



# TYPE EXAMINATION CERTIFICATE

39 44 06

## Modular Light Aluminium scaffolding

### Holder/Manufacturer

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

### Supplier

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

### Product name

Modular Light Aluminium scaffolding

### Product description

As described in the appendix to this certificate. Technical documentation in accordance with the material supplied for SP reference no. P801065 and 7P04539.

### Specification of requirements

The Swedish Work Environment Authority Code of Statutes AFS 1990:12 Scaffolding, paragraph 6, (SP's certification rules, SPCR 064), SS-EN 12810-1.

### Permissible load

Load class 2–5 (1.5–4.5 kN/m<sup>2</sup>), as specified in the product description.

### Marking

The main components of the scaffolding, such as standards, diagonal braces, double guardrails, platforms, brackets, etc. must be marked with the name MONZON and aabb, where aa is the month of manufacture and bb is the year of manufacture.

### Validity

This type examination certificate is valid until not later than 14<sup>th</sup> February 2023.

### Miscellaneous

This certificate replaces earlier certificate with the same number, dated 20<sup>th</sup> February 2014. This certificate was originally issued on 14<sup>th</sup> February 2013.

### SP Sveriges Tekniska Forskningsinstitut Certification

Lennart Aronsson

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Type examination certificate no. 394406 issue 3, 2017-09-12

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## Appendix

### Product description, Modular Light Aluminium scaffolding

#### Design

Modular Light Aluminium modular scaffolding is made up of standards, horizontals, guardrail frames, transoms, diagonals, platforms, brackets etc. as shown in the component list below. Access is provided by stair units mounted on two additional standards outside the scaffolding.

Component (design/type as shown in the erection instructions)	Sizes (m)	Item No.
Base jack	0.40, 0.60, 0.80	111.040—080
Base jack, hinged	0.60, 0.80	111.061—081
Base collar	0.33	201.000
Standard	0.50, 1.00, 1.50, 2.00, 2.50, 3.00, 4.00	240.050—400
Standard offshore without spigot	0.50, 1.00, 1.50, 2.00, 2.50, 3.00, 4.00	243.050—400
Spigot for offshore standard	0.50	243.000
Tubular horizontal	0.39, 0.50, 0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 1.75, 2.00, 2.07, 2.25, 2.50, 2.57, 3.00, 3.07	241.039—307
Guardrail frame (alu)	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 1.75, 2.00, 2.07, 2.25, 2.50, 2.57, 3.00, 3.07	251.073—307
Guardrail frame (steel)	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 1.75, 2.00, 2.07, 2.25, 2.50, 2.57, 3.00, 3.07	217.073—307
Transom, U-shape	0.73	242.073
Transom, U-shape, reinforced	1.09, 1.40	242.109—140
U-beam	1.57, 2.07	248.157—207
Vertical diagonal brace	Height 2.00 Bay length 0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 1.75, 2.00, 2.07, 2.50, 2.57, 3.00, 3.07	244.073—307

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Component (design/type as shown in the erection instructions)	Sizes (m)	Item No.
Horizontal diagonal brace	2.57×0.73, 2.57×1.09, 2.57×1.40, 2.57×2.57 3.07×0.73, 3.07×1.09, 3.07×1.40, 3.07×3.07	205.315, 205.314 205.329, 205.311 205.305—303, 205.330
U-aluminium plank 0.32	0.73, 1.09, 1.40, 1.57, 2.07, 2.57, 3.07	310.073—307
U-Combi deck 0.61, plywood	0.73, 1.09, 1.40, 1.57, 2.07, 2.57, 3.07	300.073—307
U-Combi deck 0.61, fiberglass	0.73, 1.09, 1.40, 1.57, 2.07, 2.57, 3.07	317.073—307
O-aluminium plank 0.30	0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.50, 3.00	311.075—300
O-aluminium plank 0.32	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 2.00, 2.07, 2.50, 2.57, 3.00, 3.07	309.73—307
O-Combi deck 0.61, plywood	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 2.00, 2.07, 2.50, 2.57, 3.00, 3.07	304.073—307
O-Combi deck 0.61, fiberglass	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 2.00, 2.07, 2.50, 2.57, 3.00, 3.07	327.073—307
U-Access deck, plywood	2.57, 3.07	405.257—307
U-Access deck, fiberglass	2.57, 3.07	417.257—307
U-Access deck, without ladder, plywood	1.57, 2.07, 2.57, 3.07	413.157—307
U-Access deck, without ladder, fiberglass	1.57, 2.07, 2.57, 3.07	418.157—307
O-Access deck, plywood	2.50, 2.57, 3.00, 3.07	407.250—307
O-Access deck, fiberglass	2.50, 2.57, 3.00, 3.07	427.250—307
Ladder for ladder platform	2.15	412.001
Aluminium stairs for U-transom	2.57×2.00, 3.07×2.00 1.60×1.00	400.257—307 400.100
Aluminium stairs for O-transom	2.50×2.00, 2.57×2.00, 3.00×2.00, 3.07×2.00	401.250—307
External stair rail, singel	2.50, 2.57, 3.00, 3.07	444.250—307
External stair rail, double (alu)	2.50, 2.57, 3.00, 3.07	445.250—307
Internal stair rail	2.80	412.280

