



Galvanised for outdoor
use



ASSEMBLY & OPERATING INSTRUCTIONS

Cantilever rack

Type KR6000

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EXPLANATION OF TERMS

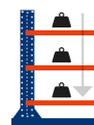
Cantilever load

- Total load per cantilever
- Maximum 1000kg

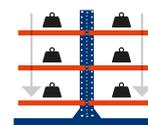


Upright load capacity

- Max. 3000kg with single-sided upright
- Max. 6000kg with double-sided upright

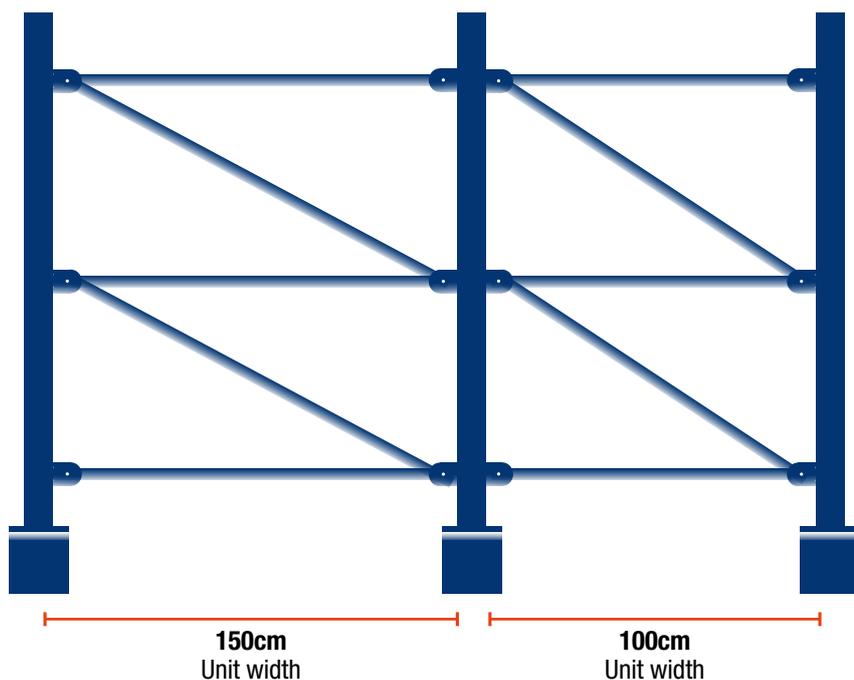


single-sided



double-sided

Unit width



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 a blue upright profile, which is fastened to the foot part by a screw connection.

Screwed cross and diagonal struts connect the upright with the next upright. This distance is called the axial dimensions.

