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Ringlock

User Information

Instructions for assembly and use (Method statement)

Providing ATPAC COMPLETE SCAFFOLDING SOLUTIONS

Contents

Introduction

Elementary safety warnings

User target groups

- This booklet 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 utilisation of the system.
- All persons working with the product described herein must be familiar with the contents of this booklet 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 are up to date and 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 scaffolding utilisation 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 regulations 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 booklet serves as the basis for the site-specific hazard assessment, and for the instructions given to users on how to prepare and utilise the system. It does not substitute for these, however.

Remarks on this booklet

- This document can be used as general Instructions for Assembly and Use (Method Statement) or be incorporated into site-specific Instructions for Assembly and Use (Method Statement).
- **The graphics, animations and videos in this document or app sometimes depict partially assembled assemblies and may require additional safety equipment and/or measures to comply with safety regulations.**
  The customer must ensure all applicable regulations are complied with, even if they are not shown or implied in the graphics, animations and videos provided.
- **Individual sections contain further safety instructions and/or special warnings as applicable.**

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 utilisation 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 and load-bearing capacity of all components and units must be ensured during all phases of the construction work!
- Strict attention to and compliance with the functional instructions, safety instructions and load specifications are required. Non-compliance can cause accidents and severe injury (risk of fatality) and considerable damage to property.
- Sources of fire in the vicinity of the scaffold, specially hatch decks with plywood top, are prohibited. Heaters are permissible only when used correctly and situated a correspondingly safe distance from the scaffold.
- Customer must give due consideration to any and all effects of the weather on the equipment and regards both its use and storage (e.g. slippery surfaces, risk of slipping, effects of the wind, etc.) and implement appropriate precautionary measures to secure the equipment and surrounding areas and to protect workers.
- All connections must be checked at regular intervals to ensure that they are secure and in full working order.
  In particular threaded connections and wedged connections have to be checked and retightened as necessary in accordance with activity on the jobsite and especially after out-of-the-ordinary occurrences (e.g. after a storm).
- 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.

  It is permissible to cut individual tie rods to length with metal cutting discs (introduction of heat at the end of the rod only), but it is important to ensure that flying sparks do not heat and thus damage other tie rods.

  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 an acceptable condition. Steps must be taken to exclude components that are damaged, deformed, or weakened due to wear, corrosion or rot (e.g. fungal decay).
- Using our safety and scaffolding systems together with those of other manufacturers can create risks that may lead to injury and damage to property. This requires separate verification by the user.
- The equipment/system must be assembled and erected in accordance with the applicable laws, standards and rules by trained customer personnel whilst maintaining any applicable safety inspections that may be required.
- It is not permitted to modify Doka products; such modifications constitute a safety risk.

Transporting, stacking and storing

- Observe all country-specific regulations applying to the handling of scaffolding. For system scaffolding the Doka slinging means stated in this booklet must be used – this is a mandatory requirement.
  If the type of sling is not specified in this document, the customer must use slinging means that are suitable for the application envisaged and that comply with the regulations.
- When lifting, always make sure that the unit to be lifted and its individual parts can absorb the forces that occur.
- Remove loose parts or secure them so that they cannot slip out of position and drop.
- When lifting scaffolding or scaffolding accessories with a crane, no persons must be carried along, e.g. on working platforms or in multi-trip packaging.
- All components must be stored safely, following all the special Doka instructions given in the relevant sections of this document!

Maintenance

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

Miscellaneous

The weights as stated are averages for new material; actual weights can differ, depending on material tolerances. Dirt accretions, moisture saturation, etc. can also affect weight.

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

Eurocodes at Doka

The permissible values stated in Doka documents (e.g. F_{perm} = 70 kN) **are not design values** (e.g. F_{Rd} = 105 kN)**!**

- It is essential to avoid confusing permissible values with design values!
- Doka documents will continue to state the permissible values.

Allowance has been made for the following partial factors:

- γ_F = 1.5
- $\gamma_{M,\ timber}$ = 1.3
- $\gamma_{M,\ steel}$ = 1.1
- k_{mod} = 0.9

Consequently, all the design values for an EC design calculation can be determined from the permissible values.

Symbols used

The following symbols are used in this document:

DANGER
This is a notifier drawing attention to an extremely dangerous situation in which non-compliance with this notifier will lead to death or severe, irreversible injury.

WARNING
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to death or severe, irreversible injury.

CAUTION
This is a notifier drawing attention to a dangerous situation in which non-compliance with this notifier can lead to slight, reversible injury.

NOTICE
This is a notifier drawing attention to a situation in which non-compliance with this notifier can lead to malfunctions or damage to property.

Instruction
Indicates that actions have to be performed by the user.

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

Tip
Points out useful practical tips.

Reference
Cross-references other documents.

Declaration of Conformity and Approvals

Ringlock is a modular scaffold system, that enables users to quickly and efficiently erect, use, and dismantle temporary work structures. The Ringlock system is based on the trademarked AT-PAC Ringlock system, which in turn, conforms to European standards EN 12810 and EN 12811.

Ringlock is also compliant with The National Access & Scaffolding Confederation (NASC) Code of Practice for System Scaffold within the United Kingdom.

Please refer to table in the chapter 'Comparison of the article list of Doka and AT-PAC'.

The Ringlock Scaffolding System is certified by the Deutsches Institut für Bautechnik (DIBt), under approval number Z-8.22-992.

98179-000-01

Foreword

These instructions for assembly and use regulate the assembly, modification and dismantling of the Ringlock modular scaffolding system from Doka. This document provides general information and instructions as well as safety measures and necessary actions when using the Ringlock modular scaffolding system. Further possible assembly variants and applications can be found in the additional technical documents from Doka.

Doka's Ringlock modular scaffolding system enables users to Assemble, use and dismantle temporary work scaffolding quickly and efficiently. The Ringlock modular scaffolding system meets the requirements of EN 12810 and EN 12811 and has the German general building authority (DIBT) approval Z-8.22-992. The Ringlock modular scaffolding system is also equally suitable for erecting shoring structures in accordance with EN 12812.

Quality Factors & Designation

Quality Factors

All of Doka Ringlock products are engineered to meet the highest quality standards based on three simple factors:

- **Material**
  We only use the highest quality steel in our products. Our steel is certified and tested, it conforms to or exceeds industry standards no matter the location or climate.
- **Fit**
  Doka products are engineered with versatility and usability in mind. Our modified product designs increase efficiencies and productivity, saving your projects time and money.
- **Finish**
  Where applicable, our products are finished and protected by hot-dipped zinc galvanizing. This method of finishing maximizes the utilization and extends the product life.

For additional information on Ringlock system components please consult your local Doka representative.

Designation

The Designation of Ringlock in accordance with EN 12810-1:2003 is:

Scaffold EN 12810 - 3D - SW06/307 - H2 - B - LS

Service Load Class 3 may be extended from Service Load Class 1 to Service Load Class 6 if required although there are restriction on bay length for Service Load Classes 5 and 6. This User Information only considers Service Load Class 1 to Class 3 as the general loading required of a system scaffold under normal circumstances.

Service Load Class 3: The following combinations of platform width and bay length are also available:

SW06/73 to SW06/307

CLADDING: Maximum permissible heights and tie patterns are given only for unsheeted (unclad) scaffolds.

For more information on products not found within this document or the Ringlock Brochure please consult your local Doka representative, or online at www.doka.com.

Node capacities

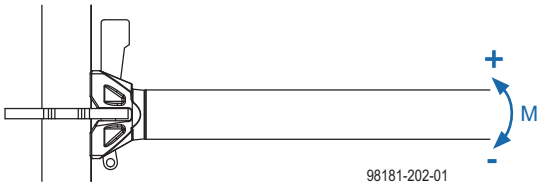
- The Ringlock modular scaffold system may be used as a work and protective scaffold according to EN 12811 with load class 3.
- The system dimensions of the standard design are bay length L ≤ 3.072m and bay width b = 0.732m.
- The maximum height of the top scaffold layer is 24m plus the spindle extension.
- If the actions on the scaffold from the traffic load do not exceed the service value of the loads specified in EN 12811, Table 3, the standard design can be used without further verification.
- According to EN 12810, the following designation must be used for the standard designation of the Ringlock scaffold system as a facade scaffold:
  Scaffolding EN 12810-3D-SW06/307-H2-A-LS
- All the decks of the Ringlock modular scaffold system can be used as overhead protection.

The Ringlock Scaffolding system node connection has the following design values taken from the general building approval / general type approval Z-8.22-992 (design values include Partial Safety Factor for resistance of steel, $\gamma_{M,\,steel}$ = 1.1):

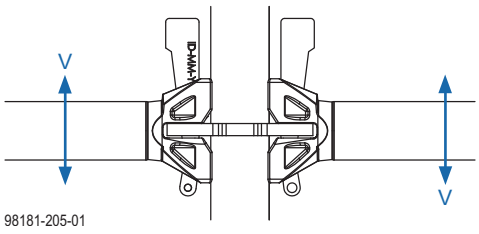
Note:

'Safe Working Capacities' or 'permissible loads' can be obtained by dividing the design values by 1.5 (γ_F).

- Positive bending moment **$M^{+}_{y,Rd}$ = 132 kNcm**
- Negative bending moment **$M^{-}_{y,Rd}$ = 121 kNcm**

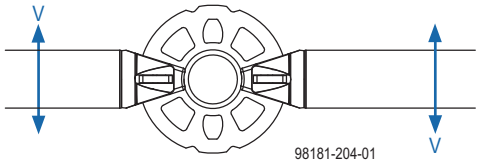


- Vertical shear force **$V_{z,Rd}$ = ± 27.3 kN**



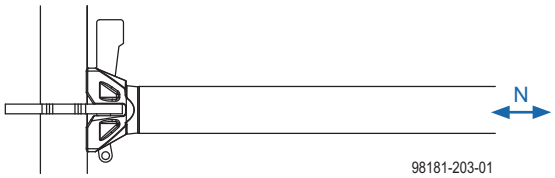
- Bending moment **$M_{z,Rd}$ = ± 45.3 kNcm**

- Horizontal shear force **$V_{y,Rd}$ = ± 11.1 kN**



- Torsional moment **$M_{T,Rd}$ = ± 58.5 kNcm**

- Axial force **N_{Rd} = ± 36.8 kN**



Safety Guidelines and Safe Use

The guidance given here is not intended to replace any relevant local/regional standards, Company Procedures, Work at Height Regulations and other legislation, but is a practical guide to good scaffolding practice using Ringlock System scaffolding. Please refer to the latest versions of EN 12810, EN 12811, the NASC Guidance Notes and current legislation prior to starting your work.

The assembly, modification or dismantling of the Ringlock system may only be carried out by professionally qualified personnel ('authorized person'). The instructions and specifications of DIN 4420, EN 12811 and DGUV Information 201-011 'Instructions for handling work and protective equipment' as well as the regulations of the technical rules for operational safety TRBS 2121 or any other local/regional specific rule must be observed.

Before working on the Ringlock scaffold, a hazard analysis must be carried out considering the special features of the individual case. The result must be recorded in a risk assessment and the personnel must be instructed. Particular attention should be paid to technical protective measures against falls from a height and to the measures required for possible rescue operations. If the use of personal protective equipment against falls from a height (PPE) is required, the information on anchor points in the relevant section must be observed.

Damaged or improperly modified scaffolding components must not be used and must be replaced immediately with sound material.

Scaffolding components should be stored and transported in such a way that the risk of damage is avoided. Scaffolding components must not be thrown. If necessary, the use of lifting equipment must be checked.

After completion of the assembly work and before each use, an inspection must becarried out to ensure that the equipment is in proper condition. Work may only be carried out on approved and apparently faultless scaffolding, see also the following sections.

Safety Guidelines and Safe Use

- Ensure that you follow your Company's safe systems of work at all times.
- Ensure that your staff erecting, dismantling or modifying any Ringlock scaffold are licensed to carry out the task.
- Ensure that all persons erecting, dismantling or modifying the scaffold structure are working to the latest version of the applicable standards and current legislation.
- Ensure all Personal Protective Equipment (PPE) is suitable and sufficient and worn as appropriate.
- Unless otherwise required by local regulations, items over 30 kg must be lifted, moved and assembled by 2 people.
- Consideration should also be given as to where additional hazards may be present whilst scaffolding operations are taking place, such as overhead power cables, roadways, schools and if public protection is required, if the scaffold is to be sheeted, who is responsible for the design.
- Ringlock scaffold structures are recommended to be inspected and recorded:
  - Prior to being put into use for the first time
  - After any alteration or adverse weather
  - After any event likely to affect its stability
  - Regular intervals as per site requirements or Company procedures but generally not exceeding 30 days
- Access and egress should be considered as early as practicable, for both the scaffold operatives and the end user in mind. Ladders should be used by the scaffolders when erecting, modifying or dismantling any Ringlock scaffold. Ledgers and brace components etc. must not be used as a means of support. Ensure that access and egress routes including ladders and stairways, are kept clear.
  Below is the hierarchy of measures to consider when selecting methods to prevent a person falling at access and egress points:
  - Install staircases
  - Install ladder Access Bays with Single Lift Ladder
  - Install ladder Access Bays with Multiple Lift Ladders
  - Install internal ladder access with protection i.e. ladder trap/handrails etc.
  - Install external ladder access using the Ringlock adjustable Swing Gate
- Employers have an obligation to ensure that Work at Height is::
  - Properly planned
  - Appropriately supervised
  - Done in a safe manner 'so far as is reasonably practicable'
  - Include planning for emergencies & rescue
  - Weather conditions do not jeopardise health and safety
- Before allowing people or materials on the Ringlock scaffold, ensure that it has been erected correctly and complies with the specified requirements and all applicable legislation.
- Ensure that all people using the Ringlock scaffold are aware of the purpose for which it is intended to be used and the maximum loading to which it can be subjected.
- Ensure users understand that any unauthorised modification to the Ringlock scaffold or removal of components could cause a safety hazard. Alteration or extensions should be carried out only by a licensed person.
- Provide barriers and warning notices to prevent access to incomplete sections of scaffolding.
- Do not overload and ensure that crane and forklift drivers understand loading restrictions on each part of the scaffold structure.
- Because of the increased use of mechanical lifting plant on site there is an increased possibility for scaffolding components to become fouled/caught. When using cranes or other mechanical lifting devices near any Ringlock scaffold care should be taken to ensure that nothing catches under any part of the scaffold. Otherwise uplift could occur with potentially dangerous consequences.
- Pigtail Pins/ Toggle Pins or Standard Leg Locks are available to positively fix standards together if your Method Statement/Risk Assessment indicates that uplift cannot be eliminated.
- Scaffold access should be secured when not in use to prevent unauthorised access onto scaffolding. Ladders should be kept in a storage compound or container.
- Consider enclosing the base of the scaffolding to prevent climbing, especially near occupied premises.
- Consider the environment particularly with respect to pedestrian and vehicle movements.

If you are in any doubt regarding any information contained within this Safety Manual and User Guide, please contact your local Doka representative.

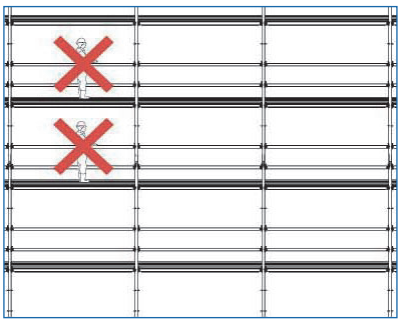
Never

Never	Throw Ringlock scaffold equipment or any other materials up or down.
Never	Undertake work at height when there is a potential to fall without wearing your safety harness correctly and clipping the lanyard to a secure anchor point.
Never	Do any overhead or street work without displaying warning signs, or segregating others from the live working zone (barriers).
Never	Use any defective / modified equipment.
Never	Overload the scaffold you are erecting, altering or dismantling with spare materials.
Never	Rest scaffold equipment against an object if there is a potential for it to fall.
Never	Leave partly erected or dismantled scaffolds in an unsafe condition, (always ensure adequate signage is displayed to warn others).
Never	Accept an instruction from a customer or anyone else that does not comply with safety regulations or current legislation.
Never	Leave an exposed edge where people or building materials could fall.
Never	Remove ties except when using trained operatives, working to your agreed site requirements and instructions without technical advice.
Never	Remove guardrails, toeboards, or brick guards except when using trained operatives, working to your agreed site requirements and instructions.
Never	Remove components or adapt the Ringlock scaffolding with non-genuine equipment.
Never	Create gaps in platform by removing Ringlock Steel Planks from platform thus leaving an exposed edge.
Never	Work on or use a Ringlock scaffold which is being erected or dismantled.
Never	Remove ladders or staircases.
Never	Overload the scaffold.
Never	Undermine the scaffold by digging trenches or foundations under or adjacent to it.
Never	Add sheeting or netting to scaffold without the approval of the scaffold designer.
Never	Forklift loads directly onto access scaffold (instead, use a loading tower).

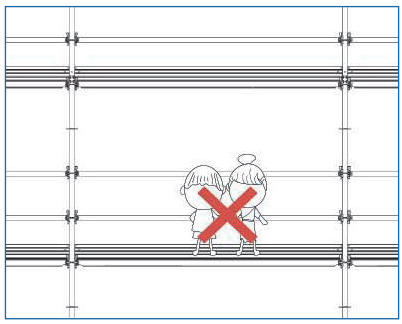
Always

Always	Ensure all on-site users know for what purpose the Ringlock scaffold is intended and the load it is designed to support.
Always	Prepare the ground for the scaffold and the load it will impose.
Always	Ensure that you provide agreed storage areas for your Ringlock scaffolding on site to reduce handling and prevent tripping hazards.
Always	Keep access routes clear.
Always	Inspect your scaffold each time before use.
Always	Inspect your scaffolds and issue reports.
Always	Give consideration to the use of a tagging system i.e. Scaftag.
Always	Prevent access to incomplete and/or unsafe scaffolds and ensure that you have 'scaffold not to be used' signs in place.
Always	Inform the Scaffolding Manager if the scaffold gets damaged, repairs can then be arranged.
Always	Protect scaffold from damage by site plant.
Always	Ensure loads on the platform are evenly distributed.
Always	Consider the weight of the materials you are loading on the scaffold and instruct operatives on maximum loading.
Always	Instruct forklift driver on maximum loading.
Always	Instruct the operatives who will be using the scaffold not to make any adaptations.
Always	Report scaffold defects to scaffolding contractor - you may be saving a life.

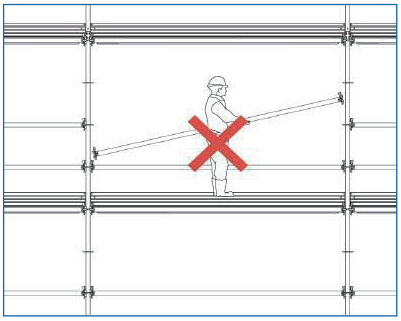
Safety Guidelines and Safe Use



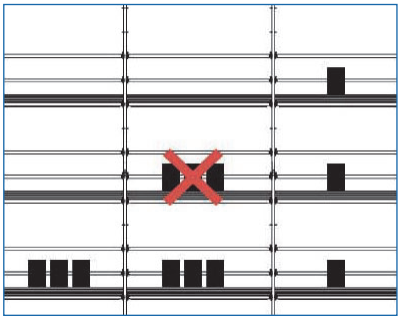
Working areas must not be placed on top of each other at the same time.



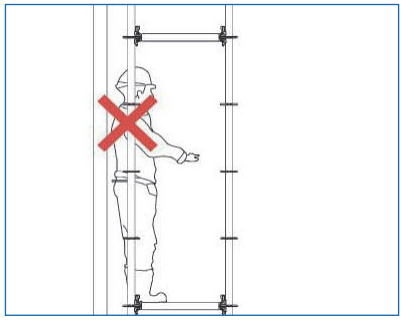
Children must not be allowed on scaffolding.



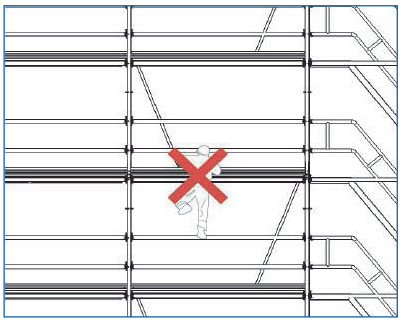
Modifications to the scaffold may only be by the scaffold erector.



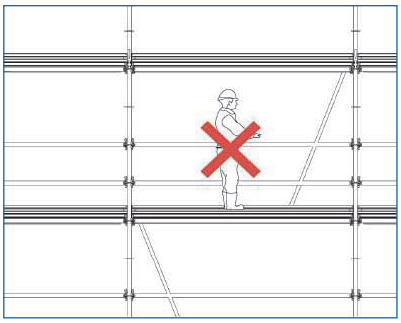
The sum of all loads in a bay must not exceed the value of the specified load class.



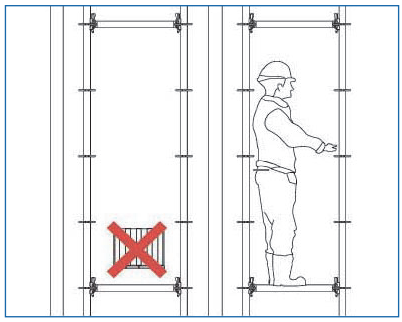
Pay attention to possible danger of falling between scaffolding and building.



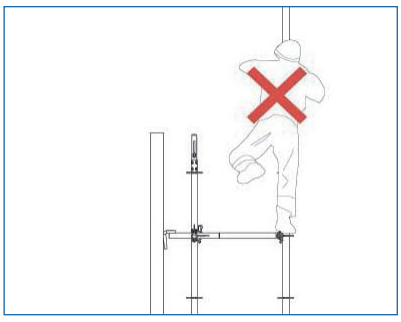
Use only existing ladders or stairs for ascent and descent.



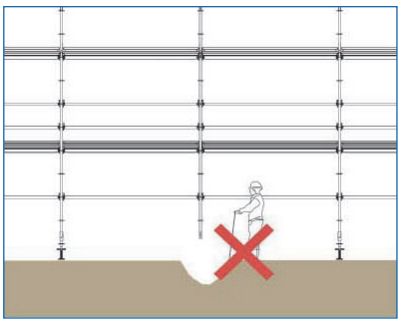
Keep the hatches closed in the Ladder Hatch Decks.



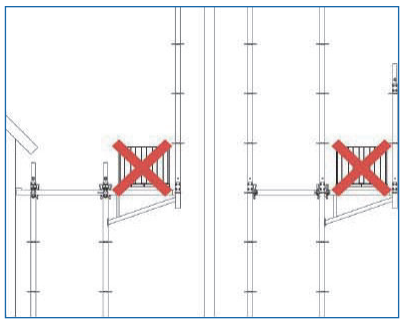
Leave a sufficiently wide passage on the decking when storing materials.



Do not jump off from the scaffold.



Do not endanger the stability of the structure by excavation.



Do not place any material on cantilever and on the brickguard.

Ringlock Overview

Ringlock Node Connection

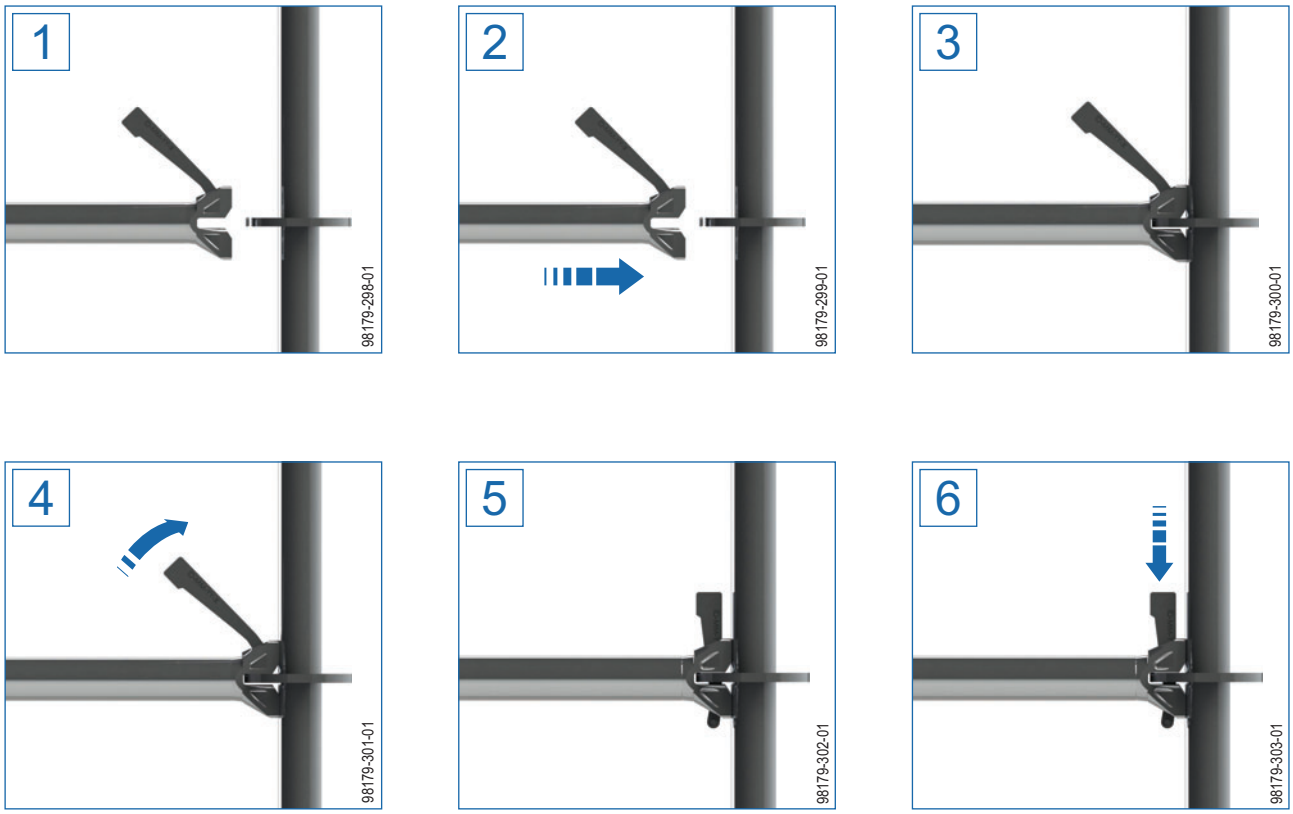
Ringlock node connection consists of Standards with rosettes every 0.5m and horizontal members with a captive wedge (Ledger and Transom). When connected together the Ledger ends and rosettes create a very strong connection. This connection transmits the forces throughout the scaffold structure.

The Ringlock rosette has a diameter of 123mm and has been manufactured with 8- trapezoidal slots, 4-small and 4-large. The smaller holes represent the 90 degree angle for installing the Ledgers and Transoms. The larger trapezoidal holes accommodate the Diagonal Bay Braces.

If the needed, the Ledgers can be installed in the larger holes, allowing up to 15-degrees of rotation. This provides added flexibility to clear obstacles when necessary.

It is recommended that a 500g hammer is used to secure the Ringlock wedge, when the hammer rebounds, the wedge is secure.

To make a Connection:



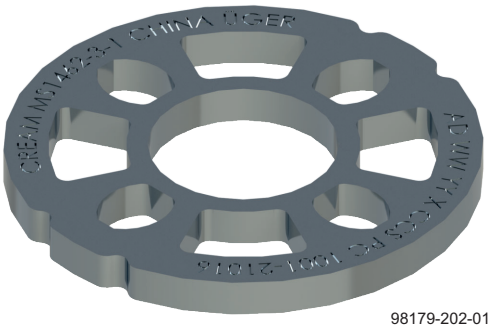
Instructions for Scaffolding Construction

Thanks to the flexibility of the wedge connection, the Ringlock modular scaffolding system can be used for everything from simple façade scaffolding to complex industrial support scaffolding. The relevant characteristic values such as stiffness and load-bearing capacity of the scaffolding system can be found in the approval certificate Z-8.22-992.

Vertical Standard

The robust Ringlock is made of high-quality steel. For maximum flexibility, rosettes are welded to the vertical standards at 50 cm intervals, to which up to 8 components can be connected using the widely used and proven wedge connection.

Ringlock rosette



- Each rosette has eight openings. The smaller openings are generally used to help guide the scaffolding to make 90 degree connections, whereas the larger opening enable connections at variable angles to be achieved.
- Unless erecting a scaffold around a circular building structure, align the Base Collar rosettes so that one of the small openings in the rosette points in the Ledger direction. The small openings at right angles to the first will automatically align the Transoms at 90 degrees.
- The larger openings are generally used for connecting the diagonal braces.

Ringlock Ledger

The ledgers can be easily installed by sliding the ledger head onto the rosette and then wedging it in place. The wedges are permanently connected to the ledger and, as an assembly aid, allow a rigid connection to be made even when the wedge is only loosely inserted.

Before the components are loaded, the tight fit between the wedge and the rosette or standard must be achieved with a 500g hammer until impact is felt. The disassembly of the ledgers is done in reverse order: The wedge is loosened by hitting it from below with a hammer and pulled out of the rosette by hand.

System-free Components supplementing with Ringlock

The Ringlock Scaffold system can be complemented with the following components:

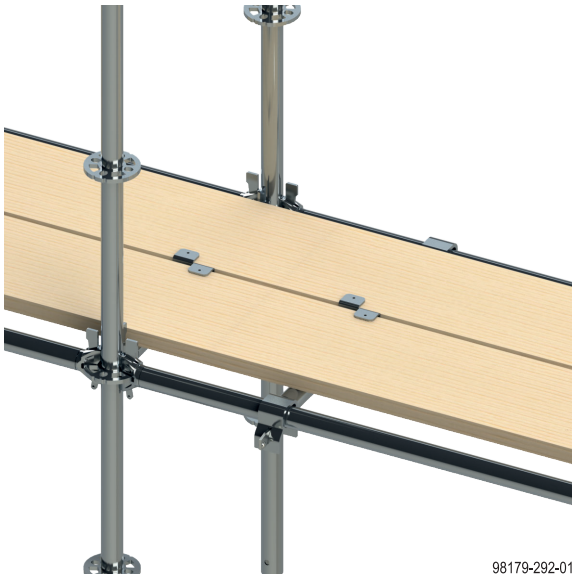
- Aluminum Tube Ø 48.3mm x 4mm minimum thickness per EN 39
- Steel Tube Ø 48.3mm x 3.2mm minimum thickness per EN 39
- Scaffolding couplers per EN 74
- Wood Plank per relevant European Standard.

Scaffolding couples can be connected to all Ø 48.3mm tubular Ringlock components with the exception of all Ringlock vertical Bay Braces.

When Wood Planks are lapped and used as working platform in conjunction with Ringlock System, additional guardrails must be installed to meet the minimum guardrail height (95cm) in accordance to EN 12811-1.

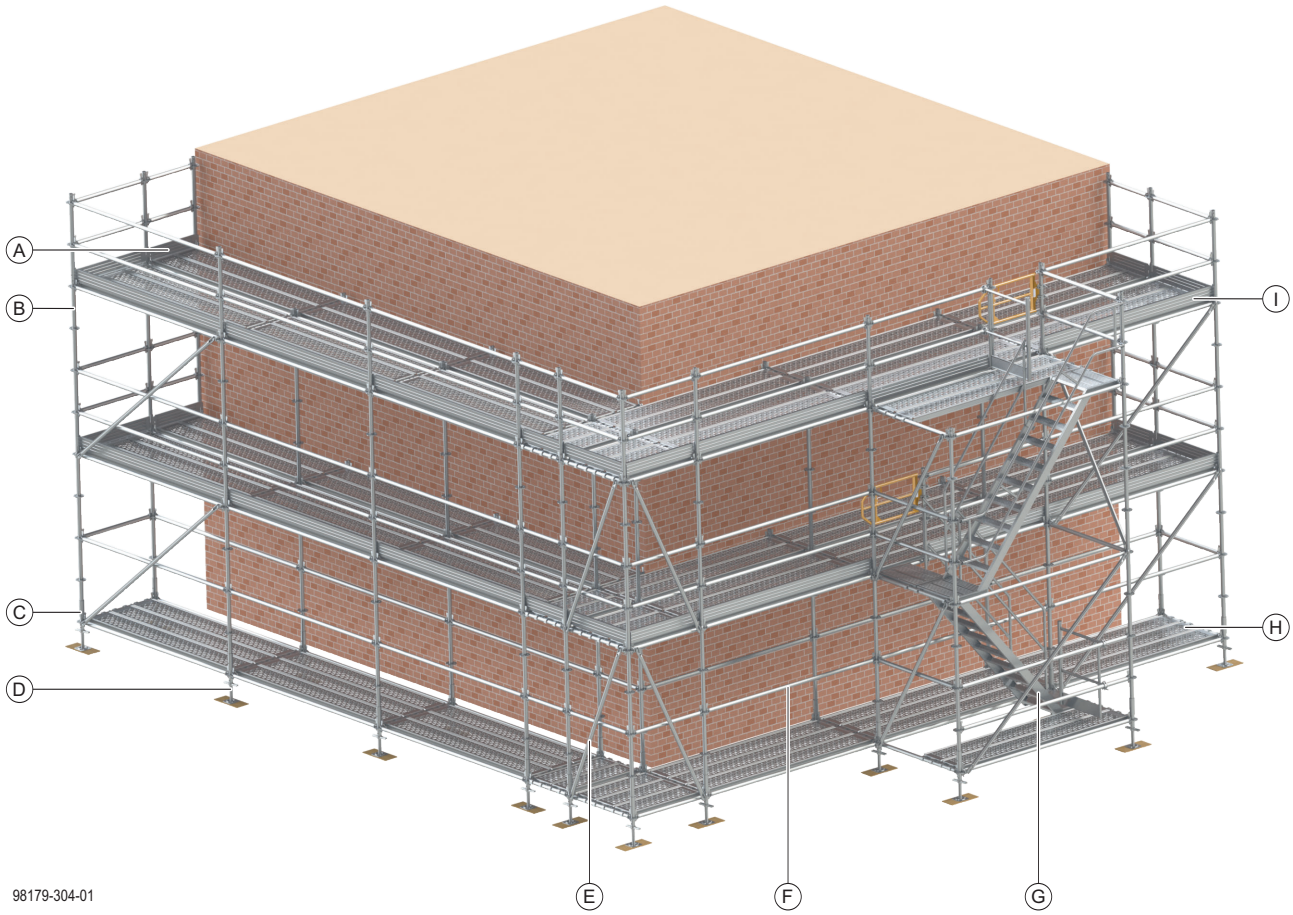
Overlapping Wooden Planks

Butting Wooden Planks

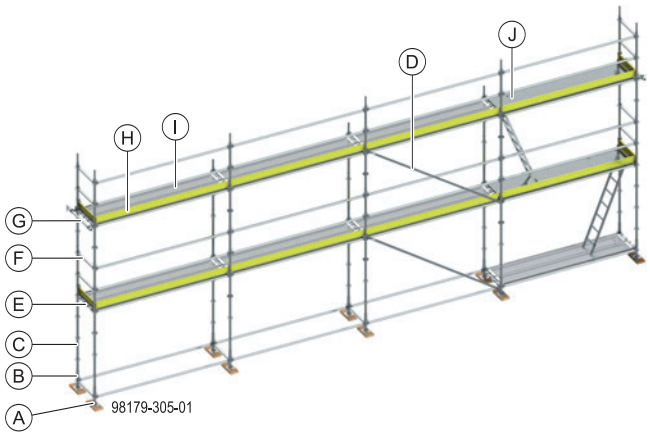


Component Identification

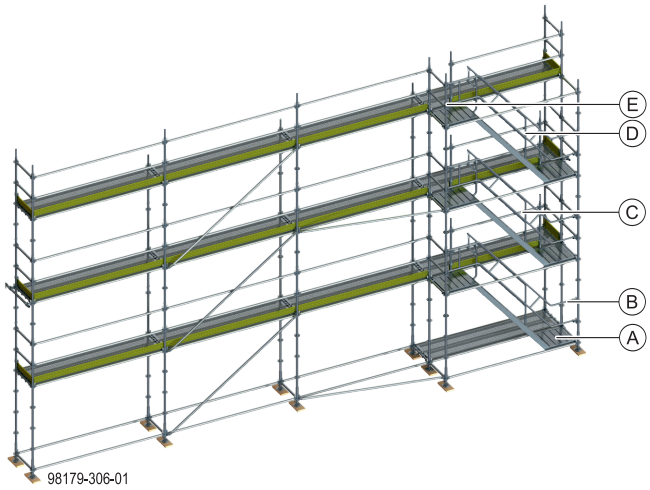
The following diagram represents the most common Ringlock components used. Most scaffold structures are made from these basic components yet the Ringlock system comes with a variety of accessories for all your scaffolding requirements.



