ALTRAD

COFFRAGE
& ÉTAIEMENT
LOCATION
VENTE
MONTAGE

ALTRALIGHT
SHORING TOWER

ASSEMBLY ANS DISASSEMBLY CAREFULLY · 01-2025

INFORMATIONS

This document is intended for all persons working with the Altrad Formwork & Shoring product described and contains information on the installation and use of the system in accordance with the guidelines.

All persons who work with these various products must be fully familiar with the contents of these documents and their safety information. The use of our products is subject to compliance with the laws and regulations, in their current version, in France. The safety instructions and load specifications must be strictly adhered to. This document can also be used as generally applicable installation and operating instructions or as part of site-specific installation and operating instructions.

Altrad Coffrage & Etaiement reserves the right to make changes for the purpose of technical optimisation. Errors, typographical and printing errors excepted.

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SUMMARY

LABORATORY TESTED SHORING TOWER

following the process of the two standards NF P93-550 of December 1986 and NF P93-551 of May 2016 (test + calculation note integrating the functional sets in the numerical model)

Also tested according to the old NF P93-550 standard of December 1986.

REGULATIONS & STANDARDS

Tests on the HD 320 shoring tower - Results according to normative

STANDARD REFERENCE NF P 93-550 - December 1987

The 4-step test protocol

- **Step 1** : measurement of geometric imperfections due to clearances;
- **Step 2** : tests on connections, on partial structures, on components and on side guards;
- **Step 3** : global test; (3 turns Ht 6 m, bottom of fork) average failure load per foot determined;
- **Step 4** : material testing;
- **Step 5** : analysis of test results for modeling validation;
- **Step 6** : realization of the calculation note following modeling.

TESTS ACCORDING TO THE STANDARD NF P93-550 PERFORMED.

PRESENTATION

Use

The ALTRALIGHT shoring tower is a response to market expectations. It makes it possible to offer a shoring tower combining lightness, power and conformity. The ALTRALIGHT tower is mixed, made of aluminum and steel. Aluminum frames are designed by integrating steel pole end and connection components, giving it rock-solid robustness. Its resistance to shocks due to handling on site will be unmatched.

It is designed to comply with standard NF 93-551. Developed to be simple, it only has 4 basic elements, the Imperdable Foot Jack, the Starting Base, the 1M running or passing frame, the jack forkhead.

The system's modularity makes it possible to make towers with rectangular and square sections of three dimensions.

In addition, it is compatible with the ALTRADAL slab formwork system which can be used on the top of the tower if necessary, and due to the rosettes every 50 cm along the posts of the tower, it is also fully compatible with the ALTRAD PLETTAC METRIX multi-directional scaffolding system. This creates the possibility to brace the towers (removal of the tubes and collars) and insert accesses such as tower stairs, and all other structural complements of the PLETTAC METRIX system using the standard components.

The aluminum frames are fitted with galvanized steel parts at the ends, giving them increased durability. Its parts are assembled by a patented process. The frames are 1.00 m high, they have an integrated access ladder with anti-slip systems. Powerful jacks, high and low, with a useful length of 60 cm, allow rapid adjustment to the needs inherent in construction sites.

The integrated lateral protection ensures safety during erection from the inside of the tower at all the different stages. The bases are equipped with integrated locking devices which hold the base jacks in place.

Access to each level is by ladders integrated in the frames and is from the inside to ensure total safety.

The aluminium planks have anti-lift systems and self-folding hatches and have been tested to comply with safety standards (EN) and class 3 (300 kg/m^2).

The forks fitted to the high jacks are «double entry», and can be used with one or two primary beams. The kinematics of the plank assembly and the light weight of the elements (<15 kg) improve the ergonomics and the safety of the erection of the ALTRALIGHT tower.

The ALTRALIGHT tower is a shoring tower designed to support traditional formwork with primary and secondary beams and plywood, for cast-in-place concrete structures such as slabs, cast-in-place or prefabricated beams and various working platforms. It is compatible with the ALTRADAL slab formwork system and the PLETTAC METRIX multi-directional scaffolding system.

ADVANTAGES

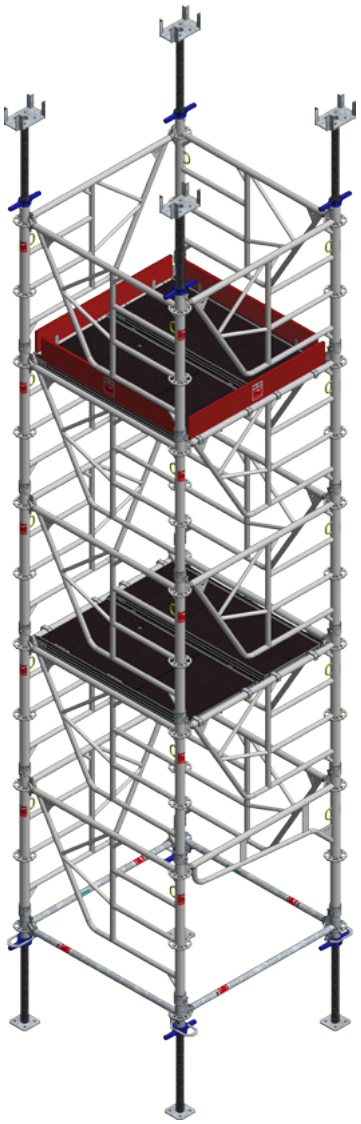
- **Connection bell and steel cylinder support ring** (*patented system © Altrad Coffrage & Etaiement in France and Europe*) and aluminum frames,
- More resistant frames thanks to triangulation,
- **Crushing test**: service load per foot 5.5 tonnes for a height of 6.40 m (according to standard NF P93-550)

Overview

Its high load capacity, modularity, as well as its integrated bracing system allow it to be used efficiently in the case of high floor formwork.

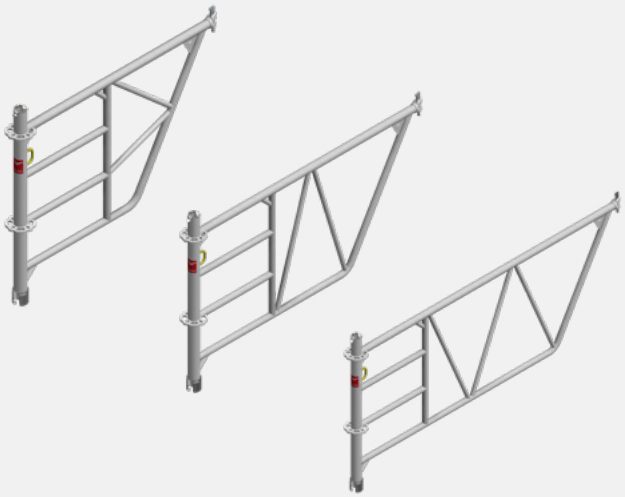
It will also meet the expectations of under-shoring of a concrete structure subjected to temporary overloads, in fact the low weight of its components allows it to be used as an underpinning.

The authorized loads must be respected and must comply with the charts provided in the technical documentation of the product (see page 18).



- 3 different frame dimensions: 125cm (9kg), 160cm (10.3kg), 210cm (12kg) allowing the realization of tower of variable sections:
- 125 x 125 cm,
- 125 x 160 cm,
- 125 x 210 cm,
- 160 x 210 cm,
- 160 x 160 cm,
- 210 x 210 cm.

Foot and head jacks:
useful length 60 cm



Safety instruction

A load study must be carried out before using the shoring tower. It must respect the latest calculation standards.

This study must produce a plan of the layout validated by the user and verified by an external controller.

The user is responsible for assembly, dismantling and information resulting from the risk assessment for each site. Employees must apply the resulting measures in accordance with legal requirements (e.g. health and safety regulations).

Installation instruction

The user is responsible for compiling written installation instructions. The erection instructions must be included in and be used as a basis for the installation instructions.

Assembly and operating instructions

Shoring material is technical material designed only for precise and specific use. It is intended for use by properly trained personnel under the supervision of properly qualified personnel.

Assembly/dismantling work must be supervised by properly qualified supervisory personnel appointed by the user to ensure that the work is carried out safely. The assembly instructions are an integral part of the construction of the tower and the minimum they must include is: safety guidelines, details of the standard configuration and intended use of the system and its description. The operating instructions (standard configuration) contained in the erection instructions must be observed. Any improvement, modification or deviation is a potential risk and therefore requires separate verification (with a risk assessment) or new installation instructions in accordance with applicable laws, standards and regulations.

This also applies if the elements implemented are provided by the contractor.

Availability of assembly instruction

The contractor must ensure that the erection instructions supplied by the manufacturer or the system supplier are available at the place of use. Site staff should be informed of this before proceeding with the installation and be aware that the manual is available at all times. The latter can be downloaded from the website www.altrad-coffrage.com.

Storage and transport

The specific conditions for the transport and storage procedures for each element must be respected. For example, the correct lifting system to be used must be indicated.