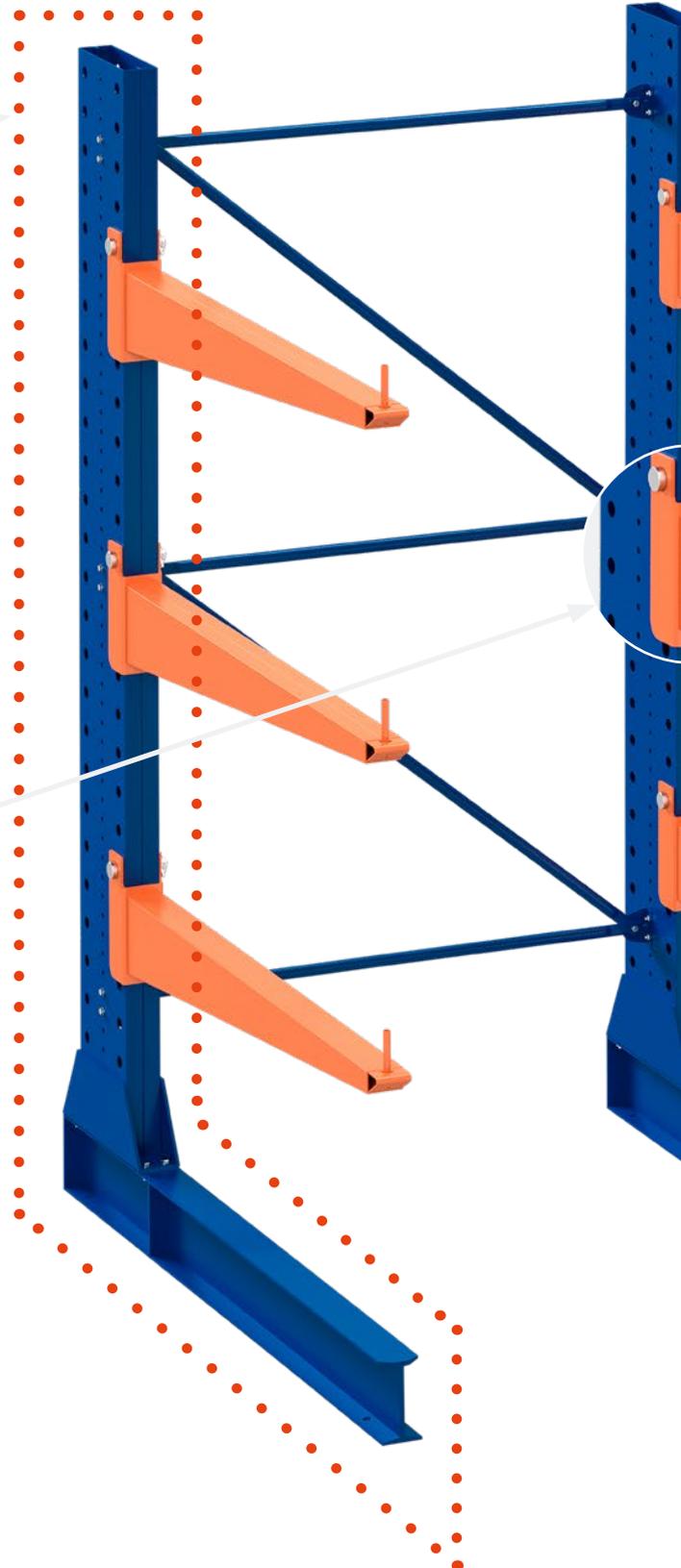
CANTILEVERS

Cantilevers serve as load carriers and can be attached to the upright in 75mm increments at individual heights.

The cantilever is secured by a safety bolt.

Our cantilevers are available in lengths of 75cm and 150cm.

Complete upright





ROLL-OFF SAFETY DEVICE

To protect the load from accidental falling, roll-off protection can be attached at the end of the cantilever. This is supplied as standard. The safety device can be plugged into or unplugged from any cantilever as required.



LOAD CAPACITY LABEL

Self-adhesive load capacity label displaying load capacities – complies with the specifications of the DGUV 108-007.

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



UNIT WIDTH

The unit spanned between two uprights indicates the unit width. Our standard unit widths are 100cm and 150cm. These can be freely combined within a rack row.

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. Nevertheless, it may pose a danger to people 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. 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 installation 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 attached without restriction. These include in particular frame components, unit connections, diagonal struts, cantilevers, floor anchors, screws/fastening elements and safety pins. The screws must be pre-fastened by hand and later tightened using suitable tools such as a cordless drill or a wrench. During assembly one should ensure that the screws are not over-tightened.

Planning

Before the racks are assembled, the area intended for them is measured and the position of the rows of shelves is recorded. Tape measure and chalk line are best suited for this. When setting up the machine, please note that the intended rack row spacing is not the same as the aisle width. The required work aisle width can be obtained from the manufacturer of the control unit or from your safety officer. Traffic routes for powered or track-bound conveyors must be wide enough to ensure a safety distance of at least 0.5m on both sides of the conveyors. The space required for manoeuvring operations must also be taken into account when measuring the required space. The safety distance is not needed if access by persons is prevented by structural measures.

Testing of floor and floor tolerances

Before installing rack systems, check the following:

- whether the load-bearing capacity of the floor is suitable for safely withstanding the intended loads. In case of doubt, ask a specialist and have the load capacities determined. The responsibility for the correctness of the information lies with the client.
- the surface of the floor: a proven concrete slab, min. 200mm thick, concrete quality C20/25 is required.



Assembly

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

TECHNICAL REGULATIONS

Basic structure

The uprights are connected to the foot section by screw connections and then fixed in the load-bearing base. The cantilevers are attached by simple plug-in construction with bolts and safety pins!

The racks must be designed so that the cantilevers do not project beyond the base of the foot, unless stability is ensured by other means. With cantilever racks, it must be ensured that the stored goods cannot fall out. This is achieved by inserting the roll-off safety devices, which are included in the delivery volume.
(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)

Floor condition

The minimum component thickness of the floor is 200mm, the minimum drill hole depth 150mm. The flatness of the floor must be guaranteed according to FEM 9.831 and DIN 18202. The minimum concrete quality is C 20/25.

Labelling

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

Plumb installation

The rack must be plumb. To compensate for uneven floors, height adjustment plates are to be used. The individual uprights within a row of racks must be aligned.

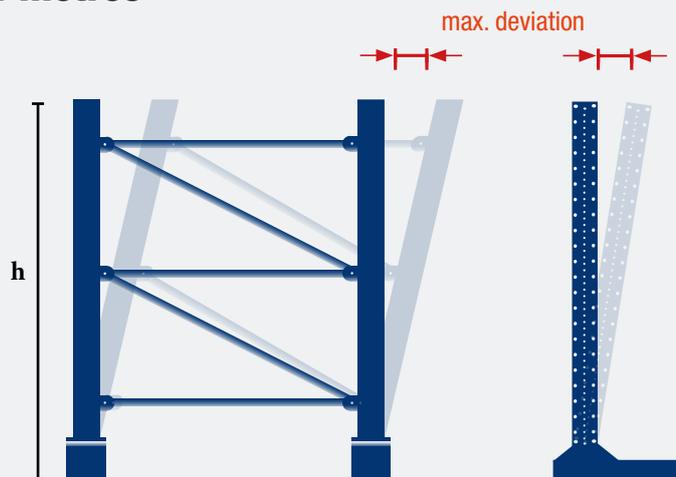
Deviations of the rack uprights from the plumb line in longitudinal and depth direction of the racks must not exceed 1/200 of the rack upright height.

