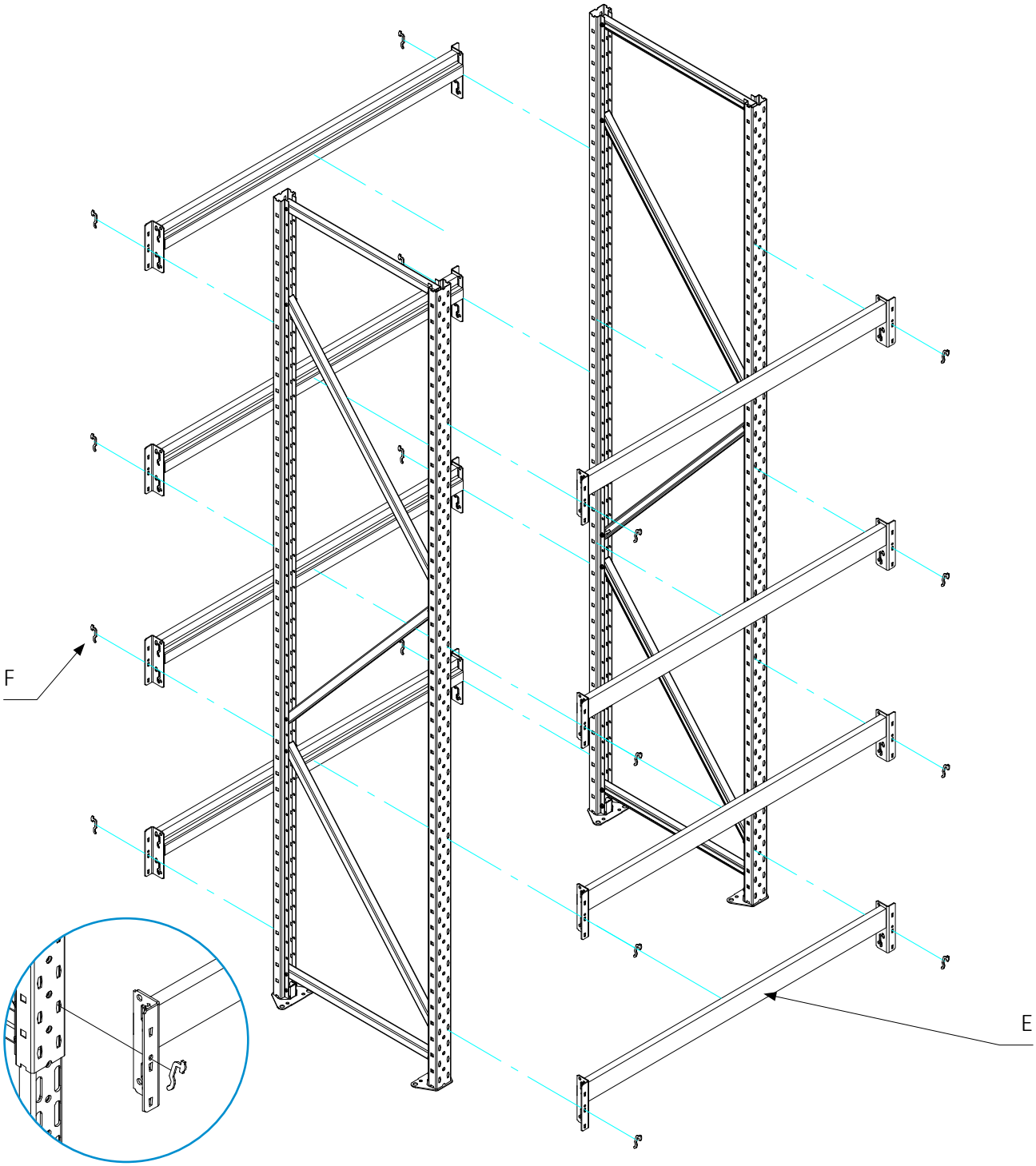
1 I UPRIGHT



1.1 I Slide struts B and C into the upright profile A and tighten using bolts G and nuts H.

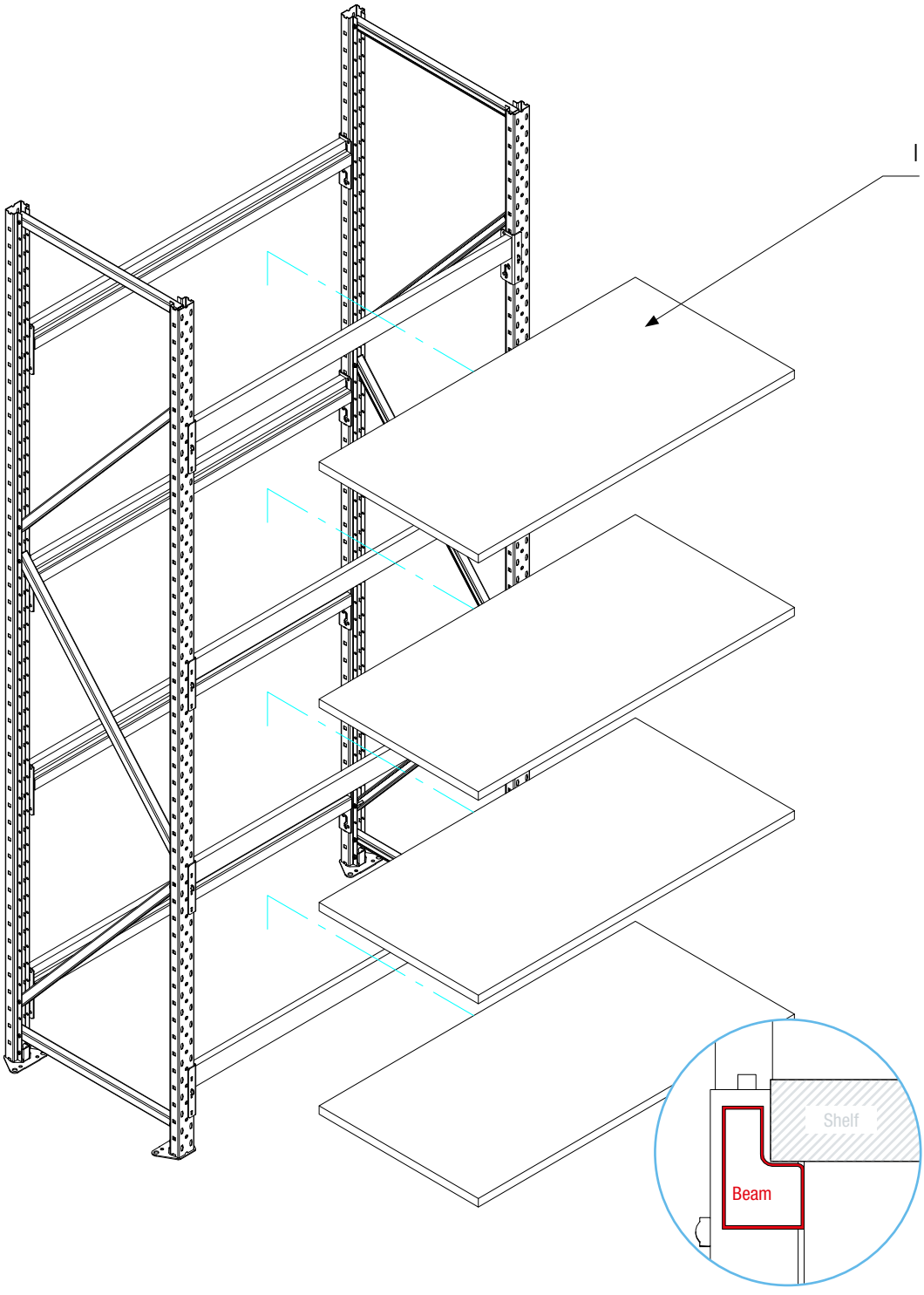
1.2 I Place the foot part D on the upright profile and secure using screws G and nuts H.

2 I BEAMS



2.1 I Attach the beams E to the upright and secure them with safety pin F.

3 I SHELVES

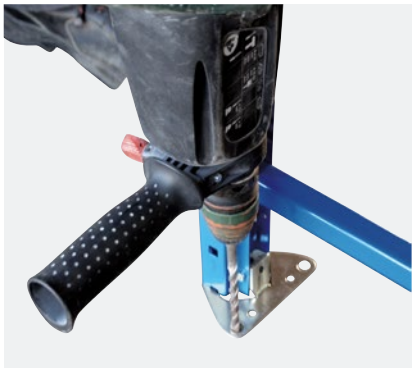


3.1 I Insert the shelf into the stepped beam (self-fixing).

FLOOR ANCHORING FOOT PLATE

Required parts: Pre-assembled rack, bolt anchor J

- Drill holes in the floor (approx. 80mm deep) with an 8mm drill bit.
- Clean the holes.
- Push bolt anchor into the drill hole.
- Tighten the nut firmly with a fork wrench or similar.



