



Montagehandleiding

AR PALLETSTELLING NIEUW TYPE



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ASSEMBLY TECHNICAL SPECIFICATIONS

CONTENTS

ASSEMBLY TECHNICAL SPECIFICATIONS	1
1. BASIC INSTALLATION PROCESS	2
1.1 Previous Phase:	2
2. EUROPEAN STANDARD EN 15620:2008	3
2.1 Floor tolerances Class 400: Wide Aisle and Narrow Aisle	3
2.2 Floor Tolerances Class 300: Very Narrow Aisle (VNA).....	4
2.3 Installation tolerances class 400	6
2.4 Installation tolerances class 300	8
3. COMPONENTS ASSEMBLY	12
3.1 Frames.....	12
3.2 Beams.....	21
3.3 Frame spacer	22
3.4 Frame splicers	23
3.5 Vertical and horizontal bracings	30
3.6 Levelling and floor anchoring.....	37

Review	Date	Superseded/Replaced Document
05	19/10/2020	Assembly Technical Specifications (Class 300-400)

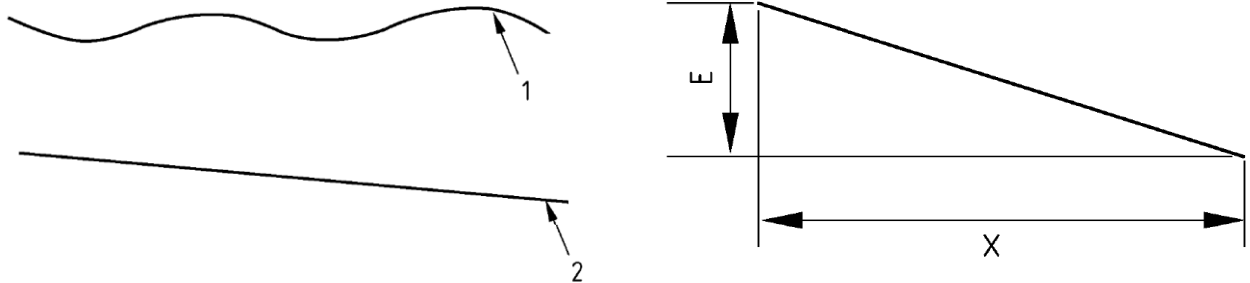
1. BASIC INSTALLATION PROCESS

1.1 Previous Phase:

1. Reception of material with examination the number of packages and contents.
2. Always maintain the material identified and organized into a suitable location to prevent damage, deterioration or losses.
3. Identify a specific area for storage previously to the assembly of the installation. Take care of the conditions necessary for the appropriate storage of materials:
 - Do not leave recently galvanized materials outdoors in rain, fog or high humidity conditions.
 - Do not leave these materials under the snow. Always store materials indoors.
 - Do not locate recently galvanized parts in puddles, mud or wet grass.
 - Separate soil materials by wooden slats, at least about 150mm.
 - Do not cover the parts with tarpaulins or plastic sheeting (possible condensation). In case of palletized goods and wrapped in plastic, the wrappings must be opened.
 - Use spacers (wood, ceramics, etc...) To prevent direct contact between galvanized surfaces.
 - Stack the parts with an inclination to favour the draining of the water; taking special care to the maximum height that could form the stack, in order to prevent accidents or deformations by stacking inefficiently.
4. Looking ahead to the continuous improvement please contact AR Storage Solutions (Division Racking):
 - a. If any of the components in the assembly presents difficulties in order to identify whether the dimensions of the elements are correct.
 - b. If any of the components has some aspect that potentially jeopardizes the security of the system installation.
 - c. In case of defects or anomalies reported immediately through photographs or any means available at that time.
5. ASSEMBLY
 - a. Dispose of Personal Protective and Safety Equipment (PPE): reflective vests, helmets, safety boots, gloves, hearing protections, harness systems or other fall protection systems.
 - b. Hand tools: wrenches, socket wrenches, clubs, electric screwdrivers, slings, tracks for handling components
 - c. Before starting the installation process, should be checked tasks, risks and measures in order to maintain safety at all time.
6. I PHASE
 - a. Locate the agreed benchmark to start the rack assembly.
 - b. Measurement and planimetry of the floor slab in the area where the rack is going to be installed
 - c. Identification of the alignments for the different frames.
7. II PHASE
 - a. Assembly the frames at ground level. See requirements of the frame orientation.
 - b. Lift the first frame and install the beams.
 - c. Location of additional bays.
 - d. Install the different beam levels at the specified measurements.
8. III PHASE
 - a. Anchoring, levelling and plumb according to requirements of EN 15620:2008

2. EUROPEAN STANDARD EN 15620:2008¹

2.1 Floor tolerances Class 400: Wide Aisle and Narrow Aisle



1 Floor profile level but not flat

2 Floor profile flat but not level

X= 3 meters

E= Elevational difference between adjacent fixed points 3 m apart:

The values for horizontal internal floors shall not exceed the values given in the following table:

Classification	Top beam level (m)	E _{SD} (mm)
FM1 Truck without side shift	Over 13	2,25
FM2 Truck without side shift	8 to 13	3,25
FM3 Truck without side shift	Up to 8	4,00
FM4 Truck with side shift	Up to 13	4,00

E_{SD} Standard deviation of the values taken on a 3 m grid.

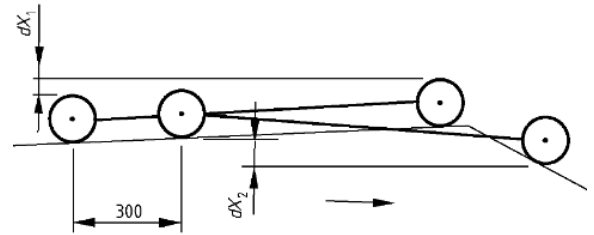
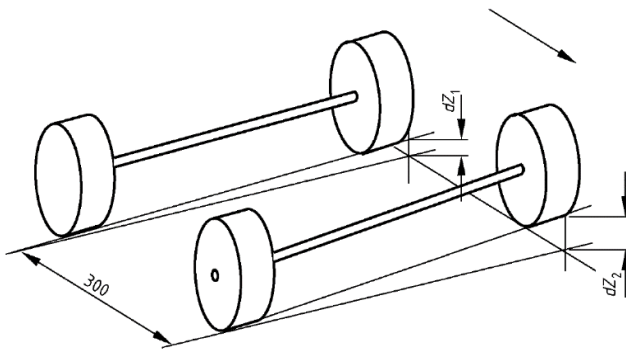
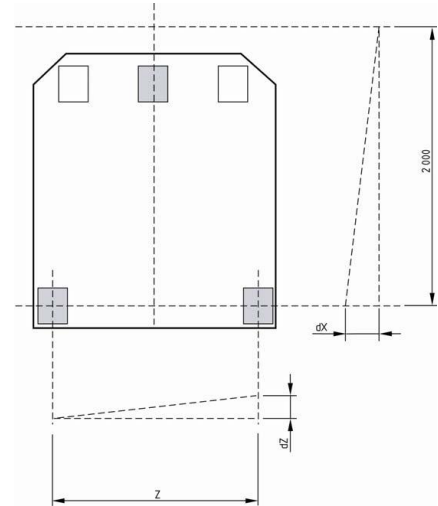
A 3 metres grid is a grid of points over the floor area 3 metres apart in two directions orthogonal to the building

All points on the 3 metres grid shall be within ± 15 mm of the horizontal datum where the datum plane is across the whole or a significant part of the building.

¹ IMPORTANT NOTE: The information in this section is taken from EN 15620 standard. In case of discrepancy between the information contained in this section, the EN 15620 shall prevail.

2.2 Floor Tolerances Class 300: Very Narrow Aisle (VNA)

- E** Level difference between 2 adjacent points and separated by 3 metres.
- Z** Dimension between the centres of truck front wheels (in mm).
- Z_{SLOPE}** The cross-aisle slope between the centres of truck front wheels in mm per m due to tolerances and deformations.
- dZ** Elevational difference between the actual centres of truck front wheels.
- dX** Elevational difference between the centre of the front axle and the centre of the rear axle. The axle spacing (X) is assumed to be a virtual dimension of 2 meters.
- d²Z** The change in dZ over a forward movement of 300mm along the wheel tracks ($d^2Z = dZ_2 - dZ_1$).
- d²X** The change in dX over a forward movement of 300mm along the wheel tracks ($d^2X = dX_2 - dX_1$).



The data interval, the minimum measurement interval between readings, shall be less than or equal to 300 mm with additional readings within 50 mm of each side of the joints.

The values given **dZ** and **d²Z** relate to the safe clearances between the MHE and the racking.

The values given **dX** and **d²X** relate to the ride quality of the MHE and have a limited effect on the safety clearances between the MHE and the racking.

Class 300B: Overall floor tolerances shall be considered on an individual Project basis.

Class 300A: The values of properties shall not exceed the values of **Z_{SLOPE}**, **E_{SD}**, **dZ** and **d²Z** given in the following tables. The values of **dX** and **d²X** son are based on MHE with wheel base of **X=2000 mm**, for other dimension the designer may adjust the values on a linear extrapolation basis.

Different floor classification from values given in **dZ**, **d²Z**, **dX**, and **d²X** may be used for the limiting values specified in the down aisle and the cross-aisle direction,

The floor slab level shall be within ± 15 mm of the datum.

