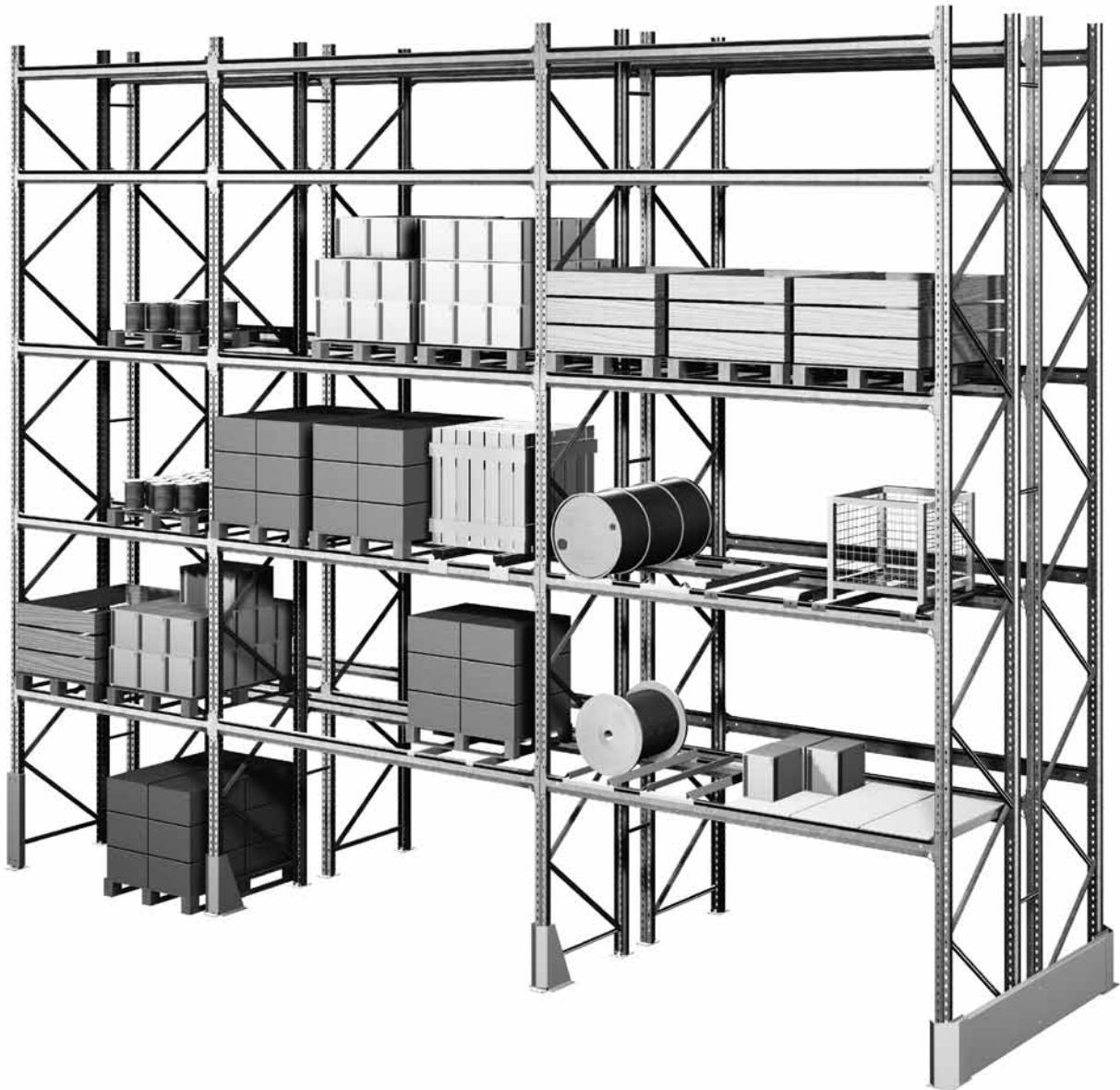


ASSEMBLY INSTRUCTION

PALLET RACKING P90 SILVERLINE



Read these instructions carefully before taking your pallet racking system into operation. Do follow the instructions regularly during the entire lifetime of the racking.

Thank you for choosing Constructor pallet racking system.

It is very important to follow the instructions of this manual.

The intention of this manual is to keep warehouse staff and management aware of risks involved in pallet racking handling and how to avoid them.

For further questions, please contact our local sales representative.

For optimal safety of a pallet racking regular inspections and maintenance should be effected.