Example: Rack upright height 4 metres

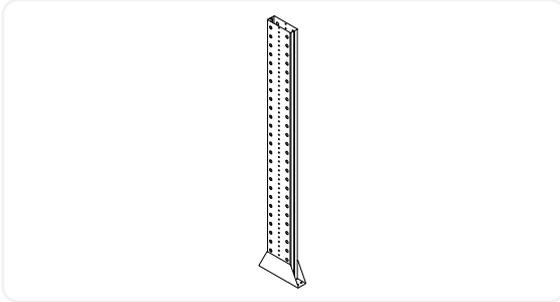
$$\frac{\text{Shelf height } h}{200} = \text{max. deviation}$$

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

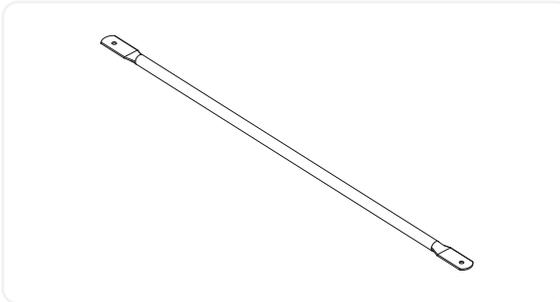
The maximum deviation in longitudinal and transverse direction in this example must therefore not exceed 2cm.