The values of the properties above shall not exceed those given in the following tables:

Limiting Values of Z_{SLOPE} and E_{SD}			
Classification	Top beam level (m)	Z_{SLOPE} (mm per meter)	E_{SD} (mm)
DM1	Over 13	1,3	3,25
DM2	8 to 13	2,0	3,25
DM3	Up to 8	2,5	3,25

Limiting Values of dZ , d^2Z , dX , d^2X				
Classification	dZ	d^2Z	dX	d^2X
Calculation	$Z \times Z_{SLOPE}$	$dZ \times 0,75$ = $Z \times Z_{SLOPE} \times 0,75$	$2 \times 1,1 \times Z_{SLOPE}$	Fixed Values
DM1	$Z \times 1,3$	$Z \times 1,0$	2,90	1,5
DM2	$Z \times 2,0$	$Z \times 1,5$	4,4	2,0
DM3	$Z \times 2,5$	$Z \times 1,9$	5,5	2,5

Calculation example:

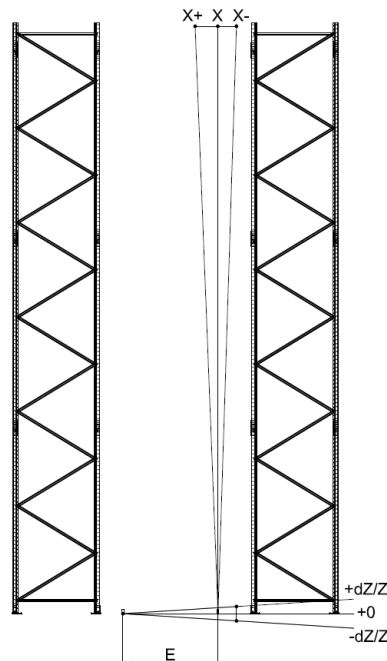
- Lift height = 8 meters; $Z=1,5$ m

$Z_{SLOPE}=2,0$ mm/m

$dZ = Z \times Z_{SLOPE} = 1,5 \times 2,0 = 3$ mm

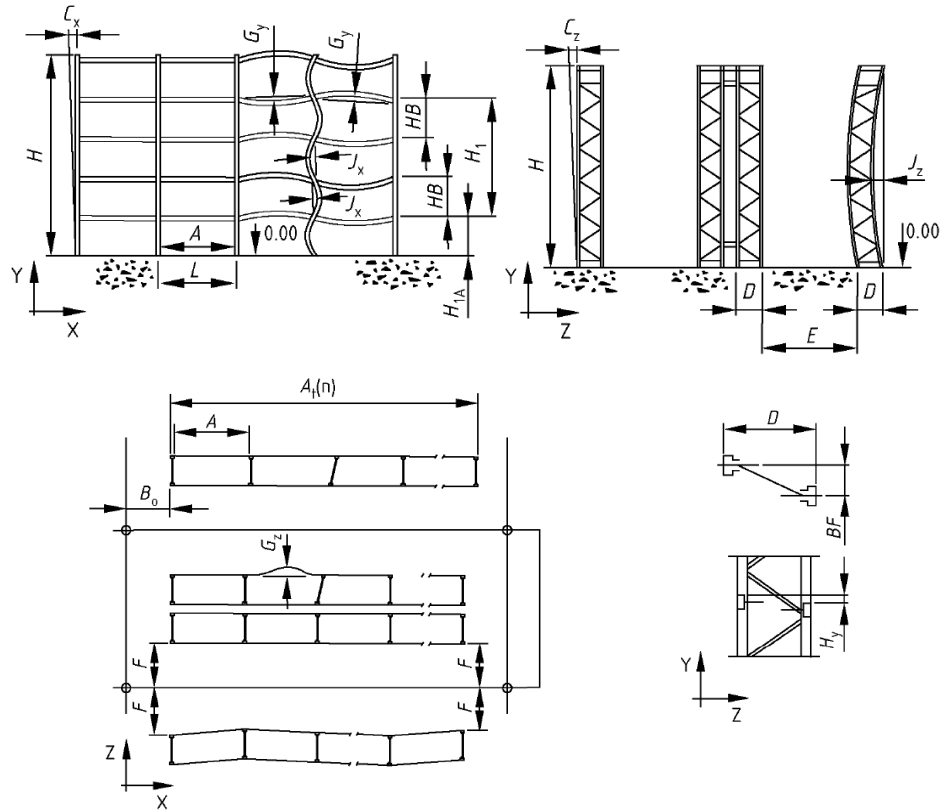
$d^2Z = Z \times Z_{SLOPE} \times 0,75 = 2,25$ mm

Example of lateral deviation:



2.3 Installation tolerances class 400

The maximum allowable tolerances after erection (the installation tolerances are also applicable if racking is dismantled and re-erected) with the racks in the unloaded condition shall be:



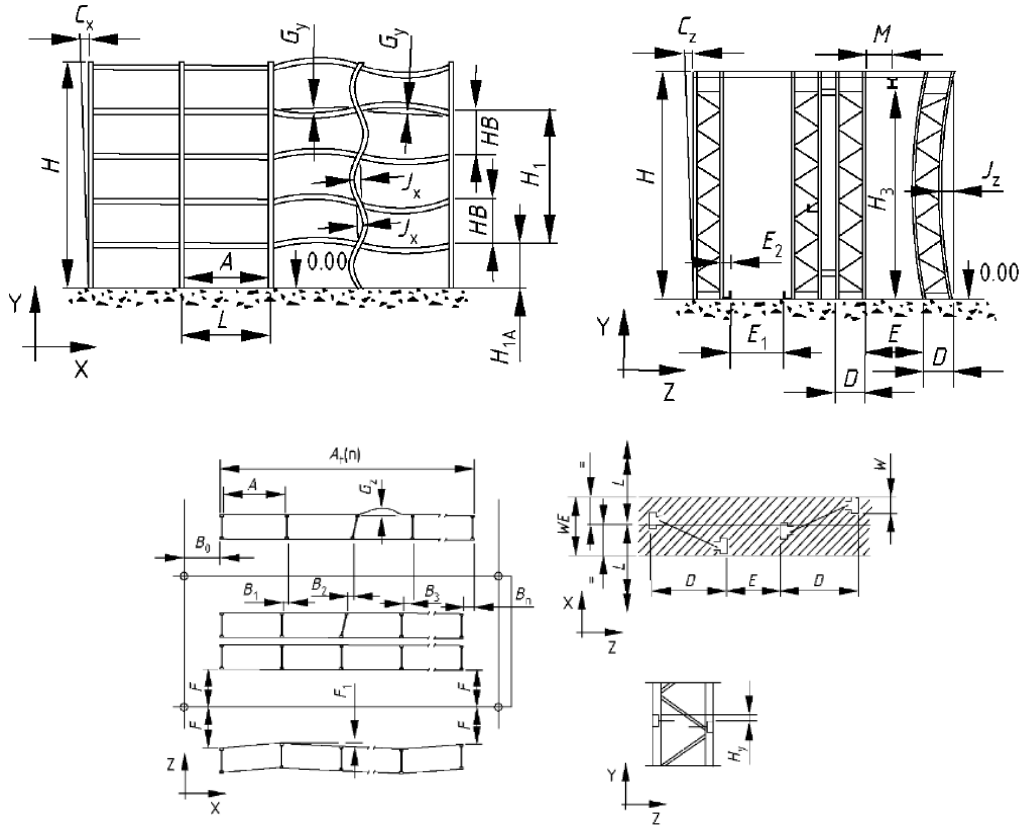
- A Clear entry between two uprights
- B₀ Distance between system Z datum and front of the racking
- BF Misalignment of opposing rack uprights across a frame
- C_Z, C_X Out of plumb of upright in the Z and X directions respectively
- D Rack Frame depth
- E Aisle width
- F Distance from aisle system X datum to front face of upright
- G_Z, G_Y Straightness of the beam in the Z and Y directions respectively
- H Height from top of base plate to top of upright
- HB Height from top of the beam level to top of beam level above
- H_Y Variation of support levels between the front and rear beams in a compartment
- H_{1A} Height from top of base plate to top of bottom beam level
- H₁ Height from top of bottom beam level to top of any other beam level
- J_X Upright straightness in the X direction between adjacent beam levels
- J_Z Initial straightness of an upright in the Z direction
- L Distance from centre to centre of uprights

Horizontal tolerance limitations for X Z plane		
Measuring dimension code and description of tolerance		Tolerance (mm)
δA	Variation from nominal dimension of the clear entry width between two uprights at any beam level	± 3
δA_t	Variation from nominal dimension of the total rack length, cumulative with the number of bays 'n' measured near floor level	$\pm 3n$
δB_0	Variation from nominal of rack frontage with regard to the installation 'system Z datum line' concerned, measured near floor level	± 10
BF	Misalignment of opposing rack uprights across a frame	± 20
C_x	Out of plumb of each frame in the X direction	$\pm H/350$
C_z	Out of plumb of each frame in the Z direction	$\pm H/350$
δD	Variation from nominal dimension of the rack depth (single frame)	± 6
δE	Variation from nominal dimension of the aisle width near floor level	± 15
δF	Variation from nominal of the straightness of an aisle measured near floor level with regard to the 'aisle system X datum line'	± 15
G_z	Straightness of a beam in the Z direction	A/400
J_x	Upright straightness in the X direction between beams spaced HB apart	the larger tolerance of the following: ± 3 or $\pm HB/400$
J_z	Initial curve of an upright frame in the Z direction	$\pm H/500$
T_w	Beam twist at mid span	1° per meter

Vertical Tolerances in the Y Direction		
Measuring dimension code and description of tolerance		Tolerance (mm)
G_Y	Straightness of the beam in the Y direction	the larger tolerance of the following ± 3 or $\pm A/500$
δH_{1A}	Variation of the top of the bottom beam level above the base plate	± 10
δH_1	Variation of the top of any beam level H1 above the bottom beam level	the larger tolerance of the following ± 5 or $\pm H_1/500$
H_Y	Variation of support levels between the front and rear beams in a compartment	± 10

2.4 Installation tolerances class 300

The maximum allowable tolerances after erection (The installation tolerances are also applicable if racking is dismantled and re-erected) with the racks in the unloaded condition shall be:



- A Clear entry between two uprights
- B₀ Distance between system Z datum and front of the racking
- BF Misalignment of opposing rack uprights across a frame
- C_Z, C_X Out of plumb of upright in the Z and X directions respectively
- D Rack Frame depth
- E Aisle width
- E₁ Distance between guide rails
- E₂ Distance between guide rail and front of upright
- F Distance from aisle system X datum to front face of upright
- F₁ Variation between adjacent uprights measured near floor level in the Z direction
- G_Z, G_Y Straightness of the beam in the Z and Y directions respectively
- H Height from top of base plate to top of upright
- HB Height from top of the beam level to top of beam level above
- H_Y Variation of support levels between the front and rear beams in a compartment
- H_{1A} Height from top of base plate to top of bottom beam level
- H₁ Height from top of bottom beam level to top of any other beam level
- J_X Upright straightness in the X direction between adjacent beam levels
- J_Z Initial straightness of an upright in the Z direction
- L Distance from centre to centre of uprights
- M Distance from front of upright to centre of top guide rail

Horizontal tolerance limitations for X Z plane			
Measuring dimension code and description of tolerance		Tolerance (mm)	
		Class 300A	Class 300B
δA	Variation from nominal dimension of the clear entry width between two uprights at any beam level	± 3	
δA_t	Variation from nominal dimension of the total rack length, cumulative with the number of bays 'n' measured near floor level	$\pm 3n$	
B	Misalignment of uprights across an aisle, cumulative with the number of bays 'n' measured near floor level. For Class 300A this applies for the aisle uprights only Para Class 300B this applies for the aisle and rear uprights	The larger value of the following ± 10 or $\pm 1,0n$	The larger value of the following ± 10 or $\pm 0,5n$
δB_0	Variation from nominal of rack frontage at the P and D end with regard to the installation 'system Z datum line' concerned, measured near floor level	± 10	
C_x	Out of plumb of each frame in the X direction	$\pm H/500$	
C_z	Out of plumb of each frame in the Z direction	For no fixed stroke $\pm H/500$ For fixed stroke $\pm H/750^a$	
δD	Variation from nominal dimension of the rack depth (single or double frames)	For single frame ± 3 For double frame ± 6	
δE	Variation from nominal dimension of the aisle width near floor level	± 5	
δE_1	Variation from nominal dimension of the width between guide rails	+5 -0	
δE_2	Variation from uprights on one side to guide rail	± 5	
δF	Variation from nominal of the straightness of an aisle measured near floor level with regard to the 'aisle system X datum line' or as specified by the truck supplier	± 10	
F1	Variation between adjacent uprights measured near floor level in the Z direction	± 5	
G_z	Straightness of the beam in the Z direction	$\pm A/400$	
J_x	Upright straightness in the X direction between beams spaced HB apart	The larger value of the following ± 3 or $\pm HB/750$	
J_z	Initial curve of an upright frame in the Z direction	$\pm H/500$	
δM	Tolerance of the top guide rail	Defined by the specifier or truck manufacturer	
T_w	Beam twist at mid span	1° per meter	

^a H/500 is also an acceptable value provided the pallet blocks or bearers overhang the front beam by 75 mm or more and the blocks or bearers are supported on the beam.

