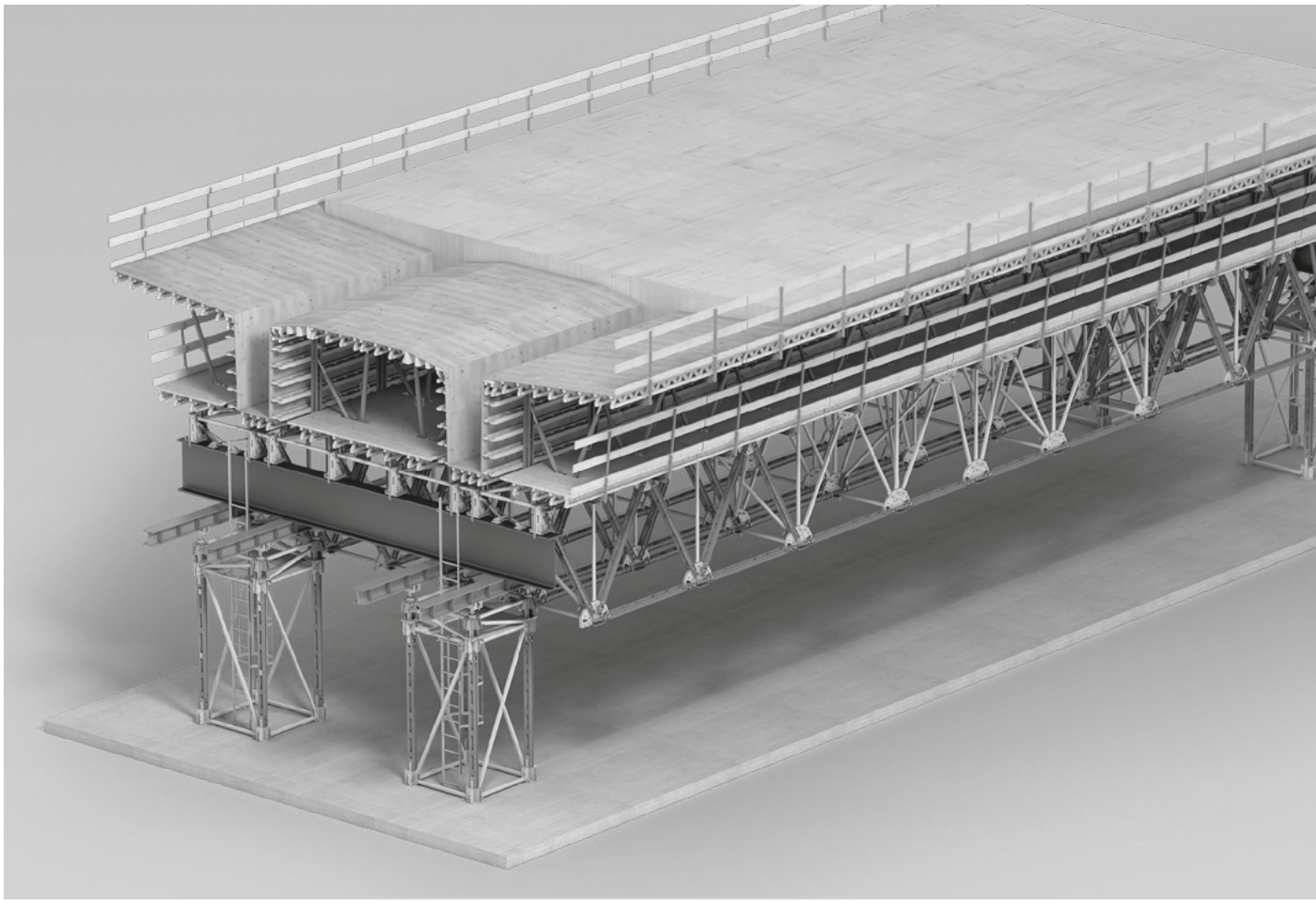
PERI

ALPHAKIT
Shoring

Instructions for Assembly and Use – Standard Configuration – Version 2.0



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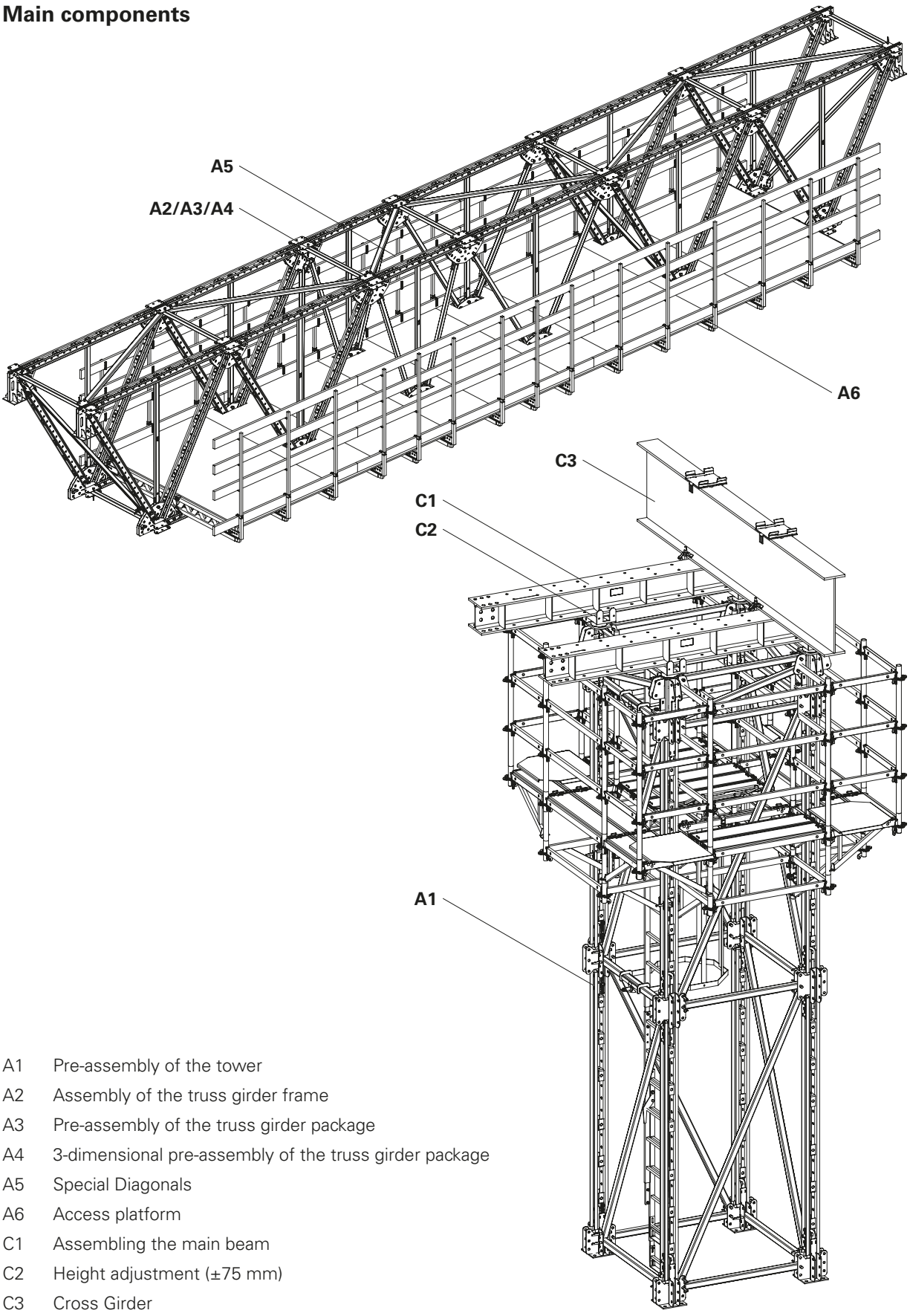
ALPHAKIT 116

Main components



A1 Pre-assembly of the tower
A2 Assembly of the truss girder frame
A3 Pre-assembly of the truss girder package
A4 3-dimensional pre-assembly of the truss girder package
A5 Special Diagonals
A6 Access platform
C1 Assembling the main beam
C2 Height adjustment (±75 mm)
C3 Cross Girder

Key

Pictogram | Definition


Danger/Warning/Caution


Note


To be complied with


Load-bearing point


Visual inspection


Tip


Incorrect use


Safety helmet


Safety shoes


Safety gloves


Safety goggles


Personal protective equipment to prevent falling from a height (PPE)

Arrows

→ Arrow representing an action

⇨ Arrow representing a reaction of an action*

→ Arrow representing forces

* If not identical to the action arrow.

Safety instruction categories
The safety instructions alert site personnel to the risks involved and provide information on how to avoid these risks. Safety instructions can be found at the beginning of the section or before instructions for action and are highlighted as follows:


Danger
This sign indicates an extremely hazardous situation that could result in death or serious, irreversible injury if the safety instructions are not followed.


Warning
This sign indicates a hazardous situation that could result in death or serious, irreversible injury if the safety instructions are not followed.


Caution
This sign indicates a hazardous situation that could result in minor or moderate injury if the safety instructions are not followed.


Note
This sign indicates situations in which failure to observe the information can result in material damage.

Format of the safety instructions


Signal word
Type and source of hazard!
Consequences of non-compliance.
⇒ Preventative measures.

Dimensions
Dimensions are usually given in cm. Other measurement units, e.g. m, are shown in the illustrations.

Conventions
- Instructions are numbered with: 1. ....., 2. ....., 3. .....
- The result of an instruction is shown by: →
- Position numbers are clearly provided for the individual components and are given in the drawing, e.g. **1**, in the text in brackets, for example (**1**).
- Multiple position numbers, i.e. alternative components, are represented with a slash: e.g. **1/2**.

Notes on illustrations
The illustration on the front cover of these instructions is understood to be a system representation only. The assembly steps presented in these Instructions for Assembly and Use are shown in the form of examples with only one component size. They are valid for all component sizes contained in the standard configuration.

To facilitate understanding, detailed illustrations are sometimes incomplete. The safety equipment that may not have been shown in these detailed illustrations must nevertheless be available.

Target groups

Contractor
These Instructions for Assembly and Use are designed for contractors who either

- assemble, modify and dismantle shoring systems, or
- use them, e.g. for pouring concrete, or
- allow them to be used for other operations, e.g. carpentry or electrical work.

Competent person
(Construction Site Coordinator)

- is appointed by the contractor,
- must identify potential hazards during the planning phase,
- determines measures that provide protection against risks,
- creates a safety and health protection plan,
- coordinates the protective measures for the contractor and site personnel so that they do not endanger each other,
- monitors compliance with the protective measures.

Competent persons qualified to carry out inspections
Due to the specialist knowledge gained from professional training, work experience and recent professional activity, the competent person qualified to carry out inspections has a reliable understanding of safety-related issues and can carry out inspections correctly. Depending on the complexity of the inspection to be undertaken, e.g. scope of testing, type of testing or the use of certain measuring devices, a range of specialist knowledge is necessary.

Qualified personnel
Shoring ystems may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. Qualified personnel must have completed a course of training** in the work to be performed, covering the following points at least:

- Explanation of the plan for the assembly, modification or dismantling of the system in an understandable form and language.
- Description of the measures for assembling, modifying or dismantling the system.
- Designation of the preventive measures to be taken to avoid the risk of persons and objects falling.
- Naming of the safety precautions in the event of changing weather conditions which could adversely affect the safety of the system as well as the persons concerned.
- Details regarding permissible loads.
- Description of all other risks and dangers associated with assembly, modification or dismantling operations.

** Instructions are given by the contractor themselves or a competent person selected by them.

Additional technical documentation

- User information
  - GT 24 Lattice Girder
  - VT 20K and VT 20 Girders
  - PROKIT EP 200 Safety System
  - Concrete cones and concrete adhesive tie points

- Brochures
  - VARIOKIT Engineering Construction Kit
  - Tie Technology DK, SK

- Instructions for Assembly and Use
  - PERI UP Scaffolding Kit core components

- Instructions for Use
  - PERI Bio Clean

Intended use

Product description
PERI products have been designed for exclusive use in the industrial and commercial sectors only by suitably trained personnel.

ALPHAKIT Tower
The ALPHAKIT Tower can transfer high loads from the formwork, for in-situ concrete bridges and all temporary support constructions for structural components.

Shuttering and striking under load is possible with the Hydraulic Unit HD.

ALPHAKIT Truss Girder
The ALPHAKIT Truss Girder serves to transfer loads from in-situ concrete or prefabricated components in bridge construction.

In addition, temporary spans can be carried out in industrial construction.

ALPHAKIT pedestrian bridge
The ALPHAKIT pedestrian bridge serves as temporary shoring to allow pedestrians to cross an obstruction.

Features
With only a few individual components and fast assembly, ALPHAKIT provides a high level of efficiency when erecting moderately heavy shoring in bridge construction.

Complete towers and girder packages can be assembled on the ground by hand. Therefore, the entire pre-assembly procedure is crane-independent.

Most connections are made by means of 2 fitting pins which in turn reduces the workload.

A crane is only required to set up and position the pre-assembled units.

System dimensions

ALPHAKIT Tower
Maximum height: 30 m
Load-bearing capacity per vertical: up to 300 kN

ALPHAKIT Truss Girder
Maximum span: 27.75 m
Perm. bending moment of a Truss Girder Frame: up to 800 kNm

ALPHAKIT Main Beam Bracket
Bearing capacity: 300 kN for a maximum cantilever (**0.72 m**) as well as 2 % lateral loads

ALPHAKIT pedestrian bridge
Max. length single span: 28.75 m
Standard width: 2.5 m
Standard height: 2.5 m

Instructions for Use

Use in a way not intended, deviating from the standard configuration or the intended use according to the Instructions for Assembly and Use, represents a misapplication with a potential safety risk, e.g. risk of falling.

Only PERI original components may be used. The use of other products and spare parts is not allowed.

Changes to PERI components are not permitted.

Cleaning and maintenance instructions

Clean the panels after each use to maintain the value and usability of the PERI products over the long term.

Some repair work may also be inevitable due to the tough working conditions. The following instructions should help to keep cleaning and maintenance costs as low as possible.

Never use steel brushes or hard metal scrapers to clean powder-coated or galvanised components.

Mechanical components, e.g. spindles, must be cleaned of dirt or concrete residue before and after use, and then greased with a suitable lubricant.

Provide suitable support for the components during cleaning so that no unintentional change in their position is possible.

Do not clean components suspended on crane lifting gear.

Any repairs to PERI products are to be carried out by PERI qualified personnel only.

Storage and transportation

Store and transport components in such a way that no unintentional change in their position is possible. Detach lifting accessories and gear from the lowered components only if they are in a stable position and no unintentional change is possible.

Do not drop the components.

Use PERI lifting accessories and slings and only those load-bearing points provided on the component.

During the relocation procedure
- ensure that components are picked up and set down in such a way that unintentional falling over, falling apart, sliding, falling down or rolling is avoided.
- no one is allowed to remain under the suspended load.

The access areas on the construction site must be free of obstacles and tripping hazards, and must also be slip-resistant.

For transportation, the substrate must have sufficient load-bearing capacity.

Use original PERI storage and transport systems, e.g. crate pallets, pallets or stacking devices.

Cross-system

Safety instructions apply to all service life phases of the system.

General
The contractor must guarantee that the Instructions for Assembly and Use supplied by PERI are available at all times and understood by the site personnel.

These Instructions for Assembly and Use can be used as the basis for creating a risk assessment. The risk assessment is compiled by the contractor. The Instructions for Assembly and Use are not a substitute for a risk assessment!

Observe and comply with the safety instructions and permissible loads.

For the application and inspection of PERI products, the current safety regulations and guidelines valid in the respective countries must be observed.

Materials and working areas are to be inspected before each use and assembly for:
- damage,
- stability and
- functional correctness.

Damaged components must be exchanged immediately on site and may no longer be used.

Safety components are to be removed only when they are no longer required.

When on slab formwork, scaffolds and working platforms:
- do not jump,
- do not run,
- do not drop anything from or onto it.

Components provided by the contractor must comply with the characteristics stipulated in these Instructions for Assembly and Use and all applicable laws and standards. Unless otherwise indicated, the following applies in particular:
- Timber components: Strength class C24 for solid wood according to EN 338.
- Scaffolding tubes: galvanised steel tubing with minimum dimensions of Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- Scaffolding tube couplings according to EN 74-1 and EN 74-2.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor.

Appropriate measures for working and operational safety, as well as stability, are defined on the basis of this risk assessment.

Corresponding proof of stability can be provided by PERI on request, if the risk assessment and resulting measures to be implemented are made available.

Before and after extraordinary events that may have damaging effects on the safety of the climbing system, the contractor shall immediately
- produce another risk assessment and make use of its results to take suitable steps to guarantee the stability of the climbing system,
- arrange for an extraordinary inspection to be carried out by a competent person qualified to do so. The aim of this inspection is to identify and rectify any damage in good time in order to guarantee safe use of the climbing system.

Exceptional events could be:
- accidents, fire,
- longer periods of non-use,
- natural events, e.g. heavy rainfall, icing, heavy snowfall, storms, lightning or earthquakes.

Assembly, modification and dismantling work
Assembly, modification or dismantling of the system may only be carried out by qualified persons under the supervision of a competent person. The qualified personnel must have received appropriate training for the work to be carried out with regard to specific risks and dangers.

On the basis of the risk assessment and Instructions for Assembly and Use, the contractor must create installation instructions, in order to guarantee safe assembly, modification and dismantling of the system.

The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the system, e.g.

- safety helmet,
- safety shoes,
- safety gloves,
- safety goggles,

is available and used as intended.

If personal protective equipment against falling from a height (PPE) is required or specified in local regulations, the contractor must determine appropriate attachment points on the basis of the risk assessment.
The PPE to be used to prevent falling is determined by the contractor.

The contractor must
- provide safe working areas for site personnel, which are to be reached through the provision of safe access ways. cordon off and clearly mark danger zones.
- guarantee stability during all stages of construction, in particular during assembly, modification and dismantling operations.
- ensure and demonstrate that all loads that occur are safely transferred.

Use
Every contractor who uses or allows the system to be used, is responsible for ensuring that the equipment is in good condition.

If the system is used successively or at the same time by several contractors, the health and safety coordinator must point out any possible mutual hazards and all work must be then coordinated.

System-specific

General
The contractor must ensure that the assembly, concreting, dismantling, relocation and use of the system is supervised and monitored by competent persons.

No subsequent modification of any kind is permitted to the structure or the assembly of the shoring.

It must be ensured that all components have been correctly mounted.

Do not stand under any suspended loads. If this is not possible, suitable protective measures must be taken and complied with.

Assembly and dismantling
Unexpected hazards can always arise when assembly work is carried out. Assess the degree of risk in each individual case and, if necessary, take measures to prevent or minimise the risk.

It must be ensured that there is always a sufficient number of site personnel available.

Secure all bolts with cotter pins and all screws with nuts, and regularly check all connections.

If anti-fall protection cannot be used or has to be removed due to operational reasons, safety equipment must be installed in its place in order to prevent falls from any height.
If the use of anti-fall equipment is deemed to be inappropriate, personal protection equipment (PPE) can be used if suitable fixing points are available.

Use a guide rope to ensure that assembly units suspended from the crane are fully under control when being moved.

Always keep working platforms free of ice and snow.

Ensure that no more than one person is on a ladder at any one time.

Striking
Striking may result in unsecured edges of the building. These areas of risk must be cordoned off.

Strike components only when the concrete has sufficiently hardened and the person in charge has given the go-ahead for striking to take place.

Anchoring is to take place only if the anchorage has sufficient concrete strength.

Safety instructions

Protection against falling components
Use personal protective equipment (PPE).

During concreting operations, working areas at great heights must be secured against falling objects by means of suitable protection.
Safety nets (mesh size ≤ 2 cm) and platform planking are considered to be suitable means and are to be installed very close to the structure (distance ≤ 5 cm).

Avoid installing working areas and access routes in danger zones.
If this is not possible due to work procedures, suitable protective measures must be available to provide protection against falling objects.

Concrete residue and other soiling that could impair the function or fall to the ground must be removed. Platforms are to be kept clean at all times.

Maintenance and repairs
Risk of injury due to crushing through unintentional movement of the working platforms.

Decking and guardrails may only be replaced by suitably qualified personnel.

If the maximum permissible fresh concrete pressure has been exceeded or temperatures occur outside the permissible range, all safety components and support structures must be inspected for correct functionality and sufficient load-bearing capacity by a competent person before they are re-used.

Do not use the hydraulic lifting devices if the type plate is missing, incomplete or illegible.

Supporting structures
Before each use, the supporting structures must be checked by a competent person for any signs of damage.

Only PERI original components may be used for repairs or as spare parts.

In case of overload or damage, stop work on and under the platforms, determine the cause, set down and replace damaged components.

Component overview and tool list

PERI

Pos. no.	Component name	Art. no.
1	Prop Base ATS	130150
2	Head Spindle ATS	130144
3	Bracing Connector ATG	130124
4	Truss Diagonal 262 ATG	130122
5	Chord Node ATG	130119
6	Support Node ATG	130115
7	Vertical Connector ATS	130108
8	Support Calotte ATG	130103
9	Truss Diagonal 212 ATG	130098
10	Support Adapter ATG	130094
11	Diagonal-6 150/212 Alpha	130090
12	Vertical Member ATG	130088
13	Horizontal Post 37.5 Alpha	130085
14	Horizontal Post 75 Alpha	130083
15	Bracing Connector 75 ATG	130081
16	Diagonal-6 150/262 Alpha	130079
17	Ladder Connector 60/60 ATS	130077
18	Diagonal-6 150/162 Alpha	130071
19	Horizontal Post 100 Alpha	130069
20	Horizontal Post 50 Alpha	130067
21	Horizontal Post 150 Alpha	130065
22	Diagonal-6 100/262 Alpha	130063
23	Diagonal-6 100/212 Alpha	130061
24	Diagonal-6 100/162 Alpha	130059
25	Steel Waler 262 Alpha	129871
26	Steel Waler 212 Alpha	129874
27	Steel Waler 162 Alpha	129877
28	Fitting pin Ø 32 Alpha	130057
29	Cotter pin 5/2	130010
30	Bolt ISO 4014 M20 x 90-8.8	710226
31	Diagonal-4 150/162 ATS	130053
32	Bolt ISO 4017 M20 x 50-8.8	780357
33	Diagonal-4 150/262 ATS	130049
34	Diagonal-4 150/212 ATS	130047
35	Scaffold Tube Adapter Ø 48 Alpha	130045
36	Main Beam 300 Alpha	130042
37	Main Beam 500 Alpha	130039
38	Main Beam 1000 Alpha	130036
39	H-Load Tie Yoke DW15 ATG	130032
40	H-Load Connector ATG	130029
41	Height Compensation 17.5 ATS	131383
42	Bolt ISO 4017 M30 x 100-8.8	130003
43	Hex. Nut ISO 4032 M30-8	130152
44	Ladder 180/6	051410

Pos. no.	Component name	Art. no.
45	Ladder Base 30, adjustable	109105
46	Access Ladder 180/2	103724
47	Ladder hook	103718
48	Connector X 50 ATG	130249
49	Corner Connector Alpha	130259
50	Hydraulic Unit HD	126438
51	Web Coupler ATG	130244
52	Flange Connector ATG	130247
53	Fitting pin Ø 21 x 120	104031
54	Cotter pin 4/1	018060
55	Bolt ISO 4014 M20 x 100-8.8	024910
56	Nut ISO 4032 M20-8	710334
57	Hook Strap Uni HBU 24-28	103845
58	Tie Bolt PERI 14/20 x 130	124777
59	Bolt ISO 4017 M24 x 60-8.8	125462
60	Nut ISO 4032 M24-8	022250
61	Support Chord Node ATG	130332
62	Ladder Cage 75	104132
63	Formwork Girder GT 24	
64	Guardrail Holder GT 24/VT 20	101290
65	Guardrail Post SGP	061260
66	Handrail boards	
67	Deck	
68	Connector X 37.5 ATG	131363
69	Push-Pull Prop RS	
70	Base Plate for RS-3 210 – 1400	126666
71	Swivel Coupling AF 48/48	017010
72	Girder Clamp HD 70 mm	106183
73	Head Spindle Tube ATS	130722
74	Ladder base	051460
75	Ladder 220/6	051420
76	Vertical Member 212 ATG	131442
77	Steel scaffolding tube Ø 48.3 x 3.2	131363
78	Tie Yoke DW15 D32	130739
80	Connection APB	130727
81	Cross Connector Alpha	130731
82	Waler Connector Alpha	130729
83	Bearing APB	130720
84	Scaffolding Connector Alpha	131716
85	Ladder Cage 150	051450
86	Hex. nut DW15 AF 30/50	030070
87	Bolt ISO 4017 M20 x 70-8.8	721912
88	Bolt ISO 4017 M30 x 90-8.8	111759
89	Washer ISO 7092 200 HV, A 30	127581

Component overview and tool list

Pos. no.	Component name	Art. no.
90	Standard Coupler RA 48/48	017020
91	Base Standard Alpha – Up	130568
92	Main Beam Bracket Alpha	132622
93	Anchor Sliding Piece-2 M36/12	134701
94	Heavy-Duty Cone M36/DW 26 – Ø108	128536
95	Bolt ISO 4014 M36 x 160-10.9	128932
96	Tie Rod DW 26, special length	030340
97	Threaded Anchor Plate DW 26	030870
98	Anchor Positioning Plate M36	029390
99	Hex. Wood screw DIN 571 6 x 20	029440
100	Spindle ATS 360-550	135438
101	Heavy-Duty Spindle SLS 100/180	101774
102	Tie Rod DW15, special length	030030
103	Bracing Shoe DW15 RCS	114997
104	Head Spindle Centring ATS	135932
105	Tension Tie Connection CB/RCS	129693
106	Bracing Distribution Tube VARIOKIT	137533
107	Bracing Connector VARIOKIT	137531
108	Articulated Spanner DW15	137538
109	Bracing Shoe VARIOKIT	137527
110	Y-adapter VARIOKIT	137522
111	Twist lock articulated spanner DW15	137939
112	Fitting pin Ø 26 x 120	111567
113	Cotter pin 5/1	022230
114	project-specific anchoring	

Tool name
Hammer
Cordless screwdriver
Screwdriver bits
Ratchet Wrench
Extension for the ratchet wrench
Open-end wrench AF 30/AF 36/AF 46/AF 55
Socket AF 30/AF 36/AF 46/AF 55
Ladders and working platforms (height 2.5 m)
Jigsaw
Crowbar
Chain hoist
Spirit level
Laser distance measurement device or measuring tape
4-sling lifting gear
Round slings

Tightening torques

Unless otherwise indicated, PERI recommends the following guide values for screw connections as "hand-tightened" tightening torques $M_{A,\text{hand-tightened}}$.
These guide values are based on EN 15048 with minimum Safety Factor 3 against breakage.

Quality class	**Quality 4.6**		**Quality 8.8 and 10.9**
Lubrication	**Lightly oiled**	**MoS2**	**undefined**
Screw M8	8 Nm	6.6 Nm	8 Nm
Screw M10	16 Nm	13.0 Nm	16 Nm
Screw M12	30 Nm	23.0 Nm	30 Nm
Screw M16	65 Nm	54.0 Nm	65 Nm
Screw M20	100 Nm		100 Nm
Screw M24	150 Nm		150 Nm
Screw M30	260 Nm		260 Nm
Screw M36	350 Nm		350 Nm

Tightening torques have been determined for the following components:

Scaffolding tube coupling	50 Nm
Clamping plate for the slab tie gauge	120 Nm

A1 Pre-assembly of the tower

Overview

Components

1 Prop Base ATS
2 Head Spindle ATS
7 Vertical Connector ATS
17 Ladder Connector 60/60 ATS
21 Horizontal Post 150 Alpha
25 Steel Waler 262 Alpha
33 Diagonal-4 150/262 ATS
44 Ladder 180/6

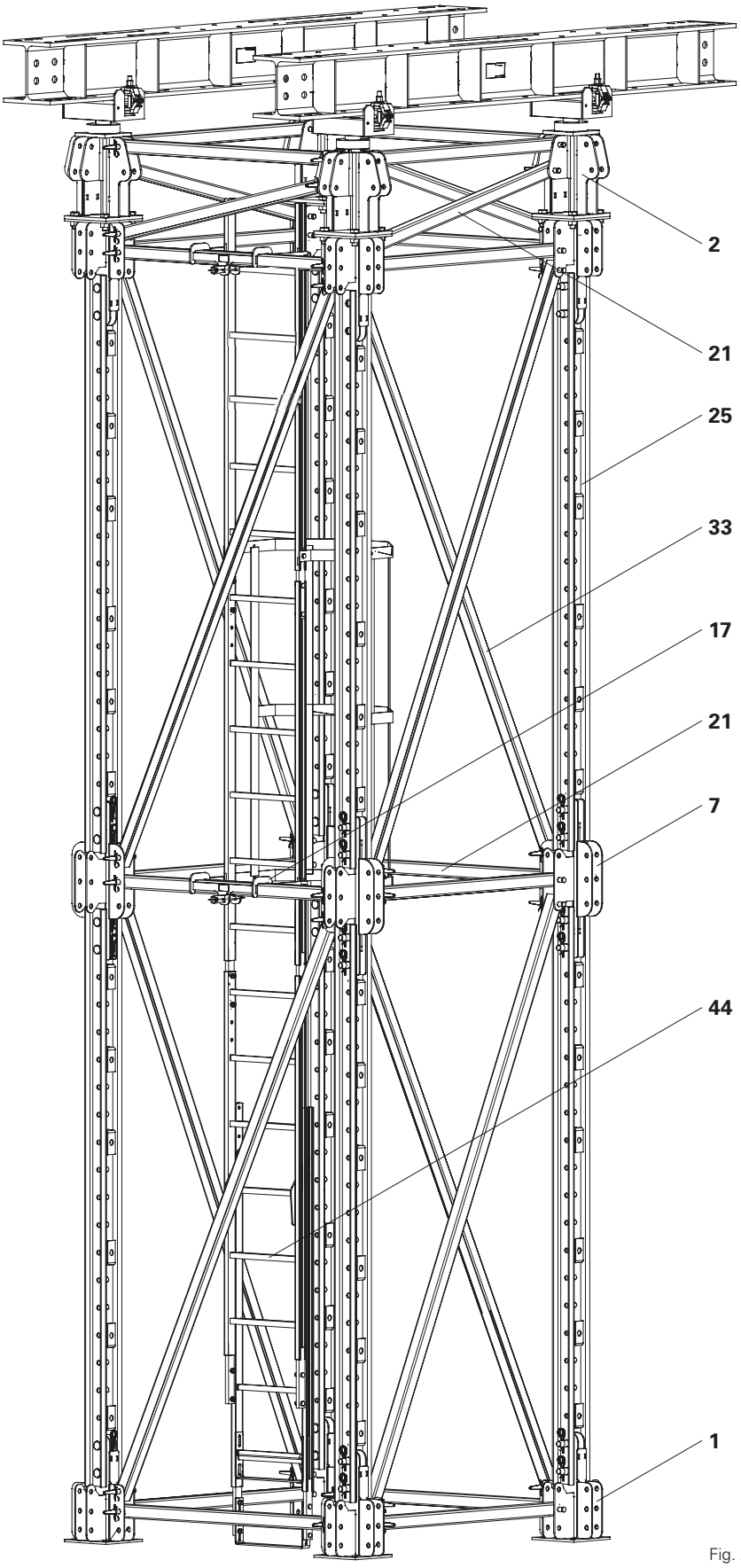


Fig. A1.01

A1 Pre-assembly of the tower

Assembly guidelines

All fitting pins must be secured by means of cotter pins.

The holes in the fitting pins must point in the longitudinal direction of the steel waler.

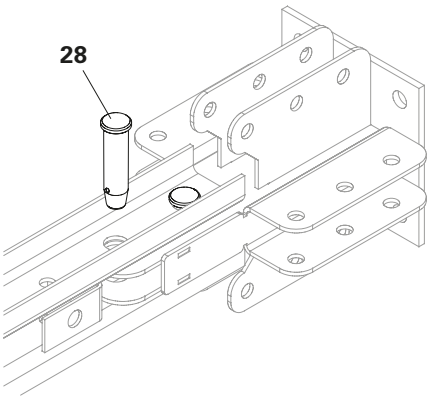


Fig. A1.02a

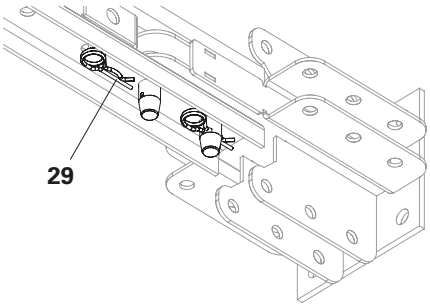


Fig. A1.02b

Diagonals must always be arranged in a spiral pattern.

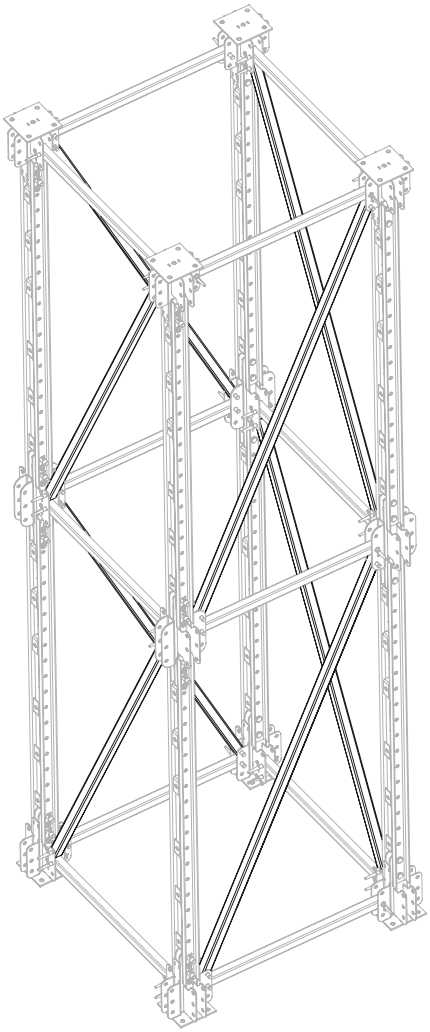


Fig. A1.03

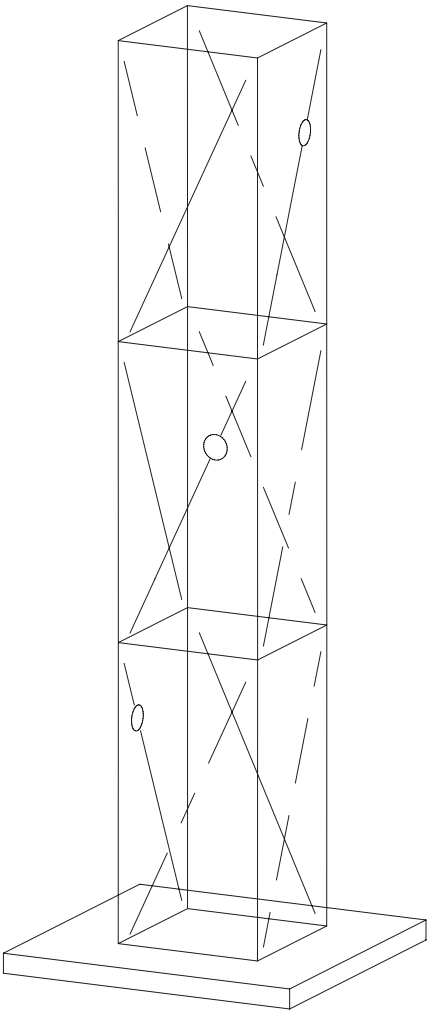


Fig. A1.03a

A1 Pre-assembly of the tower

Assembly area

We recommend preparing a flat assembly area.