A	Side Bracket
B	Standard
C	Starter Base Collar
D	Base Jack
E	Bay Brace
F	Ledger
G	Alum Stair Platform
H	Steel Plank
I	Toeboard



A	Base Jack
B	Starter Base Collar
C	Standard
D	Bay Brace
E	Ledger
F	Guardrail (Ledger)
G	Wall Tie
H	Toeboard
I	Steel Plank
J	Alum Hatch Deck with Ladder



A	Alum Stair Platform
B	Alum Stair Outer Guardrail
C	Alum. stair platform guardrail
D	Alum Stair Inner Guardrail
E	Landing Ledger with Spigot

Color Coded Components

A new feature offered by Doka is the horizontal components manufactured with a colourcoded identification label. This process allows the scaffolder to easily match particular components for each size of the bay to be erected. (For example: An Green Ledger 2.57m will work with an Green Diagonal and an Green Plank.)

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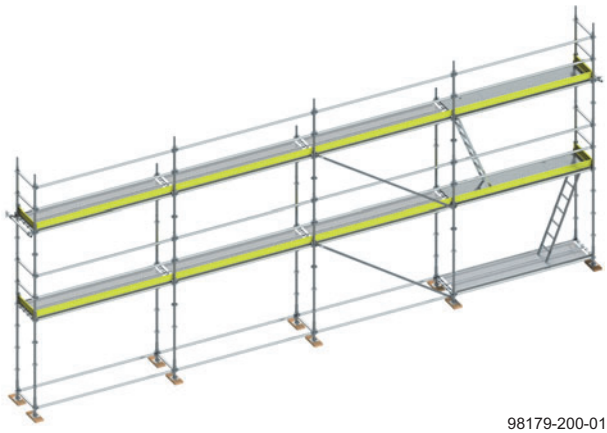
Scaffold

Erection Guidelines

Recommendations



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Prior to Erecting Ringlock the following is recommended:

- The job site should be inspected to ensure that the ground or other supporting structure is strong enough to safely support the self-weight of the scaffold and the imposed loads on the platforms. In addition, please make yourself aware of the proximity of power lines, overhead obstructions and weather conditions. These could pose a possible danger during the erection, use and dismantling of Ringlock and should be evaluated and adequately addressed in accordance with the requirements for provision of Risk Assessments and Method Statements.
- Check the condition of the building façade at the proposed tie locations.
- The spacing of the Standards should be in accordance with the relevant layouts, if available.
- If design drawings of the scaffold are required, check the requirements of the local authority with respect to what must be shown on the drawings (load rating, erection/dismantling instructions etc.).
- All equipment should be inspected prior to use to ensure that it is in good condition and is serviceable. Damaged or deteriorated equipment must not be used.
- Avoid storing or handling scaffold components below or close to electrical power lines. Check the requirements of the authority having jurisdiction for the exclusions zones.
- Care must be taken when scaffolding work is in close proximity to exposed and insulated electrical lines and hidden electrical cables (for example, cable concealed behind a surface where a scaffold anchor is to be fitted).
- Be aware of all Client and work related site safety procedures as well as reference to local/regional and National legislation.
- Be aware of possible dangers regarding explosions or fire.
- Ensure that the scaffolders are trained and fully instructed to erect Ringlock system scaffolding.
- Check the safety and function of all the tools that are used during erection.

Risk Assessment

Prior to Starting Erection Conduct a Risk Assessment. A Risk assessment is simply a means of determining what could cause harm within your workplace and developing suitable control measures to prevent accidents. It is also a legal requirement and you have duties under HSE legislation.

Before starting erection of Ringlock scaffolding, we would recommend you consider the following:

- Ensure that all scaffolders have seen the risk assessment and ensure that they understand it.
- Ensure that all scaffolding workers sign the risk assessment form.
- Double check the worksite, ensure that all scaffolding workers have checked their tools.
- Secure the work area, isolate from others and establish drop zones.
- Consider the job at hand and ensure that nothing has been missed.
- Never be taken in by the 'Big Risk' and miss other potential problems (such as trip hazards, people working nearby, possibility of dropping objects etc.).

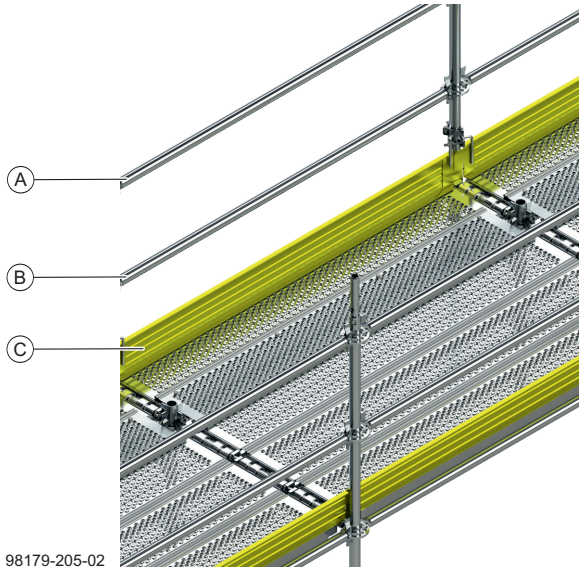
Once you start the erection work:

- Never work outside the scope of the Risk Assessment.
- Always stop work and re-assess if conditions change or if additional hazards, which are not included in the Risk Assessment, become apparent.
- Always stop work if you feel unsafe.

Three Part Side Protection

In accordance with Health and Safety Regulations it is vitally important the scaffold user must maintain a three part side protection when using the working platform. This is easily achieved with Ringlock system scaffold.

The three part side protection consists of two Ledgers at 500 mm and 1000 mm above the working platform as Guardrails, and finished with a Toeboard to create the edge barrier.



A Top Guardrail
B Intermediate Guardrail
C Toeboard

Safety Harness Connection Points

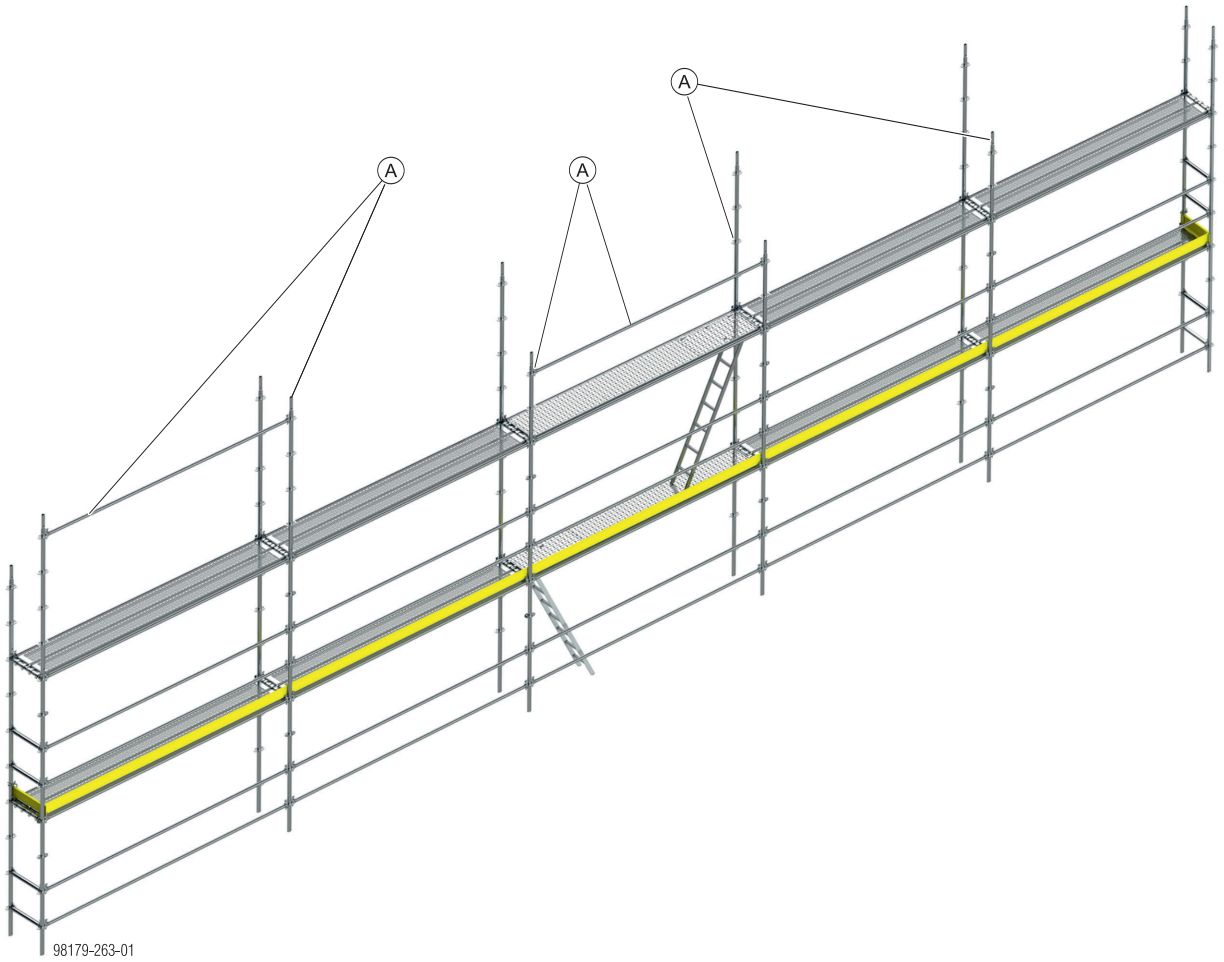
Connection Points for PPE

All scaffolding work must be carried out in such a way as to minimize the risk of falling. The use of personal protective equipment (PPE) against falls from height may be required by locally applicable health and safety legislation or as aresultof a risk assessment.The regulations and guidelines of German Social Accident Insurance (DGUV) Rule 112-198 'Use of personal protective equipment against falls from a height' in its current version apply. It should be noted that when using when PPE, there must be adequate clearance below the standing level, depending on the length of the lanyard used, and the ground and/or obstacle below.

Safety harness connection points can be made either on ledgers up to 2 m above the standing level or on the rosettes in the small or large hole up to 1 m above the standing level. When connecting the PPE to free-standing vertical standards, make sure that the post joint is below the standing level.

Saftey Harness Connection Points

In general, the anchorage point should be as high as possible.

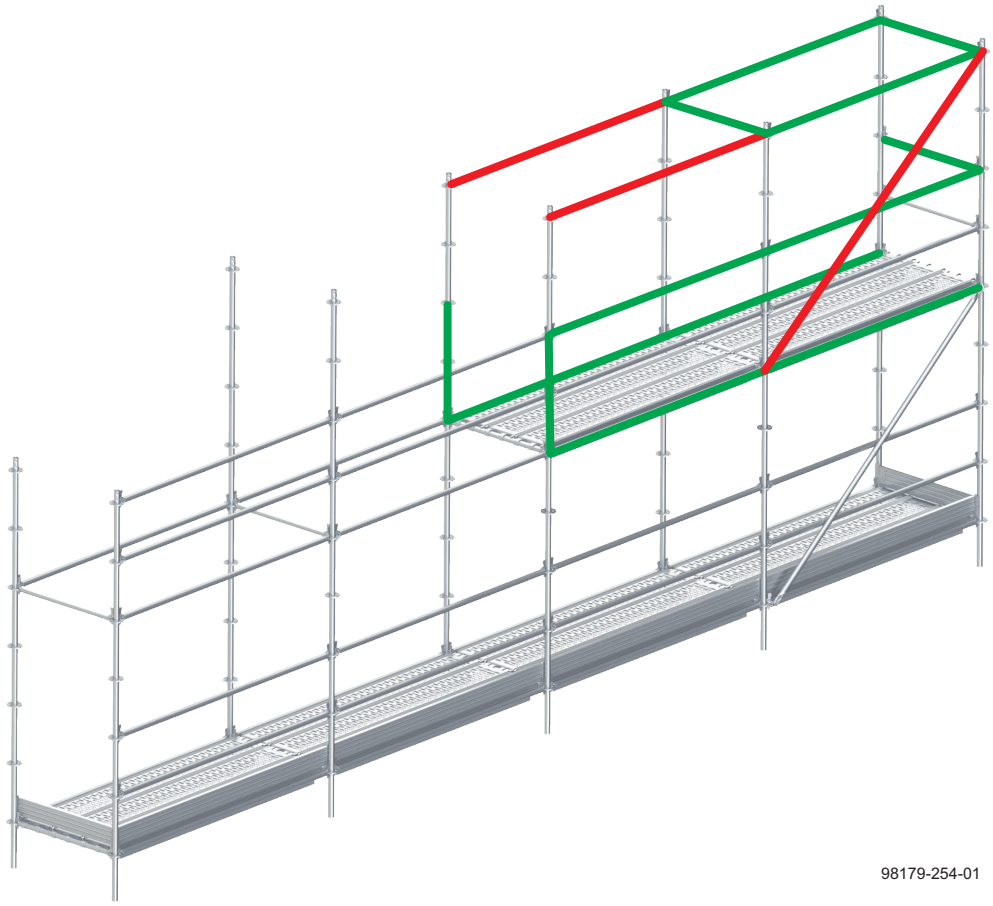


A Anchor points for PPE

Where to attach your Shock Absorbing Lanyard

Below represents where you can safety attach a Scaffold hook/snap hook.

- Connection locations shown in Red are not suitable for fixing to.
- The anchorage points shown in Green are to support Shock Absorbing Lanyard fall arrest equipment.



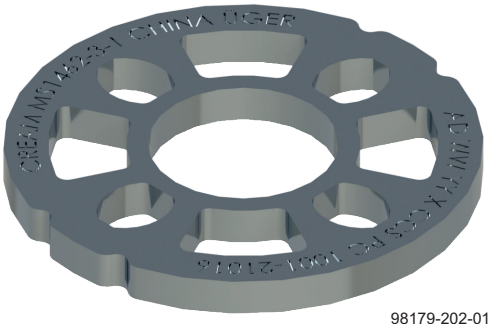
Attachment point for personal fall-arrest set

The following guidelines are provided to help you select the most appropriate locations for attaching a harness to Ringlock scaffolding.

The guidelines presented in this document do not replace established Health and Safety guidelines. Refer to the Work at Height Regulations and Safety Guidance Notes provided by the NASC where necessary.

- The rosette on a Standard is a proper connection point for the Scaffold Hook attached to a Lanyard. The Standard must be continuous to the base plate. No more than one person per 2.0 m (6'-6") lift can be attached to a single Standard.

Ringlock Rosette



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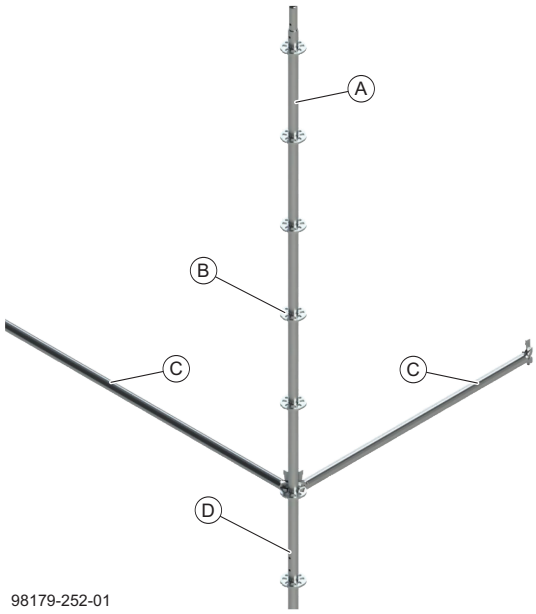
- It is recommended to connect the Scaffold Hook to the large trapezoidal holes to provide a suitable anchor point for the appropriate safety harness.
- DO NOT attach the safety harness lanyard to itself around a Standard because the edge of the rosette may cut the fabric or it may slip over the rosette to the next lower rosette increasing the fall distance.

Connection to a Standard

To ensure a positive connection is created it is recommended that joints between Standards are pinned together (ensure site/local regulations and current Legislation are followed). A scaffolder can connect to any rosette up to the third rosette above the Ledgers.



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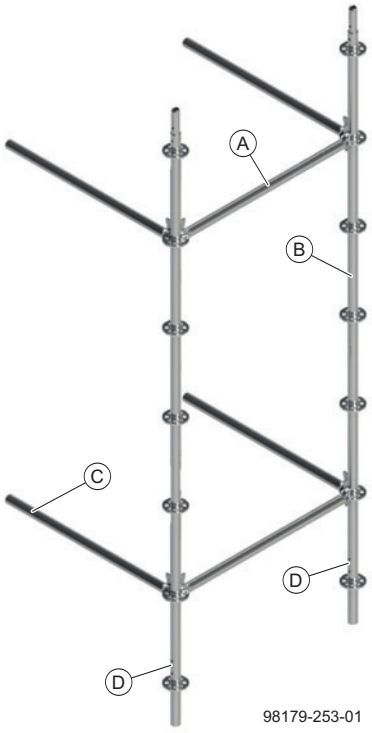
A	Standard
B	Highest safety harness connection point
C	Ledger
D	Pig tail pin/ Toggle pin

Connection to a Ledger



A	Safety harness connection point
B	Standard
C	Ledger
D	Pig tail pin/ Toggle pin

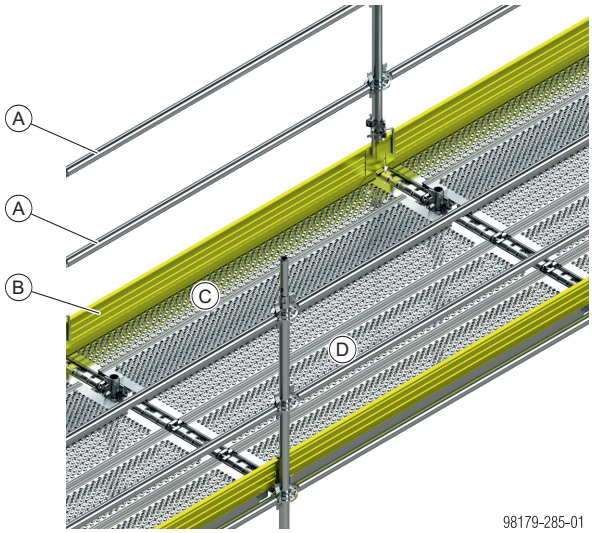
The Ledger is a proper connection point for the Scaffold Hook attached to a Lanyard. It is recommended that no more than one scaffolder be attached to any Ledger at the same time.

Both Ledger ends must be attached with tightened wedges to a Standard that is supported by two or more Ledgers attached to the same rosette. To ensure a positive connection is created it is recommended that joints between Standards are pinned together (ensure site local regulations and current Legislation are followed).

- Diagonal braces must be installed as per Doka recommendations and/or engineering design and they must be installed as the scaffold is erected. Diagonal braces may not be used as harness connection points.
- Free fall distance should be limited to 2.0 m (6'-6") or less in accordance with current Safety Guidelines for the specific conditions of the fall hazard. In addition, the scaffold-specific fall protection plan should ensure that all fall zones are clear and unobstructed and that an effective scaffolder rescue plan has been developed that can be mobilized quickly in the event that an arrested fall incident occurs.
- All persons using fall protection systems must be trained in the proper installation and safe use of fall protection equipment, as required by Work at Height Regulations.
- Contractors and their employees must comply with the Work at Height Regulations.
- Scaffolders should use an appropriate safety harness at all times such that the individual stays fully protected from falling when working at heights.
- Scaffolders should hook on immediately after stepping off a ladder or other means of access. Doka recommends the use of a properly installed Davit Arm and retractable lanyard to ensure that workers are tied-off while climbing exterior.
- When it is necessary to reach below the single guardrail (e.g. fixing bracing or handling other materials).
  - **Clip to**:
    - Available and adequate steelwork.
    - Standards.
  - **Do not clip to**:
    - Ringlock Bay Braces.
    - Standards not supported by two or more Ledgers attached to the same rosette.
    - Puncheons or cantilevered components.
    - Pipework, plant guardrails, cable racks etc.
- Anchor points should always be as high as possible. However, this is not always practical in scaffolding which is usually built from the ground up. Our recommendation is that where no higher anchor point is available you should clip to the Ledger immediately below your feet. There is sufficient space between the Ledger and the platform to clip on with a safety harness carabiner.

Falling Object Protection

The three-part Ringlock side protection consisting of a guardrail, intermediate rail (knee rail) and toe board must be mounted on the outer side of the scaffold at all working levels used. If the maximum distance of 30 cm from the facade to the edge of the decking is exceeded, it must also be installed on the inside of the scaffold facing the facade. The three-part side protection meets the requirements for side protection components of EN 12811-1.



A	Guardrail Ledgers
B	Toeboard
C	Infill Plank
D	Plank

Planks

Install the Ringlock Planks side by side with each Ledger or Bay Length to create a fully covered working platform. The proper installation of Planks ensures the platform is free of gaps larger than 25 mm (1").

Toeboards

Install the Ringlock Toeboards to protect workers from falling hand tools, debris, and other small objects. These fit behind the wedges and interlock together.

Ledgers

The Ringlock Ledgers act as guardrails and are located 0.5m (19.7") and 1.0m (3'-3") above the working platform, meeting the requirements of local regulations.

Infill Plank

When using a platform extension such as a Side Bracket the Ledger between the main platform and the extension can be covered using the Ringlock Infill Plank. The Infill Plank rests on the Plank/Ledgers and creates a seamless working platform, free from gaps. They can also be secured to the Ledger to prevent uplift in adverse weather conditions.

Assembly of Facade Scaffold

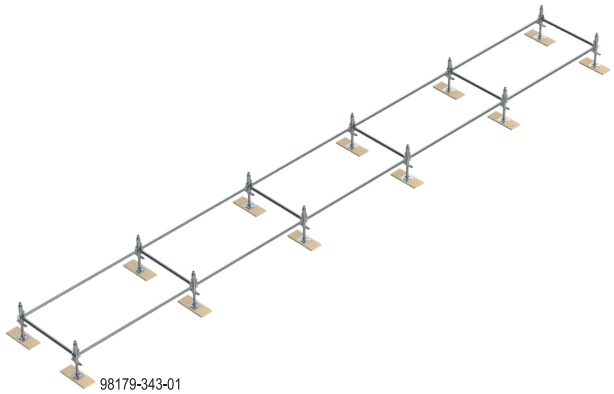
Step 1

The ground must be checked for sufficient loadbearing capacity and suitable sole board, e.g. wooden planks, must be laid. The maximum spindle extension length must not be exceeded and the maximum wall distance of 30 cm must be observed in order to avoid a fall between the wall and the scaffold. All scaffold components must be checked for damage and replaced if necessary before installation.

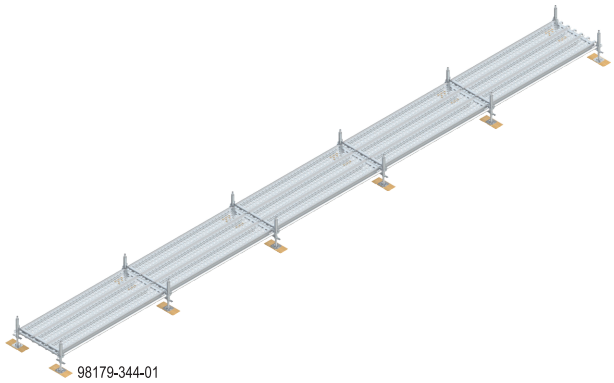
➤ Erection of the scaffold should start at the highest point of the erection level. Distribute the base jacks on the sole boards and position them with longitudinal and transverse ledgers and the base collars. The base jack nut should be about 5 cm above the ground to allow the greatest possible adjustment of the extension length. Then connect the longitudinal and transverse ledgers in the small openings of the rosette by means of loosely inserted wedges.

Step 2

➤ Using a spirit level, the scaffold is levelled horizontally by turning the base jack nut accordingly.



➤ The squareness of the bays is checked by measuring the diagonals. The insertion of planks in this bay helps with the horizontal alignment of the base jacks spindles and facilitates the assembly of the next scaffolding level.



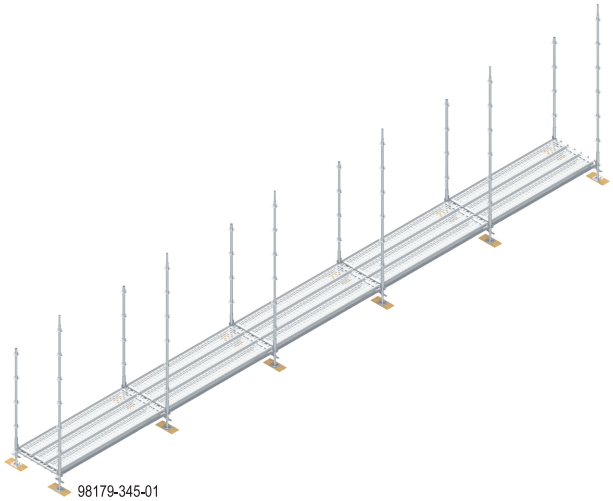
➤ After aligning the bays, use a 500g hammer to drive the wedges on the ledgers until they are fixed, wedging them to the rosettes on the base collar. Precise alignment of the framework at this stage of erection avoids the need for subsequent re-alignment and further erection can be easily carried out without significant further alignment.

Note:

The bottom level planks are only needed to align the scaffold and to assemble the first scaffold level.

Step 3

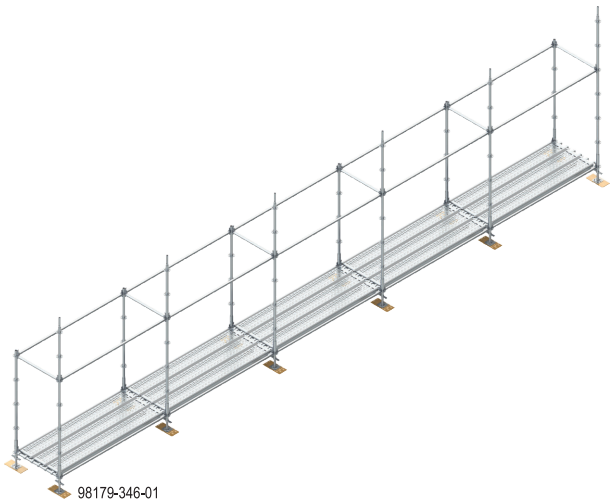
➤ The length of the first standards on the inside of the scaffold is 2m and on the outside of the scaffold 3m. These are inserted with the spigot pointing upwards into the base collar, whereby the spigots of the standards are now at different heights.



In the next scaffolding level, the outer standards protrude 1m above the decking level and are used as a guardrail post.

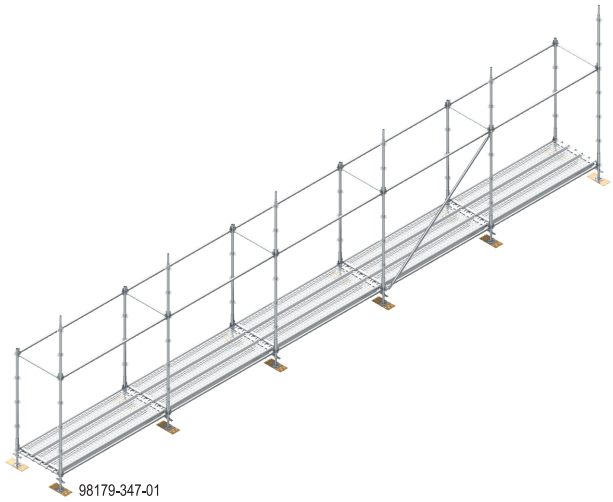
Step 4

➤ At the height of the first scaffold level, the required longitudinal and transverse ledgers can now be inserted and wedged in place.



Step 5

➤ Bay Braces are installed by first sliding on the lower bay brace head and loosely inserting the wedge in the large opening of the rosette. Then the upper bay brace head is pushed onto the rosette in the next scaffold level. The bay brace is fixed by hammering with a 500g hammer until it is fixed. If possible, they should always be mounted on the outside of the scaffold at nodes stiffened by ledgers.



➤ Depending on the static requirements, bay braces are installed as a minimum every fifth bay and at the outside end bays in the longitudinal direction of the scaffold. They increase the stiffness of the scaffold against loads parallel to the façade.

Note:

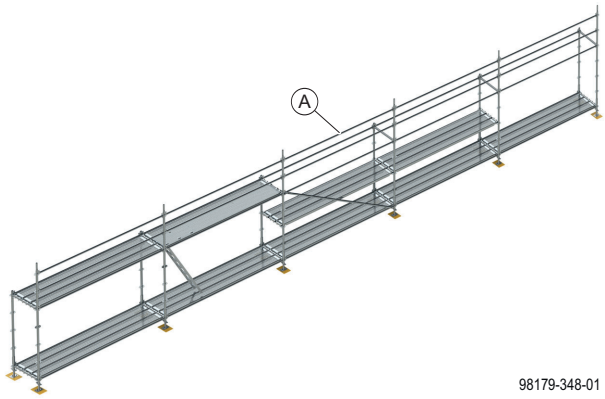
It is important to note that the dimensions specified in section 'Excerpt from the general building authority approval Z-8.22-992' do not provide for the use of Bay Braces.

Step 6

A temporary intermediate level can be installed at the height of the guardrail ledgers for the installation of the advanced guardrail on the next level up.

➤ For this purpose, two ledgers are installed at a height of 1.0m above the base of the scaffold and decks are inserted.

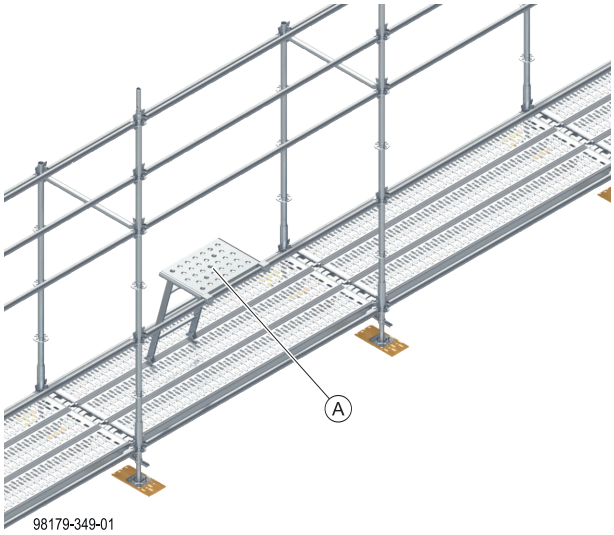
The longitudinal ledgers already installed on the upper deck level now function as the handrails.



A Advanced guardrail assemvled with Ringlock Ledgers

➤ From the temporary working level, the guardrail ledgers as well as the decks of the next scaffolding level are installed, and the decks are secured with the wind latch.

As an alternative to the temporary decking level, a scaffold step can also be used from which the advancing guardrail and the decking in the next scaffolding level can be installed.

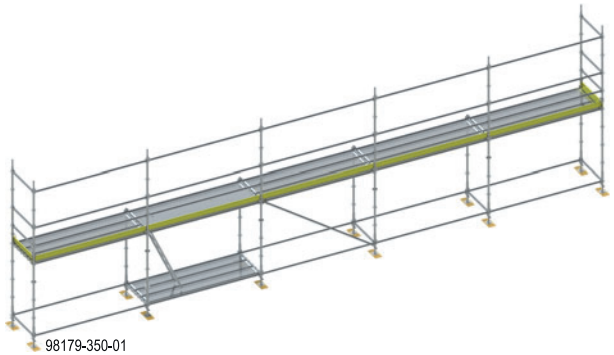


A Single-hanging step ladder

Step 7

When no additional level is required:

➤ If no additional level is required, 1.0m long Standards can be added as guardrail posts on the inner side and at the end of the scaffold top level. The decking level can now be accessed with the installed guardrails. In order to have working access, toe boards are required to be installed.



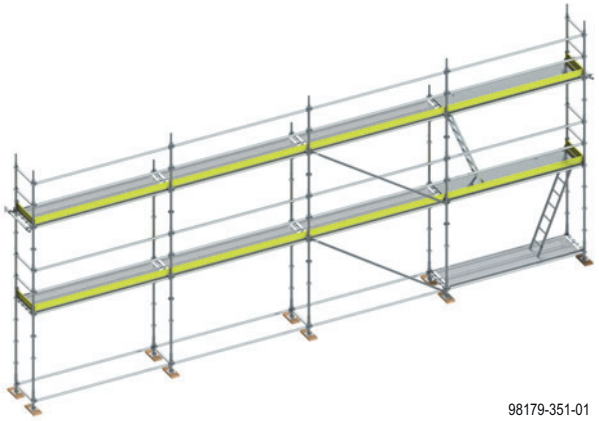
The steel planks used for the assembly at the base level are no longer needed unless the planks are used for access.

Step 8

When additional levels are required:

➤ If additional level(s) is required, follow steps 4 through 7 of the assembly guide.

➤ Install 2.0m long Standards on the top level for inner and outer sides. The inner side protection may be omitted if the gap between the scaffold and the facade is less than 30cm.



The steel planks used for the assembly at the base level are no longer needed unless the planks are used for access.

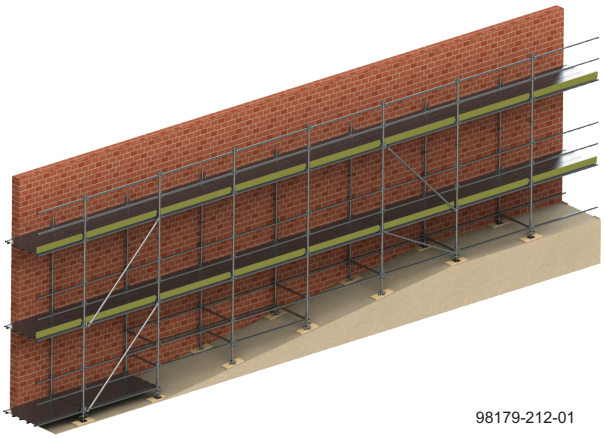
Ground Adjustment

The base setup of the scaffold should be started at the highest point of the ground level. The base jacks are placed on the ground and installed with longitudinal and transverse ledgers at the base lift. The base jack nut should be located about 5cm above the floor to provide adjustability to extend in lower areas.

If the maximum spindle extension length of the jack is not sufficient for horizontal alignment of the longitudinal ledgers, additional Standards must be used to compensate for the difference in height. Additional longitudinal and transversal ledgers are required to provide the sufficient stiffness by installing 50 cm below the higher adjacent scaffold bay. The rest of the framework is erected as described in the section ‘Assembly of Façade Scaffold’.

Slopes

Shallow Slopes



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1) Pick the highest ground level for the starting point to simplify later adjustment. Start with the base jack nut as near as possible to the bottom of the thread. This will allow maximum adjustment as the ground drops below the level of the first Sole Board.
2) When the ground is more than 500 mm below highest ground level, set the base jack nut near to the bottom of the thread and fit the Base Collar. Introduce a Standard and wind up the thread on the Base Jack until the second rosette in the lift is level with the previous Standard. Introduce the Ledger to fix the Base jack, base Collar and Standard in place.
3) Continue down the slope positioning the base jack nut such that the Ledger always engages with the nearest Rosette to allow the Ledger to be level.

Steep Slopes

- ➤ Depending on the nature of the ground and the steepness of the slope it may be necessary to use a Swivel Jack where the base plate can rotate to any angle up to 90 degrees.
- ➤ It may be more appropriate to place sole boards continuously up the slope in place of an individual Sole Board. The Swivel Jacks may be fastened to this with suitable screws to avoid any slip between the two surfaces.
- ➤ Continue with the erection of Ringlock scaffold following items 1. to 3. above.

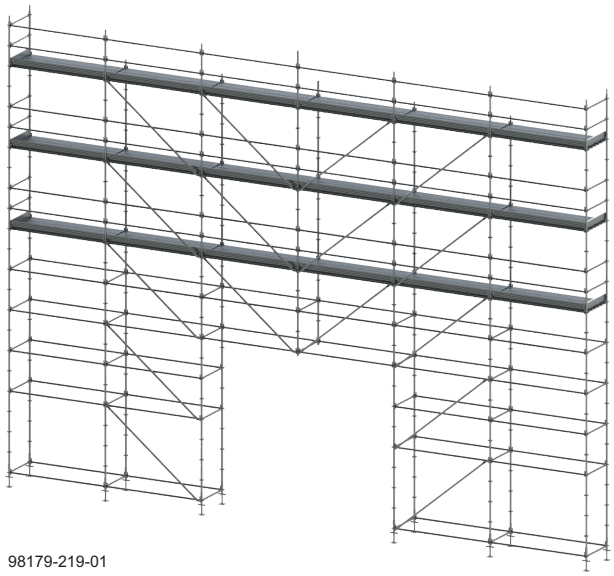
NOTICE

When erecting scaffolds on soil (excavatable surfaces) prepare a level base by removing sufficient soil to completely fit the sole boards

Consider the surface type and the sole boards to determine if anchorage between the two is necessary.