Vertical Tolerances in the Y Direction			
Measuring dimension code and description of tolerance		Tolerance (mm)	
		Class 300A	Class 300B
G_y	Straightness of the beam in the Y direction	The larger value of the following ± 3 or $\pm A/500$	
δH_1	Variation of the top of any beam level H1 above the bottom beam level	The larger value of the following ± 5 or $\pm H_1/500$	The larger value of the following ± 3 or $\pm H_1/1000$
δH_{1A}	Variation of the top of the first beam level from the floor level at each upright	± 7	
δH_3	Tolerance of the top guide rail, if provided	If provided, defined by the supplier or truck manufacturer	
H_y	Variation of unit load support levels between the front and rear beams of a compartment	± 10	

Tolerance field of frames in X direction: only applicable to classification class 300B:

This tolerance assists the floor level operator in visibly locating the pallets using the mutually opposite locations:

$$WE = W + 2C_x + B_{\max} + 2J_x$$

WE: Is the tolerance field of mutually opposite frames resulting from offset of the upright, bases out of plumb and curvatures of the upright sections.

W: Is the upright width.

C_x: is the out of plumb of each frame in direction X: $\pm H/500$

B_{max}: Misalignment of uprights across an aisle, cumulative with the number of bays 'n' measures near floor level: ± 10 or $\pm 0,5 n$

J_x: Upright straightness in the X direction between beams spaced HB apart: ± 3 or $\pm HB/750$

The tolerances stated in the standard EN 15620 might not be applicable after the racking has been loaded.

Measurement surveys are conducted when required by individual contracts.

- Before erection of an installation commences, a basis for the measurement survey grid lines and datum's should be agreed between the parties:
 - The system X datum lines parallel to the rack aisles
 - The system Y datum point
 - The System Z datum line perpendicular to the rack aisles
- The survey should be based on the grid layout of the racks in the X Z plane and according to beam level in Y direction.
- Surveys should be recorded and reported and if appropriate, ambient conditions such as temperature and wind speed should also be recorded

3. COMPONENTS ASSEMBLY

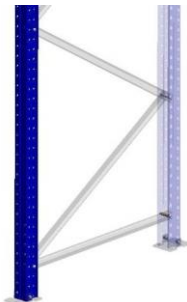
3.1 Frames



BASE PLATE



UPRIGHT



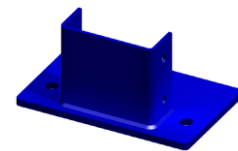
HORIZONTAL



DIAGONAL



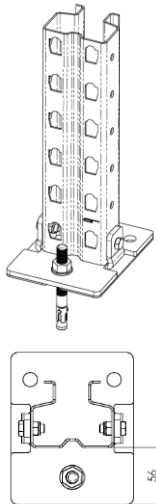
Depending on the base plate, fix to the upright with:



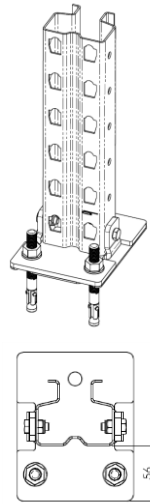
- 2 Bolts M8x20/DIN 933/8.8/zinc coated
- 2 Nuts M8/DIN 985/8/zinc coated
- 4 Bolts M8x20/DIN 933/8.8/zinc coated
- 4 Nuts M8/DIN 985/8/zinc coated

Orientation of base plates and number of anchors

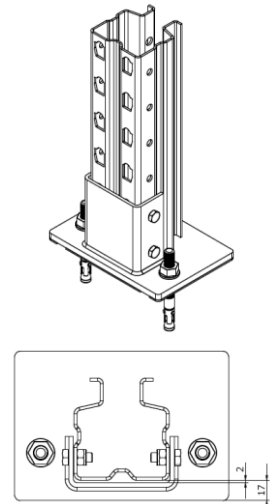
Installations of
H (Frame height) < 8 meters and
Not facing to the aisle installation areas of
 $8m \leq H \leq 10$ meters:



Facing to the aisle installation areas of
 $8m \leq H$ (Frame height) ≤ 10 meters:



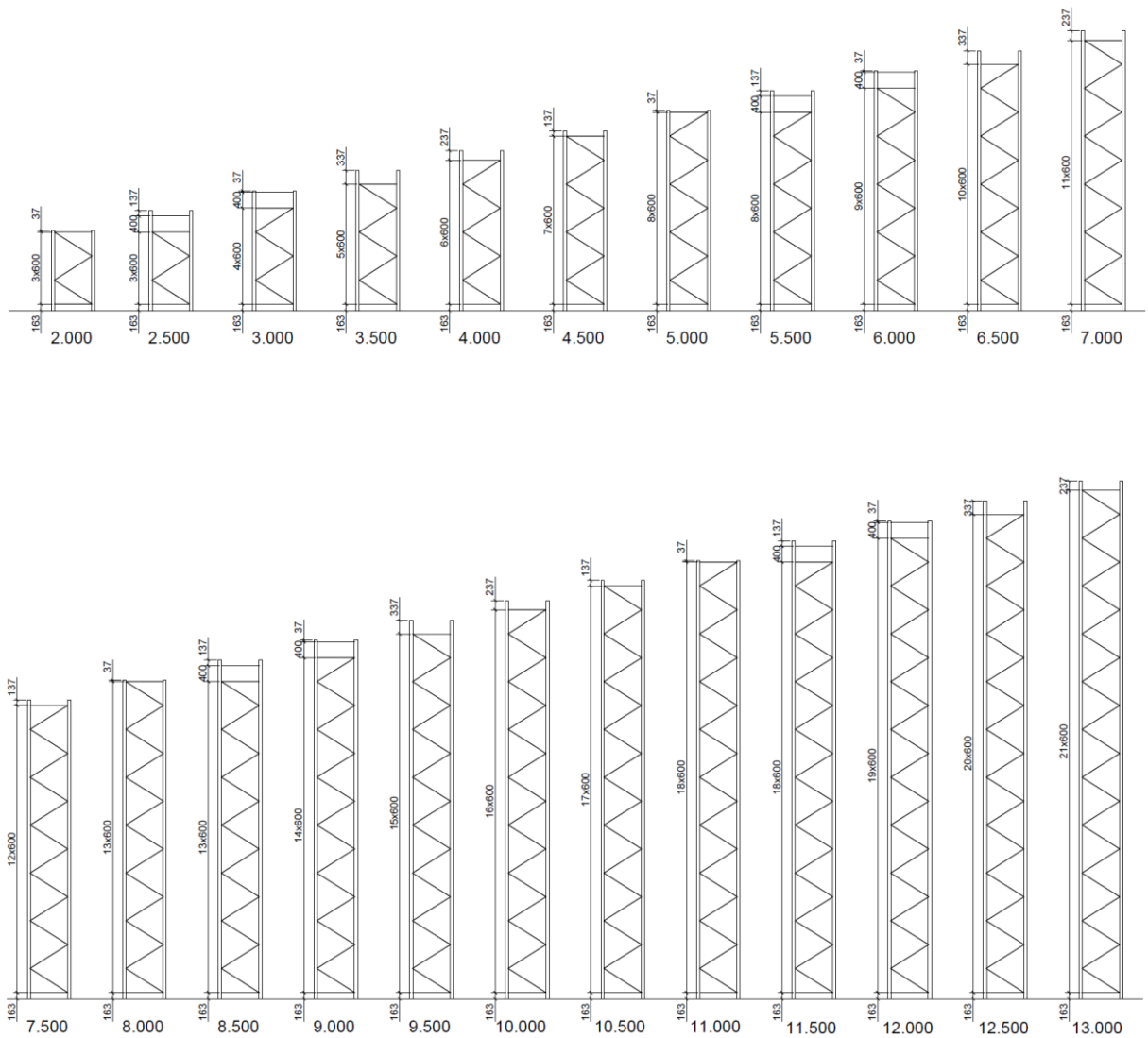
Installations of
H (Frame height) > 10 meters:



Bracing Types

C-1200	Upright used: XS and M (Product acc./EN15512-2009, henceforth V2009) L and XL
A11-1150	Upright used: XS and M (Product acc./EN15512-2020, henceforth V2020)

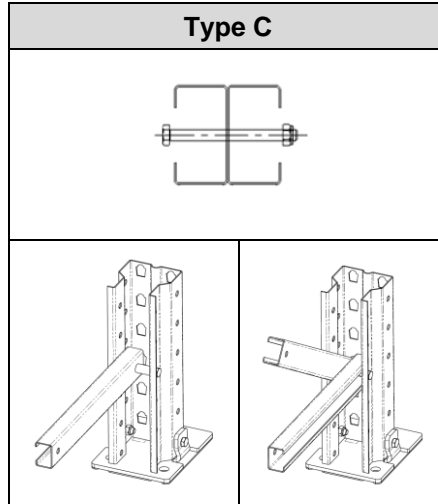
Frames assembly: C-1200 bracing of horizontals and diagonals
Measurements taken from axis centres