LOAD & WEIGHT DISTRIBUTION

- The specified, evenly distributed load for compartment and unit must not be exceeded.
- Care must be taken to ensure that the stored goods are evenly distributed on the shelves.
- The load units must not be pushed across the shelves or dropped on them.
- Racks may only be loaded according to our specifications. The loading of the racks must be evenly distributed, as the static design is based on the assumption of an evenly distributed surface load. Point impact loads and sliding loads must therefore be avoided.

INSPECTION & CHECKS

- Has the rack been assembled according to the assembly instructions?
- Are parts of the construction damaged?
- Are there damages due to impact or overload on beams and/or uprights?
- Are the rack supports perpendicular?
- Are there any cracks in the weld seams or in the base material?
- What is the condition and effectiveness of the safety devices?
- What is the condition of the building floor?
- Is the load evenly distributed, are the racks too heavily loaded?
- What is the position of the load unit on the rack?
- Is the stability of the load units given?

HANDLING

- The racks must always be assembled in accordance with the information in the assembly instructions. Unauthorised changes to the racks are not permitted in any form.
- Appropriate load capacity labels must be attached to all rows of racks. These operating instructions must also be made available to the warehouse workers.
- Local alterations to the racks or the repositioning of beams may only be carried out when they are not loaded.
- People must not stand on racks.
- Damaged and deformed rack parts must be replaced immediately, as the load-bearing capacity is only guaranteed in an undamaged condition. Therefore, damaged components must not be used any further.
- The sum of all compartment loads in a unit must not exceed the maximum unit load.
- A collision of industrial trucks (e.g. forklift trucks) with the rack uprights can lead to a massive impairment of the rack's load-bearing capacity and must therefore be avoided under all circumstances.
- In general, all accident prevention regulations and the statutory provisions for work safety also apply.

INSTRUCTIONS FOR USE

General

People must not stand on rack uprights and shelves.

Operating the racks

Damaged and deformed components of a rack system must be replaced immediately, as the load-bearing capacity can only be guaranteed in perfect condition.
Our specified compartment and unit loads are only valid for evenly distributed loads.

Permissible load capacities

Compartment load = load per shelf level.
Unit load capacity = total unit load between 2 rack uprights = compartment load x number of shelf levels.
The goods stored directly on the hall floor are not taken into account.
The sum of all compartment loads must not exceed the maximum unit load.
Compartment loads are evenly distributed loads.

Note for forklifts / industrial trucks

It is imperative to ensure that racks are not hit by forklifts/lift trucks or other industrial trucks. Suitable protective equipment for this can be found on pages 19 – 20.

Loading and unloading

All longspan racks may only be loaded and unloaded by hand! Loading by ants, forklift trucks or similar equipment is strictly prohibited!

Load capacity

The information on load capacity refers to a rack with at least 2 units and at least 2 compartment levels, which are attached approximately evenly in height.

RACK INSPECTION

The European guideline DIN EN 15635 points out the responsibility of the operator to keep the racks in a proper condition. To this end, visual inspections and expert inspections must be carried out at regular intervals on the shelves to ensure safety. The following aspects, among others, must be examined:

- Are the rack supports perpendicular?
- Are there any cracks in the weld seams or in the base material?
- What is the condition and effectiveness of the safety devices?
- What is the condition of the building floor?
- What is the position of the load unit on the rack?
- Are load capacity labels and information notes available and up-to-date?
- Is the stability of the load units given?

The inspections carried out, defects and their remedy are to be documented in writing. This documentation is to be kept at least until the next regular inspection. However, it is advisable to keep the documentation for the entire service life of the rack. (cf. BGI/GUV-I 5166)

Persons qualified for inspection

Qualified persons are those who can demonstrate specialist knowledge from recent professional activity in the environment of the test object and appropriate further training. These are e.g. fitters from the manufacturer or appropriately qualified personnel of the operator.