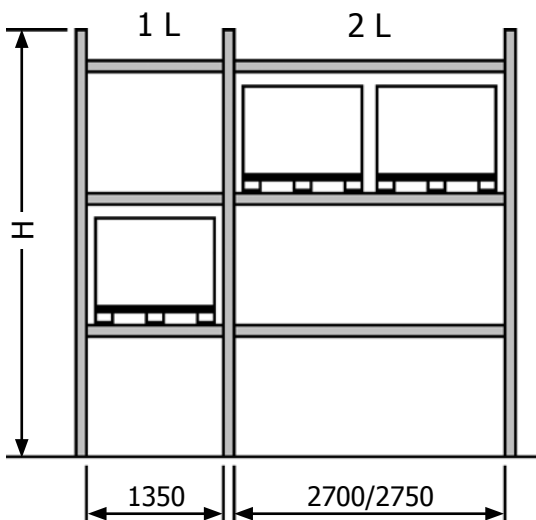
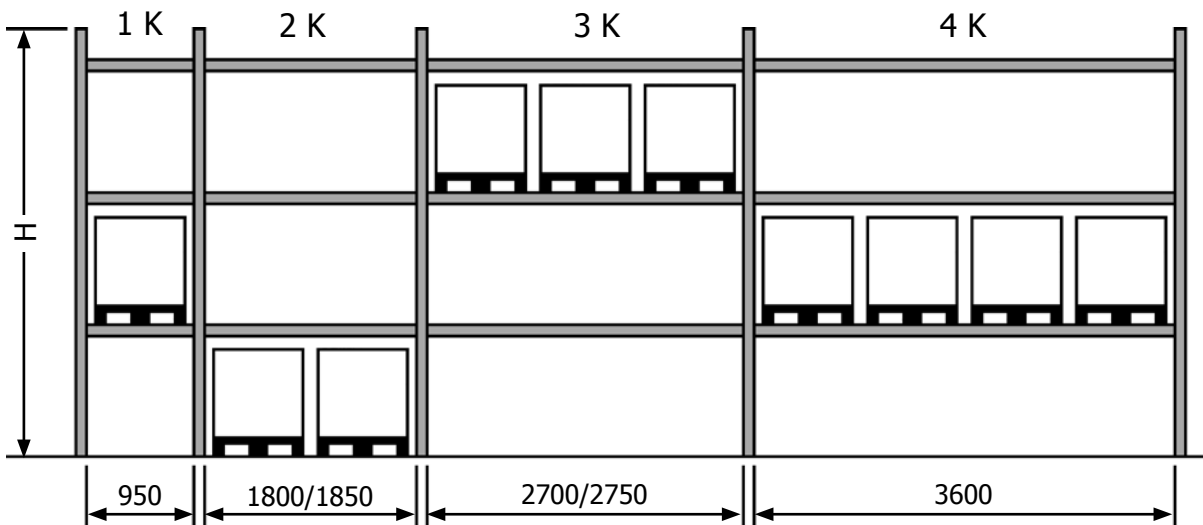
Regarding loads on beam levels and sections, see capacity signs for every individual installation.

All installations should be provided with signs of loading capacity in order to fulfill requirements and meet prevailing standards.

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- Assembly instructions	3-4
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Technical description

Pallet racking dimensions (mm)



- Min distance from floor level to top of the first beam is 180 mm.
- The beam height may be adjusted with 50 mm interval.
- Frame width at short side handling is 1037 mm, external measure included beam is 1100 mm.
- Frames for long side handling and other special depths can also be delivered.
- Height of beams $h = 100, 125, 140$ mm.
- Max load per beam is calculated from maximum deflection $L / 200$.

