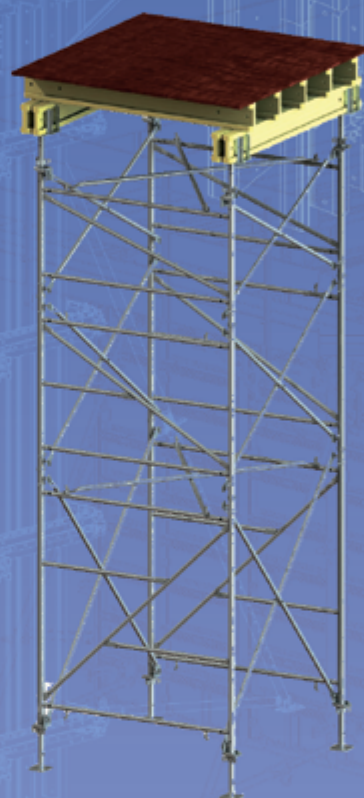


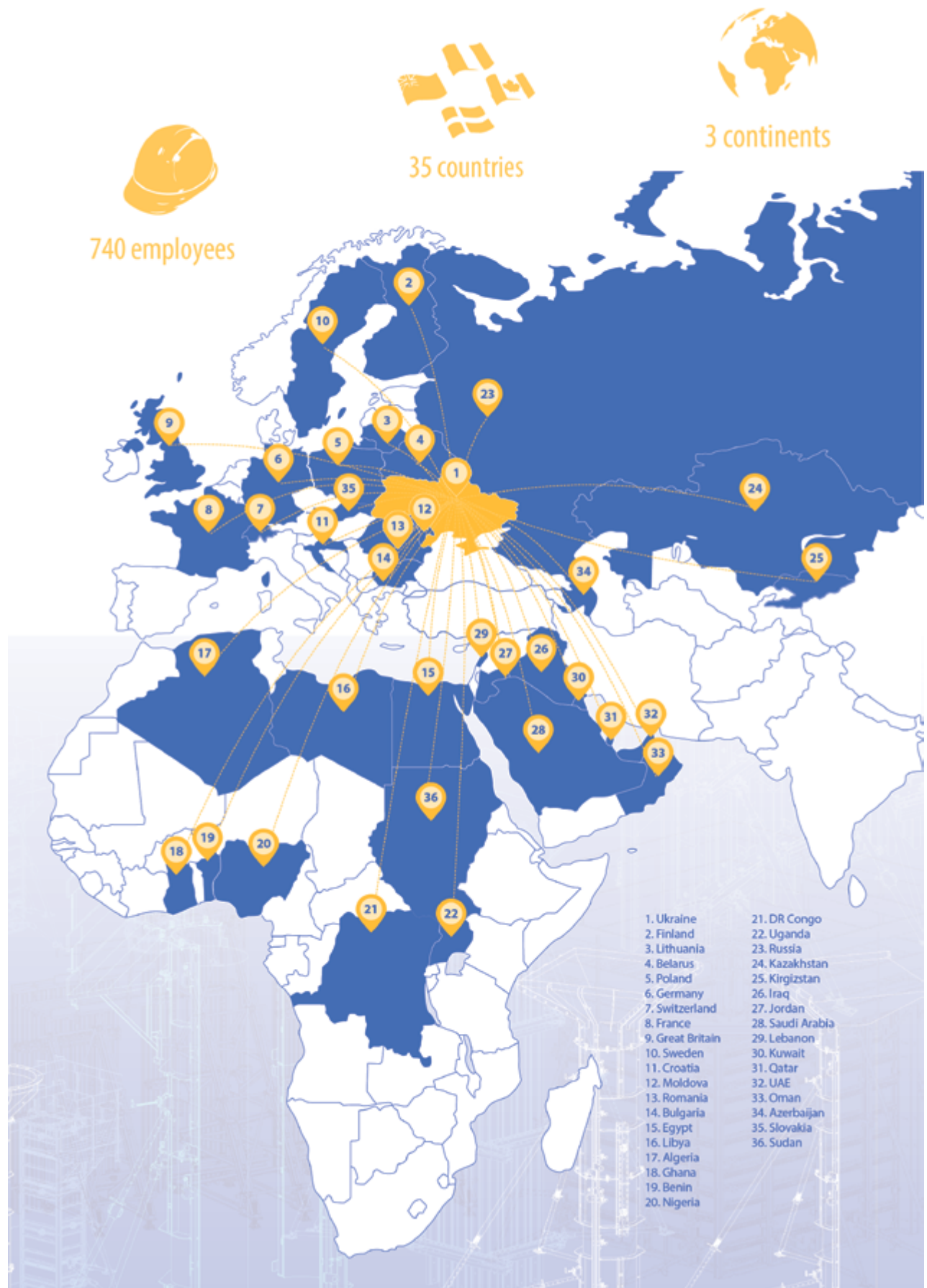
Load-bearing scaffolding **TOP TOWER 40**



VARIANT

USER MANUAL





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GENERAL INSTRUCTIONS

This user manual (method statement) is aimed at everyone who will be working with the «VARIANT» product or system it describes. It contains information on how to set up this system, and proper use it.

All persons working with the product described herein must be familiar with the contents of this manual and with all the safety instructions it contains.

The customer is to ensure that the information materials provided by «VARIANT» are available to all users, and that they have been made aware of them and have easy access to them at the usage location.

Persons who are incapable of reading and understanding this booklet, or who can do so only with difficulty, must be instructed and trained by the customer.

Always observe all construction safety regulations and other safety rules applying to the application and using of our products in the country and/or region in which you are operating.

In the relevant technical documentation and formwork usage plans, «VARIANT» shows the workplace safety precautions that are necessary in order to use the «VARIANT» products safely in the usage situations shown. In all cases, users are obliged to ensure compliance with national laws, Standards and rules throughout the entire project and to take appropriate additional or alternative workplace safety precautions where necessary.

The customer is responsible for drawing up, documenting, implementing and continually updating a hazard assessment on every construction site. This document serves as the basis for the site-specific hazard assessment, and for the instructions given to users on how to prepare and use the system. It does not substitute for these, however.

This manual can also be used as a generic method statement or incorporated with a site-specific method statement.

The equipment/system must be inspected by the customer before use, to ensure that it is in suitable condition. Steps must be taken to rule out the use of any components that are damaged, deformed, or weakened due to wear, corrosion or rot.

The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose under the direction and supervision of suitably skilled persons with the authority to issue instructions. These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.

The equipment/system must be assembled and erected in accordance with the applicable laws, Standards and rules by suitably skilled personnel of the customer's, having regard to any and all required safety inspections.

Many of the illustrations in this user manual show the situation during formwork assembly and are therefore not always complete from the safety point of view.

Combining our formwork systems with those of other manufacturers could be, but needs to be checked by customer compatibility «VARIANT» product/system with other independently under its responsibility.

It is not permitted to modify «VARIANT» products because of a safety risk.

Only original «VARIANT» components may be used as spare parts. Repairs may only be carried out by the manufacturer or authorized facilities.

We reserve the right to make alterations in the interests of technical progress.

WARNING NOTES

«VARIANT» products and systems must be set up in such a way that all loads acting upon them are safely transferred.

Do not exceed the permitted fresh-concrete pressures. Excessively high pouring rates lead to formwork overload, cause greater deflection and risk causing breakage.

The stability of all components and units must be ensured during all phases of the construction work.

All connections must be checked regularly to ensure that they still fit properly and are functioning correctly. It is very important to check all screw-type connections and wedge-clamped joints whenever the construction operations require (particularly after exceptional events such as storms), and to tighten them if necessary.

Remove any loose parts or fix them in place so that they cannot be dislodged or fall free.

It is strictly forbidden to weld «VARIANT» products – in particular anchoring/tying components, suspension components, connector components and castings etc. – or otherwise subject them to heating. Welding causes serious change in the microstructure of the materials from which these components are made. This leads to a dramatic drop in the failure load, representing a very great risk to safety. The only articles which are allowed to be welded are those for which the «VARIANT» literature expressly points out that welding is permitted.

If a person or object falls against, or into, the side-guard component and/or any of its accessories, the component affected may only continue in use after it has been inspected and passed by an expert.

Provide safe workplaces for those using the formwork (e.g. for when it is being erected/dismantled, modified or repositioned etc.).

It must be possible to get to and from these workplaces via safe access routes.

Fire-sources are not permitted anywhere near the formwork. Heating appliances are only allowed if properly and expertly used, and set up a safe distance away from the formwork.

