



ASSEMBLY INSTRUCTIONS

Cantilever rack

KR3000



Please read this manual before using the product and follow the instructions it contains!



WARNING: TOPREGAL US Corp. advises that this product should be assembled exclusively by trained professionals who have experience with installing storage rack systems and are fully familiar with all applicable safety regulations and procedures. These instructions are intended solely for use by qualified personnel equipped with appropriate safety gear.



DANGER: KR3000 Cantilever racks have a very high weight. If they are not adequately secured during installation or assembly, they may tip over, which can result in serious injury or fatal accidents and cause property damage.

Contact TOPREGAL US Corp. to obtain the name and contact details of a qualified installation professional. Anyone using this information agrees to release, indemnify, and hold TOPREGAL US Corp. harmless from any liability whatsoever.



WARNING: Assembly instructions are provided on the following pages. Correct installation is the sole responsibility of the purchaser and is not covered by the seller's warranty. The buyer is advised not to replace or alter any parts or fastening hardware. The seller assumes no responsibility for the use of components or hardware substitutions unless such changes have been expressly approved in writing.

The installation drawings included are intended to serve as general reference guides for assembling standard components. Depending on the specific system requirements, there may be restrictions on the use of these standard components and / or the need for special installation methods. Further details can be found on topregal.us in published technical documentation, detailed assembly instructions and drawings, and other related materials.



CAUTION: Before assembling the cantilever rack, check the component parts. Ensure that all components have been delivered in full. Compare the received items with the packing lists and the bill of lading to confirm completeness. Report any missing items or damaged goods to the carrier without delay.



CAUTION: Examine the site of installation. Prepare the installation site by removing any unnecessary items and clearing the space where the racking system will be installed. Examine the site for potential obstacles—such as lighting fixtures, HVAC ducts, piping, or structural columns — to make sure there is sufficient clearance for proper rack installation.



WARNING: The employer/operator is responsible for ensuring compliance with all applicable federal, state, and local safety regulations, including OSHA requirements.

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EXPLANATION OF TERMS

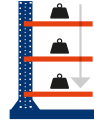
CANTILEVER LOAD

- Total load per cantilever
- Max. 1,100 lbs



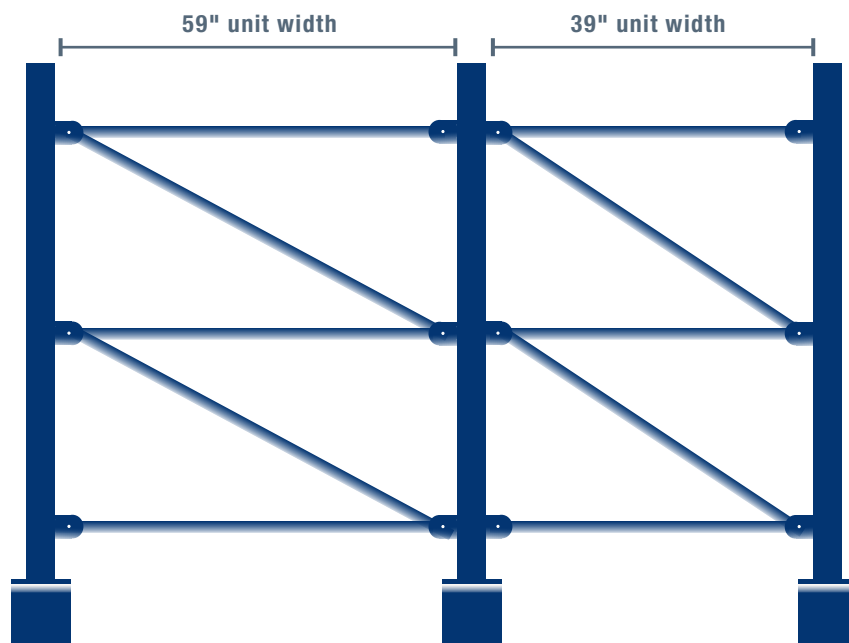
UPRIGHT LOAD CAPACITY

- Max. 3,300 lbs with single-sided upright



single-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 evenly suspended 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 2" increments at individual heights.