Assembly instructions

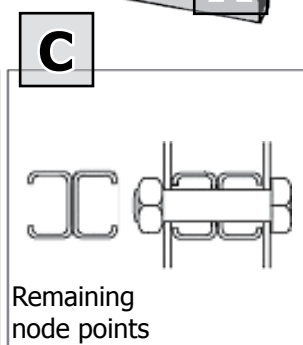
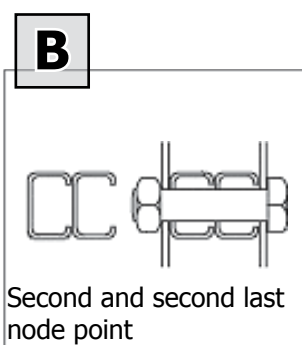
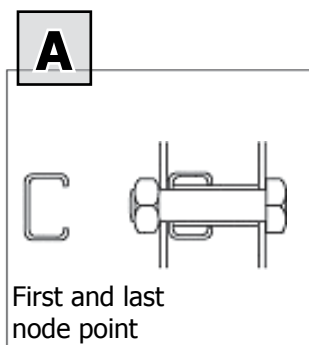
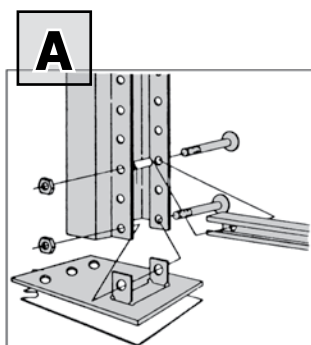
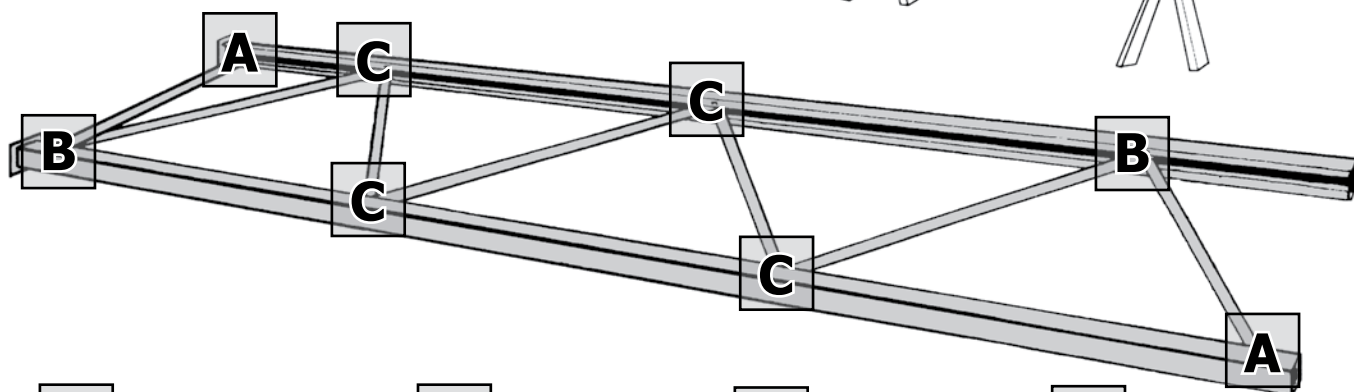
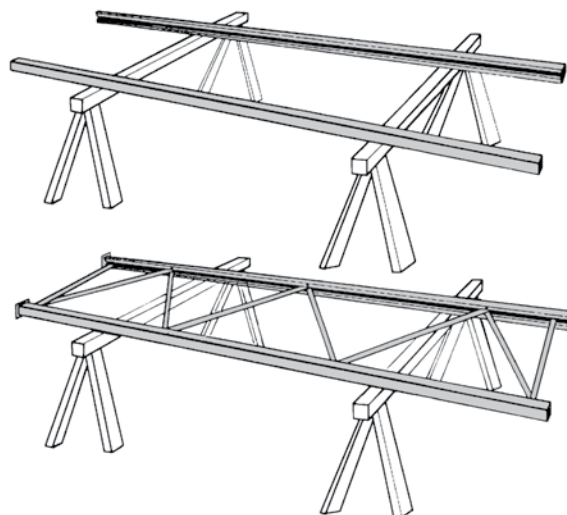
Assembly of frame

Do place the uprights on the jig. Lay out the horizontal and diagonal bracing in-between the uprights in the pattern shown below (start at 3rd hole, 114 mm from bottom).

Fit the bracing by using M10X65 mm bolts and M10 Nyloc.

Fit the foot plates in the bottom hole (14 mm).

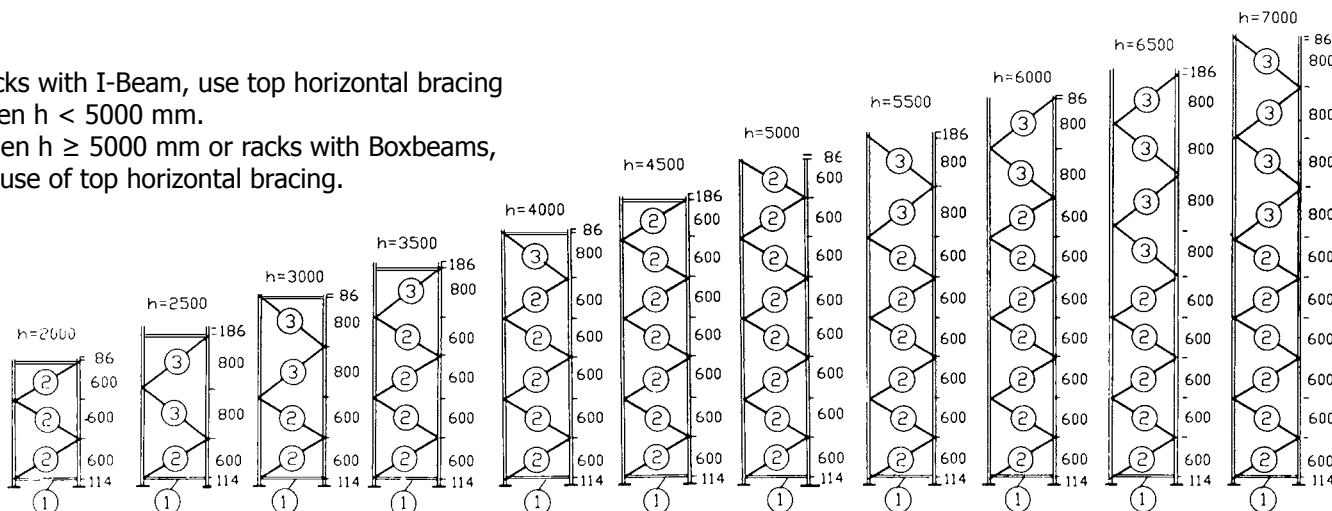
Tighten all the nuts and bolts using an impact wrench.