- In order to ensure easy and simple assembly, work should be carried out approx. 20 cm above the level assembly area. This height can easily be realised using GT 24 Girders or VT 20 Girders.
- More information can be provided by PERI on request.

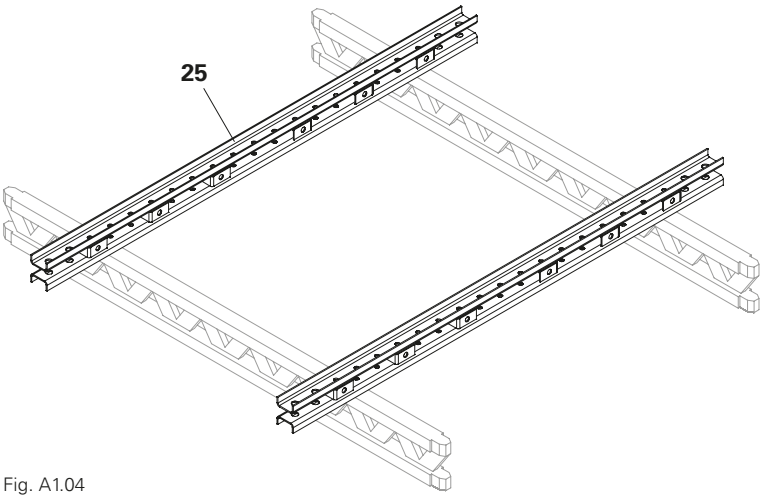


Fig. A1.04

Prop base

Parts list

1	Prop Base ATS	2x
25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x

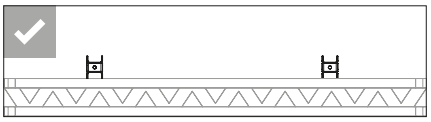


Fig. A1.04a

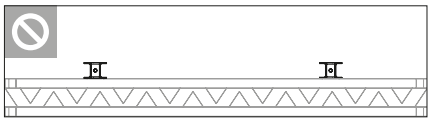


Fig. A1.04b

Depending on the size of the tower, other component sizes are to be used. Refer to the assembly drawings for the correct components.

Assembly

1. Place the Steel Walers 262 (**25**) on the assembly area. (Fig. A1.04)

Make sure the Steel Walers have been turned correctly. (Fig. A1.04a + A1.04b)

2. Insert Prop Bases ATS (**1**) into the Steel Walers 262 (**25**). (Fig. A1.05)
3. Fix the Prop Bases ATS (**1**) in the Steel Walers 262 (**25**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A1.05a + A1.05b)

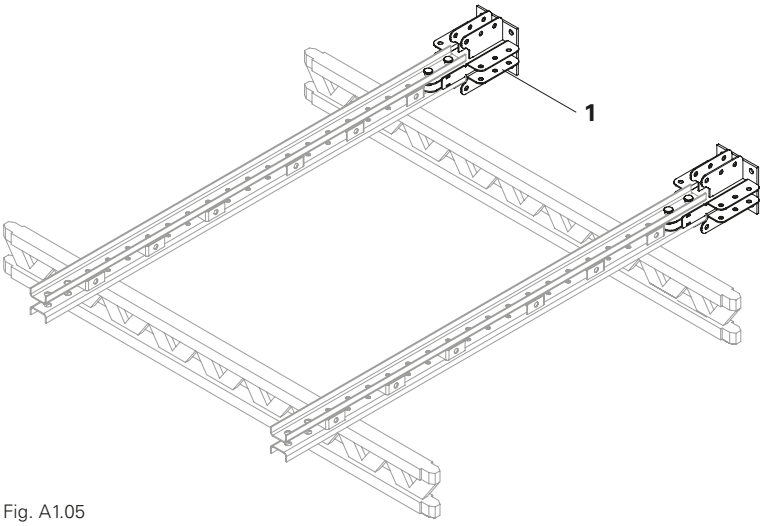


Fig. A1.05

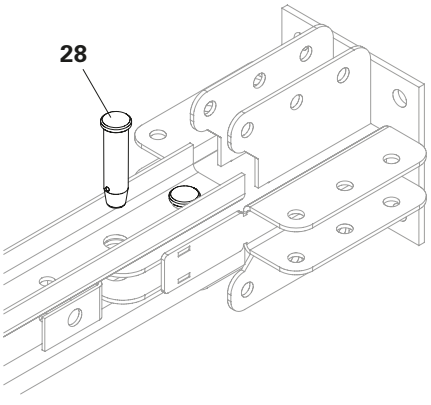


Fig. A1.05a

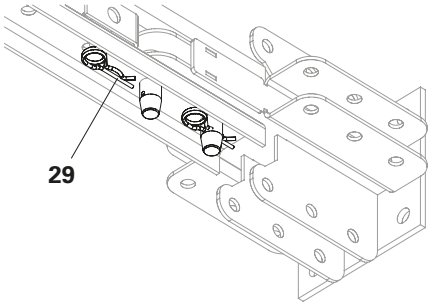


Fig. A1.05b

A1 Pre-assembly of the tower

Horizontal Posts

Parts list

21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Horizontal Posts 150 (**21**) between the Prop Bases ATS (**1**).
2. Fix the Horizontal Post 150 (**21**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A1.06)

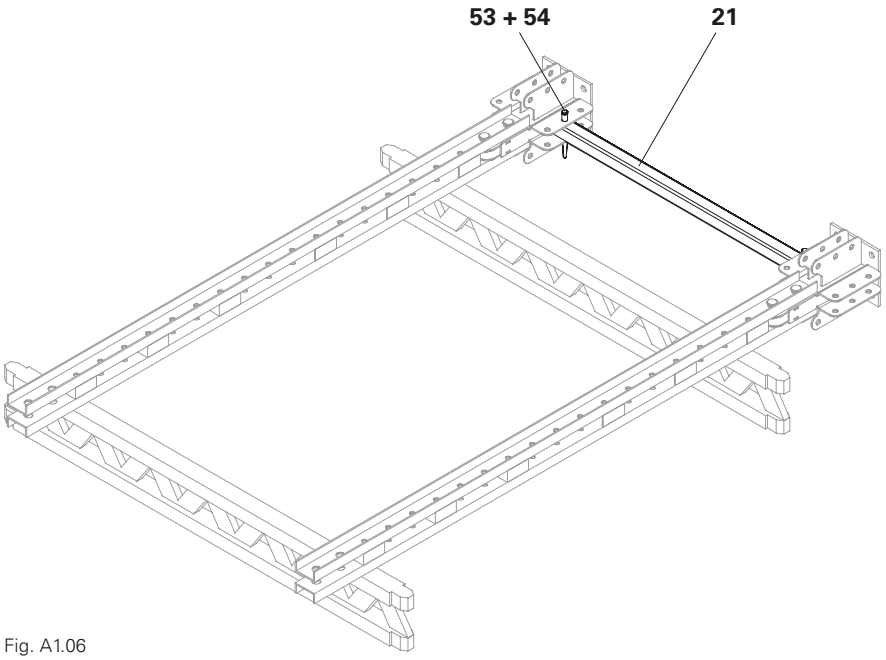


Fig. A1.06

Vertical Connectors

Parts list

7	Vertical Connector ATS	2x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x

Assembly

1. Insert the Vertical Connectors ATS (**7**) into the Steel Walers 262 (**25**).
2. Fix the Vertical Connector ATS (**7**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A1.07)

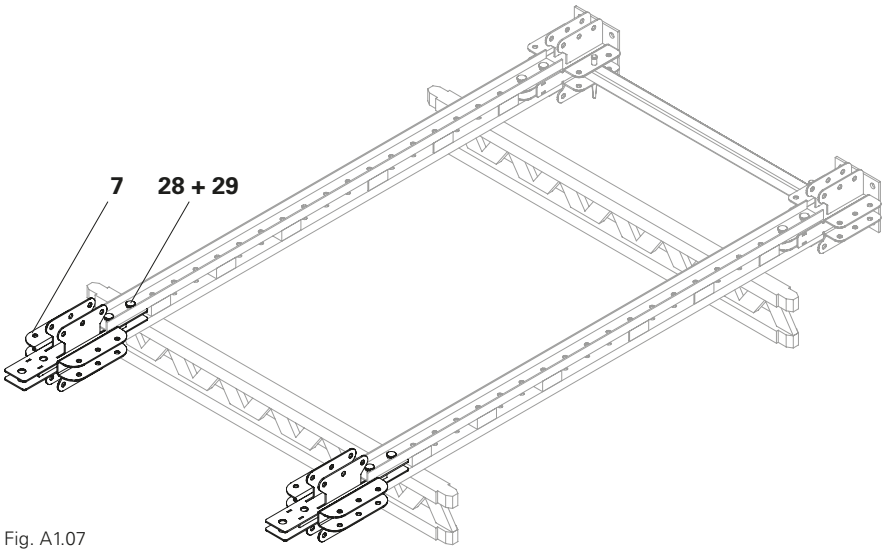


Fig. A1.07

Bracing and Horizontal Posts

Parts list

21	Horizontal Post 150 Alpha	1x
33	Diagonal-4 150/262 ATS	1x
53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x

Assembly

1. Insert the Diagonal-4 150/262 (**33**) into the Prop Base ATS (**1**) and Vertical Connector ATS (**7**).
2. Fix the Diagonal-4 150/262 (**33**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).
3. Insert Horizontal Post 150 (**21**) between the Vertical Connectors ATS (**7**).
4. Fix the Horizontal Post 150 (**21**) in the middle holes using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).

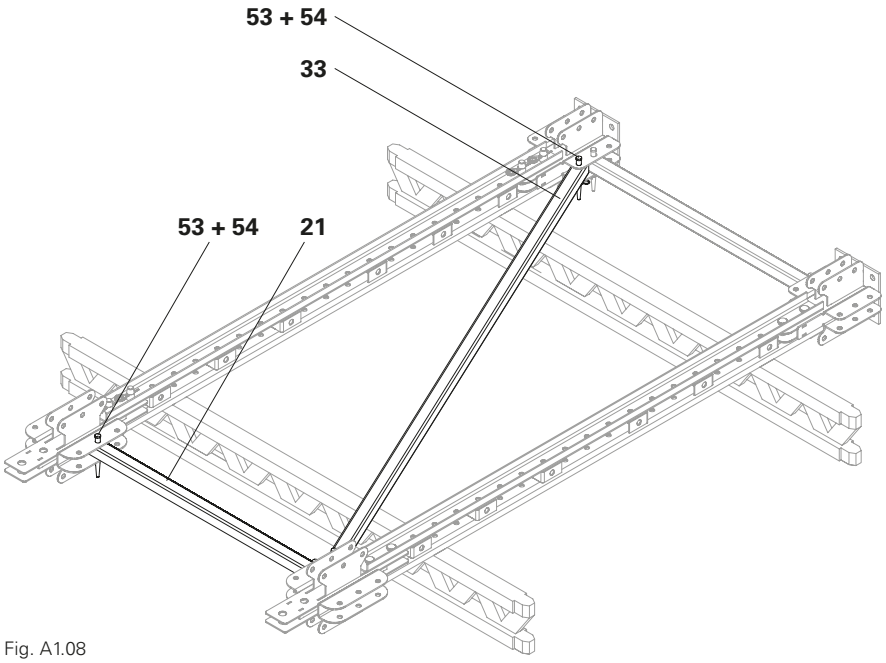


Fig. A1.08

Horizontal posts and additional Prop Bases ATS

Caution

Horizontal posts can tip forwards!
Risk of injury!
⇒ Secure horizontal posts against tipping.

Parts list

1	Prop Base ATS	2x
21	Horizontal Post 150 Alpha	3x
53	Fitting pin Ø 21 x 120	6x
54	Cotter pin 4/1	6x

Assembly

1. Insert 1x Horizontal Post 150 (**21**) into each Prop Base ATS (**1**).
2. Fix the Horizontal Post 150 (**21**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).
3. Fix 1x Prop Base ATS (**1**) to each Horizontal Post 150 (**21**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

Have the Prop Bases ATS (**1**) been installed in the same way as the bottom prop bases?

4. Insert Horizontal Posts 150 (**21**) between the Prop Bases ATS (**1**).
5. Fix the Horizontal Post 150 (**21**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

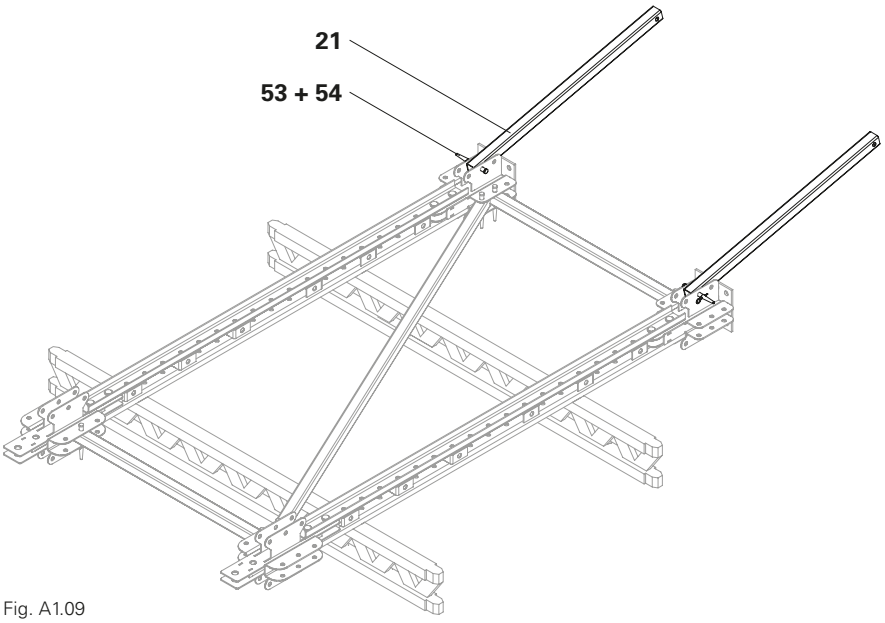


Fig. A1.09

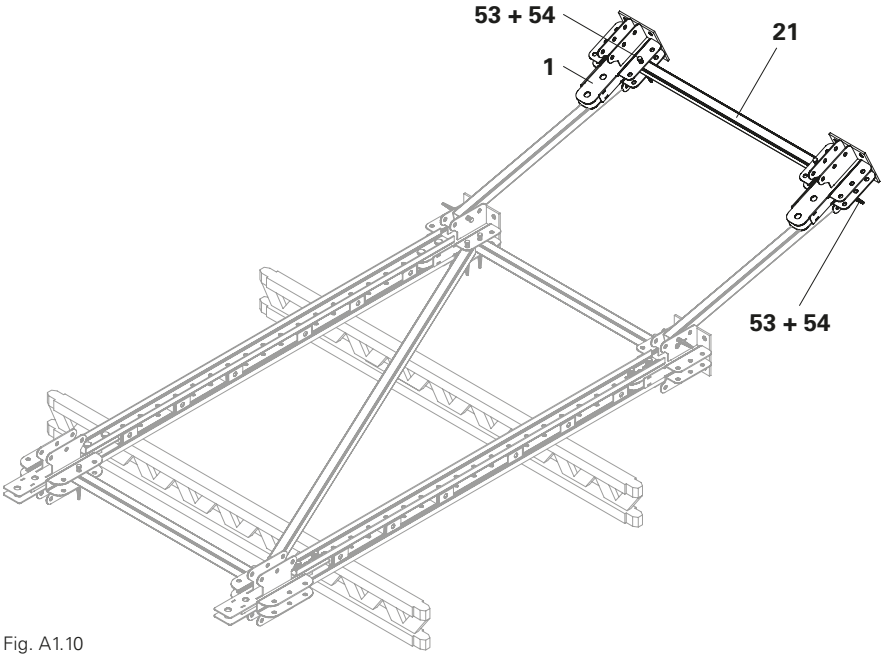


Fig. A1.10

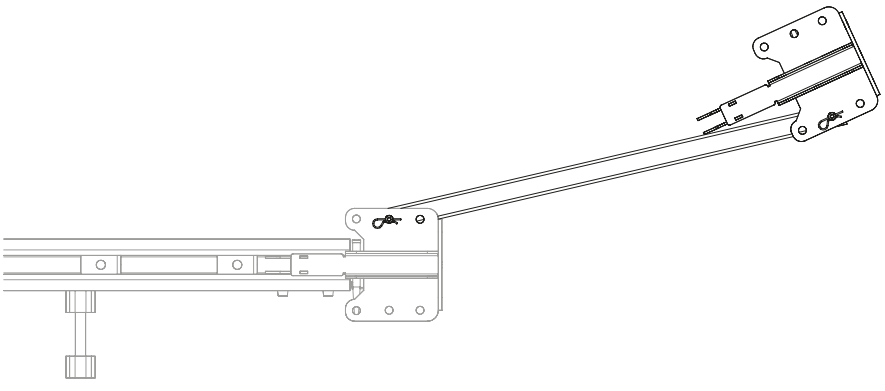


Fig. A1.10a

Diagonal-4

Parts list

33	Diagonal-4 150/262 ATS	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert the Diagonal-4 150/262 (**33**) into the top Prop Base ATS (**1**) and bottom Vertical Connector ATS (**7**).
2. Fix the Diagonal-4 150/262 (**33**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).

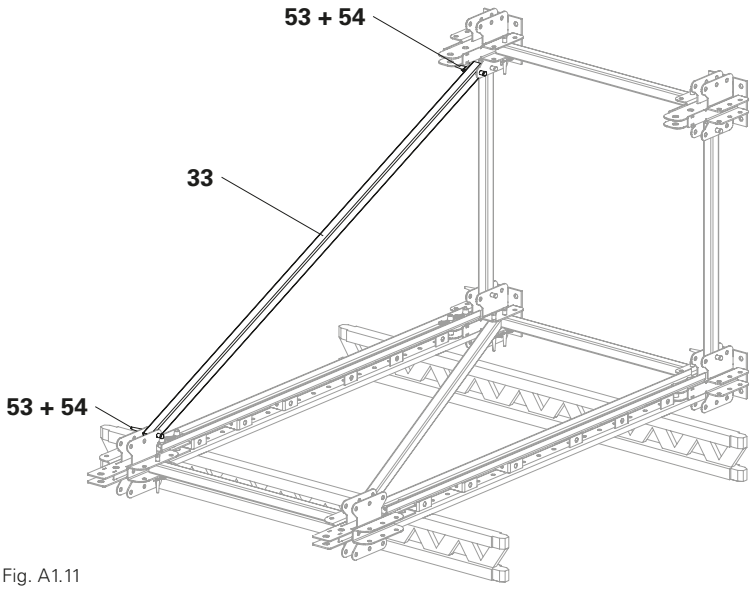


Fig. A1.11

A1 Pre-assembly of the tower

First tower side

Parts list

7	Vertical Connector ATS	1x
21	Horizontal Post 150 Alpha	1x
25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Steel Waler 262 (**25**) into the Prop Base ATS (**1**).
2. Fix Steel Waler 262 (**25**) to the Prop Base ATS (**1**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A1.12)

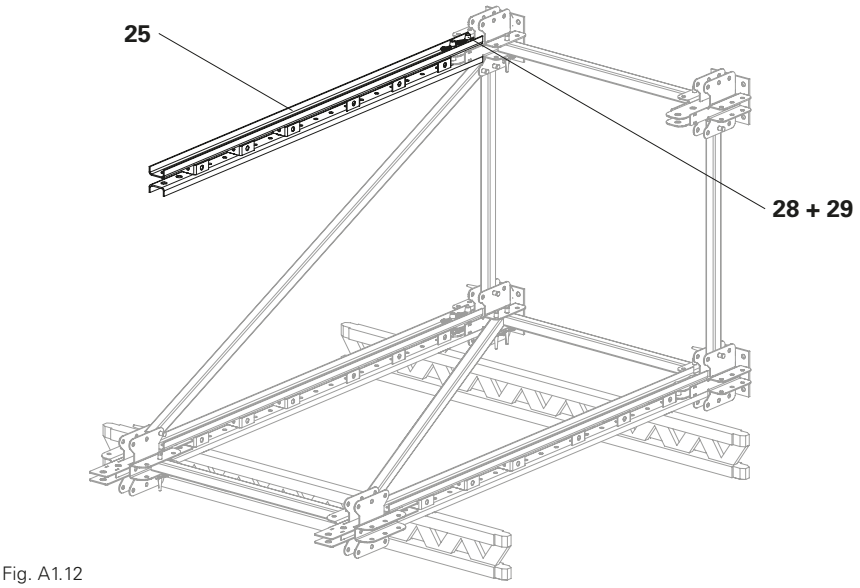


Fig. A1.12

3. Insert the Vertical Connectors ATS (**7**) into the Steel Walers 262 (**25**).
4. Fix the Vertical Connector ATS (**7**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A1.13)

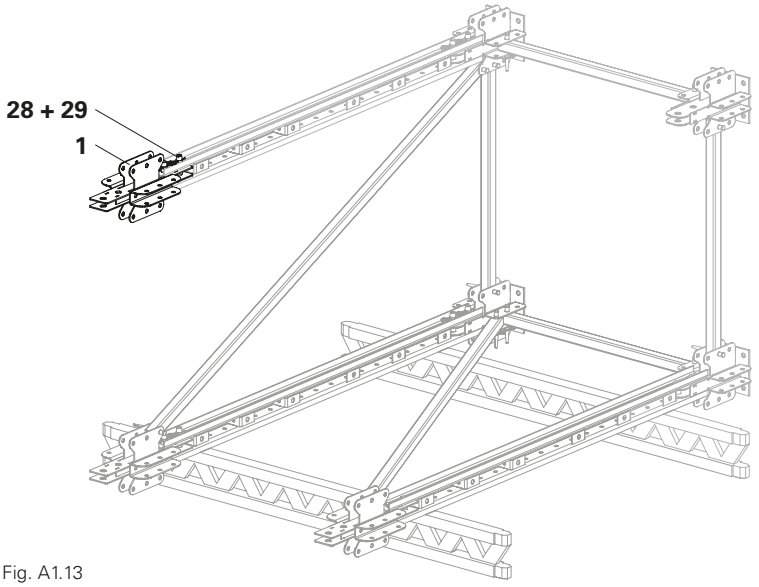


Fig. A1.13

5. Insert Horizontal Post 150 (**21**) between the Vertical Connectors ATS (**7a**) and (**7b**).
6. Fix the Horizontal Post 150 (**21**) in the middle holes using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A1.14)

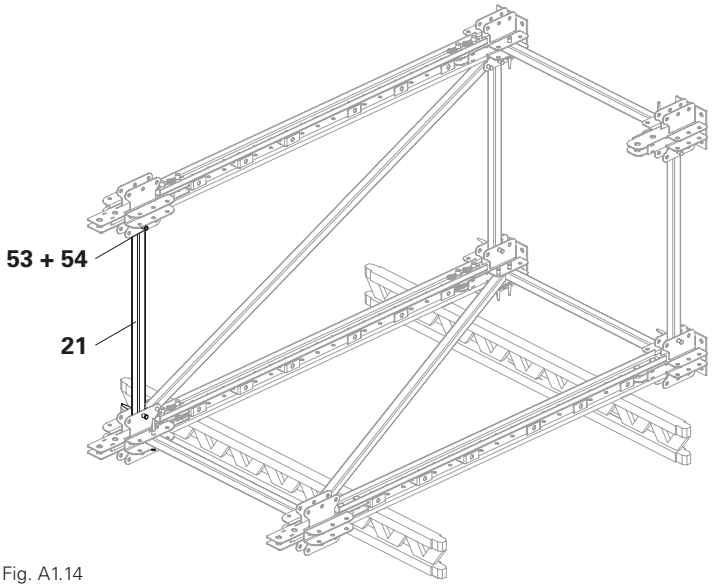


Fig. A1.14

Second tower side

Parts list

7	Vertical Connector ATS	1x
21	Horizontal Post 150 Alpha	1x
25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x
33	Diagonal-4 150/262 ATS	1x
53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x

Assembly

1. Insert Steel Waler 262 (**25**) into the Prop Base ATS (**1**).
2. Fix Steel Waler 262 (**25**) to the Prop Base ATS (**1**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A1.15)

3. Insert the Vertical Connectors ATS (**7**) into the Steel Walers 262 (**25**).
4. Fix the Vertical Connector ATS (**7**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A1.16)

5. Insert the Diagonal-4 150/262 (**33**) into the bottom Prop Base ATS (**1**) and top Vertical Connector ATS (**7a**).
6. Fix the Diagonal-4 150/262 (**33**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).
7. Insert Horizontal Post 150 (**21**) between the Vertical Connectors ATS (**7a**) and (**7b**).
8. Fix the Horizontal Post 150 (**21**) in the middle holes of the Vertical Connectors ATS (**7a**) and (**7b**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A1.17)

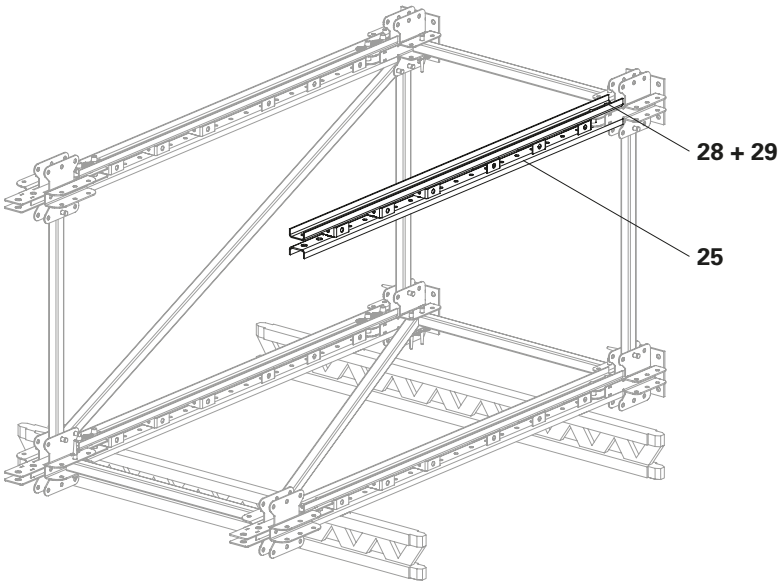


Fig. A1.15

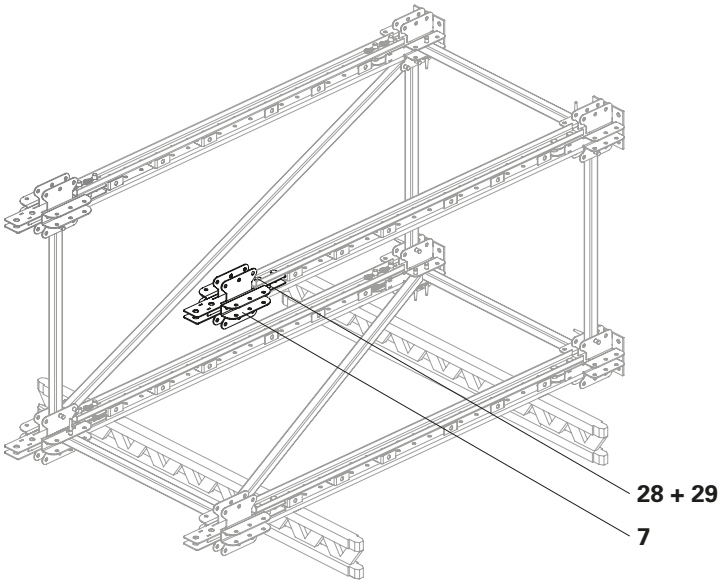


Fig. A1.16

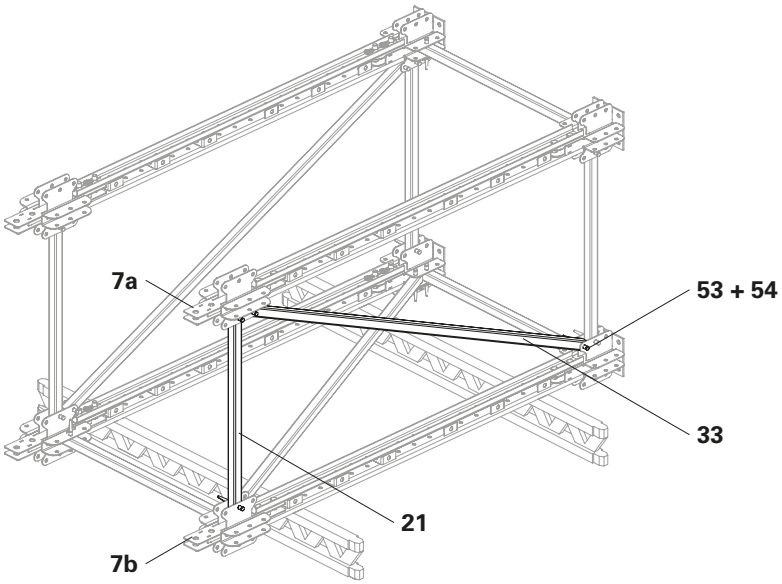


Fig. A1.17

Tower completion

Parts list

21	Horizontal Post 150 Alpha	1x
33	Diagonal-4 150/262 ATS	1x
53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x

Assembly

1. Insert 1x Horizontal Post 150 (**21**) between the Vertical Connectors ATS (**7a**) and (**7b**).
2. Fix the Horizontal Post 150 (**21**) in the middle holes of the Vertical Connectors ATS (**7a**) and (**7b**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).
3. Insert 1x Diagonal-4 150/262 (**33**) into the Prop Base ATS (**1**) and Vertical Connector ATS (**7a**) in a spiral pattern.
4. Fix the Diagonal-4 150/262 (**33**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).

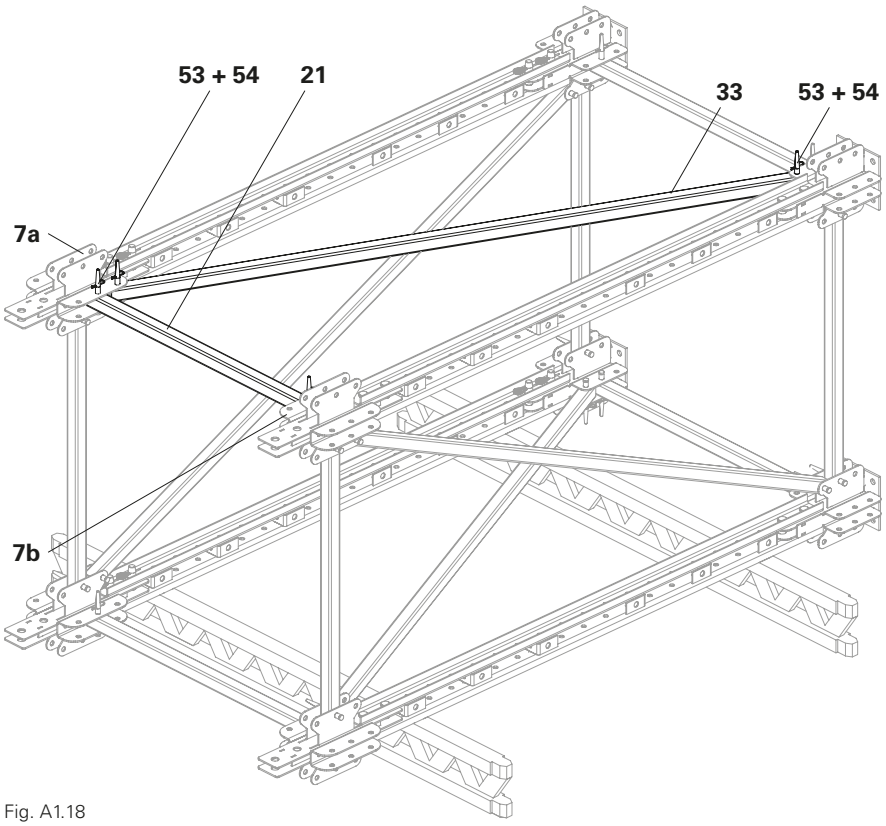


Fig. A1.18

Spindle ATS 360-550

Warning

The load capacity is only given if the maximum spindle length does not exceed 550 mm – measured from the base plate to the support plate of the Spindle ATS 360-550 (**100**) – and is positioned on a suitable surface! Otherwise, this can result in serious injuries.

⇒ Ensure spindling is symmetrical at the top and below.

⇒ Check bore holes in the spindle serve as a visual check.
If the check bore holes cannot be seen when spindling, the spindle is in the permissible range.
If the check bore holes can be seen, the permissible range must be realised by taking suitable measures (e.g. turning the Spindles ATS 360-550) before the tower can be subjected to any load. (Fig. A1.19)

⇒ The tower must be erected on a suitable load-bearing substrate.

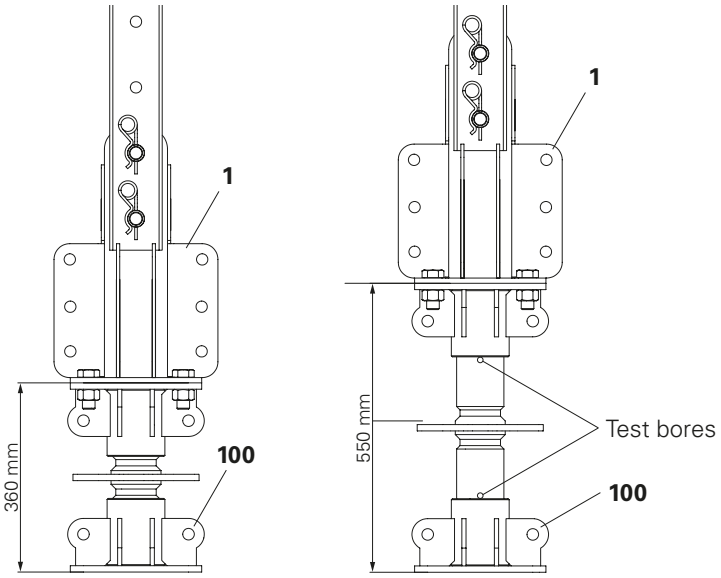


Fig. A1.19

Warning

Moving components!
There is a risk of hands being crushed during insertion.

⇒ Wear suitable protective gloves.

⇒ Use appropriate tools.

Warning

Heavy moving parts!
There is a risk of hands being crushed during assembly and disassembly.

⇒ Wear suitable protective gloves.

⇒ Use appropriate tools.

⇒ Use suitable lifting equipment.

- The Spindle ATS 360-550 (**100**) must not be greased
- After height adjustment has taken place, secure the Spindle ATS 360-550 (**100**) against any unintentional downwards spindling, e.g. binding wire. (Fig. A1.19a)

- If the tower is under load and must, for example, be lowered for dismantling, the spindle ring collar (**100.1**) can be struck with a hammer in order to lower the tower slightly.
- Observe the maximum spindle range, see Section E1 Lowering Sequence on page 107.