A Upright profile



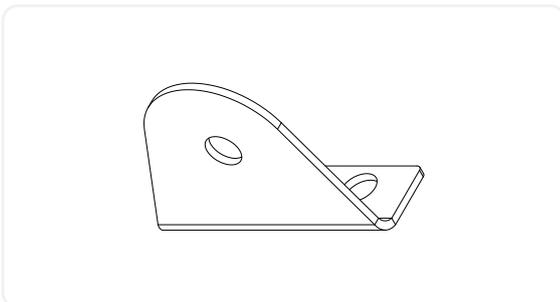
B Diagonal strut



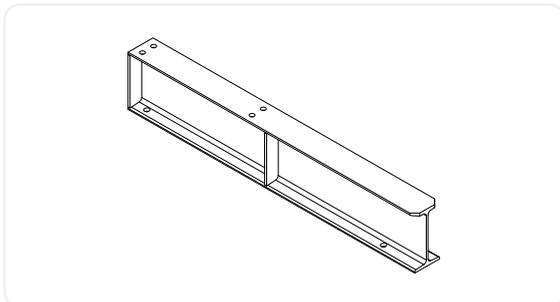
C Cross strut



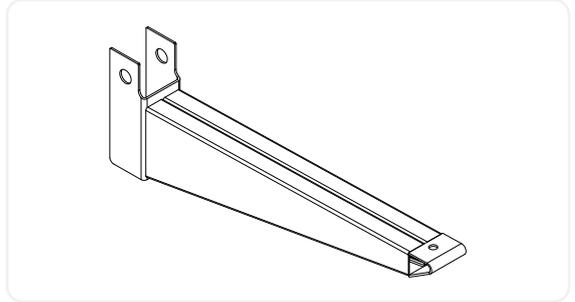
D Angle plate for cross struts



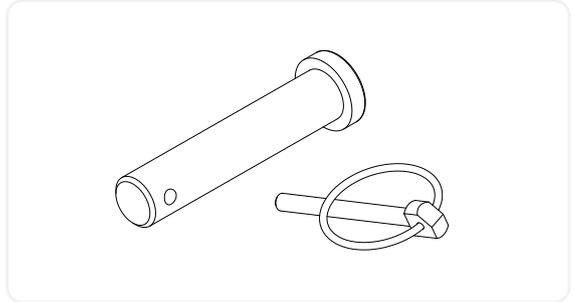
E Foot part



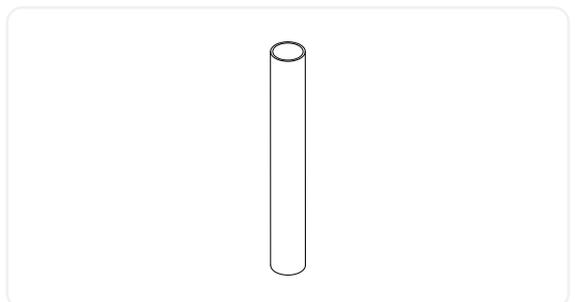
F Cantilever



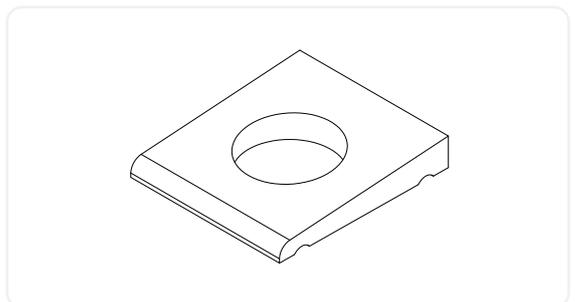
G Socket pin + safety pin



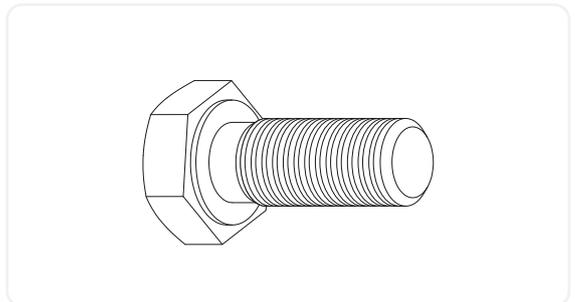
H Roll-off protection

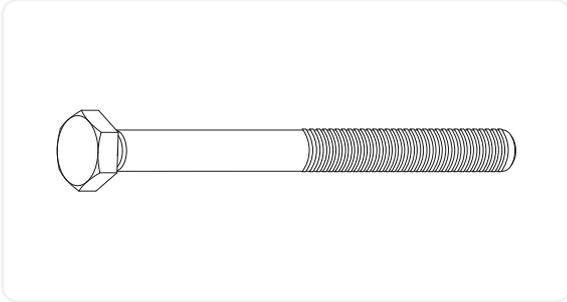
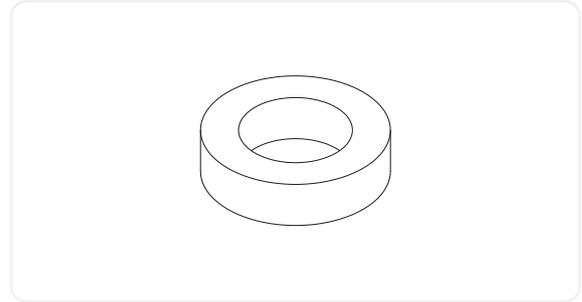
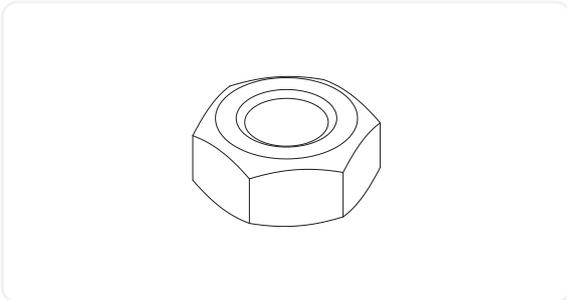
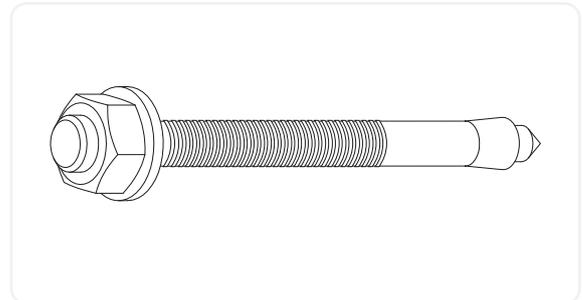
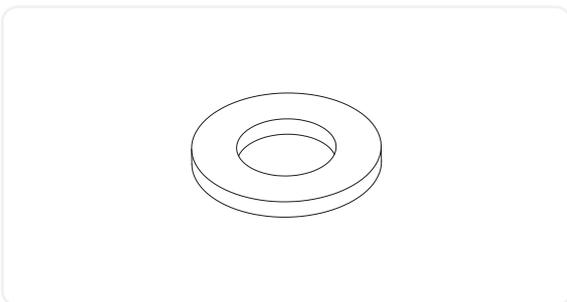
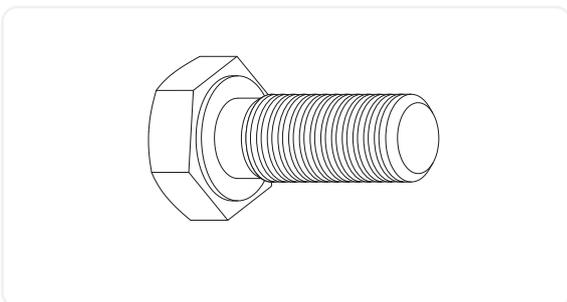
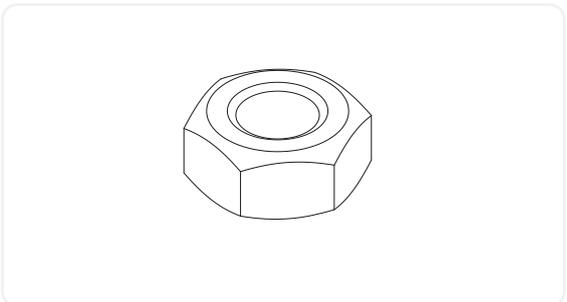


