

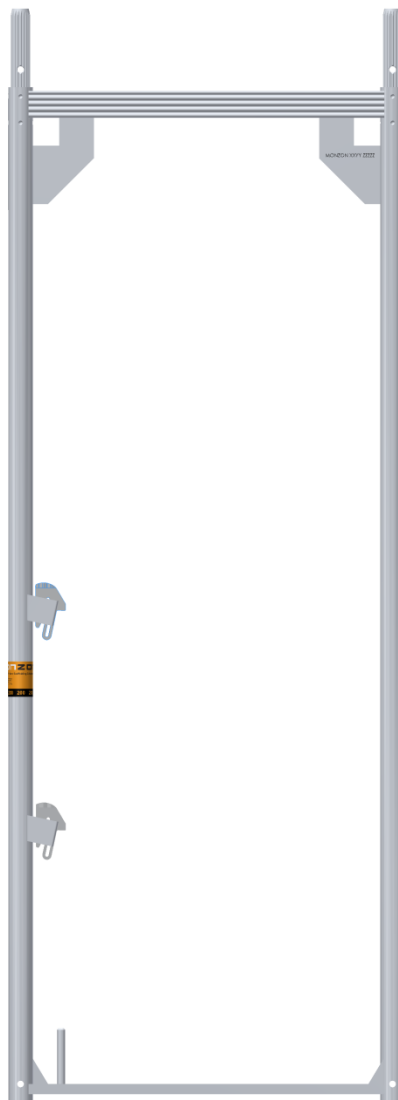
Assembly instructions, Monzon Frame

Version 1.0



Frame®

09/05/2017
Monzon Development AB

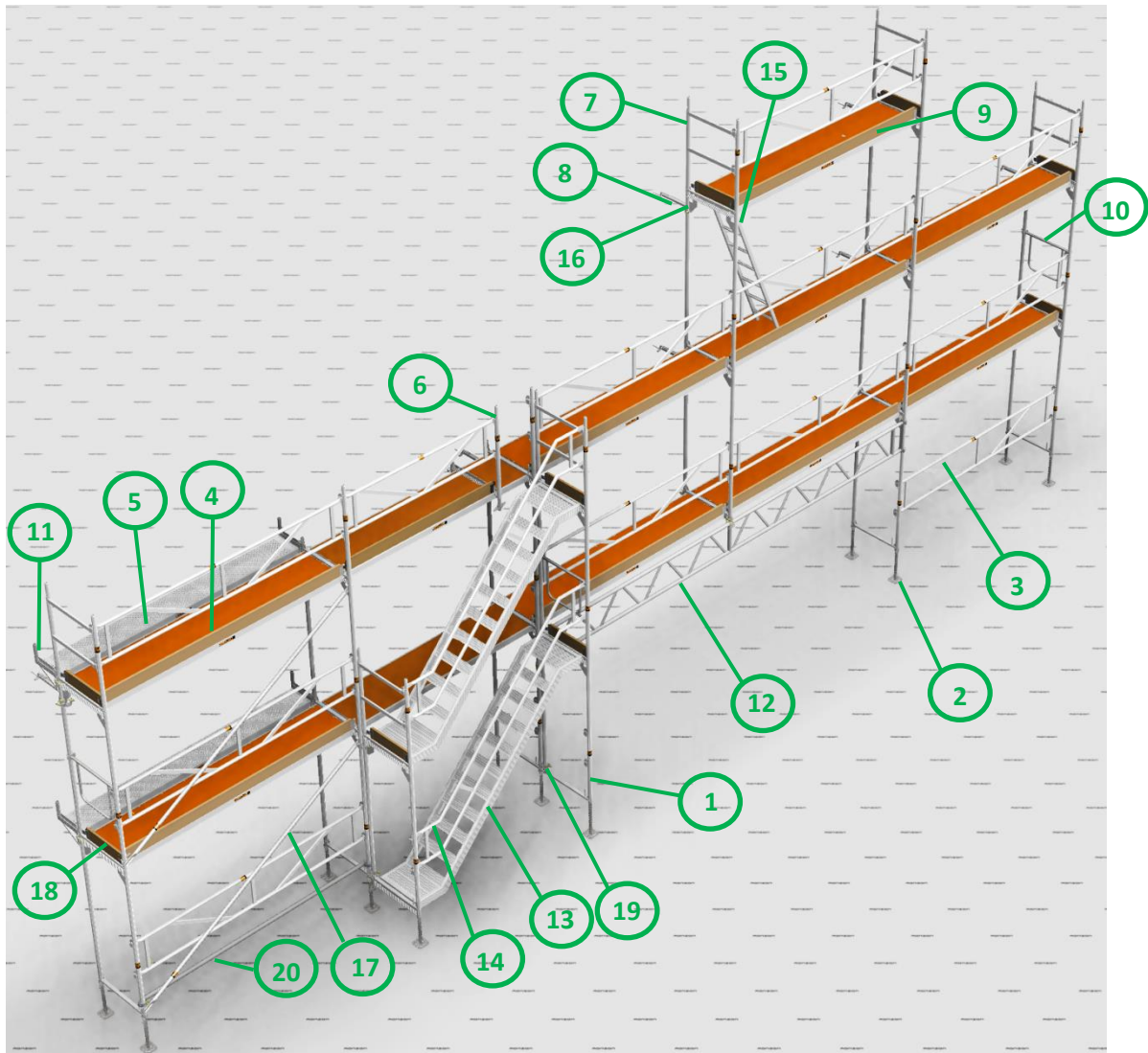


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1. General information about the product

Monzon Frame is a frame scaffold made of prefabricated components. The basic components in the scaffold includes base jacks, scaffold frames, double guardrails, vertical diagonals brace and decks. These can be assembled together to create scaffolds in a variety of different lengths and heights. As decking for working levels, combi deck platform and deck planks are used. The deck planks are made of aluminium and the combi deck platforms are made of aluminium frames together with plywood or fibreglass-reinforced plastic boards. Monzon Frame is a safe scaffold system that is easy to erect and can be used for a variety of applications. This system is particularly well suited to façade scaffolding.

1.1. Monzon Frame – basic items



No.	Designation
1	Scaffold frame (alu)
2	Base jack (steel)
3	Guardrail, double (alu)
4	U combi deck (fibreglass)
5	U deck (alu)
6	L frame (alu)
7	Top end frame (alu)

No.	Designation
8	Wall tie (steel)
9	Toe board (timber)
10	End guardrail (steel)
11	U-bracket (steel)
12	Lattice beam 450 (alu)
13	U staircase (alu)
14	Staircase guardrail, (alu)

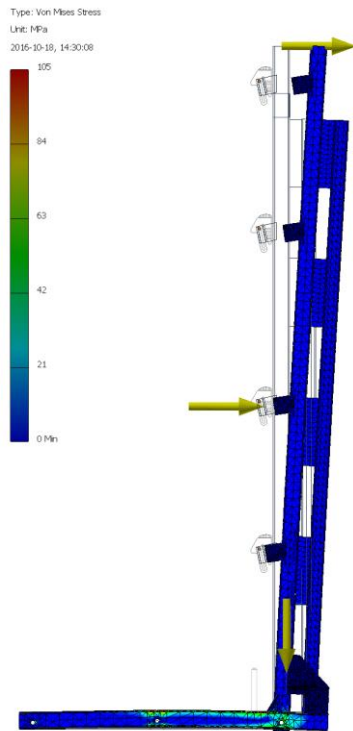
No.	Designation
15	U-access deck (fibreglass)
16	Double coupler (steel)
17	Vertical diagonal brace (steel)
18	End toe board with spigot 073
19	Swivel coupler (steel)
20	Horizontal brace (steel)
21	Guardrail coupler (steel) (not pictured)

