

Assembly and users manual

Pallet racking Omega

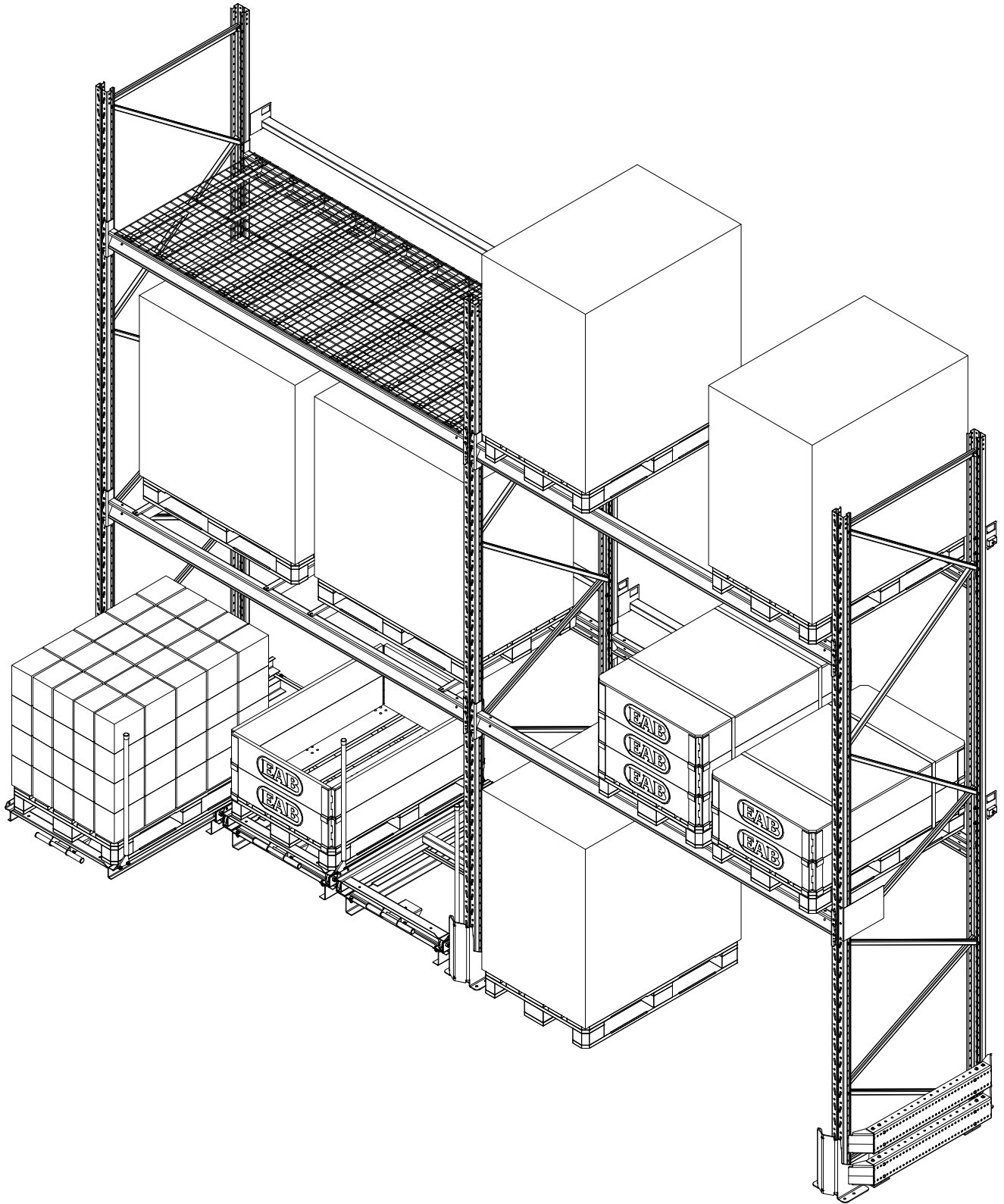
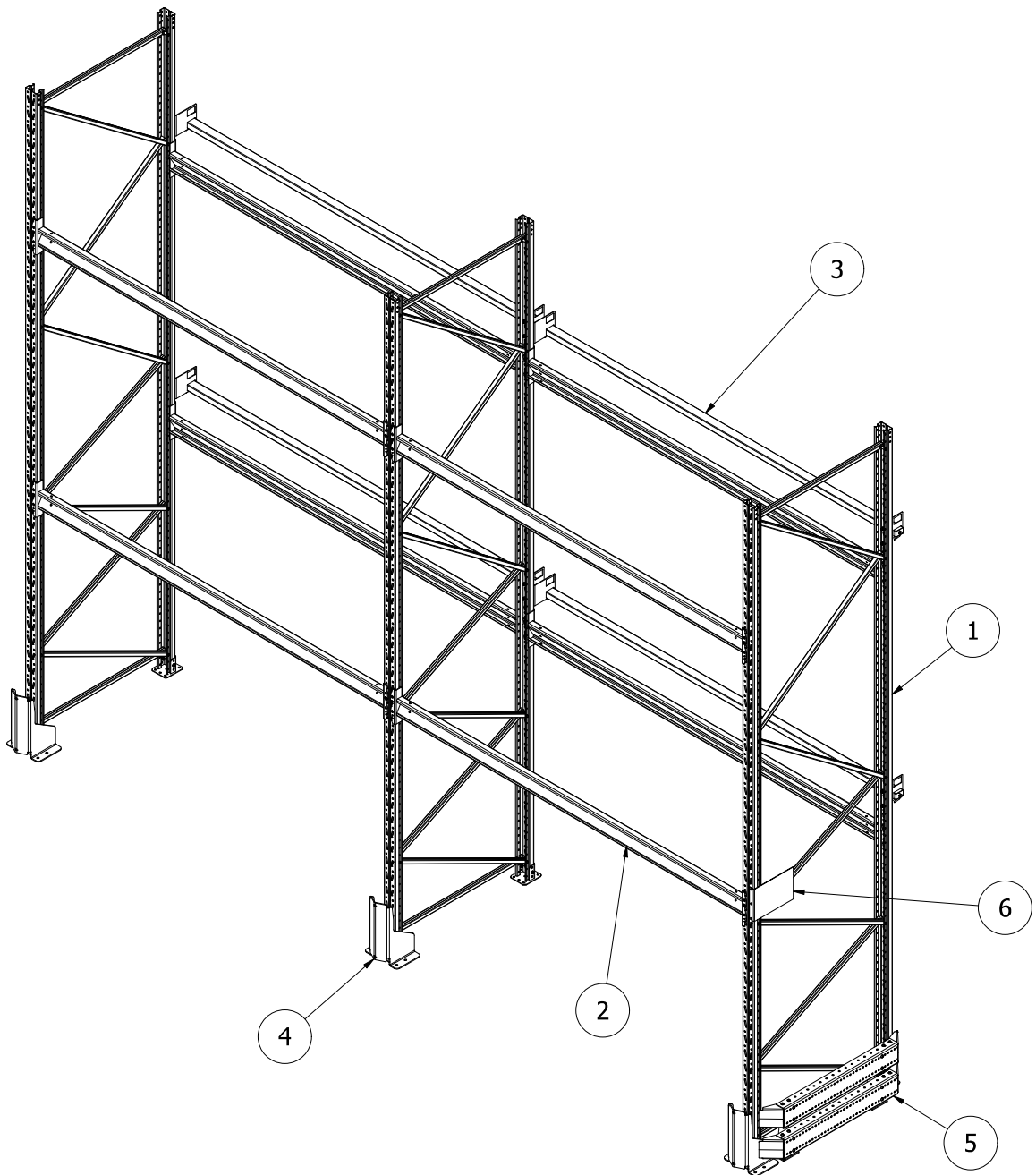


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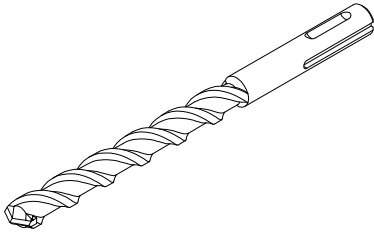
DETAILED OVERVIEW

1. Frame
2. Beam
3. Pallet back stop
4. Upright protection
5. Frame protection
6. Load table

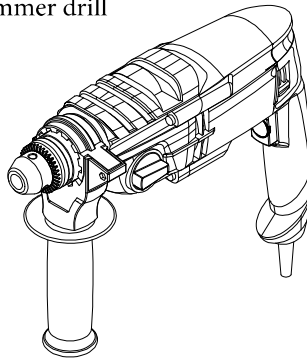


TOOLS FOR ASSEMBLY

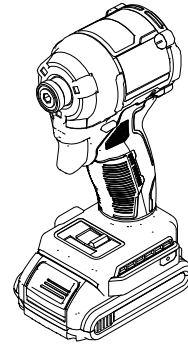
Concrete drill 8/10/12/14/16mm



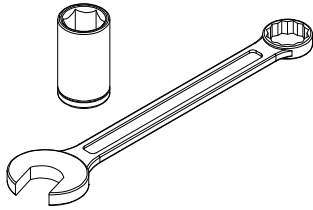
Hammer drill



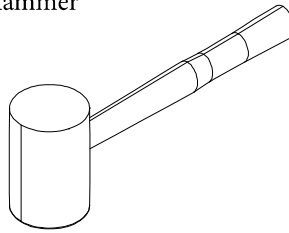
Impact driver/Driver



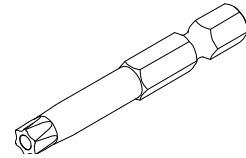
Hex socket/socket wrench
13/15/16/17/18/19mm



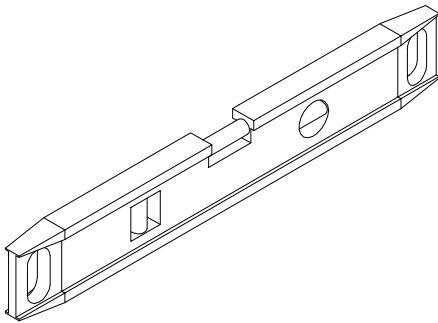
Hammer



Hex and torx bits 6mm/T25/T30



Leveler/Line laser



FLOOR TOLERANCES

Concrete floor

The concrete grade shall be minimum C 25/30.

Thickness of the concrete slab must be at least drilling depth +30mm.

Construction joints must not pass through the rack, because a movement in the joint can cause unpredictable forces in the rack.

Construction joints shall be placed between the racks.

Assembly must take place in dry concrete.

Diamond drills may not be used.

Purchaser/User is responsible that the floor is designed for the actual loads.

EAB can by request provide information about floor loads from the rack.