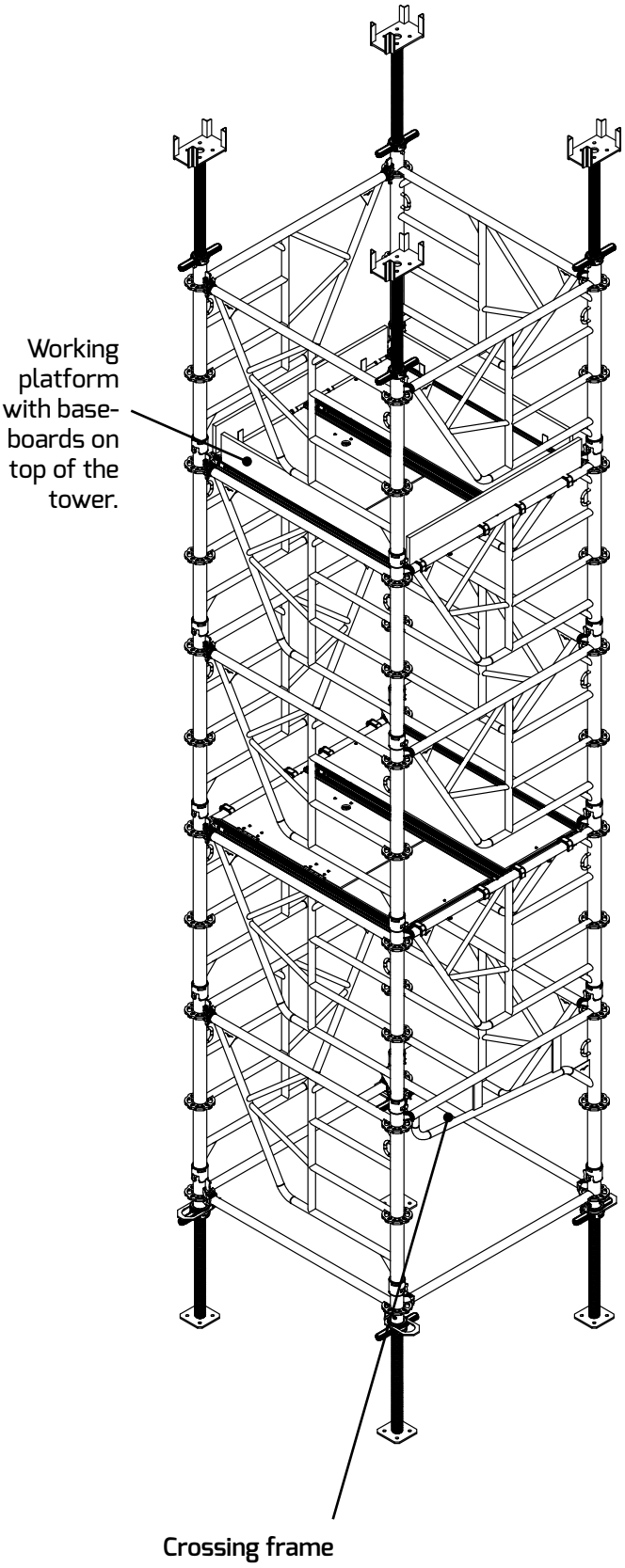
Checking equipment

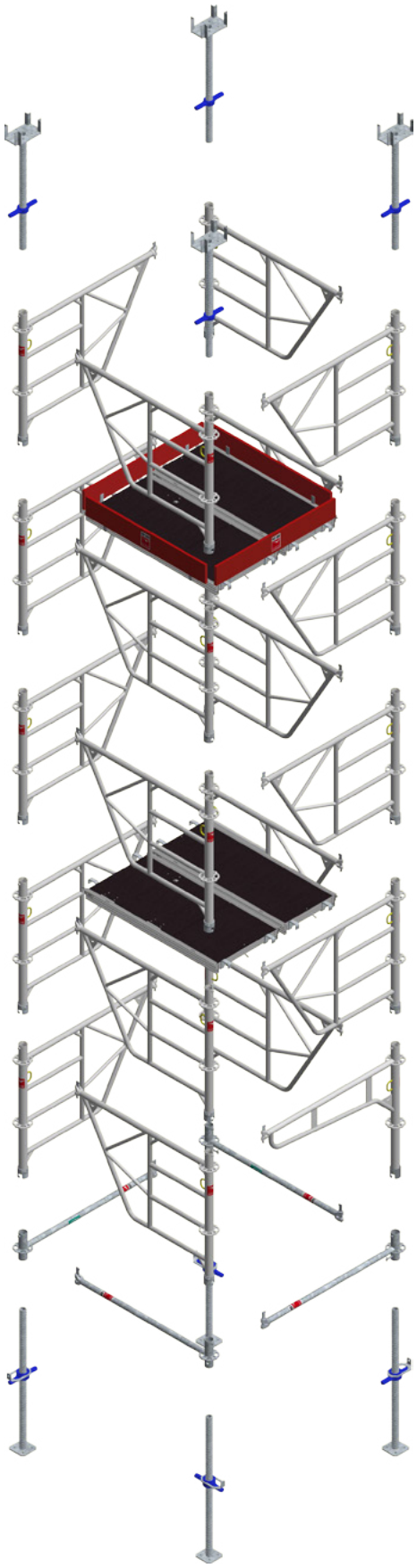
Deliveries of formwork and shoring material should be checked upon arrival at the site (quantity/quality) and before each use to ensure that the equipment is in perfect condition and functioning properly. Material must not be modified in any way.

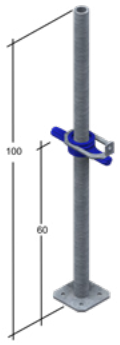
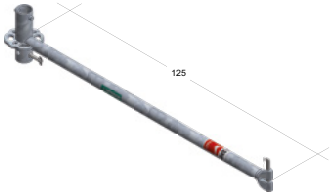
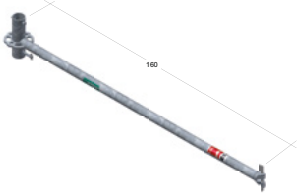
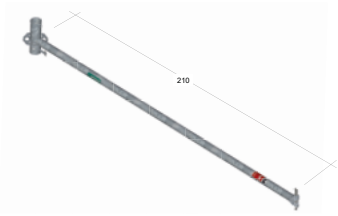
Parts and repairs

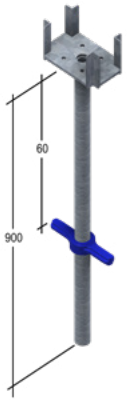
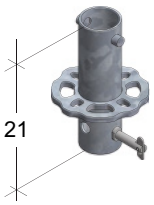
Only original parts can be used for repairs. Repairs must be carried out by the manufacturer or by an authorized workshop.

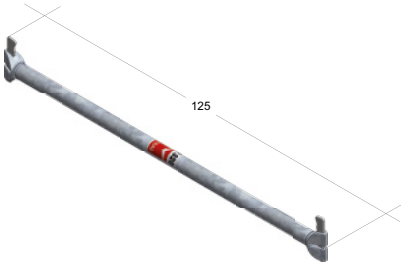
Components

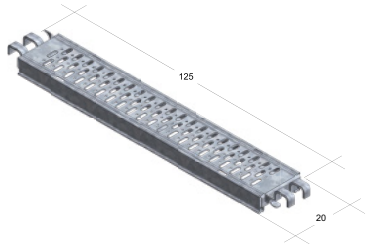
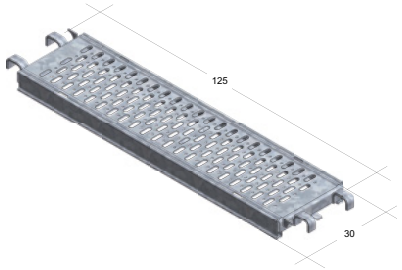
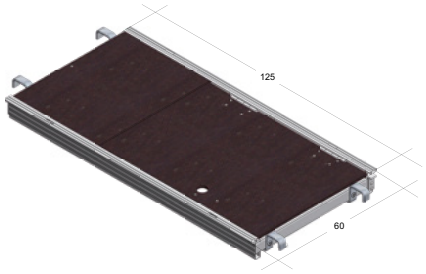
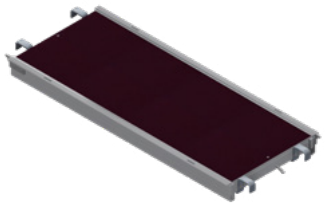
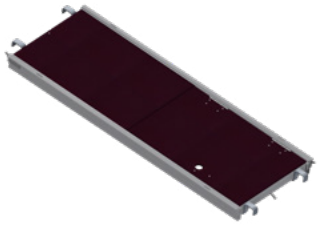

Working platform with base-boards on top of the tower.
Crossing frame

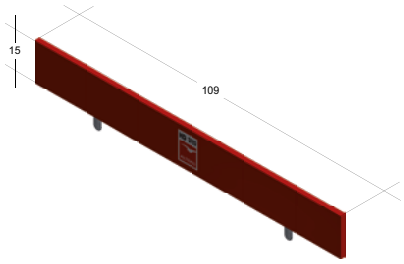
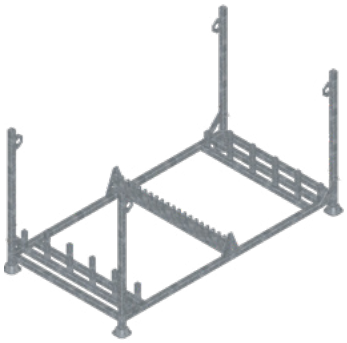


Ref. prod.	Weight (Kg)	Designation	Item
131-0005E	**1,40**	BASE PLATE	
135-0016	**11.40**	ALTRALIGHT BASE JACK 110/C40/E8 Blue nut	
135-0125A	**4,80**	HD320 START LEDGER 125	
135-0160A	**5.4**	HD320 START LEDGER 160	
135-0210A	**6.6**	HD320 START LEDGER 210	
135-1710	**9,25**	ALTRALIGHT FRAME 125X100	
135-1810	**10.75**	ALTRALIGHT FRAME 160X100	

Ref. prod.	Weight (Kg)	Designation	Item
135-1910	**12**	ALTRALIGHT FRAME 210X100	
135-1711	**6,90**	ALTRALIGHT CROSSING FRAME 125	
135-1811	**8.50**	ALTRALIGHT CROSSING FRAME 160	
135-1911	**9.60**	ALTRALIGHT CROSSING FRAME 210	
135-2212	**10,5**	ALTRALIGHT JACK FORKHEAD 090/C60/ E8 Blue nut	
135-0021A	**1,6**	HD320 START POST 021	

Ref. prod.	Weight (Kg)	Designation	Item
135-0050A	**3,20**	HD320 POST 050	
135-0100A	**6,30**	HD320 POST 100	
135-3125A	**3,90**	HD320 LEDGER 1.25 METRIX TYPE	
135-4112A	**8,40**	HD320 DIAGON.125X100 METRIX TYPE	
135-0412A	**4,9**	HORIZONTAL DIAGONAL 1.25x1.25 METRIC TYPE	

Ref. prod.	Weight (Kg)	Designation	Item
135-5122A	**8,70**	HD320 STEEL PLATF.1.25X0.20 METRIX	
135-5123A	**9,50**	HD320 STEEL PLATF.1.25X0.30 METRIX	
135-7126A	**11,66**	HD320 ALU.TRAPD.PLATF.125X060 MET	
135-7127A	**8.7**	HD320 ALU PLATFORM 125X050 MET	
135-7166A	**11.95**	HD320 ALU.TRAPD.PLATF.160X057 MET	
135-7216A	**15.07**	HD320 ALU.TRAPD.PLATF.210X057 MET	

Ref. prod.	Weight (Kg)	Designation	Item
135-6812A	**2,20**	HD320 WOOD.BASEBOARD 1.25 METRIX	
135-9002	81	FRAME BASKET 125/160 DEMON **Basics dimensions :** 221 x 121 cm **Storage capacity :** 119 cm	
135-9003	89	FRAME BASKET 125/160 STANDARD **Basics dimensions :** 221 x 121 cm **Storage capacity** : 119 cm	
135-9007	93	FRAME BASKET 210 **Basics dimensions:** 271 x 121 cm **Storage capacity** : 119 cm	
135-1405A	**84**	SHIFTING TROLLEY	
135-8900A	**19.00**	JACK SHIFTING TROLLEY	

ASSEMBLY INSTRUCTION

Preperation

Preparation

Before use, before use after a long period, after any modifications or unexpected event, the contractor must check the safety and integrity of the equipment. The contractor must inspect the condition of each component, the stability, work safety and security during the operation. It is forbidden to access from outside the tower.

WARNING

The value of the isolated shoring subjected to winds of 55 km/h is: V+2+0+V

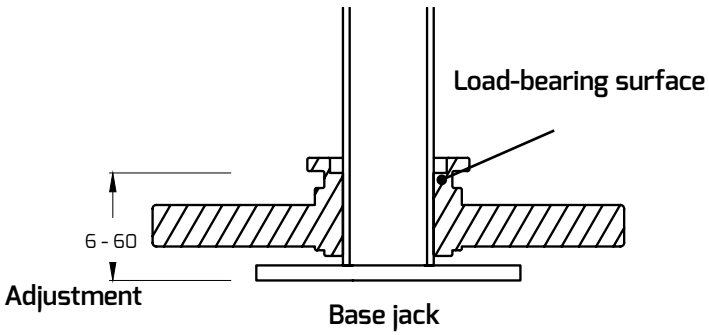
Towers whose configuration goes beyond the self-stabilising configuration must be properly stabilised c.f. page 19

Load distribution, base jack.

Shoring must only be installed on sufficiently unvarying, flat and stable ground capable of supporting the calculated loads. If necessary, the surface must be prepared and wedging solutions must be found to spread the loads evenly. Base jack adjustment : dimension between the underside of the jack and the bottom of the start post or ledger.

WARNING

Do not force the jack extension over the 60cm limit.

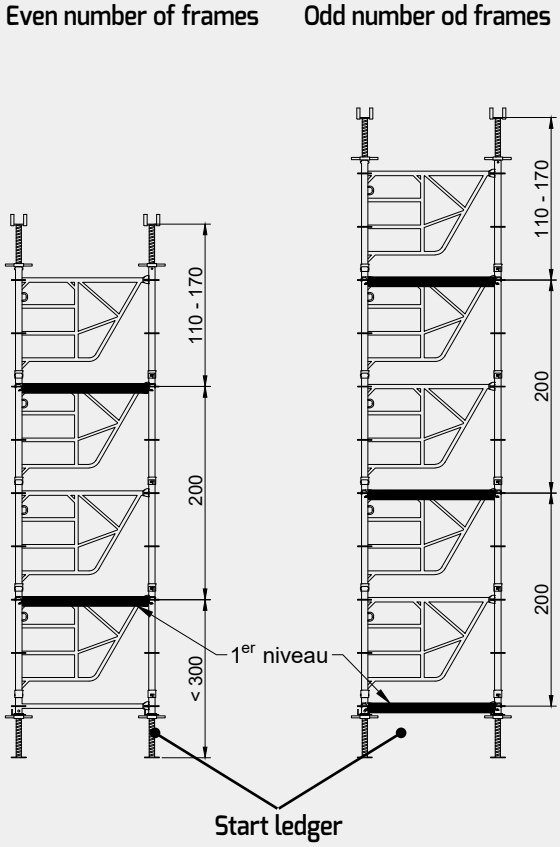


Positioning the platforms

The final position of the platforms depends on the number of frame levels in the tower (odd or even number). The working platform at the top of the tower must be situated on the second to last frame.