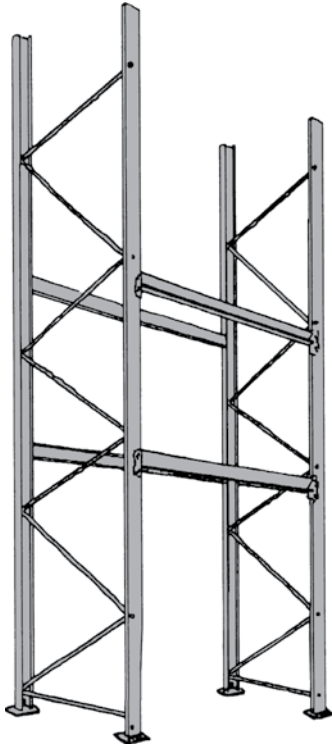
Bracing schedule	I-Beam, frame depth	Box-Beam frame depth	
		Short side handling width 1 020 mm	Long side handling width 800 mm
1 Horizontal L=	Short side handling, width 1 037 mm Long side handling width 737 mm	1 020 mm	720 mm
2 Diagonal L=	1 136 mm	1 189 mm	947 mm
3 Diagonal L=	1 257 mm	1 305 mm	1 090 mm

Racks with I-Beam, use top horizontal bracing when $h < 5000$ mm.

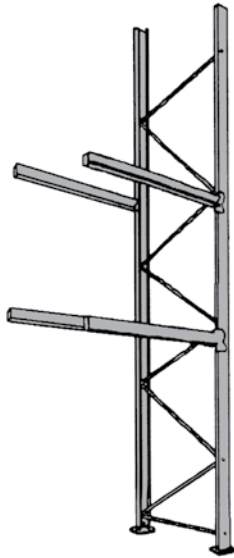
When $h \geq 5000$ mm or racks with Boxbeams, no use of top horizontal bracing.



**Assembly
Start section**



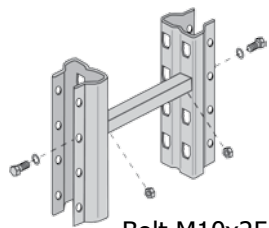
follow section



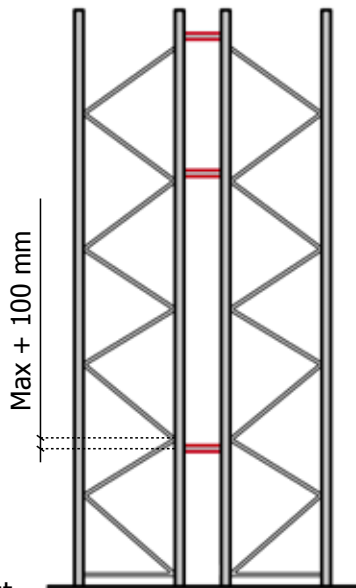
Double rack

Frame spacers

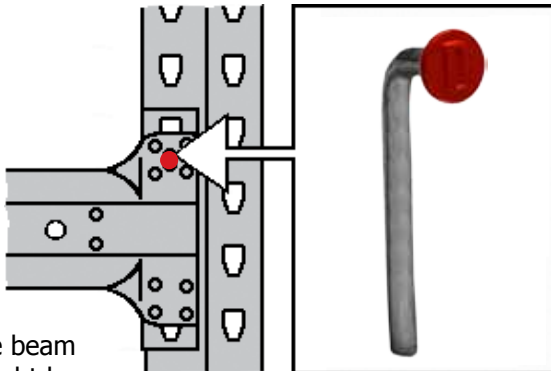
Spacers are assembled max. 100 mm from the diagonals connecting points. First about 1300 mm from the floor and at the top. Then in every 4th node point.