Maximum permitted height tolerances

Measure	Measure length	Tolerance
Flatness	0,25 m	± 1,2 mm
Flatness	2,0 m	± 5 mm
Slope		1/600

All points, regarding both flatness and slope, shall be within ±20 mm of the horizontal datum.

If the floor is not made of concrete, please contact EAB.

Tightening Torque

Bolt M10 8.8 Max. tightening torque 47 Nm

Taptite M6 Max. tightening torque 5 Nm

Taptite M8 Max. tightening torque 15 Nm

Screw B31K 5,5x20 Max. tightening torque 5 Nm

The bolt connections must be tightened to a good contact.

Tighten bolt joints for good contact.

Max. tightening torque must not be exceeded.

For assembly of bracing in frame

Bolt M8x75/12 Max. tightening torque 8-12 Nm

Lock nut M8 class 8

Use driver with adjustable torque.

Calibrate the driver with a torque wrench.

Tarmac floor

Tarmac plates must be applied according to the assembly manual.

The maximum allowed load on tarmac plates assumes that the allowed surface pressure on the tarmac is at least 0.8 MPa for long-term loads.

Purchaser/user must approve the surface pressure.

Structural strength is calculated on tarmac with a temperature less than 25°C.

For days with higher temperature, where the tarmac is exposed to sunlight, the structural strength is reduced.

EAB recommend that the tarmac is not exposed to sunlight, to ensure the allowed load according to the load table.

SPECIFICATION OF FLOOR ATTACHMENT

Floor anchoring in concrete

Screw anchor

Hilti HUS3-H 8x85

Drill hole Ø8

Drilling depth 90 mm in a cleaned hole

Drilling depth 114 mm in an uncleaned hole

Min. mounting depth 5 mm

Max. thickness fastened 15 mm

Hilti HUS3-H 8x100

Drill hole Ø8

Drilling depth 105 mm in a cleaned hole

Drilling depth 129 mm in an uncleaned hole

Min. mounting depth 5 mm

Max. thickness fastened 30 mm

Hilti HUS4-H 10x80

Drill hole Ø10

Drilling depth 85 mm in a cleaned hole

Drilling depth 105 mm in an uncleaned hole

Min. mounting depth 5 mm

Max. thickness fastened 15 mm

Hilti HUS4-H 10x100

Drill hole Ø10

Drilling depth 105 mm in a cleaned hole

Drilling depth 133 mm in an uncleaned hole

Min. mounting depth 5 mm

Max. thickness fastened 25 mm

Hilti HUS4-H 14x100

Drill hole Ø14

Drilling depth 105 mm in a cleaned hole

Drilling depth 133 mm in an uncleaned hole

Min. mounting depth 5 mm

Max. thickness fastened 25 mm

Max. 10mm adjustability of screw is allowed, if the above stated drilling depth is increased by +10mm.

	HUS 8	HUS 10	HUS 14
Max. torque impact driver	450 Nm	600 Nm	1000 Nm
Recommended impact driver	6-22	6-22	6-22
HILTI SIW acc. to table on the right or equivalent	22T-A	22T-A	22T-A
		8-22	8-22

See Hiltis instructions on the package.

Tighten screw anchor to good contact.

If the distance between the anchor and the concrete edge is less than 65mm, please contact EAB.

T¹ = Max. thickness fastened
D¹ = Drill hole
Ø = Drill hole diameter
T² = Thickness of concrete slab

Expansion anchor

M10x90 Hilti HST3

Drill hole Ø10

Drilling depth 73 mm in a cleaned hole

Drilling depth 85 mm in an uncleaned hole

Max. thickness fastened 10 mm

Max. tightening torque 45 Nm

M10x110 Hilti HST3

Drill hole Ø10

Drilling depth 73 mm in a cleaned hole

Drilling depth 85 mm in an uncleaned hole

Max. thickness fastened 130 mm

Max. tightening torque 45 Nm

M12x105 Hilti HST3

Drill hole Ø10

Drilling depth 68 mm in a cleaned hole

Drilling depth 80 mm in an uncleaned hole

Max. thickness fastened 30 mm

Max. tightening torque 60 Nm

M16x117 Hilti HSA

Drill hole Ø16

Drilling depth 100mm

Max. thickness fastened 5 mm

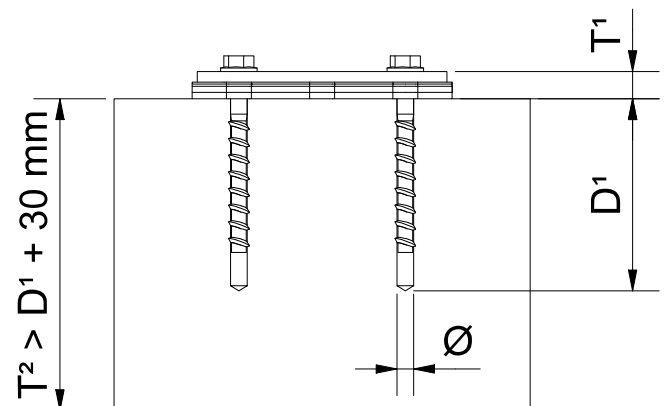
Drilling depth 85mm

Max. thickness fastened 20 mm

Tightening torque 80 Nm

See Hiltis instructions on the package.

If the distance between the anchor and the concrete edge is less than 9x anchor diameter, please contact EAB.



Floor anchoring in tarmac

Screw Anchor

Hilti HUS3-H 8x85

Drill hole Ø 8

Drilling depth 100 mm

Min. thickness fastened 5 mm

Max. thickness fastened 15 mm

Hilti HUS3-H 8x100

Drill hole Ø 8

Drilling depth 115 mm

Min. thickness fastened 5 mm

Max. thickness fastened 30mm

Hilti HUS4-H 10x80

Drill hole Ø 10

Drilling depth 95 mm

Min. thickness fastened 5 mm

Max. thickness fastened 15mm

Concrete bolt and "häftprimer EP" shall be used for assembly on tarmac.

Before use, read the operating and safety instructions on the packaging for "häftprimer EP".

For complete product data, see www.hagmans.se.

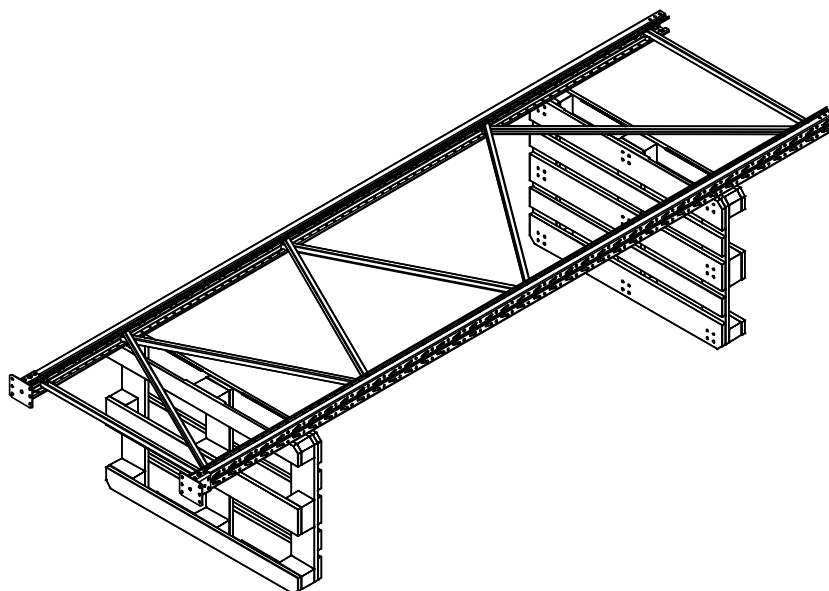
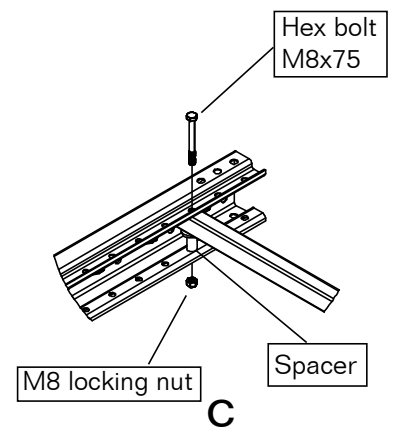
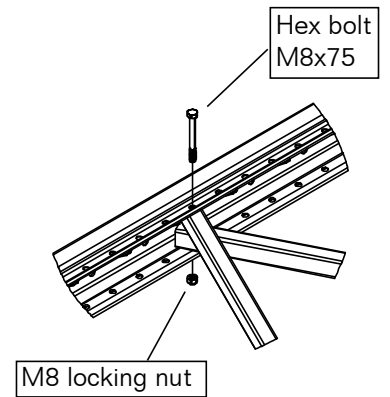
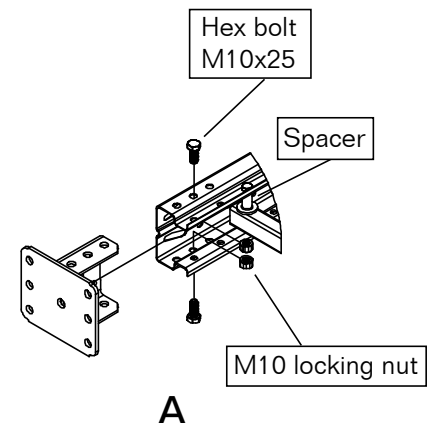
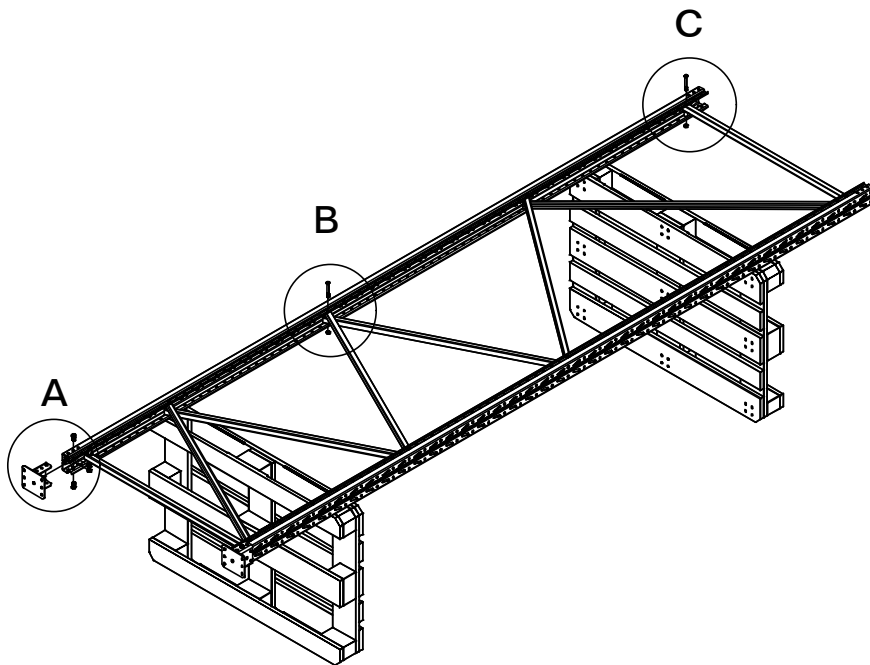
Fill drill hole with "häftprimer EP", let the glue sink and fill again.