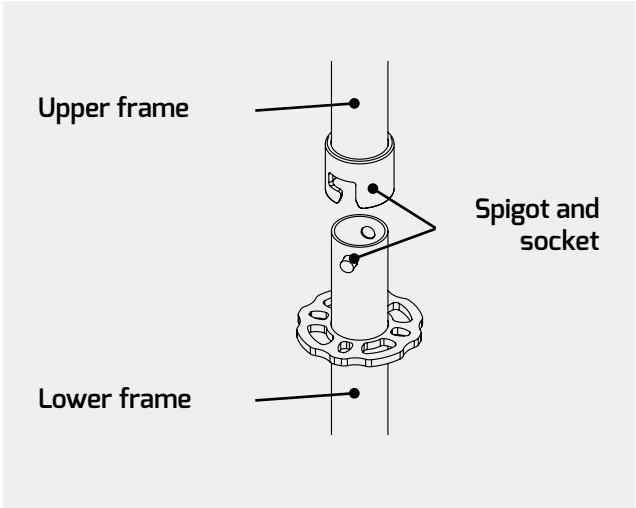
The maximum height between two levels of platforms is 2.00 m.The maximum height between the first level of platforms and the ground is 3.00 m.

Depending on the base jack extension, the first level of platforms can be complete or partial in order to ease access into the tower.

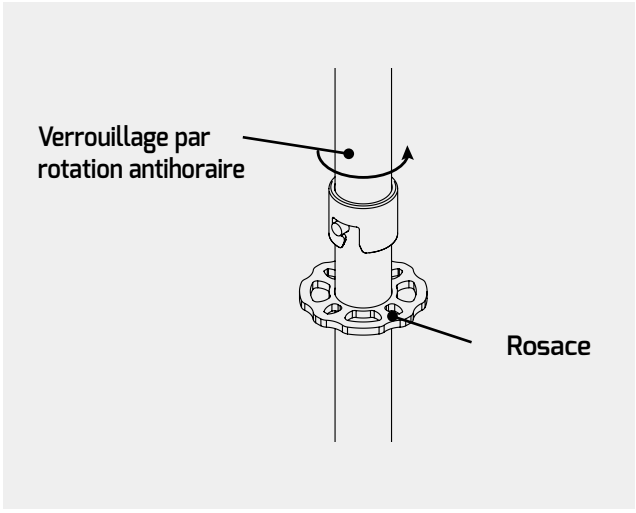


Frame assembly

The components of the HD 320 system are connected as follows : first of all align the spigot-and-socket.



Then turn anticlockwise to lock the system.

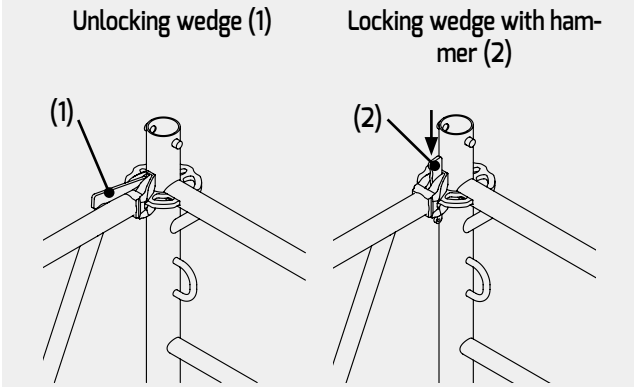


Locking the wedge on the rosette.

Put the wedge in the rosette hole and hammer hard into position (see figure 2).

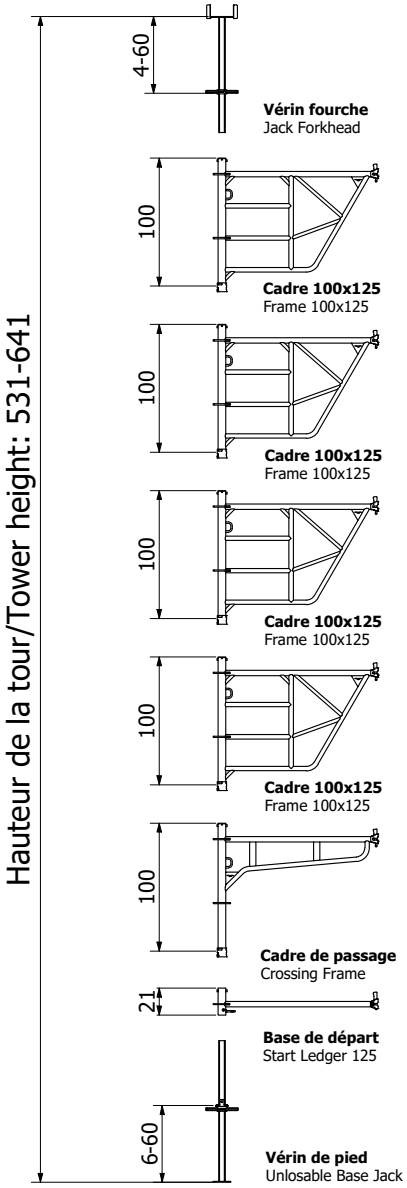
To unlock the system, hammer out the wedge in a horizontal position. (See figure 1).

Frame locking by wedge



Configuration

TOWER CODE	P+1+0+V	V+1+0+V	V+2+0+V	V+3+0+V	V+4+0+V	V+5+0+V	Weight (kg)
TOWER HEIGHT (CM) : *Minimum height does not include Xcm for dismantling*	126 - 182	131 - 202	231 - 341	331 - 441	431 - 541	531 - 641	
Item ref. : 131-0005E BASE PLATE	4	-	-	-	-	-	1,4
Item ref. : 135-0016A AL / UNLOOS.BASE JACKE 110 / C 60	-	4	4	4	4	4	11.40
Item ref.: 135-0125A - 135-0160A - 135-0210A HD320 STRAT LEDGER 125 HD320 STRAT LEDGER 160 HD320 STRAT LEDGER 210	4	4	4	4	4	4	4,8 5,4 6,6
Item ref. : 135-1710A - 135-1810A - 135-1910A AL / ALUMINIUM FRAME SH 100 x 125 AL / ALUMINIUM FRAME SH 100 x 160 AL / ALUMINIUM FRAME SH 100 x 210	3	3	7	11	15	19	9.25 10.75 12
Item ref. : 135-1711A - 135-1811A - 135-1911A AL / ALUMINIUM CROSSIN.FRAME SH 100 x 125 AL / ALUMINIUM CROSSIN.FRAME SH 100 x 160 AL / ALUMINIUM CROSSIN.FRAME SH 100 x 210	1	1	1	1	1	1	6.90 8.50 9.60
Item ref.: 135-2212A AL / JACK FORKHEAD 090 / C60	4	4	4	4	4	4	10.05
Item ref. : 135-7126A HD320 PLAN.ALU TRAP 125X060 ME (for 125x125 section)*	1	1	1	1	2	2	9,50
Item ref. : 135-7127A HD320 PLAN.ALU 125X050 ME (for 125x125 section)*	1	1	1	1	2	2	8,70
Item ref. : 135-7166A HD320 PLAN.ALU TRAP 160X057 ME (for 125x160 section)*	2	2	2	2	4	4	11,95
Item ref. : 135-7216A HD320 PLAN.ALU TRAP 210X057 ME (for 125x210 section)*	2	2	2	2	4	4	15,07
TOWER WEIGHT 125X125 (Kg)	118	158	195	232	282	324	
TOWER WEIGHT 125X160 (Kg)	132	172	215	258	325	368	
TOWER WEIGHT 125X210 (Kg)	145	185	234	281	359	407	
Working load (T) Cf. NF P93-550	5.5	5.5	5.5	5.5	5.5	5.5	
Working load (T) Cf. NF P93-551	4.1	4.1	4.1	4.1	4.1	4.1	



* The platform present in the table above are part of the special sales configuration. See pages 30 for other possible platforms configurations.

The indicated admissible loads include a wind pressure of 20daN/m2

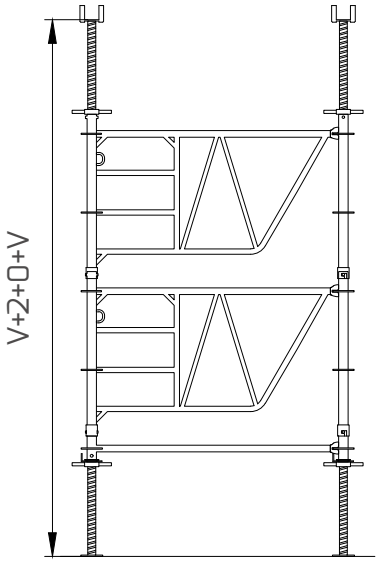
Tower stabilisation

The stabilisation of an Altralight tower allows to control the risk of tipping over during assembly and disassembly operations. A non-stabilised tower is considered to be an INSULATED TOWER.

The autostable configuration (C_a) of an insulated ALTRALIGHT tower of section 125x160 is: V+2+0+V.
Stability calculation carried out according to the recommendations of the SFECE sheet A3:

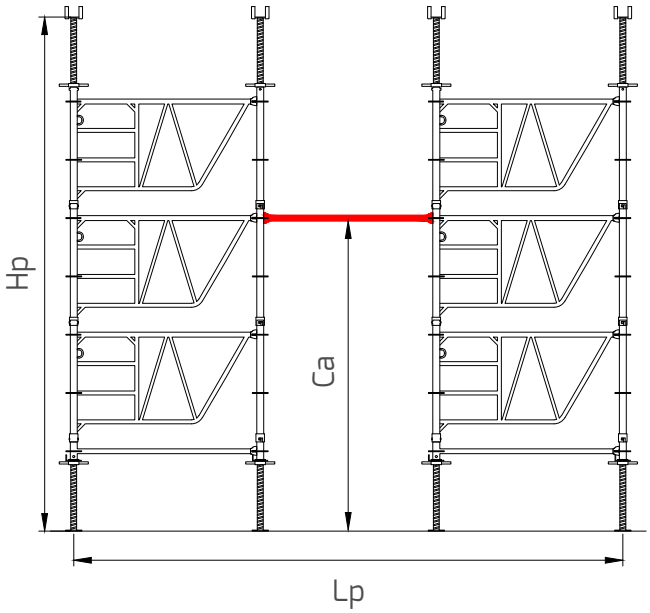
- Wind speed of 55 km/h
- Presence of a fitter in the tower
- Offset load of 35 kg

When the configuration of a tower is greater than its self-standing configuration, it must be stabilised in all directions. Stabilisation is most often achieved by linking the towers together (studs) or by anchoring them to the existing structure, with the help of moulds, tubes and collars...