Bolt M10x25 nut
M10 Nyloc + washer



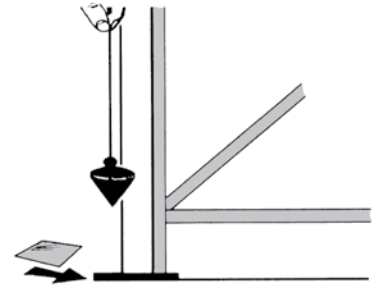
Beams



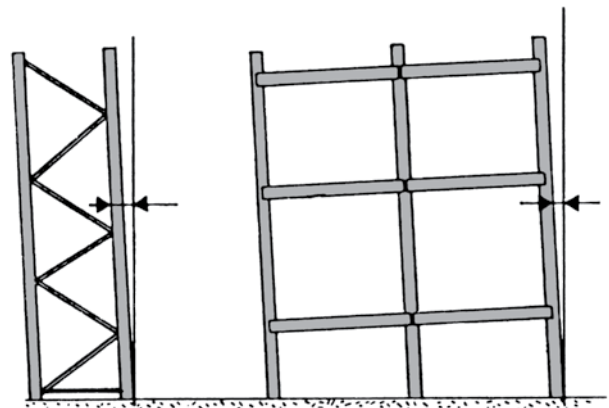
Secure the beam to the upright by a beam safety lock.

Check the plumb line

Adjust level if necessary.



Out of plumb

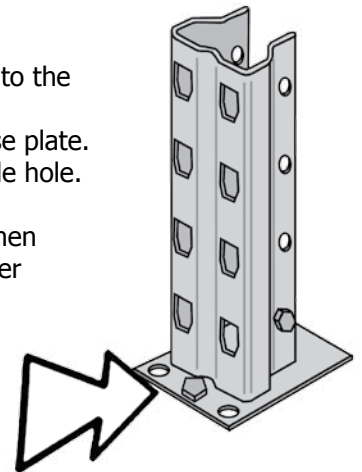


Maximum out of plumb $H/350$ (2.8 mm/m).

Floor fixing

Uprights should be secured to the floor. One expander bolt or concrete screw for each base plate. Normally placed in the middle hole.

For floor of other material than concrete, contact the supplier for instructions.



NOTE:

Before the rack is secured to the floor, there is a great risk that the rack tilt over. The risk will be greater for smaller frame depth and/or higher rack.

If questions, contact the supplier.

Product safety and product liability

Constructor assumes product liability for 10 years when P90 Silverline is purchased directly from Constructor or from an authorized Constructor dealer.

Product liability includes manufacturing defects and the product's good condition where questions of safety are concerned. This means that the performance specifications indicated in this manual are observed and are otherwise followed during normal handling.

Sale to a third party (second-hand sale)

Observe that Constructor's product liability (with the exception of manufacturing defects) is terminated when

the racking is sold to a third party.

The total installation liability is transferred to the party who has sold the installation and it is his responsibility to supply the end-user with the requisite information regarding load capacities, assembly instructions and the other documentation that is described in this manual. If collapse or any other undesirable incident occurs at an installation sold by a third party or directly by an earlier owner, the liability for the product becomes the responsibility of these sellers.

Safety on the job

Make your warehouse safer by preventing accidents before they occur.

Use the Instructions for use and erection

- determine **when** and **where** problems can occur
- conduct a safety analysis
- make corrections according to the Instructions for use and erection
- conduct regular inspections

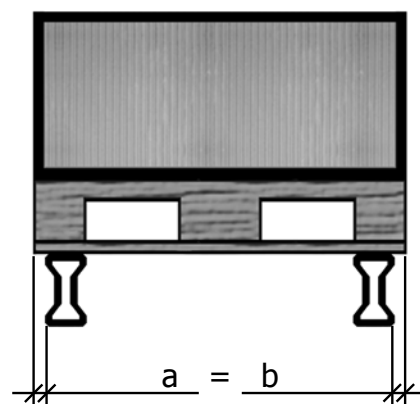
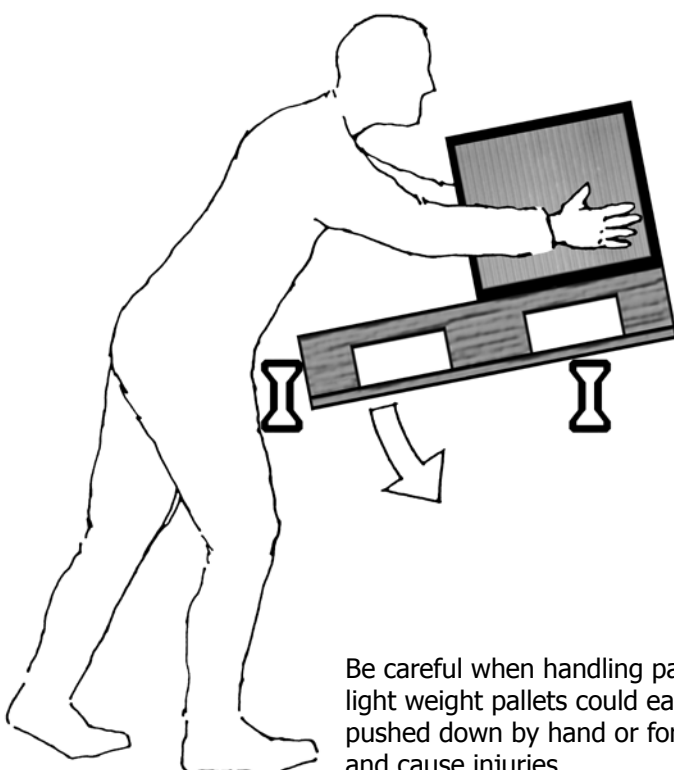
Where safety is concerned, it is important that the rack always is erected according to the instructions given in this manual. The rack shall be inspected after the assembly. For the following inspections see EN 15635.