I Compensating wedge



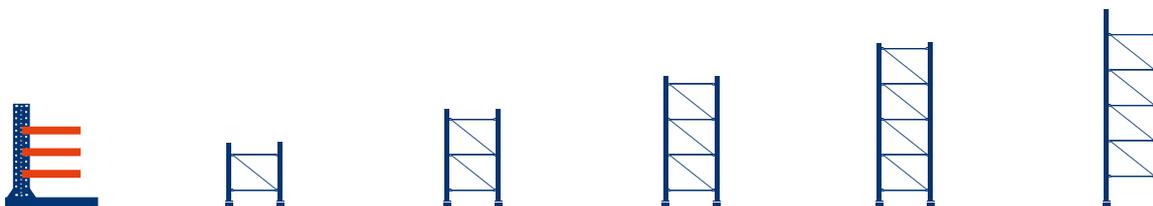
J M10x25 hexagon head screw



K M10x120 hexagon head screw**P** M16 washer**L** M10 hexagon nut**Q** M16x110 bolt anchor**M** M10 washer**N** M16x50 hexagon head screw**O** M16 hexagon nut

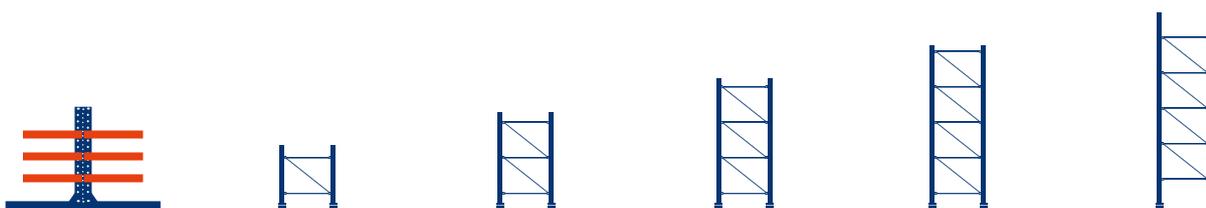
OVERVIEW UPRIGHTS

Single-sided rack



Height	2m	3m	4m	5m	6m
Cantilever length	75cm / 150cm				
No. Cross struts	2	3	4	5	5
No. Diagonal struts	1	2	3	4	4
Colour	RAL 5005				
Angle plates	4	6	8	10	10

Double-sided rack



Height	2m	3m	4m	5m	6m
Cantilever length	75cm / 150cm				
No. Cross struts	2	3	4	5	5
No. Diagonal struts	1	2	3	4	4
Colour	RAL 5005				
Angle plates	4	6	8	10	10

Axial dimensions



- Smaller internal dimensions between two uprights
- Higher number of uprights in confined spaces to increase the max. total load capacity
- Diagonal strut per unit 147.5cm
- Cross strut per unit 96cm



- Standard internal dimensions between two uprights
- Different axial dimensions can be combined for individual use
- Diagonal strut per unit 183.5cm
- Cross strut per unit 146.5cm

ASSEMBLY TIPS

Cross and diagonal struts

The number of cross and diagonal struts varies depending on the height of the rack, please refer to page 12. For the arrangement of the struts see info box below.

Do not over-tighten screws!

Screws are first hand-tightened and only tightened after the entire frame has been assembled – using suitable tools such as a cordless drill or a wrench.



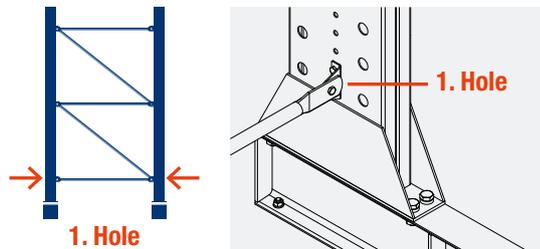
Strutting – holes

The cross struts are attached to the 1st hole.
The number of struts to be fitted depends on the height of the rack.