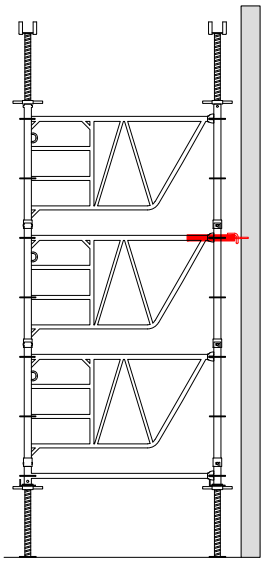
Isolated & freestanding tower

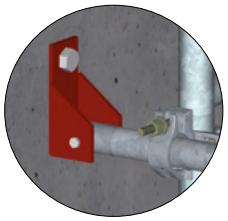
Stabilisation by stud



⚠ Check the stability of the stud

Stabilisation by anchoring



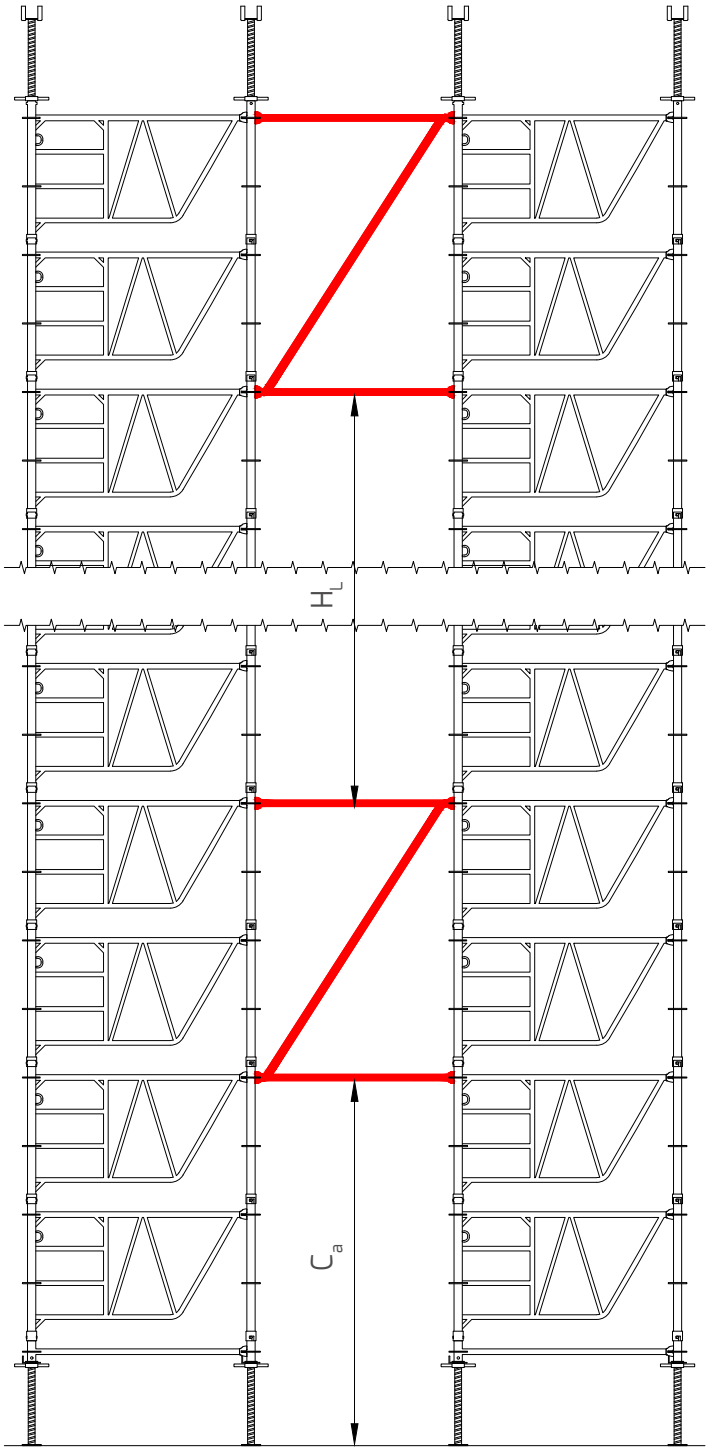


Tube Ø 48.3 x 3.2 equipped with a hinged clevis fixed to the wall by a concrete dowel.

Mooring bar + mooring piton fixed to the wall with a concrete dowel.

A wind stability study must be carried out by a competent engineering office when using towers subjected to a more severe load case.

Bracing



The bracing allows the optimisation of the load drops in the columns of the Altralight tower. When bracing a structure :

Max. tower clearance (H_L): **6 m**

- Use beams and diagonal braces or tubes and clamps
- Fixing of beams and diagonal braces to each tower upright.
- All planes of the tower shoring structure must be braced

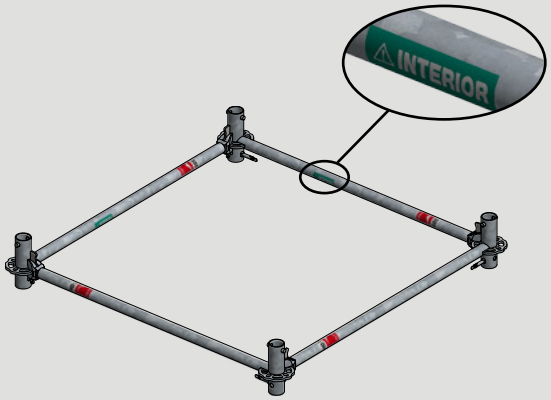
Deduct one quarter of the dead weight of elements above 6 m from the allowable load per foot of the tower

EXAMPLE

For a V+8+0+V tower with a section of 125 x 160 :

- Dead weight of the elements above 6 m: 176 daN
- Permissible load per foot: 5500 - 176/4 = 5456 daN

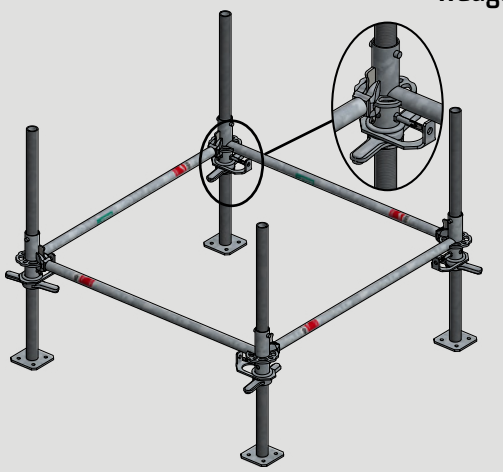
Assembly steps



ASSEMBLY INSTRUCTION STEPS

Assemble the start ledgers in a clockwise manner as indicated on the green stickers. The stickers must be on the interior.

Wedge locking



UNLOSABLE BASE JACK ASSEMBLY

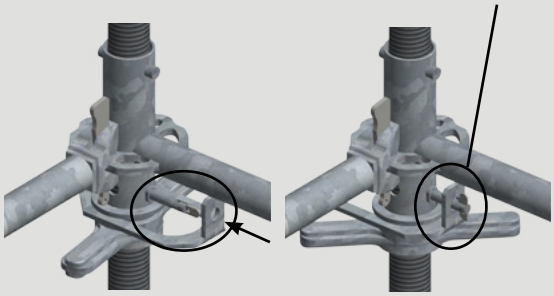
Unlosable base jack assembly

Adjust the base jacks to the correct height. Place the base onto the jacks.

Check the ground is capable of supporting the load.

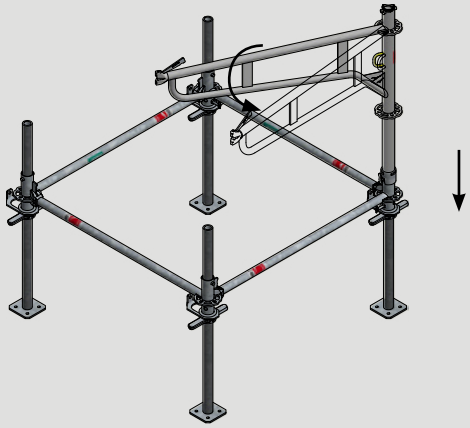
Hammer the wedges into the rosettes to block them in place.

Unlosable jack locking



Lock the unlosable jacks using the spigot locking system (spigot and screw jack plate).

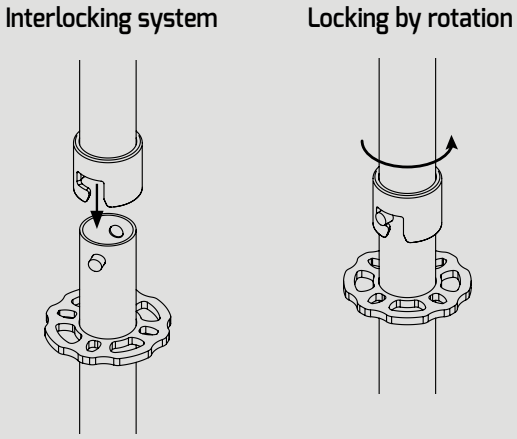
The base must be perfectly horizontal before continuing the assembly.



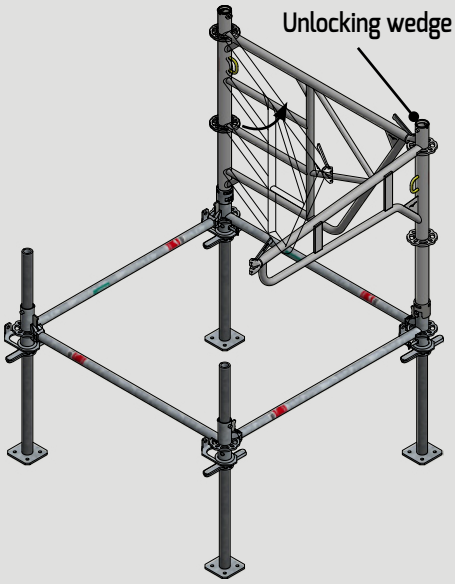
FIRST LEVEL FRAME ASSEMBLY

The first level of the tower must have one crossing frame to ease access to the inside of the tower.

Respect an angle of about 25° towards the inside of the tower when assembling the frame.



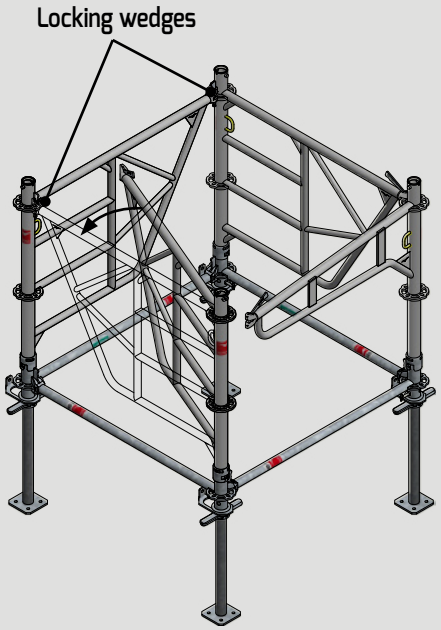
Align the spigot and socket and then turn to lock.



For the first frame of each level, turn the frame towards the outside of the tower until it blocks.

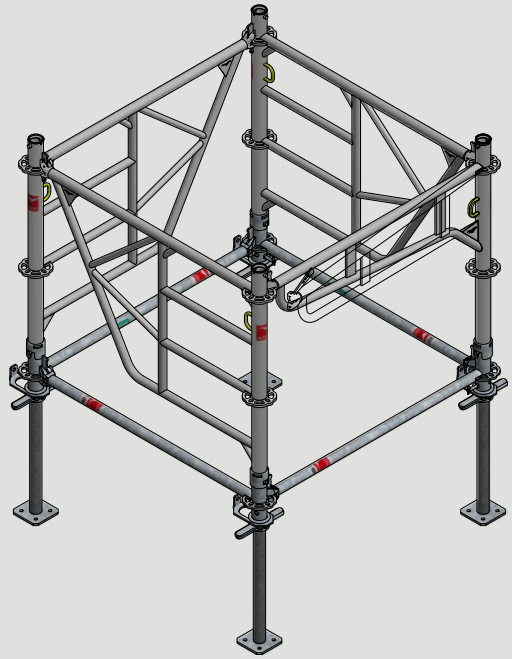
The 4 sides of the tower are then assembled in an anti-clockwise direction.

Assemble the second frame in the same way (25° towards the inside) then turn the frame to its final position (in line with the start ledger or the frame below).



