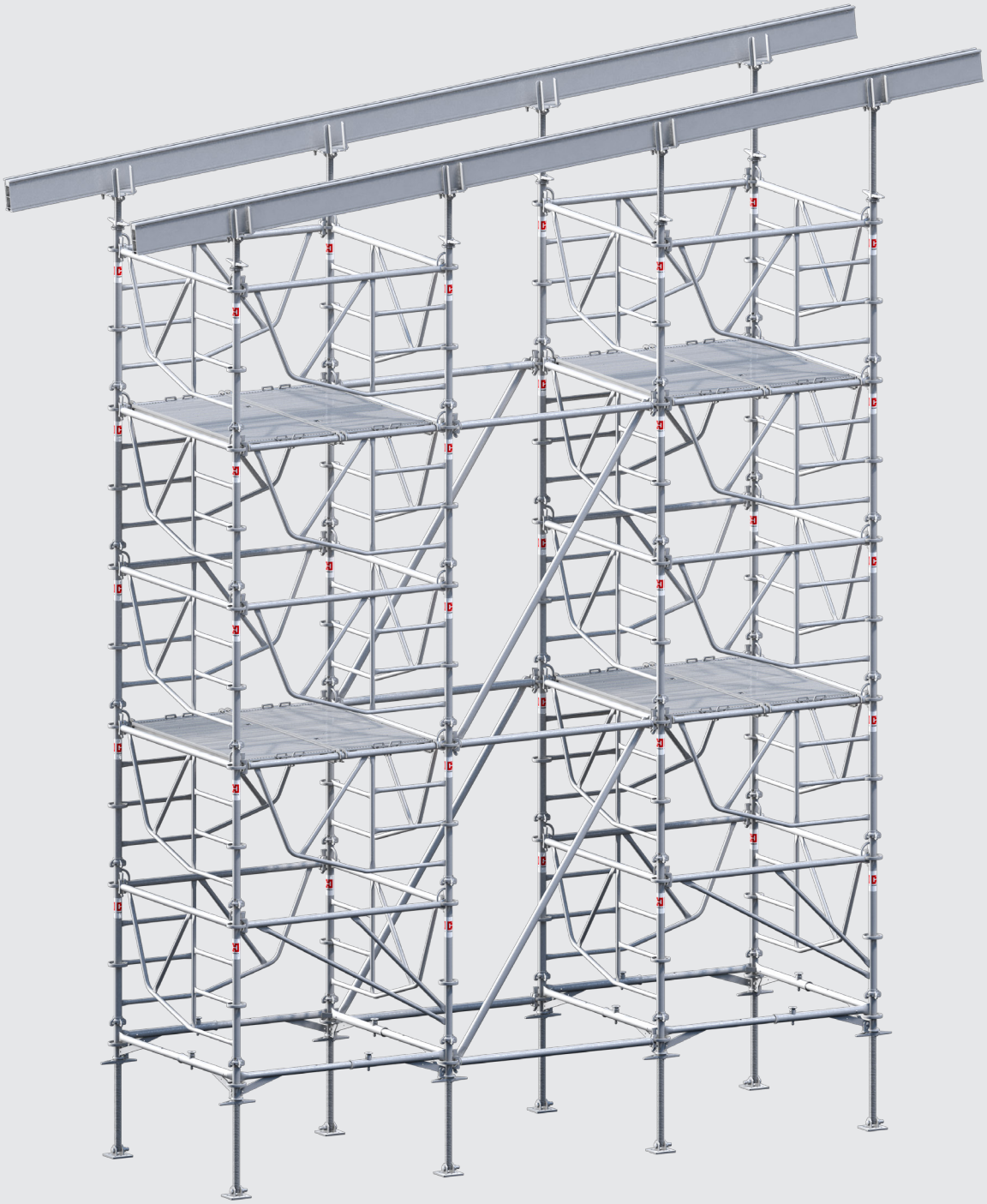
# HST 60

## Shoring Tower

## User Guide



Keep for later use!

HÜNNEBECK FORMWORK SOLUTIONS
BY BRAND SAFWAY

## Contents

# 1 Product features

## 1.1 Introduction

The Hünnebeck ST 60 Shoring Tower is type-approved falsework used to erect formwork. It has only six basic components.

The modular design makes it easy to erect square or rectangular shoring towers with three different plan dimensions:

- 1.13 m × 1.13 m
- 1.50 m × 1.50 m
- 1.13 m × 1.50 m

The frames are made of welded, galvanised steel tubes.

Jacks at the top and bottom allow the height to be quickly adjusted to suit the respective structure.

Assembling the ST 60 Shoring Towers upright from the interior enables temporary side protection to be attached safely. The ST 60 Starter Frames L are equipped with automatic safety locks that snap onto the base jacks. The continuous ladder with non-slip steps, integrated into the standard frame, can be used to easily and safely access the next platform from the interior of the ST 60 Shoring Tower. The aluminium decks are self-locking. They have a passage lid and meet the requirements of load class 4 (300 kg/m$^2$). Crosshead Jacks can safely and securely accommodate 1no. or 2no. primary beams.

ST 60 Shoring Towers can also be assembled while lying on the ground. ST 60 Shoring Towers with up to 12 frame levels assembled lying on the ground can be raised upright and then transported by crane to where they will be used.

Because the components weigh no more than 15 kg each and the decks can be repositioned ergonomically, working with the system is safe and does not cause fatigue.

The ST 60 Shoring Tower is compatible with the Hünnebeck MODEX modular scaffold. This means that, with the proper accessories, the ST 60 Shoring Towers can easily be expanded to form birdcage scaffolds without having to use complicated couplings.

## 1.2 Intended use

The standard assembly shown in this User Guide is intended to be used to transfer vertical loads to the ground.

The ST 60 Shoring Tower is approved for use as falsework as specified by DIN EN 12812.

The integrated ladder for ascending the structure may be used only inside of the ST 60 Shoring Tower.

Always observe the permissible loads. Additional information can be found in the applicable technical approval Z-8.22-956.

In conjunction with the Hünnebeck MODEX system, the ST 60 Shoring Towers can be used as a working or birdcage scaffold. Additional information can be found in the User Guide and in the applicable technical approval Z-8.22-67.

# 2 General notes

## 2.1 Information regarding intended and safe use

### 2.1.1 Design

**Design Risk Assessment**

The Design Risk Assessment is an integral part of Hünnebeck‘s design process. The designer will assess the hazards and risks associated with erection, use and dismantling of the temporary works at an early stage of the design process.

Hünnebeck will communicate where risks to health and safety remain by including a „Residual Risk Note“ on the drawing. This note will be clearly visible and marked by the familiar black exclamation mark on a yellow triangle. The statement will be brief but clear to enable appropriate action by a competent contractor.

**Planning**

The structures must be dimensioned, set up, supported, propped, tied and designed such that all loads resulting from the intended use can be supported and transferred.

The installation schedule shall be determined in advance, during technical planning of the project. The system must be planned such that activities that pose a risk of falling are avoided and, if the risk is unavoidable, its occurrence is kept to a minimum.

All materials required at the site shall be available in sufficient quantities, in flawless condition, and easily accessible.

If the date and location of work coincides with the scheduled work of other contractors, these contractors shall be consulted and the work coordinated to avoid jeopardising each other’s work.

**Design schemes**

Where relevant site-specific design schemes are produced, they will generally be to a recognised standard arrangement. Otherwise calculations will be done to verify the design.

### 2.1.2 Moving the equipment

The contractor shall ensure that components, building materials and work equipment are stored, moved, transported, and installed such that they cannot unintentionally shift.

**Transport**

The special requirements of the system either as individual components and/or as pre-assembled parts regarding transportation procedures must be complied with. This applies not only to and from the site but also to the movement of individual components and/or pre-assembled parts on the construction site/place of use.

**Lifting**

All relevant regulations regarding lifting materials using mechanical means must be complied with.

When applicable, the lifting requirements of the individual components and/or pre-assembled parts must be followed.

### 2.1.3 Delivering and storing the equipment

**Material check and inspection of components**

Material deliveries are to be checked on arrival at the construction site/place of destination, as well as before each use, to ensure it‘s in serviceable condition and functions correctly. Changes to the material are not permitted.

- Damaged components:
  Damaged components should be identified, clearly labelled and isolated ("quarantined"). They shall not be included and/or mixed with components that are in good condition and are fit for use.
- Spare parts and repairs:
  Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or by authorised facilities only.
- Disposal:
  Destroyed parts or parts that can no longer be repaired shall be disposed of by a specialised company certified according to local regulations. Information on the materials used are available upon request.

The contractor shall ensure that destroyed or damaged components are no longer used and that the appropriate environment and conditions for storage and the particular application of the system(s) are supplied.

**Using other products**

Combining components from different manufacturers carries certain risks and is not permitted.

## 2.2 On-site safety general notes

**Hazard assessment**

The contractor is responsible for the compilation, documentation, implementation and revision of a hazard assessment for each construction site. The hazard assessment contains the assessment of the working conditions as they relate to potential danger to the employees. The contractors shall implement appropriate safety measures and ensure the compliance with and the effectiveness to prevent the potential hazards determined by the assessment.

The hazard assessment serves as a starting point for effective, targeted occupational safety measures. Document the results of the hazard assessment. The employees are obligated to implement the resulting measures as required by law.

**Assembly instructions**

The contractor is responsible for compiling a written set of assembly instructions. The instructions shall contain all of the information required to ensure that all tasks are performed safely. The hazard assessment and the User Guide can be used to help compile the assembly instructions.

**Personnel qualifications**

Technical work equipment is intended for commercial use only. The equipment shall be used only by properly trained personnel under the authority of qualified supervisors, appointed by the contractor. The supervisors shall ensure that any work it is carried out safely.

Personnel shall be briefed on relevant hazards related to the specific equipment and be familiar with the User Guide.

**On-site preparations**

The contractor shall ensure that the ground (erection surface) is stable and can bear the load of the constructions (e.g. formwork and falsework, auxiliary structures) throughout every stage of construction. This also includes basic assembly, dismantling, transport and moving of components and the inspection of the entire structure during and upon completion of assembly.

Hazardous areas shall be clearly visible during the entire working process. Openings in planks, slabs and roofs, as well as in the depressions, shall be secured with protective equipment and covers to prevent persons from falling off the platforms, into or stepping into the openings. Secondary fall protection can also be installed.

Covers shall be secured to prevent unintentional motion. All connectors shall be tight and, if necessary, re-tighten before every use and every time they are moved.

The contractor is responsible for keeping persons out of work areas and walkways where there is a risk of objects falling as well as for installing protection from falling objects.

**Personal protective equipment (PPE)**

It is essential to always wear PPE, with safety footwear S3, hard hat, hi-vis vest, gloves and safety glasses, when working. When working with hazardous substances, always check if less dangerous substitutions can be used instead.

**Work at height**

Work at height can be reduced / eliminated by considering the method of assembly and use:

- Walkways that are designed to be re-used, reduce the amount of time and effort dismantling and re-erecting;
- Walkways that can be pre-assembled on the ground and then raised by crane to an elevated position will remove some of the work at height;
- Installing completed walkways when the walkway is on the ground will remove work at height associated with the construction later on.

Measures to prevent falls from heights are mandatory when working more than 1.00 m off the ground. Side protection shall be installed when working near water, regardless of the working height.

Equipment and measures to prevent falling include side protection, working areas of adequate width (such as working platforms), fall protection devices (e.g. safety grating, protective or safety nets) or mobile scaffolds as well as personal fall protection.

Access points to working areas shall be equipped with protection (e.g. platform systems, ladders or staircase towers for specific systems) as intended by the manufacturer.

The need to work at height can be reduced by pre-assembling platform systems and walkway brackets on the ground and then raising them into place with a crane.

**Personal fall protection**

Personal fall protection shall always be provided and used when all other technical and organisational measures to prevent falls (e.g. nets) have been exhausted and there is still a risk of injury that could be minimised by using fall protection. Personal fall protection shall be suitable for the application and shall be inspected at least once a year.

Before the personal fall protection can be used, the responsible contractor is obligated to.

- Evaluate the risks in the course of a hazard assessment, to be able to implement effective, preventive measures.
- Develop a rescue plan and verify its effectiveness.
- Properly instruct and train the users of personal fall protection.

The proper personal fall protection depends on the hazard assessment. Suitable attachment points are required. The proper attachment points and equipment shall be determined for each individual case by a qualified supervisor authorised to give instructions.

### 2.2.1 Safety during assembly and use

**Protective measures during work**

Hazardous areas shall be clearly visible during the entire working process. Openings in planks, slabs and roofs, as well as in the depressions, shall be secured with protective equipment and covers to prevent persons from falling off the platforms, into or stepping into the openings. Secondary fall protection can also be installed. Secure covers to prevent unintentional motion.

All connectors shall be tight and, if necessary, re-tighten before every use and every time they are moved.

The contractor is responsible for keeping persons out of work areas and walkways where there is a risk of objects falling as well as for installing protection from falling objects.

The contractor is responsible for monitoring the weather forecast / wind conditions and take the required preventive measures. This includes but is not limited to installation of additional safety measures. Aggregation of snow, water or ice on the system and especially on the cladding and on the safety boxes has to be removed immediately to prevent overloading the system.

**Monitoring wind and temperature conditions**

The contractor is responsible for monitoring the weather forecast/wind conditions and take the required preventive measures. This includes but is not limited to installation of additional safety measures.

Depending on the local conditions, (e.g. the surrounding area, structure height and building geometry) safety measures to prevent the structure from uplift, possibly even dismantling the system, may be required and should be determined on site.

**Tools and equipment**

Only suitable and safe tools and equipment shall be used. Ensure that they are used as intended.

**Assembly and Disassembly**

Incorrect installation of components can lead to a risk of falling due to component failure.

Components shall only be installed as described and illustrated in this User Guide. Alternatives shall be verified by means of a suitable risk assessment.

Incorrect disassembly can lead to a risk of falling due to the failure of the structure. Components are only to be disassembled as described and illustrated in this User Guide. Alternatives are to be verified by means of a suitable risk assessment.

### 2.2.2 Laws and regulations

For the safety-related application and use of the products, all current country-specific laws, standards and other safety regulations shall be complied with, without exception. They form a part of the obligations of employers and employees regarding occupational and industrial safety.

**Hünnebeck draws attention to the following Health and Safety legislation:**

- The Construction (Health, Safety and Welfare) Regulations 1996 (CHSW Regs);
- Construction (Design and Management) Regulations 2015 (CDM Regs);
- Lifting Operations and Lifting Equipment Regulations 1998 (LOLER);
- Work at Height Regulations 2005 (WaH Regs);
- Manual Handling Operations Regulations 1992 (MHO Regs).
- The Personal Protective Equipment at Work Regulations 1992 (PPE Regs)
- German occupational safety law (ASiG)

- German working conditions act (ArbSchG)
- German social insurance code, book VII (SGB VII)
- German product safety act (ProdSG)
- Building site regulation (BaustellV)
- German ordinance on industrial safety and health pertaining to the use of personal protective equipment at work (PSA-BV)
- German ordinance on industrial safety and health (BetrSichV)
- Framework directive 89/391/EEC
- Work equipment directive 2009/104/EC
- Construction site directive 92/57/EEC
- German technical rule for workplaces ASR A2.1
- German technical rule on occupational safety 2121, part 1
- German technical rule on occupational safety 1111
- Use of personal protective equipment to prevent falling from heights (DGUV 112-198)
- Use of personal protective equipment. Rescuing from heights and depths (DGUV 112-199)
- Instructions for handling working and protective scaffolds (DGUV 201-011)
- Modules “Work safely - stay healthy” (BGI 5101)

In addition, the main contents of the scaffolding regulations are covered by the following standards:

- DIN 4420-1:2004-03
- DIN EN 1991-1-4 and national annex
- DIN EN 1993-1-1 and national annex
- DIN EN 12810-1:2004-03
- DIN EN 12810-2:2004-03
- DIN EN 12811-1:2004-03
- DIN EN 12811-2:2004-04
- DIN EN 12811-3:2003-02
- DIN EN 12812: 2008-12

**Other local regulations may be relevant and shall always be considered.**

## 2.3 About this User Guide

This User Guide contains important information regarding the assembly and use of the ST 60 system. These instructions are created to support effective working processes on site when using the ST 60 system, therefore carefully read this User Guide before assembly and use of the system, always keep it at hand and archive it for future reference.

The User Guide is an integral component of the formwork construction. It contains safety notes, information on the standard configuration, the intended use and a description of the system. Carefully follow the instructions on use and assembly of the equipment (standard configuration) contained in the User Guide. Enhancements, deviations or changes represent a potential hazard and therefore require separate verification or a set of assembly instructions which comply with the relevant laws, standards and safety regulations. The same applies in cases where formwork components are provided on site.

The contractor has to ensure that the User Guide is readily accessible on site and that employees are familiar with the User Guide before assembling or using the equipment.

It is the responsibility of the site Management/Supervisors to ensure that all operatives involved in the assembly of the formwork system have been made aware of this document and that they understand the drawings (if supplied) and the function of the various components. The contractor is also responsible for drawing up a comprehensive risk assessment and a set of installation instructions. The latter is not usually identical to the assembling instructions.

Hünnebeck can provide further guidance and on-site assistance on any issues contained in this document that are not clear. Further information can be found in the product‘s data sheets. IF IN DOUBT, ASK.

**Representations**

The representations shown in the assembly instructions are in part, situations of assembly and not always complete in terms of safety considerations. The safety installations which have possibly not been included in these representations must be available and must be in accordance with the latest regulations. Safety devices may not always appear in the illustrations, but they are nevertheless mandatory.

Overviews and diagrams are for illustrative purposes only and whilst we endeavour to ensure accuracy, we are not responsible for omissions or errors.

The details do not serve as absolute requirements. Based on the hazard assessment it might be necessary to implement essential preventive measures. The specifics of each case must always be taken into consideration.

Some of the illustrations in the assembly instructions show various states of assembly and are not always complete in terms of safety considerations. We explicitly reserve the right to make changes resulting from technical improvements.

**Genuine components**

The information provided assumes that any product combinations will be between genuine Hünnebeck products or products supplied by Hünnebeck unless otherwise stated. Combining components from different manufacturers carries certain risks.

**Any unauthorised use in relation to third party products could give rise to a risk of collapse, damage, injury or death.**

**Miscellaneous**

We explicitly reserve the right to make changes resulting from technical improvements. For the safety-related application and use of the products, all current country-specific laws, standards and other safety regulations shall be complied with, without exception. They form a part of the obligations of employers and employees regarding occupational and industrial safety.

### 2.3.1 Warnings and notes

| | |
|---|---|
| DANGER | **Danger!**<br>DANGER indicates a hazardous situation that, if not avoided, will cause death or serious injury. |
| WARNING | **Warning!**<br>WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury. |
| CAUTION | **Caution!**<br>CAUTION indicates a hazardous situation that, if not avoided, can cause minor or moderate injury. |

| NOTE | **Note!**<br>NOTE indicates a hazard that can cause property damage. |
|---|---|

| | |
|---|---|
|  | This symbol indicates that an additional inspection is required. |
|  | This symbol indicates practical experience that will help the user, e.g. how to perform a task more easily or more quickly. |
|  | This symbol indicates particularly important information, e.g. that a requirement shall be met. |
|  | This symbol indicates that additional information from other documents is required. These documents could be User Guides or operating instructions for other products. |

### 2.3.2 Instructions

In this document, instructions are always identified with the word “Step”, e.g.

**Step 1** Insert the locking bolt into the hole from the outside.

### 2.3.3 Brand names

Hünnebeck and Brand are brand names of BrandSafway. The following brand names are the property of Hünnebeck. The symbol indicating a registered trademark is omitted throughout the document.

- Hünnebeck®
- ST 60®
- ID 15®
- MODEX®
- DU-AL®

## 2.4 Other relevant documents

This User Guide should be read in conjunction with the following documents:

**User Guides**

- MODEX Modular Scaffold
- Alignment Struts

**Operating instructions**

- Euro Trolley

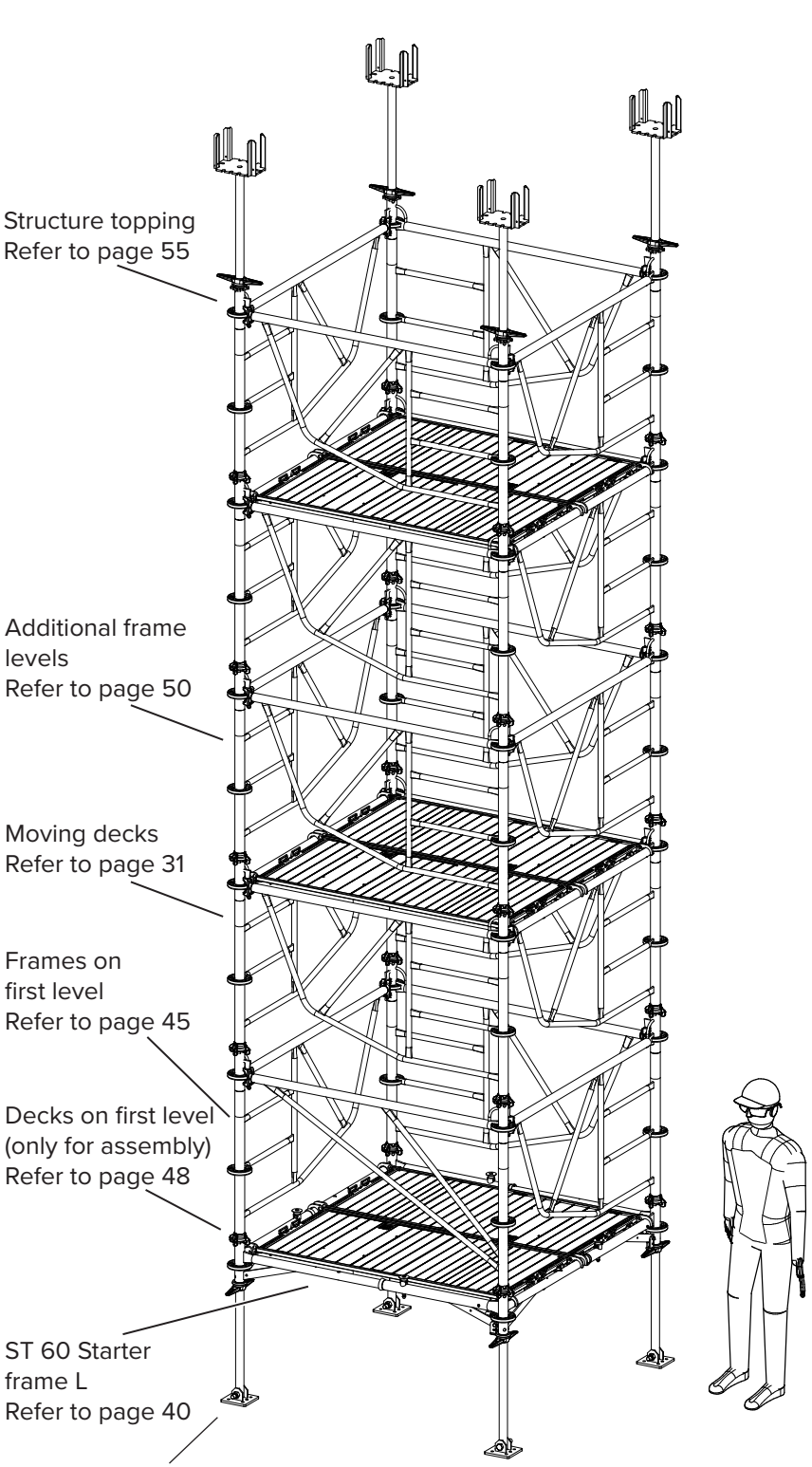
**Technical Approval**

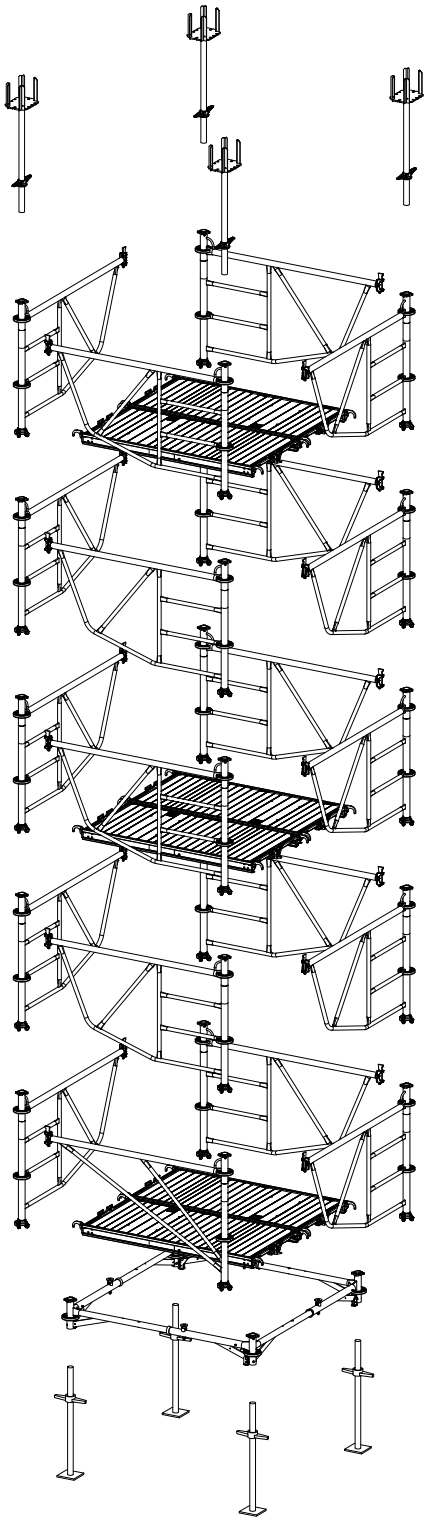
- Z-8.22-956 (Shoring System „Hünnebeck ST 60“)

All of these documents can be downloaded from the website https://www.huennebeck.com/literature.

# 3 Overview

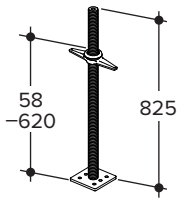
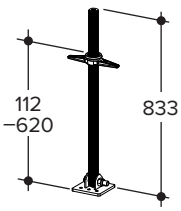
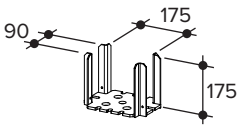
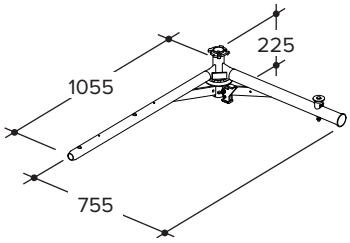
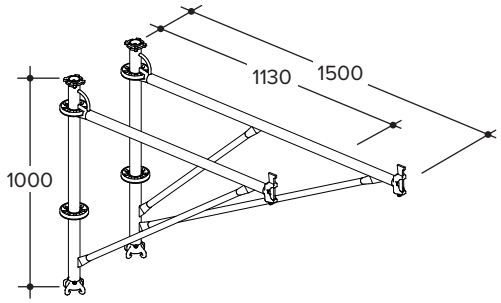
The illustrations show an ST 60 Shoring Tower with the dimensions 1.50 m × 1.50 m and an erection height of 6.20 m. Plan dimensions 1.13 m × 1.13 m as well as 1.13 m × 1.50 m are also possible.

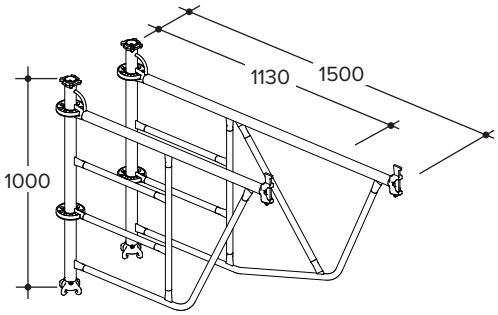
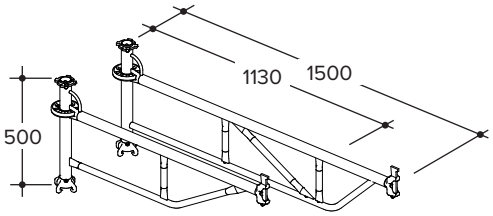
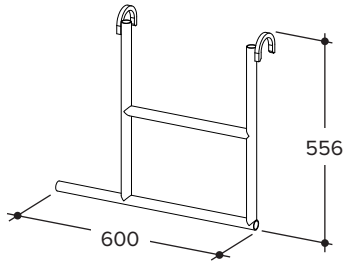
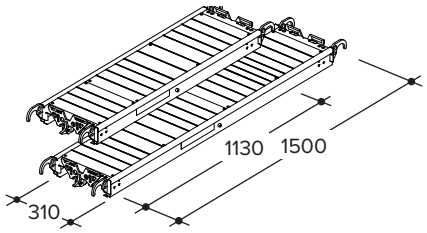
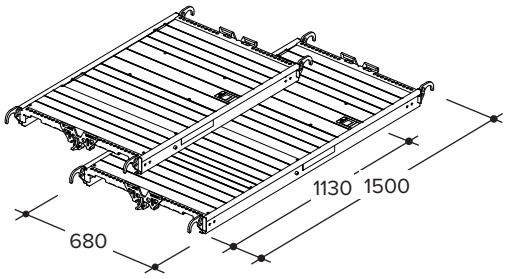
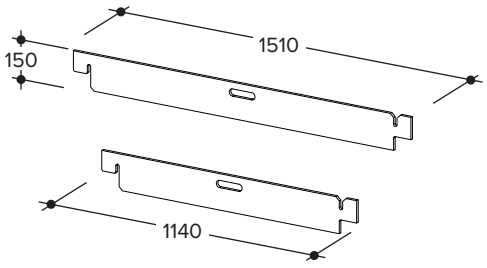


# 4 Components

## 4.1 ST 60 components

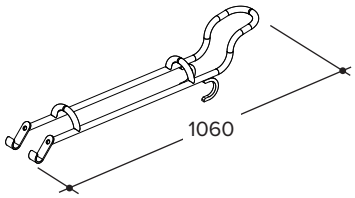
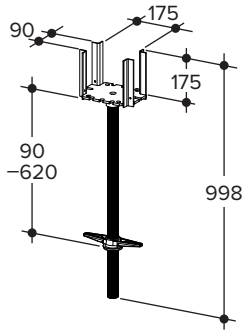
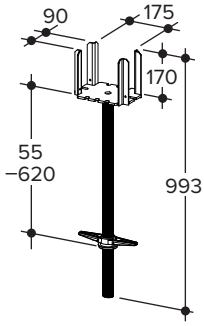
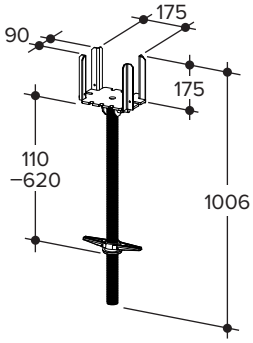
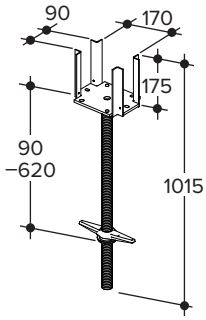
| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **ST 60 Base Jack 60**<br>Used to properly align the ST 60 Shoring Tower.<br>Refer to page 43. | **652430** | **8.73** |
|  | **ST 60 Base Jack 60 Swivel**<br>Used to align the ST 60 Shoring Tower on inclines.<br>Refer to page 27. | **652995** | **9.20** |
|  | **ST 60 Crosshead Adapter**<br>Used to convert a Base Jack to a Head Jack. Attached to the Base Jack with 2no. Countersunk Screws and Nuts (code:652847 and code:652879).<br>Refer to page 56. | **652845** | **3.44** |
|  | **Countersunk Bolt M12x35 (100 pieces)**<br>**Nylok Nut M12 (100 pieces)**<br>Used to attach the ST 60 Crosshead Adapter to a Base Jack. | **652847**<br>**652879** | **3.90**<br>**2.10** |
|  | **ST 60 Starter Frame L**<br>4no. Starter Frames L form the base frame of the ST 60 Shoring Tower.<br>Refer to page 40. | **652450** | **8.61** |
|  | **ST 60 Entry Frame 150/100**<br>**ST 60 Entry Frame 113/100**<br>Facilitates access to the lowest frame level of the ST 60 Shoring Tower.<br>Refer to page 45 | **652390**<br>**652380** | **12.71**<br>**10.18** |

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **ST 60 Frame 150/100**<br>**ST 60 Frame 113/100**<br>Main component of the ST 60 Shoring Tower; used to construct the frame levels.<br>Refer to page 45 ff. | **652290**<br>**652350** | **14.90**<br>**12.73** |
|  | **ST 60 Frame 150/50**<br>**ST 60 Frame 113/50** | **652410**<br>**652420** | **10.24**<br>**7.94** |
|  | **ST 60 Entry Ladder**<br>Makes it easier to ascend the ST 60 Shoring Tower when the Base Jack is greatly extended. It is hung on the base frame.<br>Refer to page 44. | **652700** | **3.06** |
|  | **ST 60 Alu Deck 150/31**<br>**ST 60 Alu Deck 113/31**<br>Refer to page 48 ff. | **652540**<br>**652520** | **9.47**<br>**7.79** |
|  | **ST 60 Alu Passage Deck 150/68**<br>**ST 60 Alu Passage Deck 113/68**<br>Refer to page 48. | **652500**<br>**652530** | **14.90**<br>**12.50** |
|  | **ST 60 Toe Board 150**<br>**ST 60 Toe Board 113**<br>Refer to page 55 | **652985**<br>**652914** | **1.89**<br>**1.42** |

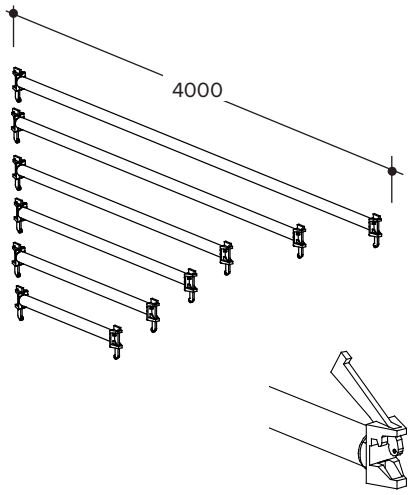
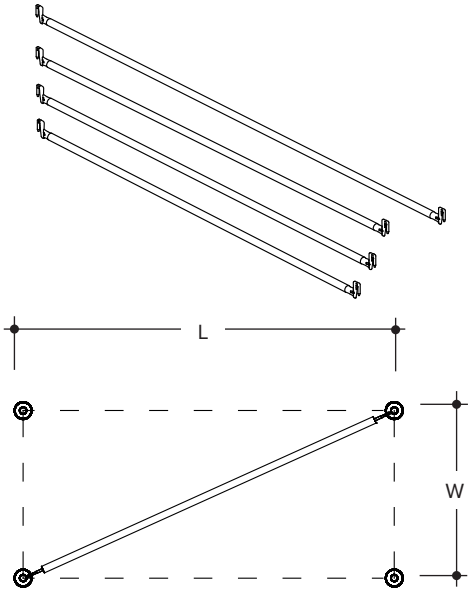


* For sale only (no rental). ** No longer produced.

Unless otherwise stated, all dimensions are in mm.

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **ST 60 Deck Lifter**<br>Refer to page 31. | **652366** | **3.47** |
|  | **ST 60 Crosshead Jack 60 G2**<br>To attach beams. Can be tilted 3° in any direction.<br>Refer to page 55. | **653975** | **10.85** |
|  | **ST 60 Crosshead Jack Rigid****<br>To attach beams. | **652929** | **10.77** |
|  | **ST 60 Crosshead Jack 60 Swivel**<br>To attach beams. Pivots along one axis. Used to support tilted structures.<br>Refer to page 76. | **652965** | **11.23** |
|  | **ST 60 Crosshead Jack 60****<br>To attach beams. Can be tilted 3° in any direction.<br>Refer to page 55. | **652355** | **11.55** |
|  | **ST 60 Head Jack Retainer**<br>Prevents the Cross Head Jack from falling out.<br>Refer to page 55. | **652419** | **0.09** |

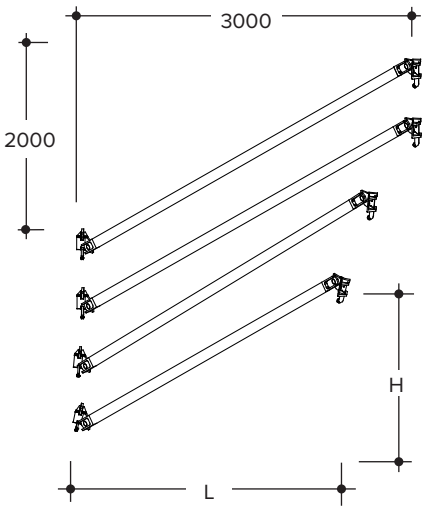
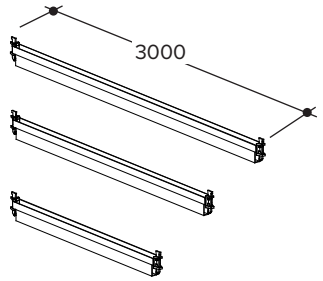
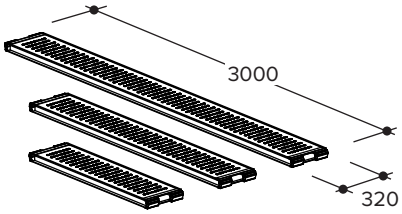
## 4.2 Bracing and supporting components

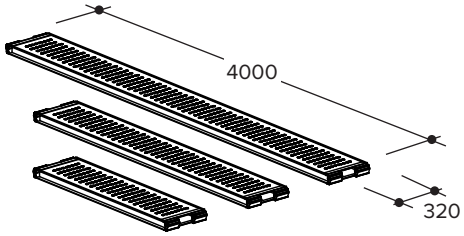
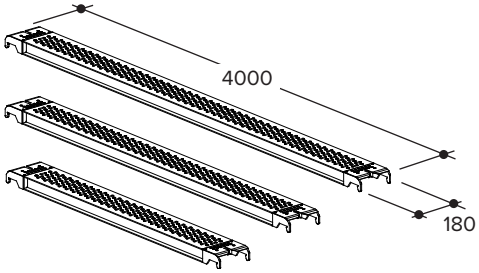
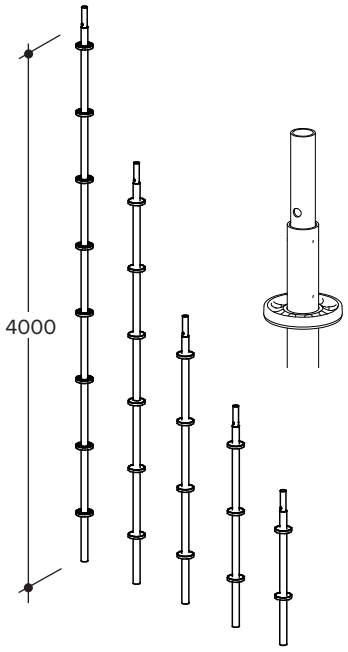
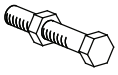
| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **Tube Ledger 400*** | **533470** | **15.79** |
| | **Tube Ledger 300** | **470951** | **12.03** |
| | **Tube Ledger 250** | **470940** | **10.15** |
| | **Tube Ledger 200** | **475781** | **8.27** |
| | **Tube Ledger 180*** | **489260** | **7.52** |
| | **Tube Ledger 168** | **651765** | **7.07** |
| | **Tube Ledger 150** | **475770** | **6.39** |
| | **Tube Ledger 125** | **484739** | **5.46** |
| | **Tube Ledger 113** | **475760** | **5.01** |
| | **Tube Ledger 101*** | **482020** | **4.56** |
| | **Tube Ledger 90*** | **489250** | **4.14** |
| | **Tube Ledger 82** | **470930** | **3.84** |
| | **Tube Ledger 74*** | **482019** | **3.54** |
| | **Tube Ledger 25** | **577863** | **1.70** |
| | Tube Ledgers made of a Ø48.3 mm steel tube with welded-on joint connectors. Can be used as a horizontal brace or as a guardrail (Special lengths available upon request). | | |
|  | *length/width* | | |
| | **H-diagonal 300/300*** | **651635** | **16.32** |
| | **H-diagonal 300/250** | **651634** | **15.05** |
| | **H-diagonal 300/200** | **651633** | **13.93** |
| | **H-diagonal 300/150** | **651632** | **13.00** |
| | **H-diagonal 300/125** | **651631** | **12.61** |
| | **H-diagonal 300/113** | **651630** | **12.45** |
| | **H-diagonal 250/250** | **484810** | **13.75** |
| | **H-diagonal 250/200** | **484809** | **12.39** |
| | **H-diagonal 250/150** | **651628** | **11.34** |
| | **H-diagonal 250/125*** | **651627** | **10.90** |
| | **H-diagonal 250/113** | **478785** | **10.77** |
| | **H-diagonal 200/200** | **651711** | **11.00** |
| | **H-diagonal 200/150** | **651626** | **9.77** |
| | **H-diagonal 200/125** | **651625** | **9.25** |
| | **H-diagonal 200/113** | **651624** | **9.02** |
| | **H-diagonal 150/150** | **651710** | **8.34** |
| | **H-diagonal 150/125** | **651622** | **7.71** |
| | **H-diagonal 150/113** | **651621** | **7.44** |
| | **H-diagonal 125/125** | **651619** | **7.01** |
| | **H-diagonal 125/113** | **533506** | **6.69** |
| | **H-diagonal 113/113** | **651618** | **6.38** |
| | For horizontal bracing. | | |



* For sale only (no rental). ** No longer produced.

Unless otherwise stated, all dimensions are in mm.