Insert the screw and tighten.

In exposed environments, EAB recommend use of screw with better corrosion protection, screw anchor HUS4-HF or expansion anchor FZV.

ASSEMBLING OF FRAMES

1. Fasten sleeve footplates to uprights.
2. Place braces according to frame views on page 9.
3. Place spacers at free side of horizontal brace in both frame ends.
4. Fasten all braces with a tightening torque of max. 8-12 Nm.



BRACING OF FRAMES

Dimensions - 800 mm frames

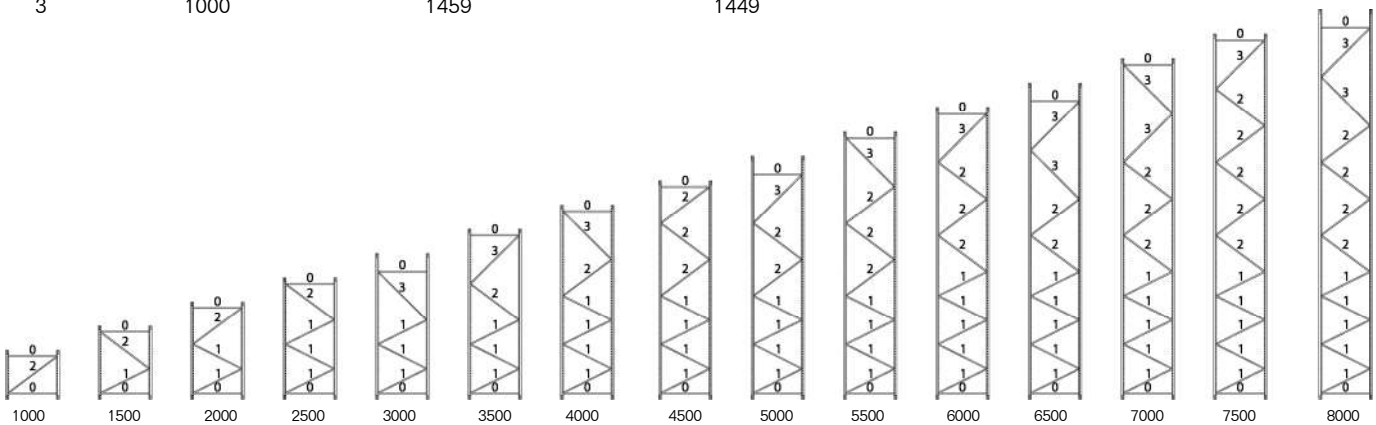
Brace type	Rise per brace	Length of brace (90 upright)	Length of brace (110 upright)
0	0	747	733
1	500	906	895
2	750	1071	1061
3	1000	1265	1257

Dimensions - 900 mm frames

Brace type	Rise per brace	Length of brace (90 upright)	Length of brace (110 upright)
0	0	847	833
1	500	989	977
2	750	1142	1131
3	1000	1325	1316

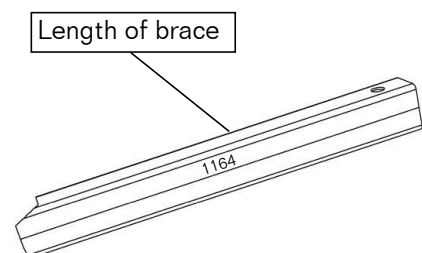
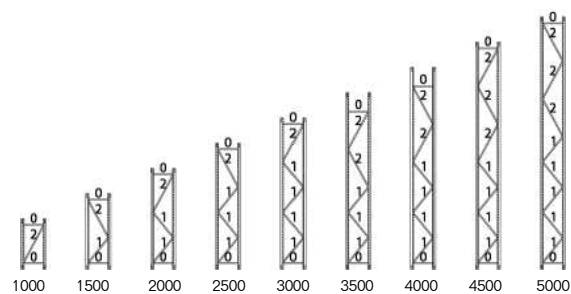
Dimensions - 1100 mm frames

Brace type	Rise per brace	Length of brace (90 upright)	Length of brace (110 upright)
0	0	1047	1033
1	500	1164	1152
2	750	1296	1284
3	1000	1459	1449



Dimensions - 500 mm frames

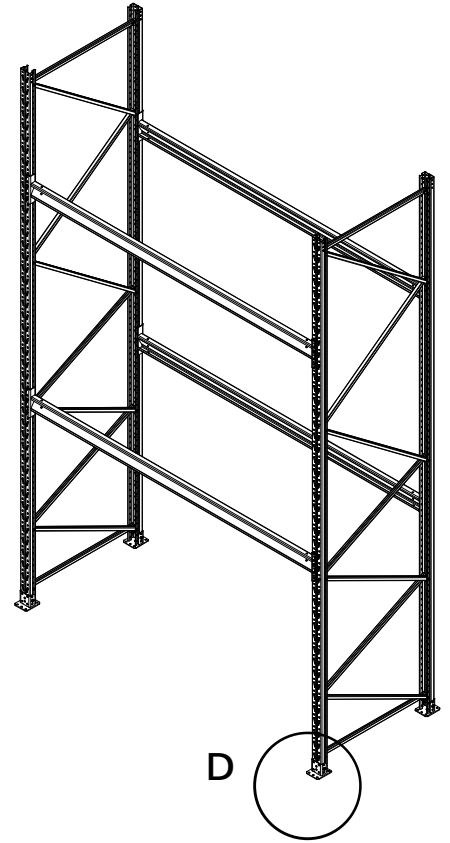
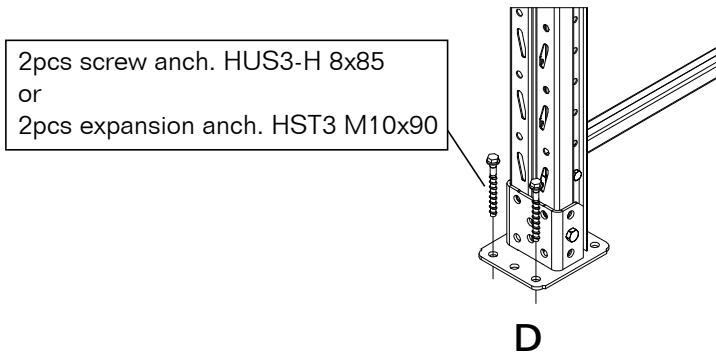
Brace type	Rise per brace	Length of brace (90 upright)	Length of brace (110 upright)
0	0	447	433
1	500	685	676
2	750	893	887



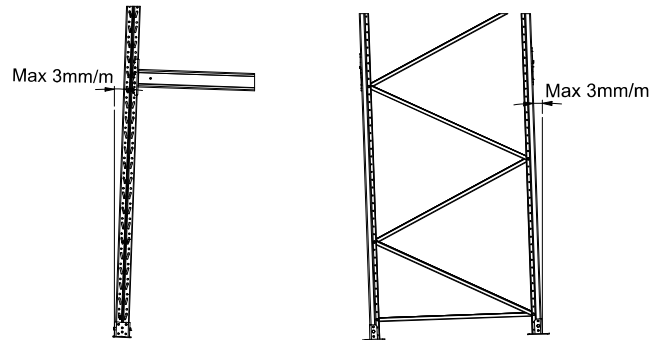
ASSEMBLING OF SECTIONS

1. Level the floor and identify the highest point.
Use shim plates to adjust where the floor is uneven.
Max. thickness of shim plates: 25mm.

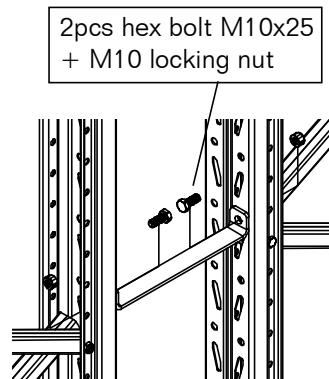
2. Erect one bay and secure the beams with safety pins.



3. Ensure that the frames do not exceed the specified tolerances regarding inclination.

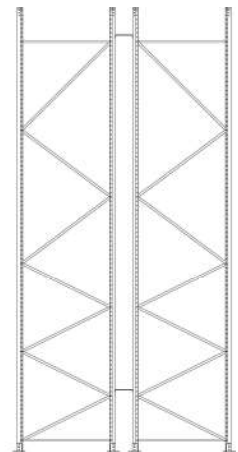
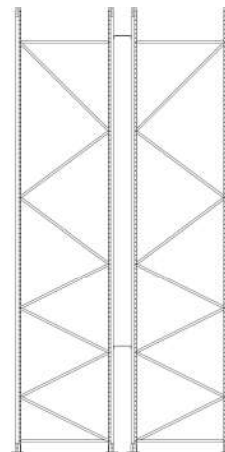


4. Assemble 2pcs of frame spacers between each set of frames.
Frame spacers shall only be assembled in double racks.



Frame setup

Optional frame setup



5. Anchor sleeve footplates with
2pcs screw anchor HUS3-H 8x85 or
2pcs expansion anchor HST3 M10x90.
If the shim thickness exceeds 10mm,
screw anchor HUS3-H 8x100
or expansion anchor HST3 M10x110 must be used.

BEAM PROFILES

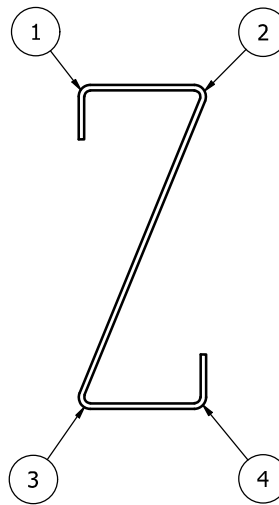
Beams shall be fixed to uprights by bolts or safety pins, according to chart below.

Beam profile Z4 142x2,95 and Z4 160x2,95 must only be assembled on frame type 90-2, 110-1 or 110-2.

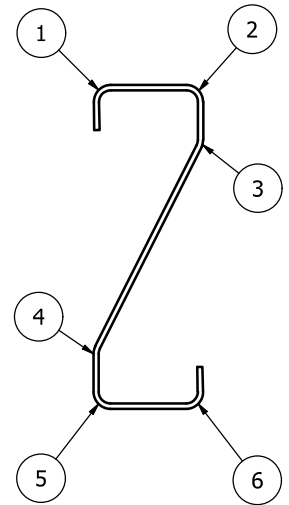
Beam profile	Safety pin	Bolt
Z4 100x1,85	X	
Z4 100x2,35	X	
Z4 115x2,35	X	
Z4 140x2,35		X
Z4 142x2,95		X
Z4 160x2,95		X
Z6 100x1,85	X	
Z6 100x2,35	X	
Z6 115x2,35	X	
Z6 140x2,35	X	

Chart for beam profiles applies unless otherwise is stated on project drawings.