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Component (design/type as shown in the erection instructions)	Sizes (m)	Item No.
Lattice beam, aluminium	1.57, 2.07, 2.57, 3.07, 4.14, 5.14	249.157—514
Corner platform (steel)	36 cm	313.036
Toeboard, longitudinal (wood)	0.73, 1.09, 1.40, 1.57, 2.07, 2.57, 3.07	108.073—307
Toeboard, longitudinal (alu)	0.73, 0.75, 1.00, 1.09, 1.25, 1.40, 1.50, 1.57, 2.00, 2.07, 2.50, 2.57, 3.00, 3.07	118.073—307
Toeboard, transverse (wood)	0.73, 1.09, 1.40	108.064—062
Toeboard, transverse (alu)	0.73, 0.75, 1.00, 1.09, 1.25, 1.40	119.073—140
Hop-up bracket for U-transom with spigot, (alu)	0.36	250.036
Hop-up bracket for U-transom (alu)	0.37	250.037
Hop-up bracket for U-transom, steel	0.39, 0.73	206.039—073
Lattice beam 750 (alu)	2.25, 3.25, 4.25, 5.25, 6.25, 7.25	901.225—725
Mounting spigot standard-lattice beam	0.75	213.750
Wall brace	0.30—1.30	112.030—130
Rosette coupler		809.023
U-transom 0.73, adjustable	0.73	202.071
Bolt with spring lock	60 mm	500.008
Sole plate (wood)	45×450 mm	830.050
U-spigots		820.000
O-spigot		813.023
PSI-transom (alu)	0.25, 0.50, 0.75, 1.00, 1.25 cm	242.025—125
PSI-transom, reinforced (alu)	150, 175, 200, 225, 250, 300 cm	248.150—300
PSI-bracket 025 (alu)	0.25	252.025
PSI-bracket 50 (alu)	0.50	252.050
PSI-bracket 75 (alu)	0.75	252.075
PSI-frame 075	Width: 0.75 Height: 0.5, 1.00, 1.50, 2.00	246.050—200
PSI-frame 100	Width: 1.00 Height: 0.5, 1.00, 1.50, 2.00	247.050—200

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Component (design/type as shown in the erection instructions)	Sizes (m)	Item No.
PSI-deck 025	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 300 cm	325.025—300
PSI-deck 025 (alu)	25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 300 cm	312.25—300
PSI-platform 050 (alu)	50, 75, 100, 125, 150, 200, 250, 300 cm	315.050—300
PSI-platform 050 (fibreglass)	50, 75, 100, 125, 150, 175, 200, 225, 250, 300 cm	314.050—300
PSI-stair hatch (fibreglass)	75×100 cm	419.100
PSI-corner deck, 90° (alu)	25×25, 50×50 cm	313.025—050
PSI-corner deck, 45° (alu)	25×25, 25×50, 25×75 cm	322.025—075
PSI-corner deck, variable (alu)	75×50 cm	303.050
Toeboard (alu)	50, 75, 100, 125, 150, 175, 200, 225, 250, 300 cm	252.0.50—300
PSI-lattice beam (alu)	250, 300, 400, 500, 600 cm	249.250-600
PSI-stairway (alu)	250×200, 300×200 cm 150×050, 150×100 cm 050×150 cm	402.250—300 402.050—100 402.150
PSI-connector, for ledgers for tubes		841.000 844.000
PSI-connector with spigot double single		842.000 843.000

Other accessories: Platform clamps, toeboard holders, fixed wedge coupler, swivelling wedge coupler, double wedge coupler, H-beam coupler, standard coupler U-transom, standard coupler tubular transom.

