

The Formwork Experts.

DokaScaff

Modular scaffold system

User Information

Instructions for assembly and use



Table of Contents

| | |
|--|-----------|
| Introduction | 3 |
| Elementary safety warnings | |
| System description | 8 |
| Declaration of Conformity | 10 |
| Technical Data | 12 |
| Basic components | |
| Load capacity components | |
| Assembly | 22 |
| Assembly & load capacity of working platform | |
| Anchoring & bracing | |
| Access | |
| Erection & dismantling | |
| Various solutions | |
| Maintenance | 59 |
| Standard config's stair towers | 60 |
| Standard config's rebar scaffolds | 68 |
| Standard config's crossovers | 70 |
| Standard config's for lifting / crane handling | 73 |
| Component overview | 77 |

Introduction

Elementary safety warnings

User target groups

- This manual is aimed at all persons who will be working with the Doka product or system that it describes. It contains information on the standard design for setting up this system, and on correct, compliant utilization of the system.
- 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.
- 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.
- The customer is to ensure that the information materials provided by Doka (e.g. User Information booklets, Instructions for Assembly and Use, Operating Instruction manuals, plans etc.) are available to all users, and that they have been made aware of them and have easy access to them at the usage location.
- In the relevant technical documentation and formwork utilization plans, Doka shows the workplace safety precautions that are necessary in order to use the Doka 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.

Hazard assessment

- The customer is responsible for drawing up, documenting, implementing and continually updating a hazard assessment at every job-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 utilize the system. It does not substitute for these, however.

Remarks on this document

- This manual can also be used as a generic method statement or incorporated with a site-specific method statement.
- **Many of the illustrations in this booklet show the situation during formwork and scaffolding assembly and are therefore not always complete from the safety point of view.**
- Any safety accessories not shown in these illustrations must still be used by the customer, in accordance with the applicable rules and regulations.
- **Further safety instructions, especially warnings, will be found in the individual sections of this document!**

Planning

- Provide safe workplaces for those using the scaffold (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!

- **If you are considering any deviation from the details and instructions given in this booklet, or any application which goes beyond those described in the booklet, then revised static calculations must be produced for checking, as well as supplementary assembly instructions.**

Regulations; industrial safety

- All laws, standards, industrial safety regulations and other safety rules applying to the application and utilization of our products in the country and/or region in which you are operating must be observed at all times.
- **If a person or object falls against, or into, the sideguard 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.**

Rules applying during all phases of the assignment:

- The customer must ensure that this product is erected and dismantled, reset and generally used for its intended purpose in accordance with the applicable laws, Standards and rules, under the direction and supervision of suitably skilled persons. These persons' mental and physical capacity must not in any way be impaired by alcohol, medicines or drugs.
- Doka products are technical working appliances which are intended for industrial/commercial use only, always in accordance with the respective Doka User Information booklets or other technical documentation authored by Doka.
- The stability of all components and units must be ensured during all phases of the construction work!
- The functional/technical instructions, safety warnings and loading data must all be strictly observed and complied with. Failure to do so can cause accidents and severe (even life-threatening) damage to health, as well as very great material damage.
- Fire-sources are not permitted anywhere near the scaffold. Heating appliances are only allowed if properly and expertly used, and set up a safe distance away from the scaffold.
- 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.
- 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.
- It is strictly forbidden to weld Doka 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 Doka literature expressly points out that welding is permitted.

Assembly

- 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.

- Combining our scaffold systems with those of other manufacturers could be dangerous, risking damage to both health and property. If you intend to combine different systems, please contact Doka for advice first.
- 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.
- It is not permitted to modify Doka products; any such modifications constitute a safety risk.

Erecting the scaffold

- Doka products and systems must be set up so that all loads acting upon them are safely transferred!

Live loads

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

Stripping the scaffold

- Do not strip the scaffold until the concrete has reached sufficient strength and the person in charge has given the order for the scaffold to be struck!
- When stripping the scaffold, never use the crane to break concrete cohesion. Use suitable tools such as timber wedges, special pry-bars or system features such as Framax stripping corners.
- When stripping the scaffold, do not endanger the stability of any part of the structure, or of any scaffolding, platforms or formwork that is still in place!

Transporting, stacking and storing

- Observe all regulations applying to the handling of formwork and scaffolding. In addition, the Doka slinging means must be used this is a mandatory requirement.
- Remove any loose parts or fix them in place so that they cannot be dislodged or fall free!
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this manual!

Maintenance

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

Miscellaneous

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

Symbols used

The following symbols are used in this booklet:



Important note

Failure to observe this may lead to malfunction or damage.



CAUTION/WARNING/DANGER

Failure to observe this may lead to material damage, and to injury to health which may range up to the severe or even life-threatening.



Sight-check

Indicates that you need to do a sight-check to make sure that necessary actions have been carried out.



Instruction

This symbol indicates that actions need to be taken by the user.



Tip

Points out useful practical tips.



Reference

Refers to other documents and materials.

Safety



Safety Helmet Mandatory



Danger for Falling



Safety Harness Mandatory



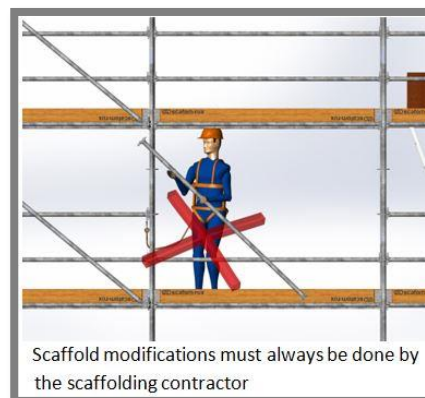
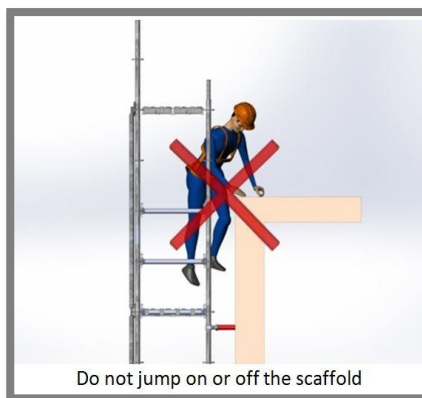
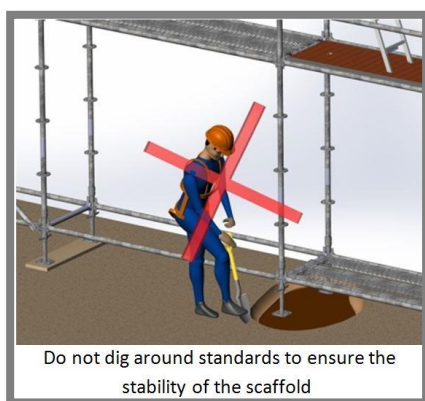
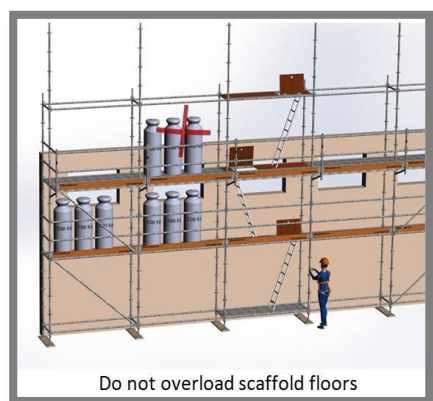
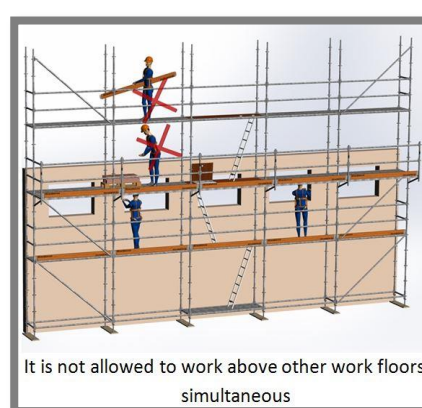
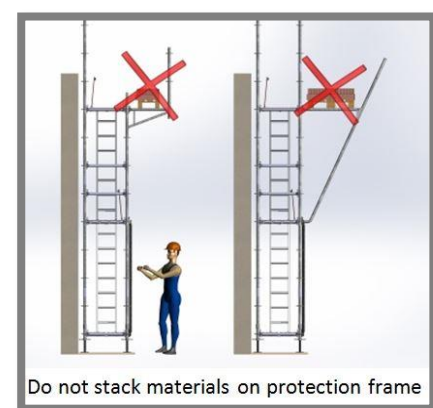
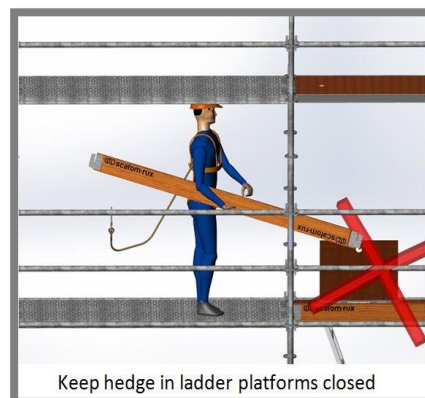
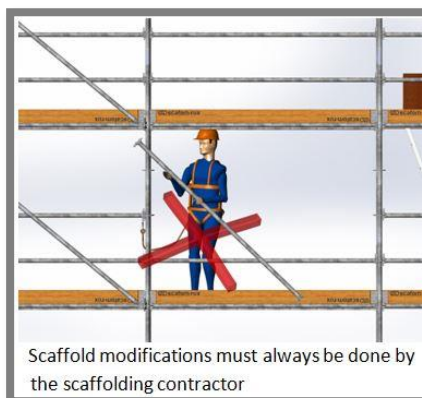
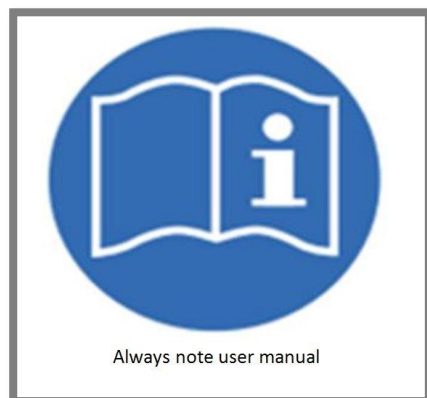
No Entry to Unauthorized People



Forbidden to Climb Scaffold

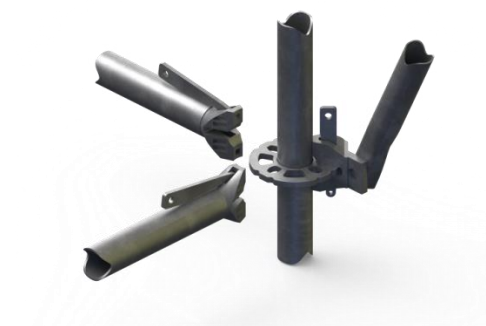
Warnings rebar- and access scaffolds

In general and for all projects and scaffolds, the following warnings are valid:



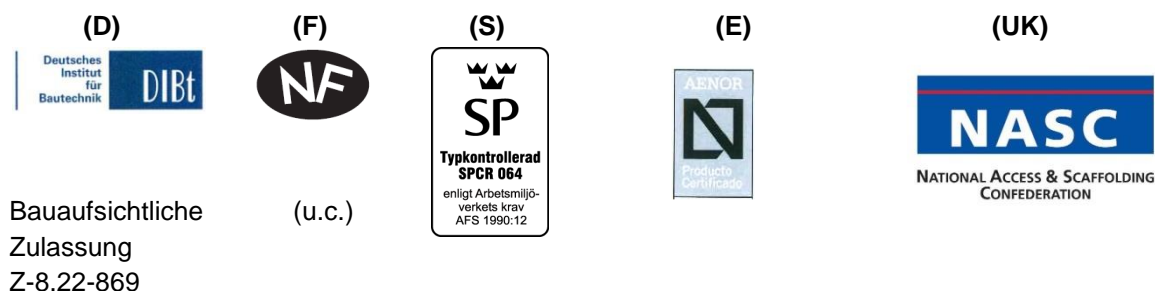
System description

Doka's DokaScaff modular scaffold system is the Scafom-rux Ringscaff System that combines the speed of erection of a system scaffold with the flexibility of traditional scaffolding systems. DokaScaff is the trade name of the scaffold system Ringscaff, as used by Doka for their rebar- and access scaffolds on construction sites. The DokaScaff system consists of modular components such as vertical standards, horizontal ledgers and transoms and vertical diagonals that can be connected to a fixed rosette in various positions.



All modular components are developed and tested according to the European standards EN12810 / EN12811. With this system you are also able to create safe working platforms for all load classes, 1 to 6, up to 600 kg/m², according to EN12811.

The basis of DokaScaff, i.e. the Ringscaff system, is used worldwide and has been approved in many different countries. In Europe the system has official approvals from the German Institute for Building Technology: DIBT, the French Institute: AFNOR the Swedish Institute: SP and the Spanish institute AENOR. In England the system has been audited by the NASC.



Frontpage of the German approval Z-8.22-869.
A copy of the German approval is available on request.

To protect the system against corrosion, all components have been hot dip galvanized, according to EN ISO 1461.

This manual has been set up for the people who build and work with the DokaScaff system. It helps them to erect the standard, basic scaffold structures safely and efficiently. For non-standard use or more complex structures, please consult your technical services department, or contact your supplier for further advice.

In this manual the various components are described, including the way they are to be used and their safe working loads. The manual gives guidance for facade scaffolds with nominal widths of 0,732m (2 steel boards), 1,088 m (3 steel boards) and 1,400m (4 steel boards).

Note:

Erection, changing and dismantling of the DokaScaff scaffold system should only be carried out by or under the supervision of a competent person who is familiar with the system.

All scaffolding works on site have to be assembled and used as per local standards and regulations by professional, accordingly instructed personnel.

Damaged components should not be used to erect a system scaffold. The condition of the parts needs to be checked visually during erection of the scaffold. If parts look worn or are damaged they should not be used, but sent back to the branch depot for repair.

Information given in this document is specific to equipment of the "DokaScaff" modular scaffold system, production started from 2015.

The market of scaffolding has improved considerably during the last few years, so that among other things in one scaffold structure components may occur of different origins / fabrication. Doka and their supplier Scafom-rux apply the policy to allow this under conditions that each used component belongs to a well-certified scaffolding system.

DokaScaff has been foreseen with mixing approvals according to the DIBt under the license numbers, a.o.:

Z-8.22-901 for mixing with Layher Allround®

Copies of these mixing approvals are available and these always describe which components may be used. This applies to "Original Certifications" as well as "Mixing approval". A fundamental legal uncertainty does not exist with mixing approvals for now; in case of any (technical) doubt, please check with your technical dept. In this "user's manual" no further attention is given to "mixed scaffolds"; the actual design of the scaffold has to be adopted with characteristics and standard configurations for mixing with Allround.

The risk of a "site-closure" or the liability in case of accidents exists both with unmixed and mixed scaffolds; as long as the concerning mix-approval is available and (safety) instructions are followed, the risks are in both situations the same!

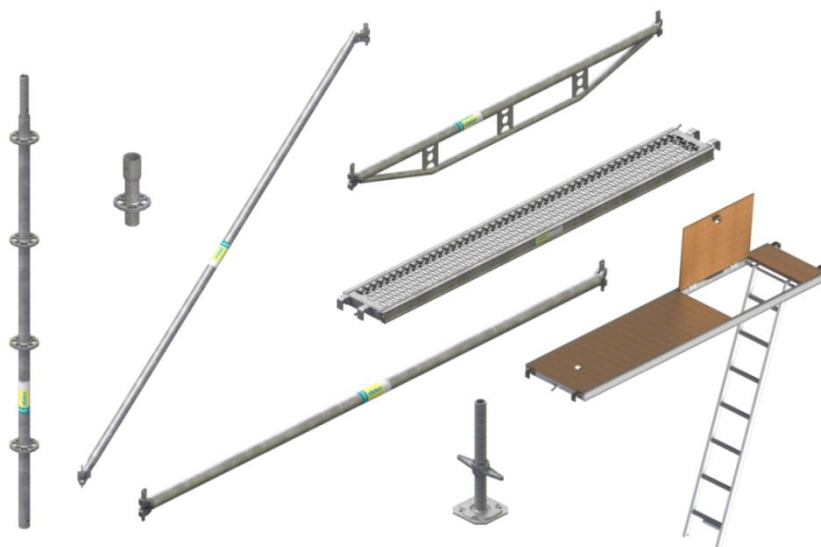
Declaration of Conformity

In this assembly and user's manual, the described "DokaScaff Modular Scaffold system" is connected to the brand name "DOKA" ; the product itself "Ringscaff", on which DokaScaff is based, of Scafom-rux Holding is approved by the Deutsche Institut für Bautechnik, under the license number of DIBt Z-8.22-869.

The following table sets the components corresponding with each other opposite to each other and declares the conformity of the different designated and various article numbered components.

| DOKA | | Scafom-rux |
|--------------------------------------|-----------------------|-----------------------|
| Art.-Name ENGLISH | Dokascaff Art.-No. | Ringscaff Art.-No. |
| DokaScaff base jack 60cm | 69 0120 005 | E02RS0005 |
| DokaScaff base collar | 69 0140 002 | E04RS0002 |
| DokaScaff base jack retention | 69 0141 276 | E04RS1276 |
| DokaScaff standard with spigot 1.00m | 69 0140 030 | E04RS6041 |
| DokaScaff standard with spigot 1.50m | 69 0140 055 | E04RS6057 |
| DokaScaff standard with spigot 2.00m | 69 0140 071 | E04RS6042 |
| DokaScaff standard with spigot 3.00m | 69 0140 096 | E04RS6043 |
| DokaScaff ledger 0.39m | 69 0140 505 | E04RS6047 |
| DokaScaff ledger 0.73m | 69 0140 011 | E04RS6017 |
| DokaScaff ledger 1.09m | 69 0140 033 | E04RS6018 |
| DokaScaff ledger 1.40m | 69 0140 047 | E04RS6038 |
| DokaScaff ledger 1.57m | 69 0140 058 | E04RS6019 |
| DokaScaff ledger 2.07m | 69 0140 074 | E04RS6020 |
| DokaScaff ledger 2.57m | 69 0140 086 | E04RS6021 |
| DokaScaff ledger 3.07m | 69 0140 099 | E04RS6022 |
| DokaScaff ledger reinforced 1.40m | 69 0140 653 | E04RS0415 |
| DokaScaff double ledger 1.57m | 69 0140 232 | E04RS6048 |
| DokaScaff double ledger 2.07m | 69 0140 233 | E04RS6046 |
| DokaScaff double ledger 2.57m | 69 0140 234 | E04RS6049 |
| DokaScaff double ledger 3.07m | 69 0140 235 | E04RS6050 |
| DokaScaff intermediate Transom 0.73m | 69 0140 020 | E04RS0020 |
| DokaScaff intermediate Transom 1.09m | 69 0140 039 | E04RS0039 |
| DokaScaff intermediate Transom 1.40m | 69 0140 053 | E04RS0053 |
| DokaScaff diagonal 200/73cm | 69 0140 017 | E04RS6011 |
| DokaScaff diagonal 200/109cm | 69 0140 038 | E04RS6012 |
| DokaScaff diagonal 200/140cm | 69 0140 051 | E04RS6039 |
| DokaScaff diagonal 200/157cm | 69 0140 065 | E04RS6013 |
| DokaScaff diagonal 200/207cm | 69 0140 077 | E04RS6014 |
| DokaScaff diagonal 200/257cm | 69 0140 092 | E04RS6015 |
| DokaScaff diagonal 200/307cm | 69 0140 102 | E04RS6016 |
| DokaScaff steel-deck 32/73cm | 69 0140 738 | E04RS6005 |
| DokaScaff steel-deck 32/109cm | 69 0140 739 | E04RS6006 |
| DokaScaff steel-deck 32/140cm | 69 0140 740 | E04RS6037 |
| DokaScaff steel-deck 32/157cm | 69 0140 741 | E04RS6007 |
| DokaScaff steel-deck 32/207cm | 69 0140 742 | E04RS6008 |
| DokaScaff steel-deck 32/257cm | 69 0140 743 | E04RS6009 |
| DokaScaff steel-deck 32/307cm | 69 0140 744 | E04RS6010 |
| DokaScaff steel-deck 19/73cm | 69 0140 419 | E04RS0419 |
| DokaScaff steel-deck 19/109cm | 69 0140 420 | E04RS0420 |
| DokaScaff steel-deck 19/140cm | 69 0140 421 | E04RS0421 |
| DokaScaff steel-deck 19/157cm | 69 0140 422 | E04RS0422 |
| DokaScaff steel-deck 19/207cm | 69 0140 423 | E04RS0423 |
| DokaScaff steel-deck 19/257cm | 69 0140 424 | E04RS0424 |
| DokaScaff steel-deck 19/307cm | 69 0140 425 | E04RS0425 |

| DOKA | | Scafom-rux |
|--|-----------------------|-----------------------|
| Art.-Name ENGLISH | Dokascaff Art.-No. | Ringscaff Art.-No. |
| DokaScaff access deck with ladder 61/257cm | 69 0140 465 | E04RS0465 |
| DokaScaff access deck with ladder 61/307cm | 69 0140 466 | E04RS0466 |
| DokaScaff bracket 0.39m | 69 0140 543 | E04RS0543 |
| DokaScaff bracket 0.73m | 69 0140 018 | E04RS0018 |
| DokaScaff wood-toeboard 0.73m | 69 0140 016 | E04RS6024 |
| DokaScaff wood-toeboard 1.09m | 69 0140 037 | E04RS6025 |
| DokaScaff wood-toeboard 1.40m | 69 0140 054 | E04RS6040 |
| DokaScaff wood-toeboard 1.57m | 69 0140 064 | E04RS6026 |
| DokaScaff wood-toeboard 2.07m | 69 0140 076 | E04RS6027 |
| DokaScaff wood-toeboard 2.57m | 69 0140 091 | E04RS6028 |
| DokaScaff wood-toeboard 3.07m | 69 0140 101 | E04RS6029 |
| DokaScaff steel-toeboard 0.73m | 69 0140 631 | E04RS0631 |
| DokaScaff steel-toeboard 1.09m | 69 0140 632 | E04RS0632 |
| DokaScaff steel-toeboard 1.40m | 69 0140 633 | E04RS0633 |
| DokaScaff steel-toeboard 1.57m | 69 0140 634 | E04RS0634 |
| DokaScaff steel-toeboard 2.07m | 69 0140 635 | E04RS0635 |
| DokaScaff steel-toeboard 2.57m | 69 0140 636 | E04RS0636 |
| DokaScaff steel-toeboard 3.07m | 69 0140 637 | E04RS0637 |
| DokaScaff steel stair 104/257cm | 69 0140 966 | E04RS0966 |
| DokaScaff alu stairway 64/257cm | 69 0140 571 | E04RS0571 |
| DokaScaff alu stairway 64/307cm | 69 0141 202 | E04RS1202 |
| DokaScaff inner guardrail 2.57m | 69 0140 573 | E04RS0573 |
| DokaScaff outer guardrail 2.57m | 69 0140 572 | E04RS0572 |
| DokaScaff outer guardrail 3.07m | 69 0141 301 | E04RS1301 |
| DokaScaff Inner Guardrail extended 2,57 | 69 0140 593 | E04RS0593 |
| DokaScaff Inner Guardrail extended 3,07 | 69 0141 302 | E04RS1302 |
| DokaScaff End Guardrail | 69 0140 726 | E04RS0726 |
| DokaScaff stairway guardrail adaptor | 69 0140 592 | E04RS0592 |
| DokaScaff spigot clamp | 69 0140 003 | E04RS0003 |
| DokaScaff rosette | 69 0141 032 | E04RS1032 |
| DokaScaff twin ledger end coupler | 69 0140 617 | E04RS0617 |
| DokaScaff hook-on ladder 2,24m | 69 0240 420 | E04AA0420 |
| DokaScaff castor wheel 10kN | 69 0240 124 | E04AA0124 |
| DokaScaff lattice girder 4.14m | 69 0140 240 | E04RS6051 |
| DokaScaff lattice girder 5.14m | 69 0140 241 | E04RS6052 |
| DokaScaff lattice girder 6.14m | 69 0140 242 | E04RS6053 |
| DokaScaff lattice girder coupler | 69 0140 559 | E04RS0559 |
| DokaScaff crate | 69 0380 028 | E08SR0028 |
| DokaScaff rack | 69 0380 012 | E08SR0012 |
| DokaScaff anchor tube 0.40m | 69 0240 025 | E04AA0025 |
| DokaScaff anchor tube 1.50m | 69 0240 156 | E04AA0156 |



Technical Data

The DokaScaff modular connection

The connection on the standard of the various DokaScaff components consists of a special shaped rosette, which is welded every 0,50 m on the vertical standards, in combination with a wedge-holding ledger-end.

The flat rosette has four narrow holes and four large holes, see figure 3.1.



Figure 3.1: DokaScaff rosette

The four narrow holes position the ledgers automatically and securely at right angles after the wedge is secured. The four large holes permit the alignment of ledgers and diagonal braces at the required angle, according to figure 3.2.

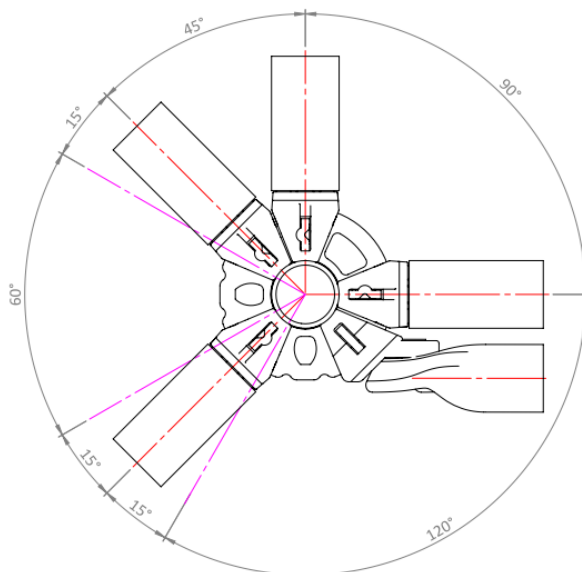


Figure 3.2: Plan view DokaScaff node

The connection is made by (see figures 3.3)

- a) sliding the wedge-holding ledger-end over the flat rosette....
- b) inserting the wedge into one of the holes....
- c) and securing the wedge with a hammer blow until the blow bounces off.