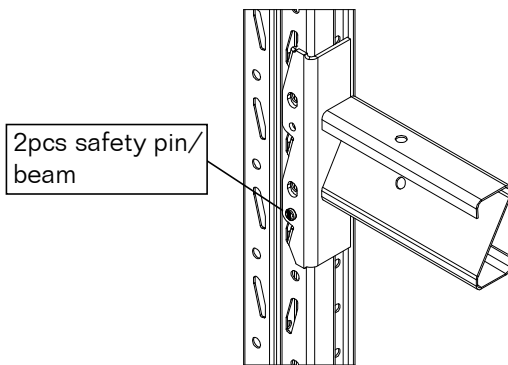
Z4 profile



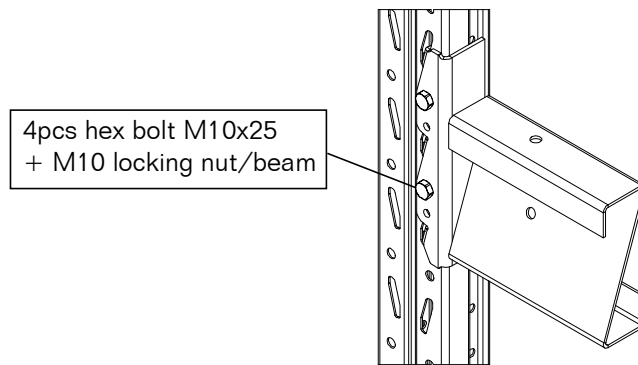
Z6 profile



Beam secured by safety pin

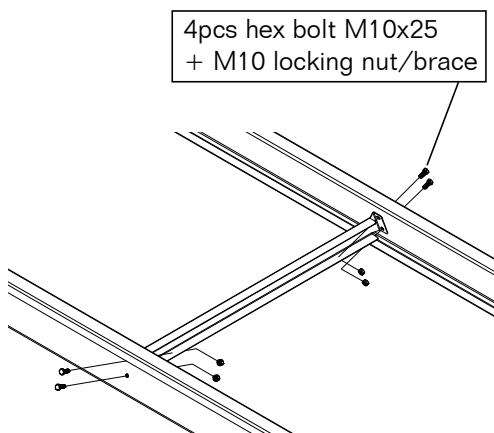


Bolted beam



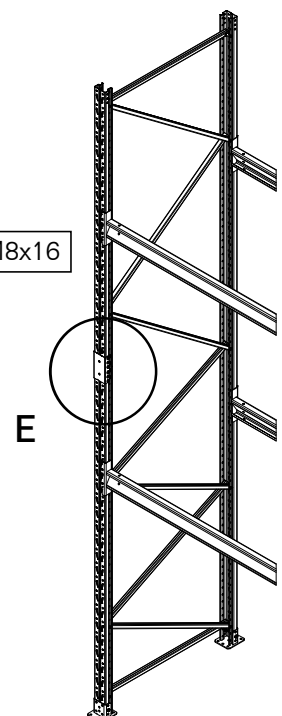
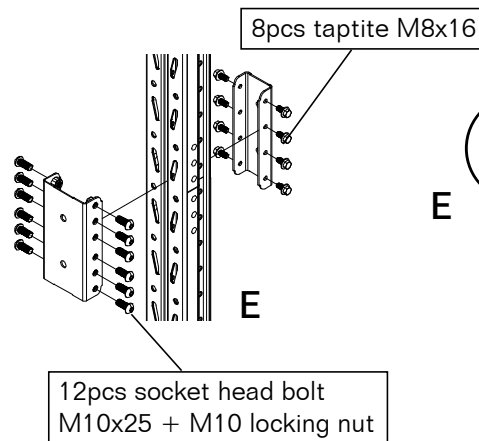
BRACING FOR BEAM Z4 160x2,95

Beam Z4 160x2,95-3600 assembled with beam bracing, gets an increased capacity from 4x800kg to 4x1000kg.



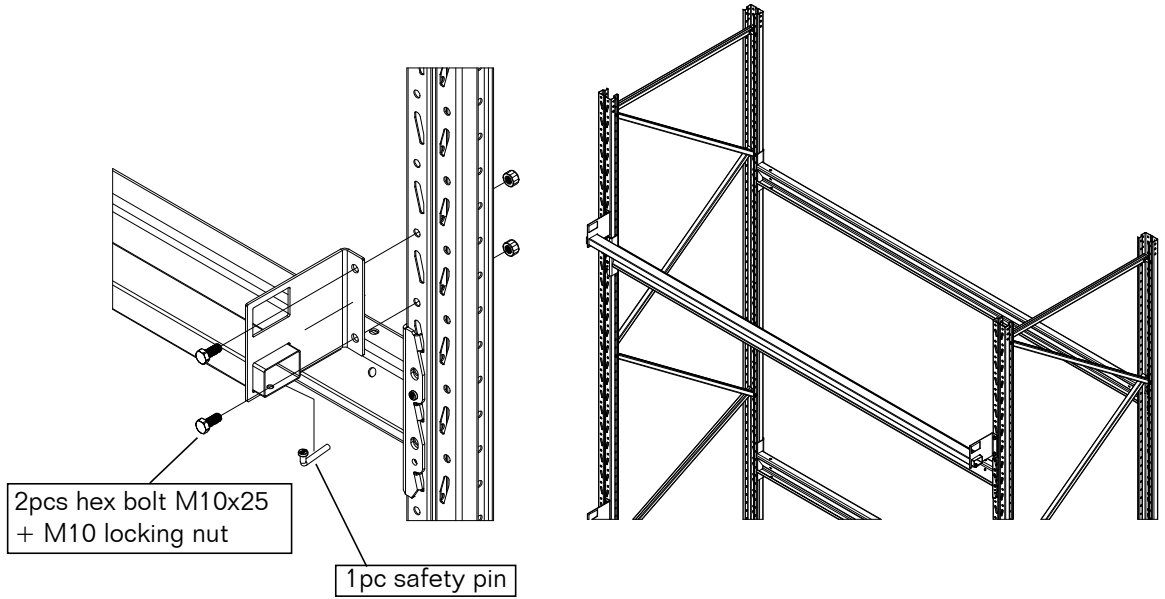
SPLICING OF UPRIGHTS

Uprights must always be spliced above the first beam level.



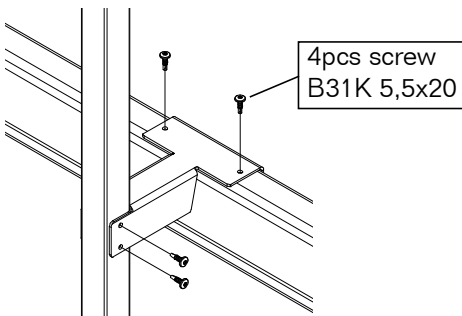
PALLET BACK STOPS

Horizontal back stop

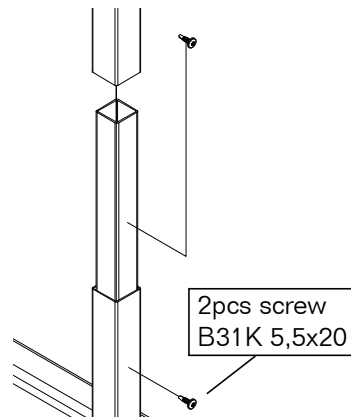


Vertical back stop

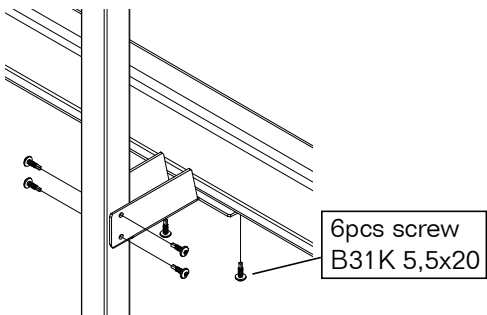
Bracket on other beam levels



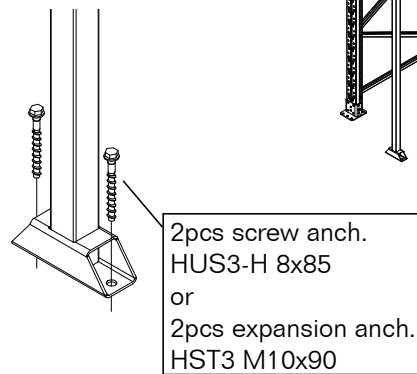
Splicing of tubes



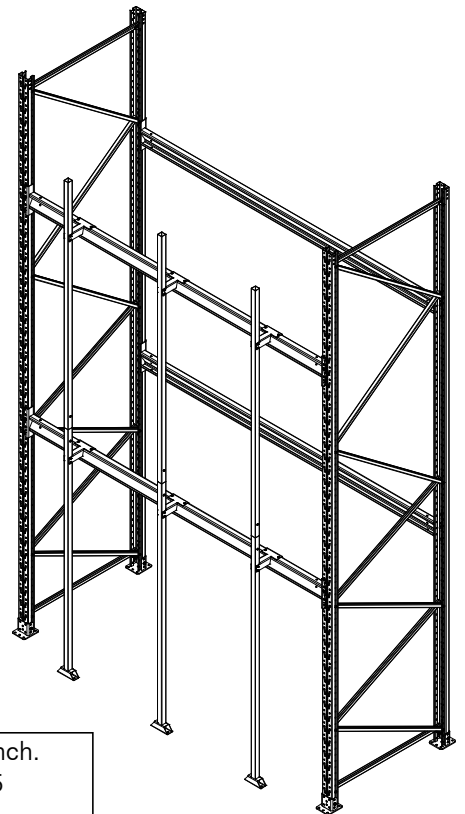
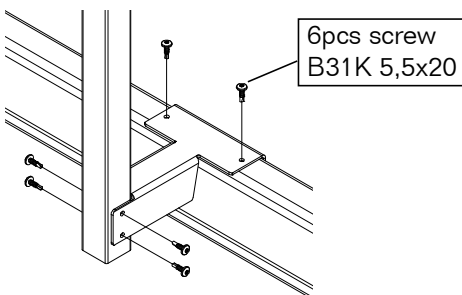
Bracket screwed to underside of beam