For optimal safety, it is very important that all pallet racking installations are completed with (fenders) collision guards, pallet stop, etc.

When handling and storing containers, materials in sheets, barrels and cable drums, the rack must be fitted with proper equipment such as cross beams, fork spacers and various inserts and supports for maximum safety.

Signs for instruction use and erection as well as diagrams for load capacity shall always be mounted. It is the responsibility of the management to inform the staff.

The technical safety of pallet racking is best guaranteed by regular inspections.



When placing a pallet in the racking the pallet should be centred in order to get the load equally divided.

Inspection of pallet racking P90 Silverline

The safety of the storage system shall be controlled by regularly inspections according to EN 15635. Users and responsible persons, management, the industrial safety officers, etc., demand the following inspections to be carried out:

- **Visual inspections:**
Quote EN 15 635*
The person responsible for the storage equipment safety shall ensure that inspections are made at weekly or other regular intervals based on a risk assessment. A formal written record shall be maintained.
- **Expert inspections:**
Quote EN 15 635*
A technical competent person shall carry out inspections at intervals of not more than 12 months.

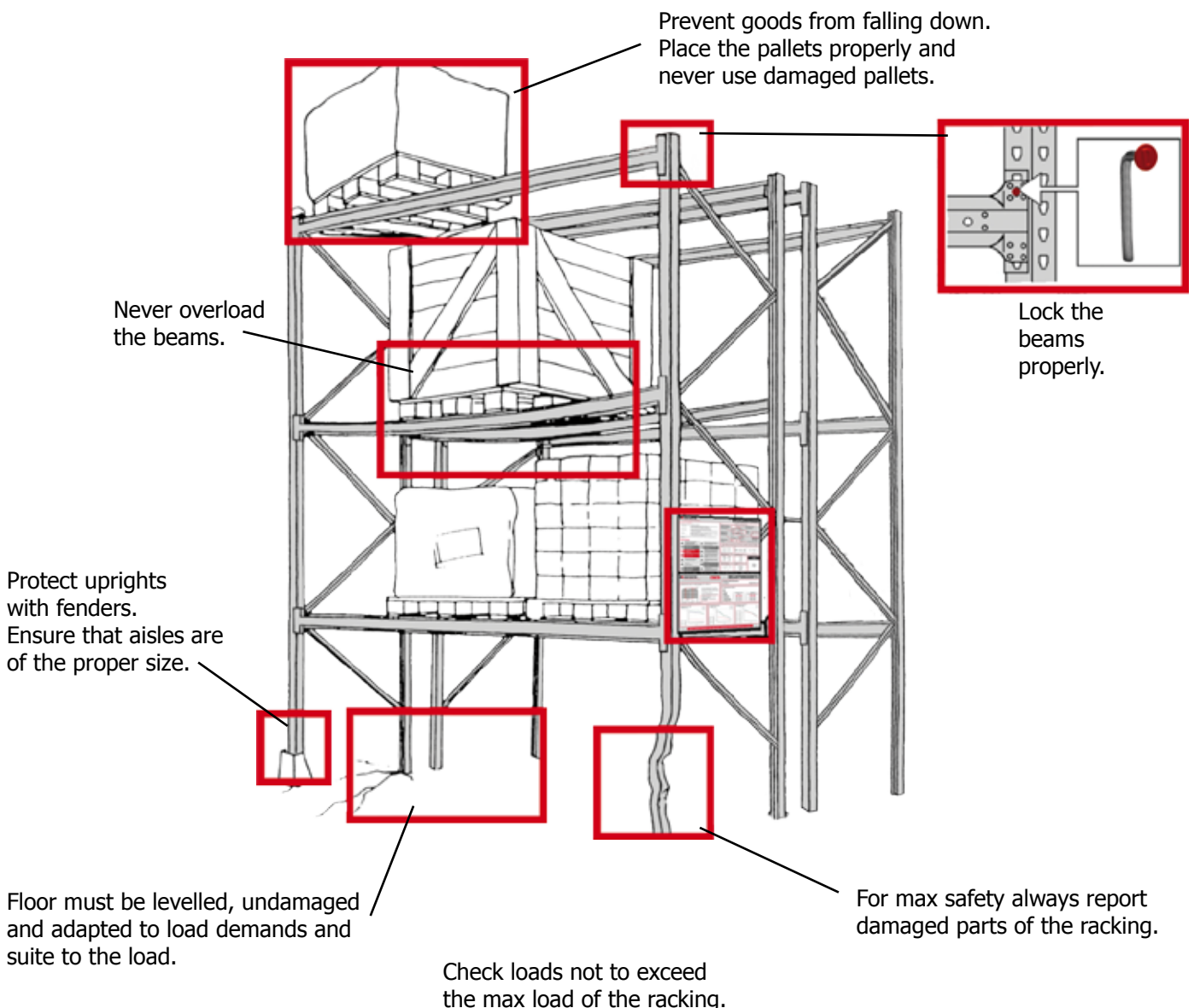
A written report shall be submitted to the person responsible for the storage equipment safety with observations and proposals for any action necessary.