Figure 3.3 a

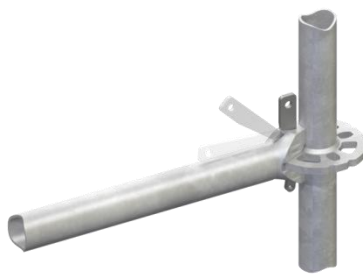


Figure 3.3 b

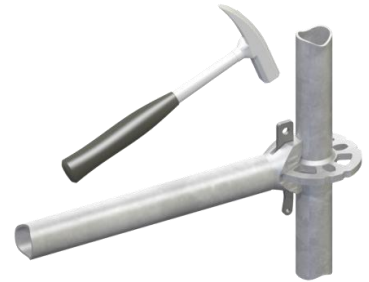


Figure 3.3 c

The connection has been changed into a force transmitting rigid connection which can take loads immediately in all directions, see figure 3.4.

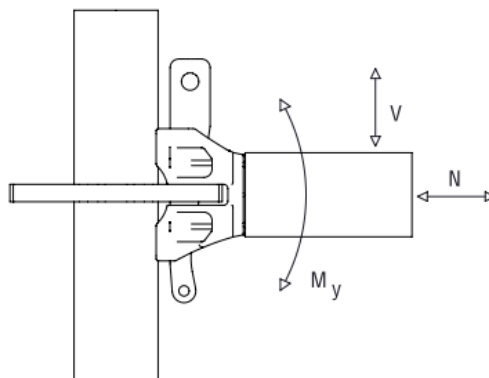


Figure 3.4: Fixed node-point

DokaScaff basic components

An example of a DokaScaff working scaffold is shown in figure 4.1.

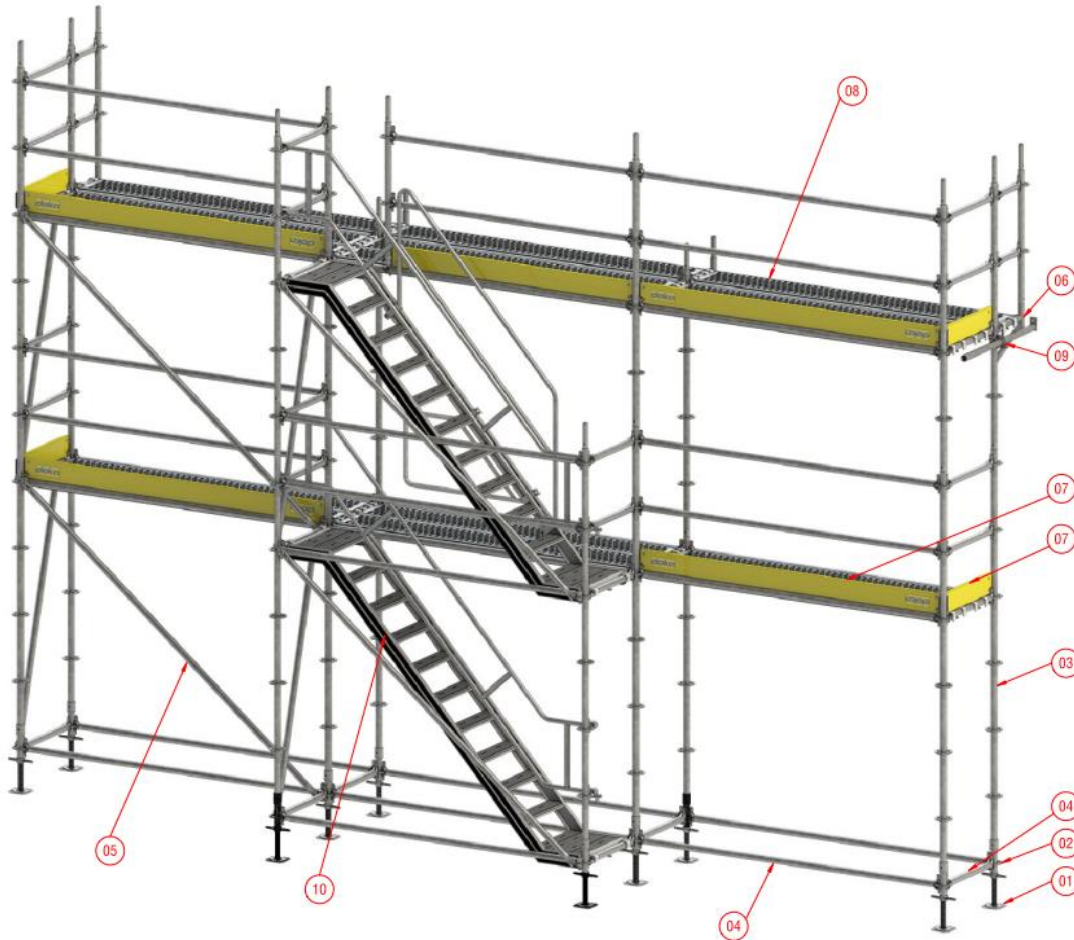


Figure 4.1: Example of a scaffold construction

This construction consists of the following basic components:

4.1 Base jack



The adjustable base jack is used for leveling the scaffold standards at the same height.

4.2 Base collar



The base collar with a single rosette is placed over the base jack and enables an easy base out of the scaffold.

4.3 Standards



The vertical standard bears the loads from the scaffold down to the earth.

The standard tube, with outer diameter of 48,3mm, has rosettes at 0,5 m interval, a pressed spigot at the top and drilled holes at both ends.

Standards are manufactured with a pressed spigot. These standards are not to be used for suspended constructions, without sufficient measurements.

4.4 Ledgers / transoms



The ledger consists of 48,3mm diameter tube and wedge-holding ledger-ends at both ends.

The ledger is used in different lengths as support for steel decks or wooden scaffold boards or as a structural element. The ledger is also used as a guard rail or knee rail for side protection.



The intermediate transom shortens the free space within a scaffold bay that can be decked with steel or wooden scaffold boards. The position of the transom is fixed by a wedge.

4.5 Braces – Vertical brace



The vertical brace consists of a 48,3mm diameter tube with wedge connections at both ends.
The vertical brace increases the stiffness of the scaffold construction.

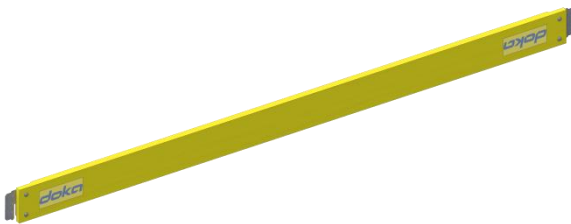
4.6 Side brackets



The side bracket can be used to expand the working platform.
This expansion can be made by a one board bracket (0,39m wide bracket) or by a two board bracket (0,73m wide bracket)

When expanding scaffolds with brackets, check stability or anchoring against tilting!

4.7 Side protection – Toe board



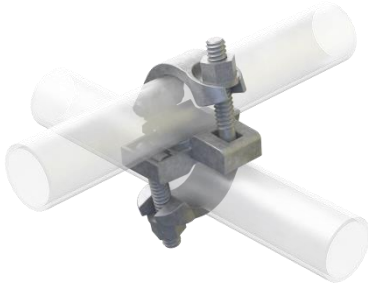
The toe boards are mounted on every working platform and they prevent material from falling down from the working platform.
Toe boards are available in steel and wood.

4.8 Platforms - Steel deck



The steel deck is used to create platforms. The decks are made out of light-weight steel sheet with a non-skid surface. The steel decks are placed on the transoms.

4.9 Accessories - Couplers



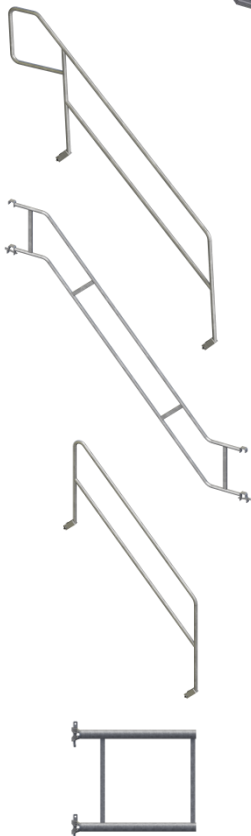
Couplers are used to connect two scaffolding tubes (diameter 48,3mm), for example connecting the anchor tube to the vertical.

Couplers can be right angle couplers or swivel couplers, both with bolt-nut connection.

4.10 Access – Stair – Outer guard rail – Inner guard rail



For access to higher platforms a stair access is recommended. The stairway is made out of aluminum or steel and can be easily handled by two people.



The outer and inner guardrail guides you in a safe way to the higher lifts of the scaffold. Both guardrails are made out of steel.

The extended inner guardrail enables closing of the top platform,

The end guardrail enables closing at the end of the scaffold.

For a complete list of all available DokaScaff components, including product numbers and weights, see article list at end of document.

Load capacity of DokaScaff components

The strength, stiffness and stability of the scaffold construction are defined by the rigidity of the DokaScaff node point and the load bearing capacity of several DokaScaff components.

In this chapter we set out the rigidity of the node point as well as the load-capacity of load bearing components like the DokaScaff base jack, standards, ledgers, diagonals and steel decks. These loads are based on the "DokaScaff 2005-system".

All the mentioned loads on the left-hand side are "Safe working loads" or "permissible loads". These loads are defined as the design load divided by the prescribed load factor (1.5). For the values of the design loads and for the control calculations of the node-point, see also German Technical Approval Z-8.22-869.

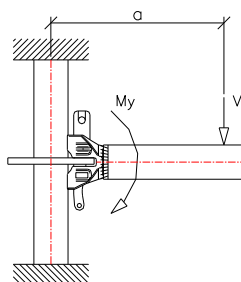
5.1 DokaScaff node point (permissible loads)

(characteristic strengths / design loads)

Bending moment on connection:

$$M_y = V \cdot a$$

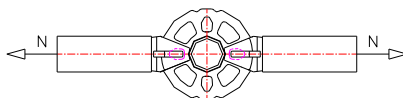
$$\text{perm. } M_y = \pm 80.0 \text{ kNcm } (M_{y,R,d} / \gamma_F)$$



$$\max M_{y,R,d} = \pm 120.0 \text{ kNcm}$$

Normal force on connection:

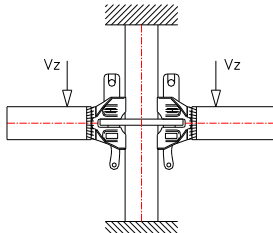
$$\text{perm. } N = \pm 25.7 \text{ kN } (N_{R,d} / \gamma_F)$$



$$\max N_{R,d} = \pm 38.5 \text{ kN}$$

Vertical load on rosette:

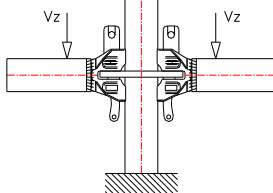
$$\text{perm. } V_z = \pm 20.5 \text{ kN } (V_{R,d} / \gamma_F)$$



$$\max V_{z,R,d} = \pm 30.8 \text{ kN}$$

Σ Vertical load on rosette:

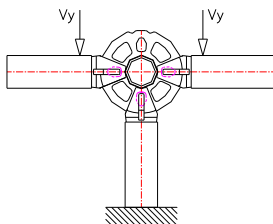
$$\text{perm. } V_z = \pm 72.0 \text{ kN } (V_{z,R,d\Sigma} / \gamma_F)$$



$$\max V_{z,R,d\Sigma} = \pm 108.0 \text{ kN}$$

Horizontal load on rosette:

$$\text{perm. } V_y = \pm 10.6 \text{ kN } (V_{y,R,d} / \gamma_F)$$



$$\max V_{y,R,d} = \pm 15.9 \text{ kN}$$

$$\gamma_F = 1.5 \text{ according to EN12811}$$

5.2 DokaScaff base jack



| Permissible load for base jack 60cm (in kN) (in combination with horizontal load = 5% of vertical load) | | | | |
|---|-----|-----|-----|-----|
| Spindle length (mm) | 100 | 200 | 300 | 400 |
| Permissible load (kN) | 52 | 42 | 33 | 25 |

5.3 DokaScaff standards



| Permissible centric vertical load for standards (bracing in two directions) | | | |
|---|-----------------|-----------------|-----------------|
| Bracing (in m) | 1,5m bracing | 2,0m bracing | 2,5m bracing |
| Max. centric load (kN) | 42,2 | 28,1 | 19,3 |

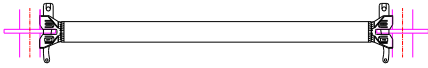
Note: The above mentioned load capacities for standards are indicated values. The vertical load capacity for standards depends on several other factors as:

- Lift height of the platforms
- Influence of horizontal loads
- Bracing and anchoring pattern of the scaffold.

For estimating the exact load capacity of standards, contact your design engineer.

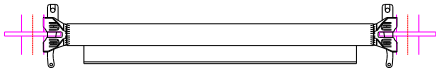
Standards are manufactured with a pressed spigot. These standards are not to be used for suspended constructions, without sufficient measurements.

5.4 DokaScaff ledgers / transoms



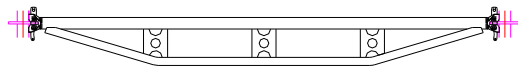
Load bearing capacity of Tubular Ledgers

| | | | | | | | |
|-----------------------------------|------|------|------|------|------|------|------|
| Bay length (m) | 0,73 | 1,09 | 1,40 | 1,57 | 2,07 | 2,57 | 3,07 |
| Uniformly distributed load (kN/m) | 21,8 | 10,5 | 6,7 | 5,4 | 3,3 | 2,2 | 1,6 |
| Point load in the middle (kN) | 7,8 | 5,5 | 4,4 | 4,0 | 3,2 | 2,6 | 2,3 |



Load bearing capacity of Reinforced Tubular Ledgers T

| | |
|-----------------------------------|------|
| Bay length (m) | 1,40 |
| Uniformly distributed load (kN/m) | 11,2 |
| Point load in the middle (kN) | 7,8 |



Load bearing capacity of Double Tubular Ledgers

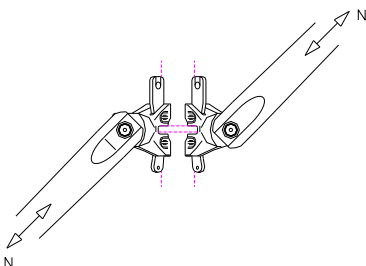
| | | | | |
|-----------------------------------|------|------|------|------|
| Bay length (m) | 1,57 | 2,07 | 2,57 | 3,07 |
| Uniformly distributed load (kN/m) | 17,5 | 12,3 | 7,9 | 5,8 |
| Point load in the middle (kN) | 13,9 | 11,6 | 9,3 | 7,5 |



Load bearing capacity of Transoms

| | | | | | | | |
|-----------------------------------|------|------|------|------|------|------|------|
| Bay length (m) | 0,73 | 1,09 | 1,40 | 1,57 | 2,07 | 2,57 | 3,07 |
| Uniformly distributed load (kN/m) | 17,3 | 7,8 | 4,7 | 3,7 | 2,1 | 1,0 | 0,6 |

5.5 DokaScaff diagonals



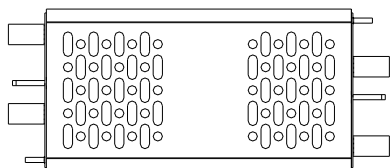
Load bearing capacity of Vertical Diagonals (2.0m lift)

| | | | | | | | |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|
| Bay length (m) | 0,73 | 1,09 | 1,40 | 1,57 | 2,07 | 2,57 | 3,07 |
| Max. Compression Load (kN) | -12,2 | -11,3 | -10,5 | -9,9 | -8,3 | -6,8 | -5,6 |
| Max. Tension Load (kN) | +13,0 | +13,0 | +13,0 | +13,0 | +13,0 | +13,0 | +13,0 |

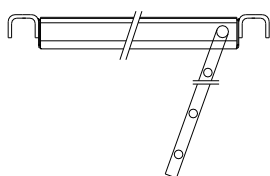
5.6 DokaScaff Decks

The load bearing capacity of decks is defined by the classification 1 to 6, according to EN 12811. The load capacities of these classes are:

| Class | Load . (in kN/m ²) |
|-------|-----------------------------------|
| 1 | 0,75 |
| 2 | 1,5 |
| 3 | 2,0 |
| 4 | 3,0 |
| 5 | 4,5 |
| 6 | 6,0 |



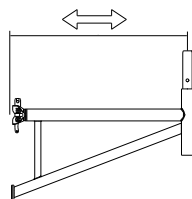
| Load bearing capacity of Steel decks width = 0,32m (According to Scaffold classification EN12811-1) | | | | | | | |
|---|------|------|------|------|------|------|------|
| Bay length (m) | 0,73 | 1,09 | 1,40 | 1,57 | 2,07 | 2,57 | 3,07 |
| Scaffold class | 6 | 6 | 6 | 6 | 6 | 5 | 4 |



| Load bearing capacity of Alum. Ladder platform width = 0,61m (According to Scaffold classification EN12811-1) | | |
|---|------|------|
| Bay length (m) | 2,57 | 3,07 |
| Scaffold class | 3 | 3 |

5.7 DokaScaff side brackets

DokaScaff side brackets have been designed to have a load capacity of max. 1,5 kN/m² on the extended platform.



| Load bearing capacity of Side brackets | | |
|---|-----------------------|-------------------------|
| | Max. q-load (kN/m) | Max. Point-load (kN) |
| Side bracket 0,39m | 4,6 | 1,5 |
| Side bracket 0,73m | 4,6 | 1,5 |

Assembly

Assembly and Load capacity of working platforms

Working platforms consist of a platform, created by steel decks or wooden boards, in combination with a side protection.

This side protection consists of two guard rails and a toe board.

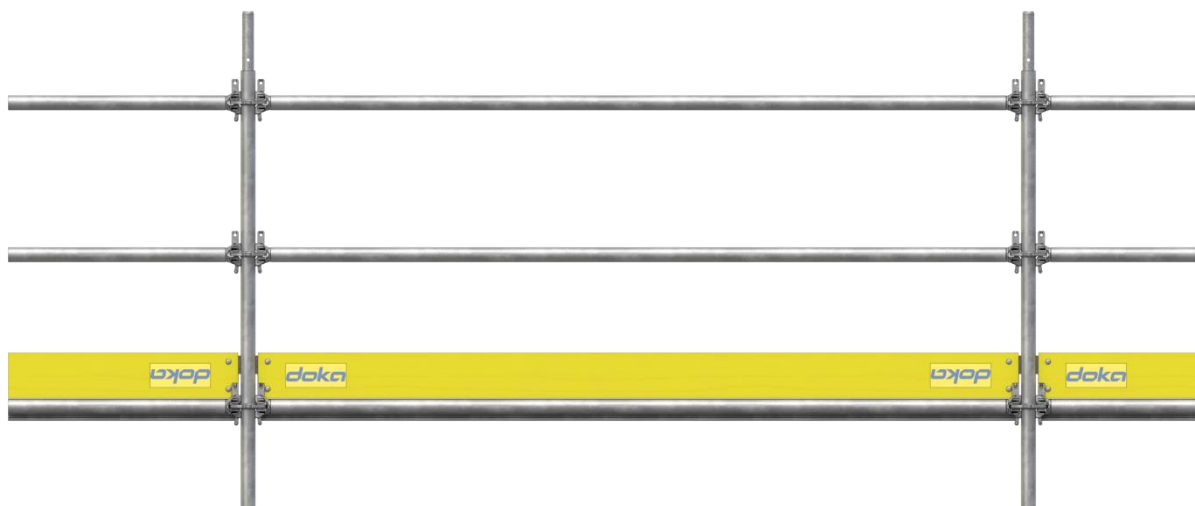


Figure 6.1: Side protection

According to the European standard for facade scaffolds (EN12811-1), the minimum width of the working platform must be:

- Class W06: min. width = 0,50m, for example DokaScaff: 0,73m
- Class W09: min. width = 0,60m, for example DokaScaff: 1,09m
- Class W12: min. width = 0,90m, for example DokaScaff: 1,40m

In this chapter is explained the way of creating working platforms with the standard DokaScaff steel decks and with wooden boards in combination with intermediate transoms.

The load bearing capacity of a platform depends on how the load will be transferred from the platform via the transoms to the standards.

There is an important difference in load bearing capacity if you create the platforms with steel decks or with wooden boards in combination with intermediate transoms.

6.1 Steel decks

The DokaScaff steel decks have a non-skid surface and are fitted with welded claws on the transoms. The decks are provided with an anti-lift device at both ends which has to be put in place during assembly. The anti-lift device prevents the steel deck from lifting up by accident or by the effects of wind load. See figure 6.2.



Figure 6.2: Anti-lift device steel decks

Standard steel decks have a width of 0,32 m or 0,19m.
The following arrangements are possible for the several platform widths:

| | Arrangement of steel decks | | | | | | |
|----------------|-----------------------------------|---------|---------|--------------------|---------|--------------------|---------|
| Bay length (m) | 0,73 | 1,09 | 1,40 | 1,57 | 2,07 | 2,57 | 3,07 |
| No. of decks: | 2x 0,32 | 3x 0,32 | 4x 0,32 | 4x 0,32 1x 0,19 | 6x 0,32 | 7x 0,32 1x 0,19 | 9x 0,32 |

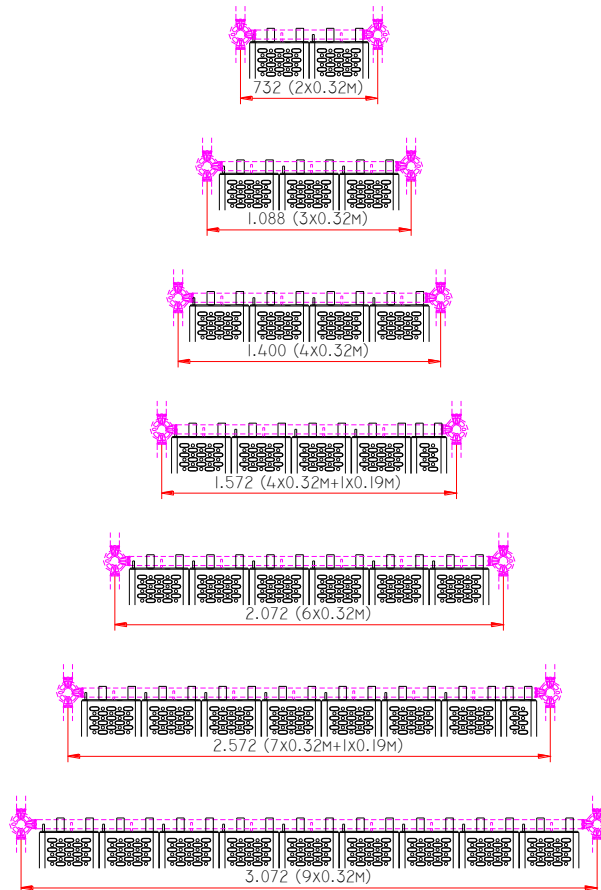


Figure 6.3: Arrangement of steel decks

Load bearing capacity of working platforms with steel decks

In the case of steel decks, the load from the working platform will be transferred by the steel decks on the transom. This means that the load bearing capacity will be defined by the maximum load bearing capacity of the steel deck or the maximum load bearing capacity of the transom.

In facade scaffolding constructions we can mainly have two different configurations of platforms:

- A) One single bay, like a tower
- B) Multiple bays, like a façade

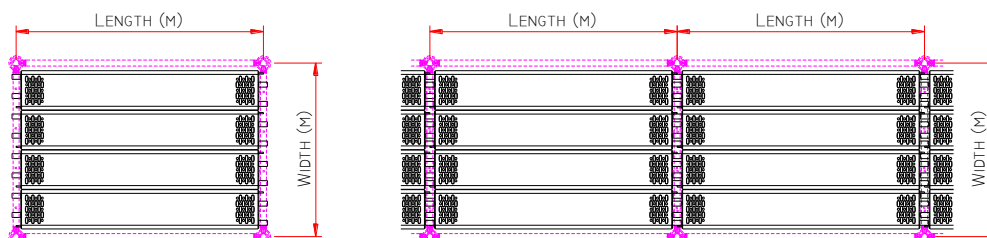


Figure 6.4: A) single bay construction

B) Multiple bays construction

In configuration A the total platform load is uniformly distributed on 2 transoms, in configuration B this load is distributed on only one, regular tubular transom.

The following table shows the maximum platform loads according to the scaffolding classes acc. to EN12811-1:

| Permissible platform load for steel decks - Configuration A: single bay (kN/m ²) - | | | | | |
|---|------|------|------|------|------|
| Bay length (m) Bay width (m) | 1.40 | 1.57 | 2.07 | 2.57 | 3.07 |
| 0.73 | 6,0 | 6,0 | 6,0 | 4,5 | 3,0 |
| 1.09 | 6,0 | 6,0 | 6,0 | 4,5 | 3,0 |
| 1.40 | 6,0 | 6,0 | 6,0 | 4,5 | 3,0 |

| Permissible platform load for steel decks - Configuration B: cont's. bays (kN/m ²) - | | | | | |
|---|------|------|------|------|------|
| Bay length (m) Bay width (m) | 1.40 | 1.57 | 2.07 | 2.57 | 3.07 |
| 0.73 | 6,0 | 6,0 | 6,0 | 4,5 | 3,0 |
| 1.09 | 6,0 | 4,5 | 4,5 | 3,0 | 3,0 |
| 1.40 | 4,5 | 3,0 | 3,0 | 2,0 | 2,0 |

6.2 Wooden decks

When a platform is created with wooden or LVL boards, the following points have to be observed:

- Check carefully the quality of the wooden boards. Boards that are damaged may never be used!
- The wood quality of the boards must be according to the relevant European or other local standards.
- Wooden boards have to be arranged in a way that they cannot jump up or slide away.
- It is not allowed to have gaps of more than 25mm width in the platform.
- The arrangement of 2 boards in length direction must be according to figure 6.5. picture of datasheets of intermediate transom (also technical data and article list components).