Floor bracket



Bracket on first beam level without floor bracket

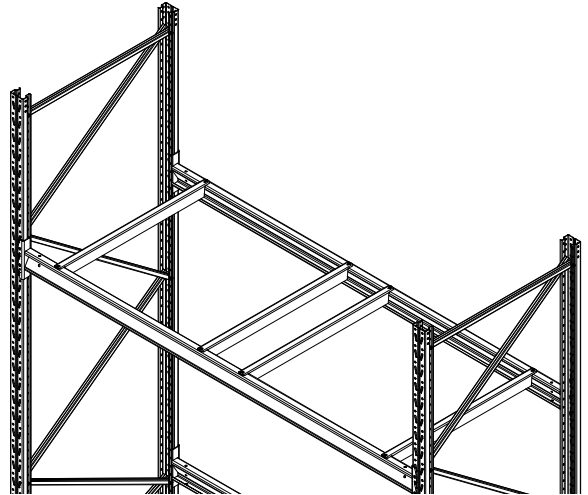
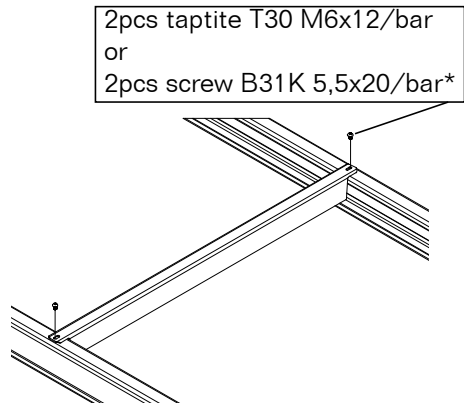


SUPPORT BARS

Support bar U42x69

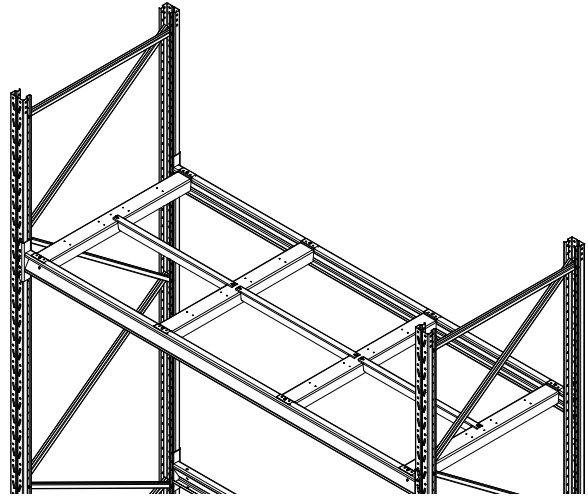
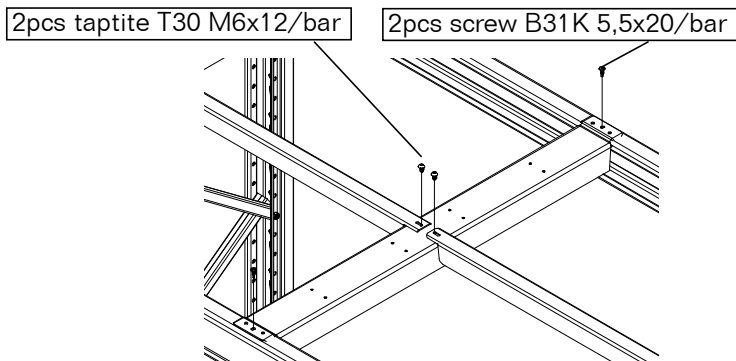
For long side handled pallet.

*Used when the beam is not pre-drilled with holes $\varnothing 5,5\text{mm}$.



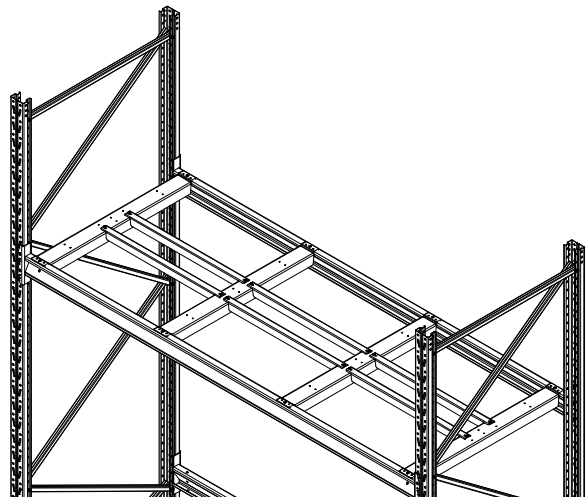
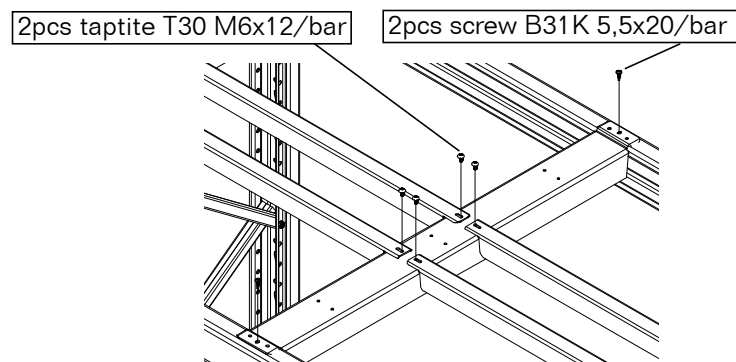
Support bar B=100

With single cross bar U42x48.



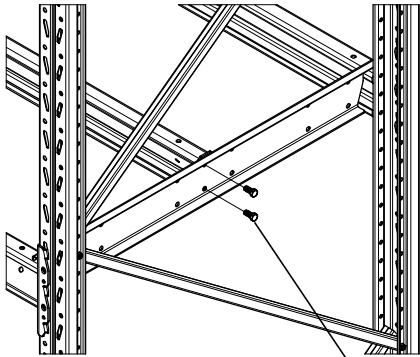
Support bar B=100 for half pallets

With double cross bars U42x48.

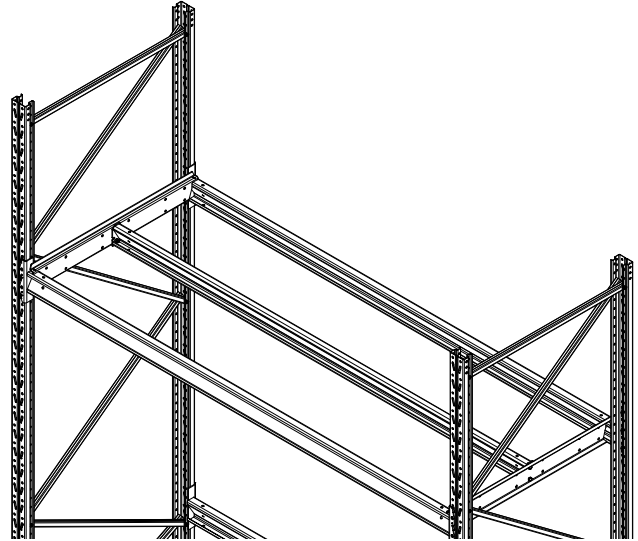


Support beam

With single cross beam.

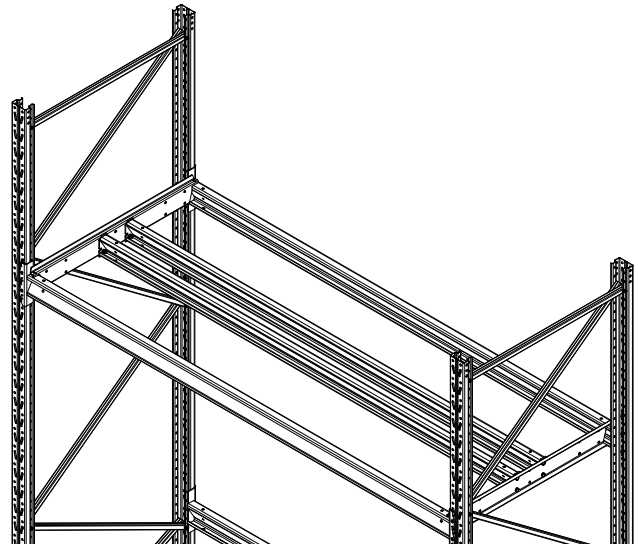


4pcs hex bolt M10x25
+ M10 locking nut/beam

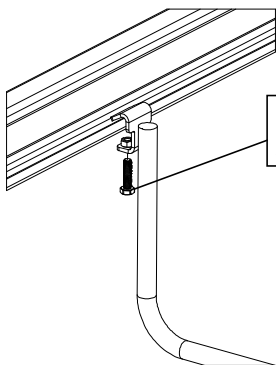


Support beam for half pallets

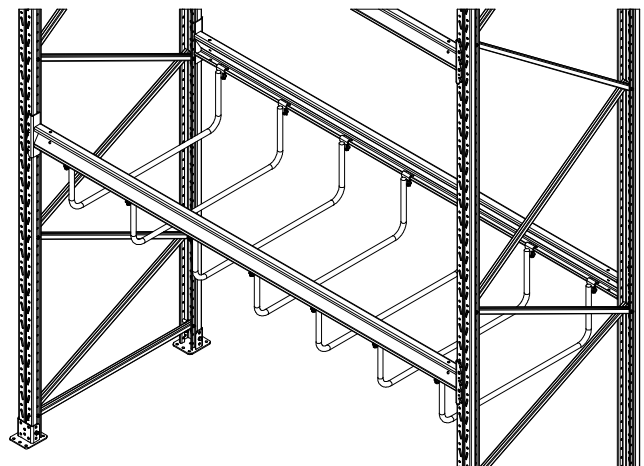
With double cross beams.



