

Suojatuote ProXa Scaffold installation manual



Suojatuote Pro Oy

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Pvm 23.5.2013

General

The Suojatuote ProXa scaffold is a modular scaffold system which consists of different components. The erection of the scaffold is quick and smooth.

SP Sveriges Tekniska Forskningsinstitut has type approved the scaffold system for load classes 2, 3, 4, 5 and 6. Type approval certificate number SC0498-13. All calculations and tests have been carried out according to the EN 12810 standard. All components have a hard stamp "SP" and the year of manufacturing.

The system includes standards, ledgers, diagonal braces, brackets and steel planks. The standard has assembly rings at 50cm distance. The assembly ring has 4 pcs connector holes, where ledgers and other components will be connected. The length of the standard is max 3.00 meter.

Available in baylengths of 1.40 m, 2.07 m, 2.57 m and 3.07 m. Baywidths 0.73 m 1.09m and 1.40 m.

All parts are hot-dip galvanized according to the EN ISO 1451-standard.

NOTE:

Erection and dismantling of the scaffold system may only be carried out by persons skilled and experienced in scaffold installations. The scaffold components must be visually inspected before they are installed. Broken parts may not be used.



Load classes

The stiffness and stability of the scaffold will be determined by the components used in the system.

Description of classes

Classes 1-2	"Light" scaffold. Most commonly used configuration, used with painting, jointing, installation, repair works and as a support structure for weather protection systems. Baywidth normally 0.73m or 1.4m.
Class 3	"Middle heavy" scaffold, used in cases where material is stored for immediate use, for example more heavy installation work. Baywidth normally 1.4m.
Class 4	"Heavy" scaffold, which is used when material is stored for longer periods of time, for example masonry work. Telineen leveys yleensä 1.4m.
Class 5-6	"Extremely heavy" scaffold, which is used when big amounts of material is stored for longer periods of time or in other extreme cases.

Workloads per class

Load-class	Surface load kN/m ²	Concentrated load 500 x 500 mm kN/m ²	Concentrated load 200 x 200 mm kN/m ²	Partial-area load kN/m ²
1	0.75	1.5	1.0	
2	1.5	1.5	1.0	
3	2.0	1.5	1.0	
4	3.0	3.0	1.0	5.0
5	4.5	3.0	1.0	7.5
6	6.0	3.0	1.0	10.0

1 kN (kilonewton) equals about 100 kg.

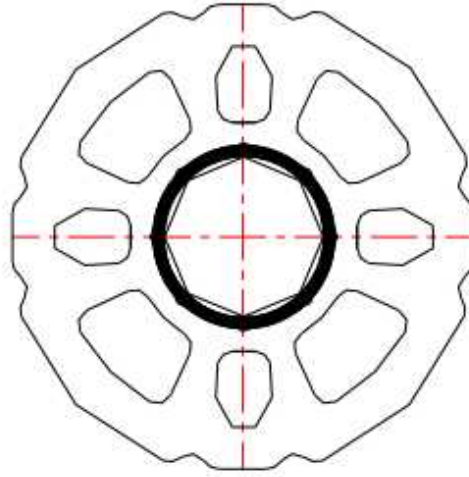
Load class and stiffness will vary between different baylengths and baywidths. The below table shows how different load classes are reached with different configurations.

Baywidth (m)	1.40		0.73		1.40
Baylength (m)	3.07	2.57	3.07	2.57	3.07
Loadclass	3		3	4	6
Anchor distance (m)	4				2
Scaffold height					
- without brackets	14	24	24	24	24
- with 0.45m brackets (all floors)	14	24	24	20	24

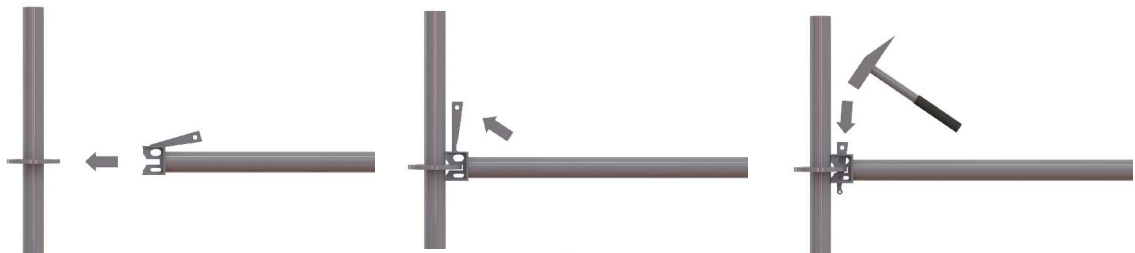
Floor height, max 2 meters. The load on one floor at a time.