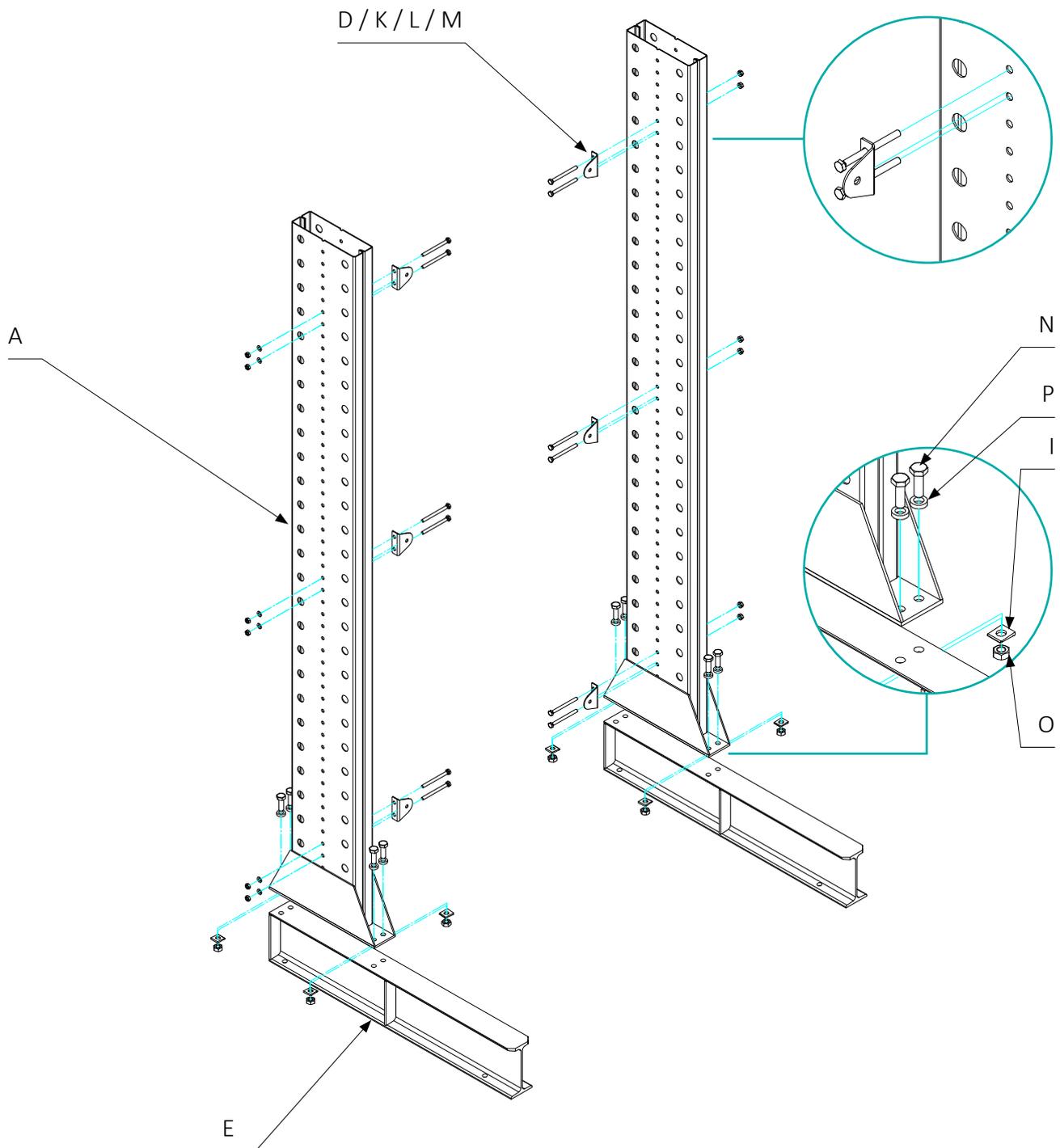
Repeat the assembly of the struts in step 2 (page 15) according to the number of diagonal and cross struts.

Between the individual angles, 20 holes must be left free – i.e. the second angle is attached to the 21st and 22nd hole.

For the 6m upright, the first angle is attached to the 11th hole (10 holes free).