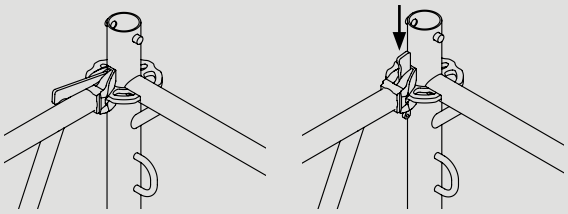
The locking wedges of the first and second frames can only be placed in the final step.

Repeat for the third and fourth frames.



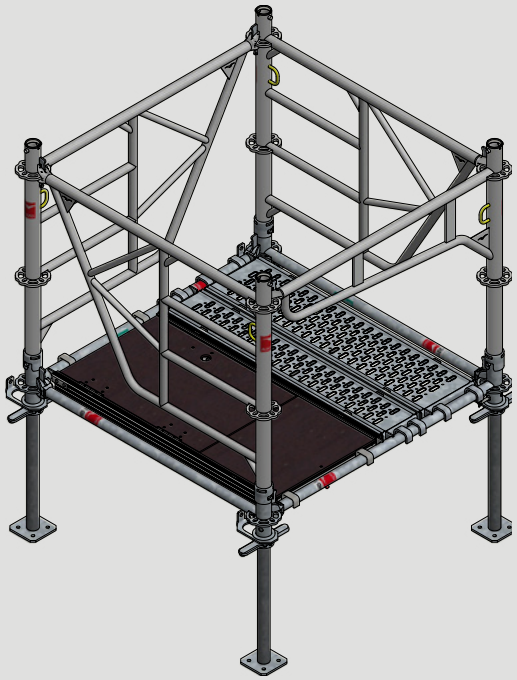
For these frames (3&4), the locking wedges can be placed immediately in the rosette of the previous frame.

After installing the last frame, insert the remaining locking wedges (on the first and then on the second frame). Hammer the wedges (four) into the rosettes to block them in place.



Unlocking wedge (1) Locking wedge (2)

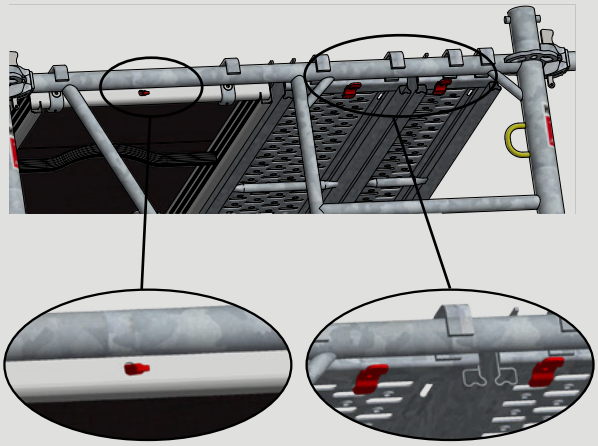
The first level of the HD 320 tower is then complete.



FIRST LEVER PLATFORM

To make the first level of platform, place the platform hooks on the start ledger.

Each level has to be composed of one aluminium trapdoor platform (60 cm) and two steel platforms (one 20 cm and one 30 cm).



LOCKING SYSTEM :

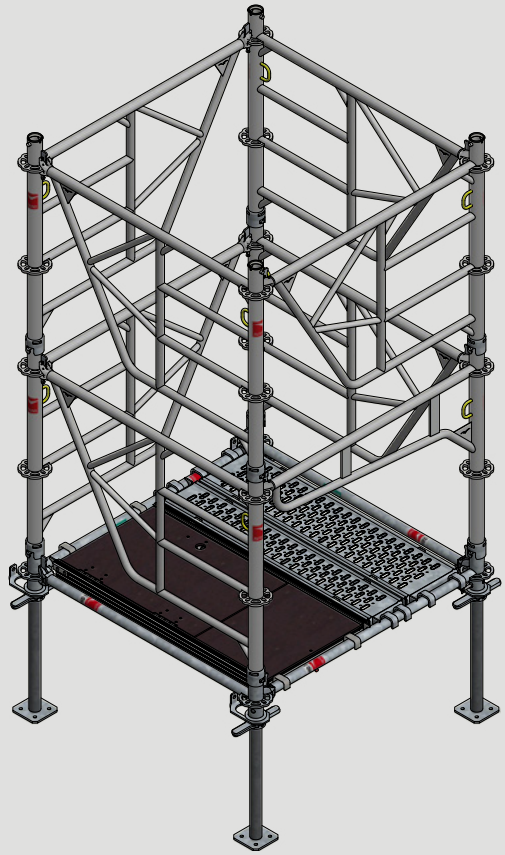
Turn the anti-lift device to secure the steel platforms.

Check the automatic security device on the aluminium platform.

The anti-lift system is mandatory to avoid any accidental platform lifting.

WARNING

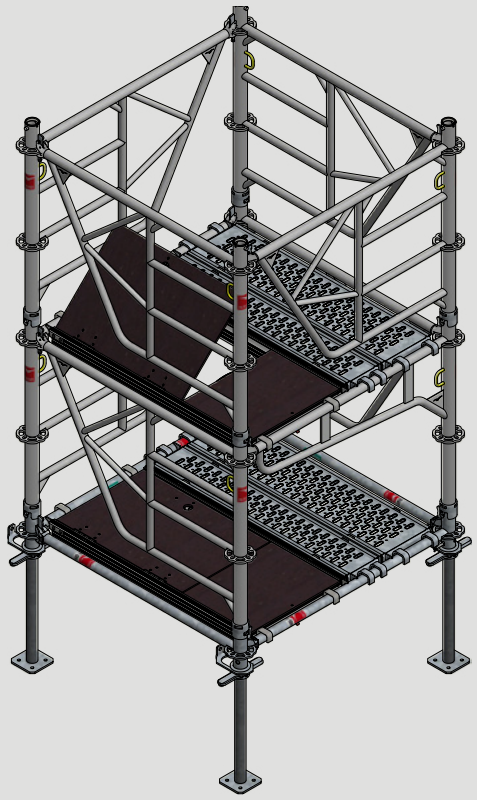
It is forbidden to jump or to throw objects on the platforms.

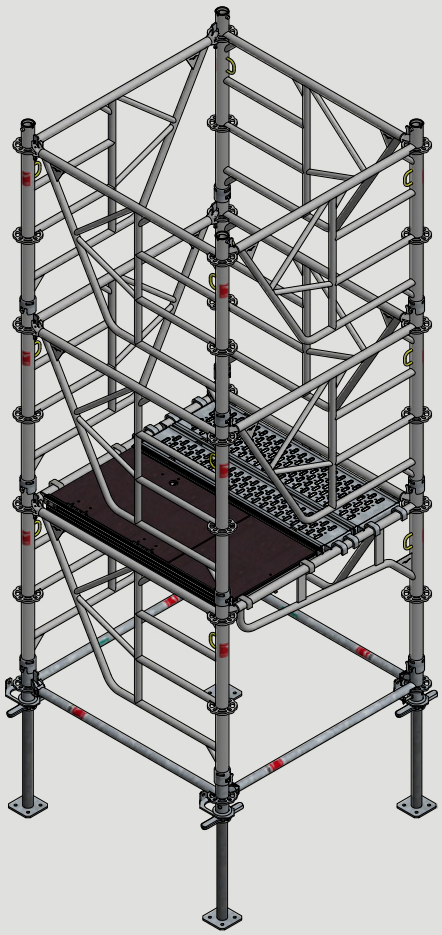


SECOND LEVER FRAME ASSEMBLY :

Standing inside the tower, the worker can receive other frames and assemble them as per the previous instructions.

Make sure all the wedges are well blocked into place.





ADDITIONAL LEVEL FRAME ASSEMBLY :

For a tower with an even number of frames, the first platform is raised by one meter.

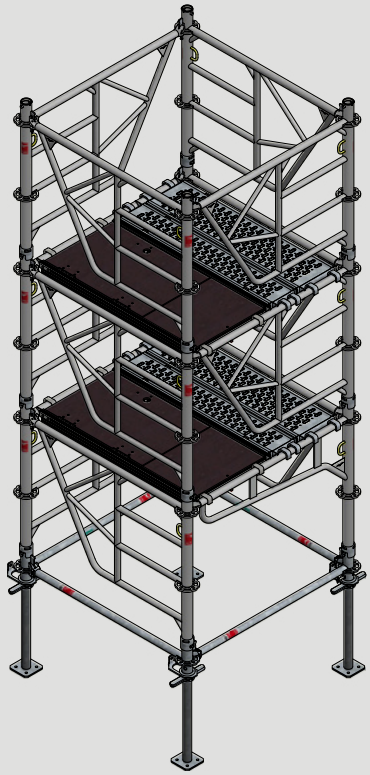
For a tower with an odd number of frames, the first platform stays on the starter base.

WARNING

Always place the aluminium trapdoor platform under a ladder.

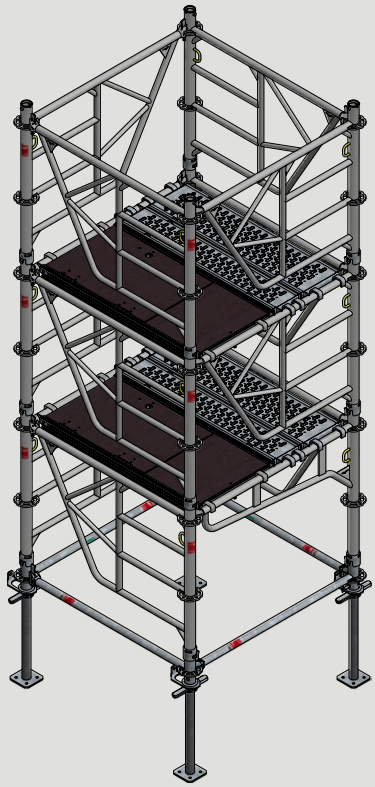
Use the frame ladder to access the upper level.

From the platform situated on the first level frame, assembly can continue safely as previously described.

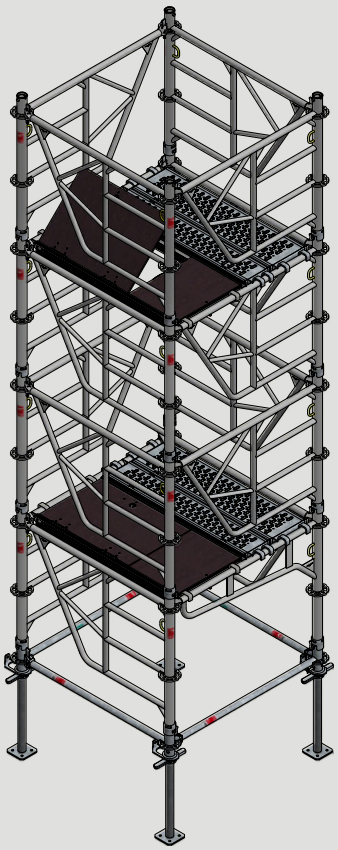


First, install the steel platforms one meter above the level you are standing on.

Climb up onto the steel platforms, then place the aluminium trapdoor platform to complete the level.



When the platform is complete, assembly of the next frame level can start.

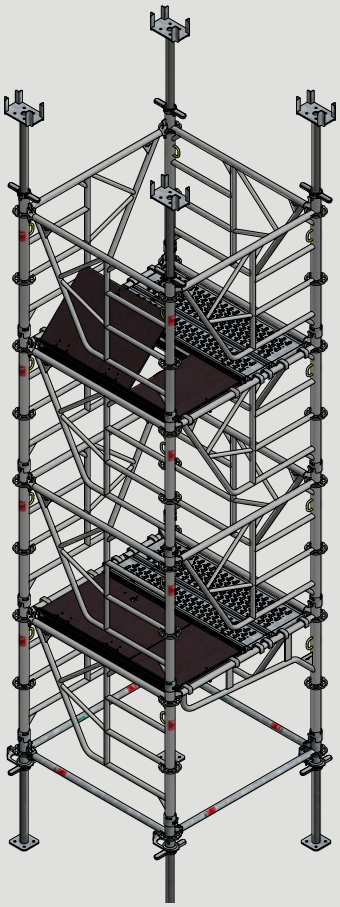


Raise the platforms by one level so that the platforms are 2 meters apart.