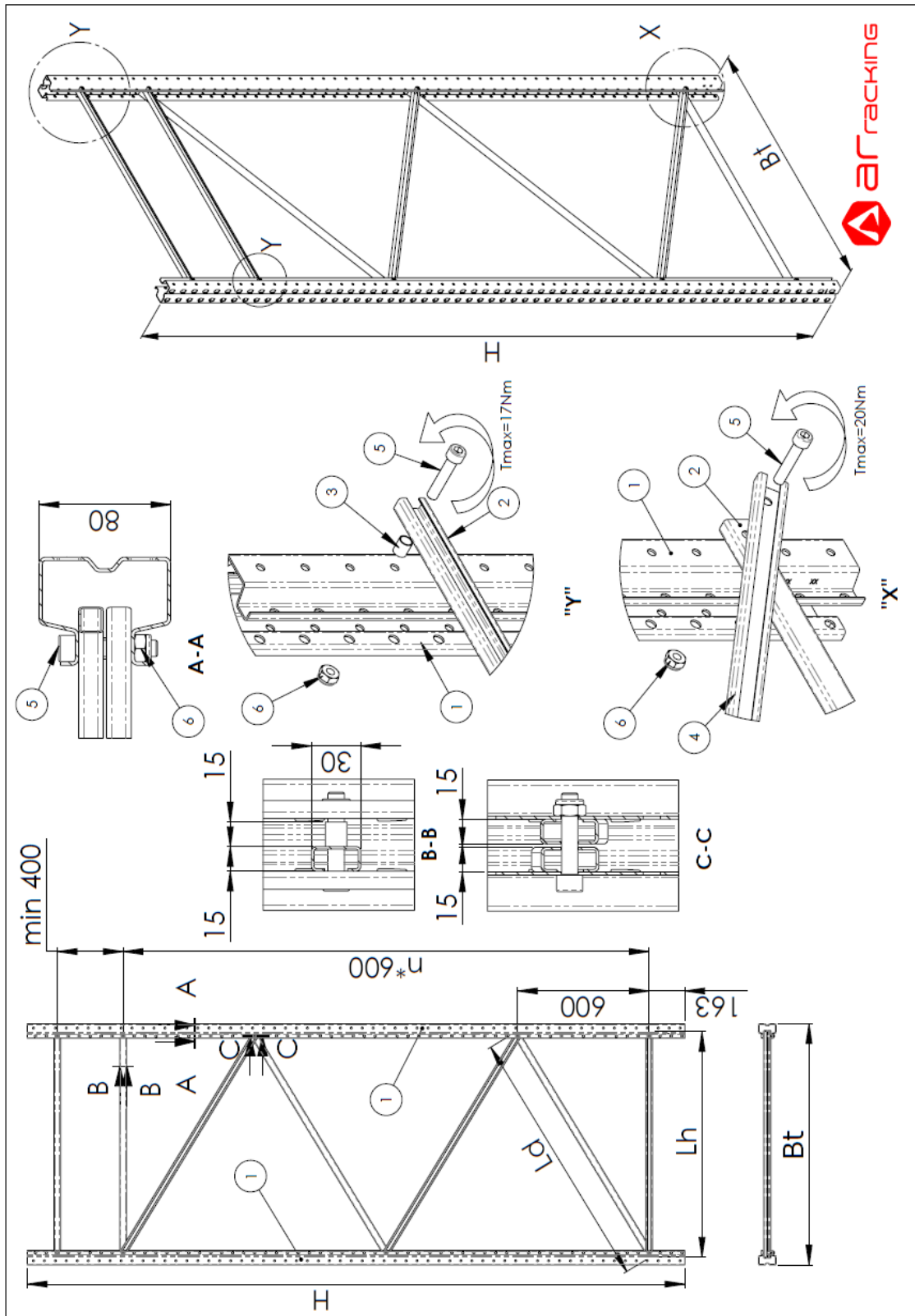
The first horizontal member is placed 163 mm from floor and then diagonal members are placed every 600 mm, with a final horizontal member. If the distance of the last horizontal member at the end of the upright is equal to or greater than 437 mm, another horizontal member will be placed at a minimum distance of 400 mm. The previously figures show the different configurations depending on the frame height. The tightening torque must be considered to avoid deformations in the frame assembly.

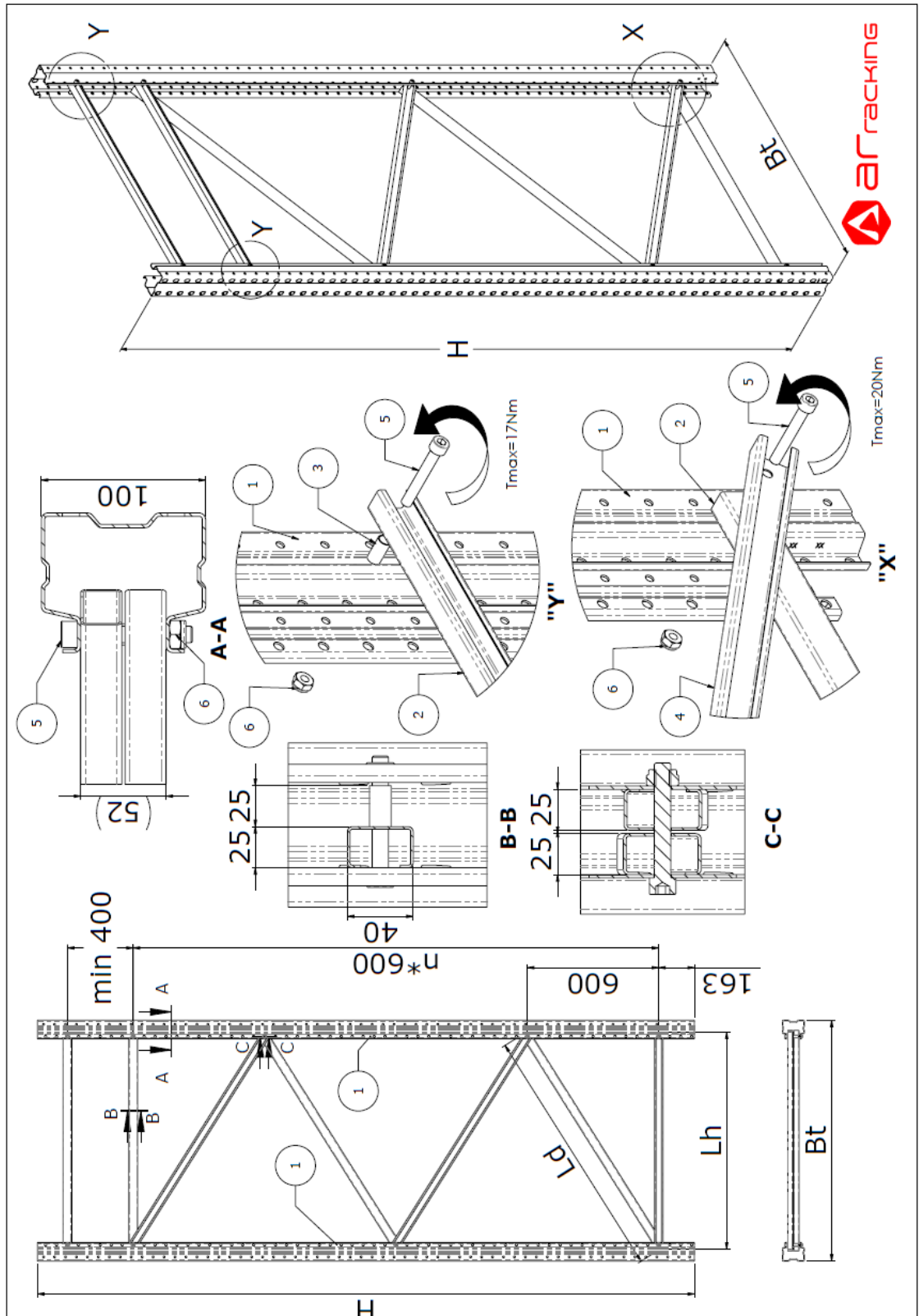
BRACING C-1200

Horizontal and Diagonal orientation:

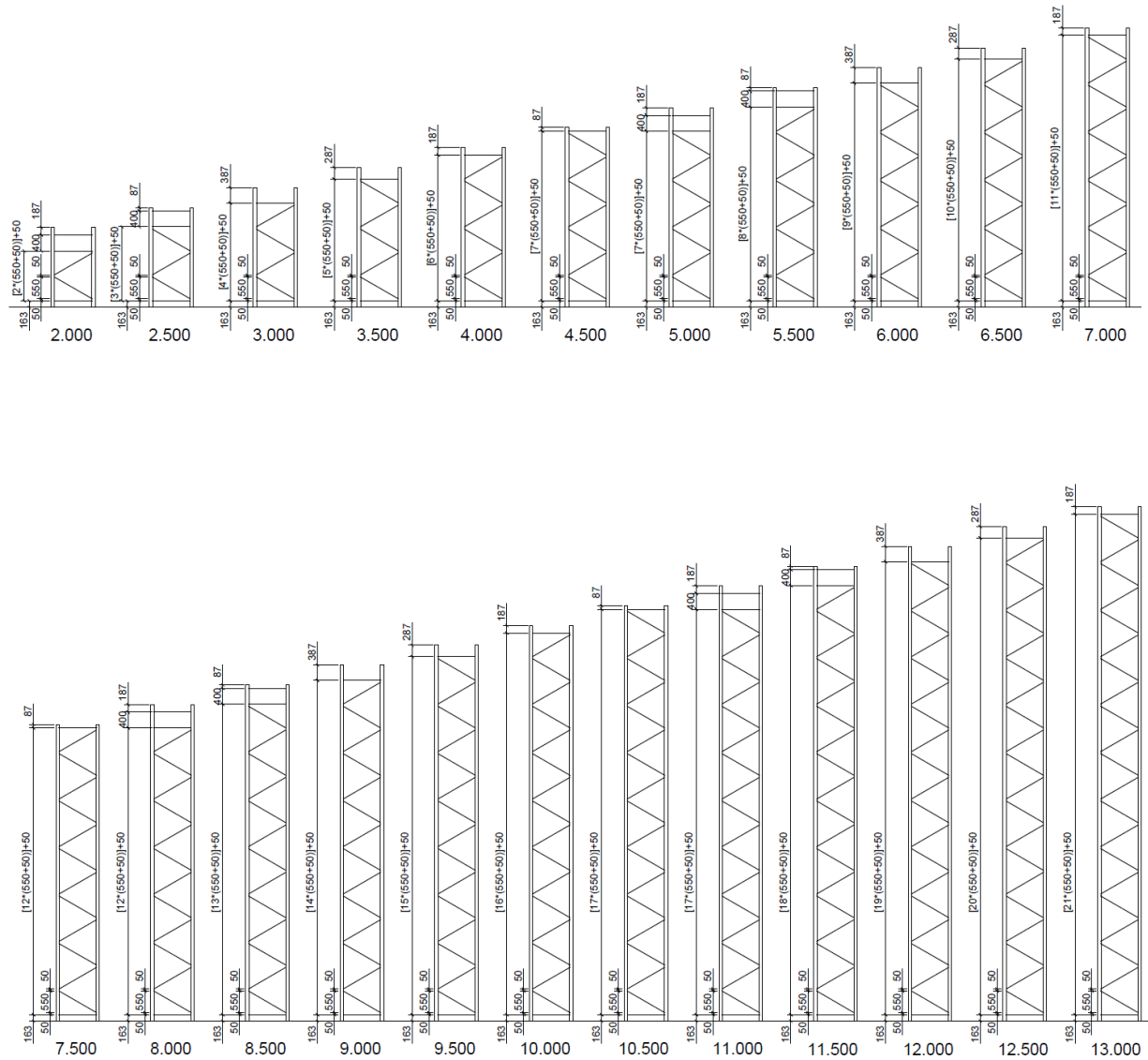


LABEL	Element	
1	Uprights XS or M V2009 Uprights L or XL	
2	Horizontal (Length = Lh)	
3	SPACER CAD11	
4	Diagonal (Length = Ld)	
5	BOLT M10XL/D912/8.8/Z000	
6	NUT M10/D985/8/Z000	





Frames assembly: A11-1150 bracing of horizontals and diagonals
Measurements taken from axis centres

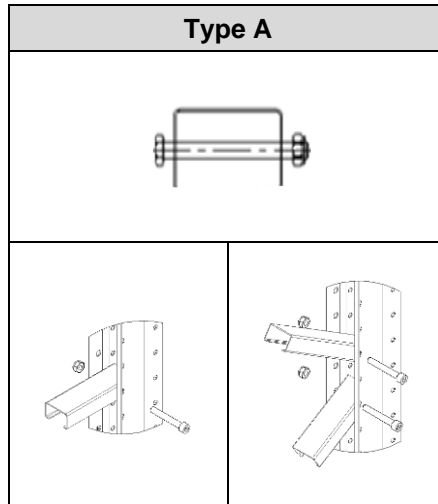


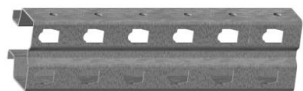




The first horizontal member is placed 163 mm from the base plate, at 50 mm from this the diagonal member start to be placed every 550 mm with a separation between them of 50 mm. The last horizontal member is 50 mm above the last diagonal.