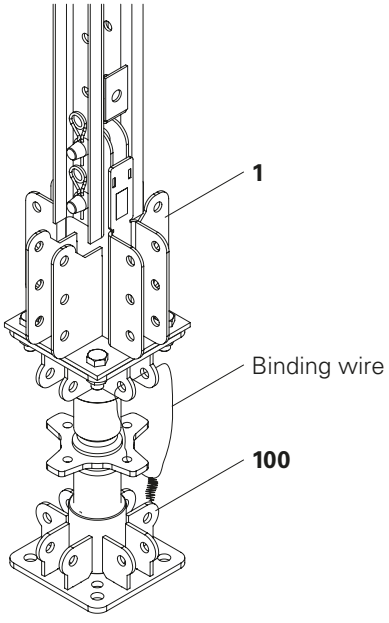


Fig. A1.19a

A1 Pre-assembly of the tower

Components

53	Fitting pin Ø 21 x 120	8x
54	Cotter pin 4/1	8x
59	Bolt ISO 4017 M24 x 60-8.8	16x
60	Nut ISO 4032 M24-8	16x
100	Spindle ATS 360-550	4x
101	Heavy-Duty Spindle SLS **100/180**	4x

Assembly

1. Mount the Spindle ATS 360-550 (**100**) with the yellow side pointing to the tower on the Prop Base ATS (**1**) using 4x bolt ISO 4017 M24 x 60-8.8 (**59**) and nut ISO 4032 M24-8 (**60**) respectively. (Fig. A1.20a)
2. Repeat the procedure for the remaining Spindles ATS 360-550 (**100**). (Fig. A1.20)
3. Pre-set the height of the Spindle ATS 360-550 (**100**) on the spindle ring collar (**100.1**). (Fig. A1.20b)
4. Set up the tower so that it is positioned on the Spindles ATS 360-550 (**100**). (Fig. A1.21)
5. Align the tower horizontally and vertically. All four Spindles ATS 360-550 (**100**) must be firmly positioned on the ground.

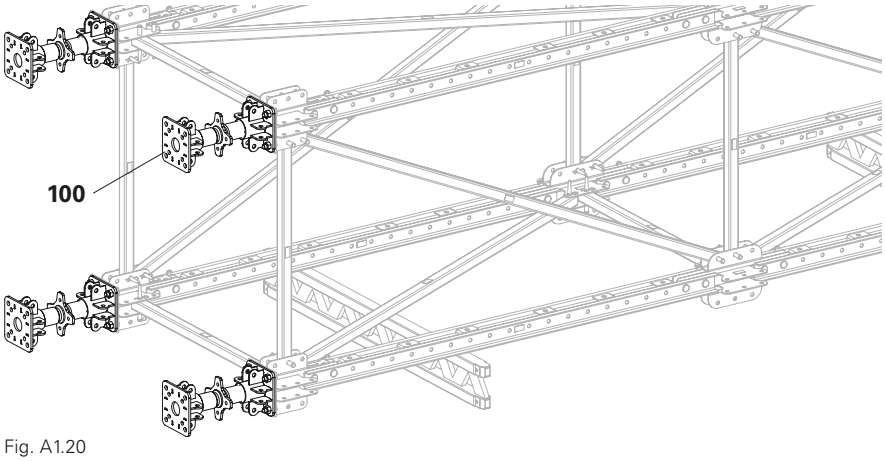


Fig. A1.20

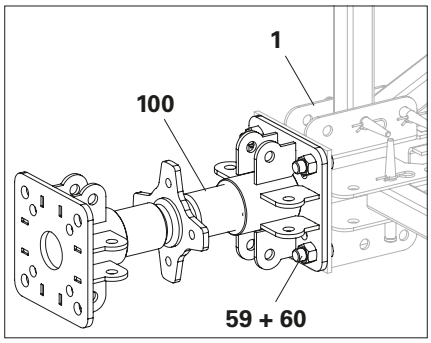


Fig. A1.20a

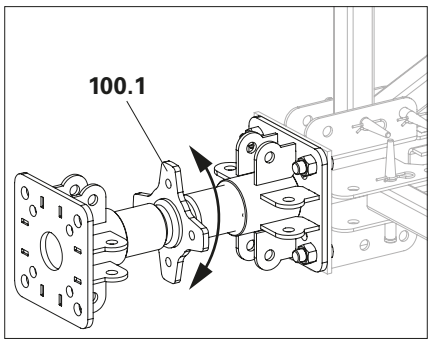


Fig. A1.20b

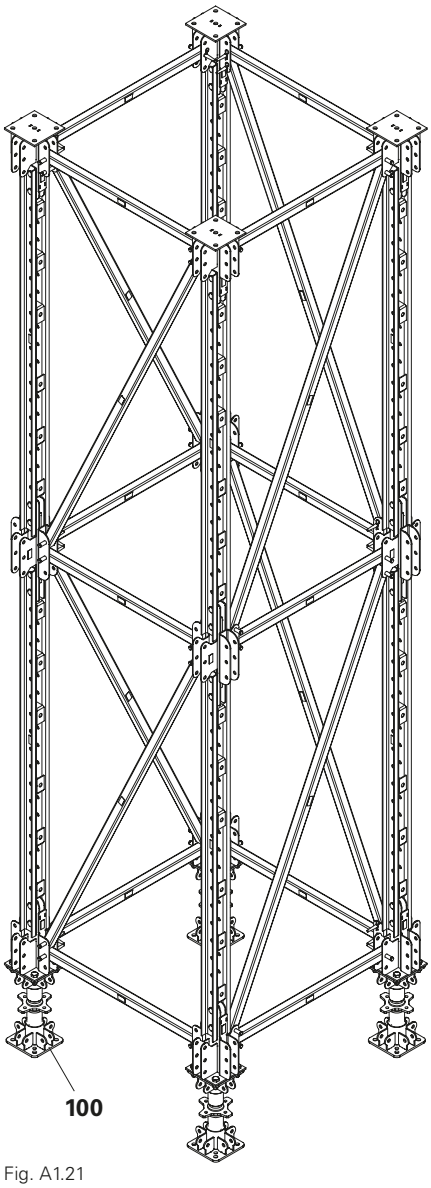


Fig. A1.21

6. Mount the Heavy-Duty Spindle SLS 100/180 (**101**) on one side at the top of the Spindle ATS 360-550 (**100a**) and on the other side at the bottom of the Spindle ATS 360-550 (**100b**) using 1x fitting pin Ø 21 x 120 (**53**) respectively and secure with cotter pins 4/1 (**54**). (Fig. A1.22 + A1.22a + A1.22b)
7. Repeat the procedure for the remaining Heavy-Duty Spindles SLS 100/180 (**101**) and brace the tower. (Fig. A1.23)
8. Depending on the static requirements, each Spindle ATS 360-550 (**100**) must be anchored to the ground by means of two or four bolts.

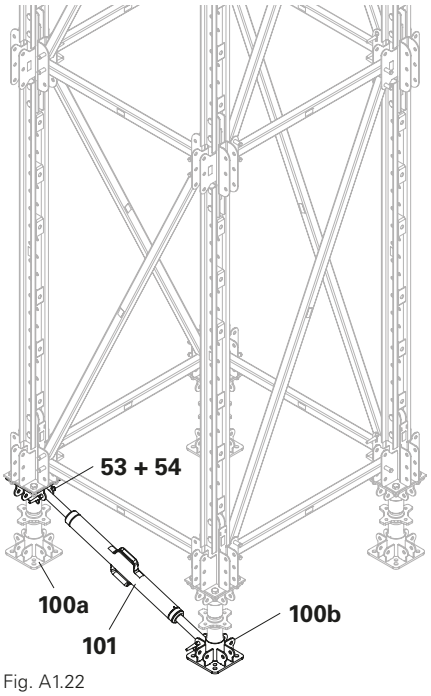


Fig. A1.22

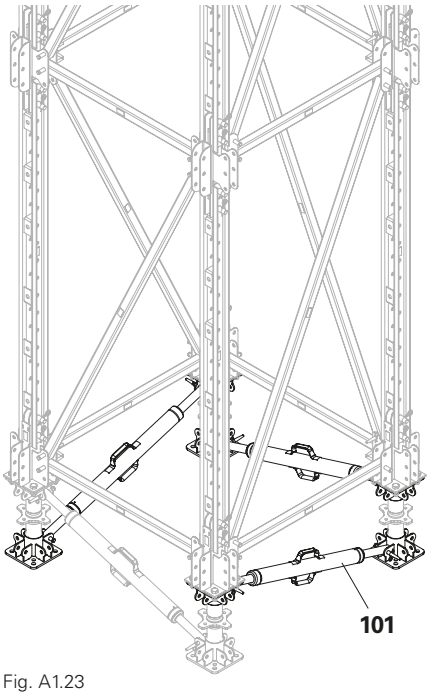


Fig. A1.23

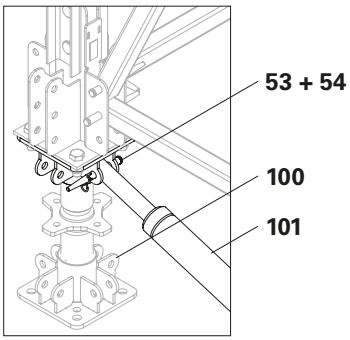


Fig. A1.22a

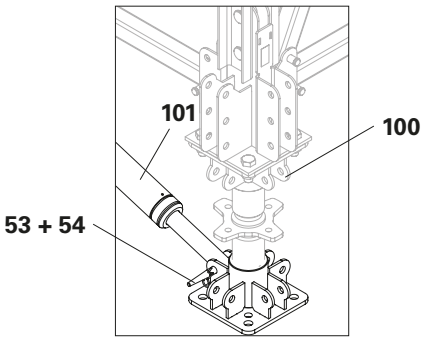


Fig. A1.22b

Bracing with Heavy-Duty Spindle SLS on the wall:

Alternative components

53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x
101	Heavy-Duty Spindle SLS 100/180	4x
103	Bracing Shoe DW15 RCS	2x

(Fig. A1.26)

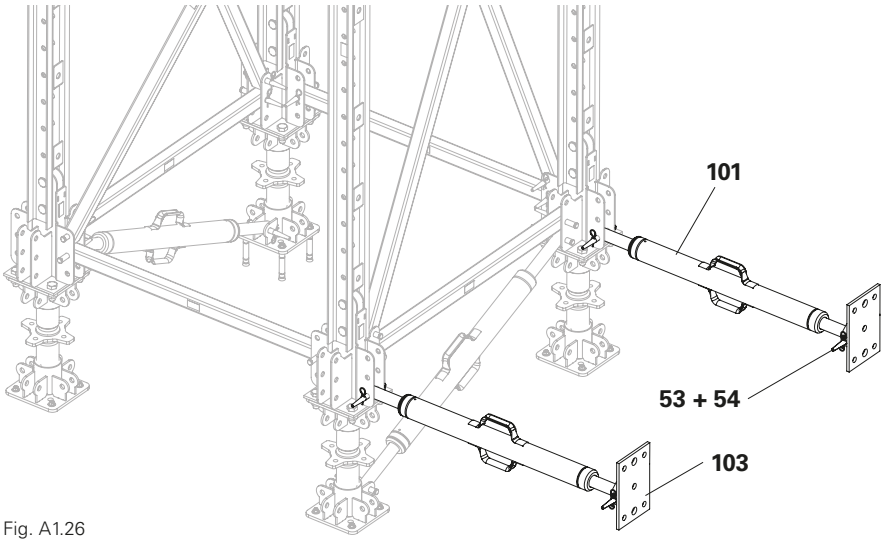


Fig. A1.26

Bracing with Horizontal Post ALPHA or Scaffolding Tube Ø 48

Components

53	Fitting pin Ø 21 x 120	8x
54	Cotter pin 4/1	8x
103	Bracing Shoe DW15 RCS	4x
	Special diagonals*	4x
	Scaffolding Tube Ø 48*	4x

*One of the components is required.
(Fig. A1.25)

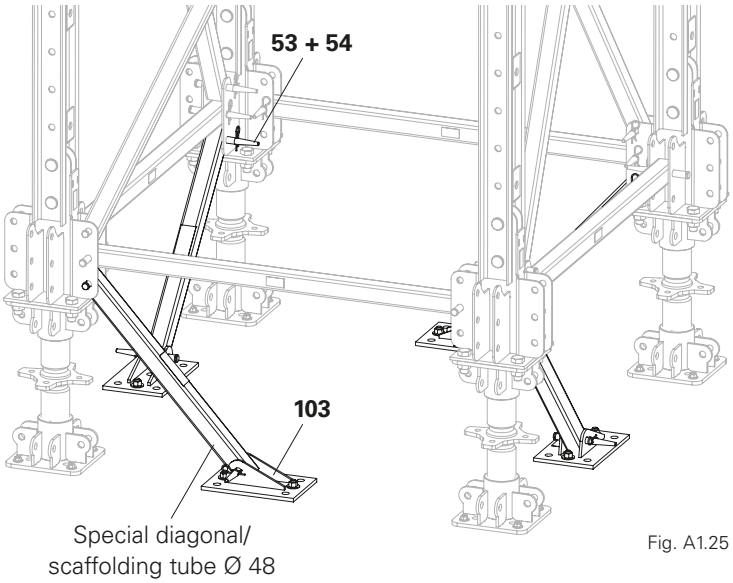


Fig. A1.25

Bracing alternative:

Instead of using the Heavy-Duty Spindle SLS (**3**), the lower level can be braced using other components.

Bracing with Tie Rods:
Slightly pre-tension the threaded spindles.

Components

39	H-Load Tie Yoke DW15 ATG	8x
53	Fitting pin Ø 21 x 120	16x
54	Cotter pin 4/1	16x
86	Hex. nut DW15 AF 30/50	8x
102	Tie Rod DW15	8x
108	Articulated Spanner DW15	8x
111	Twist lock articulated sp. DW 15	8x

(Fig. A1.24)

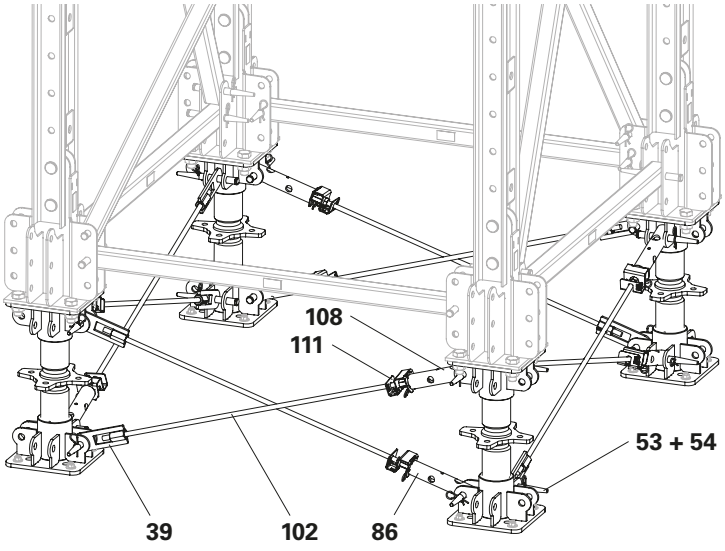


Fig. A1.24

Additional tower sections

Make sure the diagonals are arranged in a spiral.

All additional tower sections must be assembled in the same way as described in these instructions and as specified in the assembly drawings.

The assembly drawings will indicate whether a Vertical Connector ATS or a Prop Base ATS is to be mounted. Depending on whether an additional Steel Waler or Head Spindle ATS is to be mounted.

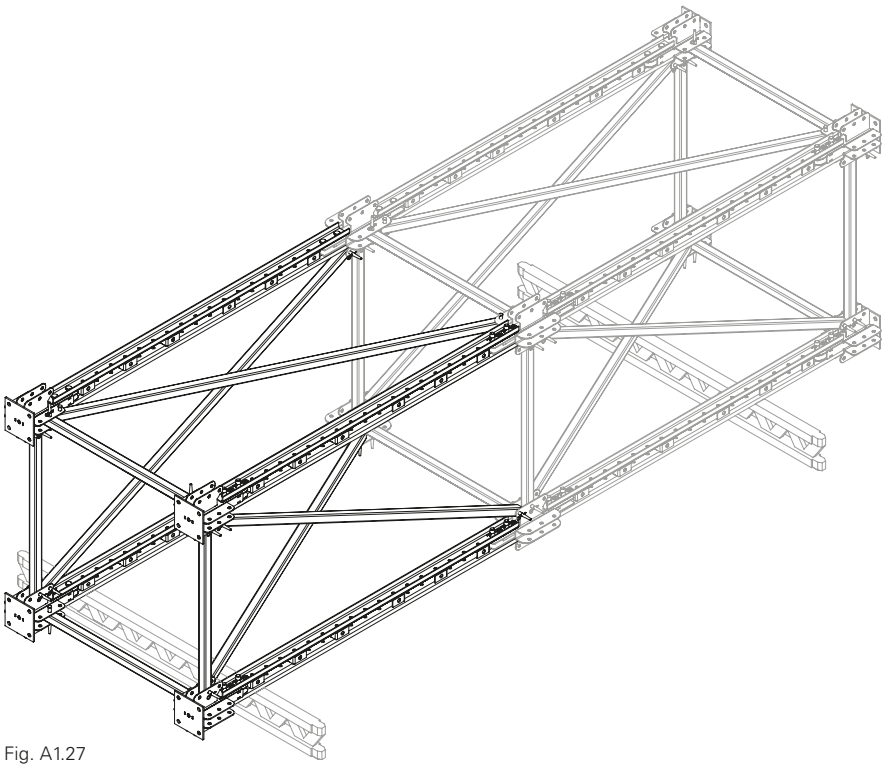


Fig. A1.27

Tower end

When mounting the Head Spindles ATS (**2**) or Spindles ATS 360-550 (**100**), Prop Bases ATS (**1**) must be installed at the end of the tower.

1. Insert Prop Bases ATS (**1**) into the Steel Walers 262 (**25**).
2. Fix the Prop Bases ATS (**1**) in the Steel Walers 262 (**25**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

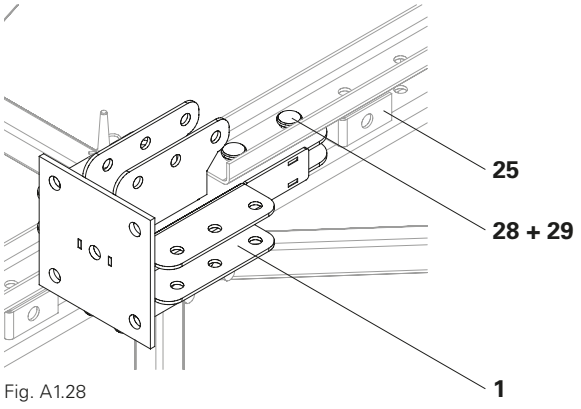


Fig. A1.28

Head Spindles ATS

Parts list

2	Head Spindle ATS	4x
59	Bolt ISO 4017 M24 x 60-8.8, **galv.**	16x
60	Nut ISO 4032 M24-8	16x

Assembly

1. Remove spindle (**2.2**) from the head spindle (**2.1**).

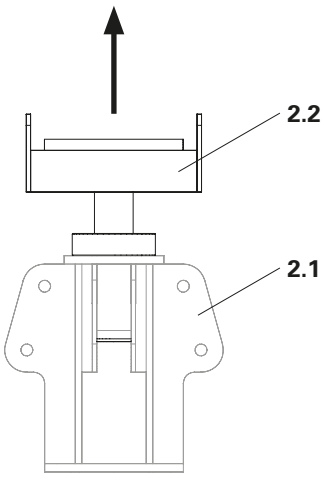


Fig. A1.29

2. Mount 1x head spindle (**2.1**) on each Prop Base ATS (**1**) using 4x bolt ISO 4017 M24 x 60 (**59**) and nuts ISO 4032 M24-8 (**60**) respectively.

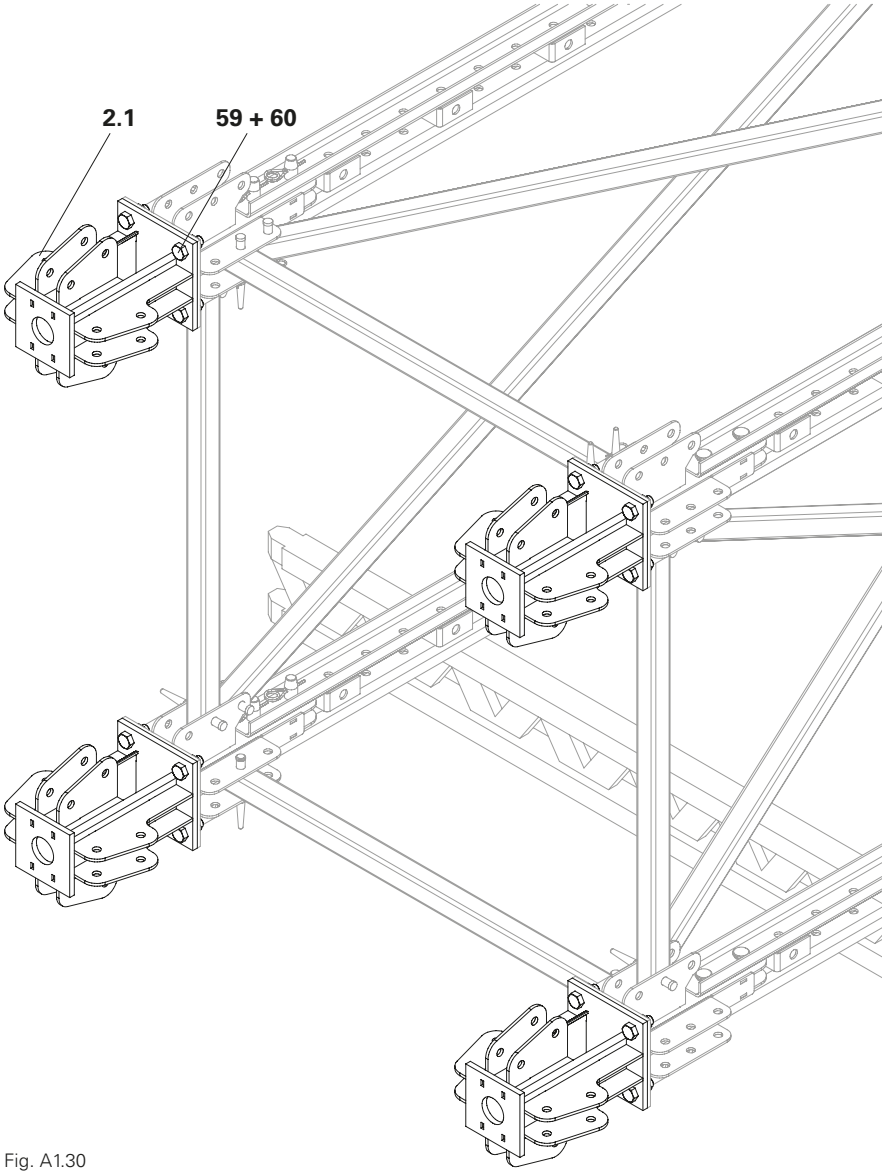


Fig. A1.30

Bracing the head spindle frame

Parts list

21	Horizontal Post 150 Alpha	8x
53	Fitting pin Ø 21 x 120	16x
54	Cotter pin 4/1	16x

Assembly of the Diagonal Bracing

1. Insert the Horizontal Post 150 (**21a**) in the top hole in the Prop Base ATS (**1**) and in the bottom hole of the Head Spindle ATS (**2a**) as a diagonal.
2. Fix the Horizontal Post 150 (**21a**) using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).
3. Repeat steps 1 – 2 for all prop heads.

(Fig. A1.31a)

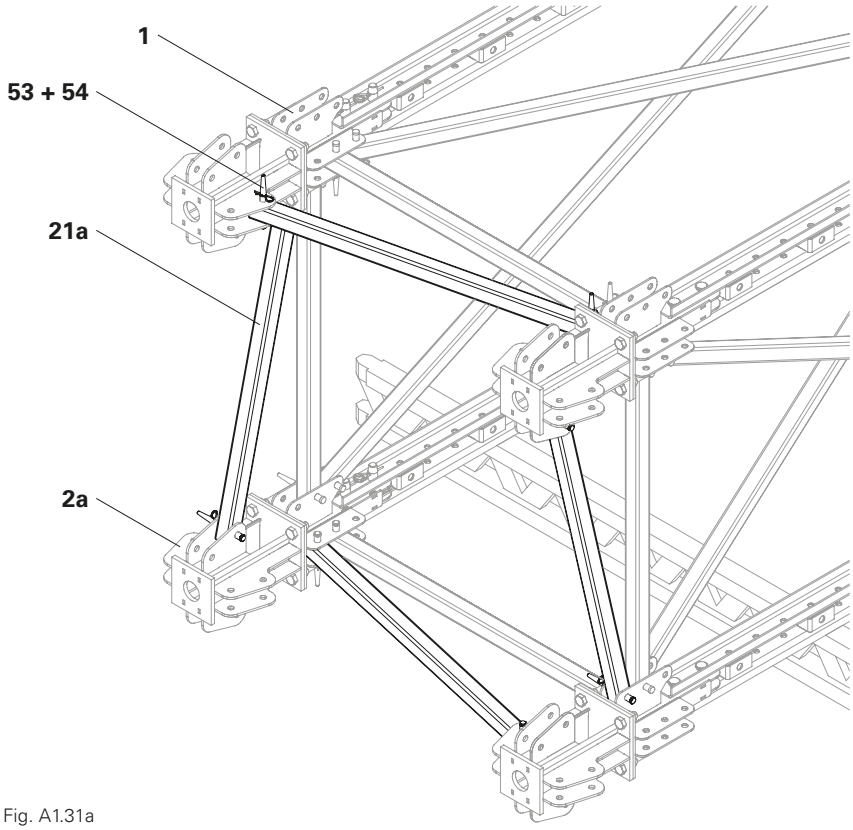


Fig. A1.31a

Assembly of the horizontal bracing

1. Insert Horizontal Post 150 (**21b**) between the Head Spindles ATS (**2a**) and (**2b**).
2. Fix the Horizontal Post 150 (**21b**) in the top holes using fitting pins Ø 21 x 120 (**53**) and secure with cotter pins 4/1 (**54**).
3. Repeat steps 1 – 2 for all prop heads.

(Fig. A1.31b)

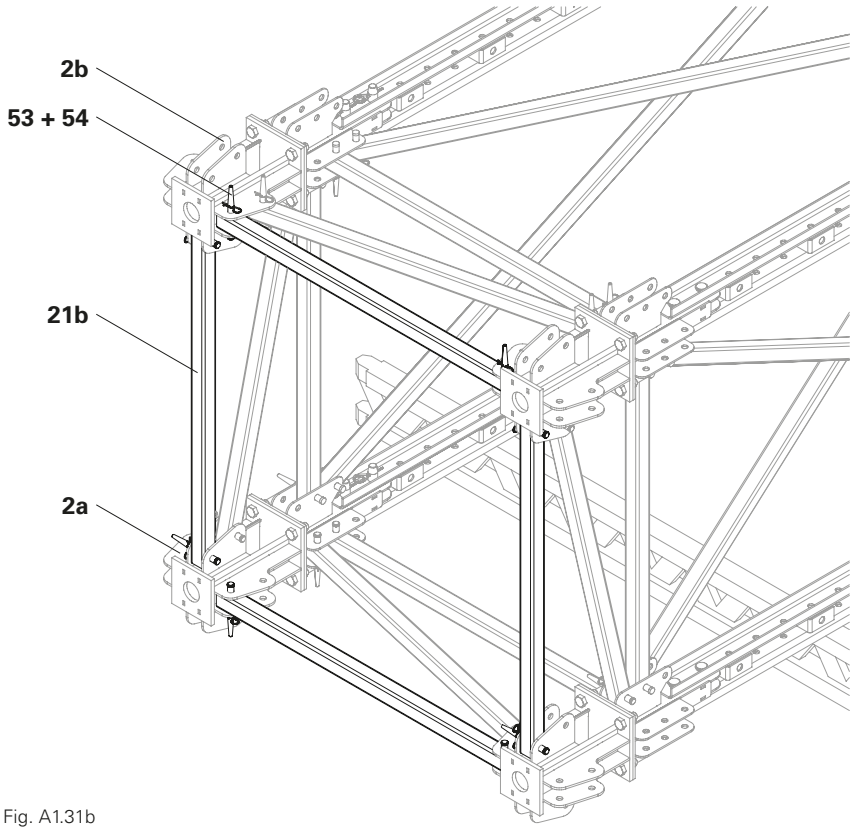


Fig. A1.31b

Caution

Spindles could fall out during assembly!
Risk of injury!

⇒ Secure the spindles against falling out during assembly (e.g. with binding wire) or install them after erection.

⇒ Nut must be positioned against the spindle.

Assembling the spindle

1. Insert 4x spindles (**2.2**) into the head spindle (**2.1**).

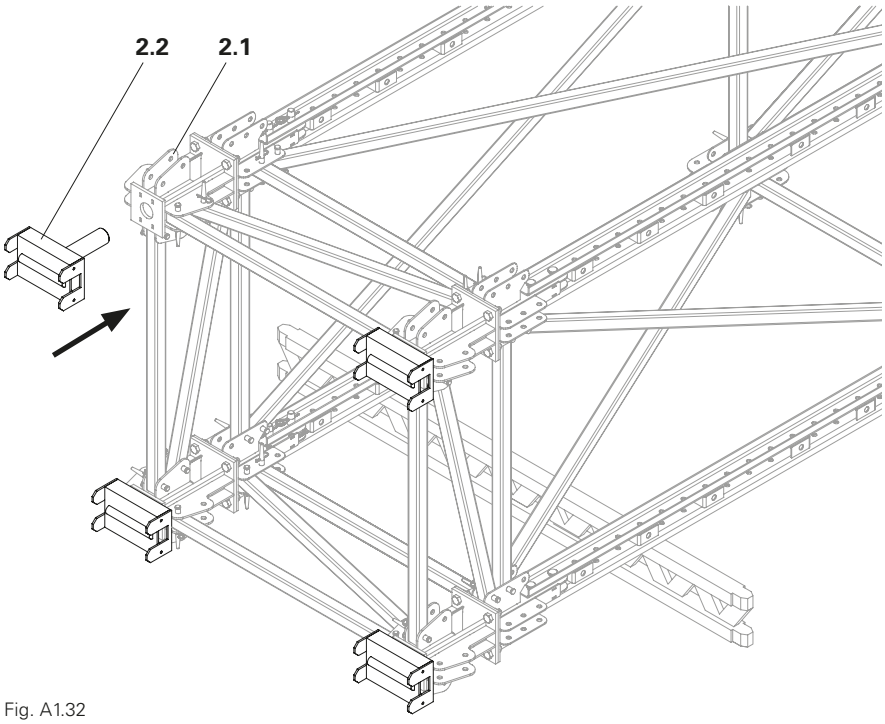


Fig. A1.32

- Are the nuts installed at the right position?
- Ensure there is sufficient spindle range for subsequent lowering operations.

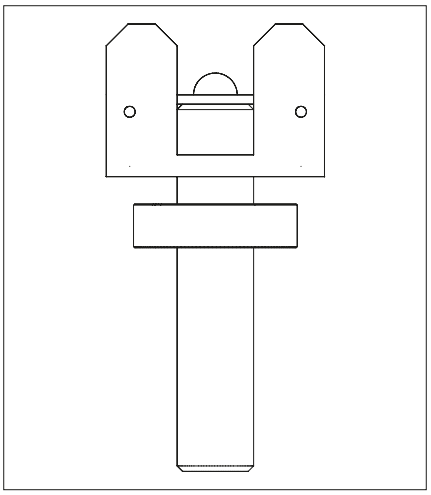


Fig. A1.32a

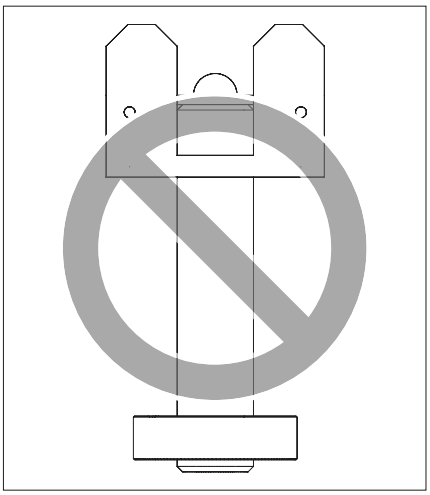


Fig. A1.32b

Spindle ATS 360-550 as head spindle

Warning

The load capacity is only given if the maximum spindle length does not exceed 550 mm – measured from the base plate to the support plate of the Spindle ATS 360-550 (**100**)!
Otherwise, this can result in serious injuries.

⇒ Test bores are added in the spindle as a visual check.
If the holes cannot be seen when spindling, the spindle is in the permissible range.
If the holes can be seen, the permissible range must be achieved by taking suitable measures (e.g. turning the Spindles ATS 360-550) before the tower can be subjected to any load. (Fig. A1.19)

Warning

Moving components!
There is a risk of hands being crushed during insertion.

⇒ Wear suitable protective gloves.
⇒ Use appropriate tools.

Warning

Heavy moving parts!
There is a risk of hands being crushed during assembly and disassembly.

⇒ Wear suitable protective gloves.
⇒ Use appropriate tools.
⇒ Use suitable lifting equipment.

- The Spindle ATS 360-550 (**100**) must not be greased
- After height adjustment has taken place, secure the Spindle ATS 360-550 (**100**) against any unintentional downwards spindling, e.g. binding wire. (Fig. A1.34)
- The Head Spindle Centring ATS (**104**) is used for a concentrated transfer of the vertical force from the main beam into the ALPHAKIT Tower.
- Separate verification of the horizontal forces and their transfer into the bracing of the towers or other bracing elements is required.

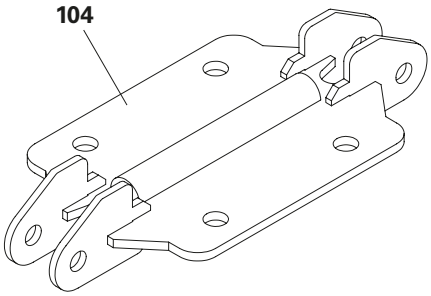


Fig. A1.33

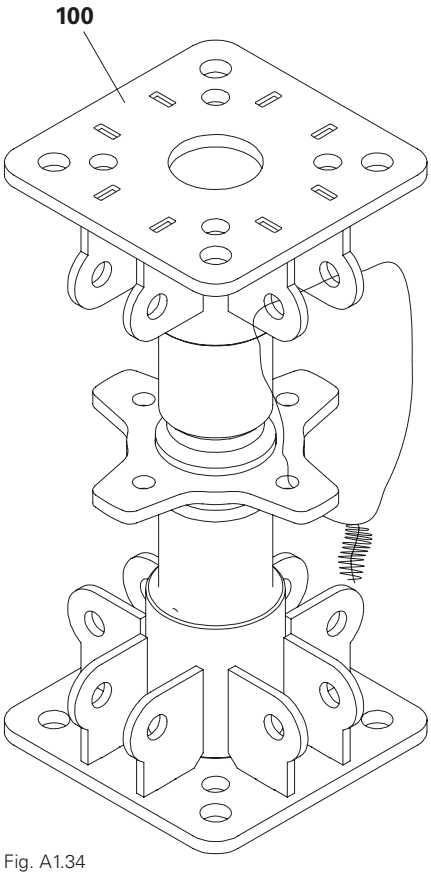


Fig. A1.34

Assembly

- Mount the Spindle ATS 360-550 (**100**) with fitted head spindle centring on the tower positioned on the ground.
- Mount the bracing at ground level before erection takes place.
- Brace the spindle heads with Spindle SLS (**101**) in the transverse direction of the main beam on each segment as well as every 4th segment in the longitudinal direction.

1. Assemble the main beam centring.
   - Longitudinal inclination of max. ±3° for main beams:
     - Mount the Head Spindle Centring ATS (**104**) in a diagonally offset position on the flange of the Spindle ATS 360-550 (**100**) using 2x bolt ISO 4017 M24 x 60-8.8 (**59**) and nut ISO 4032 M24-8 (**60**). (Fig. A1.35)
     - Nut ISO 4032 M24-8 (**60**) below the Spindle ATS 360-550 Head Plate. (Fig. A1.35a)
   - For a main beam longitudinal inclination of between ±3 to 9°:
     - Mount the Head Spindle Centring ATS (**104**) using 2x bolt ISO 4017 M24 x 60-8.8 (**59**) and nut ISO 4032 M24-8 (**60**) on the same side on the flange of the Spindle ATS 360-550 (**100**). (Fig. A1.36).
     - Nut ISO 4032 M24-8 (**60**) below the Spindle ATS 360-550 Head Plate. (Fig. A1.36a)
2. Hand-tighten the bolts.