DIVIDER

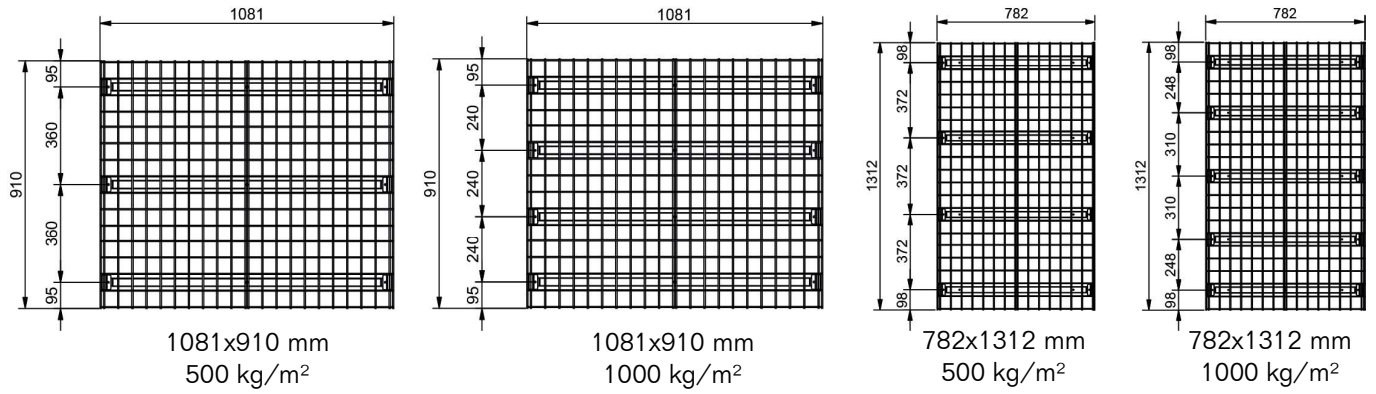


2pcs hex bolt M10x40
/divider

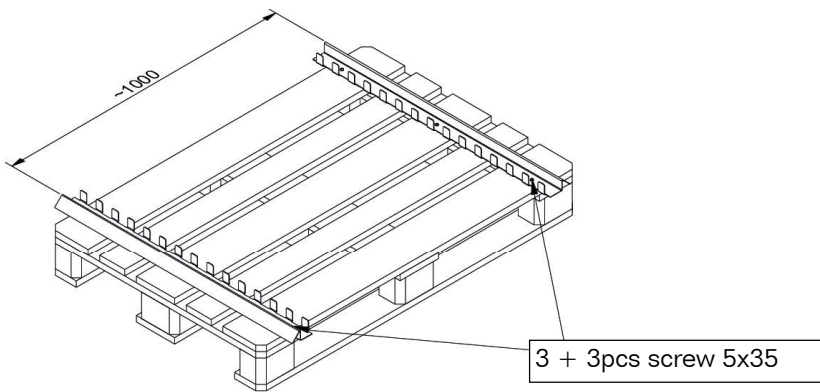


MESH PANELS

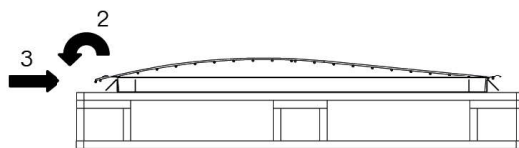
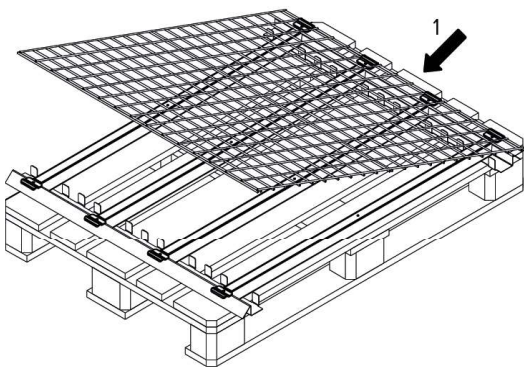
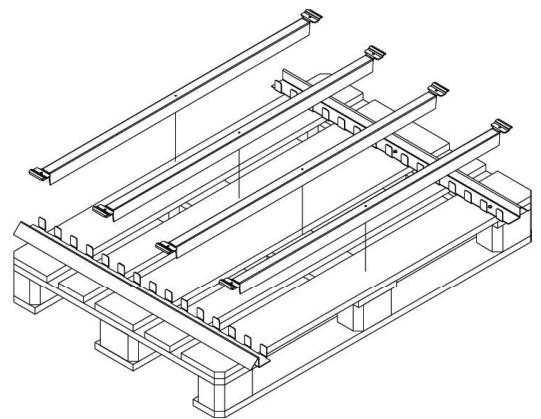
Placement of net supports



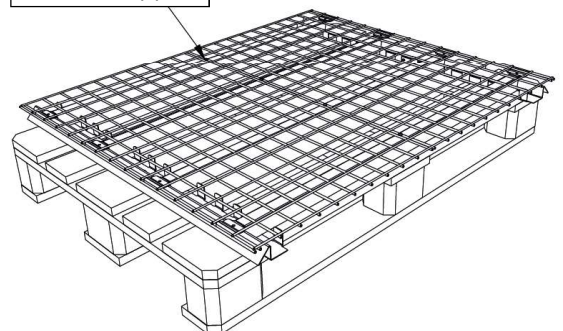
Assembly jig



Net support

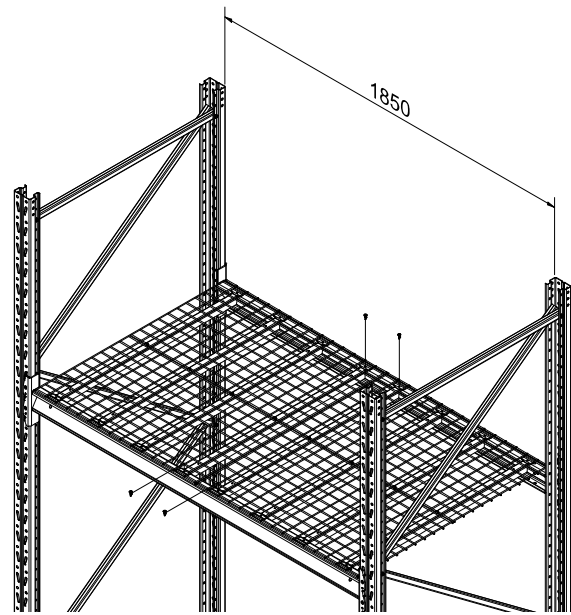
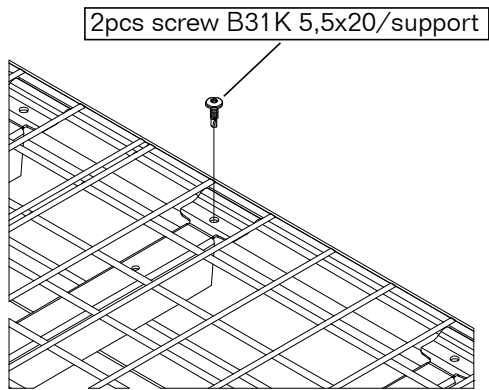


1pc taptite
M6x12/support



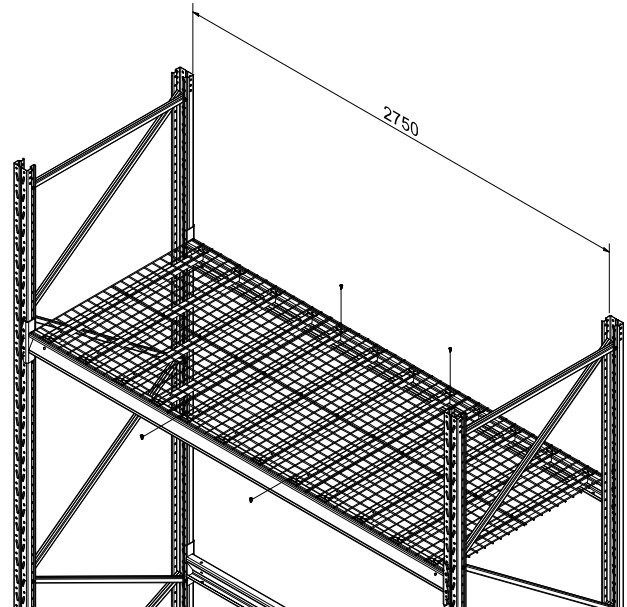
Fixing of mesh panel to beam in 1850-section

Screw the two middle net supports to beam by in total 4pcs screw B31K 5,5x20.



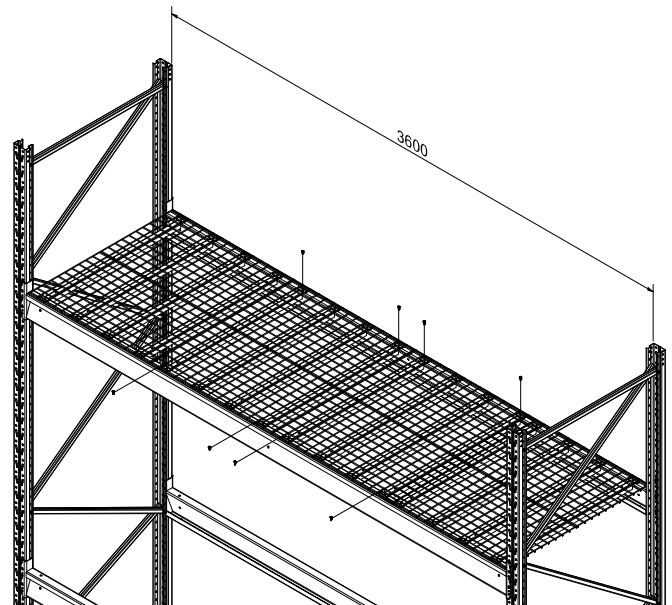
Fixing of mesh panel to beam in 2750-section

Screw the two outer net supports in the middle mesh panel to beam by in total 4pcs screw B31K 5,5x20.



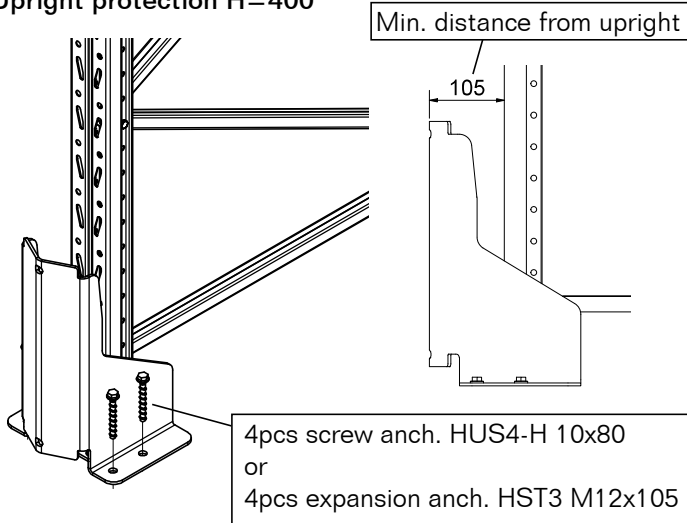
Fixing of mesh panel to beam in 3600-section

Screw the two outer net supports in the two middle mesh panels to beam by in total 8pcs screw B31K 5,5x20.