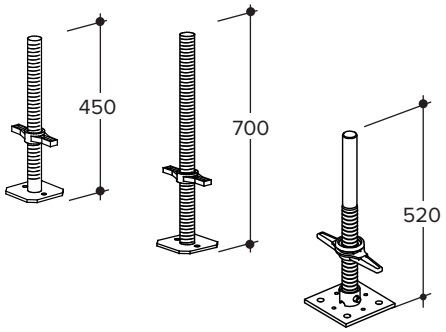
| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | *height/length* | | |
| | **V-diagonal 200/300** | **470984** | **14.90** |
| | **V-diagonal 200/250** | **470973** | **13.43** |
| | **V-diagonal 200/200** | **475910** | **12.10** |
| | **V-diagonal 200/150** | **475900** | **10.90** |
| | **V-diagonal 200/125*** | **651656** | **10.44** |
| | **V-diagonal 200/113** | **557676** | **10.34** |
| | **V-diagonal 200/82** | **588511** | **9.80** |
| | **V-diagonal 100/300** | **651657** | **13.19** |
| | **V-diagonal 100/250** | **651658** | **11.44** |
| | **V-diagonal 100/200** | **651659** | **9.75** |
| | **V-diagonal 100/150** | **651660** | **8.16** |
| | **V-diagonal 100/125** | **651661** | **7.43** |
| | **V-diagonal 100/113** | **651662** | **7.11** |
| | **V-diagonal 100/82*** | **651663** | **6.39** |
| | For vertical bracing. | | |
|  | **Transom 300/12.6 U** | **651774** | **25.90** |
| | **Transom 250/12.6 U** | **651572** | **21.57** |
| | **Transom 200/12.6 U** | **651571** | **17.24** |
| | **Transom 150/12.6 U** | **651570** | **12.90** |
| | **Transom 125/12.6 U** | **651775** | **10.73** |
| | **Transom 113/12.6 U*** | **651776** | **7.10** |
| | **Transom 82/12.6 U*** | **651777** | **7.03** |
| | Used to construct the platforms with MODEX decks between the towers. | | |
|  | **Hollow Box Plank 300/32** (2.0 kN/m² LC 3) | **531323** | **17.77** |
| | **Hollow Box Plank 250/32** (3.0 kN/m² LC 4) | **531334** | **15.27** |
| | **Hollow Box Plank 200/32** (4.5 kN/m² LC 5) | **531345** | **12.77** |
| | **Hollow Box Plank 150/32** (4.5 kN/m² LC 5) | **531356** | **10.27** |
| | **Hollow Box Plank 125/32** (4.5 kN/m² LC 5) | **531367** | **8.82** |
| | **Hollow Box Plank 74/32** (4.5 kN/m² LC 5) | **531687** | **6.27** |
| | Galvanised steel sheet design, extremely lightweight and sturdy.<br>Corrugated non-slip surface. | | |

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **Steel Plank 400/32** (2.0 kN/m² LC 3) | **530307** | **30.21** |
| | **Steel Plank 300/32** (3.0 kN/m² LC 4) | **427984** | **23.50** |
| | **Steel Plank 250/32** (4.5 kN/m² LC 5) | **427973** | **19.93** |
| | **Steel Plank 200/32** (6.0 kN/m² LC 6) | **430279** | **16.29** |
| | **Steel Plank 150/32** (6.0 kN/m² LC 6) | **485858** | **12.20** |
| | **Steel Plank 125/32** (6.0 kN/m² LC 6) | **430280** | **10.40** |
| | **Steel Plank 113/32** (6.0 kN/m² LC 6) | **485869** | **9.60** |
| | **Steel Plank 82/32** (6.0 kN/m² LC 6) | **485870** | **7.30** |
| | Hot-dip galvanised, sturdy non-slip surface. | | |
|  | **Steel Plank 400/18** (3.0 kN/m² LC 4) | **651595** | **21.78** |
| | **Steel Plank 300/18** (3.0 kN/m² LC 4) | **550744** | **15.20** |
| | **Steel Plank 250/18** (4.5 kN/m² LC 5) | **550733** | **13.88** |
| | **Steel Plank 200/18** (6.0 kN/m² LC 6) | **550722** | **10.43** |
| | **Steel Plank 150/18** (6.0 kN/m² LC 6) | **550711** | **8.03** |
| | **Steel Plank 125/18** (6.0 kN/m² LC 6) | **651594** | **7.30** |
| | **Steel Plank 113/18** (6.0 kN/m² LC 6) | **651593** | **6.66** |
| | **Steel Plank 82/18** (6.0 kN/m² LC 6) | **651592** | **5.04** |
| | When these 18 cm wide Steel Planks are used along with 32 cm wide Steel Planks, the MODEX scaffold can be set up such that there are no gaps in the platforms. | | |
|  | **Vertical Post 400** | **470918** | **20.21** |
| | **Vertical Post 300** | **470907** | **15.33** |
| | **Vertical Post 200** | **470892** | **10.45** |
| | **Vertical Post 150** | **470881** | **8.00** |
| | **Vertical Post 100** | **470870** | **5.60** |
| | Steel tube Ø48.3 mm with a rosette every 50 cm. Built-in spigots connect the tubes to one another. A Ø48.3 mm tube with a wall thickness of 3.2 mm can also be connected. | | |
|  | **M12x75 Joint Securing Bolt (with nut)** | **554710** | **0.10** |
| | Connects the vertical posts to one another such that they are resistant to tension. | | |

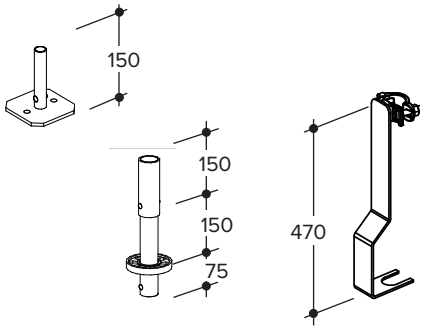


* For sale only (no rental). ** No longer produced.

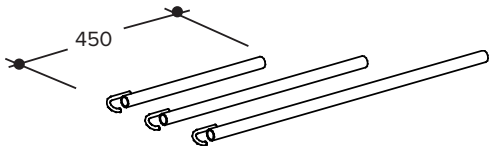
Unless otherwise stated, all dimensions are in mm.



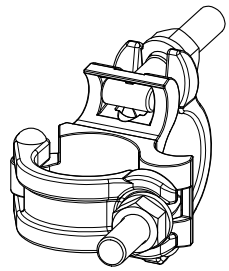
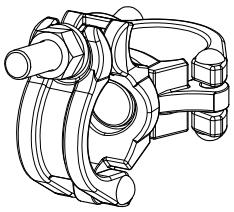
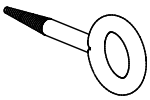
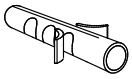
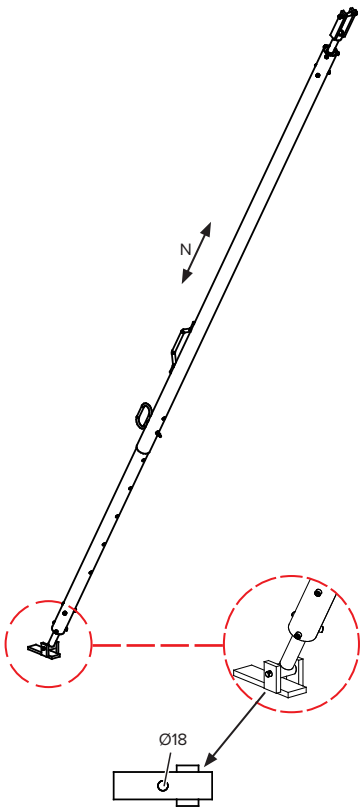

| Component | Code | Weight [kg] |
|---|---|---|
| **Base Jack 45/3.8** | **551234** | **3.31** |
| **Base Jack 70/3.8** | **540575** | **4.26** |
| Adjustable (jack extension) from 65 to 265 mm or 65 to 500 mm. | | |
| **ID 15 Base Jack 38/52** | **148552** | **8.34** |
| Adjustable (jack extension) from 90 to 300 mm. | | |
| Do not use the Base Jack 45/3.8, the Base Jack 70/3.8 and the ID 15 Base Jack 38/52 with ST 60 components! They are intended to be used only with MODEX components! | | |




| | | |
|---|---|---|
| **MODEX Rigid Base Plate** | **428533** | **1.20** |
| Similar to a Base Jack; serves to conduct the vertical loads into the load-bearing ground/floor. | | |
| **Starting Piece** | **470929** | **1.99** |
| Makes setting up Vertical Posts easier. | | |
| **Base Jack Securing Device** | **651762** | **2.05** |
| Secures the Base Jack to prevent it from falling out while being transported via crane. | | |



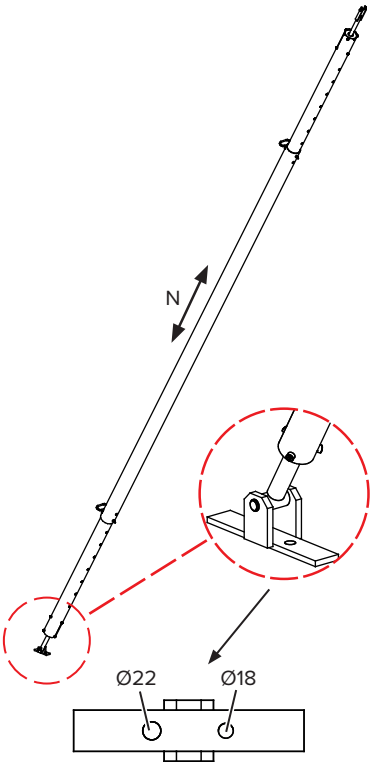
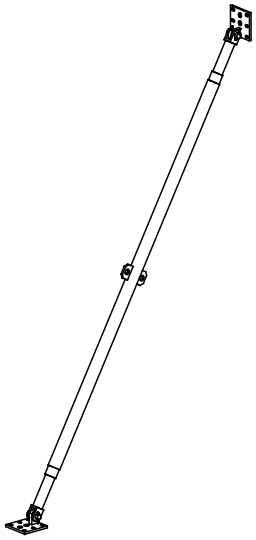
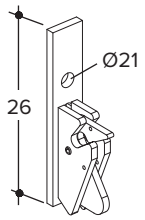
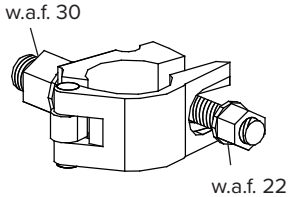

| | | |
|---|---|---|
| **Scaffold Retainer 350** | **467063** | **15.00** |
| l = 350 cm | | |
| **Scaffold Retainer 250** | **467041** | **8.50** |
| l = 250 cm | | |
| **Scaffold Retainer 223** | **467085** | **7.53** |
| l = 223 cm | | |
| **Scaffold Retainer 180** | **116820** | **6.10** |
| l = 180 cm | | |
| **Scaffold Retainer 140** | **116793** | **4.97** |
| l = 140 cm | | |
| **Scaffold Retainer 110** | **116808** | **3.61** |
| l = 110 cm | | |
| **Scaffold Retainer 75** | **78940** | **2.54** |
| l = 75 cm | | |
| **Scaffold Retainer 45** | **78939** | **1.65** |
| l = 45 cm | | |
| Steel tube Ø48.3 mm with hooks Ø20 cm. Used to anchor ST 60 Shoring Towers. | | |
| Refer to page 65. | | |

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **Rigid Coupler 48/48 w.a.f. 22**<br>Used to attach Scaffold Retainers or Scaffold Tubes 48.3 mm to ST 60 Frames.<br>Torque 50 Nm.<br>Refer to page 65. | **2514** | **1.18** |
|  | **Swivel Coupler 48/48 w.a.f. 22**<br>Used to attach Scaffold Retainers or Scaffold Tubes 48.3 mm to ST 60 Frames.<br>Torque 50 Nm.<br>Refer to page 65. | **2525** | **1.37** |
|  | **25no. Scaffold Eye Bolts GS 12x120**<br>**25no. Scaffold Eye Bolts GS 12x160*** | **497864**<br>**497875** | **4.60**<br>**5.00** |
|  | **25no. Plugs S14 ROE 100*** | **497842** | **0.18** |
|  | **Alignment Strut K440**<br>Minimum extension: 3.25 m:<br>Safe Working Load (N): 20.00 kN.<br><br>Maximum extension: 4.40 m:<br>Safe Working Load (N): 11.00 kN.<br><br>**Alignment Strut K600**<br>Minimum extension: 4.80 m:<br>Safe Working Load (N): 20.00 kN.<br><br>Maximum extension: 6.00 m:<br>Safe Working Load (N): 14.00 kN.<br><br>**Alignment Strut K760**<br>Minimum extension: 5.30 m:<br>Safe Working Load (N): 20.00 kN.<br><br>Maximum extension: 7.60 m:<br>Safe Working Load (N): 15.00 kN.<br><br>Refer to page 66. | **601208**<br><br>**601210**<br><br><br>**601212** | **22.61**<br><br>**34.97**<br><br><br>**50.47** |

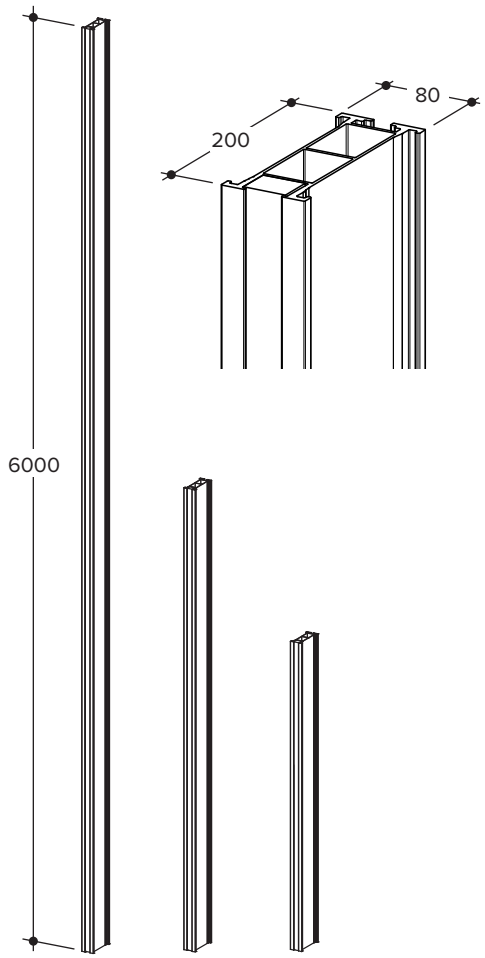


* For sale only (no rental). ** No longer produced.

Unless otherwise stated, all dimensions are in mm.

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **Alignment Strut Super 10**<br>Minimum extension: 7.05 m:<br>Safe Working Load (N): 27.00 kN.<br><br>Maximum extension: 10.25 m:<br>Safe Working Load (N): 22.30 kN.<br><br>Refer to page 66. | **602095** | **83.25** |
|  | ***Wall Struts with 2no. articulated plates, lacquered***<br>**Wall Strut, size 1 (1.70 – 2.40 m)**<br>**Wall Strut, size 2 (2.20 – 2.90 m)**<br>**Wall Strut, size 3 (2.70 – 3.40 m)**<br>**Wall Strut, size 4 (3.20 – 3.90 m)**<br>**Wall Strut, size 5 (4.20 – 4.90 m)**<br>**Wall Strut, size 6 (5.30 – 5.90 m)**<br>Used to brace ST 60 Shoring Towers.<br>Refer to page 67. | **506500**<br>**506420**<br>**506430**<br>**506463**<br>**506485**<br>**506555** | **19.50**<br>**21.00**<br>**22.00**<br>**24.00**<br>**27.00**<br>**40.00** |
|  | **Quick-action Fastener**<br>Used to connect Alignment Struts to an ST 60 Shoring Tower. A Half Coupler 48/M is also needed<br>Refer to page 66. | **601385** | **2.76** |
|  | **Half Coupler 48/M 20x70 w.a.f. 22 / w.a.f 30**<br>Used to connect Wall Struts to an ST 60 Shoring Tower.<br>With an additional thread M 20×70 mm.<br>Torque 50 Nm.<br>Refer to page 66. | **39846** | **0.96** |

## 4.3 Beams and accessories




| Component | Code | Weight [kg] |
|---|---|---|
| ***DU-AL T200 aluminium beams*** | | |
| **DU-AL T200 Beam 1.5 m** | **717215** | **11.37** |
| **DU-AL T200 Beam 2.0 m** | **717220** | **15.15** |
| **DU-AL T200 Beam 2.5 m** | **717225** | **18.93** |
| **DU-AL T200 Beam 3.0 m** | **717230** | **22.71** |
| **DU-AL T200 Beam 3.5 m** | **717235** | **26.50** |
| **DU-AL T200 Beam 4.0 m** | **717240** | **30.28** |
| **DU-AL T200 Beam 5.0 m** | **717250** | **37.84** |
| **DU-AL T200 Beam 6.0 m** | **717260** | **45.41** |

The T200 Beam has a nailing strip to secure H 20 secondary beams or form sheets.

The following stress resultants are permitted:

$M_{perm}$ = 20.00 kNm

$V_{perm}$ = 60.00 kN

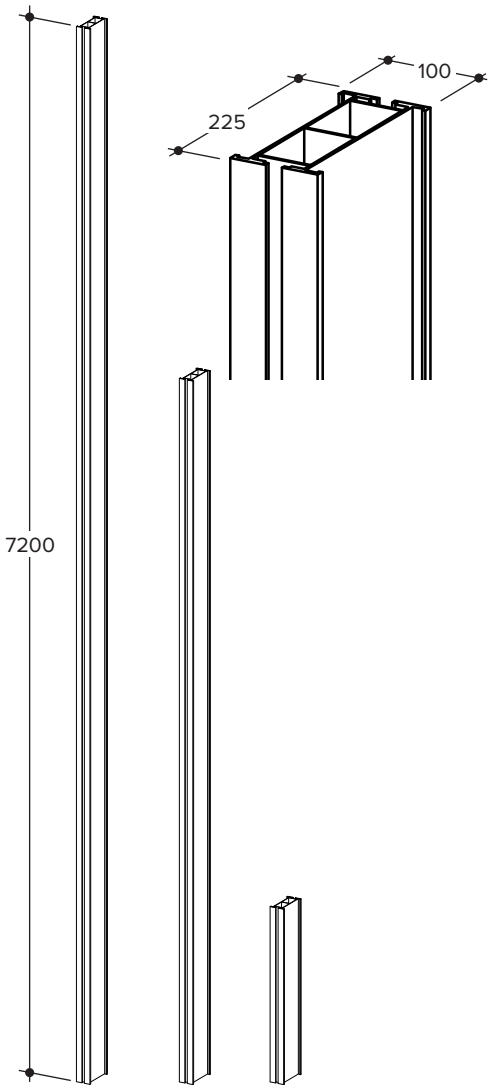
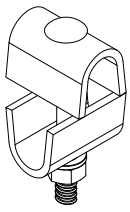
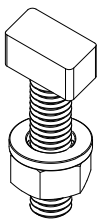
The stiffness is E × I = 954 kNm$^2$

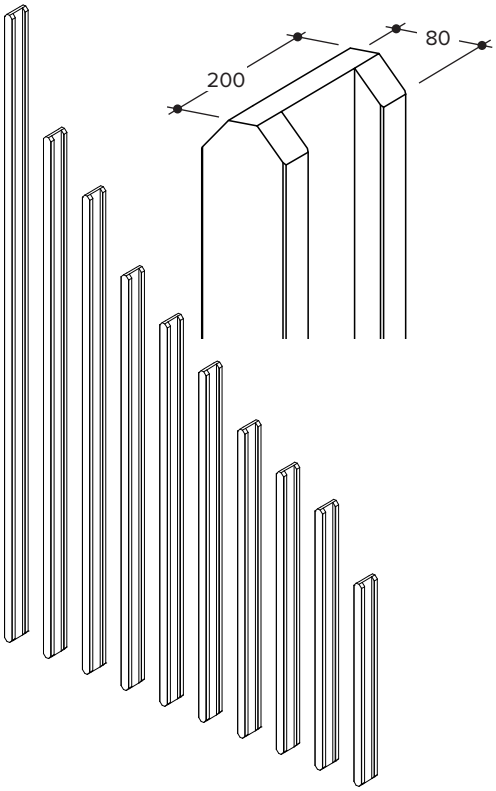
Refer to page 76.



* For sale only (no rental). ** No longer produced.

Unless otherwise stated, all dimensions are in mm.

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | ***DU-AL T225 aluminium beams*** | | |
| | **DU-AL T225 Beam 1.00 m (a)** | **717410** | **9.00** |
| | **DU-AL T225 Beam 1.20 m** | **717412** | **10.80** |
| | **DU-AL T225 Beam 1.80 m** | **717418** | **16.20** |
| | **DU-AL T225 Beam 2.40 m** | **717424** | **21.60** |
| | **DU-AL T225 Beam 3.00 m** | **717430** | **27.00** |
| | **DU-AL T225 Beam 3.60 m** | **717436** | **32.40** |
| | **DU-AL T225 Beam 4.20 m** | **717442** | **37.80** |
| | **DU-AL T225 Beam 4.80 m** | **717448** | **43.20** |
| | **DU-AL T225 Beam 5.40 m** | **717454** | **48.60** |
| | **DU-AL T225 Beam 6.00 m** | **717460** | **54.00** |
| | **DU-AL T225 Beam 7.20 m** | **717472** | **64.80** |
| | (a) upon request<br>The following stress resultants are permitted:<br>$M_{perm}$ = 31.50 kNm<br>$V_{perm}$ = 90.00 kN<br>The stiffness is E × I = 1549 kNm$^2$<br>The T225 Beam can only be connected to DU-AL.<br>Because of its width, only 1no. T225 Beam can be placed in a Crosshead Jack. It is impossible to place 2no. T225 Beams next to one another in a Crosshead Jack. | | |
|  | **DU-AL Universal Clamp**<br>Used to connect 2no. DU-AL beams, one on top of the other.<br>Refer to page 77. | **443036** | **0.60** |
|  | **DU-AL T Bolt with Hexagonal Nut and Washer**<br>Used to attach a DU-AL beam to a Crosshead Jack.<br>Refer to page 76. | **718099** | **0.10** |




| Component | Code | Weight [kg] |
|---|---|---|
| **H 20 K Beam 190** | **603190** | **8.74** |
| **H 20 K Beam 245** | **603191** | **11.27** |
| **H 20 K Beam 265** | **603192** | **12.19** |
| **H 20 K Beam 290** | **603193** | **13.34** |
| **H 20 K Beam 330** | **603194** | **15.18** |
| **H 20 K Beam 360** | **603195** | **16.56** |
| **H 20 K Beam 390** | **603196** | **17.94** |
| **H 20 K Beam 450** | **603197** | **20.70** |
| **H 20 K Beam 490** | **603198** | **22.54** |
| **H 20 K Beam 590** | **603199** | **27.14** |
| **H 20 K Beam by m** | **603200** | **4.60** |

Available in lengths up to 12.0 m upon request. Price calculated to the next full meter.

The following stress resultants are permitted:

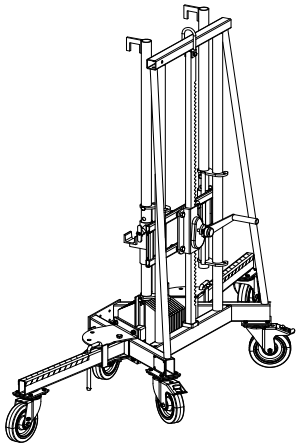
$M_{perm}$ = 5.00 kNm

$V_{perm}$ = 11.00 kN

The stiffness is: E × I = 500 kNm$^2$

Meets the requirements of EN 13377:2002-11.

## 4.4 Components for transportation and storage



| Component | Code | Weight [kg] |
|---|---|---|
| **TOPMAX Lifting Jack Carriage 750** | **607111** | **219,13** |

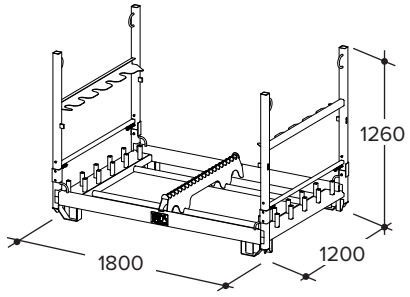
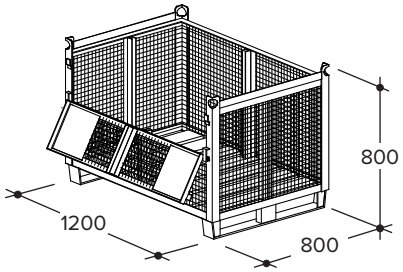
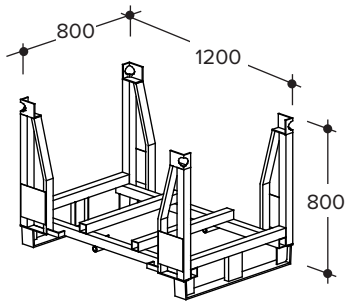
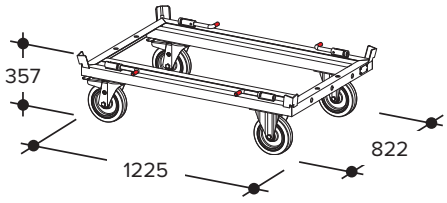
Used in pairs to move a ST 60 shoring tower.

Always observe the separate operating instructions for the TOPMAX Lifting Jack Carriage 750!



* For sale only (no rental). ** No longer produced.

Unless otherwise stated, all dimensions are in mm.

| | Component | Code | Weight [kg] |
|---|---|---|---|
|  | **ST 60 Frame Rack 180/120**<br>Used to store and transport 20no. ST 60 Frames.<br>Working load: 300 kg.<br>Refer to page 82. | **652480** | **104.40** |
|  | **Euro Lattice Box**<br>Used to store and transport small items. Can be moved using the Euro Trolley.<br>Working load: 1200 kg. | **548480** | **68.79** |
|  | **Euro Stacking Frame 120/80**<br>Used to store and transport e.g. DU-AL beams, H 20 K beams.<br>No more than 6no. can be stacked on top of one another!<br>Can be moved using the Euro Trolley.<br>Working load: 1200 kg.<br>Refer to page 87. | **553689** | **54.47** |
|  | **Euro Trolley**<br>Can be used to manually transport only Hünnebeck Euro Lattice Boxes and Euro Stacking Frames 120/80.<br>The Lattice Boxes and Stacking Frames can be secured to the Euro Trolley with the locks, allowing them to be moved by crane.<br>Refer to page 88.<br>The Euro Trolley has 2no. lockable swivel castors.<br>Do no place any other transportation equipment or loads on the Euro Trolley! | **607610** | **39,57** |

Always observe the separate operating instructions for the Euro Trolley!

# 5 Completing preparations and assembling base frame

## 5.1 Inspecting material

Before beginning erection, always verify that the materials to be used are in serviceable condition. Discard damaged materials and obtain replacements.

**WARNING**

**Risk of injury from damaged material!**

Using damaged materials can cause the falsework and the braced structure to collapse!

This can cause personal injury or death!

Never use damaged materials!

## 5.2 Preparing the ground

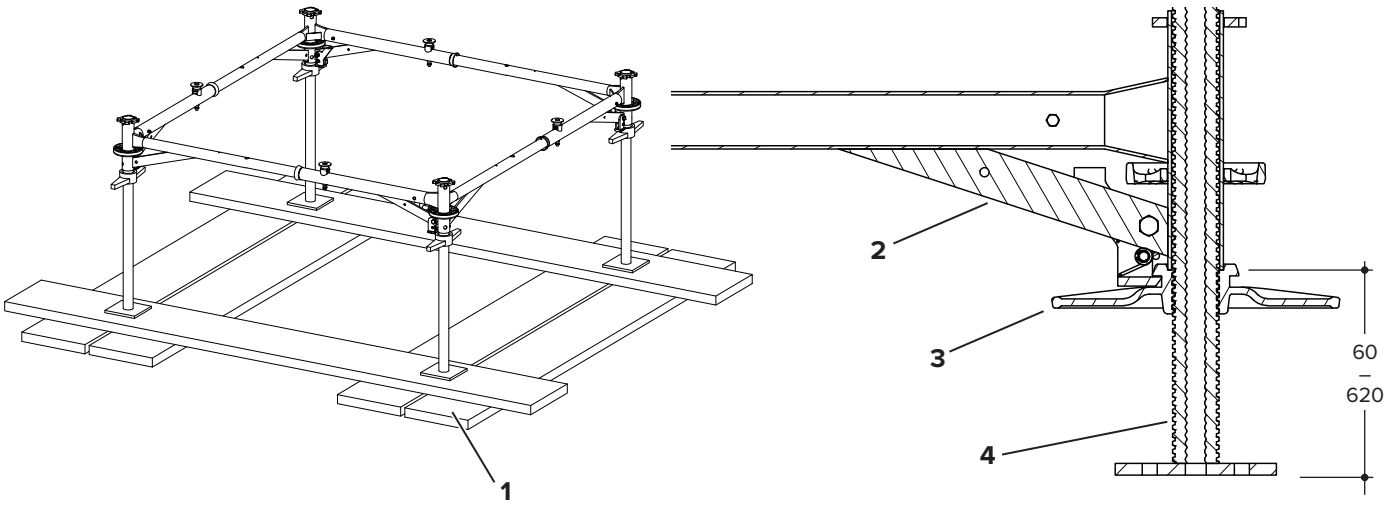
Before beginning assembly, always verify that the ground is suitable for erection of the ST 60 Shoring Tower and can accommodate the anticipated loads (Refer to DIN EN 12812).

## 5.3 Creating load-distributing base and using Base Jacks

If the ground/floor is not capable of bearing the load, the Base Jacks of the ST 60 Shoring Tower have to placed e.g. on boards to distribute the load. The Base Jacks may need to be secured to prevent them from slipping when placed on an incline.

Begin assembly at the highest point of the erection surface. Turn the wing nuts to adjust the length of the Base Jacks. The Base Jacks can be adjusted within a range of 60 - 620 mm, measured from the lower edge of the tubes that make up the Starter Frame L.

A technical modification to the thread of the Base Jack prevents the wing nut from being turned any farther. If this safety feature does not function properly and the wing nut can be unscrewed more that 620 mm, the Base Jack may no longer be used.




**1** Boards stacked in compliance with DIN EN 12812
**2** Starter Frame L
**3** Wing Nut
**4** Base Jack

NOTE

**Note the stripping clearance!**

Always take into consideration the required stripping clearance!



Unless otherwise stated, all dimensions are in mm.

### 5.3.1 Special features of Flexible Base Jacks

When the Flexible Base Jacks are used, an ST 60 Shoring Tower can be erected on an incline. The base plates of the Flexible Base Jacks can be pivoted +/- 90°.

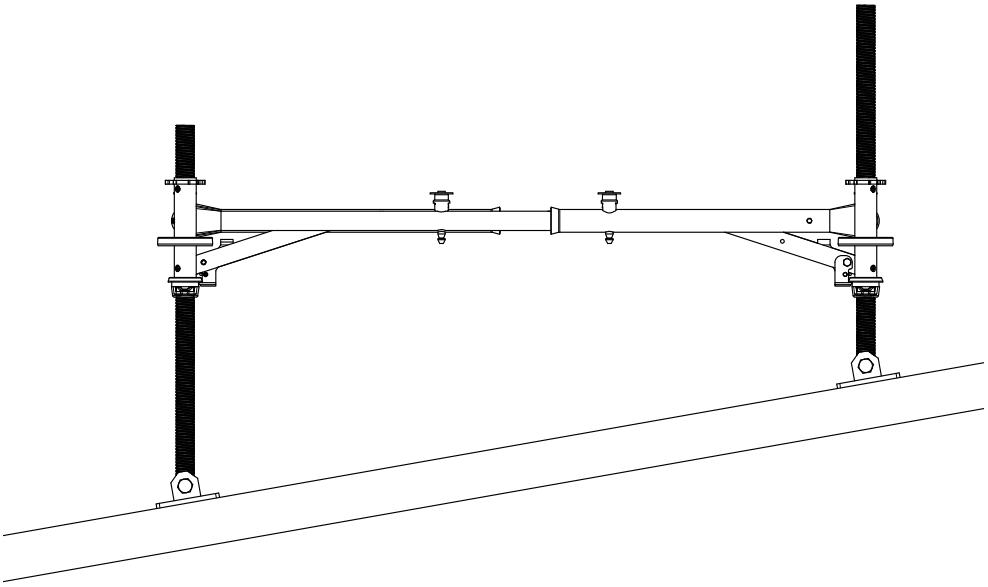
**DANGER**

**The shoring tower can tip over!**

The Base Jacks can slip on inclines.

This causes the ST 60 Shoring Tower to tip over, which can result in injury or death.

Secure the Base Jacks on inclines to prevent them from slipping, e.g. with a compression bearing or by screwing the Base Jacks into the ground!

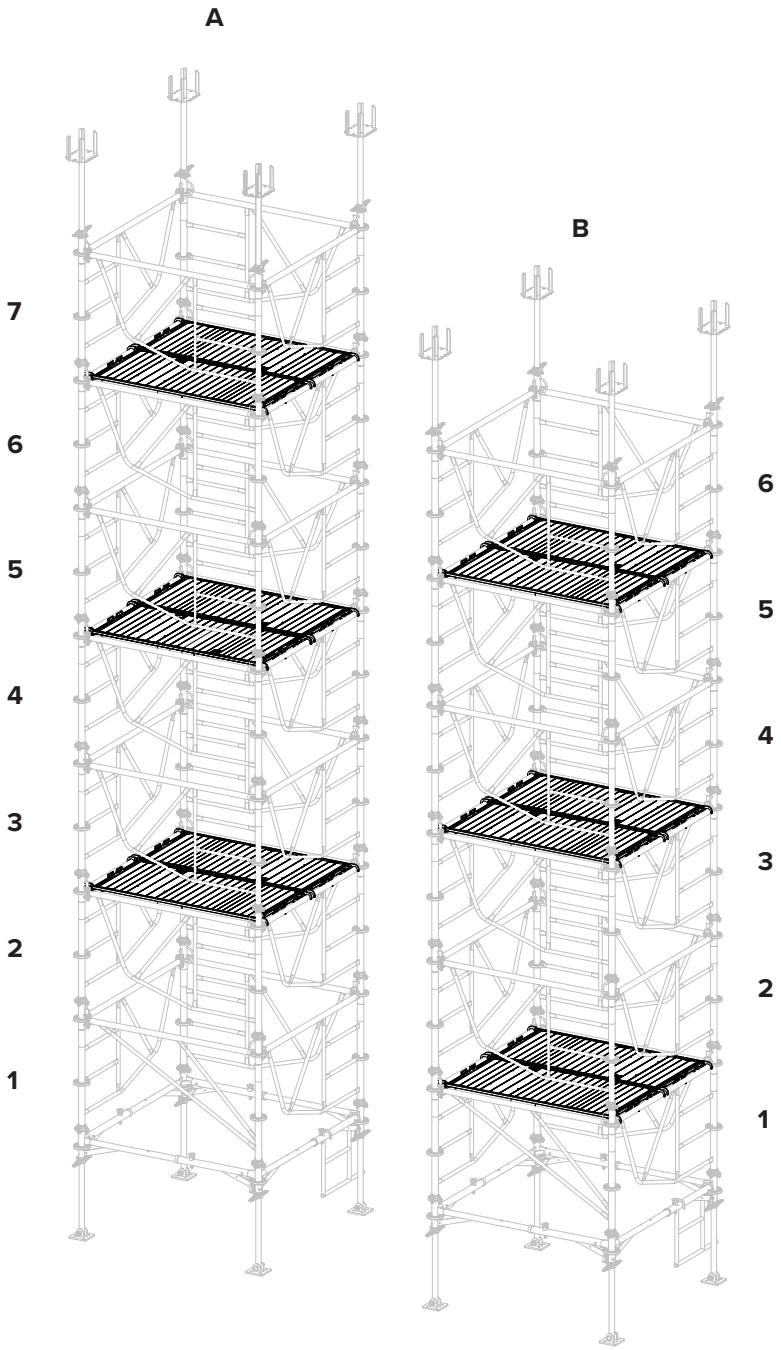


## 5.4 Positioning the first deck level

The quantity and position of the decks are a factor of local conditions and the conditions on site. The decks do not act as stabilisers, they merely serve as access points to the ST 60 Shoring Tower. The provisions for the area of application of this User Guide are indicated here.

The position of the first (lowest) deck level depends on the number of frame levels. In general:

- The distance between the first deck level and the erection surface may not exceed 3.0 m.
- While the ST 60 Shoring Tower is being erected, there should be a deck every 2.0 m.
- If the ladder is used as an access point, the space between 2no. deck levels may not exceed 4.0 m.
- The top of the ST 60 Shoring Tower should consist of a deck level with a 1.0 m high ST 60 Frame on around it.
- Regarding the position of the first deck level:
- With an odd number of frame levels, place the first deck on the second frame level (Fig. A, 7no. frame levels).
- With an even number of frame levels, place the first deck on the first frame level (Fig. B, 6no. frame levels).




## 5.5 General operating principles of the ST 60 system

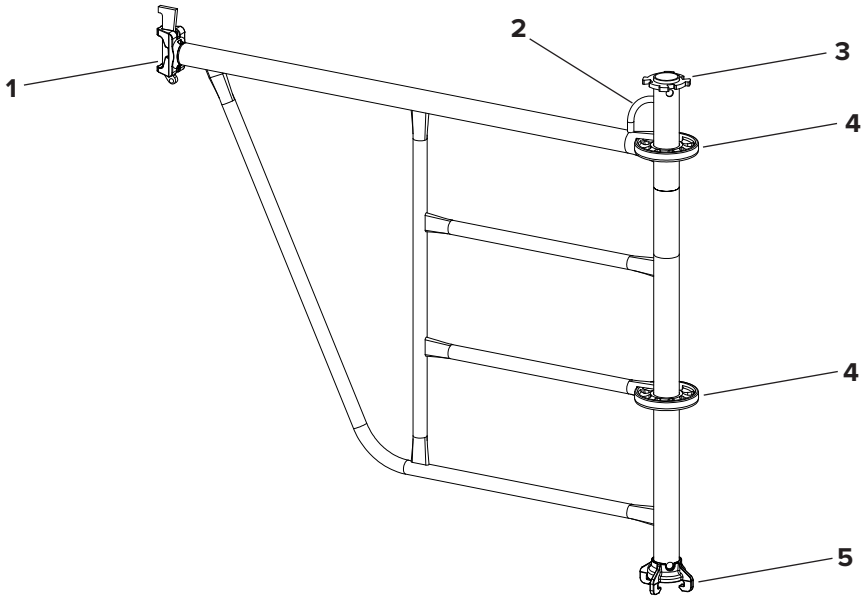
### 5.5.1 Assembling and disassembling frames

Each ST 60 Frame is equipped with 1no. or 2no. rosettes. Attach additional frames for the same level to the rosettes. Other components such as MODEX Tube Ledgers or MODEX Diagonals are also connected here.

Frames for the next-higher or next-lower level are attached with the aid of the upper or lower bayonet fasteners. This creates a tension-resistant connection that allows the towers to be transported by crane.



Unless otherwise stated, all dimensions are in mm.



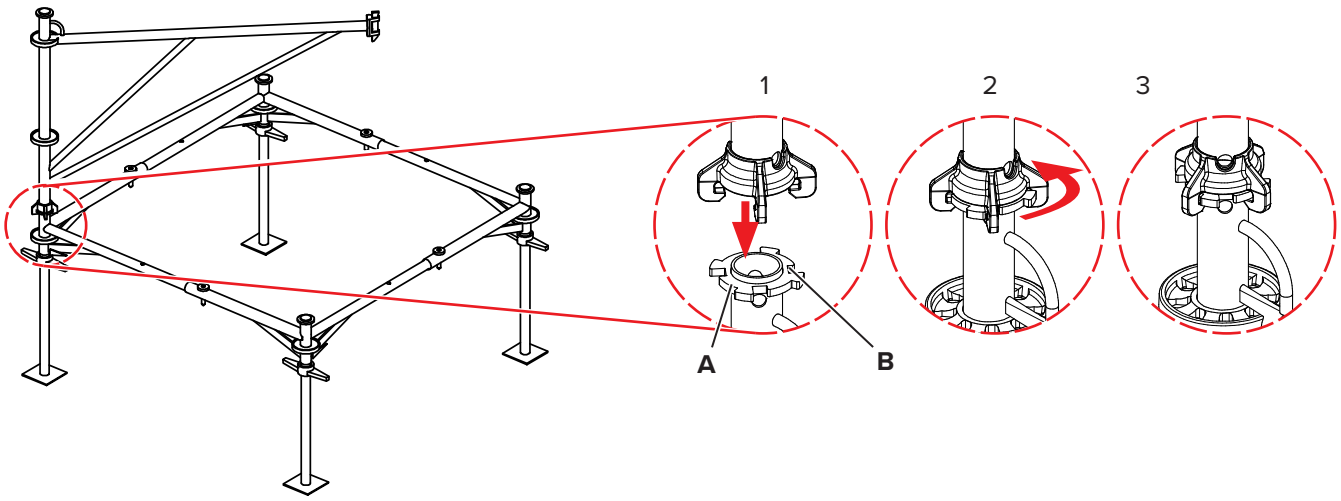

**1** Rosette connection with captive fixing wedge
**2** Attachment point for transport by crane
**3** Upper bayonet fastener
**4** Rosette
**5** Lower bayonet fastener

**Attaching ST 60 Frame to and detaching ST 60 Frame from next-lower frame**

This section describes how to attach an ST 60 Entry Frame to a Starter Frame L. All of the frames in the ST 60 system are attached in the same way.

**Step 1** Turn the frame 45° to the inside of the tower and place it on the bayonet fastener (**A**) of the next-lower frame. The upper bayonet fastener locks into the recesses (**B**) of the lower bayonet fastener.

**Step 2** Turn the frame counterclockwise towards the outside of the tower. The bayonet fastener locks into place.




Verify that each vertical post is correctly engaged!

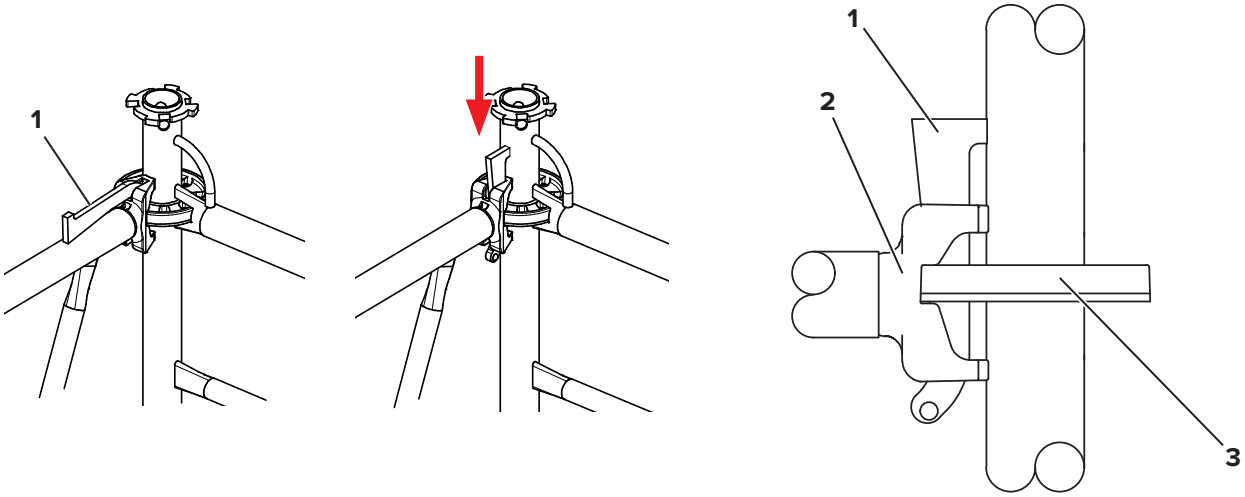
Disassemble in the reverse order.