If the distance from the last horizontal member to the end of the upright is equal to or greater than 437 mm another horizontal member will be placed at a minimum distance of 400 mm. The previously figures show the different configurations depending on the frame height. The tightening torque of the horizontals and diagonal members must be considered to avoid deformations during the frame assembly.

BRACING A11-1150

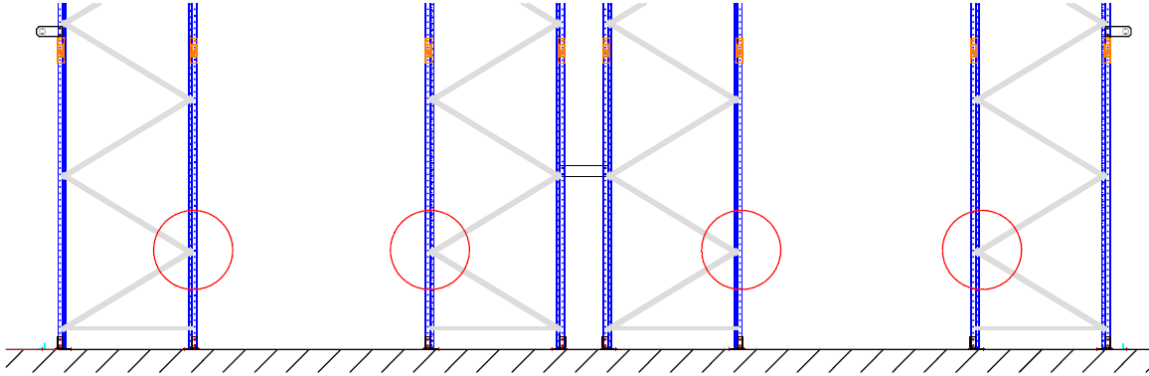
Horizontal and Diagonal orientation:



LABEL	Element	
1	Uprights XS or M V2020	
2	Horizontal (Length = Lh)	
3	Diagonal (Length = Ld)	
4	BOLT M8X50/D912/8.8/Z000	
5	NUT M8/D985/8/Z000	

Ground level orientation of frames. Requirements and criteria of assembly frame orientation:

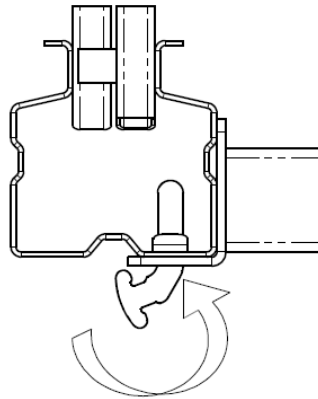
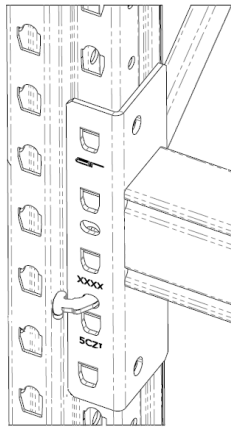
- In single or double alignments, first node between diagonals facing to the aisle.



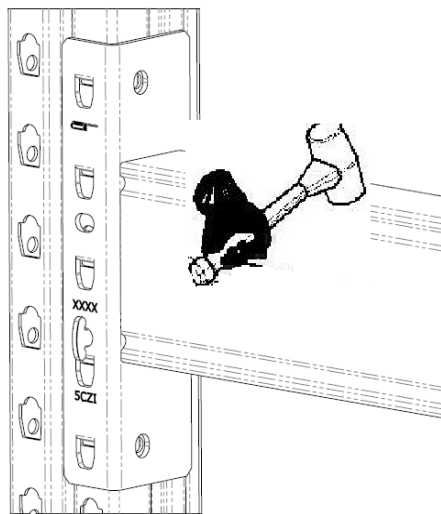
Check assembly tolerances:

Tolerance	CLASS 400	CLASS 300A	CLASS 300B
δD (Bt in figures)	± 6	Single frame ± 3 Double frame ± 6	
C_x	$\pm H/350$	$\pm H/500$	
C_z	$\pm H/350$	For no fixed stroke $\pm H/500$ For fixed stroke $\pm H/750^a$	
J_x	The larger value of the following ± 3 or $\pm HB/400$	The larger value of the following ± 3 or $\pm HB/750$	
J_z	$\pm H/500$	$\pm H/500$	

3.2 Beams



Do not use mechanical means in the assembly of beams, they can damage the connector.
Always include a device to prevent accidental dislodgement of the beam (safety pin).
Install 2 per beam.






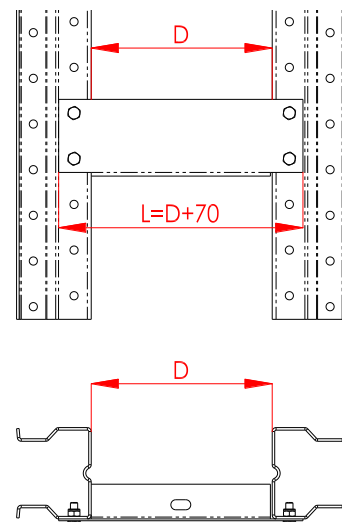
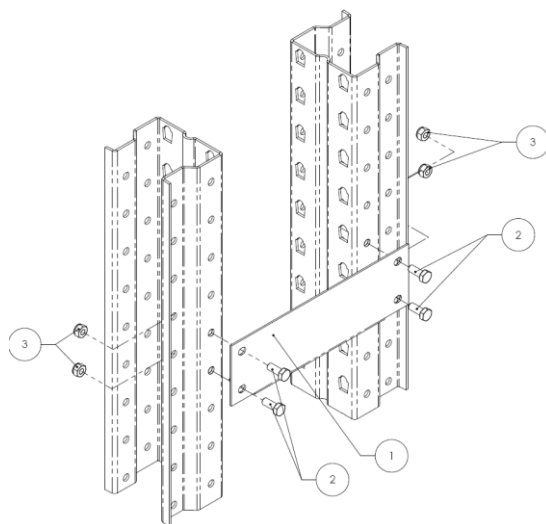
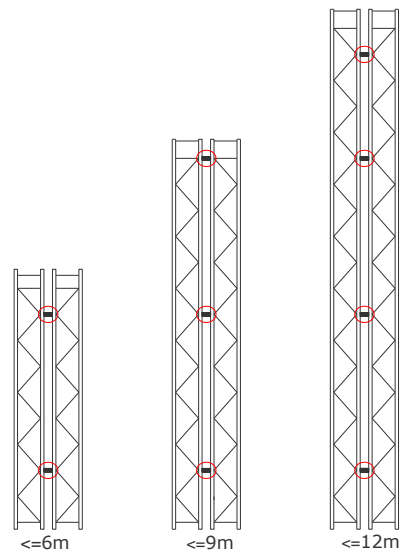
3.3 Frame spacer

They must be installed in the nodes next to the location of the frame diagonals and separated the maximum. The position of the lower run spacer must be placed next to the second lowest bracing node. The upper run spacer must be placed next to the highest horizontal bracing member adjacent to a diagonal. In case of upright splices, an additional frame run spacer shall be placed adjacent to the splice.

Criteria:

- If Frame Height ≤ 6 meters \Rightarrow 2 Frame Spacers in height
- If Frame Height ≤ 9 meters \Rightarrow 3 Frame Spacers in height
- If Frame Height ≤ 12 meters \Rightarrow 4 Frame Spacers in height

Label	Quantity	Element	
1	1	Frame Spacer	
2	4	Bolt M8X20/D933/8.8/ Z000	
3	4	Nut M8/D985/8/Z000	



3.4 Frame splicers

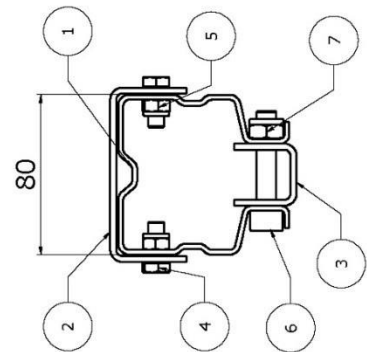
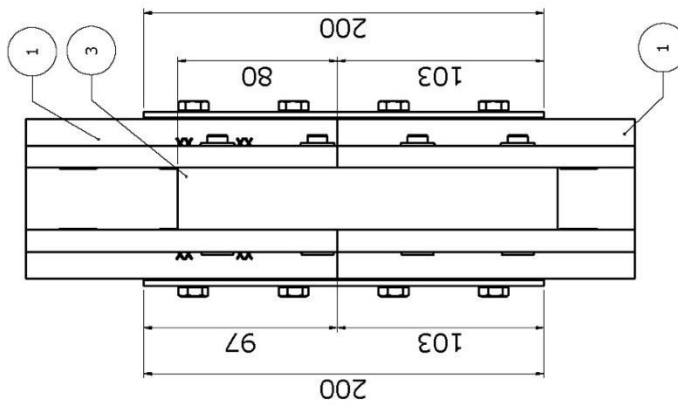
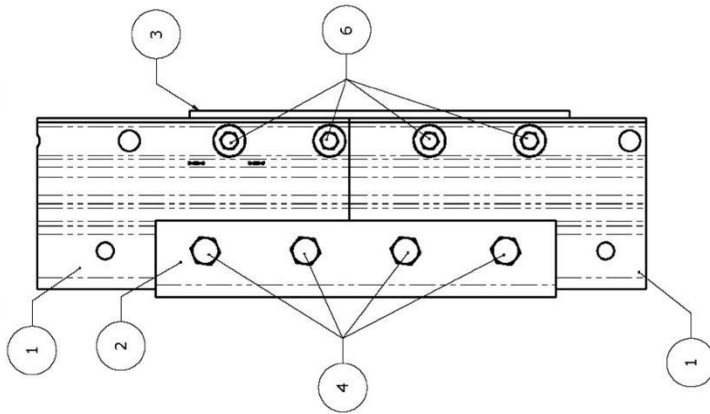
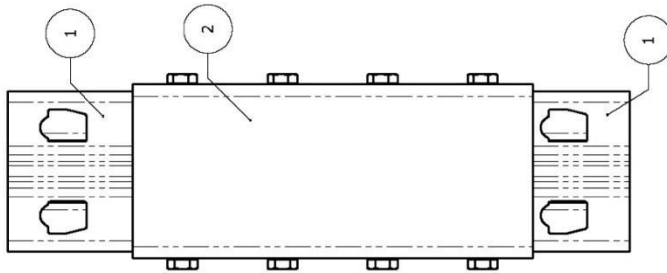
Different types of splicers as they are used:




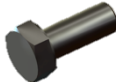


- Uprights XS and M (Product acc./EN15512-2009, henceforth V2009)
- Uprights XS and M (Product acc./EN15512-2020, henceforth V2020)
- Uprights L and XL

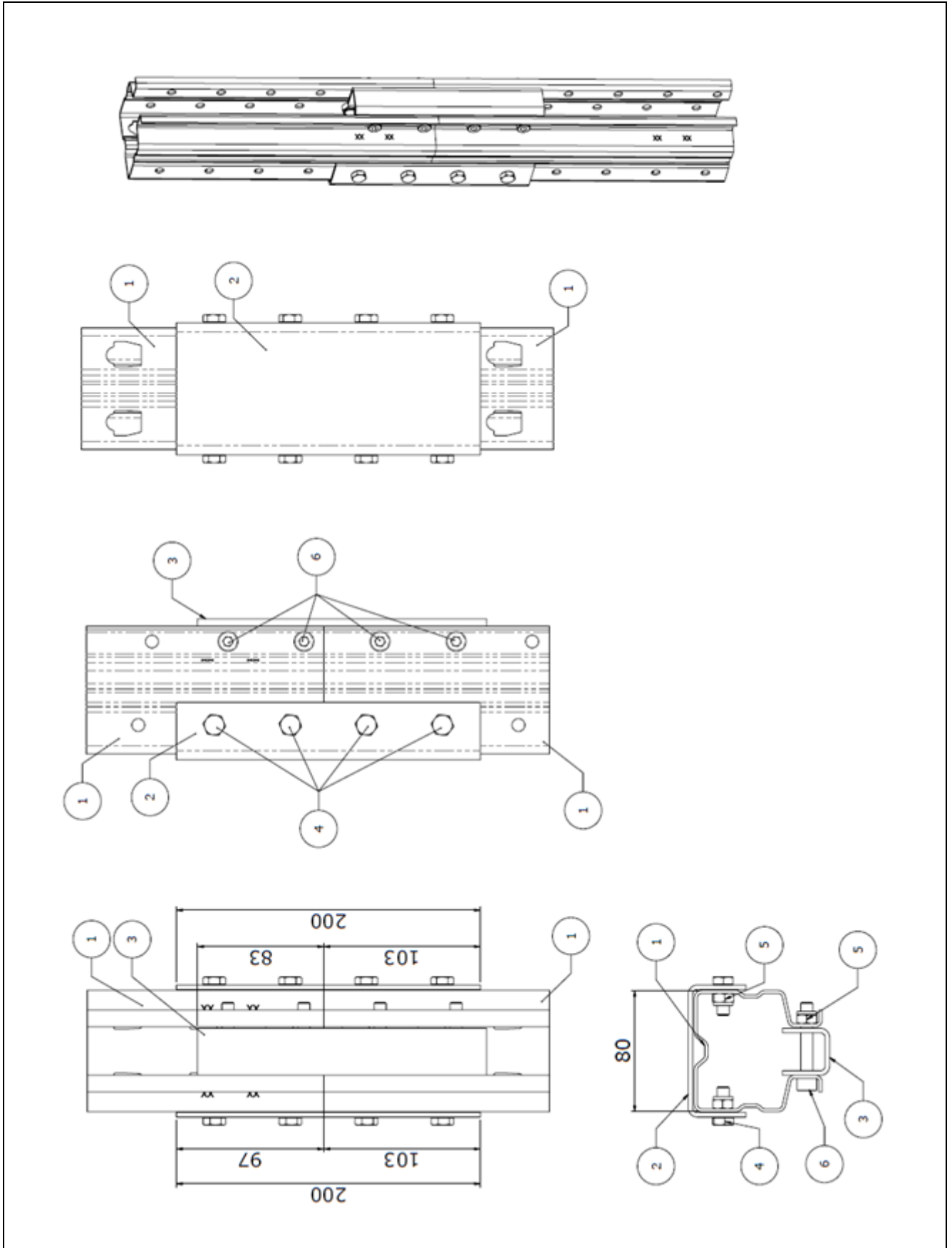
An additional frame run spacer shall be placed adjacent to the splice.
In the located area for the splicers, the horizontals and diagonals of the frames cannot be installed.







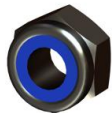


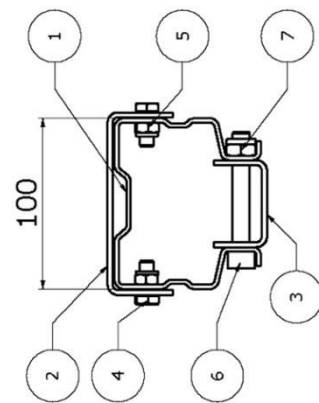
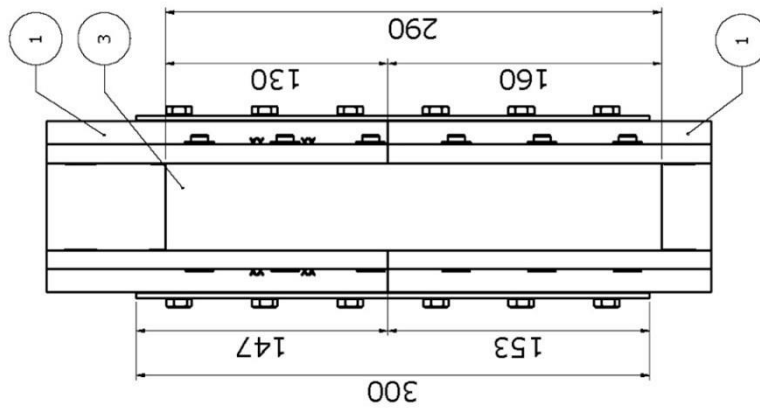
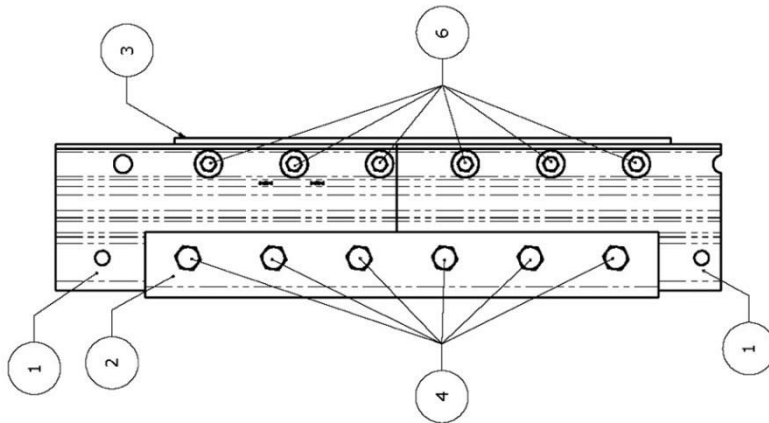
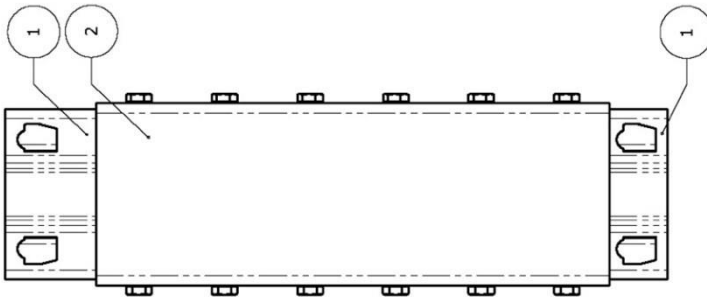
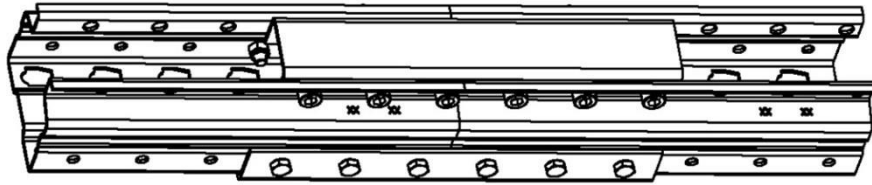
LABEL	QUANTITY	Element	
1	2	Uprights XS or M V2009	
2	1	FRONTAL SPLICER	
3	1	BACK SPLICER	
4	8	BOLT M8X20/D933/8.8/Z000	
5	8	NUT M8/D985/8/Z000	
6	4	BOLT M10X50/D912/8.8/Z000	
7	4	NUT M10/D985/8/Z000	



LABEL	QUANTITY	Element	
1	2	Uprights XS or M V2020	
2	1	FRONTAL SPLICER	
3	1	BACK SPLICER	
4	8	BOLT M8X20/D933/8.8/Z000	
5	8	NUT M8/D985/8/Z000	
6	4	BOLT M8X50/D912/8.8/Z000	

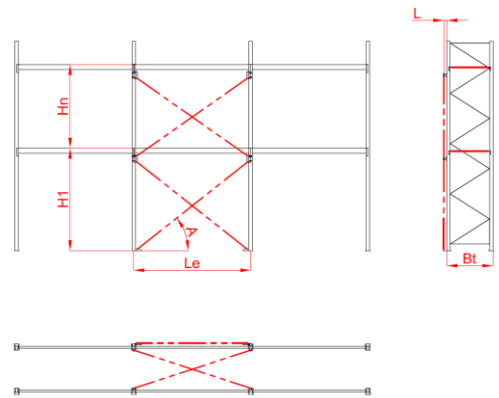
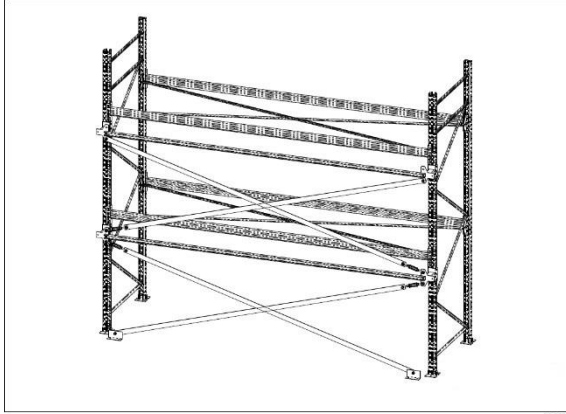