Figure 6.5: Arrangement of wooden boards

- Depending on the sizes, the boards have to be supported by intermediate transoms, according to the following table.

| Permissible supporting distance for wooden boards (m) | | | | | | | |
|---|------------------|-----------------|--------|--------------------------------|--------|--------|--------|
| Scaffold class | Board width (cm) | Board thickness | | | | | |
| | | 3,0 cm | 3,5 cm | 3,8 cm (LVL OSHA certified) | 4,0 cm | 4,5 cm | 5,0 cm |
| 1,2,3 | 20 | 1,25 | 1,50 | 1,83m | 1,75 | 2,25 | 2,50 |
| | 22.5 OSHA | x | x | 1,20m | x | x | x |
| | 24 and 28 | 1,25 | 1,75 | 1,83m | 2,25 | 2,50 | 2,75 |
| 4 | 20 | 1,25 | 1,50 | x | 1,75 | 2,25 | 2,50 |
| | 22.5 OSHA | x | x | 0,90m | x | x | X |
| | 24 and 28 | 1,25 | 1,75 | x | 2,00 | 2,25 | 2,50 |
| 5 | 20, 24, 28 | 1,25 | 1,25 | x | 1,50 | 1,75 | 2,00 |
| 6 | 20, 24, 28 | 1,00 | 1,25 | x | 1,25 | 1,50 | 1,75 |

| Permissible platform load for wooden boards Board thickness = 3,0 cm (kN/m ²) | | | | | |
|---|----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| Bay length (m) | 1.40 (1 intermediate transom) | 1.57 (1 intermediate transom) | 2.07 (1 intermediate transom) | 2.57 (2 intermediate transoms) | 3.07 (2 intermediate transoms) |
| Bay width (m) | | | | | |
| 0,73 (3x w=20 cm) | 6,0 | 6,0 | 6,0 | 6,0 | 4,5 |
| 1,09 (4x w=24 cm) | 6,0 | 6,0 | 6,0 | 4,5 | 3,0 |
| 1,40 (6x w=20 cm) (5x w=24 cm) | 6,0 | 4,5 | 4,5 | 3,0 | 2,0 |

Please check the swl's vs. the actual loading of the transoms at all times.

Anchoring and Bracing

Scaffold constructions in free-standing positions are not stable and therefore need always to be anchored to a stable facade.

In principal a scaffold is, due to the connection of loose components, a “weak” system. To create a strong and stable construction, the scaffold must therefore be stabilized by some specific extra components.

The stabilization of facade scaffolds must be created in all the 4 following different sections:

- a) Stabilization of the sections perpendicular to the facade
- b) Stabilization of the inner section, parallel to the facade
- c) Stabilization of the outer section, parallel to the facade
- d) Stabilization of the horizontal sections of the scaffold

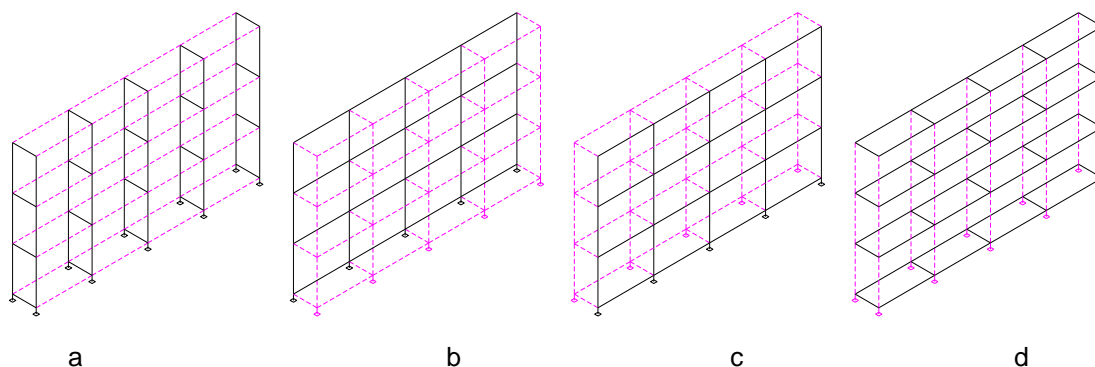


Figure 7.1: Sections of facade scaffold

For stabilization of sections a) and b) there are used **anchors** (or **tie members**) and **V-anchors**, for section c) **vertical braces** and for sections d) **steel decks** or **horizontal braces**.

7.1 Anchoring

For stabilization of the scaffold perpendicular to the facade, there are used tie members that need to be tied to every row of standards.

The tie members take care of global stability for the scaffold (the scaffold is prevented from turning over) and local stability (the buckling length of the verticals is reduced).

A tie member exists of:

- an anchoring tube with a special hook for fixation on the anchoring tool
- couplers to fix the anchoring tube to the standards of the scaffold
- an anchoring tool to fix the anchoring tube to a stable and strong façade.

The tie members are mounted with couplers on the inner and outer standard, close ($< 0,30\text{m}$) to the node point of standard and ledgers. (See figure 7.2)

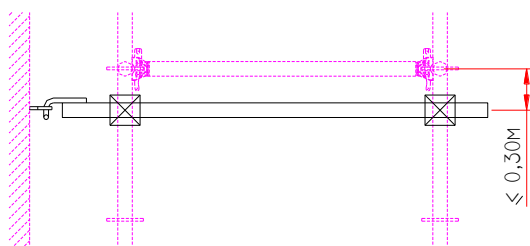
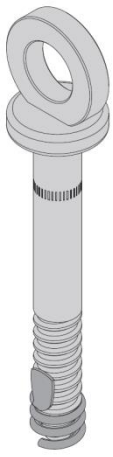


Figure 7.2: Example of tie member



Example of a possible anchor:

Shown on the left the DOKA express anchor art.nr. 588631000, if needed extra data available

Note: Be aware that the tie member and the anchoring underground are always able to take up the requested loads of the scaffold construction. These loads need to be established by calculating and verification on site.

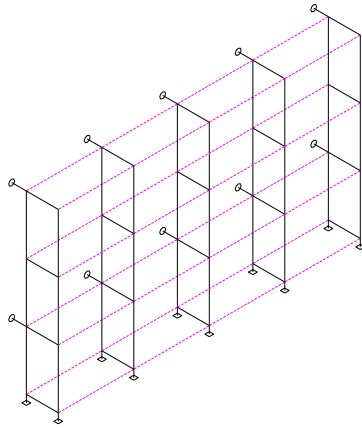


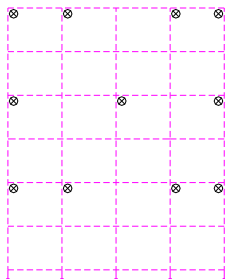
Figure 7.3: Tie members

The number of tie members needs to be established by calculation or must be according to a standard configuration.

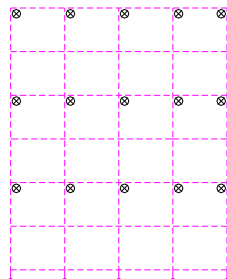
The tie members need to be positioned on a regular pattern all over the scaffold.

Depending on the required number of tie members we can mainly distinguish 4 different patterns, see figure 7.4:

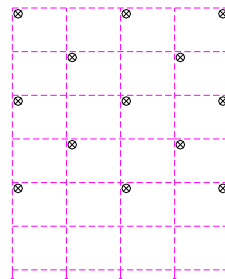
- 8 meter pattern and 4 meter on the outside standards
- 4 meter pattern or 4 meter staggered pattern
- 2 meter pattern, tie members at every 2 m node point.



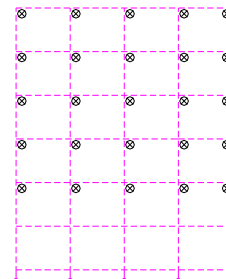
8m-pattern



4m-pattern



4m-staggered



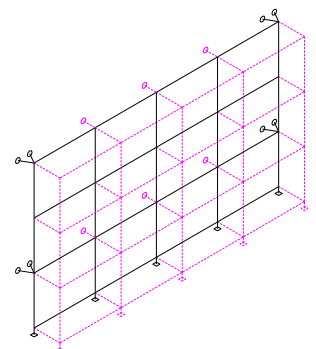
2-m pattern

Figure 7.4: Anchoring pattern

V-anchors

In case it is not possible to use tie-members that are fixed on both the inner and outer standards, for stabilizing the inner section parallel to the façade, there can be used tie members that are placed at an angle of about 60 degrees, like a V-anchor.

V-anchors have to be placed, depending on the imposed horizontal loads parallel to the facade, preferably at least at both ends of the scaffold.



Example detail V-anchor:

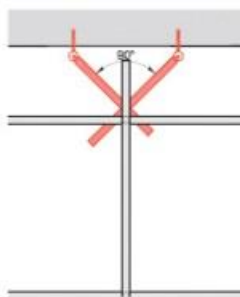


Figure 7.5: V-anchors

Anchoring shoe for stair tower

As an equivalent for the eyebolt - anchor connection it is as well possible to use the anchor shoe, e.g. to connect a staircase to a concrete construction. Article number of this anchoring shoe; 582680000



Permissible force transmission for each "Anchoring shoe for stair tower": 12 kN in all directions
Applies when fastened with Cone screw B 7cm and Universal climbing cone 15.0 or two dowels.

Figure 7.6: Anchoring shoe DOKA

Methods for fixing the anchor shoe in concrete

Required load-bearing capacity of the dowels used:

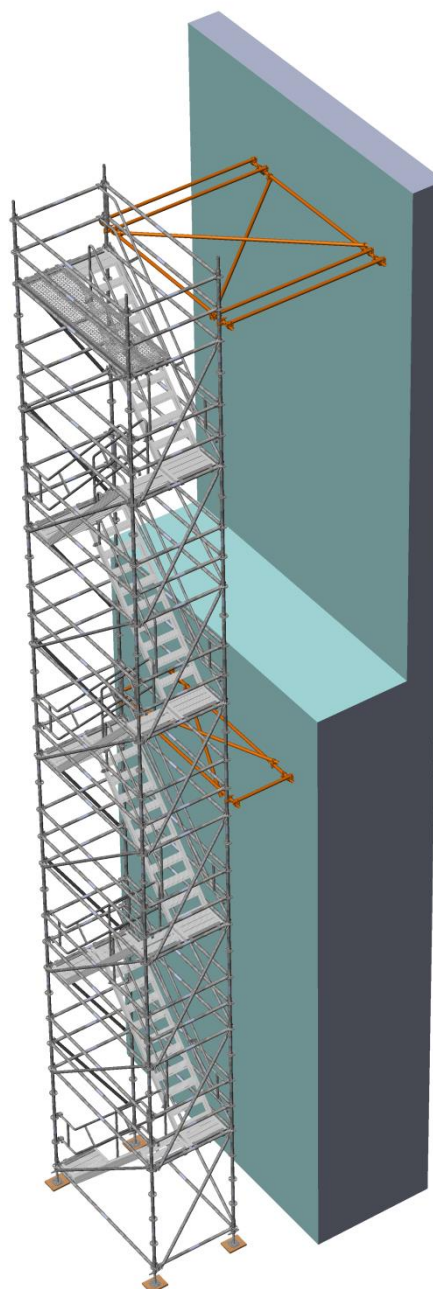
- Tensile force: $R_d \geq 23.1 \text{ kN}$ ($F_{perm.} \geq 14.0 \text{ kN}$)
 - Shear force: $R_d \geq 6.6 \text{ kN}$ ($F_{perm.} \geq 4.0 \text{ kN}$)
- e.g. Hilti HST M16 - in uncracked B30 concrete, or equivalent products from other manufacturers. Follow the manufacturer's applicable fitting instructions!

- By using a cone screw B 7cm to fix the anchoring shoe to an existing suspension point prepared with Universal climbing cones 15.0 (diameter of hole in anchoring shoe = 32 mm). Hardwood shim (essential for ensuring a firm fit) prevents damage to the concrete (scratch marks). This fixing method is only possible with anchoring shoes manufactured from 05/2009 onwards.
- With one or two dowels (diameter of hole in anchoring shoe = 18 mm).
- Always check anchors before use!

Design of the anchoring levels

The load-bearing tower is connected to the "Anchoring shoe for stair tower" by scaffolding tubes and couplers.

Note: When designing units assembled from tubes and couplers, all applicable standards and regulations must be observed, in particular EN12812 "Falsework - Performance requirements and general design", EN 39 "Loose steel tubes for tube and coupler scaffolds", EN 74 "Couplers, loose spigots and base-plates for use in working scaffolds and Falsework made of steel tubes".



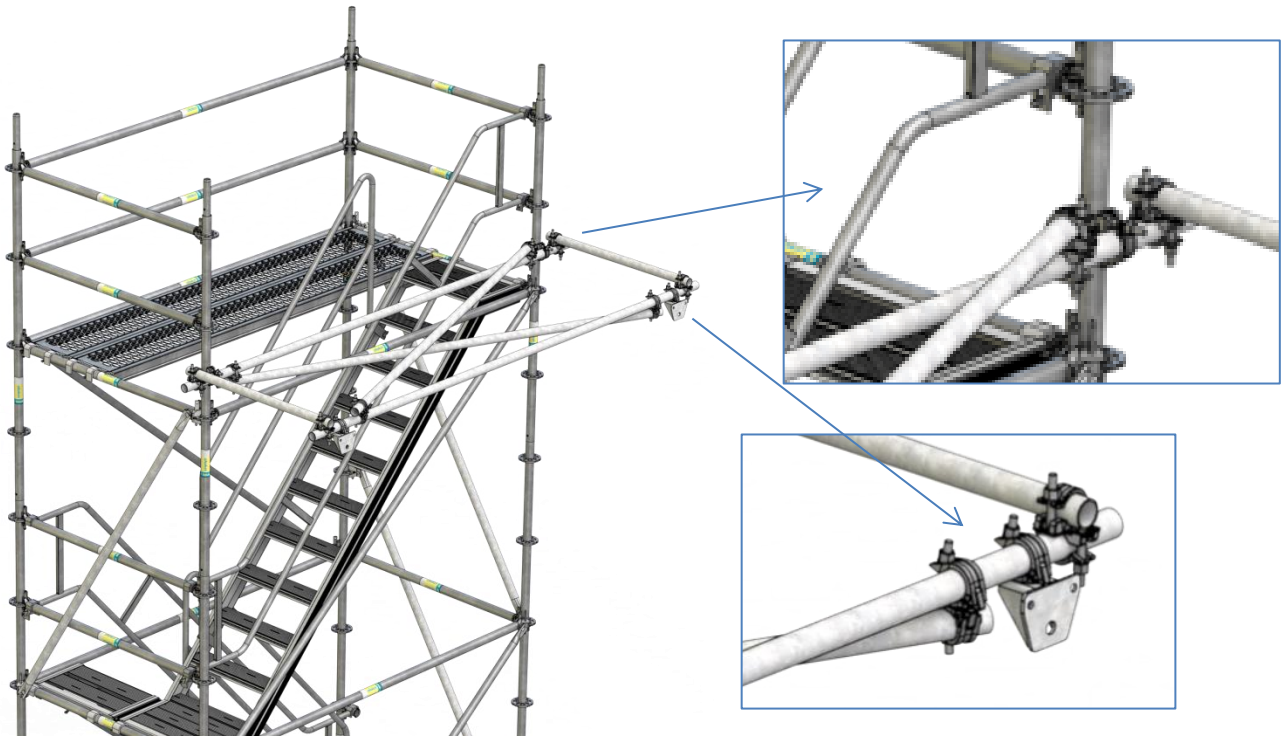
Vertical distance between the anchoring levels

The number of anchor points depends on the type of enclosure (netting or tarpaulins) and on the height of the stair tower. And the location (typical wind load).

Example of stair tower configurations and the load capacities, based on EN12811 loads, are given on page 60 and further.

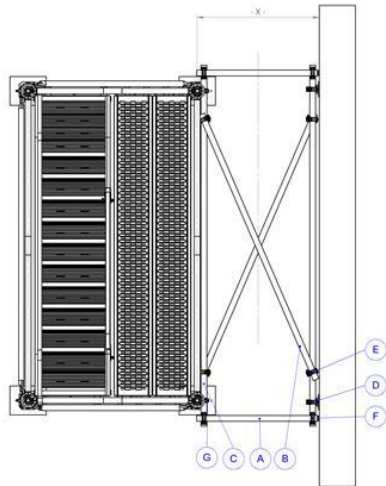
Truss with anchoring shoe:

Anchoring shoe for stairway tower.



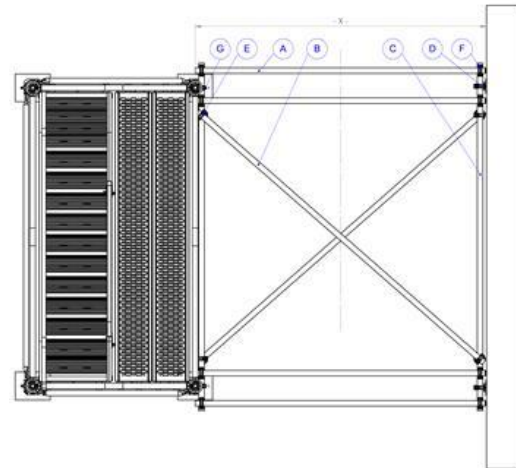
Typical solutions for anchoring scaffold towers with anchor shoes:

Up to 1.00m from structure



- A 2 x Scaffolding tube 48.3mm (L min = distance "x")
- B 2 x Scaffolding tube 48.3mm (L min = variable)
- C 2 x Scaffolding tube 48.3mm (L min = stairway tower length)
- D 2 x Anchoring shoe (fixed by 1 dowel)
- E 4 x Swivel coupler 48mm
- F 6 x Normal coupler 48mm

1.00m to max. 2.50m from structure



- A 4 x Scaffolding tube 48.3mm (L min = distance "x")
- B 2 x Scaffolding tube 48.3mm (L min = variable)
- C 2 x Scaffolding tube 48.3mm (L min = stairway tower length)
- D 2 x Anchoring shoe (fixed by 1 dowel)
- E 4 x Swivel coupler 48mm
- F 10 x Normal coupler 48mm

7.2 Bracing

For stabilizing the outer plane of the scaffold, parallel and perpendicular to the facade there are used vertical braces. Vertical braces are placed in at least every 5th bay on every lift and in every end bay perpendicular to the facade.

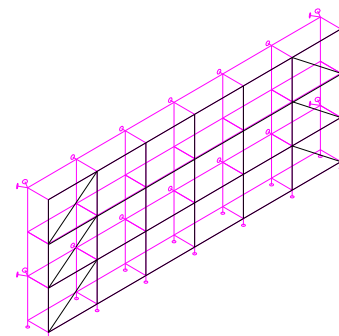


Figure 7.7: Vertical bracing

Horizontal bracing

The horizontal sections of the scaffold are stabilized by either steel decks or in case of platforms with wooden boards, by horizontal braces. These horizontal braces need to be placed in at least every 5th bay on every lift.

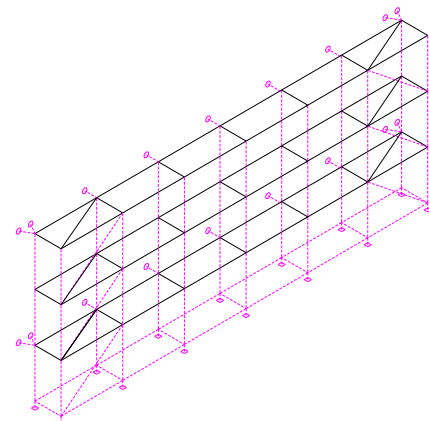


Figure 7.8: Horizontal bracing in case of wooden platforms

Access to the DokaScaff scaffold

For access to the DokaScaff scaffold there are two different possible solutions:

- 1) Access by special aluminum/plywood ladder platforms
- 2) Access by aluminum stairways

8.1 Access by ladder platforms

By assembling aluminum/plywood platforms with integrated ladder and special access doors, it is possible to get access to higher lifts. The ladder platforms are integrated into the working platforms.

The maximum safe working load for the platform is 200 kg/m² (EN12811-Class 3)

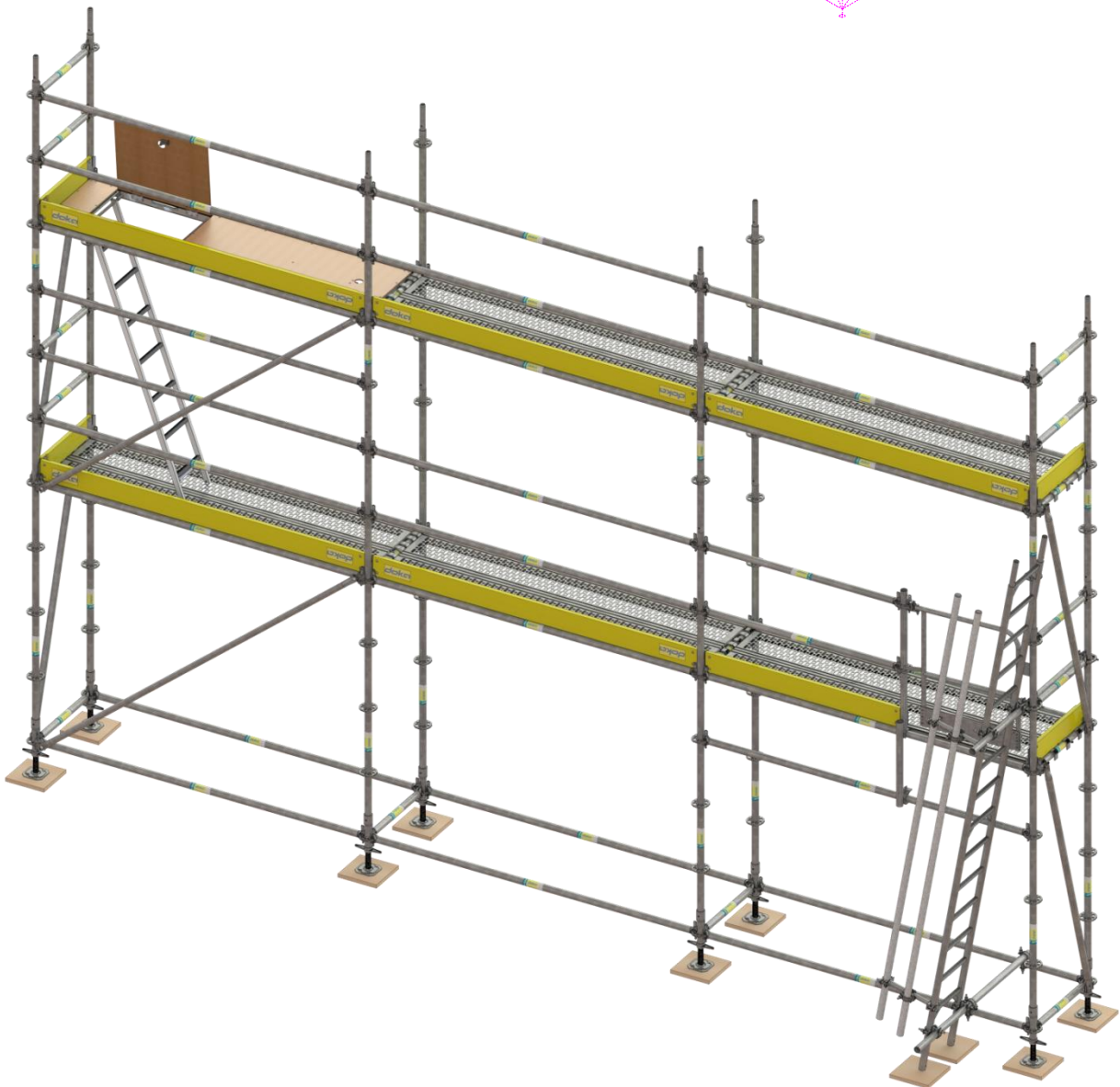
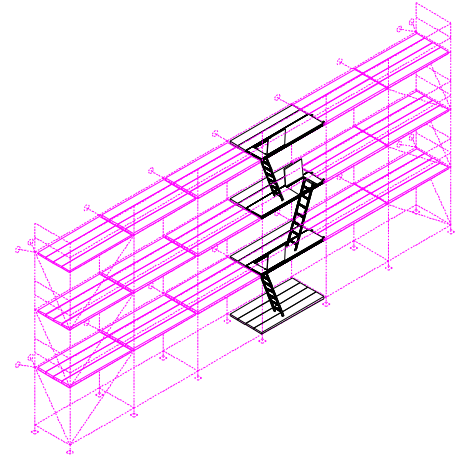


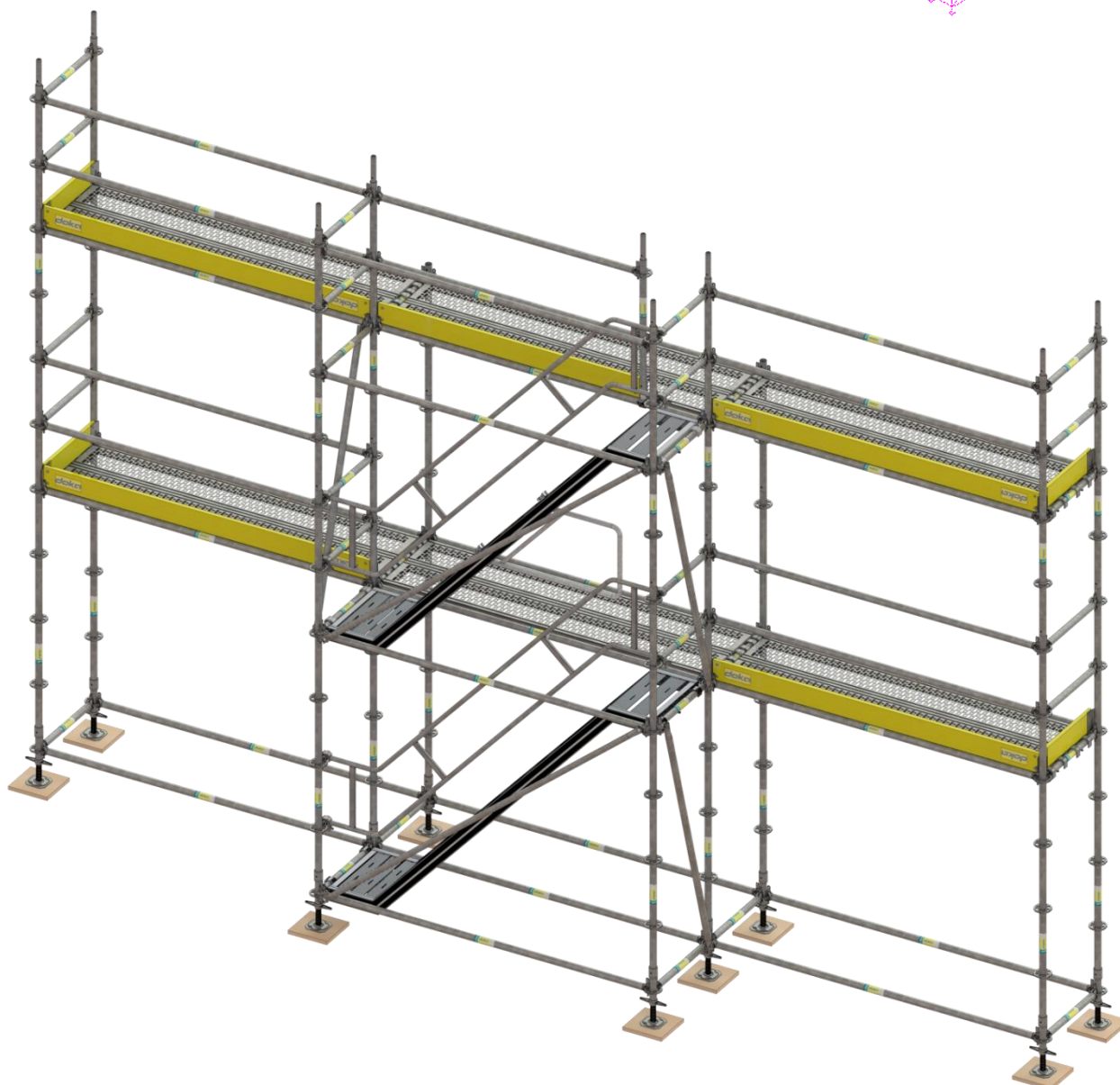
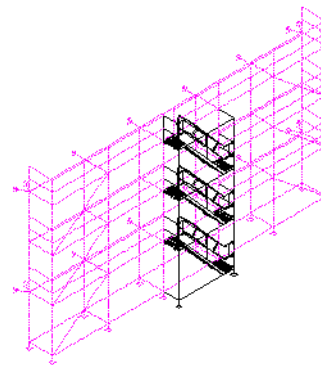
Figure 8.1: Access to higher lifts with access ladder and aluminum ladder platform