Bridging Solutions

The purpose of bridging solutions are to provide access when erecting the scaffolding over exits, door openings, passages or gateways, or building projections and balconies at higher structural levels. When bridging span of up to two bays, it can be erected in a simple manner by using standard components of the Ringlock scaffolding system.



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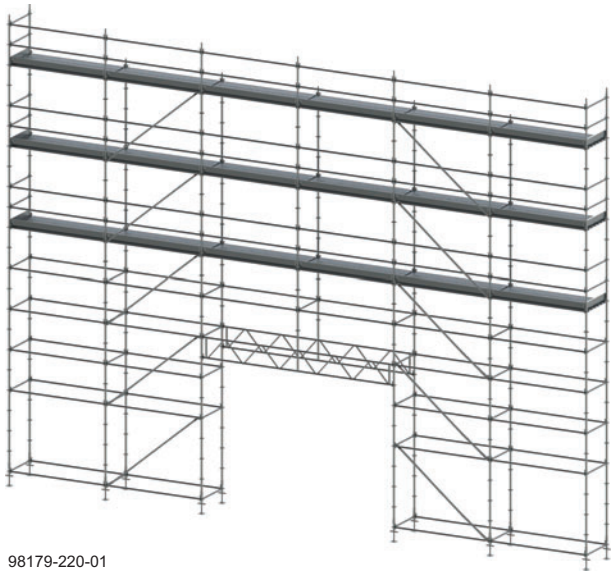
For larger than 2 bay spans and/or higher loads on the scaffold, the Ringlock Lattice Girder can also be used. With a height of 500mm, the Ringlock Lattice Girder has the same spacing as the Rosette spacing of the Standards and is connected directly to the rosettes.



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The Ringlock Lattice Girders must be laterally braced at the top chord to provide sufficient stiffness against lateral deflection. See section 'Excerpt from the general building approval Z-8.22-992' to verify that the bearing loads from above the Ringlock Lattice Girder are sufficient for each case.

Steel planks can be installed on the Lattice Girder direction, if steel planks are to be installed parallel to the Lattice Girder, then the Girder Transom must be used. Girder Transoms are available with and without side brackets.

Girder Transom Installation

Step 1

➤ Install the Lattice Girders in the rosettes of the Standards by installing the wedges of the connection heads with a 500g hammer until the hammer bounces.

Step 2

➤ Install the Girder Transom onto the top chord of the Lattice Girder along with Ringlock standards to accommodate guardrails. Install the first steel plank with the wind latch engaged onto the Girder Transom on one side and onto a ledger on the opposite side.

Step 3

➤ Advance the planks together with the Girder Transom/Ledger until the planks fit into the bay.Then install and secure the other planks in the remaining opening with wind latches engaged.

Step 4

➤ In order to continue the staggered standards to the upper scaffold levels, mount a 1m standard on the scaffold outer side and a 2m standard on the scaffold inner side.Then the side protection can be installed.

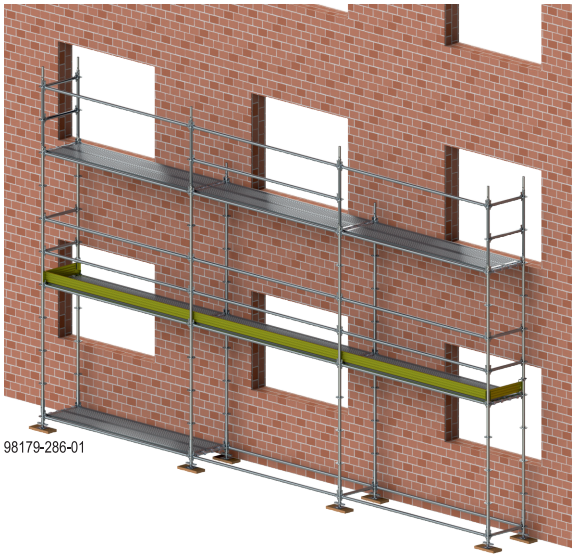
Note:

Planks and guardrails are not shown in the Lattice Girder level for clarity.

Stair Way Access Assembly on a Facade Scaffold

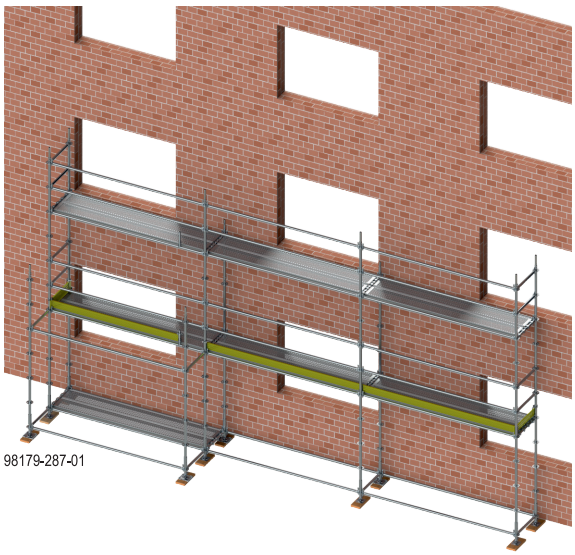
Step 1

➤ To use the stairway, fully assemble the scaffold up to the second scaffold level, see section 'Assembly of Facade Scaffold'.



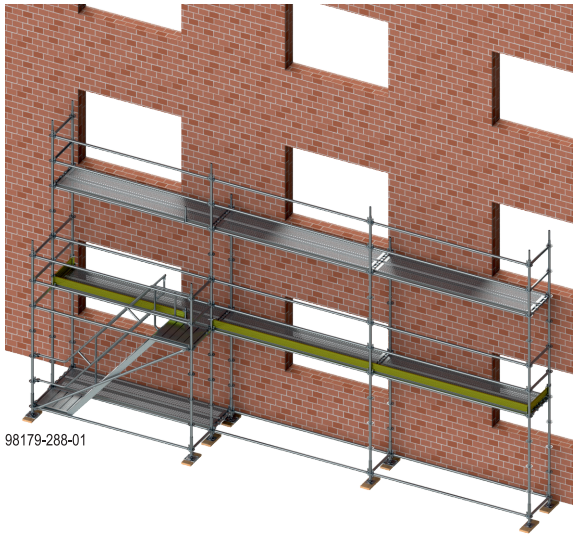
Step 2

➤ Afterwards, the base jacks, the base collar and 3m standards members of the stairway are connected to the scaffold by means of 0.73m ledgers.



Step 3

➤ After installing the aluminum staircase and engaging the wind latch, the outer railing can be installed and the stringers can be wedge from the secured first level.

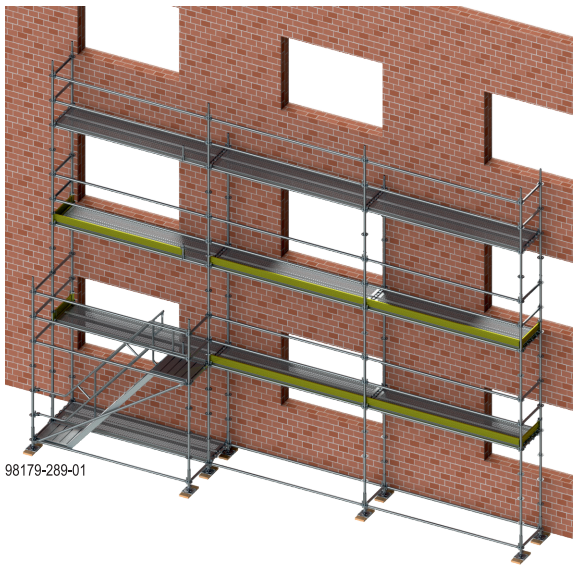


Step 4

NOTICE

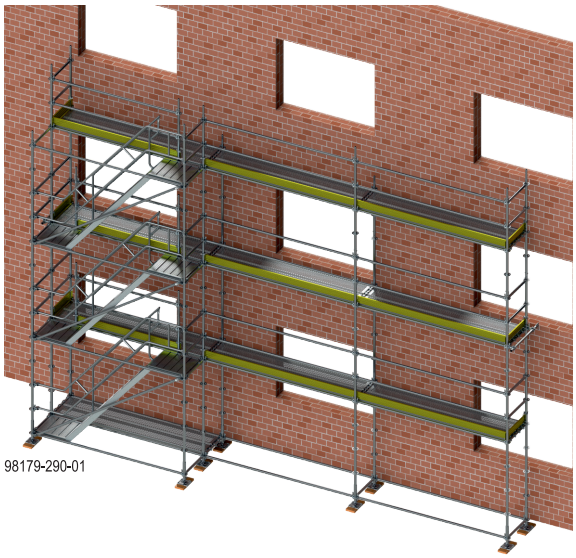
➤ It should be noted that the fall-through protection or the inner guard rail on the stair stringer is fitted before the side protection is removed on every aluminum staircase starting from the second platform level.

➤ After assembly of the aluminum staircase, the leading side protection on the staircase access panel can be removed and now the next scaffolding level can be installed.



Step 5

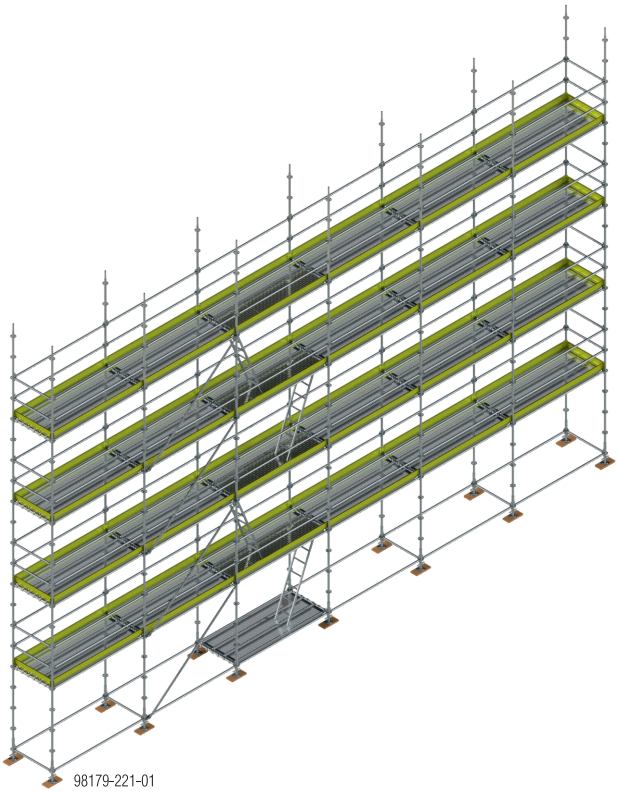
➤ At the top level of the staircase, the longitudinal ledger at the deck level next to the stair platform is replaced by the landing ledger with spigot.
This has a welded-spigot, which, together with a 1m vertical stile as an end post, guarantees the side protection of the staircase landing.



Ladder Access

Ladder Hatch Deck

Up to a height of 5m, or in the case of single-family houses that comply with the maximum dimensions of Building Classes 1a and 2 of the Model Building Code, access to the scaffolding levels may be provided via hatch decks. Hatch decks are available in various lengths and replace two of the steel decks in one bay in the case of facade scaffolding. From a bay length of 2.57m, they have an integrated ladder which can be fixed under the decking to save space when not in use. The Ladder hatch deck replaces 2No standard 0.32m decks.



When using hatch decks, the following safety instructions apply:

- Bays with hatch decks are to be fixed to the façade on both sides with scaffold anchors with a height difference of less than 4m.
- Hatch decks shall only be opened for climbing through and shall otherwise be kept closed.
- If hatch decks without integrated ladders are used, the separate ladder shall be secured against slipping before use.
- When widening the scaffold by means of external brackets, no access decks may be fitted in the bay widened by the brackets.

Internal Incline Ladder Access

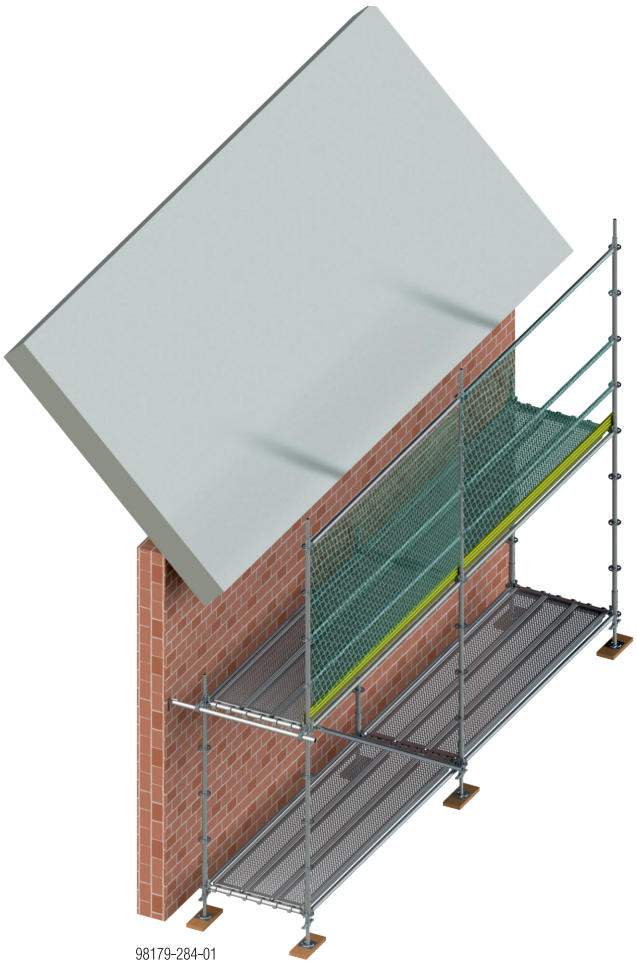
This Ladder Access involves installing inclined Ladders within the scaffold and securing them near the bottom of the longitudinal Ledger and to the top of the guard-rail. Methods of securing the Ladder may include the use of Ladder clips or hooks. Add the Ladder Access Tower to the scaffold façade or integrate it within the scaffold. Close off the Tower using the Adjustable Swing Gate.

The Ladder bay is usually erected at the same time as the access scaffold. It is built following the chapter "Assembly of Facade Scaffold". The opening in the platform, to receive the Ladder, is formed using a Ledger to Plank Transom and a Plank that is half the length of the bay. The usual opening width is three Planks, and the opening should be at least 1m along the length of the platform to allow unhindered access up and down the Ladder (check state, local, provincial or federal statutes, and regulations for access opening requirements).

Ladders should be inclined at a 4:1 ratio. Extend the top part of the Ladder approximately 1m above the landing platform to allow easy access on and off the rungs.

Brick Guard

The geometric dimensions of the brick guard depend on the site conditions and must be designed in accordance with German Social Accident Insurance (DGUV) Information 201- 011 'Instructions for handling Working and Protective Scaffolding' or local regulations. The width of the scaffolding and the distance from the edge to the scaffolding must be considered when designing the brick guard. All the planks of the Ringlock modular scaffold provide the capacity required to withstand as brick guard protection.



To provide a protective wall, first erect the scaffold as described in the section 'Assembly of Facade Scaffold' and tie each standard to the building at the topmost scaffold level. If required, extend the exterior Standards up an additional 1m so that the protective wall has a height of more than or equal to 2m from the top planked level. For all assembly variants, splice joints of the Standards must not be located at the top planked level. Additional ledgers, which are connected to the uppermost rosette of the additional standards, form the frame for the protective wall with the existing ledgers at the top planked level. The nets that are used must comply with EN 1263-1, net type A2 with 100mm mesh size. The protective net may be installed onto these ledgers or at the edge with net clips and a maximum distance of 75cm to the ledgers according to the manufacturer's specifications. Any stitches on the net must be connected stitch by stitch with a zip tie according to EN 1263-1 or have a minimum overlap of 75cm. The alternative solution is to wrap the net around the ledgers.

Corner solutions

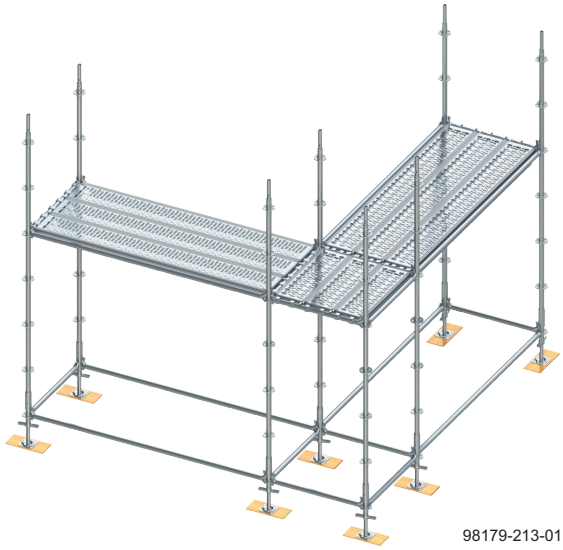
A corner can be created in many different ways. Please see the below examples for the most common solutions.

NOTICE

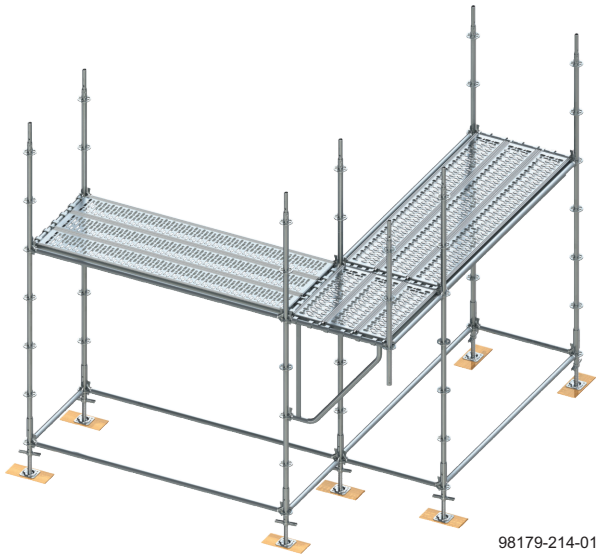
When dealing with an internal or external corner it is imperative that a 3 part side protection is in place at all times. It is also important that scaffolds are tied to the adjacent structure and have sufficient bracing.

Corner Solutions without internal Cantilever Platforms

- This is the most basic layout for a corner. All Ledgers are present at the deck level and an internal Standard is used at the corner. A square bay is erected for the corner which can be either internal or external.



- The outside Ledger at platform level has been replaced with a Side Bracket. In order to create the Guardrail a Standard is attached to the terminal on the Side Bracket. This minimizes the number of components in comparison to the layout above.



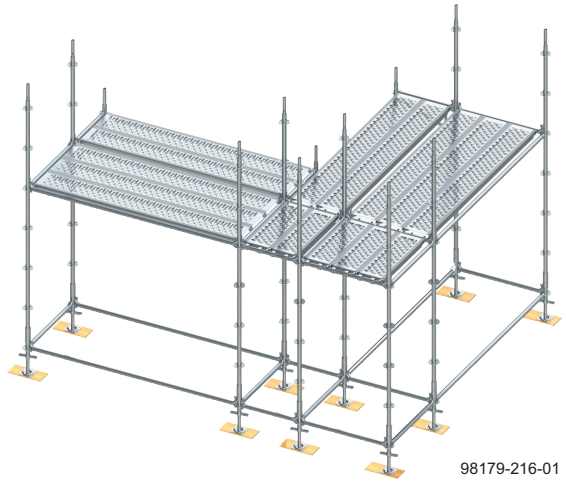
Bracing and Edge Protection removed for clarity.

NOTICE

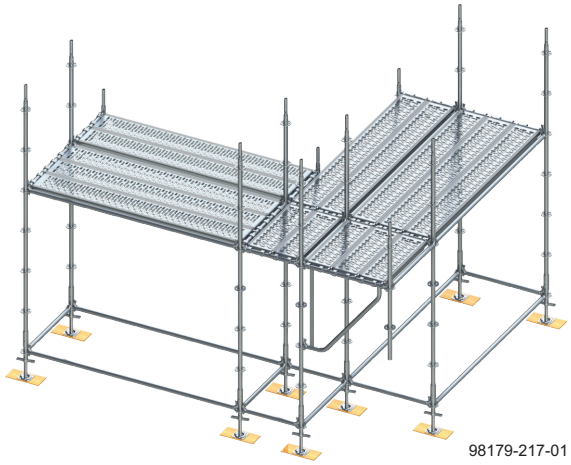
Any 'hanging standard' must not be used as an attachment point for Personal Fall Arrest Systems.

Corner Solutions with internal Cantilever Platforms

- All Ledgers are present at the deck level and an internal Standard is used. An equivalent size bay to match the internal cantilever platform has been added. A fully closed corner has been developed with internal cantilevered platforms.



- The outside Ledger at platform level has been replaced with a Side Bracket. In order to create the Guardrail a Standard is attached to the terminal on the Side Bracket. An equivalent size bay to match the internal cantilever platform has been added. A fully closed corner has been developed with internal cantilevered platforms and minimizes the number of components in comparison to the layout above.



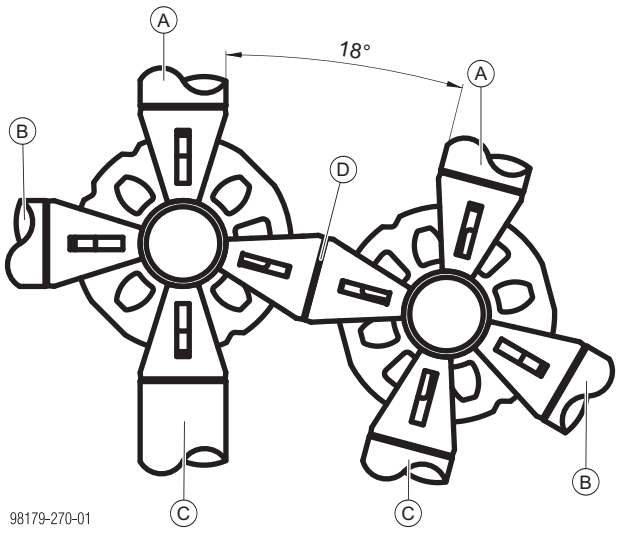
Bracing and Edge Protection removed for clarity.

NOTICE

Any 'hanging standard' must not be used as an attachment point for Personal Fall Arrest Systems.

Circular Scaffolds

Scaffolding around circular structures is relatively easy when using the Ringlock Scaffold. The 8 slots on the rosette allow for some maneuverability for this exact application. Typically, the large trapezoidal slots on the rosette are used for the Diagonal Bracing and the smaller slots for the 90 degree setting of Ledgers and Transoms. As illustrated by the diagram, the rosette can be rotated 45 degrees to allow for the Ledgers and Transoms to fit into the trapezoidal slots. Using the trapezoidal slots allow for 15 degrees of adjustment, for the scaffold to be erected in a circular pattern minimizing the amount of Tube and Clamp used on the inside Standards. As illustrated, Ringlock bays can be joined at angles using the 0.15m Ledger.

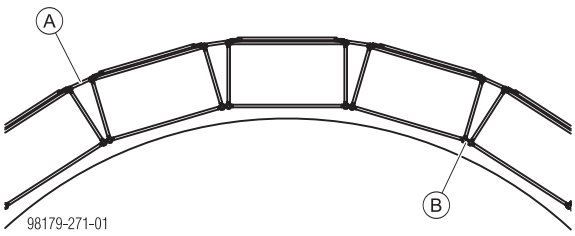


A Transom
B Ledgerr
C Side Bracket
D Ledger 0.15m

Scaffolding around circular structures requires the use of Tube and Clamp to join Ringlock bays together and to fix guardrails on the outside face of the Ringlock façade. Use suitable material to span the gap between the platforms. Typically, LVL or Wood Scaffold Planks are used (depending on the span of the gap, Mid Transoms may need to be used to support the material). The below diagram illustrates the use of the 0.15m Ledgers and Tube and Clamp to join Standards together. (Internal and External circular scaffolds.)

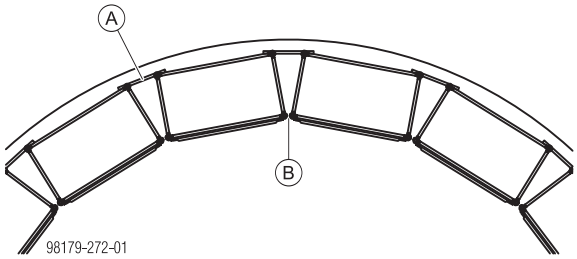
Note:
When arranging standards, ensure the large trapezoidal slot is used for Ledgers and Transoms.

External



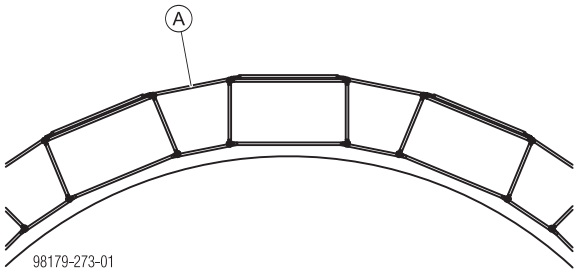
A Tube & Clamp
B Ledger 0.15m

Internal



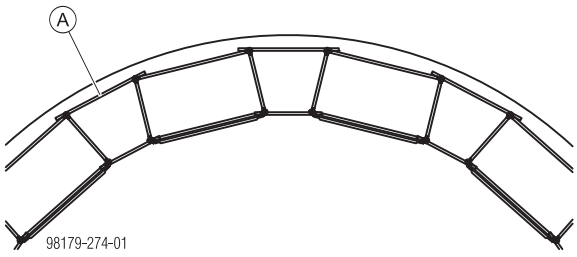
A Tube & Clamp
B Ledger 0.15m

External



A Tube & Clamp

Internal

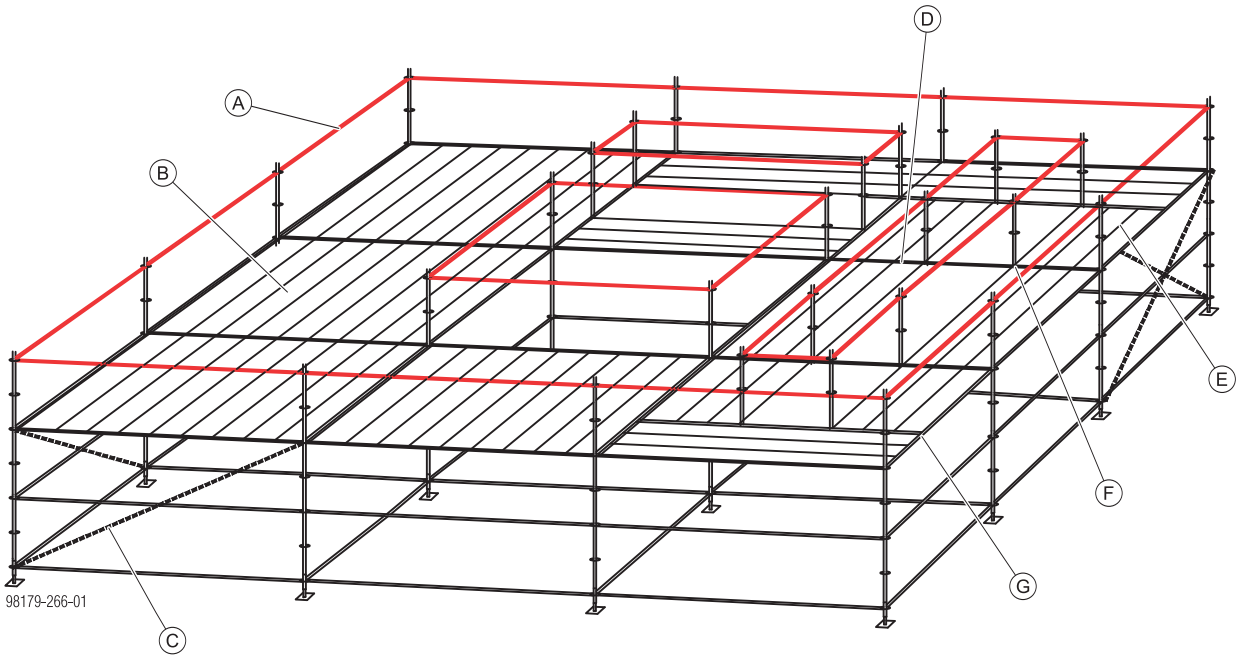


A Tube & Clamp

Birdcage Scaffolding

Safe Working Areas

A Birdcage Scaffold is an arrangement of standards at regular intervals in both the ledger and transom direction. These standards are laced together using ledgers to suit the required bay sizes. Birdcage towers are predominately decked out on the top lift only and in some instances the perimeter bays are decked out.



A	Scaffolders guardrail
B	Area fully decked
C	Facade Brace as per Engineering solution 11-01
D	Area partially decked
E	Suitably sized Planks
F	1.0m Standard with Spigot adapter clamp-bolt
G	Suitably sized Mid Transom

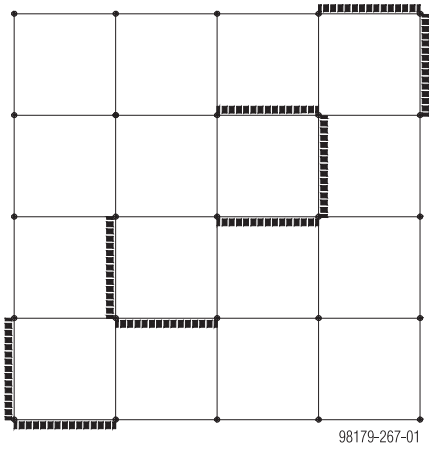
There are two ways to deck birdcage scaffolding to provide safe areas of work:

- Fully decked bays: This method assumes that the full lift of the birdcage will be completely decked out providing an internal safe working area. Only the perimeter of the birdcage will require suitable guardrails to provide safe working zones.
- Partially Decked bays: This method assumes that suitable areas will be decked with guardrails to provide erectors safe zones.

Bracing Arrangements

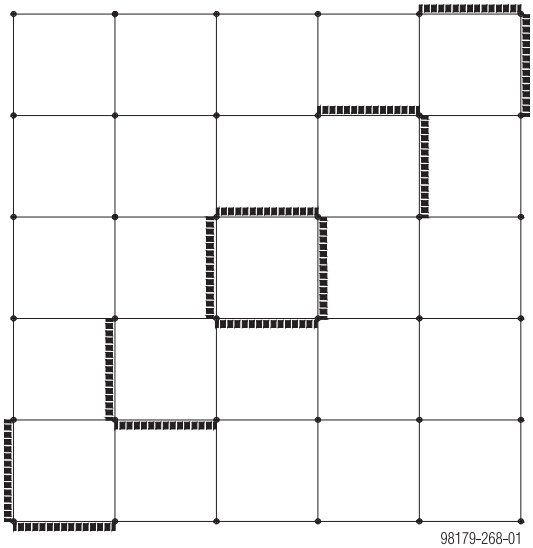
4 Bay Long by 4 Bay Wide

For Birdcages 4x4 Bays and smaller, bracing is required in both directions on 2 corners only. Bracing is to be full height of the scaffold and decking is assumed to be top lift only.



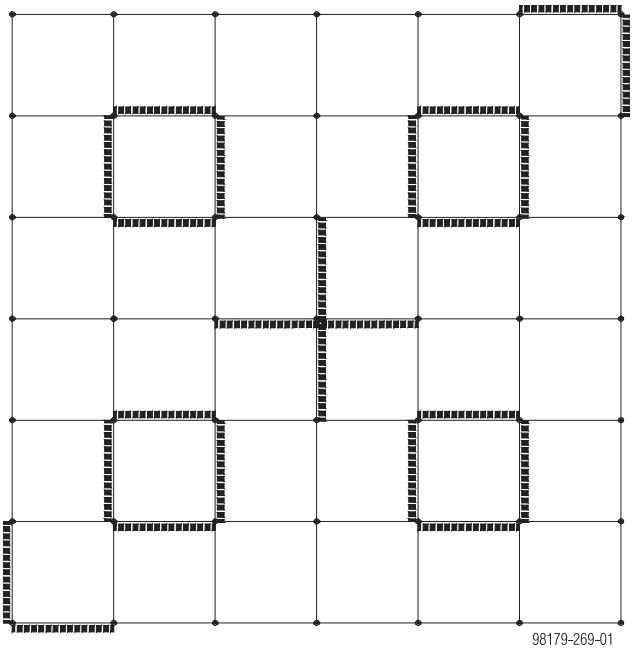
5 Bay Long by 5 Bay Wide

For Birdcages 5x5 Bays bracing is required in bothdirections on all 4 corners. Bracing is to be full height of the scaffold and decking is assumed to be top lift only.



Larger than 6 Bay Long by 6 Bay Wide

For Birdcages 6x6 Bays and larger, bracing is required both directions no greater than 5 bays in any direction. Bracing is to be full height of the scaffold and decking is assumed to be top lift only.



Note:

For any alternate birdcage designs larger than 6 bays wide by 6 bays long refer to your local Doka Technical representative for further design and clarification.

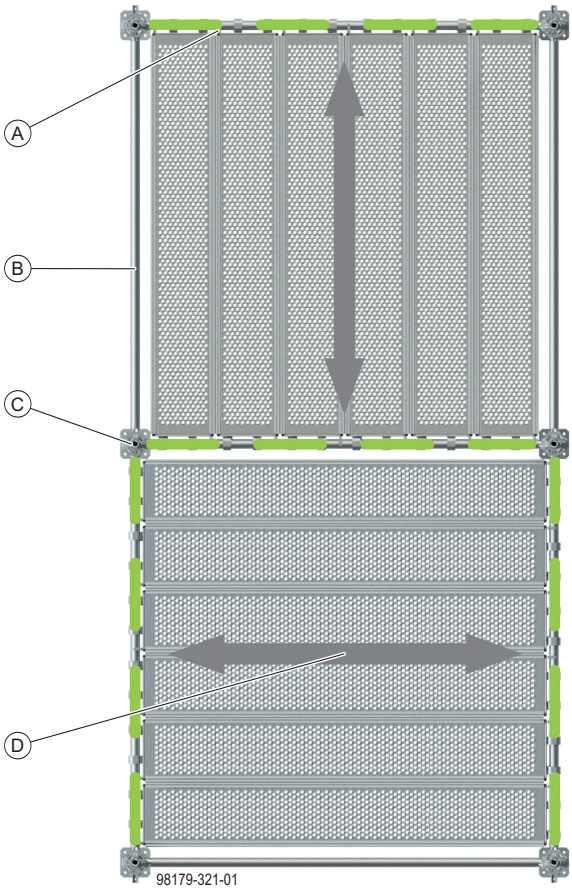
Plank Arrangement

Ringlock Planks can be arranged using alternating or parallel arrangements. The Plank arrangement depends on the load class and the size of the bays required. Substitute typical Ledgers for Truss Ledgers, as necessary. The arrangement of the Planks should be established prior to erecting Ringlock scaffolds.

Alternating Planks

Arrange the planks in an alternating fashion to limit the amount of loads acting on the Truss Ledgers. Notice there are two Truss Ledgers for each bay (This is the preferred method for Load class 3 and above).

Plan of Alternating Plank Arrangement (Multibay)



A Truss Ledger
B Ledger
C Standard
D Direction of Planks

The Truss Ledger must be checked to ensure it is capable of supporting the required load class. Refer to the tables to determine when to replace a typical Ledger with a Truss Ledger when using an alternating plank arrangement.

Load Class 2: 1.5 kN/m²

Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.07	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
3.07	Ledger	Ledger	Ledger	Ledger	Ledger	Truss	Truss

Load Class 3: 2.0 kN/m²

Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.07	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Truss
3.07	Ledger	Ledger	Ledger	Ledger	Truss	Truss	Truss

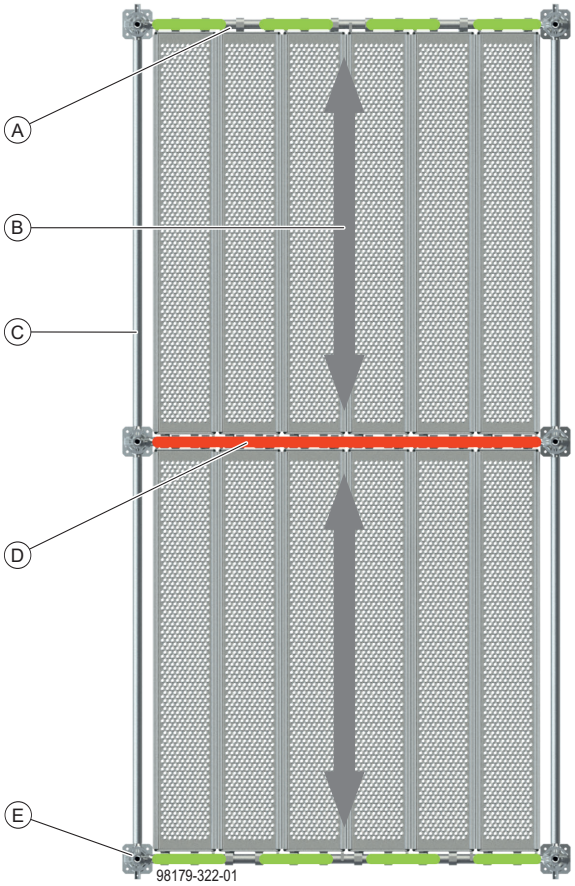
Load Class 4: 3.0 kN/m²

Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.07	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.57	Ledger	Ledger	Ledger	Ledger	Ledger	Truss	Truss
3.07	Ledger	Ledger	Truss	Truss	Truss	Truss	Truss

Parallel Planks

Arrange the planks in a parallel fashion to allow the Truss Ledger (highlighted in red) to support the load from adjoining bays.