### Dimensions and materials

Dimensions and materials of main components are given in the following table.

Component	Dimensions (mm)	Material
Standard, horizontals	φ 48.3×4.0	Aluminium
Base jack	φ 38.0×5.0	Steel
Vertical diagonal braces	φ 48.3×3.0	Aluminium
Horizontal diagonal braces	φ 40.0×2.5	Steel
Wall ties	φ 48.3×3.2	Steel

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### Requirements

1. Verified **erection height** for specified **working area width, bay width, bay length** (c-c distance between standards), **lift height, wall tie spacing** and **load class**.

<b>Load class</b>	3		4
<b>Permissible load (kN/m<sup>2</sup>)</b>	2.0		3.0
<b>Bay width (m)</b>	1.09		
<b>Bay length (m)</b>	2.57	3.07	2.57
<b>Lift height, max (m)</b>	2.0		
<b>Vertical wall tie spacing (m)</b>	4.0	3.0 Over 12 m: 4.0	3.0
<b>Platform</b>	Aluminium plank*		
<b>Verified erection height, (m)</b>			
- without hop-up brackets	25	25	25
- with 0.39 m hop-up brackets (all levels)	25	18	

\* Aluminium plank weight 15 kg/m<sup>2</sup>

2. When designing scaffolds with a different structure than above, a **maximum permissible load per standard of 7.0 kN** may be used, provided that other conditions as specified under "Requirements" are observed. When designing scaffolds using the **partial coefficient method**, obtain the design load capacity by multiplying the permissible load by 1.5.
3. The **ground** on which the scaffold stands must be capable of carrying a design load of 14 kN per standard.
4. **Wall ties** must be able to support a design pull-out or compressive load of 4.8 kN and a transverse load of 4.0 kN (V-shape tie) or 3.2 kN (standard tie) for bay lengths of 2.57 m. Higher wind loads can occur at heights over 24 m and this will place greater loads on the wall ties.
5. Calculations assume that work is only carried out on a single (1) level.
6. The scaffolding must be **anchored to the wall** at nodes between inner standards and transoms at least every 3 to 4 metres in height; see point 1. The lowest tie must not be more than 4.5 m above the ground. Ties that can withstand horizontal forces must be fitted to at least every fifth pair of standards (longitudinally) at each tie level.
7. **Vertical diagonal braces** parallel to the facade must be fitted on every fifth bay, and to all end bays. If double guardrails are fitted to all levels these diagonal braces can be omitted.
8. Each level at a height of 2 m or more above ground must be fitted with **platforms and guardrail frames or double guardrails and toeboards** on the outside and at the ends.

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9. **Standards with a length of 2.0 m** may only be used on the upper part of the scaffolding and never below the upper half of the scaffolding. Even shorter standards may only be used at the top of the scaffolding.
10. When **hop-up brackets** are used, a cover plate must be fitted over the gap between the main level and the bracket level, or the gap must be covered to prevent the risk of tripping in some other way.
11. **Access ways** consist of stairs mounted in a stair tower on the outside of the scaffolding, and fitted with the necessary components, or on two additional standards on the outside of the scaffolding. In the latter case the maximum erection height at the junction with the stairs must be considered, since two standards are supporting the weight of both the scaffolding and the stairs. The access stairway must be fitted with handrails on the inside and outside, with crossed guardrails at the ends and with toeboards on the lower end.
12. **Lattice beams and couplers** must be type examined.

### Load-carrying components

#### Brackets

The following permissible loads and load classes apply to Hop-up brackets

Hop-up bracket	Load class for 3.07 m bay length
0.36 Aluminium	3
0.39 Steel	4
0.73 Steel	3
0.73 Steel, with diagonal brace	4

The following permissible loads and load classes apply to PSI-brackets.