**Attaching ST 60 Frame to and detaching ST 60 Frame from adjacent frame**

**Step 1** Guide the rosette connection of a frame over the rosette on the adjacent frame.

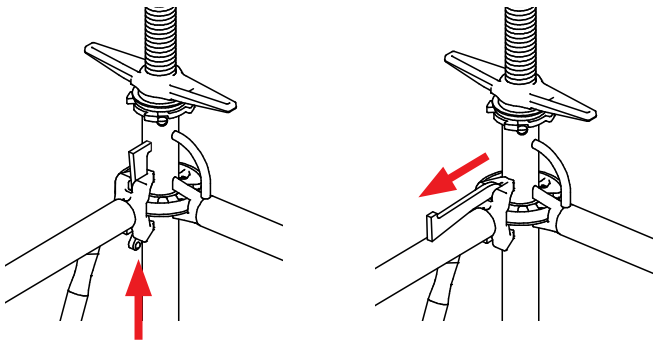
**Step 2** Insert the captive wedge into an opening on the rosette.

**Step 3** Use a 500 g hammer to knock the wedge into the opening from above until rebound is felt.




**1** Fixing wedge
**2** Rosette connection
**3** Rosette

Disassemble in the reverse order. To release the connection, use a hammer to knock the wedge out, striking from below the connection.



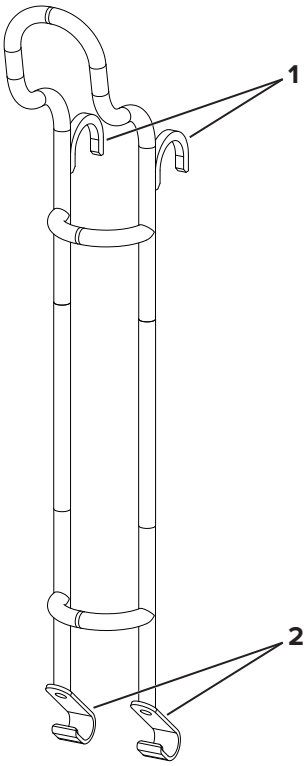


Unless otherwise stated, all dimensions are in mm.

### 5.5.2 Moving decks

As the ST 60 Shoring Tower is assembled, the decks have to be moved from one deck level to the next (higher or lower). Use the ST 60 Deck Lifter for this purpose.

**Deck Lifter**

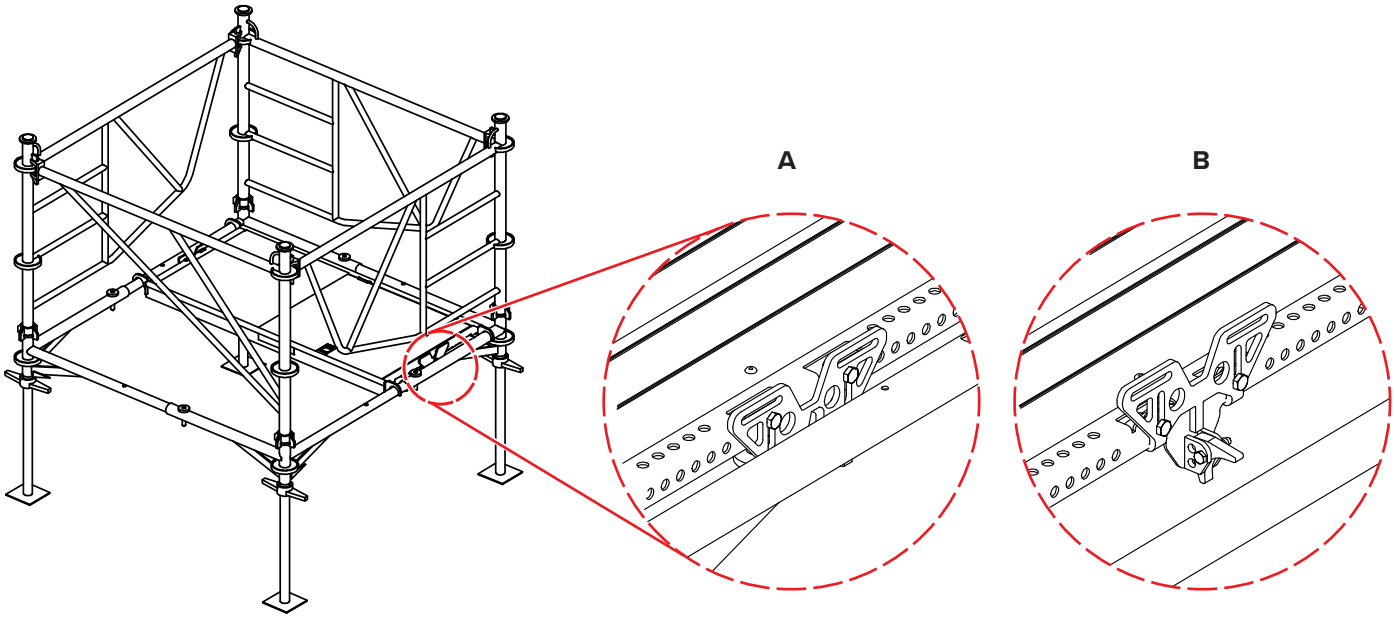



**1** Insert the upper hooks into the ST 60 Frame.

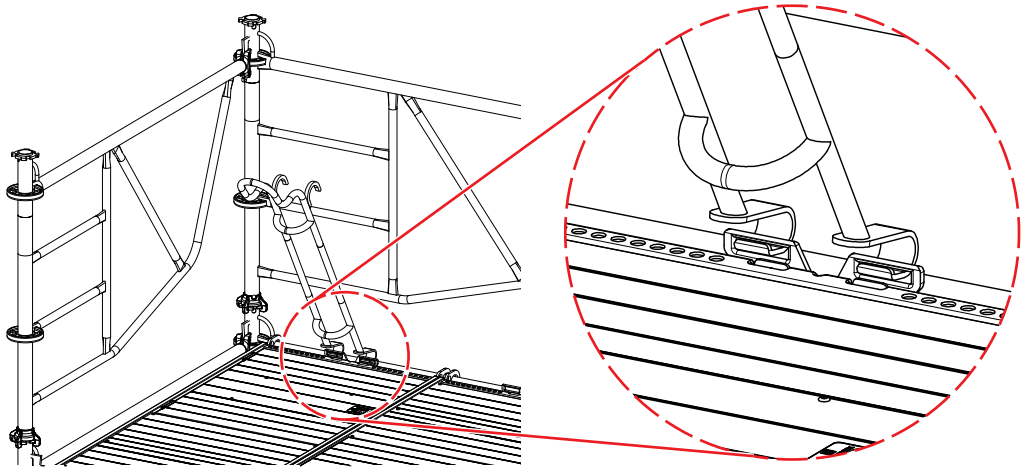
**2** Insert the lower hooks into the lift-off retainer securing the deck.

**Using ST 60 Deck Lifter**

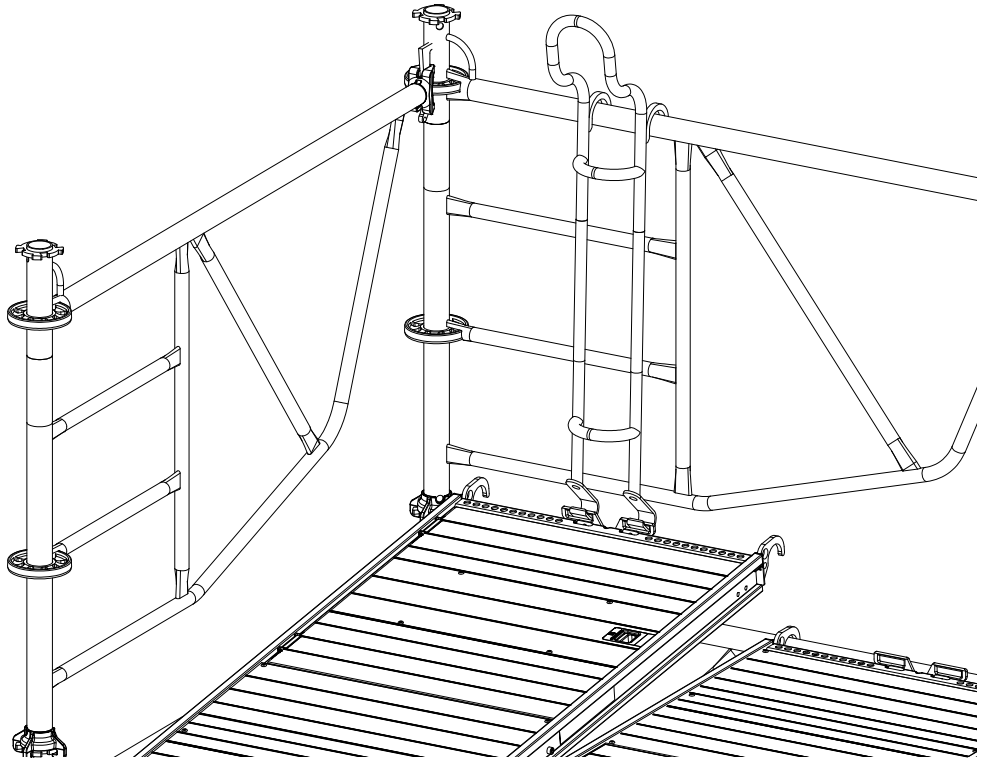
The ST 60 Decks have lift-off retainers on the ends. The lift-off retainers close automatically when the decks are put into place (**A**). To remove the decks, grasp the lift-off retainer and lift. The lift-off retainer then opens automatically (**B**). The Deck Lifter also has to be inserted into the lift-off retainer.



**Step 1** Insert both lower hooks of the Deck Lifter into the lift-off retainer on a deck.



**Step 2** Raise the Deck Lifter and then attach its upper hooks to the ST 60 Frame.

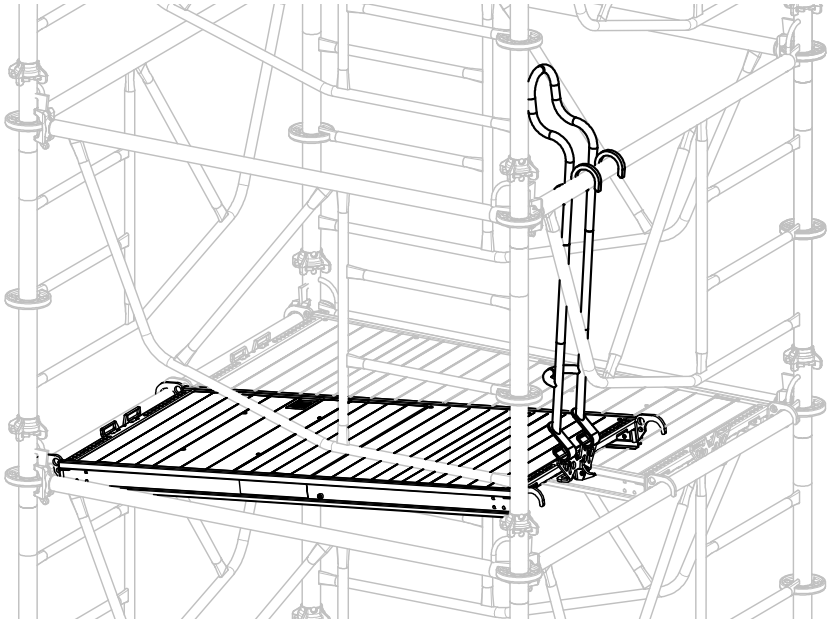




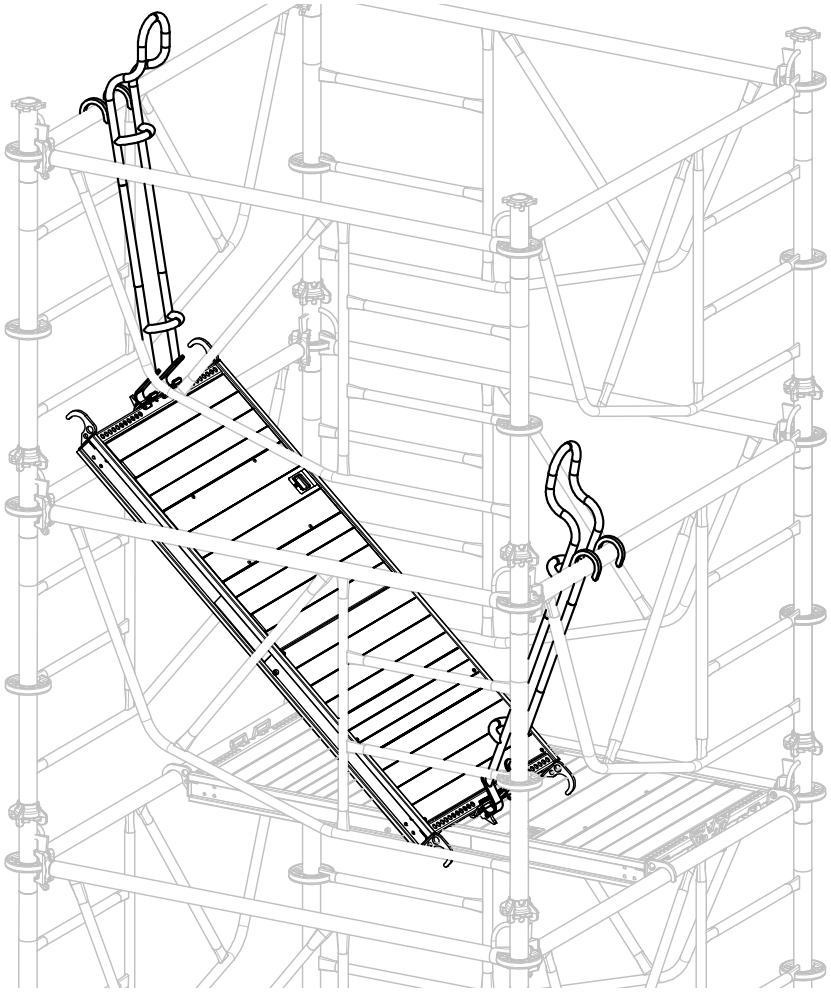
Unless otherwise stated, all dimensions are in mm.

### Moving decks higher

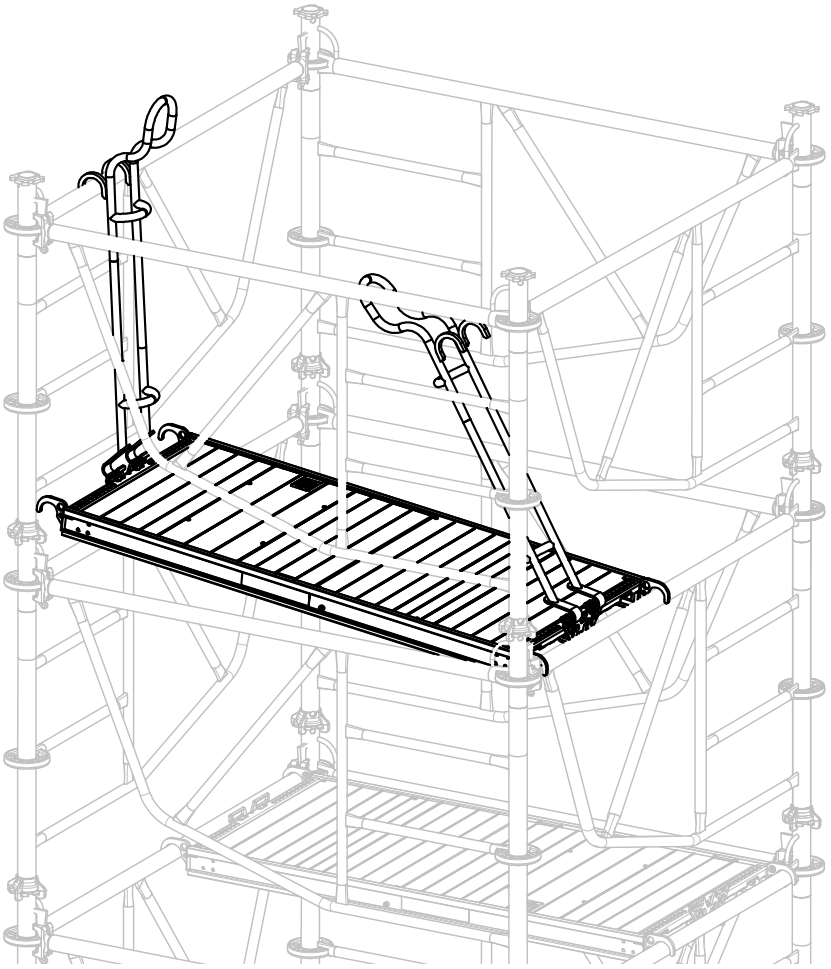
**Step 1** Use the Deck Lifter to lift one end of the deck, then hook the Deck Lifter onto the frame at the same frame level.



**Step 2** Use the Deck Lifter to lift the other end of the deck, then hook the Deck Lifter onto the frame of the next-higher frame level.



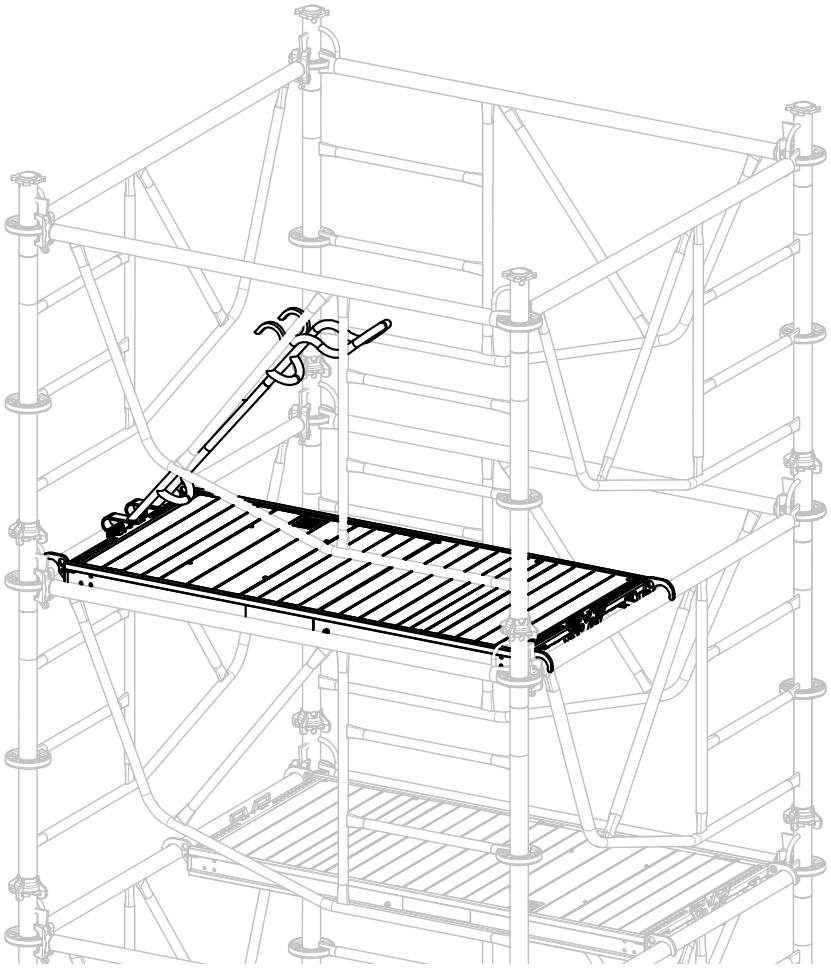
**Step 3** Hang the first end of the deck on the frame. Verify that the lift-off retainer snaps into place. Remove the Deck Lifter.





Unless otherwise stated, all dimensions are in mm.

**Step 4** Hang the other end of the deck on the opposite frame. Verify that the lift-off retainer snaps into place. Remove the Deck Lifter.

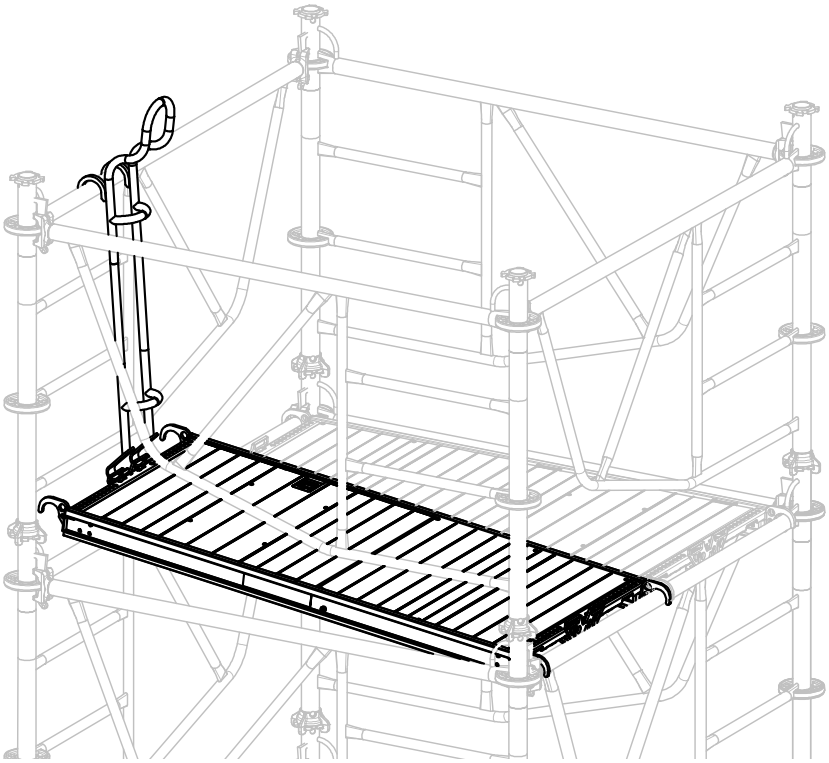


| | |
|---|---|
| | Confirm that the lift-off retainers on both ends of the deck are locked to the ST 60 Frame. |

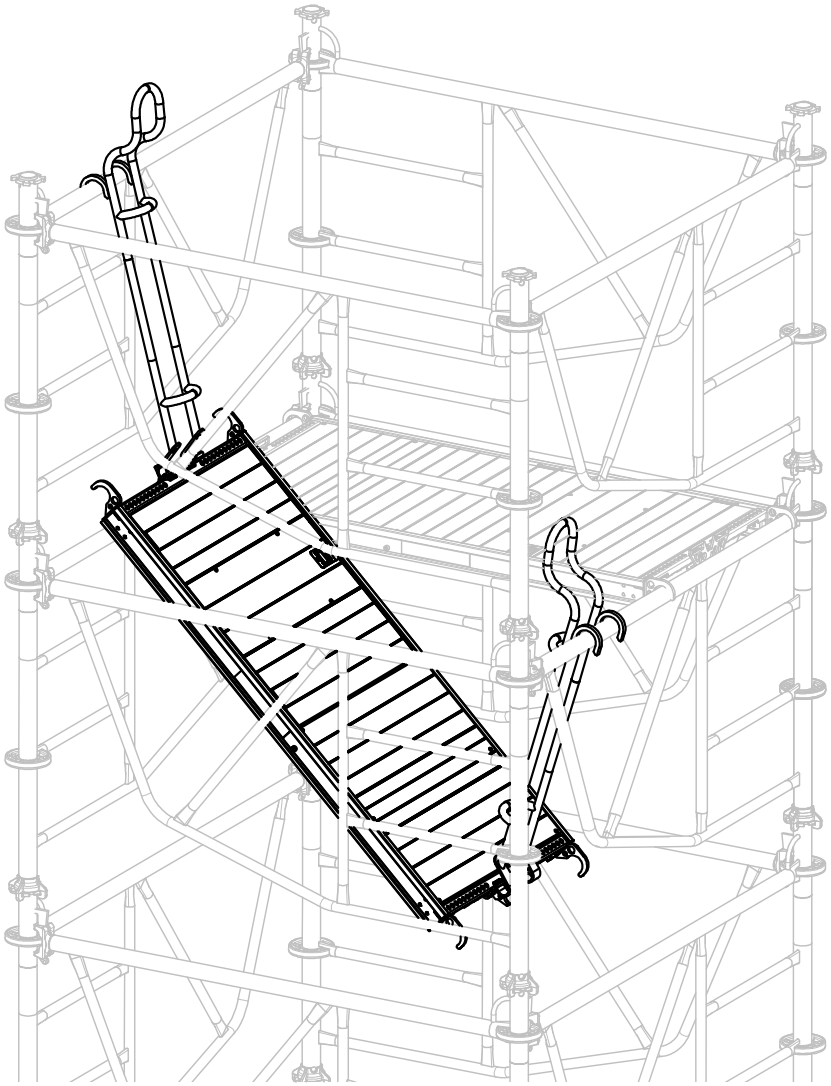
**Step 5** Climb the integrated ladder to the upper deck and then move up the other deck in the same way.

### Moving decks lower

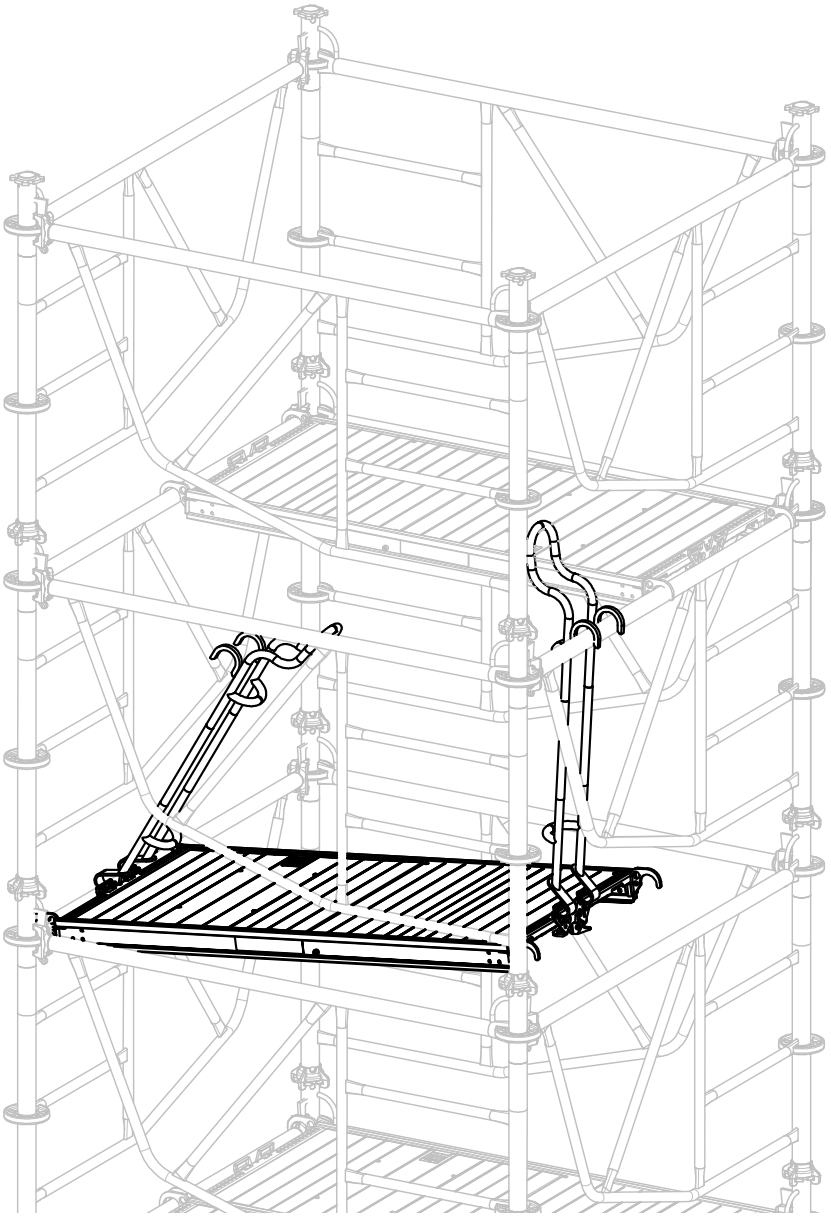
**Step 1** Use the Deck Lifter to lift one end of the deck, then hook the Deck Lifter onto the frame at the same frame level.



**Step 2** Use the Deck Lifter to lift the other end of the deck, then hook the Deck Lifter onto the frame of the next-lower frame level.



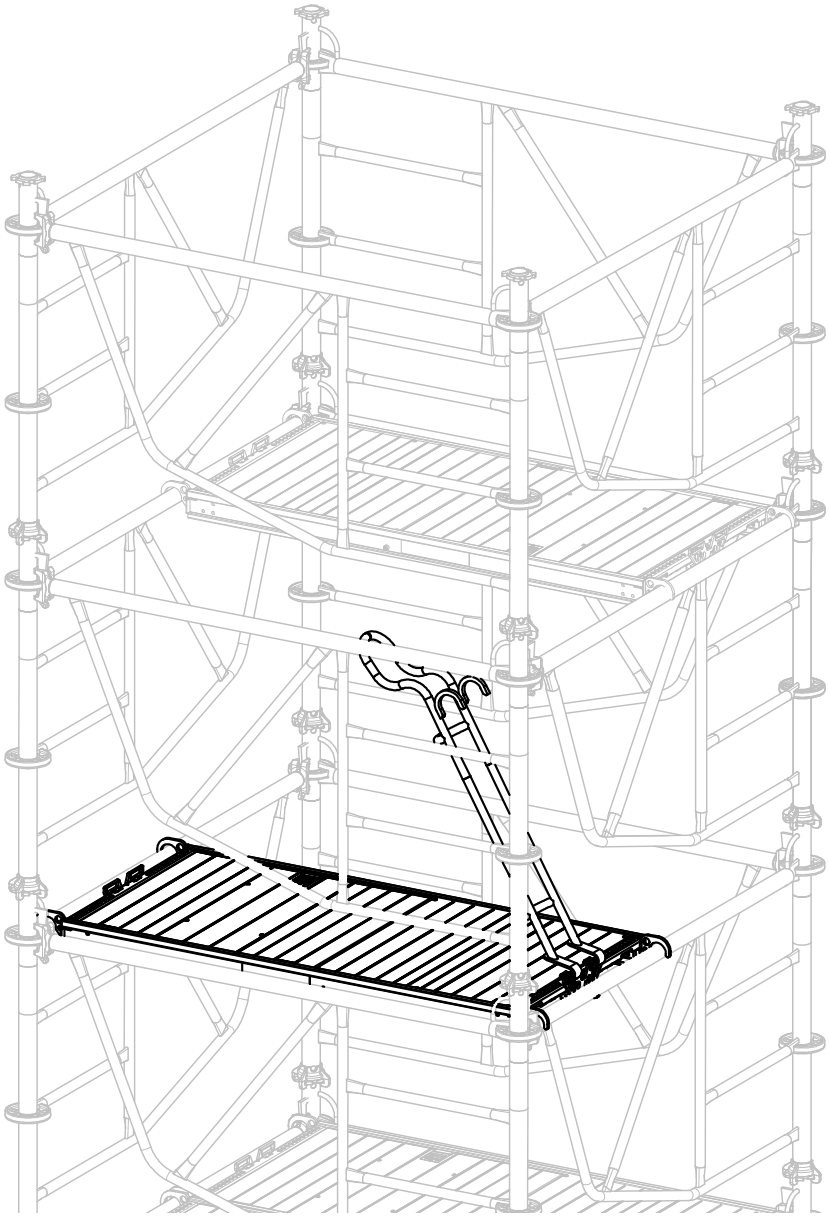
**Step 3** Hang the first end of the deck on the frame. Verify that the lift-off retainer snaps into place. Remove the Deck Lifter.





Unless otherwise stated, all dimensions are in mm.

**Step 4** Hang the other end of the deck on the opposite frame. Verify that the lift-off retainer snaps into place. Remove the Deck Lifter.



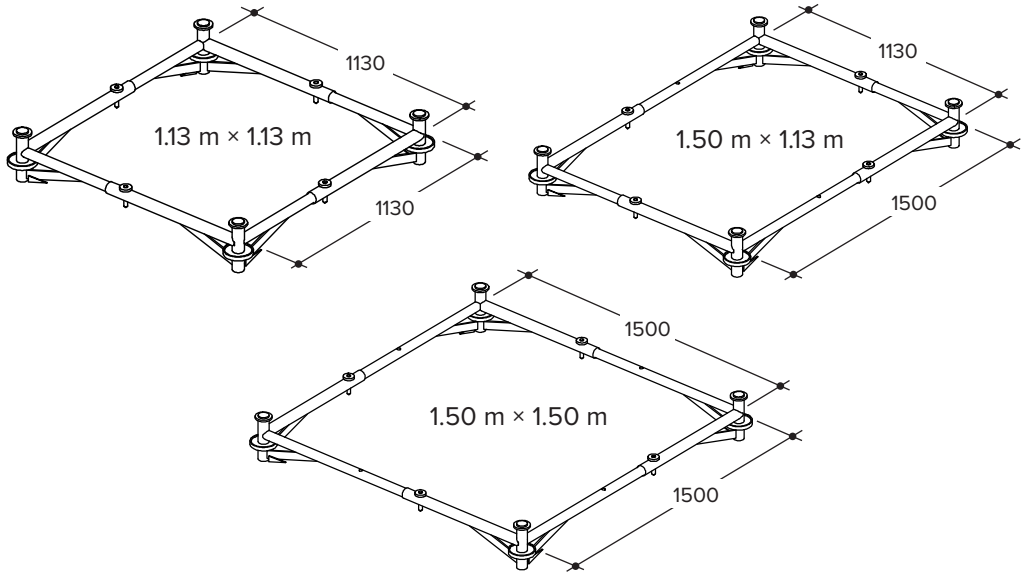
Confirm that the lift-off retainers on both ends of the deck are locked to the ST 60 Frame.

**Step 5** Climb the integrated ladder to the lower deck and then move down the other deck in the same way.

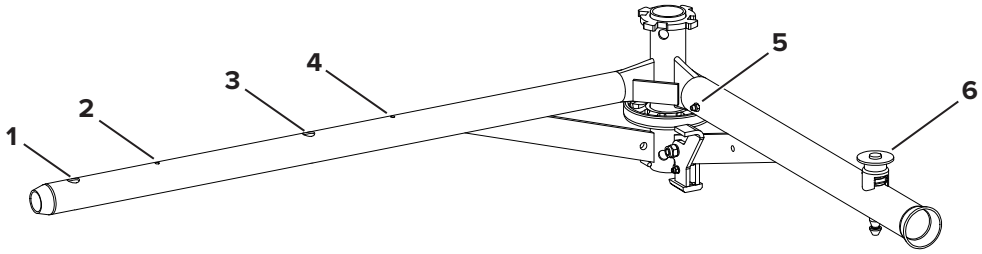
## 5.6 Assembling base frame

The base frame forms the bottom frame level of every ST 60 Shoring Tower. It consists of 4no. Starter Frames L. The tubes of the Starter Frame L have to be inserted into one another. Each Starter Frame L has 2no. positions with which to select the different dimensions that are possible. The following illustration shows the possible dimensions.

**Possible sizes**




**Starter Frame L**

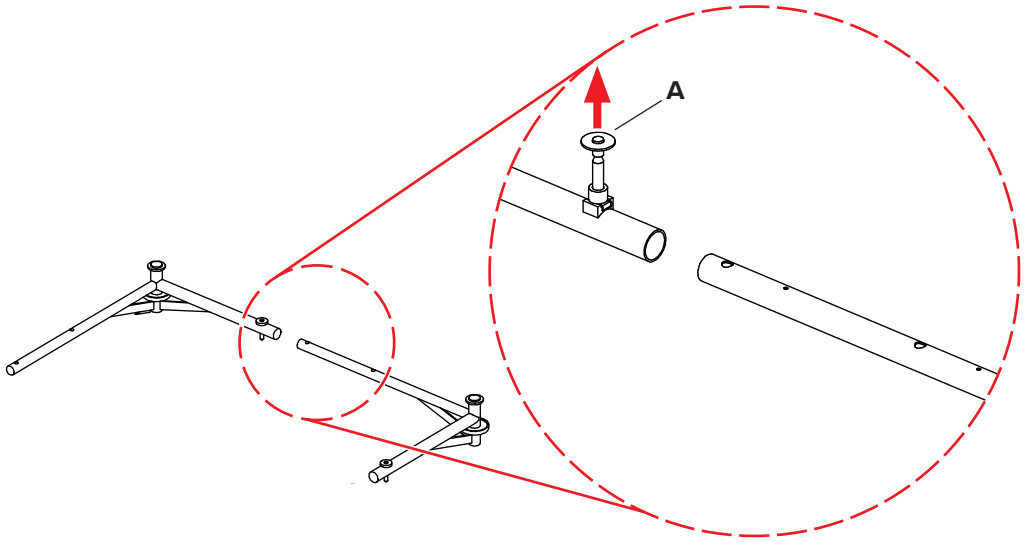



**1** Pegging hole for side length 1.50 m
**2** Marking hole for side length 1.50 m
**3** Pegging hole for side length 1.13 m
**4** Marking hole for side length 1.50 m
**5** Stopper
**6** Locking pin

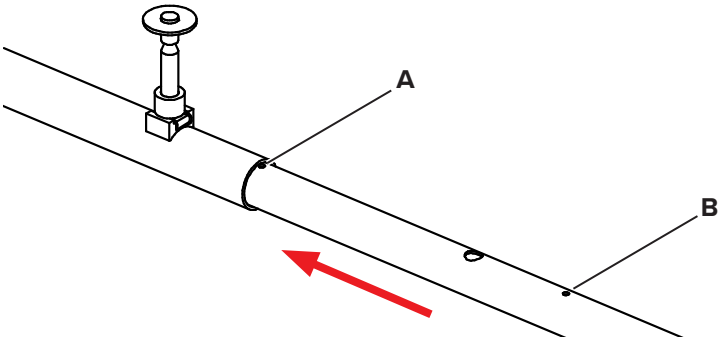


Unless otherwise stated, all dimensions are in mm.

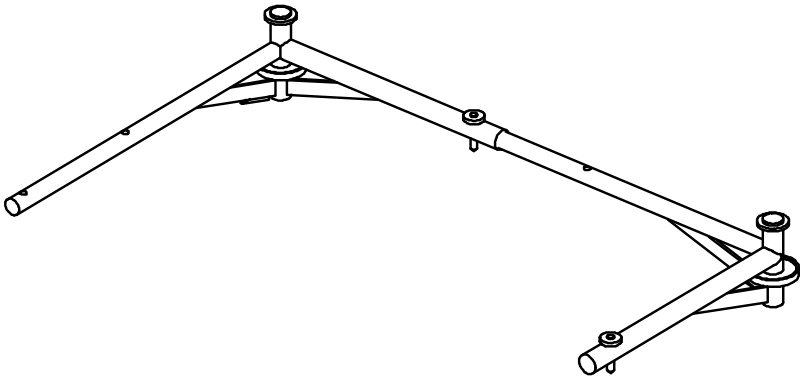
**Step 1** Place 2no. Starter Frames L next to one another as shown. Pull out the locking bolt (**A**) on 1no. Starter Frame L. The bolt locks into the retracted position.



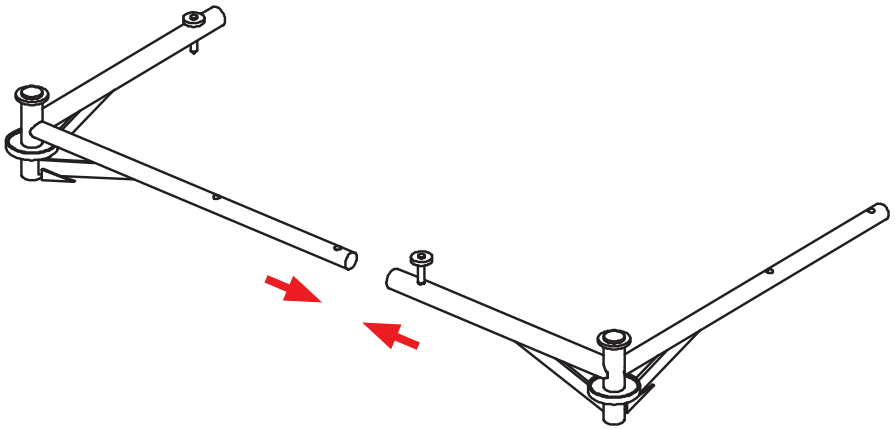

**Step 2** Put together the Starter Frames L to create the desired side lengths. The corresponding marking hole (**A** 1.50 m) or (**B** 1.13 m) should only just be completely visible.



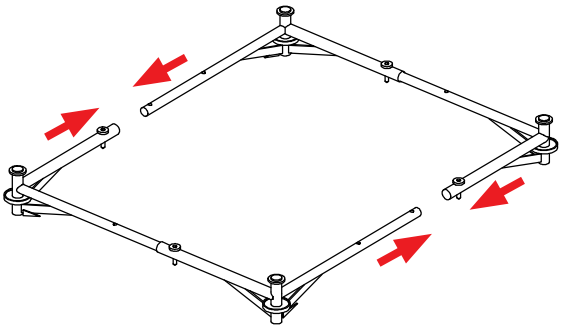

**Step 3** Press down the locking bolt. The bolt must lock completely into place and protrude from the underside of the Starter Frame L.



**Step 4** Put together the other 2no. Starter Frames L in the same way.



**Step 5** Put together the 2no. assembled halves of the base frame and secure them in position with the locking bolts. Two persons are required to perform this task.



Confirm that all locking bolts are locked into place!



Unless otherwise stated, all dimensions are in mm.

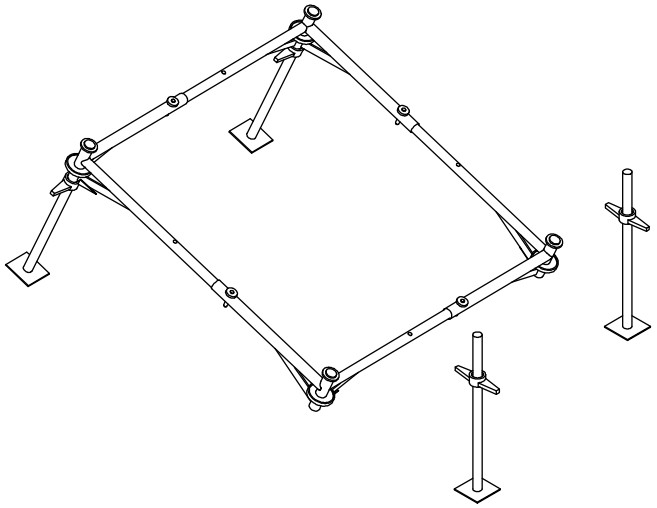
## 5.7 Attaching Base Jacks

Once the base frame is assembled, the Base Jacks have to be attached. The load exerted by the ST 60 Shoring Tower is transferred to the ground through the Base Jacks. The Base Jacks also enable horizontal alignment of the ST 60 Shoring Tower, adjustment of the height and stripping.