Plan of Parallel Plank Arrangement (Multibay)



A Truss Ledger
B Direction of Planks
C Ledger
D Truss Ledger Supporting Load from Adjoining Bays
E Standard

The Truss Ledger must be checked to ensure it is capable of supporting the required load class. Refer to the tables to determine when to replace a typical Ledger with a Truss Ledger when using a parallel plank arrangement.

Load Class 2: 1.5 kN/m²

Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.07	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.57	Ledger	Ledger	Ledger	Ledger	Truss	Truss	Truss
3.07	Ledger	Ledger	Truss	Truss	Truss	Truss	Truss

Load Class 3: 2.0 kN/m²

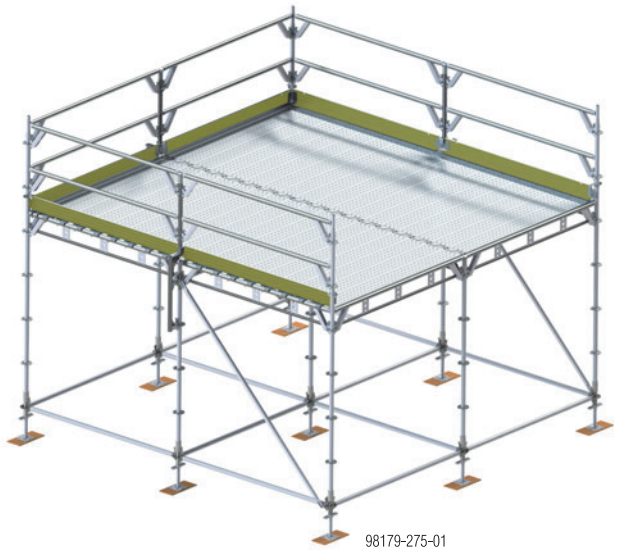
Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
2.07	Ledger	Ledger	Ledger	Ledger	Ledger	Truss	Truss
2.57	Ledger	Ledger	Ledger	Truss	Truss	Truss	Truss
3.07	Ledger	Truss	Truss	Truss	Truss	Truss	

Load Class 4: 3.0 kN/m²

Bearer (Transom) Length [m]	Bay Length [m]						
	0.73	1.09	1.40	1.57	2.07	2.57	3.07
0.73	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.09	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.40	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger
1.57	Ledger	Ledger	Ledger	Ledger	Ledger	Ledger	Truss
2.07	Ledger	Ledger	Ledger	Ledger	Truss	Truss	Truss
2.57	Ledger	Truss	Truss	Truss	Truss	Truss	Truss
3.07	Truss	Truss	Truss	Truss			

Raised Ledger System (RLS)

The Raised Ledger System is compatible with existing Ringlock scaffolds and has been designed to provide customers with a solution for creating seamless, safe working platforms. The Raised Ledger system is ideal for the following applications (but not limited to): Bird-cages, Overhead Pavement Gantries, Suspended Platforms, Industrial and Commercial Scaffolds, Stage and Event scaffolds.



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When scaffolding around protrusions use Mid Transoms (Plank to Plank, Ledger to Plank and Ledger to Ledger Transoms) to minimize the use of wood / timber products on your job site.

- RLS truss ledger – is a load bearing horizontal bearer (same as regular Ringlock Truss Ledgers). Available lengths 1.57m to 3.07m.
- RLS ledger – is a horizontal Ledger (runner) that acts as a guardrail or can be used to support Ringlock Steel Planks. Available lengths 0.73m to 3.07m.
- Capping Piece – is used to close the gap between two Raised Ledgers / Truss Ledgers by inserting into the top of a Ringlock Standard (without spigot).
- RLS exterior guardrail post – is a Ringlock ‘Crazy Leg’ or ‘Guardrail Standard’ but connects directly to the Ringlock rosette and extends above the raised Plank so that the guardrail can be installed at the correct height.

Suspended Scaffolding

The purpose of suspended scaffold is to optimize the amount of material at extreme height or when a supported scaffold is not possible.

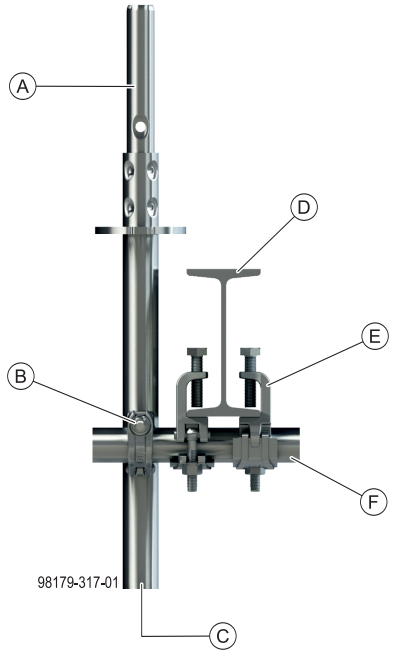
Method of Scaffolding Suspension

There are different methods of suspending scaffolds from permanent structure, which includes both not limited to the following:

Methods of scaffold suspensions can utilize the Ringlock components with the combination of tube and type controlled couplers, and/or chain/wire rope.

- Beam Clamps may be used to attach the Standard to the permanent steel beam at the bottom or top beam flange. When attaching the Standard to the steel beam, the suspension point may be on one side or both sides of the steel beam.
- Box tie arrangement may be used to attach the permanent beam by utilizing tubes and couplers all around the existing structure.

Detail 1: Girder Coupler Arrangement

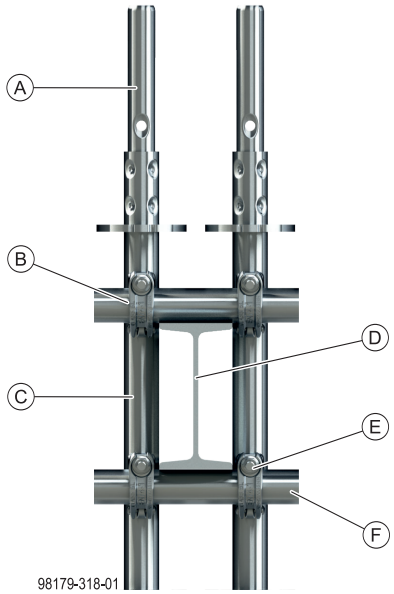


A	Standard
B	Normal coupler (Supplementary Couplers as required)
C	Suspension Tube no more than 0.3m from I-Beam
D	I-Beam
E	Girder Coupler (used in pairs)
F	Scaffold Tube

Note:

Typical Suspension Load with Girder Coupler Arrangement.

Detail 2: Suspended around Beam



A	Standard
B	Suspension no more than 0.3m from I-Beam
C	If lower loads are required a typical short Scaffold Tube can be used instead of a Ringlock Standard
D	I-Beam
E	Normal coupler
F	Scaffold Tube

Note:

Typical Total Suspension Load with Box Tie.

Connections between Standards

- When using tubes and couplers as a connection method, additional check coupler(s) should always be installed.
- There are different methods connect the vertical Standards together at the splice via Hanging Standard or Leg Locks in pair. The crimped spigot Standard is not recommended due to the lower capacity then Hanging Standard (double bolt).

Detail 3: Hanging Spigot Standard Connection

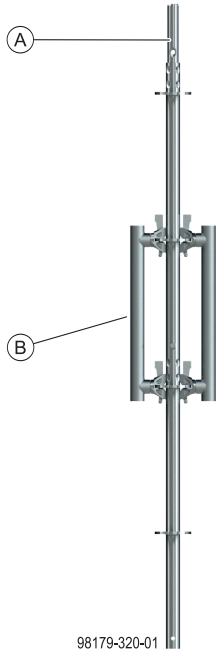
Typical Suspension Load with this Arrangement.

A	Standard with Hanging Spigot
B	4 x M12 Grade 8.8 Hex Nut and Bolt at 90° to one another.

Note:

Every connection between Standards in Suspension must be bolted together.

Detail 4: Crimped or Bolted Spigot Standard Connection



Typical Suspension Load with (2) XM12 Grade 8.8 Hex Nut and Bolt.

A	Crimped or Bolted Spigot Standard
B	Leg Lock

Note:

Every connection between Standards in Suspension must be bolted together.

Cantilever

For load classes of components used for cantilever applications (i.e. side brackets, bay braces, etc.), refer to Calculation Guide.

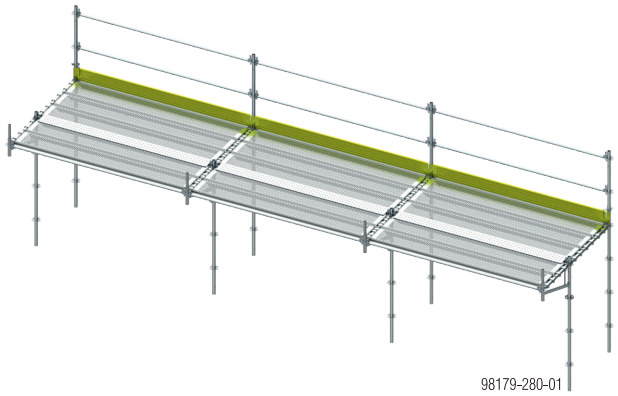
Platform Extensions

Side brackets are used to extend the walking/working surface and are attached directly to the Ringlock standard. Brackets can be attached on the inside or outside legs and can be installed as a 'hop up' or 'hop down.' The following brackets are used depending on the desired width:

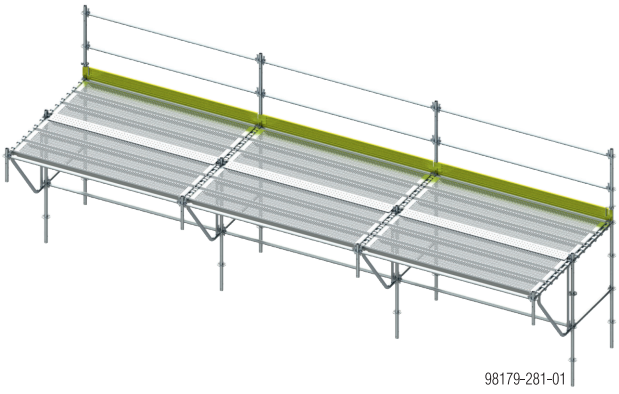
Brackets should be installed from the secured level underneath. Any additional anchoring must be installed at the same time. The gap between bracket deck and scaffolding deck in the main bay must be closed in accordance with local regulations.

Information about the load-bearing capacities of the side brackets in different scenarios can be found in Calculation Guide and Engineering solutions.

Side Bracket 0.73m Extension



Side Bracket 1.09m Extension



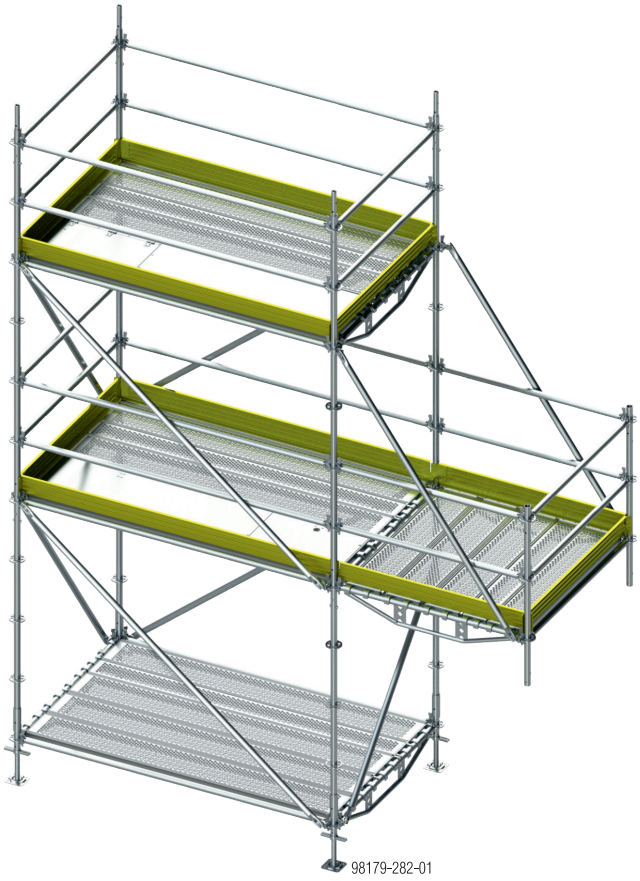
- 0.39m Side Bracket for 1 x 320mm plank
- 0.73m Side Bracket for 2 x 320mm plank or 1 x 640mm Ladder Hatch Plank, or Aluminum platform Stair.
- 1.09m Side Bracket for 3 x 320mm plank or 1 x 640mm Ladder Hatch Plank, or Aluminum platform Stair +1 x 320mm plank.

Cantilever with Standard, Ledger an Bay Braces

The Ringlock System can accommodate cantilevers by the adding additional Bay Braces, Standards, and Ledgers/Truss Ledgers. For a tension cantilever arrangement, Diagonal Braces are installed on the 4th Rosette from the working platform behind the Guardrail edge protection. Cantilevers can also be installed in a compression cantilever arrangement where the Diagonal Braces are installed four Rosettes below the working platform.

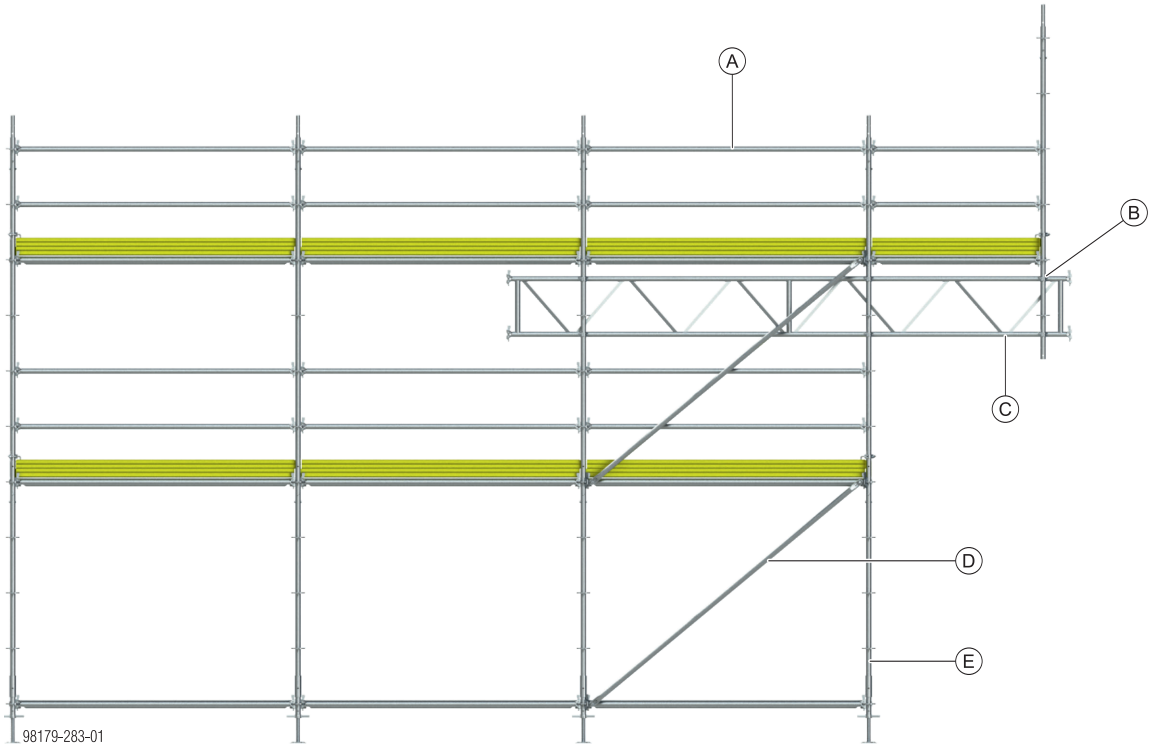
Connections between standards must pinned to prevent separation and uplift. It is important to check and consider the stability of the overall scaffold assembly. Counterweight/Ballast can be installed to prevent overturning. If a counterweight is used, it must be specified which weights are required to obtain stability by a competent person.

Tension Brace Cantilever Arrangement



Cantilever with Lattice Girder (Steel and Aluminum

Cantilever shall be done with Lattice Girder with the integration of Ringlock components. It is possible to install steel or aluminum lattice girder to strengthen a Ringlock cantilever, it must be designed specifically for each application. The lattice girder should be installed using at minimum 4 type-controlled couplers attached to 2 Ringlock Standards (back span). In order to install a lattice girder at the cantilever, the Ringlock Standard must be extended 1m below the working level. If a counterweight is used, it must be specified which weights are required to obtain stability by a competent person.



A	Guardrail
B	Type-controlled couplers
C	Lattice Girder
D	Bay Brace
E	Standard

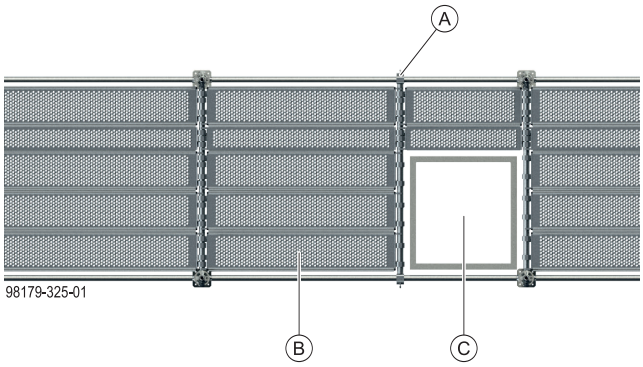
Gaps in Platforms

Creating Safe Gaps in Platforms

The following examples illustrate how to create safe openings or cover unwanted gaps in Ringlock scaffold platforms.

Mid Tansoms

Use the Mid Transom to create Plank support anywhere within a bay. Install hooks at each end of the transom over the Ledgers. A horizontal wedge at one end secures the Transom from sliding out of position. The Mid Transom is ideal for covering large openings in a platform.

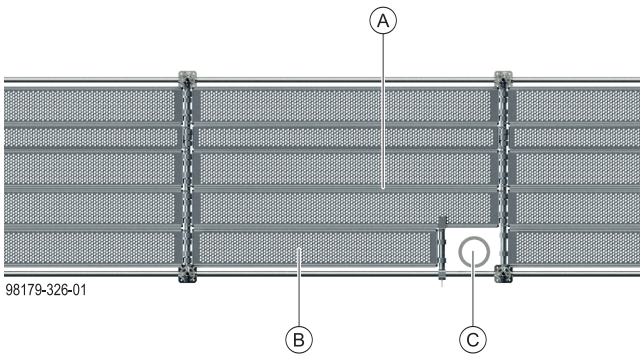


A	Mid Transom
B	Short Plank
C	Obstruction

An Alternative method utilizes Ringlock ledgers installed with the Horizontal Rosette coupler.

Ledger to Plank Transoms

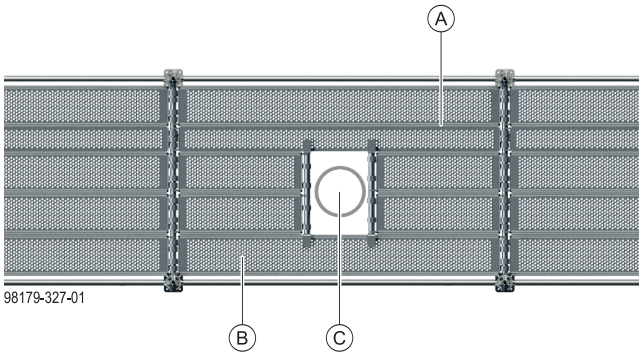
The Ledger to Plank Transom method is similar to the Mid Transom method except the Ledger to Plank Transom method secures to a Ledger at one end and rests on a Ringlock Plank at the other. The Ledger to Plank Transom method is particularly useful when openings are required next to the edge of a bay.



A	Ledger to Plank Transom
B	Short Plank
C	Obstruction

Plank to Plank Transoms

Install the Plank to Plank Transom anywhere along the length of two Ringlock Planks. Use this method to create an opening in the middle of a platform.

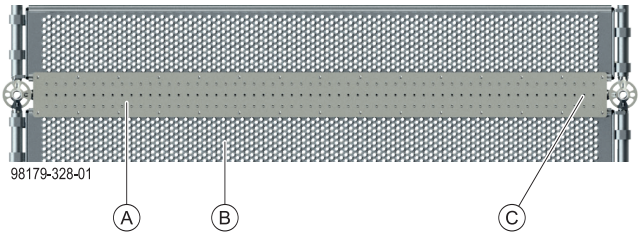


A	Plank to Plank Transom
B	Short Plank
C	Obstruction

Closing Gaps in Platforms

Between two Bays:

The Infill Plank covers any unwanted gaps between adjacent bays. Install the Ringlock Infill Plank over the Ringlock Ledger. Use this method when a Side/Hop-Up Bracket is required for extending the working platform or for creating a Birdcage with parallel Plank arrangements.



A Infill Plank
B Ringlock Plank
C Ringlock Ledger concealed by Infill Plank

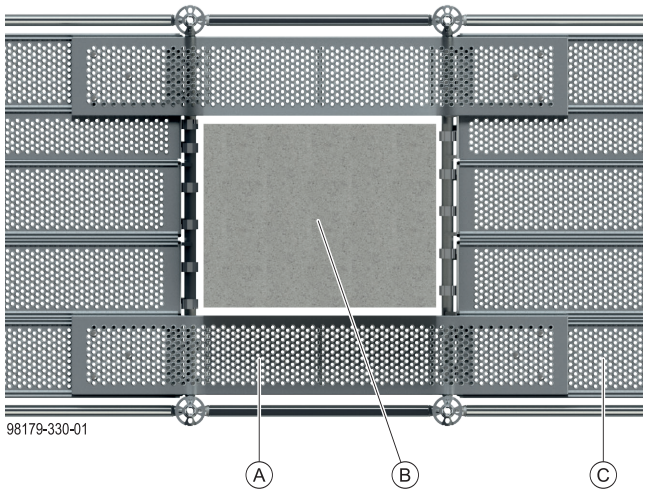
The Infill Plank contains two side rails. At each end of the side rail there are two holes. To prevent uplift or displacement of the Infill Plank, use the two holes to secure the Infill Plank to a Ledger.

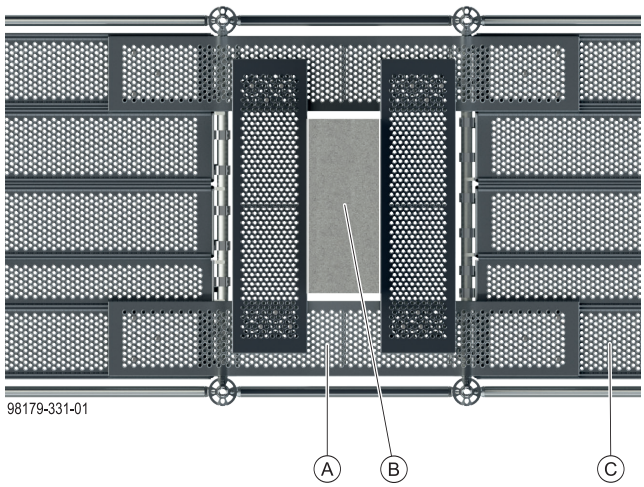
A Infill Plank secured to Ledger using #9 wire or other approriate means.

Gap Filler Plank

Ensure that the Gap Filler Plank is adequate for the desired load class on the platform.

The illustration shows the use of Gap Filler Plank is lapped over Ringlock Planks. Each Gap Filler Plank must be secured at each end with plastic plugs (2 at each end) or screws (1 at each end) to resist slipping and/or uplift.





Methods of Stabilising Scaffolds

Attach the anchor to the structure and then connect it to the scaffold wall via a tie tube with a type-controlled coupler.

NOTICE

The appropriate anchor is to be established by a competent person.

Recommendations for Straight Double Tie

A straight double tie consists of a horizontal tube connected to the inside and outside Ledgers of the scaffold using normal couplers, no more than 0.3m horizontally from the Standard. The end of this tube connects to an appropriate anchor for the surface of the supporting structure. To achieve maximum headroom for the platform below, connect tie and tubes onto the Ledgers.

Note:
Wall anchor not shown.

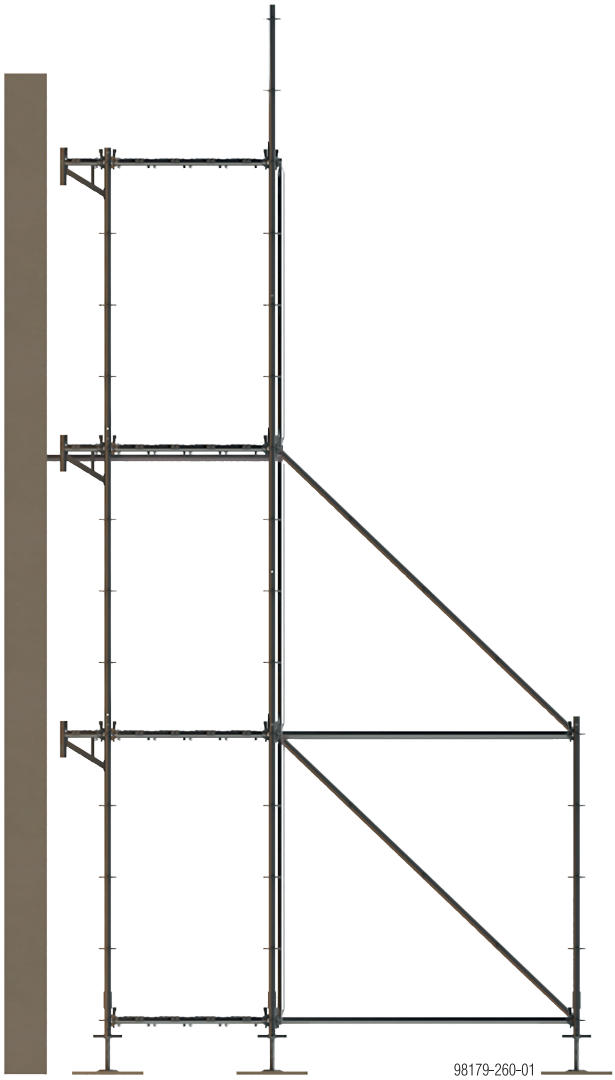
Single Butress Stabilization

A Buttress is an extension of the primary scaffold. Install a Buttress to expand the width of the base and to provide support to the free-standing structure with a 4:1 minimum height to base ratio. Plan brace the buttress every fourth bay along the façade. Install a pressure tie on the scaffold to prevent it from inclining towards the supporting structure under horizontal forces. The above illustration is an example of a typical buttress arrangement for a three-lift façade.

NOTICE

Check state, local, provincial or federal statutes, and regulations for minimum height-to-base ratios.

SECTION VIEW



Note:
Plan Bracing not shown.

Double Butress Stabilization

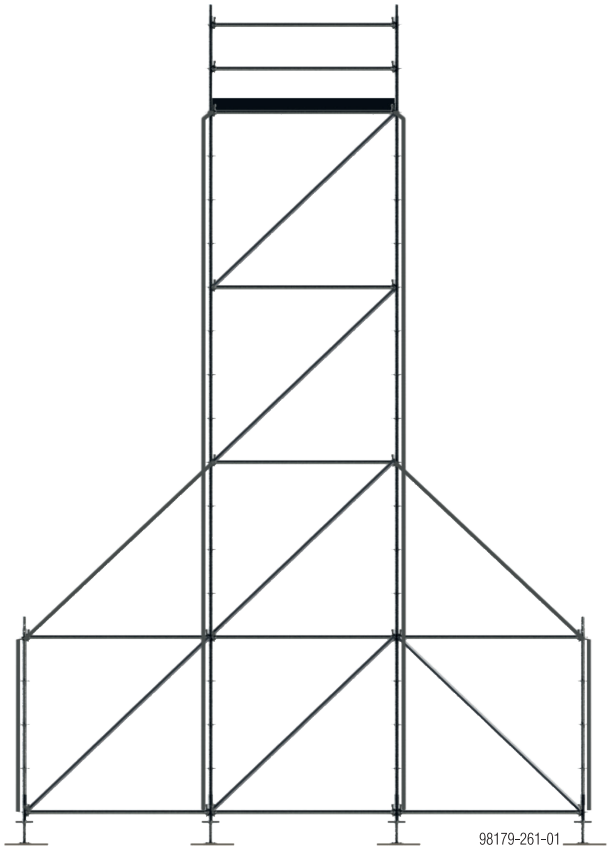
In some instances, it is not possible to butt tie the scaffold to a supporting structure. When this occurs, double buttress the scaffold as shown in the above example.

It is recommended Free Standing Towers do not exceed the minimum height-to-base ratio of 4:1.

NOTICE

Check state, local, provincial or federal statutes, and regulations for minimum height-to-base ratios.

SECTION VIEW



Note:

Plan Bracing not shown.

Rebar Scaffold

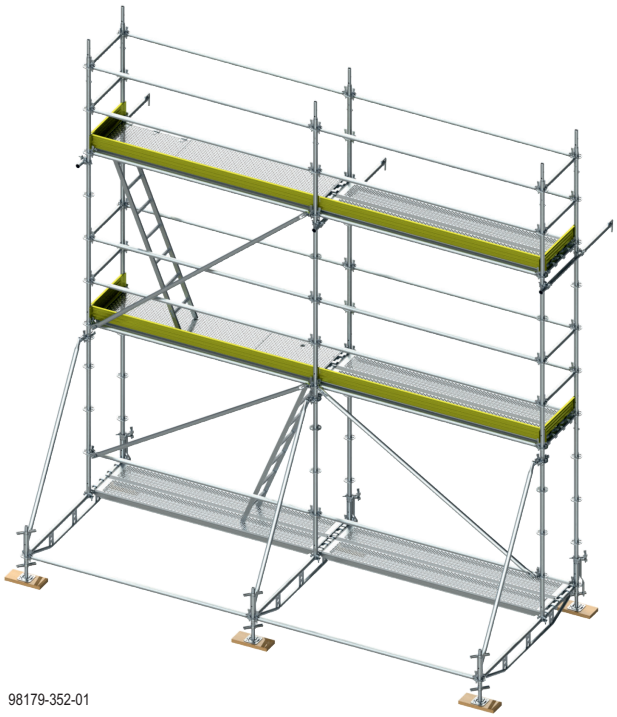
Rebar Scaffolds are used to access formwork or wall rebar without the need for wall ties.
Scaffold stability is maintained by widening the base and using pressure ties against the existing wall.

If counterweights/ballasts are required for lateral stability, the counterweights/ballasts are to be placed at every bay and uniformly distributed along the length of the scaffold.
When base collars are used, the counterweight must be supported above the base collar level.

Rebar scaffolds can be craned or lifted similar to other scaffolds. Temporary braces are required to provide structural integrity during the lifting process. For more information regarding temporary bracings and lifting methods, see 'Lifting by crane' section.

up to 4.2 m platform height

At a maximum height of 4.2m, the minimum width of the rebar scaffold base is 1.4m. Additionally, pressure ties are required directly underneath the top decked level at every bay as shown below.



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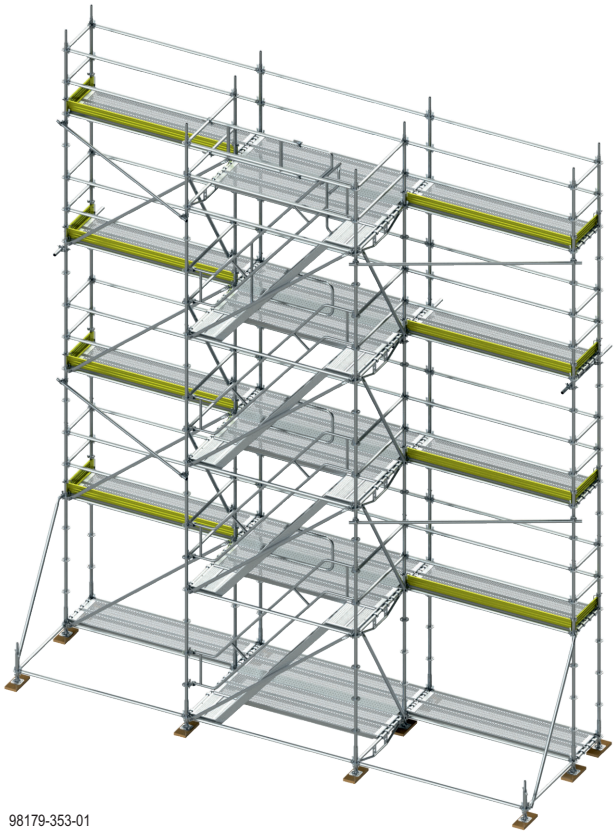
over 4.2 m platform height

Based on Model Building Code (Musterbauordnung), scaffolds with height of more than 5m must be accessible via stairway access. Horizontal plan braces are required to ensure lateral stability of the rebar scaffold.

At a maximum decked level of 8m above the base lift, the minimum required pressure ties must be utilized beneath the planking level of 6m above the base lift as shown below.



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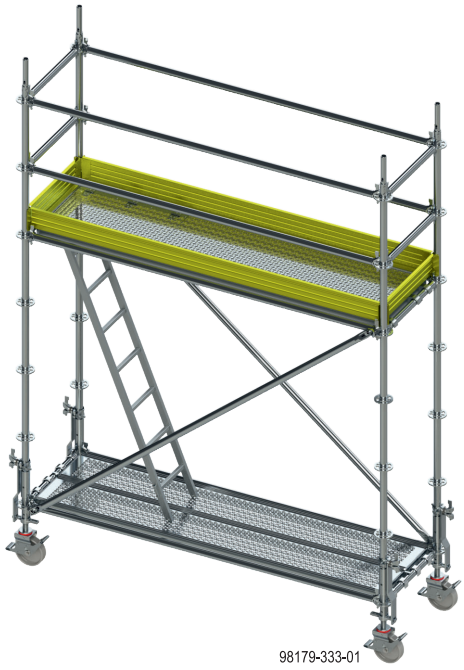
Mobile Scaffolds

The purpose of rolling scaffolds is to access large areas with the minimum amount of material on a flat/level surface.

Types of Rolling Scaffolds

Depending on the site condition, required height, and material availability, there are different types of rolling scaffolds. To achieve lateral stability , outrigger (buttress) bay and / or ballast should be used.The outrigger width and ballast weight must be calculated to ensure the required regulations are met.



Note:
Ballast may be required per Stability Analysis.