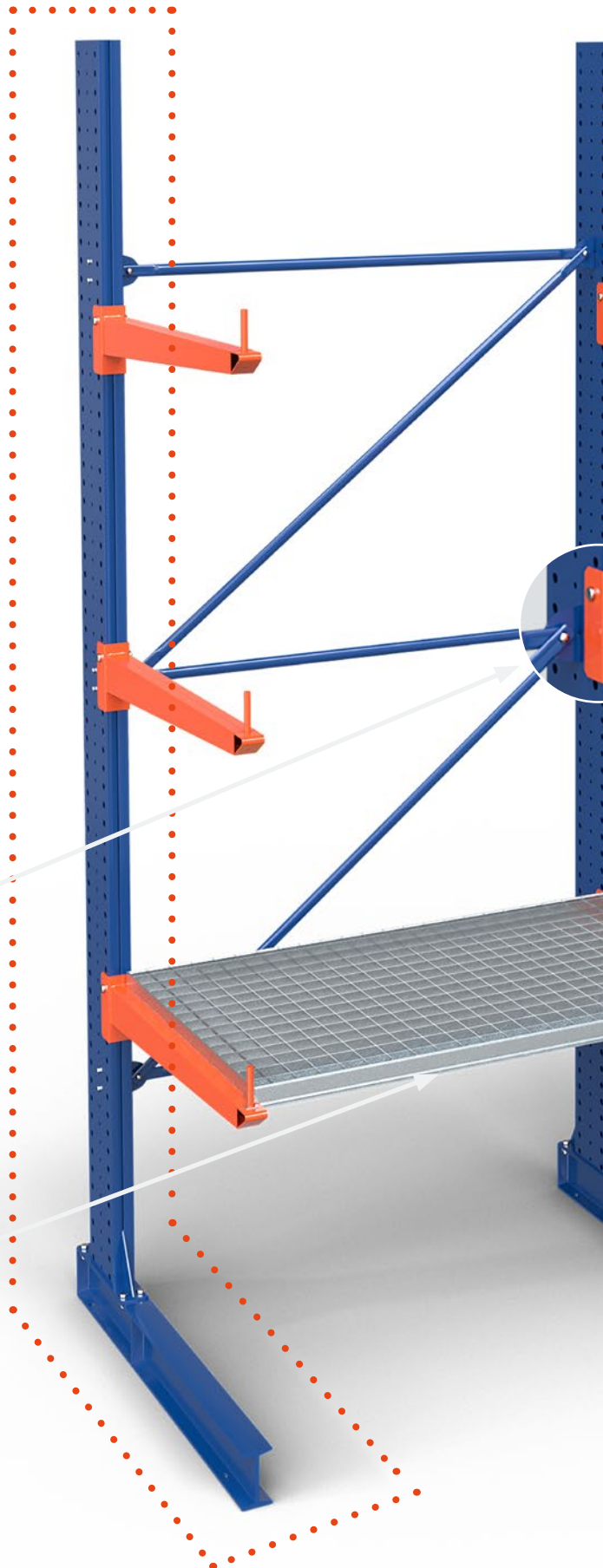
The cantilever is secured by a safety bolt.

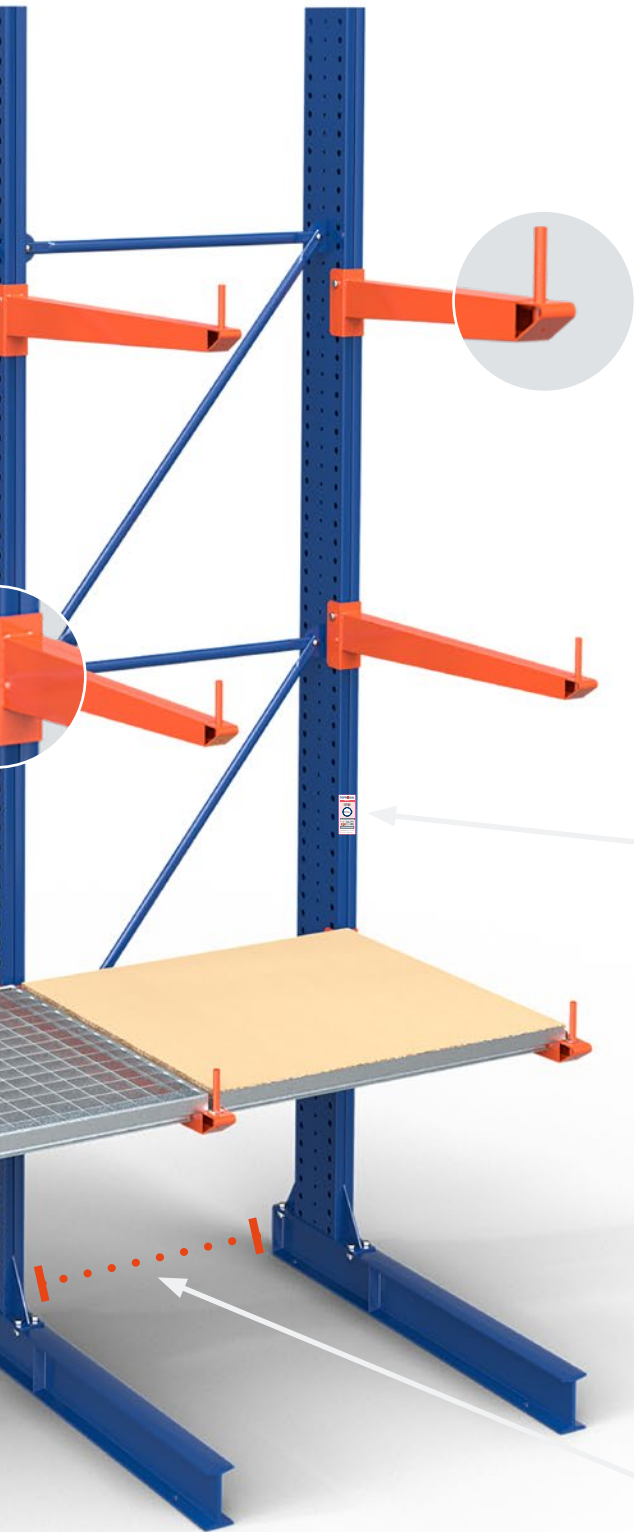
Our cantilevers are available in lengths of 20" and 40".