The work must take account of the weather conditions (e.g. risk of slippage). In extreme weather, steps must be taken in good time to safeguard the equipment, and the immediate vicinity of the equipment, and to protect employees.

Do not strike the formwork until the concrete has reached sufficient strength and the person in charge has given the order for the formwork to be struck.

When striking the formwork, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges, special pry-bars or system features such as «VARIANT» stripping corners.

When striking the formwork, do not endanger the stability of any part of the structure, or of any scaffolding, platforms or formwork that is still in place.

Observe all regulations applying to the handling of formwork and scaffolding.



SYSTEM OVERVIEW

The system of load-bearing scaffolding TopTower 40 is based on robust frames made of galvanized or powder-coated steel, with maximum load-bearing capacity 40 kN per leg. The TopTower 40 has broad spectrum of applications in bridge-building, high-rise and industrial construction fields. The system supports different kinds of slabs cast in place (thickness, heights inclinations etc.), also the TopTower 40 is used for shoring of precast elements. TT40 can be adjusted to different layouts and loads owing to variable inter-frame spacing. Assembly is easy, logical and fast, can be done by two workers. Individual adjustment of upper and lower supports is possible.

Load-bearing capacity

- Load-bearing capacity up to 40 kN per leg:
- The inter-frame spacing can be varied in order to provide necessary load-bearing capacity.

System adaptability

- Excellent adaptation to different layouts, made possible by variable inter-frame spacing.
- Upper and lower supports with 50 cm extension range each, for easier height adjustment.
- The system can be precisely adjusted to any length, width and height.

Cost-effective

- Rapid pace of work and cutting of assembly costs.
- Fewer parts speed up assembly.
- High number of use cycles means lower follow-up expenses.
- Reduction of expenses by means of system adaptability.
- Galvanized or powder-coated frames, for long service life.

Easy handling and planning

- Small number of different parts is used.
- For assembly no tools required.
- Any requirements for architectural concrete slab design can be met.
- Can cover a wide area of practical applications.

Safe use

- Can be pre-assembled horizontally and lifted safely into the vertical position, due to inter-frame connections.
- Dependable stability.



SYSTEM IN DETAIL



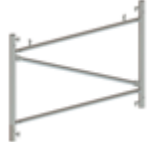
The TopTower 40 is a system with small number of components – simple for understanding and easy to use.

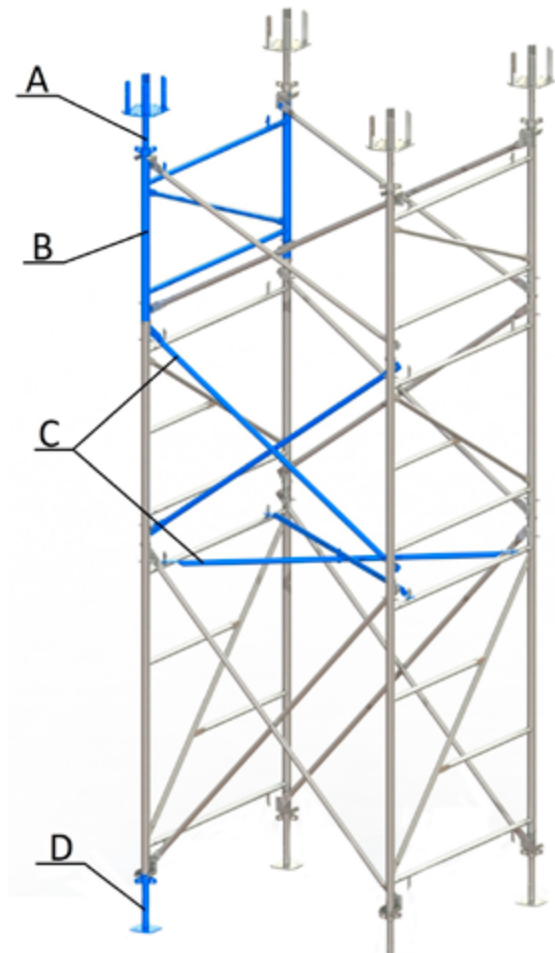
(A) Upper support TT40

Upper height-adjustment spindle, which is used for structure support and redistribution of the loads on rigid scaffolding frames, provides 50 cm of adjustment length (up to 30 cm without bracing, from 30 up to 50 cm must be braced using frame tubes).

(B) Scaffold frame TT40

Rigid, galvanized or powder coated frames, in three different heights, are the basis of the economical load-bearing tower, designed for widely varied areas of use.

Basic frame 1.80 m	Basic frame 1.20 m	Basic frame 0.90 m
		



(C) Cross tie

Cross ties connect scaffolding frames horizontally and vertically, providing a stiff structure of guaranteed spatial rigidity. Changing inter-frame space by installation of cross ties with different sizes, makes it possible to adjust the system to various layouts.

There are 3 standard tower dimensions, created by installation of cross ties horizontally and vertically. Horizontal installation depends only on inter-frame spacing, whereas vertical, depends on inter-frame spacing and height of the frame used.

Cross ties used for different tower creation Tower dimensions

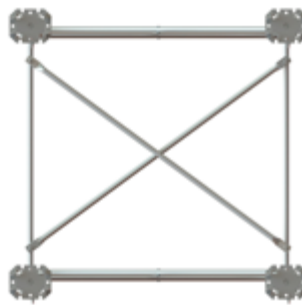
Type of installation	1.5x1.0 m	1.5x1.5 m	1.5x2.0 m
Horizontal	1.2x1.0	1.2x1.5	1.2x2.0
Vertical			
frame 0.9x1.5	0.9x1.0	0.9x1.5	0.9x2.0
frame 1.2x1.5	1.2x1.0	1.2x1.5	1.2x2.0
frame 1.8x1.5	1.8x1.0	1.8x1.5	1.8x2.0



Tower 1.5x1.0 m

Top view

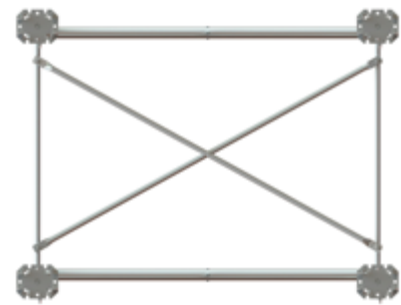
Horizontal cross tie 1.2x1.0



Tower 1.5x1.5 m

op view

Horizontal cross tie 1.2x1.5



Tower 1.5x2.0 m

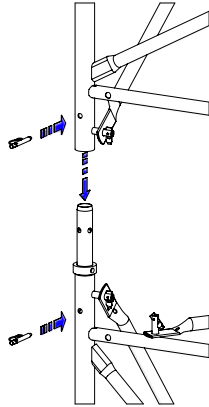
Top view

Horizontal cross tie 1.2x2.0

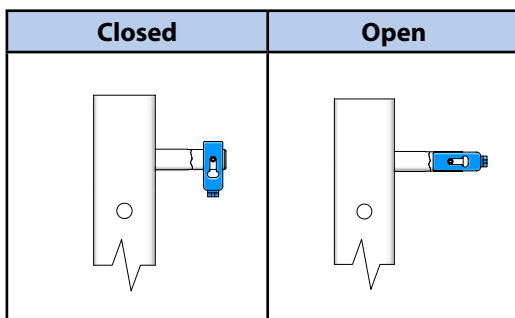
(D) Lower support TT40

Lower height-adjustment spindle, which is used for structure support and redistribution of the loads on rigid scaffolding frames, provides 50 cm of adjustment length (up to 30 cm without bracing, from 30 up to 50 cm shall be braced using frame tubes).

Interconnection

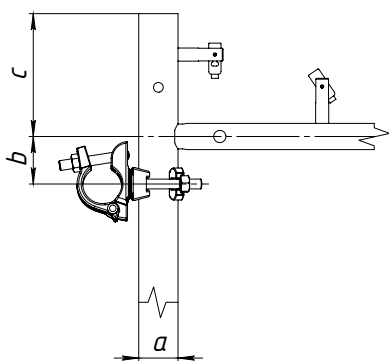


For reliable use and safe repositioning of assembled (preassembled) units by a crane, the Top Tower 40 has interconnection system. Consisting of **insert TT40**, which is installed between two frames and fixed by **retainers TT40** to each frame.