Mounting position for a longitudinal inclination ±3°.

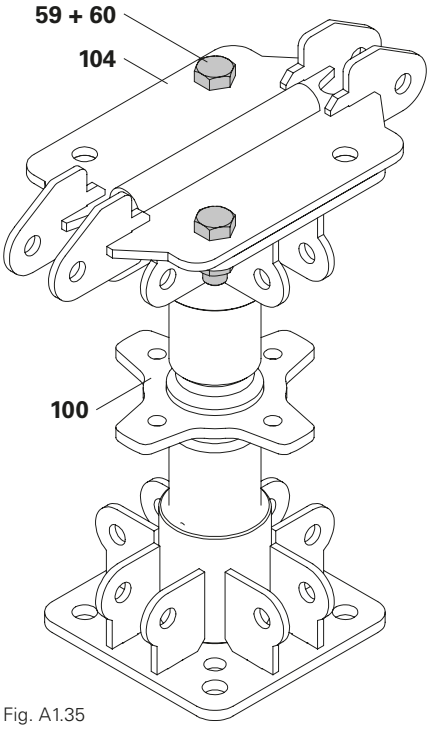


Fig. A1.35

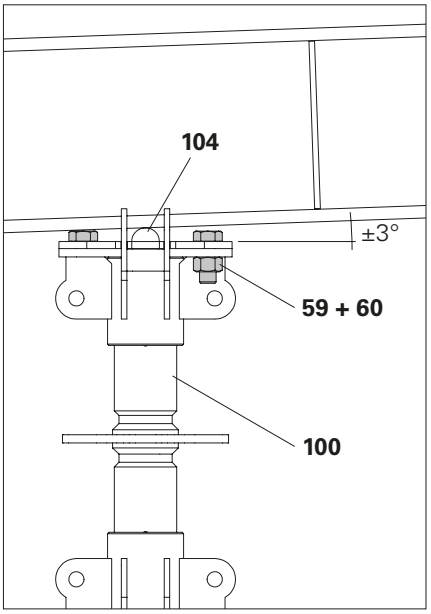


Fig. A1.35a

Mounting position for a longitudinal inclination between ±3° and 9°.

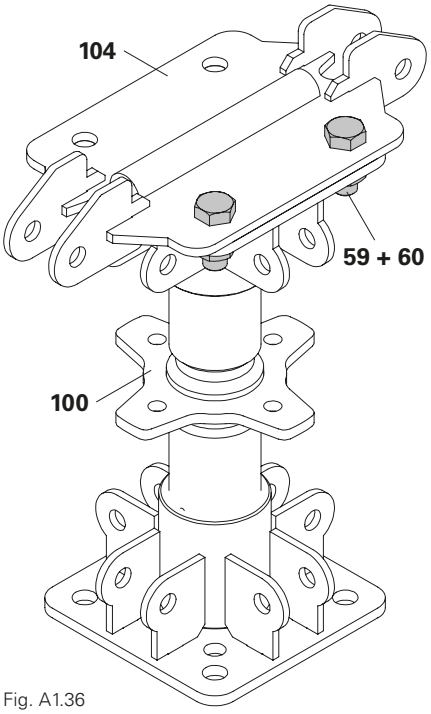


Fig. A1.36

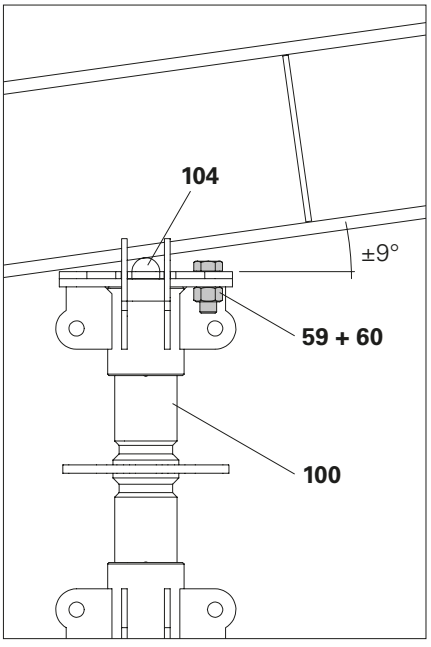


Fig. A1.36a

4. Mount the Spindle ATS 360-550 (**100**) on the Prop Base ATS (**1**) using 4x bolt ISO 4017 M24 x 60-8.8 (**59**) and nut ISO 4032 M24-8 (**60**). (Fig. A1.37)
5. Mount the Heavy-Duty Spindle SLS 100/180 (**101**) as bracing on the Spindles ATS 360-550 (**100**) using 2x fitting pins Ø 21 x 120 (**53**) and secure with cotter pin 4/1 (**54**). (Fig. A1.38)

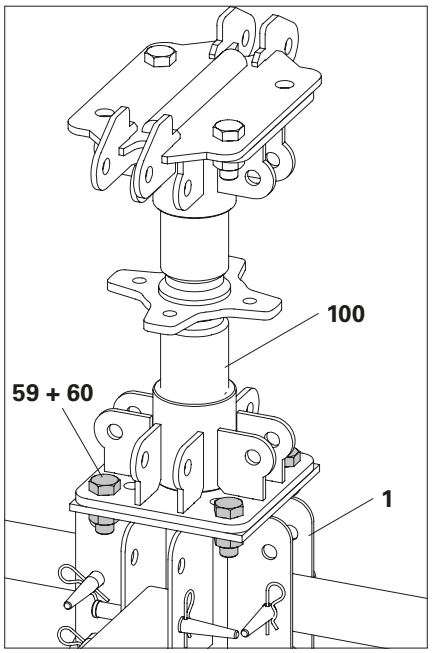


Fig. A1.37

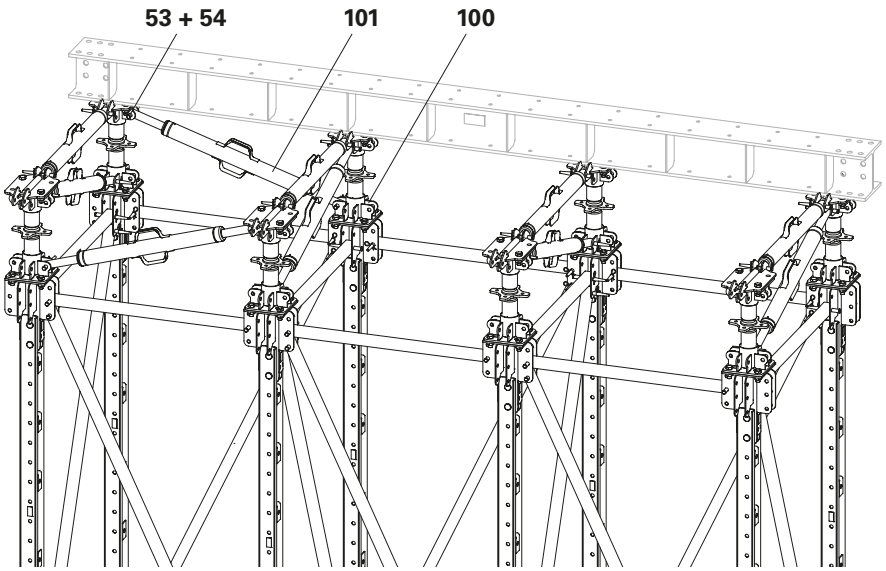


Fig. A1.38

Assembly of the ladder connector

Parts list

17 Ladder Connector 60/60 ATS

Assembly

1. Insert the Ladder Connector 60/60 (**17**) into the Horizontal Posts 150 (**21**).
2. Secure Ladder Connector 60/60 (**17**) using Wedge K (**17.1**).

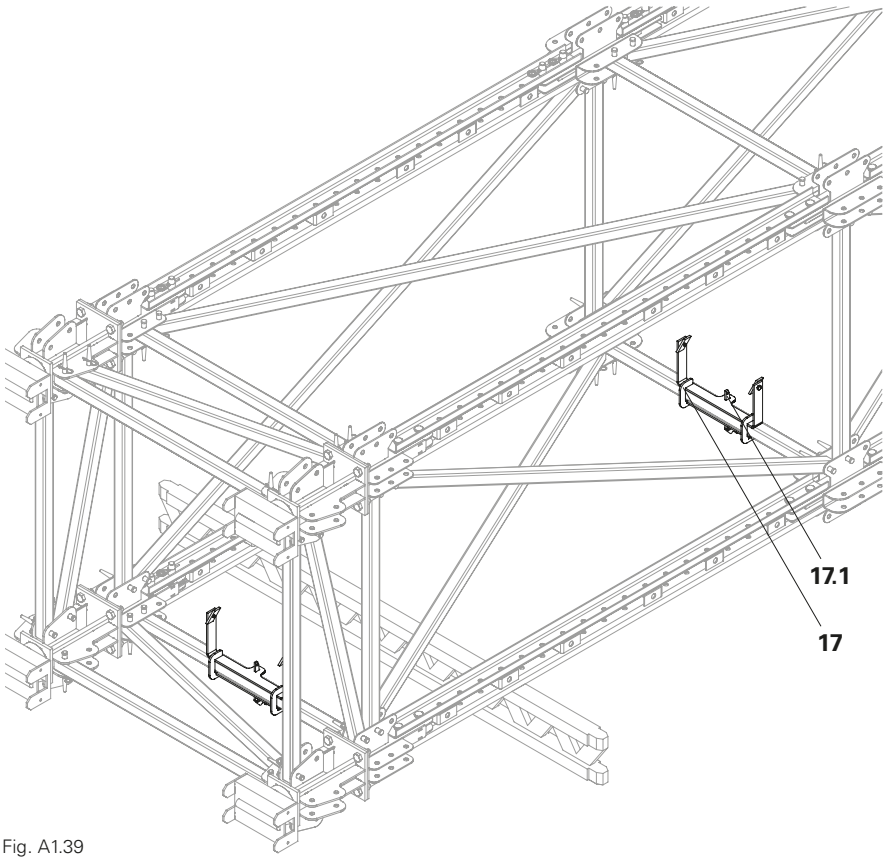


Fig. A1.39

The wedge must be mounted on the side facing the ground. (Fig. 1.39a)

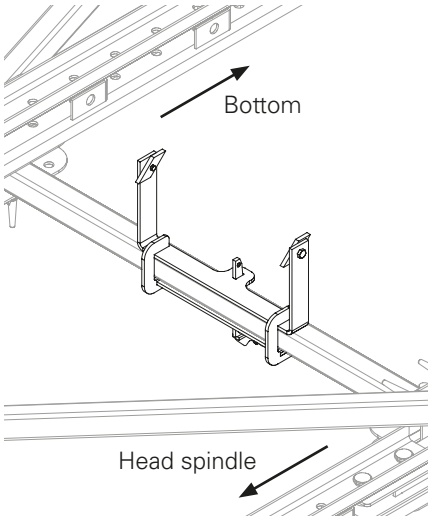


Fig. A1.39a

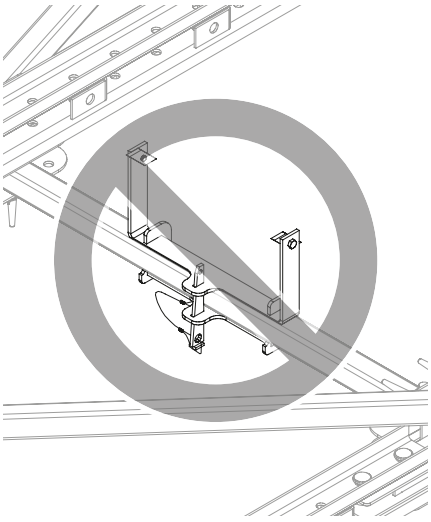


Fig. A1.39b

Ladder combinations

- Ladder access A (to allow rung extension of 1m above the landing point to provide a secure handhold): 2x Ladder 180/6 (**44**).
- Ladder access B:
  Access Ladder 180/6 (**46**) and below:
  Ladder 180/6 (**44**).

Pre-assembly of ladder

Ladder pre-assembly:

1. Loosen bolts and nuts M12 x 40 of the top ladder (**44a**) and remove.
2. Connect both ladders with bolts and nuts M12 x 40.
   (Fig. A1.40)
3. If the bottom ladder is suspended:
   – Loosen bolts and nuts M12 x 25 on the ladder hook and remove.
   – Fix ladder hook (**47**) to Ladder 180/6 (**44b**) at the top using bolts and nuts M12 x 25.
   (Fig. A1.41)
   – Attach the two ladder hooks of the Ladder 180/6 (**44b**) to be suspended on the rungs of the bottom ladder (**44a**) and pull downwards. (Fig. A1.42)

Visual check of the rungs.
The rungs of both ladders must be positioned at the same height.
(Fig. A1.42)

Ladder base

Mounting the ladder base:

1. Fix ladder base (**45**) to the bottom Ladder 180/6 (**44b**) using bolts and nuts M12 x 40.

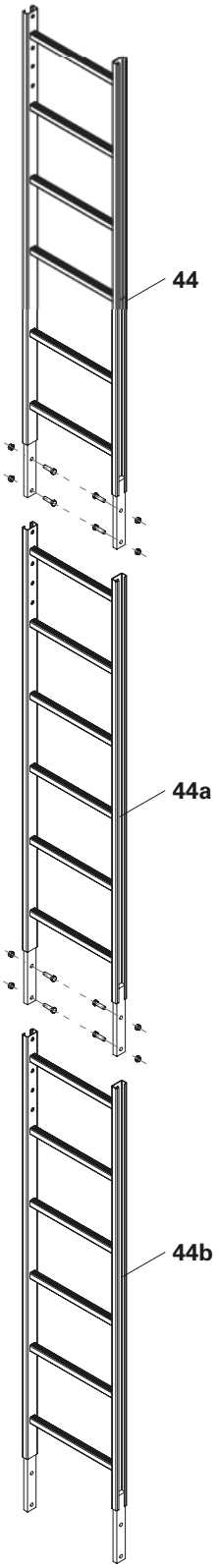


Fig. A1.40

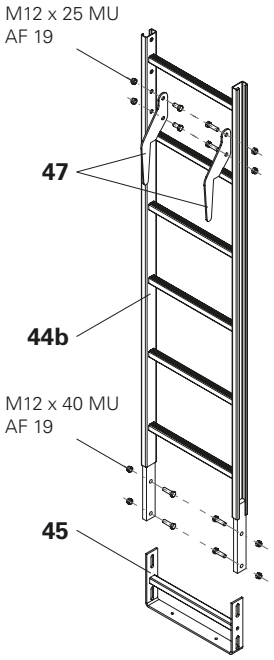


Fig. A1.41

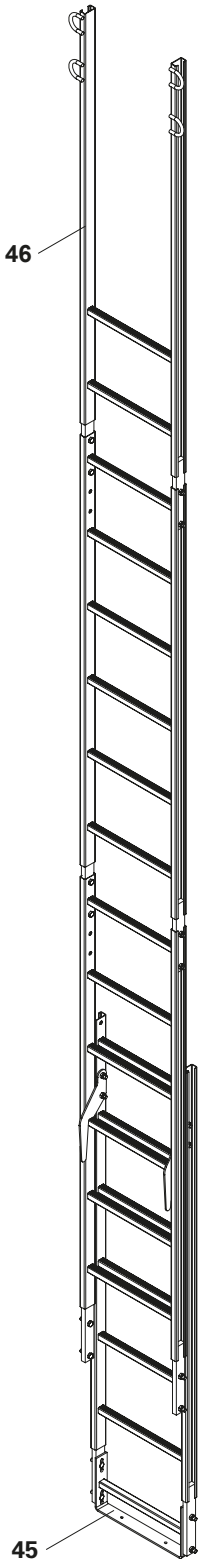


Fig. A1.42

Ladder access

Assembly on horizontal elements.

Assembly

1. Fix Ladder Connectors 60/60 ATS (**17**).
2. Pre-assemble ladder.
3. Fix the pre-assembled ladder to the Ladder Connectors 60/60 ATS (**17**) by means of clamping plates (**44.1**), AF 19.
4. Fasten the Ladder Safety Cage 75/150 (**62**) using clamping plates (**44.1**) according to plan. Depending on the situation, mount with overlapping ladder joints. (Fig. A1.43)

Visual inspection of the clamping plates.
The contact surface must rest against the ladder profile.
(Fig. A1.44b)

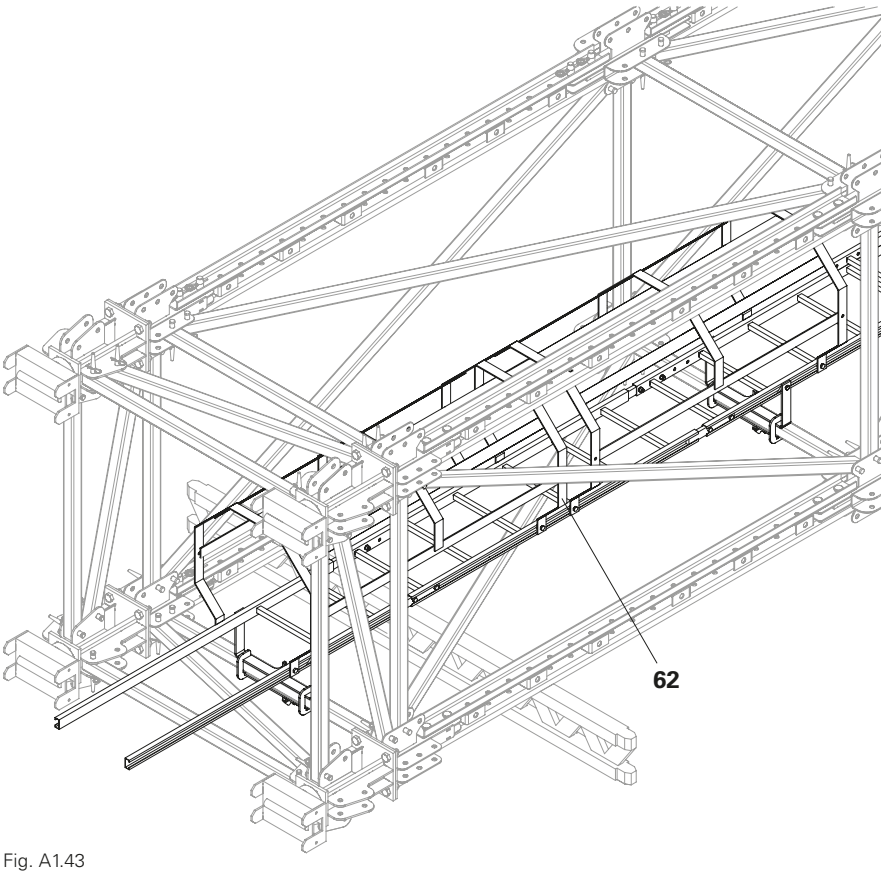


Fig. A1.43

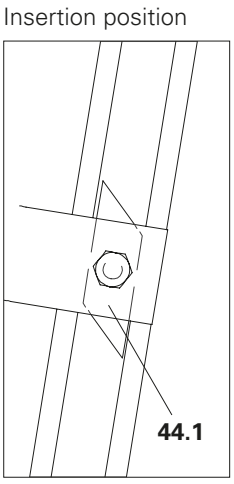


Fig. A1.44a

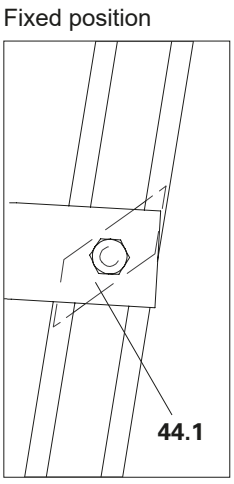


Fig. A1.44b

Height Compensation 17.5 ATS

When arranging the Height Compensation 17.5 ATS (**41**), the following must be observed:

- A maximum of two height compensations may be placed on top of each other.
- Height compensations may only be mounted directly below the head spindle frame.
- Height compensations are fixed in position using 8x bolt ISO 4017 M24 x 60 (**59**) and 8x nut ISO 4032 M24-8 (**60**).

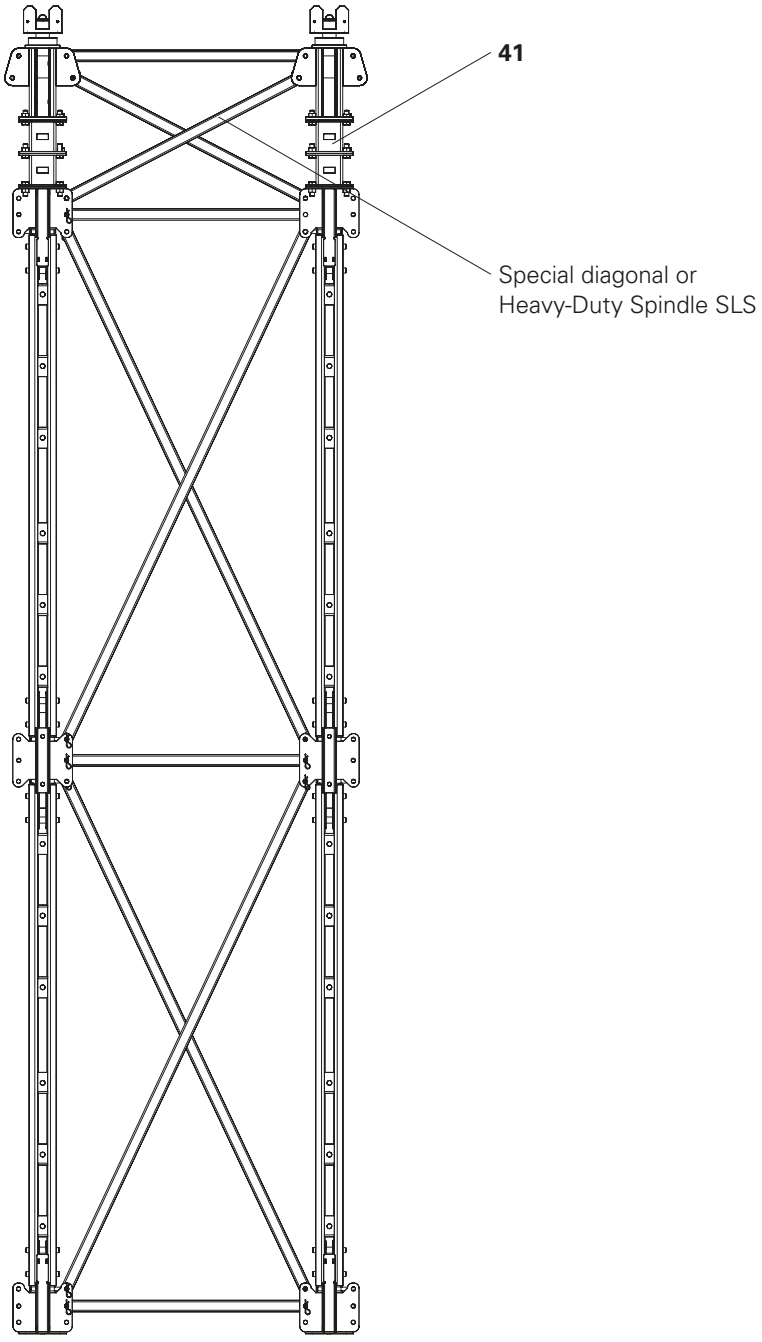


Fig. A1.45

Working platform

Caution

Spindles could fall out during assembly!
Risk of injury!

⇒ Secure Spindles against falling out during assembly or install after setting up has been completed.

- Gaps cannot be completely closed.
- Three sides of the working platform can be mounted on the ground.
- Mount the last side from a safe working position.

Parts list

84	Scaffolding Adapter Alpha	8x
53	Fitting pin Ø 21 x 120	8x
54	Cotter pin 4/1	8x

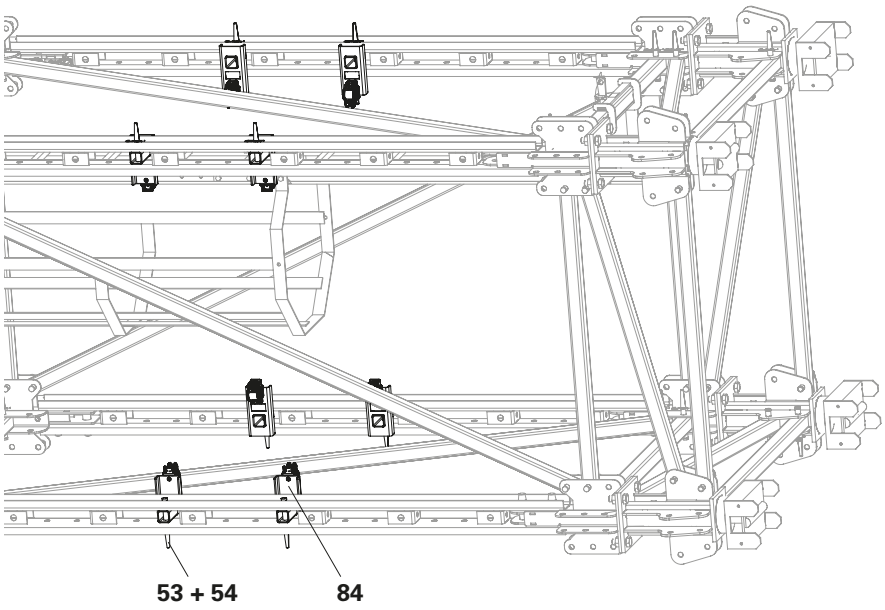


Fig. A1.46

Assembly

1. Fix 2x Scaffolding Connector Alpha (**84**) to each vertical respectively using 1x fitting pin Ø 21 (**53**) in each case and secure with cotter pins 4/1 (**54**). (Fig. A1.46)
2. Insert 1x Top Standard UVH 100 into the Scaffolding Connector Alpha (**84**) on each vertical, and clamp. (Fig. A1.47)

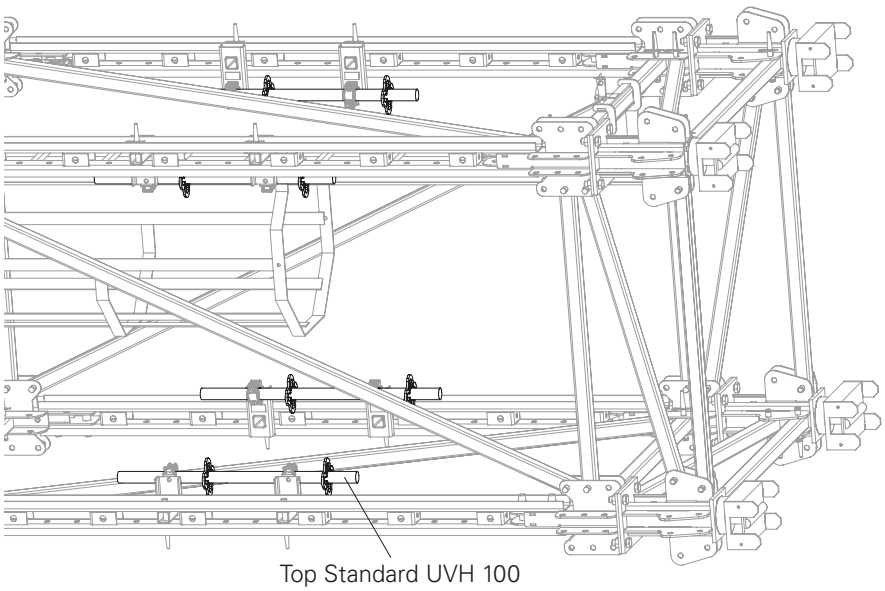


Fig. A1.47

Assembly

1. Brace the 4 sides by means of Horizontal Ledgers UH Plus. (Fig. A1.48)

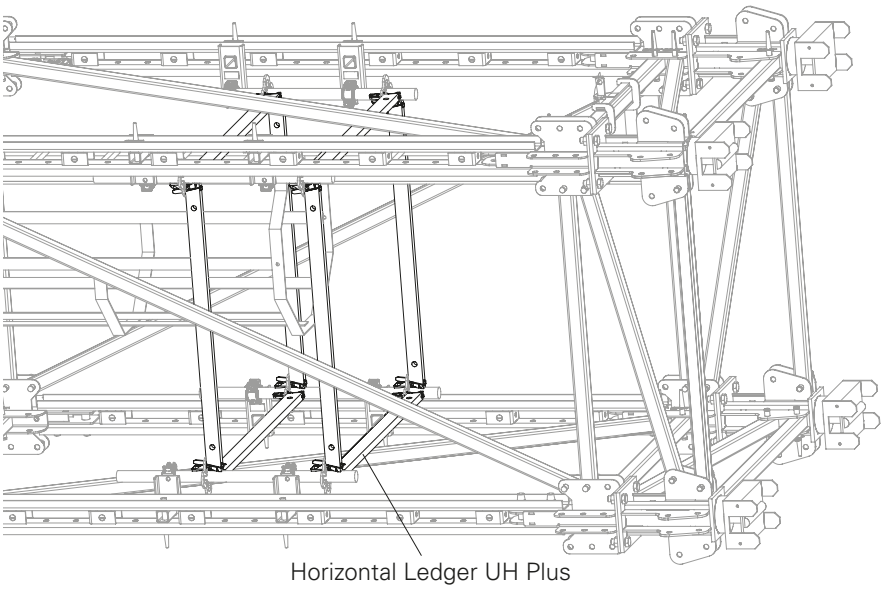


Fig. A1.48

2. Mount the scaffold in the middle according to the current version of the PERI UP Instructions for Assembly and Use. (Fig. A1.49)

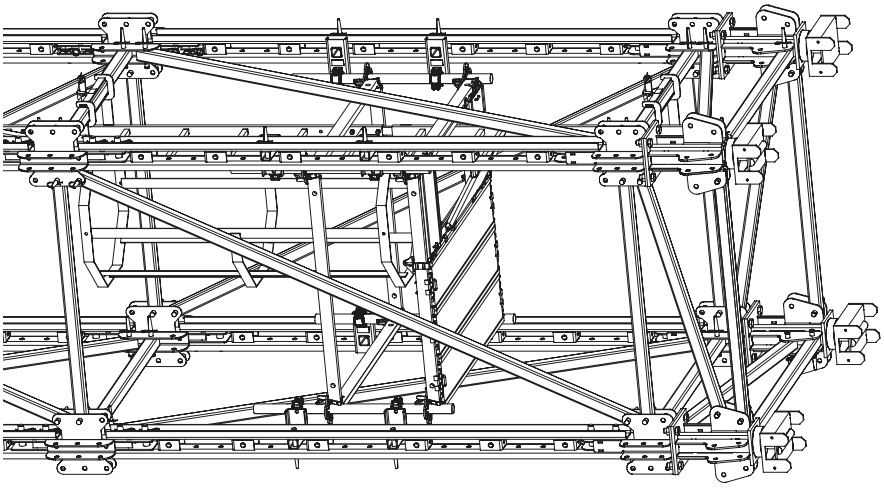


Fig. A1.49

3. Mount scaffold on the three external sides according to the current version of the PERI UP Instructions for Assembly and Use. (Fig. A1.50)

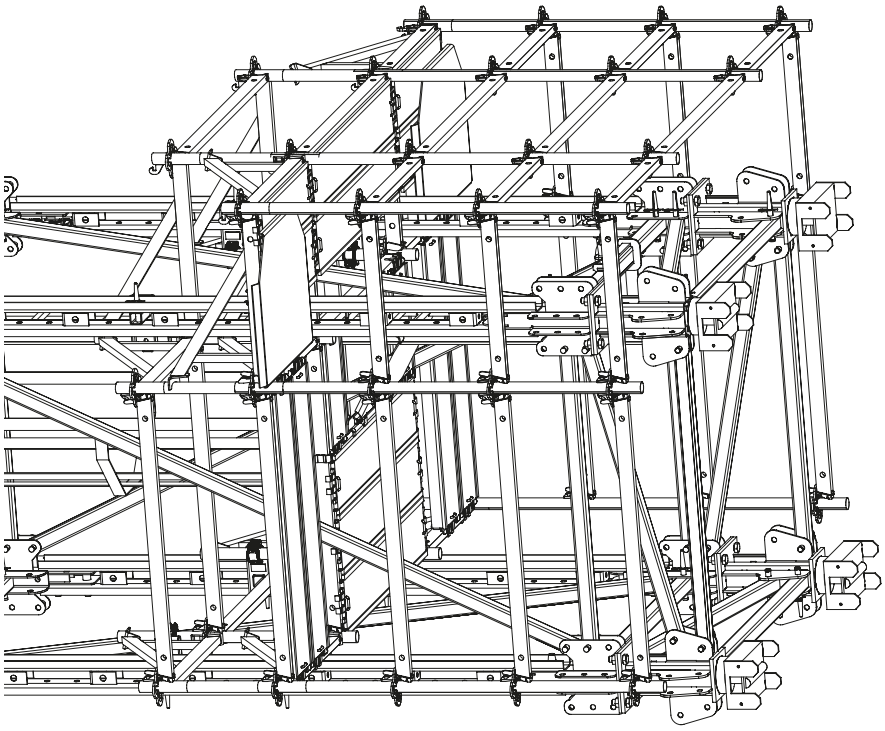


Fig. A1.50

Erection

1. Attach tower to crane lifting gear.
2. Erect tower. (Fig. A1.37)

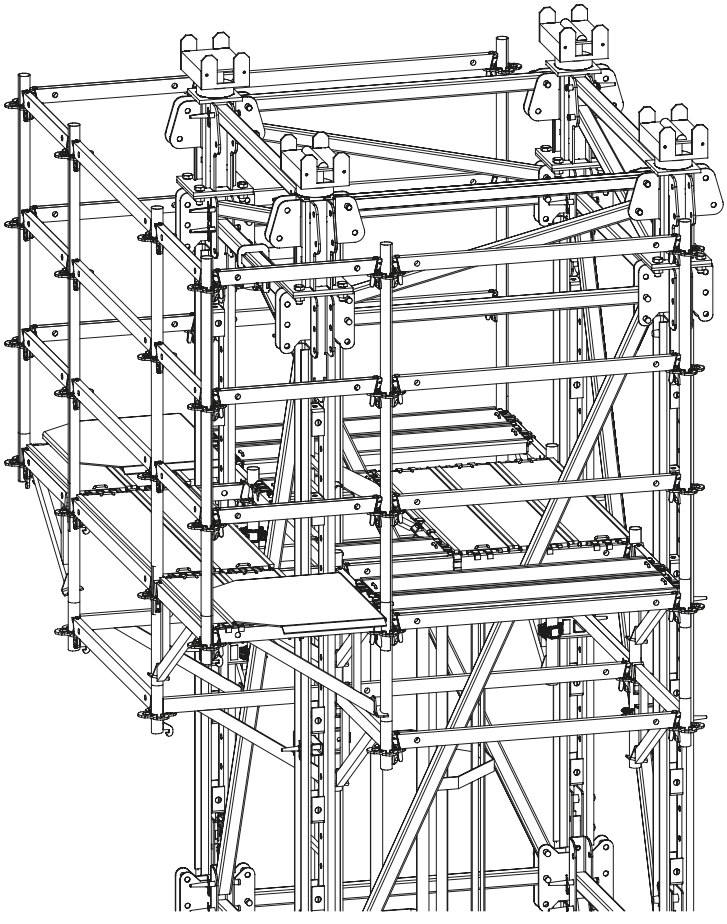


Fig. A1.50

Danger

As long as the working platform is not completely assembled, a leading edge is present!
Risk of falling.
⇒ Mount the missing side from a safe working position.
⇒ Use PPE.