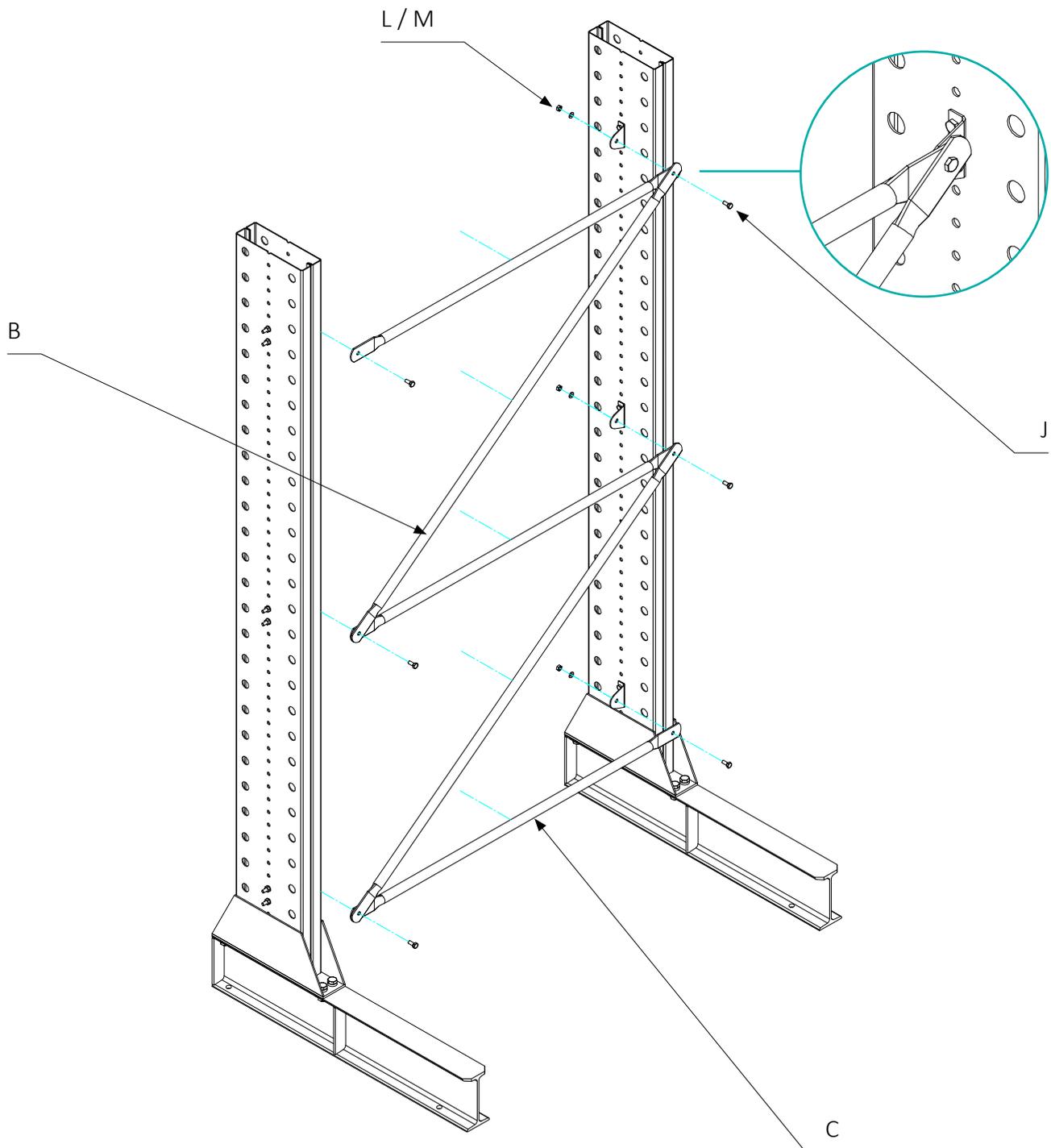
1 | UPRIGHT ASSEMBLY



1.1 | Place upright profile A on foot part E and fasten using bolts N, nuts O, washers P and compensation wedge I. **Tighten screws with maximum 240Nm!**

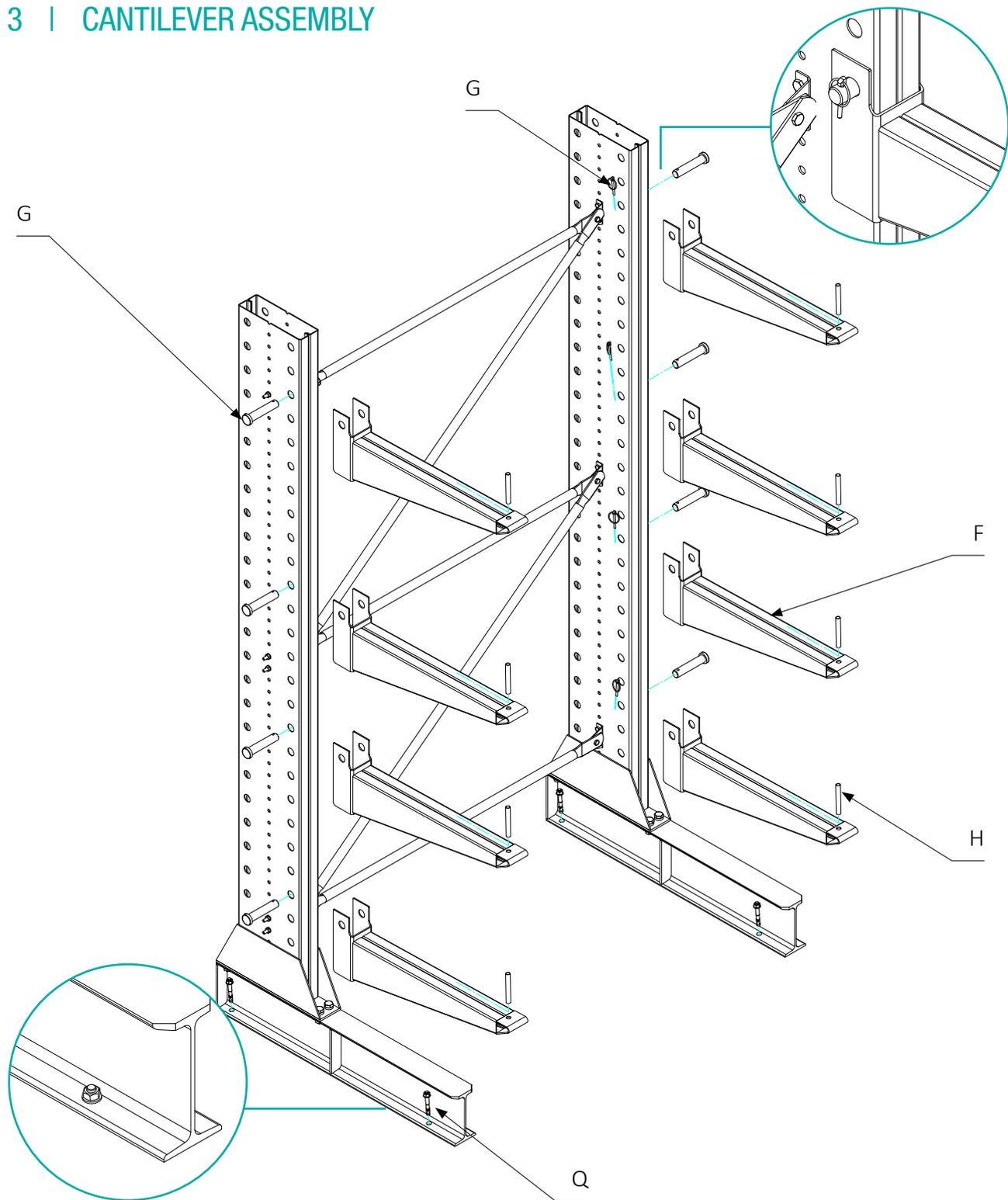
1.2 | Fix angle plate D using bolts K, nuts L and washers M. **Note:** Leave 20 holes between the individual angle plates.