Integrated in every frame tried-and-tested interconnection system secure the diagonal crosses and has two defined positions (closed – open)

Connecting the couplers

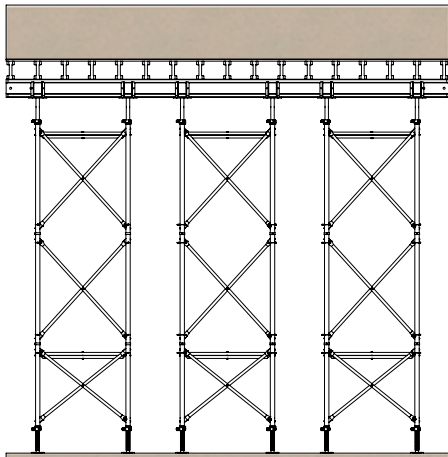
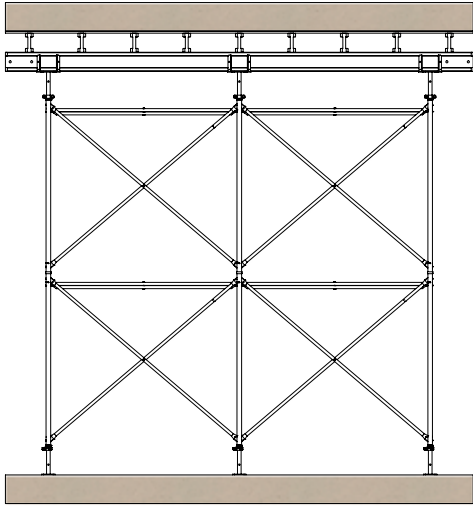
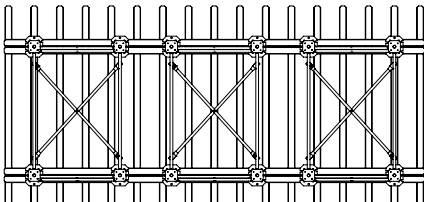
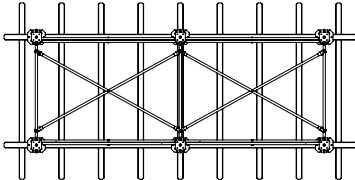


The framed tubes via couplers can be used to make a complete horizontal framework, e.g. for bracing towers that are over 6 m tall.

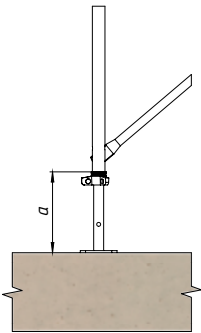
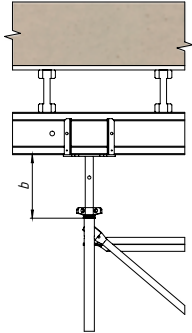
a = 48 mm
b = max 160 mm
c = 150 mm

ADAPTS TO DIFFERENT GROUND PLANS, HEIGHTS, FLOOR SHAPES AND LOADS

The different sizes of cross tie for each height of scaffolding frame enable the scaffolding frames to be spaced close together or further apart, depending on the load. In this way, only as much material is used as is really needed.

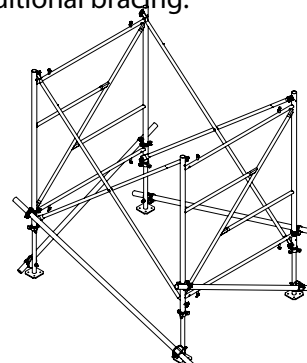
Heavy loads - frames spaced close together	Light loads - frames spaced further apart
	
Plan view 	Plan view 

HEIGHT ADJUSTMENT

Lower support TT40	Upper support TT40
 $a = \text{max } 300 \text{ mm}$ $\text{max } 500 \text{ mm (with bracing)}$	 $b = \text{max } 300 \text{ mm}$ $\text{max } 500 \text{ mm (with bracing)}$

- The 3 different heights of scaffolding frame (0.90 m, 1.20 m and 1.80 m) enable coarse adjustment to within 30 cm.

- Fine adjustment, to the last mm, is then made using upper/lower support:
 - 30 cm without additional bracing;
 - 50 cm with additional bracing.

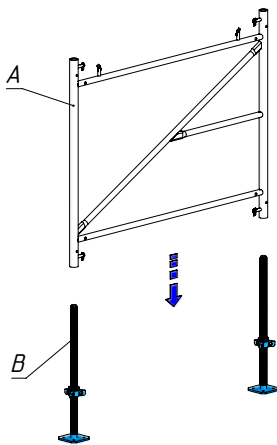


INSTRUCTIONS FOR ASSEMBLY AND USE

- Erect the load-bearing tower in the vertical on ground that is statically capable of supporting the load.
- Load-bearing towers that are over 5 m in height must be back-stayed or braced to other towers.

ERECTING THE FIRST SECTION

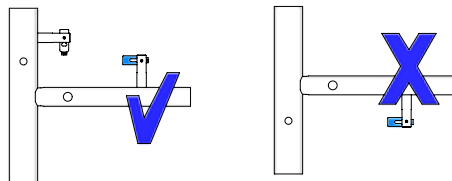
- Place two lower supports with 1.5 m distance between each other.
- Insert the scaffolding frames into the lower supports.



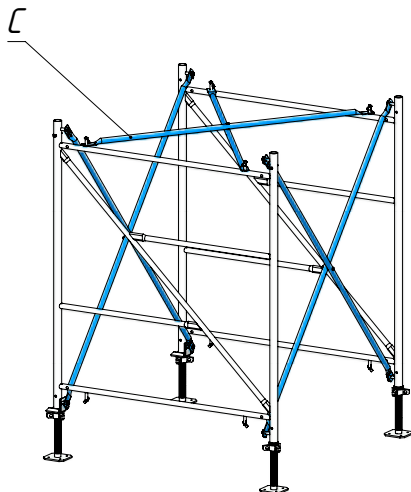
(A) Scaffolding frame TT40

(B) Lower support TT40

The gravity latches of the scaffolding frames 0.9x1.5 m & 1.2x1.5 m must always point upwards.



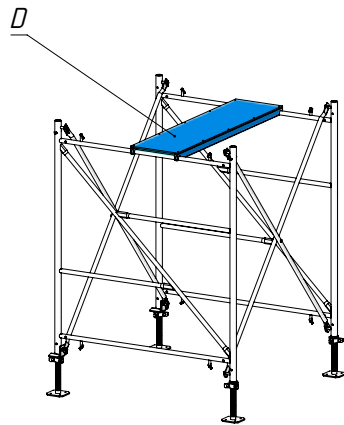
- Link the frames with cross ties: two vertical & horizontal on top.



(C) Cross tie



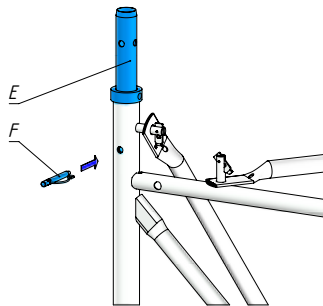
Mounting bridge TT40 is a part of the system, for easier and safer assembling.



(D) Mounting bridge TT40

STACKING THE FRAMES

- Put 4 inserts on top of the scaffolding frames. Fix them with retainers.

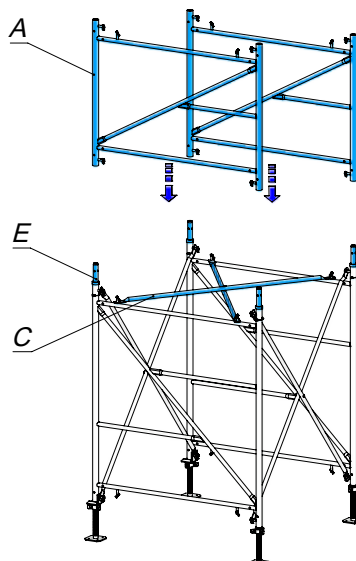


(E) Insert TT40

(F) Retainer TT40

ERECTING THE SECOND SECTION

- Place scaffolding frames onto the bottom section. Fix them with retainers

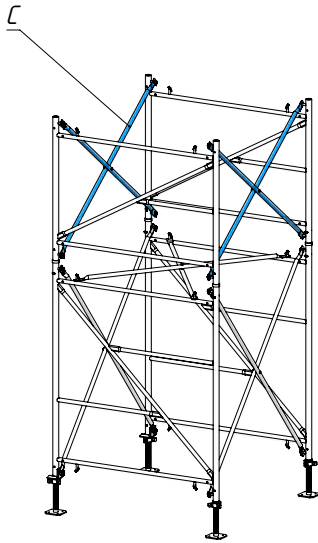


(A) Scaffolding frame TT 40

(C) Cross tie

(E) Insert TT40

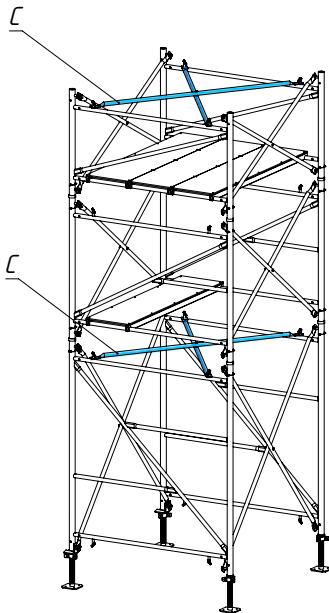
- Fit and secure cross ties in the same way as in the first section.