Assembly of connection point

The connection between the standard and horizontal is based on the wedge lock principle. This way the scaffolding reaches a 90 degree angle when with a loosely fixed wedge. By hammering the wedge a secure locking position is created.



The connection ring has four small holes at a 90 degree angle to each other. Ledgers are connected to these small holes and they automatically will have the correct angle.




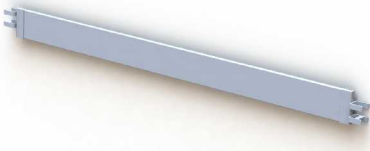

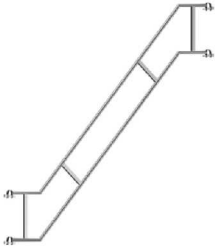
A rigid connection is created using the following steps.

- a) The component with a wedge is pushed into the ring.
- b) The wedge is put into position
- c) A secure connection is created by hammering the wedge

By following the instructions the connection will be a rigid connection.

Components

Product nr		Explanations	Size	Weight(kg)
PROXA-ST050 PROXA-ST100 PROXA-ST150 PROXA-ST200 PROXA-ST300		Standard, steel pipe Ø 48 mm, hot dip galvanized, assembly rings every 50 cm.	0.5m 1m 1.5m 2m 3m	3.36 5.4 11 16.8
PROXA-LE045 PROXA-LE073 PROXA-LE140 PROXA-LE207 PROXA-LE257 PROXA-LE307		Ledger, steel pipe Ø 48 mm, hot dip galvanized.	0.45m 0.73m 1.4m 2.07m 2.57m 3.07m	2.06 3.14 6.06 9.6 10.25 13.6
PROXA-BLE140 PROXA-BLE207		Re-inforced ledger.	1.40m 2.07m	12.3 17.6
PROXA-DB073 PROXA-DB140 PROXA-DB207 PROXA-DB257 PROXA-DB307		Diagonal brace, steel pipe Ø 48 mm, hot dip galvanized.	0.73m 1.4m 2.07m 2.57m 3.07m	9.36 10.1 12 13.3 14.76
PROXA-SD31140 PROXA-SD31207 PROXA-SD31257 PROXA-SD31307 PROXA-SD36140 PROXA-SD36207 PROXA-SD36257 PROXA-SD36307		Steel deck. Hot dip galvanized.	1.4m 2.07m 2.57m 3.07m	11.03 16.8 18.73 25
PROXA-BR045 PROXA-BR073		Bracket. Hot dip galvanized.	0.45m 0.73m	6.66 9.25

PROXA-AB60		Adjustable based plate.	0.6	6
PROXA-TB073 PROXA-TB140 PROXA-TB207 PROXA-TB257 PROXA-TB307		Toe-board.	0.73m 1.4m 2.07m 2.57m 3.07m	3.2 4.4 5.63 7.52 7.4
PROXA-HDB5		Horizontal diagonal brace.	5m	
PROXA-AS207 PROXA-AS257		Aluminium stairs. Width 0.62m ja height 2m.	2.07m 2.57m	28.5 32.3
PROXA-ASHR207 PROXA-ASHR257		External handrail for stairs.	2.07m 2.57m	14.1 16.4

The ProXa scaffold system can be complemented with other systems parts only in case that the parts are type-approved and will not lower the capacity of the scaffold.