Erection

1. Mount the missing side according to the current version of the PERI UP Instructions for Assembly and Use. (Fig. A1.38)

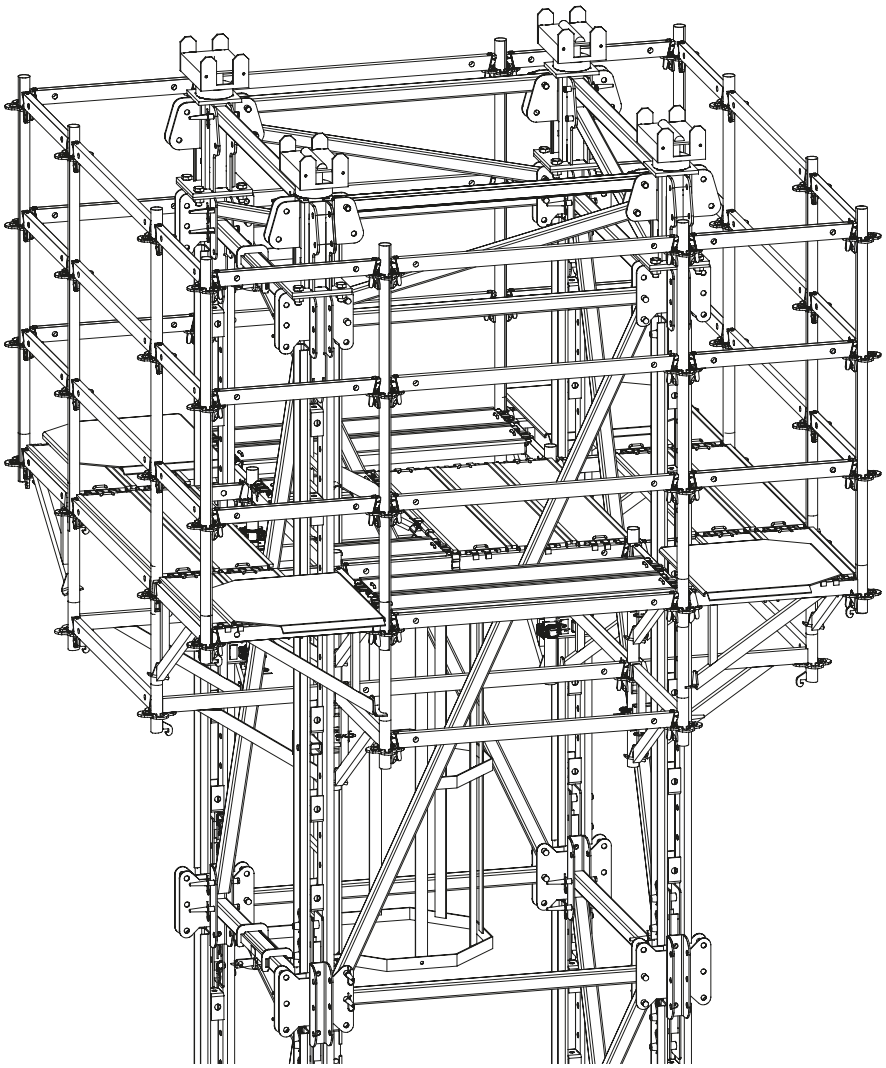


Fig. A1.38

Overview

Components

4 Truss Diagonal 262 ATG
5 Chord Node ATG
6 Support Node ATG
12 Vertical Member ATG
21 Horizontal Post 150 Alpha
25 Steel Waler 262 Alpha
34 Diagonal-4 150/212 ATS

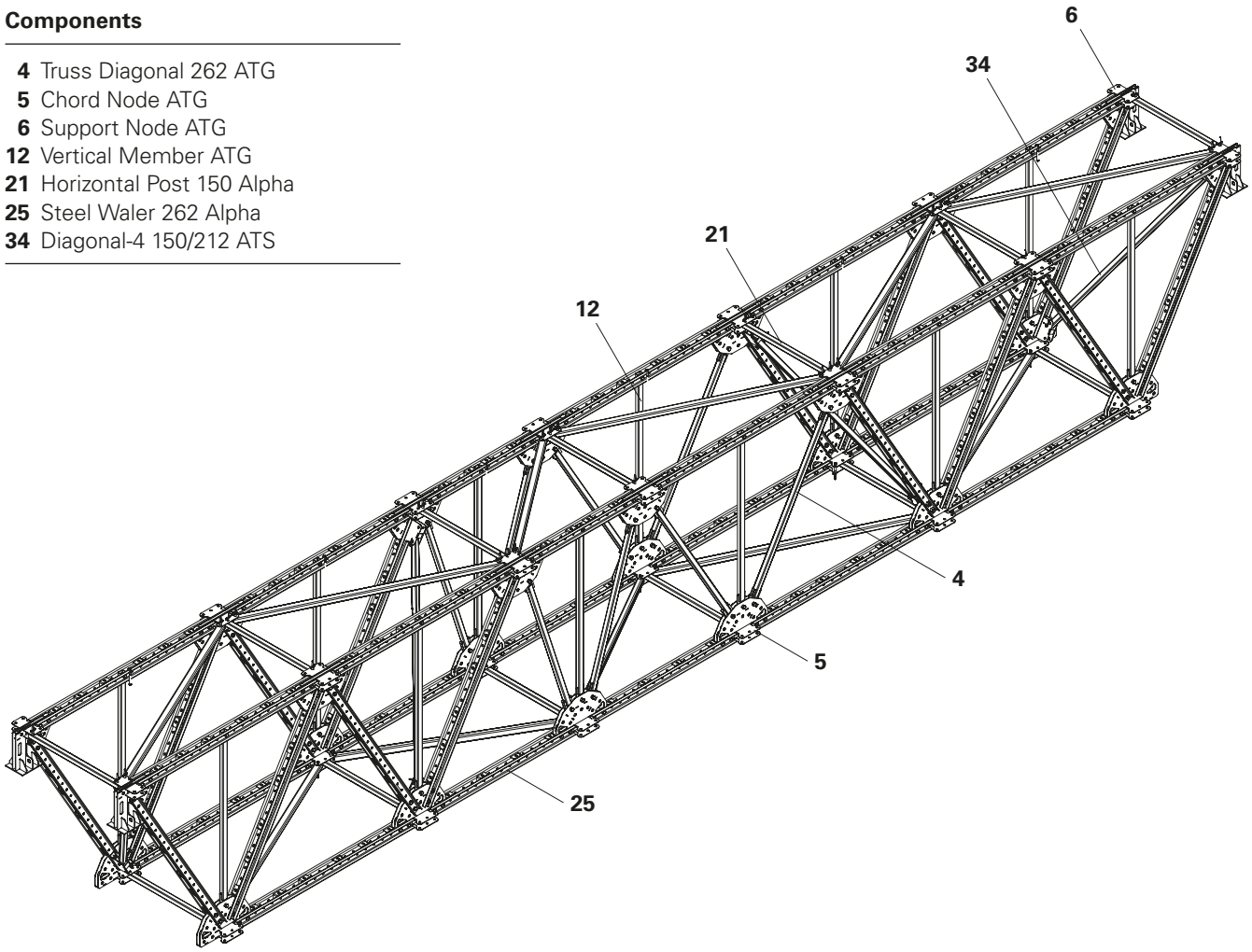


Fig. A2.01

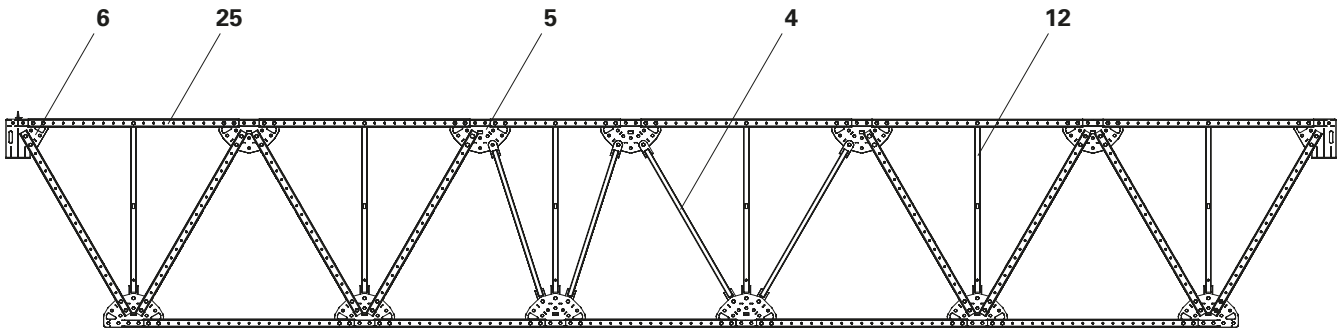


Fig. A2.02

A2 Assembly of the truss girder frame

General

An individual truss girder frame is only assembled horizontally if required for project-specific reasons, e.g. maximum crane capacity.
Otherwise, PERI recommends the three-dimensional pre-assembly of the truss girder package.

Assembly guidelines

All fitting pins must be secured by means of cotter pins.

The holes in the fitting pins must point in the longitudinal direction of the steel waler.

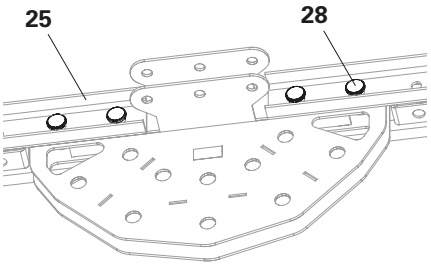


Fig. A2.03

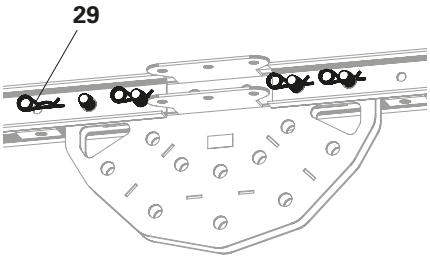


Fig. A2.04

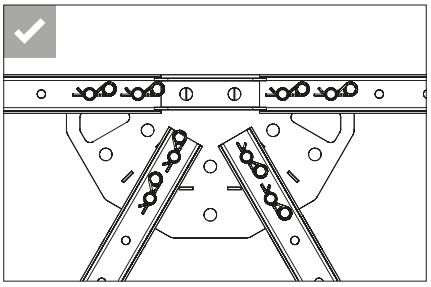


Fig. A2.05a

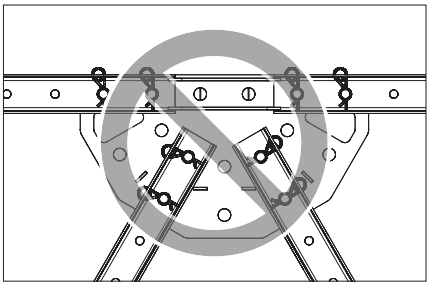


Fig. A2.05b

Assembly area

We recommend preparing a flat assembly area.

- In order to ensure easy and simple assembly, work should be carried out approx. 20 cm above the level assembly area. This height can easily be realised using GT 24 Girders or VT 20 Girders.
- More information can be provided by PERI on request.

Preparation

Components

4 Truss Diagonal 262 ATG
5 Chord Node ATG
6 Support Node ATG
9 Truss Diagonal 212 ATG
12 Vertical Member ATG
25 Steel Waler 262 Alpha
27 Steel Waler 162 Alpha

Depending on the size of the trusses, other component sizes are to be used. Refer to the assembly drawings for the correct components.

Preparation

1. Place all required components on the assembly surface at the position specified in the assembly drawings. (Fig. A2.06)

- The steel waler used for adjusting the span of the heavy-duty truss girder is called the compensation steel waler (here, for example, (**27**)). This steel waler must always be positioned in the middle of the heavy-duty truss girder.
- Always ensure that the diagonals and steel waler are mounted as shown in the assembly drawings.

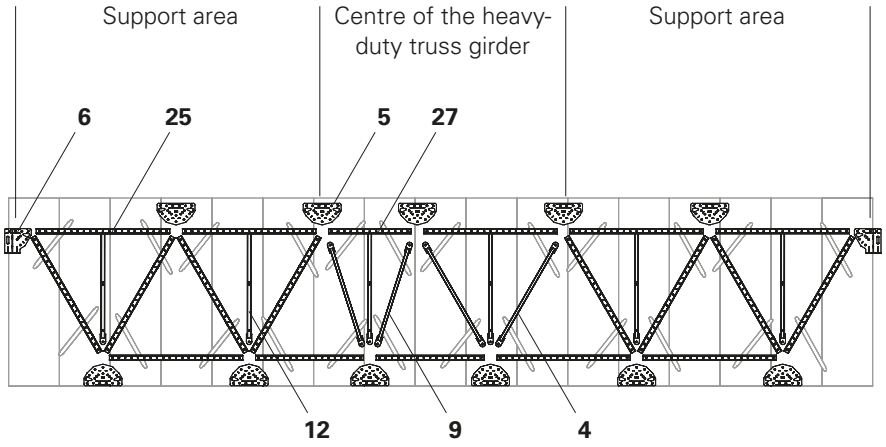


Fig. A2.06

Assembly

Only use those connecting elements which are specified in the assembly drawings. The connecting elements have an impact on the load-bearing capacity.

Parts list per Steel Waler

25 Steel Waler 262 Alpha	1x
28 Fitting pin Ø 32 Alpha	4x
29 Cotter pin 5/2	4x

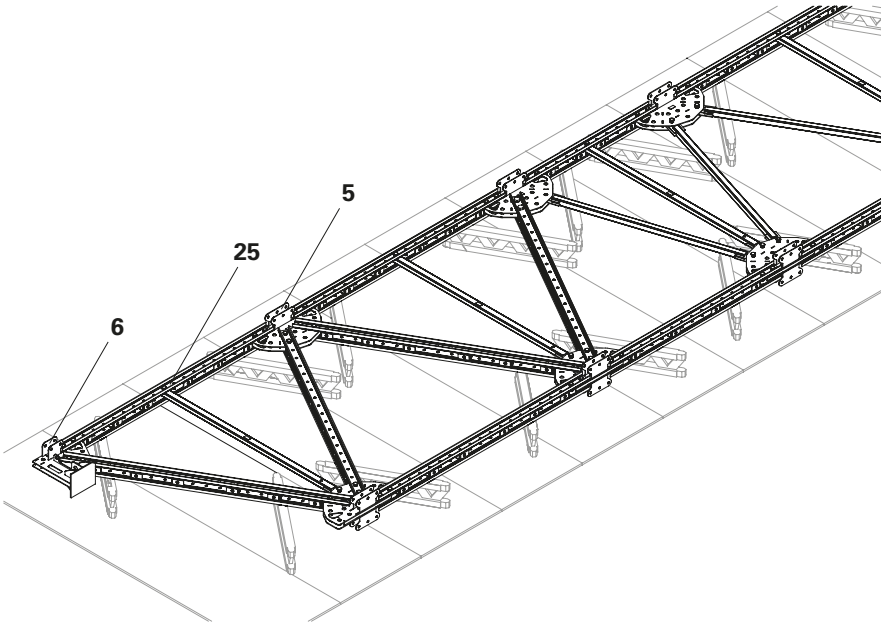


Fig. A2.07

Connecting the steel waler to the support node

1. Slide the Steel Waler 262 (**25**) onto the Support Node ATG (**6**).
2. Fix Steel Waler 262 (**25**) to the Support Node ATG (**6**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A2.08a + A2.08b)

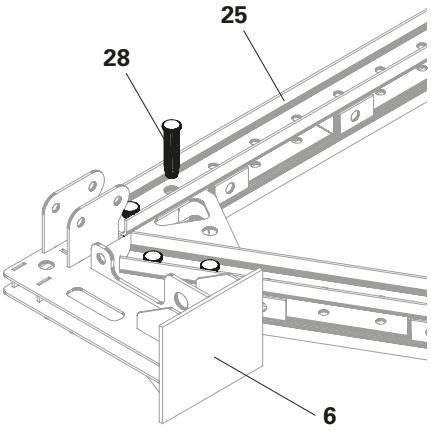


Fig. A2.08a

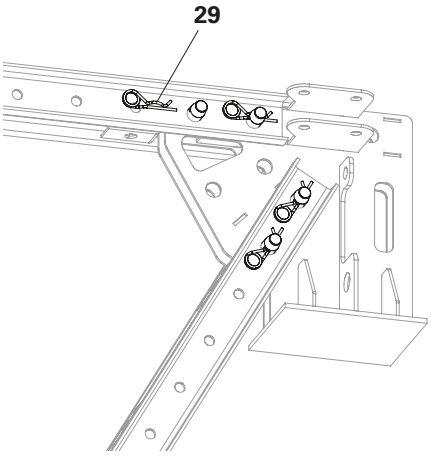


Fig. A2.08b

Connecting steel waler to the chord node

1. Slide the Steel Waler 262 (**25**) onto the Chord Node ATG (**5**).
2. Fix Steel Waler 262 (**25**) to the Chord Node ATG (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A2.09a + A2.09b)

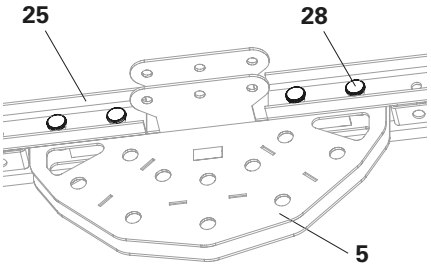


Fig. A2.09a

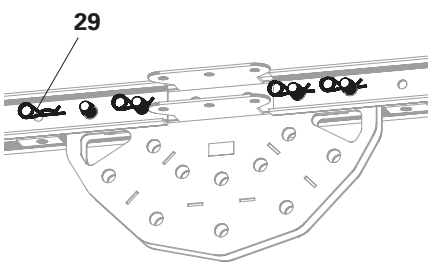


Fig. A2.09b

Check whether all fitting pins have been secured with cotter pins.

A2 Assembly of the truss girder frame

Parts list per steel waler

25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x

Parts list per truss diagonal

4	Truss Diagonal 262 ATG	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

Assembly of the steel waler as a diagonal

1. Slide the Steel Waler 262 (**25**) onto the Chord Node ATG (**5**).
2. Fix Steel Waler 262 (**25**) to the Chord Node ATG (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A2.10)

Assembly of the truss diagonal

1. Insert Truss Diagonal 262 (**4**) into the Chord Node ATG (**5**).
2. Fix the Truss Diagonal 262 (**4**) to the Chord Node ATG (**5**) using 1x fitting pin Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A2.10)

Check whether the diagonals specified in the assembly drawings have been used.

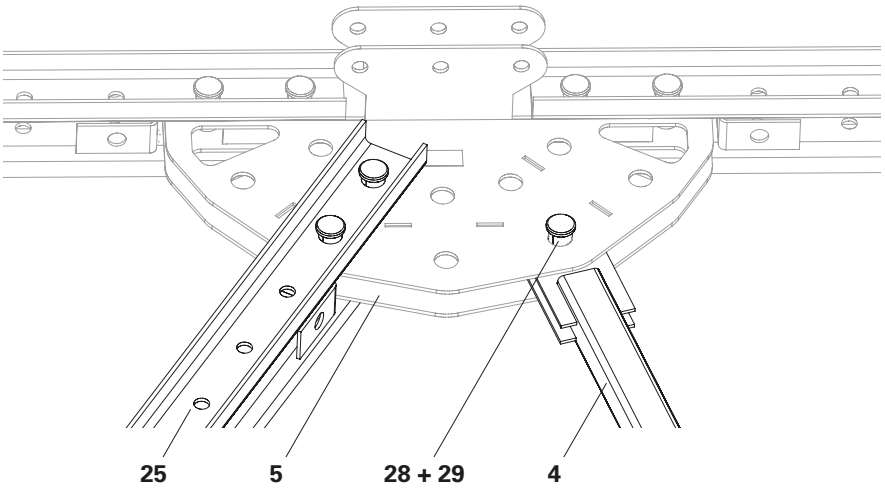


Fig. A2.10

Bracing Connector ATG

If a Bracing Connector ATG must be mounted, the fitting pins Ø 32 Alpha and cotter pins 5/2 must be replaced by bolt ISO 4017 M30 x 100-8.8 and hex. nut ISO 4032 M30-8.

Mounting position of the steel waler
If the Bracing Connector ATG is mounted on a steel waler, the nose (**3.1**) must be positioned at the front side of the steel waler. (Fig. A2.11a)

Mounting position of the truss diagonal
If the Bracing Connector ATG is mounted at the position of a truss diagonal, the nose (**3.1**) must be positioned on the outer edge of the chord node. (Fig. A2.11b)

Parts list per bracing connector

3	Bracing Connector ATG	1x
42	Bolt ISO 4017 M30 x 100-8.8, **galv.**	2x
43	Hex. nut ISO 4032 M30-8, galv.	2x

Assembly

1. Place the bracing connector (**3**) on the steel waler (**25**) or Chord Node ATG (**5**).

Make sure the mounting position is correct. This is specified in the project-specific drawings.

2. Insert Bolt ISO 4017 M30 x 100 (**42**) through the Chord Node ATG (**5**), Bracing Connector ATG (**3**) and Steel Waler (**25**) or Chord Node ATG (**5**), Bracing Connector ATG (**3**) and the Truss Diagonal (**4**).
3. Secure Bolt ISO 4017 M30 x 100 (**42**) with Hex. Nut ISO 4032 M30 (**43**). (Fig. A2.11)

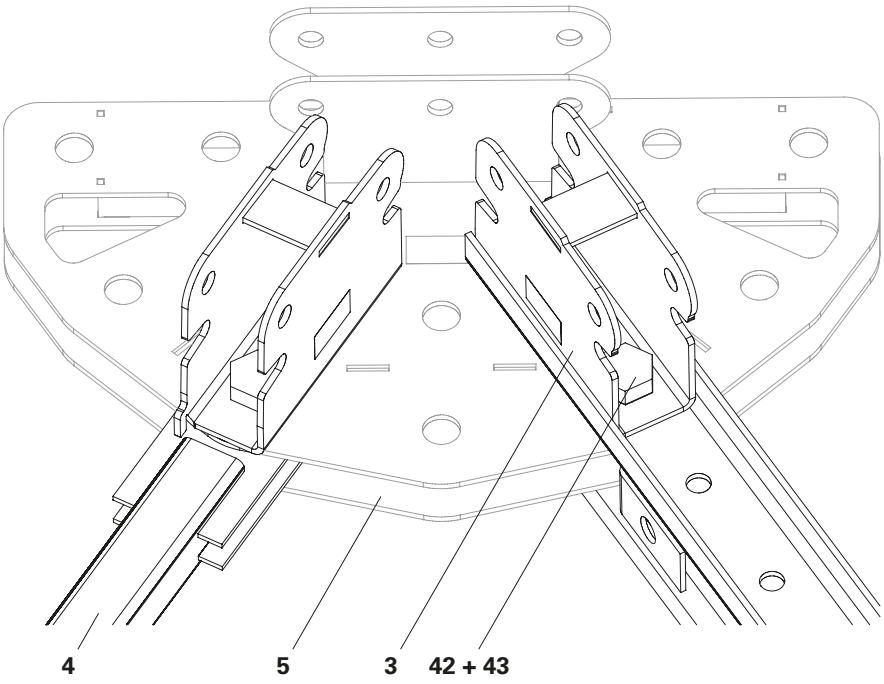


Fig. A2.11

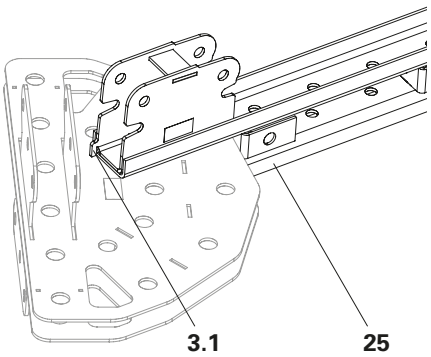


Fig. A2.11a

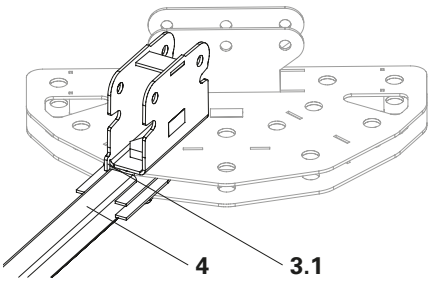


Fig. A2.11b

Vertical Member ATG

One Vertical Member ATG (**12**) must be mounted on each bottom Chord Node ATG (**5**).

Parts list per Vertical Member

12	Vertical Member ATG	1x
28	Fitting pin Ø 32 Alpha	1x
29	Cotter pin 5/2	1x
53	Fitting pin Ø 21 x 120	1x
54	Cotter pin 4/1	1x

Assembly

1. Insert Vertical Member (**12**) into the Chord Node (**5**) and Steel Waler 262 (**25**).
2. Fix the Vertical Member (**12**) to the Chord Node (**5**) using fitting pins Ø 32 (**28**) and secure with cotter pins 5/2 (**29**).
3. Fix the Vertical Member (**12**) to the Steel Waler 262 (**25**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

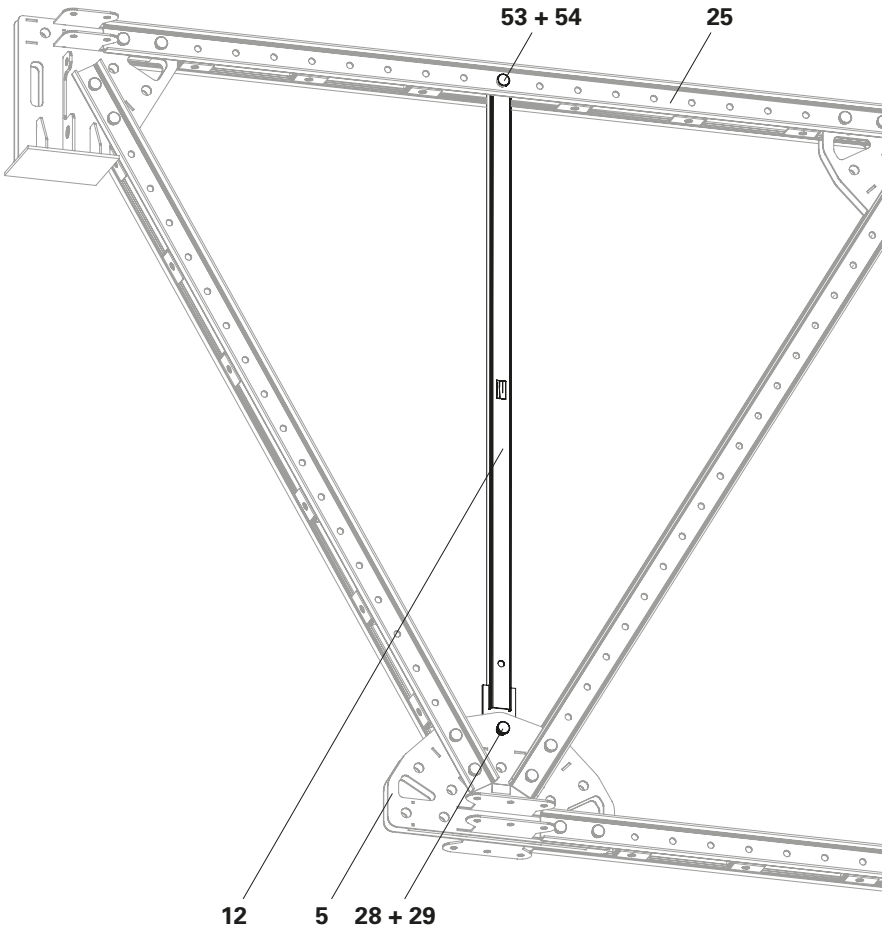


Fig. A2.12

Completion

Fully assemble the Truss Girder Frame using the components specified in the assembly drawings.

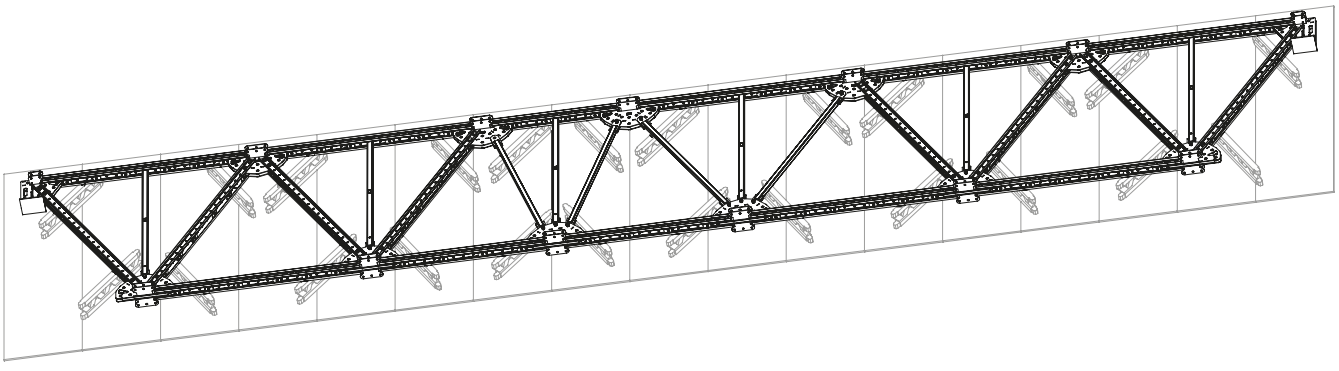


Fig. A2.13

A3 Pre-assembly of the truss girder package

Assembly aid

Before assembling the Truss Girder Frame, PERI recommends setting up an auxiliary construction next to the assembly surface.

More information can be provided by PERI on request.

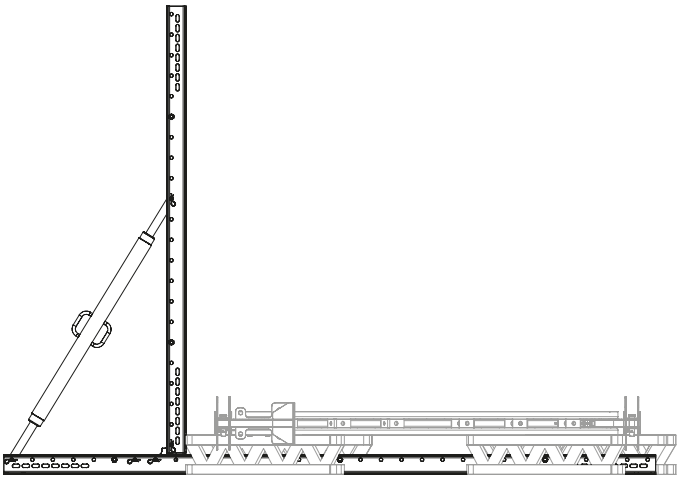


Fig. A3.01

Erection

Warning

The Truss Girder Frame can tip over! Risk of injury.

⇒ After setting up the Truss Girder Frame, secure in order to prevent tipping.

1. Erect the Truss Girder Frame.
2. Secure the Truss Girder Frame in order to prevent tipping.

(Fig. A3.02)

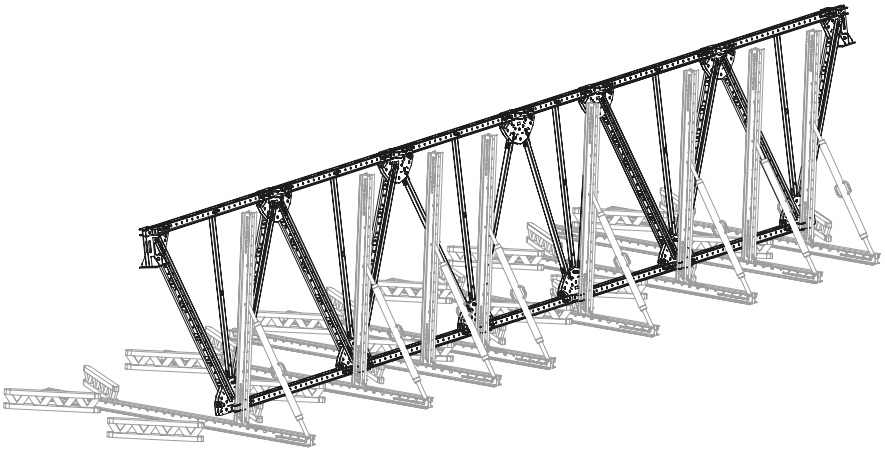


Fig. A3.02

Additional preparation

1. Mount the second Truss Girder Frame in the same way as the first one.
2. Define the required distance between the Truss Girder Frames for installing the Horizontal Posts by means of timbers.
3. Erect the second Truss Girder Frame next to the first Truss Girder Frame.

(Fig. A3.03)

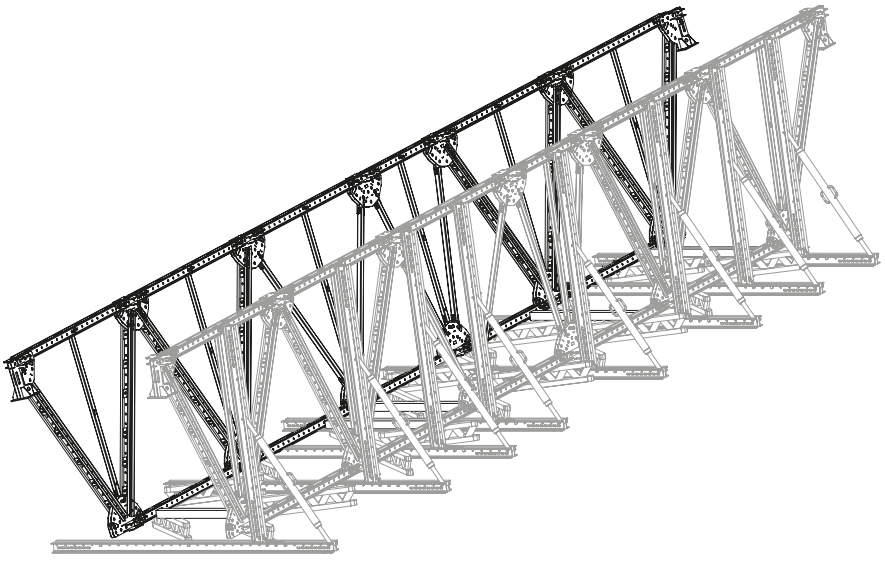


Fig. A3.03

Horizontal Posts

Components

21 Horizontal Post 150 Alpha
53 Fitting pin Ø 21 x 120
54 Cotter pin 4/1

Assembly

1. Insert Horizontal Post 150 (**21**) between two Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).
3. Repeat the procedure for all pairs of Chord Nodes.
4. Insert Horizontal Post 150 (**21**) between two Support Nodes (**6a**) and (**6b**).
5. Fix the Horizontal Post 150 (**21**) to each Support Node (**6a**) and (**6b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).
6. Repeat this procedure at the second pair of Support Nodes.