(C) Cross tie

ERECTING THE THIRD SECTION

- Put 4 inserts on top of the scaffolding frames. Fix them with retainers.
- Place scaffolding frames onto the bottom section. Fix them with retainers.
- Fit and secure cross ties in the same way as in the second section including horizontal cross tie.



(C) Cross tie

Horizontal cross ties 1.2x1.0 m (1.2x1.5 m; 1.2x2.0 m; 1.2x2.5 m) are needed at intervals of every two sections - beginning with the first section.

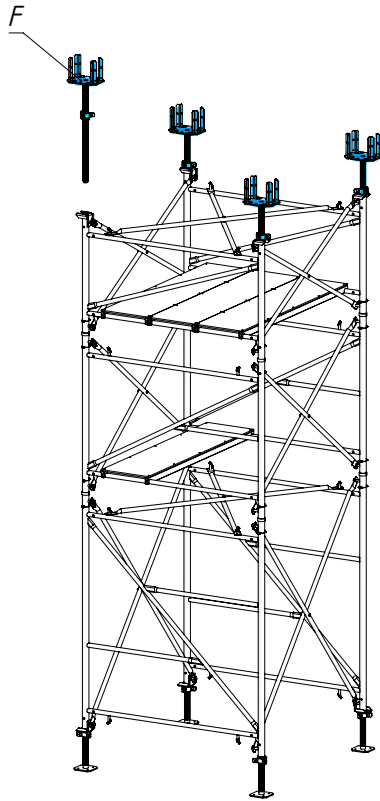
ERECTING FURTHER SECTIONS

Add further frames in the same way as for the 3rd section, and brace them in the vertical with diagonal crosses.



HEAD ZONE

- Insert the upper supports (F)



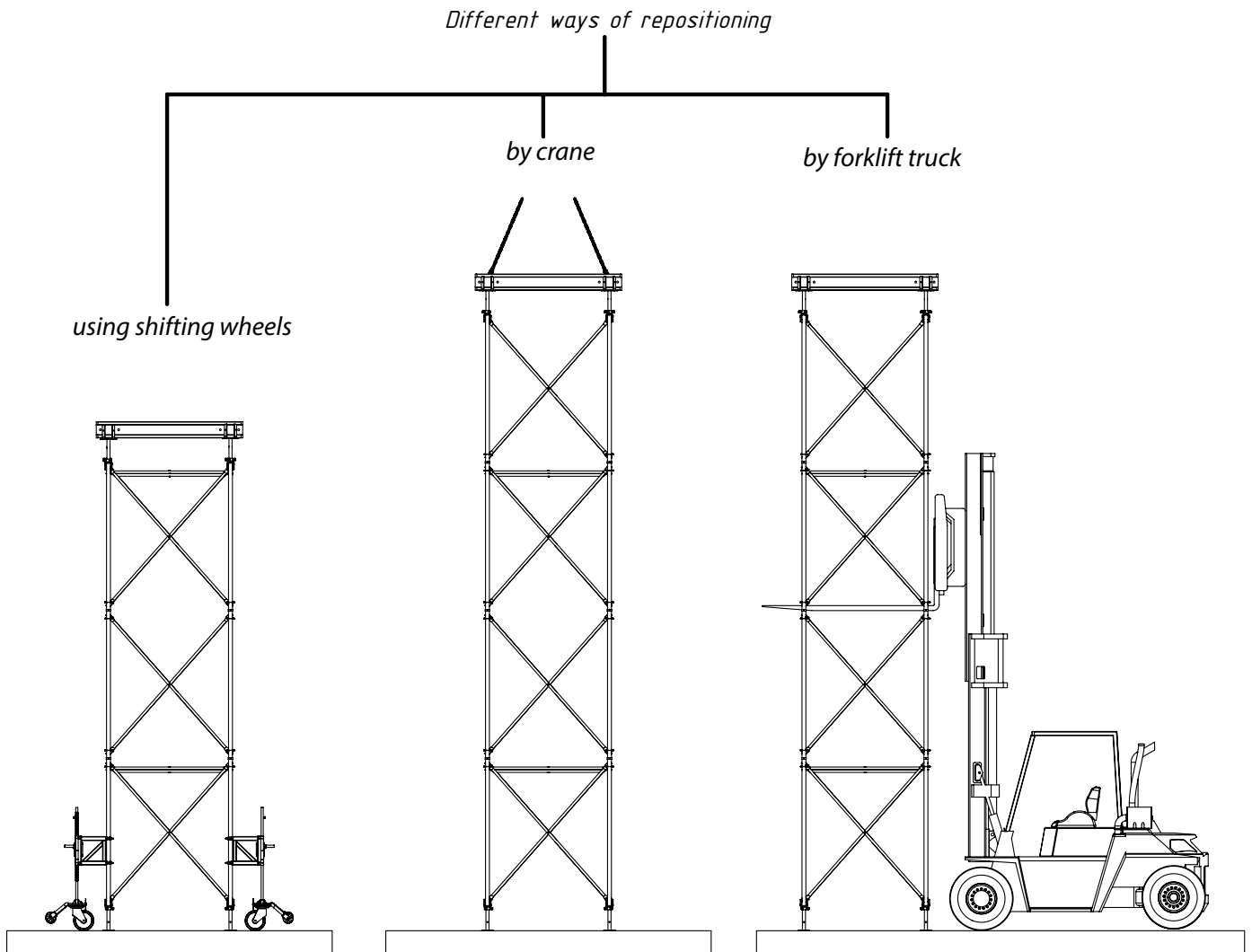
(F) Upper support TT40

Always place the primary beams (single or double H20 beams) centrally.

DISMANTLING

To dismantle, perform the above steps in reverse order.

REPOSITIONING



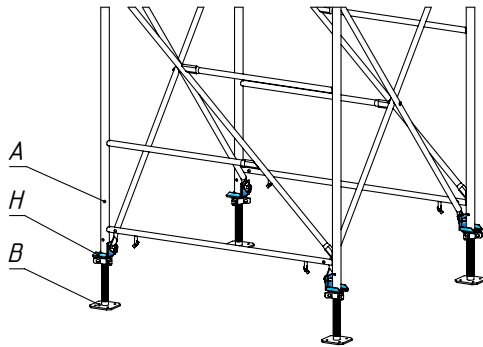
The most suitable approach to repositioning and dismantling should already be discussed and agreed with the site in the project phase, especially for very tall towers.

The other ways of repositioning the towers that are not shown in this User manual. The customer (contractor) bears sole responsibility for use of all such methods and must prepare a separate risk assessment for any such intended method.



PREPARATION

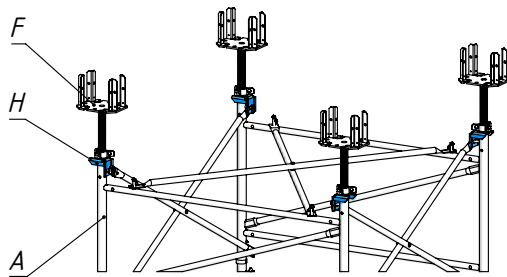
Secure the lower support & upper support to prevent them dropping out using anti-dropout lock.



(A) Scaffolding frame TT40

(B) Lower support TT40

(H) Anti-dropout lock TT40



(A) Scaffolding frame TT40

(F) Upper support TT40

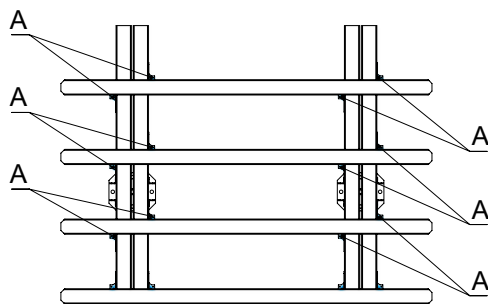
(H) Anti-dropout lock TT40

REPOSITIONING TOWERS WITH SUPERSTRUCTURE

In addition to the action steps set out in "Preparation", the following steps must also be taken:

Connect superstructure components together

Connect the primary and secondary beams with rafter plates and nail on the plywood.