Safty Guidelines for Erection for Rolling Scaffolds

The following precautions apply to the erection of rolling scaffolds:

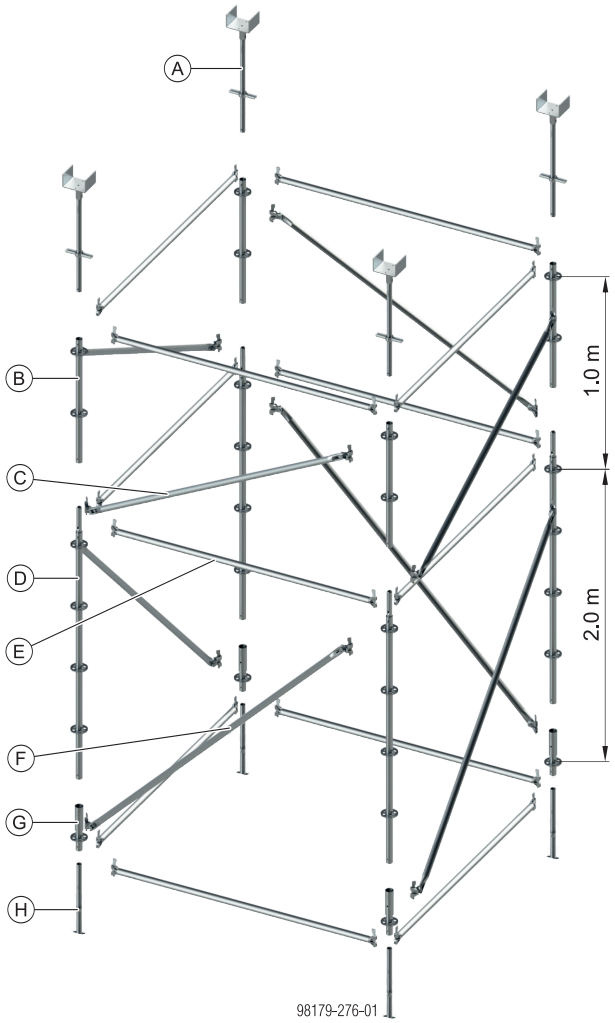
- The height of the rolling scaffold must not be greater than 2 times its minimum base dimension (length or width), measured at the base of the tower unless it is equipped with engineered guy wires or outriggers.
- If outriggers are used to stabilize a rolling scaffold with a height that is greater than 2 times the minimum base dimension (length or width), the minimum width is measured between outriggers. Outriggers, additional bays, or other means may be added to the bottom of a scaffold structure to increase the minimum base dimension of the scaffold. The resulting modified base dimension may no longer be the minimum (or limiting) base dimension when calculating the 'height-to-base ratio' of the scaffold structure.
- When a rolling scaffold is in proximity to energized electrical equipment, the wheels must be fitted with nonconductive resilient tires. Always lockout and tagout all electrical hazards.
- Fit each wheel or Caster on a mobile scaffold with brakes or other locking devices to prevent rolling and swiveling when the scaffold is in use. The Casters must be securely attached to the scaffold.
- If Base Jacks are used to increase the height of the tower, they must not be extended by more than 0.3 m (12"). The tower must be kept plumb and level at all times.
- Use plan-bracing at the top and bottom of rolling towers where the top platform is more than 2.7 m (9'-0") above the supporting surface. When towers are to be erected higher than 2.7 m (9'-0"), the first brace must be no more than 0.6 m (2'-0") above the Casters and subsequent plan-braces above must be installed at no more than 4.0 m (13') intervals.
- Use steel Planks or decking units with hooks or cleated Wood Planks on rolling scaffolds.
- Apply horizontal force as close to the base as possible when moving the tower.
- Workers should never stand on, or work from a Rolling Tower when it is being moved.
- Max. vertical distance between working platform is 4.0 m unless plan braces are installed according to the previous rules.
- Diagonal braces required on all four sides of the rolling scaffold tower.
- As per EN 1004 maximum height of the rolling scaffold tower indoor is 12 m and outdoor 8 m. However static calculation against tilting is required in every case.
- When ballast is required, the ballast weight must be verified and installed correctly as per Cantilever Section.

Ringlock Shoring

Shoring Component Overview

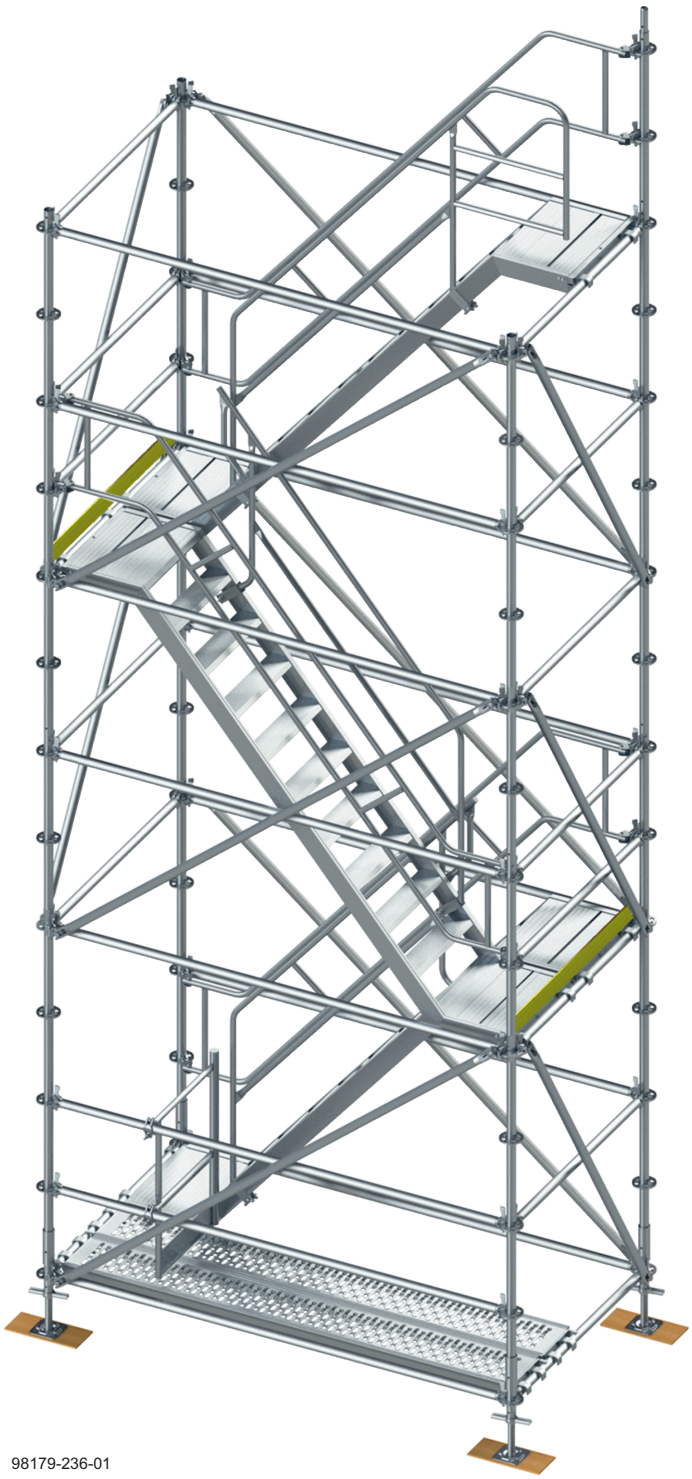
The below diagram is a generic example of a Ringlock Shoring tower. The Ringlock system components and Shoring accessories are designed to be interchangeable to meet the demands of construction projects around the world and may require the use of Heavy Duty Base Jacks and U-Heads. Lift heights can be adjusted to minimize the number of components required to suit load resistance requirements.

Shoring Tower Assembly Exploded View



A	U-Head Assembly (Dependent on Load Requirements)
B	Standard open ended
C	Bay Brace 1.0m
D	Standard with Spigot
E	Ledger
F	Bay Brace 2.0m
G	Base Collar
H	Base Assembly (Dependent on Load Requirements)

Erection Guidelines for 4 Leg Stair Tower



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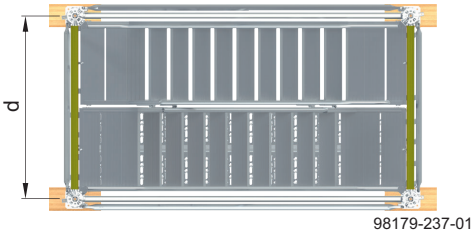
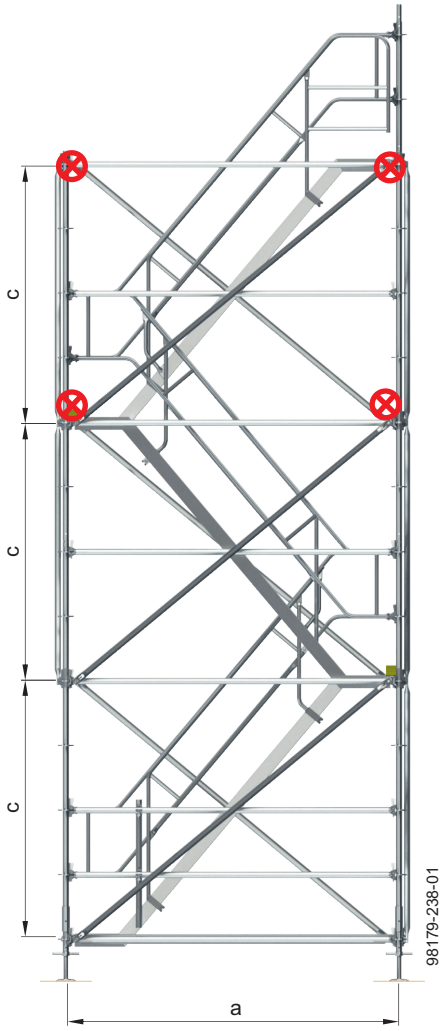
4-Leg Aluminum Stair Tower General Arrangement

Top View:



d ... 1.40 m

Side View:



a ... 2.57 or 3.07 m
c ... 2.00 m

⊗ ... Denotes wall tie locations.

In addition to the parallel stairtower with two legs, standard staircase tower can also be constructed with Ringlock scaffolding components.

In the following, the 4-legged stair tower is presented, which consists of standard components of the Ringlock scaffolding system and can be integrated into an existing scaffolding or may also be used independently. If required, access to each scaffolding level can be provided. Further assembly variants can be found in the corresponding technical brochures.

4 Leg Aluminum Stair Tower Erection Guidelines Steps

Step 1

- The installation base must be checked for sufficient load-bearing capacity and suitable load-distributing supports, for instance wooden planks,must be laid. All scaffolding components must be checked for damage and replaced if necessary before installation.
- The base jacks are distributed on the load-distributing supports and positioned with longitudinal and transverse ledgers as well as the initial supports. Then connect the longitudinal and transverse ledgers in the small holes of the rosette using loosely inserted wedges.

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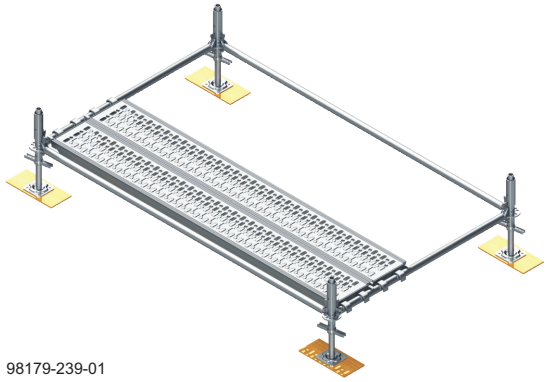
Step 2

- Using a spirit level, align the base frame horizontally by turning the base jack nut accordingly. Then fix the wedges with a 500g hammer until they bounce, insert two 320mm steel decks and secure the deck with the lift-off preventer.



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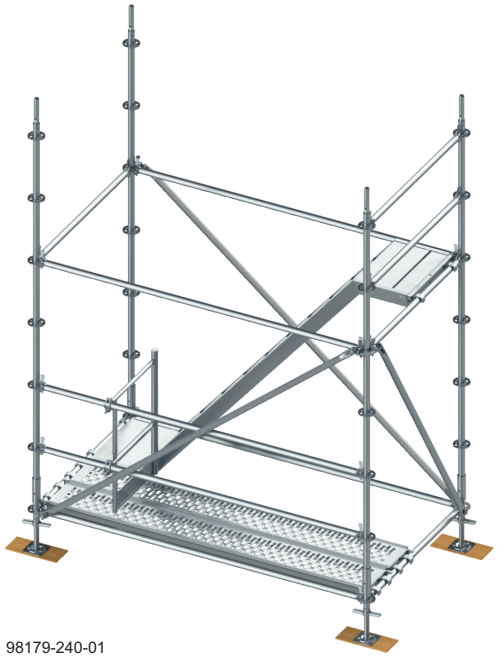
Step 3

- The length of the vertical standards of the lowest layer is 3m. The required ledgers can be mounted on the first level of the scaffolding. After the platform stairs have been hooked in and secured, the leading side protection is fixed at the 1st scaffold level. The bay braces are mounted by first sliding on the lower bay brace head and loosely inserting the wedge in the large opening of the rosette.
- Then the upper bay brace head is pushed onto the rosette in the first scaffold level. The vertical diagonal is fixed by hammering with a 500g hammer until it bounces.



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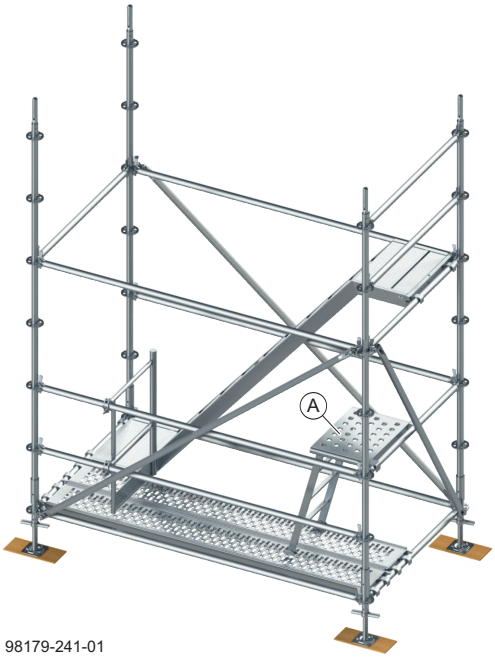
Step 4

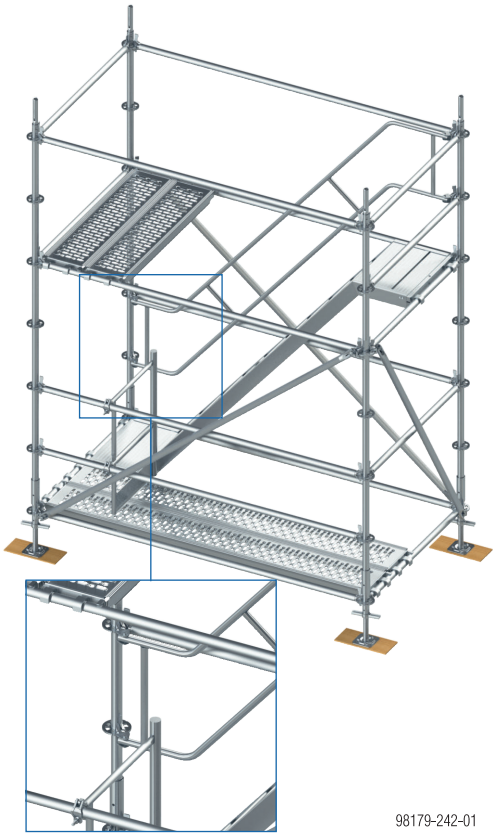
➤ With temporarily attached ledgers and a scaffold step, the leading side protection can be installed from a secured position. Alternatively, steel decking 320mm can be used. The ledgers in the first scaffold position provide the necessary fall protection here.



A Scaffold step

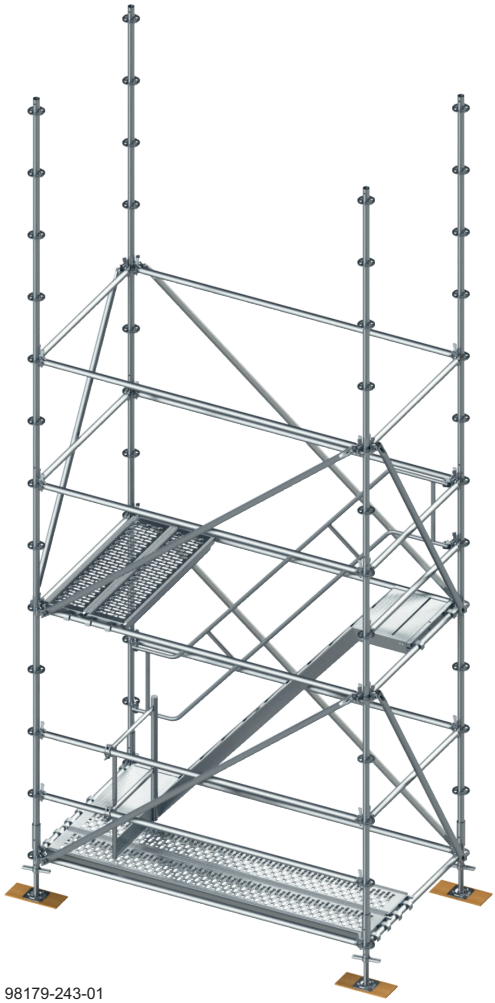
Step 5

➤ After the installation of the guardrail, a temporary level is formed from two steel layers on the opposite side of the stair landing. As with the tubular ledgers and diagonals, the wedges of the outer guardrail are wedged against the rosettes until they bounce. The ledgers of the top layer can now be extended all around.



Step 6

- For further assembly of the stair tower, the use of personal protective equipment against falls from a height (PPE) is required. Suitable safety harness connection points are located in the 'Safety Harness Connection Points' section.
- From the stair landing and the temporary working level, the other vertical standards 2m, the vertical diagonals and the ledgers of the next scaffold level are installed. On the inside of the staircase, the inner guardrail is attached and secured to the stringers with the hammerhead screws.



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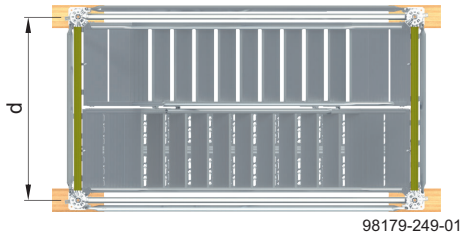
Ringlock Aluminum Stair Tower (4 Leg) Layout

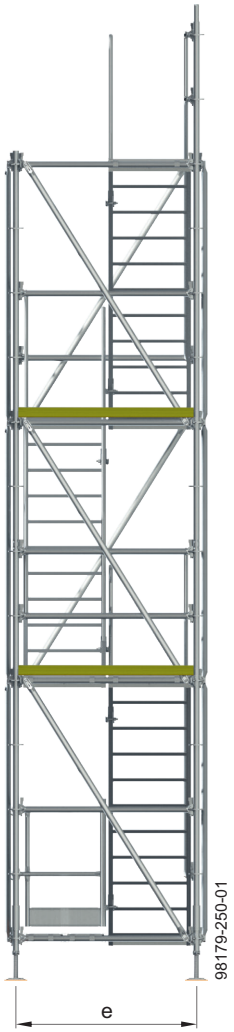
The below detail is for a 4 Leg Stair Tower, see 'Ringlock Stair Tower (4 Leg) Quantity Lists'.

Plan



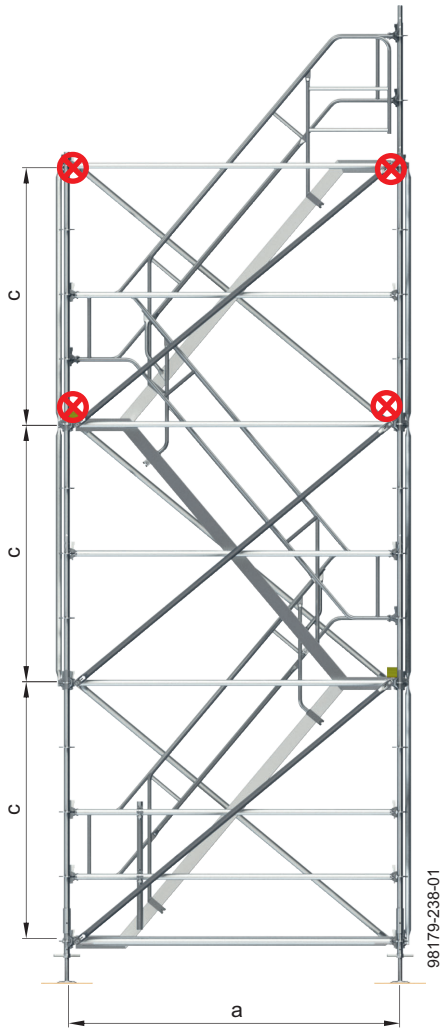
d ... 1.40 m

End



e ... 1.40 m

Elevation



a ... 2.57 m
c ... 2.00 m

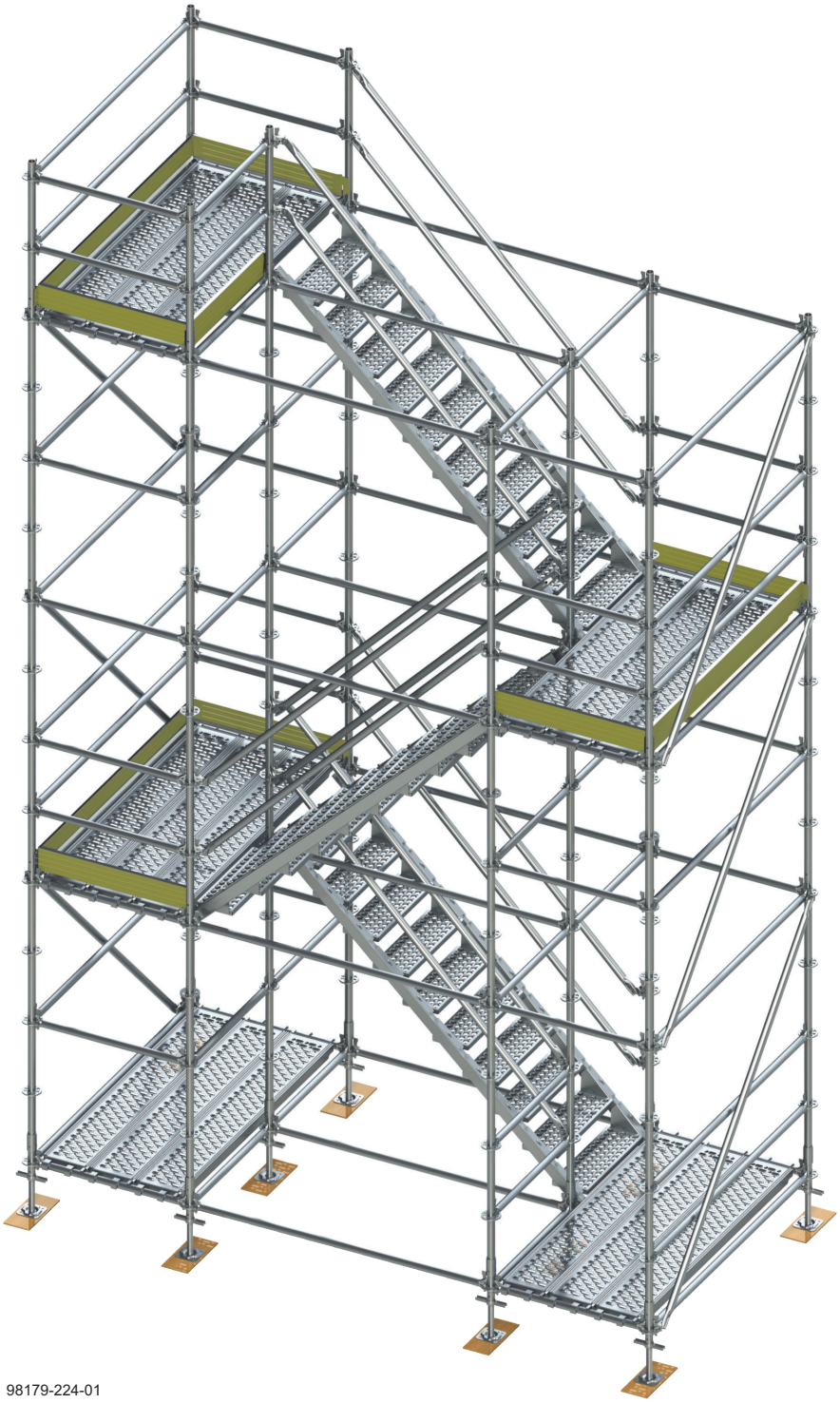
⊗ ... Denotes wall tie locations.

Ringlock Stair Tower (4 Leg) Quantity Lists

The below tables illustrate the material requirements for a 4 Leg Stair Tower up to 6 m high and the material required for each additional 2 m lift above this height.

4 Leg Stair Tower (B=1.4 m, L= 2.75 m, H=6.0 m)			
Code	Description	Tower (6.0 m)	Every 2.0 m
306010600	Base jack 60cm	4	-
301020000	Base collar	4	-
301011000	Standard 1.00m crimped spigot	1	-
301012000	Standard 2.00m crimped spigot	-	4
301013000	Standard 3.00m crimped spigot	8	-
301031405	Ledger 1.40m	15	5
301032575	Ledger 2.57m	15	2
301061405	Bay brace 200/140cm	5	2
301062575	Bay brace 200/257cm	6	2
308031405	Steel plank 32/140cm	2	-
308032575	Steel plank 32/257cm	2	-
316012575	Platform Stair 2.57m	3	1
316062575	Alum stair outer guardrail 200/257cm	3	1
316080005	Alum. stair inner guardrail 200/257cm	2	1
316052575	Alum stair inner ext. guardr. 200/257cm	1	-

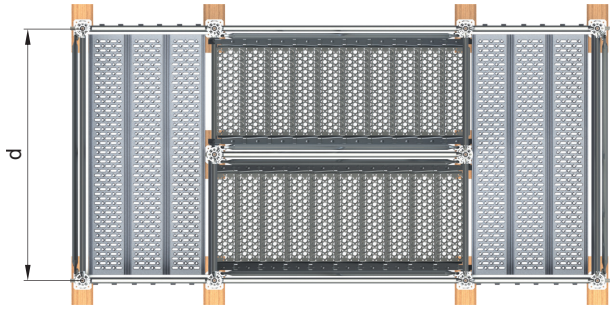
Erection Guidelines for 10 Leg Stair Tower



98179-224-01

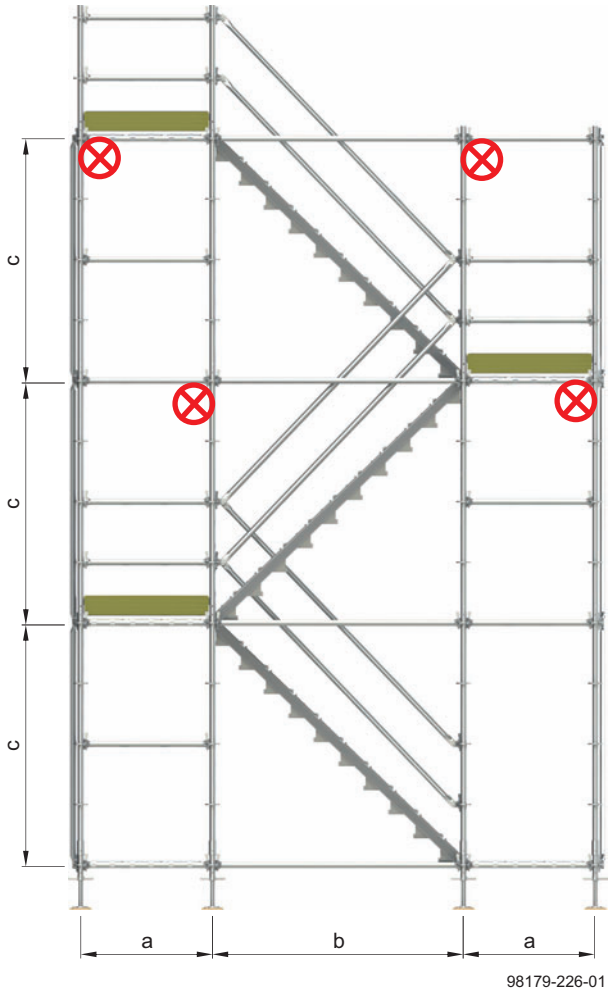
Stair Tower General Arrangement (10 Leg)

Plan:



d ... 2.07m

Elevation:



a ... 1.09 m
b ... 2.07 m
c ... 2.00 m

⊗ ... Denotes wall tie locations.

The Ringlock Stair Tower makes access to your site safer and more convenient. The Stair Tower can be easily integrated within an existing scaffold or used independently. The stairs fit into 2.00 m (6'-6") lifts and if required, an entrance / exit can be made at each platform level.

The Ringlock Steel Stair Tower is built from standard Ringlock system components with only two additional components needed to build your Stair Tower, these being the Stringer and the Treads. It is not normally necessary to erect the tower with a crane.

After the Stringers have been assembled, the Treads should be installed from bottom to top. Double Guardrails around the landings guarantee stability and safety. The landings are constructed from steel Planks and fitted out with Toeboards.

Every Ringlock Scaffold and Stair Tower needs to be tied to a rigid construction for stability depending on its height and least base dimension. At heights above 4.0 m the Stair Tower needs to be fastened to the access scaffold or the permanent building/structure every 4.0 m vertically at the positions shown in red on the diagram opposite.

The stairs should always be tied at the top platform level.

Notes on Safe Use of Stair Towers

The notes on this page refer to both the 10 leg and 4 Leg Stair Towers:

- Before operatives can be allowed to use a Stair Tower, make sure that the Stair Tower has been erected properly in accordance with the following guidelines and that it complies with the demands of the user.
- Make sure that all people who are allowed access to the Stair Tower are aware of its function and the maximum allowable loads.
- The users of the stairs need to be aware that any changes to the scaffold must be properly engineered and erected in accordance with Doka and the Building Regulations for landings and stair arrangements etc.
- It is recommended that routine checks form part of your everyday procedures to ensure that components have not been removed or have been incorrectly assembled after they had been removed.
- Use adequate signs and barriers to prevent people from entering incomplete Stair Towers.
- Make sure that each scaffold platform has safe entrances and exits, and that these entrances and exits are kept clear.
- Please note that because of Building Regulations requirements the Stair Tower is not suitable for Public access.

10-Leg Stair Tower Erection Guidelines Steps

Step 1

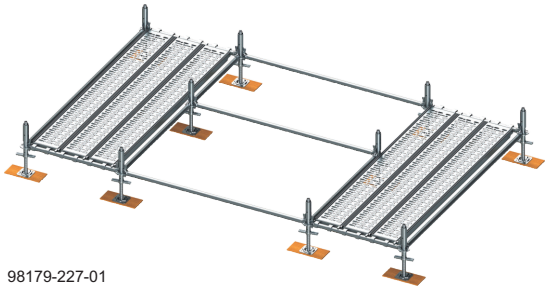
➤ Place the Base Collars over the Base Jacks.

98179-201-01

Step 2

➤ Position the Base Jacks and assemble the Ledgers. Make sure that this setup is level. The Base Jacks can be used to level the components. Use wooden sole boards as necessary depending on the ground conditions. Where stairs are required to be set out on sloping ground, refer to 'Slopes'.

➤ Put in place on both outside bays, three Steel Planks 32/207cm.



98179-227-01

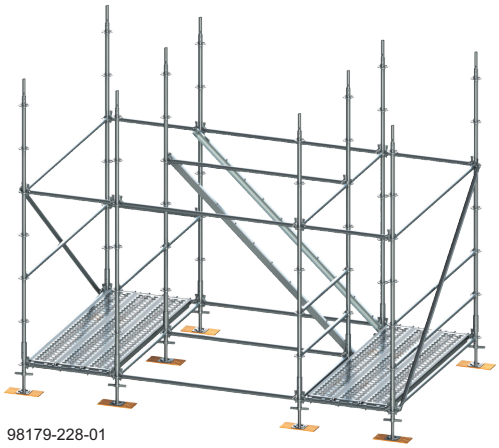
Step 3

➤ Erect 3.0m Standards onto each base Collar and Jack and assemble the Ledgers and Transoms for the first lift. Also assemble the Braces on the two outer sides.

➤ Next, assemble the Stair Stringers. These lock into the rosettes at the top and the bottom of the platforms and will also act as braces to each side of the scaffold tower as it is erected.

Colour code on a stringer:
- Yellow = Right
- Blue = Left

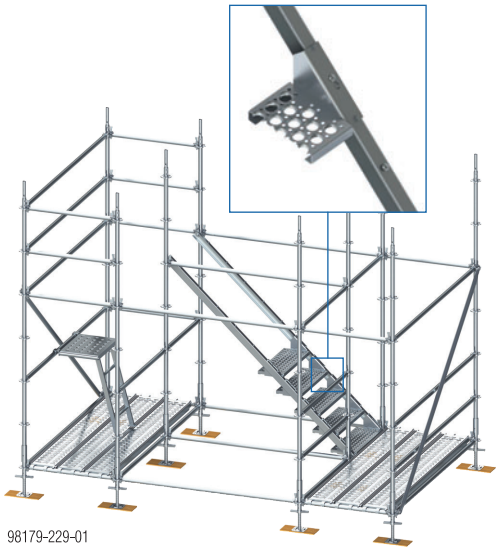
➤ When the two Stringers are in place, the central core of the Tower will become significantly more rigid and ready to take all other components required to complete the Tower.



98179-228-01

Step 4

- Place the Stair Treads between the Stringers. Make sure that the pin on the Stringer fits exactly into the slot holes of the Tread. Secure the steps with a blow of a hammer.
- Install advanced Guardrails (Using Ledgers) in the lift above. Our recommendation would be to use proprietary Scaffold Steps and it is recommended that both levels of Guardrail are installed at the same time whilst the Scaffold Step is in place.



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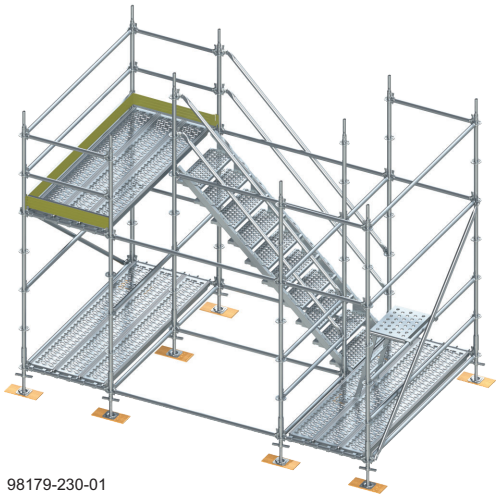
Step 5

- Complete the stair by assembling all Stair Treads from bottom to top, Planks on the first landing, Guardrails along the stair and on the first landing, and Toeboards on the first landing.
- Use the Scaffold Step to assemble a temporary platform and single advanced Guardrail such that this can be used to erect the second landing.
- If necessary an opening can be left in this platform to allow access by ladder. The opening is formed using a Ledger to Plank Transom and a 1.09m Plank. If necessary follow the guidance provided in 'Ladder Access' section.

The tower is now complete up to the first lift.



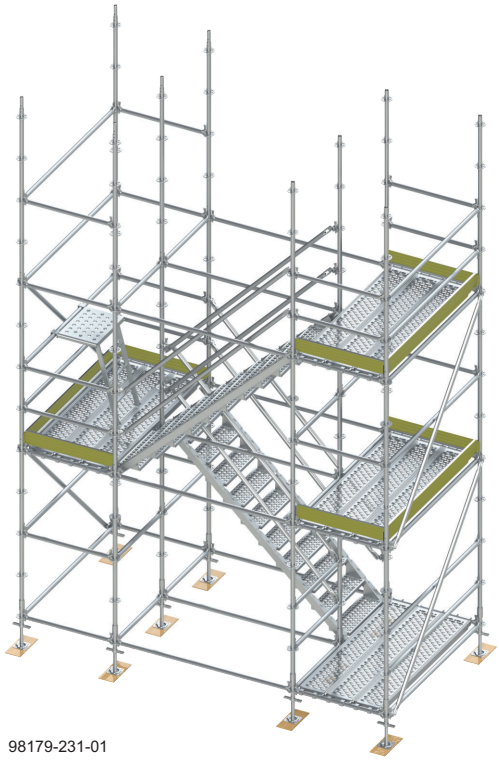
98179-230-01

Step 6

The second landing can be assembled by following the next consecutive steps:

- Place the 3.0m Standards.
- Assemble the Ledgers.
- Assemble the Bay Braces at the two outer sides.
- Assemble the Stringers.
- Assemble the Treads from bottom to top.
- Assemble the Planks on the next landing.
- Assemble the Guardrails along the stair and the next landing.
- Assemble the Toeboards.

The tower is now complete up to the second lift.