DECKS

Using the shelves the rack can be loaded with pallets, parcels or transport boxes, for example. In addition, the shelves prevent goods from falling and your stored goods from sagging between the cantilevers.

Complete upright





ROLL-OFF SAFETY DEVICE

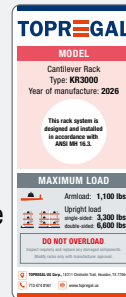
To protect the load from accidental falling, roll-off protection can be attached at the end of the cantilever. This is supplied as standard. The safety device can be plugged into or unplugged from any cantilever as required.



LOAD CAPACITY LABEL

Self-adhesive load capacity label displaying load capacities.

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 is 59". These can be freely combined within a rack row.



Before assembling or using your cantilever rack system, always read these instructions.

SAFETY 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



AVOID PERSONAL INJURY AND DAMAGE TO PROPERTY

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 cantilever rack system is designed and manufactured in accordance with the guidelines of the Rack Manufacturers Institute (RMI).
- 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 local accident prevention regulations.
- 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.



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:

- All applicable federal, state, and local safety regulations must be observed, including relevant OSHA requirements.
- Installation and use must comply with all applicable building codes and fire protection regulations.
- The structural condition and load-bearing capacity of the floor must be verified prior to installation.
- Ensure that all components are in good condition. Damaged, bent, or deformed parts must be replaced immediately. If damage is detected, stop installation or use, secure the area, and inform the responsible supervisor.
- Loading of the rack system is permitted only after complete and proper assembly.
- Personnel performing installation or modification work must be properly trained and protected against fall hazards in accordance with OSHA fall protection standards.
- Appropriate personal protective equipment (PPE) such as hard hats, safety gloves, and safety footwear must be worn during installation and modification work.
- Racks must be adequately protected against impact from forklifts or other material handling equipment.

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 20" 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.
- If in doubt, consult a specialist and have the load capacities determined. The responsibility for the of the information lies with the end user.
- The surface of the floor: reinforced concrete slab designed for rack loads, min. 8" thick, concrete quality 3,000 psi is required.
- The flatness of the floor must be guaranteed according to ACI 117 (or ASTM E1155).
- Use only anchor bolts approved for cracked concrete in accordance with local building codes (e.g. ICC-ES).



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 (in accordance with RMI (Rack Manufacturers Institute) guidelines).



SAFETY DISTANCES

Prior to installation, the exact rack position must be marked on the floor. Required safety clearances to building components (e.g. walls, columns) and aisles must be maintained in accordance with RMI recommendations.



FLOOR CONDITION

The concrete slab must have a minimum thickness of 8". The minimum anchor embedment depth must be 6". The floor slab must be level and meet the flatness requirements applicable to industrial rack installations in accordance with ACI 117 or local building code requirements. The minimum specified concrete compressive strength shall be 3,000 psi.



LABELLING

Load capacity labeling is mandatory. Load rating labels are included with the rack system and must be installed in a clearly visible location.



PLUMB INSTALLATION

The rack system must be installed plumb and level. Shims or leveling plates must be used to compensate for uneven floor surfaces. All uprights within a rack row must be aligned.