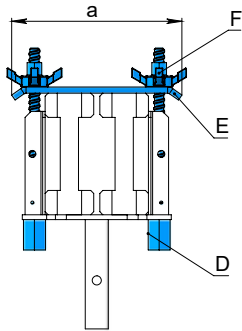


(A) Rafter plate

Arrange the rafter plates on opposing sides where possible.

Connect the superstructure to the upper support TT40

Double primary beams



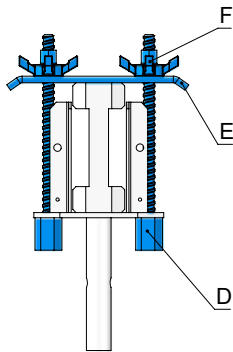
(D) Clamping tie-rod 330

(E) Clamping plate

(F) Star-shaped nut 15

$a = 280 \text{ mm}$

Single primary beams



(D) Clamping tie-rod 330

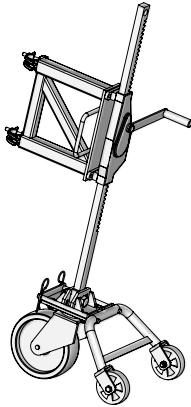
(E) Clamping plate

(F) Star-shaped nut 15



REPOSITIONING USING SHIFTING WHEELS

Completely assembled tableforms can be wheeled to their next location, quickly and easily, using shifting wheels. The crane is only needed when the tower has to be lifted up to the next floor / stage.

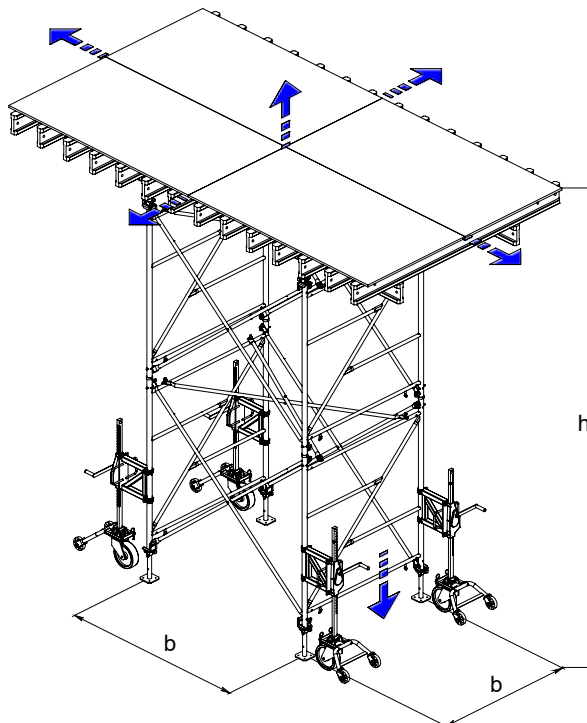


The shifting wheels TT40 are perform the following functions:

- Lifting
- Wheeling
- Lining-and-levelling
- Lowering

Max. load: 1000 kg per shifting wheel TT40
Lifting height 700 mm with solid-tyre wheel

Scaffolding tower with shifting wheels



When repositioning load-bearing towers that include standard superstructures:
Ratio $b:h = \max. 1:3$, with 'b' being the narrowest side.

Custom constructions must be statically verified.

LIFTING BY CRANE

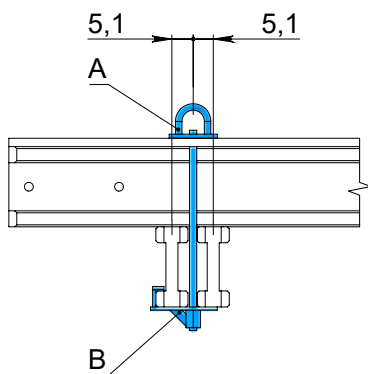
The max. height of scaffolding tower unit that can be lifted in one piece is 10m

The max. weight of tower for repositioning is 1000kg.

Observe the following points before lifting. Danger from loose and unsecured parts.

Mount the Lifting rod 15.0

Mount the lifting rod 15.0 and retaining plate 15.0



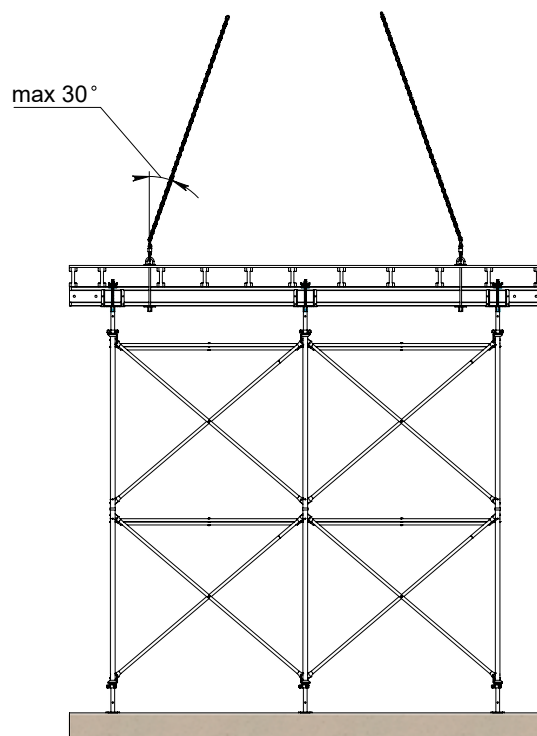
(A) Lifting rod 15.0

(B) Retaining plate 15.0

Use a Ø20 mm bit to drill the hole through the plywood. It can later be filled with a plastic plug for anchoring holes.

Repositioning operation

Attach the crane sling to the lifting rods 15.0 and lift the tableform to its next location.

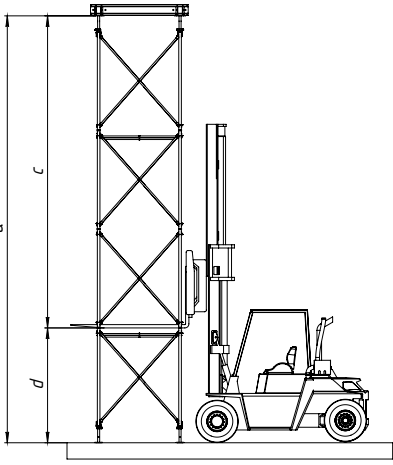
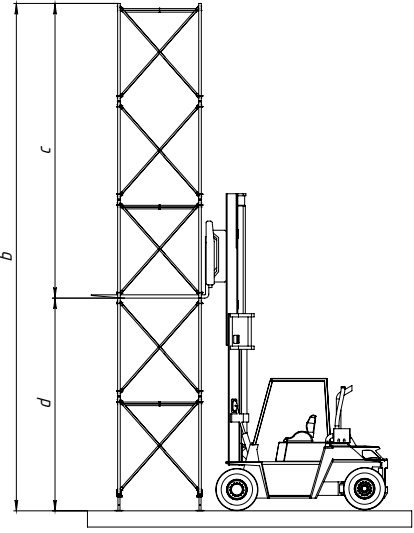




LIFTING BY FORKLIFT TRUCK

- As well as the fork-lift driver, a specially trained watchman must also be on hand during all lifting, assembly and travelling operations:
- max. inclination of trackway: 2%.
- The floor must be stable, firm and sufficiently smooth (e.g. concrete).