Components load capacity / load class

Bracket

Bracket	Load class
0.45	6
0.73	5

Ledger

Ledger	Evenly distributed kN/m	Baylength							Point load Ø 50mm kN
		3.07	2.57	2.07	1.57	1.40	0.73	0.45	
3.07	1.8	-	-	-	-	-	-	3	2.8
2.57	2.6	-	-	-	-	-	3	3	3.3
2.07	4.0	-	-	-	-	2	3	3	4.1
1.40	8.7	2	3	3	3	3	4	5	6.1
0.73	31.9	4	4	5	6	6	6	6	11.6
0.45	84.0	6	6	6	6	6	6	6	18.9

Deck load max 25 kg/m²

Reinforced ledger

Ledger	Baylength							Point load Ø50mm kN
	3.07	2.57	2.07	1.57	1.40	0.73	0.45	
2.07	5	5	6	6	6	6	6	26.3
1.40	6	6	6	6	6	6	6	30.0

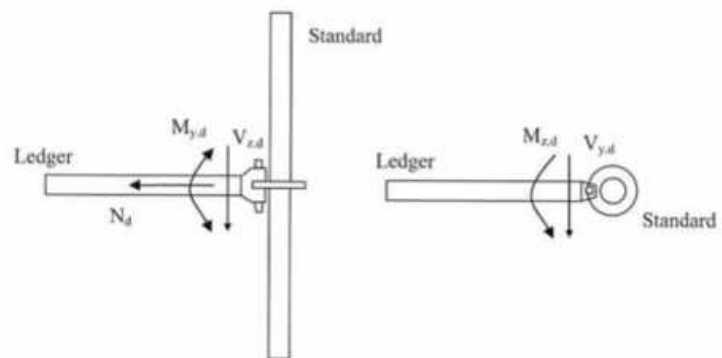
Deck load max 25 kg/m²

Steel deck

Applies to steel decks mounted on the scaffold

Type	Length			
	3.07	2.57	2.07	1.40
310mm	3	4	6	6
360mm	3	3	6	6

Stiffness of the wedge-connection

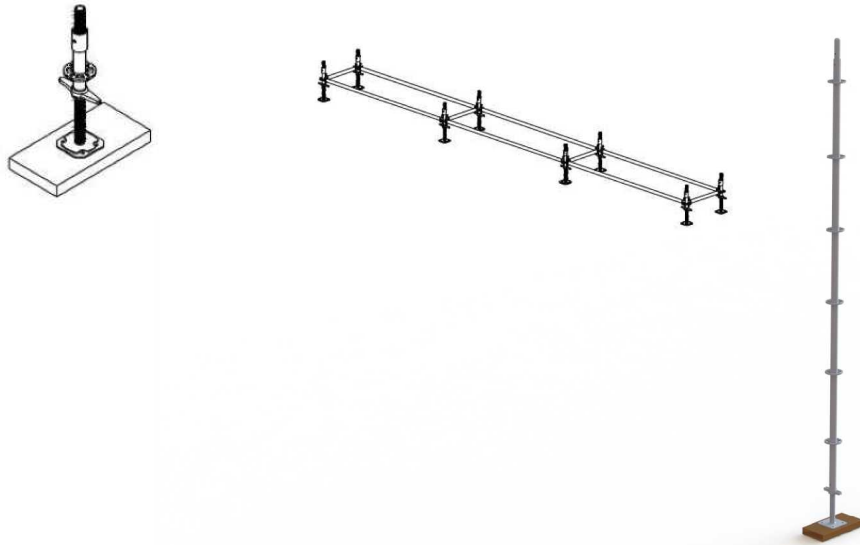


	Load capacity (kN)	Moment capacity downwards	Moment capacity upwards
$M_{y,d}$		1235	-1023
$M_{z,d}$		363	-363
N_d	37.1		
$V_{z,d}$	21.6		
$V_{y,d}$	30.7		

Scaffold installation

Installation

1. Place the starting collars and base jacks into position. By placing a piece of board under the base jacks, the forces will be distributed on a wider area. Repeat this for the other starting collars and finally connect the starting collars with ledgers. Alternatively you can also mount the scaffold without the starting collars by placing standards directly on top of the base jacks.