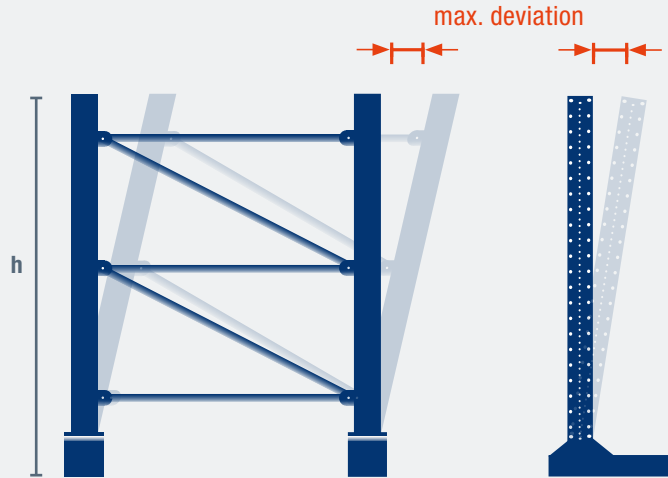
Deviations of the uprights from the vertical position in both the longitudinal and depth directions must not exceed 1/200 of the upright height, in accordance with RMI installation tolerances.

EXAMPLE: RACK UPRIGHT HEIGHT 98.43"

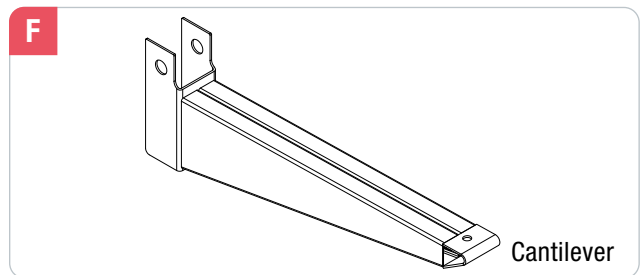
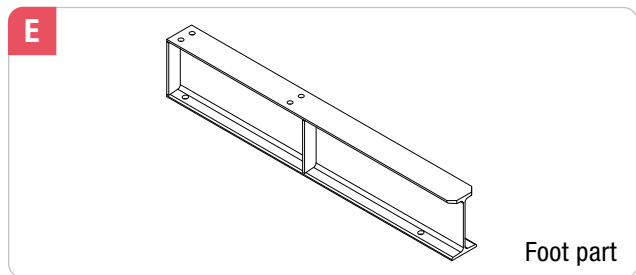
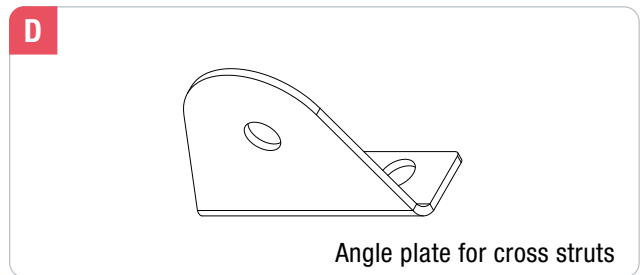
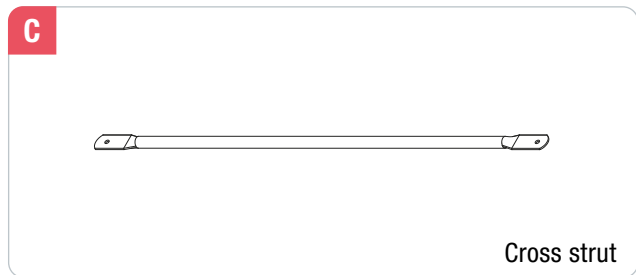
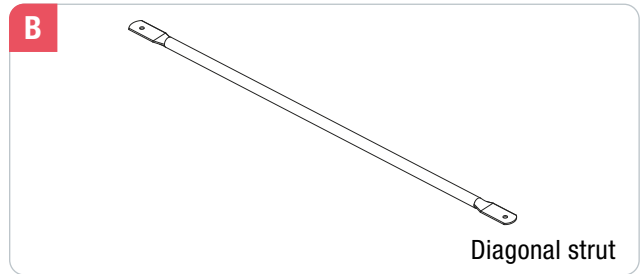
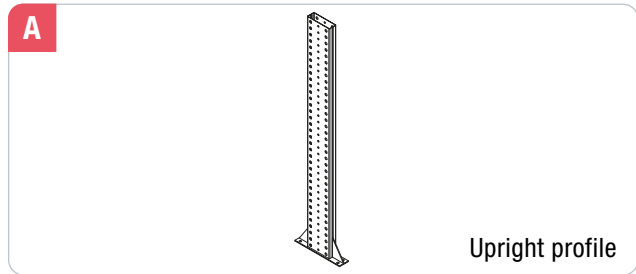
$$\frac{\text{Shelf height } h}{98.43"} = \text{max. deviation}$$

$$\frac{98.43"}{98.43"} = 0.39"$$

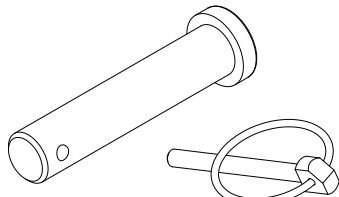
The maximum deviation in longitudinal and transverse direction must therefore not exceed 0.39".