(Fig. A3.04 + A3.04a)

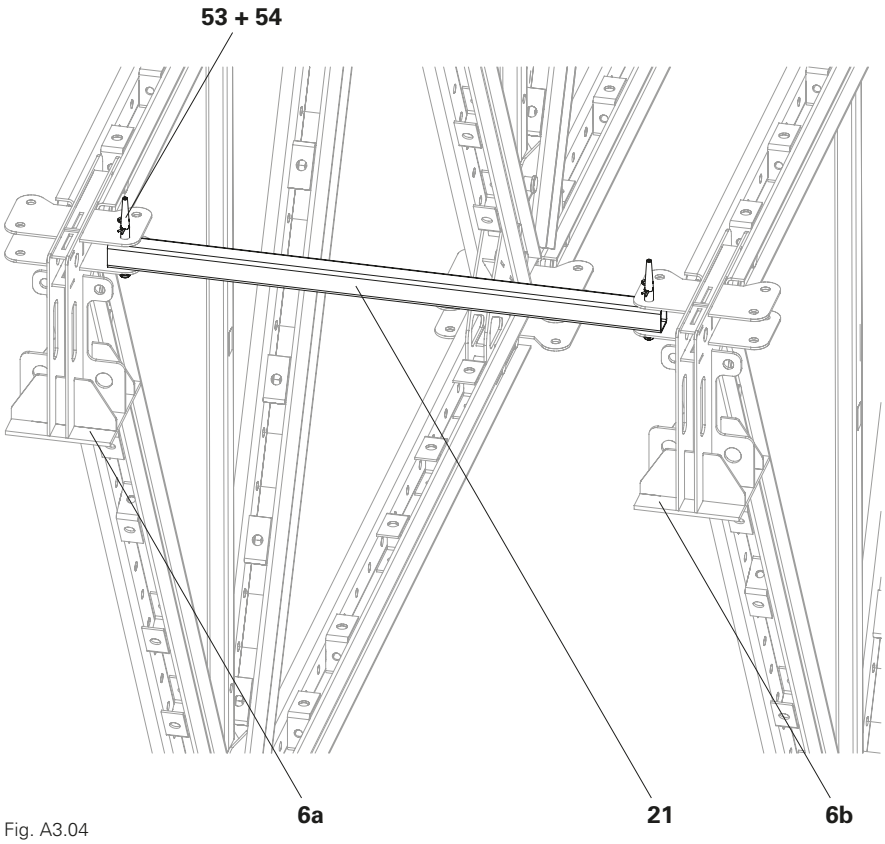


Fig. A3.04

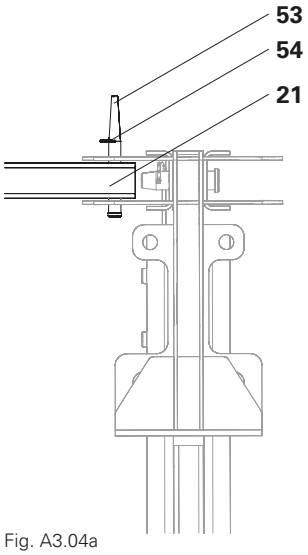


Fig. A3.04a

The fitting pins Ø 21 x 120 (**53**) of the Horizontal Posts must be knocked outwards to prevent any subsequent collision with the H-Load Tie Yoke DW 15 ATG (**39**).

Parts list per Diagonal-6

16	Diagonal-6 150/262 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Diagonal-6 (**16a**) into the Support Node (**6b**) and Chord Node (**5a**).
2. Fix the Diagonal-6 (**16a**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pin 4/1 (**54**).

(Fig. A3.05)

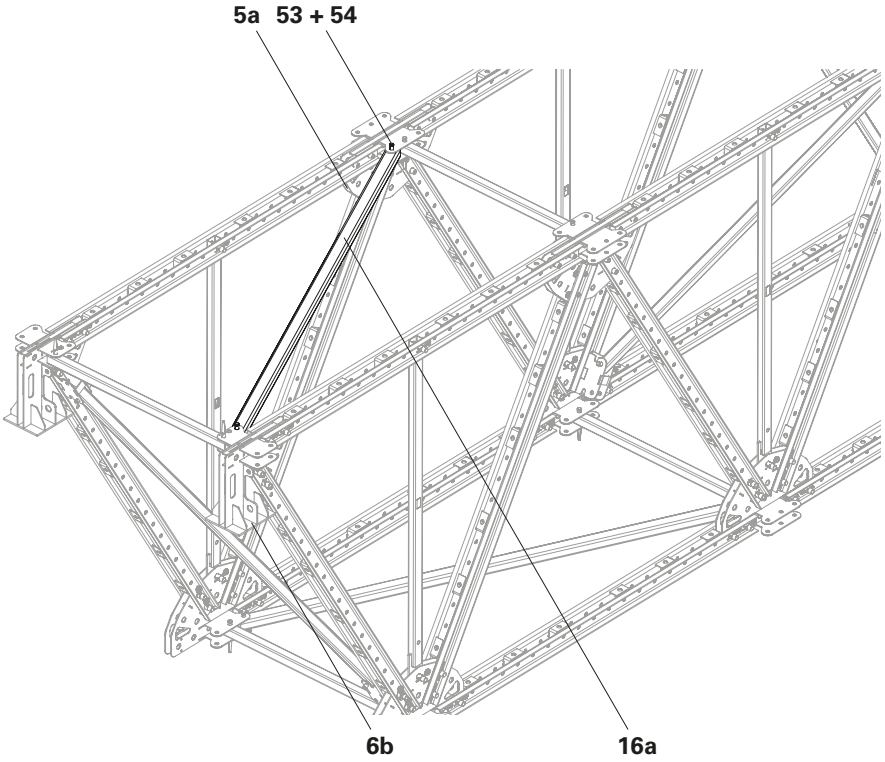


Fig. A3.05

Cross Diagonals

If a Diagonal-4 is specified as a Cross Diagonal in the assembly drawings, it must be mounted on the Bracing Connectors.

Parts list per Diagonal

34	Diagonal-4 150/212 ATS	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert the Diagonal-4 (**34**) into the Bracing Connectors (**3**).
2. Fix the Diagonal-4 (**34**) – used here as a Cross Diagonal – in the Bracing Connectors (**3**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A3.06)

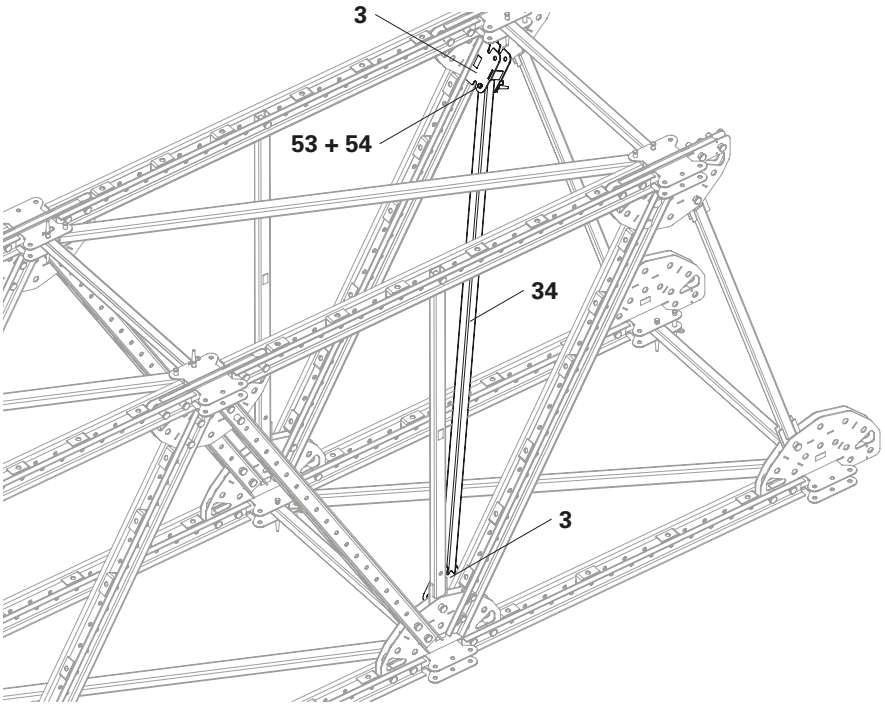


Fig. A3.06

A3 Pre-assembly of the truss girder package

- Finally, check whether all components have been mounted correctly.
- Mount Bracing Diagonals in every bay.
- In the first and last bay, one Cross Diagonal must always be mounted.
- The use of additionally required Cross Diagonals is specified in the assembly drawings.

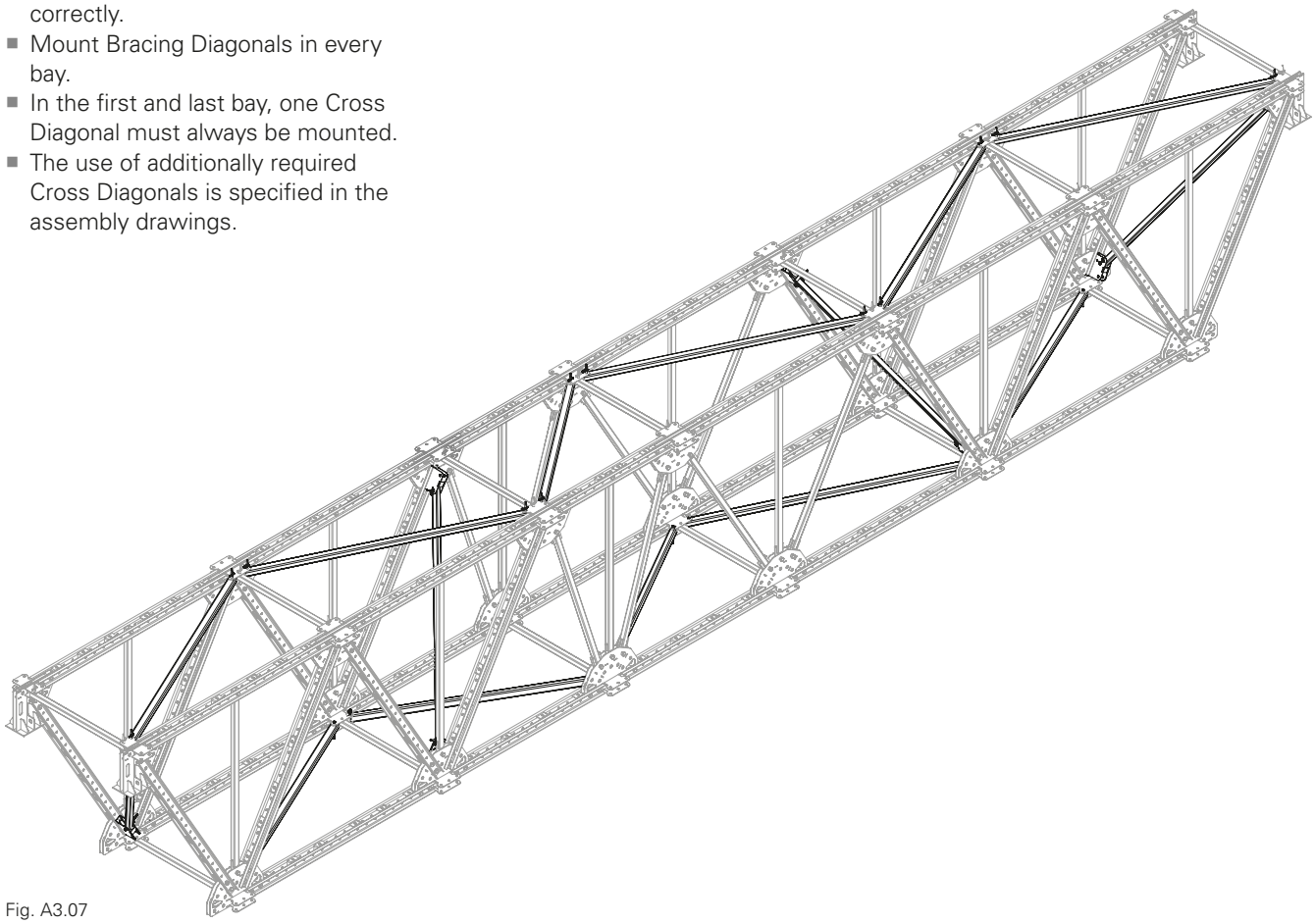


Fig. A3.07

A4 3-dimensional pre-assembly of the truss girder package

Assembly area

We recommend preparing a flat assembly area.

- In order to ensure easy and simple assembly, work should be carried out approx. 20 cm above the level assembly area. This height can easily be realised using GT 24 Girders or VT 20 Girders.
- More information can be provided by PERI on request.

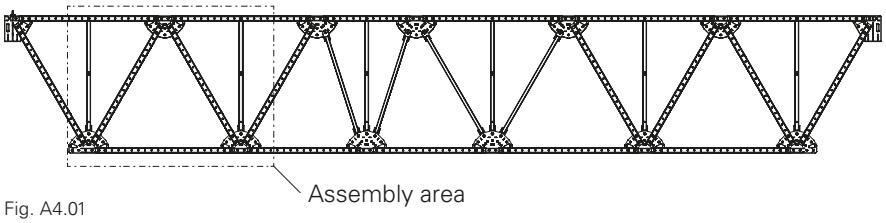


Fig. A4.01

Assembly

It is possible to immediately mount the Truss Girder Package three-dimensionally.
PERI recommends this type of assembly if the crane capacity is sufficient to move the complete package.

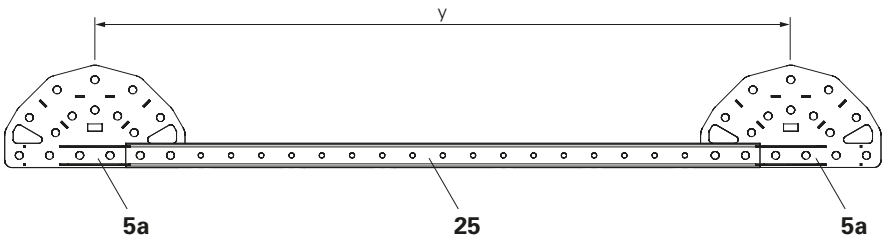


Fig. A4.02

Parts list

5	Chord Node ATG	4x
25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	8x
29	Cotter pin 5/2	8x

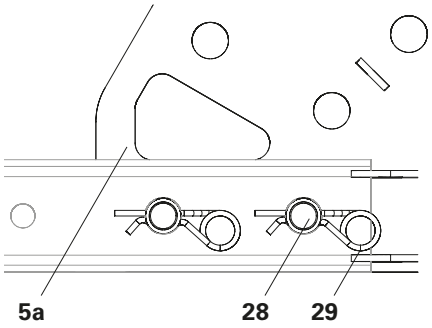


Fig. A4.02a

Assembly

1. Position 2x Chord Nodes (**5a**) using the specified distance y on the assembly surface.
2. Insert the Steel Waler 262 (**25**) into the Chord Nodes.
3. Fix the Steel Waler 262 (**25**) to the Chord Nodes (**5a**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A4.02 + Fig. A4.02a)
4. Repeat steps 1 – 3 for the other 2 Chord Nodes (**5b**).
5. Position the Chord Node connections on the assembly surface using the specified distance x.

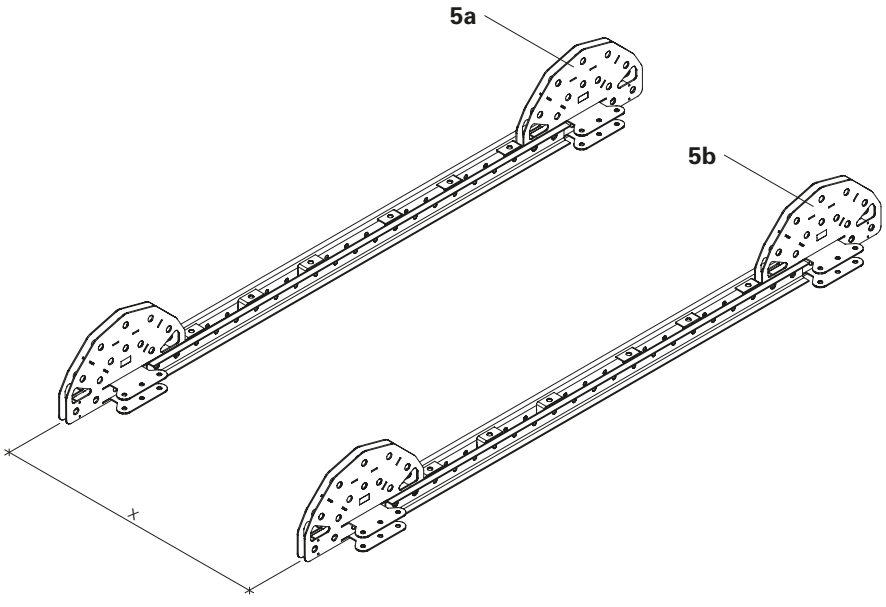


Fig. A4.03

A4 3-dimensional pre-assembly of the truss girder package

Parts list

21	Horizontal Post 150 Alpha	2x
53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).
3. Repeat the procedure for the other pair of Chord Nodes.

(Fig. A4.04)

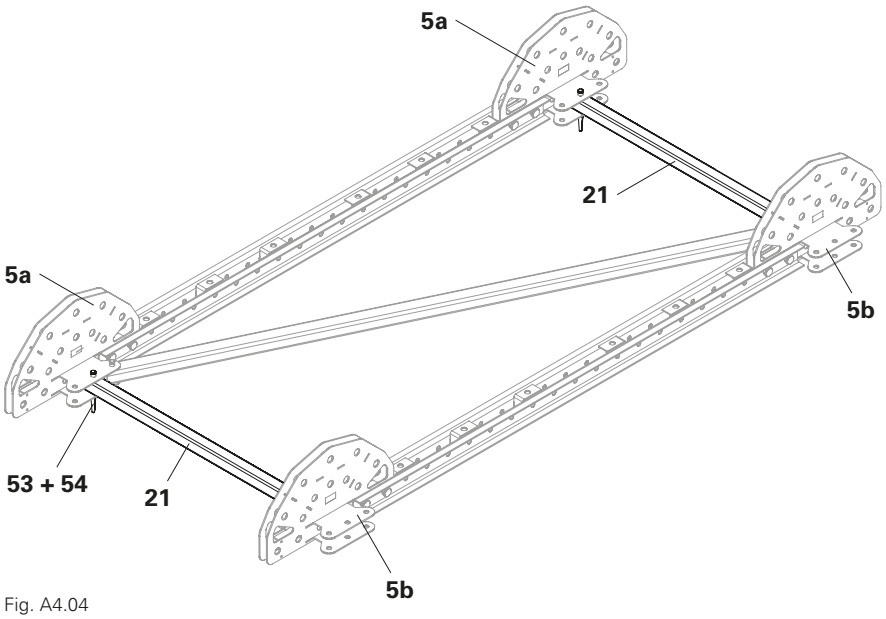


Fig. A4.04

Parts list

25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x

Assembly

1. Insert the Steel Waler 262 (**25**) into the Chord Nodes (**5a**).
2. Fix the Steel Waler 262 (**25**) to the Chord Nodes (**5a**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A4.05)

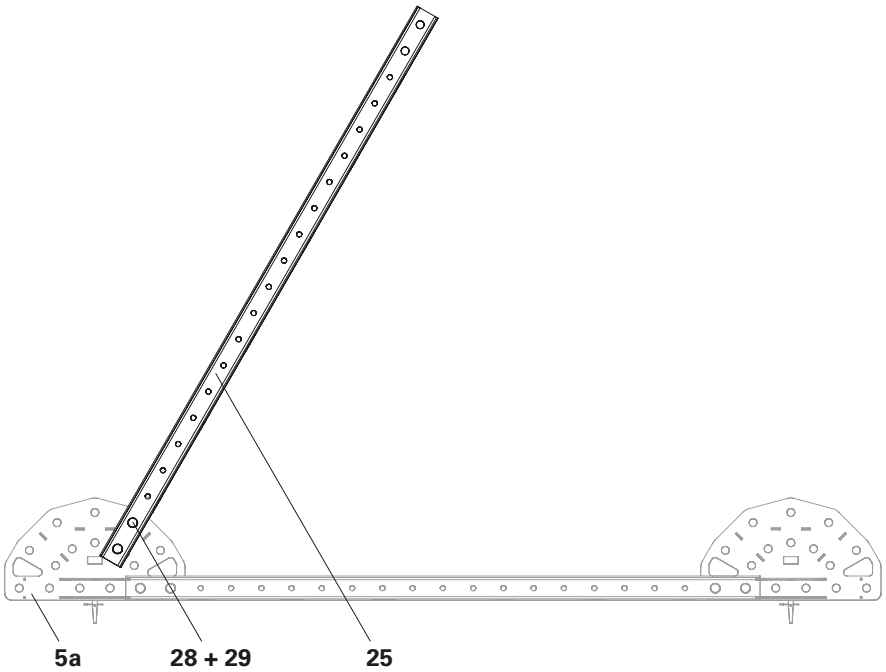


Fig. A4.05

A4 3-dimensional pre-assembly of the truss girder package

Parts list

5	Chord Node ATG	2x
25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	8x
29	Cotter pin 5/2	8x

Assembly (left and right)

1. Insert Chord Node (**5a**) into the Steel Waler 262 (**25**).
2. Fix the Chord Node (**5a**) using 2x fitting pin Ø 32 (**28**) and secure with cotter pin 5/2 (**29**).

(Fig. A4.06)

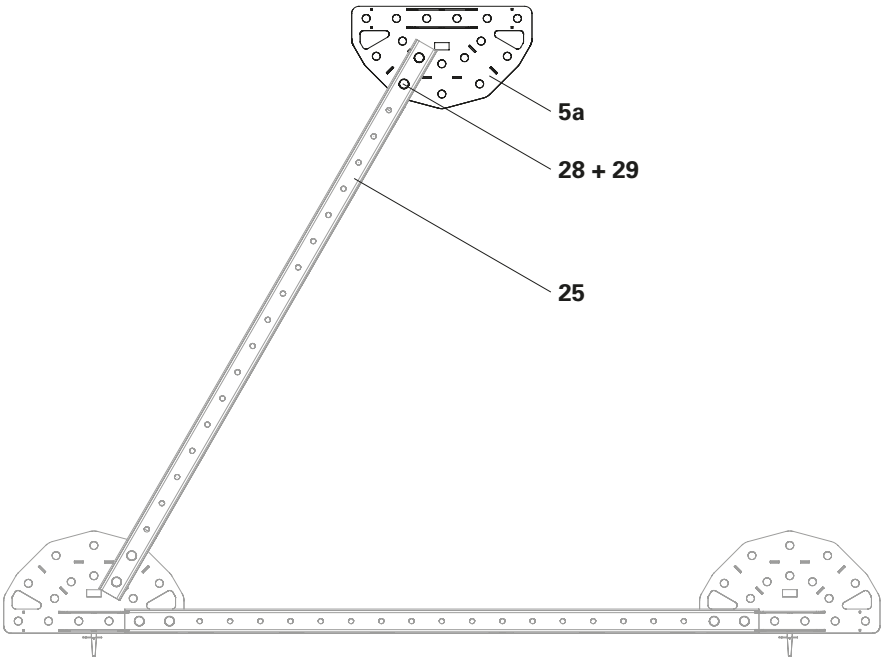


Fig. A4.06

Parts list

21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A4.07)

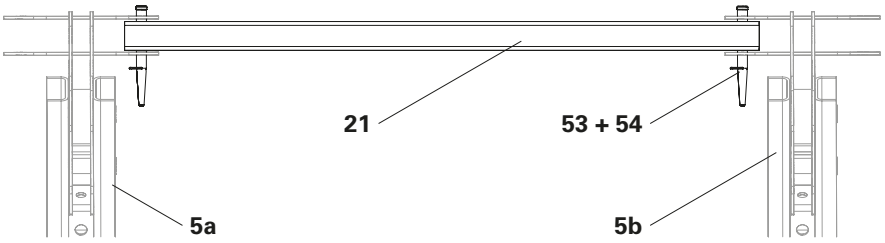


Fig. A4.07

Parts list

25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	8x
29	Cotter pin 5/2	8x

Assembly (left and right)

1. Insert the Steel Waler 262 (**25**) into the Chord Nodes (**5a**) and (**5c**).
2. Fix the Steel Waler 262 (**25**) to the Chord Nodes (**5a**) and (**5c**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.08)

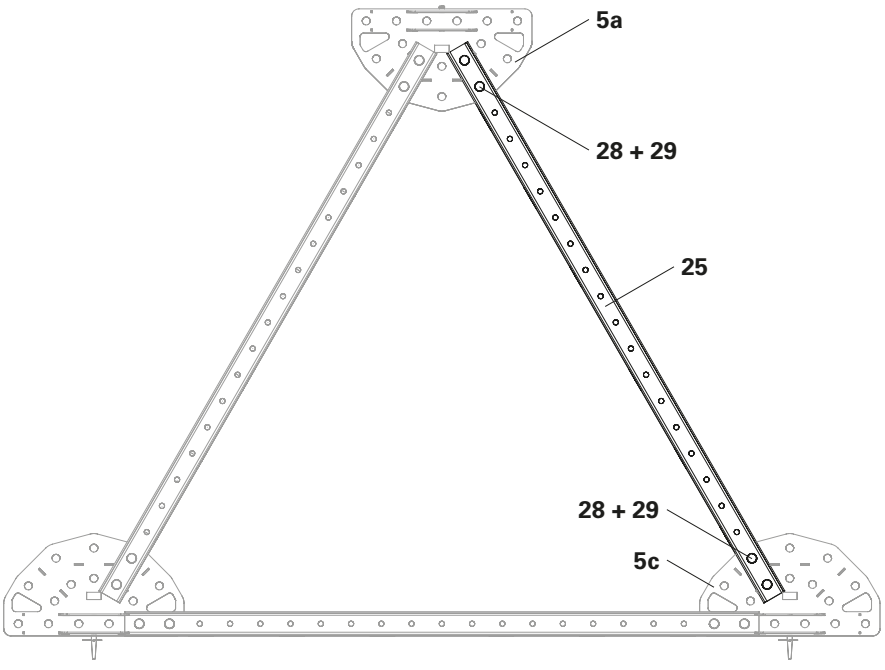


Fig. A4.08

A4 3-dimensional pre-assembly of the truss girder package

Parts list

12	Vertical Member ATG 2x	
25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	6x
29	Cotter pin 5/2	6x
53	Fitting pin Ø 21 x 120	8x
54	Cotter pin 4/1	8x

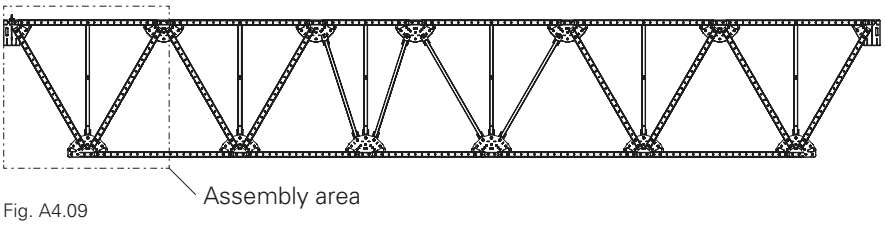


Fig. A4.09

Assembly (left and right)

1. Slide Steel Waler 262 (**25**) onto the Chord Node (**5a**).
2. Fix the Steel Waler 262 (**25**) to the Chord Nodes (**5a**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**). (Fig. A4.10)

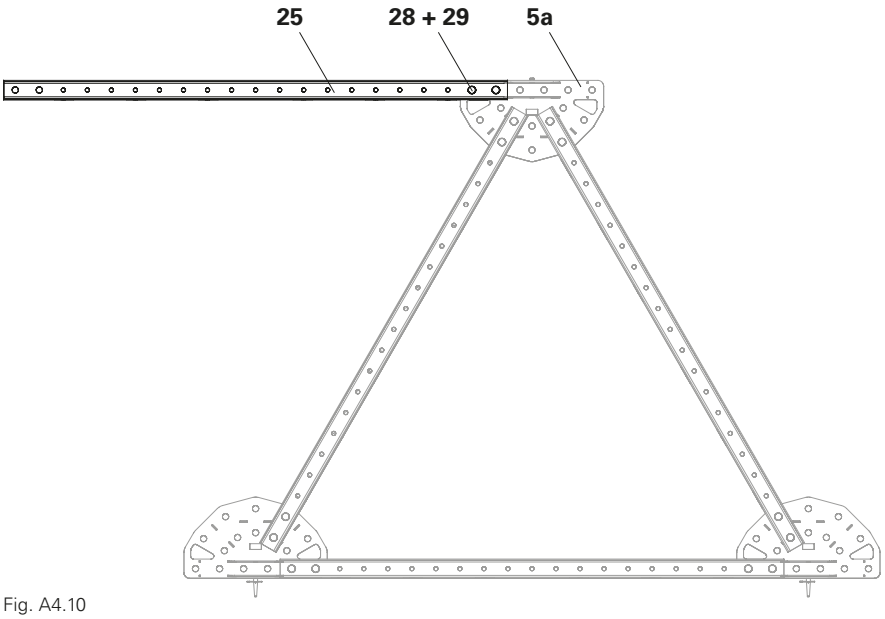


Fig. A4.10

3. Insert Vertical Member (**12**) into the Steel Waler 262 (**25**) and Chord Node (**5d**).
4. Fix the Vertical Member (**12**) to the Chord Node (**5d**) using 1x fitting pin Ø 32 (**28**) and secure with cotter pin 5/2 (**29**).
5. Fix the Vertical Member (**12**) to the Steel Waler 262 (**25**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pins 4/1 (**54**). (Fig. A4.11)

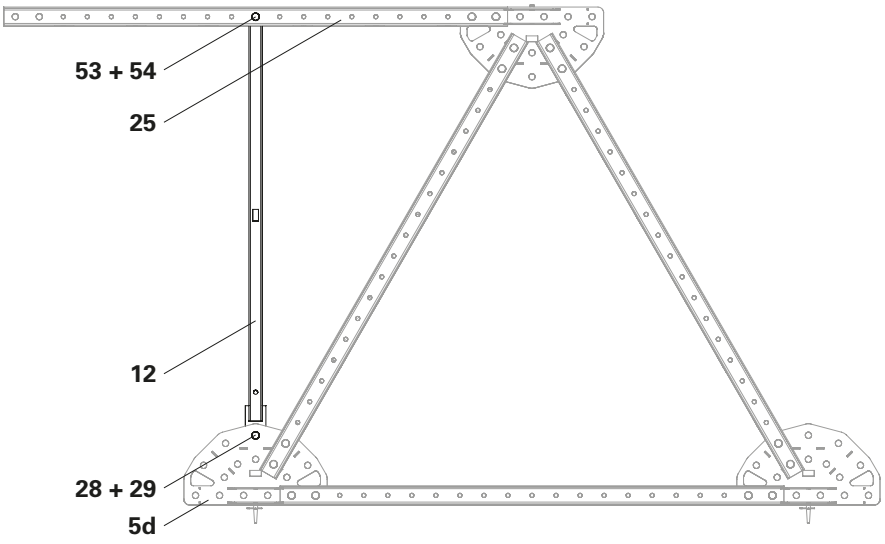


Fig. A4.11

A4 3-dimensional pre-assembly of the truss girder package

If a Bracing Connector ATG is to be mounted, the fitting pins Ø 32 must be replaced by bolts.

Parts list

6	Support Node ATG	2x
25	Steel Waler 262 Alpha	2x
28	Fitting pin Ø 32 Alpha	12x
29	Cotter pin 5/2	12x

Assembly (left and right)

1. Insert Steel Waler 262 (**25a**) into the Chord Node (**5**).
2. Fix Steel Waler 262 (**25a**) to the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.12)

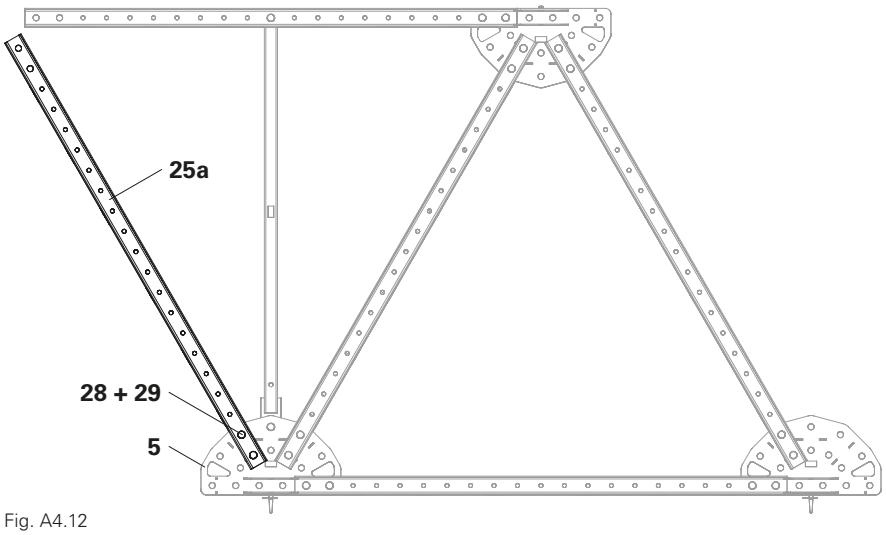


Fig. A4.12

3. Insert support node (**6**) into Steel Walers 262 (**25a**) and (**25b**).
4. Fix the support node (**6**) to the Steel Walers 262 (**25a**) and (**25b**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.13)

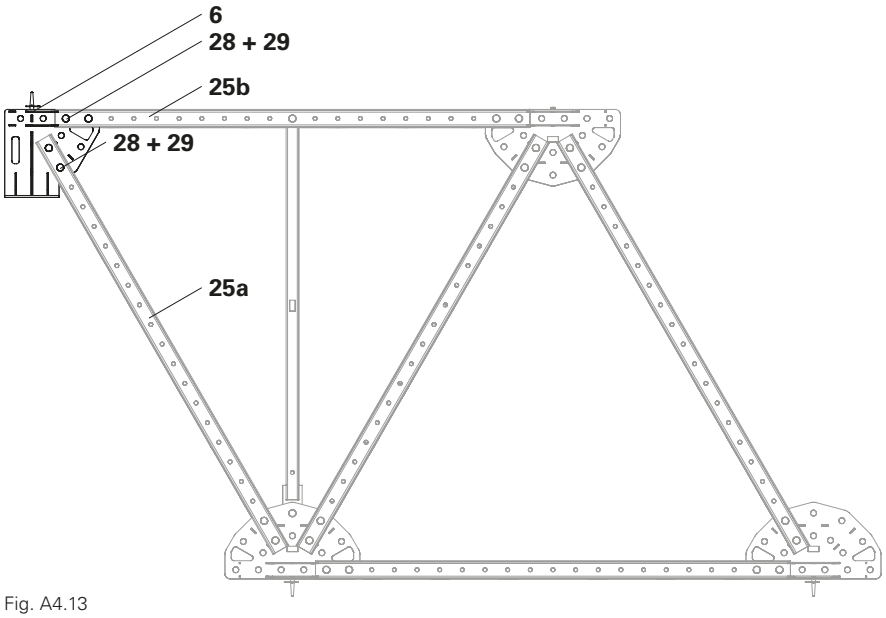


Fig. A4.13

A4 3-dimensional pre-assembly of the truss girder package

The fitting pins Ø 21 x 120 (**53**) of the Horizontal Posts must be knocked outwards to prevent any subsequent collision with the H-Load Tie Yoke DW 15 ATG (**39**).

Parts list

16	Diagonal-6 150/262 Alpha	2x
21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	6x
54	Cotter pin 4/1	6x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Support Nodes (**6a**) and (**6b**).
2. Fix the Horizontal Post 150 (**21**) to each Support Node (**6a**) and (**6b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).
3. Insert Diagonal-6 (**16a**) into the Support Node (**6a**) and Chord Node (**5b**).
4. Fix the Diagonal-6 (**16a**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pin 4/1 (**54**).
5. Insert Diagonal-6 (**16b**) into the Chord Nodes (**5a**) and (**5c**).
6. Fix the Diagonal-6 (**16a**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pin 4/1 (**54**).