1.2. Safety and responsibility

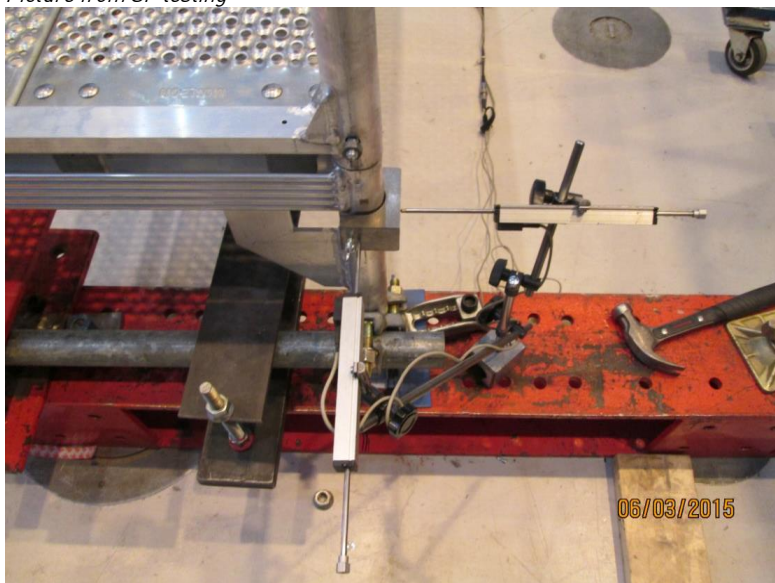
Frame is type examined by the Technical Research Institute of Sweden in accordance with the requirements in EN-12810, EN-12811 and national regulations. Monzon Frame is approved for scaffolding in load class 2-3. Type examination certificate number 39 44 02.

The components in the system have been developed using the latest 3D-CAD tools, and FE analyses have been carried out during product development process.

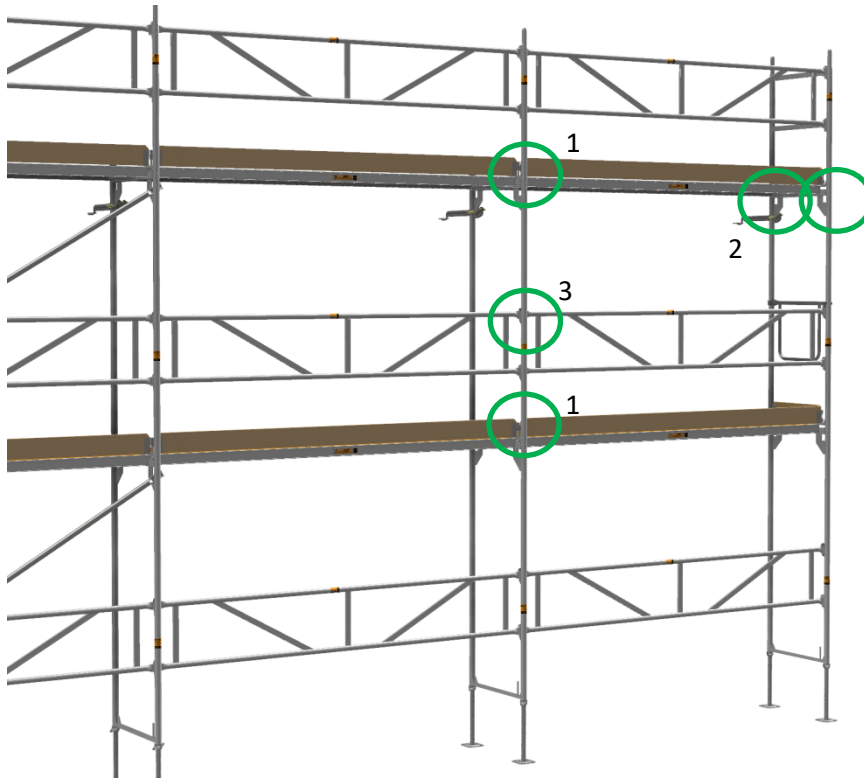
FE analysis of a 2 m L frame, Von Mises stress diagram



Picture from SP testing



1.3. Attachment points for personal protective equipment (safety line)



1. External frame tube above platform level.
2. In frame tube through hole in reinforcement plate.
3. In frame tube above guardrail



Safety helmets
must be worn



1.4. Maintenance/handling

All scaffold components must be inspected carefully before commencing assembly.

Scaffold components which are bent, cracked, buckled, broken or warped are defective and have a dramatic effect on strength. Under no circumstances may these be used in the scaffold – they must be discarded. Components should be handled with care during assembly/disassembly, and packing of the materials on appropriate supports/pallets is recommended in order to minimise transport damage.

Also read and follow all national requirements and instructions if there is any.

1.5. Labelling

All components except for locks, pins, etc. in the Monzon Frame are permanently labelled with MONZON and a combination of four digits which indicate the month and year in which the part was produced (e.g. MONZON 1108).

Most components also come with stickers indicating the component dimensions.



Figure 1 example of a sticker

1.6. Signs

Example of signs to be put upon the scaffold while the scaffold is being erected or for approved scaffolding, where the scaffolding contractor and client fill in the details.



1.7. Load classes according to SS-EN-12811-1

Load class	Uniformly distributed load q_1 [kN/m ²]	Concentrated load on area 500 x 500mm	Concentrated load on area 200 x 200mm	Partial area load	
		F1 [kN]	F2 [kN]	q_2 [kN/m ²]	Partial area factor a_p ¹
1	0.75	1.5	1	-	-
2	1.5	1.5	1	-	-
3	2	1.5	1	-	-
4	3	3	1	5	0.4
5	4.5	3	1	7.5	0.4
6	6	3	1	10	0.5

The Monzon Frame system is approved for scaffolding in load class 2-3.

Note that no more than **one** transom layer (deck level) shall be placed under load at the time.

1.8. Components independent of the system

System-independent components such as couplers, bridging beams and scaffold tubes used in Monzon Frame scaffolding must be type tested according to European standard and meet the specific requirements presented in this assembly instructions.

1.9. Limitations to these assembly instructions

These assembly instructions do not cover the following points.

- Wind loads greater than 770 N/m²
- Scaffolding lined with winter net, summer net, shrink wrap, Keder tarpaulins or similar.
- Snow loads or ice loads.
- Dynamic loads.
- Scaffolding fitted with weather protection roofs.

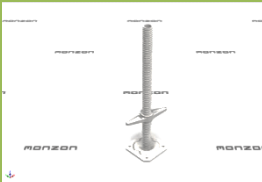
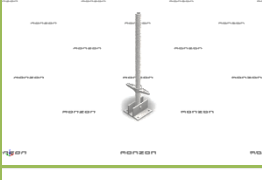
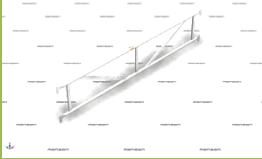
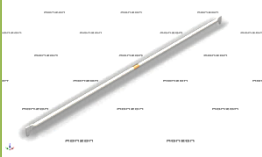
Please contact Monzon Sverige AB if additional strength calculations are required.