INDIVIDUAL PARTS & ASSEMBLY MATERIAL



G



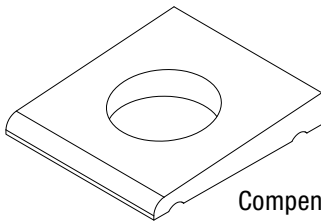
Socket pin + safety pin

H



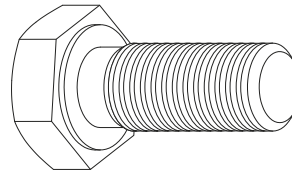
Roll-off protection

I



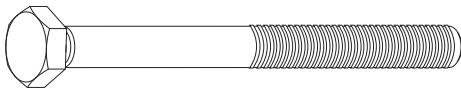
Compensating wedge

J



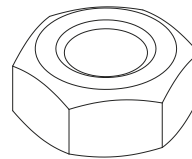
M10 x 30 hexagon screw

K



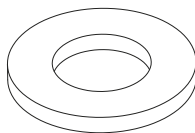
M10 x 80 hexagon head screw

L



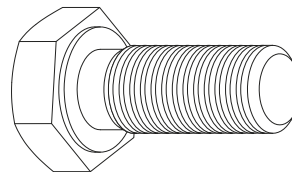
M10 hexagon nut

M



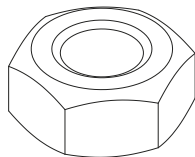
M10 washer

N



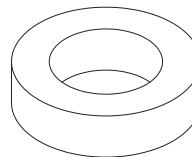
M14 x 40 hexagon head screw

O

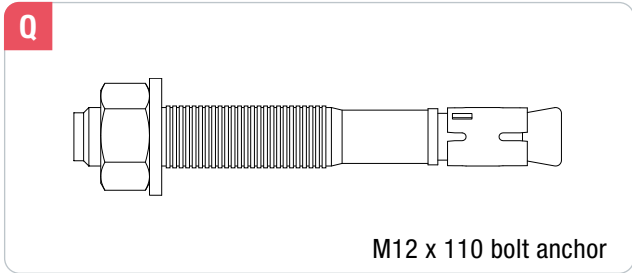


M14 hexagon nut

P



M14 washer



M12 x 110 bolt anchor

OVERVIEW UPRIGHTS

SINGLE-SIDED RACK



Height	98,43"
Cantilever length	20" / 40"
Quantity cross struts	3
Quantity diagonal struts	2
Angle plates	6

AXIAL DIMENSIONS

60"

- Standard internal dimensions between two uprights
- Different axial dimensions can be combined for individual use
- Diagonal strut per unit 72.24"
- Cross strut per unit 57.68"



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 14.

For the arrangement of the struts see info box below.

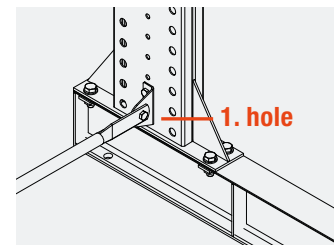
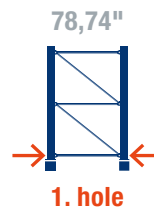
DO NOT OVER-TIGHTEN SCREWS

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.