8.2 Access by staircases

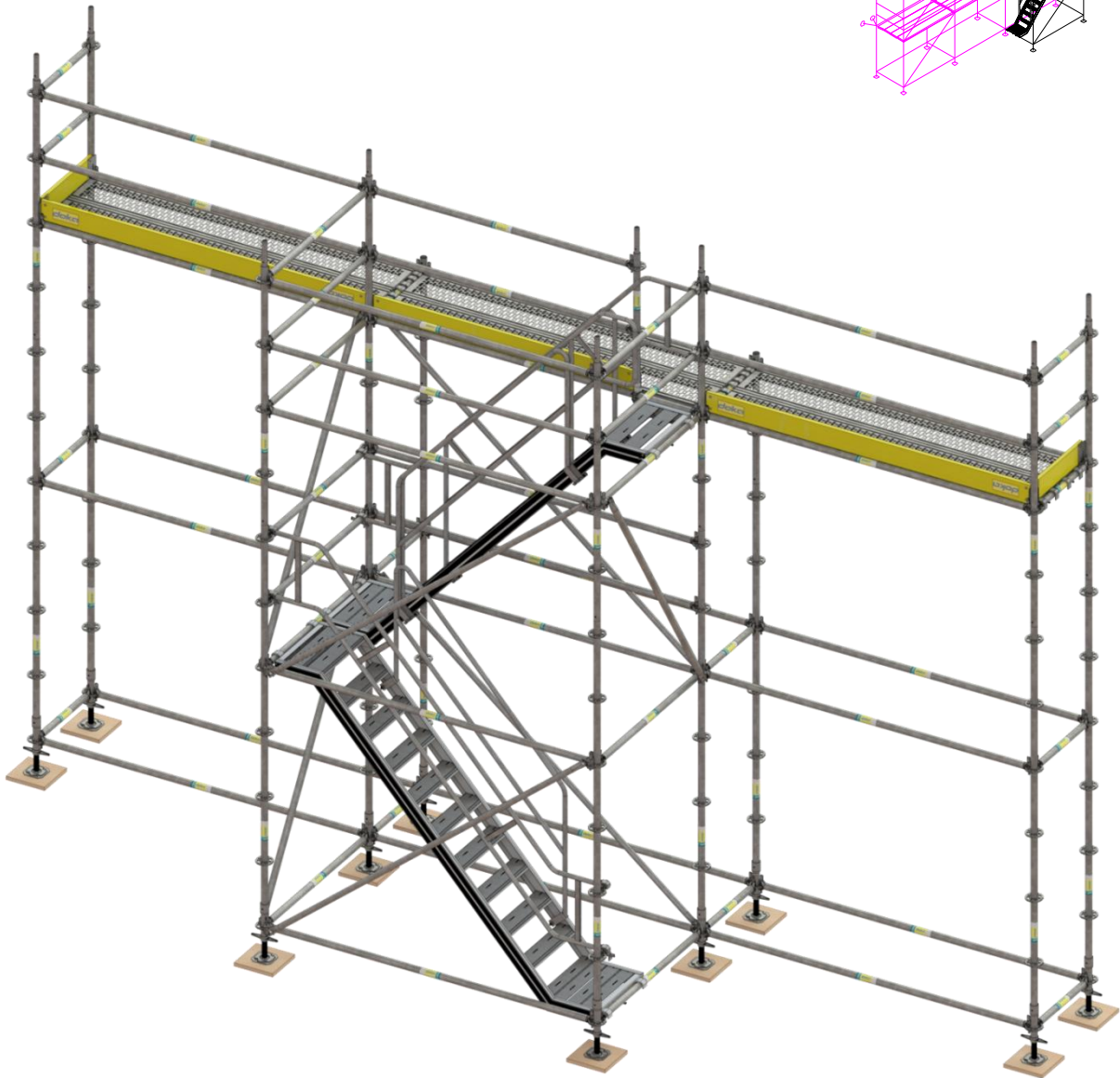
Another possibility to get access to the scaffold at higher lifts is to build a separate stair tower to the scaffold.

Therefore the DokaScaff system has two different solutions:

- a) Building an extra bay of 0,732 x 2,572m on the outside of the scaffold. The stairs are mounted all in the same direction. You can access each lift of the scaffold, walk around on this lift and go to the following lift by the next stairs.



- b) Building an extra bay of 1,400 x 2,572m against an access bay in the scaffold with a length of 2,572m. The stairs are mounted in opposite directions and at the end of the stairs you can access the working platforms.



The stair stringers, treads, landings of the aluminum platform stair as well as the supporting structure of the DokaScaff stair system is designed for an imposed action of 2.0 kN/m², uniformly distributed on all treads and landings, up to a height of 20m.

See page 60 up to and including 67 “Standard configurations of stair towers” for standard configurations and bill of material.

Doka offers also, for additional and/or higher project boundary conditions, the possibility to use steel stair-towers in 4- /8- /10- leg configurations.

Erection and dismantling of the scaffold

9.1 Check before erection

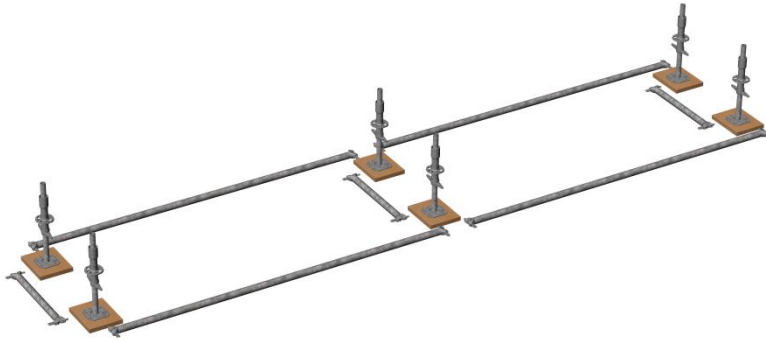
Before starting to erect a scaffold the following important points have to be considered (with reference to §1):

- Be aware of the function of the scaffold.
- Make sure that all assembly works and scaffold use is only by professional companies.
Furthermore, make sure that all concerning parties provide professionally qualified, competent persons.
- Check all the loads that are imposed on the scaffold construction and its surroundings as well as the position of the loads on the scaffold and its surroundings. The various loads are:
 - Self-weight of the scaffold construction
 - Working loads on the working platforms
 - Wind loads (eventual in combination with cladding)
- Be aware of the line-up of the scaffold in relation to the building; make sure that the scaffold plan corresponds to the local conditions
- Check the ground conditions at the position of the scaffold
- Check the condition of the façade at the positions of the anchors
- Be convinced that all the loads can be supported by the scaffold construction
- Be convinced that all the vertical loads of the scaffold can be supported by the ground and that all horizontal loads can be taken by the anchors and the façade of the building
- Check the position of the scaffold in relation to the surroundings
- Be aware of all the (local) safety regulations
- Be aware of possible dangers for explosions or fire
- Be aware that scaffolding workers are trained to build the scaffold construction
- Be aware that the scaffolding workers are fully instructed
- Check the safety and function of all the tools that are used during erection
- Check all materials that used in the scaffold construction.

!No damaged material is allowed to be used in any scaffolding construction!

For “mixing” of scaffold components of different suppliers, please check chapter Page 9. or ask DOKA HQ.

9.2 Erection procedure



1. Start the erection by laying the equipment components out in approximate positions.



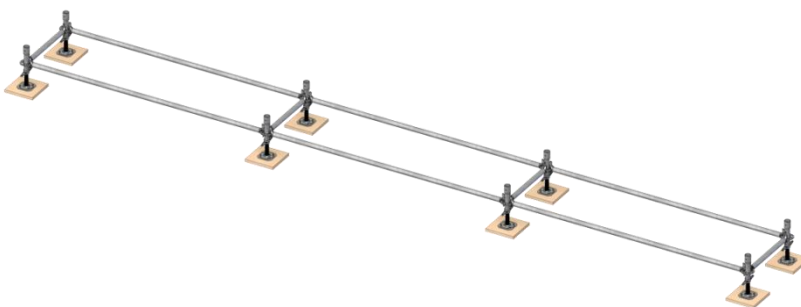
1



2. Place the base collar on the base jack and use wooden planks under the base plates of the jacks to distribute the loads to the ground.



2



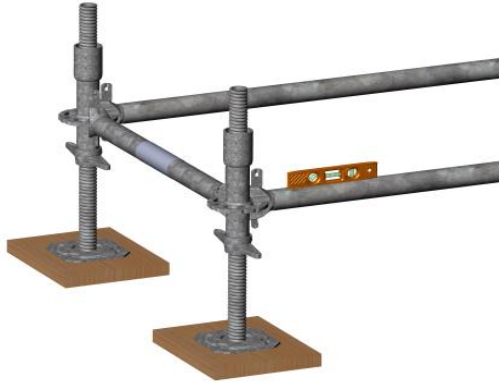
3. Repeat the procedure, placing base jacks in all four corners of the bay and connect them by using ledgers/transoms.



3

PAY ATTENTION!

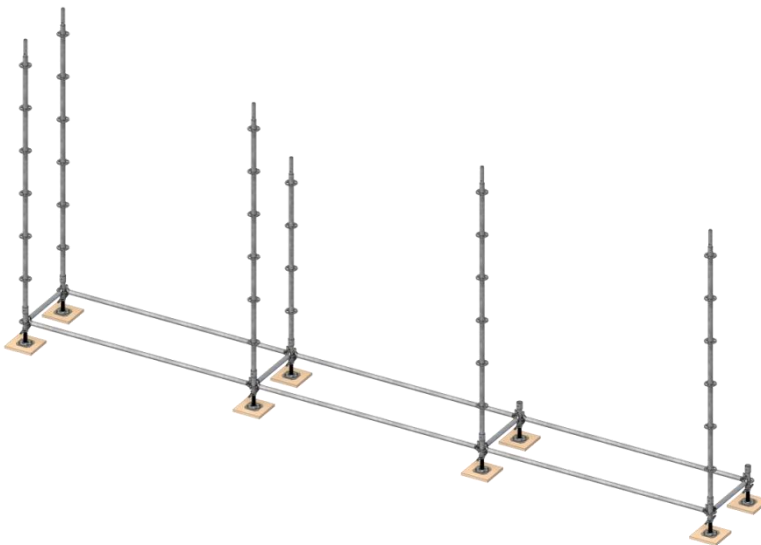
The DokaScaff base jacks may not extend more than the prescribed length of 25cm to avoid the risk of collapse. Always make sure that the loads can be supported by the ground, when necessary use sole pads or take other precautions.



4. Starting at the highest point of the ground, level the base using a spirit level and by adjusting the wing nut on the base jack. Lock all of the wedges in place by using a hammer. Now the base has been fixed, the scaffold can be built in the vertical direction.



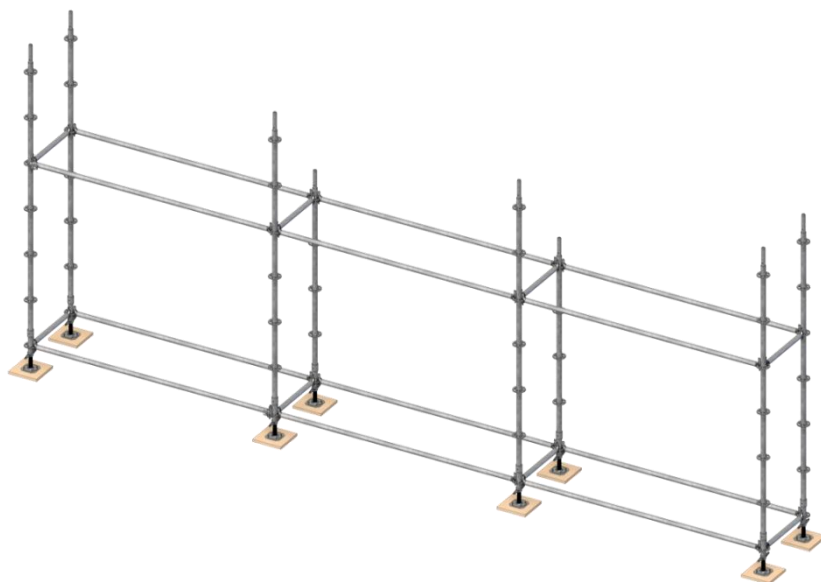
4



5. Insert standards into the base jacks, putting 3m standards on the outside and 2m on the inside of the scaffold.



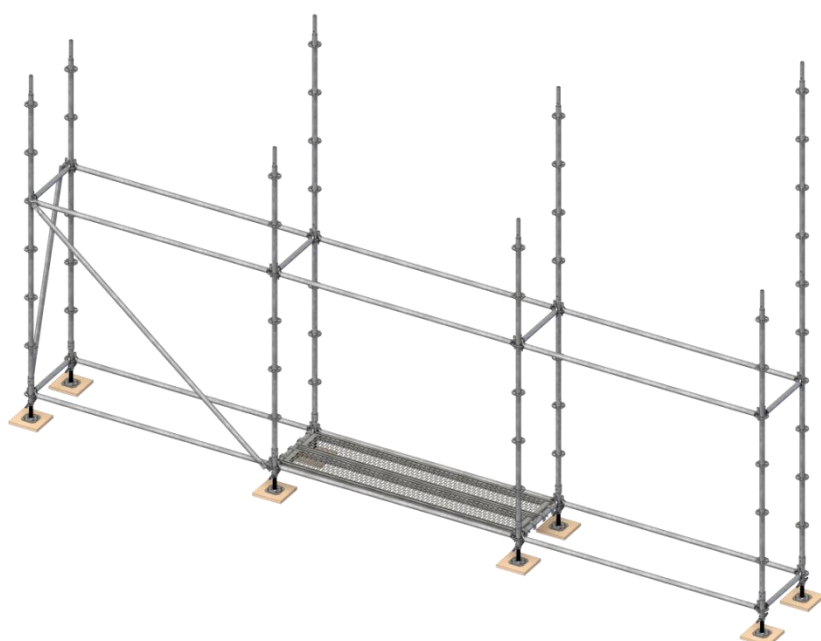
5



6. Start the erection of the first lift by fixing in place the ledgers and transoms. NOTE: It may be necessary to place the steel decking on the base level to assist with erection of the first lift.



6



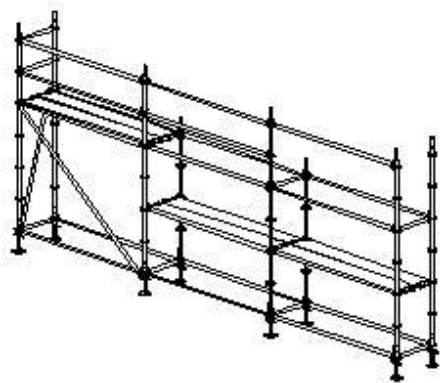
7. Diagonal / face bracing should be fixed to at least every fifth bay from the bottom to the top of the scaffolding or as required by design. The diagonal bracing creates stability in the scaffold construction.



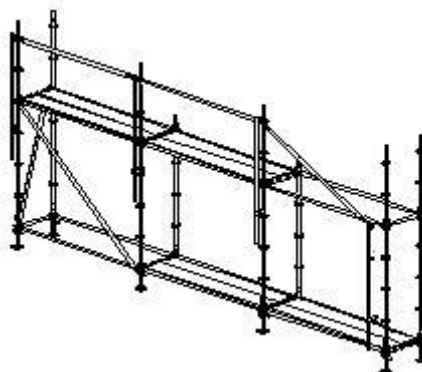
7

PAY ATTENTION!

Very important during erection of next lifts is to work in a safe way. Before moving to the next lift a (temporary) side protection needs to be in place.



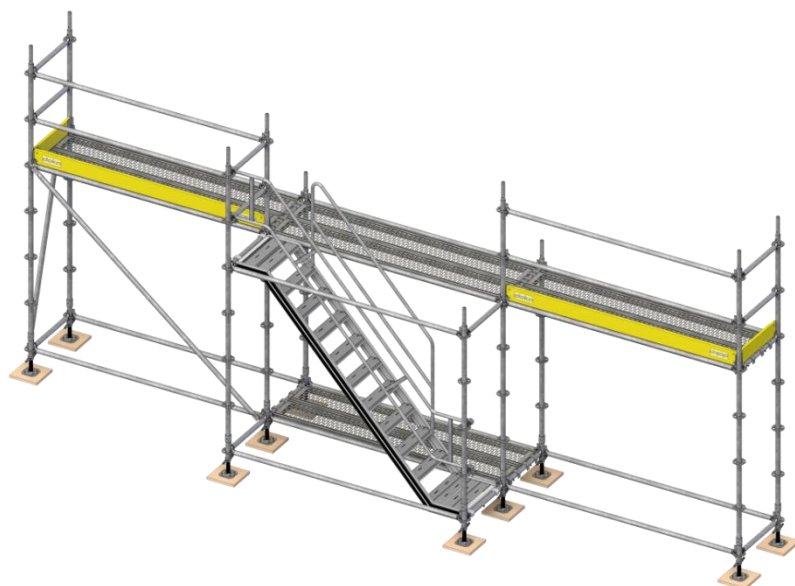
8.1



8.2

8.1 Standard Dokascaff components can be used for creating an temporary extra assembly on 1m height from the actual working floor. From this floor the guardrails and floors for the next floor can be mounted.

8.2 A safe way of working using an advanced guardrail system. The temporary guardrail system exists of guard rail posts and guardrails. These components can be placed along the next floor from the lower lift. After entering the top floor the definitive guardrails can be mounted, and the temporary guardrail can be advanced to the next lift.



9. Place steel decks at the first lift level from below.

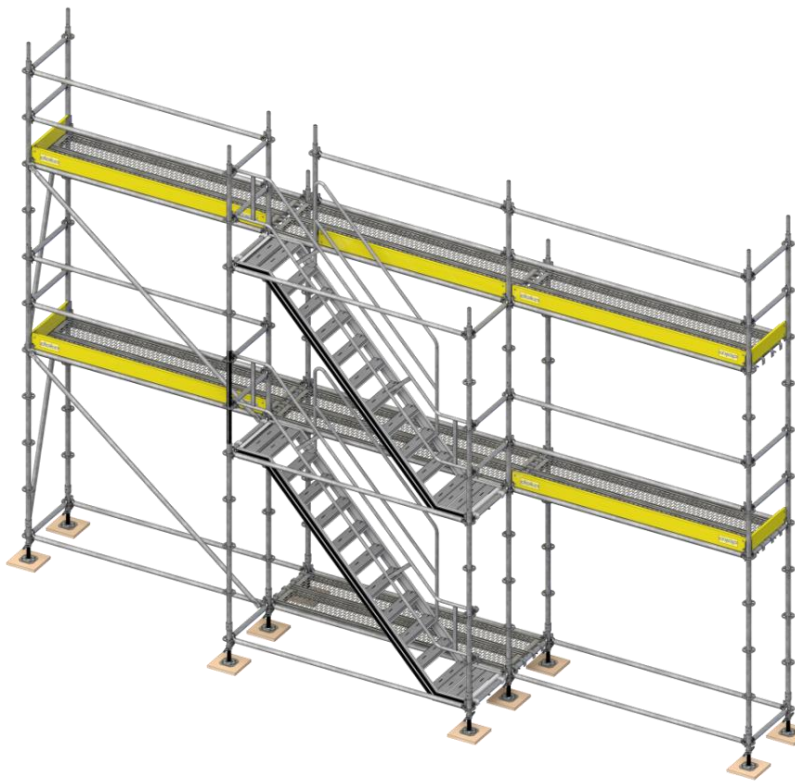
NOTE: If using timber scaffold boards, intermediate transoms should be placed on the longitudinal ledgers. To get safe access to higher lifts, stairs, internal ladders or internal ladder platforms can be used.



9

PAY ATTENTION!

When the prescribed height is reached, the anchoring needs to be put in place immediately



10. The next lift always needs to be decked out from below and a stair or ladder is used to access the next lift. Ensure all working lifts have side protection consisting of double guardrails and a toe board.



10

11. The scaffold should be physically tied in to the facade of the building at the first available position, ideally at second lift level. The tie patterns illustrated in this manual should be consulted. Each row of standards needs to be tied to the facade. In case anchoring is not (directly) possible to create stability, precautions have to be made, for example temporary supports can be attached to the scaffold.

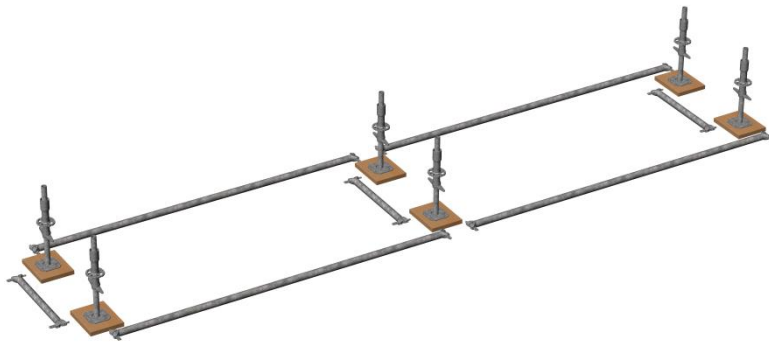
PAY ATTENTION!

When the erection has been finished and the scaffold is ready to use than the "scaff-tag" must show the right instructions for using the scaffold.

Dismantling

The dismantling of the stair tower has to be done in the reversed order. Dismantled components should be removed from the scaffold and transported to the ground by hand. It is never allowed to throw the material. Protective equipment needs to be used during dismantling!

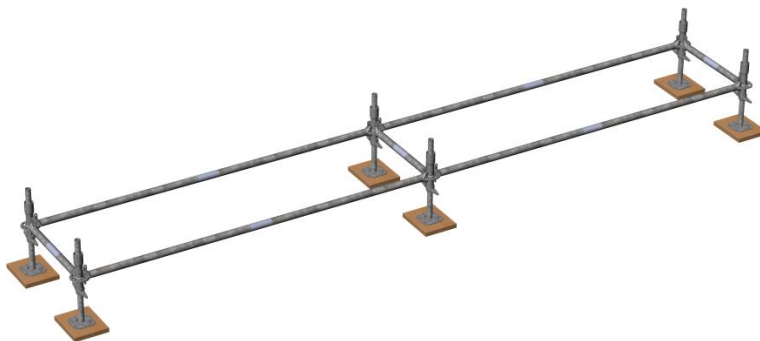


Erection of a rebar scaffold:

1. To start; Position the base according to the design with use of the ledgers. If needed use wooden sole pads for the load distribution.



1



2. When the base jacks are able to transfer it's load safe to the ground, the collars will be positioned on top of the base jacks and connected with the ledgers. The complete configuration will be roughly levelled starting at the highest point of the terrain.



2

PAY ATTENTION!

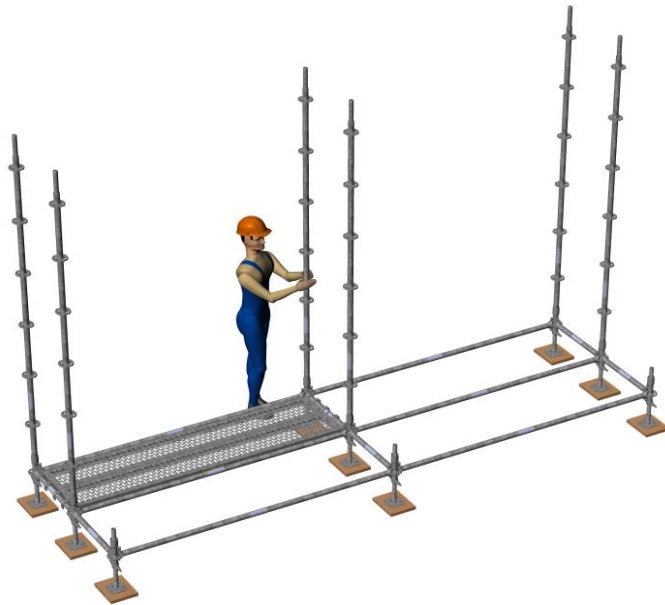
The DokaScaff base jacks may not extend more than the prescribed length of 25cm to avoid the risk of collapse. Always make sure that the loads can be supported by the ground, when necessary use sole pads or take other precautions.



3. Before the wedges are hammered, the configuration has to be exactly levelled and the diagonal measurements have to be checked. After confirming the position, the complete scaffold can be build without any alignment modifications.



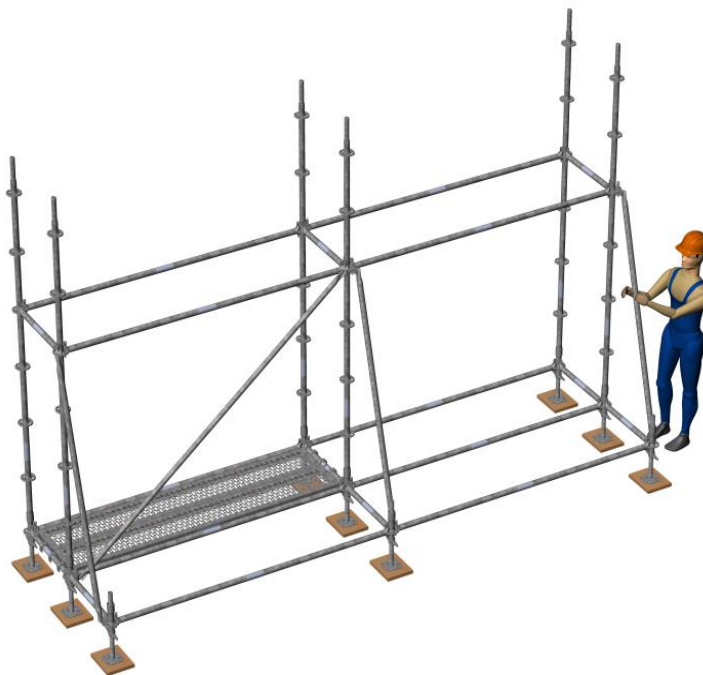
3



4. Place the steel decks in the bay where the ladder platform will be and bring the anti-lift devices in position. The 3,0m standards can be mounted on top of the base collars.