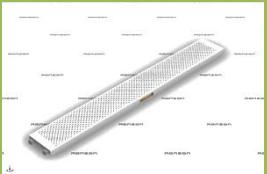
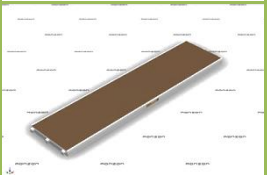
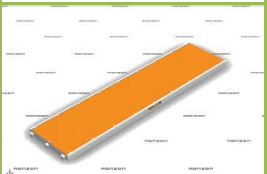
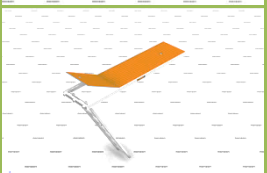
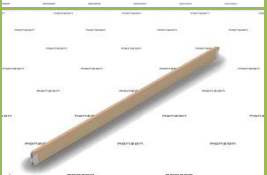
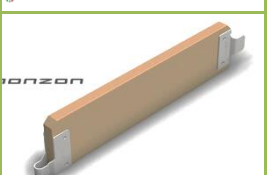
1.10. Repairs

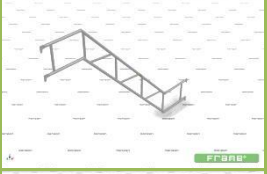
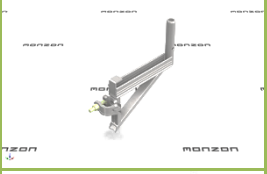
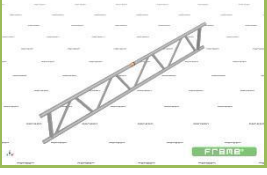
Some items, such as plywood boards and fibreglass boards in combi decks, can be repaired or replaced if necessary.

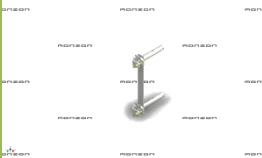
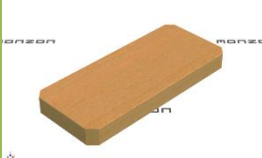
Please contact Monzon Sverige AB for more information on how the repair is to be carried out and what items can be repaired.

2. List of components

Component	Size	Article number	
Base jack (steel)	40, 60, 80 cm	111.040-080	
Base jack, swivel (steel)	60, 80 cm	111.061, 111.081	
U base transom (aluminium)	73 cm	412.002	
U frame (aluminium)	66, 100, 150, 200 cm	100.066-200	
L frame (aluminium)	100, 200 cm	102.073-200	
Top end frame (aluminium)	73 cm	103.073	
Guardrail, double (aluminium)	73, 109, 140, 157, 207, 257, 307 cm	101.073-307	
Guardrail, single (steel)	73, 109, 140, 157, 207, 257, 307 cm	114.073-307	
Horizontal brace (steel)	207, 257, 307 cm	105.207-307	

End guardrail (steel)	73 cm	107.073	
Diagonal brace (steel)	157x200, 207x200, 257x200, 307x200 cm	104.157-307	
U deck 0.32 (aluminium)	73, 109, 140, 150, 157, 207, 257, 307 cm	310.073-307	
U combi deck 0.61 (plywood)	73, 109, 140, 150, 157, 207, 257, 307 cm	300.073-307	
U combi deck 0.61 (fibreglass)	73, 109, 140, 150, 157, 207, 257, 307 cm	317.073-307	
U access deck 0.61 (plywood)	257, 307 cm	405.257-307	
U access deck 0.61 (fibreglass)	257, 307 cm	417.257-300	
Toe board (wood)	73, 109, 140, 157, 207, 257, 307 cm	108.073-307	
Toe board (timber)	73, 109, 140, 157, 207, 257, 307 cm	118.073-307	
End toe board (timber)	73 cm	108.000	
End toe board (aluminium)	73 cm	119.000	

U staircase (aluminium)	257x200, 307x200 cm	400.257-307	
U staircase (aluminium)	160x100 cm	400.100	
External staircase guardrail (aluminium)	257x200, 307x200 cm	403.257-307	
Internal staircase guardrail (aluminium)	280 cm	412.280	
U bracket 036 (steel)	36 cm	109.036	
U bracket 073 (steel)	73 cm	109.036-073	
Brace for bracket (steel)	73x170 cm	104.170	
Wall tie (steel)	30, 50, 130 cm	112.030-130	
Guardrail coupler (steel)		805.018	
Lattice beam 450 (aluminium)	400, 500, 600, 800 cm	500.400-800	

Mounting spigot, frame for lattice beam (steel)	45 cm	820.001	
U transom 073, adjustable (steel)	73 cm	202.071	
L frame holder (steel)	26 cm	111.009	
Jack with spring lock (steel)	60 mm	500.008	
Sole plate 45x450mm (timber)	45x450 mm	830.050	
U spigot (steel)	60x300 mm	820.000	
O spigot (steel)	60x300 mm	813.023	
Deck lock 036 (aluminium)	320x60 mm	110.036	
Deck lock 073 (aluminium)	730x60 mm	110.073	

3. Assembly

3.1. Assembly of basic scaffolding

Preparations and criteria before starting assembly.

Read chapter 1 carefully before starting assembly.

Then check that the ground and sole plate have sufficient load-bearing capacity to handle the pressure from the scaffold on the base jacks. Sole plates decks are used to distribute the pressure over a larger area.

The maximum reaction force that can occur is 15.0 kN.

Position the sole plates and base jacks as illustrated. Check that the distance between the wall and the deck is as small as possible, and no greater than 300 mm.

The guardrails can be laid out on the ground as illustrated to make it easier of positioning the base jacks.