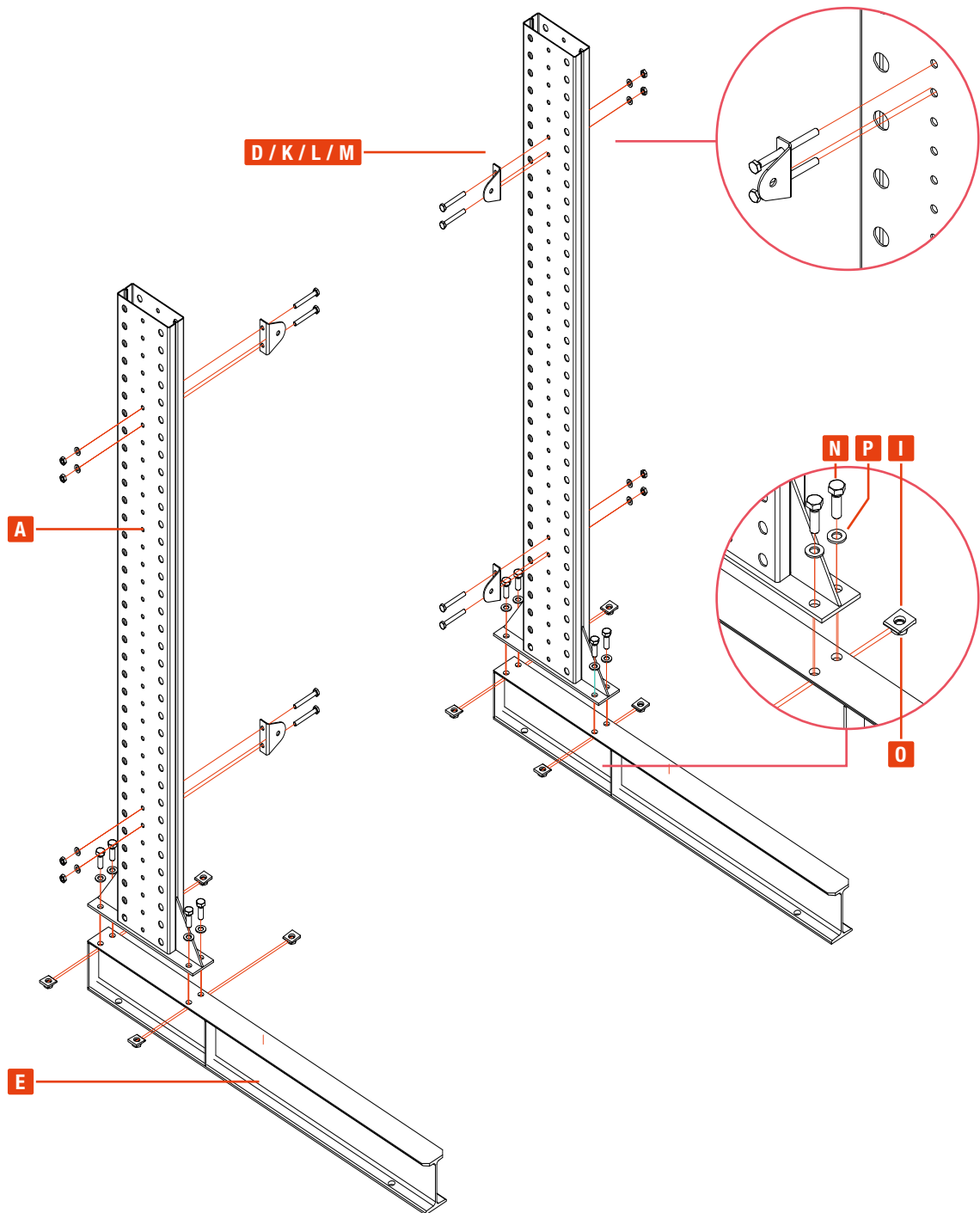


Strutting – holes

The cross struts must be fitted in the appropriate hole depending on the height of the upright. The number of struts to be fitted depends on the height of the rack. Between the individual angles, 20 holes must be left free – i.e. the second angle is attached to the 21st and 22nd hole.