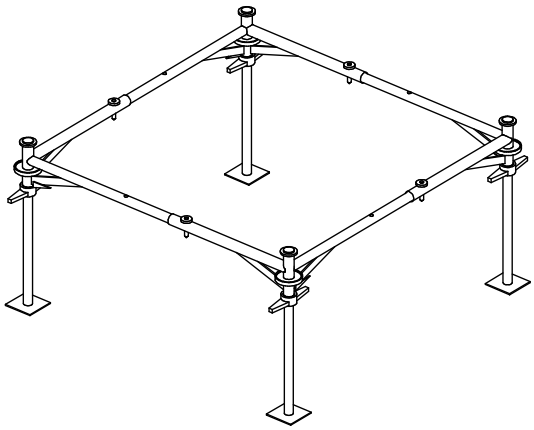
| NOTE | **NOTE**<br>Do not turn the Base Jack wing nuts all the way down.<br>Take into consideration the stripping clearance. |
|---|---|

**Step 1** Extend all of the Base Jacks to the required length.

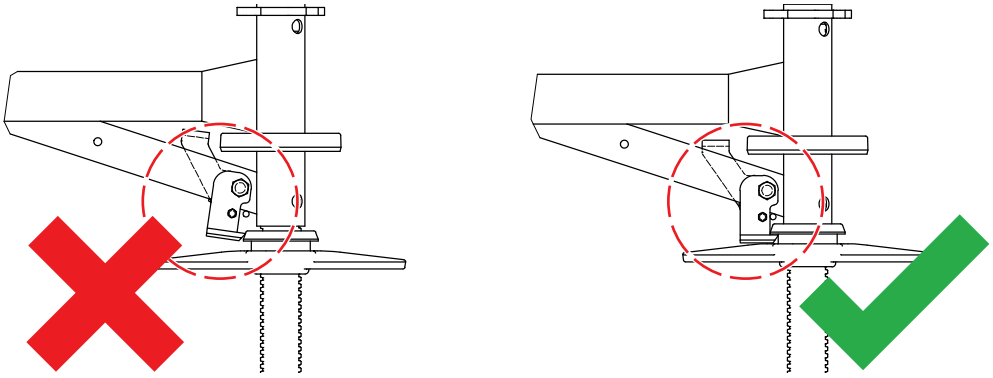
**Step 2** Insert 2no. Base Jacks into the Starter Frame L on one side of the base frame. Two persons are required to perform this task.



**Step 3** Attach the other 2no. Base Jacks to the base frame in the same way.



Verify that all safety locks are properly locked!

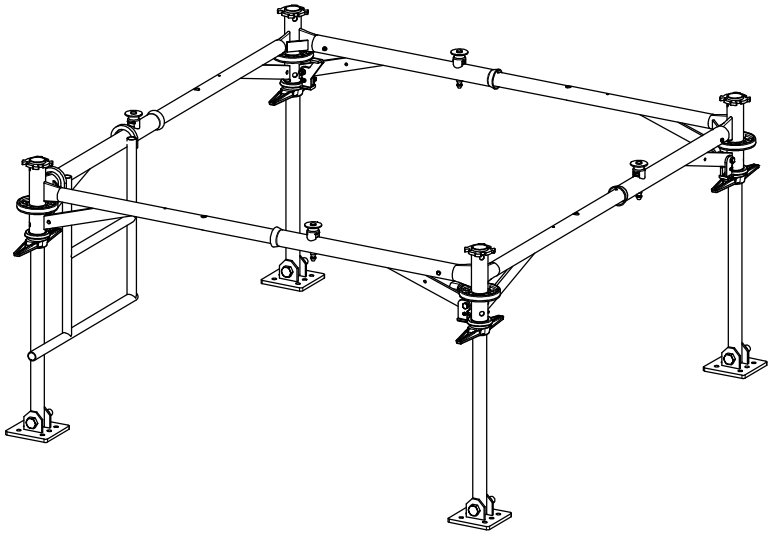


**Step 4** Roughly align the base frame horizontally with the aid of the Base Jacks. If the tower is to be erected on an incline, a height difference of no more than 50 cm can be compensated for with the Base Jacks.

## 5.8 Attaching Entry Ladder

If the Base Jacks are greatly extended, the distance from the ground to the base frame is substantial. This makes it difficult to ascend into the ST 60 Shoring Tower. The Entry Ladder can be attached to facilitate ascent. Use the Entry Ladder only from the inside of the tower; otherwise the ladder will swing away from you.

**Step 1** Hang the Entry Ladder on the inside of the base frame. The Entry Ladder is braced against a Base Jack.



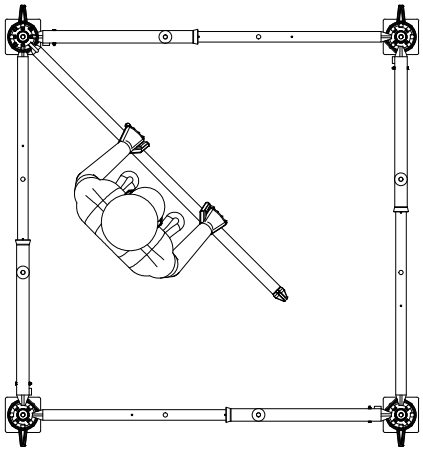
## 5.9 Assembling first frame level

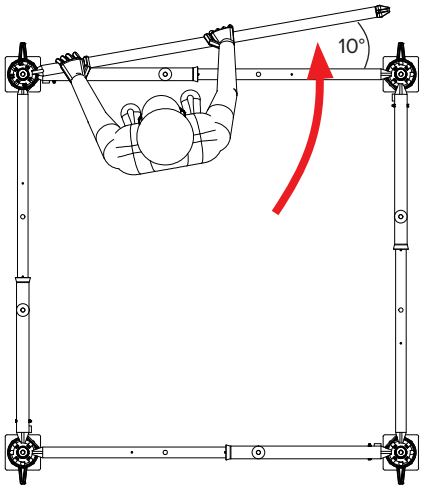
The first frame level is usually made up of 1no. ST 60 Entry Frame and 3no. ST 60 Frames. The ST 60 Entry Frame makes it easy to later access the inside of the ST 60 Shoring Tower. The section Section Assembling and disassembling frames on page 28 describes how to assemble and disassemble the ST 60 Frames. This section only specifies the sequence of the steps.

| NOTE | **Level the ST 60 Shoring Tower!**<br>After assembling the first frame level, adjust Base Jacks to ensure that the frames are level. |
|---|---|

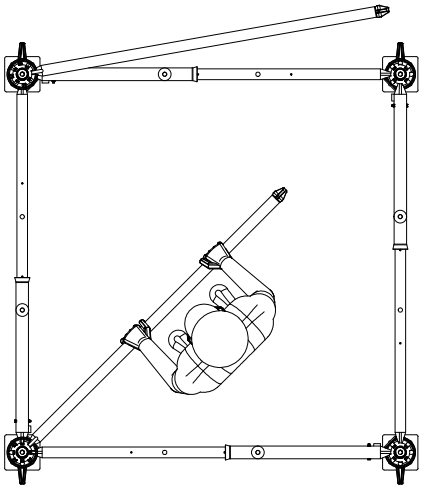
**Step 1** Place the ST 60 Entry Frame on one of the bayonet fasteners on the base frame at an angle of 45°.

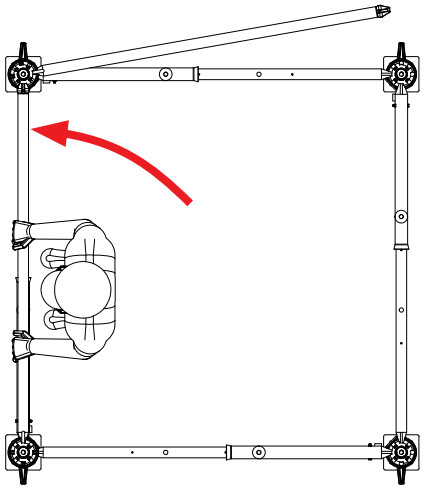
**Step 2** Pivot the Entry Frame out until it is about 10° past the base frame.






**Step 3** Place the next frame on the indicated bayonet fastener on the base frame in the same way. Pivot the frame out far enough that the rosette connection on the frame grasps the rosette on the previously attached frame.

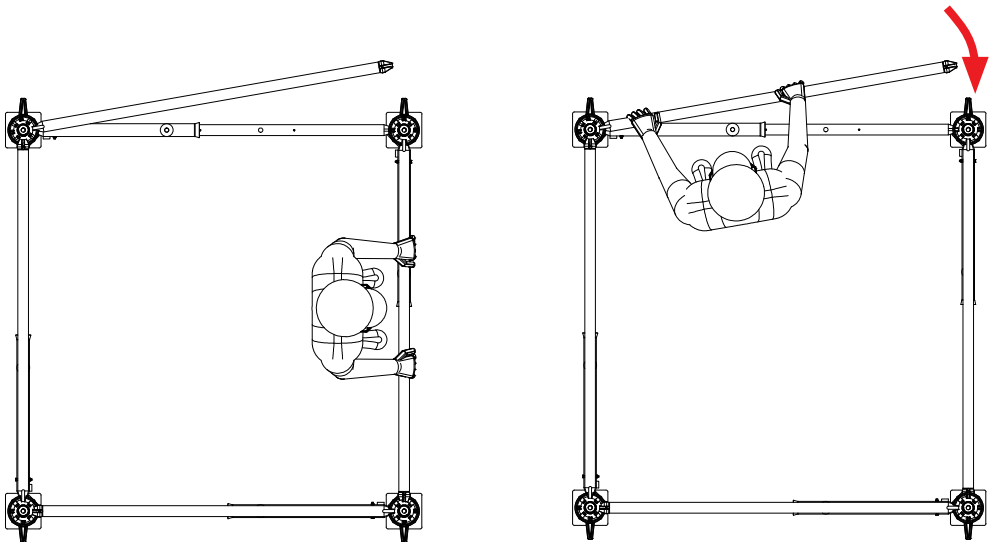




**Step 4** Insert the rosette connection fixing wedge. Do not hammer in the wedge.

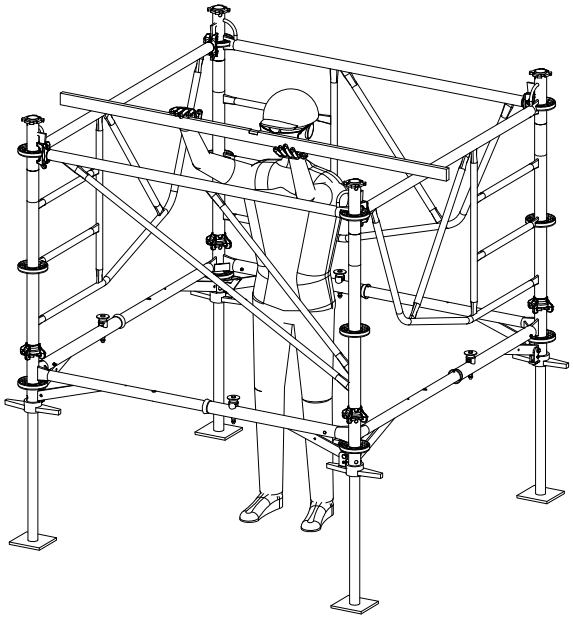
**Step 5** Attach the 2no. remaining frames in the same way, working counterclockwise.

**Step 6** Pivot in the frame attached first far enough that the rosette connection on the frame grasps the rosette on the frame attached last. Insert the rosette connection fixing wedge. Do not hammer in the wedge.



**Step 7** Use a 500 g hammer to knock the wedges on all 4no. frames into place until rebound is felt (Refer to section “Attaching ST 60 Frame to and detaching ST 60 Frame from next-lower frame” on page 29).

**Step 8** Adjust the Base Jacks to level the ST 60 Shoring Tower (with the aid of a spirit level).

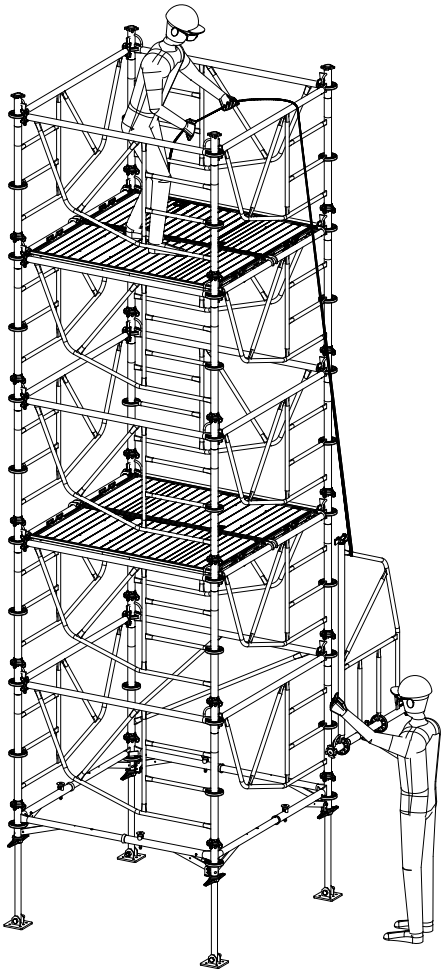


Confirm that all wedges are properly locked into place!

## 5.10 Vertical transportation of components

### With a rope

Transporting ST 60 components with a rope is a job for two persons. A rope with a hook with integrated safety latch is essential. One person stands on the ground and connects the components to the hook on the rope. The other person stands on the highest deck level that is secured. He hoists the component and puts it into place.



**WARNING**

Components falling to the ground can cause injury or death.

Never throw components off the ST 60 Shoring Tower!

**WARNING**

Components falling to the ground can cause injury or death to persons in/on the scaffold.

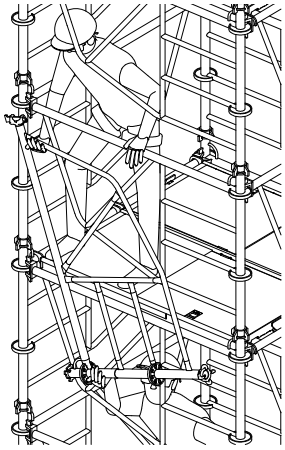
Immediately move out of the hazardous area once components have been handed off!

Step back into the tower when transporting components manually!

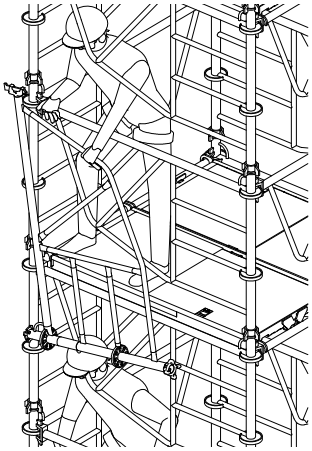
### Manually

When transporting components manually, one person has to be on each level of the scaffold. The components can be moved up and down the outside of the ST 60 Shoring Tower simply by grasping them and handing them up or down to the next person. As soon as the person at the bottom has handed over the component, he has to retreat completely into the safe area.

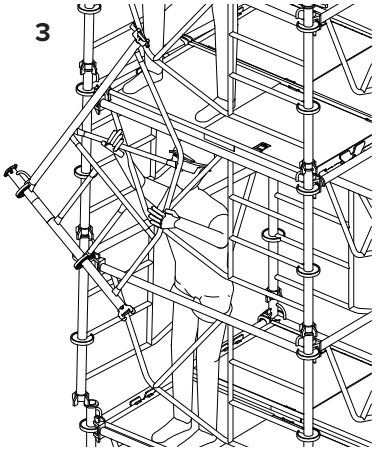
1



2



3



# 6 Upright assembly of ST 60 Shoring Tower

Once all preparations have been completed and the base frame is assembled (Refer to Section 5 on page 26), the ST 60 Shoring Tower can be assembled in the upright position or lying on the ground. This section describes upright assembly. Assembly of the ST 60 Shoring Tower lying on the ground is described in Section 7 on page 58.

**WARNING**

**Danger of ST 60 shoring towers tipping over!**

Wind loads can cause free-standing ST 60 Shoring Towers to tip over.

Take appropriate measures to ensure the stability of the ST 60 Shoring Tower during erection (see section “Bracing ST 60 Shoring Tower” on page 64)!

The maximum erection height permitted for a free-standing ST 60 Shoring Tower at a working wind of max. 62 km/h (0.2 kN/m$^2$) is:

- For ST 60 Shoring Towers 1.13 m x 1.13 m: 3.46 m (corresponding to three frame levels plus base frame with jacks)
- For ST 60 Shoring Towers 1.13 m x 1.50 m: 3.46 m (corresponding to three frame levels plus base frame with jacks)
- For ST 60 Shoring Towers 1.50 m x 1.50 m: 4.50 m (corresponding to four frame levels plus base frame with jacks)

If erected in any other way, the stability must always be ensured with suitable measures.

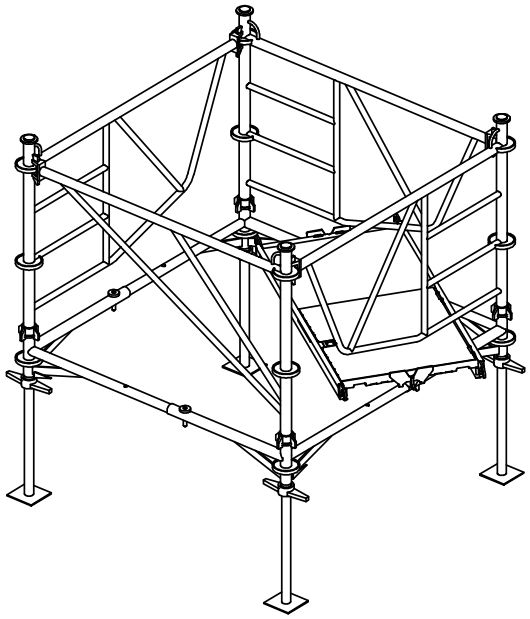
## 6.1 Decking first level

Install the decks on the first level from outside of the ST 60 Shoring Tower. Observe the following points regarding assembly:

- Install all decks such that the access hatch opens to the outside.
- Always place the decks parallel to the Entry Frame.
- The end of the access hatch always has to be adjacent to a ladder.

All ST 60 decks meet the requirements of Load Class 4 (LC 4). Loads to which the decks are subjected must be taken into consideration when determining the Safe Working Load of the ST 60 Shoring Tower.

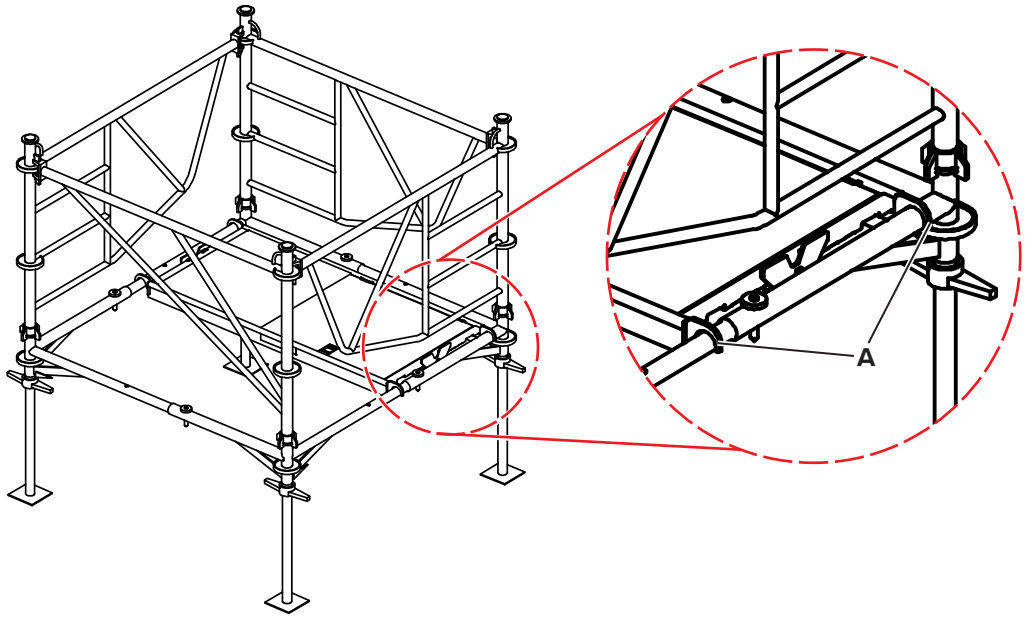
**Step 1** Lay a deck diagonally across the corner of the base frame.





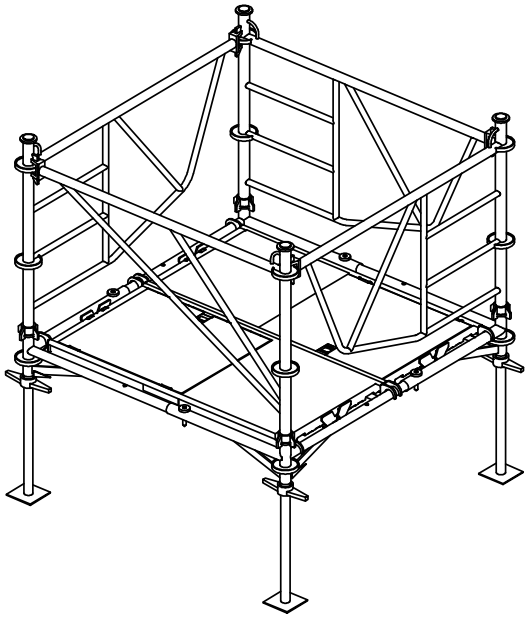
Unless otherwise stated, all dimensions are in mm.

**Step 2** Slide the deck over to the opposite side, lift the deck by grasping the lift-off retainer, and hook the deck claws (**A**) onto the base frame. The lift-off retainer has to lock into place.




Confirm that the lift-off retainers on both ends of the deck are locked to the ST 60 Frame.

**Step 3** Install the second deck in the same way.



## 6.2 Assembling additional frame and deck levels

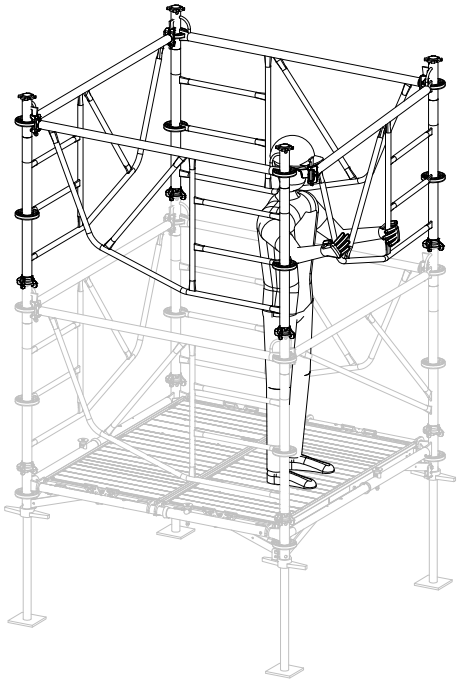
The next frame levels are made up of 4no. ST 60 Frames each. They are also always assembled from the inside of the tower. The procedure is the same as that described for the first frame level.

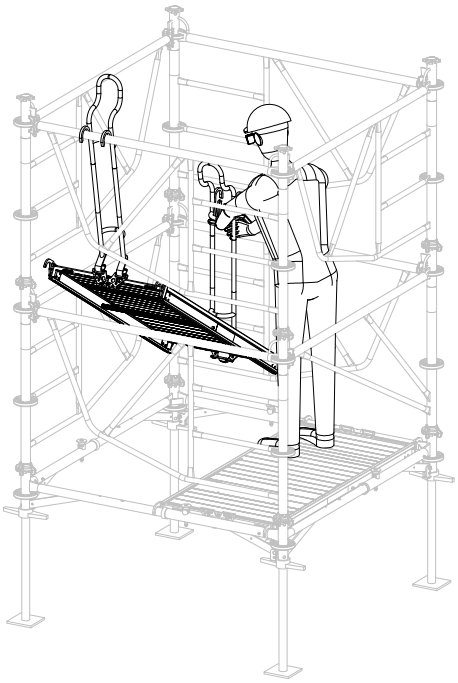
The ST 60 Shoring Tower has to be assembled by at least two persons. The components needed for erection should be transported along the outside of the ST 60 Shoring Tower. There are various ways to transport the material.

### 6.2.1 Assembling frame and deck levels

**Step 1** Assemble the second frame level.

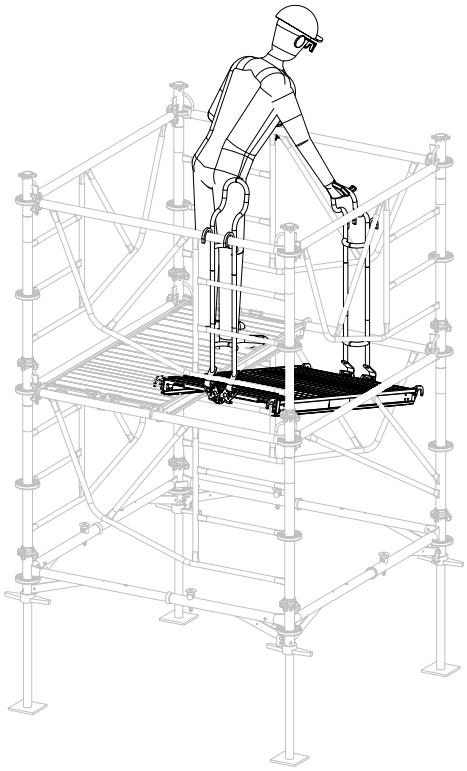
**Step 2** Lift a deck from the first deck level onto the next frame level. Use the Deck Lifter to do this.

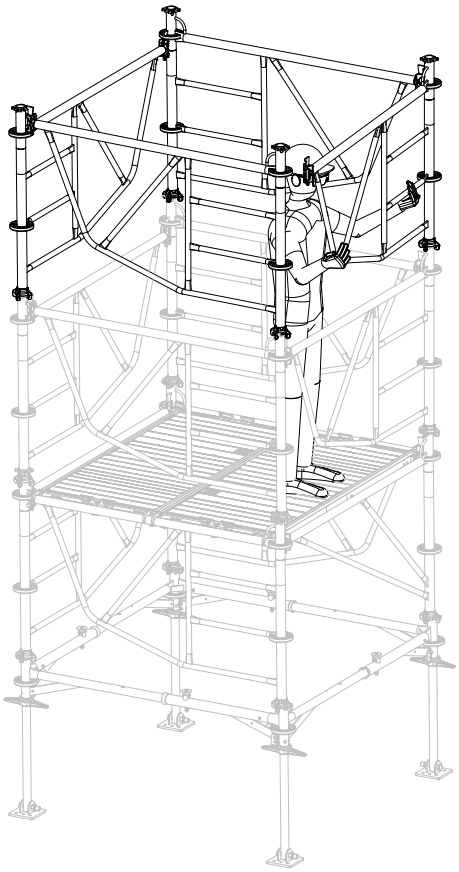




**Step 3** Climb onto the higher deck and then lift the other deck onto that level. Use the Deck Lifter to do this.

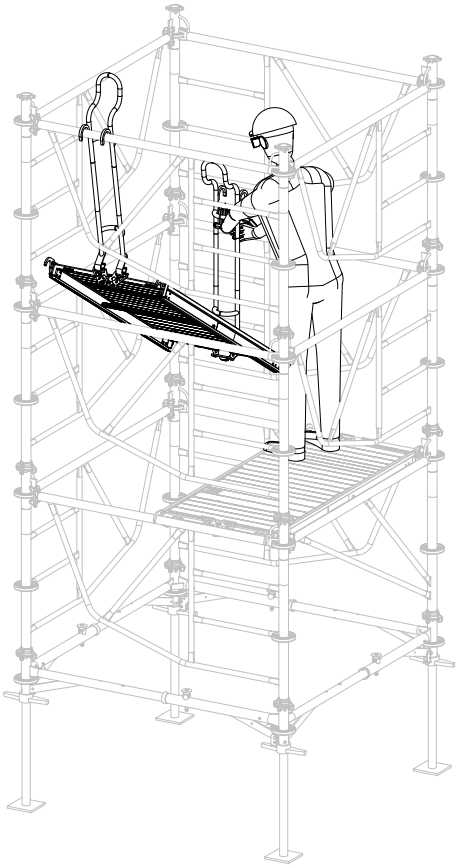
**Step 4** Assemble the third frame level.

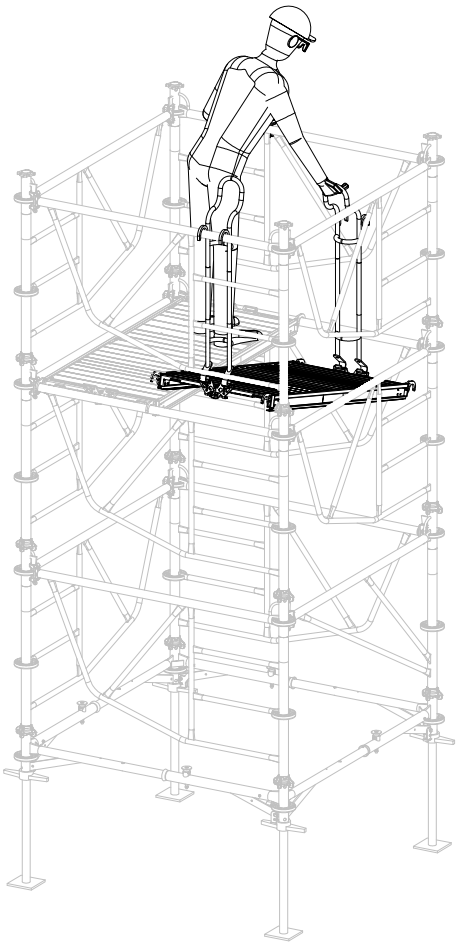




**Step 5** Lift a deck from the first deck level onto the next frame level. Use the Deck Lifter to do this.

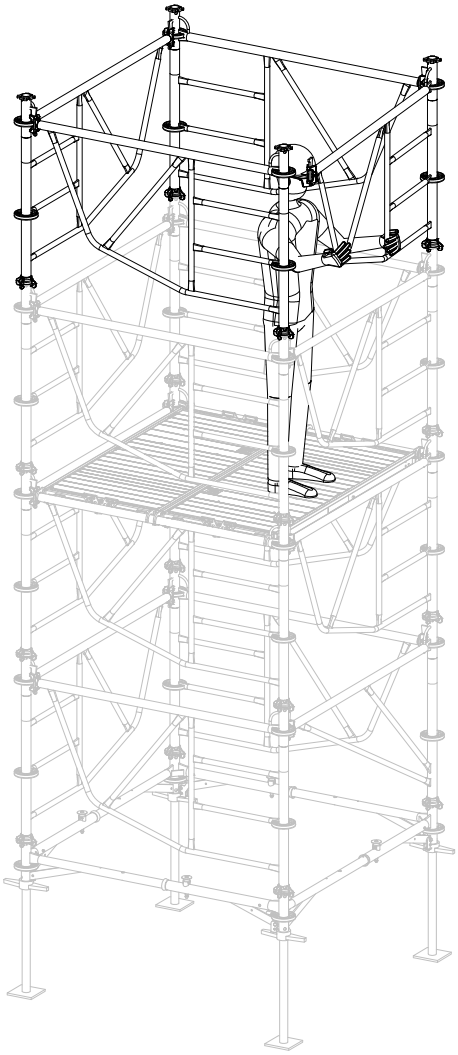
**Step 6** Climb onto the higher deck and then lift the other deck onto that level. Use the Deck Lifter to do this.

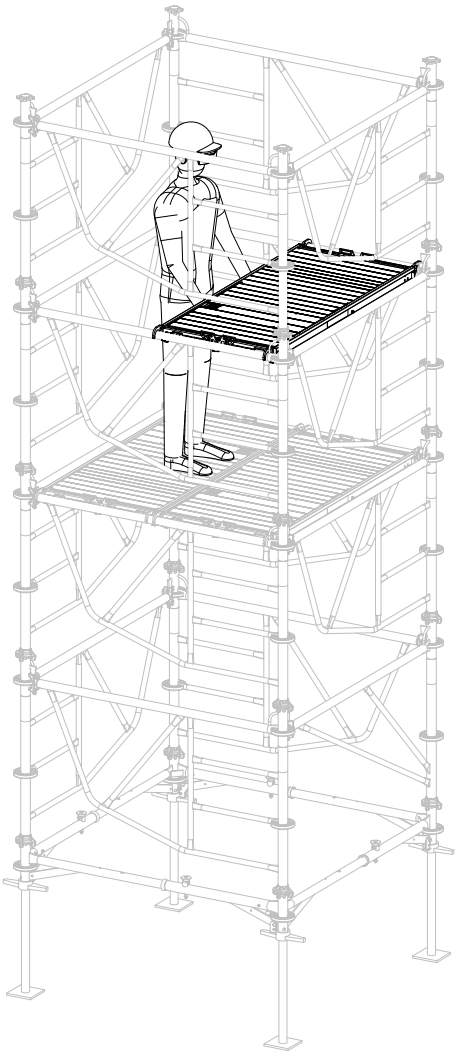




**Step 7** Assemble the fourth frame level.

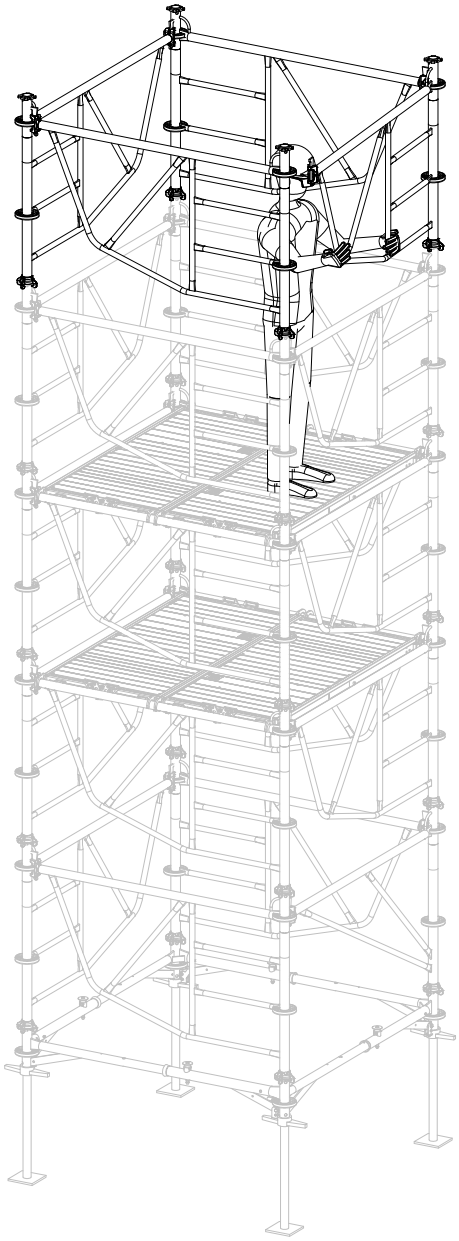
**Step 8** Assemble the third deck level.

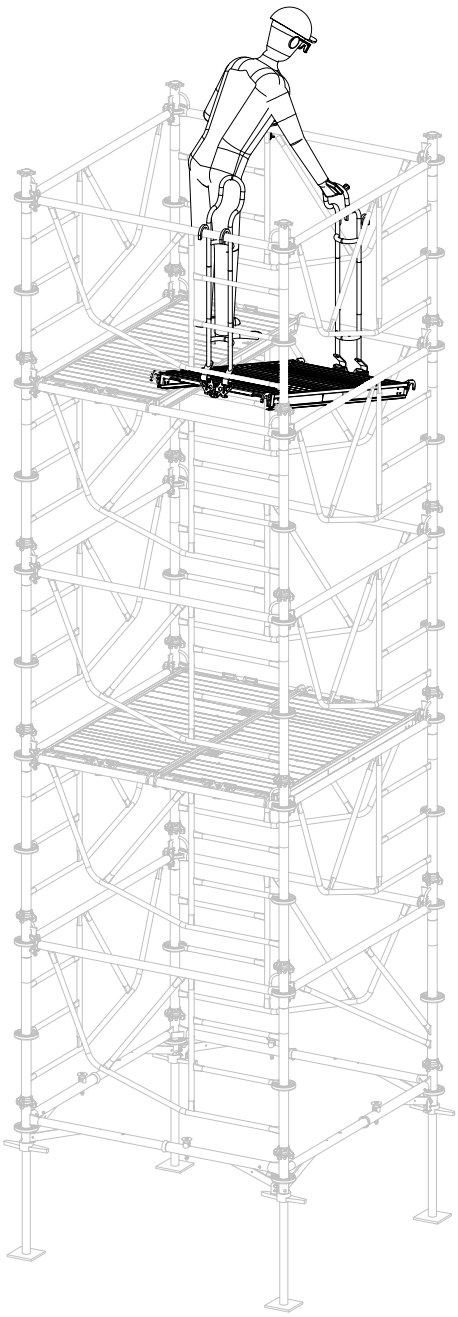




**Step 9** Climb onto the third deck level and assemble the fifth frame level from there.

**Step 10** Move the third deck level 1no. frame level higher.





**Step 11** Continue to assemble frame levels and deck levels as described in this section, or assemble the structure topping as described in Section 6.3 on page 55.

It is possible to climb all the way up and down the tower with only 2no. decks.

1. Do this by raising a deck 1no. frame level higher.
2. Climb onto the deck that was just raised.
3. Raise the lower deck up 2no. frame levels.
4. Climb onto the deck that was just raised.
5. Raise the first deck 2no. frame levels higher.
6. Repeat these steps until you have reached the desired height.

## 6.3 Assembling structure topping

### 6.3.1 Attaching Crosshead Jacks

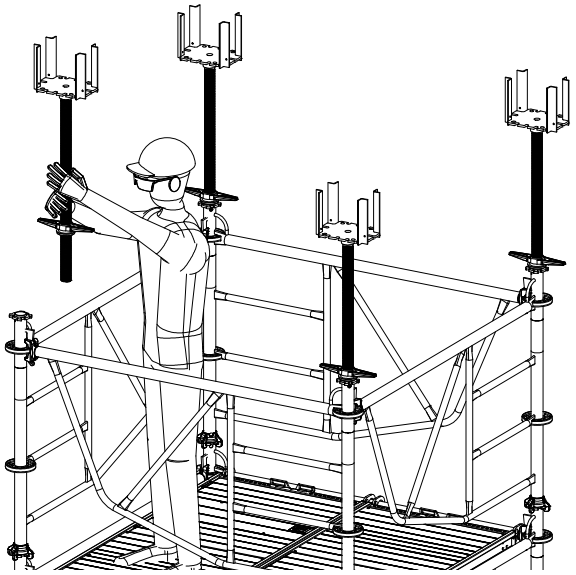
The Crosshead Jacks secure the primary beams or secondary beams to the ST 60 Shoring Tower. If it is possible for the Crosshead Jacks to slip out of the ST 60 Frames, the wing nuts on the Crosshead Jacks have to be secured with the Head Jack Retainers. The Crosshead Jacks always have to be secured when the ST 60 Shoring Tower is assembled lying on the ground or when it is transported by crane.

A technical modification to the thread of the Crosshead Jack prevents the wing nut from being turned down any farther. If this safety feature does not function properly and the wing nut can be unscrewed more than 620 mm, the Crosshead Jack may no longer be used.

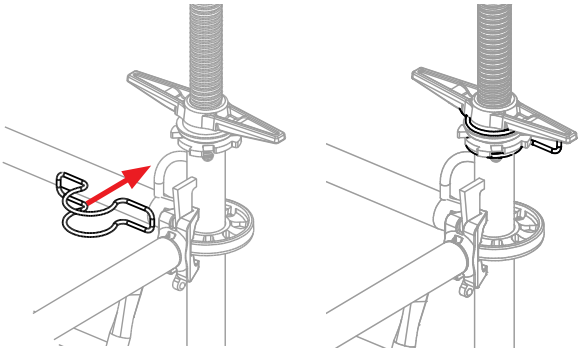
| NOTE | **Take into consideration the stripping clearance!**<br>Do not turn the Head Jack wing nuts all the way up.<br>Maintain a stripping clearance of at least 50 mm! |
|---|---|

**Step 1** Use the wing nuts to set the Crosshead Jacks to the required length.

**Step 2** Insert the Crosshead Jacks into the ST 60 Frames at the top frame level.



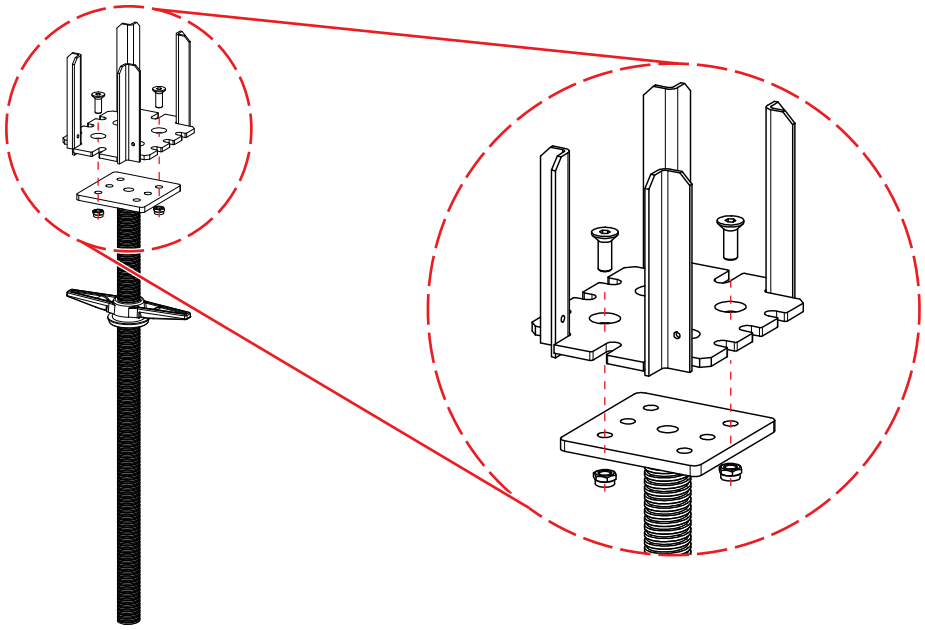
**Step 3** Place 1no. Head Jack Retainer on each Crosshead Jack to secure them from falling out, if necessary.



### 6.3.2 Converting Base Jack to Head Jack

A Base Jack can be converted to a Head Jack with the aid of a Crosshead Adapter. The Base Jack can be secured with the Head Jack Retainer as well to prevent it from falling out.