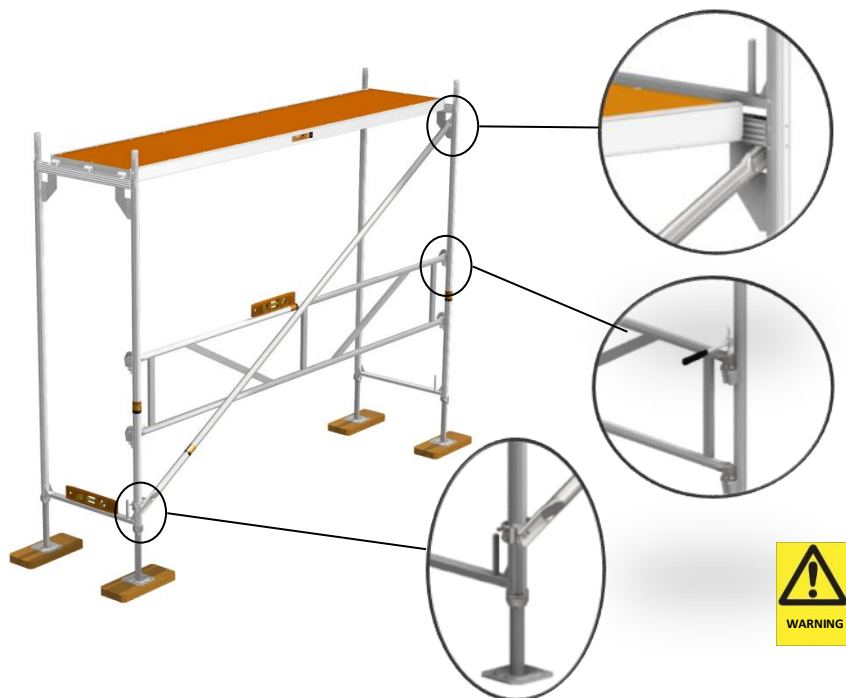
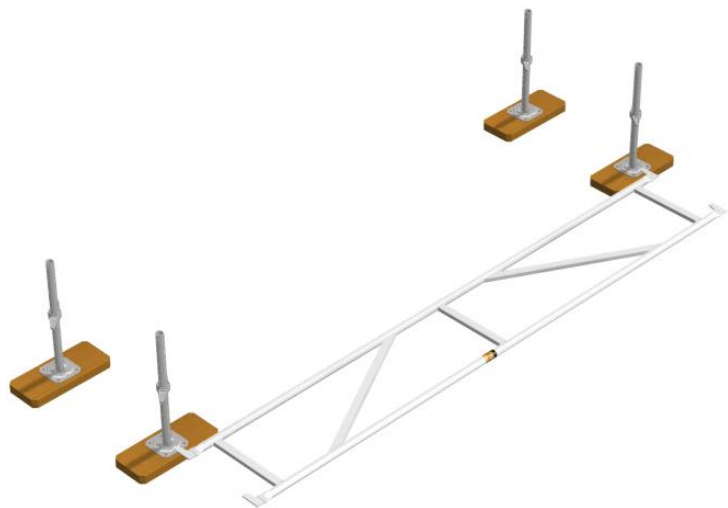
Tip! Start assembling the scaffold at the highest point of the ground to make it easier level adjustment.

Place the scaffold frames on the base jacks, mount guardrails on the frames. Then install the combi deck and vertical diagonal brace.

Vertical diagonals are inserted into the gap in the upper corner plate on the scaffold frame and angled downwards so that the wedge in the swivel coupler can be fixed in position.

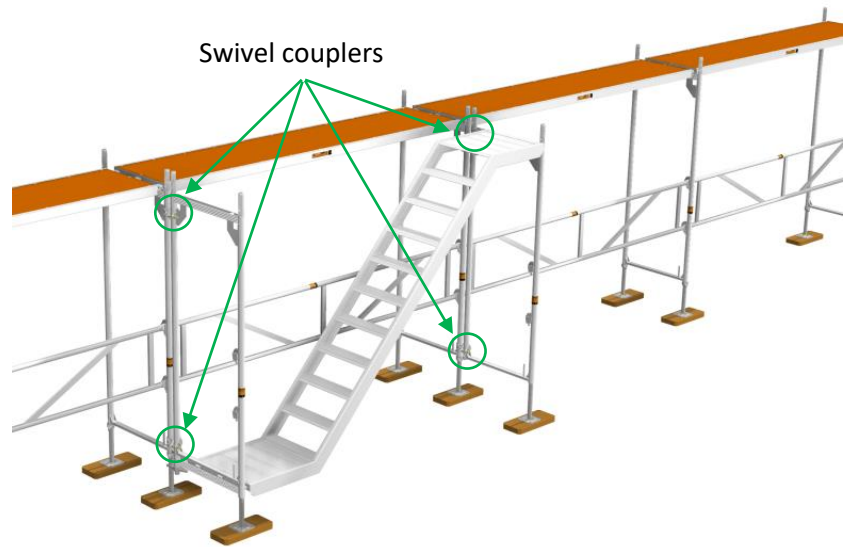
Align the scaffolding using a spirit level both longitudinally and transversely. Then fix the wedges in the frames and on the vertical diagonal brace.

Vertical diagonal braces are installed at every platform level and in every fifth bay longitudinally.



3.2. Installation of external staircase

When installing an external staircase, 4 swivel couplers are installed in external frame tubes on existing scaffolding in the bay in which you want to install the staircase. Scaffold frames are then mounted in the swivel couplers and base jacks are placed on the external frame tubes as illustrated.



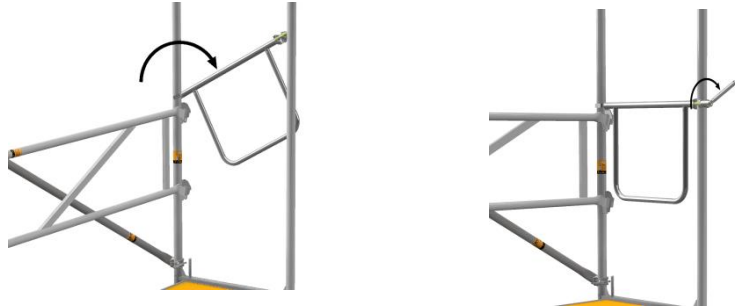
A base transom is installed at the bottom of the staircase.

A L frame holder together with a bolt with spring lock are installed on the inner frame tube as illustrated.

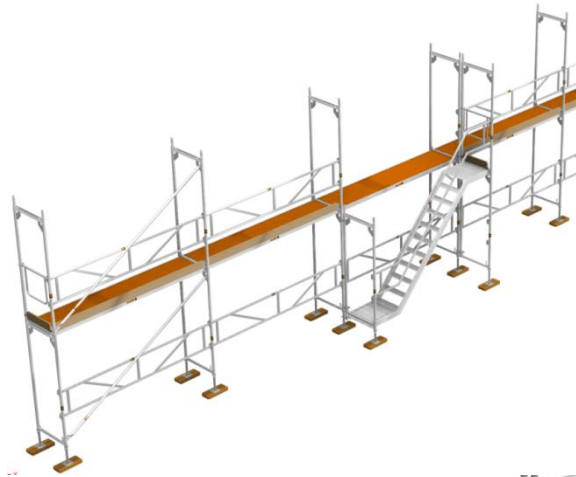


Then install the external staircase guardrail, toe boards and end guardrail on both the scaffold and the staircase as illustrated.

A swivel coupler is mounted on every frame; except that the bottom, where 2 are installed for each frame.