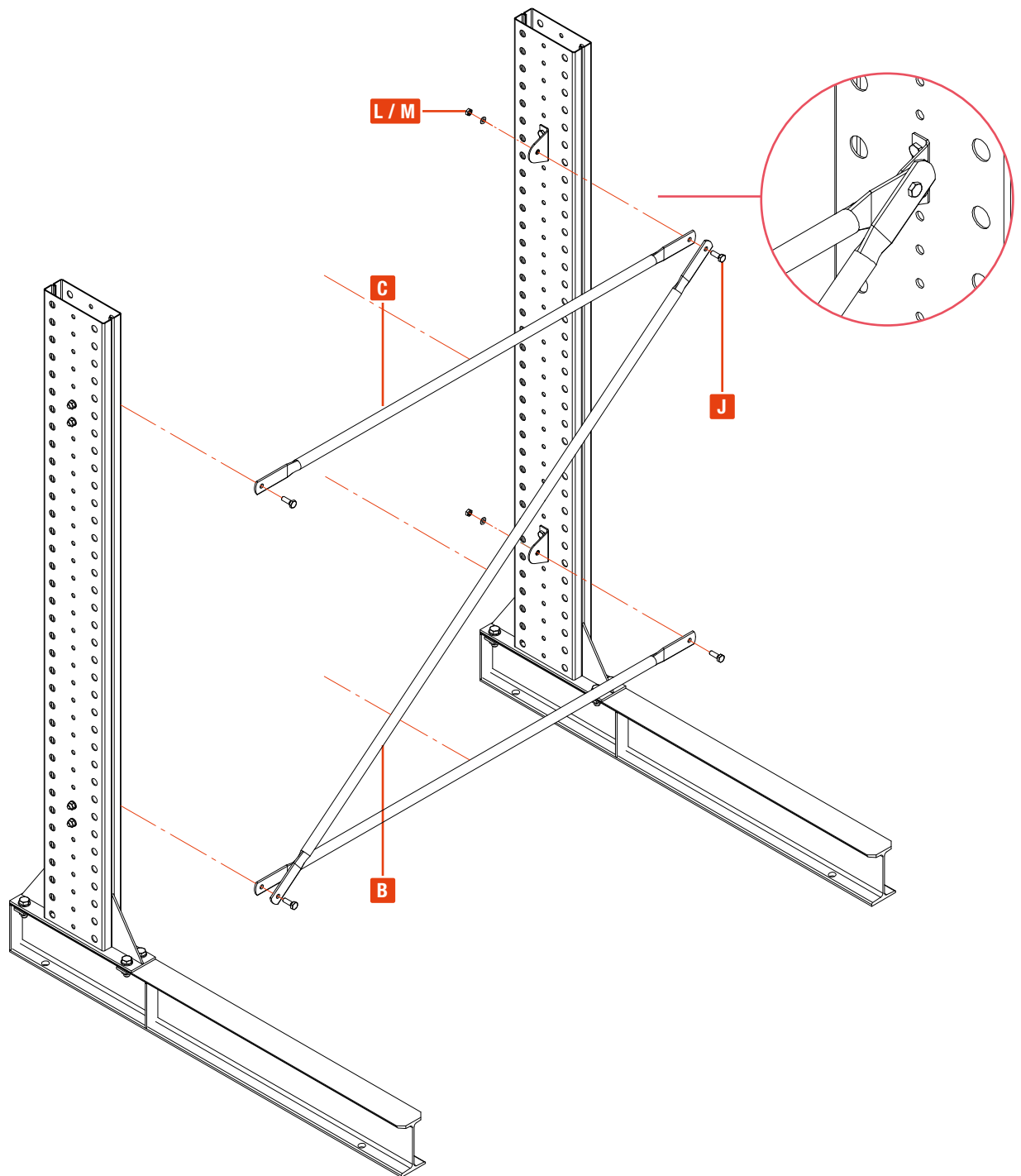


UPRIGHT ASSEMBLY



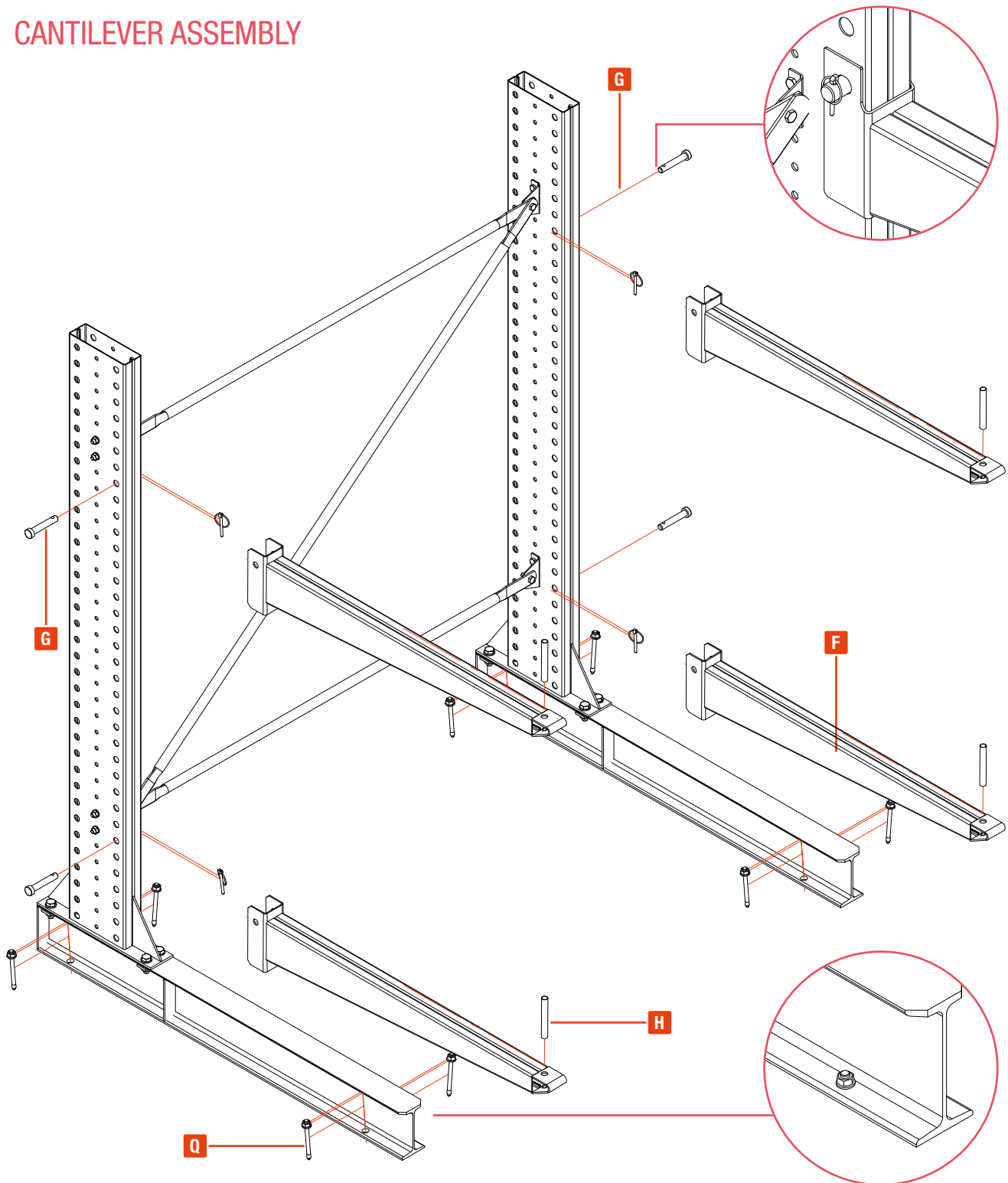
1. Place upright profile **A** on foot part **E** and fasten using bolts **N**, nuts **O**, washers **P** and compensation wedge **I**.
Tighten screws with maximum 180 Nm!
2. Fix angle plate **D** using bolts **K**, nuts **L** and washers **M**.
Note: Leave 20 holes between the individual angle plates.

STRUT ASSEMBLY



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

CANTILEVER ASSEMBLY



1. Place cantilevers **F** at the desired position.
2. Insert socket pin **G** across the cantilever and upright and secure it with the corresponding safety pin.
3. Insert roll-off safety device **H** into the holes provided in the cantilevers.
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 vehicles) 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. Damaged and deformed load-bearing components of a rack system must be replaced immediately, as the load-bearing capacity can only be guaranteed in perfect condition. Persons involved in assembly and dismantling must be secured against falling in accordance with the local accident prevention regulations.