2 | STRUT ASSEMBLY



- 2.1 |** Attach the first cross strut C using screw J, nut L and washer M to the lowest retaining plate of an upright.
- 2.2 |** Fasten the first diagonal strut B together with the fastened cross strut C to the retaining plate on the opposite upright.
- 2.3 |** Fasten the free end of the diagonal strut and the next cross strut to the next retaining plate.

3 | CANTILEVER ASSEMBLY



3.1 | Place cantilevers F at the desired position.

3.2 | Insert socket pin G across the cantilever and upright and secure it with the corresponding safety pin.

3.3 | Insert roll-off safety device H into the holes provided in the cantilevers.

3.4 | Anchor the foot part to the floor using bolt anchors Q.

LOAD & WEIGHT DISTRIBUTION

- Loads refer to cantilever racks with min. 2 units.
- The specified, evenly distributed load for cantilever and upright 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 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.
- For base units (2 uprights, 1 unit) the upright load is reduced by 30%.

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 stickers are to be affixed to all rack rows. These operating instructions must also be made available to the warehouse workers.
- Local alterations to the racks or the repositioning of cantilevers 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 cantilever loads must not exceed the maximum upright 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, in particular cantilevers.

Operating the racks

The centre of gravity of the load must be aligned so that it is stable. Any damaged and deformed load-bearing components in a rack system must be replaced immediately, as the load-bearing capacity can only be guaranteed in perfect condition. The persons involved in assembly and dismantling must be secured against falling in accordance with the UVV construction work (VBG 37 § 12).

Permissible load capacities

Cantilever load = 1000kg per cantilever.

Upright load = 3000kg single-sided / 6000kg double-sided.

The stored goods that are directly on the foot parts are not taken into account. The sum of all cantilever loads must not exceed the maximum upright load. Cantilever loads are evenly distributed loads.

The storage of heavier loading units than those specified by us and indicated on the load capacity labels is not permitted.

Note for stacking devices

The forklift truck must meet suitable requirements for the stored goods. The stored goods must be securely supported and the permissible load capacity of the forklift truck must not be exceeded. The respective manufacturer's instructions must be observed.



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.

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

L-PROFILE RACK PROTECTOR

PROD. CODE 4749



- Heights: 40cm / 80cm incl. 4 bolt anchors
- TÜV-tested according to DGUV 108-007
- 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

Assembly: Secure the corner rack protection to the floor using the 4 bolt anchors supplied.

U-PROFILE RACK PROTECTOR

PROD. CODE 4748



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

Assembly: Anchor the U-profile rack protector to the ground 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 10m / B 5cm or B 10cm / T 1.5mm
- Reusable
- Easy cutting to size with standard scissors

RUBBER STRIP

PROD. CODE 4013, 4014



- Non-slip supports for cantilevers
- Protects stored goods from damage and slipping
- Is glued to the cantilevers
- Thickness: 3mm

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.



LR2000 STORAGE RACK

- Height of rack 2m – 4m
- Upright depths 40cm, 50cm, 60cm, 80cm or 120cm available
- The heights at which beams are attached can be individually adjusted in 5cm increments and the beams are available in 110cm and 220cm lengths
- Various deck types, extensive range of accessories



MFR1000 MULTIPURPOSE RACK

- One rack – countless variations
- Tailored to your work areas
- Modular design – expandable at any time
- Exclusive to TOPREGAL®



TYPE PR9000 PALLET RACK

- Height of rack 2m – 5.5m
- Upright depth 80cm or 110cm
- Load capacity of up to 1000kg per pallet
- Levels individually height-adjustable in 5cm increments
- Various decks
- Wide range of accessories



TYPE KR3000 CANTILEVER RACK

- Height of rack 2m – 4m
- Single and double-sided cantilever rack with freely movable cantilevers in 5cm vertical increments
- The cantilever uprights are connected by cross and diagonal struts
- Upright profile is screwed to the foot

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

WE REQUEST

ORDER / DELIVERY

BY PREPAYMENT
(MINUS 2% EARLY PAYMENT DISCOUNT)

BY INVOICE
(UNTIL 10 DAYS AFTER RECEIPT OF GOODS)

WE REQUEST AN

QUOTE

OR A

CALL BACK

BILLING ADDRESS

DELIVERY ADDRESS

(IF DIFFERENT)

Company / Customer

Contact person

Street / House number

Postcode / City

Telephone

Email

Company / Customer

Contact on site

Street / House number

Postcode / City

Telephone

Email

Signature



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