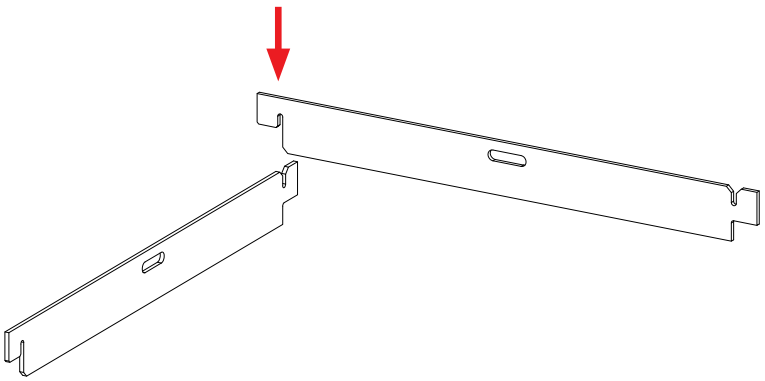
**Step 1** Secure the Crosshead Adapter to the Base Jack base plate using 2no. countersunk screws M12x35 and nuts.



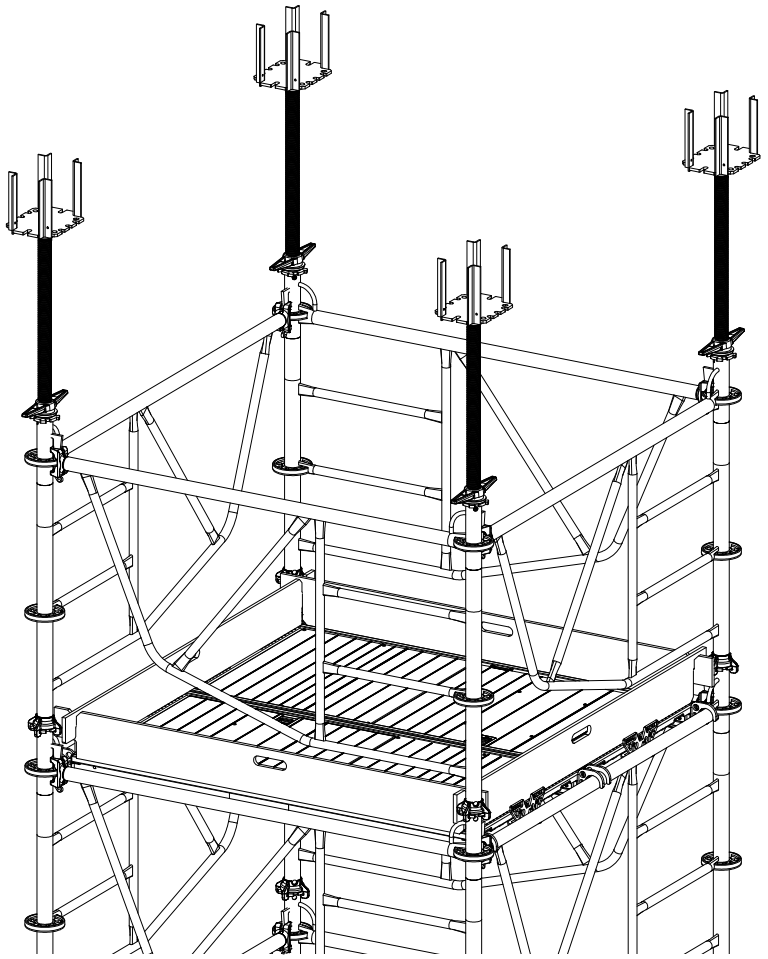
### 6.3.3 Attaching Toe Boards

If Toe Boards are needed on one or more deck levels, they can be put together by simply interlocking them. Four Toe Boards are needed for each deck level.

**Step 1** Connect a Toe Board to a second Toe Board on the desired deck level.



**Step 2** Connect all of the Toe Boards to one another to form a frame.



# 7 Assembling ST 60 Shoring Tower lying on the ground

ST 60 Shoring Towers with up to 12no. frame levels can be assembled lying on the ground and then pulled upright with a crane. Ensure that the assembly surface is flat. Do not assemble the ST 60 Shoring Tower directly on the ground. Place a board under each frame level (at least 60 mm x 60 mm).

The first unit always has to be assembled upright. It consists of:

- Base frame with Base Jacks
- First frame level
- First deck level

Once the first unit is assembled, turn it on its side. Two persons are required to perform this task. Then continue assembling the other levels.

**WARNING**

**Decks can fall out!**

When the ST 60 Shoring Tower is assembled while lying on the ground or when it is transported by crane, decks can fall out.

This can cause personal injury or death!

Always properly secure the lift-off retainers of the decks to the frame, e.g. with cable ties.

## 7.1 Assembling first unit

**CAUTION**

**Risk of tripping!**

When the first unit is turned on its side and resting on boards, it poses a tripping hazard!

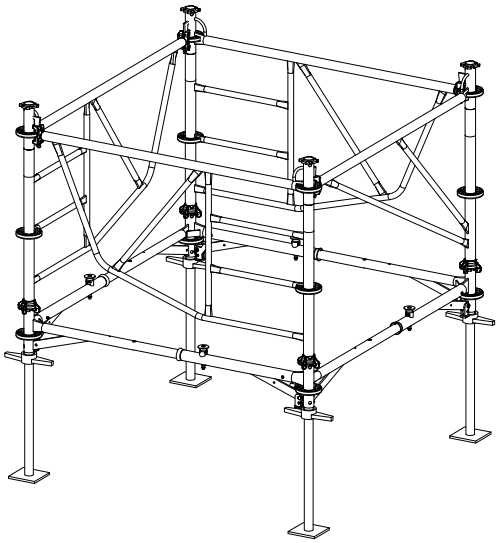
The first unit can fall onto persons and injure them.

When turning the first unit on its side, avoid stumbling over the boards on the ground.

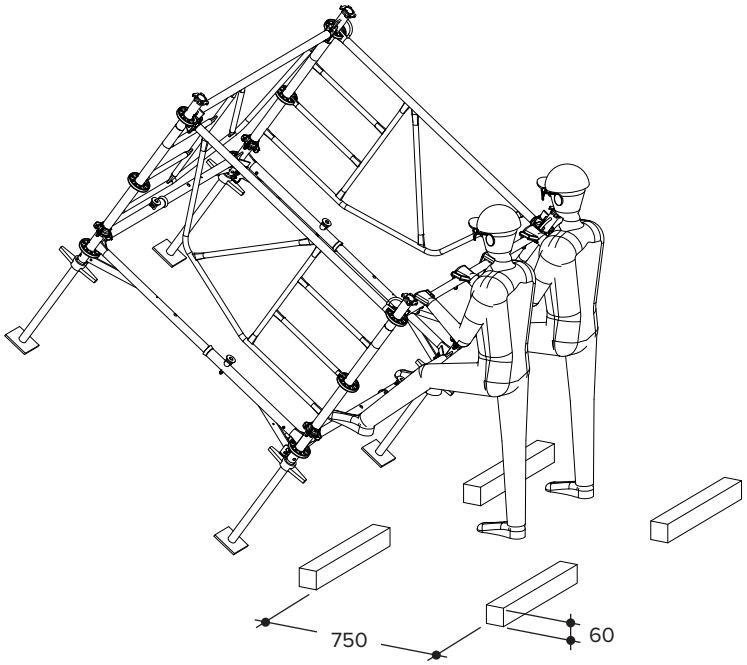
**Step 1** Prepare the assembly surface. The surface must be flat.

**Step 2** Assemble the base frame (Refer to Section 5.6 on page 40).

**Step 3** Assemble the first frame level.



**Step 4** Turn the first unit on its side, working with two persons, and place it on boards (at least 60 mm x 60 mm). The boards should be spaced 750 mm apart (inner dimension).

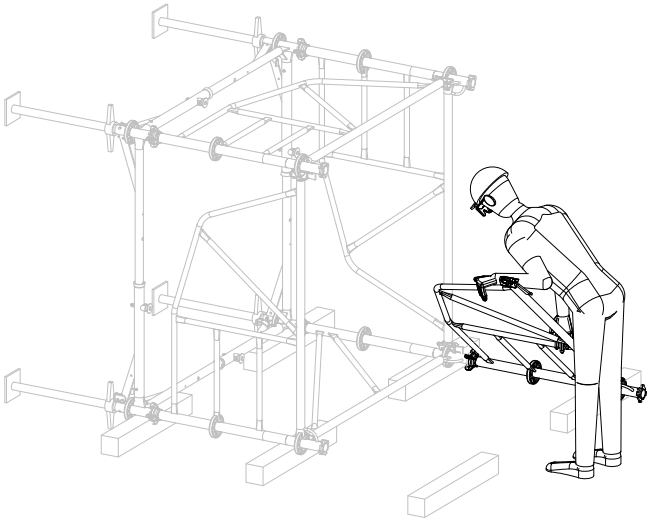



## 7.2 Assembling frame level lying on the ground

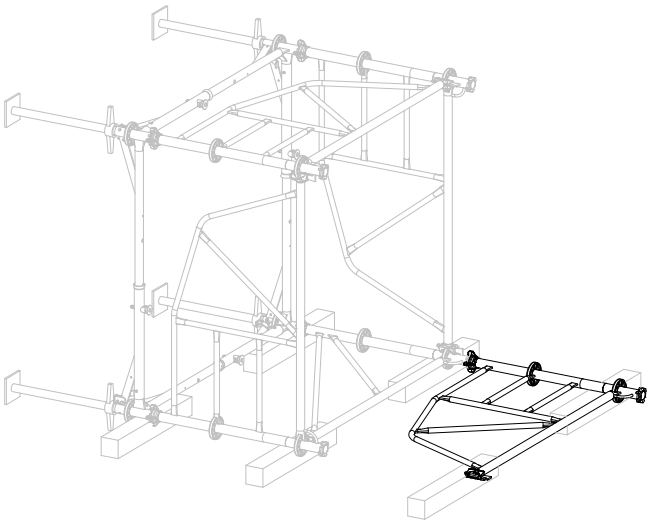
This section explains how to assemble the next frame level. The procedure is the same for all subsequent frame levels.

**Step 1** Place additional boards on the ground, spaced the same distance, to accommodate the next frame level.

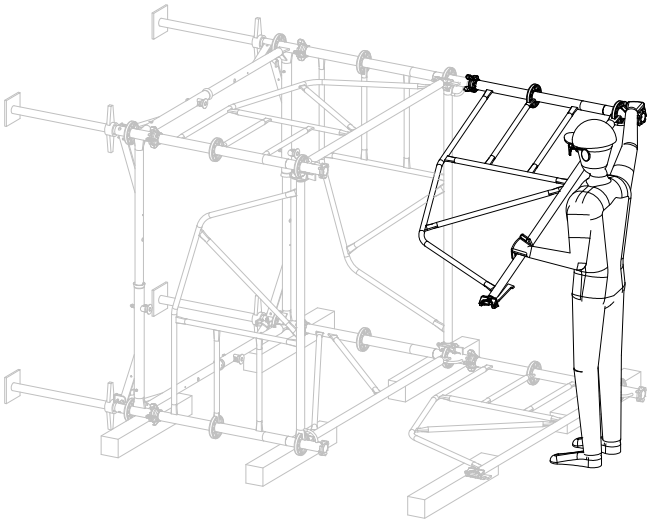
**Step 2** Place the ST 60 Frame for the second level, shown in the illustration, on the bayonet fastener shown on the ST 60 Frame of the first level at an angle of 45°.



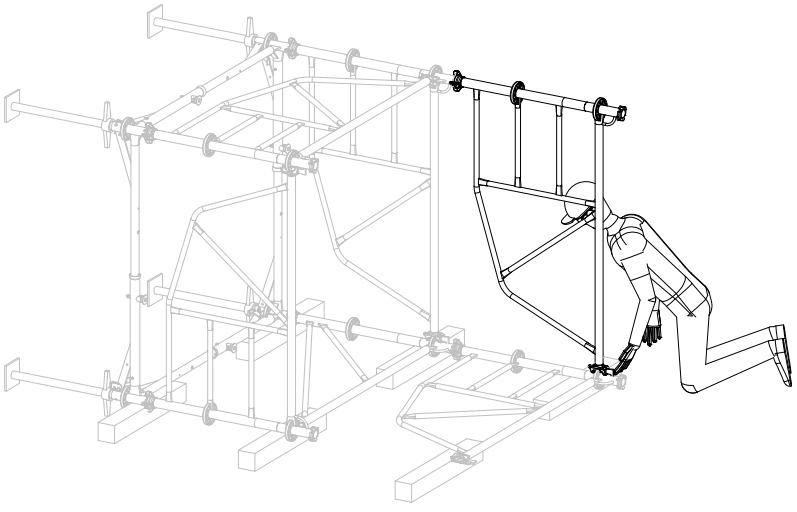
**Step 3** Pivot the frame so it is horizontal to the ground. Check that the bayonet fastener closes properly.



**Step 4** Place the next ST 60 Frame on the bayonet fastener shown on the ST 60 Frame of the first level at an angle of 45°.



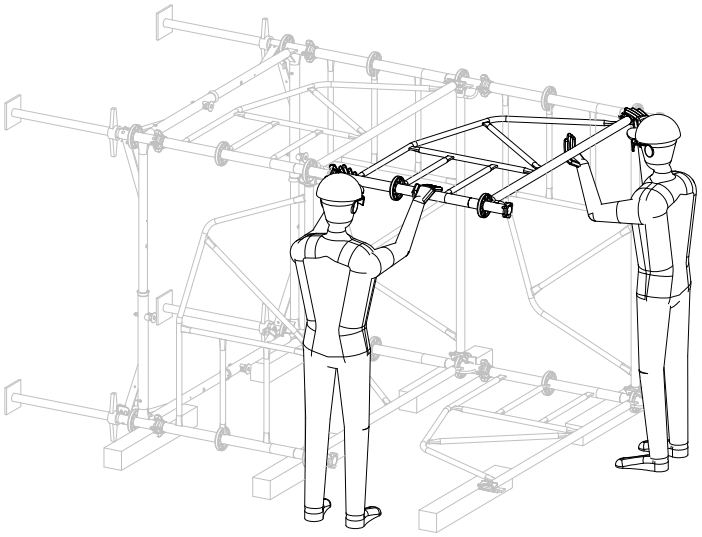
**Step 5** Pivot the frame down vertically such that the rosette connection on the frame grasps the rosette on the previously attached frame. Insert the wedge.





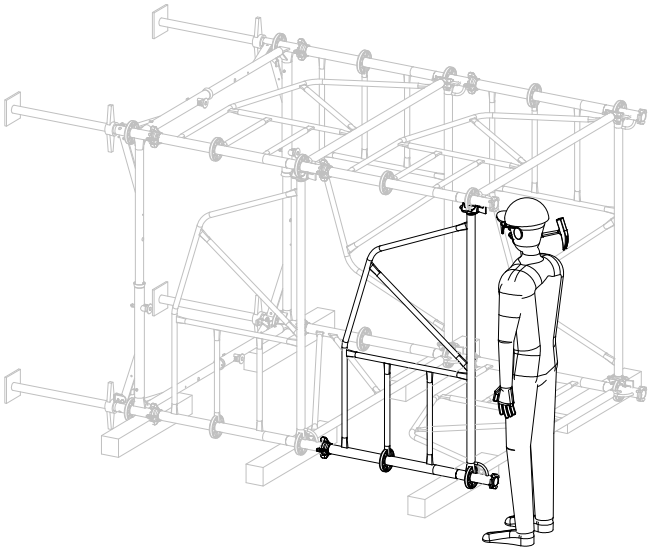
Unless otherwise stated, all dimensions are in mm.

**Step 6** Assemble the upper ST 60 Frame in the same way, always working with two persons.



**Step 7** Assemble the remaining ST 60 Frames in the same way. Only one person is required for this step.

**Step 8** Use a 500 g hammer to knock the wedges for the second frame level into place until rebound is felt.



## 7.3 Assembling deck level lying on the ground

This section shows how to assemble the next deck level. The procedure is the same for all subsequent deck levels. When assembling the deck levels, ensure that the decks are facing the right way (Refer to Section 6.1 on page 48).

**WARNING**

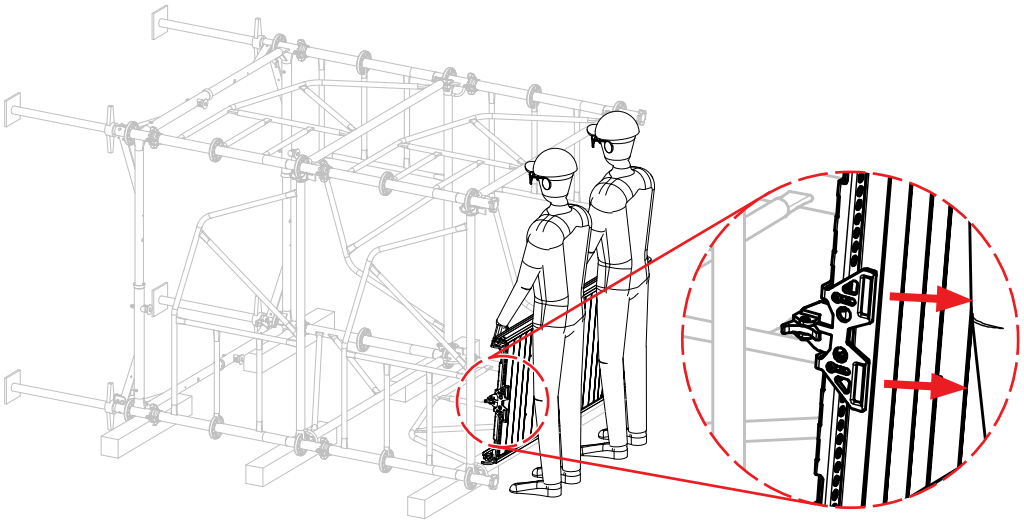
**Decks can fall out!**

When the ST 60 Shoring Tower is assembled while lying on the ground or when it is transported by crane, decks can fall out.

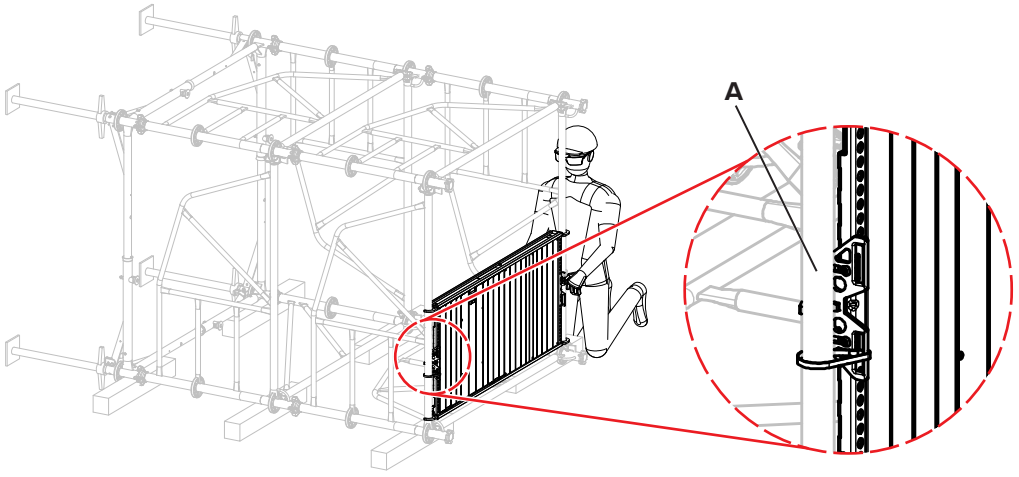
This can cause personal injury or death!

Always properly secure the lift-off retainers of the decks to the frame, e.g. with cable ties.

**Step 1** Insert the lower deck, working with two persons. First pull out the lift-off retainer plates on both sides of the deck. If necessary, adjust the rocker on the lift-off retainer.



**Step 2** Press in the lift-off retainer plate and secure it, e.g. with cable ties around the outside of the ST 60 Frames (**A**).




**Step 3** Install the upper deck in the same way. Secure the lift-off retainers to prevent them from being pulled out.

**Step 4** Assemble the remaining frame levels and deck levels in the same way.

**Step 5** Assemble the structure topping in the same way as for upright assembly; refer to section “Assembling structure topping” on page 55. Secure the Crosshead Jacks with Head Jack Retainers to prevent them from falling out!



Unless otherwise stated, all dimensions are in mm.

## 7.4 Raising and lowering ST 60 Shoring Towers by crane

ST 60 Shoring Towers with up to 12no. frame levels that are lying on the ground can be pulled upright with a crane.

Each ST 60 Frame is equipped with a lifting eye. To raise the ST 60 Shoring Tower with a crane, hang a 4-strand suspension in the lifting eyes on the uppermost frame level. The hooks on the 4-strand suspension have to be equipped with safety catches.

**WARNING**

**Risk of injury from falling components!**

Installed Toe Boards or decks can fall out when the structure is pulled upright!

This can cause personal injury or death!

Secure or remove Toe Boards and decks before transporting by crane.

**WARNING**

**Danger of ST 60 shoring towers tipping over!**

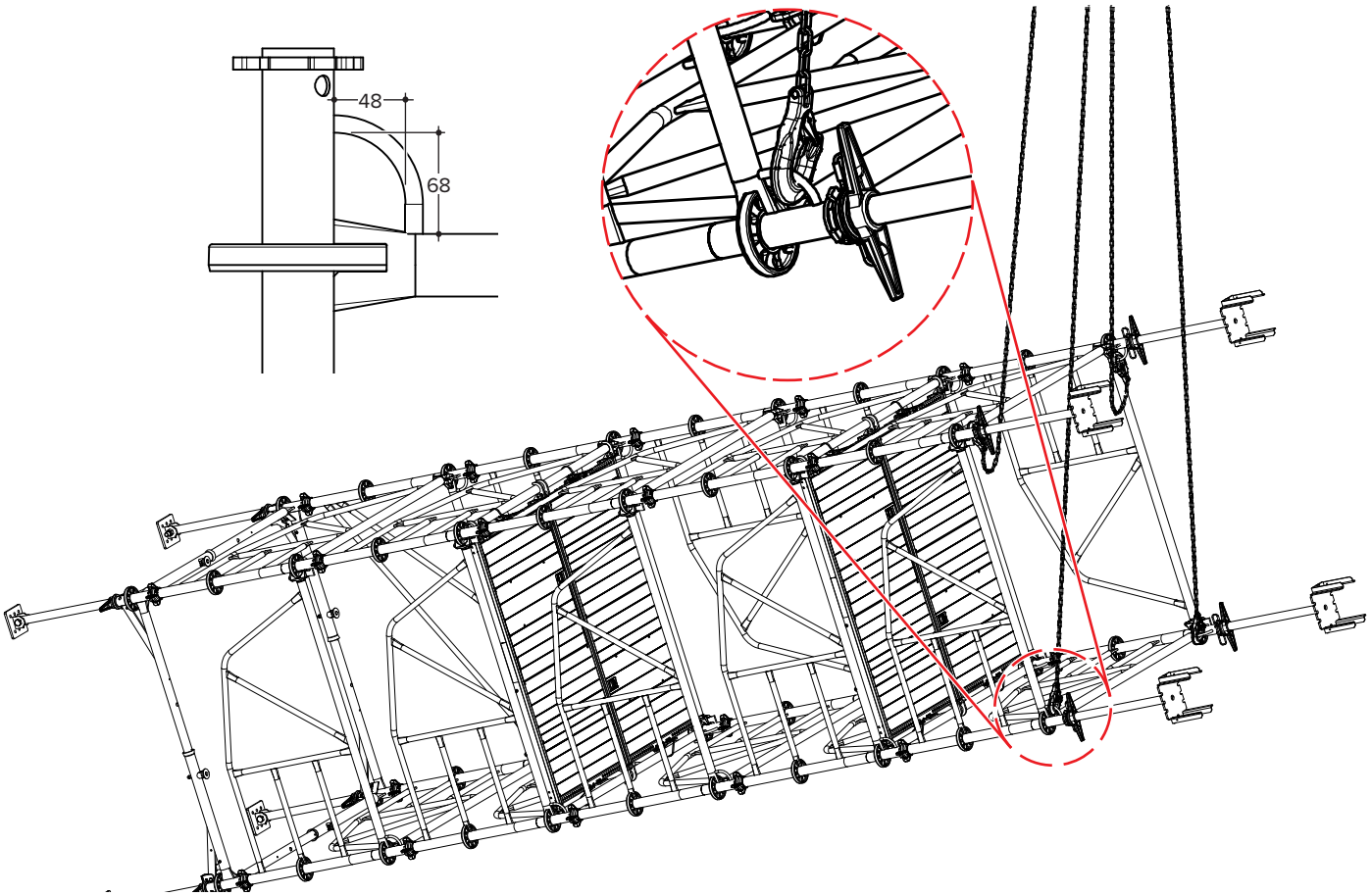
Wind loads can cause free-standing ST 60 Shoring Towers to tip over.

Take appropriate measures to ensure the stability of the ST 60 Shoring Tower during erection (see section “Bracing ST 60 Shoring Tower” on page 64)!

The maximum erection height permitted for a free-standing ST 60 Shoring Tower at a working wind of max. 62 km/h (0.2 kN/m$^2$) is:

- For ST 60 Shoring Towers 1.13 m x 1.13 m: 3.46 m
  (corresponding to three frame levels plus base frame with jacks)
- For ST 60 Shoring Towers 1.13 m x 1.50 m: 3.46 m
  (corresponding to three frame levels plus base frame with jacks)
- For ST 60 Shoring Towers 1.50 m x 1.50 m: 4.50 m
  (corresponding to four frame levels plus base frame with jacks)

If erected in any other way, the stability must always be ensured with suitable measures.



# 8 Bracing ST 60 Shoring Tower

Single upright ST 60 Shoring Towers that are not secured can tip over. This is why ST 60 Shoring Towers have to be secured during assembly as well as during use to prevent them from tipping over. The following sections describe some of the ways in which this can be done.

The measures described here are intended only to protect ST 60 Shoring Towers from tipping over, e.g. because of wind or as a result of assembly work. They are not intended to absorb the load of a structure.

**WARNING**

**The shoring tower can tip over!**

The ST 60 Shoring Tower can tip over if it is not properly braced or supported! This can cause personal injury or death!
Proof of structural stability has to be provided for supports and bracing as well as the individual components thereof!

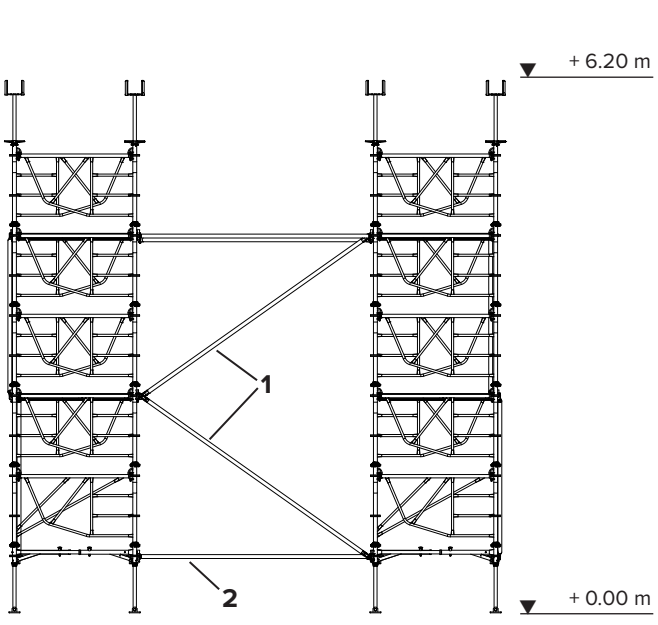
## 8.1 Bracing against other ST 60 Shoring Towers

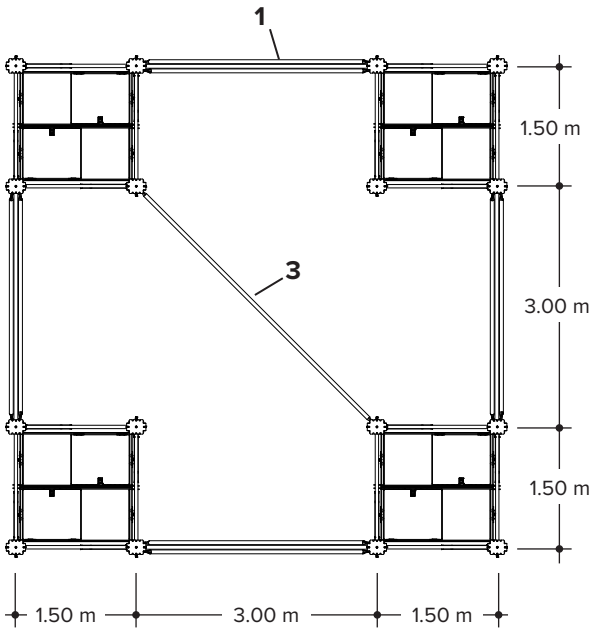
Using the following components from the MODEX system is recommended for bracing purposes:

- V-diagonals
- H-diagonals
- Tube Ledgers
- Transoms U

When using MODEX components, always follow the instructions in the User Guide for the MODEX system!

**Example: ST 60 Shoring Towers that brace one another**




**1** MODEX V-diagonal 300/200
**2** MODEX Tube Ledger 300
**3** MODEX H-diagonal 300/300



Unless otherwise stated, all dimensions are in mm.

## 8.2 Tying to structures

ST 60 Shoring Towers can be tied to existing structures under the following conditions:

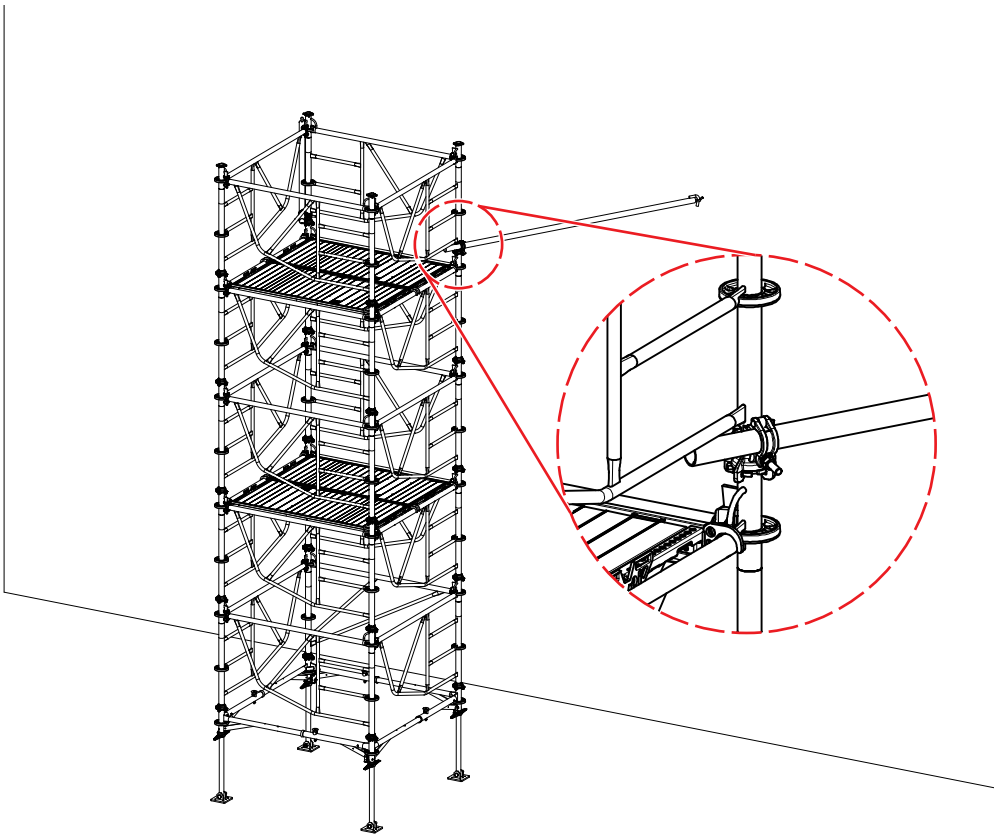
- The structure has to be sufficiently sturdy.
- The tying point has to be able to accommodate the load.

Use the following components from the Hünnebeck scaffolding range to tie:

- Scaffold Retainers of the appropriate length
- Scaffold Eye Bolts and Nylok Plug Anchors (e.g. code:497864 and code:497842)
- Rigid Couplers (e.g. code:2514)

**Step 1** Screw the Scaffold Eye Bolts into the structure using a Nylok Plug Anchor.

**Step 2** Hook the Scaffold Retainer in the Scaffold Eye Bolt and use a Rigid Coupler to fasten it to the ST 60 Shoring Tower.



## 8.3 Bracing to the ground

ST 60 Shoring Towers can be braced to the ground with the aid of various components, e.g. Alignment Struts, Wall Struts or outriggers made up of MODEX components. The following section briefly describes bracing with Alignment Struts and Wall Struts. Outriggers made of MODEX components are described in the MODEX User Guide.

### 8.3.1 Bracing with Alignment Struts

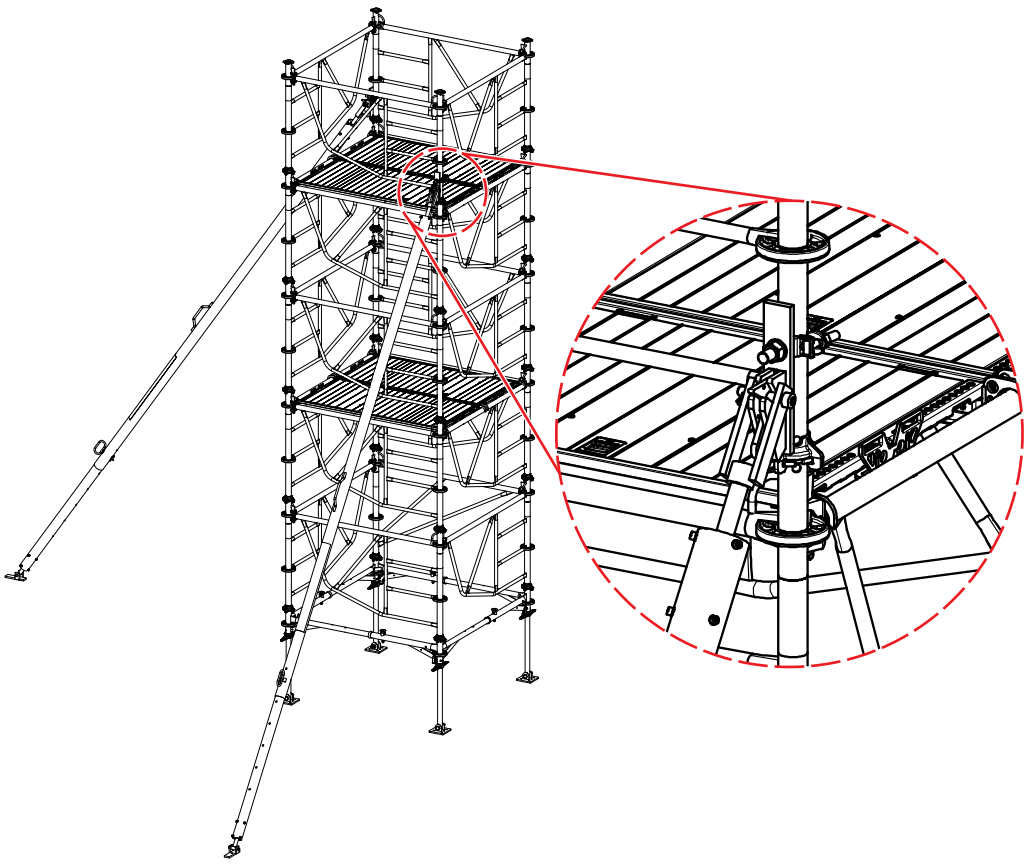
The following components are needed to brace an ST 60 Shoring Tower with Alignment Struts:

- Alignment Struts of the appropriate length
- Quick-action Fasteners (code:601385)
- Half Couplers 48/M 20 × 70 (code:39846)

**Step 1** Attach the Quick-action Fasteners to the ST 60 Frame with the aid of the Half Couplers.

**Step 2** Hook the heads of the Alignment Struts into the Quick-action Fasteners.

**Step 3** Anchor the Alignment Struts to the ground.



### 8.3.2 Bracing with Wall Struts

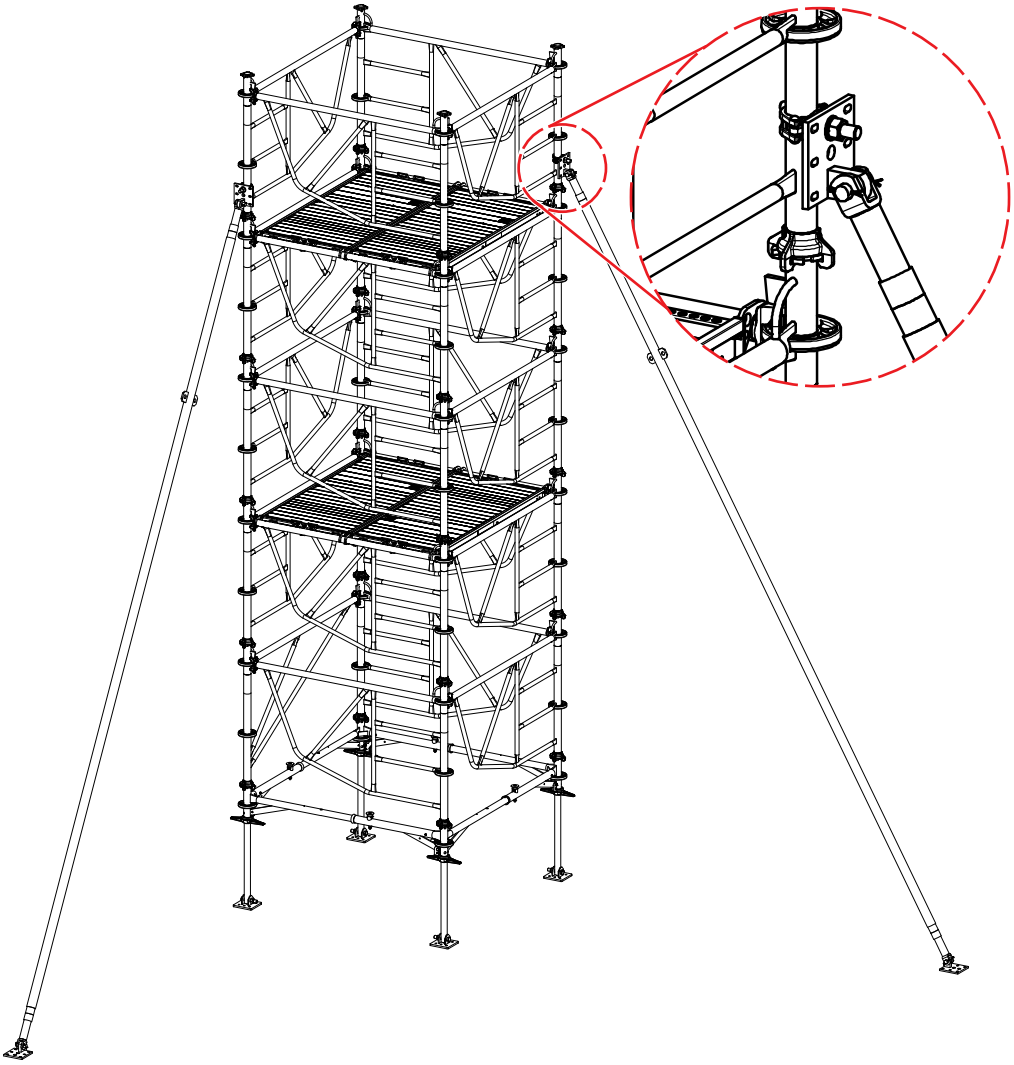
The following components are needed to brace an ST 60 Shoring Tower with Wall Struts:

- Wall Struts of the appropriate length
- Half Couplers 48/M 20 × 70 (code:39846)

**Step 1** Attach the Half Couplers to the ST 60 Frame.

**Step 2** Screw the heads of the Wall Struts onto the Half Couplers.

**Step 3** Anchor the Wall Struts in the the ground.



# 9 Bracing ST 60 Shoring Towers to accommodate structural load (birdcage scaffold)

Using the following components from the MODEX system is recommended for bracing purposes:

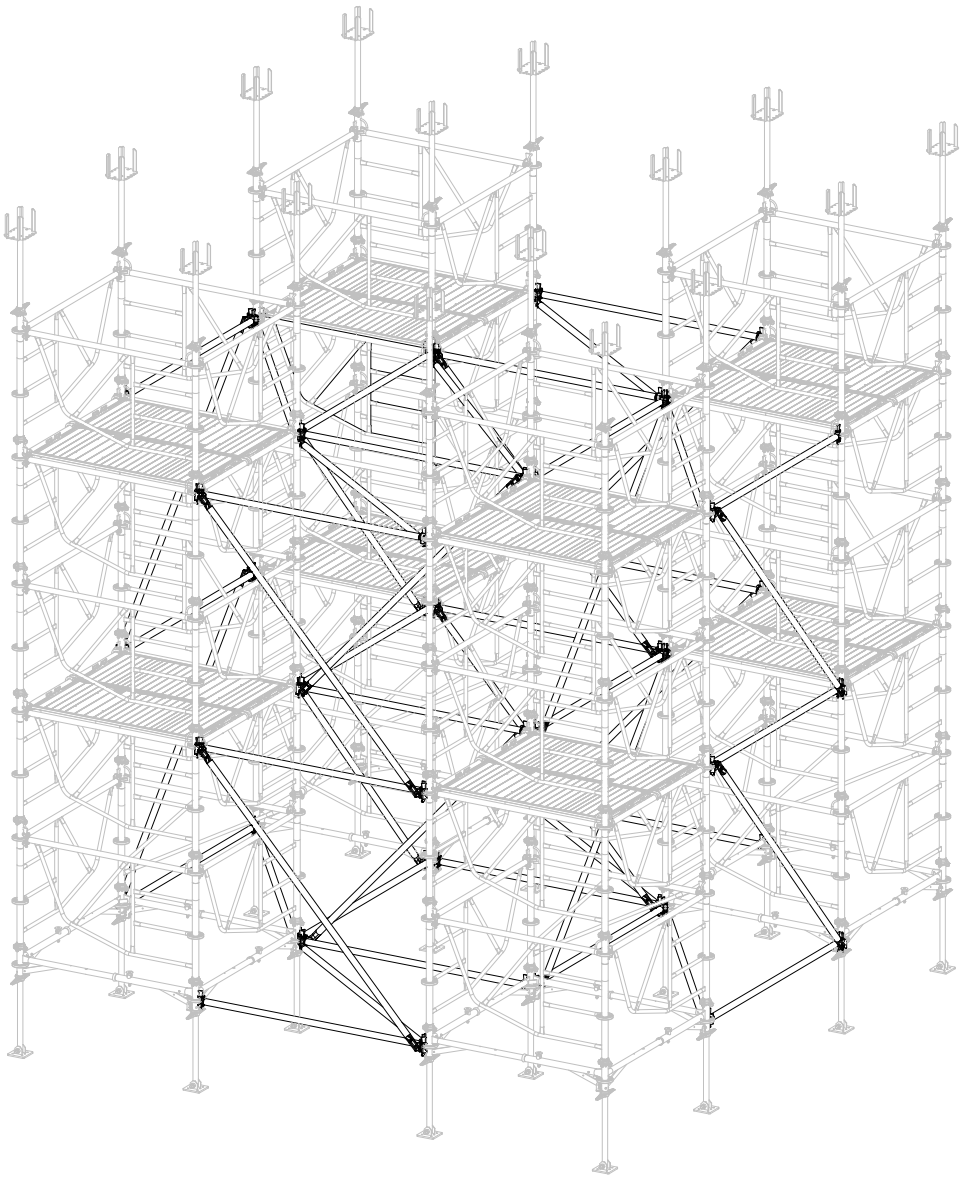
- V-diagonals
- H-diagonals
- Tube Ledgers
- Transoms U

When using MODEX components, always follow the instructions in the User Guide for the MODEX system!