PERMISSIBLE LOAD CAPACITIES

Cantilever load = 1,100 lbs / cantilever.

Upright load = 3,300 lbs single-sided / 6,600 lbs double-sided.

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

The storage of heavier loading units than those specified by us and indicated on load instructions 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 evenly suspended in height.



RACK INSPECTION

The following aspects, among others, must be examined regularly:

- 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.

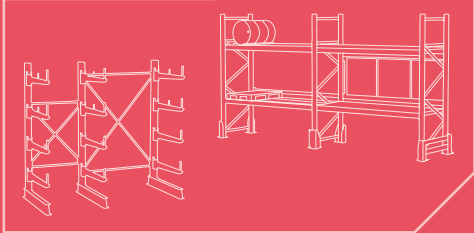
SERVICE & CONTACT

Contact our product experts and find help and solutions for your product. Here you will find all contact information listed by country and language: www.topregal.us/en-us/service

Responsible for the content:
TOPREGAL US Corp.
18211 Chisholm Trail
Houston, TX 77060
United States of America
www.topregal.us

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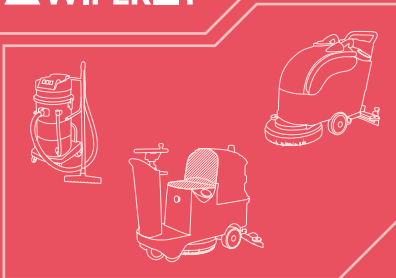
TOPREGAL



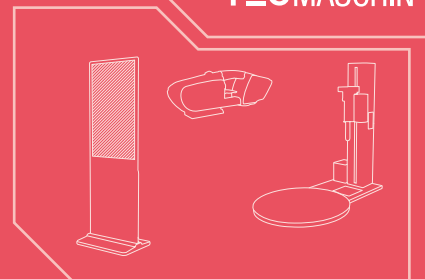
SolidHub



WIPEKET



TECMASCHIN



SOLOPORT

