

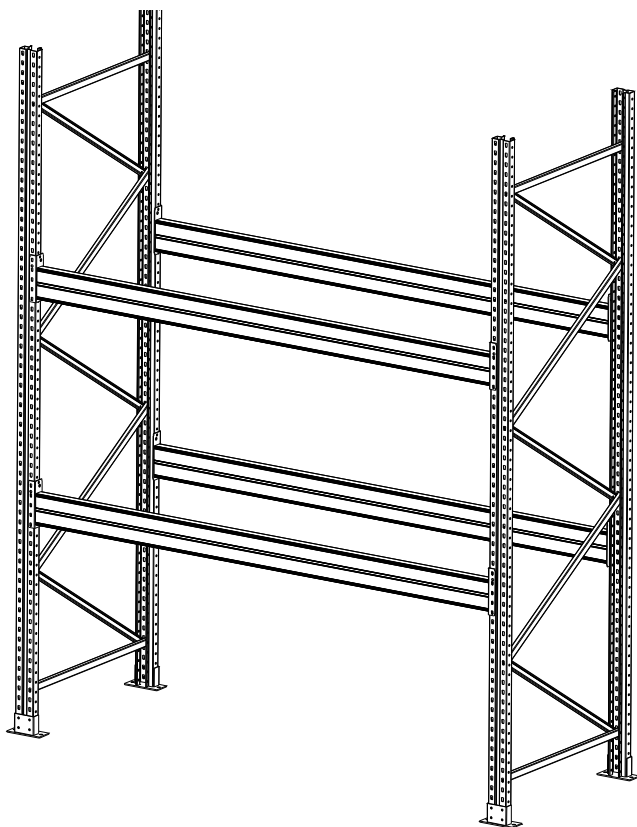
# USER MANUAL

## PALLET RACK

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EN

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**LAGER 4**  
because quality matters

# CONTENTS

## INTRODUCTION

<b>Explanation of Terms</b>	<b>2</b>
Prevent Dangers	
Accident Prevention Regulations	
Please Note	
Assembly Preparation	
Planning	
Testing Floor Tolerances	

## GUIDANCE

<b>General Information</b>	<b>3</b>
<b>Technical Recommendations</b>	<b>4</b>
Basic Structure	
Stand Height	
Passageways	
Collision Protection	
Safety Distances	
Floor Condition	
Labeling	
Plum Setup/Deflection	

## PARTS LIST

<b>Parts List</b>	<b>7</b>
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## ASSEMBLY

<b>Overview of Rack Stands</b>	<b>8</b>
<b>Rack Assembly</b>	<b>10</b>
Sides Configuration	
Assembling Feet	
Assembling Diagonal Bracing	
Securing Rack to Floor	
Installing Beams	
Installing Safety Clips	
Shelf Options	

## INSPECTIONS

<b>Rack Inspections</b>	<b>14</b>
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## CONTACT

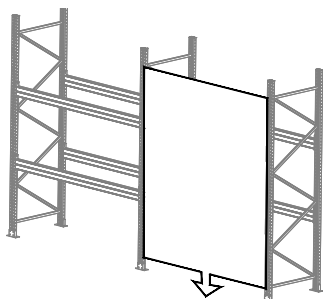
<b>Contact</b>	<b>14</b>
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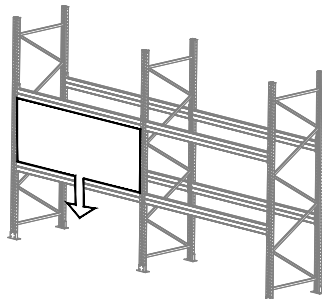
Do not over-tighten screws!

## EXPLANATION OF TERMS

### UNIT LOAD



### COMPARTMENT LOAD



## RACK CONFIGURATION LOAD CAPACITIES

The information on load capacity refers to a shelf with at least 2 bays and at least 2 levels (4 cross members), which are evenly suspended in height to ensure the maximum shelf and bay load. The operation of a shelf bay with only one level is prohibited! Suspending only one level in a bay reduces the shelf and bay load enormously due to the statics. Our load tests and all specifications therefore always refer to at least 2 levels.