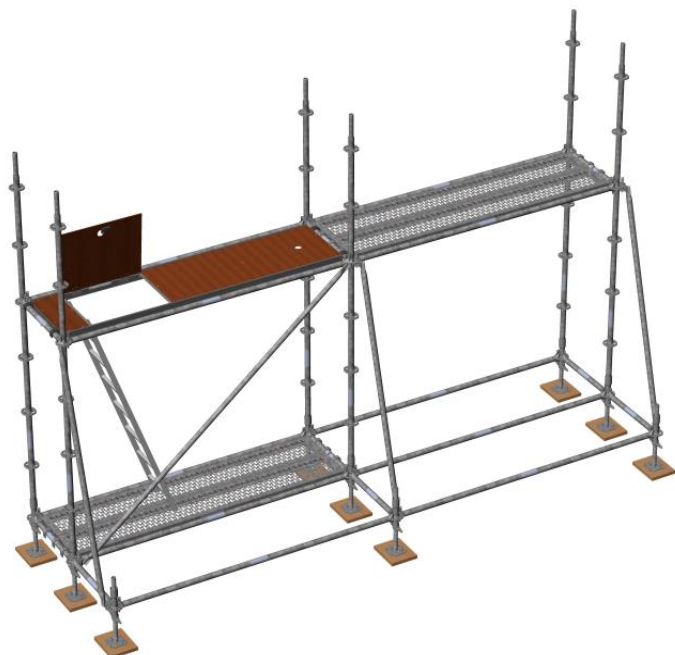
4



5. Position the ledgers for the next lift at 2,0m and put the diagonals in place for stability.



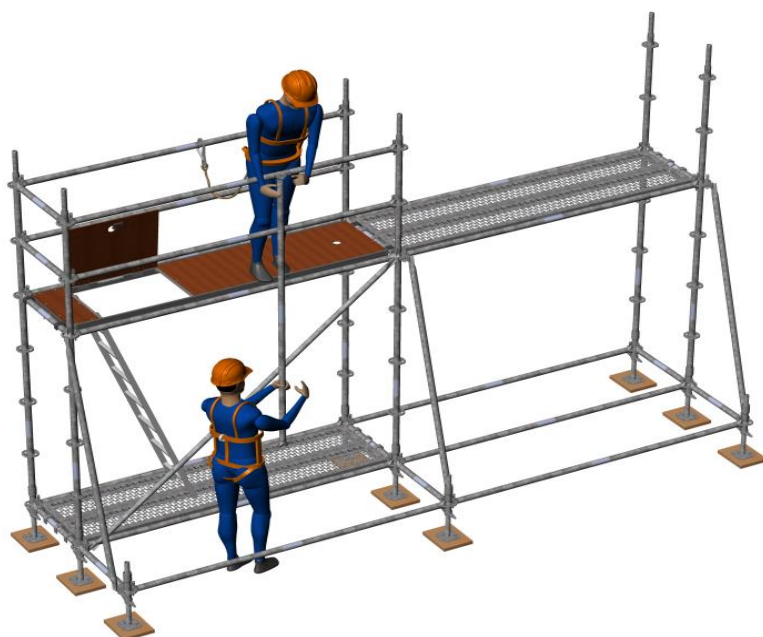
5



6. Position the decks and ladder platform for the next lift and bring the anti-lift devices in position.



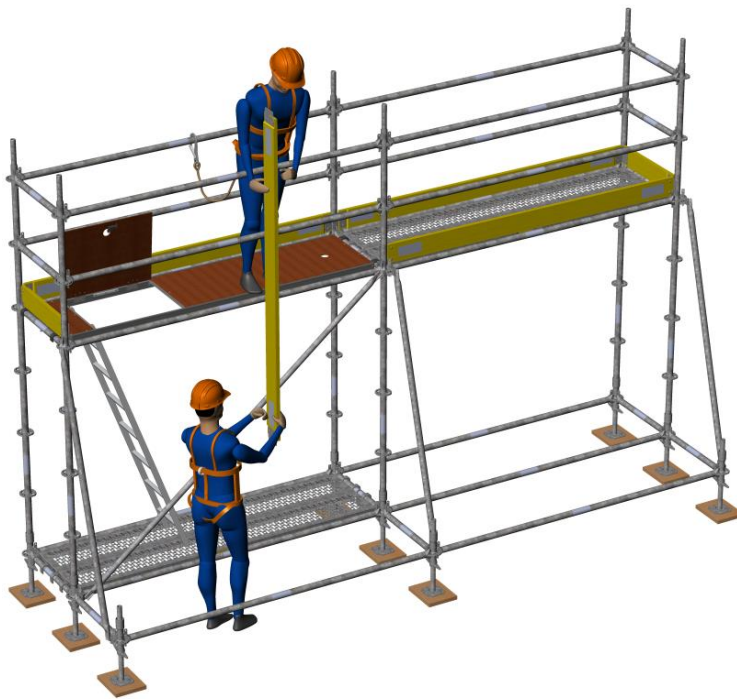
6



7. Before erecting the next lift the complete platform has to be secured by guardrails to create a safe working platform during assembly. To do this start building from the ladder outwards. Go half way up the ladder and secure the safety harness (for lower lifts with a short line) to the nearest standard, then bring all adjacent guardrails in place.

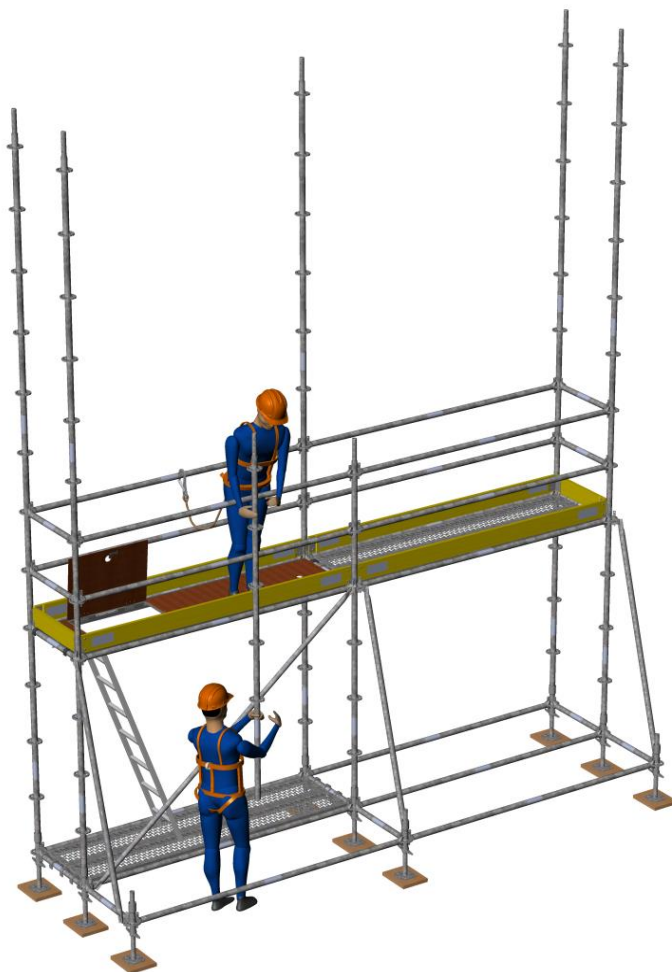


7



8

8. Go up the platform and connect the safety harness to a position as described in chapter 9.5. Afterwards complete the lift with guardrails and toeboards.



9

9. To start the next lift, standards with a height of 2,0m or 3,0m can be placed on top of the 3,0m standards. Then the erection procedure as described in steps 6, 7 and 8 can be repeated.



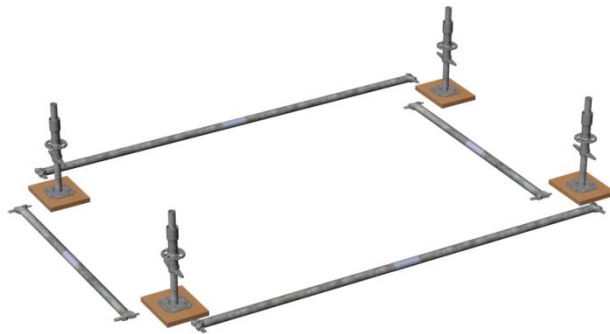
Dismantling

The dismantling of the rebar scaffold has to be done in the reversed order. Dismantled components should be removed from the scaffold and transported to the ground by hand. It is never allowed to throw the material. Protective equipment needs to be used during dismantling!



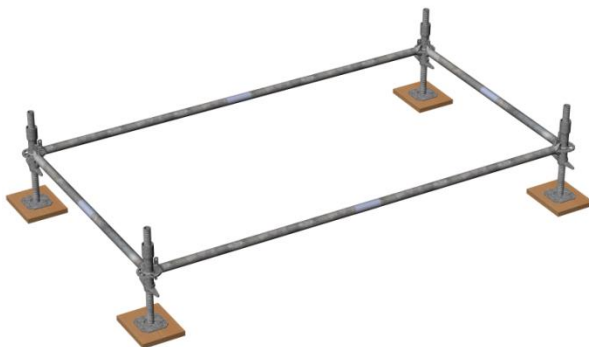
Erection of a 4 legged staircase:

As example the configuration: Platform stair tower 2.57x1.40x2.0m is used.



1

1. To start; Position the base according to the design with use of the ledgers. If needed use wooden sole pads for the load distribution.



2

2. When the base jacks are able to transfer it's load safe to the ground, the collars will be positioned on top of the base jacks and connected with the ledgers. The complete configuration will be roughly levelled starting at the the highest point of the terrain.

**PAY ATTENTION!**

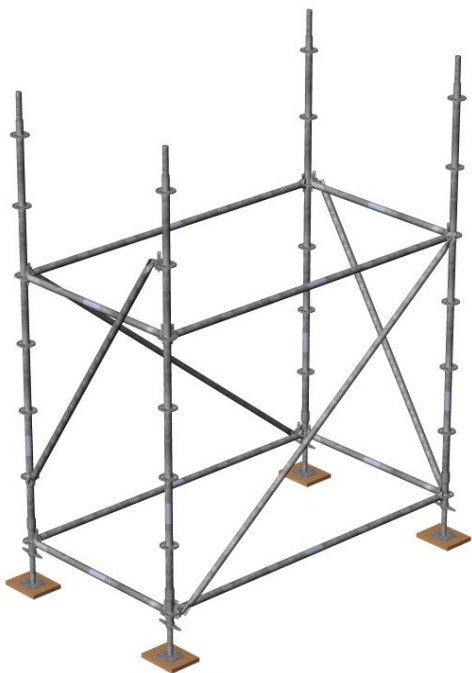
The DokaScaff base jacks may not extend more than the prescribed length of 25cm to avoid the risk of collapse.



3

3. Before the wedges are hammered, the configuration has to be exactly levelled and the diagonal measurements have to be checked. After confirming the position, the complete scaffold can be built without any alignment modifications.

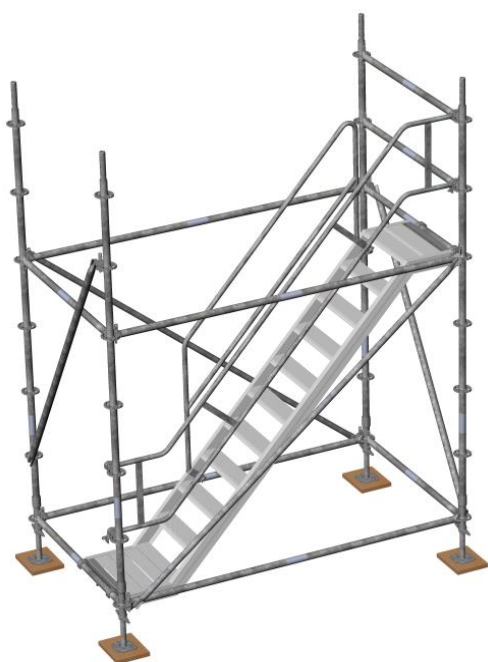




4

4. Place the DokaScaff 3,0m standards in the base collars. And position the ledgers at a height of 2,0m. Afterwards attach the diagonals and fix the connections with a blow of the hammer.

Note: to create convenient room to walk to the stair, the 1st diagonal opposite to the alu stair is assembled 0,50m higher.



5

5. Position the stair for the first lift and bring the anti-lift device in position. When the stair is mounted the guardrails can be mounted, standing on the uppers steps of the platform stair.





6

6. Before erecting the next lift the safety harness has to be connected to a position as described in chapter 9.5. To place the next lift's standards and steel stair, temporary steel decks need to be placed in the longitudinal direction and wooden boards or steel decks with sufficient overlapping length can be used to create a temporary platform in the other direction. If required, the anchoring can be mounted at this point.



PAY ATTENTION!

When the prescribed height is reached, the anchoring needs to be put in place immediately



7

7. Place the next lift of standards with the use a safety harness (for lower lifts, use a short line), also position the ledger for the second platform stair at a height of 2,0m.





8. Remove the temporary steel decks, position the second stair and put the anti-lift device in place. The stair has to be handled with two persons for safety reasons.



8



9. The last step is to position the safety guardrails. Afterwards the stair towers is safe to use.

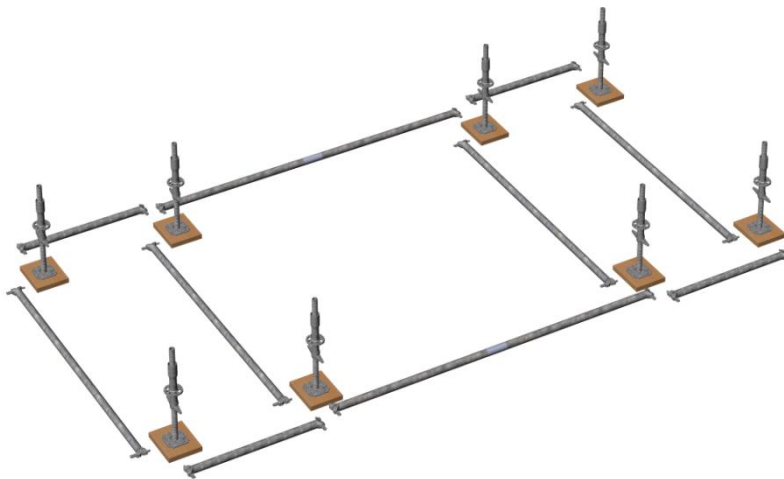


9

Dismantling

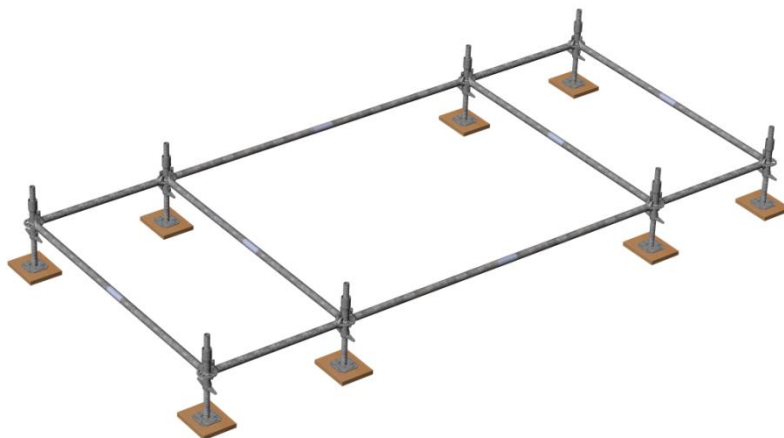
The dismantling of the stair tower has to be done in the reversed order. Dismantled components should be removed from the scaffold and transported to the ground by hand. It is never allowed to throw the material. Protective equipment needs to be used during dismantling!



Erection of a 8 legged staircase:

1

1. To start; Position the base according to the design with use of the ledgers. If needed use wooden sole pads for the load distribution.

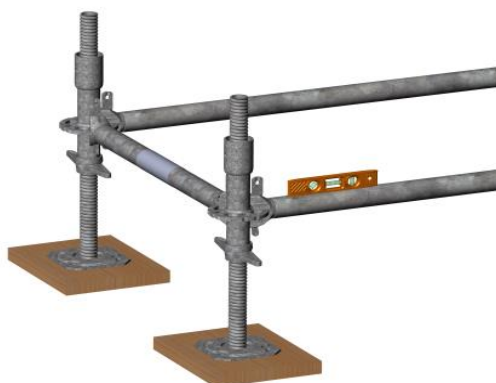


2

2. When the base jacks are able to transfer it's load safe to the ground, the collars will be positioned on top of the base jacks and connected with the ledgers. The complete configuration will be roughly levelled starting at the highest point of the terrain.

**PAY ATTENTION!**

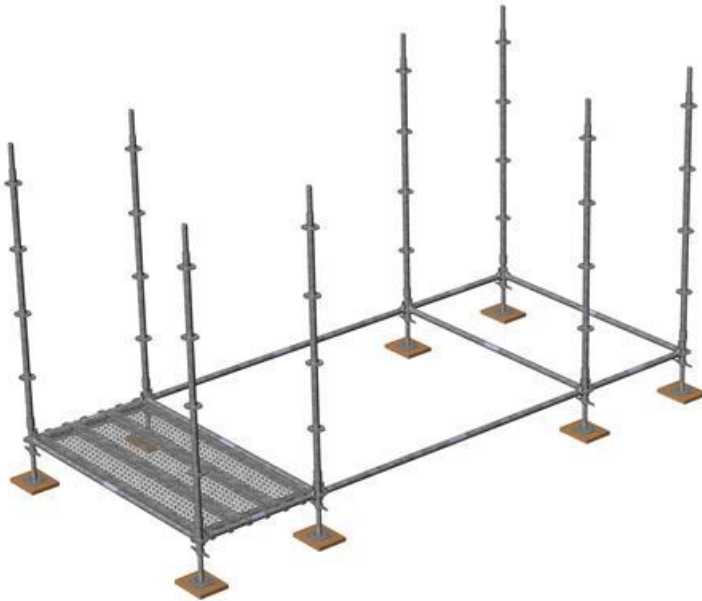
The DokaScaff base jacks may not extend more than the prescribed length of 25cm to avoid the risk of collapse. Always make sure that the loads can be supported by the ground, when necessary use sole pads or take other precautions.



3. Before the wedges are hammered, the configuration has to be exactly levelled and the diagonal measurements have to be checked. After confirming the position, the complete scaff can be build without any alignment modifications.



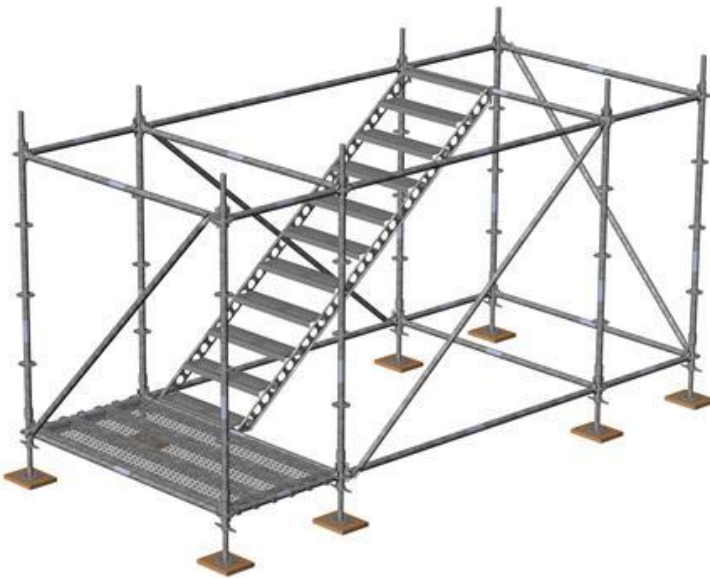
3



4. Place the steel decks in the bay along where the steel stair will be and bring the anti-lift devices in position. The standards can be mounted on top of the base collars.



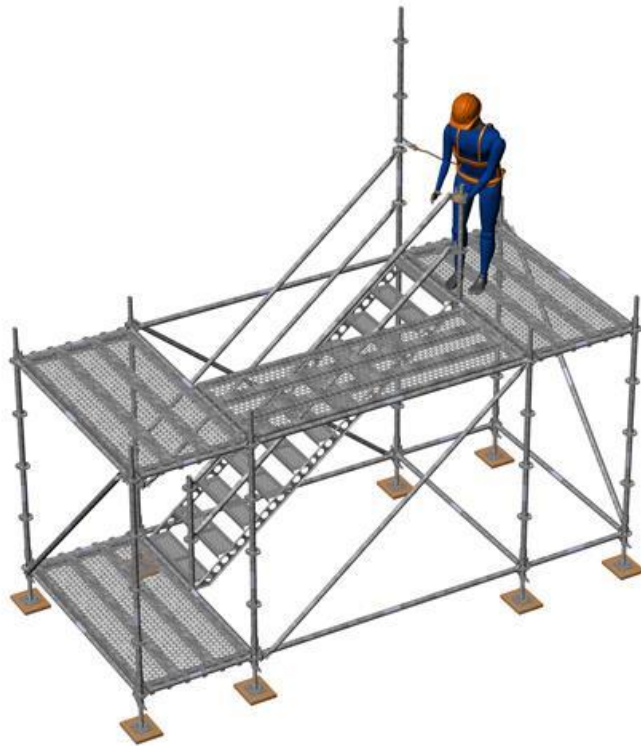
4



5. Position the ledgers and diagonals (if possible) and stair for the next lift and bring the anti-lift devices in position.

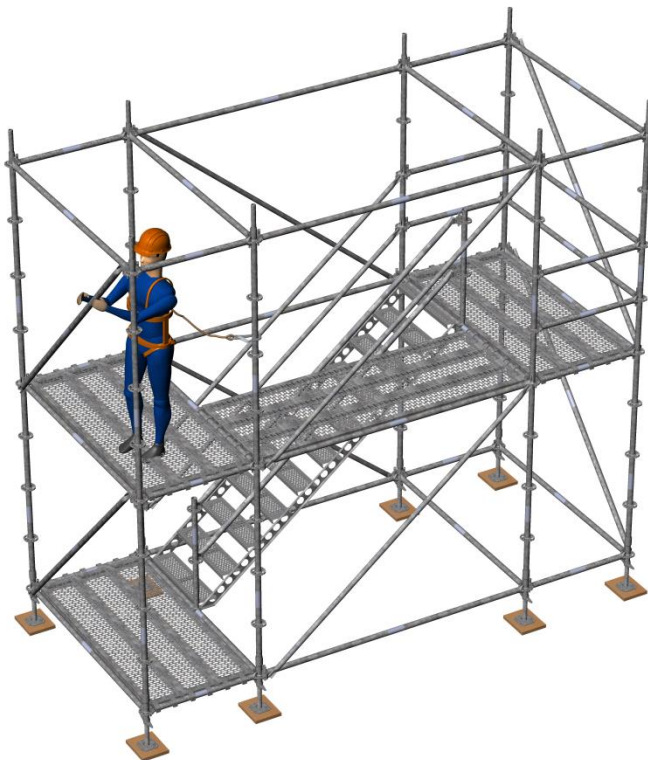


5



6

6. To place the next lift's standards steel decks need to be placed (partly temporary). Bring the standards for the guardrail in place and add the diagonals. Before erecting the rest of the next lift, the safety harness (for lower lifts use shorter line) has to be connected to a position as described in chapter 9.5.
Note: for working on the first lift a safety harness with a short line is required.



8

7. Position the next lift of standards and ledgers/guardrails and diagonals. If needed bring the anchoring in place

PAY ATTENTION!

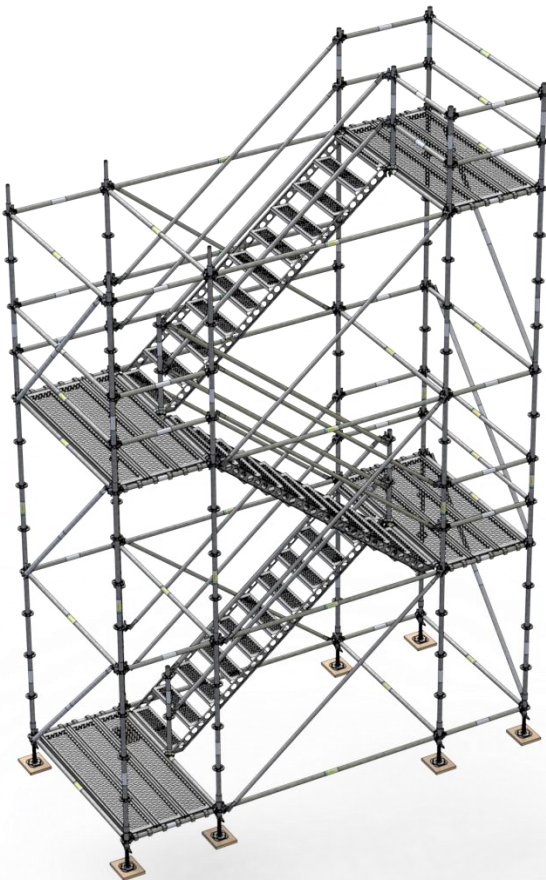
When the prescribed height is reached, the anchoring needs to be put in place immediately



8. Remove the (temporary) steel decks at the position to place the next steel stair. Position the stair



8



9. To complete the next lift, the erection procedure as described in steps 6, 7 and 8 can be repeated.



9

Dismantling

The dismantling of the stairtower has to be done in the reversed order. Dismantled components should be removed from the scaffold and transported to the ground by hand. It is never allowed to throw the material. Protective equipment needs to be used during dismantling!



9.3 Use of scaffold

It is required that during the use of the scaffold:

- people who work on or with the scaffold are well informed about the maximum load of the scaffold. This is the maximum load on the platform as well as the maximum number of platforms that are allowed to be loaded.
- nobody should make modifications to the scaffold without approval of the responsible scaffolding construction engineer.
- the scaffold will not be used in severe weather conditions like storm (windforce > 7 Beaufort), thunder and lightning, snow, hailstone or glazed frost.
- the scaffold must be inspected on a regular base, especially after severe weather conditions .