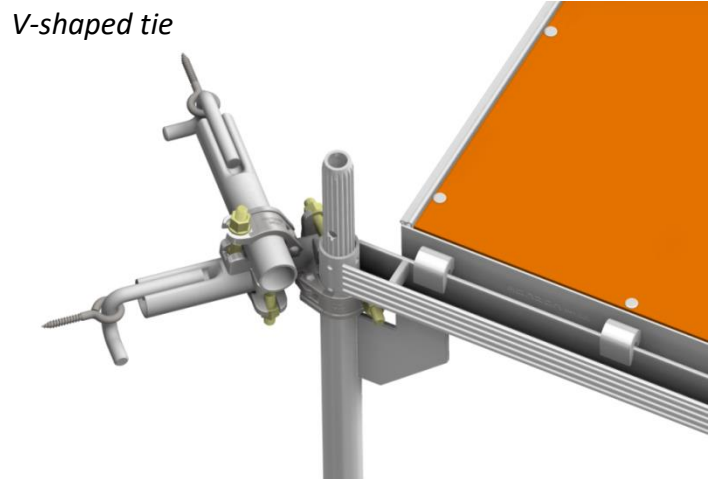
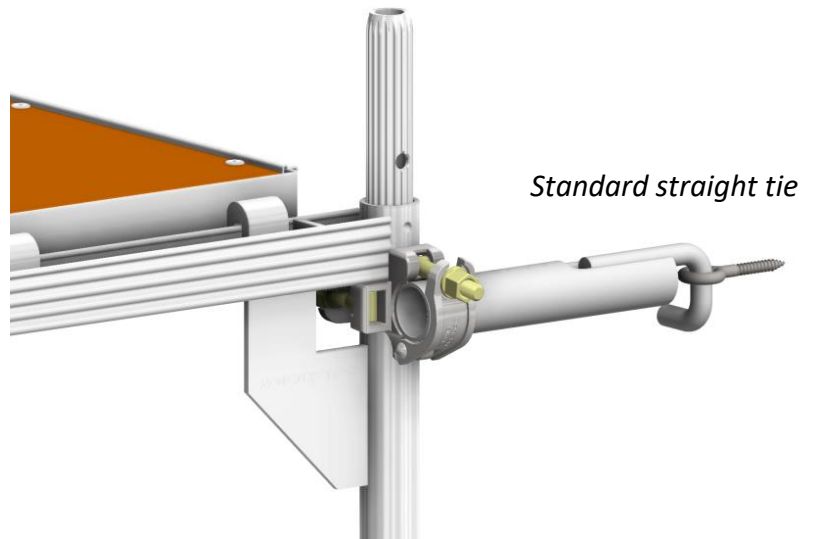
An L frame is fixed in position on the top platform level in the staircase section using an L frame holder, base transom and bolt with spring lock. The base transom is positioned beneath the combi deck, the L frame holder is inserted through the base transom and up into the L frame. The bolt with spring lock is inserted through the hole on the L frame and the L frame holder. The wing nuts are then screwed into position.



3.3. Installation of wall ties

Wall ties (standard straight ties) are normally installed at every 4 metres of height and at every inner frame tube. A V-shaped tie is mounted on every fifth inner standard – see the illustrations.

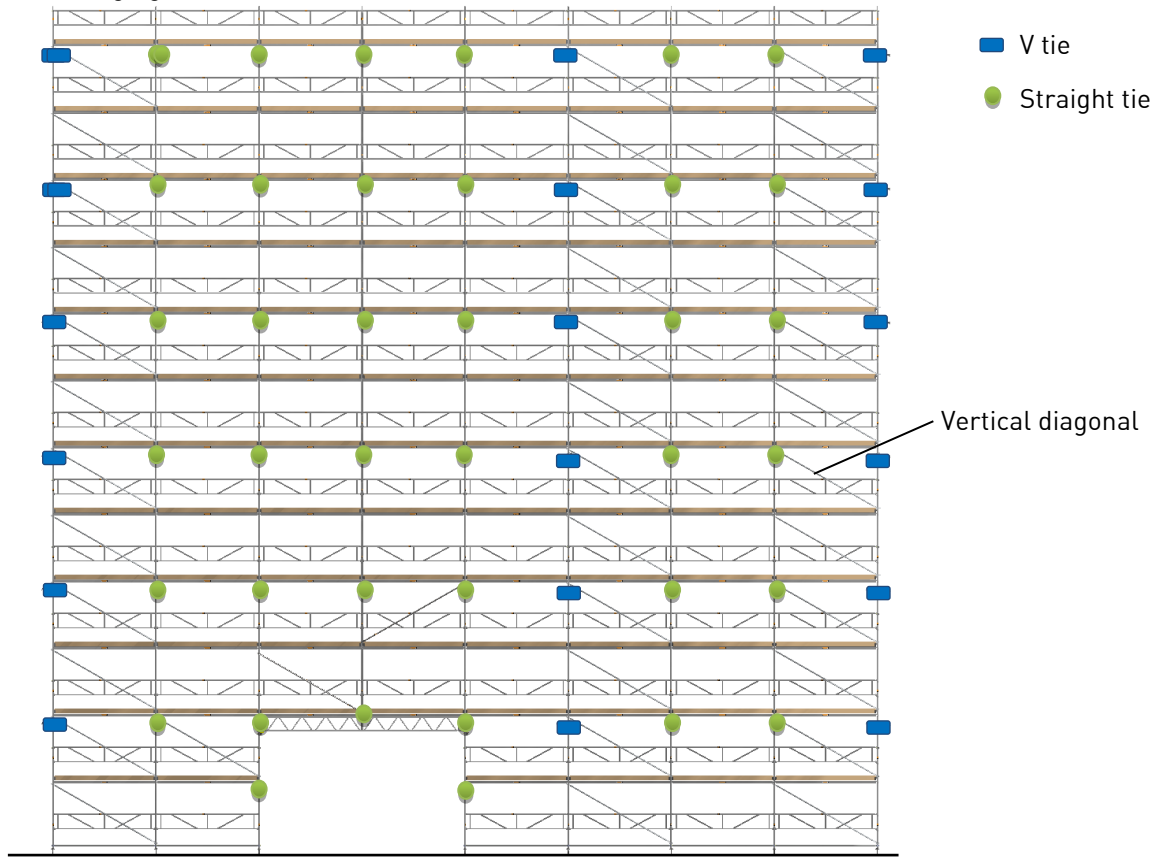
Must be able to absorb 2.9 kN extraction/pressure for a single tie. The horizontal forces 3.4 kN and 5.1 kN along and across the scaffold respectively for a V tie.



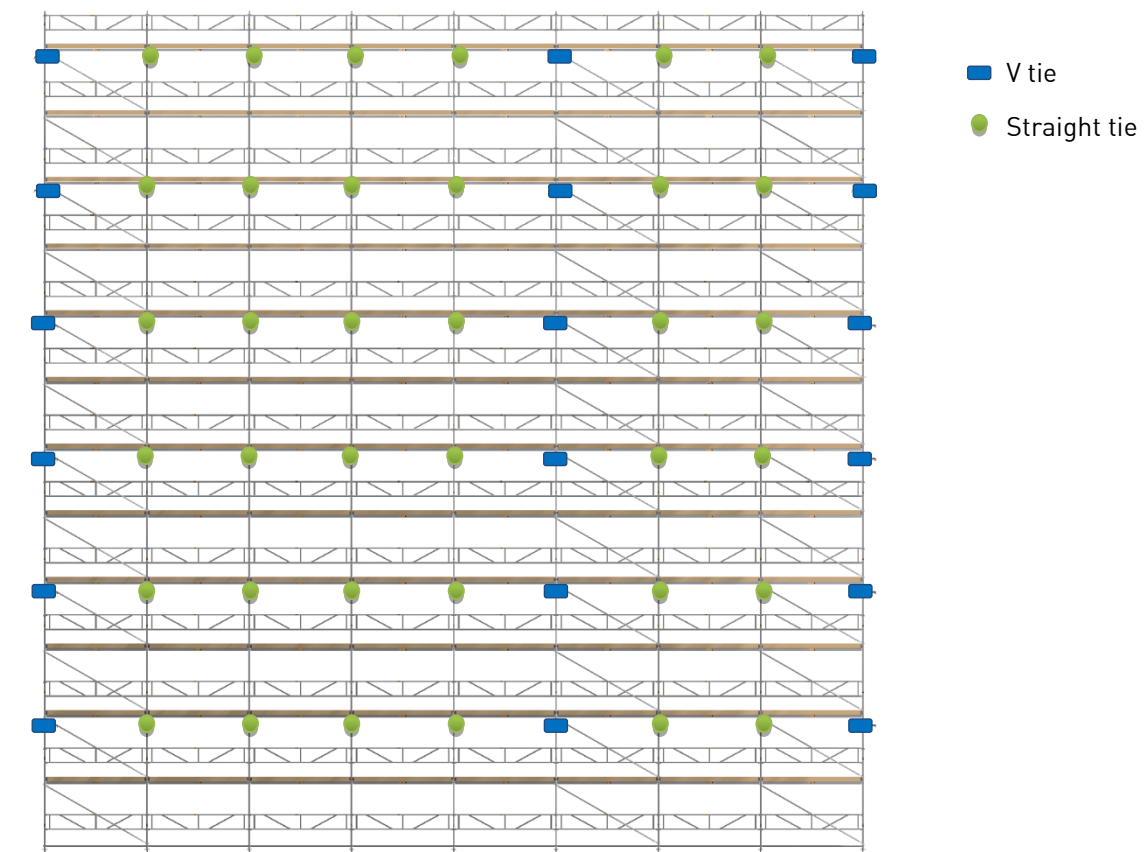
General recommendations: If there is uncertainty about the load-bearing capacity of the ties, the ties may need to undergo pull testing.