CONFIGURATION	
Stand: EZL50U80-18	
Beams: EZLB90-15, EZLB100-15, EZLB130-15	
UNIT LOAD: 13,228lbs (6,000kg)	
COMPARTMENT LOAD:	
Beam Length	Maximum Weight
71in (180cm)	2,204lbs (1,000kg)
106in (270cm)	3,307lbs (1,500kg)
142in (360cm)	4,409lbs (2,000kg)
FREE KICK LENGTH: 55in (140cm)	

CONFIGURATION	
Stand: EZL50U105-18	
Beams: EZLB100-15, EZLB120-15, EZLB160-18	
UNIT LOAD: 19,842lbs (9,000kg)	
COMPARTMENT LOAD:	
Beam Length	Maximum Weight
71in (180cm)	4,409lbs (2,000kg)
106in (270cm)	6,614lbs (3,000kg)
142in (360cm)	8,818lbs (4,000kg)
FREE KICK LENGTH: 55in (140cm)	

CONFIGURATION	
Stand: EZL50U105-25	
Beams: EZLB100-15, EZLB160-15, EZLB160-18	
UNIT LOAD: 33,069lbs (15,000kg)	
COMPARTMENT LOAD:	
Beam Length	Maximum Weight
71in (180cm)	6,614lbs (3,000kg)
106in (270cm)	9,921lbs (4,500kg)
142in (360cm)	8,818lbs (4,000kg)
FREE KICK LENGTH: 55in (140cm)	



### Maximum Load per Pallet

Due to the lower compartment load, if the beam length is 360cm, four pallets may only be stored with a maximum load of 1,102lbs -33,069lbs (500kg/1,000kg) each.

## GENERAL INFORMATION

### PREVENT DANGERS

The LAGER 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 rules
- Country-specific standards (OSHA etc.)

### 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 note the following:

- Guidelines for the storage facilities and equipment can be found in the ANSI MH16.1 Standards.
- The relevant workplace directives and regulations.
- The information from your safety officer
- The structural conditions 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 OSHA standards).
- That the racks must be effectively protected against impact from forklifts etc.

### ASSEMBLY PREPARATION

All original LAGER components used to stabilise the warehouse equipment must be attached without restriction. 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 pre-fastened by hand and later tightened using suitable tools such as a cordless drill or a wrench.

## PLANNING

Before the racks are assembled measure and record the intended location (use a tape measure and chalk line). Consider that the intended rack row spacing is not the same as the work aisle width and that pallets, containers or empties can protrude into the aisle. The required work aisle width can be obtained from the manufacturer or safety officer. Traffic routes for powered or track-bound conveyors must be wide enough to ensure a safety distance of at least 0.5 m on both sides. The space required for manoeuvring operations must also be taken into account. The safety distance is not needed if access by persons is prevented by structural measures.

## TESTING OF 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 reinforced concrete slab, min. 200 mm thick, concrete quality C20/25 is required. If the surface is covered with magnesite screed, insulating plates and special ground anchors are required to prevent corrosion.



### Assembly

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

## TECHNICAL RECOMMENDATIONS

### BASIC STRUCTURE

A rack row consists of 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 base plates by screw connections and then fixed to the load-bearing floor. The beams are attached by simple plug-in construction with safety pins.

### STAND HEIGHT

The compartments of the first and last unit of a rack row must be attached at least 50 cm below the top of the upright to prevent the load from falling down. For all other units, the highest compartment must be attached at least 10 cm below the top of the stand.

### PASSAGEWAYS

Corner areas and passages must be protected by collision protection with a yellow/black hazard label which is not connected to the rack.

## COLLISION PROTECTION

Passages for industrial trucks and forklift trucks must be protected from falling stored goods. This is ensured, for example, by inserting a wooden shelf. The clearance height must be 25 cm higher than the vehicle height, but at least 200 cm.

## 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. A distance of 100 mm, the possible pallet overhang must also be taken into account. If the pallet protrudes by 6 cm, a safety distance of 16 cm applies. However, if pedestrian traffic is possible between the wall and the row of racks, there must be no overhang other than the pallet.

## FLOOR CONDITION

The minimum component thickness of the floor is 20 cm, the minimum drill hole depth is 15 cm. The flatness of the floor must be observed.

## LABELLING

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

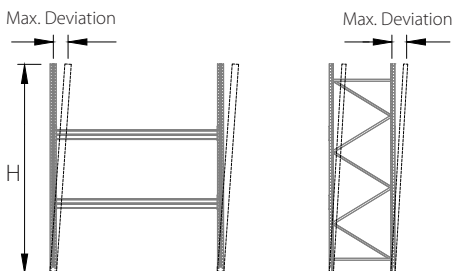
## PLUMB SET UP / DEFLECTION

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. To compensate for uneven floors, height adjustment plates can be used – but only up to max. 2 cm. The individual uprights within a row of racks must be aligned. There is a general obligation to anchor the rack to the floor! Suitable bolt anchors are included in the delivery volume. The shelves may only be loaded after assembly has been completed.