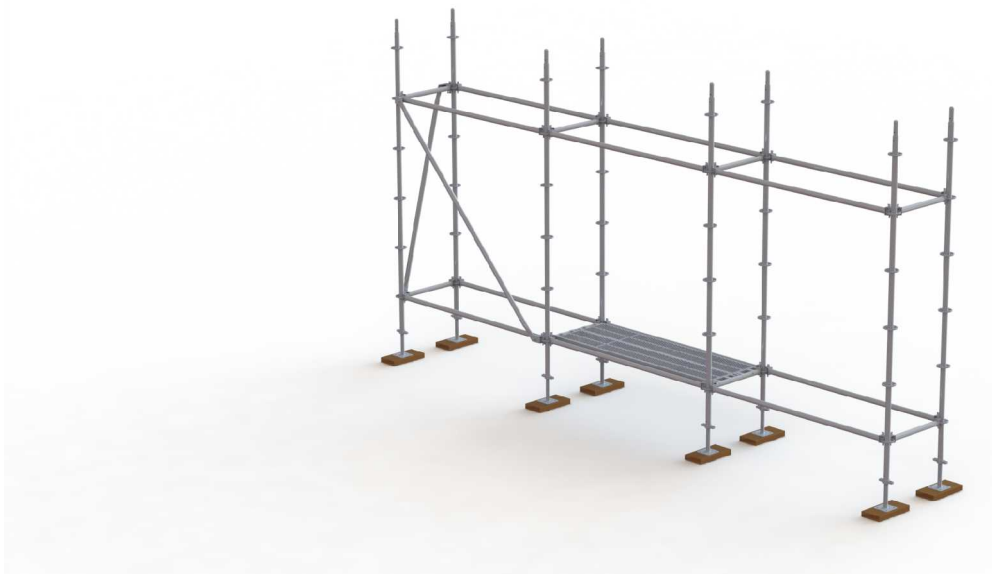
2. Repeat this for all the standards until the whole bottom floor is completed. Verify that all ledgers are straight.



3. Begin the assembly of the first floor by mounting ledgers to the height where you want the first floor.



4. Mount diagonal braces and steel decks. After the first floor is done you can continue assembling the second floor.



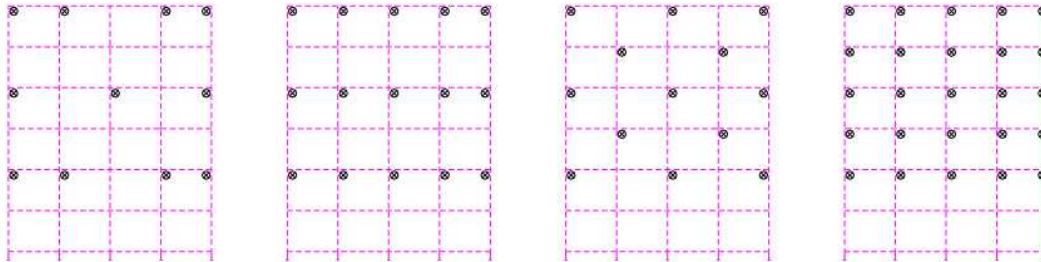
5. Mount stairs and guard rails.



6. Check that all floors have toe-boards and guard rails.

Anchoring

The scaffold has to be anchored to the wall.



Different anchoring patterns (in the above picture one square is 2m x 2m)

- Wall ties must withstand a vertical force of 4.4 kN and cross force of 7.0 kN (V-anchor)
- Anchors must be mounted horizontally at 4m distance, lowest anchor at max 4.5m height.
- When scaffold sheet is mounted on the scaffold the outermost bays must have anchors horizontally at 2m distance

Conditions

- Scaffold height, baywidth, baylength, floorheight and anchoring distance must be according to this manual
- When calculating configurations other than mentioned in this manual a standard load of 11.2 kN can be applied
- The ground below the base jacks must withstand a force of 32 kN / standard

- All calculations are base on that work is carried out on one floor
- All floors must have guard rails and toe-boards
- Access way to the scaffold is mounted on the outside the scaffold
- Stairs must have guard-rails

Warning for wind, snow and ice

The wind, snow and ice-conditions changes very rapidly so all these forces have to be accounted for.

Storage and handling

Scaffold components will be stored in steel cages. The components have to be manually checked before installation and after dismantling.

For technical support contact the manufacturer.

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