(Fig. A4.14)

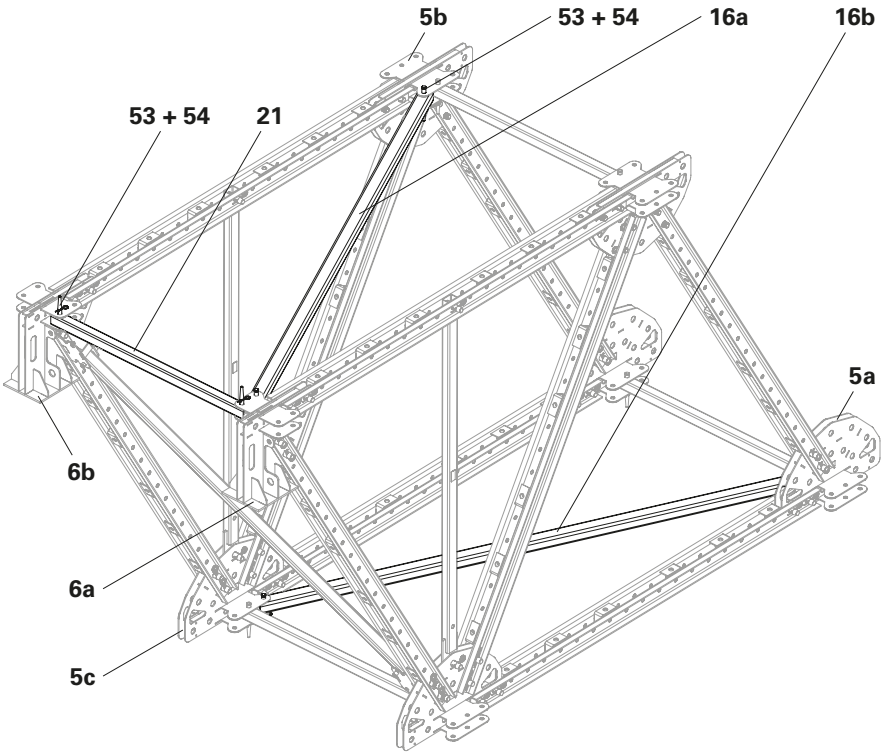


Fig. A4.14

Chord Nodes

Parts list per side

5	Chord Node ATG	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

Assembly

1. Insert Chord Node (**5**) into the Steel Waler 262 (**25**).
2. Fix the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.15)

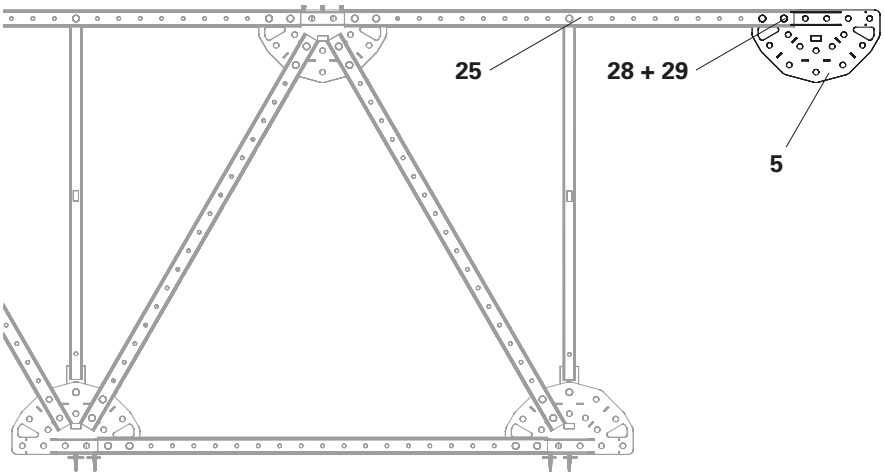


Fig. A4.15

A4 3-dimensional pre-assembly of the truss girder package

Bracing Connector ATG

If a Bracing Connector ATG must be mounted, the fitting pins Ø 32 Alpha and cotter pins 5/2 must be replaced by bolt ISO 4017 M30 x 100-8.8 and hex. nut ISO 4032 M30-8.

Mounting position of the steel waler
If the Bracing Connector ATG is mounted on a steel waler, the nose (**3.1**) must be positioned at the front side of the steel waler. (Fig. A4.16a)

Mounting position of the truss diagonal
If the Bracing Connector ATG is mounted at the position of a truss diagonal, the nose (**3.1**) must be positioned on the outer edge of the chord node. (Fig. A4.16b)

Parts list per bracing connector

3	Bracing Connector ATG	1x
42	Bolt ISO 4017 M30 x 100-8.8, **galv.**	2x
43	Hex. nut ISO 4032 M30-8, galv.	2x

Assembly

1. Place the bracing connector (**3**) on the steel waler (**25**) or Chord Node ATG (**5**).

Make sure the mounting position is correct. This is specified in the project-specific drawings.

2. Insert Bolt ISO 4017 M30 x 100 (**42**) through the Chord Node ATG (**5**), Bracing Connector ATG (**3**) and Steel Waler (**25**) or Chord Node ATG (**5**), Bracing Connector ATG (**3**) and the Truss Diagonal (**4**).
3. Secure Bolt ISO 4017 M30 x 100 (**42**) with Hex. Nut ISO 4032 M30 (**43**). (Fig. A4.16)

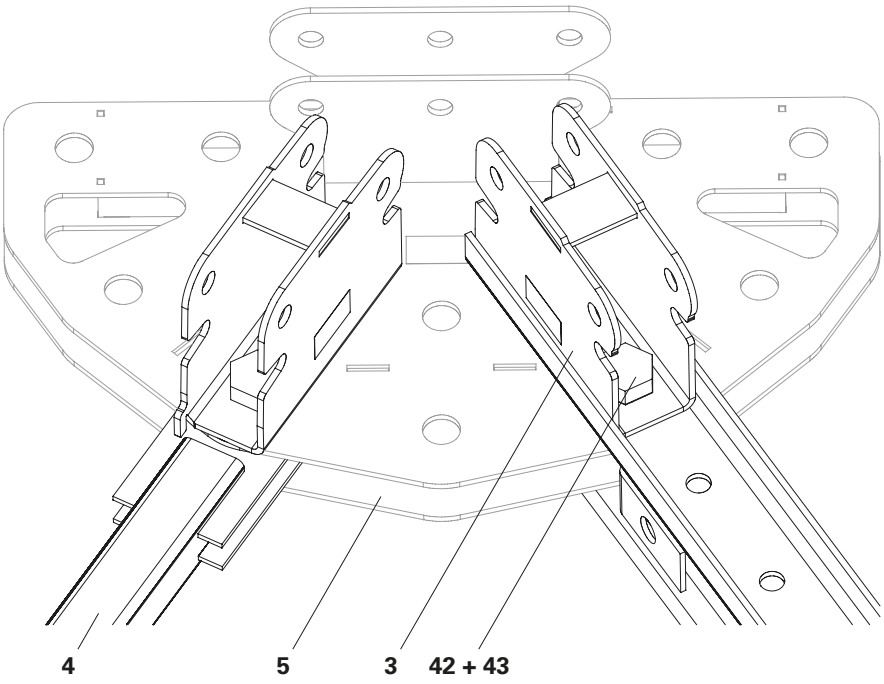


Fig. A4.16

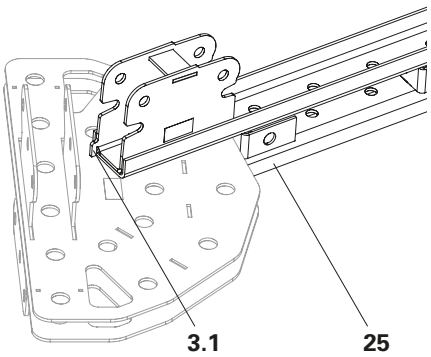


Fig. A4.16a

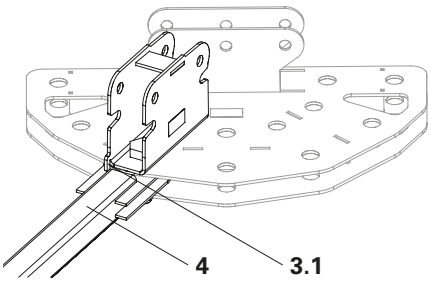


Fig. A4.16b

A4 3-dimensional pre-assembly of the truss girder package

Cross Diagonals

If a Diagonal-4 is specified as a Cross Diagonal in the assembly drawings, it must be mounted on the Bracing Connectors.

Parts list per Diagonal

34	Diagonal-4 150/212 ATS	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert the Diagonal-4 (**34**) into the Bracing Connectors (**3**).
2. Fix the Diagonal-4 (**34**) – used here as a Cross Diagonal – in the Bracing Connectors (**3**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A4.17)

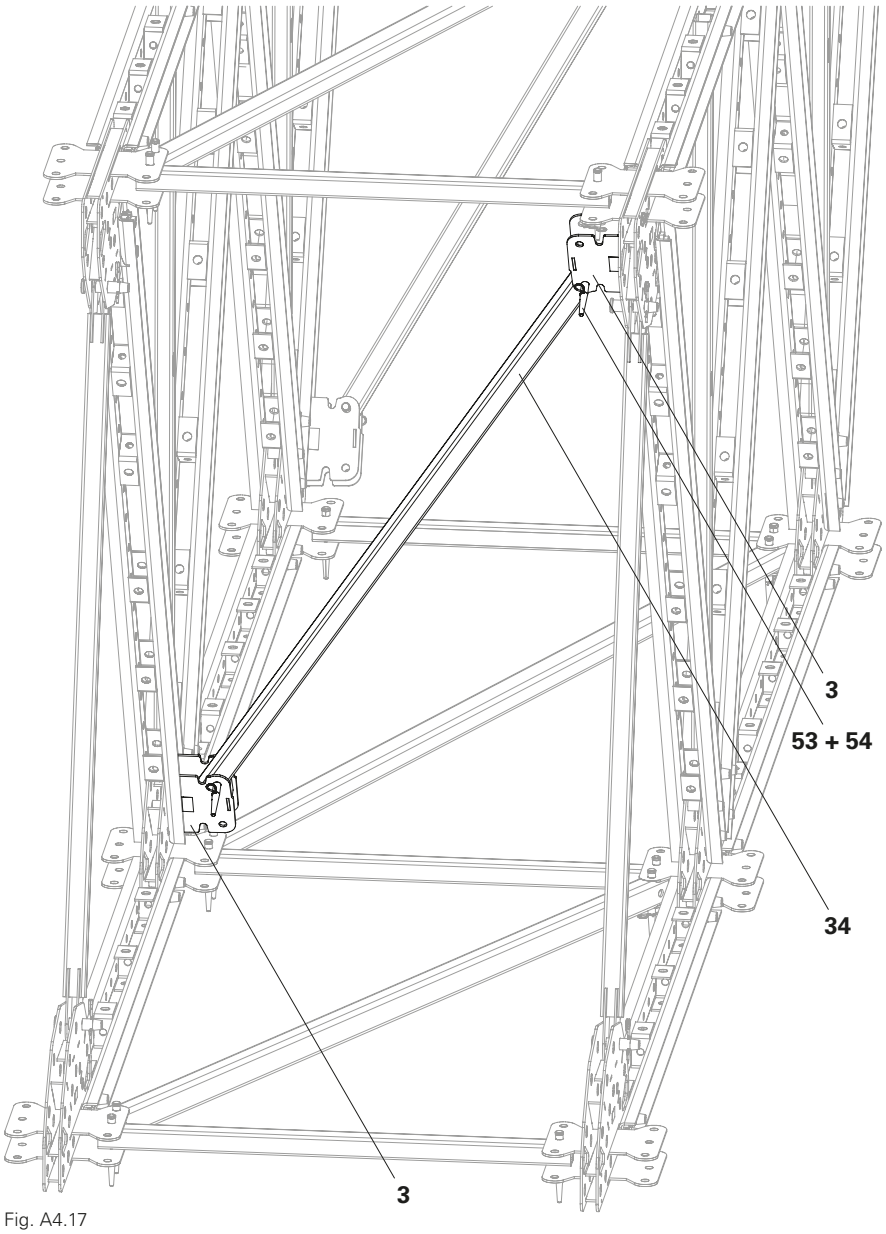


Fig. A4.17

A4 3-dimensional pre-assembly of the truss girder package

Additional assembly

- Chord Node assembly operations must be repeated until the pre-determined length of the Truss Girder Package has been reached.
- The Steel Waler for length compensation must always be mounted in the centre of the Truss Girder Package.

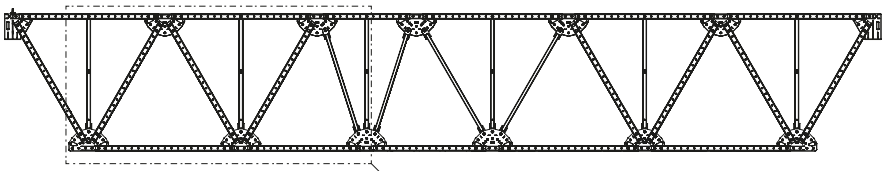


Fig. A4.18

Assembly of the top Steel Waler

Parts list per Steel Waler

25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

Assembly

1. Insert the Steel Waler 262 (**25**) into the Chord Node (**5**).
2. Fix Steel Waler 262 (**25**) to the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.19)

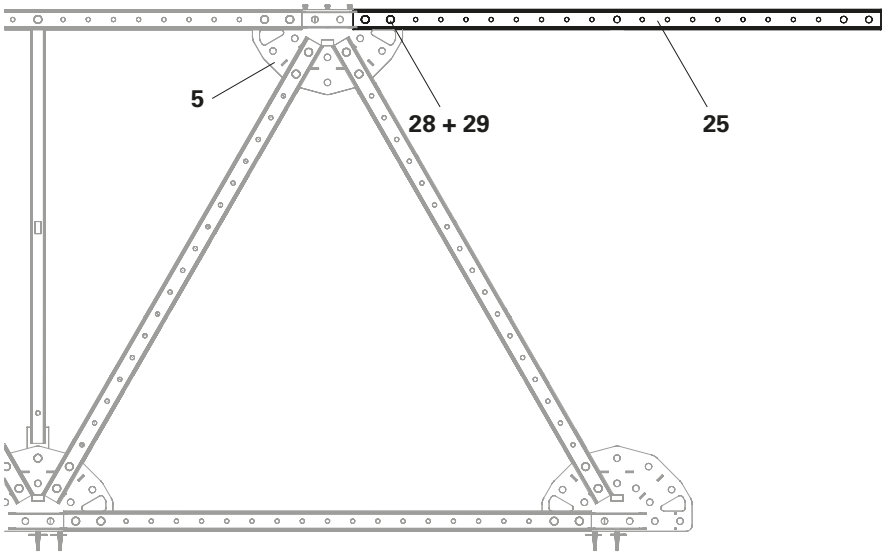


Fig. A4.19

A4 3-dimensional pre-assembly of the truss girder package

Assembly of the Vertical Member

One Vertical Member ATG (**12**) must be mounted on each bottom Chord Node ATG (**5**).

Parts list per Vertical Member

12	Vertical Member ATG	1x
28	Fitting pin Ø 32 Alpha	1x
29	Cotter pin 5/2	1x
53	Fitting pin Ø 21 x 120	1x
54	Cotter pin 4/1	1x

Assembly

1. Insert Vertical Member (**12**) into the Steel Waler 262 (**25**) and Chord Node (**5**).
2. Fix the Vertical Member (**12**) to the Chord Node (**5**) using 1x fitting pin Ø 32 (**28**) and secure with cotter pin 5/2 (**29**).
3. Fix the Vertical Member (**12**) to the Steel Waler 262 (**25**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A4.20)

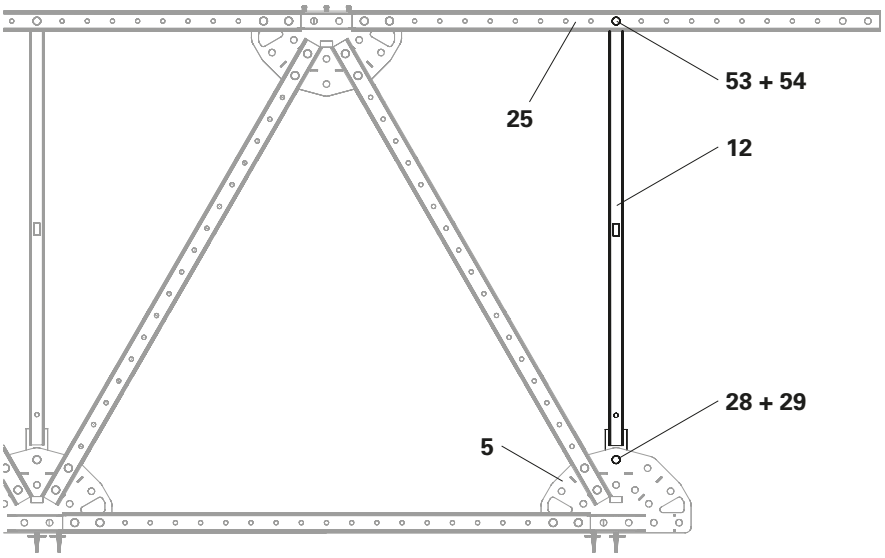


Fig. A4.20

A4 3-dimensional pre-assembly of the truss girder package

Top Horizontal Posts

Parts list

21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A4.21)

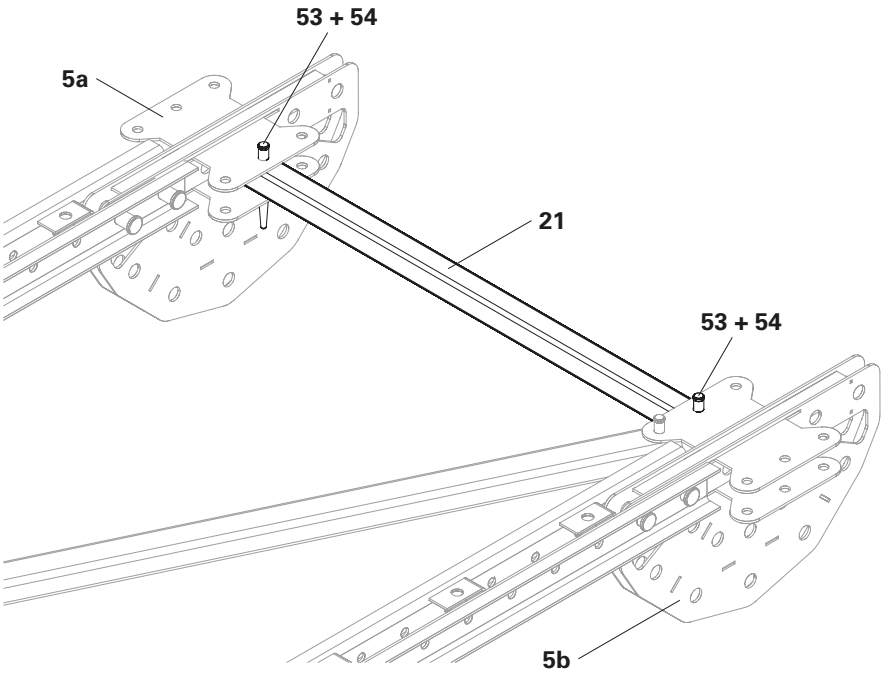


Fig. A4.21

A4 3-dimensional pre-assembly of the truss girder package

Assembly of the Diagonals

The assembly drawings will indicate whether a Truss Diagonal or Steel Waler is to be mounted as a Diagonal.

Parts list per steel waler

25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	4x
29	Cotter pin 5/2	4x

Parts list per truss diagonal

4	Truss Diagonal 262 ATG	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

Assembly of the steel waler as a diagonal

1. Insert the Steel Waler 262 (**25**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Steel Waler 262 (**25**) to the Chord Nodes (**5a**) and (**5b**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.22)

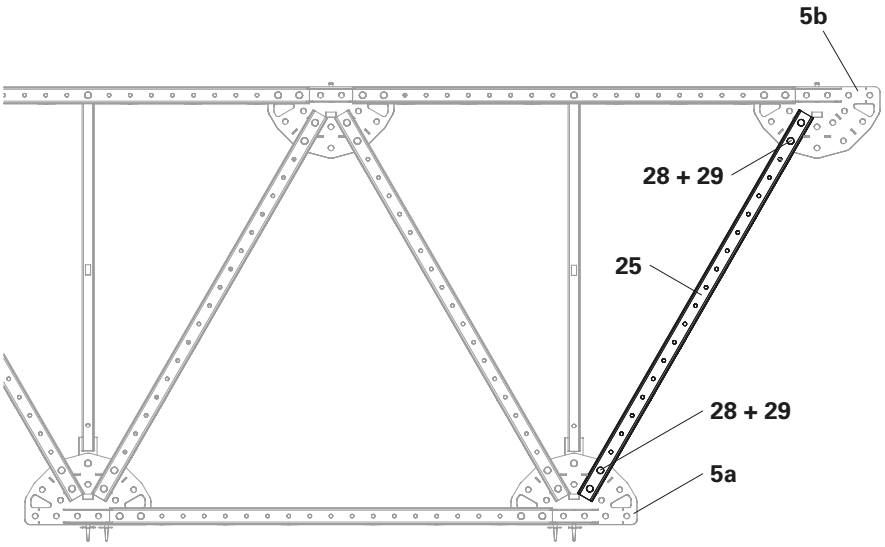


Fig. A4.22

Assembly of the truss diagonal

1. Insert the Truss Diagonal 262 (**4**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Truss Diagonal 262 (**4**) to the Chord Nodes (**5a**) and (**5b**) using 1x fitting pin Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.23)

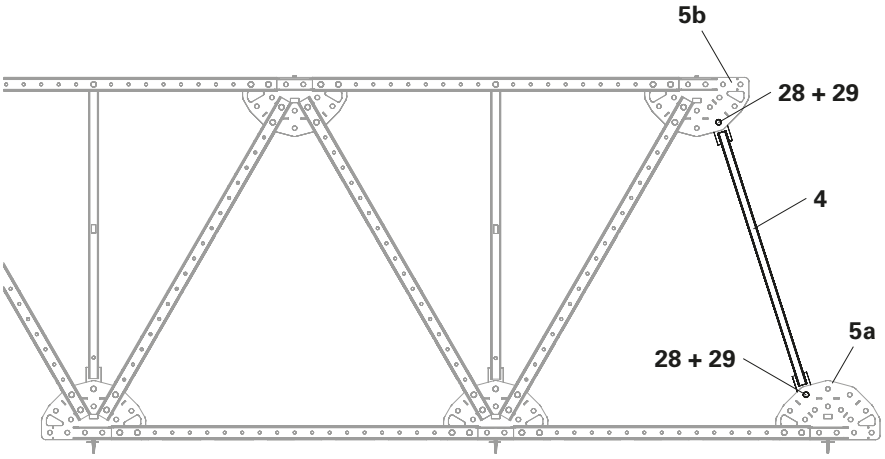


Fig. A4.23

Check whether the diagonals specified in the assembly drawings have been used.

A4 3-dimensional pre-assembly of the truss girder package

Bottom Horizontal Posts

Parts list

21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A4.24)

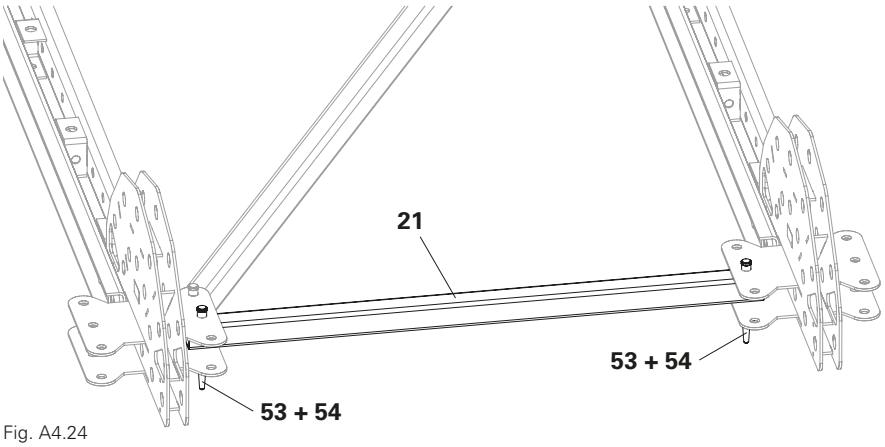


Fig. A4.24

Assembly of the bottom Steel Waler

Parts list per Steel Waler

25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

Assembly

1. Insert the Steel Waler 262 (**25**) into the Chord Node (**5**).
2. Fix Steel Waler 262 (**25**) to the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.25)

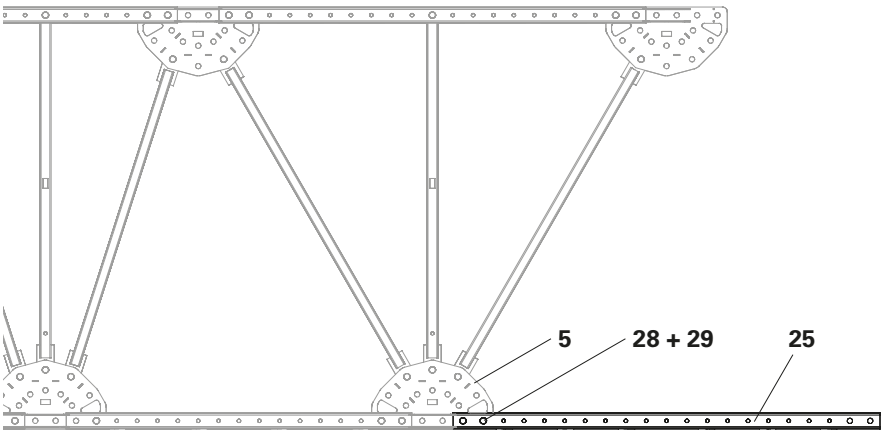


Fig. A4.25

A4 3-dimensional pre-assembly of the truss girder package

Final steps

Parts list per Steel Waler

25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	2x
29	Cotter pin 5/2	2x

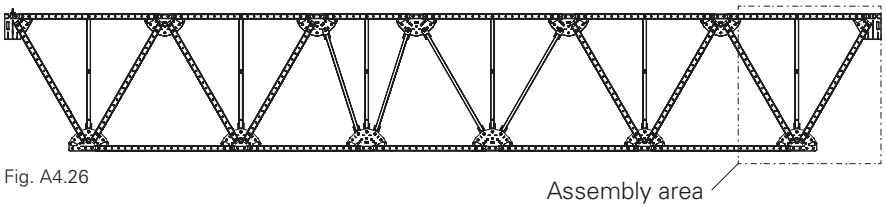


Fig. A4.26

Assembly

1. Insert the Steel Waler 262 (**25**) into the Chord Node (**5**).
2. Fix Steel Waler 262 (**25**) to the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.27)

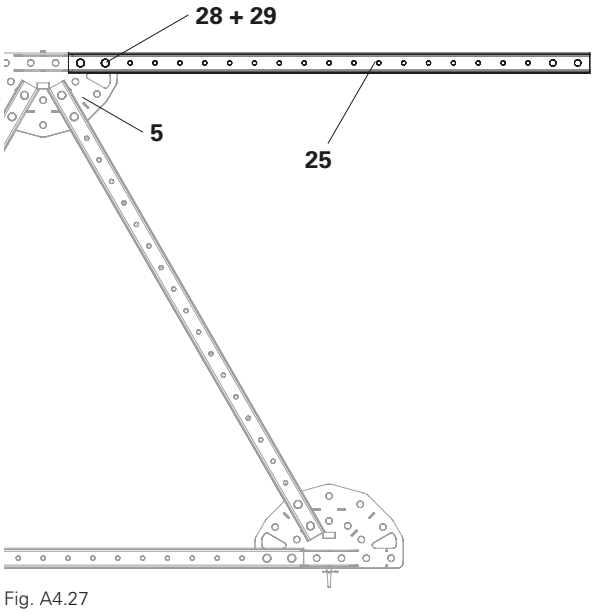


Fig. A4.27

Parts list per Vertical Member

12	Vertical Member ATG	1x
28	Fitting pin Ø 32 Alpha	1x
29	Cotter pin 5/2	1x
53	Fitting pin Ø 21 x 120	1x
54	Cotter pin 4/1	1x

Assembly

1. Insert Vertical Member (**12**) into the Steel Waler 262 (**25**) and Chord Node (**5**).
2. Fix the Vertical Member (**12**) to the Chord Node (**5**) using 1x fitting pin Ø 32 (**28**) and secure with cotter pin 5/2 (**29**).
3. Fix the Vertical Member (**12**) to the Steel Waler 262 (**25**) using 1x fitting pin Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A4.28)

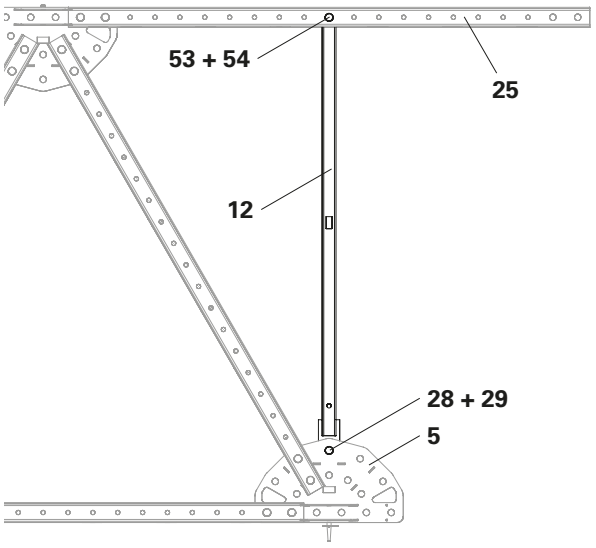


Fig. A4.28

A4 3-dimensional pre-assembly of the truss girder package

If a Bracing Connector ATG is to be mounted, the fitting pins Ø 32 must be replaced by bolts.

Parts list per side

6	Support Node ATG	1x
25	Steel Waler 262 Alpha	1x
28	Fitting pin Ø 32 Alpha	6x
29	Cotter pin 5/2	6x

Assembly

1. Insert Steel Waler 262 (**25a**) into the Chord Node (**5**).
2. Fix Steel Waler 262 (**25a**) to the Chord Node (**5**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.29)

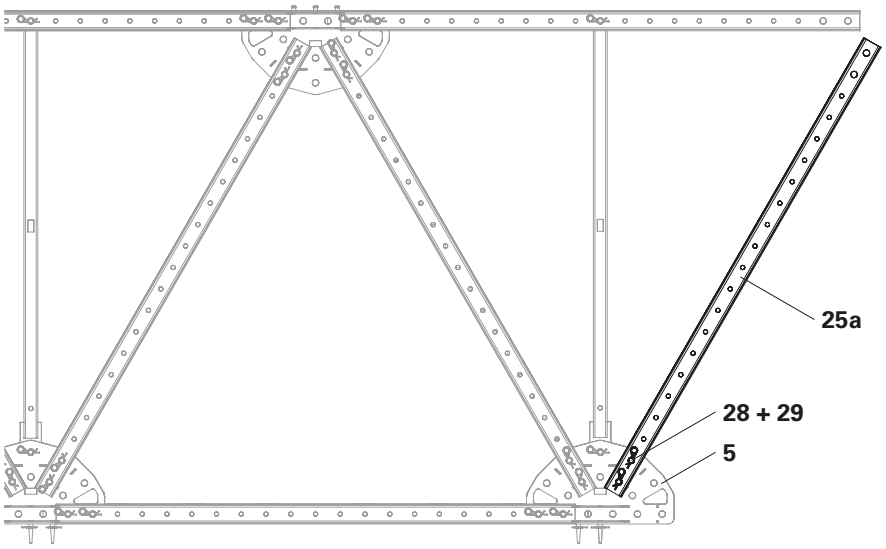


Fig. A4.29

3. Insert support node (**6**) into Steel Walers 262 (**25a**) and (**25b**).
4. Fix the support node (**6**) to the Steel Walers 262 (**25a**) and (**25b**) using 2x fitting pins Ø 32 (**28**) respectively and secure with cotter pins 5/2 (**29**).

(Fig. A4.30)

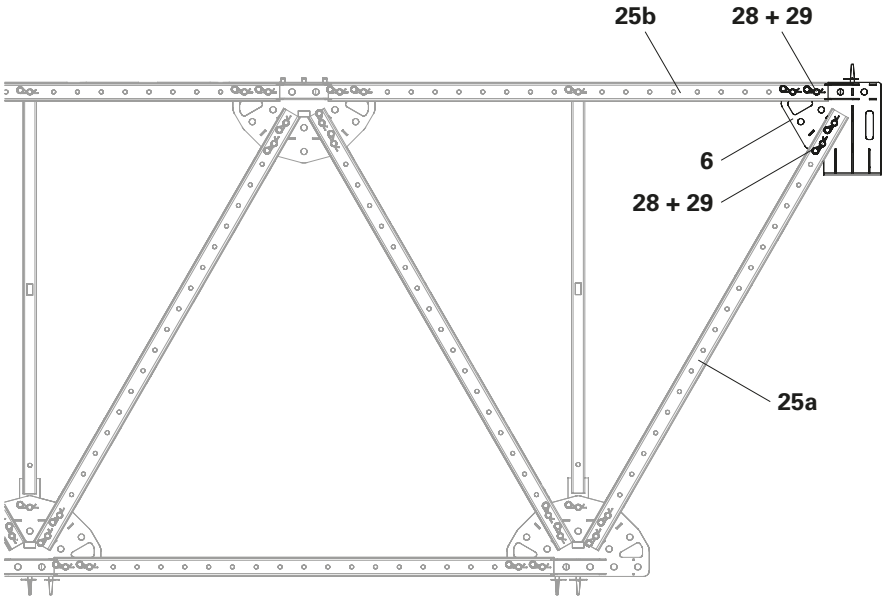


Fig. A4.30

A4 3-dimensional pre-assembly of the truss girder package

The fitting pins Ø 21 x 120 (**53**) of the horizontal posts must be knocked outwards to prevent any subsequent collision with the H-Load Tie Yoke DW 15 ATG (**39**).

Parts list

21	Horizontal Post 150 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Assembly

1. Insert Horizontal Post 150 (**21**) into the Chord Nodes (**5a**) and (**5b**).
2. Fix the Horizontal Post 150 (**21**) to each Chord Node (**5a**) and (**5b**) using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pins 4/1 (**54**).

(Fig. A4.31 + A4.31a)

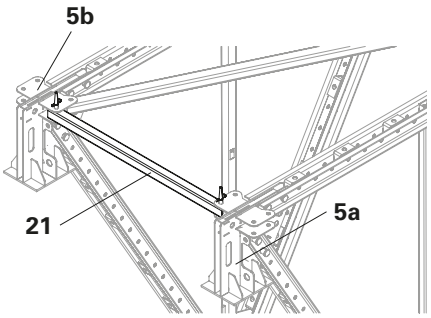


Fig. A4.31

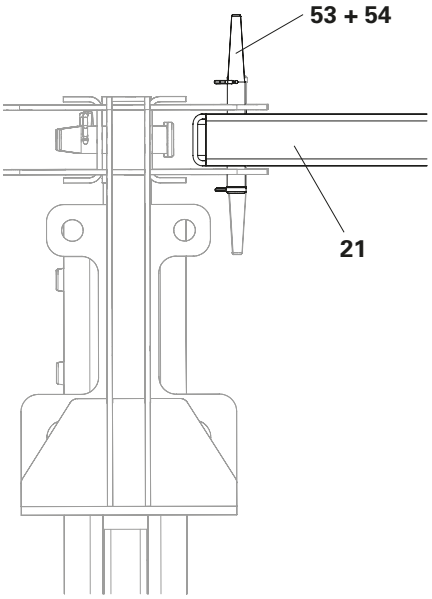


Fig. A4.31a

- Finally, check whether all components have been mounted correctly.
- In the first and last bay, one cross diagonal must always be mounted.
- Additional cross diagonals must be specified in the assembly drawings.