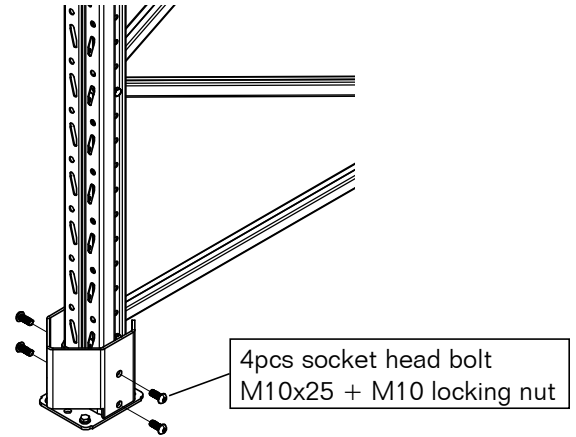


UPRIGHT PROTECTIONS

Upright protection H=400

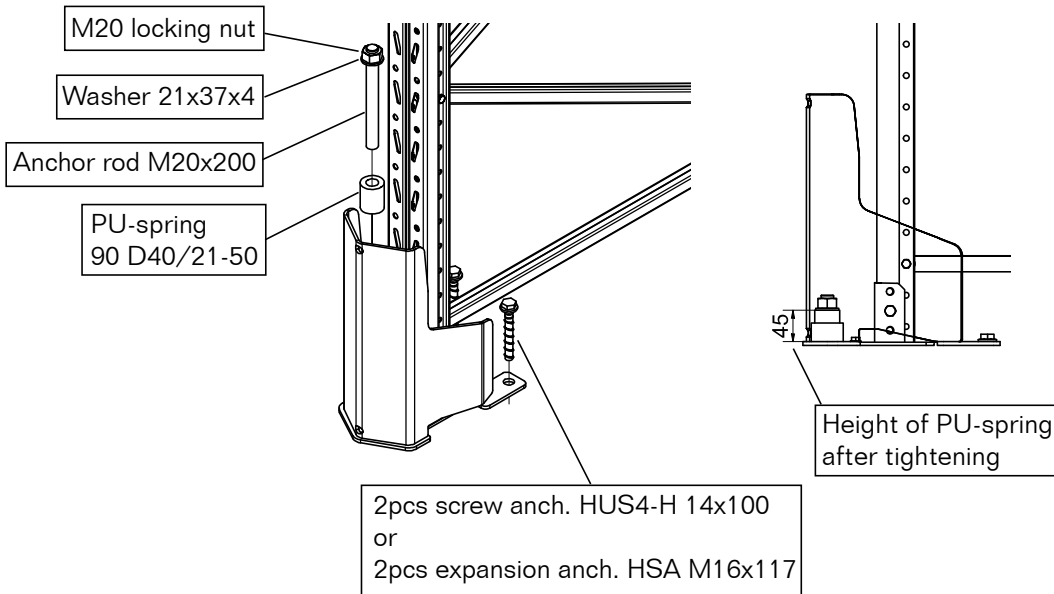


Upright reinforcement low

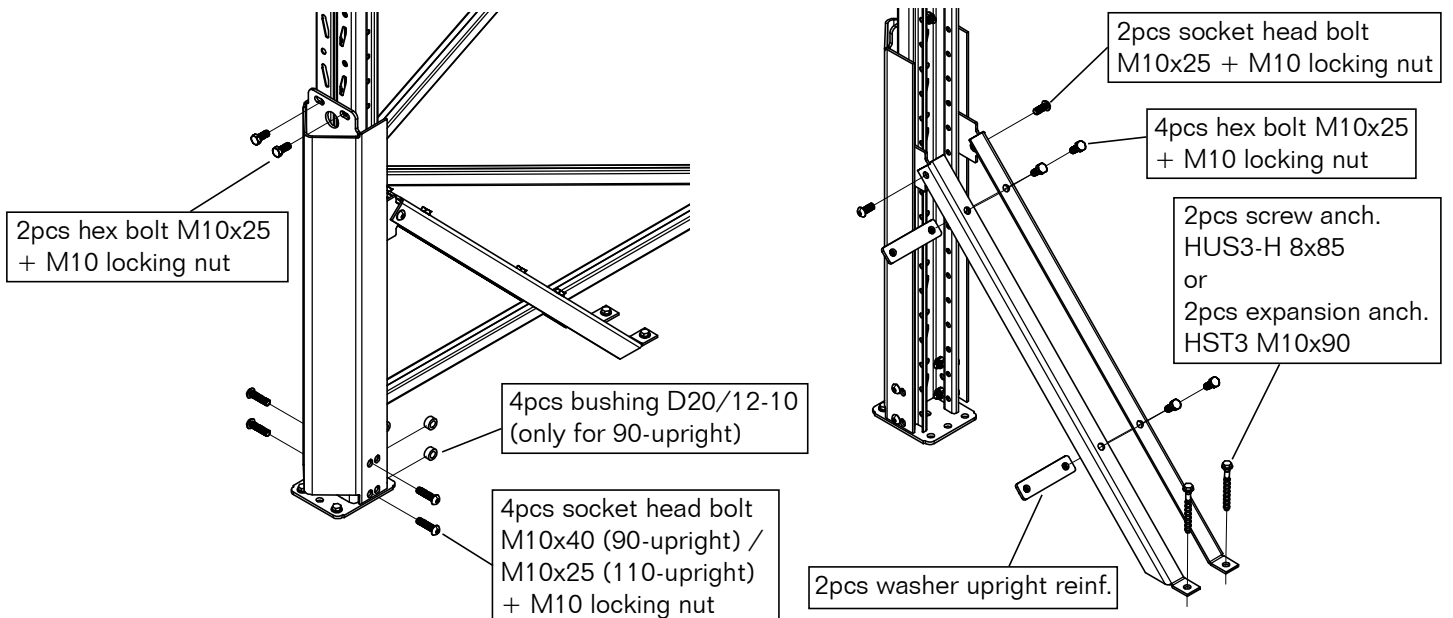


Upright protection H=400 PU-spring

Anchor rod to be fixed by Hilti HIT-CT100.
Before use, read brochure "Hilti HIT-CT100".



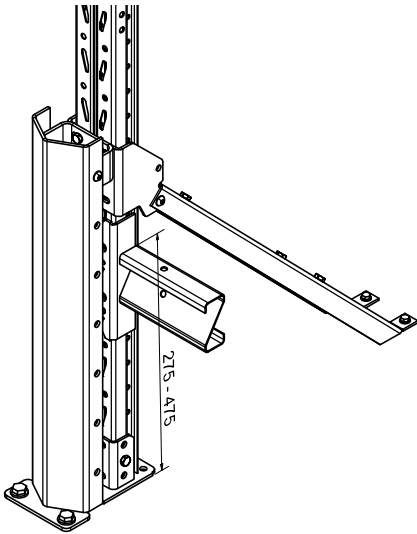
Upright reinforcement high



Upright reinforcement high front

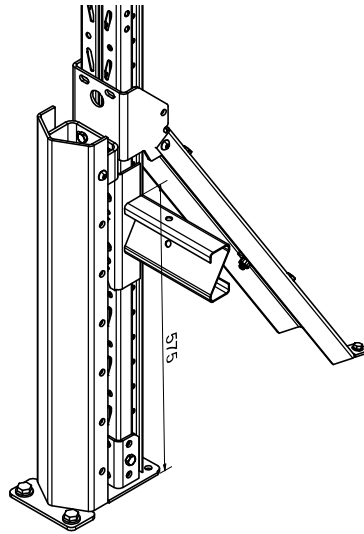
Standard setup

For beam levels assembled
275-475mm from floor.

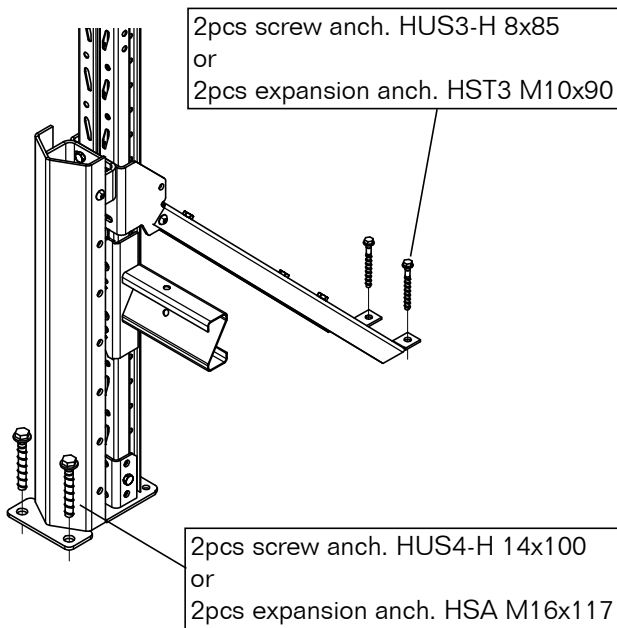


Optional setup

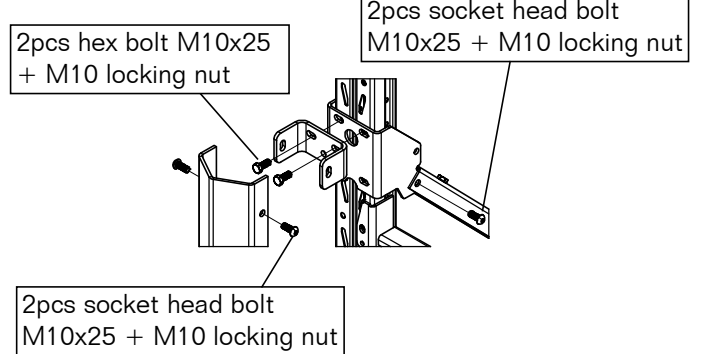
For beam levels assembled
575mm from floor.