### Example of a Plumb Setup:

Maximum Deviation =  $H/200$   
 $400\text{cm}/200 = 2\text{cm}$

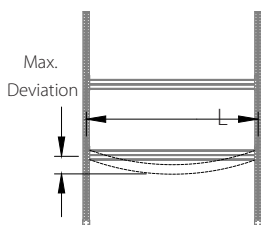
In this example, the maximum deviation in the longitudinal and transverse directions must therefore not exceed 2 cm.



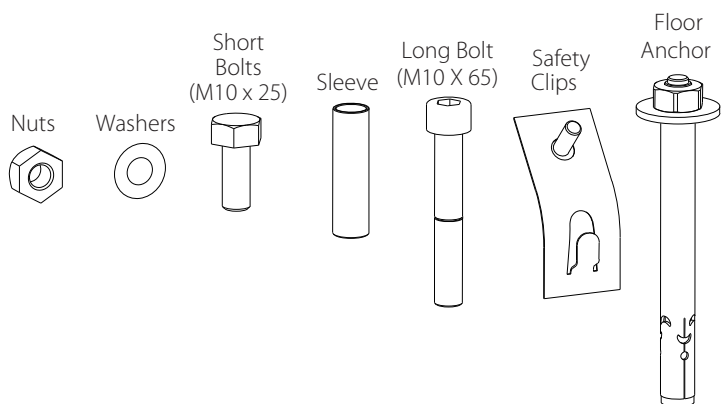
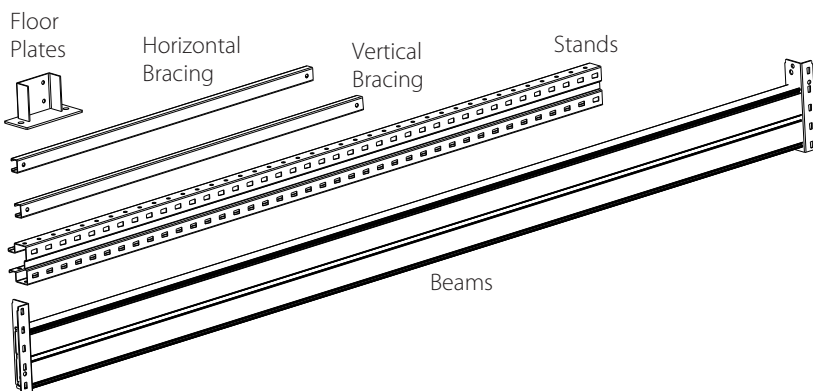
### Example of a Deflection:

Maximum Deviation =  $L/200$   
 $270\text{cm}/200 = 1.35\text{cm}$

In this example, the maximum deflection must not exceed 1.35 cm.



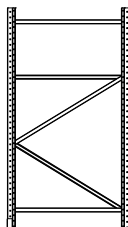
## PARTS LIST





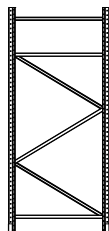
## OVERVIEW OF RACK STANDS

### Unit with 2m Height



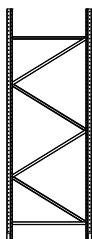
- Pallet rack upright 200 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 3 cross struts
- 2 diagonal struts

### Unit with 2.5m Height



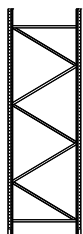
- Pallet rack upright 250 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 3 cross struts
- 3 diagonal struts

### Rack with 3m Height

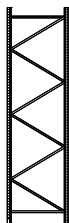


- Pallet rack upright 300 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 2 cross struts
- 4 diagonal struts

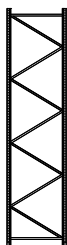
### Rack with 3.5m Height



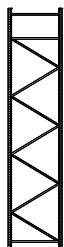
- Pallet rack upright 350 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 2 cross struts
- 5 diagonal struts

**Rack with 4m Height**

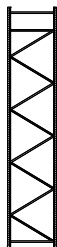
- Pallet rack upright 400 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 2 cross struts
- 6 diagonal struts

**Rack with 4.5m Height**

- Pallet rack upright 450 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 2 cross struts
- 7 diagonal struts