When erecting on an incline, ensure that the base frames of adjacent ST 60 Shoring Towers are at the same level. Otherwise it will not be possible to connect the bracing assemblies to the rosettes.

Always observe and comply with the information regarding structural integrity and that contained in the assembly instructions when assembling the equipment.

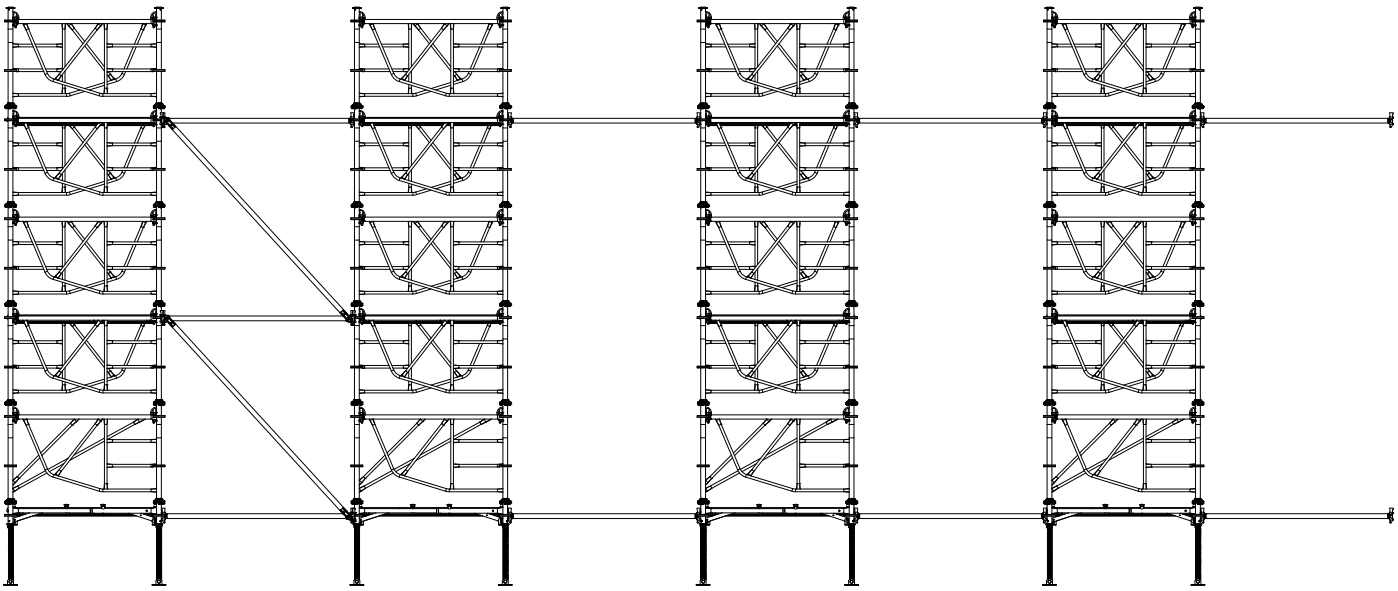
**Example of birdcage scaffold**





Unless otherwise stated, all dimensions are in mm.

**Example of birdcage scaffold with connected ST 60 Shoring Towers**



# 10 Disassembling ST 60 Shoring Tower

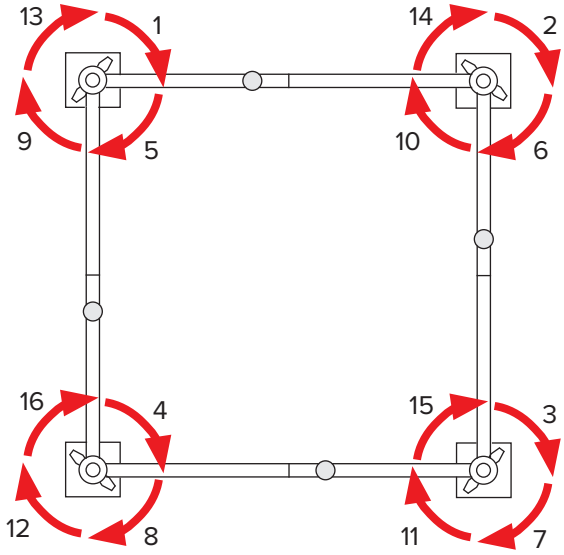
## 10.1 Relieving load on ST 60 Shoring Towers

To prevent individual jacks or ST 60 Shoring Towers from being subjected to excessive strain during stripping, the jacks and ST 60 Shoring Towers have to be retracted/ lowered in a certain way. The procedure may need to be adapted to suit the anticipated deformation of the structure.

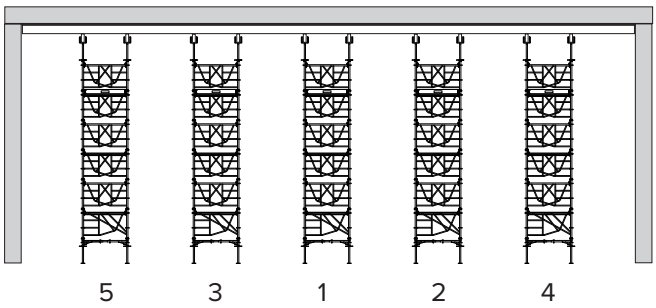
| NOTE | **Shoring tower can sustain damage**<br>If the load to the ST 60 Shoring Tower is relieved unevenly, individual ST 60 Shoring Towers or parts of ST 60 Shoring Towers can be overloaded! This causes damage to the ST 60 Shoring Tower!<br>Always follow the specified procedure to relieve strain on the ST 60 Shoring Towers! |
|---|---|

**Sequence to lower a single ST 60 Shoring Tower**

There is a specific procedure that has to be followed to relieve each individual tower of its load. Individual upright ST 60 Shoring Towers are relieved either at the Base Jacks or the Head Jacks. Braced ST 60 Shoring Towers should always be relieved at the Head Jacks.




**Sequence to lower ST 60 Shoring Towers (example)**




**Step 1** Release the wing nuts on the jacks in the order shown, turning a quarter revolution each time. Repeat until all of the jacks have been completely relieved of load.

**Step 2** Relieve the ST 60 Shoring Towers in the order shown here.

## 10.2 Disassembling upright ST 60 Shoring Towers

**WARNING**

**Risk of falling**

One frame level always has to remain in place above the highest deck level during disassembly. Never disassemble the frame level that belongs to the deck level. Otherwise there is a risk of falling!

**NOTE**

**Components can be damaged!**

Components can be damaged if they fall to the ground.

Never throw scaffold components off of the scaffold!

**NOTE**

**Loss of components!**

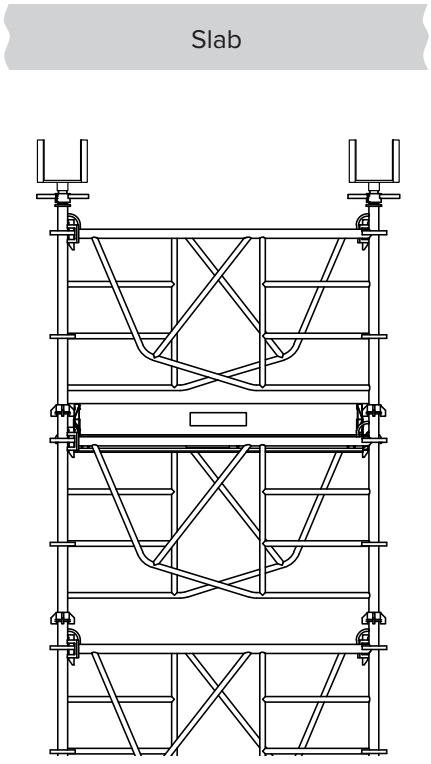
After removing the jack, immediately put the Head Jack Retainer back onto the jack nut.

This will prevent the Head Jack Retainer from being lost.

### 10.2.1 Disassembling structure topping

**Disassembling uppermost frame level along with Crosshead Jacks**

The Crosshead Jacks normally cannot be lifted out of the ST 60 Frames after lowering the ST 60 Shoring Towers. There is usually not enough clearance below the slab. In this case the ST 60 Frames of the uppermost frame level have to be detached along with the Crosshead Jacks.




**CAUTION**

**Components are heavy!**

ST 60 Frames and Crosshead Jacks weigh a total of about 27 kg. The situation or local conditions may dictate that the following steps be performed by two persons.

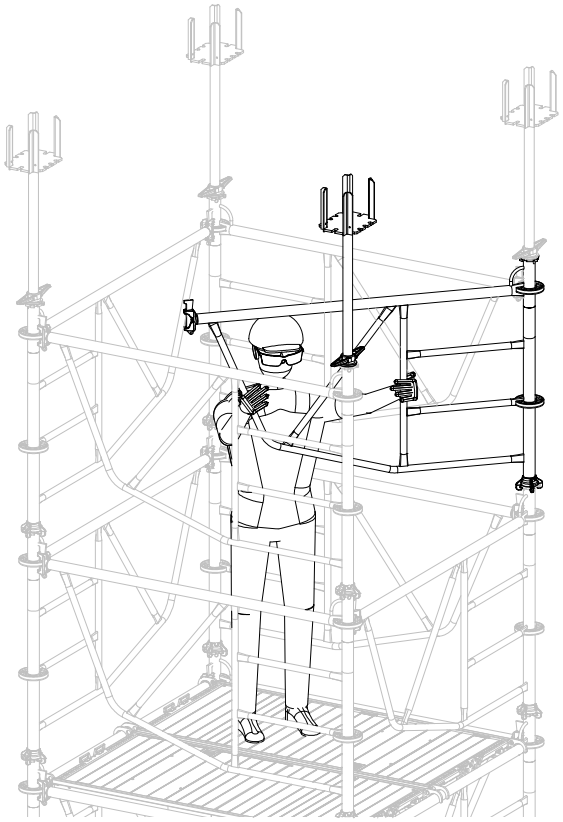
**Step 1** Remove the primary beams, secondary beams and formwork materials from the ST 60 Shoring Towers.

**Step 2** There should be 2no. frame levels above the uppermost deck level. If necessary, lower the uppermost deck level.

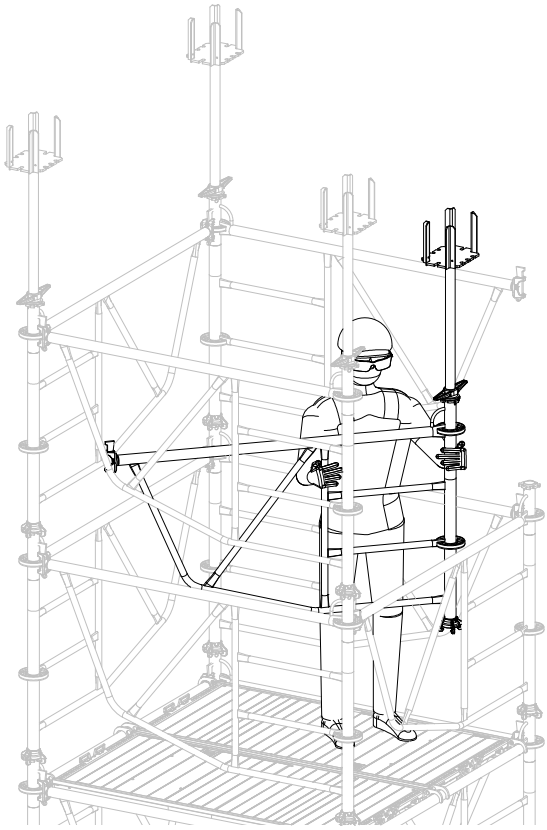
**Step 3** Strike the wedges in the frames at the uppermost frame level to release them and then pull the wedges up and out.

**Step 4** Remove the Head Jack Retainers if necessary.

**Step 5** Pivot one frame in by 45°.



**Step 6** Lower the frame onto the deck.





Unless otherwise stated, all dimensions are in mm.

**Step 7** Extract the Crosshead Jack from the frame and transport both components to the bottom of the ST 60 Shoring Tower.

**Step 8** Detach the remaining frames and Crosshead Jacks in the same way and transport them to the bottom of the ST 60 Shoring Tower.

**Disassembling uppermost frame level**

If there is at least 1.02 m clearance above the ST 60 Shoring Tower, the Crosshead Jacks can be extracted from the frames before detaching the frames in the usual manner.

**Step 1** Lower the ST 60 Shoring Tower

**Step 2** Remove the Head Jack Retainers if necessary.

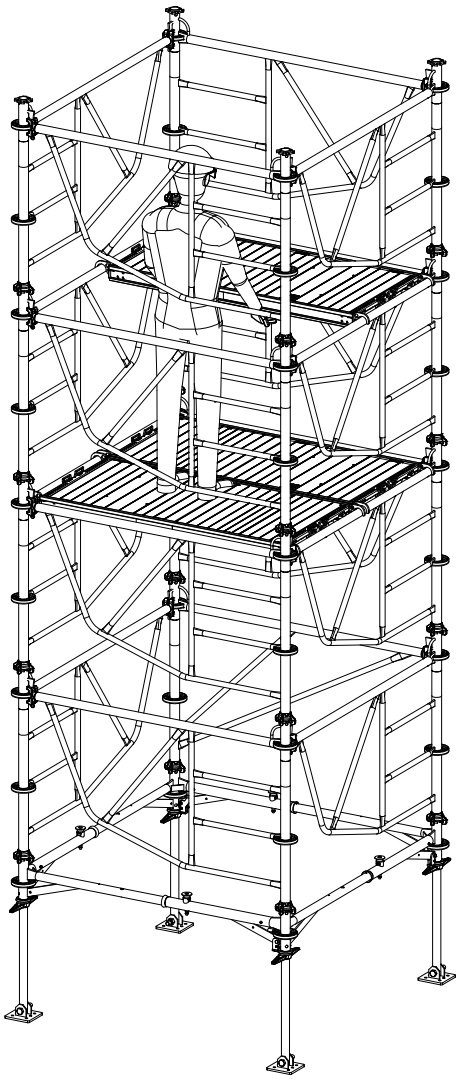
**Step 3** Extract the Crosshead Jacks from the ST 60 Frame.

**Step 4** Detach the ST 60 Frame.

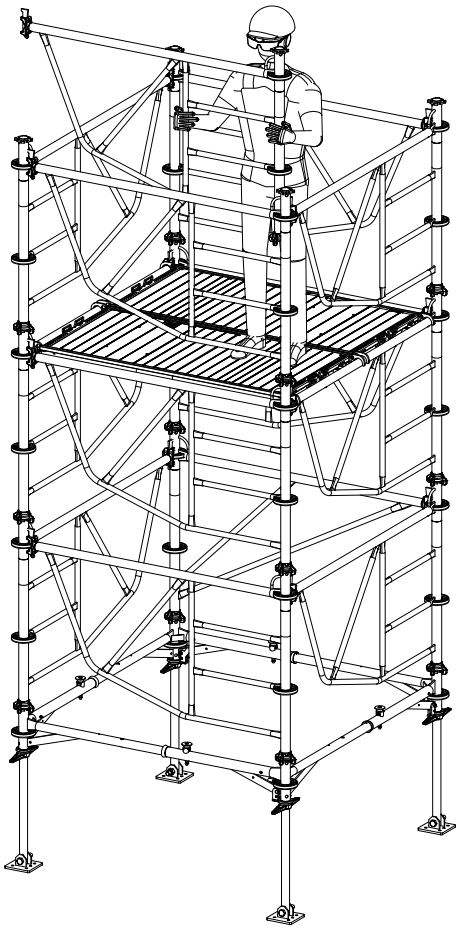
### 10.2.2 Disassembling ST 60 Shoring Tower

Disassemble the rest of the ST 60 Shoring Tower following the same procedure as for the structure topping. Always lower the uppermost deck level such that there are 2no. frame levels above the deck level. Then disassemble the uppermost frame level. Never disassemble the frame level that belongs to the deck level.

**Step 1** Disassemble the uppermost deck level and transport it to the bottom of the tower.



**Step 2** Disassemble the uppermost frame level.



**Step 3** Disassemble the remaining frames and decks in the same way.

## 10.3 Disassembling ST 60 Shoring Towers lying on the ground

Depending on the situation and on the height of the ST 60 Shoring Tower, it may be necessary to first turn the ST 60 Shoring Tower on its side by crane and then disassemble it. Refer to section “Moving ST 60 Shoring Tower by crane” on page 75 for instructions on how to transport the ST 60 Shoring Tower by crane and lay it on its side.

Reverse the assembly steps to disassemble the ST 60 Shoring Tower.

**Step 1** Move the ST 60 Shoring Tower to a suitable location by crane and then carefully lower it to the ground.

**Step 2** Disassemble the ST 60 Shoring Tower in the reverse order of erection.

# 11 Moving ST 60 Shoring Tower by crane

Each ST 60 Frame is equipped with a lifting eye. To transport the ST 60 Shoring Tower with a crane, hang a 4-strand suspension in the lifting eyes on the uppermost frame level. The hooks on the 4-strand suspension have to be equipped with safety catches.

ST 60 Shoring Towers up to 16.50 m tall can be moved by crane.

**WARNING**

**Risk of injury from falling components!**

Installed Toe Boards or decks can fall out when the structure is transported by crane!

This can cause personal injury or death!

Secure or remove Toe Boards and decks before transporting by crane.

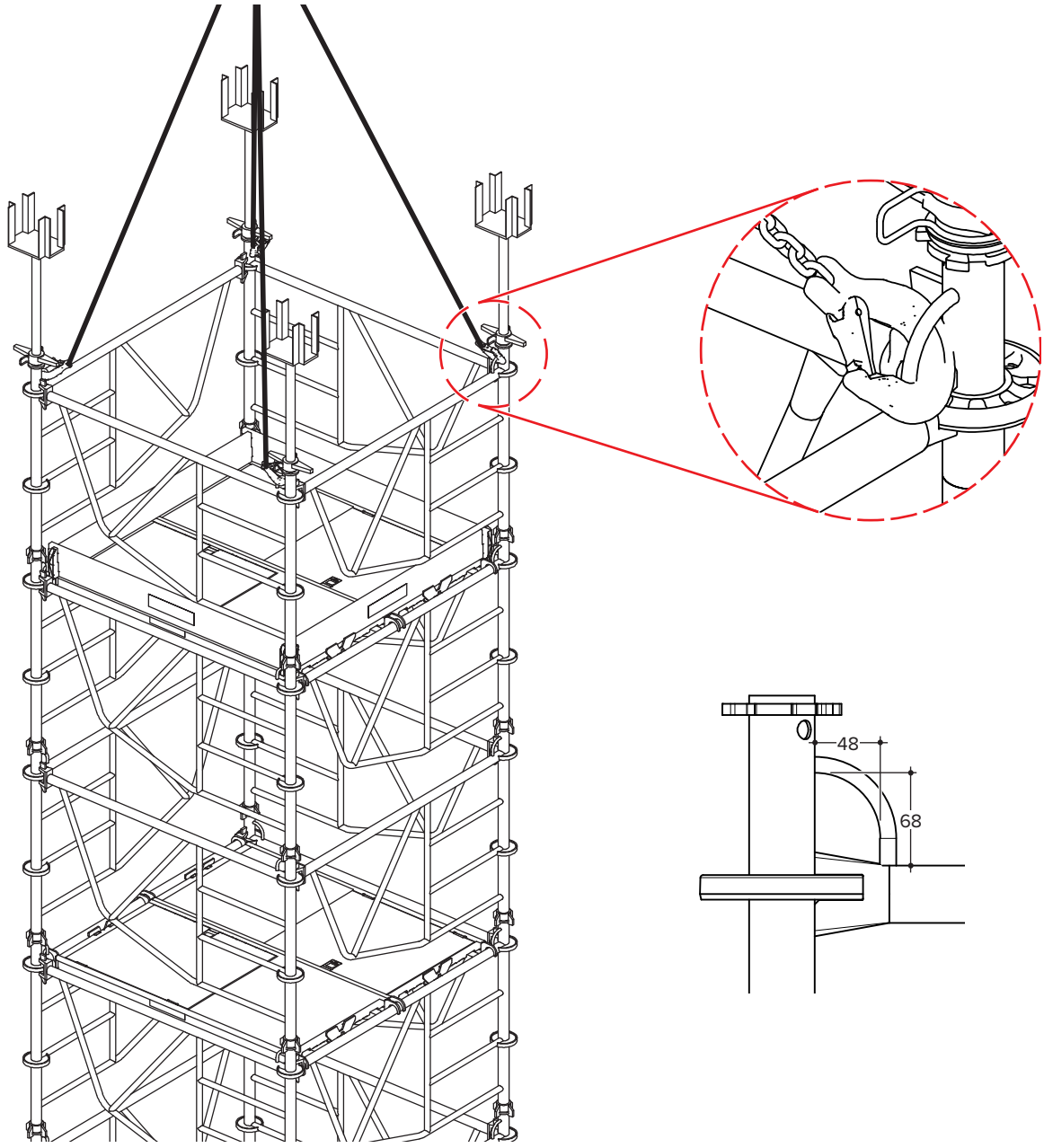
**WARNING**

**ST 60 Shoring Tower collapses when raised from the ground!**

If ST 60 Shoring Towers with more than 12no. frame levels are raised (from lying on the ground) or lowered, they will collapse!

This can cause personal injury or death!

Only raise or lower ST 60 Shoring Towers with no more than 12no. frame levels!



# 12 Placing primary beams and secondary beams

The primary beams and secondary beams serve as the base for the formwork, and they transfer into the ST 60 Shoring Towers the load when concrete is poured. Place the primary beams in the Crosshead Jacks on the ST 60 Shoring Towers. Place the secondary beams over the primary beams, laying them perpendicular to the primary beams. There are three types of beams available:

- H 20 K timber beams
- DU-AL T200 aluminium beams
- DU-AL T225 aluminium beams

Assembly differs as a factor of the beam selected. The various types of beams are generally compatible with one another. Specifically, the H 20 K beams and the DU-AL T200 beams have the same dimensions.

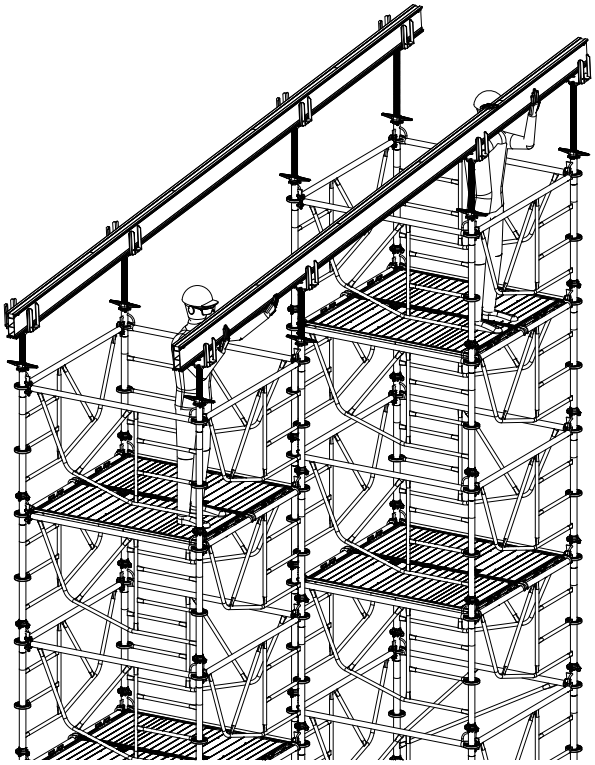
## 12.1 Installing DU-AL beams

### 12.1.1 Installing primary beams on Crosshead Jacks

If the ST 60 Crosshead Jack 60 G2 is being used, the primary beams can generally be placed on the Crosshead Jacks without any additional fasteners.

When using it, e.g. to create sloping soffits, the primary beams usually have to be secured to the Crosshead Jacks.

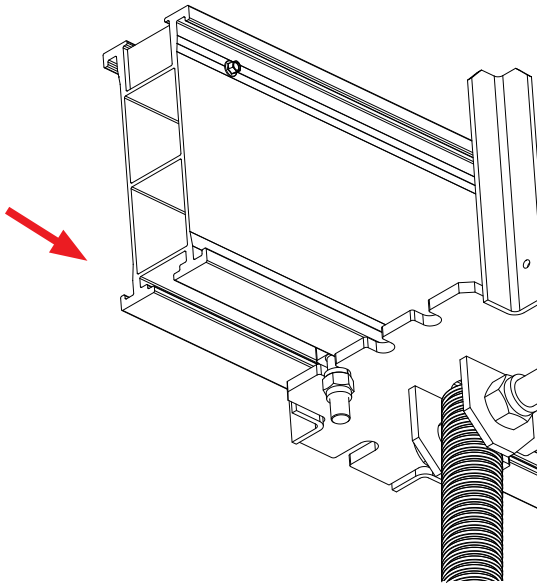
**Step 1** Place the primary beams on the Crosshead Jacks such that the wooden nailing strips are on top.



**Step 2** Open the nut from the T Bolt as far as possible.

**Step 3** Insert the head of the T Bolt into the track on the beam and turn it 90°.

**Step 4** Slide the T Bolt into the proper groove in the Crosshead Jack.



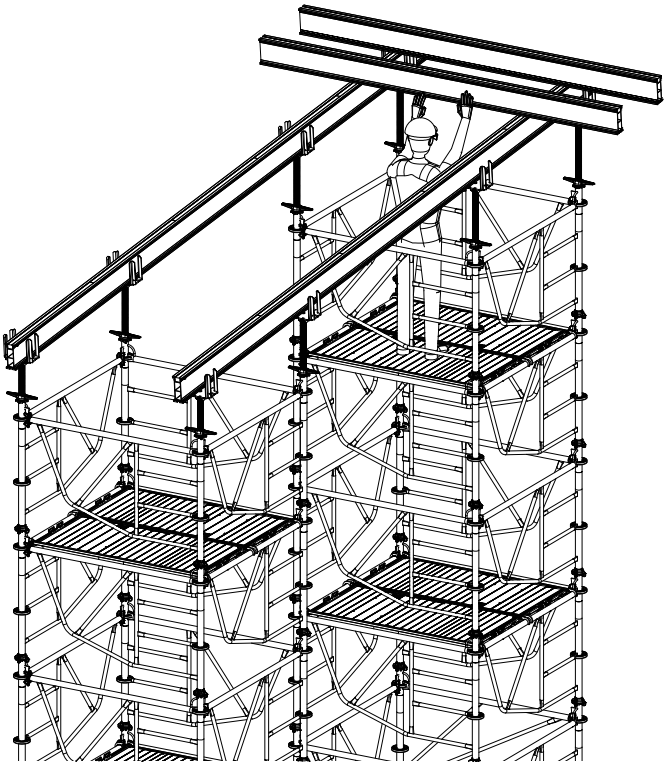
**Step 5** Secure the T Bolt with the washer and nut.

### 12.1.2 Connecting DU-AL secondary beams and DU-AL primary beams to one another

Use the Universal Clamp to connect the DU-AL beams lying one on top of the other.

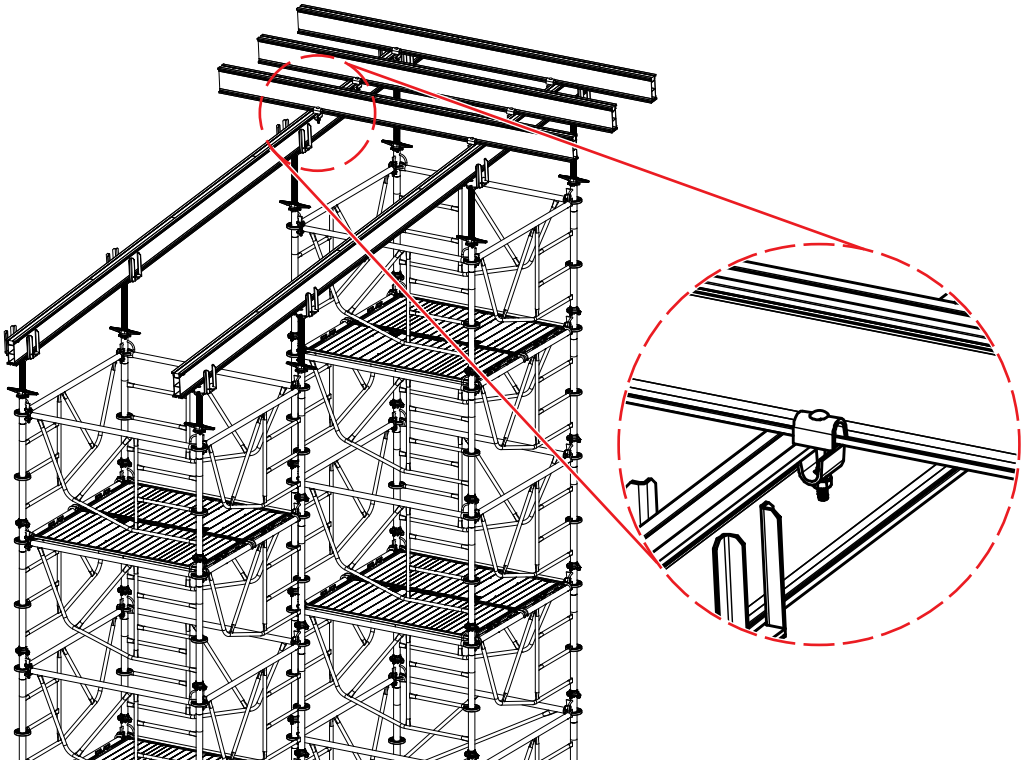
Ensure that the nailing strip is on the top side of the secondary beam. Otherwise the shuttering panels cannot be nailed to the secondary beams.

**Step 1** Place the secondary beams on the primary beams.



**Step 2** Open the nuts from the Universal Clamps as far as possible.

**Step 3** Insert the upper and lower parts of the clamps into the grooves on the beams.



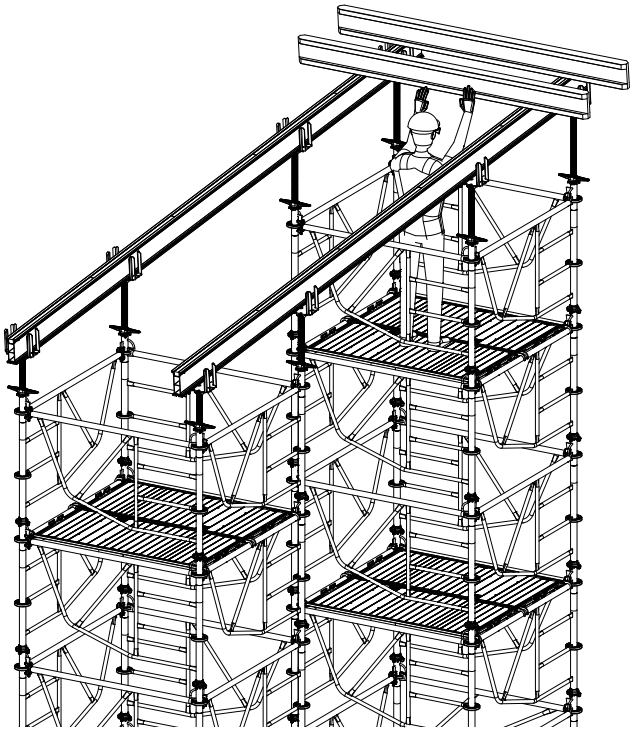
**Step 4** Tighten the nuts.

### 12.1.3 Connecting H 20 K secondary beams to DU-AL primary beams

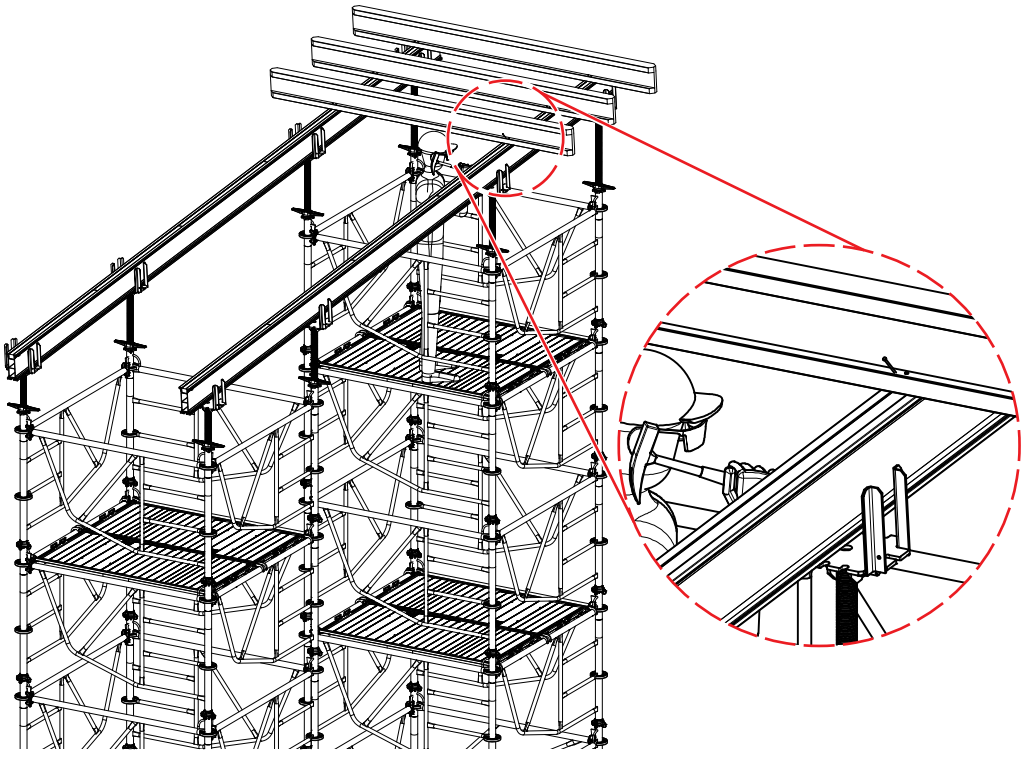
If H 20 K beams are to be used as secondary beams, they have to be nailed to the primary beam.

| NOTE | **DU-AL beam can sustain damage!**<br>If nails are used that are too long, they can protrude from the other side of the nailing strip and damage the beam! Do not use nails that are too long! |
|---|---|

**Step 1** Place the H 20 K beam on the primary beam.



**Step 2** Strike a nail through the lower flange of the H 20 K beam and into the nailing strip on the DU-AL beam. Do not damage the DU-AL beam!



## 12.2 Installing H 20 K beams

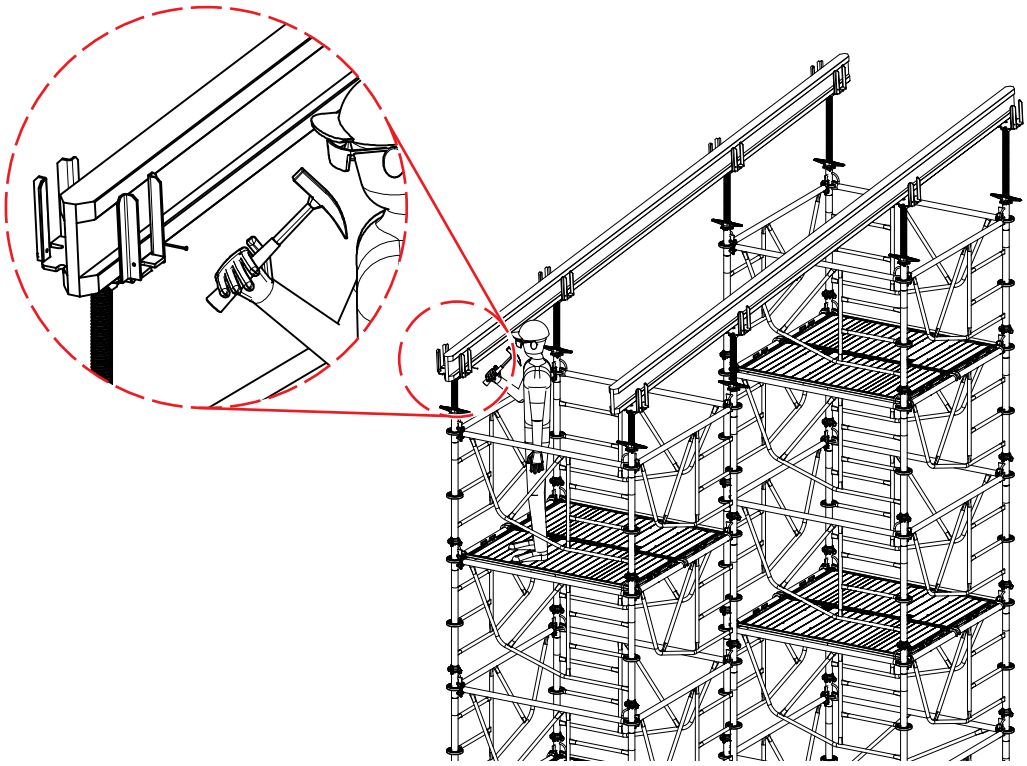
### 12.2.1 Attaching H 20 K beams to Crosshead Jacks

If the ST 60 Crosshead Jack 60 G2 is being used, the primary beams can generally be placed on the Crosshead Jacks without any additional fasteners.

When using it, e.g. to create sloping soffits, the primary beams usually have to be secured to the Crosshead Jacks.

**Step 1** Place the primary beams on the Crosshead Jacks.

**Step 2** Strike nails through the holes in the side of the Crosshead Jacks and into the H 20 K beam.

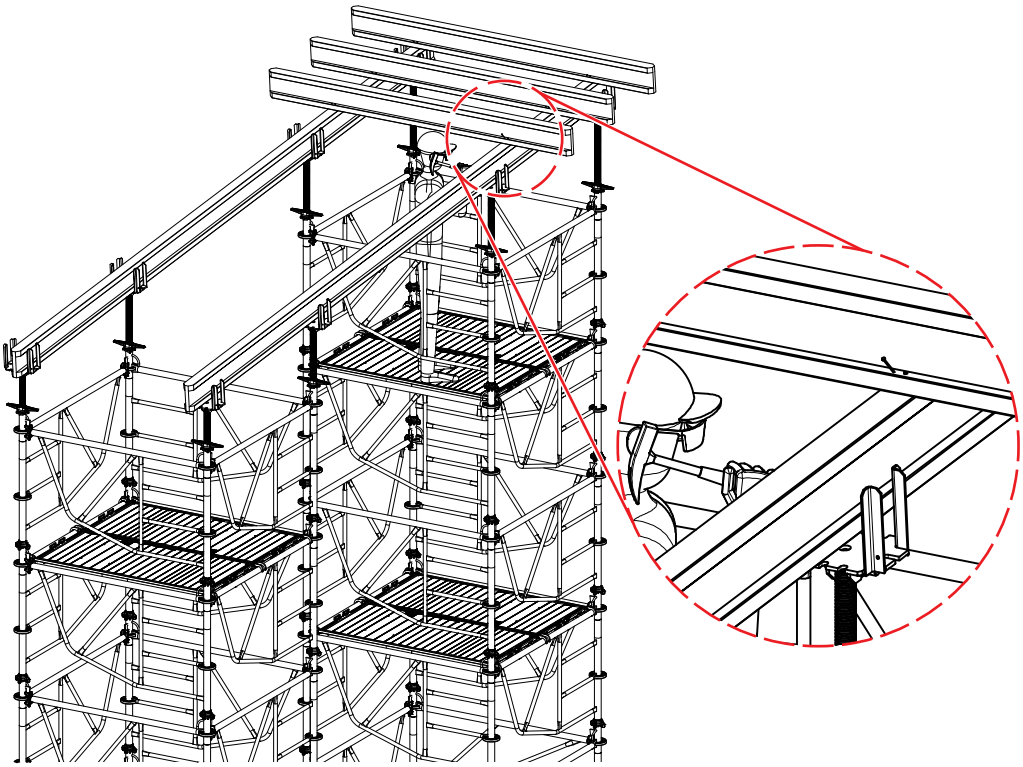


### 12.2.2 Connecting H 20 K beams to one another

Nail together the beams lying on top of each other.

**Step 1** Place the secondary beams on the primary beams.

**Step 2** Strike nails through the lower flange of the secondary beams and into the primary beams.

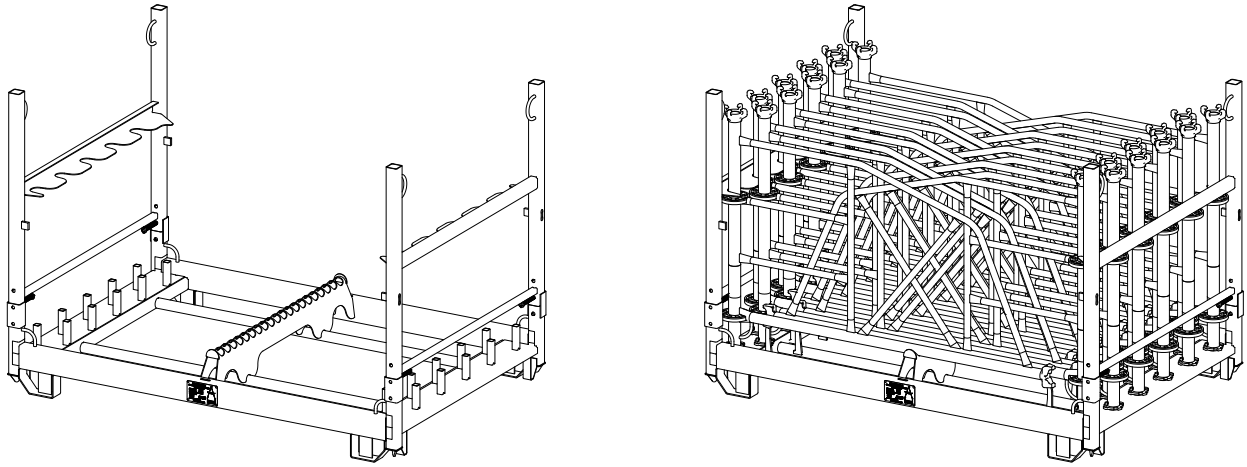


# 13 Storing and transporting components

There are various storage and transport containers available for the ST 60 components. Use the containers intended for this purpose whenever possible. This ensures safe transport and storage that does not damage the material.