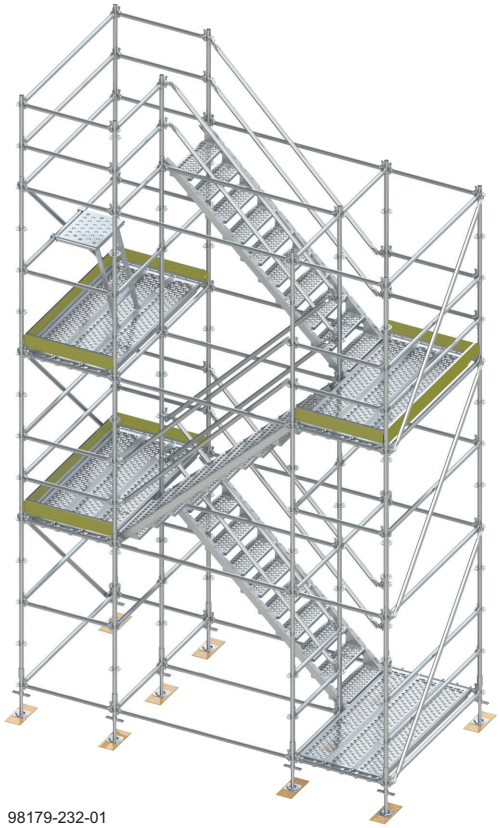


98179-231-01

Step 7

The third landing can be assembled by the next consecutive steps:

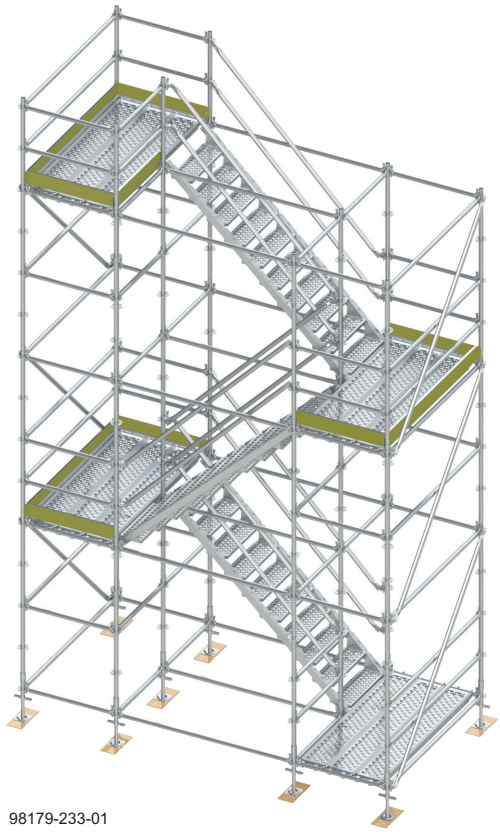
- ➤ Place the 3.0m Standards.
- ➤ Assemble the Ledgers.
- ➤ Assemble the Bay Braces at the two outer sides.
- ➤ Assemble the Stringers.
- ➤ Assemble the Treads from bottom to top.
- ➤ Assemble the Planks on the next landing.



98179-232-01

Step 8

- ➤ The Stair Tower is complete after the assembly of 1m Standards on the third landing, Guardrails (Using Ledgers) along the stair and on the third landing, and Toeboards on the third landing.



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The tower is now complete up to the third lift.

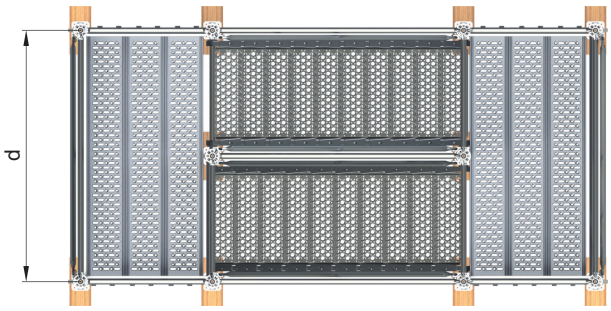
- ➤ Continue with is method until the full height of the Stair tower is reached.

For notes on dismantling the Ringlock Stair Tower refer to 'Guide to Dismantling Ringlock Scaffolds'.

Ringlock Stair Tower (10 Leg) Layout

Below is the General Arrangement for the Ringlock 10-Leg Steel Stair. See 'Stair Tower (10 Leg) Quantity Lists'.

Plan



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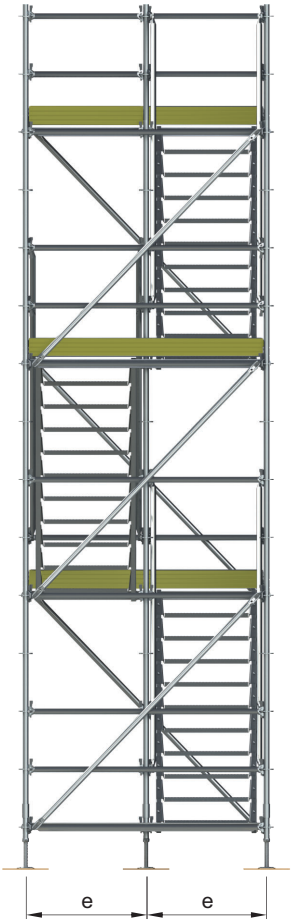
d ... 2.07 m

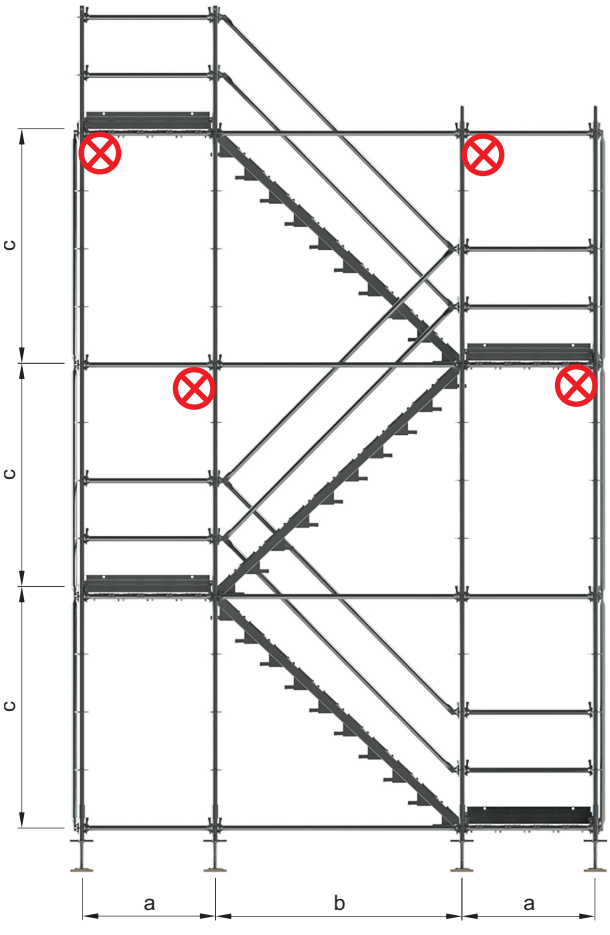
End



98179-235-01

e ... 1.04 m

Elevation



98179-234-01

a ... 1.09 m
b ... 2.07 m
c ... 2.00 m

⊗ ... Denotes wall tie locations.

Stair Tower (10 Leg) Quantity Lists

The below tables illustrate the material requirements for an 10 Leg Stair Tower up to 6 m high and the material required for each additional 2 m lift above this height.

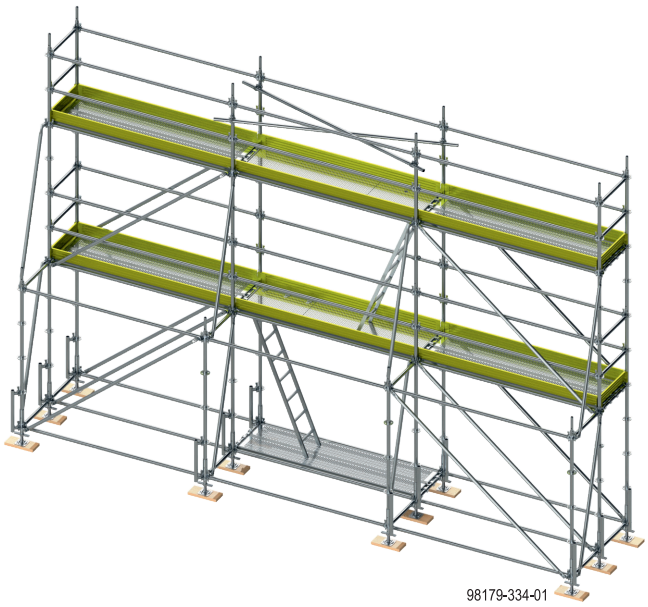
10 Leg Stair Tower (B=2.07 m, L= 4.25 m, H=6.0 m)			
Code	Description	Tower (6.0 m)	Every 2.0 m
306010600	Base jack 60cm	10	-
301270000	Starter base collar	10	-
301011000	Standard 1.00m crimped spigot	5	-
301012000	Standard 2.00m crimped spigot	-	10
301013000	Standard 3.00m crimped spigot	20	-
301031045	Ledger 1.04m	12	2
301031095	Ledger 1.09m	32	10
301032075	Ledger 2.07m	26	7
301062075	Bay brace 200/207cm	18	6
308032075	Steel plank 32/207cm	16	4
308401045	Toeboard 2.4/104cm	1	-
308402075	Toeboard 2.4/207cm	3	1
308401095	Toeboard 2.4/109cm	6	2
315072075	Stair stringer left 200/207cm (blue)	3	1
315082075	Stair stringer right 200/207cm (yellow)	3	1
315020890	Stair tread 0.89m	30	10

General

Lifting by crane

Doka Ringlock System can be craned/lifted into position using a crane. It is recommended to prepare the assembly using the following guidelines:

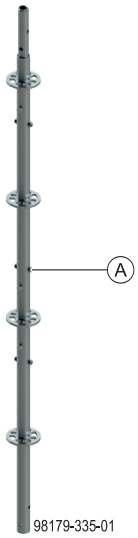
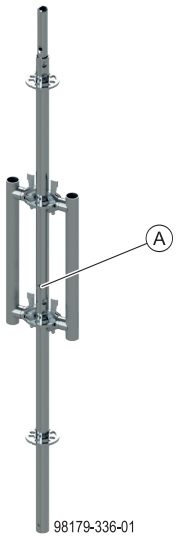
- The scaffold shall not be lifted with Wind forces exceeding 25 km/h (15 mph).
- Rigging equipment must be inspected prior to use.
- Clear all decks of loose materials.
- Verify that every wedge is fully engaged.
- Secure all standard splices by either bolts or leg locks.
- Install Temporary bracing as necessary.
- Base lift to be secured to prevent separation during lifting. Use leg locks, base jack retainers,and/or #9 wire when applicable.
- All planks must be secured to ledgers or removed prior to lifting.
- Rigging to be connected to Ringlock lifting lugs or straps connected under Ringlock rosettes with a check coupler fitted above the rosette. (Reference Lifting Arrangement)
- Use ropes or other devises to guide the scaffold and to prevent its rotation.



Lifting Arrangements

Scaffolding can be transported by crane if it has been designed accordingly. When designing and erecting lifting scaffolds, it is recommended but not limited to the following:

- Base jack must be secured to the Starter Collar or the standard using the Jack Retainer or similar method.
- All Standard splice connections must be secured using M12 bolts/nuts for Hanging Standards, or leg locks (in pair) for Crimped standards.

Standard **hanging** no spigot	Standard with **crimped** spigot
	

A M12 Grade 8.8 Hex Bolt with Nut

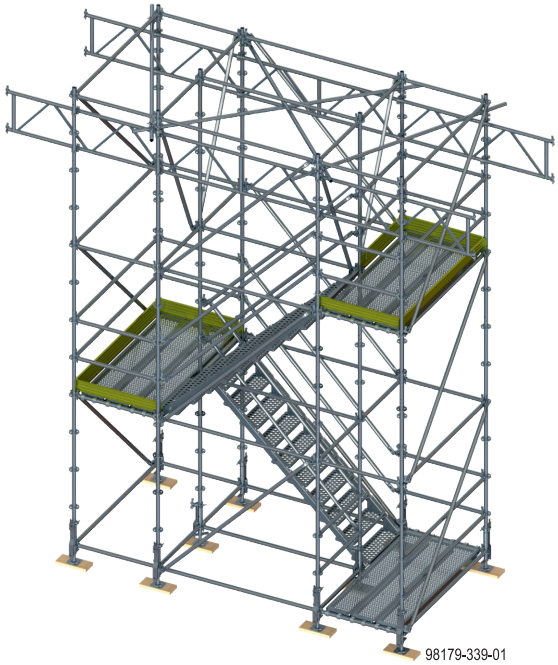
- Temporary bracings, ballasting and/or widening of the scaffold can be done as required to provide rigidity and prevent lateral movement of the scaffold during rigging operation.
- All planks must be secured to ledgers against uplift using wind latch or similar method.

Method of Lifting Scaffold

There are multiple methods to configure the lifting points of a scaffold. Below are some of the typical methods of lifting scaffolds in the industry.

- Lifting Lugs (Hanging Standard)

- Lattice Girder with Sling

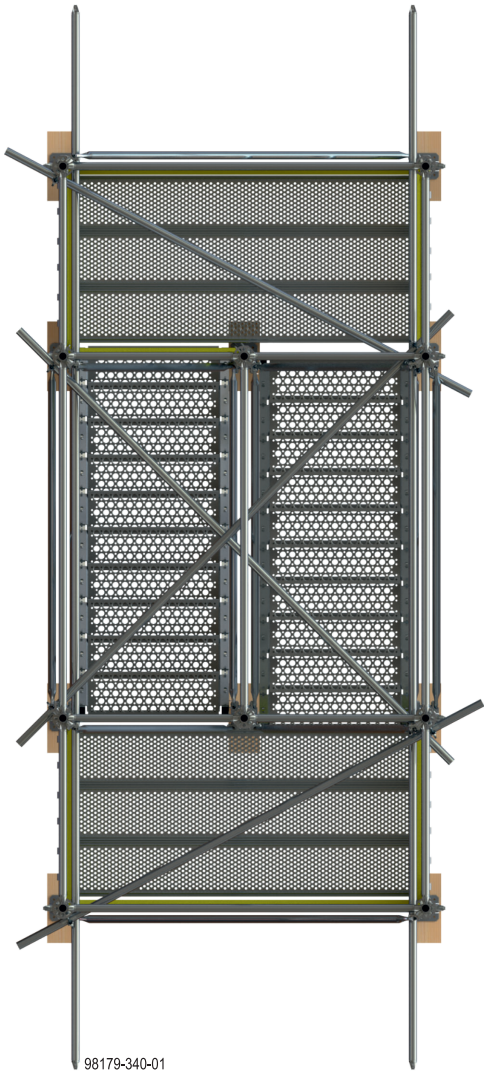


Temporary Bracing

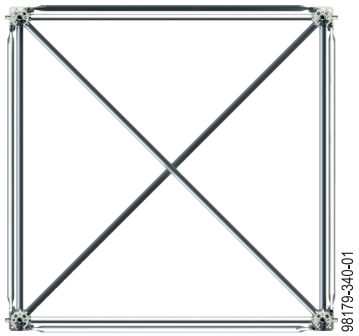
Bracing is required prior to each lift to minimize displacement and torsion of the scaffold in any direction to prevent displacement and rotation during lifting.

Temporary Bracing is job specific and is dependent on the lift arrangement and rigging location. Please refer to an Doka technical representative for the proper design and configuration of any Temporary Bracing on any Ringlock System.

Temporary Bracing for 10 Leg Tower



Temporary Bracing for 4 Leg Tower



Tying and Bracing Patterns

Wall Anchoring of Ringlock Scaffolding

Anchors have a significant influence on the stability of the scaffolding and are to be **continuously installed** during scaffolding assembly.

- The anchorage surface must be verified to ensure the load bearing capacity is sufficient.
- If necessary, the load-bearing capacity of the anchorage surface must be checked with pull-out tests.
- The tie load must be within the capacities of all components such as the eye bolt and plastic rawls.
- The wall tie tube must be installed directly below the node of the decking level.

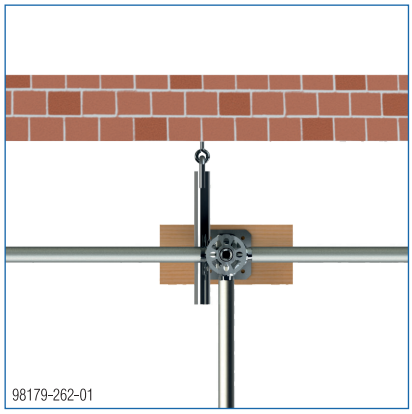
According the section 'Appendix D - Excerpt from the general building authority approval Z-8.22-992', only short scaffold wall tie tube and V-anchors are required. When using these wall tie methods, the offset from the wall to the scaffold can be up to 30 cm.

NOTICE

For Additional tying and bracing refer to 'Appendix D - Excerpt from the general building authority approval Z-8.22-992' within this document.

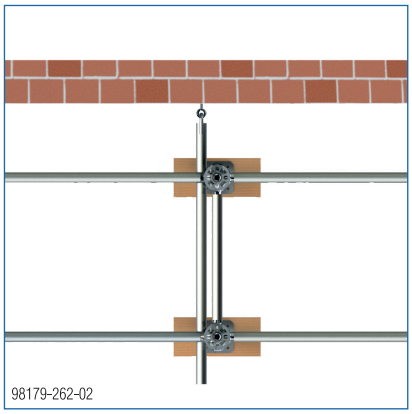
Short scaffolding wall tie tube with a type-controlled coupler on the inner Standard

This type of anchoring can only transmit forces at right angles to the facade.



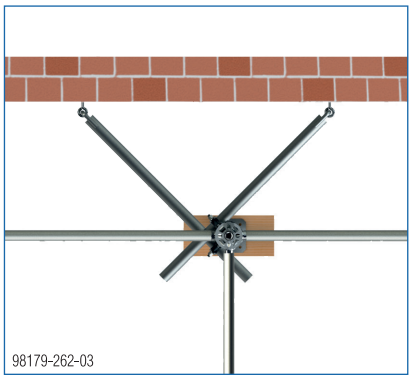
Long scaffold wall tie tube with two normal couplers on both Standards

By connecting the long scaffold wall tie tube to both standards,this type of anchoring also helps with the load transfer of forces parallel to the facade.



V-Anchor (Triangular Anchor)

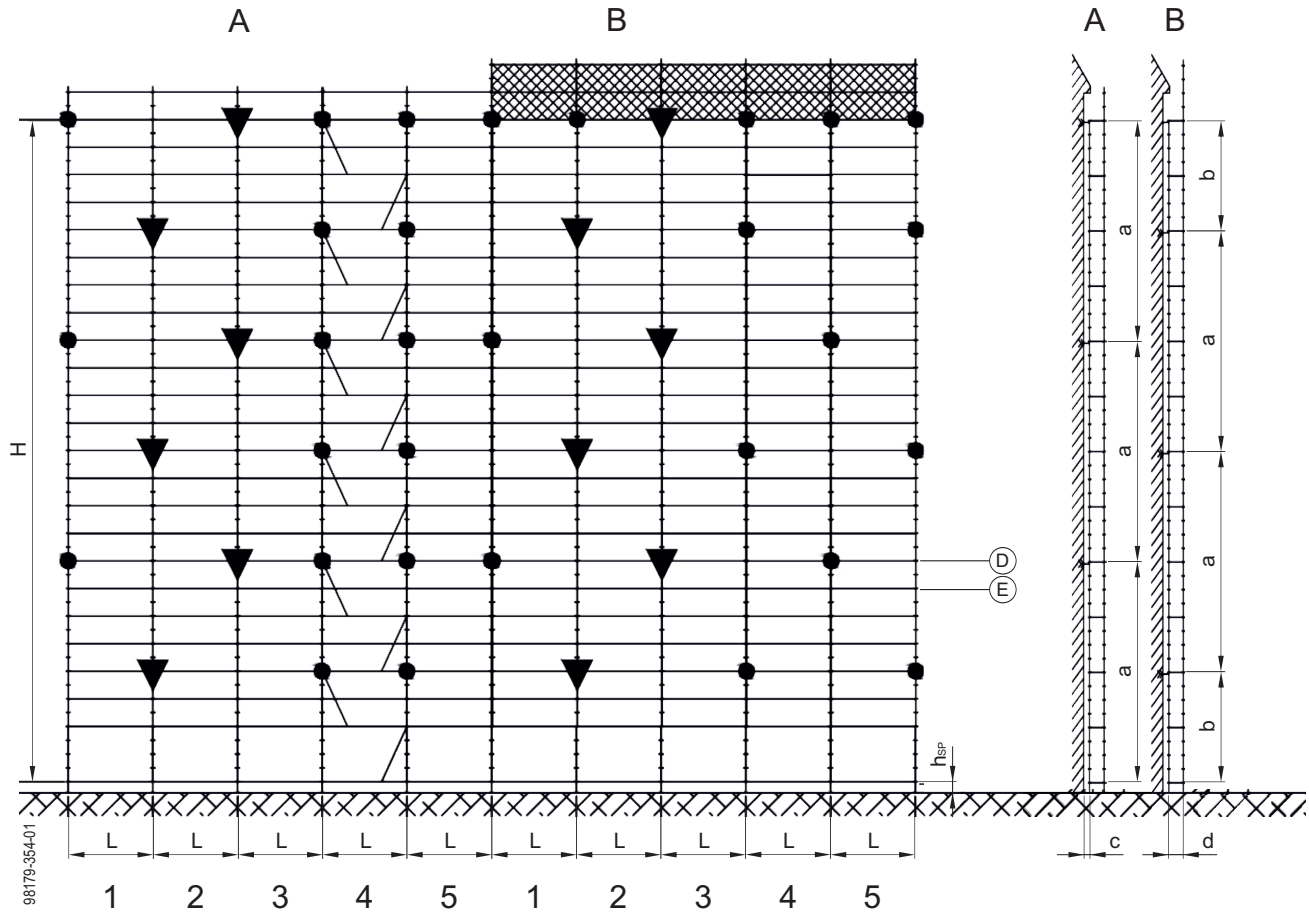
Either connect both scaffold wall tie tubes to the inner standard with normal coupler or attach the first scaffold wall tie tube to the inner standard and the second scaffold wall tie tube to the first wall tie tube with normal coupler.



Appendix D - Excerpt from the general building authority approval Z-8.22-992

Basic configuration with/without protective wall

Partly open façade
Closed façade
Unclad scaffold, load class 3 (EN 12811-1)



H ... ≤ 24 m
L ... ≤ 3.07 m
h_{SP} ... ≤ 29 cm
a ... 8 m
b ... 4 m
c ... ≤ 0.3 m
d ... 0.732 m

▼ ... V-anchor

● ... Short wall tie, with one double coupler

D Decking plane
E Handrail post (ledger)

Note:
Edge protection components are shown only insofar as statically required.

Screw-jack ext. length:
- h_{SP} ≤ 29 cm

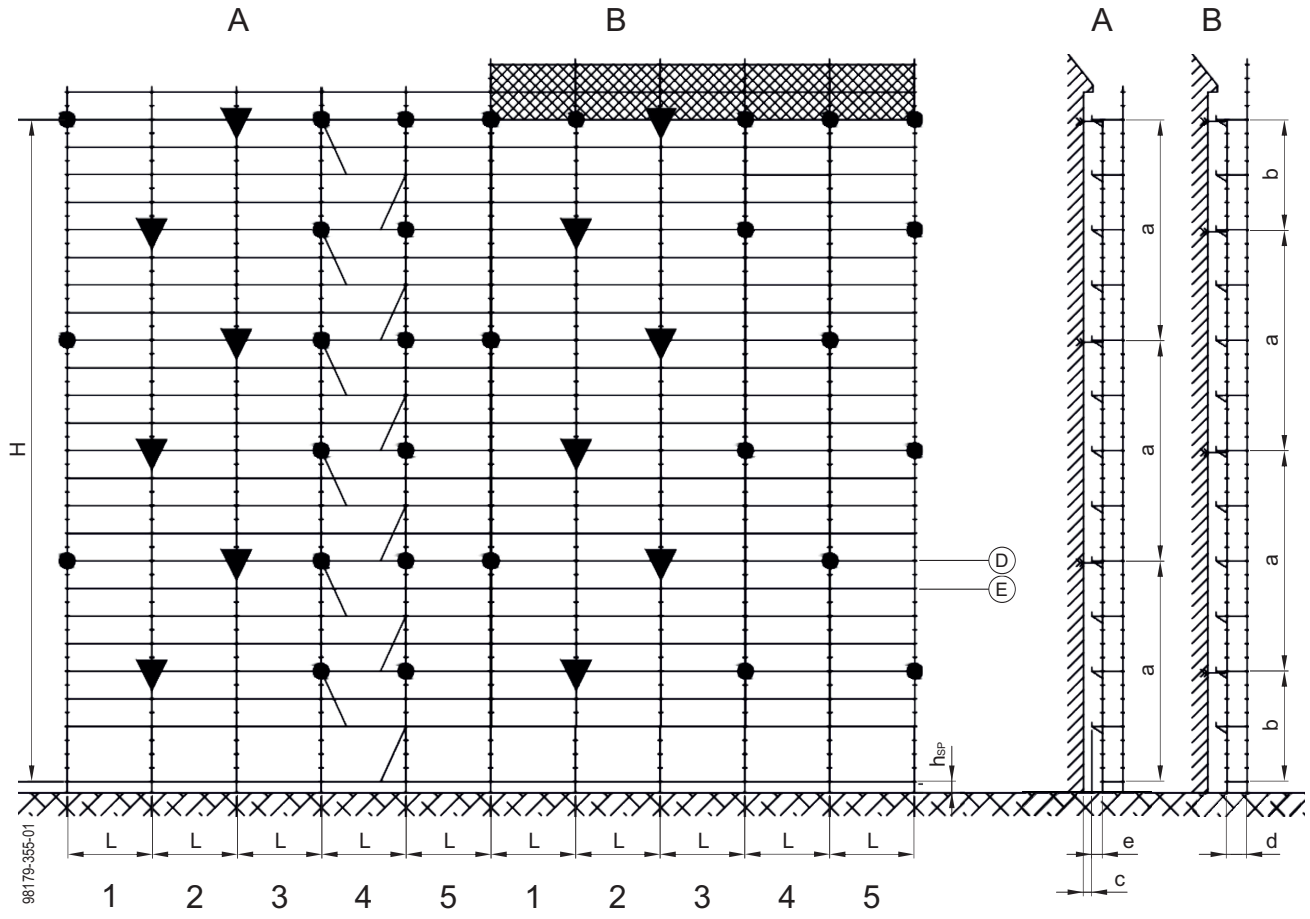
Anchor grid:
- 8 m offset over height.
- At least one 1 V-anchor every 5 bays.
- Protective-wall storey fully anchored.
- Anchor plane offset by 30 cm possible.

Bracing:
- Ledgers inside and outside in every scaffold storey.
- Ledgers as handrail post.

Comment:
- Installation of the protective wall with standards 1 m.
- If safety netting is used for the protective wall, 3-part edge protection consisting of toeboard, intermediate ledger and handrail ledger is necessary.

Bracket configuration with/without protective wall

Partly open façade
Closed façade
Unclad scaffold, load class 3 (EN 12811-1)



H ... ≤ 24 m
L ... ≤ 3.07 m
h_{SP} ... ≤ 29 cm
a ... 8 m
b ... 4 m
c ... ≤ 0.3 m
d ... 0.732 m
e ... 0.39 m

▼ ... V-anchor

● ... Short wall tie, with one double coupler

D Decking plane
E Handrail post (ledger)

Note:
Edge protection components are shown only insofar as statically required.

Screw-jack ext. length:
- h_{SP} ≤ 29 cm

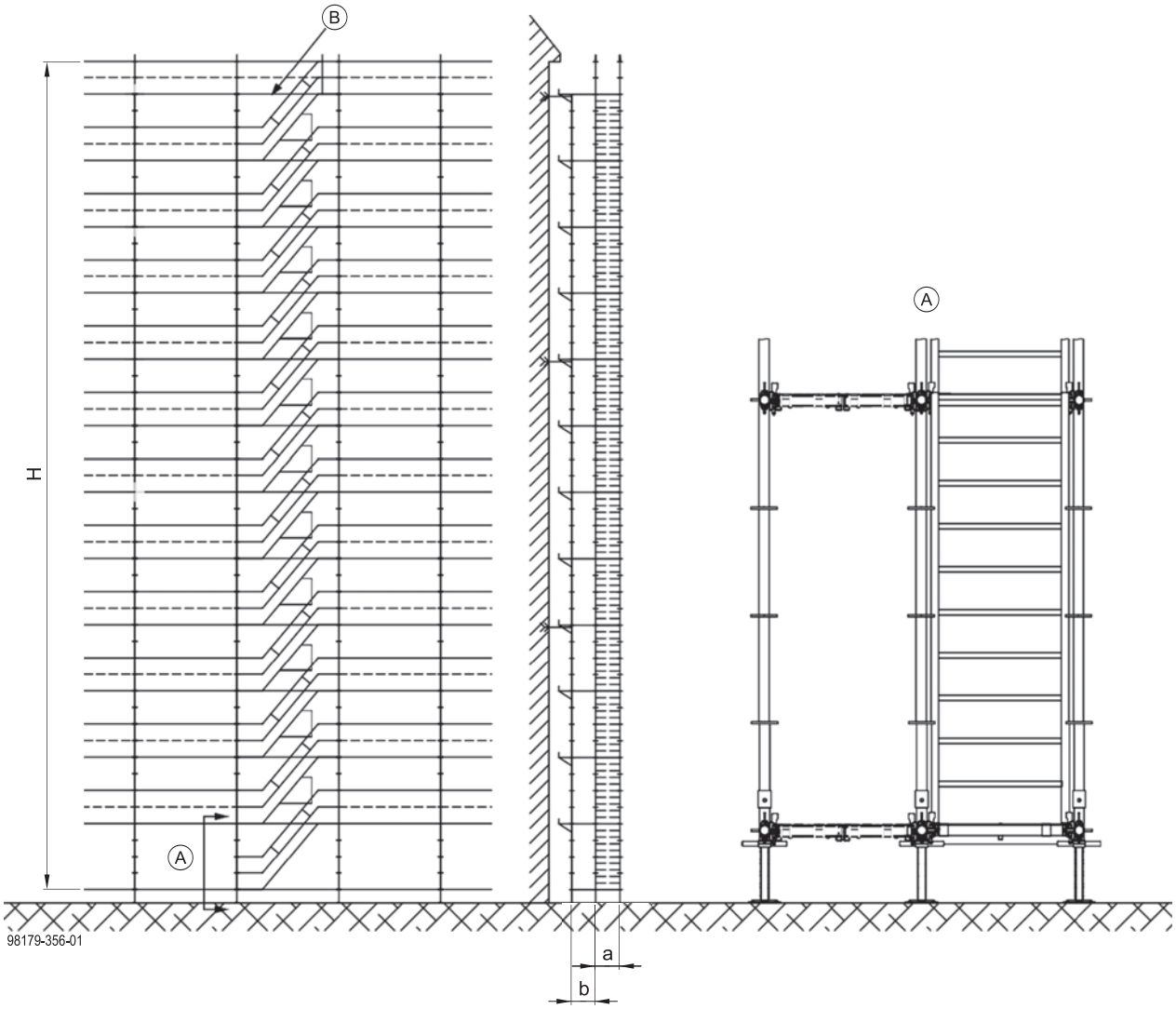
Anchor grid:
- 8 m offset over height.
- At least one 1 V-anchor every 5 bays.
- Protective-wall storey fully anchored.
- Anchor plane offset by 30 cm possible.

Bracing:
- Ledgers inside and outside in every scaffold storey.
- Ledgers as handrail post.

Comment:
- Installation of the protective wall with standards 1 m.
- If safety netting is used for the protective wall, 3-part edge protection consisting of toeboard, intermediate ledger and handrail ledger is necessary.

Basic configuration and bracket configuration with stairway

Partly open façade
Closed façade
Unclad scaffold, load class 3 (EN 12811-1)



H ... ≤ 24 m
L ... = 3.07 m
a ... 0.732 m
b ... 0.732 m

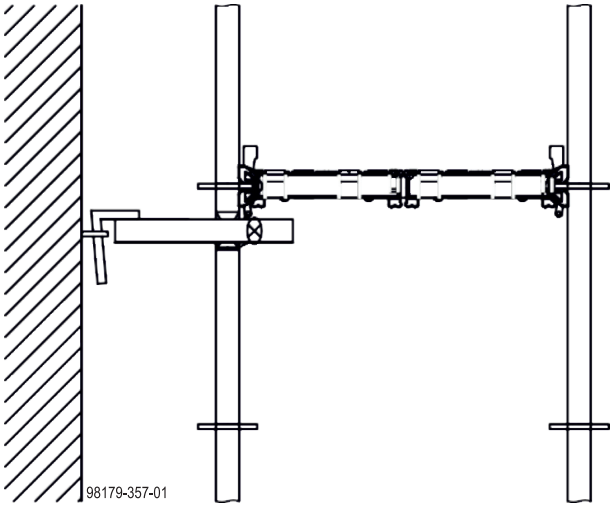
A Close-up A: Foot area, stairway
B O-type ledger for stair exit

NOTICE

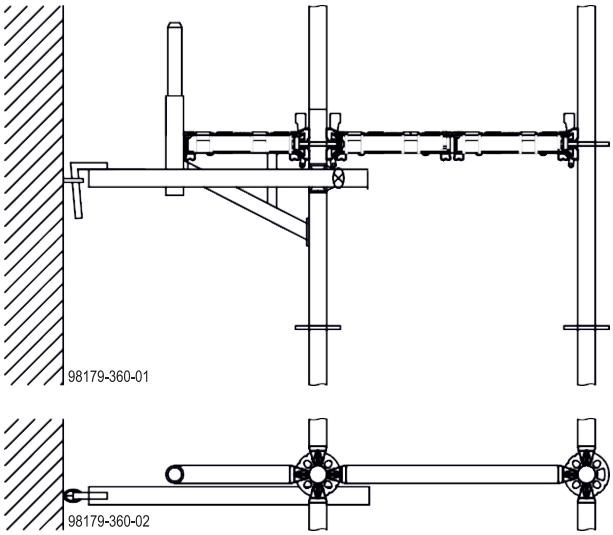
Anchorages same as for corresponding configurations as shown in chapter "**Basic** configuration with/without protective wall" and "**Bracket** configuration with/without protective wall", no other additional measures needed.

Scaffold holder connected to inside standard with normal coupler

Basic configuration:



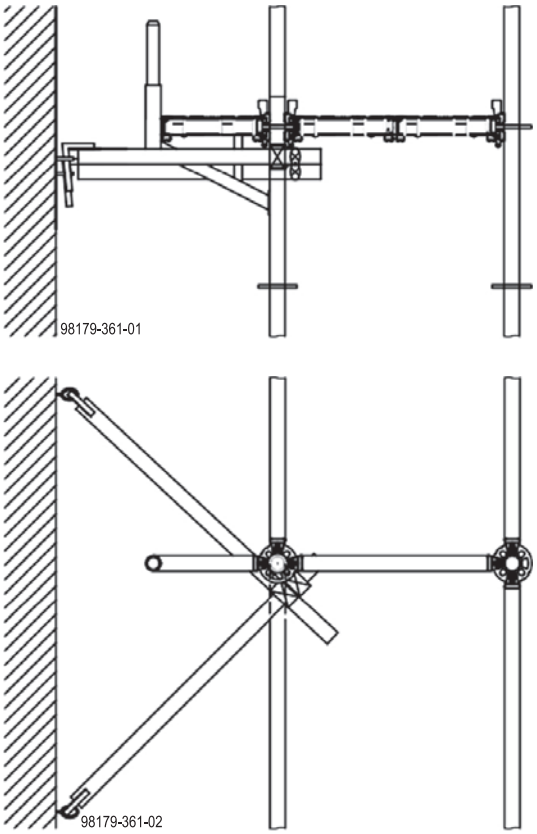
Bracket configuration:



V-anchor

Installation of the V-anchors:

- Pairs of anchors, connected with normal couplers to the inside standards in a V-shape at an angle of approx. ±45° in the frame plane.
- Both scaffold tie tubes connected to the inside standard
  or
  first scaffold tie tube connected to the inside standard and second tie tube connected to the first tie tube.



Additional Safety Guidelines

Scaffolding Operations

Please note that this guidance is offered to you as a minimum requirement for scaffolder's to work safely. If you work on a site with more stringent Company procedures (i.e. continuous attachment policy, inertial reels, etc.) then this will take precedence.