9.4 Dismantling procedure

A safe dismantling of the DokaScaff scaffold system relies upon the following basic operations and controls:

- 1 All platforms should be cleared of loose materials and the scaffold needs to be checked to ensure it is still in a correctly erected condition e.g. components or ties have not been removed or incorrectly re-fixed. The "scafftag" on the scaffold must show that the scaffold is not released for use anymore.
- 2 Dismantle the scaffold in the opposite order of erection. This means start from top and go down, lift by lift.
- 3 Remove toe boards and guard-rails from the top platform.
- 4 Remove standards connected above platform level, having first checked that all components previously fixed to them have been removed.
- 5 Working from a temporary platform below the top platform, remove the (steel) planks from the top platform.
- 6 Remove all ledgers and transoms at the top platform level.
- 7 Working always from a temporary platform not more than 2m below the level from which components are to be removed, progressively dismantle the scaffold in the sequence described above.
- 8 Remove ties progressively as the scaffold is dismantled.
NB: ties should not be removed until they would prevent further dismantling of the scaffold.
- 9 Components should be lowered to the ground in a carefully and safe way by passing from hand to hand down the scaffold or by means of an appropriate safe lowering method, such as by hand line, crane, hoist etc.

9.5 Positions of safe securing points for safety harness

When assembling the further scaffold levels fall hazard may exist. Erection works must be carried out in such way that the risk of falling is avoided and the remaining hazards are minimized. The scaffolder / scaffolding company makes an appropriate risk assessment for each individual case or for each assembly step to ensure the security. Possible security measures can be for example;

- The use of the Ringscaff assembly safety guardrail (see chapter 8.3.2.2)
- The use of appropriate personal protective equipment like a safety harness (see chapter 8.3.2.1)
- A combination of the above mentioned protective actions.

It is only allowed to use components for the assembly safety guardrail that are in accordance with the Approval Z-8.22-869.

When working with a safety harness, a height rescue plan is required on the construction site.

When a safety harness is used as protective equipment, it has to be approved for use in the scaffolding branch.

When using a safety harness it is of utmost importance to use the proper pick-points to connect the suspension hook. Figure 9.5.1 and 9.5.2 show the proper connection points for connection to a ledger or to a rosette.

Beware:

Securing points should be at least 5,80m above ground!

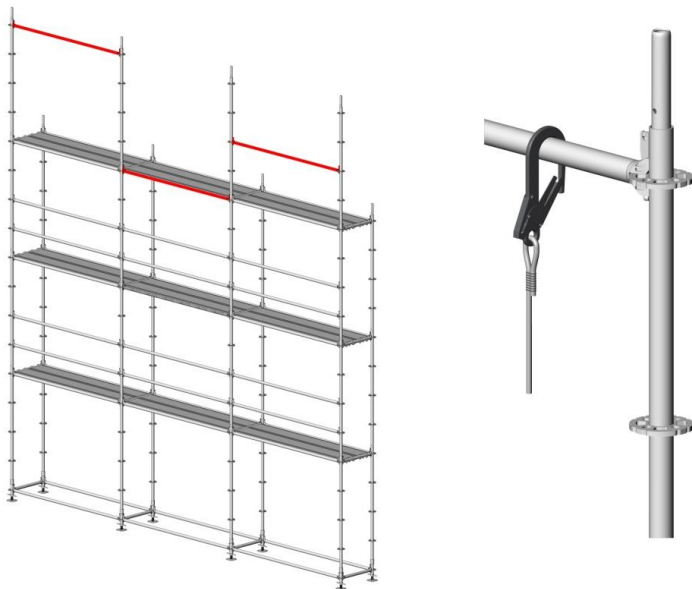


Figure 9.5.1: Approved positions for securing on (red) ledgers

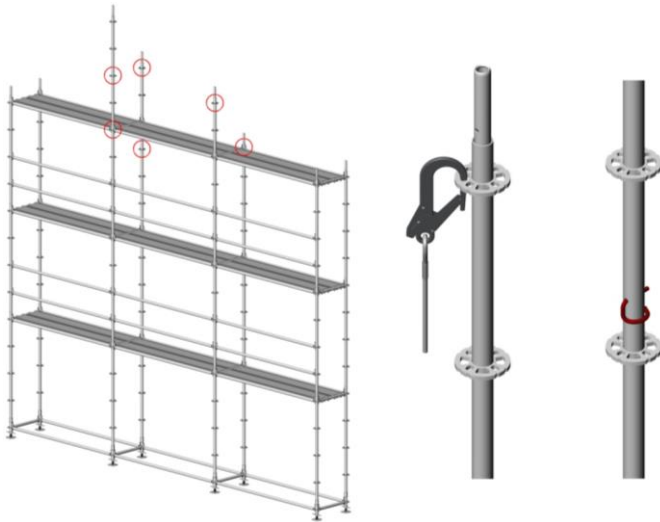


Figure 9.5.2: Approved positions for securing on (red circled) rosettes. Rosette minimal 1,0 meter above top floor. When the standards is connected on a spigot above top floor, the standards must be secured with a securing pin (right figure).



The actual connection points should always be in accordance with local regulations and guidelines of professional associations.



Connection points must be made as high as possible above the actual working floor with a minimum height of 1,0 meter above the working floor.



It only is allowed to connect the carbine hook of the safety harness to closed parts of the scaffold which will prevent the hook from slipping. Open sections like for instance tube ends are not allowed to be used as connection points for the safety harness.



The use of a safety harness with shock absorptive line is only allowed when the fall height is at least 5,75meter measured vertically from connection point to the ground.

Various solutions

As DokaScaff is a modular scaffolding system there are various solutions to create a safe working platform at height around all kinds of façades. Some of these solutions are described in this chapter.

10.1 Corner solutions

Because of the flexibility of the system it is possible to create corner solutions in various ways. The next figures 10.1 to 10.5 show some of these solutions for right angle corner, using steel decks in the scaffold.

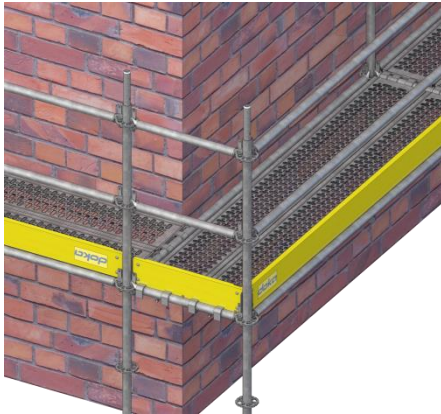


Figure 10.1:



Figure 10.2



Figure 10.3



Figure 10.4

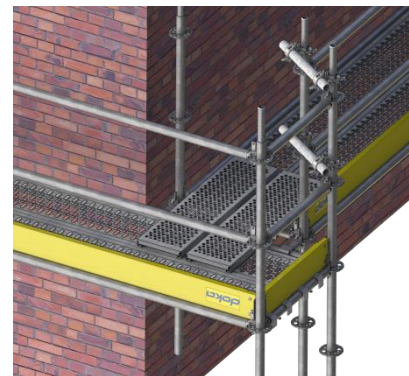


Figure 10.5

Figure 10.1: Corner solution with 2 standards, 1 transom and 1 double ledger

Figure 10.2: Corner solution with 3 standards, 2 transoms

Figure 10.3: Corner solution with 4 standards, 3 transoms

Figure 10.4: Corner solution with 3 standards, 2 transoms and 1 side brackets (2 steel planks)

Figure 10.5: Corner solutions with 4 standards, 2 transoms

10.2 Platform expansion

With the help of side brackets, see figure 10.6, it is possible to expand the working floor and / or to fill gaps between the scaffold and the shape of the building.

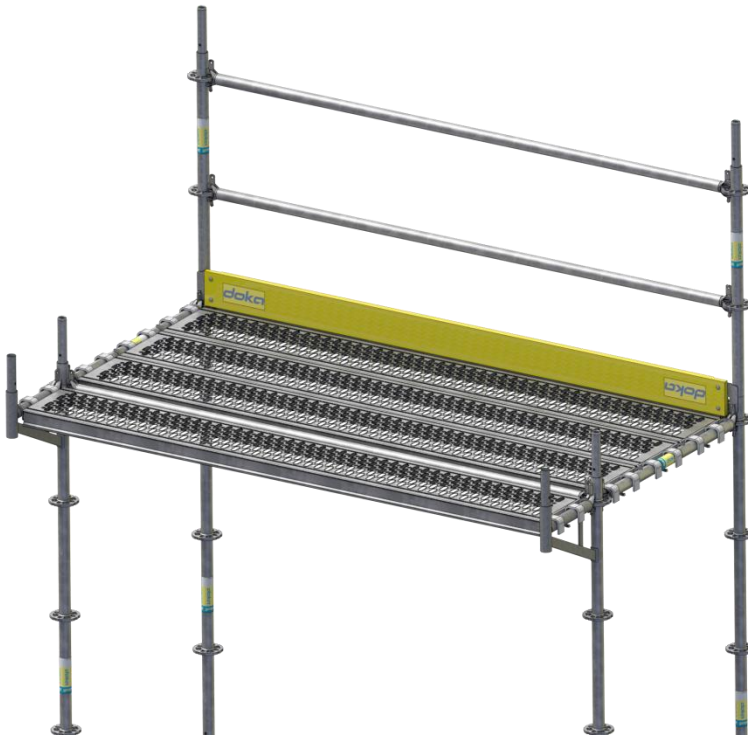


Figure 10.6

Side brackets are available in the width dimensions of 0,39m (for 1 steel plank) and 0,73m (for 2 steel planks).

The side brackets are mounted on the standards by placing the welded wedge head construction of the bracket on the rosette of the standards. After hammering the wedge, the bracket is fixed to the scaffold and is able to take up loads.

When side brackets are used to create a wider working platform then it is necessary that the steel planks on the side brackets do have at least the same load capacity as the steel planks on the main floor.

For anchoring patterns and standard loads in case of using side brackets in the scaffold construction, see also Appendix 4, standard configurations.

10.3 Bridging solutions

For creating underpasses in scaffold constructions, the DokaScaff system can create a bridging construction with standard DokaScaff components like the base collar, standard and system diagonals, see figure 10.7. The bays just around the bridging construction need to be stiffened by DokaScaff system diagonals.

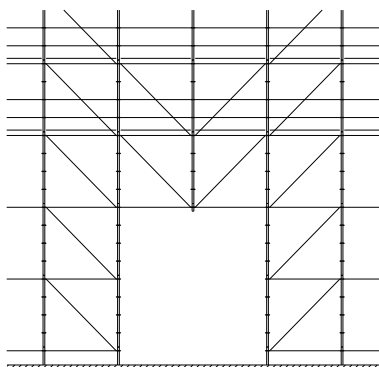


Figure 10.7

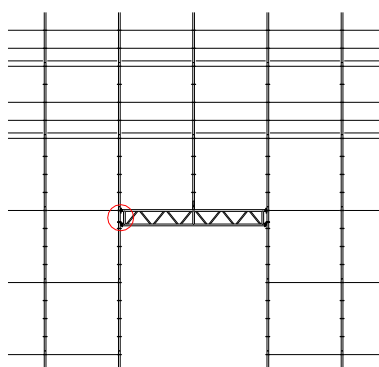
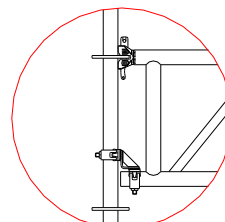


Figure 10.8



Another solution for creating a bridging, is with the help of Ringscaff lattice girders and lattice girder couplers, see figure 10.8.

The lattice girders are available in the system lengths of 4,14m, 5,14m and 6,14m. With these lengths it is possible to bridge two bays of 2,07m, 2,57m or 3,07m.

The top side of the lattice girders is fixed to the standards by welded wedge-head connections. The lower chord of the lattice girder is fixed to the standards by special lattice girder couplers, see detail at figure 10.8.

In order to prevent lattice girders from buckling because of the loading on the girder, it is necessary to stabilise the girders by stiffening the upper chord with the help of tube and fittings, see figure 10.9. For more detailed information about stiffening consult you local engineer.

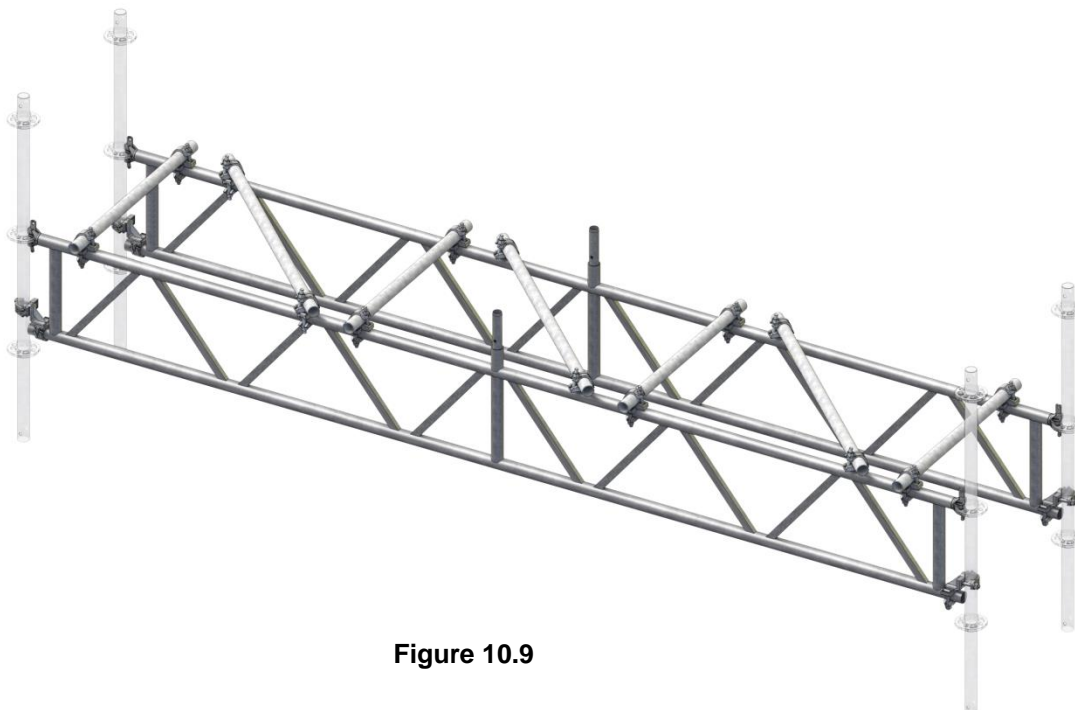


Figure 10.9

Maintenance

Inspection, care and maintenance of DokaScaff components:

- Scaffolding components must be handled with care during transport and use, to avoid damage.
- All components must be checked on damage before use and assembly.
- All moving components must, regarding their correct functioning and contaminants, be monitored.
- Damaged components need to be replaced, in order to repair to be sent to the manufacturer or to be destroyed.

General Inspection & maintenance criteria:

- 1) The standards, ledgers, diagonals, transoms, steel planks, side brackets may not show visible damages like tears, cracks or dents; tubes must be visibly straight.
- 2) The contact areas of the standard-tube, on the top as well as on the bottom of the rosettes, need to be flat and free from pollutions (for free use of ledgers and diagonals). The standard must be visibly straight. The spigot needs to be fixed straight and tight without play into the standard tube.
- 3) The scaffold components may not be rusty.
- 4) The tubes / shafts needs to be visibly straight (deflection $< l/300$).
- 5) The adjustable nut on jacks must be free from damages and must turn freely through the full length of the thread from the bottom till the limited position. The threaded shaft of jacks may not show visible damages like tears, cracks or dents. The (base) plate must be visibly flat and standing visibly plumb on a flat surface.
- 6) The welds of verticals, ledgers, jacks, transoms a.s.o. may not have any cracks.
- 7) The wedges need to be freely movable and secured against loosening; wedges may not be bended or cracked.
- 8) The steel deck must be visibly straight and must be flat lying on transoms with its supporting hooks. The supporting hooks may not be bended or cracked. The anti-lift devices need to be in place and function.
- 9) The scaffold components must be cleaned regularly, to be free from concrete or other pollutions.

Standard configurations of stair towers

Overview standard staircases:

Exit on top:

Because of the flexibility of the system it is possible to create exits on top in various ways. The next figures show the standardized solutions detailed on the next pages.



Figure 11.1



Figure 11.2



Figure 11.3



Figure 11.4



Figure 11.5



Figure 11.6

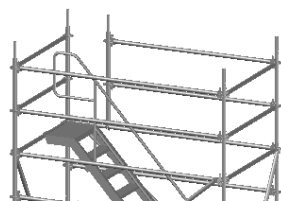


Figure 11.7

Figure 11.1: Platform stair tower 2.57x1.40x2.0m. Opposite stairs and exit sideways.

Figure 11.2: Platform stair tower 2.57x0.73x2.0m. Parallel stairs and exit sideways, used only in combination with a scaffold.

Figure 11.3: Platform stair tower 2.57x1.40x2.0m. Opposite stairs and exit at end.

Figure 11.4: Platform stair tower 2.57x1.40x2.0m. Parallel stairs and exit at end.

Figure 11.5: Steel stair tower 4 leg 0.73-2.57-0.73x1.40x2.0m

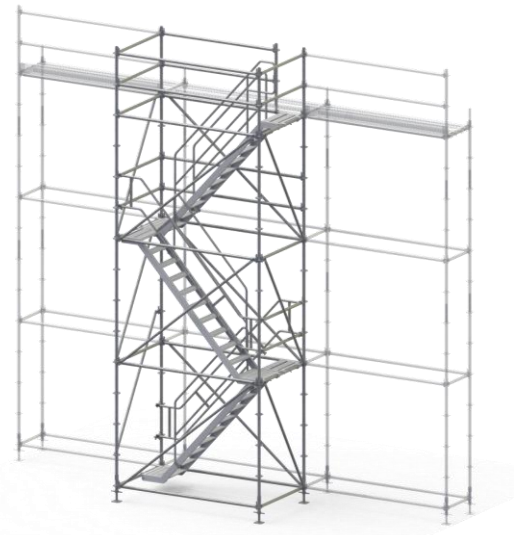
Figure 11.6: Steel stair tower 8 leg 1,09-2,57-1,09*2,07*2,0m

Figure 11.7: Platform stair tower 2.57x1.40x2.0m. Opposite stairs and exit sideways without outer guardrails.

Item: Platform stair tower 2.57x1.40x2.0m. Opposite stairs and exit sideways.**Load capacities (safe working loads)**

| | |
|----------------------------|---------------------------------|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | 70m* |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



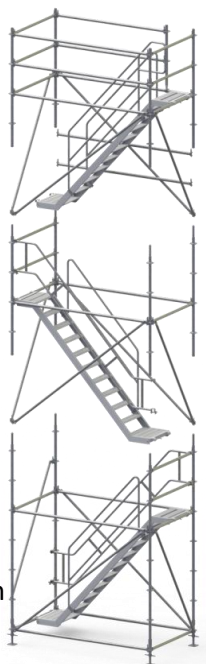
| Art no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|--|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a steel stair tower, H≥4m* | | - | 1 | (H-4)/2 | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | - | 4 | 4 | 8 |
| 690140030 | DokaScaff standard with spigot 1.00m | 5,4 | - | - | 1 | 1 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 4 | 2 | 6 | 12 |
| 690140074 | DokaScaff ledger 2.07m | 7,9 | - | - | 2 | 2 |
| 690140047 | DokaScaff ledger 1.40m | 5,5 | 6 | 4 | 6 | 16 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 2 | 2 | 2 | 6 |
| 690140051 | DokaScaff diagonal 200/140cm | 7,9 | 2 | 2 | 2 | 6 |
| 690140571 | DokaScaff alu stairway 64/257cm | 25,9 | 1 | 1 | 1 | 3 |
| 690140572 | DokaScaff outer guardrail 2.57m | 13,8 | 1 | 1 | - | 2 |
| 690140573 | DokaScaff inner guardrail 2.57m | 10,6 | 1 | 1 | 1 | 3 |
| 690140593 | DokaScaff inner guardrail extended | 13,7 | - | - | 1 | 1 |
| 690140592 | DokaScaff stairway guardrail adaptor | 0,75 | 2 | - | - | 2 |
| 690140003 | DokaScaff spigot clamp | 1,25 | - | - | 1 | 1 |

* H= Height in [m]

Top section.

Middle section

Bottom section



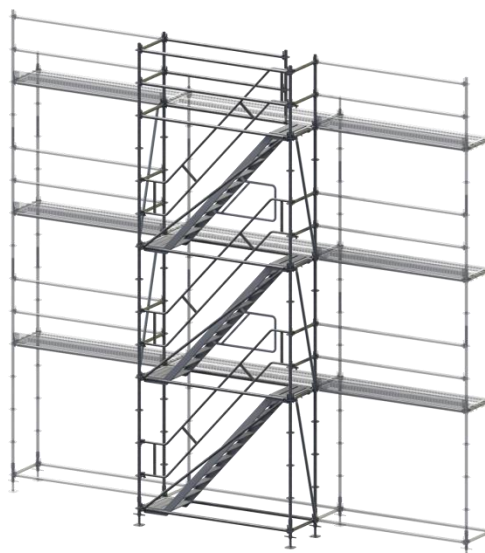
All stair tower configurations are available in the bay lengths 2,57m and 3,07m!

Item: Platform stair tower 2.57x0.73x2.0m. Parallel stairs and exit sideways, used only in combination with a scaffold.

Load capacities (safe working loads)

| | |
|----------------------------|---------------------------------|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | 70m* |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



| Product no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|---|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a platform stair tower, H ≥ 4m* | | - | 1 | (H-4)/2 | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | - | 4 | 4 | 8 |
| 690140030 | DokaScaff standard with spigot 1.00m | 5,4 | - | - | 1 | 1 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 4 | 2 | 4 | 10 |
| 690140074 | DokaScaff ledger 2.07m | 7,9 | - | - | 2 | 2 |
| 690140011 | DokaScaff ledger 0.73m | 3,0 | 8 | 6 | 6 | 20 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 1 | 1 | 1 | 3 |
| 690140017 | DokaScaff diagonal 200/73cm | 7,2 | 1 | 2 | 2 | 5 |
| 690140571 | DokaScaff alu stairway 64/257cm | 25,9 | 1 | 1 | 1 | 3 |
| 690140572 | DokaScaff outer guardrail 2.57m | 13,8 | 1 | 1 | 1 | 3 |
| 690140573 | DokaScaff inner guardrail 2.57m | 10,6 | 1 | 1 | 1 | 3 |
| 690140592 | DokaScaff stairway guardrail adaptor | 0,75 | 2 | - | - | 2 |
| 690140003 | DokaScaff spigot clamp | 1,25 | - | - | 1 | 1 |

* H= Height in [m]

Top section.

Middle section

Bottom section

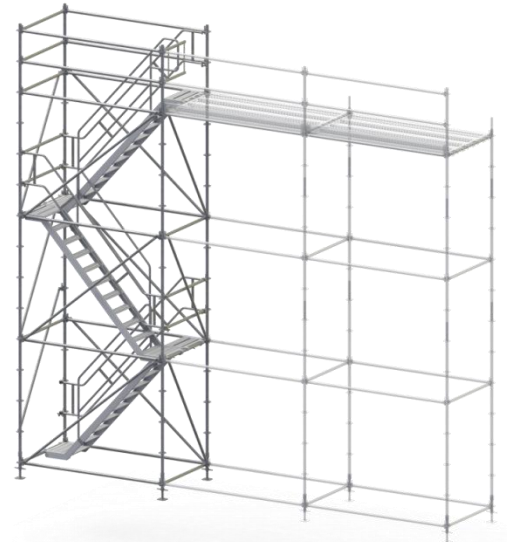


All stair tower configurations are available in the bay lengths 2,57m and 3,07m!

Item: Platform stair tower 2.57x1.40x2.0m Opposite stairs and exit at end.**Load capacities (safe working loads)**

| | |
|----------------------------|---------------------------------|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | 70m* |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



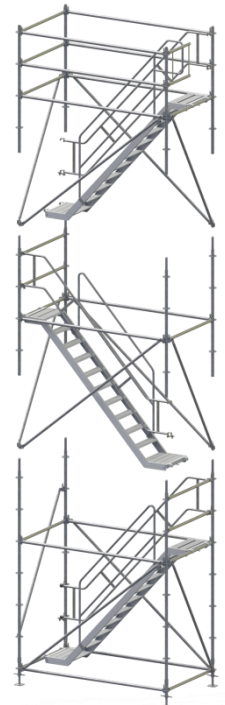
| Product no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|---|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a platform stair tower, H ≥ 4m* | | - | 1 | (H-4)/2 | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | - | 4 | 4 | 8 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 4 | 2 | 6 | 12 |
| 690140047 | DokaScaff ledger 1.40m | 5,5 | 6 | 4 | 4 | 14 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 2 | 2 | 2 | 6 |
| 690140051 | DokaScaff diagonal 200/140cm | 7,9 | 2 | 2 | 2 | 6 |
| 690140571 | DokaScaff alu stairway 64/257cm | 25,9 | 1 | 1 | 1 | 3 |
| 690140572 | DokaScaff outer guardrail 2.57m | 13,8 | 1 | 1 | 1 | 3 |
| 690140573 | DokaScaff inner guardrail 2.57m | 10,6 | 1 | 1 | - | 2 |
| 690140593 | DokaScaff inner guardrail extended | 13,7 | - | - | 1 | 1 |
| 690140726 | DokaScaff end guardrail | 6,1 | - | - | 1 | 1 |
| 690140592 | DokaScaff stairway guardrail adaptor | 0,75 | 2 | - | 2 | 4 |

* H= Height in [m]

Top section.

Middle section

Bottom section



All stair tower configurations are available in the bay lengths 2,57m and 3,07m!