Bracket length (m)	Distributed load across bracket (kN)	Point load (kN)	Section length (m)		
			3.00	2.50-1.75	1.50-0.25
PSI 0.75	5.8	8.5	3		
PSI 0.50	7.5	6.9	4	5	6
PSI 0.25	9.0	5.8	6		

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### Beams

The following permissible loads apply for beams. For the x/y values in the tables below, x refers to single-sided loading and y refers to double-sided loading.

Note. In single-sided loading only one flange of the U-beam is loaded, hence the lower load-carrying capacity.

U-beam	Permissible uniformly distributed load [kN]	Platform length*/ Load class				Permissible point load $\phi$ 50 mm [kN]
		1.57	2.07	2.57	3.07	
1.57	7.9	5/5	4/4	4/4	3/3	2.9
2.07	6.0	4/3	3/3	3/3	3/2	2.2

\* Platform supported on longitudinal U-beams, 15 kg/m<sup>2</sup>

Transverse U-beam (1.09 and 1.40 reinforced)	Permissible uniformly distributed load [kN]	Platform length*/ Load class				Permissible point load $\phi$ 50 mm [kN]
		1,57	2,07	2,57	3,07	
0.73	3.6	5/5	4/4	4/4	3/3	1.8
1.09	6.3	5/5	5/5	4/4	4/4	2.7
1.40	4.9	4/4	3/3	3/3	3/3	2.1

\* Platform supported on transverse U-beams, 15 kg/m<sup>2</sup>

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### PSI-transom

The following permissible loads and load classes apply to PSI-transoms.

Section length (m)	Beam length, as transom (m)									
	3.00	2.50	2.25	2.00	1.75	1.50	1.25	1.00	0.75	0.50
Distributed load (kN/m)	3.6*	5.1*	7.2*	9.3*	11.4*	13.3*	12.2*	21.9*	31.3*	41.1*
Point load (kN)	5.1*	6.2*	7.1*	8.0*	8.9*	9.8*	7.2*	9.4*	11.4*	13.7*
3.00		2	3	3	3	4	4	5	6	6
2.50		2	3	3	4	4	4	6		
2.25		3	3	4	4	5	4	6		
2.00	2	3	3	4	4	5	5	6		
1.75	2	3	4	4	5	5	5	6		
1.50	3	3	4	5	5	6	5	6		
1.25	3	4	4	5	6	6	6	6		
1.00	3	4	5	6	6	6	6	6		
0.75	4	5	6	6	6	6	6	6		
0.50	5	6	6	6	6	6	6	6		
0.25	6	6	6	6	6	6	6	6		

\* Permitted load with single sided loading is obtained by multiplying by 0.8.

### Platforms

The following load classes apply for platforms supported on scaffolding.

Type	Length (mm)/Load class*						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
Aluminium plank (U- and tubular)	6	6	6	5	5	4	4
Plywood platform (U- and tubular)	4	4	4	4	4	4	3

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### PSI-platforms

The following permitted loads for evenly distributed loads and load classes apply to PSI-platforms.

Platform	Height (mm)	Width (mm)	Length (m)	Permitted load (kN/m <sup>2</sup> )	Load class
PSI-deck 0.25 steel	70	320	0.25 – 2.00	6.0	6
			2.50	4.5	5
			3.00	3.0	4
PSI-deck 0.25 alu	79	248	0.25 – 2.00	6.0	6
			2.50	4.5	5
			3.00	3.0	4
PSI-platform 0.50 alu	79	498	0.50 – 1.50	6.0	6
			1,75 – 2.00	4.5	5
			2.50	3.0	4
			3.00	2.0	3
PSI-platform 0.50 fibreglass	79	498	0.50 – 1.50	6.0	6
			1.75 – 2.00	4.5	5
			2.50	3.0	4
			3.00	2.0	3
PSI-corner deck	79	750	500	3.0	4

### Instruction manual

An instruction manual must be supplied with the scaffolding when it is handed over to the user.

### Miscellaneous

This type examination certificate is valid for scaffolding made and supplied by the manufacturer and supplier as stated on the certificate, using materials, dimensions and design/construction methods that match those of the inspected material.

The scaffolding must not be assembled using components from another type of scaffolding unless a special investigation of the resulting load-carrying capacity has been carried out.

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.



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