Floor anchoring



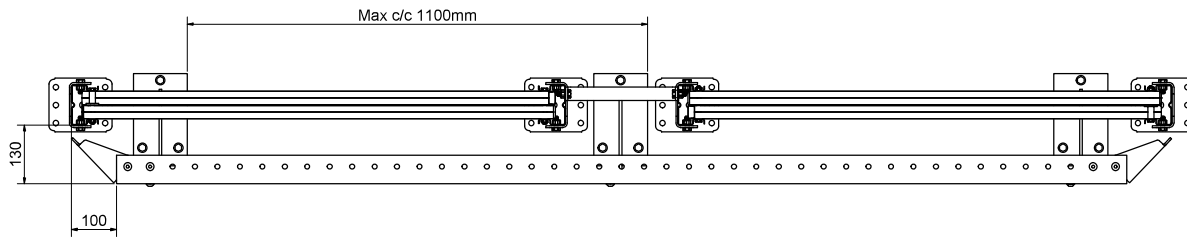
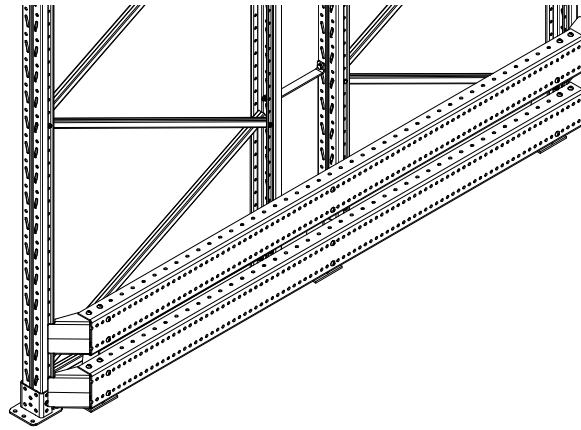
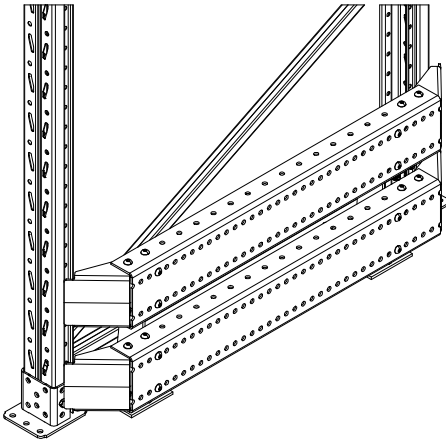
Bracket



FRAME PROTECTION H=400

Frame protection for single rack

Frame protection for double rack

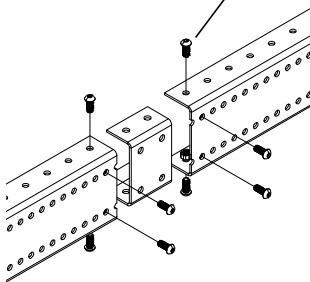


8pcs socket head screw M10x25
+ M10 locking nut/splice

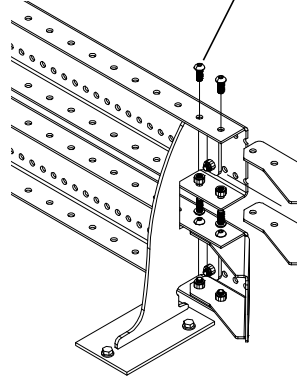
4pcs socket head screw M10x25
+ M10 locking nut/end plate

4pcs socket head screw M10x25
+ M10 locking nut/foot

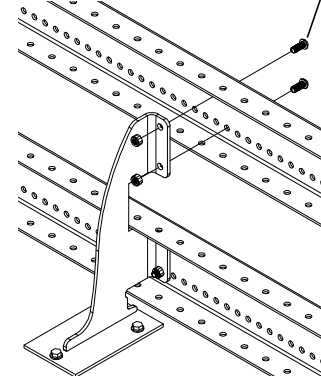
Splicing plate



End plate



Foot



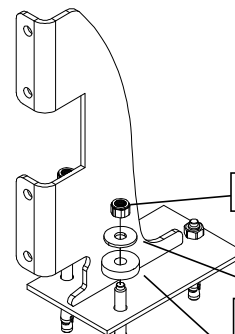
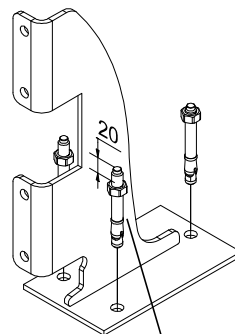
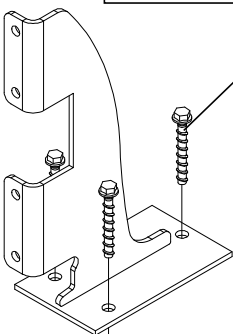
Floor anchoring of foot without PU-spring

Floor anchoring of foot with PU-spring

PU-spring may only be used in combination with expansion anchor.

1. Lower the nuts on the two front expansion anchors by 20mm.
2. Hammer down and tighten the expansion anchors.
3. Unscrew the nuts on the two front expansion anchors and attach PU-spring, washer and locking nut.
4. Tighten locking nuts to good contact against washer.

3pcs screw anch. HUS4-H 10x80
or
3pcs expansion anch. HST3 M12x105



2pcs M12 locking nut

2pcs washer 12,5x35x3

3pcs expansion anch. HST3 M12x105

2pcs PU-spring D40/13-10

SAFETY IN WAREHOUSES

EAB's pallet racking employ a proven design, with maximum emphasis on safety and performance. The Pallet racking fulfil all safety requirements in the European Standards, SS-EN 15512, SS-EN 15620, SS-EN 15629 and SS-EN 15635 which includes rules for static design, testing, assembly and marking.

Assembly/modification

To ensure safety, it is important that pallet racking are always assembled in accordance with the instructions given here. The load tables show how the frames are affected by changes in the positions of the beam levels. The height from the floor to the first beam level affects the load-carrying capacity of the frame, as does the distance between levels.

Marking

The uprights are stamped with their maximum load-carrying capacity per section, while the horizontal beams are stamped with their maximum load-carrying capacity per level. The load tables supplied with the frames must be fitted in clearly visible positions, and it is the responsibility of management to see that loading information given is complied with.

Maintenance

Any damage caused by trucks etc. colliding with the racking frames must be rectified immediately, as such damage can often affect the load-carrying capacity of the frames. An upright member that has been hit is always a safety risk, and must be replaced.

Accessories

An effective way of improving safety is to complement the frames with protectors, pallet stop, half-pallet support bars etc.

Inspection

Erections inspection

Before starting to use the pallet racking, it must be inspected in accordance with these instructions and in any special erection drawings.

Regular inspection

Pallet racking must be regularly inspected in respect of locking devices, bracing, damage by vehicles etc. and anything else that could affect their strength.

Periodic inspection

Pallet racking must be inspected at least every twelve months to ensure that they continue to comply with these instructions and with any special erection drawings.

Re-inspection

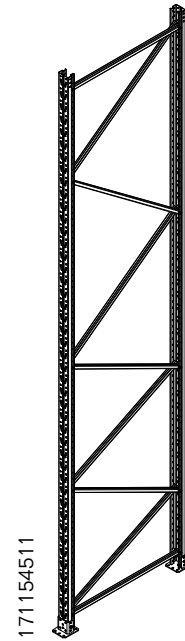
Must always be performed if the positions of the horizontal pallet support beams are moved or if the frames are altered in any other way.

The purchaser or user is responsible for ensuring that the above inspections are performed.

INDEX OF ARTICLES

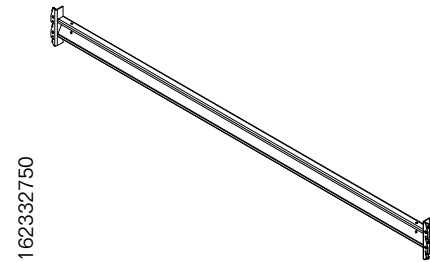
Frame

Art. number	Designation
171152011	Frame 90-1 2000*1100 mm
171152511	Frame 90-1 2500*1100 mm
171153011	Frame 90-1 3000*1100 mm
171153511	Frame 90-1 3500*1100 mm
171154011	Frame 90-1 4000*1100 mm
171154511	Frame 90-1 4500*1100 mm
171155011	Frame 90-1 5000*1100 mm
171155511	Frame 90-1 5500*1100 mm
171156011	Frame 90-1 6000*1100 mm
171253511	Frame 90-2 3500*1100 mm
171254011	Frame 90-2 4000*1100 mm
171254511	Frame 90-2 4500*1100 mm
171255011	Frame 90-2 5000*1100 mm
171255511	Frame 90-2 5500*1100 mm
171256011	Frame 90-2 6000*1100 mm



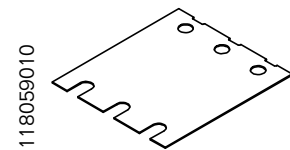
Beam

Art. number	Designation
162030950	Beam Z6 100x1,85-950 (1x1500kg)
162031850	Beam Z6 100x1,85-1850 (2x1000kg)
162132300	Beam Z6 100x2,35-2300 (2x1000kg)
162132750	Beam Z6 100x2,35-2750 (3x550kg)
162232750	Beam Z6 115x2,35-2750 (3x750kg)
162332750	Beam Z6 140x2,35-2750 (3x1000kg)
152432750	Beam Z4 142x2,95-2750 (3x1250kg)
162333000	Beam Z6 140x2,35-3000 (3x900kg)
162333300	Beam Z6 140x2,35-3300 (3x750kg)
162333600	Beam Z6 140x2,35-3600 (3x500kg)
152533600	Beam Z4 160x2,95-3600 (4x800kg)
161031350	Beam Z6 100x1,85-1350 (1x1500kg)
161232650	Beam Z6 115x2,35-2650 (2x1150kg)



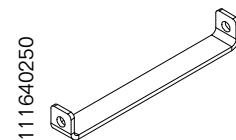
Shim plate

Art. number	Designation
118059010	Shim plate 1,0/90
118059030	Shim plate 3,0/90
118051110	Shim plate 1,0/110
118051130	Shim plate 3,0/110



Frame spacer

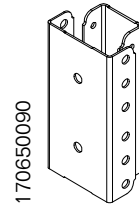
Art. number	Designation
111640100	Frame spacer 100mm
111640150	Frame spacer 150mm
111640200	Frame spacer 200mm
111640250	Frame spacer 250mm
111640300	Frame spacer 300mm



Splice profile

Art. number
170650090
170650110

Designation
Splice profile 90 omega
Splice profile 110 omega



Fasteners

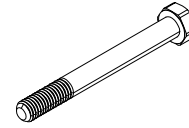
Art. number
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188940875
188241025
189640010
189640008
184740030
188540000
186340816
186440612
195945520
187540885
1875408100
187541080
1875410100
1875414100
189141090
1891410110
1891412100
1891416120

Designation
Hex bolt M10x25 M6S-H8.8 FZB
Hex bolt M8x75 M6S-H8.8 FZB
Socket head bolt M10x25 MK6S-H 10.9
M10 locking nut M6M-8 FZB
M8 locking nut M6M-8 FZB
Spacer
Safety pin
Taptite M8x16
Taptite M6x12
Screw B31K 5,5x20
Screw anchor HUS3-H 8x85
Screw anchor HUS3-H 8x100
Screw anchor HUS4-H 10x80
Screw anchor HUS4-H 10x100
Screw anchor HUS4-H 14x100
Expansion anchor HST3 M10x90
Expansion anchor HST3 M10x110
Expansion anchor HST3 M12x105
Expansion anchor HSA M16x117

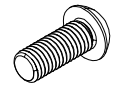
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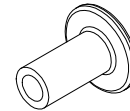
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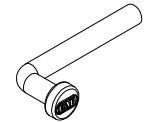
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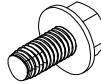
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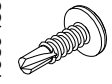
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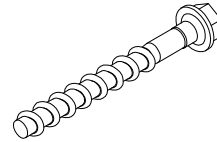
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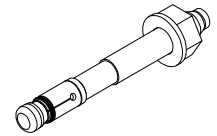
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