**Rack with 5m Height**

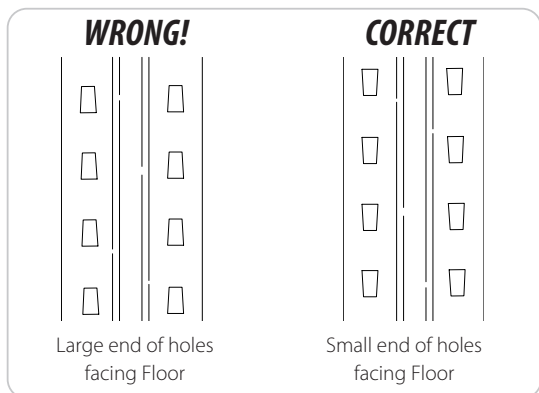
- Pallet rack upright 500 cm high
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 3 cross struts
- 7 diagonal struts

**Rack with 5.5m Height**

- Pallet rack upright 550 cm
- Depth: 80 cm / 110 cm
- Color blue (corresponds roughly to RAL 5015)
- 2 cross struts
- 8 diagonal struts

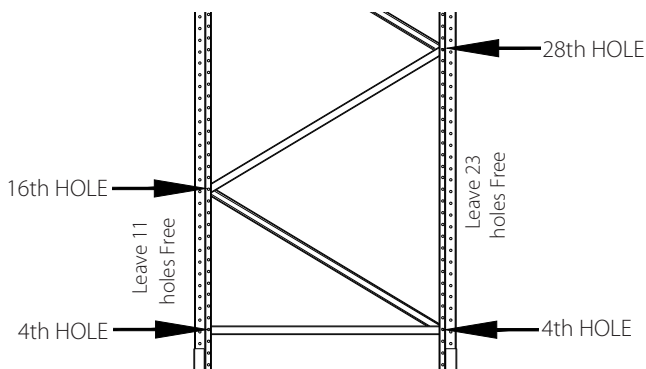
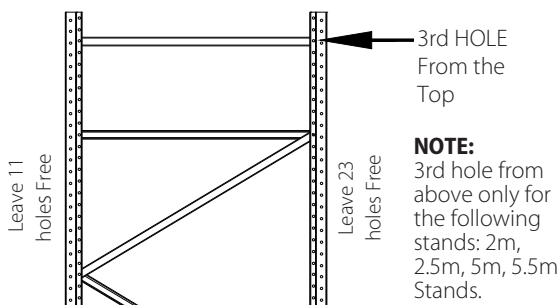
## RACK ASSEMBLY SIDES CONFIGURATION

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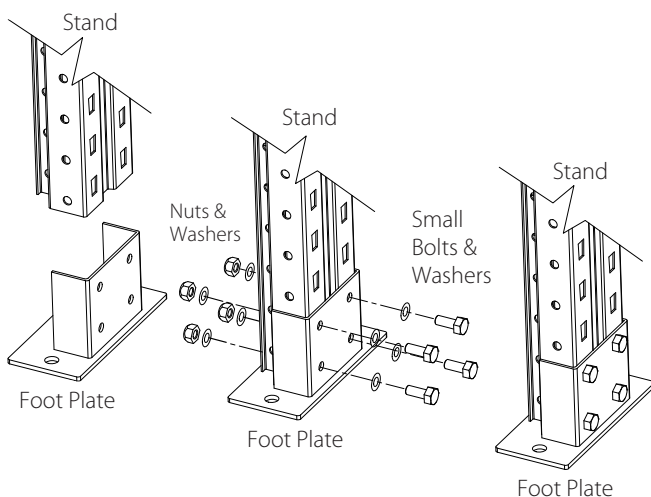
### Assembly

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.



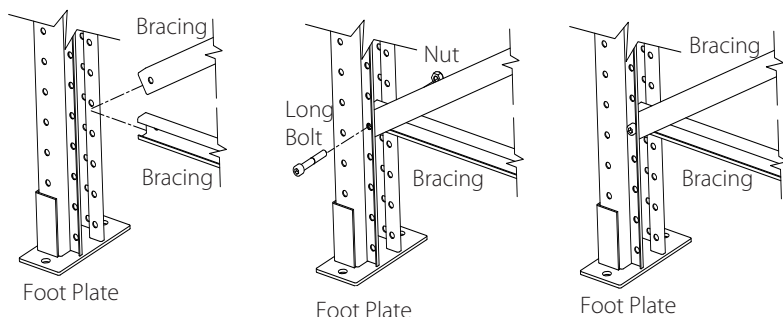
## ASSEMBLING FEET

1. Position STANDS inside FOOT PLATES.
2. Secure STANDS to FOOT PLATES using SMALL BOLTS and NUTS as shown below.  
***Double check that all nuts are tightly secured!***