3.4. Tie patterns and vertical diagonal bracing

For bridging, 8 sections.



For normal façade construction, 8 sections.

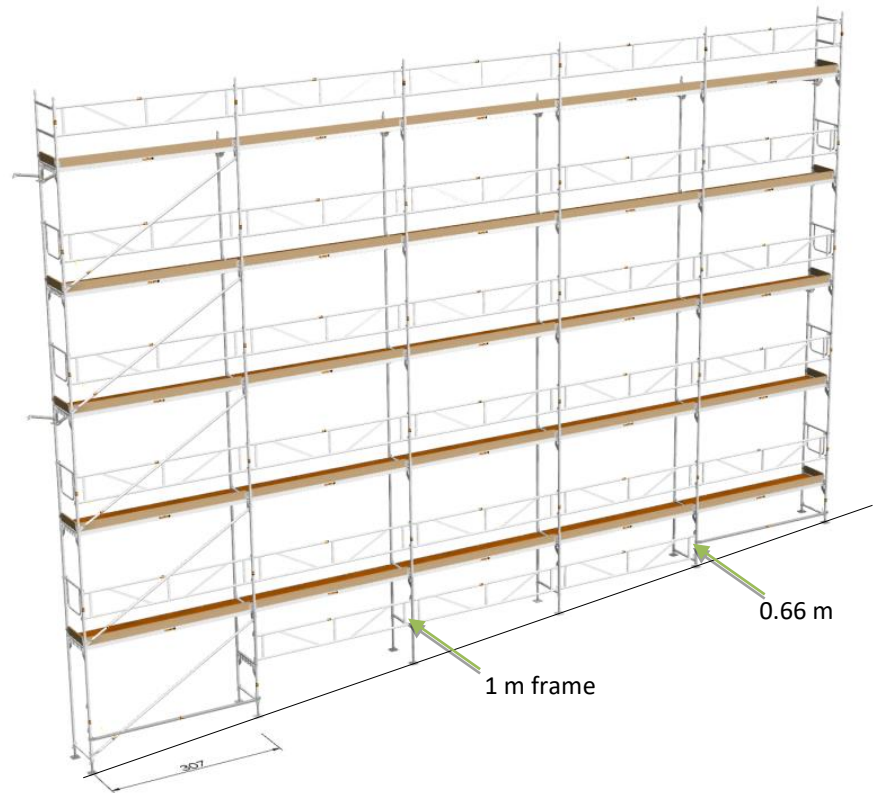


3.5. Assembly on sloping ground and height adjustment.

1 m or 0.66 m scaffold frames are used in combination with long or short base jacks at the bottom of the scaffolding in areas where the ground slopes more severely.

Spacings for various base jacks:

40cm	5-25 cm
60cm	5-45 cm
80cm	5-60 cm



1 m and 0.66 m scaffold frames can also be used at the bottom of the scaffolding to adjust the decking levels.

It is possible to install a double guardrail for bracing purposes between the 1-metre frames.