Item: Platform stair tower 2.57x1.40x2.0m Parallel stairs and exit at end.**Load capacities (safe working loads)**

| | |
|----------------------------|---------------------------------|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | 70m* |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored

| Product no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|---|--|-------------|------------------|------------------|---------------|-------|
| Number of sections in a platform stair tower, $H \geq 4m^*$ | | - | 1 | $(H-4)/2$ | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | - | 4 | 4 | 8 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 6 | 4 | 6 | 16 |
| 690140047 | DokaScaff ledger 1.40m | 5,5 | 6 | 4 | 4 | 14 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 2 | 2 | 2 | 6 |
| 690140051 | DokaScaff diagonal 200/140cm | 7,9 | 2 | 1 | 1 | 4 |
| 690140571 | DokaScaff alu stairway 64/257cm | 25,9 | 1 | 1 | 1 | 3 |
| 690140572 | DokaScaff outer guardrail 2.57m | 13,8 | 1 | 1 | 1 | 3 |
| 690140573 | DokaScaff inner guardrail 2.57m | 10,6 | 1 | 1 | 1 | 3 |
| 690141030 | DokaScaff inner guardrail top platform | 6,1 | - | - | 1 | 1 |
| 690140592 | DokaScaff stairway guardrail adaptor | 0,75 | 4 | 2 | 2 | 8 |
| 690140090 | DokaScaff steel-deck 32/257cm | 18,1 | 2 | 2 | 2 | 6 |

* H= Height in [m]

Top section.

Middle section

Bottom section

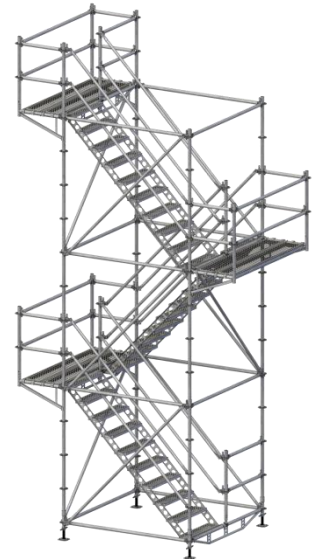


All stair tower configurations are available in the bay lengths 2,57m and 3,07m!

Item: Steel stair tower 4 leg 0.73-2.57-0.73x1.40x2.0m**Load capacities (safe working loads)**

| | |
|----------------------------|--|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | App. 50m* (heights above 24m needs to be calculated) |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



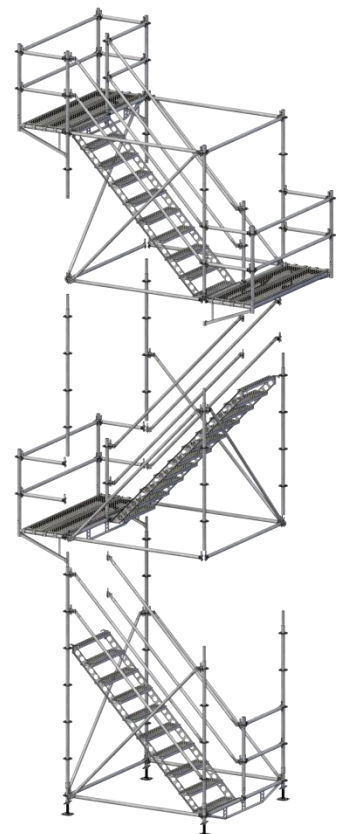
| Product no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|---|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a platform stair tower, $H \geq 4m^*$ | | | 1 | $(H-4)/2$ | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 2 | - | - | 2 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | 2 | 4 | 4 | 10 |
| 690140030 | DokaScaff standard with spigot 1.00m | 5,4 | 1 | 3 | 6 | 10 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 2 | 2 | 4 | 8 |
| 690140074 | DokaScaff ledger 2.07m | 7,9 | 2 | 4 | 8 | 14 |
| 690140011 | DokaScaff ledger 0.73m | 4,4 | - | 4 | 8 | 12 |
| | Scaffold tube 1,5m | 5,3 | 2 | - | 2 | 4 |
| | RA-coupler | 1,3 | 4 | - | 4 | 8 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 6 | 6 | 6 | 18 |
| 690140077 | DokaScaff diagonal 200/207cm | 9,0 | 1 | 1 | 1 | 3 |
| 690140966 | DokaScaff steel stair 104/257cm | 46 | 1 | 1 | 1 | 3 |
| 690140742 | DokaScaff steel-deck 32/207cm | 15,20 | - | 2 | 4 | 6 |
| 690140003 | DokaScaff spigot clamp | 1,25 | 1 | 1 | 2 | 4 |
| 690140018 | DokaScaff bracket 0.73m | 6,8 | - | 2 | 4 | 6 |

* H= Height in [m]

Top section.

Middle section

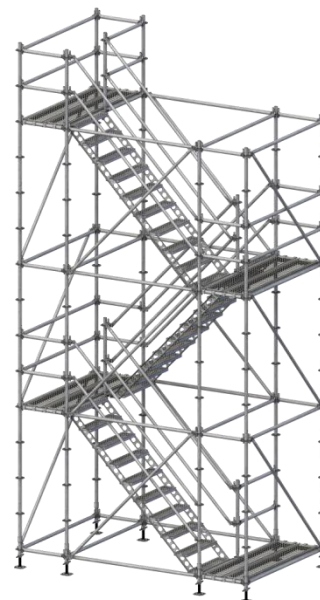
Bottom section



Item: Steel stair tower 8 leg 1,09-2,57-1,09*2,07*2,0m**Load capacities (safe working loads)**

| | |
|----------------------------|--|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | App. 64m* (heights above 24m needs to be calculated) |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



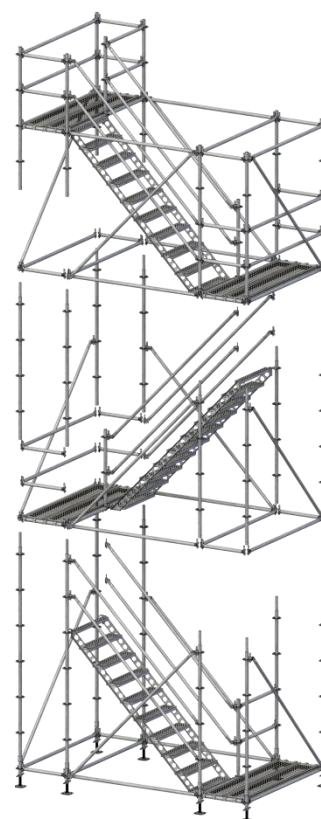
| Product no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|---|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a platform stair tower, $H \geq 4m^*$ | | | 1 | $(H-4)/2$ | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4.0 | 8 | - | - | 8 |
| 690140002 | DokaScaff base collar | 1.5 | 8 | - | - | 8 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14.8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10.0 | 4 | 8 | 8 | 20 |
| 690140030 | DokaScaff standard with spigot 1.00m | 4.5 | 1 | 1 | 2 | 4 |
| 690140086 | DokaScaff ledger 2.57m | 9.6 | 2 | 2 | 4 | 8 |
| 690140074 | DokaScaff ledger 2.07m | 7.9 | 4 | 6 | 12 | 22 |
| 690140033 | DokaScaff ledger 1.09m | 4.4 | 4 | 8 | 16 | 28 |
| 690140967 | DokaScaff ledger 1.04m | 4.2 | 2 | - | 2 | 4 |
| 690140092 | DokaScaff diagonal 200/257cm | 10.0 | 6 | 6 | 6 | 18 |
| 690140077 | DokaScaff diagonal 200/207cm | 9.0 | 2 | 2 | 2 | 6 |
| 690140966 | DokaScaff steel stair 104/257cm | 46 | 1 | 1 | 1 | 3 |
| 690140742 | DokaScaff steel-deck 32/207cm | 15.2 | 3 | 3 | 6 | 12 |
| 690140003 | DokaScaff spigot clamp | 1.25 | 1 | 1 | 2 | 4 |

Top section.

Middle section

*

Bottom section



* H= Height in [m]

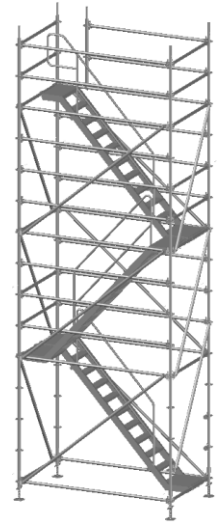
* or 1 scaffold tube 1,5m plus 2 bolt couplers instead of special ledger 1,04m

Item: Platform stair tower 2.57x1.40x2.0m. Opposite stairs and exit sideways without outer guardrails.

Load capacities (safe working loads)

| | |
|----------------------------|---------------------------------|
| According to EN12811:2003 | |
| Point Load | 1,5 kN |
| Uniformly distributed Load | 2,0 kN/m ² > EN12811 |
| Maximum Height | 70m* |

* Assuming only 20m of the tower is live loaded and the tower is properly anchored



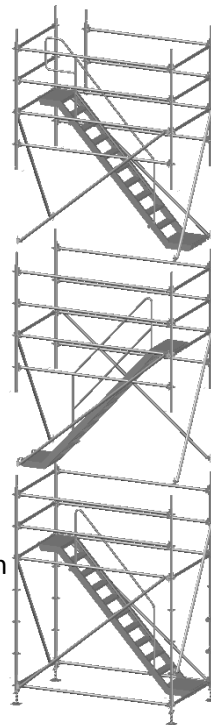
| Art no. | Description | Weight (kg) | # Bottom section | # Middle section | # Top section | Total |
|--|--------------------------------------|-------------|------------------|------------------|---------------|-------|
| Number of sections in a steelstairtower, H≥4m* | | - | 1 | (H-4)/2 | 1 | |
| 690120005 | DokaScaff base jack 60cm | 4,0 | 4 | - | - | 4 |
| 690140002 | DokaScaff base collar | 1,5 | 4 | - | - | 4 |
| 690140096 | DokaScaff standard with spigot 3.00m | 14,8 | 4 | - | - | 4 |
| 690140071 | DokaScaff standard with spigot 2.00m | 10,0 | - | 4 | 4 | 8 |
| 690140030 | DokaScaff standard with spigot 1.00m | 5,4 | - | - | 1 | 1 |
| 690140086 | DokaScaff ledger 2.57m | 9,6 | 8 | 8 | 6 | 22 |
| 690140074 | DokaScaff ledger 2.07m | 7,9 | - | - | 2 | 2 |
| 690140047 | DokaScaff ledger 1.40m | 5,5 | 6 | 4 | 6 | 16 |
| 690140092 | DokaScaff diagonal 200/257cm | 10,0 | 2 | 2 | 2 | 6 |
| 690140051 | DokaScaff diagonal 200/140cm | 7,9 | 2 | 2 | 2 | 6 |
| 690140571 | DokaScaff alu stairway 64/257cm | 25,9 | 1 | 1 | 1 | 3 |
| 690140573 | DokaScaff inner guardrail 2.57m | 10,6 | 1 | 1 | - | 2 |
| 690140593 | DokaScaff inner guardrail extended | 13,7 | - | - | 1 | 1 |
| 690140592 | DokaScaff stairway guardrail adaptor | 0,75 | 2 | - | - | 2 |
| 690140003 | DokaScaff spigot clamp | 1,25 | - | - | 1 | 1 |

* H= Height in [m]

Top section.

Middle section

Bottom section

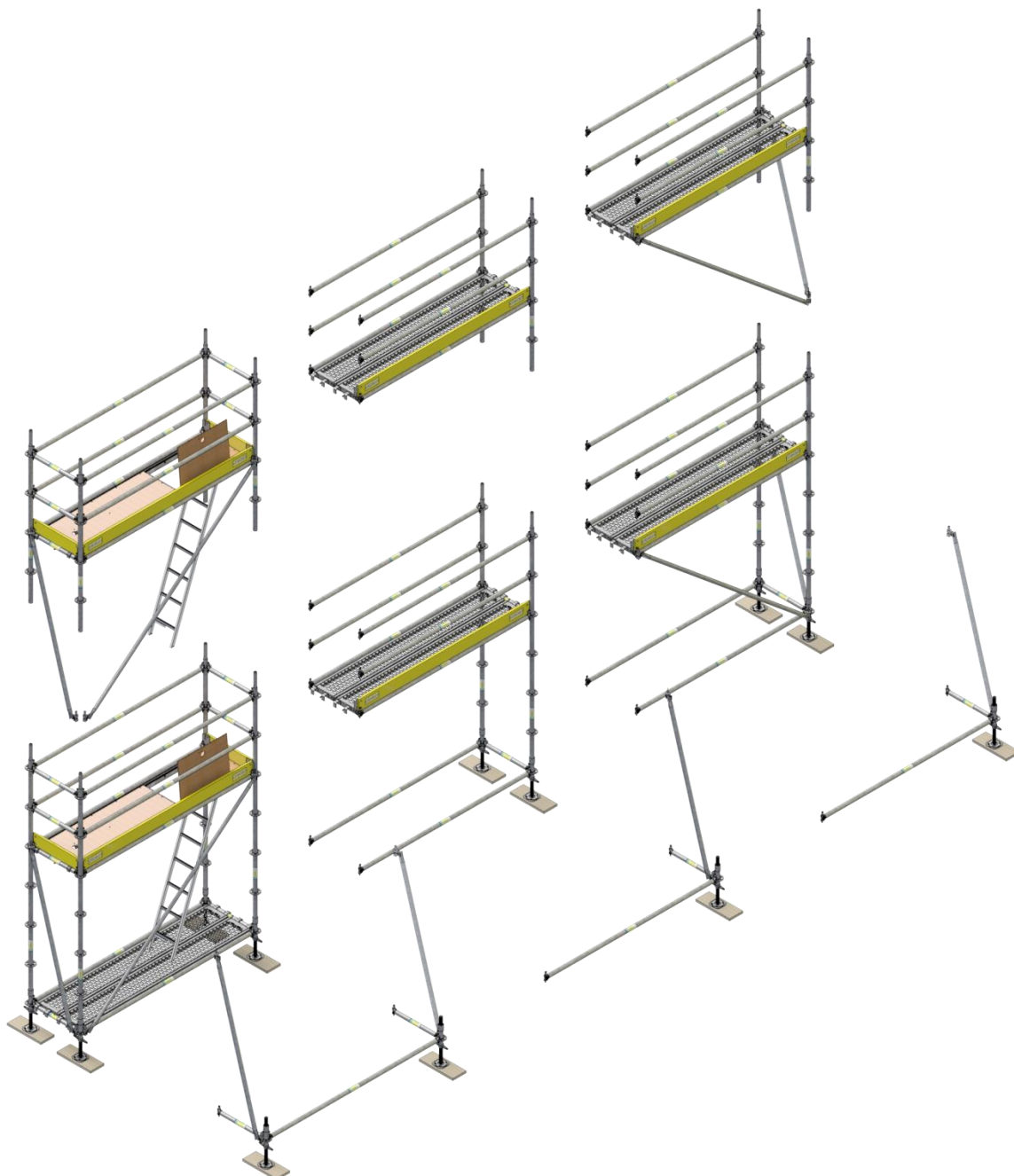


All stair tower configurations are available in the bay lengths 2,57m and 3,07m!

Standard configurations of rebar scaffolds

Item: Rebar scaffold configurations

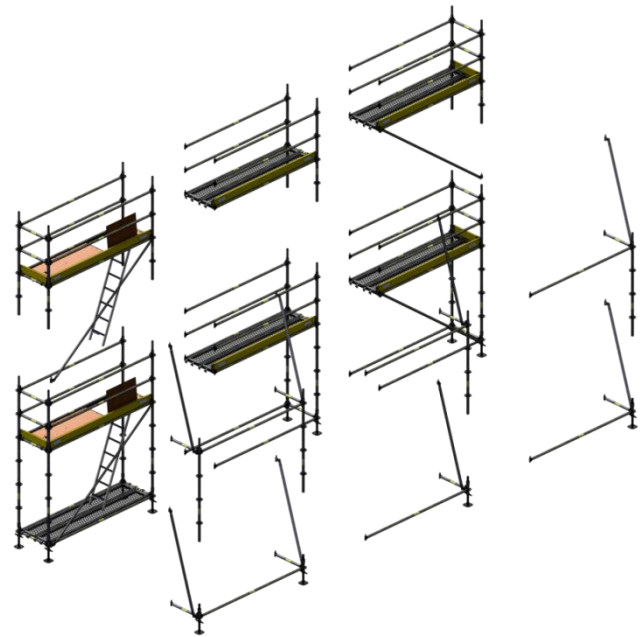
Configurations to put together access scaffolds for rebar work for concrete walls



| | Access-unit | Extra unit | Braced extra unit |
|--------------|--------------------|--|--|
| Length (m) | 3,07 or 2,57 | 3,07 / 2,57 / 2,07 / 1,57 / 1,40 / 1,09 / 0,73 | 3,07 / 2,57 / 2,07 / 1,57 / 1,40 / 1,09 / 0,73 |
| Width (m) | 0,73 / 1,09 / 1,40 | 0,73 / 1,09 / 1,40 | 0,73 / 1,09 / 1,40 |
| Widening (m) | 0,73 / 1,40 | 0,73 / 1,40 | 0,73 / 1,40 |

For preparing the Bill of Material for a specific rebar scaffold, please check the tool „Rebar scaffolds.xlsx“ (or TIPCAT)

Example of a BoM of a rebar scaffold if needed; for a rebar configurator contact the DOKA office.



| | | |
|--------------------------------|-------|-------|
| Width | 732 | mm |
| Height | 4 | m |
| Widening | 0,732 | m |
| Advised minimum outdoors width | 0,732 | h*1/3 |
| Widening for every field? | yes | |

length
(mm)Width
(mm)

Nr. bays:

| Access | Extra unit | Braced units |
|--------|------------|--------------|
| 3072 | 3072 | 3072 |
| 732 | 732 | 732 |
| 1 | 1 | 1 |

If widening is not for every field fill in (pcs)

| | | | Weight | DOKA | | | | extra | Total | Total weight |
|---------------------------|--------|-------|--------|-----------|----|----|----|-------|-------|--------------|
| Product name | Length | Width | kg. | Art. No. | | | | | | kg |
| Base Jack | 0,60 | | 4,0 | 690120005 | 6 | 3 | 3 | | 12 | 48 |
| Base collar | | | 1,5 | 690140002 | 6 | 3 | 3 | | 12 | 18 |
| Base jack retention hook | | | 2,0 | 690141276 | 4 | 2 | 2 | | 8 | 16 |
| | | | | | 0 | 0 | 0 | | | |
| Standard with Spigot | 2,0 | | 10,0 | 690140071 | 4 | 2 | 2 | | 8 | 80 |
| Standard with Spigot | 3,0 | | 14,8 | 690140096 | 4 | 2 | 2 | | 8 | 118 |
| | | | | | 0 | 0 | 0 | | | |
| Ledger | 0,73 | | 3,0 | 690140011 | 16 | 4 | 4 | | 24 | 72 |
| Ledger | 3,07 | | 11,4 | 690140099 | 15 | 15 | 15 | | 45 | 513 |
| | | | | | 0 | 0 | 0 | | | |
| Diagonal Face Brace | 0,73 | 2,00 | 7,2 | 690140017 | 4 | 1 | 3 | | 8 | 58 |
| Diagonal Face Brace | 3,07 | 2,00 | 11,0 | 690140102 | 2 | 0 | 2 | | 4 | 44 |
| | | | | | 0 | 0 | 0 | | | |
| Steel deck | 3,07 | 0,32 | 21,10 | 690140744 | 2 | 4 | 4 | | 10 | 211 |
| | | | | | 0 | 0 | 0 | | | |
| Deck + Ladder Alu/plywood | 3,07 | 0,61 | 24,5 | 690140466 | 2 | 0 | 0 | | 2 | 49 |
| | | | | | 0 | 0 | 0 | | | |
| Toe board wood | | 0,73 | 2,8 | 690140016 | 4 | 0 | 0 | | 4 | 11 |
| Toe board wood | | 3,07 | 10,3 | 690140101 | 2 | 2 | 2 | | 6 | 62 |
| | | | | | | | | 0 | 151 | 1300 |

Standard configurations of crossovers

Item: Crossover constructions

To connect 2 separated constructions by a safe pathway. The constructions have no wind load.

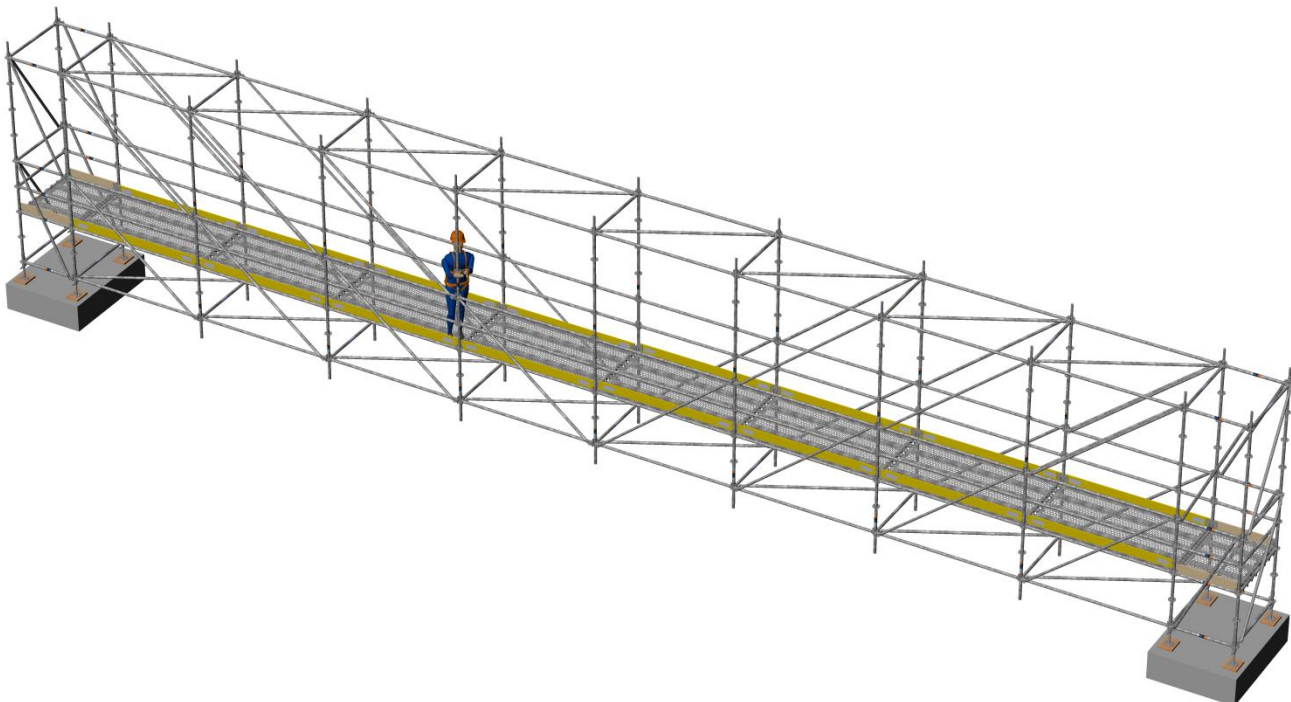
The next configurations are worked out:

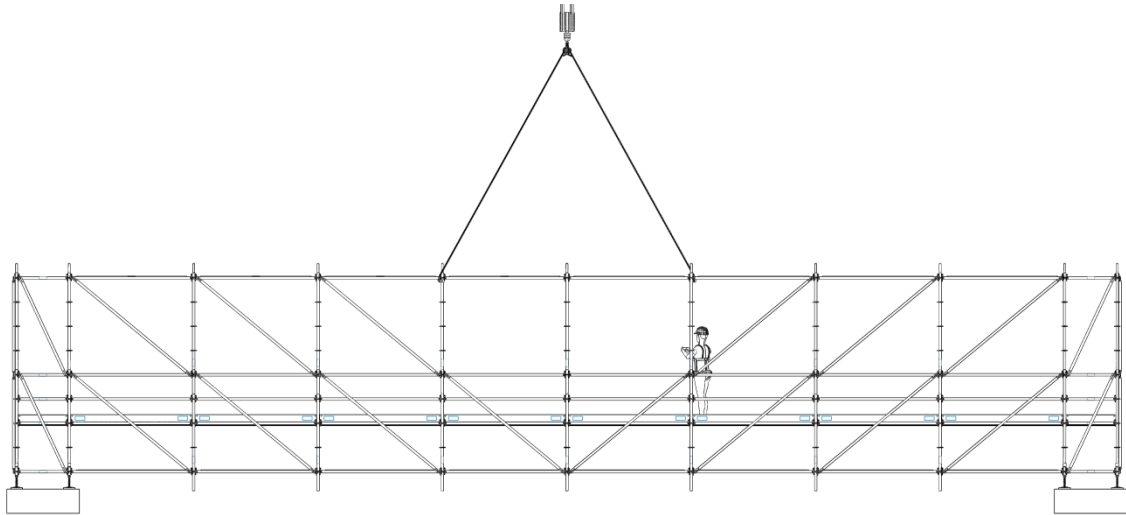
| | | | | | |
|--------|----------------|----------------|----------------|----------------|----------------|
| Spans: | 10.28 (4x2.57) | 15.42 (6x2.57) | 20.56 (8x2.57) | 12.28 (4x3.07) | 18.42 (6x3.07) |
| Width: | | | | | |
| 1.09m | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* |
| 1.40m | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* | 0,75/1,5* |

0,75/1,5*= Live load can be 0,75 kN/m² or 1,5 kN/m² these are 2 different configurations.

| Configuration: | Span: | Width: | Live load |
|------------------------------------|----------------|--------|------------------------|
| 1 (according to configuration 4) | 10.28 (4x2.57) | 1.09m | 0,75 kN/m ² |
| 2 (according to configuration 4) | 10.28 (4x2.57) | 1.09m | 1,5 kN/m ² |
| 3 (according to configuration 4) | 10.28 (4x2.57) | 1.40m | 0,75 kN/m ² |
| 4 | 10.28 (4x2.57) | 1.40m | 1,5 kN/m ² |
| 5 | 15.42 (6x2.57) | 1.09m | 0,75 kN/m ² |
| 6 | 15.42 (6x2.57) | 1.09m | 1,5 kN/m ² |
| 7 | 15.42 (6x2.57) | 1.40m | 0,75 kN/m ² |
| 8 | 15.42 (6x2.57) | 1.40m | 1,5 kN/m ² |
| 9 | 20.56 (8x2.57) | 1.09m | 0,75 kN/m ² |
| 10 | 20.56 (8x2.57) | 1.09m | 1,5 kN/m ² |
| 11 | 20.56 (8x2.57) | 1.40m | 0,75 kN/m ² |
| 12 | 20.56 (8x2.57) | 1.40m | 1,5 kN/m ² |
| 13 (according to configuration 16) | 12.28 (4x3.07) | 1.09m | 0,75 kN/m ² |
| 14 (according to configuration 16) | 12.28 (4x3.07) | 1.09m | 1,5 kN/m ² |
| 15 (according to configuration 16) | 12.28 (4x3.07) | 1.40m | 0,75 kN/m ² |
| 16 | 12.28 (4x3.07) | 1.40m | 1,5 kN/m ² |
| 17 | 18.42 (6x3.07) | 1.09m | 0,75 kN/m ² |
| 18 | 18.42 (6x3.07) | 1.09m | 1,5 kN/m ² |
| 19 | 18.42 (6x3.07) | 1.40m | 0,75 kN/m ² |
| 20 | 18.42 (6x3.07) | 1.40m | 1,5 kN/m ² |