Max. heights of load-bearing towers

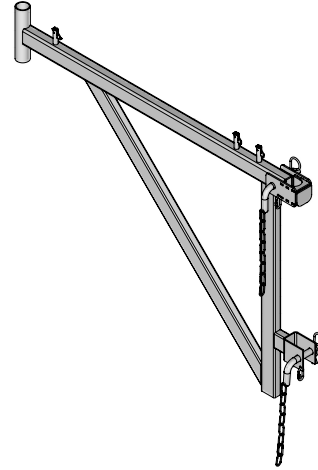
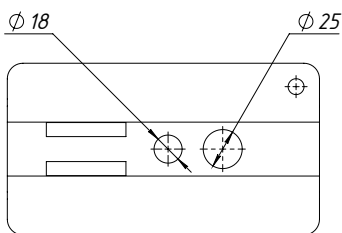
with superstructure			without superstructure	
				
Max. load on forklift 4000 kg			Max. load on forklift 2000 kg	
	When being travelled	When being lifted	When being travelled	When being lifted
a	7.2 m	9.0 m	5.0 m	7.0 m
b	9.00 m	12.6 m	7.0 m	10.0 m
c	5.4 m	9.0 m	4.0 m	7.0 m
d	3.6 m	3.6 m	3.0 m	3.0 m

EXTENDING THE RANGE OF USE WITH BRACKETS

Safe access routes around slab edges with the tower bracket TT40

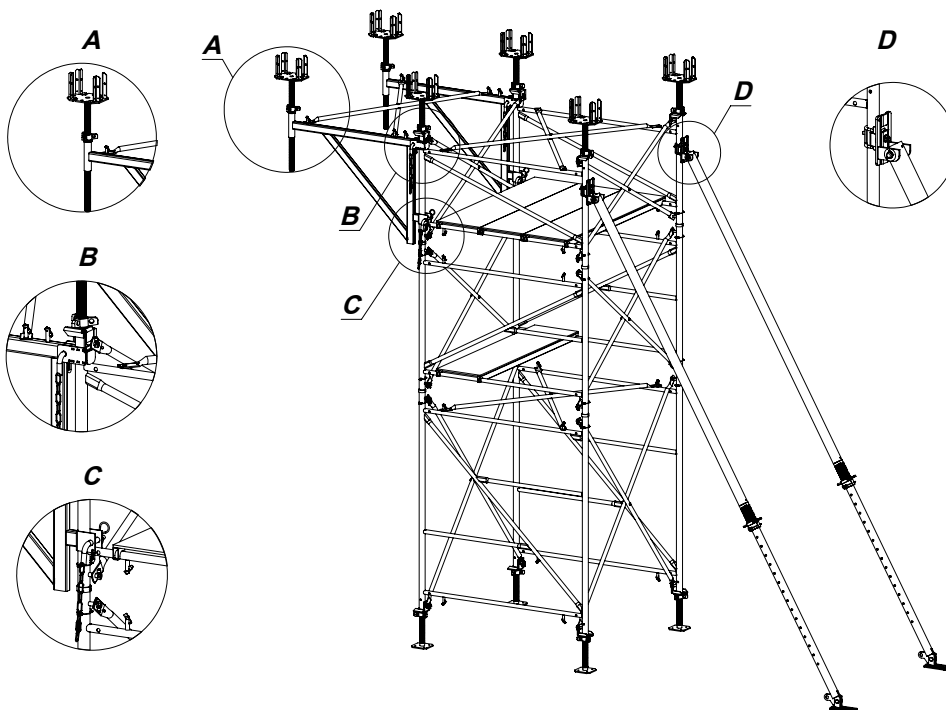
- Before setting up and using the tower brackets, secure the tower with tower struts TT40 or tie-backs so that it cannot tip over.
- Tower struts via head join on top of the scaffolding tower. Anchorage tower struts to the bottom slab by anchor bolt.

Base plate of Tower strut TT40 340; 540 for anchorage:



Every scaffolding frame with a tower bracket must be braced by a tower bracing strut.

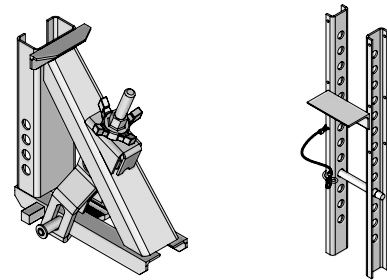
- Fix the tower bracket to the top of the scaffolding frame via included top-pin and secure it by spring cotter.
- Insert and secure the bottom-pin, to prevent accidental lift-out.
- Fit horizontal cross tie 0.90 between the brackets and secure them with gravity latches.
- Put 2 assembled upper supports.



It is not permitted to load tower bracket when pouring.

BEAM FORMING SUPPORT

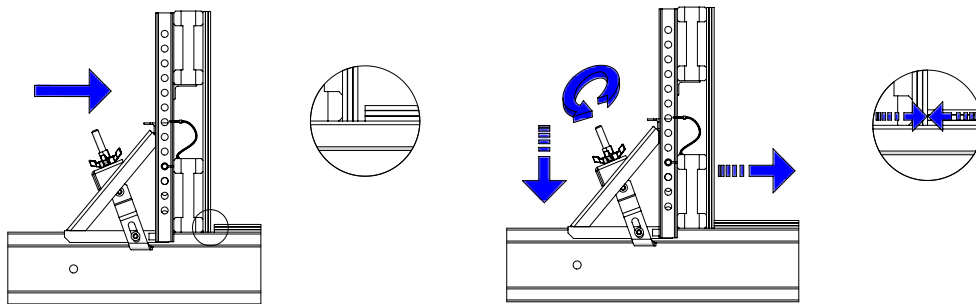
The beam forming support is a part of slab system for forming drop beams and slab stop-ends. In conjunction with the extension for beam forming support, exact height adjustment to within 1 cm is possible.



This does away with time-consuming jobsite squared-timber constructions. The beam forming support automatically clamps the formwork tight, result – clean concrete surfaces and grout-tight edges.

WORK WITH THE BEAM FORMING SUPPORT

- Place the beam-forming support onto the secondary beam and push it up against the sidewall formwork.
- Clamp the beam forming support firmly into position.

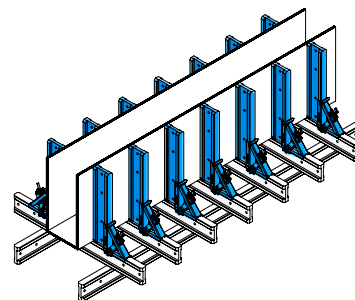
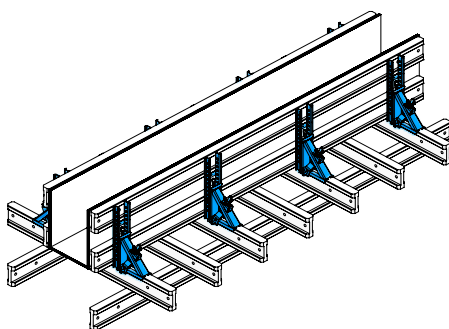


The diagonal bracing of the beam forming support ensures that the joint between the plywood sheets is automatically pressed together tightly when the beam forming support is clamped.

FORMWORK BEAMS

- Horizontal up to a height of 60 cm

- Vertical up to a height of 90 cm

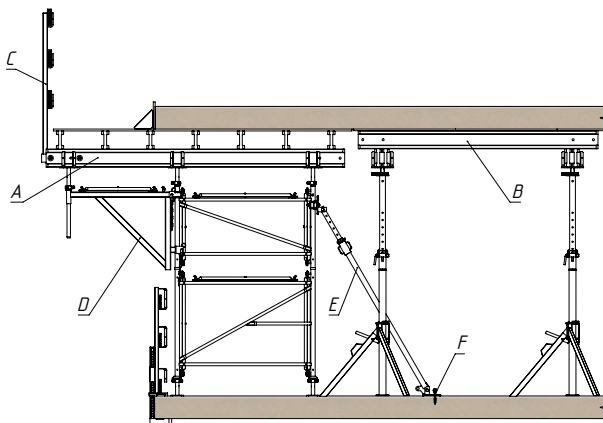


TOP TOWER 40 COMBINED WITH VARIFLEX

It is advantageous to combine Variflex formwork with TopTower 40 system, particularly in edge-zones.

This is an easy, safe way of forming drop beams and slab stop ends with pre-mounted side railings.