- It is recommended that scaffolders work in accordance with SG4 by NASC (latest edition), at all times when erecting dismantling or altering scaffolding. Working at height PPE should be worn as dictated by procedure and/or site requirements. Your fall arrest equipment should be thoroughly checked each shift before starting work. Report any suspected defects to your Company management.
- Measures to prevent falls should always be considered before resorting to fall arrest equipment. Scaffolders should therefore install as a minimum, a single guardrail to each lift at all locations in accordance with SG4 (latest edition). Advanced guardrail systems, scaffolder steps or other propriety equipment may be employed to erect the edge protection.
- Additional methods may be employed including safety nets, inertia reel blocks, and horizontal line systems. These should be considered when planning your job and if necessary be included in your Risk Assessment. Specialist training or guidance will be required to use this proprietary equipment.
- Scaffolders must erect the full width of the platform by using the appropriate number of Planks.
- It is recommended the scaffolder clips to a suitable anchorage point and remain attached at all times when at risk of a fall (refer to 'Safety Harness Connection Points' for suitable/appropriate harness locations.) This will include when:
  - Working outside the protected area (i.e. decked platform and single guardrail).
  - Raising and lowering scaffolding components(e.g. 'handballing').
  - Fixing/dismantling scaffolding components.
  - Moving the working platform (e.g. when raising or lowering steel planks).
- Ladders should be fitted as early as possible during erection and removed as late as possible during dismantling to eliminate the need to climb the scaffold structure. Refer to section 'Use of Ladders'.
- A suitable rescue procedure should be put in place to urgently retrieve an individual in the event of an arrested fall. This should be part of your Risk Assessment and understood by all involved before starting any job.
- The erection of Ringlock system scaffolding is a skilled task and must only be carried out by trained personnel. By the very nature of the work, the hazards are severe and accidents frequently result in serious injuries or fatalities.
- Before commencing work, check that all necessary clearances or permits have been obtained and always check the Risk Assessment and sign to signify your understanding.
- It is recommended that you check your scaffold tools each day before work, to ensure that all parts are in good condition, if you discover or suspect any defects, report them immediately to your Company management. Do not use faulty equipment.
- Be aware, and make your workmates aware of any potential hazards near your place of work, i.e. noxious fumes, acids, electrical plant, overhead conductors, excessive heat, working machinery etc.
- Obtain and use any required safety equipment, e.g. inertia reel blocks, running lines respirator, goggles, etc., and always wear a safety helmet, safety boots, overalls, gloves, eye protection and a safety harness.
- Where there is a possibility of other persons passing through or near the work zone, ensure that suitable barriers or signs are erected to warn and exclude them from the danger area.
- During scaffold erection, ensure that you and all other members of the scaffolding team, do the following:
  - Use gin wheel and rope for raising and lowering scaffolding components, DO NOT throw scaffolding components up or down. (Refer to Safety Guidelines 'Gin Wheels and Ropes'.)
  - When at height ensure that at all times you take the necessary precautions to ensure a safe method of work and prevent a fall.
  - Erect advanced guardrails wherever possible and as soon as practicable.
  - Ensure that all members of the scaffolding gang have sufficient experience of erecting 'Advanced' or 'Special' structures. Do not take unnecessary risks.
  - Check all components are serviceable before use. Reject and report to your Company management any defective components.
- Always ensure that the foundations or structure from which a scaffold is to be built are adequate:
  - Use Base Jacks and timber sole boards under every standard. On soft ground or where there is any likelihood of surface penetration ensure an adequate base is provided for each standard.
  - If the scaffold is to be erected on a roof or over a basement or upper floor, check with the Client, that the foundation is suitable or if back propping or shoring is required.
  - Inform your Company management if excavations are taking place in the immediate vicinity of the scaffold base.
  - Ensure that the scaffold is erected in accordance with the Ringlock Technical manual, Engineering Solutions (if applicable) or a supplied design-drawing. If the information is not received or if you are in any doubt, contact your Company management.
  - Ensure that the scaffold is adequately tied to the building or structure in accordance with the tie patterns in the Technical Manual. During erection, fit ties progressively as soon as the specified height is reached. When dismantling each tie should be removed as late as possible and if necessary fit alternative means to maintain stability.
  - Ensure that all guardrails and toeboards are fitted to all edges of platforms (including return

ends) where a fall could occur, to comply with statutory regulations.
- Ensure that all incomplete structures are fitted with 'DO NOT USE' or 'SCAFFOLD INCOMPLETE' signs as soon as possible after erection and before dismantling has commenced.
- A system should be in place to communicate (such as a scaffolding tag procedure) whether the scaffold is safe for use, its load class/suitability i.e. access, general purpose or heavy duty.
- Before dismantling is commenced, check that all ties are in position and that the scaffold is safe to access.
- Ensure that during dismantling operations a safe method of work is maintained and that a sequence of operations is adopted to ensure that the scaffold is stable and secure at each stage.
- Do not overload the scaffold with stored scaffolding components or other materials, when dismantling or re-erecting.

Handling and Storage of Ringlock Equipment

- Wear the appropriate type of gloves to protect your hands, whenever necessary. Take extra care when handing sharp-edged metal components.
- Always pass scaffolding components by hand, or use a Gin Wheel and rope. Never bomb, throw or allow scaffolding components to fall.
- Do not carry scaffold components up or down a ladder.
- Ensure all your Ringlock components and equipment are neatly stored in relevant scaffolding stillage or scaffolding storage rack. Stack neatly to no more than five lifts high (local site/regional rules and regulations apply)
- Ensure scaffolding stillage's and scaffolding storage rack are loaded to the approved Safe Working Load and not overloaded.
- Scaffolding stillages or storage racks should be fork lifted or craned onto a flatbed truck for transport. Individual or loose items should be stacked into scaffolding stillages or storage racks and wrapped/ strapped prior to loading and transport.
- Where possible store all equipment in a dry and secure environment.
- Visually inspect all scaffolding after use and arrival back into storage area. Refer to Technical Information and Maintenance Manual for inspection and quarantine of components.
- Inspect scaffolding equipment at regular intervals not greater than 30 days to inspect for general wear and tear. All scaffold components should be checked prior to erection and use.
- If stored in an outdoor environment be careful to ensure ground stability when stacking and moving Ringlock scaffolding components.

Use of Ladders

Accidents involving ladders frequently occur within our industry and account for many serious injuries. Because the ladder is regarded as one of the most basic forms of access, the dangers are not always anticipated.

- Inspect ladders each time before they are used and report defects to your management. Ensure they are straight with no obvious defects. Do not use defective ladders.
- Set ladders on a firm and level base. Ensure, before climbing, that they are securely tied at the top and footed such that it cannot slip outwards or sideways. Ladder access points should be without obstructions, so that no one has to climb over a toeboard or under a guardrail.
- Wherever possible use the 'one in four rule' i.e. the ladder should slope one metre out at the base for every four metres of height.
- Ensure that the ladder is long enough, i.e. it must project at least 1.0 m (usually 5 rungs) above the landing place.
- Ensure that the Ladder is fastened to Ringlock with an appropriate Ladder attachment coupler or 18 mm polypropylene rope.
- Work safely from ladders at all times. Use both hands to climb and do not overreach when working from a ladder, you must maintain 3 points of contact at all times.
- Use a safety harness and lanyard connected to a suitable independent anchorage point, if you need to have your hands free for working. Refer to 'Safety Harness Connection Points'.

Gin Wheels and Ropes

There are special instructions for dealing with Gin Wheels and ropes. Make sure you are familiar with the instructions provided by your Company before starting work.

- Gin wheels and ropes used to lift and lower scaffolding components have to be properly examined and these records should be kept for future use. Gin Wheel registers, instructions for use and inspection and rope quality should be kept with the Gin wheel. Ensure the Safe Working Load is stamped to the Gin Wheel frame. Any rope and wheel MUST have current certification of inspection to ensure they are fit for purpose.
- Remember the MAXIMUM recommended loading on a rope and wheel should be restricted to 25 kg for a one man lift, but should definitely not exceed the Safe Working Load of a Fittings Bag. Loads to be lifted should wherever possible be broken down into manageable weights which can be easily handled by one person.
- Davit arms should be used where necessary. Gin Wheel rings must be connected to the Davit arm with a 'D' shackle with a minimum Safe Working Load of 30 kN.
- Ropes used on Gin Wheels must be of the correct size (usually 18 mm diameter polypropylene rope).
- All loads must be properly secured using the correct knots, lifting containers, bags or nets. Test by raising the load slightly from the ground or platform and make certain that it is secure before raising or lowering further.
- Erect signs to indicate that hoisting activities are taking place around the safe area. Before any lifting or lowering operations commence, the work area MUST be cordoned off to prevent the access of unauthorised personnel.
- ALWAYS keep yourself clear when hoisting scaffolding components. Never stand directly under the load.
- Faults to look for in a Gin Wheel
  - No certification
  - No Safe Working Load stamped on the wheel
  - Split pin missing
  - Dents in the main body which will prevent smooth operation of the rope
  - Only ring type gin wheels are permitted
- Faults to look for in a Rope
  - No certification
  - Rope is sleeved with an identification tag at each end
  - At least one of these tags is an original identification label
  - Abrasions, flaws, wear, thinning or rotting
  - Usually only 18 mm polypropylene rope is permitted

Guide to Dismantling Ringlock Scaffolds

The dismantling of a Ringlock scaffold is no different from most other types of scaffold. The dismantling procedure is the reverse of the erection procedure; the last component installed is the first to be removed.

The following points are not to be considered unique to the Ringlock scaffold, but used as a guide for safe practices.

- Prior to dismantling the scaffold. The Supervisor should meet with all members of the dismantling team to develop a safe plan of work which identifies, controls, and/or removes all identifiable hazards.
- Monitor the site traffic in the immediate area during the dismantling of the Ringlock Scaffold. If necessary, barricade the area.
- Handle all components with care to minimize possible damage. The safety of those dismantling the scaffold and passersby should take top priority during dismantling.
- Before starting the dismantling procedure, inspect the entire scaffold to ensure that it is still structurally sound; that is, no parts have been damaged or removed that would endanger workers on the scaffold. If any such damage or missing part is seen, those parts must be replaced before commencing the operation.
- Do not remove a scaffold tie or structure connection until the scaffold components above the tie have been disassembled and lowered to the ground.
- Use temporary work platforms or loading platforms at each level.
- All scaffolders should be wearing safety harnesses and other appropriate PPE. Harnesses should be attached to the scaffold at appropriate points (refer to 'Safety Harness Connection Points').
- Use ropes and slings to raise scaffold parts. Do not throw components.
- Inspect all components to ensure that each one is suitable. Identify all damaged components by tagging or marking them conspicuously.
- Damaged components should be kept separated from all of the other components in a quarantine area.

Comparison of the article list of Doka and AT-PAC

Doka		AT-PAC	
Article N°	Article designation	Article N°	Article designation
301010500	Standard 0.50m crimped spigot	01.01.050.00	Standard .5m/1'8" (1 Ring) - Crimped Spigot
301011000	Standard 1.00m crimped spigot	01.01.100.00	Standard 1.0m/3'3" (2 Ring) - Crimped Spigot
301011500	Standard 1.50m crimped spigot	01.01.150.00	Standard 1.5m/4'11" (3 Ring) - Crimped Spigot
301012000	Standard 2.00m crimped spigot	01.01.200.00	Standard 2.0m/6'6" (4 Ring) - Crimped Spigot
301012500	Standard 2.50m crimped spigot	01.01.250.00	Standard 2.5m/8'2" (5 Ring) - Crimped Spigot
301013000	Standard 3.00m crimped spigot	01.01.300.00	Standard 3.0m/9'9"' (6 Ring) - Crimped Spigot
301014000	Standard 4.00m crimped spigot	01.01.400.00	Standard 4.0m/13'1" (8 Ring) - Crimped Spigot
301030150	Ledger 0.15m	01.03.015.00	Ledger O-Type 0.15m/6"
301030395	Ledger 0.39m	01.03.039.50	Ledger O-Type 0.39m/1'3"
301030735	Ledger 0.73m	01.03.073.50	Ledger O-Type 0.73m/2'5"
301031045	Ledger 1.04m	01.03.104.50	Ledger O-Type 1.04m/3'5"
301031095	Ledger 1.09m	01.03.109.50	Ledger O-Type 1.09m/3'7"
301031405	Ledger 1.40m	01.03.140.50	Ledger O-Type 1.40m/4'7"
301031575	Ledger 1.57m	01.03.157.50	Ledger 1.57m/5'2"
301032075	Ledger 2.07m	01.03.207.50	Ledger O-Type 2.07m/6'10"
301032575	Ledger 2.57m	01.03.257.50	Ledger O-Type 2.57m/8'5"
301033075	Ledger 3.07m	01.03.307.50	Ledger O-Type 3.07m/10'1"
301060735	Bay brace 200/73cm	01.06.073.50	Bay Brace 2.0 x 0.73m /2'5"
301061045	Bay brace 200/104cm	01.06.104.50	Bay Brace 2.0 x 1.04m/3'5"
301061095	Bay brace 200/109cm	01.06.109.50	Bay Brace 2.0 x 1.09m/3'7"
301061405	Bay brace 200/140cm	01.06.140.50	Bay Brace 2.0 x 1.40m/4'7"
301061575	Bay brace 200/157cm	01.06.157.50	Bay Brace 2.0 x 1.57m/5'2"
301062075	Bay brace 200/207cm	01.06.207.50	Bay Brace 2.0 x 2.07m/6'10"
301062575	Bay brace 200/257cm	01.06.257.50	Bay Brace 2.0 x 2.57m/8'5"
301063075	Bay brace 200/307cm	01.06.307.50	Bay Brace 2.0 x 3.07m/10'1"
301070735	Bay brace 150/73cm	01.07.073.50	Bay Brace 1.5 x 0.73m/2'5"
301071045	Bay brace 150/104cm	01.07.104.50	Bay Brace 1.5 x 1.04m/3'5"
301071095	Bay brace 150/109cm	01.07.109.50	Bay Brace 1.5 x 1.09m/3'7"
301071405	Bay brace 150/140cm	01.07.140.50	Bay Brace 1.5 x 1.40m/4'7"
301071575	Bay brace 150/157cm	01.07.157.50	Bay Brace 1.5 x 1.57m/5'2"
301072075	Bay brace 150/207cm	01.07.207.50	Bay Brace 1.5 x 2.07m/6'10"
301072575	Bay brace 150/257cm	01.07.257.50	Bay Brace 1.5 x 2.57m/8'5"
301073075	Bay brace 150/307cm	01.07.307.50	Bay Brace 1.5 x 3.07m/10'1"
301080735	Bay brace 100/73cm	01.08.073.50	Bay Brace 1.0 x 0.73m/2'5"
301081045	Bay brace 100/104cm	01.08.104.50	Bay Brace 1.0 x 1.04m/3'5"
301081095	Bay brace 100/109cm	01.08.109.50	Bay Brace 1.0 x 1.09m/3'7"
301081405	Bay brace 100/140cm	01.08.140.50	Bay Brace 1.0 x 1.40m/4'7"
301081575	Bay brace 100/157cm	01.08.157.50	Bay Brace 1.0 x 1.57m/5'2"
301082075	Bay brace 100/207cm	01.08.207.50	Bay Brace 1.0 x 2.07m/6'10"
301082575	Bay brace 100/257cm	01.08.257.50	Bay Brace 1.0 x 2.57m/8'5"
301083075	Bay brace 100/307cm	01.08.307.50	Bay Brace 1.0 x 3.07m/10'1"
301110395	Side bracket 0.39m	01.11.039.50	SideBracket/Hop-Up O-Type 0.39m/1'3"
301110735	Side bracket 0.73m	01.11.073.50	SideBracket/Hop-Up O-Type 0.73m/2'5"
301121090	Side bracket 1.09m	01.12.109.00	Console Bracket O-Type 1.09m/3'7"
301165145	Lattice girder 5.14m no spigot	01.16.514.50	Lattice Girder 5.14m/16' - No Spigot
301166145	Lattice girder 6.14m no spigot	01.16.614.50	Lattice Girder 6.14m/20' - No Spigot
301167715	Lattice girder 7.71m no spigot	01.16.771.50	Lattice Girder 7.71m/25' - No Spigot
301181400	Truss ledger 1.40m	01.18.140.00	Truss Ledger O-Type 1.40m/4'7"
301181575	Truss ledger 1.57m	01.18.157.50	Truss Ledger 1.57m/5'2"
301182075	Truss ledger 2.07m	01.18.207.50	Truss Ledger O-Type 2.07m/6'10"
301182575	Truss ledger 2.57m	01.18.257.50	Truss Ledger O-Type 2.57m/8'5"
301183075	Truss ledger 3.07m	01.18.307.50	Truss Ledger O-Type 3.07m/10'1"
301220735	Ladder access transom 0.73m spigot	01.22.073.50	Ladder Access Transom w/ Spigot .73m/2'5"
301233205	Ledger to plank transom 32cm 1B	01.23.320.50	Ledger to Plank Transom O-Type 320mm - 1 Board
301236405	Ledger to plank transom 64cm 2B	01.23.640.50	Ledger to Plank Transom O-Type 640mm - 2 Board
301239605	Ledger to plank transom 96cm 3B	01.23.960.50	Ledger to Plank Transom O-Type 960mm - 3 Board
301243205	Plank to plank transom 32cm 1B	01.24.320.50	Plank to Plank Transom O-Type 320mm - 1 Board
301246405	Plank to plank transom 64cm 2B	01.24.640.50	Plank to Plank Transom O-Type 640mm - 2 Board
301249605	Plank to plank transom 96cm 3B	01.24.960.50	Plank to Plank Transom O-Type 960mm - 3 Board
301270000	Starter base collar	01.27.000.00	Starter/Base Collar

Doka		AT-PAC	
Article N°	Article designation	Article N°	Article designation
301270010	Starter base collar short	01.27.001.00	Starter/Base Collar Short
301280000	Leg lock for suspended platform	01.28.000.00	Leg Lock (Suspended Scaffold)
301300003	Rosette clamp T-bolt SW23	01.30.000.30	Rosette Clamp (T-Bolt), 23mm Nut (AU)
301300004	Rosette clamp T-bolt SW22 EU	01.30.000.40	Rosette Clamp (T-Bolt), 22mm Nut (EU)
301300005	Rosette clamp T-bolt SW21	01.30.000.50	Rosette Clamp (T-Bolt), 21mm Nut (UK)
301300013	Rosette clamp T-bolt horizontal SW23	01.30.001.30	Horizontal Rosette Clamp (T-Bolt), 23mm Nut (AU)
301300014	Rosette clamp T-bolt horizontal SW22 EU	01.30.001.40	Rosette Clamp (T-Bolt), 22mm Nut (EU)
301300015	Rosette clamp T-bolt horizontal SW21	01.30.001.50	Horizontal Rosette Clamp (T-Bolt), 21mm Nut (AU)
301311630	Guard rail standard Crazy Leg 1.63m	01.31.163.00	Guard Rail Standard "Crazy Leg" 1.63m
301410005	Return ledger hook	01.41.000.50	Return Ledger Hook
301520013	Lifting lug SW23	01.52.001.30	Lifting Lug-AUS
301520014	Lifting lug SW22 EU	01.52.001.40	Lifting Lug-EU
301520015	Lifting lug SW21	01.52.001.50	Lifting Lug-UK
301640010	RLS capping piece	01.64.001.00	Raised Ledger System - Capping Piece
301641575	RLS truss ledger 1.57m	01.64.157.50	Raised Ledger System - Truss Ledger 1.57m/5'2"
301642075	RLS truss ledger 2.07m	01.64.207.50	Raised Ledger System - Truss Ledger 2.07m/6'10"
301642575	RLS truss ledger 2.57m	01.64.257.50	Raised Ledger System - Truss Ledger 2.57m/8'5"
301643075	RLS truss ledger 3.07m	01.64.307.50	Raised Ledger System - Truss Ledger 3.07m/10'1"
301650735	Girder transom 0.73m	01.65.073.50	Girder Transom 0.73m/2'5"
301651095	Girder transom 1.09m	01.65.109.50	Girder Transom 1.09/3'7"
301651405	Girder transom 1.40m	01.65.140.50	Girder Transom 1.40/4'7"
301670735	Girder transom 0.73m inside bracket	01.67.073.50	1 Inside Board Girder Transom 0.73m/2'5"
301671095	Girder transom 1.09m inside bracket	01.67.109.00	1 Inside Board Girder Transom 1.09m/3'7"
301680735	RLS ledger 0.73m	01.68.073.50	Raised Ledger System - Ledger 0.73m/2'5"
301681045	RLS ledger 1.04m	01.68.104.50	Raised Ledger System - Ledger 1.04m/3'5"
301681095	RLS ledger 1.09m	01.68.109.00	Raised Ledger System - Ledger 1.09m/3'7"
301681405	RLS ledger 1.40m	01.68.140.50	Raised Ledger System - Ledger 1.40m/4'7"
301681575	RLS ledger 1.57m	01.68.157.50	Raised Ledger System - Ledger 1.572m/5'2"
301682075	RLS ledger 2.07m	01.68.207.50	Raised Ledger System - Ledger 2.07m/6'10"
301682575	RLS ledger 2.57m	01.68.257.50	Raised Ledger System - Ledger 2.57m/8'5"
301683075	RLS ledger 3.07m	01.68.307.50	Raised Ledger System - Ledger 3.07m/10'1"
301690010	RLS exterior guardrail post	01.69.001.00	Raised Ledger System - Exterior Guardrail Post
301790500	Standard 0.50m hanging no spigot	01.79.050.00	Standard 0.5m/1'8" (1 Ring) - No Hanging Spigot
301791000	Standard 1.00m hanging no spigot	01.79.100.00	Standard 1.0m/3'3" (2 Ring) - No Hanging Spigot
301791500	Standard 1.50m hanging no spigot	01.79.150.00	Standard 1.5m/4'11" (3 Ring) - No Hanging Spigot
301792000	Standard 2.00m hanging no spigot	01.79.200.00	Standard 2.0m/6'6" (4 Ring) - No Hanging Spigot
301792500	Standard 2.50m hanging no spigot	01.79.250.00	Standard 2.5m/8'2" (5 Ring) - No Hanging Spigot
301793000	Standard 3.00m hanging no spigot	01.79.300.00	Standard 3.0m/9'9"' (6 Ring) - No Hanging Spigot
301794000	Standard 4.00m hanging no spigot	01.79.400.00	Standard 4.0m/13'1" (8 Ring) - No Hanging Spigot
301801095	Plan brace square 109/109cm	01.80.109.50	Plan Brace - Square 1.09m x 1.09m/3'7" x 3'7"
301801405	Plan brace square 140/140cm	01.80.140.50	Plan-Brace - Square 1.40m x 1.40m/3'5" x 3'5"
301801575	Plan brace square 157/157cm	01.80.157.50	Plan Brace - Square 1.57m x 1.57m/5'2" x 5'2"
301802075	Plan brace square 207/207cm	01.80.207.50	Plan Brace - Square 2.07m x 2.07m/6'10" x 6'10"
301802575	Plan brace square 257/257cm	01.80.257.50	Plan Brace - Square 2.57m x 2.57m/8'6" x 8'6"
301803075	Plan brace square 307/307cm	01.80.307.50	Plan Brace - Square 3.07m x 3.07m/10'1" x 10'1"
301810735	Plan brace 157/73cm	01.81.073.50	Plan Brace 1.57m x 0.73m/5'2" x 2'5"
301811095	Plan brace 157/109cm	01.81.109.50	Plan Brace 1.57m x 1.09m/5'2" x 3'7"
301820735	Plan brace 207/73cm	01.82.073.50	Plan Brace 2.07m x 0.73m/6'10" x 2'5"
301821095	Plan brace 207/109cm	01.82.109.50	Plan brace 207/109cm
301830735	Plan brace 257/73cm	01.83.073.50	Plan brace 257/073cm
301831095	Plan brace 257/109cm	01.83.109.50	Plan brace 257/109cm
301840735	Plan brace 307/73cm	01.84.073.50	Plan brace 307/073cm
301841095	Plan brace 307/109cm	01.84.109.50	Plan brace 307/109cm
304032003	Beam clamp forged rigid SW23	04.03.200.30	BEAM Clamp Forged Rigid 2", 23mm Nut (AU)
304032004	Beam clamp forged rigid SW22 EU	04.03.200.40	Beam clamp forged rigid SW22
304032005	Beam clamp forged rigid SW21	04.03.200.50	BEAM Clamp Forged Rigid 2", 21mm Nut (UK)
304042003	Beam clamp swivel SW23	04.04.200.30	BEAM Clamp Swivel 2", 23mm Nut (AU)
304042004	Beam clamp swivel SW22 EU	04.04.200.40	BEAM Clamp Swivel 2", 22mm Nut (EU)
304042005	Beam clamp swivel SW21	04.04.200.50	BEAM Clamp Swivel 2", 21mm Nut (UK)
304100003	Tube joiner SW23 external	04.10.000.30	External Tube Joiner, 23mm Nut (AU)
304100004	Tube joiner SW22 external EU	04.10.000.40	External Tube Joiner, 22mm Nut (EU)
304100005	Tube joiner SW21 external	04.10.000.50	External Tube Joiner, 21mm Nut (UK)
304110003	Tube joiner SW23 internal	04.11.000.30	Internal Tube Joiner, 23mm Nut (AU)
304110004	Tube joiner SW22 internal EU	04.11.000.40	Tube joiner SW22 internal

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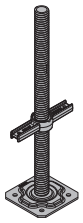
Article N°	Article designation	Article N°	Article designation
304110005	Tube joiner SW21 internal	04.11.000.50	Internal Tube Joiner, 21mm Nut (UK)
304140003	Putlog clamp SW23	04.14.000.30	Putlog Clamp, 23mm Nut (AU)
304140004	Putlog clamp SW22 EU	04.14.000.40	Putlog clamp SW22
304140005	Putlog clamp SW21	04.14.000.50	Putlog Clamp, 21mm Nut (UK)
304150003	Ladder hook clamp SW23	04.15.000.30	Ladder Hook Clamp/Clip, 23mm Nut (AU)
304150004	Ladder hook clamp SW22 EU	04.15.000.40	Ladder Hook Clamp/Clip, 22mm Nut (EU)
304150005	Ladder hook clamp SW21	04.15.000.50	Ladder Hook Clamp/Clip, 21mm Nut (UK)
304160013	Toeboard retaining clamp SW23	04.16.001.30	Toe Board Retaining Clamp, 23mm Nut (AU)
304160014	Toeboard retaining clamp SW22 EU	04.16.001.40	Toe Board Retaining Clamp, 22mm Nut (EU)
304160015	Toeboard retaining clamp SW21	04.16.001.50	Toe Board Retaining Clamp(Euro)
304390003	Scaffold board retaining clamp SW23	04.39.000.30	Scaffold Board Retaining Clamp SW23
304390004	Scaffold board retaining clamp SW22 EU	04.39.000.40	Scaffold Board Retaining Clamp SW22
304390005	Scaffold board retaining clamp SW21	04.39.000.50	Scaffold Board Retaining Clamp SW21
305012003	RA adapter clamp SW23	05.01.200.30	RA Adapter Clamp 2"- Bolt, 23mm Nut (AU)
305012004	RA adapter clamp SW22 EU	05.01.200.50	RA Adapter Clamp 2"- Bolt, 22mm Nut (EU)
305012005	RA adapter clamp SW21	05.01.200.50	RA Adapter Clamp 2"- Bolt, 21mm Nut (UK)
305022003	Swivel adapter clamp SW23	05.02.200.30	Swivel Adapter Clamp 2"-Bolt, 23mm Nut (AU)
305022004	Swivel adapter clamp SW22 EU	05.02.200.40	Swivel Adapter Clamp 2"-Bolt, 22mm Nut (EU)
305022005	Swivel adapter clamp SW21	05.02.200.50	Swivel Adapter Clamp 2"-Bolt, 21mm Nut (UK)
305032003	Spigot adapter clamp-bolt SW23	05.03.200.30	Spigot Adapter Clamp-Bolt, 23mm Nut (AU)
305032004	Spigot adapter clamp-bolt SW22 EU	05.03.200.40	Spigot Adapter Clamp-Bolt, 22mm Nut (EU)
305032005	Spigot adapter clamp-bolt SW21	05.03.200.50	Spigot Adapter Clamp-Bolt, 21mm Nut (UK)
305082003	Girder spigot adapter clamp SW23	05.08.200.30	Girder Spigot Adapter Clamp 2", 23mm Nut (AU)
305082004	Girder spigot adapter clamp SW22 EU	05.08.200.40	Girder Spigot Adapter Clamp 2", 22mm Nut (EU)
305082005	Girder spigot adapter clamp SW21	05.08.200.50	Girder Spigot Adapter Clamp 2", 21mm Nut (UK)
306010600	Base jack 60cm	06.01.060.00	Base jack 60cm
306030780	Swivel base jack 78cm	06.03.078.00	Swiveljack 780mm
306042000	Base plate system 5cm	06.04.200.00	Base Plate--System 2"
306110003	Jack retainer for lifting SW23	06.11.000.30	Jack Retainer - Lifting,23mm Nut
306110004	Jack retainer for lifting SW22 EU	06.11.000.40	Jack retainer for lifting SW22
306110005	Jack retainer for lifting SW21	06.11.000.50	Jack Retainer - Lifting, 21 mm Nut
307070100	Castor wheel 10kN	07.07.010.00	Castor Wheel 10kN
307090100	Castor wheel 10kN no screwjack	07.09.100.00	Castor Wheel 10kN w/out Screwjack
308010735	Steel plank 19/73cm	08.01.073.50	Steel Plank 190mm - O-Type 0.73m/2'5"
308011095	Steel plank 19/109cm	08.01.109.50	Steel Plank 190mm - O-Type 1.09m/3'7"
308011405	Steel plank 19/140cm	08.01.140.50	Steel Plank 190mm - O-Type 1.40m/4'7"
308011575	Steel plank 19/157cm	08.01.157.50	Steel Plank 190mm - O-Type 1.57m/5'2"
308012075	Steel plank 19/207cm	08.01.207.50	Steel Plank 190mm - O-Type 2.07m/6'10"
308012575	Steel plank 19/257cm	08.01.257.50	Steel Plank 190mm - O-Type 2.57m/8'5"
308013075	Steel plank 19/307cm	08.01.307.50	Steel Plank 190mm - O-Type 3.07m/10'1"
308030735	Steel plank 32/73cm	08.03.073.50	Steel Plank 320mm - O-Type 0.73m/2'5"
308031095	Steel plank 32/109cm	08.03.109.50	Steel Plank 320mm - O-Type 1.09m/3'7"
308031405	Steel plank 32/140cm	08.03.140.50	Steel Plank 320mm - O-Type 1.40m/4'7"
308031575	Steel plank 32/157cm	08.03.157.50	Steel Plank 320mm - O-Type 1.57m/5'2"
308032075	Steel plank 32/207cm	08.03.207.50	Steel Plank 320mm - O-Type 2.07m/6'10"
308032575	Steel plank 32/257cm	08.03.257.50	Steel Plank 320mm - O-Type 2.57m/8'5"
308033075	Steel plank 32/307cm	08.03.307.50	Steel Plank 320mm - O-Type 3.07m/10'1"
308070735	Infill plank 0.73m	08.07.073.50	Infill Plank 0.73m/2'5"
308071095	Infill plank 1.09m	08.07.109.50	Infill Plank 1.09m/3'10"
308071405	Infill plank 1.40m	08.07.140.50	Infill Plank 1.40m/4'7"
308071575	Infill plank 1.57m	08.07.157.00	Infill Plank 1.57m/5'2"
308072075	Infill plank 2.07m	08.07.207.50	Infill Plank 2.07m/6'10"
308072575	Infill plank 2.57m	08.07.257.50	Infill Plank 2.57m/8'5"
308073075	Infill plank 3.07m	08.07.307.50	Infill Plank 3.07m/10'1"
308130755	Gap filler plank 32/75cm	08.13.075.50	Gap Filler Plank 320 x 0.75m
308131005	Gap filler plank 32/100cm	08.13.100.50	Gap Filler Plank 320 x 1.00m
308131255	Gap filler plank 32/125cm	08.13.125.50	Gap Filler Plank 320 x 1.25m
308131505	Gap filler plank 32/150cm	08.13.150.50	Gap Filler Plank 320 x 1.50m
308131755	Gap filler plank 32/175cm	08.13.175.50	Gap Filler Plank 320 x 1.75m
308132005	Gap filler plank 32/200cm	08.13.200.50	Gap Filler Plank 320 x 2.00m
308140755	Gap filler plank 19/75cm	08.14.075.50	Gap Filler Plank 190 x 0.75m
308141005	Gap filler plank 19/100cm	08.14.100.50	Gap Filler Plank 190 x 1.00m
308141255	Gap filler plank 19/125cm	08.14.125.50	Gap Filler Plank 190 x 1.25m
308141505	Gap filler plank 19/150cm	08.14.150.50	Gap Filler Plank 190 x 1.50m

Doka		AT-PAC	
Article N°	Article designation	Article N°	Article designation
308141755	Gap filler plank 19/175cm	08.14.175.50	Gap Filler Plank 190 x 1.75m
308142005	Gap filler plank 19/200cm	08.14.200.50	Gap Filler Plank 190 x 2.00m
308150735	Gap filler plate 32/73cm	08.15.073.50	Gap filler plate 32/73cm
308151045	Gap filler plate 32/104cm	08.15.104.50	Gap filler plate 32/104cm
308151095	Gap filler plate 32/109cm	08.15.109.50	Gap filler plate 32/109cm
308151575	Gap filler plate 32/157cm	08.15.157.50	Gap filler plate 32/157cm
308152075	Gap filler plate 32/207cm	08.15.207.50	Gap filler plate 32/207cm
308152575	Gap filler plate 32/257cm	08.15.257.50	Gap filler plate 32/257cm
308400395	Steel toeboard yellow 0.39m	08.40.039.50	Steel-toeboard Y 0.39m/1'3"
308400735	Steel toeboard yellow 0.73m	08.40.073.50	Steel-toeboard Y 0.73m/2'5"
308401045	Steel toeboard yellow 1.04m	08.40.104.50	Steel-toeboard Y 1.04m/3'5"
308401095	Steel toeboard yellow 1.09m	08.40.109.50	Steel-toeboard Y 1.09m/3'7"
308401405	Steel toeboard yellow 1.40m	08.40.140.50	Steel-toeboard Y 1.40m/4'7"
308401575	Steel toeboard yellow 1.57m	08.40.157.50	Steel-toeboard Y 1.57m/5'2"
308402075	Steel toeboard yellow 2.07m	08.40.207.50	Steel-toeboard Y 2.07m/6'10"
308402575	Steel toeboard yellow 2.57m	08.40.257.50	Steel-toeboard Y 2.57m/8'6"
308403075	Steel toeboard yellow 3.07m	08.40.307.50	Steel-toeboard Y 3.07m/10'1"
308410735	Angular deck 0.73m	08.41.073.50	Angular deck 0.73m
308411093	Angular deck 1.09m	08.41.109.50	Angular deck extension 1.09m
310012003	Adjustable swing gate SW23	10.01.200.30	Adjustable Swing Gate, 23mm Nut (AU) 2"
310012004	Adjustable swing gate SW22 EU	10.01.200.40	Adjustable swing gate SW22
310012005	Adjustable swing gate SW21	10.01.200.50	Adjustable Swing Gate, 21mm Nut (UK)2"
310067004	Access barrier SW22 EU	10.06.700.40	Access barrier SW22 EU
310067005	Access barrier SW21	10.06.700.50	Access Barrier
310152005	Adjustable swing gate galvanized SW21	10.15.200.50	Adjustable swing gate galvanized SW21
311022003	A-type ladder bracket SW23	11.02.200.30	A-Type Starter Bracket/Ladder Bracket (23mm)
311090243	Steel ladder AS1892 2.40m	11.09.024.30	Steel Ladder AS 1892 - 2.4m
311090303	Steel ladder AS1892 3.00m	11.09.030.30	Steel ladder AS1892 3.00m
311090363	Steel ladder AS1892 3.60m	11.09.036.30	Steel Ladder AS 1892 - 3.6m
311090423	Steel ladder AS1892 4.20m	11.09.042.30	Steel ladder AS1892 4.20m
311090483	Steel ladder AS1892 4.80m	11.09.048.30	Steel Ladder AS 1892 - 4.8m
311090543	Steel ladder AS1892 5.40m	11.09.054.30	Steel ladder AS1892 5.40m
311090603	Steel ladder AS1892 6.00m	11.09.060.30	Steel Ladder AS 1892 - 6.0m
314012400	Aluminium ladder 2.40m	14.01.240.00	Aluminium Ladder 2.4m/ 8'
314013000	Aluminium ladder 3.00m	14.01.300.00	Aluminium ladder 3.00m
314013600	Aluminium ladder 3.60m	14.01.360.00	Aluminium Ladder 3.6m/12'
314014800	Aluminium ladder 4.80m	14.01.480.00	Aluminium Ladder 4.8m/16'
314015400	Aluminium ladder 5.40m	14.01.540.00	Aluminium ladder 5.40m
314016000	Aluminium ladder 6.00m	14.01.600.00	Aluminium Ladder 6.0M/20'
315020890	Stair tread 0.89m	15.02.089.00	Stair Tread 0.89m/34" (2'11")
315072075	Stair stringer left 200/207cm	15.07.207.50	Stair Stringer Left 2.0m x 2.07m
315082075	Stair stringer right 200/207cm	15.08.207.50	Stair Stringer Right2.0m x 2.07m/
316012575	Alum. stair platform 200/257cm	16.01.257.50	Alum Stair Platform w/ Landing O-Type 2.0m x 2.57m
316013075	Alum. stair platform 200/307cm	16.01.307.50	Alum Stair Platform w Landing O-Type 2.0m x 3.07m
316052575	Alum. stair inner ext. guardr. 200/257cm	16.05.257.50	Alum Stair Inner Extended Guardrail 2m x 2.57m
316053075	Alum. stair inner ext. guardr. 200/307cm	16.05.307.50	Alum Stair Inner Extended Guardrail 2m x 3.07m
316062575	Alum. stair outer guardrail 200/257cm	16.06.257.50	Alum Stair Outer Guardrail 2m x 2.57m
316063075	Alum. stair outer guardrail 200/307cm	16.06.307.50	Alum Stair Outer Guardrail 2m x 3.07m
316070010	Alum. stair platform guardrail	16.07.001.00	Alum stair filler handrail
316080005	Alum. stair inner guardrail 200/257cm	16.08.000.50	Alum Stair Inner Guardrail 2.57m/8'5"
316151605	Alum. stair platform 100/160cm	16.15.160.00	Alum Stair Platform w/ Landing O-Type 1.0m x 1.60m
316161605	Alum. stair inner guardrail 100/160cm	16.16.160.00	Alum Stair Inner Guardrail 1.0m Lift x 1.60m
317013350	Ladder beam 3.35m	17.01.335.00	Ladder Beam 3.35m/11', 4.0mm
317014880	Ladder beam 4.88m	17.01.488.00	Ladder Beam 4.88m/16', 4.0mm
317016390	Ladder beam 6.39m	17.01.639.00	Ladder Beam 6.39m/21', 4.0mm
319021005	Alum. hatch deck 100cm	19.02.100.50	All Alum Ladder Hatch Deck 1.00m/8'5"
319021575	Alum. hatch deck 157cm	19.02.157.50	All Alum Ladder Hatch Deck 1.57m/8'5"
319022075	Alum. hatch deck 207cm	19.02.207.50	All Alum Ladder Hatch Deck 2.07m/8'5"
319022575	Alum. ladder hatch deck 257cm	19.02.257.50	All Alum Ladder Hatch Deck 2.57m/8'5"
319023075	Alum. ladder hatch deck 307cm	19.02.307.50	All Alum Ladder Hatch Deck 3.07m/8'5"
318071575	Alum/ply ladder hatch deck 64/157cm	18.07.157.50	Alum/Ply Lateral Hatch Deck 1.57m/5'2"
318072075	Alum/ply ladder hatch deck 64/207cm	18.07.207.50	Alum/Ply Lateral Hatch Deck 2.07m/6'10"
318072575	Alum/ply ladder hatch deck 64/257cm	18.07.257.50	Alum/Ply Lateral Hatch Deck 2.57m/8'5"
318073075	Alum/ply ladder hatch deck 64/307cm	18.07.307.50	Alum/Ply Lateral Hatch Deck 3.07m/10'1"