## ASSEMBLING DIAGONAL BRACING

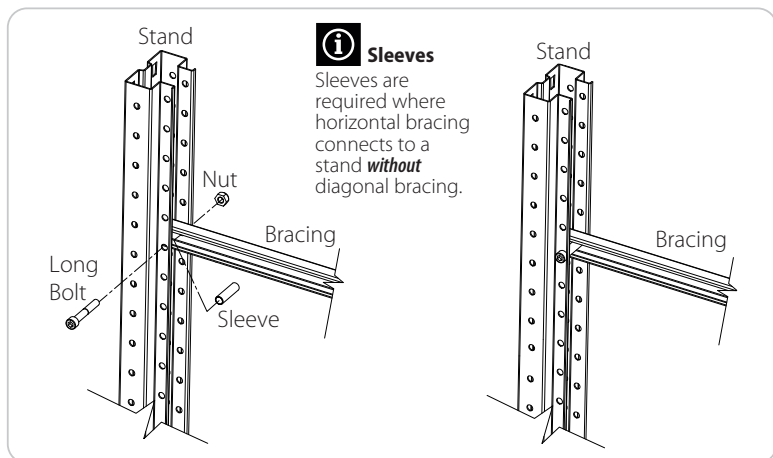
1. Position BRACING inside STANDS matching all holes as shown.
2. Secure BRACING to STANDS using the LONG BOLTS and NUTS.  
***Double check that all nuts are tightly secured!***



## ASSEMBLING HORIZONTAL BRACING

1. Position single BRACING inside STANDS matching all holes as shown.
2. Secure BRACING to STANDS by positioning SLEEVES inside STAND as shown.
3. Insert LONG BOLTS and NUTS.

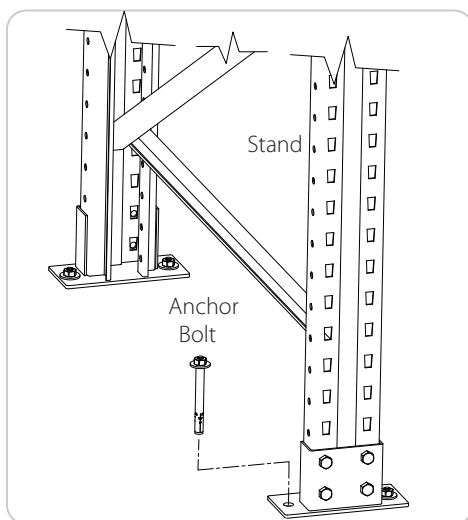
**Double check that all nuts are tightly secured!**



## SECURING RACK TO FLOOR

1. Drill holes in floor.
2. Insert ANCHOR BOLTS into the FOOT PLATES and hammer flush to FOOT PLATE.
3. Turn ANCHOR BOLTS clockwise with a wrench allowing them to expand into floor.

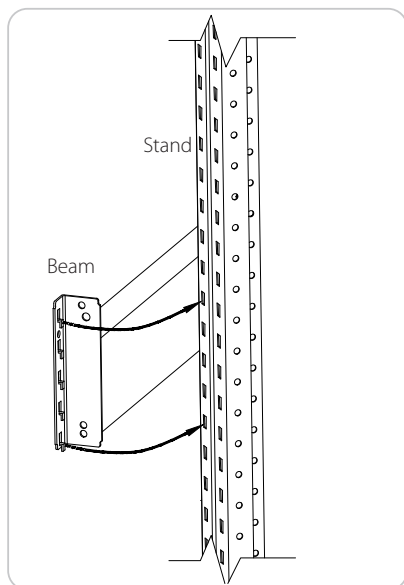
**Double check that all Anchor Bolts are tightly secured!**



## INSTALLING BEAMS

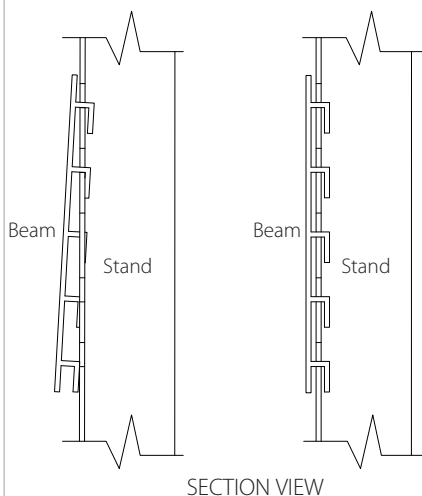
1. Attach the BEAMS to the STANDS by engaging hooks on BEAM ends as shown below (BEAMS can be attached at 50mm increments).