Use the frame ladder to climb up onto the platforms.

The top level has a 1m high guard-rail.

Continue in this manner until you reach the desired height.



ASSEMBLY OF THE TOWER'S TOP :

Adjust the forkhead jacks to the height required and insert them into the frame.

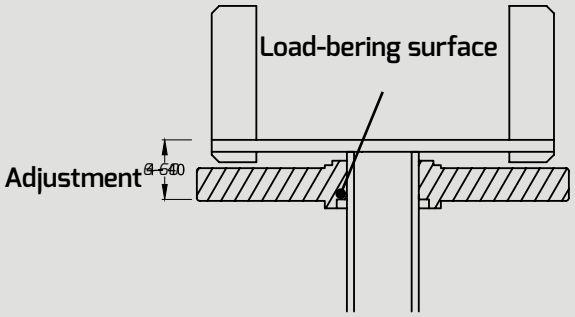
Optional :

Base boards are available upon request. The 15cm high wooden boards fit into the holes on the platform.

Fork-head adjustment :

Distance between the fork-head plate and the load-bearing surface

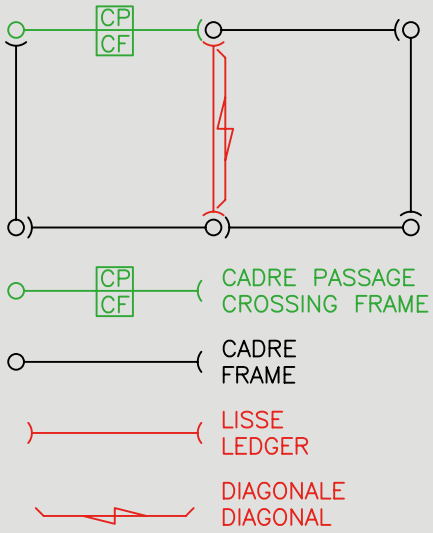
Remember to take into account the minimum height for dismantling.

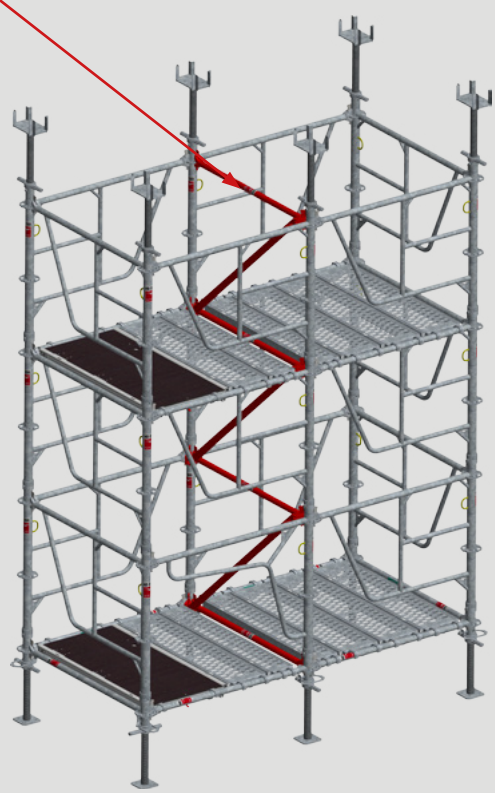


Six-foot tower

Requirements :

- Ensure correct ground load distribution.
- The base must be perfectly horizontal before continuing the assembly.
- Assemble the first frame level from inside the tower.
- Place the aluminium trapdoor platform under a ladder.
- Ensure the stability of the towers.
- Center the load on the forks.





WARNING

The central plane must be braced by ledgers and diagonals at each level

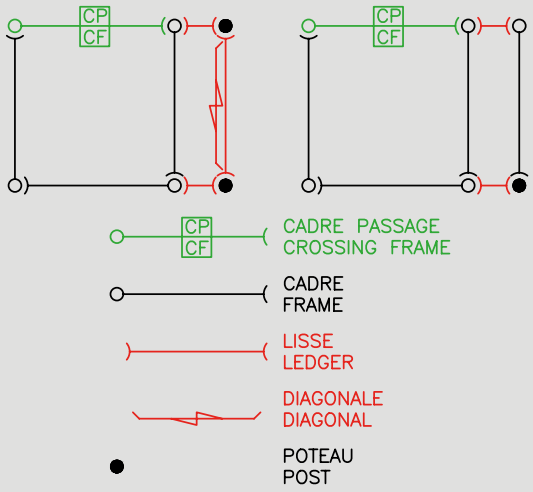
Tower with extension

Two different ways to assemble an extension :

With frames and posts.

With posts, ledgers and diagonals.

Extension sizes available from Metrix range : 30, 40, 50 and 70 cm.

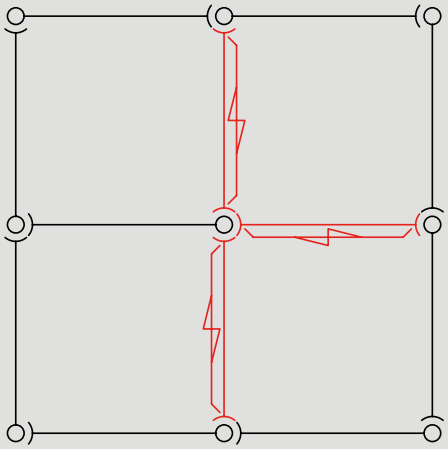


Tower with extension

The HD 320 tower can be erected in several ways with a perfect compatibility with Metrix scaffolding range.

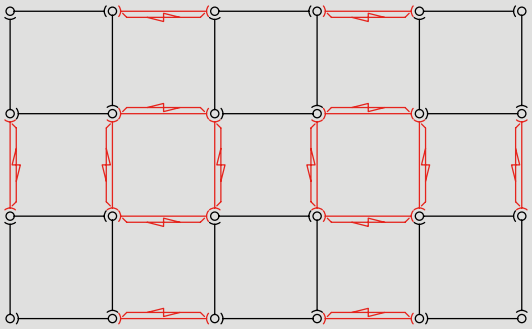
Each 1m higt post must be braced in both directions.

The central planes must be braced by ledgers and diagonals at each level.

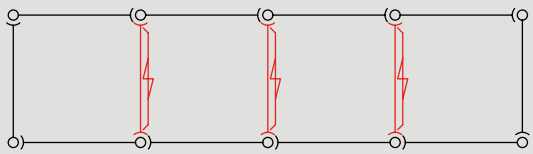


9 foot towers

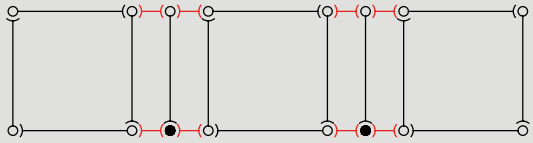
Linked towers



Continuous vertical framework



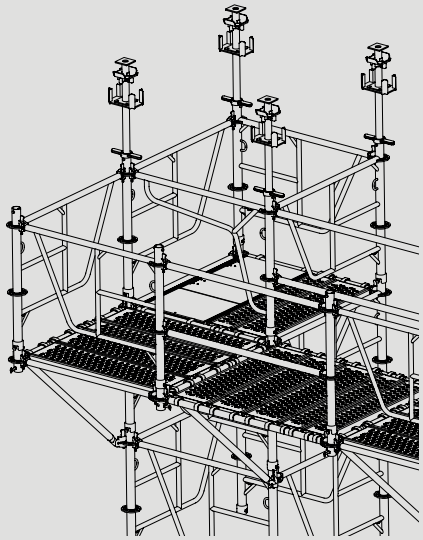
Vertical framework with extensions



Cantilever

Cantilever can be created with the start post 021.

Towers must be properly braced or anchored in this case to ensure the stability.

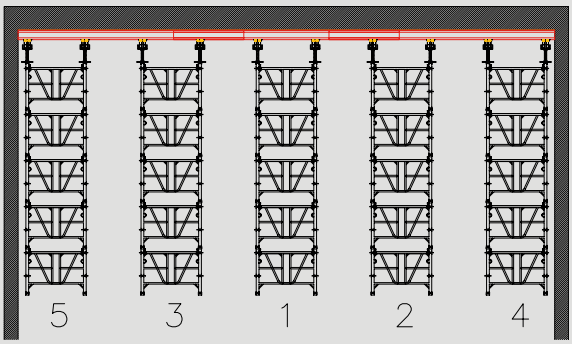


TOWER STRIKING

To avoid overloading while striking, an execution procedure must be defined.

This procedure must be adapted to the forecast deflection.

Example



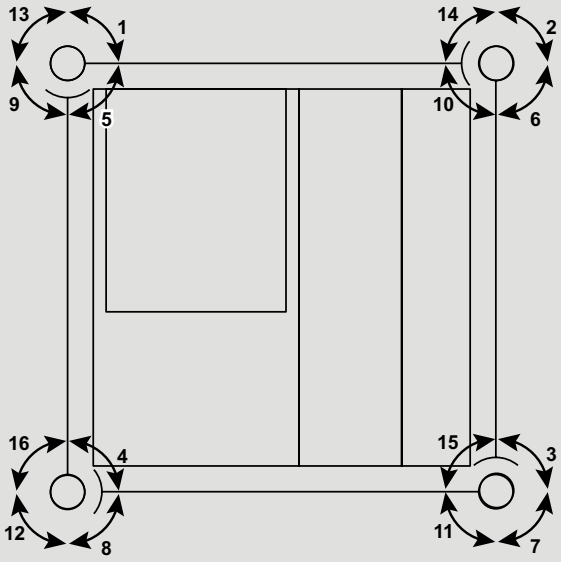
Striking sequence

As well, on each tower, the load must be released following the procedure below :

The jacks must be turned on each corner by moving them 90° anticlockwise for head jacks and 90° clockwise for base jacks.

Turning each jack in sequence until they are released, maintains equal load distribution (see, «striking sequence for each tower».

Striking sequence for each tower



LIFTING

Caution :

Before lifting operations check the base jacks are locked.

For the lifting, hook the crane slings onto the integrated lifting rings of the 4 top frames.

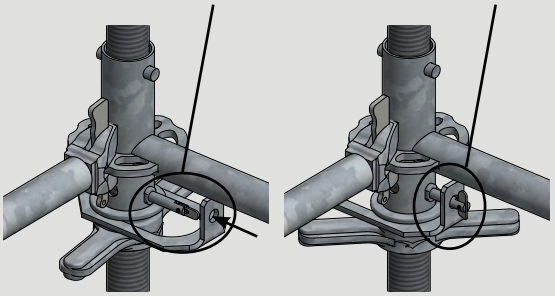
Ensure that the hooks of the 4 slings are fitted with safety latches.

This operation is secured by the automatic locking of the frames of the tower.