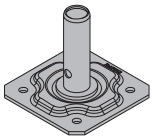
Doka		AT-PAC	
Article N°	Article designation	Article N°	Article designation
318081575	Ladder for hatch deck 1.57m	18.08.157.50	Ladder for hatch deck 1.57m
319050015	Alum. ladder for hatch deck	19.05.001.00	All Alum Ladder for Hatch Deck
320033050	Aluminium lattice girder beam 50/305cm	20.03.305.00	Aluminum Lattice Girder Beam - 3.05M (500mm)
320034260	Aluminium lattice girder beam 50/426cm	20.03.426.00	Aluminum Lattice Girder Beam - 4.26M (500mm)
320036390	Aluminium lattice girder beam 50/639cm	20.03.639.00	Aluminum Lattice Girder Beam - 6.39M (500mm)
320038520	Aluminium lattice girder beam 50/852cm	20.03.852.00	Aluminum Lattice Girder Beam - 8.52M (500mm)
320065000	Aluminium lattice girder beam joiner	20.06.500.00	Aluminum Lattice Girder Beam Joiner - 500mm
328450600	4-way screw jack head 60cm	28.45.060.00	4-Way Screw-Jack head 60cm/12"
328460600	Screw jack U-head 60cm	28.46.060.00	Screw jack U-Head 60cm/12"
335020000	Pigtail pin	35.02.000.00	Pig Tail Pin
335030000	Toggle pin	35.03.000.00	Toggle Pin
335040000	Spigot for hanging scaffold	35.04.000.00	Spigot for Hanging Scaffold
335150025	Spring pin	35.15.002.50	Spring Pin - M12
338180023	Wall tie bracket double	38.18.002.30	Wall Tie Bracket - Double
338190400	Wall tie tube 0.40m	38.19.040.00	Wall tie tube 0.40m with hook
338190800	Wall tie tube 0.80m	38.19.080.00	Wall tie tube 0.80m with hook
338191000	Wall tie tube 1.00m	38.19.100.00	Wall Tie - Tube w/ Hook 1000mm
338191500	Wall tie tube 1.50m	38.19.150.00	Wall Tie - Tube w/ Hook 1500mm
338191800	Wall tie tube 1.80m	38.19.180.00	Wall tie tube 1.80m with hook
352512000	Eye-bolt GS M12x120	35.25.120.00	Eye-bolt GS M12x120
352523000	Eye-bolt GS M12x230	35.25.230.00	Eye-bolt GS M12x230
352610000	Plastic rawl S14x100	35.26.100.00	Plastic rawl S14x100
397320000	Handle nut for base jack	97.32.000.00	Base Jack Handle
399010000	Scaffold cage insert	99.01.000.00	INSERT/Scaffold Cage INSERT
399020000	Scaffold storage rack 1.20x1.20m	99.02.000.00	RACK/Scaffold Storage Rack
399200010	Scaffold storage rack with mesh 1.20x1.20m	99.20.001.00	Rack w/ Welded Mesh Side and Mesh Bottom

	[kg]	Article N°
Base jack 60cm Fußspindel 60cm	**3.7**	**306010600**

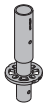


Swivel base jack 78cm Fußspindel schwenkbar 78cm	**5.6**	**306030780**

Base plate system 5cm Fußplatte 5cm	**1.1**	**306042000**

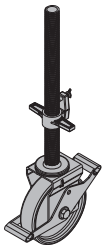


Starter base collar Anfangsstück	**2.4**	**301270000**

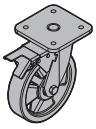


Starter base collar short Anfangsstück kurz	**1.7**	**301270010**

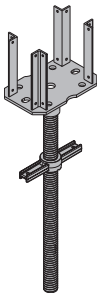
Castor wheel 10kN Lenkrolle 10kN	**7.0**	**307070100**



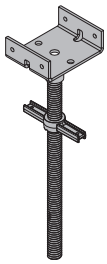
Castor wheel 10kN no screwjack Lenkrolle 10kN ohne Fußspindel	**5.2**	**307090100**



4-way screw jack head 60cm Vierwegkopfspindel 60cm	**7.2**	**328450600**

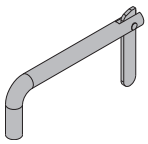


Screw jack U-head 60cm Kopfspindel 60cm	**6.8**	**328460600**

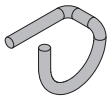


Spring pin Rohrklappstecker	**0.07**	**335150025**

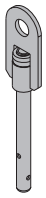
Toggle pin Klinkenstecker	**0.07**	**335030000**



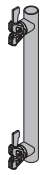
Pigtail pin Fallstecker	**0.12**	**335020000**



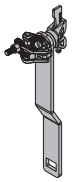
Lifting lug SW21 **Lifting lug SW22 EU** **Lifting lug SW23** Kranöse	**6.9** **6.9** **6.9**	**301520015** **301520014** **301520013**



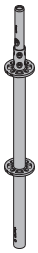
Leg lock for suspended platform Hängegerüstverbinder	**2.8**	**301280000**



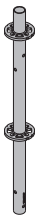
	[kg]	Article N°
Jack retainer for lifting SW21	**3.7**	**306110005**
Jack retainer for lifting SW22 EU	**3.7**	**306110004**
Jack retainer for lifting SW23	**3.7**	**306110003**
Sicherung Fußspindel		



Standard 0.50m crimped spigot	**3.2**	**301010500**
Standard 1.00m crimped spigot	**5.5**	**301011000**
Standard 1.50m crimped spigot	**7.8**	**301011500**
Standard 2.00m crimped spigot	**10.1**	**301012000**
Standard 2.50m crimped spigot	**12.7**	**301012500**
Standard 3.00m crimped spigot	**15.7**	**301013000**
Standard 4.00m crimped spigot	**19.3**	**301014000**
Stiel Rohrverbinder verpresst		

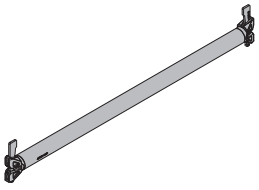


Standard 0.50m hanging no spigot	**2.3**	**301790500**
Standard 1.00m hanging no spigot	**4.6**	**301791000**
Standard 1.50m hanging no spigot	**6.9**	**301791500**
Standard 2.00m hanging no spigot	**9.2**	**301792000**
Standard 2.50m hanging no spigot	**11.5**	**301792500**
Standard 3.00m hanging no spigot	**13.9**	**301793000**
Standard 4.00m hanging no spigot	**18.8**	**301794000**
Stiel ohne Rohrverbinder Hängegerüst		

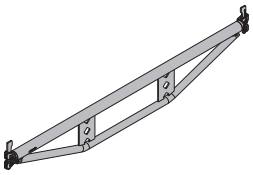


Spigot for hanging scaffold	**1.8**	**335040000**
Rohrverbinder für Hängegerüst		

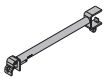
Ledger 0.15m	**1.2**	**301030150**
Ledger 0.39m	**2.1**	**301030395**
Ledger 0.73m	**3.3**	**301030735**
Ledger 1.04m	**4.4**	**301031045**
Ledger 1.09m	**4.5**	**301031095**
Ledger 1.40m	**5.6**	**301031405**
Ledger 1.57m	**6.2**	**301031575**
Ledger 2.07m	**8.0**	**301032075**
Ledger 2.57m	**9.8**	**301032575**
Ledger 3.07m	**11.6**	**301033075**
Riegel		



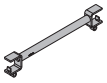
	[kg]	Article N°
Truss ledger 1.40m	**9.4**	**301181400**
Truss ledger 1.57m	**10.4**	**301181575**
Truss ledger 2.07m	**13.8**	**301182075**
Truss ledger 2.57m	**17.1**	**301182575**
Truss ledger 3.07m	**20.5**	**301183075**
Doppelriegel		



Ledger to plank transom 32cm 1B	**3.7**	**301233205**
Ledger to plank transom 64cm 2B	**4.9**	**301236405**
Ledger to plank transom 96cm 3B	**6.0**	**301239605**
Belagsriegel Riegel-zu-Belag		

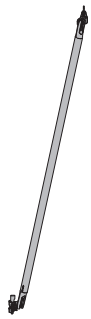


Plank to plank transom 32cm 1B	**4.1**	**301243205**
Plank to plank transom 64cm 2B	**5.3**	**301246405**
Plank to plank transom 96cm 3B	**6.4**	**301249605**
Belagsriegel Belag-zu-Belag		



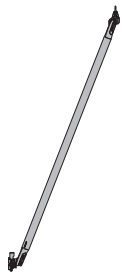
Side bracket 0.39m	**4.8**	**301110395**
Side bracket 0.73m	**7.5**	**301110735**
Side bracket 1.09m	**12.5**	**301121090**
Konsole		

Bay brace 200/73cm	**7.2**	**301060735**
Bay brace 200/104cm	**7.4**	**301061045**
Bay brace 200/109cm	**7.5**	**301061095**
Bay brace 200/140cm	**7.9**	**301061405**
Bay brace 200/157cm	**8.1**	**301061575**
Bay brace 200/207cm	**8.0**	**301062075**
Bay brace 200/257cm	**9.8**	**301062575**
Bay brace 200/307cm	**11.0**	**301063075**
Vertikaldiagonale 200cm		



	[kg]	Article N°
Bay brace 150/73cm	**5.9**	**301070735**
Bay brace 150/104cm	**6.3**	**301071045**
Bay brace 150/109cm	**6.4**	**301071095**
Bay brace 150/140cm	**6.9**	**301071405**
Bay brace 150/157cm	**7.2**	**301071575**
Bay brace 150/207cm	**8.2**	**301072075**
Bay brace 150/257cm	**9.2**	**301072575**
Bay brace 150/307cm	**10.4**	**301073075**

Vertikaldiagonale 150cm



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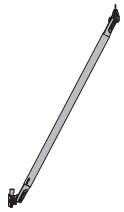
Bay brace 100/73cm	**4.8**	**301080735**
Bay brace 100/104cm	**5.3**	**301081045**
Bay brace 100/109cm	**5.4**	**301081095**
Bay brace 100/140cm	**6.0**	**301081405**
Bay brace 100/157cm	**6.3**	**301081575**
Bay brace 100/207cm	**7.5**	**301082075**
Bay brace 100/257cm	**8.6**	**301082575**
Bay brace 100/307cm	**9.9**	**301083075**

Vertikaldiagonale 100cm



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Plan brace square 307/307cm	**16.0**	**301803075**
Plan brace square 257/257cm	**13.5**	**301802575**
Plan brace square 207/207cm	**11.0**	**301802075**
Plan brace square 157/157cm	**8.5**	**301801575**
Plan brace square 140/140cm	**7.7**	**301801405**
Plan brace square 109/109cm	**6.1**	**301801095**

Horizontaldiagonale quadr.

Ü

Plan brace 307/73cm	**12.0**	**301840735**
Plan brace 307/109cm	**12.3**	**301841095**
Plan brace 257/73cm	**10.2**	**301830735**
Plan brace 257/109cm	**10.6**	**301831095**
Plan brace 207/73cm	**8.5**	**301820735**
Plan brace 207/109cm	**9.0**	**301821095**
Plan brace 157/73cm	**6.8**	**301810735**
Plan brace 157/109cm	**7.4**	**301811095**

Horizontaldiagonale

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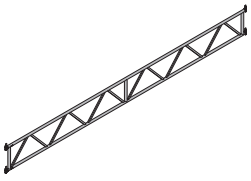
Lattice girder 5.14m no spigot	**55.2**	**301165145**
Lattice girder 6.14m no spigot	**64.9**	**301166145**
Lattice girder 7.71m no spigot	**82.3**	**301167715**

Gitterträger ohne Rohrverbinder



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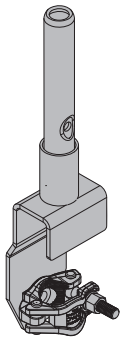
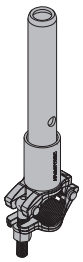
	[kg]	Article N°
Girder spigot adapter clamp SW21	**3.4**	**305082005**
Girder spigot adapter clamp SW22 EU	**3.4**	**305082004**
Girder spigot adapter clamp SW23	**3.4**	**305082003**

Rohrverbinder Gitterträger



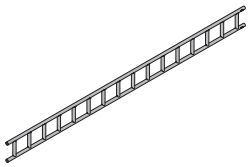
Spigot adapter clamp-bolt SW21	**2.1**	**305032005**
Spigot adapter clamp-bolt SW22 EU	**2.1**	**305032004**
Spigot adapter clamp-bolt SW23	**2.1**	**305032003**

Rohrverbinder mit Kupplung



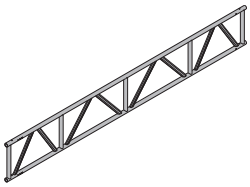
Ladder beam 3.35m	**41.9**	**317013350**
Ladder beam 4.88m	**61.0**	**317014880**
Ladder beam 6.39m	**80.0**	**317016390**

Leiterbalken



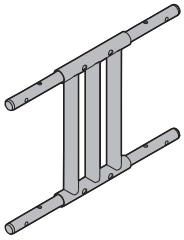
Aluminium lattice girder beam 50/305cm	**15.7**	**320033050**
Aluminium lattice girder beam 50/426cm	**21.9**	**320034260**
Aluminium lattice girder beam 50/639cm	**33.1**	**320036390**
Aluminium lattice girder beam 50/852cm	**44.3**	**320038520**

Alu-Gitterträger



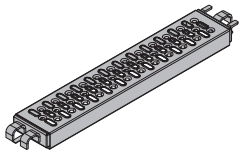
Aluminium lattice girder beam joiner	**12.9**	**320065000**

Rohrverbinder Alu-Gitterträger

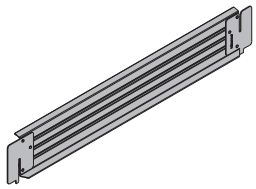


	[kg]	Article N°
Steel plank 32/73cm	**6.8**	**308030735**
Steel plank 32/109cm	**9.1**	**308031095**
Steel plank 32/140cm	**11.1**	**308031405**
Steel plank 32/157cm	**12.2**	**308031575**
Steel plank 32/207cm	**15.4**	**308032075**
Steel plank 32/257cm	**18.6**	**308032575**
Steel plank 32/307cm	**22.2**	**308033075**
Stahlbelag 32cm		

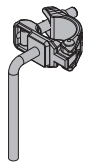
Steel plank 19/73cm	**5.0**	**308010735**
Steel plank 19/109cm	**6.6**	**308011095**
Steel plank 19/140cm	**8.1**	**308011405**
Steel plank 19/157cm	**8.9**	**308011575**
Steel plank 19/207cm	**11.3**	**308012075**
Steel plank 19/257cm	**13.6**	**308012575**
Steel plank 19/307cm	**16.2**	**308013075**
Stahlbelag 19cm		



Steel toeboard yellow 0.39m	**1.7**	**308400395**
Steel toeboard yellow 0.73m	**2.6**	**308400735**
Steel toeboard yellow 1.04m	**3.4**	**308401045**
Steel toeboard yellow 1.09m	**3.5**	**308401095**
Steel toeboard yellow 1.40m	**4.3**	**308401405**
Steel toeboard yellow 1.57m	**4.8**	**308401575**
Steel toeboard yellow 2.07m	**6.1**	**308402075**
Steel toeboard yellow 2.57m	**7.4**	**308402575**
Steel toeboard yellow 3.07m	**8.7**	**308403075**
Stahl-Bordbrett gelb		

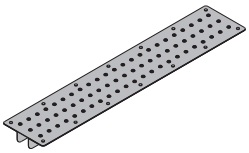


Toeboard retaining clamp SW21	**0.74**	**304160015**
Toeboard retaining clamp SW22 EU	**0.74**	**304160014**
Toeboard retaining clamp SW23	**0.74**	**304160013**
Bordbretthalter		

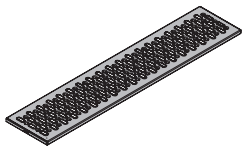


Scaffold board retaining clamp SW21	**0.74**	**304390005**
Scaffold board retaining clamp SW22 EU	**0.74**	**304390004**
Scaffold board retaining clamp SW23	**0.74**	**304390003**
Gerüstbohlenhalter		

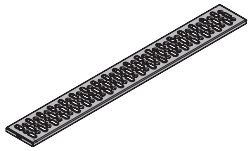
Infill plank 0.73m	**2.8**	**308070735**
Infill plank 1.09m	**4.5**	**308071095**
Infill plank 1.40m	**6.0**	**308071405**
Infill plank 1.57m	**6.0**	**308071575**
Infill plank 2.07m	**9.1**	**308072075**
Infill plank 2.57m	**11.5**	**308072575**
Infill plank 3.07m	**13.9**	**308073075**
Spaltblech		



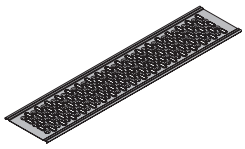
	[kg]	Article N°
Gap filler plank 32/75cm	**4.5**	**308130755**
Gap filler plank 32/100cm	**5.5**	**308131005**
Gap filler plank 32/125cm	**6.6**	**308131255**
Gap filler plank 32/150cm	**7.8**	**308131505**
Gap filler plank 32/175cm	**8.8**	**308131755**
Gap filler plank 32/200cm	**10.0**	**308132005**
Ausgleichsbelag 32cm		



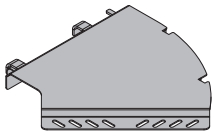
Gap filler plank 19/75cm	**2.9**	**308140755**
Gap filler plank 19/100cm	**3.6**	**308141005**
Gap filler plank 19/125cm	**4.3**	**308141255**
Gap filler plank 19/150cm	**5.1**	**308141505**
Gap filler plank 19/175cm	**5.8**	**308141755**
Gap filler plank 19/200cm	**6.7**	**308142005**
Ausgleichsbelag 19cm		



Gap filler plate 32/257cm	**8.4**	**308152575**
Gap filler plate 32/207cm	**7.0**	**308152075**
Gap filler plate 32/157cm	**5.2**	**308151575**
Gap filler plate 32/109cm	**3.5**	**308151095**
Gap filler plate 32/104cm	**3.3**	**308151045**
Gap filler plate 32/73cm	**2.2**	**308150735**
Ausgleichsblech 32cm		

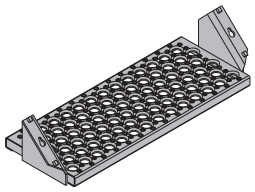


Angular deck 0.73m	**15.3**	**308410735**
Angular deck 1.09m	**19.2**	**308411093**
Winkelbelag		

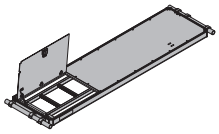


Stair stringer right 200/207cm	**15.5**	**315082075**
Stair stringer left 200/207cm	**15.5**	**315072075**
Treppenwange		

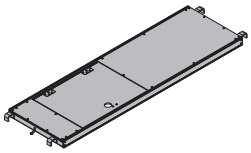
	[kg]	Article N°
Stair tread 0.89m Treppenstufe 0,89m	**8.6**	**315020890**



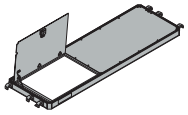
	[kg]	Article N°
Alum. ladder hatch deck 257cm	**36.0**	**319022575**
Alum. ladder hatch deck 307cm Durchstieg Alu mit Leiter	**38.8**	**319023075**



	[kg]	Article N°
Alum/ply ladder hatch deck 64/157cm	**25.3**	**318071575**
Alum/ply ladder hatch deck 64/207cm	**28.2**	**318072075**
Alum/ply ladder hatch deck 64/257cm	**31.0**	**318072575**
Alum/ply ladder hatch deck 64/307cm Durchstieg 64cm	**33.8**	**318073075**

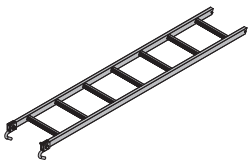


	[kg]	Article N°
Alum. hatch deck 100cm	**23.5**	**319021005**
Alum. hatch deck 157cm	**25.7**	**319021575**
Alum. hatch deck 207cm Durchstieg Alu	**29.9**	**319022075**



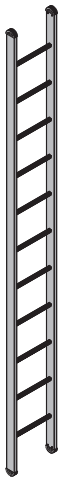
	[kg]	Article N°
Ladder for hatch deck 1.57m Leiter Gerüstbelag 1,57m	**6.0**	**318081575**

	[kg]	Article N°
Alum. ladder for hatch deck Alu-Etagenleiter	**6.7**	**319050015**

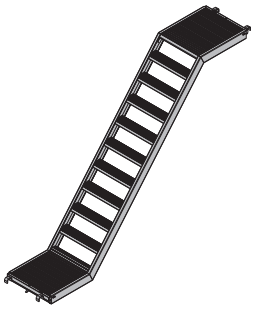


	[kg]	Article N°
Aluminium ladder 2.40m	**7.2**	**314012400**
Aluminium ladder 3.00m	**9.0**	**314013000**
Aluminium ladder 3.60m	**10.8**	**314013600**
Aluminium ladder 4.80m	**14.4**	**314014800**
Aluminium ladder 5.40m	**16.2**	**314015400**
Aluminium ladder 6.00m Alu-Leiter	**18.0**	**314016000**

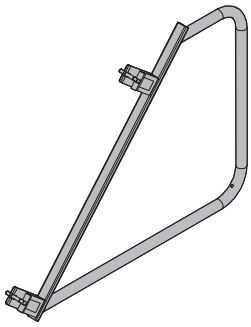
	[kg]	Article N°
Steel ladder AS1892 2.40m	**12.7**	**311090243**
Steel ladder AS1892 3.60m	**19.2**	**311090363**
Steel ladder AS1892 4.80m	**25.6**	**311090483**
Steel ladder AS1892 6.00m Stahlleiter AS1892	**32.1**	**311090603**



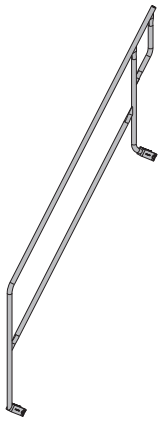
	[kg]	Article N°
Alum. stair platform 200/257cm	**29.7**	**316012575**
Alum. stair platform 200/307cm	**40.0**	**316013075**
Alum. stair platform 100/160cm Alu-Podesttreppe	**26.0**	**316151605**



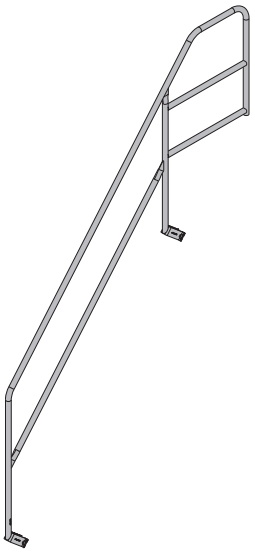
	[kg]	Article N°
Alum. stair platform guardrail Alu-Podesttreppengeländer	**6.9**	**316070010**



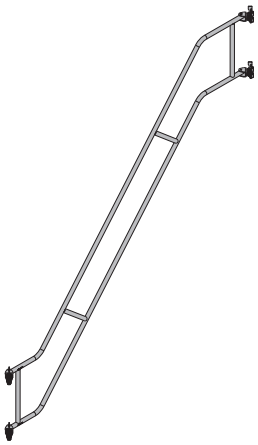
Alum. stair inner guardrail 200/257cm **Alum. stair inner guardrail 100/160cm** Alu-Treppe Innengeländer	**11.2** **11.2**	**316080005** **316161605**



Alum. stair inner ext. guardr. 200/257cm **Alum. stair inner ext. guardr. 200/307cm** Alu-Treppe Innengeländer verlängert	**14.8** **16.0**	**316052575** **316053075**

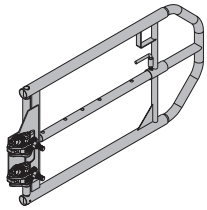


Alum. stair outer guardrail 200/257cm **Alum. stair outer guardrail 200/307cm** Alu-Treppe Außengeländer	**16.8** **18.4**	**316062575** **316063075**

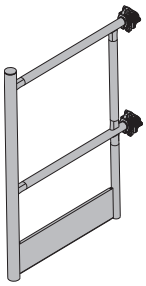


Guard rail standard Crazy Leg 1.63m Geländerstiel gekröpft 1,63m	**8.2**	**301311630**

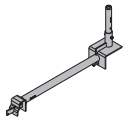
Adjustable swing gate SW21 **Adjustable swing gate SW22 EU** **Adjustable swing gate SW23** Schwingtüre verstellbar	**8.7** **8.7** **8.7**	**310012005** **310012004** **310012003**



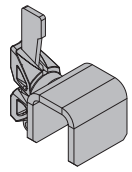
Access barrier SW21 **Access barrier SW22 EU** Abschrankung	**11.1** **11.1**	**310067005** **310067004**



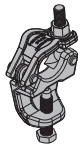
Ladder access transom 0.73m spigot Riegel Zugangsleiter 0,73m Rohrverbinder	**5.8**	**301220735**



	[kg]	Article N°
Return ledger hook Riegelanschlusshaken	**1.5**	**301410005**

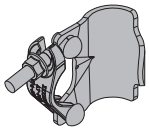


Beam clamp forged rigid SW21	**1.7**	**304032005**
Beam clamp forged rigid SW22 EU	**1.7**	**304032004**
Beam clamp forged rigid SW23 Trägerkupplung	**1.7**	**304032003**

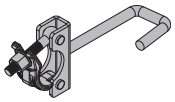


Beam clamp swivel SW21	**1.6**	**304042005**
Beam clamp swivel SW22 EU	**1.6**	**304042004**
Beam clamp swivel SW23 Trägerdrehkupplung	**1.6**	**304042003**

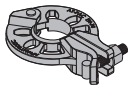
Putlog clamp SW21	**0.67**	**304140005**
Putlog clamp SW22 EU	**0.67**	**304140004**
Putlog clamp SW23 Gerüstrohrklemme	**0.67**	**304140003**



Ladder hook clamp SW21	**0.96**	**304150005**
Ladder hook clamp SW22 EU	**0.96**	**304150004**
Ladder hook clamp SW23 Leiterbefestigung	**0.96**	**304150003**

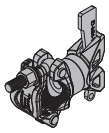


Rosette clamp T-bolt SW21	**1.2**	**301300005**
Rosette clamp T-bolt SW22 EU	**1.2**	**301300004**
Rosette clamp T-bolt SW23 Lochscheibe	**1.2**	**301300003**

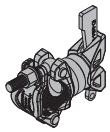


Rosette clamp T-bolt horizontal SW21	**0.84**	**301300015**
Rosette clamp T-bolt horizontal SW22 EU	**0.84**	**301300014**
Rosette clamp T-bolt horizontal SW23 Lochscheibe horizontal	**0.84**	**301300013**

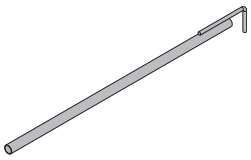
RA adapter clamp SW21	**1.6**	**305012005**
RA adapter clamp SW22 EU	**1.6**	**305012004**
RA adapter clamp SW23 Keilkopfkupplung starr	**1.6**	**305012003**



	[kg]	Article N°
Swivel adapter clamp SW21	**1.8**	**305022005**
Swivel adapter clamp SW22 EU	**1.8**	**305022004**
Swivel adapter clamp SW23 Keilkopfkupplung drehbar	**1.8**	**305022003**



Wall tie tube 0.40m	**1.9**	**338190400**
Wall tie tube 0.80m	**3.3**	**338190800**
Wall tie tube 1.00m	**4.4**	**338191000**
Wall tie tube 1.50m	**6.2**	**338191500**
Wall tie tube 1.80m Wandankerrohr	**6.8**	**338191800**



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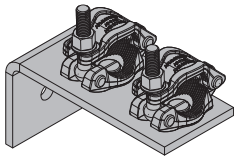
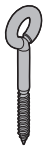
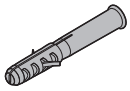
Wall tie bracket double Wandanker	**3.8**	**338180023**



Eye-bolt GS M12x120	**0.17**	**352512000**
Eye-bolt GS M12x230 Ringschraube GS M12	**0.35**	**352523000**

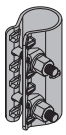


Plastic rawl S14x100 Dübel S14x100	**0.007**	**352610000**

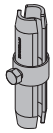


Handle nut for base jack Fußspindelmutter	**0.77**	**397320000**

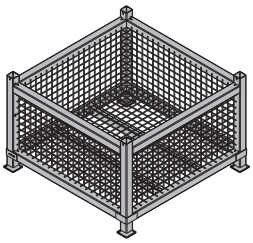
Tube joiner SW21 external	**1.0**	**304100005**
Tube joiner SW22 external EU	**1.0**	**304100004**
Tube joiner SW23 external Gerüstrohrverbinder außen	**1.0**	**304100003**



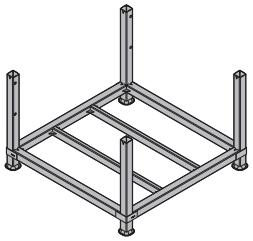
Tube joiner SW21 internal	**0.8**	**304110005**
Tube joiner SW22 internal EU	**0.8**	**304110004**
Tube joiner SW23 internal Gerüstrohrverbinder innen	**0.8**	**304110003**



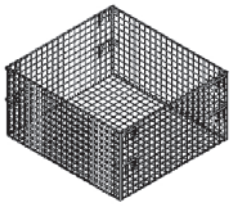
	[kg]	Article N°
Scaffold storage rack with mesh 1.20x1.20m Gerüst-Stapelpalette mit Gitter 1,20x1,20m	**84.6**	**399200010**



Scaffold storage rack 1.20x1.20m Gerüst-Stapelpalette 1,20x1,20m	**48.1**	**399020000**



Scaffold cage insert Gerüst-Stapelpalette Gittereinsatz	**29.0**	**399010000**



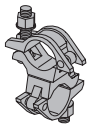
Scaffold tube 48.3mm 0.50m	**1.7**	**682026000**
Scaffold tube 48.3mm 1.00m	**3.6**	**682014000**
Scaffold tube 48.3mm 1.50m	**5.4**	**682015000**
Scaffold tube 48.3mm 2.00m	**7.2**	**682016000**
Scaffold tube 48.3mm 2.50m	**9.0**	**682017000**
Scaffold tube 48.3mm 3.00m	**10.8**	**682018000**
Scaffold tube 48.3mm 3.50m	**12.6**	**682019000**
Scaffold tube 48.3mm 4.00m	**14.4**	**682021000**
Scaffold tube 48.3mm 4.50m	**16.2**	**682022000**
Scaffold tube 48.3mm 5.00m	**18.0**	**682023000**
Scaffold tube 48.3mm 5.50m	**19.8**	**682024000**
Scaffold tube 48.3mm 6.00m	**21.6**	**682025000**
Scaffold tube 48.3mm .....m	**3.6**	**682001000**

Gerüstrohr 48,3mm

Galvanised

Swivel coupler 48mm Drehkupplung 48mm	**1.5**	**582560000**

Galvanised
Width-across: 22 mm

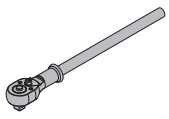


Normal coupler 48mm Normalkupplung 48mm	**1.2**	**682004000**

Galvanised
Width-across: 22 mm

Reversible ratchet 3/4" Umschaltknarre 3/4"	**1.5**	**580894000**

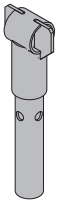
Galvanised



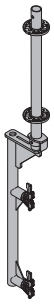
	[kg]	Article N°
Box nut 22 3/4" L Stecknuss 22 3/4" L	**0.22**	**582844000**

T-bolt M14 for coupler T-Bolzen M14 für Kupplung	**0.1**	**698009004**

RLS capping piece RLS-Geländerkopf	**0.95**	**301640010**

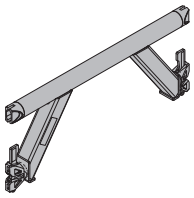


RLS exterior guardrail post RLS-Geländerstiel	**11.1**	**301690010**



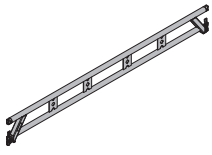
RLS ledger 0.73m	**6.6**	**301680735**
RLS ledger 1.04m	**8.0**	**301681045**
RLS ledger 1.09m	**8.2**	**301681095**
RLS ledger 1.40m	**9.5**	**301681405**
RLS ledger 1.57m	**10.3**	**301681575**
RLS ledger 2.07m	**12.5**	**301682075**
RLS ledger 2.57m	**14.6**	**301682575**
RLS ledger 3.07m	**16.8**	**301683075**

RLS-Riegel

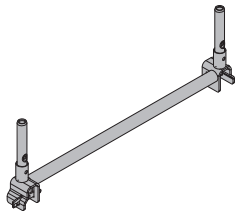


RLS truss ledger 1.57m	**16.8**	**301641575**
RLS truss ledger 2.07m	**21.5**	**301642075**
RLS truss ledger 2.57m	**26.3**	**301642575**
RLS truss ledger 3.07m	**31.0**	**301643075**

RLS-Doppelriegel



	[kg]	Article N°
Girder transom 0.73m	**7.6**	**301650735**
Girder transom 1.09m	**8.9**	**301651095**
Girder transom 1.40m	**14.5**	**301651405**
Trägerriegel		



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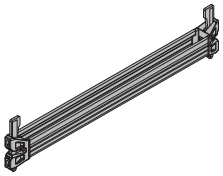
	[kg]	Article N°
U ledger 0.73m	**3.2**	**301040735**
U-Riegel 0,73m		



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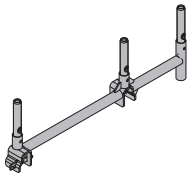
	[kg]	Article N°
Girder transom 0.73m inside bracket	**10.6**	**301670735**
Girder transom 1.09m inside bracket	**11.8**	**301671095**
Trägerriegel Innenkonsole		



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Note:
Articles with the following designation:
- "SW**21**": Available in **MEA** and **LATAM**
- "SW**22**": Available in **EU**
- "SW**23**": Available in **EAP**

"SW" ... Nut size

 ... Product under DIBt Approval

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