WITH FLAT SLAB



(A) TopTower 40 system

(B) Variflex system

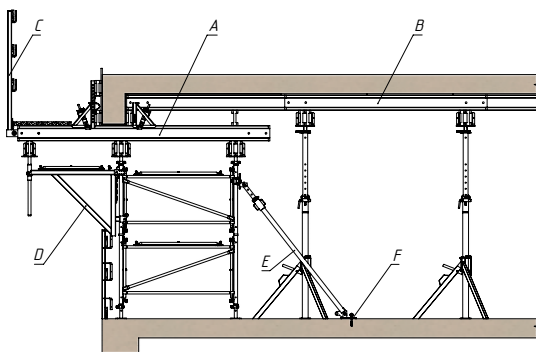
(C) Handrail post

(D) Tower bracket TT40

(E) Tower strut 340

(F) Anchorage

WITH EDGE DROP BEAM



(A) TopTower 40 system

(B) Variflex system

(C) Handrail post

(D) Tower bracket TT40

(E) Tower strut 340

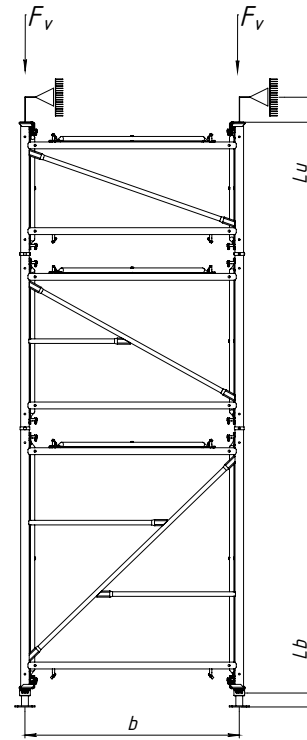
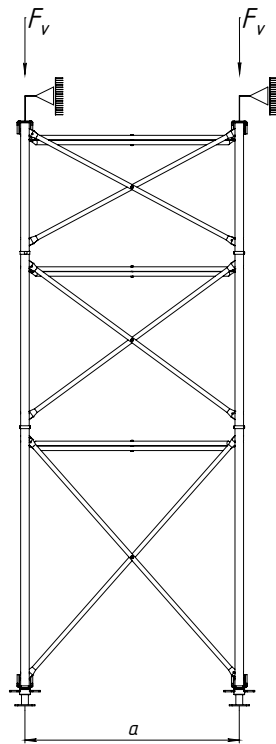
(F) Anchorage

Where wooden beams cantilever out a long way, secure them against accidental lift-out.

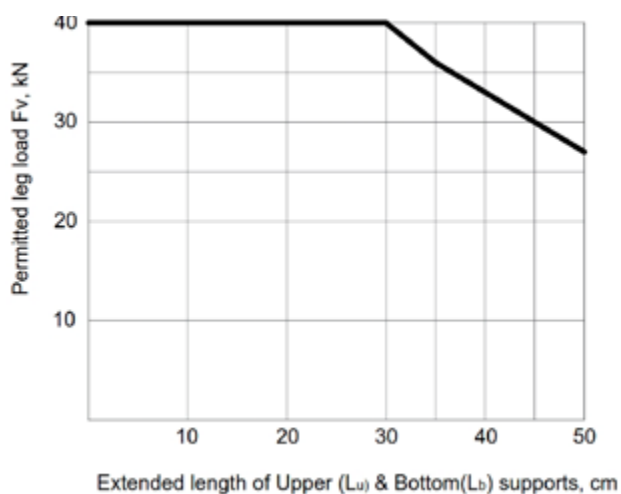
STRUCTURAL DESIGN

LOAD-BEARING TOPTOWER 40 HELD AT TOP

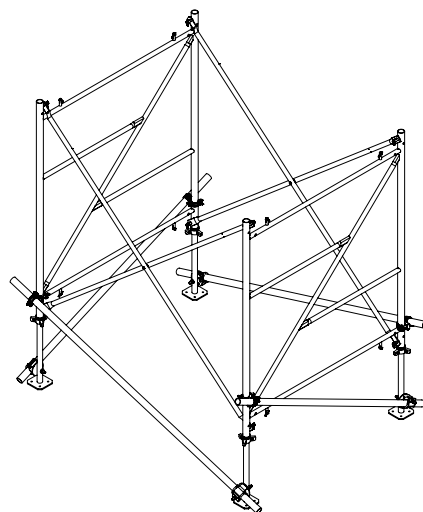
Max. 4 block frames, with any combination of the 1.8/1.2/0.9m frames



$a = 1.0-2.5 \text{ m}$
 $b = 1.5 \text{ m}$



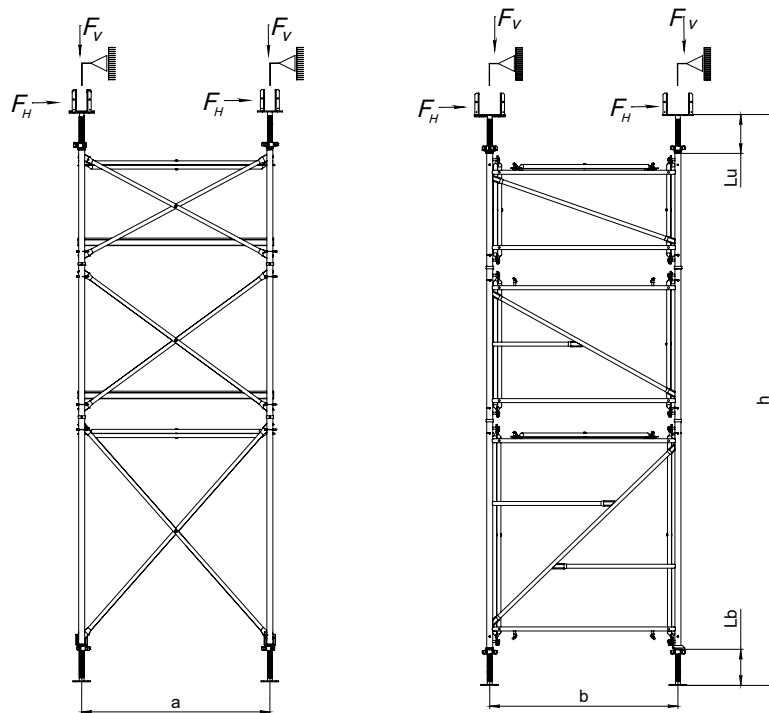
Using upper/lower support:
 - 30 cm without additional bracing;
 - 50 cm with additional bracing.



Also allows for wind-loads acting on the load-bearing tower

FREE STANDING LOAD-BEARING TOPTOWER 40

Max. 3 block frames, with any combination of the 1.8/1.2/0.9m frames



$a = 1.0\text{-}2.5\text{ m}$

$b = 1.5\text{ m}$

$h = \text{max. } 6.0\text{ m}$

$Lb = \text{max } 30\text{ cm}$

$Lu = \text{max } 30\text{ cm}$

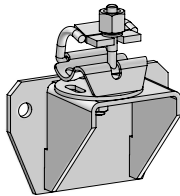
Permitted vertical load F_v per leg: 34.2 kN

Permitted horizontal load F_H per leg: 1.05 kN

Also allows for wind-loads acting on the load-bearing tower

ANCHORING ON THE STRUCTURE

With Anchoring shoe



Permissible anchoring force for each Anchoring shoe: 6 kN in all directions.

Applies when fastened with Cone bolt M30x70 and Universal climbing cone or two dowels.

Methods for fixing in concrete:

- By using a Cone bolt M30x70 to fix the anchoring shoe to an existing suspension point prepared with Universal climbing cones (diameter of hole in anchoring shoe = 32 mm). Hardwood shim (essential for ensuring a firm fit) prevents damage to the concrete (scratch marks);
- With one or two dowels (diameter of hole in anchoring shoe = 18 mm).

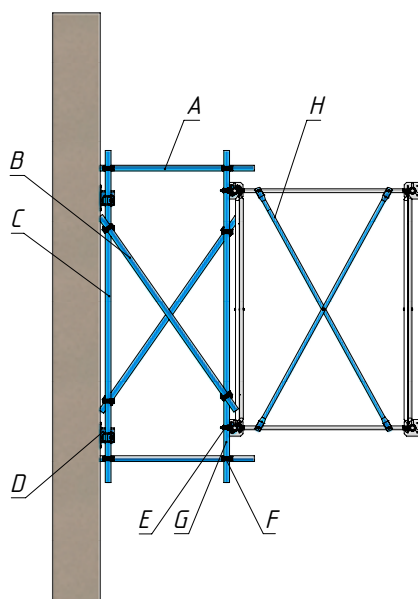
Required load-bearing capacity of the dowels used:

- Tensile force: $R_d \geq 23.1 \text{ kN}$ ($F_{perm.} \geq 14.0 \text{ kN}$)
- Shear force: $R_d \geq 6.6 \text{ kN}$ ($F_{perm.} \geq 4.0 \text{ kN}$)

DESIGN OF THE ANCHORING LEVELS

The load-bearing tower is connected to the Anchoring shoe by framed tubes and couplers.

When designing units assembled from tubes and couplers, all applicable standards and regulations must be observed.