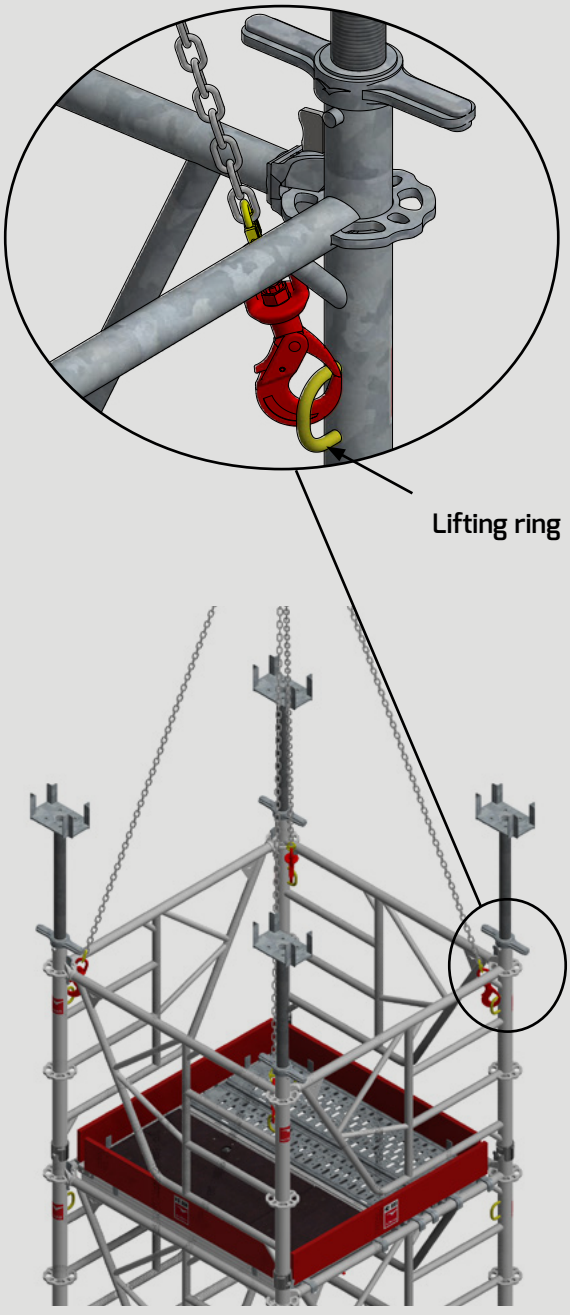
WARNING

The platform anti-lift system is mandatory to avoid any accidental platform lifting.

Unlosable jack locking



Max load for lifting : 860 kg

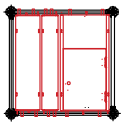


Platforms configurations

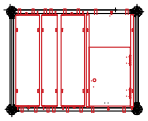
Special hire configuration (recommandation)

First alternative

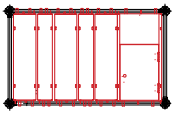
125x125:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**1** steel platform 125x**30**. **(Ref: 135-5123)**
-**1** steel platform 125x**20**. **(Ref: 135-5122)**



125x160:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**2** steel platforms 125x**30**. **(Ref: 135-5123)**
-**1** steel platform 125x**20**. **(Ref: 135-5122)**

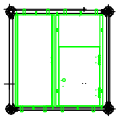


125x210:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**3** steel platforms 125x**30**. **(Ref: 135-5123)**
-**2** steel platforms 125x**20**. **(Ref: 135-5122)**

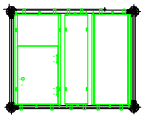


Second alternative

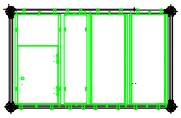
125x125:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**1** aluminium platform 125x**50** without trapdoor. **(Ref: 135-7127)**.



125x160:
-**1** aluminium trapdoor 125x**60**. **(Ref: 135-7126)**
-**1** aluminium platform 125x**50** without trapdoor. **(Ref: 135-7127)**
-**1** steel platform 125x**30**. **(Ref: 135-5123)**

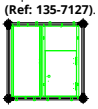


125x210:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**2** aluminium platforms 125x**50** without trapdoor. **(Ref: 135-7127)**
-**1** steel platform 125x**30**. **(Ref: 135-5123)**

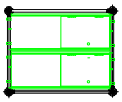


Special sale configuration

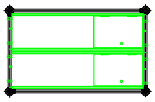
125x125:
-**1** aluminium trapdoor platform 125x**60**. **(Ref: 135-7126)**
-**1** aluminium platform 125x**50** without trapdoor. **(Ref: 135-7127)**.



125x160:
-**2** aluminium trapdoor platforms 160x**57**. **(Ref: 135-7166)**

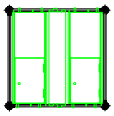


125x210:
-**2** aluminium platforms 210x**57** without trapdoor. **(Ref: 135-7216)**

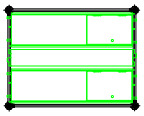


Configurations for other sections possible with Staflex platforms

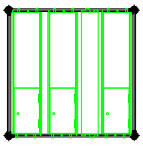
160x160:
-2 plateaux alu 160x**57** à Trappe. **(Ref: 135-7166)**
-1 plateau acier 160x**28.** **(Ref: 131-0816)**



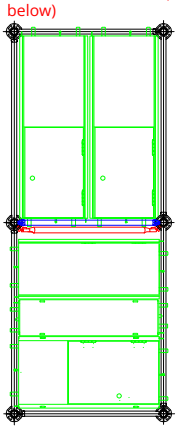
160x210:
-2 plateaux alu 160x**57** à Trappe. **(Ref: 135-7216)**
-1 plateau acier 210x**28.** **(Ref: 131-0821)**



210x210:
-3 plateaux alu 210x**50** à Trappe. **(Ref: 131-3921)**
-1 plateau acier 210x**28.** **(Ref: 131-0821)**



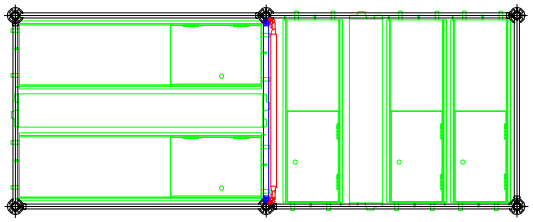
In the case of a 6-foot tower, provide at least one mesh with the platforms in the same direction as for the rental configuration in order to avoid vertical diagonals between the meshes (see below)



Moise

Vertical diagonal

For this section in the case of a 6-foot tower, also provide the second mesh with the platforms parallel to the vertical diagonal (see below).



Second stitch 160x210:
-3 aluminium trapdoor -platforms160x**50**. **(Ref: 131-3916)**
-1 steel platform 160x**28.** **(Ref: 131-0816)**

ALTRAD
INTERIOR

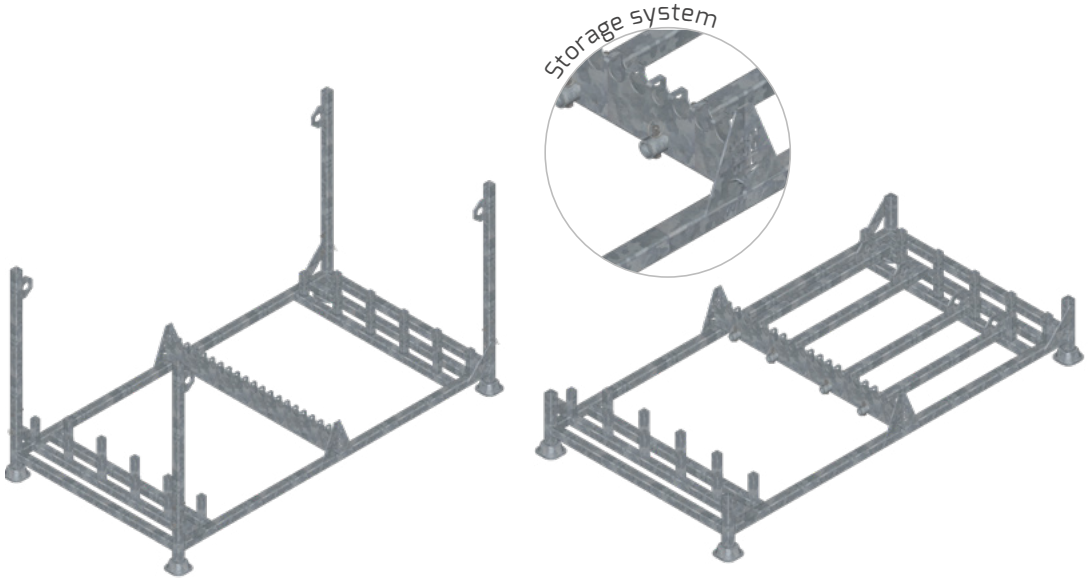
STORAGE & TRANSPORT

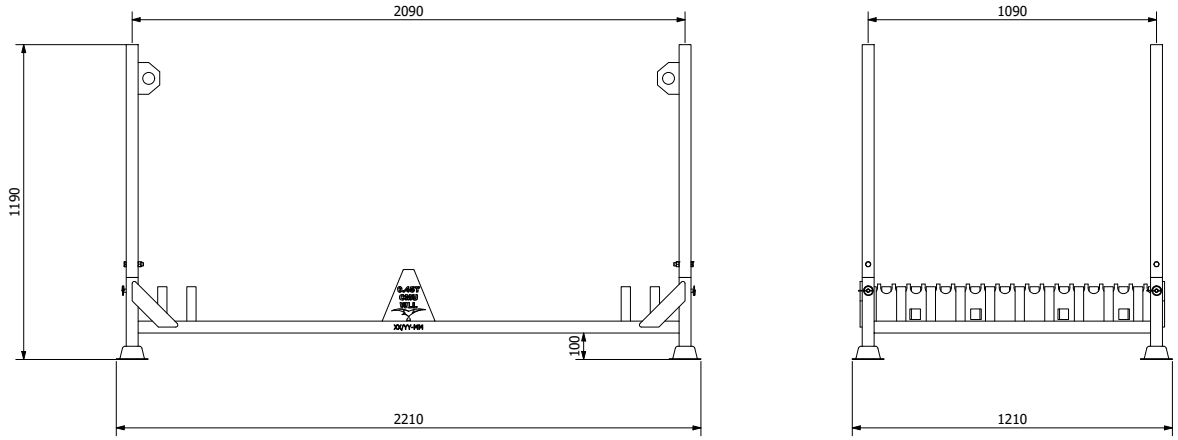
Storage

The specific conditions of the transport and storage procedures for each component must be respected. For example, name the appropriate lifting system to be used.

***Ref. : 135-9002* - Frame basket 125/160 retractable**
***Ref. : 135-9003* - Frame basket 125/160 standard**
***Réf. : 135-9007* - Frame basket 210 standard**

- Galvanized steel
- Top lift
- **GVW per basket**: 0.45T
- **Overall dimensions**: base 209 x 109 cm - height 119 cm (ref : 135-9002 and 135-9003)
  base 259 x 109 cm - height 119 cm (ref : 135-9007)
- **Storage capacity** :
  20 frames 1m high or 40 frames 0.5m high -
  Ref : 135-1710 - 135-1810 - 135-1910 - 135-1711 - 135-1811 - 135-1911





***Ref. : 138-8020* - multi function**

- Planchons and rails basket
- Galvanized steel
- Top lift
- **GVW per basket**: 1.5T
- **Overall dimensions**: base 109 x 105 cm - height 120 cm
- **Storage capacity**:
  60 steel platform 125x020 HD320 - Ref : 135-5122
  or 39 steel platform 125x030 HD320 - Ref : 135-5123
  or 14 aluminium trapdoor platform 125x060 - Ref 135-7126
  or 20 aluminium trapdoor platform 125x050 - Ref 135-7127
  or 100 strat ledger 125/160/210 - Ref : 135-0125 - 135-0160 - 135-0210
  or 200 ledger (1.19 et 1.54) - Ref : 135-3125 - 135-3160

Consult the technical documentation for storage baskets

Transport

A minimum spacing of 0.30 m between baskets is recommended to facilitate access to lifting rings during crane handling operations.

All equipment must be securely strapped down to prevent any risk of spillage during transport.

Lifting basket

We recommend stacking storage baskets in 2-high stacks for lifting purposes.
To facilitate handling, secure the loading area.

Storage baskets must be lifted using 4 slings of equal length.

OTHER USES

Aluminium beam H20 R-MAX

Safety with a maximum support reaction capacity in service of 8 tons

The first aluminium beam designed to transfer heavy loads in the field of heavy shoring, it can be used at the head of a tower with a support reaction generated per foot of up to 8T. This beam is particularly suitable for shoring in the field of Civil Engineering, as a primary beam in the framework of thick deck formwork. Due to its low weight per ml, this beam is still easy to handle, yet has high mechanical performance, especially in terms of its capacity for support reaction and permissible shear forces.

Conforms to the standard NF P 93-322.

Features

Dimension: 200x80 mm - Girder equipped with galvanised metal plugs at the ends serving as reinforcements and fixed by means of an Alveovis system guaranteeing the good holding of the plugs in intensive use. A rail is present on the 2 flanges of the beam in order to be able to use «Clamps» fixed by hammer head bolts.
The aluminium alloy used has a yield strength characteristic equivalent to that of steel.