Safety review

A safety review shall be carried out if beam levels have been changed or other rebuilds has been made, to guarantee that the load sign still is valid. A formal written record shall be maintained.

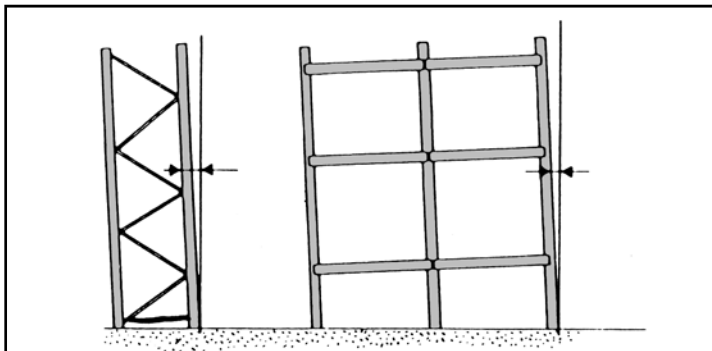
* NOTE The text is reproduced with due permission from SIS Förlag AB 08-555 523 10, www.sis.se where the complete standard can be bought.

The most important checkpoints



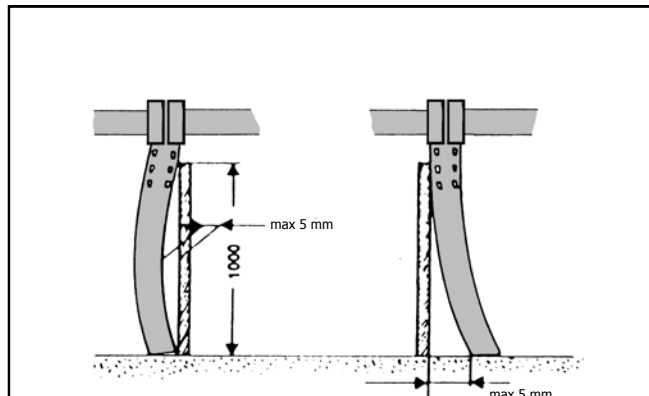
Some important maximum measurements to bear in mind while inspecting pallet racking. Deviations must be corrected.

Out of plumb



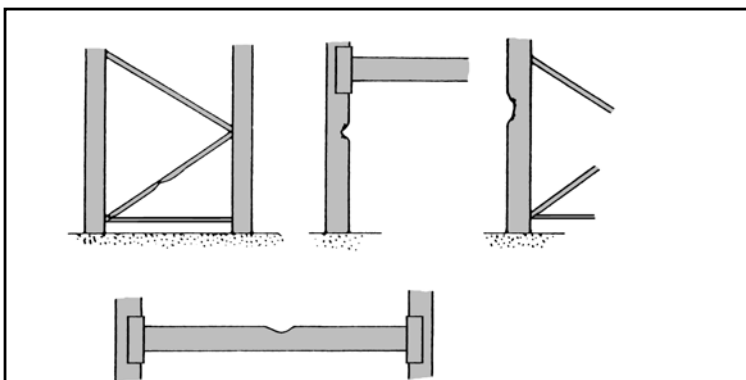
Direction relative to the plumb line max $H/350$ at assembly about 2.8 mm/m.
Loaded racks $H/350 + H/200$ about 7.8 mm/m.