All transport and storage equipment has to be inspected annually to verify that it is in serviceable condition! More information can be found on the respective nameplate.

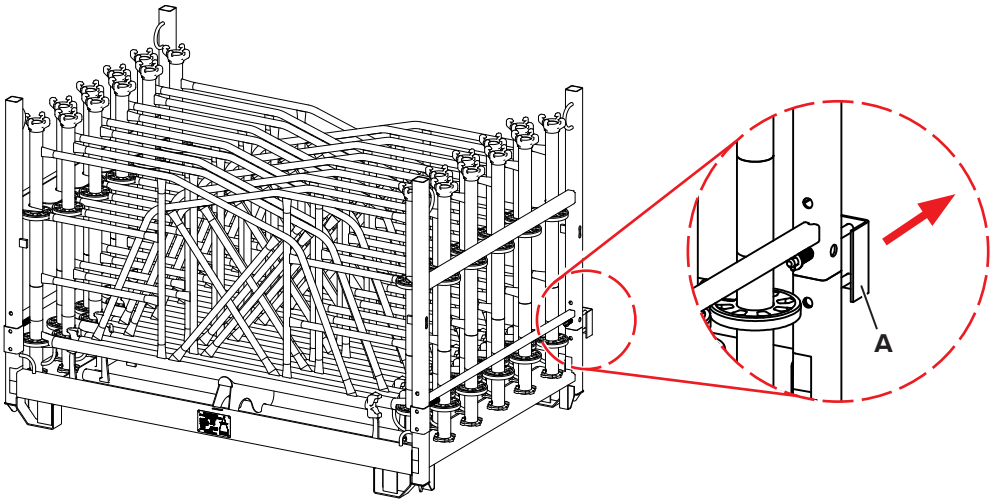
## 13.1 ST 60 Frames



To easily remove and load the frames, the side panels of the Frame Rack 180/120 can be removed. There are safety pins on all 4no. corners of the Frame Rack.

### 13.1.1 Removing side panels and unloading ST 60 Frames

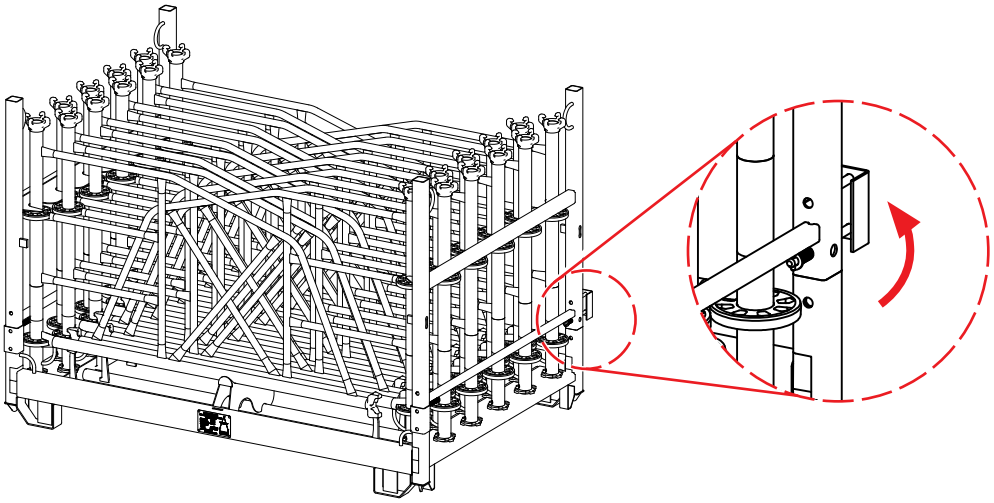
**Step 1** Pull out the safety pin (**A**).



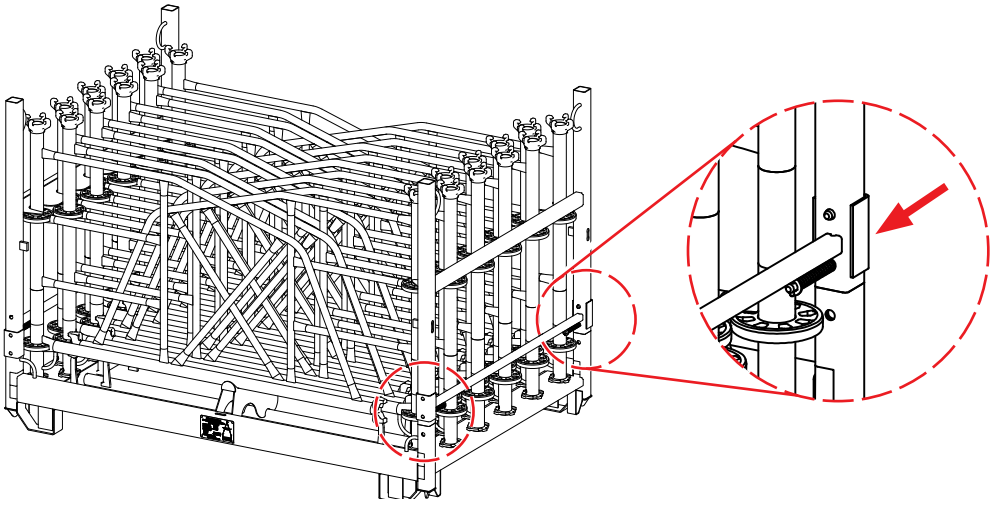



Unless otherwise stated, all dimensions are in mm.

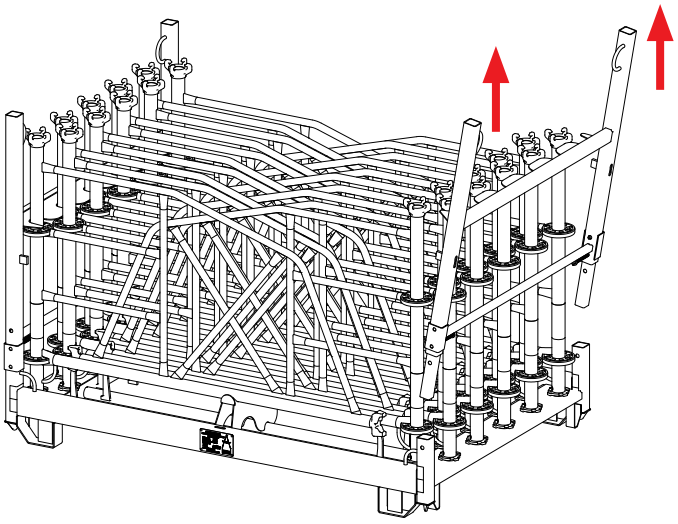
**Step 2** Turn the safety pin up 180°.



**Step 3** Push the safety pin back in. Release the other safety pins on the side panels in the same way.

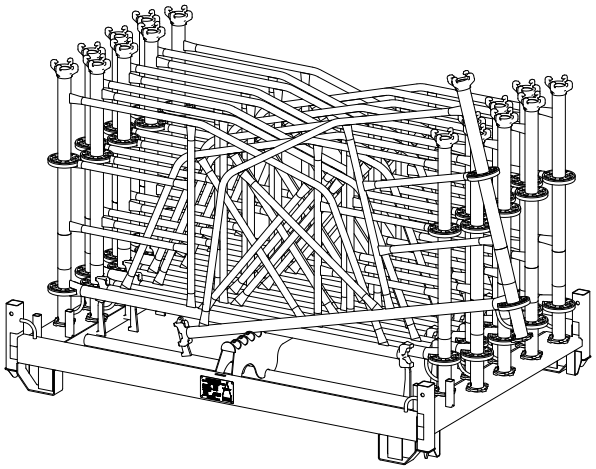


**Step 4** Pull the side panel up and out.

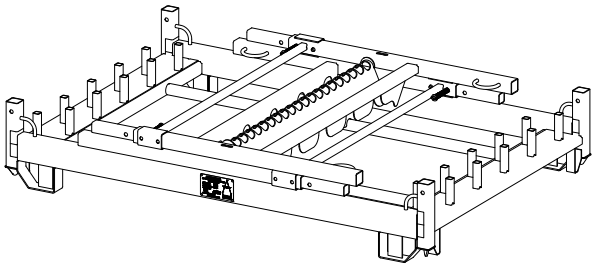


**Step 5** Remove the other side panel in the same way.

**Step 6** Take the ST 60 Frames out of the Frame Rack 180/120.



**Step 7** After unloading the frames, place the side panels in the middle of the rack. Do not stack more than 12no. empty racks on top of one another.



Verify that the side panels rest properly on the bottom of the rack!

### 13.1.2 Loading ST 60 Frames and securing side panels

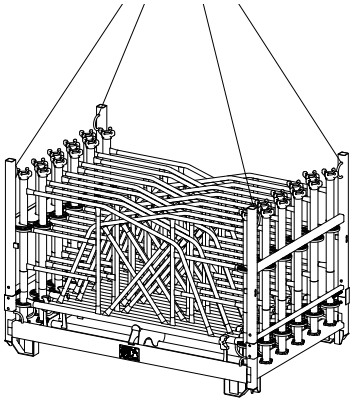
Load the ST 60 Frames and secure the side panels in the opposite order of unloading (Refer to Section 13.1.1 on page 82).

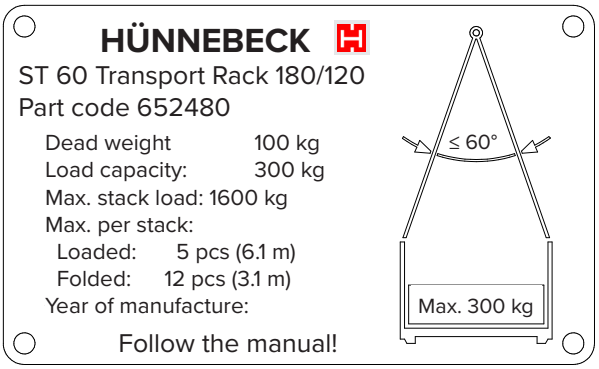
**Transporting loaded Frame Racks 180/120 by crane**

Single Frame Racks 180/120 with the side panels in place can be transported by crane. Always use a 4-strand suspension! Connect the suspension gear only to the attachment points on the Frame Rack 180/120!

Verify that the side panels are properly locked into place!

**Step 1** Attach the 4-strand suspension to the upper attachment points on the side panels.






**Crane load: 400 kg**

**Step 2** Transport the Frame Rack 180/120 by crane.

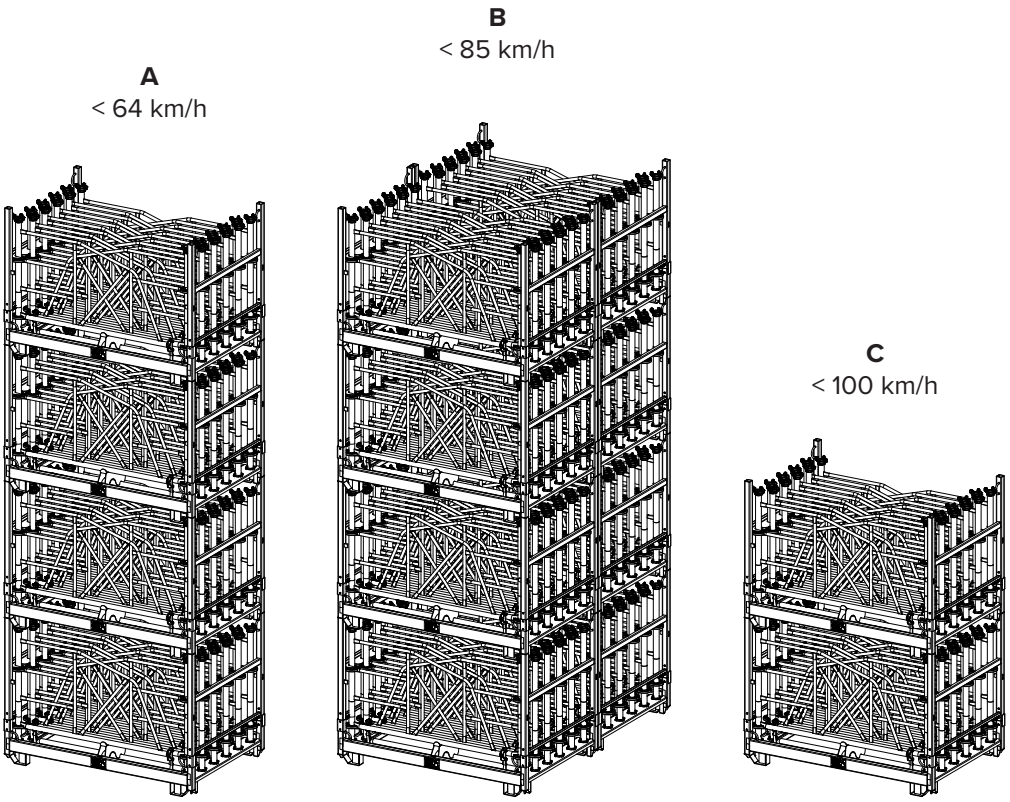
**Transporting Frame Racks 180/120 by forklift or pallet truck**

Do not transport more than 2no. Frame Racks 180/120 stacked on top of one another by forklift or pallet truck.

**Stacking loaded Frame Racks 180/120**

No more than 4no. Frame Racks 180/120 can be stacked on a flat surface. In working wind (wind speed < 64 km/h, **A**) stacks can stand alone. At wind speeds up to 85 km/h, the stacks have to be secured to prevent them from tipping over, e.g. by placing at least 2no. stacks next to one another, with the longer sides facing one another (**B**). At wind speeds up to 100 km/h, single stacks of no more than 2no. Frame Racks 180/120 are permitted (**C**).

The Frame Racks 180/120 may not be stacked at all when the wind speed exceeds 100 km/h.



## 13.2 Decks

All ST 60 decks can also be transported, stacked and stored without Frame Racks. Place 80 mm x 60 mm boards under the edges of the stacks of decks.

**CAUTION**

**Risk of injury from falling decks!**

Unsecured decks can fall off of a stack!

This can lead to injury!

Always secure the stack with straps.

**NOTE**

**Decks can sustain damage!**

Straps can damage the decks!

Place boards 60 x 20 mm between the stack and the straps, on top of the stack as well as on the sides.

The boards 80 x 60 mm under the stack should be wrapped in the plastic straps as well, if possible.

If not, place boards 60 x 20 mm between the bottom of the stack and the straps.

### 13.2.1 ST 60 Decks 150/31 and 113/31

Up to 11no. ST 60 Alu Decks 150/31 and 113/31 can be placed on top of one another. This is how a stack is built (**1**).

**WARNING**

**Stacks can tip over!**

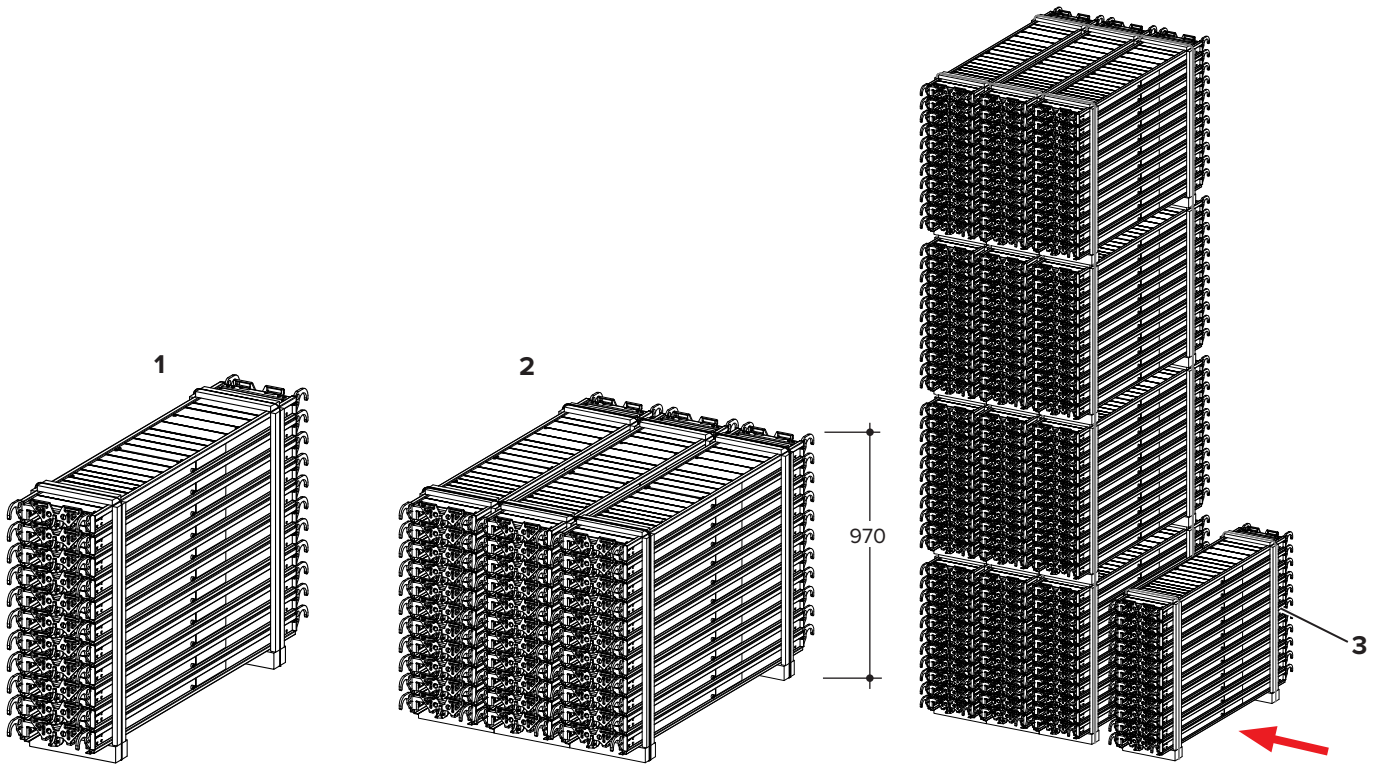
Single stacks of 31 cm wide ST 60 decks can tip over!

This can cause personal injury or death!

Always store at least 3no. stacks next to one another and strap the stacks together with plastic straps. This is how a package is built (**2**).

Up to 4no. packages can be stacked on top of one another.

Single stacks can be stored adjacent to packages as long as the stacks are placed along the longer side of the package (**3**).






Unless otherwise stated, all dimensions are in mm.

### 13.2.2 ST 60 Passage Decks 150/68 and 113/68

Up to 25no. ST 60 Alu Decks 150/68 and 113/68 can be placed on top of one another. This is how a stack is built (**4**).

To place stacks on top of one another, 2no. stacks have to strapped side-by-side to form a package (**5**). No more than 2no. packages may be stacked (**6**).

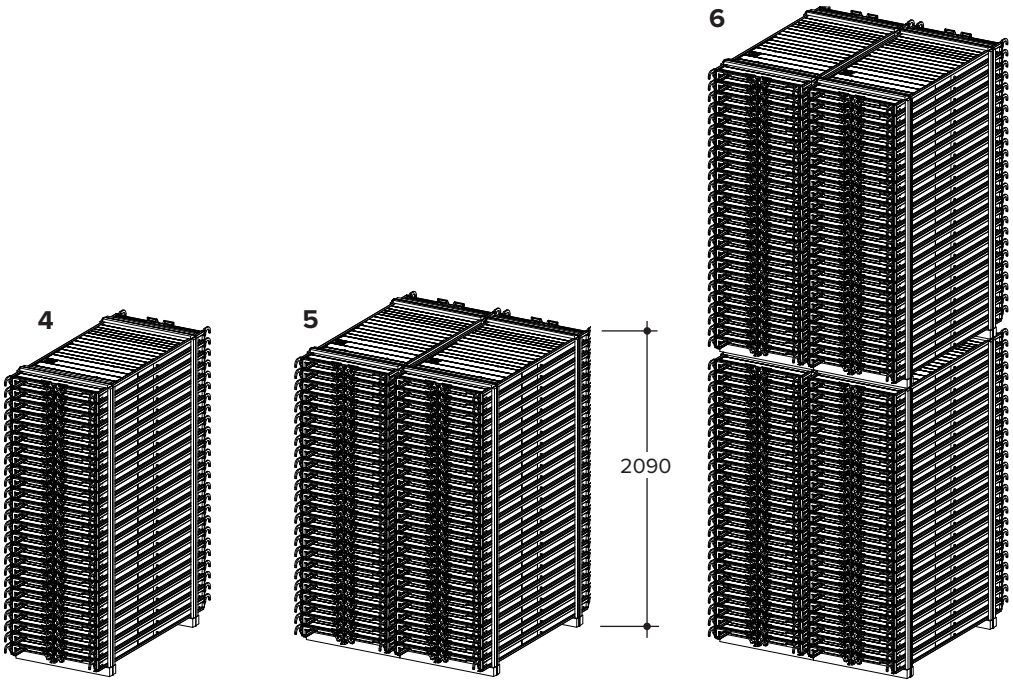
**WARNING**

**Stacks can tip over!**

If stacks are not bound together to form a package, they can tip over when placed one on top of the other!

This can cause personal injury or death!

Stack only packages that are bound with straps.




## 13.3 Beams

Beams can best be stored and transported at construction sites when they are on Euro Stacking Frames. The Euro Stacking Frame is designed to accommodate a load of 1200 kg. It can be transported by crane, forklift or Euro Trolley.

**WARNING**

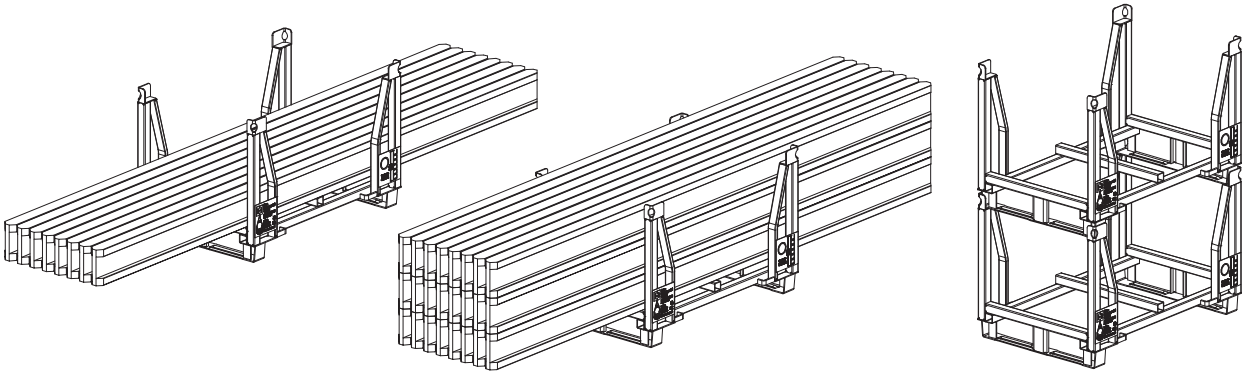
**Warning!**

Stacking of up to 6no. loaded Stacking Frames on the ground is permitted! Only 1no. Stacking Frame at a time may be transported with the Euro Trolley.

**WARNING**

**Warning!**

Observe the information posted on the Euro Stacking Frame!

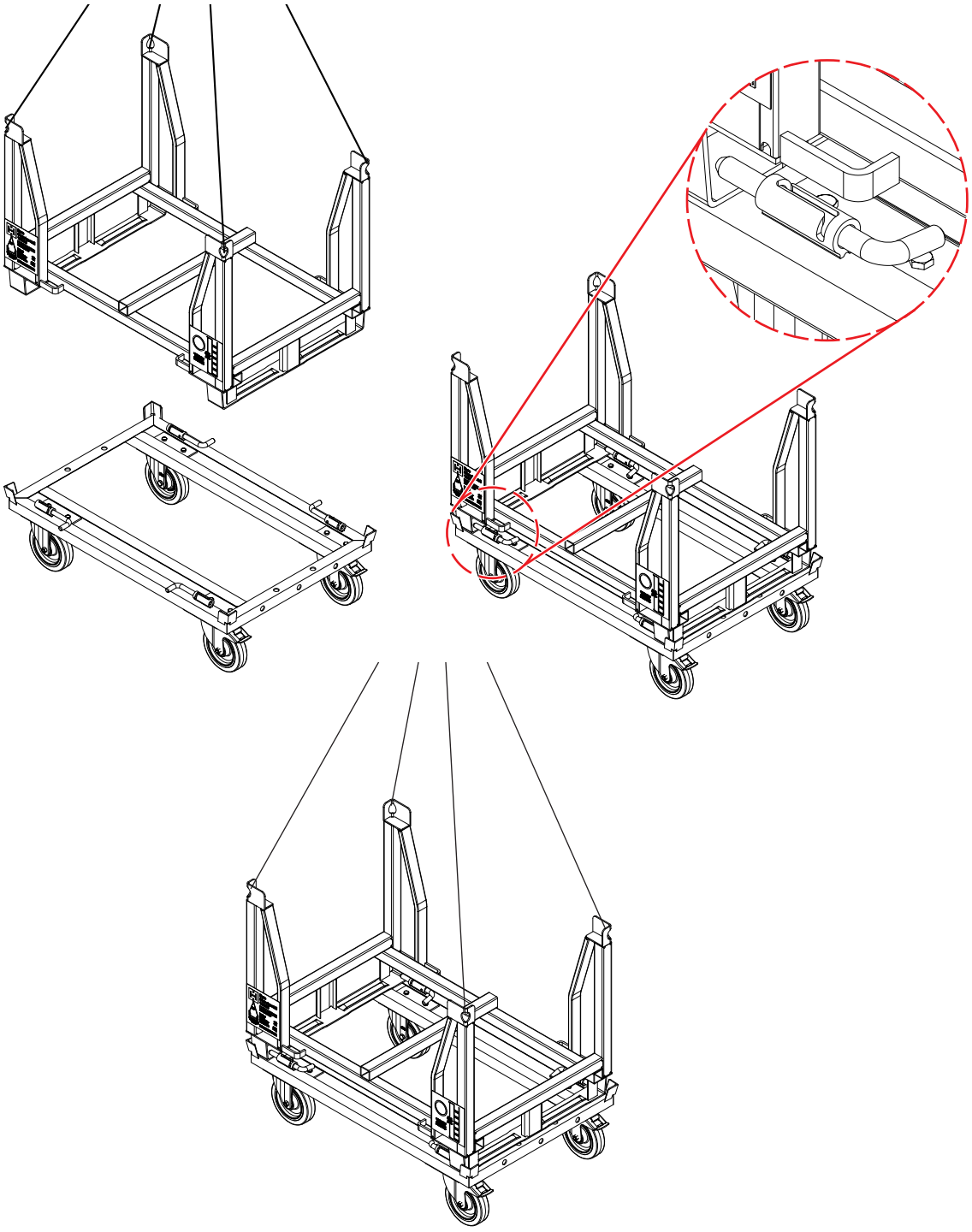


## 13.4 Euro Trolley

Single Frame Racks, Stacking Frames or Lattice Boxes can be transported with the Euro Trolley. The Euro Trolley along with a frame/box can be moved with a crane. To be able to move them together, the frame/box has to be secured by all 4no. safety pins on the Euro Trolley.

Always follow the directions in the Euro Trolley operating instructions.

Always secure the transport equipment on the Euro Trolley with all 4 latches.





Unless otherwise stated, all dimensions are in mm.

# 14 Determining material required

The following tables are intended to help plan ST 60 Shoring Towers.

NOTE

**NOTE**

The heights stated here do not take into consideration the stripping clearance.

NOTE

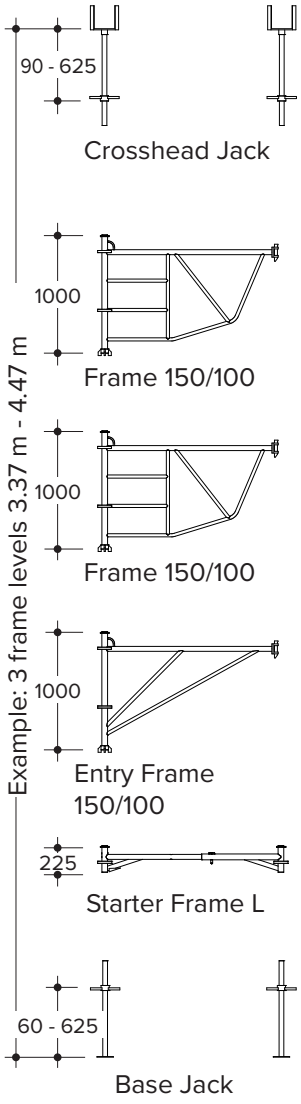
**NOTE**

Keep in mind that the stated dimensions refer to the height of the ST 60 Shoring Tower!

The clearance is the result of the height of the ST 60 Shoring Tower + primary beam + secondary beam + form sheet.

### 14.4.1 For ST 60 Shoring Towers 150 cm x 150 cm

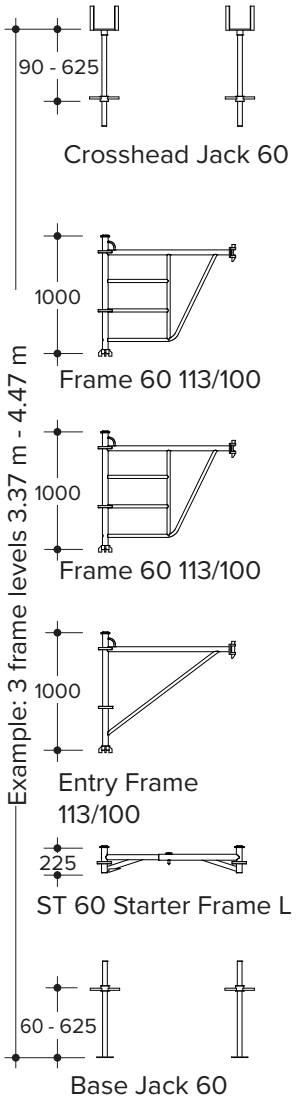
**Bill of material**




| Height of ST 60 Shoring Tower [m] (Depending on head and base jacks used) | ST 60 Base Jack Part code:652430 | ST 60 Starter Frame L e.g. code: 652450 | ST 60 Crosshead Jack 60 G2 Part code:653975 | ST 60 Head Jack Retainer Part code:652419 | ST 60 Entry Frame 150/100 Part code:652390 | ST 60 Frame 150/100 Part code:652290 | ST 60 Alu Passage Deck 150/68 Part code:652500 | ST 60 Toe Board 150 Part code:652985 | Weight of ST 60 Shoring Tower approx. [kg] |
|---|---|---|---|---|---|---|---|---|---|
| 1.70 - 2.47 | 4 | 4 | 4 | 4 | 1 | 3 | - | - | 180 |
| 2.37 - 3.47 | 4 | 4 | 4 | 4 | 1 | 7 | 2 | 4 | 290 |
| 3.37 - 4.47 | 4 | 4 | 4 | 4 | 1 | 11 | 4 | 4 | 380 |
| 4.37 - 5.47 | 4 | 4 | 4 | 4 | 1 | 15 | 4 | 4 | 440 |
| 5.37 - 6.47 | 4 | 4 | 4 | 4 | 1 | 19 | 6 | 4 | 530 |
| 6.37 - 7.47 | 4 | 4 | 4 | 4 | 1 | 23 | 6 | 4 | 590 |
| 7.37 - 8.47 | 4 | 4 | 4 | 4 | 1 | 27 | 8 | 4 | 680 |
| 8.37 - 9.47 | 4 | 4 | 4 | 4 | 1 | 31 | 8 | 4 | 740 |
| 9.37 - 10.47 | 4 | 4 | 4 | 4 | 1 | 35 | 10 | 4 | 830 |
| 10.37 - 11.47 | 4 | 4 | 4 | 4 | 1 | 39 | 10 | 4 | 890 |
| 11.37 - 12.47 | 4 | 4 | 4 | 4 | 1 | 43 | 12 | 4 | 980 |
| 12.37 - 13.47 | 4 | 4 | 4 | 4 | 1 | 47 | 12 | 4 | 1040 |
| 13.37 - 14.47 | 4 | 4 | 4 | 4 | 1 | 51 | 14 | 4 | 1130 |

### 14.4.2 For ST 60 Shoring Towers 113 cm x 113 cm

**Bill of material**




| Height of ST 60 Shoring Tower [m] (Depending on head and base jacks used) | ST 60 Base Jack Part code:652430 | ST 60 Starter Frame L e.g. code: 652450 | ST 60 Head Jack Part code:652355 | ST 60 Head Jack Retainer Part code:652419 | ST 60 Entry Frame 113/100 Part code:652380 | ST 60 Frame 113/100 Part code:652350 | ST 60 Alu Deck 113/31 Part code:652520 | ST 60 Alu Passage Deck 113/68 Part code:652530 | ST 60 Toe Board 113 Part code:652914 | Weight of ST 60 Shoring Tower approx. [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.70 - 2.47 | 4 | 4 | 4 | 4 | 1 | 3 | - | - | - | 170 |
| 2.37 - 3.47 | 4 | 4 | 4 | 4 | 1 | 7 | 1 | 1 | 4 | 255 |
| 3.37 - 4.47 | 4 | 4 | 4 | 4 | 1 | 11 | 2 | 2 | 4 | 325 |
| 4.37 - 5.47 | 4 | 4 | 4 | 4 | 1 | 15 | 2 | 2 | 4 | 375 |
| 5.37 - 6.47 | 4 | 4 | 4 | 4 | 1 | 19 | 3 | 3 | 4 | 445 |
| 6.37 - 7.47 | 4 | 4 | 4 | 4 | 1 | 23 | 3 | 3 | 4 | 500 |
| 7.37 - 8.47 | 4 | 4 | 4 | 4 | 1 | 27 | 4 | 4 | 4 | 565 |
| 8.37 - 9.47 | 4 | 4 | 4 | 4 | 1 | 31 | 4 | 4 | 4 | 620 |
| 9.37 - 10.47 | 4 | 4 | 4 | 4 | 1 | 35 | 5 | 5 | 4 | 690 |
| 10.37 - 11.47 | 4 | 4 | 4 | 4 | 1 | 39 | 5 | 5 | 4 | 740 |
| 11.37 - 12.47 | 4 | 4 | 4 | 4 | 1 | 43 | 6 | 6 | 4 | 810 |
| 12.37 - 13.47 | 4 | 4 | 4 | 4 | 1 | 47 | 6 | 6 | 4 | 860 |
| 13.37 - 14.47 | 4 | 4 | 4 | 4 | 1 | 51 | 7 | 7 | 4 | 930 |



Unless otherwise stated, all dimensions are in mm.

### 14.4.3 For ST 60 Shoring Towers 113 cm x 150 cm

**Bill of material**

| Height of ST 60 Shoring Tower [m] (Depending on head and base jacks used) | ST 60 Base Jack e.g. code: 652430 | ST 60 Starter Frame L Part code:652450 | ST 60 Head Jack e.g. 652355 | ST 60 Head Jack Retainer Part code:652419 | ST 60 Entry Frame 150/100 Part code:652390 | ST 60 Frame 113/100 Part code:652350 | ST 60 Frame 150/100 Part code:652290 | ST 60 Alu Deck 150/31 Part code:652540 | ST 60 Alu Passage Deck 150/68 Part code:652500 | ST 60 Toe Board 113 Part code:652914 | ST 60 Toe Board 150 Part code:652985 | Weight of ST 60 Shoring Tower approx. [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.70 - 2.47 | 4 | 4 | 4 | 4 | 1 | 2 | 1 | - | - | - | - | 175 |
| 2.37 - 3.47 | 4 | 4 | 4 | 4 | 1 | 4 | 3 | 1 | 1 | 2 | 2 | 270 |
| 3.37 - 4.47 | 4 | 4 | 4 | 4 | 1 | 6 | 5 | 2 | 2 | 2 | 2 | 350 |
| 4.37 - 5.47 | 4 | 4 | 4 | 4 | 1 | 8 | 7 | 2 | 2 | 2 | 2 | 405 |
| 5.37 - 6.47 | 4 | 4 | 4 | 4 | 1 | 10 | 9 | 3 | 3 | 2 | 2 | 485 |
| 6.37 - 7.47 | 4 | 4 | 4 | 4 | 1 | 12 | 11 | 3 | 3 | 2 | 2 | 540 |
| 7.37 - 8.47 | 4 | 4 | 4 | 4 | 1 | 14 | 13 | 4 | 4 | 2 | 2 | 620 |
| 8.37 - 9.47 | 4 | 4 | 4 | 4 | 1 | 16 | 15 | 4 | 4 | 2 | 2 | 675 |
| 9.37 - 10.47 | 4 | 4 | 4 | 4 | 1 | 18 | 17 | 5 | 5 | 2 | 2 | 755 |
| 10.37 - 11.47 | 4 | 4 | 4 | 4 | 1 | 20 | 19 | 5 | 5 | 2 | 2 | 810 |
| 11.37 - 12.47 | 4 | 4 | 4 | 4 | 1 | 22 | 21 | 6 | 6 | 2 | 2 | 890 |
| 12.37 - 13.47 | 4 | 4 | 4 | 4 | 1 | 24 | 23 | 6 | 6 | 2 | 2 | 945 |
| 13.37 - 14.47 | 4 | 4 | 4 | 4 | 1 | 26 | 25 | 7 | 7 | 2 | 2 | 1025 |

NOTE

**NOTE**

2no. Alu Passage Decks 113/68 can be used instead of the Alu Deck 150/31 and the Alu Passage Deck 150/68.

# 15 Safe Working Load (SWL)

The following pages show load diagrams for ST 60 Shoring Towers. There are two basic types:

- Tied at top
- Free-standing

The diagrams show the permitted leg loads for when the Head Jacks and Base Jacks are extended the same and when jack extension has been optimised. Interpolation can be applied to determine the intermediate values.

**Example:**

The example shown here is for an ST 60 Shoring Tower with six frames 1.50 x 1.50 m, 0.00 kN/m² velocity pressure and jack extension of 50.0 cm at the top and at the base (100 cm total) (6 x 1 m + 0.5 m + 0.5 m + 0.225 m = 7.23 m ➔ 9.37 m > 7.23 > 6.47).

This intermediate height can be interpolated from the diagram: By following the dotted line, a permitted leg load of about 46.7 kN can be determined.

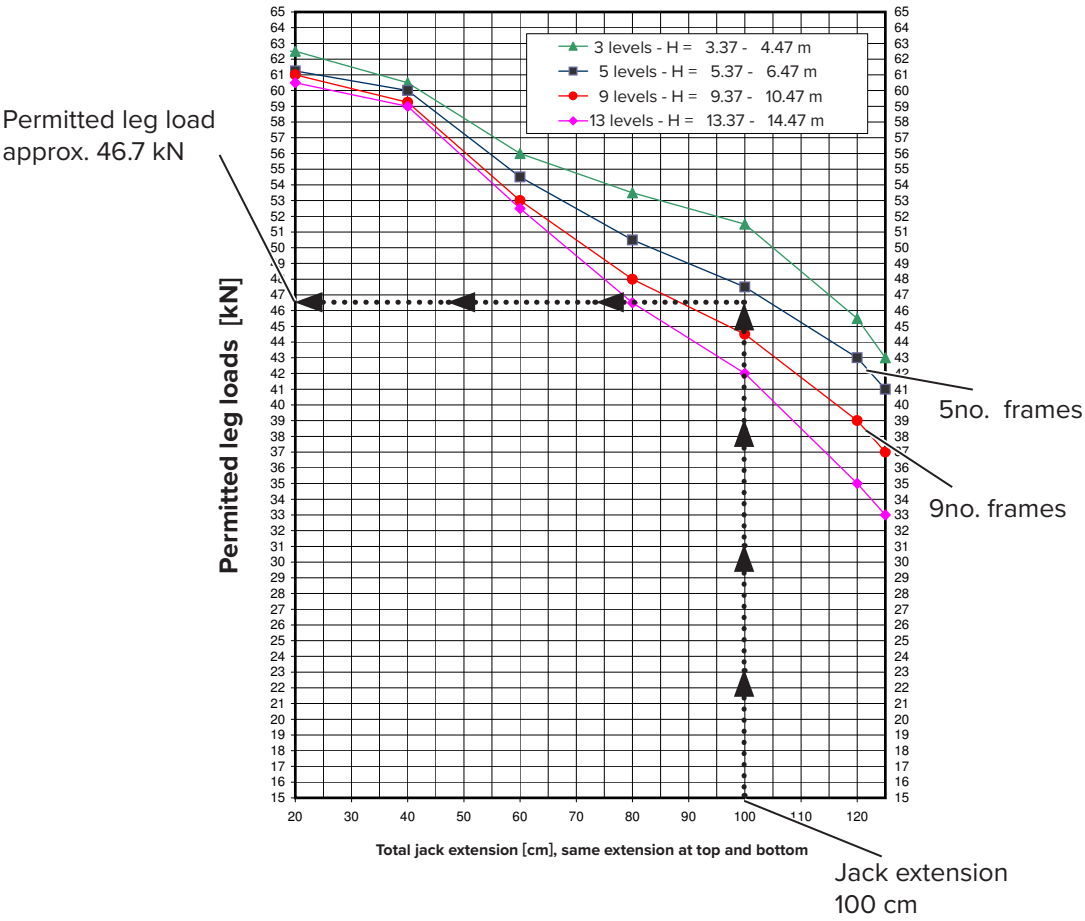
**WARNING**

**Reduced Safe Working Load (SWL)!**

The jack extension must comply with the specifications indicated in the diagrams! Otherwise the SWL will be much lower!

**Example**

**ST 60 Shoring Tower 150 cm, wind: 0.00 kN/m²**
**ST 60 Shoring Tower tied at top!**
**Same jack extension**






Unless otherwise stated, all dimensions are in mm.

## 15.1 Overview of diagrams

The following tables provide an overview of the load diagrams shown on the following pages.