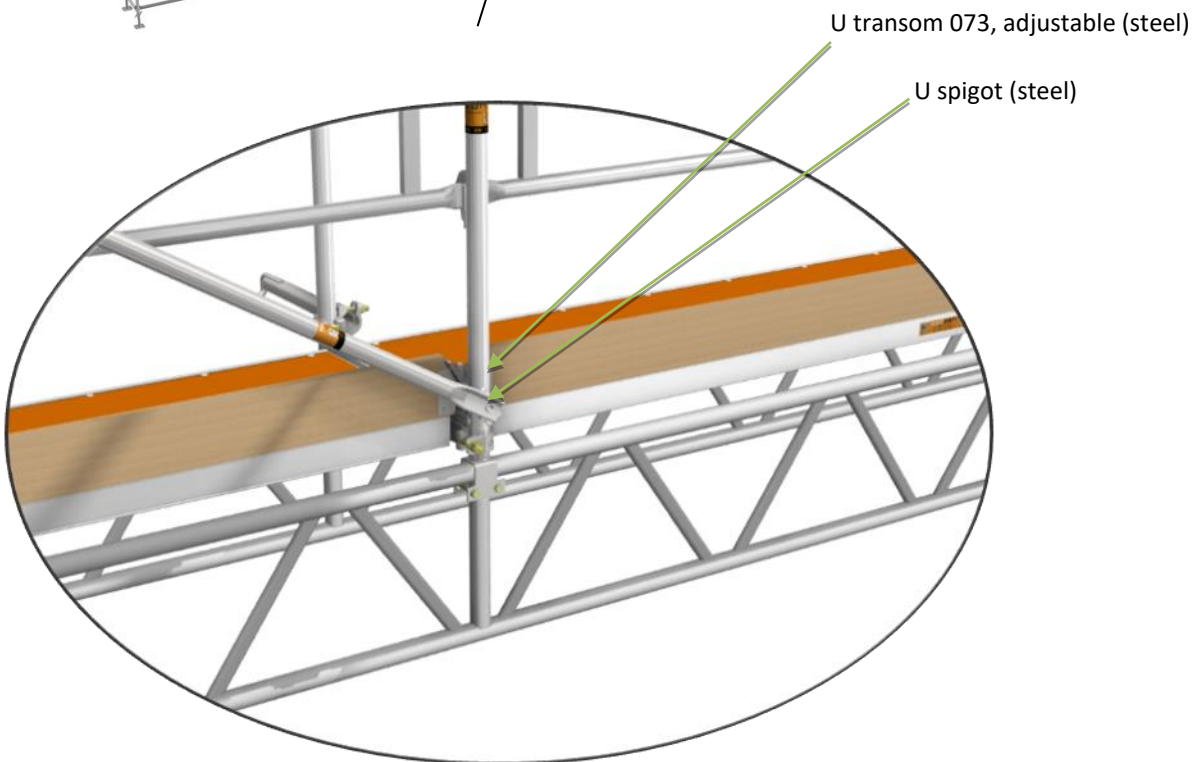


3.6. Bridging



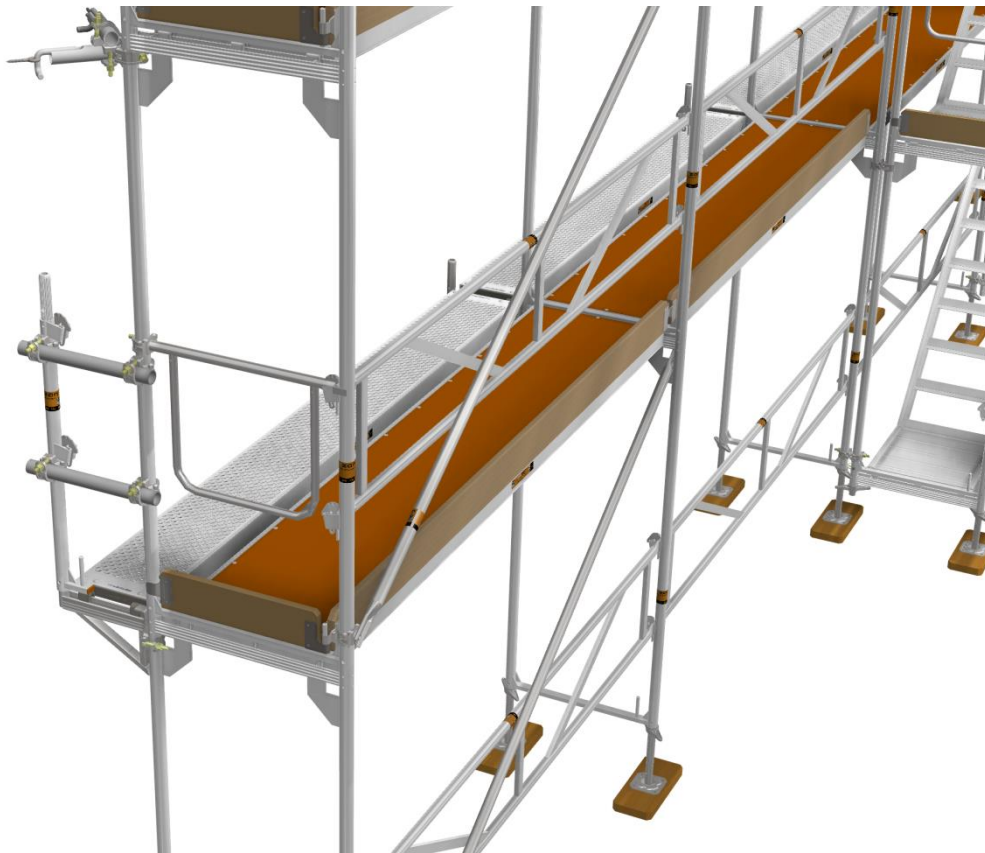
If bridging is required, 450 aluminium lattice beams, mounting spigots, adjustable U transoms and U spigots are used and installed as illustrated.

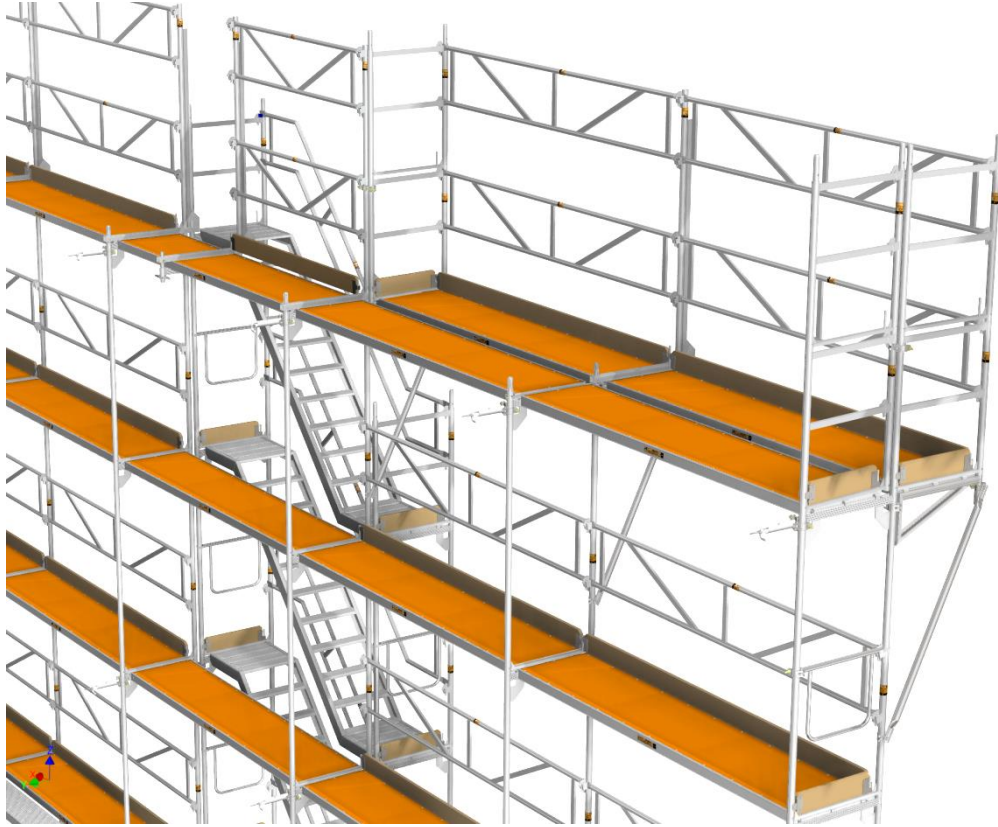
See section 3.4 for tie patterns and vertical diagonal bracing.



3.7. Brackets

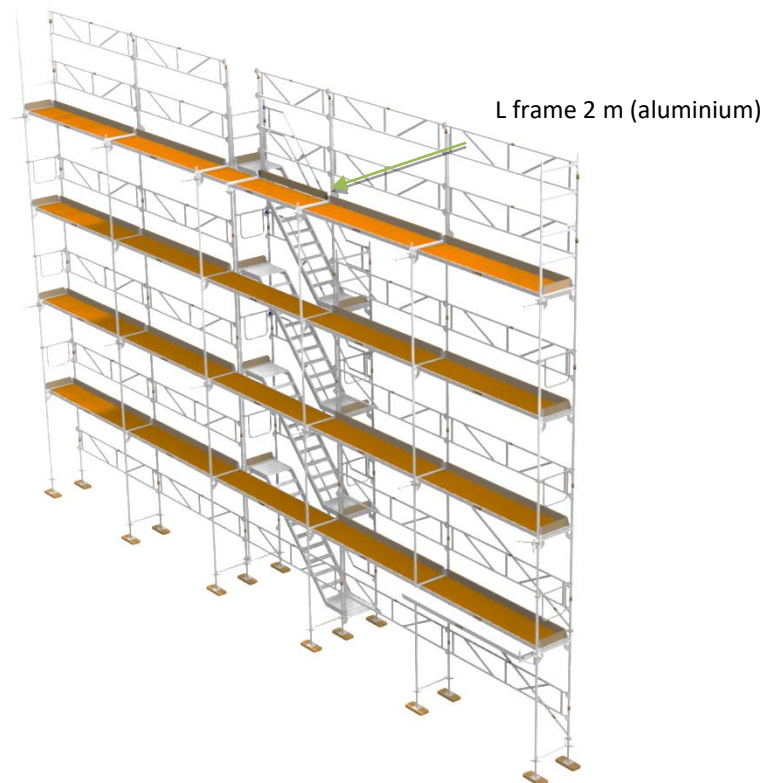
If necessary, the scaffold can be made wider using brackets. Variable height adjustment is also possible for brackets.