LABEL	QUANTITY	Element	
1	2	Uprights L or XL	
2	1	FRONTAL SPLICER	
3	1	BACK SPLICER	
4	12	BOLT M8X20/D933/8.8/Z000	
5	12	NUT M8/D985/8/Z000	
6	6	BOLT M10X70/D912/8.8/Z000	
7	6	NUT M10/D985/8/Z000	

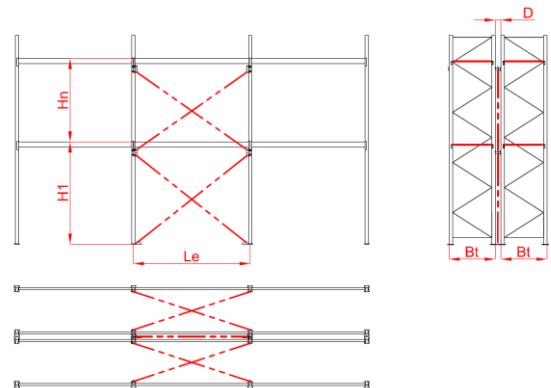
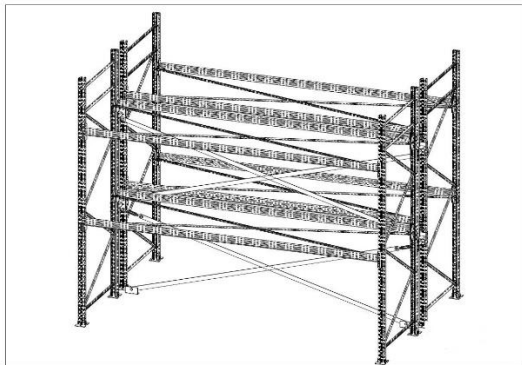


3.5 Vertical and horizontal bracings

Single Run Bracings

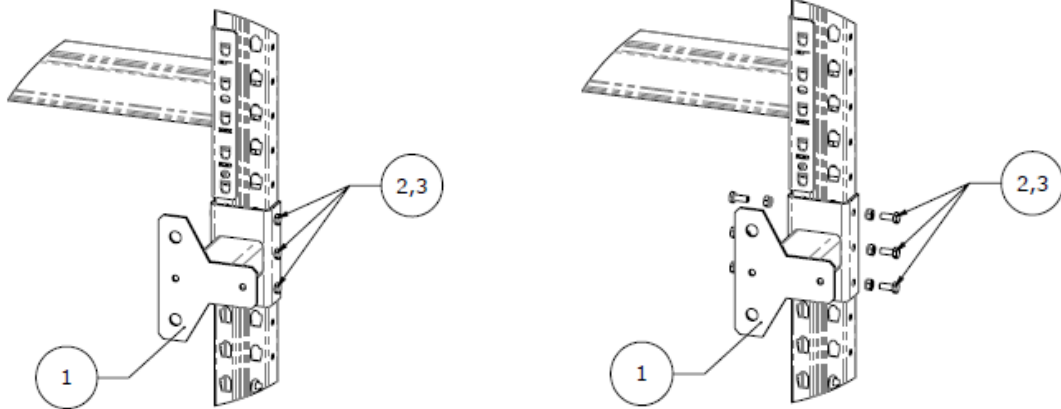


Double Run Bracings



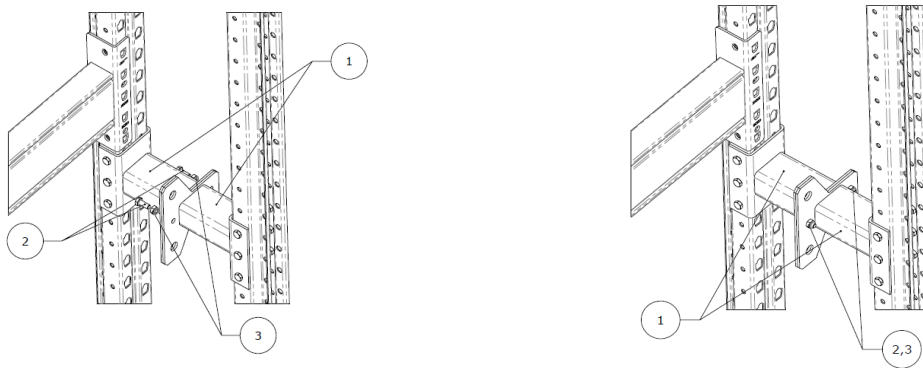
The **Bracket TAR** is installed just below from the beam's connector where it can be fixed to the upright. The assembly depends on whether it is used for single runs or double runs:

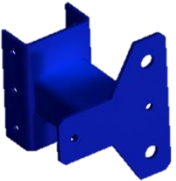
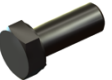

SINGLE RUNS



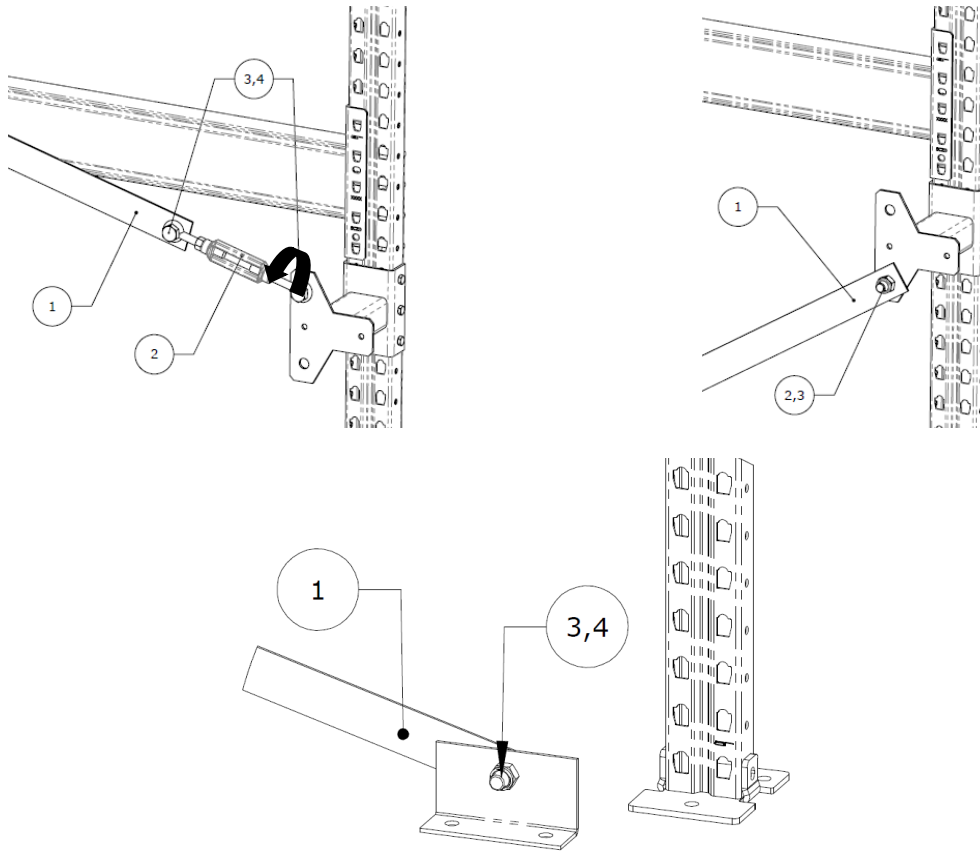
DOUBLE RUNS





Fix the brackets TAR between them with fixings



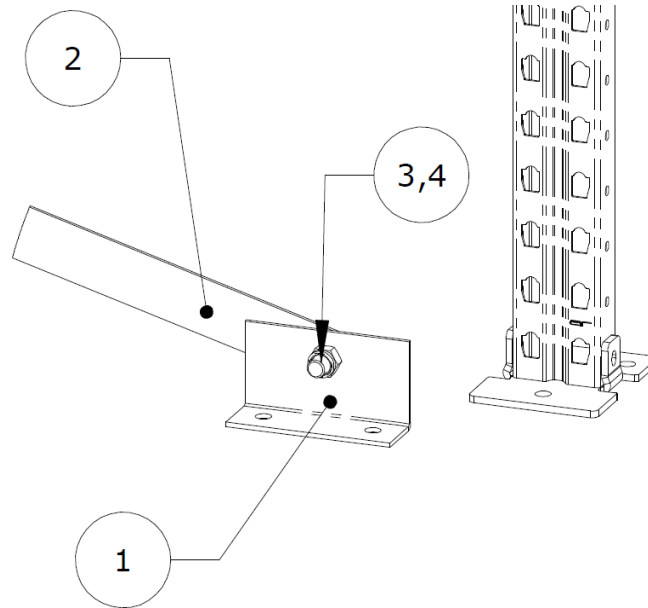
LABEL	Quantity Single Run	Quantity Double Run	Element	
1	1	2	BRACKET TAR	
2	6	14	BOLT M8X20/D933/8.8/Z000	
3	6	14	NUT M8/D985/8/Z000	

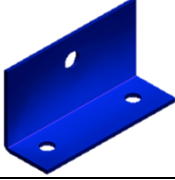
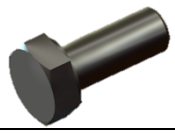
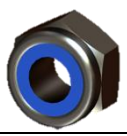

The bracing plates are installed into the bracing base plates, to the ground, to the turnbuckles or to the brackets TAR according to the following pictures:



LABEL	Element	
1	BRACING PLATE 50X3 M16/[L]/PREG	
2	BARREL STRAINER M12 RING-RING/1480 (They have a nut in order to avoid dislodgements of the system)	
3	BOLT M16X35/D933/8.8/Z000	
4	NUT M16/D985/8/Z000	

The bracing base plate must be installed in single and double runs.