Example of crossover construction:



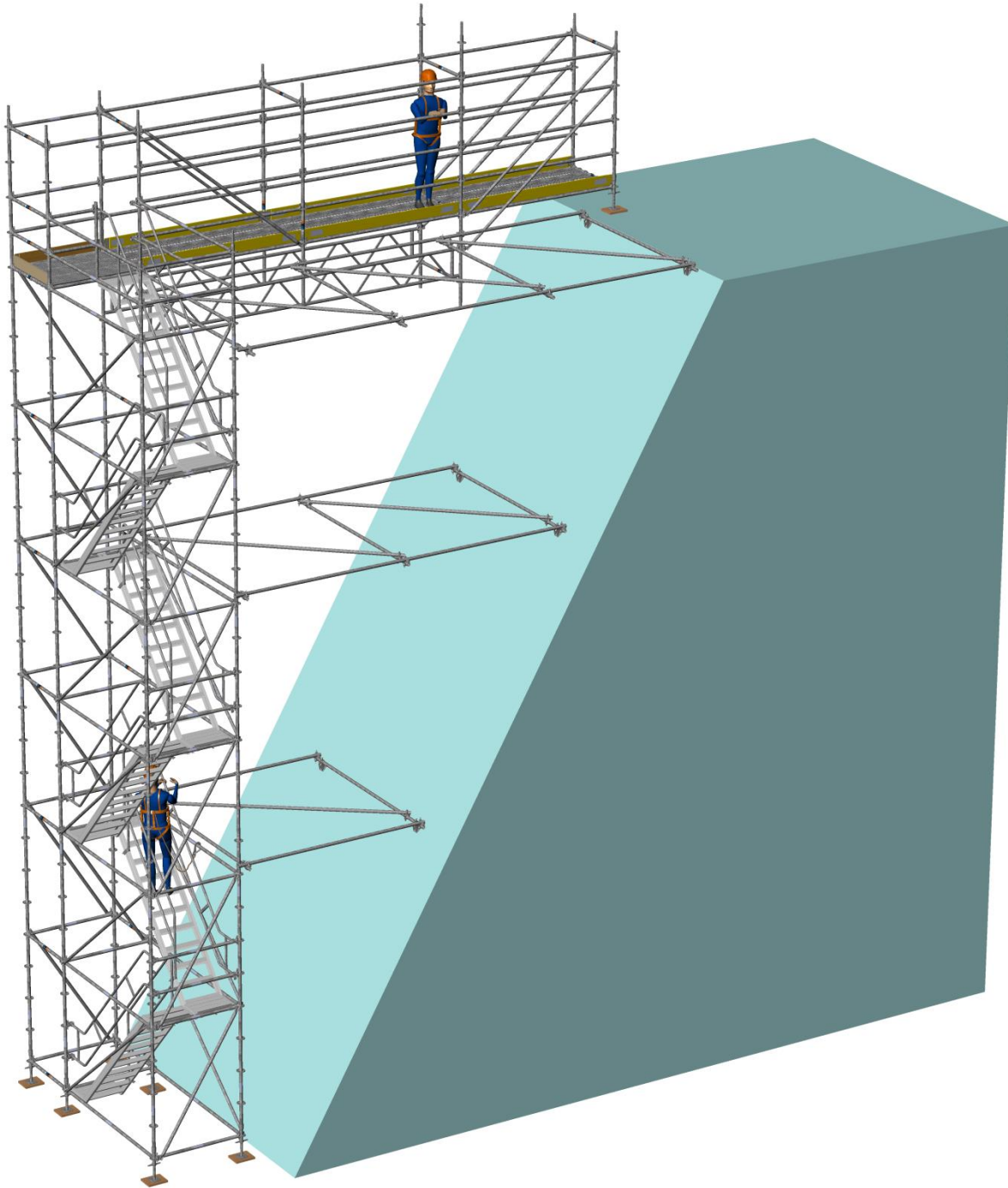


Hoisting of the structure

- Standards to be connected by safety clips or equivalent
- Jack retention hooks used on the jacks and collars
- Check if the anti-lift device of the toe boards and steel decks are in position
- Remove all the loose items from the scaffolding
- Connect the hoisting devices to the scaffolding at the marked points
- Use ropes to guide the scaffolding and to prevent the scaffolding from rotating and or swinging
- Hoist the scaffolding (keep distance to the surface as small as possible)
- Bring the scaffolding to the new position
- Check the scaffolding
- Remove the hoisting device
- Check the scaffolding before use

Item: Crossover constructions

To connect 2 separated constructions by a safe pathway above a slope.



Above the solution with lattice girders used to access stair tower to higher levels. Just as an example how it can be solved. For any detailed design, check engineering dept.

Standard configurations for lifting / crane handling

Hoisting of Ringscaff scaffolds:

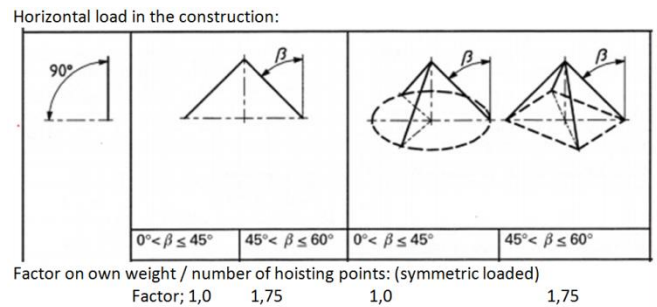
Always be sure that the construction will be braced in all directions and there is no displacement / torsion in any direction.

- Maximum standard load according to the own weight of the scaffold:
- Maximum pulling load on the normal standard connection (pressed spigot + safety clip) is 7,5 kN.
- Safety clip can be replaced by a bolt M10.
- Double bolted standards for heavier pulling forces in standards (used as well for hanging configurations).
Fmax is 56kN.

Horizontal loads

The configuration needs to be calculated and designed that all the horizontal loads can be taken by the scaffold, assumption for small structures and $\beta < 30^\circ$ the calculation isn't needed. The to be expected horizontal loads are:

- 2,5 % of the own weight.
- Wind load
- Horizontal load in the hoisting cables and or chains.



Hoisting

If the design and calculation and erection of the scaffold is completed, the scaffold can be hoisted.

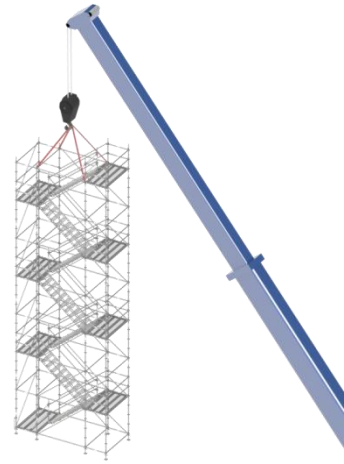
For this follow the next steps:

- Check if the anti-lift device of the toe boards and steel decks are in position.
- Bring the extra needed bracing for transport in place.
- Remove all the loose items on or at the scaffold.
- Secure the collars and base jacks that they can fall out of the configuration.
- Check if all the standard connection parts are in place and are according to the described solution. (Pins / bolts and nuts).
- Connect the hoisting devise to the scaffold on the marked positions.
- Use ropes or other devises to guide the scaffold and to stop the rotation of the scaffold.
- Lift the crane hook to the position that the construction is still on the ground and the cables / chains are under tension.
- Remove anchors and other connections that need to be removed before hoisting. (no lose items on the scaffold!!)
- Hoist the scaffold (keep the distance to the surface as small as possible).
- Bring the scaffold to the new position and put in place, leave the cables / chains under tension.
- Bring anchors and other connections that were removed before hoisting in place.
- Check the scaffold.
- Remove the hoisting device.
- Complete the configuration according to the design.
- Check the scaffold before use.

Item: Hoisting of stair towers

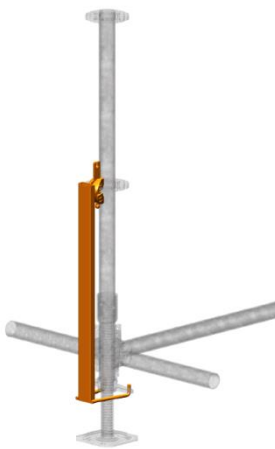
Hoisting equipment needs to be connected to the legs of the staircase as shown on the picture below the rosettes of the top level. Be aware that the slings or chains are long enough to create an angle to the top level of at least 45°.

Note: all standard connections should be made with safety clips or bolts and nuts M10. This for staircases weight < 3 tons. Be aware that the base jacks and collars need to be connected to the construction as well to prevent losing them while hoisting the configuration.

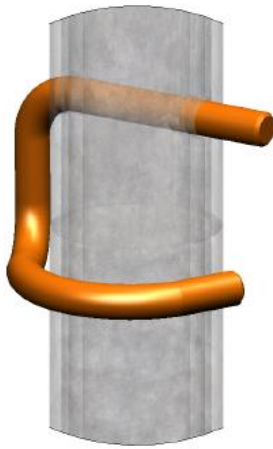


| Configuration: | Height: | Weight: (T=1000 kg) |
|-------------------------|---------|---------------------|
| Platform stair type 1 | 24m | 2,2T |
| Platform stair type 2 | 24m | 2,2T |
| Platform stair type 3 | 24m | 2,7T |
| Platform stair type 4 | 24m | 1,9T |
| Platform stair type 5 | 24m | 2,2T |
| Steel stair tower 4 leg | 20m | 2,9T |
| Steel stair tower 8 leg | 14m | 2,7T |

Examples of the extra items that could be used:



Jack retention hook



Safety clip



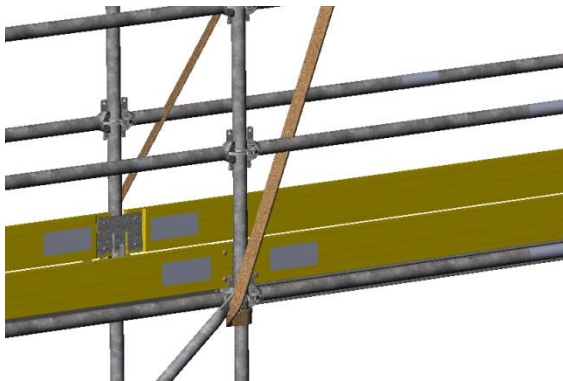
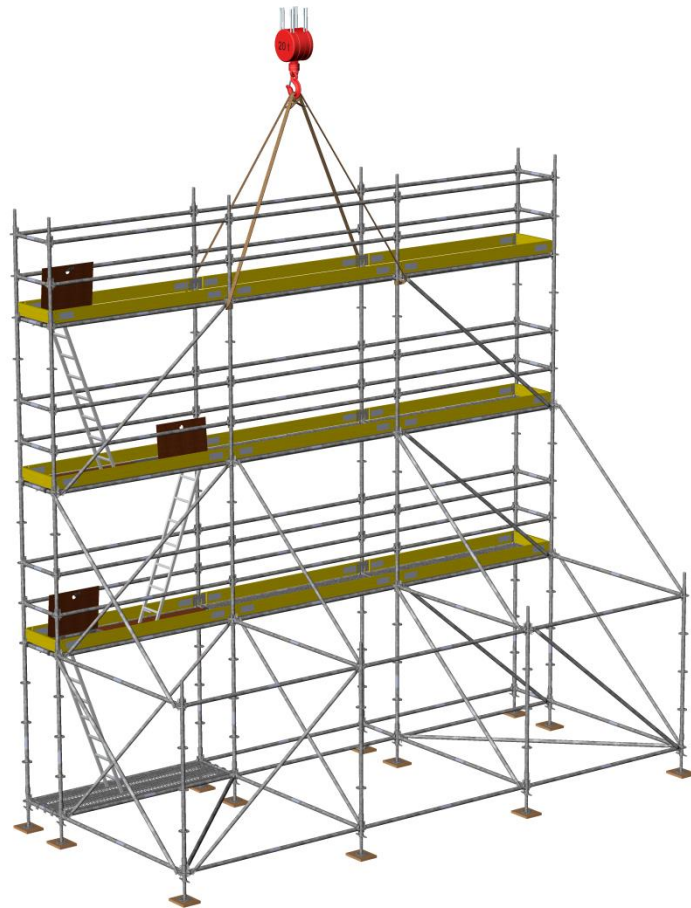
Item: Hoisting of rebar scaffolds.

Assumed only 3 bays (max $3 \times 3,072 = 9,2\text{m}$) -> for longer configurations consult engineering office.

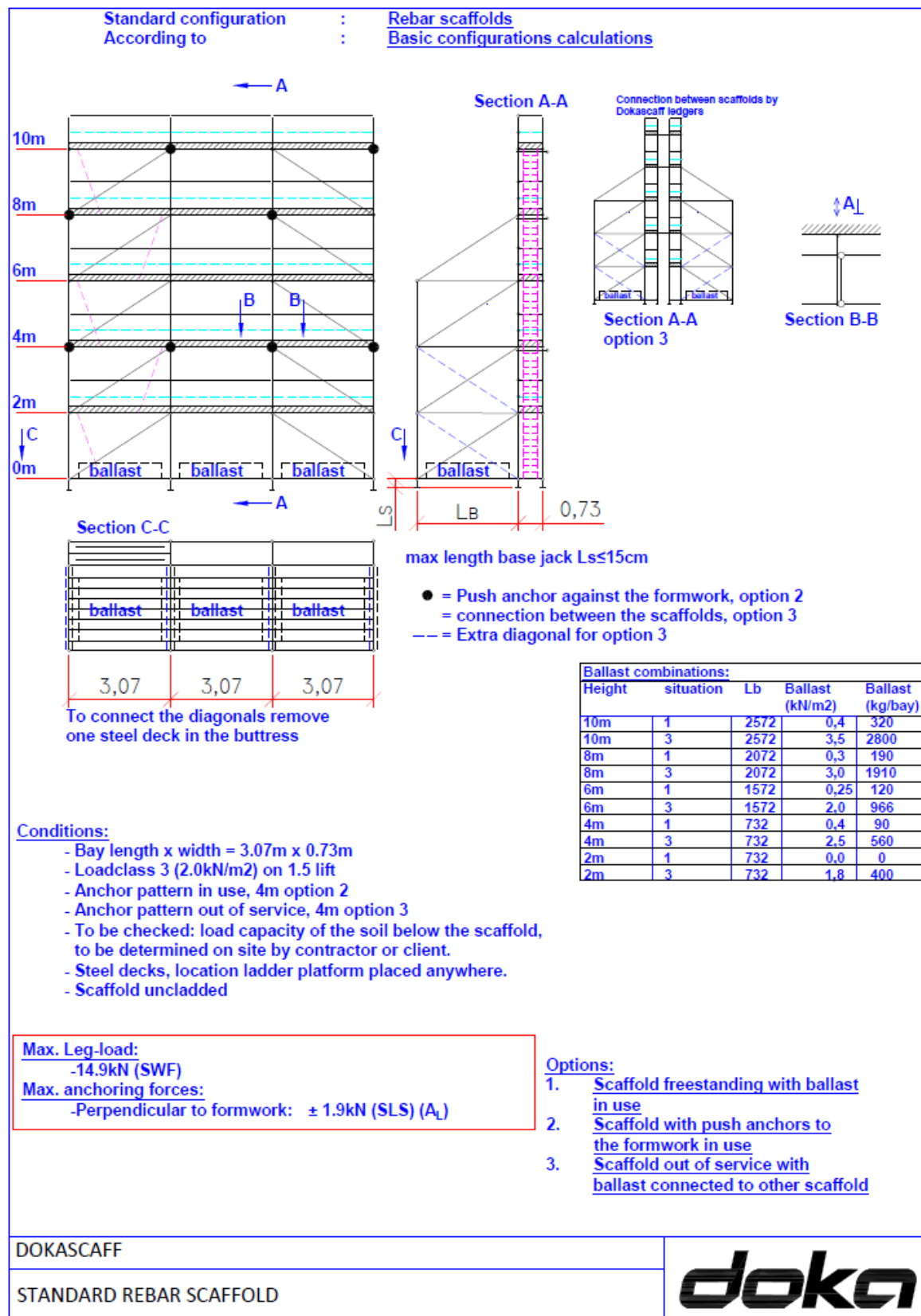
Hoisting equipment needs to be connected to the legs of the center bay as shown on the picture below the rosettes of the top level. Be aware that the slings or chains are long enough to create an angle to the top level of at least 60° .

Note: all standard connections should be made with safety clips or bolts and nuts M10. This for configurations weight < 3 tons. Be aware that the base jacks and collars need to be connected to the construction as well to prevent losing them while hoisting the configuration.

| Configuration: | Height: | Weight: (T=1000 kg) |
|--|---------|---------------------|
| Rebar scaffold $3 \times 3,072$ w=1,09m | 10m | 3,6T |
| Rebar scaffold $3 \times 2,572$ w=1,09m | 10m | 3,2T |
| Rebar scaffold $3 \times 3,072$ w=1,09m | 8m | 2,9T |
| Rebar scaffold $3 \times 3,072$ w=0,732m | 10m | 3,4T |
| Rebar scaffold $3 \times 2,572$ w=0,732m | 10m | 3,0T |
| Rebar scaffold $3 \times 3,072$ w=0,732m | 8m | 2,7T |



Detail of sling connection to the construction:












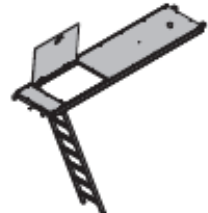
Item: Standard rebar scaffolds.








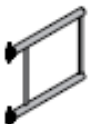




Points of attention in the design are:









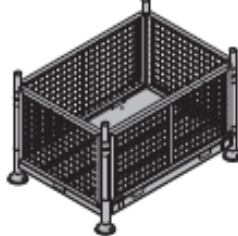
- All the working conditions must be followed in order to assure the stability of all the elements.
- Scaffolds must be periodically revised while remaining in service, in order to ensure that they maintain the appropriate working conditions.
- Be sure that the designed anchor pattern is applied.

Above the design of the standard configuration rebar scaffold.

Component overview

| | [kg] | Article n° | | [kg] | Article n° |
|--|---|--|--|--|---|
| DokaScaff base jack 60cm DokaScaff-Gewindefußplatte 60cm  Galvanised | 4.0 | 690120005 | DokaScaff double ledger 1.57m DokaScaff double ledger 2.07m DokaScaff double ledger 2.57m DokaScaff double ledger 3.07m DokaScaff-Doppel-Rohrriegel  Galvanised | 9.9 12.7 15.8 18.4 | 690140232 690140233 690140234 690140235 |
| DokaScaff base collar DokaScaff-Anfangsstück  Galvanised Height: 25.5 cm | 1.5 | 690140002 | DokaScaff intermediate transom 0.73m DokaScaff intermediate transom 1.09m DokaScaff intermediate transom 1.40m DokaScaff-Zwischenriegel  Galvanised | 3.6 5.3 6.4 | 690140020 690140039 690140053 |
| DokaScaff base jack retention DokaScaff-Sicherung Gewindefußplatte  Galvanised Height: 61.2 cm | 2.0 | 690141276 | DokaScaff diagonal 200/73cm DokaScaff diagonal 200/109cm DokaScaff diagonal 200/140cm DokaScaff diagonal 200/157cm DokaScaff diagonal 200/207cm DokaScaff diagonal 200/257cm DokaScaff diagonal 200/307cm DokaScaff-Diagonale  Galvanised | 7.2 7.5 7.9 8.2 9.0 10.0 11.0 | 690140017 690140038 690140051 690140065 690140077 690140092 690140102 |
| DokaScaff standard with spigot 1.00m DokaScaff standard with spigot 1.50m DokaScaff standard with spigot 2.00m DokaScaff standard with spigot 3.00m DokaScaff-Stiel mit Rohrverbinder  Galvanised | 5.4 7.7 10.0 14.8 | 690140030 690140055 690140071 690140096 | | | |
| DokaScaff ledger 0.39m DokaScaff ledger 0.73m DokaScaff ledger 1.09m DokaScaff ledger 1.40m DokaScaff ledger 1.57m DokaScaff ledger 2.07m DokaScaff ledger 2.57m DokaScaff ledger 3.07m DokaScaff-Rohrriegel  Galvanised | 1.9 3.0 4.4 5.5 6.1 7.9 9.6 11.4 | 690140505 690140011 690140033 690140047 690140058 690140074 690140086 690140099 | DokaScaff steel-deck 32/73cm DokaScaff steel-deck 32/109cm DokaScaff steel-deck 32/140cm DokaScaff steel-deck 32/157cm DokaScaff steel-deck 32/207cm DokaScaff steel-deck 32/257cm DokaScaff steel-deck 32/307cm DokaScaff-Stahlboden  Galvanised | 6.9 9.0 11.0 12.0 15.2 18.1 21.1 | 690140738 690140739 690140740 690140741 690140742 690140743 690140744 |
| DokaScaff ledger reinforced 1.40m DokaScaff-Riegel verstärkt 1,40m  Galvanised | 8.3 | 690140653 | DokaScaff steel-deck 19/73cm DokaScaff steel-deck 19/109cm DokaScaff steel-deck 19/140cm DokaScaff steel-deck 19/157cm DokaScaff steel-deck 19/207cm DokaScaff steel-deck 19/257cm DokaScaff steel-deck 19/307cm DokaScaff-Stahlboden  Galvanised | 4.8 7.2 9.2 10.5 12.7 15.5 18.3 | 690140419 690140420 690140421 690140422 690140423 690140424 690140425 |
| | | | DokaScaff access deck with ladder 61/257cm DokaScaff access deck with ladder 61/307cm DokaScaff-Gerüstbelag mit Leiter  Aluminum | 21.0 24.5 | 690140465 690140466 |

| | [kg] | Article n° | | [kg] | Article n° |
|---|--|---|---|--------------|------------------------|
| DokaScaff bracket 0.39m DokaScaff bracket 0.73m DokaScaff-Konsole  Galvanised | 3.8 6.8 | 690140543 690140018 | DokaScaff inner railing 2.57m DokaScaff-Innengeländer 2,57m  Galvanised | 10.6 | 690140573 |
| DokaScaff wood-toeboard 0.73m DokaScaff wood-toeboard 1.09m DokaScaff wood-toeboard 1.40m DokaScaff wood-toeboard 1.57m DokaScaff wood-toeboard 2.07m DokaScaff wood-toeboard 2.57m DokaScaff wood-toeboard 3.07m DokaScaff-Holz-Bordbrett  Steel parts galvanised Timber parts varnished yellow | 2.8 3.9 4.9 5.5 7.2 8.8 10.3 | 690140016 690140037 690140054 690140064 690140076 690140091 690140101 | DokaScaff outer railing 2.57m DokaScaff outer railing 3.07m DokaScaff-Außengeländer  Galvanised | 13.8 18.7 | 690140572 690141301 |
| DokaScaff steel-toeboard 0.73m DokaScaff steel-toeboard 1.09m DokaScaff steel-toeboard 1.40m DokaScaff steel-toeboard 1.57m DokaScaff steel-toeboard 2.07m DokaScaff steel-toeboard 2.57m DokaScaff steel-toeboard 3.07m DokaScaff-Stahl-Bordbrett  Galvanised Painted yellow | 2.4 3.4 4.1 4.7 6.1 7.5 8.7 | 690140631 690140632 690140633 690140634 690140635 690140636 690140637 | DokaScaff inner railing extended 2.57m DokaScaff inner railing extended 3.07m DokaScaff-Innengeländer verlängert  Galvanised | 12.2 14.3 | 690140593 690141302 |
| DokaScaff steel stair 104/257cm DokaScaff-Stahlstiege 104/257cm  Galvanised | 46.0 | 690140966 | DokaScaff front railing DokaScaff-Stimgeländer  Galvanised Length: 68 cm | 6.1 | 690140726 |
| DokaScaff alu stairway 64/257cm DokaScaff alu stairway 64/307cm DokaScaff-Alu-Treppentauf  Aluminium | 26.0 31.3 | 690140571 690141202 | DokaScaff stairway guardrail adaptor DokaScaff-Treppengeländerhalter  Galvanised Height: 11.3 cm | 0.75 | 690140592 |
| | | | DokaScaff spigot clamp DokaScaff-Rohrverbinder mit Halbkupplung  Galvanised Height: 29.3 cm | 1.3 | 690140003 |
| | | | DokaScaff rosette DokaScaff-Lochscheibe  Galvanised Width-across: 22 mm | 1.3 | 690141032 |

| | [kg] | Article n° | | [kg] | Article n° |
|---|----------------------|-------------------------------------|--|------------|------------------------|
| DokaScaff twin ledger end coupler DokaScaff-Kellkopfkupplung doppelt  Galvanised Height: 10.8 cm | 1.6 | 690140617 | DokaScaff rack DokaScaff-Stapelpalette  Galvanised Length: 138 cm Width: 99 cm Height: 88.8 cm | 46.0 | 690380012 |
| DokaScaff hook-on ladder 2.24m DokaScaff-Einhängeleiter 2,24m  Galvanised | 8.0 | 690240420 | DokaScaff anchor tube 0.40m DokaScaff anchor tube 1.50m DokaScaff-Ankerrohr  Galvanised | 1.9 6.1 | 690240025 690240156 |
| DokaScaff castor wheel 10kN DokaScaff-Lenkrolle 10kN  Galvanised | 7.0 | 690240124 | | | |
| Staxo 40 tube connector D48.3mm Staxo 40-Rohrstecker D48,3mm  Yellow | 0.07 | 582204000 | | | |
| DokaScaff lattice girder 4.14m DokaScaff lattice girder 5.14m DokaScaff lattice girder 6.14m DokaScaff-Gitterträger  Galvanised | 43.3 52.6 62.8 | 690140240 690140241 690140242 | | | |
| DokaScaff lattice-girder coupler DokaScaff-Gitterträgerkupplung  Galvanised Length: 20 cm Width-across: 22 mm | 1.5 | 690140559 | | | |
| DokaScaff crate DokaScaff-Gitterbox  Galvanised Length: 124 cm Width: 85 cm Height: 88.8 cm | 89.7 | 690380028 | | | |

Near to you, worldwide

Doka is one of the world leaders in developing, manufacturing and distributing formwork technology for use in all fields of the construction sector.

With more than 160 sales and logistics facilities in over 70 countries, the Doka Group has a highly efficient distribution network which ensures that equipment and

technical support are provided swiftly and professionally.

An enterprise forming part of the Umdasch Group, the Doka Group employs a worldwide workforce of more than 6000.