3.8. Long L frames

If guardrails higher than 1 m are required, 2 meter L frames can be installed together with 2 x double guardrails or 4 x single guardrails in each section. 2 x top end frames are mounted on top of one another on the ends of the scaffolding, as illustrated.



4. Dismantling

Check that the scaffold has been cleaned and that there are no loose objects on the platform levels.
 Check that all wall ties are in their correct positions (someone may have removed the ties).
 Check that all parts of the scaffold are positioned correctly (someone may have removed parts).
 Cordon off the area around the scaffold so that there is no unauthorised access to the area adjacent to it.
 Also read national regulations and general recommendations.

4.1. Implementation

The scaffold is then dismantled in reverse order to erection.
 Make sure you check the parts removed to ensure that they are not:

- Cracked
- Buckled
- Bent
- Broken

Any parts damaged must be discarded.

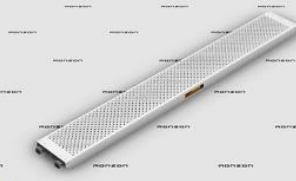
The materials should be loaded onto pallets or similar to prevent them being damaged during transportation. Never throw parts down from the scaffold!

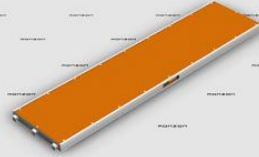
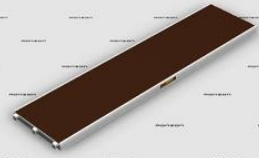
5. Approved component loads

5.1. Bracket, 3.07 m bay length

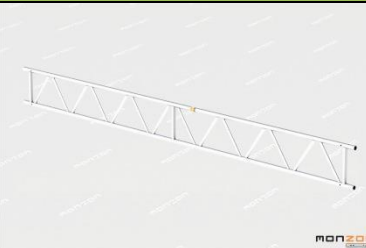
Art. no.	109.036	109.073	109.073 + 104.170
Bracket (steel)	U bracket 036 (steel)	U bracket 073 (steel)	U bracket 073 with brace
length (m)	0.36	0.73	0.73 with diagonal brace
Load class	3 (2.0 kN/m ²)	2 (1.5 kN/m ²)	3 (2.0 kN/m ²)
			

5.2. Deck

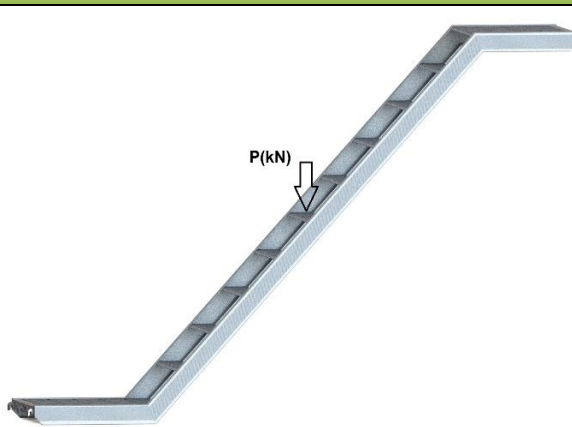
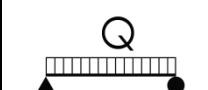
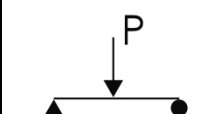
Art. no.	310.073-307						
U deck 0.32 (aluminium)							
Bay length	073	109	140	157	207	257	307
Load class	6	6	6	6	5	4	3

Art. no.	317.073-307						
Art. no.	300.073-307						
U combi deck 0.61 (fibreglass)							
U combi deck 0.61 (plywood)							
Bay length	073	109	140	157	207	257	307
Load class	4	4	4	4	4	4	3

5.3. Lattice beam

Art. no.		500.200-800					
Lattice beam 450 (aluminium)							
Load type		Length (m)					
		2	3	4	5	6	8
Load distributed evenly (kN/m)		8 kN/m	4.9 kN/m	3.32 kN/m	2.5 kN/m	1.78 kN/m	1 kN/m
Point load in centre (kN) The load must be applied via both the upper and the lower tubes.		8.67 kN	8.67 kN	8 kN	6.67 kN	5.67 kN	5 kN
Max. point load (kN) Load applied via one of the tubes.		3.0 kN	3.0 kN	3.0 kN	3.0 kN	3.0 kN	3.0 kN
Load class		3	3	3	3	2	1

5.4. Staircases

Art. no.		400.257-307			
					
	Length (m)	3.07	3.00	2.57	2.50
	Uniformly distributed load Q (over entire staircase) (kN/m ²)	1.0	1.0	1.0	1.0
	Point load P (over an area 125x200 mm) (kN)	1.5	1.5	1.5	1.5

5.5. Other applications

If you need information for scaffold structure types or load cases other than those referred to in these assembly instructions, please contact Monzon Sverige AB.

6. Loads and heights

Normal wall tie pattern: 4 m vertically between wall ties.

Configuration , Bay length 307	Max. height [m]	Max. permitted standard load [kN]
Without bracket	30.5	4.7
With bracket 036	24.5	4.9*
With lattice beam	34.5	-

* Same for inner and outer standard.

Wall tie pattern: 2 m vertically between wall ties.

Configuration , Bay length 307	Max. height [m]	Max. permitted standard load [kN]
Without bracket	50.5	7.9

7. Type inspection certificate



TYPE EXAMINATION CERTIFICATE

39 44 02

Frame scaffolding

Holder/Manufacturer/Supplier

Mon.Zon Development AB, Box 5238, SE-402 24 Göteborg

Product name

Frame scaffolding

Product description

According to pages 2–11 in this type examination certificate. Technical documentation according to the documentation for SP, no. 4P06705.

Requirements

The Swedish Work Environment Authority's Statute Book AFS 2013:4 Scaffolding, 10 § (SP's certification regulations SPCR 064) and SS-EN 12810-1.

Permitted Load

Load class 2 – 3 (1.5 – 2.0 kN/m²), with conditions according to the product description.

Marking

The main components of the scaffolding such as base jacks, frames, guardrail frames, diagonal braces, platforms, stairways, lattice beams, brackets, etc. must be clearly stamped with the year of manufacture (2 digits) and "monzon".

Validity

This type examination certificate is valid until not later than 15th March 2027.

Miscellaneous

SP carries out an annual verification of conformity of the type examined components according to section 5 of SPCR 064.

This type examination certificate replaces the certificate of the same number dated 15th March 2017 and originally issued on 28th February 2005.

**SP Technical Research Institute of Sweden
Certification**


Lennart Aronsson


Gunnar Söderlind

This is a translation from the Swedish original document. In the event of any dispute as to the content of the document, the Swedish text shall take precedence.



Type examination certificate no. 394402 issue 10, 2017-05-09

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The type examination certificate consists of 11 pages, this being page 1.