(A) Framed tube 48 mm (L_{min} = distance from structure)

(B) Framed tube 48 mm (L = variable)

(C) Cross tie

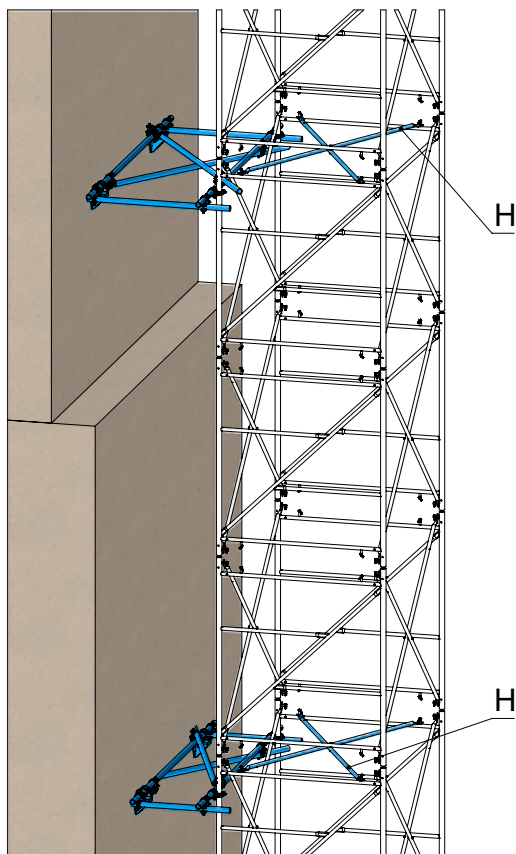
(D) Anchoring shoe

(E) Swivel coupler 48x48 mm

VERTICAL DISTANCE BETWEEN THE ANCHORING LEVELS

- depend on the assembly method, the wind loads and the design assumptions;
- at least every 6.0 m;
- near junctions (frame-joins)

At the level of the anchoring point, the load-bearing tower must be stiffened with a horizontal cross tie.



(H) Cross tie

Adjacent load-bearing towers must be braced to one another as statically required, in a similar way to when towers are anchored to the structure.

INCLINATION ADJUSTMENT

If the superstructure or the ground are inclined at an angle of 1% or more, slope compensation must be provided.

WEDGES FOR UPPER & LOWER SUPPORT TT40

The prefabricated on site birch plywood wedges make possible to stand load-bearing towers in the perpendicular on surfaces with various inclinations, even when utilizing the full leg load.

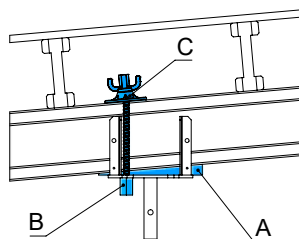
Maximum possible inclination: 20%

Excessively steep wedges may slip away.

Wedges must not be placed on top of one another in an attempt to compensate for inclinations that are greater than 20%.

INCLINED SUPERSTRUCTURES

Securing the superstructure at angles of over 12%:



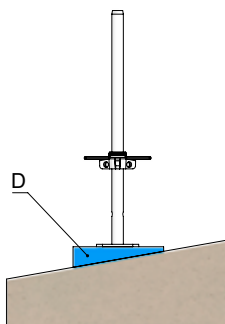
(A) Wedge for upper support (by site)

(B) Clamping tie-rod 330

(C) Superplate 15

Connect the Clamping plate to the longitudinal beam with Clamping tie-rod 330 and Superplate 15

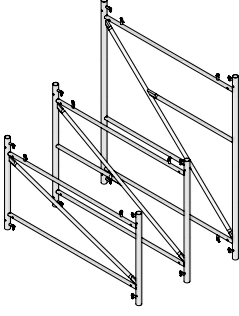
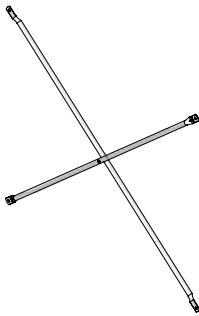

INCLINED GROUND SURFACE



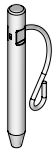
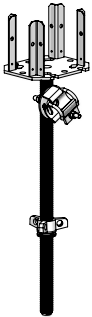
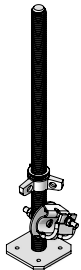
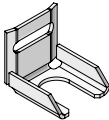
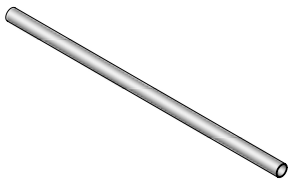
(D) Wedge for lower support (by site)


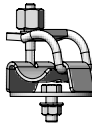
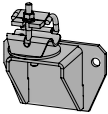
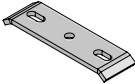
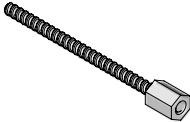

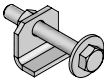
Secure wedge against slip away.

COMPONENT OVERVIEW

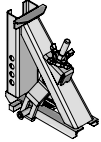
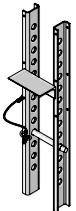
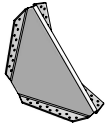
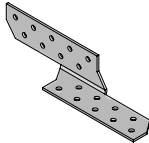
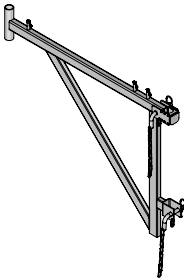
Item		[kg]	Article n°
Scaffold frame TT40  <p>Options available: xx xxx 000 - Powder coated xx xxx 200 - Hot dip galvanized Custom size on inquiry</p>	0.90x1.50m	14,56	61 110 000
	1.20x1.50m	18,22	61 120 000
	1.80x1.50m	25,70	61 130 000
Cross tie  <p>Options available: xx xxx 000 - Powder coated xx xxx 200 - Hot dip galvanized Custom size on inquiry</p>	0.90x1.00m	4,08	61 210 000
	1.20x1.00m	4,67	61 220 000
	1.80x1.00m	6,06	61 230 000
	0.90x1.50m	5,36	61 212 000
	1.20x1.50m	5,86	61 222 000
	1.80x1.50m	7,12	61 232 000
	0.90x2.00m	6,79	61 214 000
	1.20x2.00m	7,19	61 224 000
	1.80x2.00m	8,24	61 234 000
	0.90x2.50m	8,22	61 216 000
	1.20x2.50m	8,56	61 226 000
	1.80x2.50m	9,46	61 236 000
Insert TT40 		0,89	61 400 100

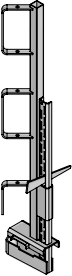
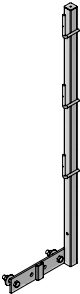
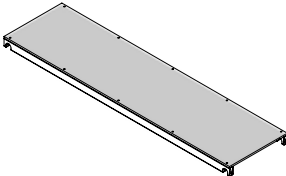
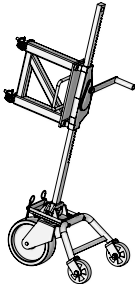


Item		[kg]	Article n°
Retainer TT40 		0,06	61 402 100
Upper support TT40 		13,86	61 500 100
Lower support TT40 		11,09	61 502 100
Anti-dropout lock TT40 		0,59	61 404 100
Framed tube 	1.00m 1.50m 2.00m 2.50m 3.00m	4,60 6,91 9,21 11,51 13,81	94 100 200 94 150 200 94 200 200 94 250 200 94 300 200

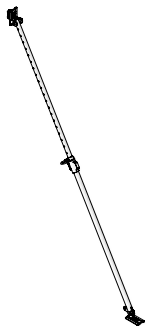

Item	[kg]	Article n°
Swivel coupler 48x48mm 	1,22	95 106 100
Screw-on coupler 48 mm  30 70 100	1,21 1,26 1,33	95 100 100 95 102 100 95 104 100
Anchoring shoe 	5,03	61 800 100
Clamping plate 	1,71	61 406 100
Clamping tie-rod 330 	0,95	61 408 100
Star - shaped nut  15	0,40	95 206 100
Beam screw  60 110	0,07 0,09	23 302 100 23 304 100



Item	[kg]	Article n°
Drop beam forming support 	7,77	52 302 000
Extension for drop beam forming support 	3,83	52 304 100
End - shutter support for slab 	1,73	52 312 000
Rafter plate  right left	0,09 0,09	52 306 100 52 308 100
Tower bracket TT40 	16,28	61 410 000

Item	[kg]	Article n°
Handrail clamp 	12,40	52 400 100
Handrail post 	12,85	52 402 100
Mounting bridge TT40 	1.00m 9,45 1.50m 13,76 2.00m 21,63	61 412 000 61 414 000 61 416 000
Shifting wheel TT40 	47,46	61 600 000



Item	[kg]	Article n°
Tower strut TT40 340 	23,13	61 700 100
Tower strut TT40 540 	44,10	61 702 100





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