### 15.1.1 ST 60 Shoring Tower tied at top

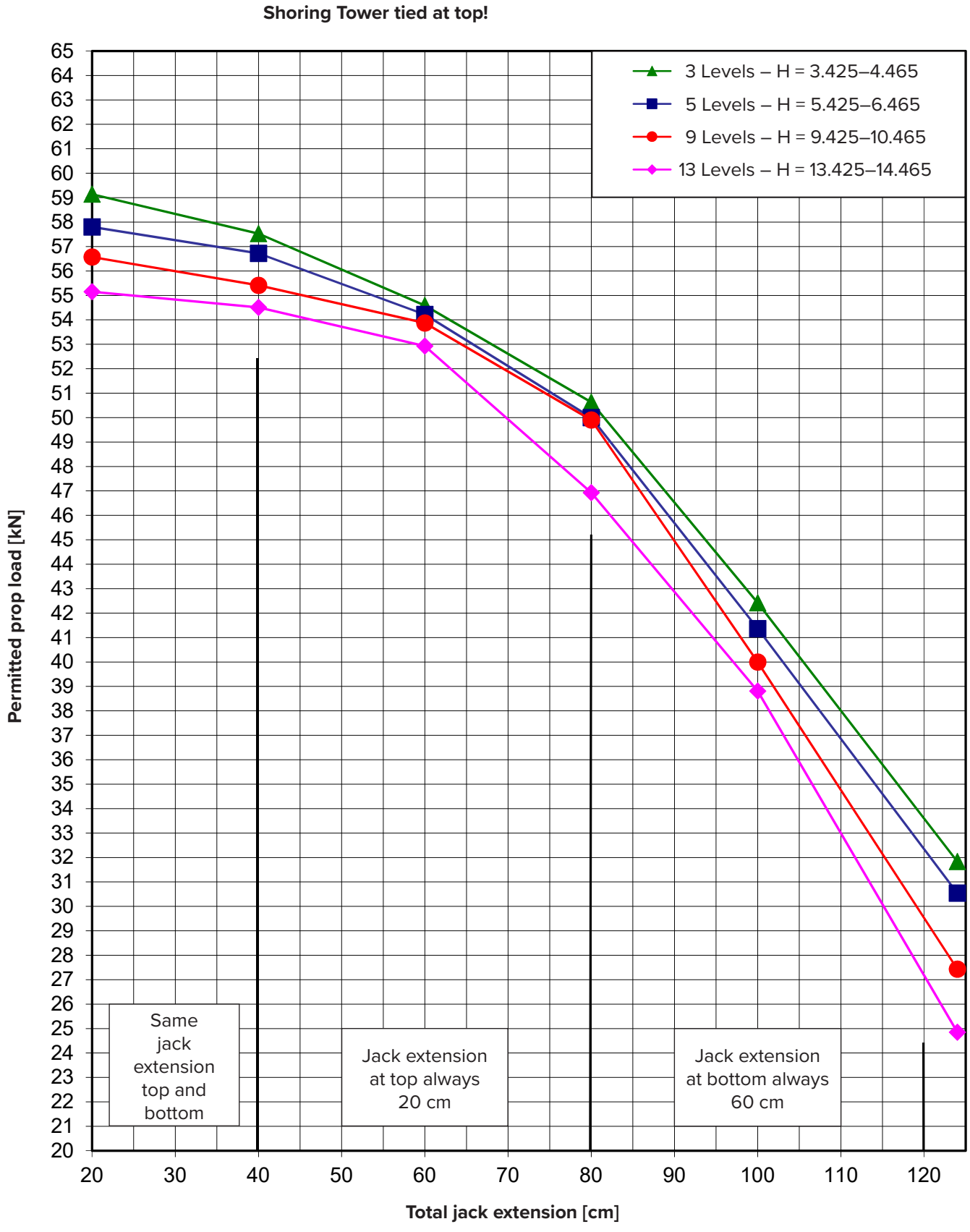
| Frame [cm] | Wind [kN/m²] | Page |
|---|---|---|
| 150 | 0.20 Working wind | 94 |
| | 0.60 | 95 |
| 113 | 0.20 Working wind | 96 |
| | 0.60 | 97 |

### 15.1.2 Free-standing ST 60 Shoring Tower

| Frame [cm] | Wind [kN/m²] | Height of ST 60 Shoring Tower [m] | Page |
|---|---|---|---|
| 150 | 0.20 Working wind | 3.425 –4.465 | 98 |
| | 0.20 Working wind | 5.425 –6.465 | 99 |
| 113 | 0.20 Working wind | 3.425 –4.465 | 100 |
| | 0.20 Working wind | 5.425 –6.465 | 101 |

## 15.2 Load diagrams

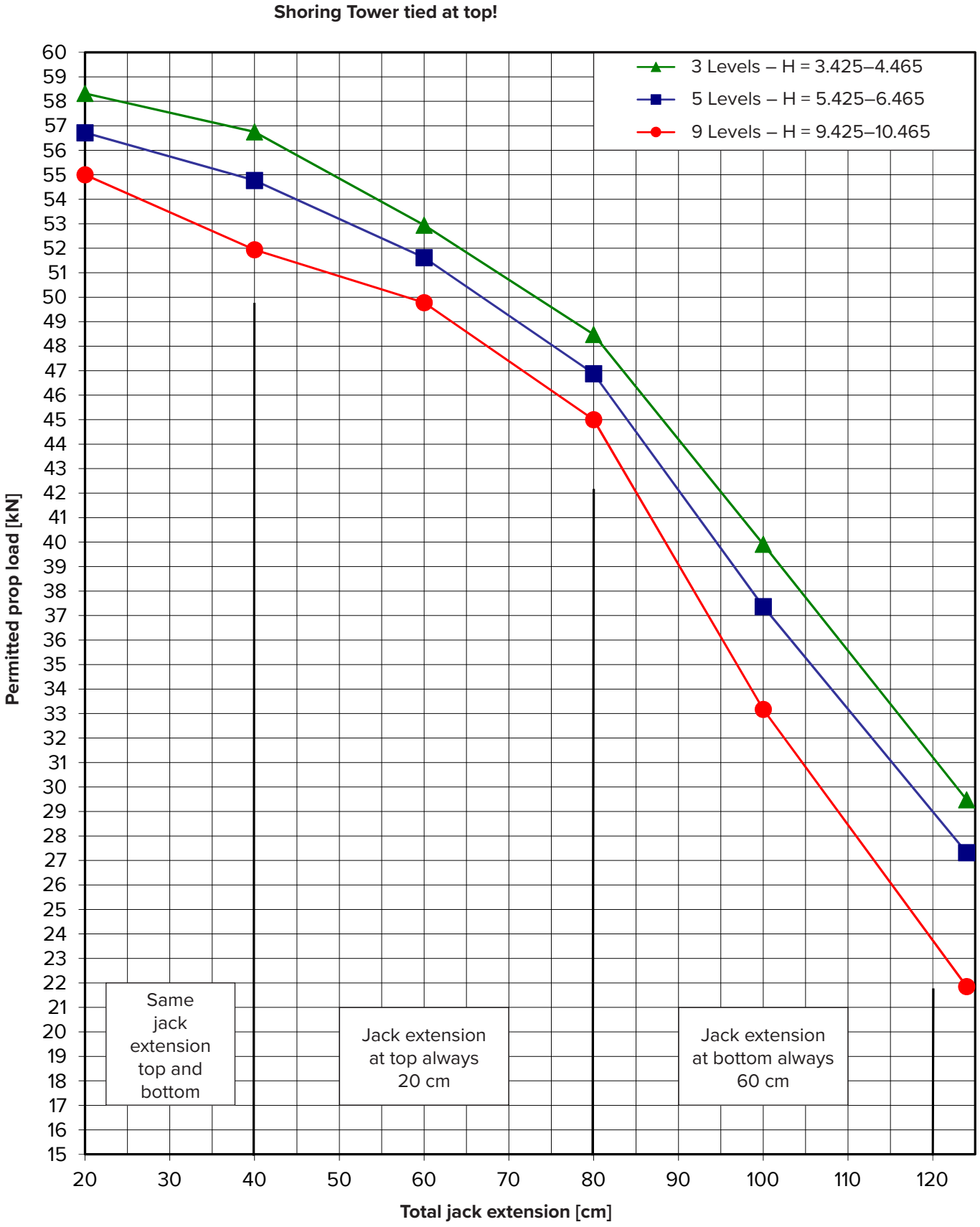
### 15.2.1 ST 60 Shoring Tower 150 cm, wind: 0.20 kN/m²





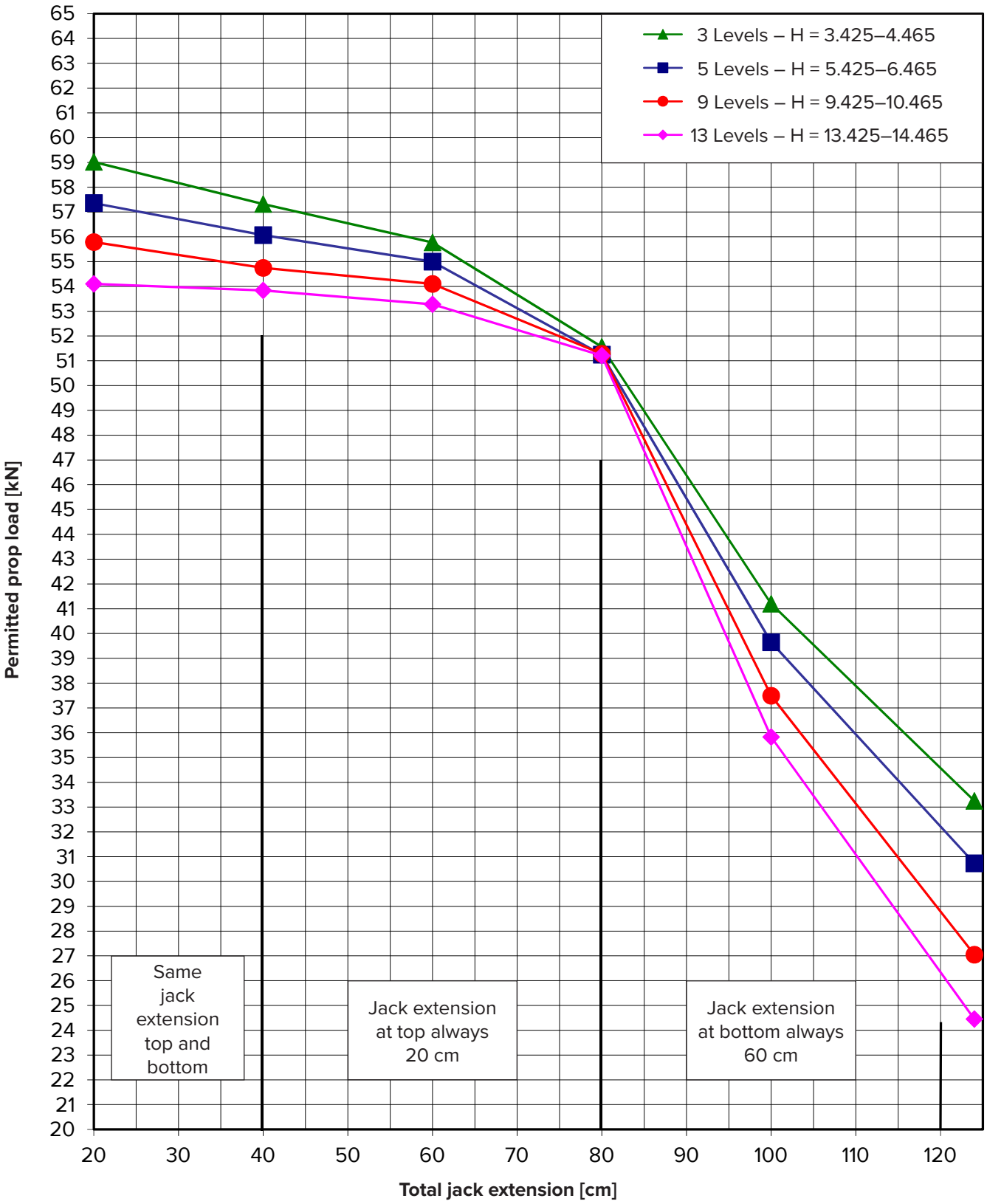

Unless otherwise stated, all dimensions are in mm.

### 15.2.2 ST 60 Shoring Tower 150 cm, wind: 0.60 kN/m²



### 15.2.3 ST 60 Shoring Tower 113 cm, wind: 0.20 kN/m²

**Shoring Tower tied at top!**

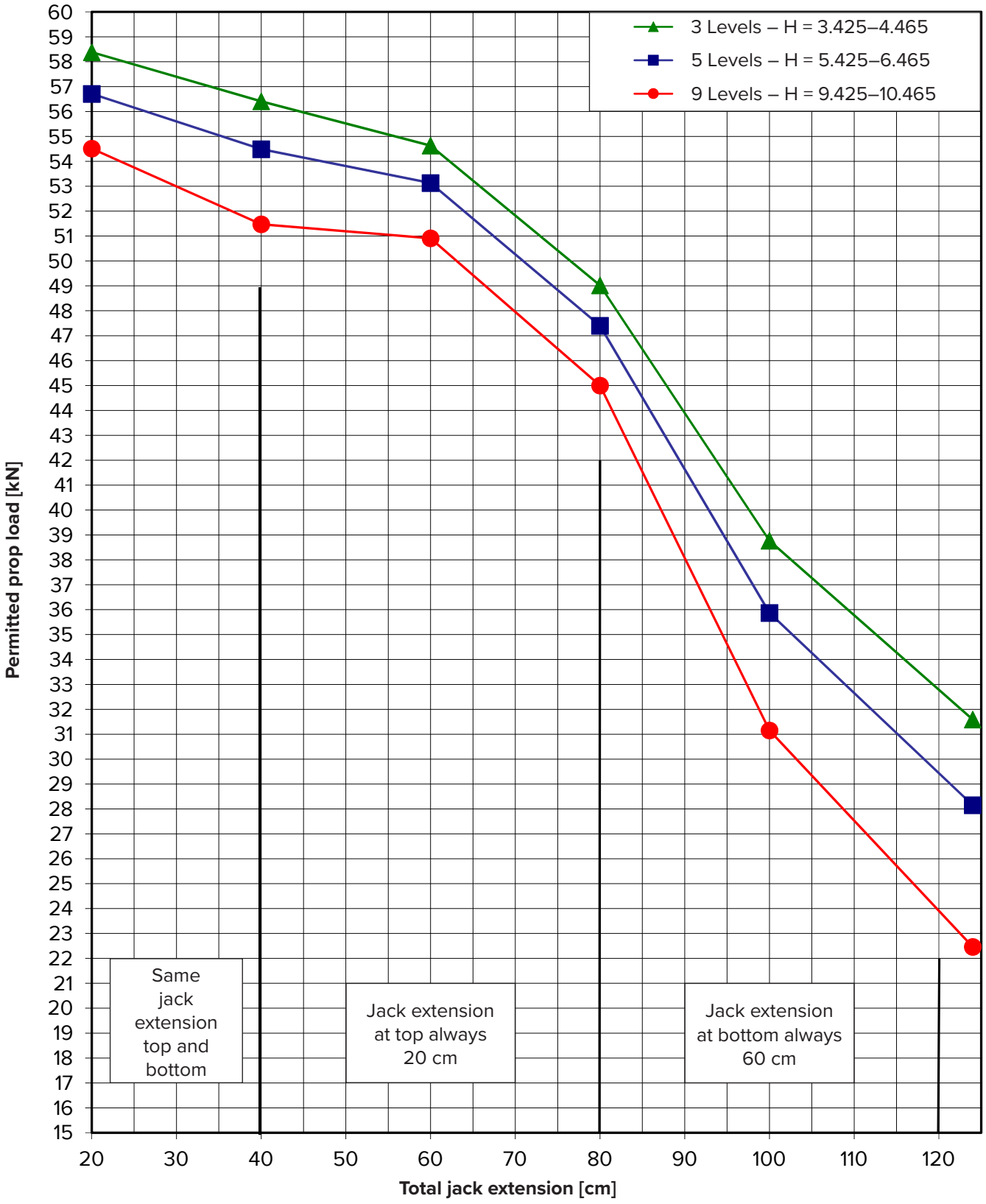





Unless otherwise stated, all dimensions are in mm.

### 15.2.4 ST 60 Shoring Tower 113 cm, wind: 0.60 kN/m²

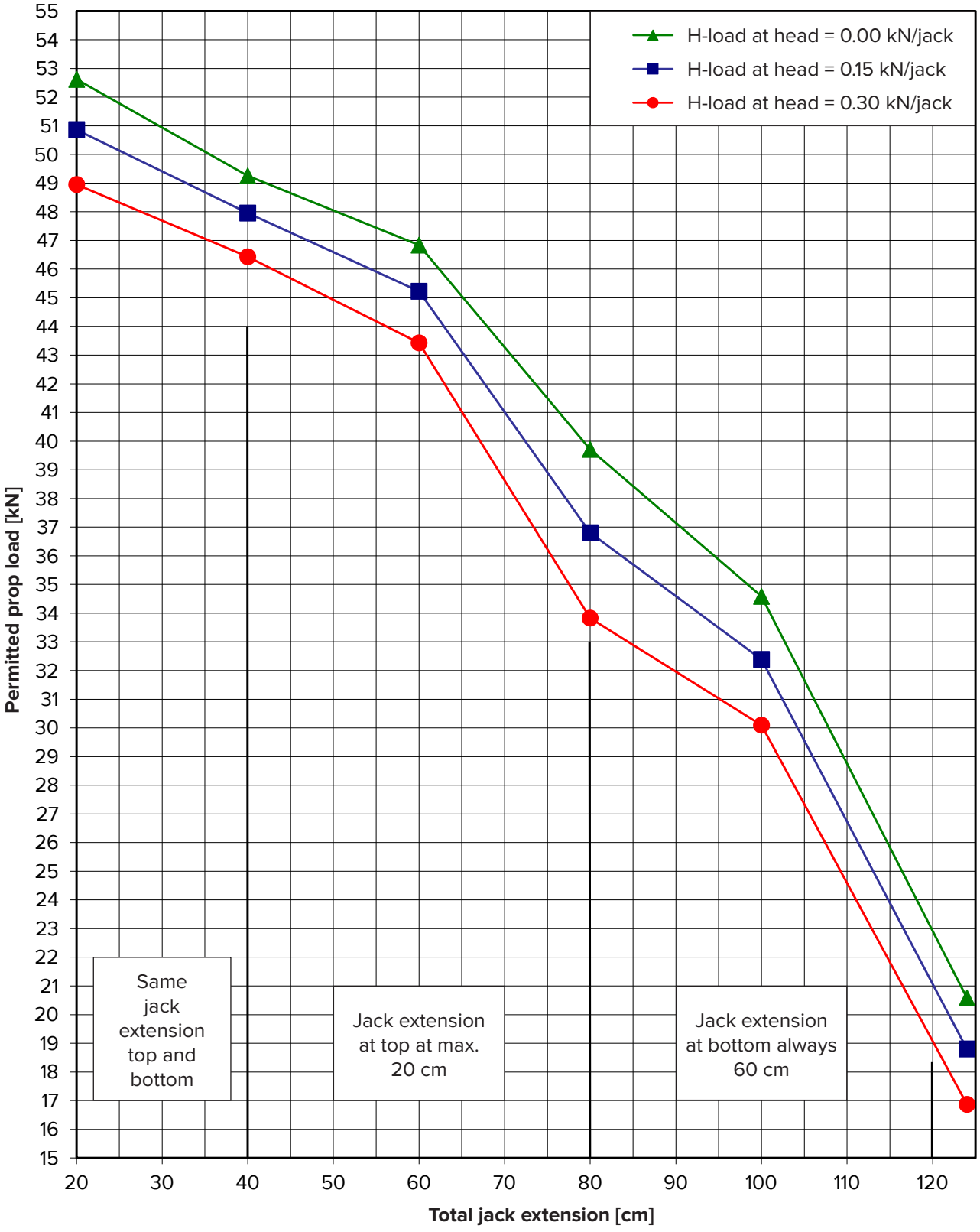
**Shoring Tower tied at top!**



### 15.2.5 ST 60 Shoring Tower 150 cm, wind: 0.20 kN/m²

**Free-standing single tower**

Height of Shoring Tower H = 3.425 m - 4.465 m



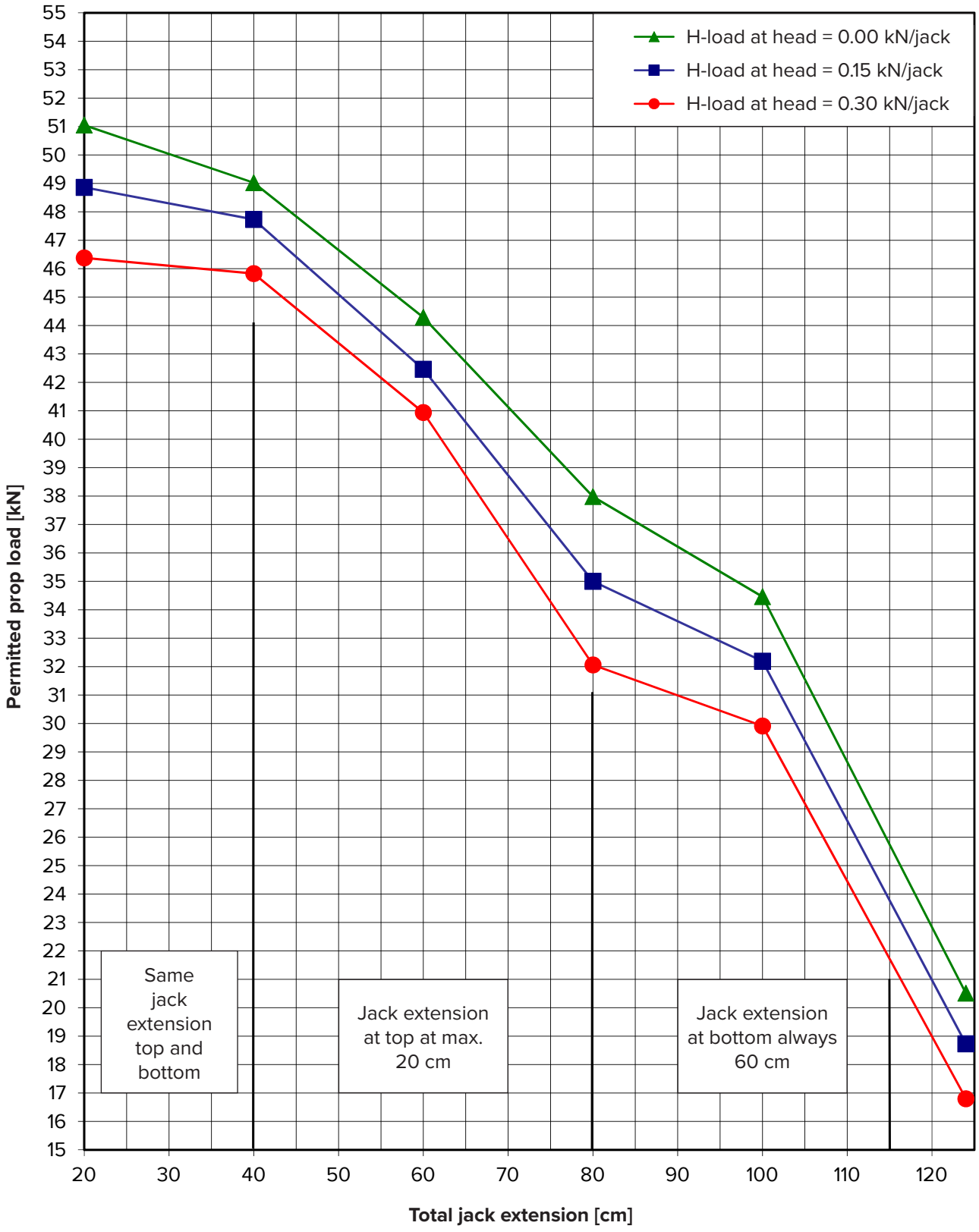



Unless otherwise stated, all dimensions are in mm.

### 15.2.6 ST 60 Shoring Tower 150 cm, wind: 0.20 kN/m²

**Free-standing single tower**

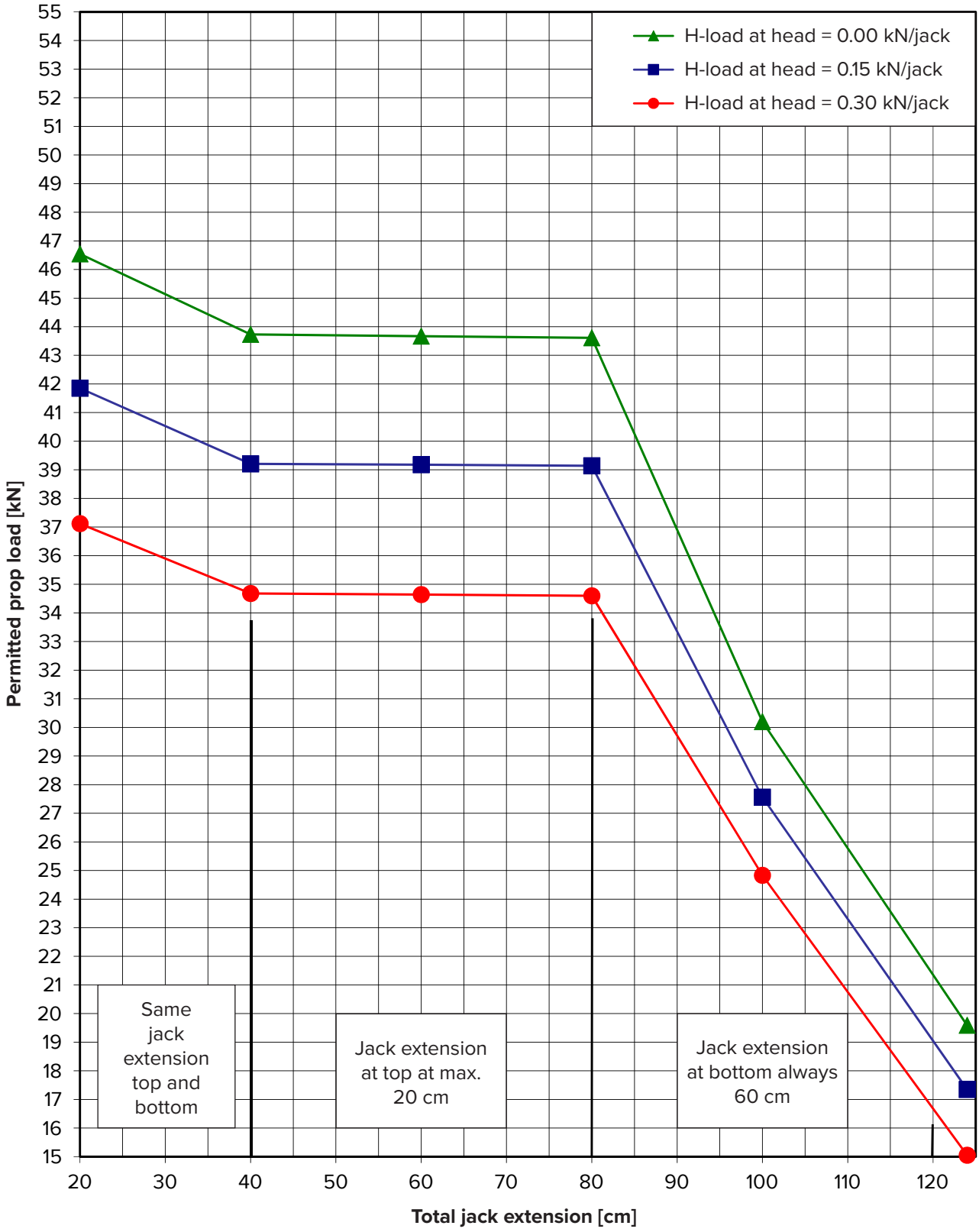
Height of Shoring Tower H = 5.425 m - 6.465 m



### 15.2.7 ST 60 Shoring Tower 113 cm, wind: 0.20 kN/m²

**Free-standing single tower**

Height of Shoring Tower H = 3.425 m - 4.465 m



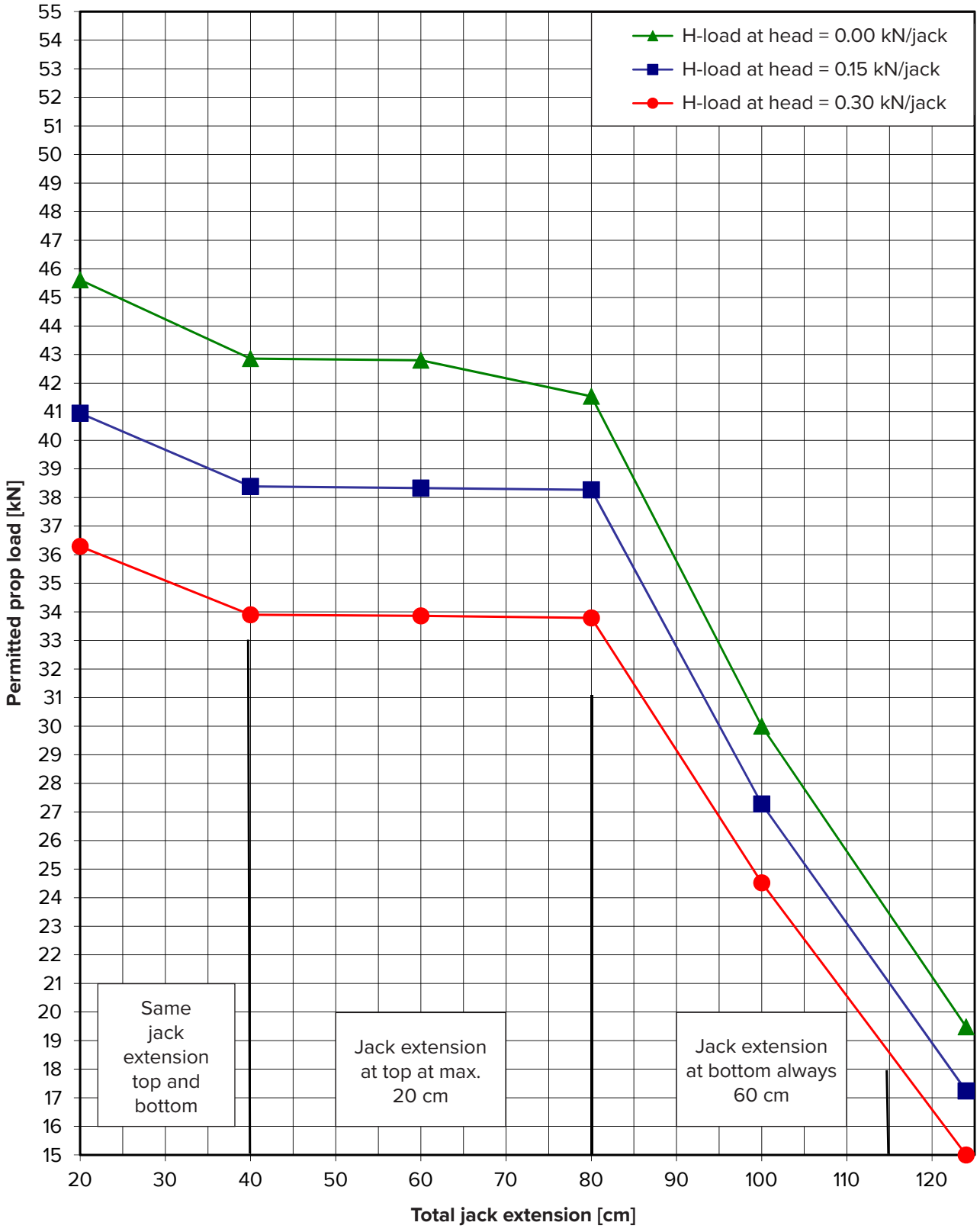



Unless otherwise stated, all dimensions are in mm.

### 15.2.8 ST 60 Shoring Tower 113 cm, wind: 0.20 kN/m²

**Free-standing single tower**

Height of Shoring Tower H = 5.425 m - 6.465 m



# 16 Technical details

## 16.1 Base Jacks

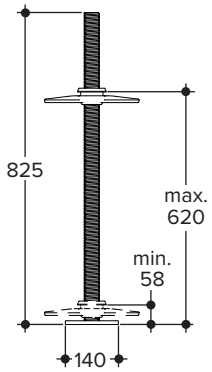
### 16.1.1 ST 60 Base Jack 60

**Application**

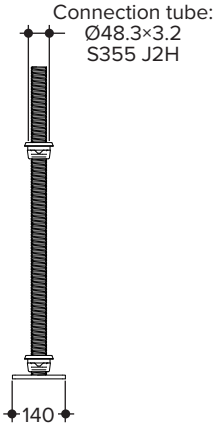
The ST 60 Base Jack 60 (code:652430) is used at the base of an ST 60 shoring tower to level the tower and transfer the loads.

**Specifications**

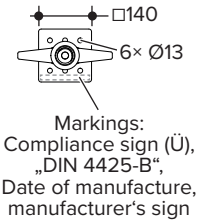
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




**Technical data**

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 652430 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |



Unless otherwise stated, all dimensions are in mm.

### 16.1.2 ST 60 Base Jack 60 Swivel

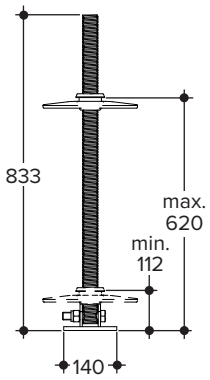
**Application**

The ST 60 Base Jack 60 Swivel (code:652995) is used at the base of an ST 60 shoring tower to level the tower and transfer loads.

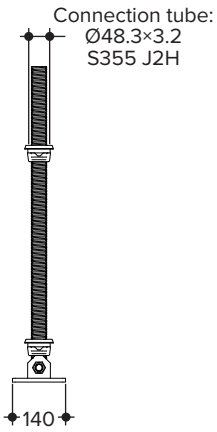
Sie ist in einer Achse gelenkig und bietet damit die Möglichkeit, Türme auch auf geneigten Flächen aufzustellen.

**Specifications**

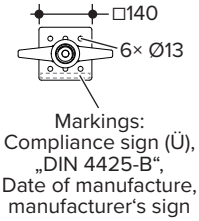
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




**Technical data**

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 652995 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |

## 16.2 Head Jacks

### 16.2.1 ST 60 Crosshead Jack 60 G2

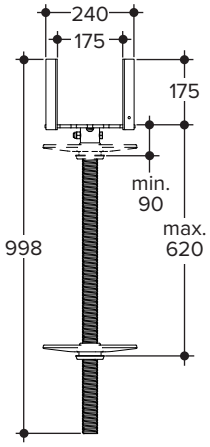
**Application**

The ST 60 Crosshead Jack 60 G2 (code:653975) is used at the top of an ST 60 shoring tower to attach beams.

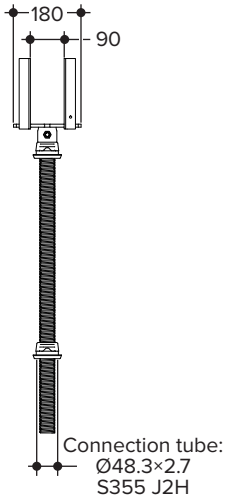
It can be tilted by 3° in any direction and therefore allows inclined structures to be supported by the tower.

**Specifications**

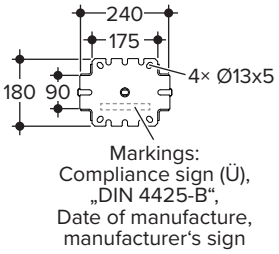
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




**Technical data**

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 653975 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |



Unless otherwise stated, all dimensions are in mm.

### 16.2.2 ST 60 Crosshead Jack 60 Swivel

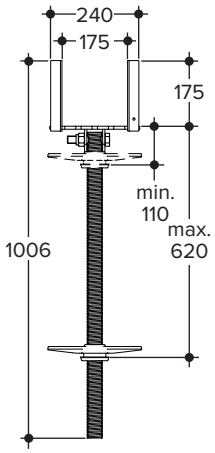
#### Application

The ST 60 Crosshead Jack 60 Swivel (code:652965) is used at the top of an ST 60 shoring tower to attach beams.

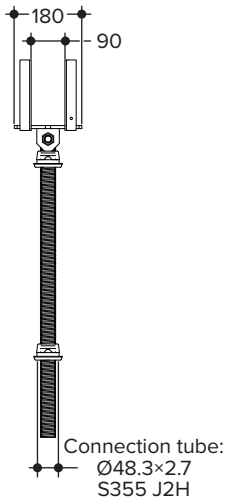
It is hinged in one axis and therefore allows inclined structures to be supported by the tower.

#### Specifications

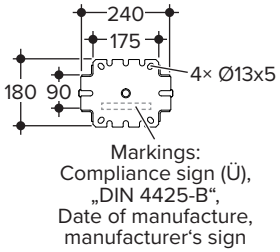
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




#### Technical data

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 652965 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |

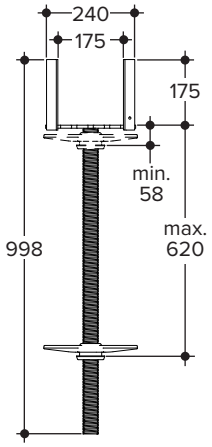
### 16.2.3 ST 60 Crosshead Jack Rigid

#### Application

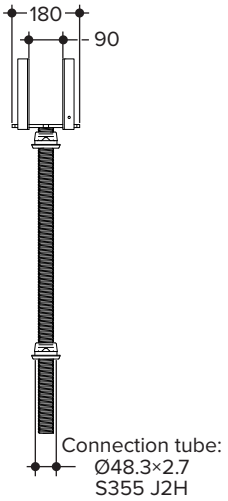
The ST 60 Crosshead Jack Rigid (code:652929) is used at the top of an ST 60 shoring tower to attach beams.

#### Specifications

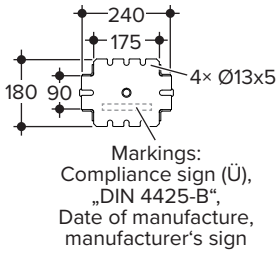
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




#### Technical data

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 652929 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |



Unless otherwise stated, all dimensions are in mm.

### 16.2.4 ST 60 Crosshead Jack 60

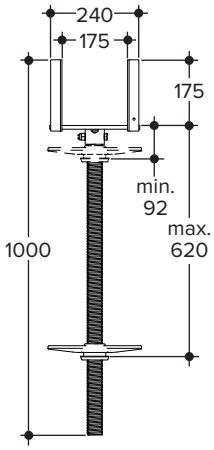
**Application**

The ST 60 Crosshead Jack 60 (code:652355) is used at the top of an ST 60 shoring tower to attach beams.

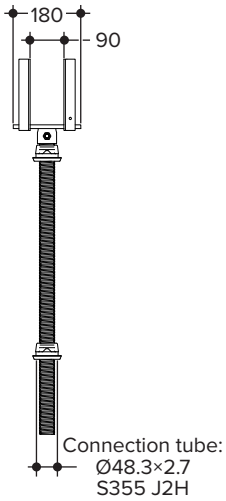
It is hinged in one axis and therefore allows inclined structures to be supported by the tower.

**Specifications**

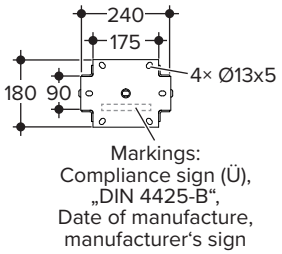
**Dimensions and extension lengths**




**Connection of scaffold tubes**




**Component marking**




**Technical data**

| Code | Spindle group | Resistances acc to. DIN 4425, chap. 6.4 | | Stiffness acc. to DIN 4425, chap. 6.3 | |
|---|---|---|---|---|---|
| | | $M_{pl,k}$ [kNcm] | $N_{pl,k}$ [kN] | E × A [kN] | E $I_d$ [kNcm²] |
| 652355 | B | ≥200 | ≥200 | ≥110.000 | ≥110.000 |

# 17 Note on structural analysis

Unless explicitly indicated otherwise, all load specifications in this document are safe working loads. This means that characteristic loads can be used for calculations. The following partial safety factors are included in the safe working load (where applicable):

**Load:**

$\gamma_f = 1.5$

**Resistances:**

Steel: $\gamma_m = 1.1$

Imperfections, load assumptions and additional rules:
Pursuant to DIN EN 1993 / DIN EN 12810 / DIN EN 12811/ DIN EN 12812 / DIN EN 1991

Aluminium: $\gamma_m = 1.1$

Imperfections, load assumptions and additional rules:
Pursuant to DIN EN 1999 / DIN EN 12810 / DIN EN 12811/ DIN EN 12812 / DIN EN 1991

**Timber:**

$\gamma_m = 1.3$; $K_{mod}$ 0.9

Imperfections, load assumptions and additional rules:

Pursuant to DIN EN 1995 / DIN EN 12810 / DIN EN 12811/ DIN EN 12812 / DIN EN 1991

**Concrete:**

$\gamma_m = 1.5$

Imperfections, load assumptions and additional rules:

Pursuant to DIN EN 1992 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

**Reinforcing steel:**

$\gamma_m = 1.15$

Imperfections, load assumptions and additional rules:

Pursuant to DIN EN 1992 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

These values only include those loads that derive from the respective part itself (unless indicated otherwise).

An increase of the loads due to effects in the full system (e.g. theory II, substitute horizontal loads, scaffolding class...) have to be considered.

# 18 Chronology

| Changes since edition 2023-10-24 | Page |
|---|---|
| Layout updated. | div. |
| Safety chapter updated. | 5 ff. |
| ST 60 Crosshead Jack Rigid and ST 60 Crosshead Jack 60 added. | 15 |
| TOPMAX Lifting Jack Carriage 750 added. | 24 |
| Technical details acc. to DIN 4425 added. | 102 |

Unless otherwise stated, all dimensions are in mm.

**Hünnebeck in the UK**
Rush Lane, Dosthill
Tamworth, West Midlands, B77 1LT
Tel.: +44 (0) 1827 289 955
info-uk@huennebeck.com
www.huennebeck.com



The illustrations, processes, materials and/or information in this document are for general information only on the basis that conditions and procedures may differ. No representation, warranty or guarantee is made or implied, including in regard to the fitness or suitability of the product. Overviews and diagrams are for illustrative purposes only.

Specifications may vary and BrandSafway reserves it rights to vary specifications, procedures, and materials due to continuous development, or when required to comply with new regulations, other safety guidance's or industry advancements. The processes set out in the documents should only be undertaken by qualified authorised personnel. The information contained in this document is for use for the applicable product, obtained directly from us.
We may also issue safety notes on products or packaging where required. These notices may affect the manner in which products are used and should therefore be adhered to. The most recent publication is applicable.

Performance, procedures and results may differ based on actual site conditions.

The aforementioned statements do not seek to limit our liability for fraud, or for personal injury or death caused by our negligence. However, we will not be liable for any damage to property, personal injury or any losses caused by failure to follow the instructions contained in our material. It remains the responsibility of the user to comply with the applicable regulations.

Supply of this product is subject to our terms and conditions. For more information, including on the specifications, our terms and conditions/ terms of business and for installation and dismantling procedures, please contact us.



Edition: UG 1047 EN 2025-05-26
Keep for later use!

HÜNNEBECK FORMWORK SOLUTIONS
BY BRAND SAFWAY