Custom length possible: 2.4 m beam weight 17.7 Kg.
This beam is a primary beam and it will be used for short spans between 1 m and 1.20 m, in order to optimise the load descent in phase with its capacity R (Support Reaction) of 8T in service.

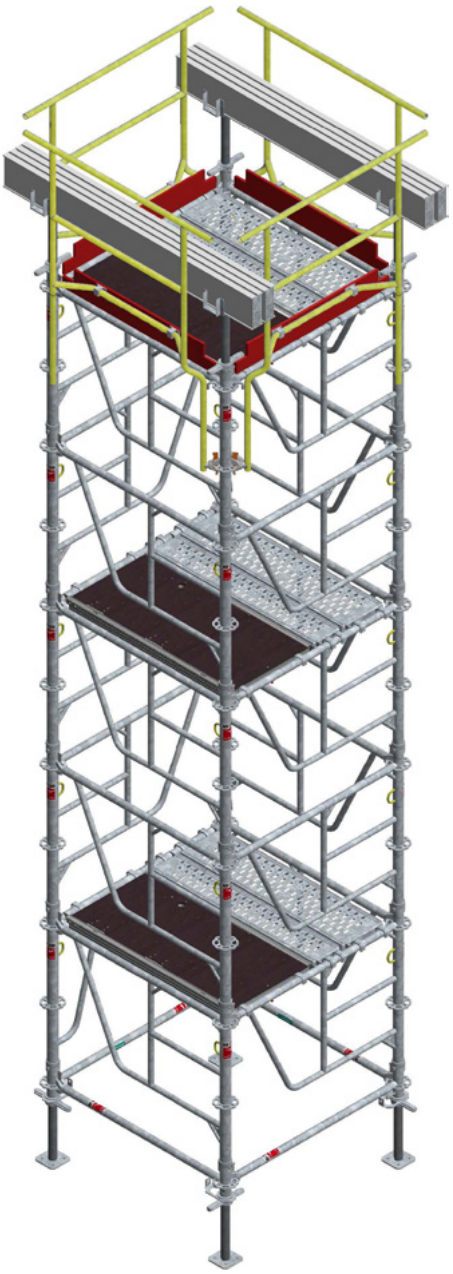
Beam feature :

Weight	Mi	7.37 kg/m
Inertia moment	Ix	1275 cm^4
Inertia moment	Iy	176 cm^4
Inertia modulus	Wx	127,5 cm^3
Inertia modulus	Wy	44 cm^3
Yield strenght	fy	200 Mpa
Young modulus	E	69500 Mpa

Permissible limits of the beam :

Bending moment	M u	1956 m.daN
Shear force	F tu	8000 daN
Allowable central reaction	R tu	8000 daN

Keying of beams



For beam keying, it is necessary to carry out a turn-head decking allowing the safe positioning and use of beams when keying a node of pre-fabricated beams.

Passage under beams

Possibility to position the guardrails every 50 cm: partial or complete retraction in order to avoid the fallout of beams when the towers are shifted.

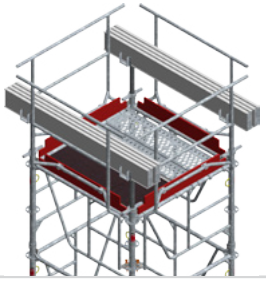
Installation of the 4 guardrails

- **Mounting the guardrail from the outside:** possibility to mount the guardrail at a maximum tower height of 2 frame levels.
- **Assembly of the guardrail from the inside:** possibility for the operator to implement the guardrail from the inside of the tower following the MDS assembly and disassembly process.

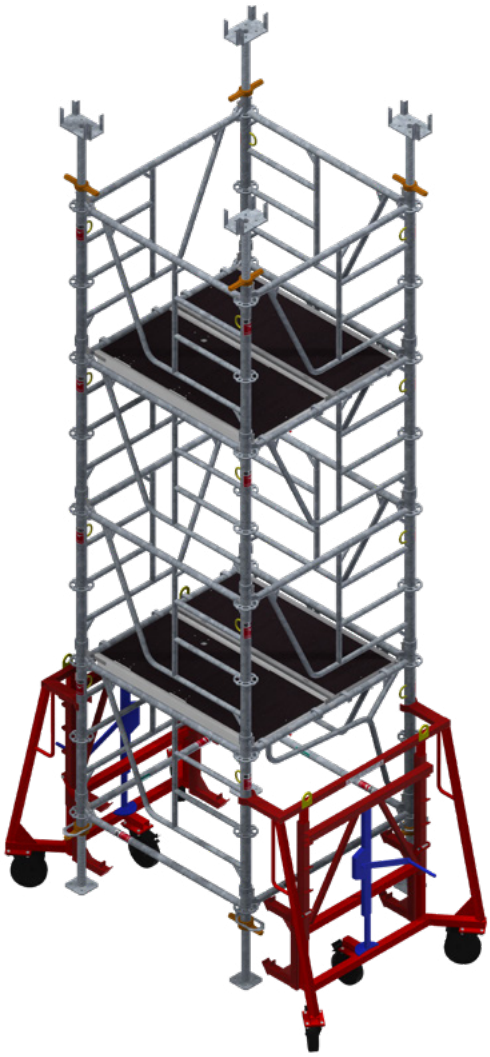
Safe assembly & disassembly

Installation of the guardrails according to the assemblydisassembly safety process. Possibility of mounting the plates after positioning the guardrail while respecting the constraints of positioning the bends. Its plinths have the ability to pivot in order to return to a suitable position, thus ensuring their proper implementation (no possible space between the plinth and the decking).

- simple
- efficient
- functional
- safe



Jack shifting trolley & wheel jack

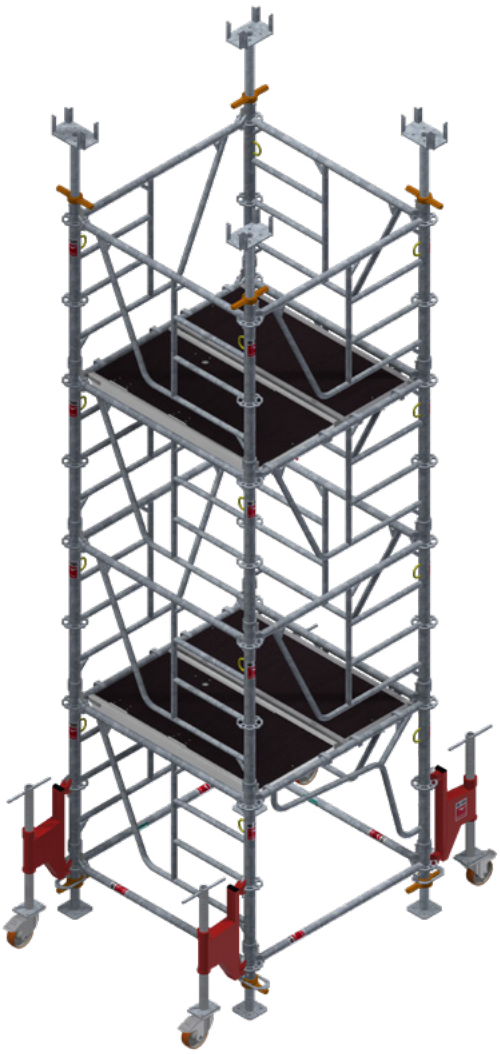


Ref : 135-1405A

Jack shifting trolley

... for a better handling.

Possibility of tower transfer, limiting the tower height to 4 frame levels for an isolated tower. The transfer of a group of towers higher than 4 levels is possible subject to consultation with our design offices.



Ref : 135-8900A

Wheel jack

An alternative way of slipping

Possibility to transfer a tour or a group of tours. Each foot has an independent adjuster to allow driving on two different floor levels.

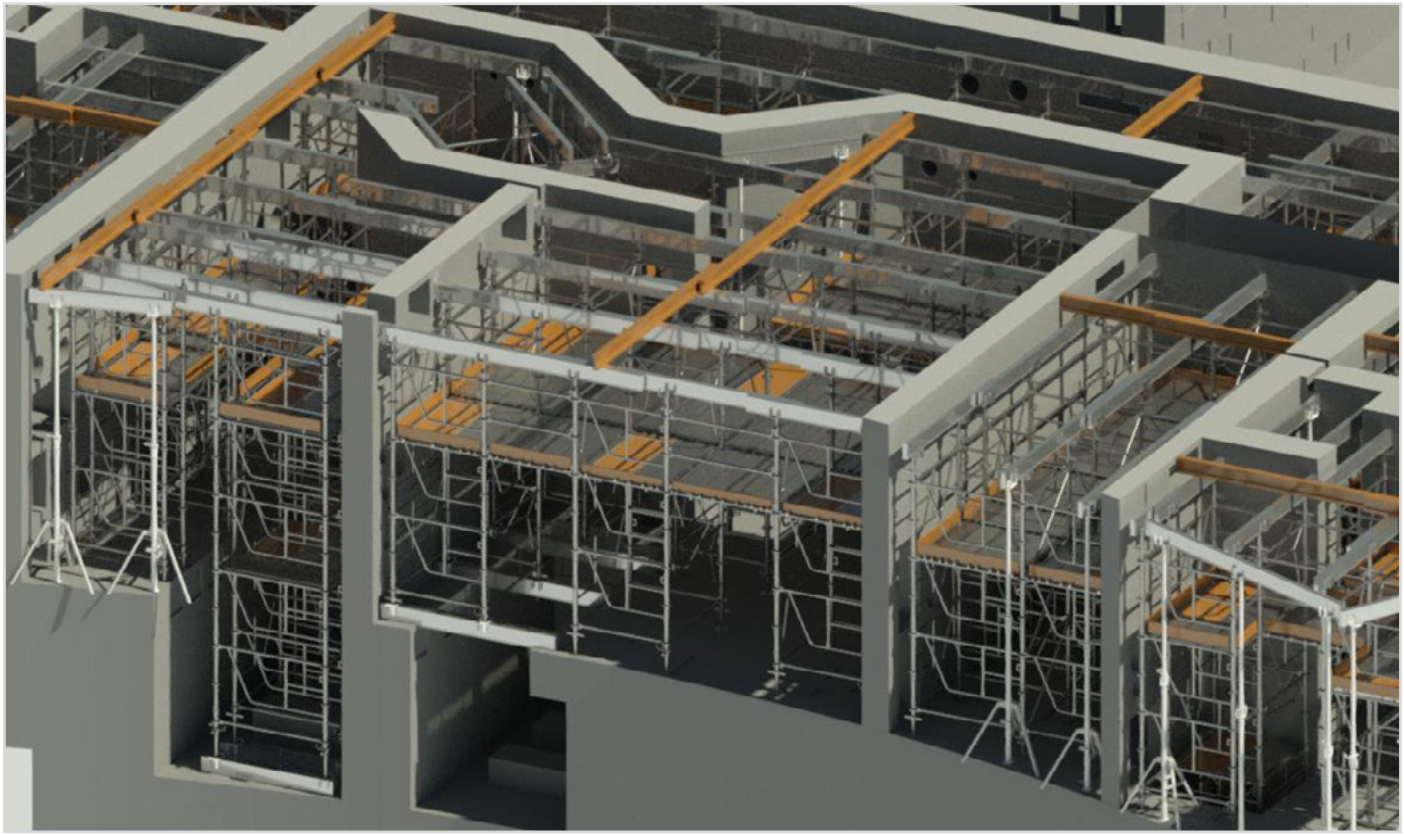
General decking at the head of the tower

The HD 320 tower is compatible with the PLETTAC METRIX multidirectional scaffolding system. In order to create the decking between the towers, simply use the horizontal beams and decks from this range.

It is also possible to implement a bracing system, using the beams and diagonals from this range.

The mesh thus created is compatible with the ALTRADAL floor formwork system.

Principle of PLETTAC METRIX



+40 countries
where we have already worked

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