Visual inspection

- Visual inspections are to be carried out on a weekly basis.
- Visual inspections may be carried out by a competent internal person.
- The scope of inspection may be reduced to those parts of the rack where defects are to be expected since the last inspection.

Expert inspection

- Expert inspections are to be carried out at least every 12 months.
- The comprehensive expert inspection should be carried out by an expert, usually external person, and a comprehensive inspection protocol should be written.

Do you have questions about rack inspection or would you like our certified rack inspectors to carry out the inspection for you?

Talk to us about it! Tel. +49 (0)7158-91 81 500

HEIGHT-ADJUSTMENT PLATE

PROD. CODE 2375

- Shims to compensate for uneven floors to prevent the shelves from being inclined
- Levelling plates can be stacked on top of each other up to max. 2cm

CRASH PROTECTION RAIL 40CM

PROD. CODE 11757, 11758, 11759, 5434, 11760

- Material thickness: 4mm
- Height: 40cm
- Lengths: 93cm / 123cm / 193cm / 253cm / 360cm
- Painted in yellow with black signal stripes
- Protection against accidental collision, e.g. with industrial trucks
- TÜV-tested according to DGUV 108-007

Assembly: Anchor the crash protection rail to the floor using the 8 bolt anchors supplied (4 on each side).

CRASH PROTECTION RAIL 80CM

PROD. CODE 11761, 11762, 11763, 11764, 11765

- Material thickness: 4mm
- Height: 80cm
- Lengths: 93cm / 123cm / 193cm / 253cm / 360cm
- Painted in yellow with black signal stripes
- Protection against accidental collision, e.g. with industrial trucks
- TÜV-tested according to DGUV 108-007

Assembly: Anchor the crash protection rail to the floor using the 8 bolt anchors supplied (4 on each side).

CRASH PROTECTION BOLLARD

PROD. CODE 10136

- Height: 120cm / Weight 19kg
- Diameter 16cm
- Foot plate with 25x25cm
- Painted in yellow with black signal stripes
- Protection against accidental collision, e.g. with industrial trucks

Assembly: Anchor crash protection bollard to the floor using the 4 bolt anchors supplied.

L/ U-PROFILE COLLISION PROTECTION

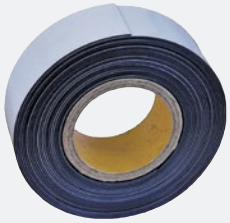
PROD. CODE L-SHAPE = 4749, 9870 /
U-SHAPE = 4748, 9668

- Heights: 40cm / 80cm incl. 4 bolt anchors
- Painted in yellow with black signal stripes
- Corner rack protection to protect the outer uprights from accidental impact by lifting equipment such as forklift trucks, ants, etc
- TÜV-tested according to DGUV 108-007

Assembly: Anchor the collision protection to the floor using the 4 bolt anchors supplied.

MAGNETIC TAPE

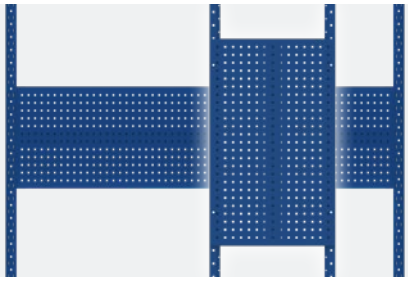
PROD. CODE 9590, 9591



- Magnetic tape for labelling racks or e.g. car bodies, machines, etc.
- Dimensions: L 1000cm / W 5cm or 10cm / D 0.15cm
- Reusable
- Easy cutting to size with standard scissors

PERFORMATED BACK/SIDE PANEL

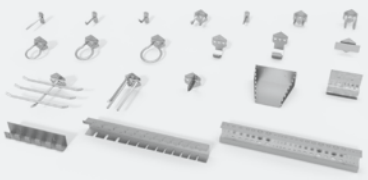
PROD. CODE 18344, 18345, 27630, 27631



- Mounted on a normal rack row or the side panel of a storage rack
- The hole spacings are compatible with common applications
- Dimensions of the storage-rack perforated back panel: 110cm/220cm long, 50cm high
- Dimensions of the perforated side panel: 100cm high, 60cm/80cm deep