Damage upright down aisle



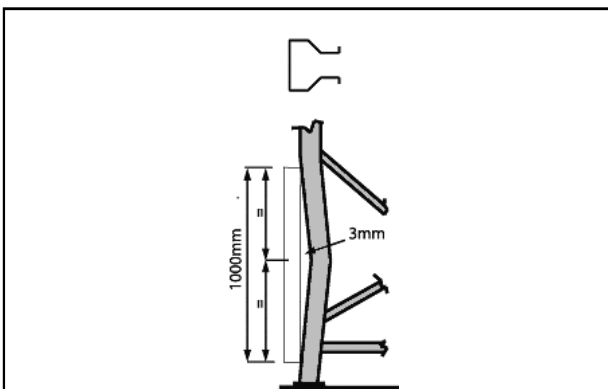
Method of damage measurement down aisle.

Dents



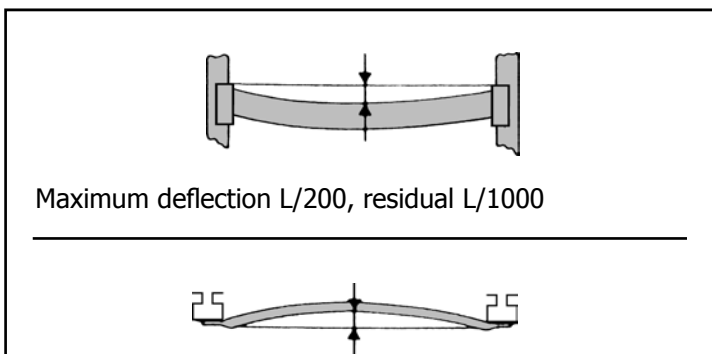
If buckles or dents occur, the damaged part should be replaced.

Damage upright cross aisle

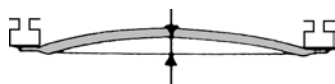


Method of damage measurement cross aisle.

Beams

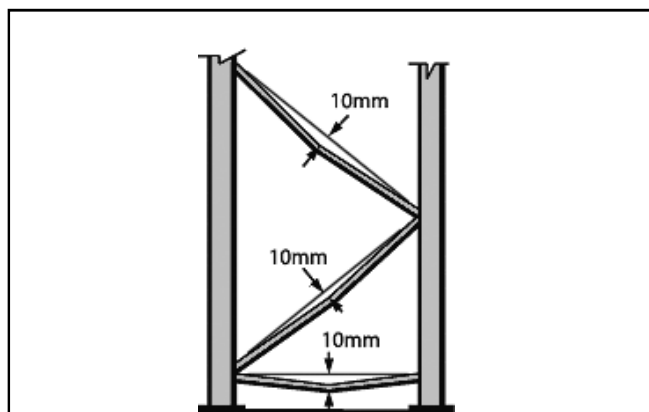


Maximum deflection $L/200$, residual $L/1000$



Maximum horizontal deflection $L/400$

Diagonal bracing



Maximum soft bend.

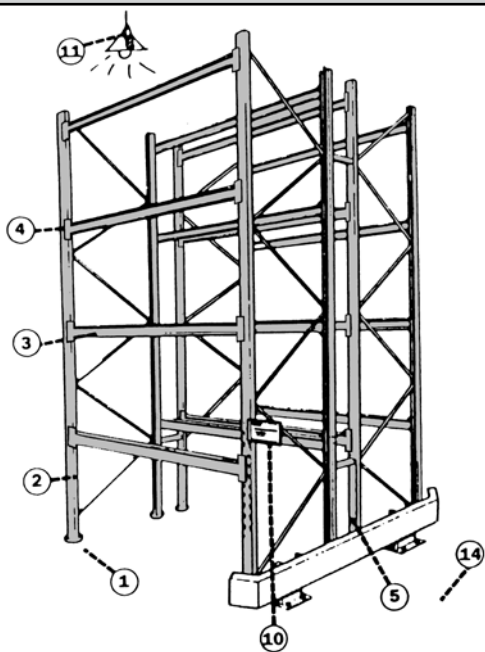
Example

A checklist for periodical inspections of pallet racking

Storage space _____

 Manufacturer/supplier _____

 Year of delivery _____
 Last inspection date _____



Check point	No defects	Actions	Remark
1. Condition of floor			
2. Vertical posts			
3. Bearer beams			
4. Locking of beams			
5. Fenders			
6. Tunnel protection			
7. Foot plates/levelling			
8. Beam braces			
9. Load capacities/deformation			
10. Capacity indicators			
11. Lightning/lamps			
12. Condition of pallets			
13. Loading of pallets			
14. Transport aisles:			
condition			
markings			
accessibility			
staff traffic			

Other _____
 Latest date for the next periodic inspection _____
 Inspected by _____
 Place _____ Date _____