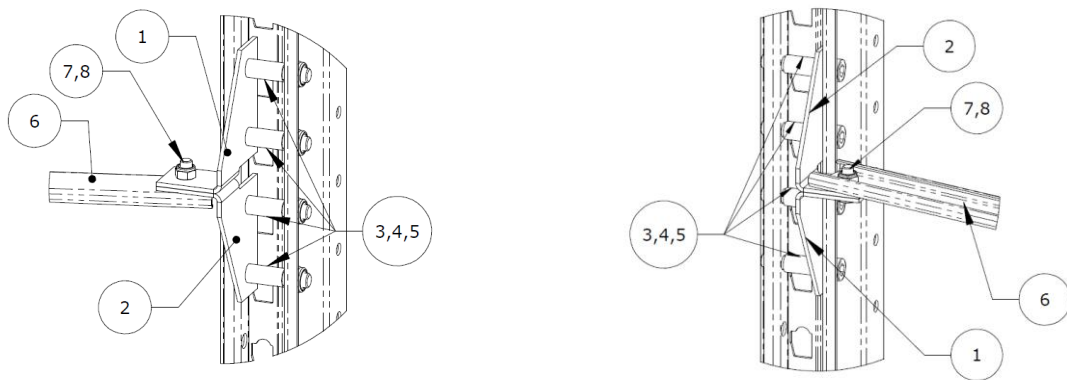
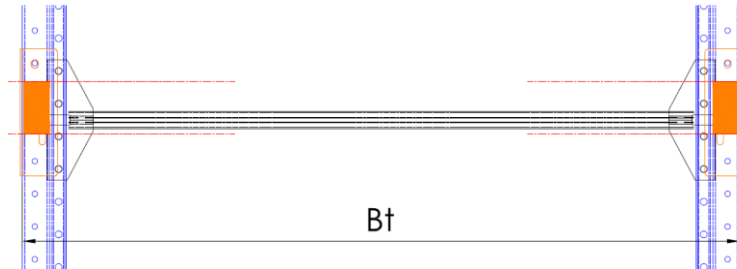


LABEL	Element	
1	BRACING BASE PLATE	
2	BOLT M16X35/D933/8.8/Z000	
3	NUT M16/D985/8/Z000	
---	ANCHOR M12x110/H.ETAG	

Fix into the ground with 2 anchors M12x110/H.ETAG. see requirements of levelling and anchoring of base plates.

The support HU is used with the uprights: XS and M V2009 / L and XL

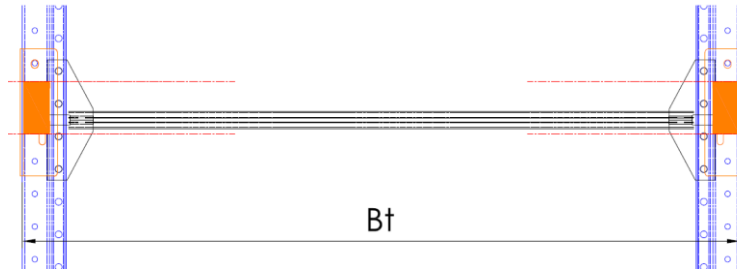
It is installed to be in the shadow of the beam section in order to avoid possible reductions of the vertical clearances that must be used in the racking bays. Acceptable for beams of weld measurements of 50mm and rectangular sections from 80x40 to 160x50mm.



LABEL	Element		
1	SUPPORT HU/LEFT		
2	SUPPORT HU/RIGHT		
3	Uprights XS & M V2009	BOLT M10X50/D912/8.8/Z000	
	Puntal L & XL	BOLT M10X70/D912/8.8/Z000	
4	NUT M10/D985/8/Z000		
5	Uprights XS & M V2009	SPACER CAD11/27/Z	
	Puntal L & XL	SPACER CAD11/47/Z	
6	PROFILE 4010		
7	BOLT M8X20/D933/8.8/Z000		
8	NUT M8/D985/8/Z000		

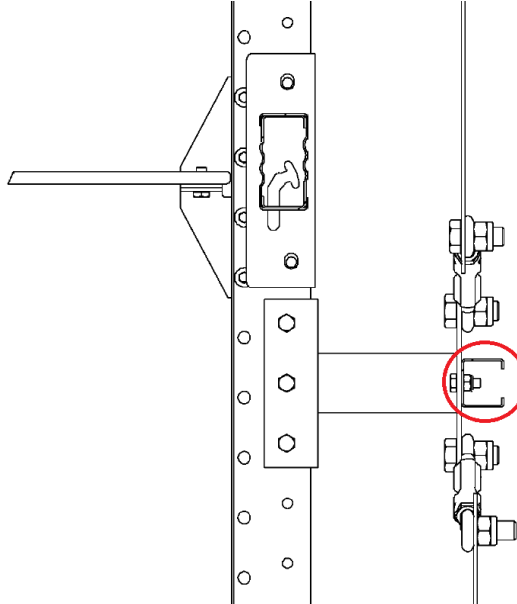
The support HU8 is used with the uprights: XS and M V2020

It is installed to be in the shadow of the beam section in order to avoid possible reductions of the vertical clearances that must be used in the racking bays. Acceptable for beams of weld measurements of 50mm and rectangular sections from 80x40 to 160x50mm.

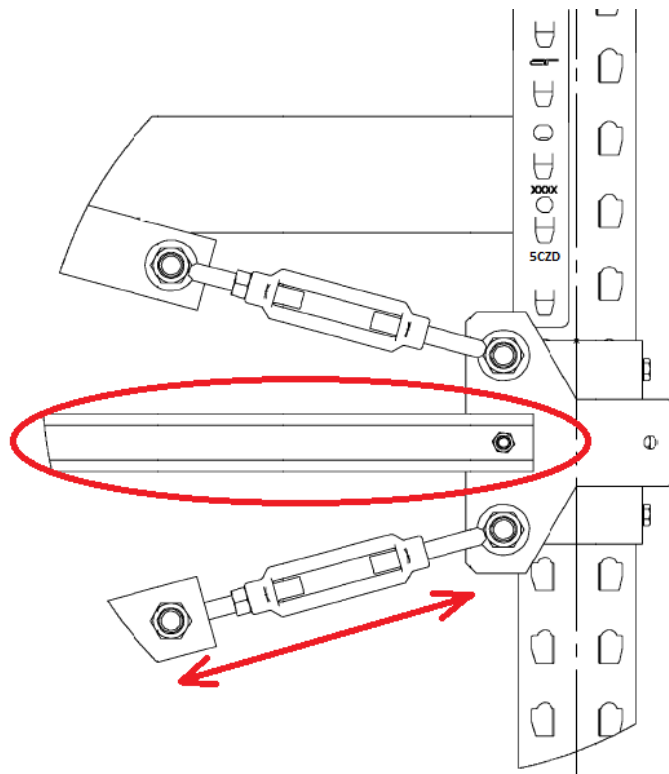


LABEL	Element	
1	SUPPORT HUM8/LEFT	
2	SUPPORT HUM8/RIGHT	
3	BOLT M8X50/D912/8.8/Z000	
4	NUT M8/D985/8/Z000	
5	SPACER CAD11/27/Z	
6	PROFILE 4010	
7	BOLT M8X20/D933/8.8/Z000	
8	NUT M8/D985/8/Z000	

In single runs There must be installed a C40x35 profile as horizontal stiffener. It must be placed as the following picture in order to avoid reductions in clearances in depth.



Having installed the bracing system, it must be adjusted with the turnbuckle to stabilize and plumb the structure. Then fix the turnbuckle in its location tightening its nut.

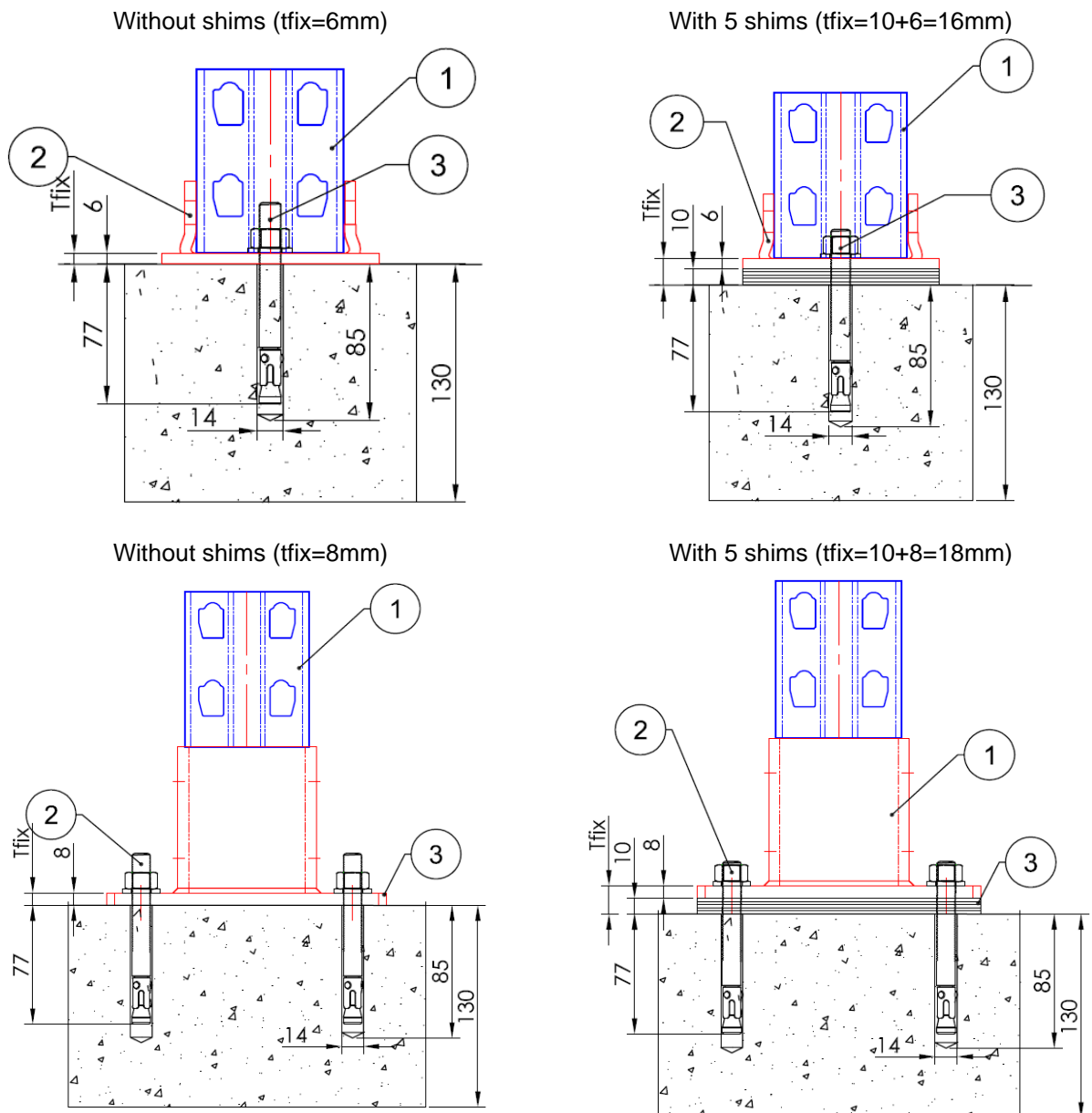


3.6 Levelling and floor anchoring

In order to take advantage, the anchors M12x110 at maximum of its capacity, they must be fixed with a borehole depth of 85mm into the floor slab.

ATTENTION: A lesser borehole depth implies less capacity of the anchor and load capacity of the racking as well.

With this anchor it can be placed 5 shims in every base plate at maximum



If those configurations are not possible inform the Technical Area of AR Racking.