PLUG ELEMENTS

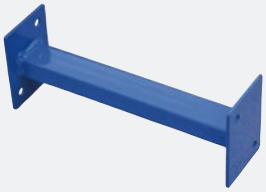
PROD. CODE 29214, 29215, 29216



- Tool holder / machine holder sets made from galvanised steel for our accessories product ‘side panel / perforated panel for storage rack / MFR’
- Ideal for the storage of any tools that can be placed on a hook such as pliers, open-end spanners, cordless drills, cables, pipes, saws, etc.
- The individual elements can be attached to our side panels / perforated panels using a simple plug-in system without assembly material

SPACER

PROD. CODE 5805



- Spacer for parallel positioning of storage rack rows
- Can also be used to fix the storage rack to the wall
- Length: 20cm
- Colour TOPREGAL blue (corresponds roughly to RAL 5010)
- For upright height < 2.5m we recommend 2 spacers per upright
- For upright heights from 3m we recommend 3 spacers per upright

Assembly: The spacer is mounted to the uprights with screw connections.

SUPPORT BAR

PROD. CODE 9824

- Support bar for storage racks with 120cm depth
  - 1 support bar for 110cm shelves
  - 2 support bars for 220cm shelves
- Length: 115cm
- Colour TOPREGAL orange (corresponds roughly to RAL 2004)
- Increases the load capacity of the shelf with a depth of 120cm
- Support bar is already included in the delivery volume of a complete offer

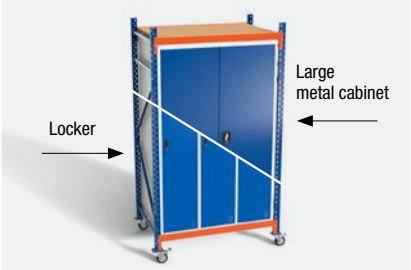
TOOL CABINETS

PROD. CODE 18569, 18570, 18571, 18572

- Available in depths of 60cm and 80cm
- Colour TOPREGAL blue (corresponds roughly to RAL 5010)
- Height: 57cm / width: 54cm
- Cabinets are only inserted, no assembly necessary, self-fixing
- Versions with lockable door or drawers available

LOCKER / LARGE METAL CABINET

PROD. CODE 85447, 85448, 85449, 85450



- Locker / large metal cabinet, lockable
- Available as mobile and stationary version
- 60cm & 80cm deep
- 176.5cm high, 110cm wide
- Metal cabinet: Max. 60kg per shelf
- Locker: Max. 40kg per shelf

FOLDING PICK BIN 8.5L

PROD. CODE 87077, 87389, 87390

- Width: 21.6cm / height: 17.5cm / length: 33.6cm
- Weights of up to 20kg can be stored in each pick bin

FOLDING PICK BIN 15L

PROD. CODE 87078, 87391, 87392

- Width: 27cm / height: 20cm / length: 42cm
- Weights of up to 20kg can be stored in each pick bin

FOLDING PICK BIN 30L

PROD. CODE 87079, 87393, 87394

- Width: 30.3cm / height: 27.5cm / length: 50cm
- Weights of up to 28kg can be stored in each pick bin

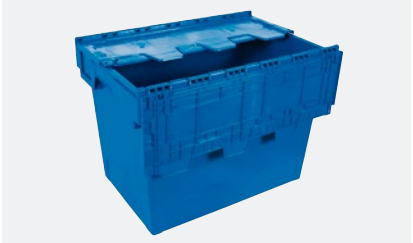
REUSABLE CONTAINER 69L

PROD. CODE 87080, 87395, 87396

- Width: 40cm / height: 40cm / length: 60cm
- Weights of up to 50kg per reusable container can be stored
- For space-saving storage and easy transport

REUSABLE CONTAINER WITH LID 75L

PROD. CODE 87081, 87397, 87398



- Width: 400cm / height: 44cm / length: 60cm
- Weights of up to 50kg per reusable container can be stored
- For space-saving storage and easy transport

FILL IN & FAX

TO **FAX +49 (0)7158-91 81 549**

OR SEND AS SCAN BY EMAIL TO **INFO@TOPREGAL.COM !**

Product code	Designation	Quantity

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BILLING ADDRESS

Company / Customer

Contact person

Street / House number

Postcode / City

Telephone

Email

DELIVERY ADDRESS

(IF DIFFERENT)

Company / Customer

Contact on site

Street / House number

Postcode / City

Telephone

Email

Signature

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