*Be sure the hooks on the BEAM ends are properly engaged as shown in the section view.*

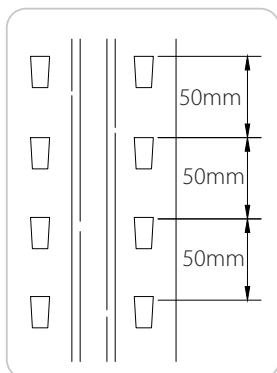


**WRONG!**

**CORRECT**



## RACK HOLE SPACING



## DISCLAIMER

- In order to achieve the maximum load available, there has to be two levels. Each level needs to have two (2) beams (one beam in the front and one at the rear).
- The loads must be spread evenly across the level.
- The distance between the floor and first level as well as between all other levels must not be more than 1400 mm.

## INSTALLING SAFETY CLIPS

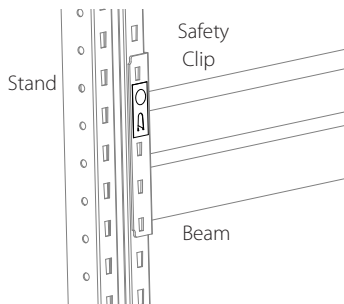
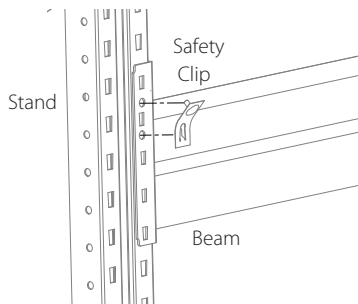
1. Insert the SAFETY CLIP into both the BEAM and the STAND.
2. Bend SAFETY CLIP down onto the BEAM.

*Be sure the Safety Clips are completely pushed into the Beams.*

### Beams



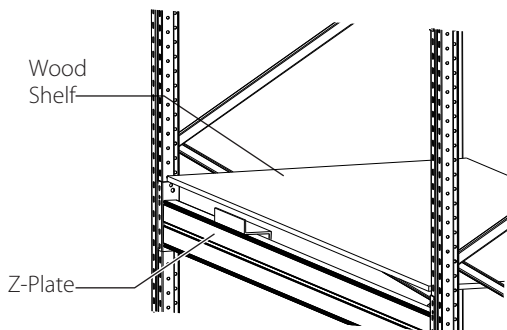
Attach the last beam at least 50cm before the end of the stand.



## SHELF OPTIONS

**Wood Shelving** Place at least four (4) Z-PLATES on beams and position WOOD SHELF on top of Z-PLATES. Maximum loads should not exceed 1,102lbs. (500kg).

**Galvanized Mesh Shelving** Place on beams (fixes itself). Loads not to exceed 1,102lbs. (500kg).



## RACK INSPECTION

The Standard for Rack Safety in America is recognized as ANSI MH16.1 and this standard recommends that visual inspections and expert inspections must be carried out weekly in order to ensure safety. Inspections should include the following:

- Check for visible damage to uprights, beams, braces, and anchors
- Verify rack plumbness (maximum ½ inch deviation per 10 ft height)
- Ensure beam connectors and safety pins are intact and secured
- Check for bent, twisted, or leaning rack components
- Inspect for missing hardware or unauthorized modifications
- Verify beam engagement is proper and secure
- Inspect for corrosion, especially at base and cold storage areas
- Confirm all base plates are present and securely anchored
- Check if floor anchors are in place and undamaged
- Ensure pallet loads are within rated capacity limits
- Verify load signage is posted and legible
- Inspect for even load distribution across beams
- Ensure pallet placement is correct (fully seated, centered)
- Verify adequate flue space and aisle clearances
- Tag and document any damaged areas using a color-coded system
- Unloaded damaged areas immediately if structural integrity is compromised
- Record inspection findings and actions taken
- Schedule repairs/replacements per manufacturer guidance
- Plan next inspection date based on risk factors

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 racks.

## CONTACT INFORMATION

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