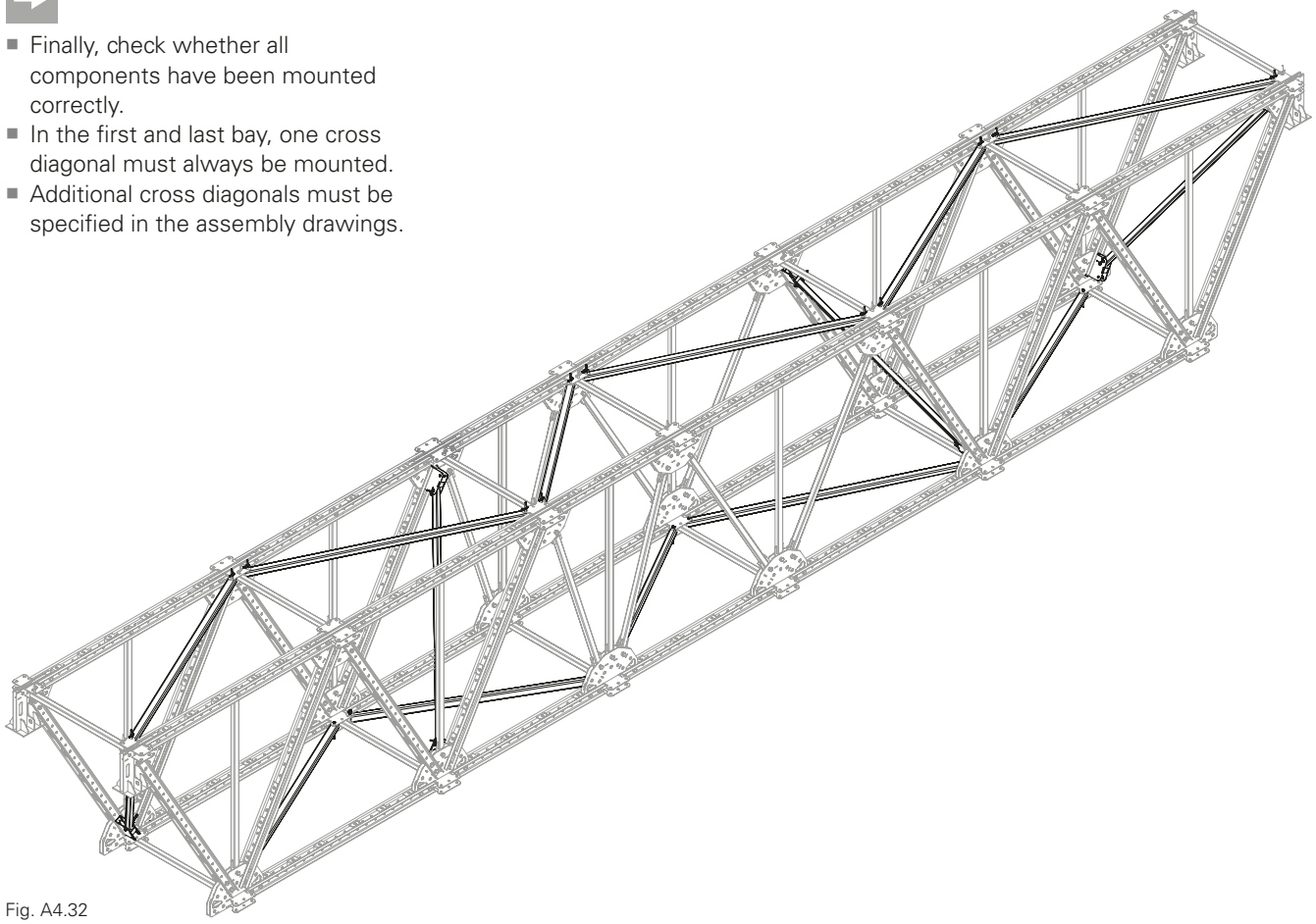


Fig. A4.32

A5 Special Diagonals

Every truss girder package which deviates from the system dimensions must be assembled using special horizontal posts and special diagonals. If a truss girder package is assembled with a horizontal post that is smaller than 1,000 mm, a Bracing Connector 75 ATG must be mounted in the middle of the steel waler.

Parts list

15	Bracing Connector 75 ATG	1x
53	Fitting pin Ø 21 x 120	4x
54	Cotter pin 4/1	4x
55	Bolt ISO 4014 M20 x 100-8.8	2x
56	Nut ISO 4032 M20-8	2x
	Special Diagonals	2x

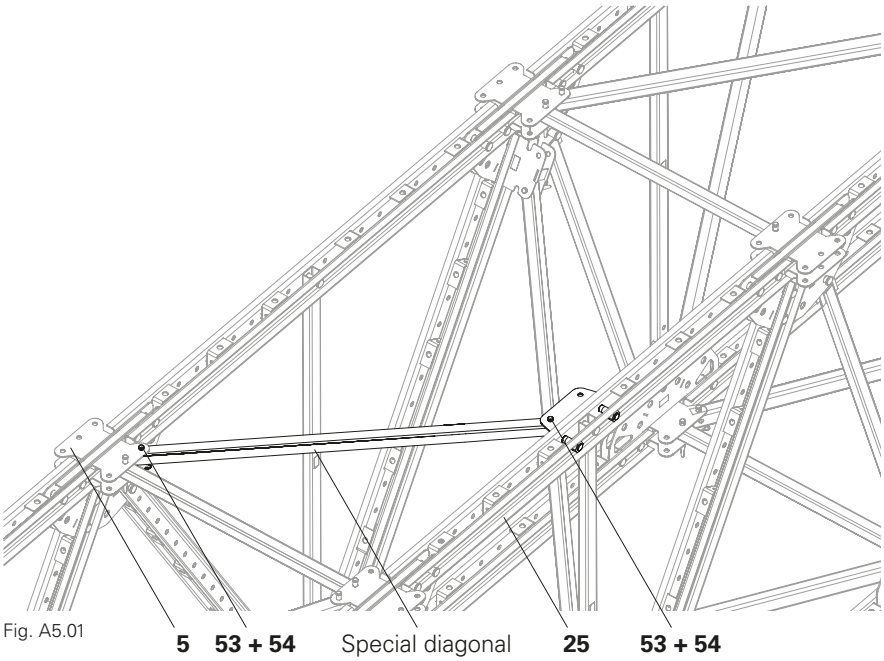


Fig. A5.01

Assembly

1. Insert bracing connector (**15**) into the Steel Waler 262 (**25**)
2. Secure bracing connector (**15**) using 2x bolt ISO 4014 M20 x 100 (**55**) and nuts ISO 4032 M20 (**56**). (Fig. A5.01)
3. Insert special diagonal into the chord node (**5**) and bracing connector (**15**).
4. Fix the special diagonal using 1x fitting pin Ø 21 (**53**) respectively and secure with cotter pin 4/1 (**54**). (Fig. A5.01)
5. Mount the second special diagonal in the same way. (Fig. A5.02 + A5.02a)

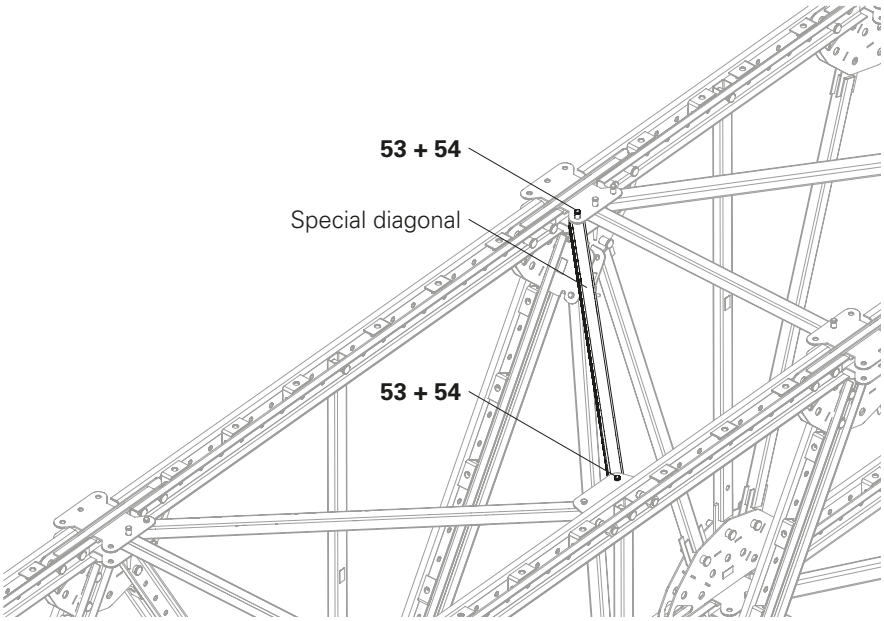


Fig. A5.02

Use the assembly drawings to ensure that the correct diagonals have been installed.

Instead of a special diagonal, a corresponding Heavy-Duty Spindle SLS can also be installed.

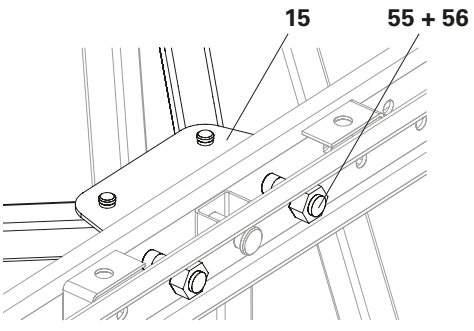


Fig. A5.02a

A6 Access platform

Only mount an access platform if this is specified in the assembly drawings.

Components per lattice girder

53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x
57	Hook Strap Uni HBU 24-28	2x
63	Lattice Girder GT 24	1x
64	Guardrail Holder GT 24/VT 20	2x
65	Guardrail Post SGP	2x

Additional components

66 Guardrail boards
67 Deck

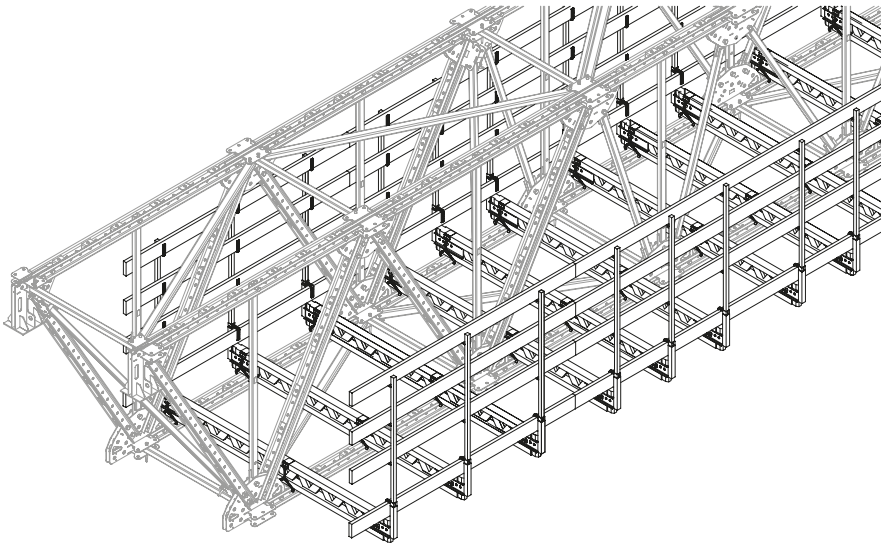


Fig. A6.01

Assembly

1. Fix lattice girder (**63**) to the steel walers (**25**) using hook straps (**57**). (Fig. A6.02)
2. Fix the guardrail holder (**64**) to the front and rear sides of the lattice girder using 1x fitting pin Ø 21 (**26**) respectively and secure with cotter pins 4/1 (**27**). (Fig. A6.03)
3. Insert 1x guardrail post (**65**) into each guardrail holder (**64**). (Fig. A6.04)
4. Attach guardrail boards* (**66**) to the guardrail posts (**65**). (Fig. A6.05)

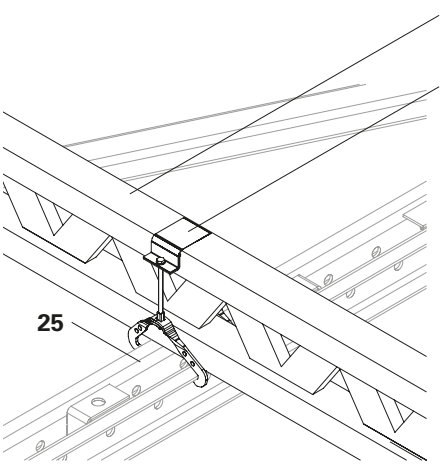


Fig. A6.02

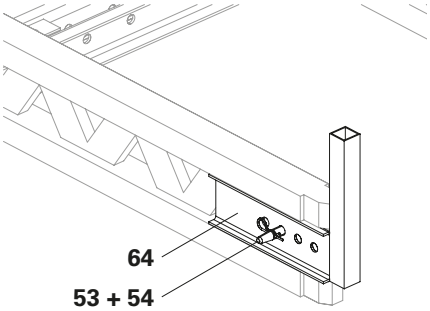


Fig. A6.03

Alternatively, the Girder VT 20 and Hook Strap UNI HBU 20-24 can also be used instead of the Lattice Girder GT 24 and Hook Strap UNI HBU 24-28.

* Alt. use scaffold tube rails or mesh barriers as required by design.

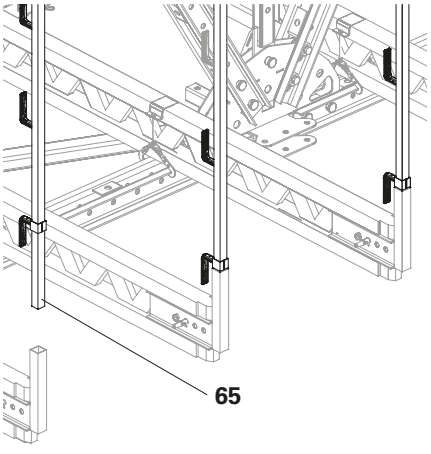


Fig. A6.04

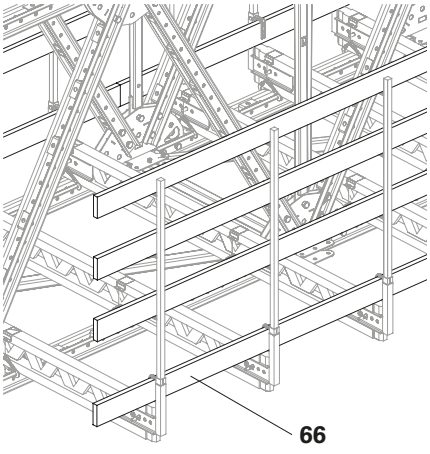


Fig. A6.05

Mounting the decking

1. Mount decking (**67**) on the lattice girders (**63**), e.g. with screws. (Fig. A6.06)

Ensure that everything is assembled as specified in the assembly drawings.

The truss girder package can be lifted after assembling the access platform.

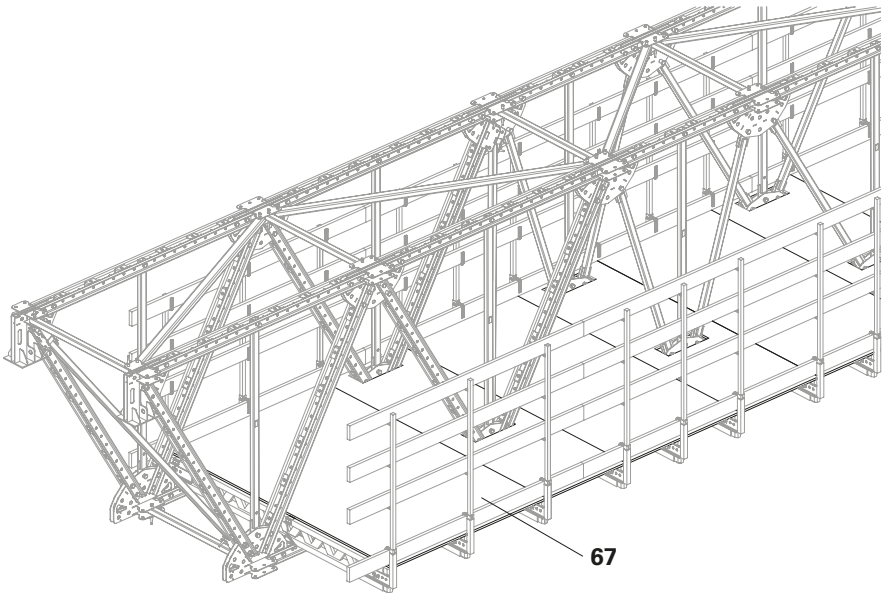


Fig. A6.06

A7 Truss girder package with widths ≤ 50 or 37.5 cm

Warning

The truss girder package can tip over or be damaged during transport!
Risk of injury!

⇒ Secure the truss girder package to prevent tipping.

⇒ One Connector X 50 ATG or X 37.5 ATG must always be mounted at the crane suspension points and in the extension.

Components

13 Horizontal Post 37.5 Alpha
20 Horizontal Post 50 Alpha
48 Connector X 50 ATG
53 Fitting pin Ø 21 x 120
54 Cotter pin 4/1
68 Connector X 37.5 ATG

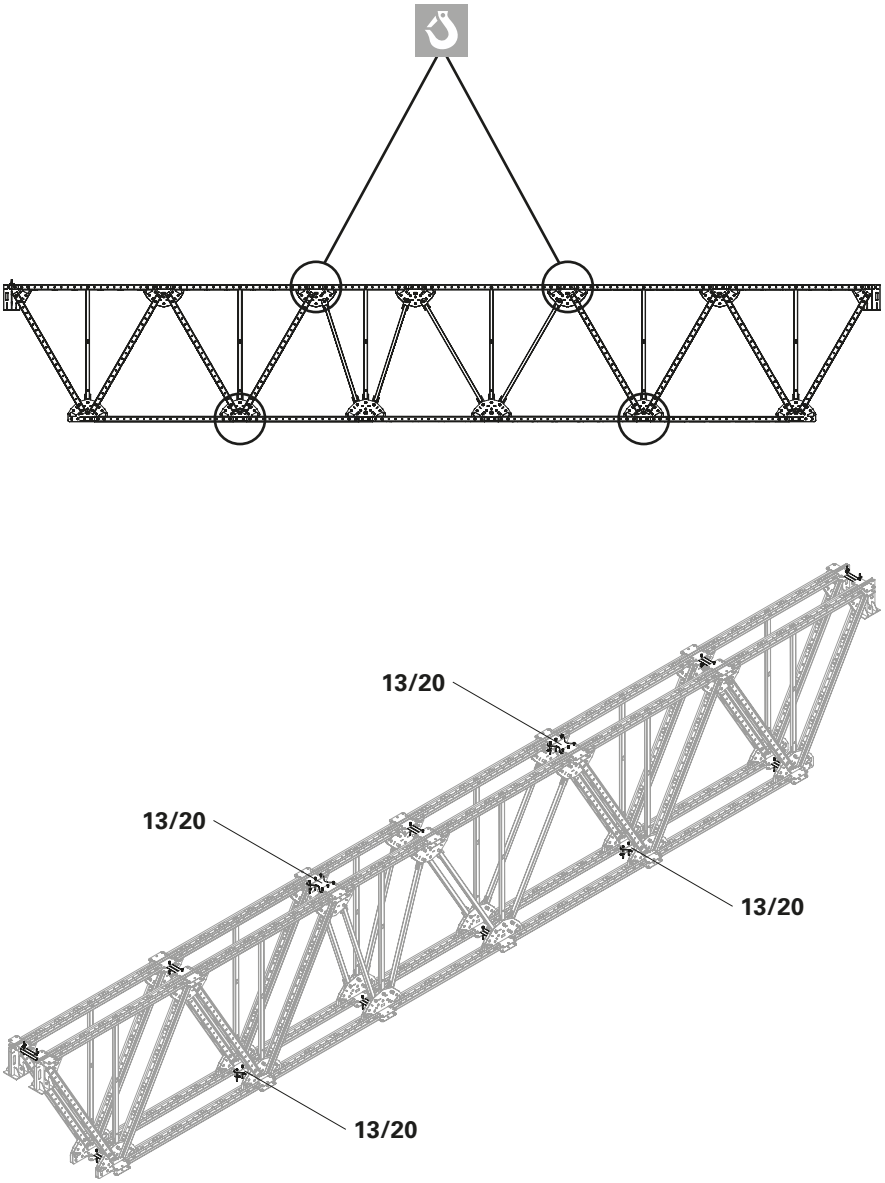


Fig. A7.01

A7 Truss girder package with widths ≤ 50 or 37.5 cm

Assembly

1. Insert horizontal post (**13/20**) between the chord nodes (**5**).
2. Fix the horizontal post (**13/20**) to the chord nodes (**5**) in the middle using 2x fitting pins (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A7.02 + A7.02a)

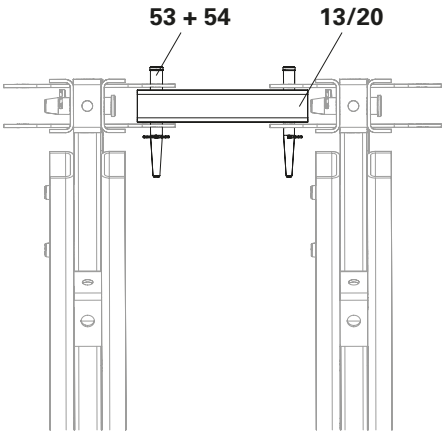


Fig. A7.02a

Assembly with the Connector X ATG

1. Insert horizontal post (**13/20**) between the chord nodes (**5**).
2. Fix the horizontal post (**13/20**) to the chord nodes (**5**) in the middle using 2x fitting pins (**53**) and secure with cotter pins 4/1 (**54**).
3. Insert connector (**48/68**) onto the horizontal post (**13/20**) between the chord nodes (**5**).
4. Fix connector (**48/68**) to the chord node (**5**) using 4x fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. A7.02 + A7.02b)

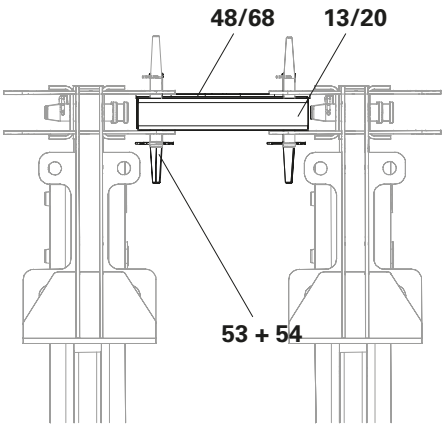


Fig. A7.02b

Refer to the assembly drawings for the correct connection.

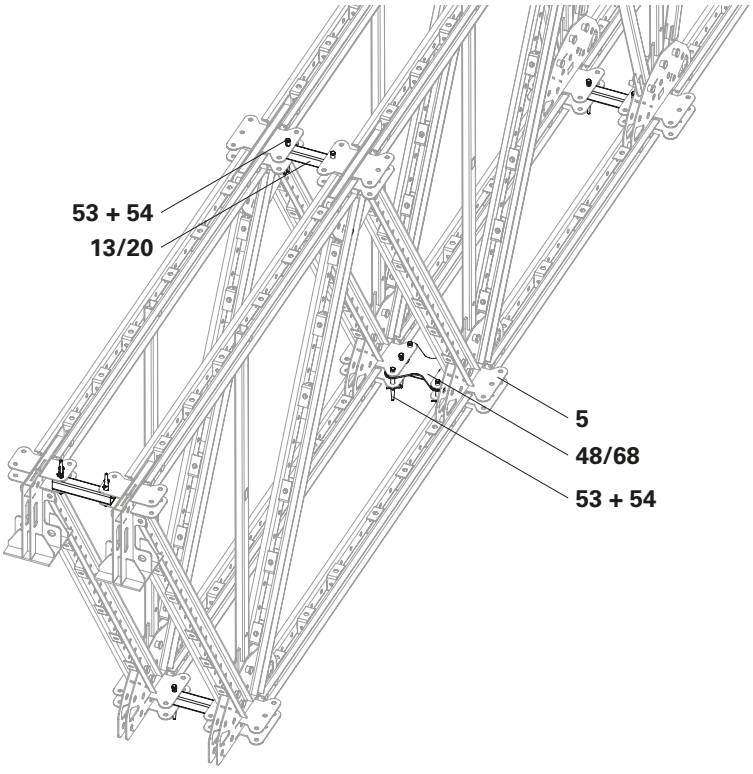


Fig. A7.02

Warning

The tower can tip over!
Risk of injury!

⇒ Remove crane lifting gear only when the tower has been secured on the ground.

⇒ The ground must be able to accommodate the load.

⇒ The tower must be anchored in the ground or secured with kicker braces.

Variant 1

Anchoring the tower with tie rod, Bracing Shoe VARIOKIT and Articulated Spanner DW15.

- The position of the Bracing Shoe VARIOKIT (**109**) is variable. The anchoring of the bracing shoe can be cast or mounted in the foundation in advance, within the area indicated in Fig. B1.02a.
- The anchoring forces must be determined for the project in question and the anchoring point planned.
- As an alternative to the Articulated Spanner DW15, the Articulated Spanner RCS DW15 with Hex Nut DW15 AF30/50 can be used.

Assembly of the Articulated Spanner DW15

1. Cut the tie rod to the specified length.
2. Place the nut (**108.1**) of the Articulated Spanner DW15 (**108**) on the tie rod.
3. Screw Articulated Spanner DW15 (**108**) onto the tie rod until the tie rod is visible in the test bore.

(Fig. B1.01)

4. Screw the Tension Tie Connection CB/SCS (**105**) onto the tie rod.

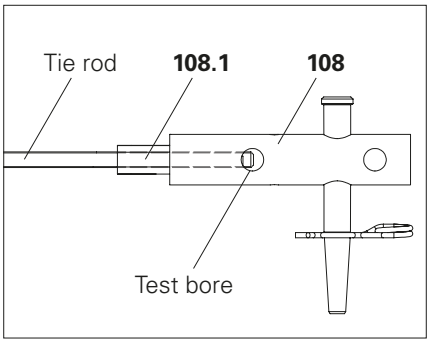


Fig. B1.01

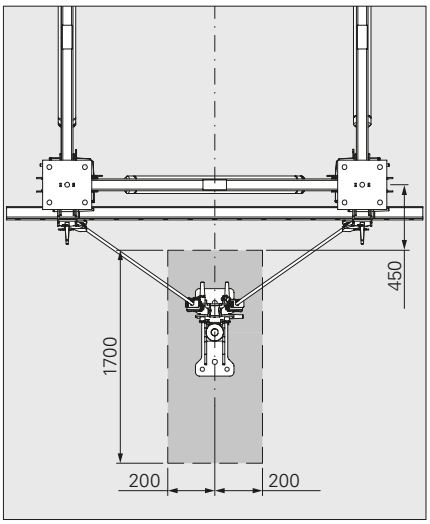


Fig. B1.02a

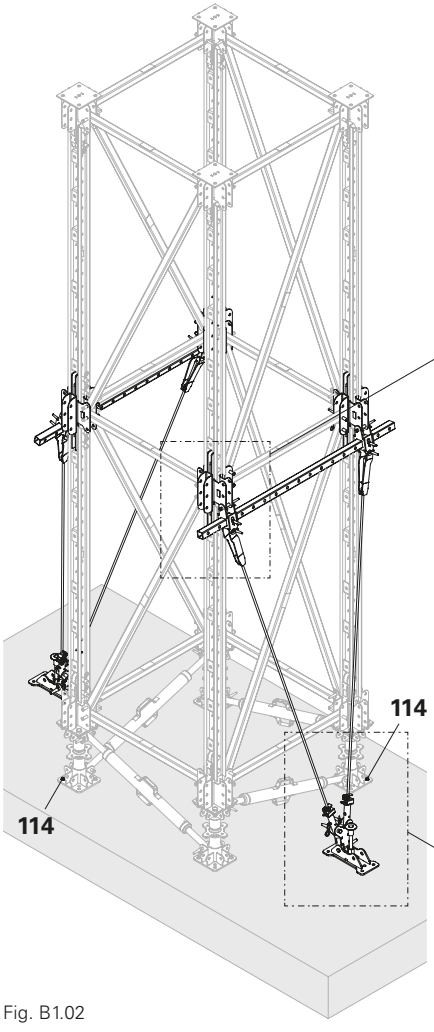


Fig. B1.02

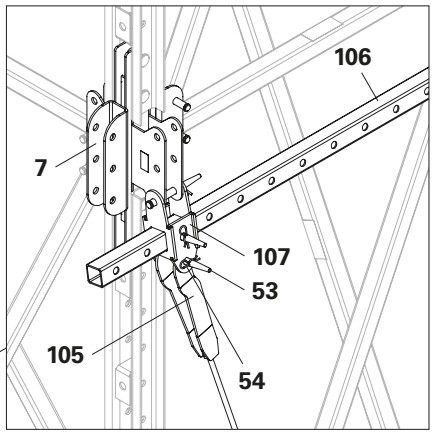


Fig. B1.02b

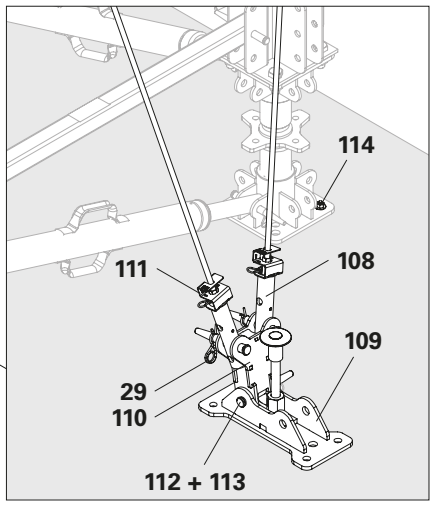


Fig. B1.02c

Assembly of the bracing

1. Fit the Bracing Shoe VARIOKIT (**109**) at the specified position on the ground with the tie rod and hex nut and secure the protruding tie rod with the protective cap.
2. Fit the Bracing Connector VARIOKIT (**107**) with fitting pin Ø 21 x 120 (**53**) and cotter pin 4/1 (**54**) onto the Vertical Connector ATS (**7**) from a safe working position.
3. Insert the Bracing Distribution Tube VARIOKIT (**106**) through the Bracing Connector VARIOKIT (**107**) and fit it with fitting pin Ø 21 x 120 (**53**) and cotter pin 4/1 (**54**).
4. Fit the Tension Tie Connections CB/SCS (**105**) onto the Bracing Connector VARIOKIT (**107**) with fitting pin Ø 21 x 120 (**53**) and cotter pin 4/1 (**54**).
   ⚠ Do not fit Tension Tie Connection CB/SCS (**105**) onto the Bracing Distribution Tube (**106**). (Fig. B1.02d)
5. Fit the Y-adapter VARIOKIT (**110**) onto the Bracing Shoe VARIOKIT (**109**) with fitting pin Ø 26 x 120 (**112**) and cotter pin 5/1 (**113**).
6. Fit the Articulated Spanner DW15 (**108**) onto the Y-adapter VARIOKIT (**110**) with fitting pin Ø 26 x 120 (**112**) and cotter pin 5/2 (**29**).
7. Clamp the tie rod using an open-end wrench, for example.
8. Twist lock articulated spanner Fit DW15 (**111**) onto the tie rod and secure with cotter pins 4/1 (**54**).
9. Prevent the tower from shifting using two opposing project-specific ties (**114**).

(Fig. B1.02 – B1.02e)

Towers with additional frames can also be braced in the centre in the same way. Bracing must always be mounted on the tower.
(Fig. B1.03 + B1.03a)

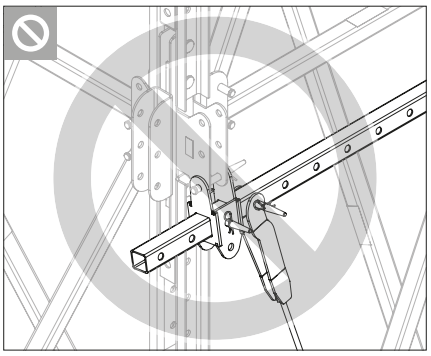


Fig. B1.02d

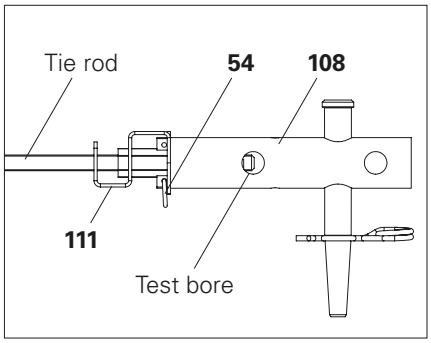


Fig. B1.02e

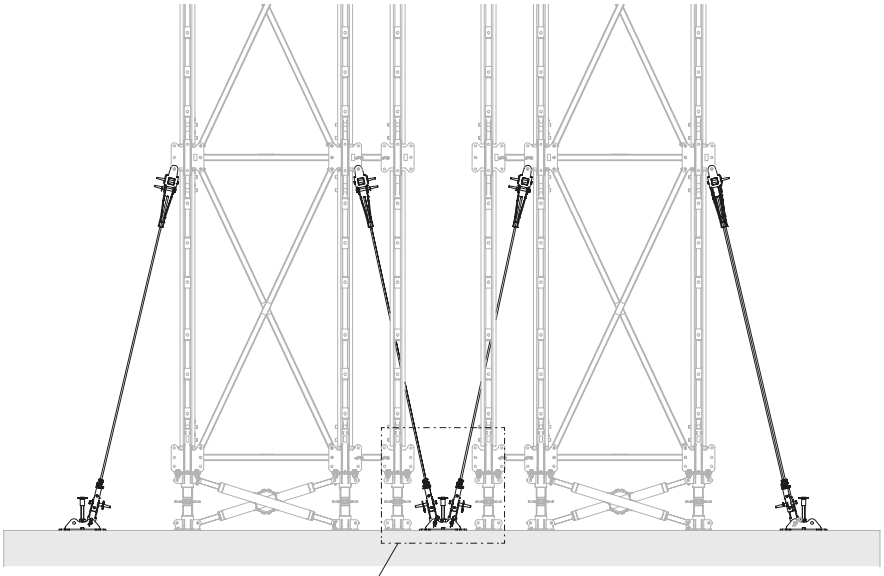


Fig. B1.03

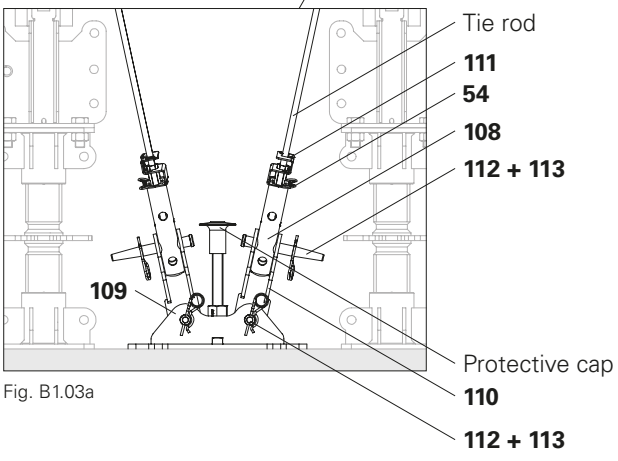


Fig. B1.03a

Variant 2
Anchoring the tower with Push-Pull Prop RS (**69**) and base plates for RS-3 210 – 1400 (**70**).

Assembly
1. Move tower using the crane to the specified position.
2. Mount base plate for RS-3 (**70**) on the ground using Tie Bolt PERI (**59**). (Fig. B1.04a)
3. Fix Push-Pull Prop RS (**69**) to the base plate for RS-3 (**70**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**). (Fig. B1.04)
4. Fix Push-Pull Prop RS (**69**) to the vertical connector (**7**) using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**). (Fig. B1.04 + Fig. B1.04b)
5. Detach crane lifting gear.

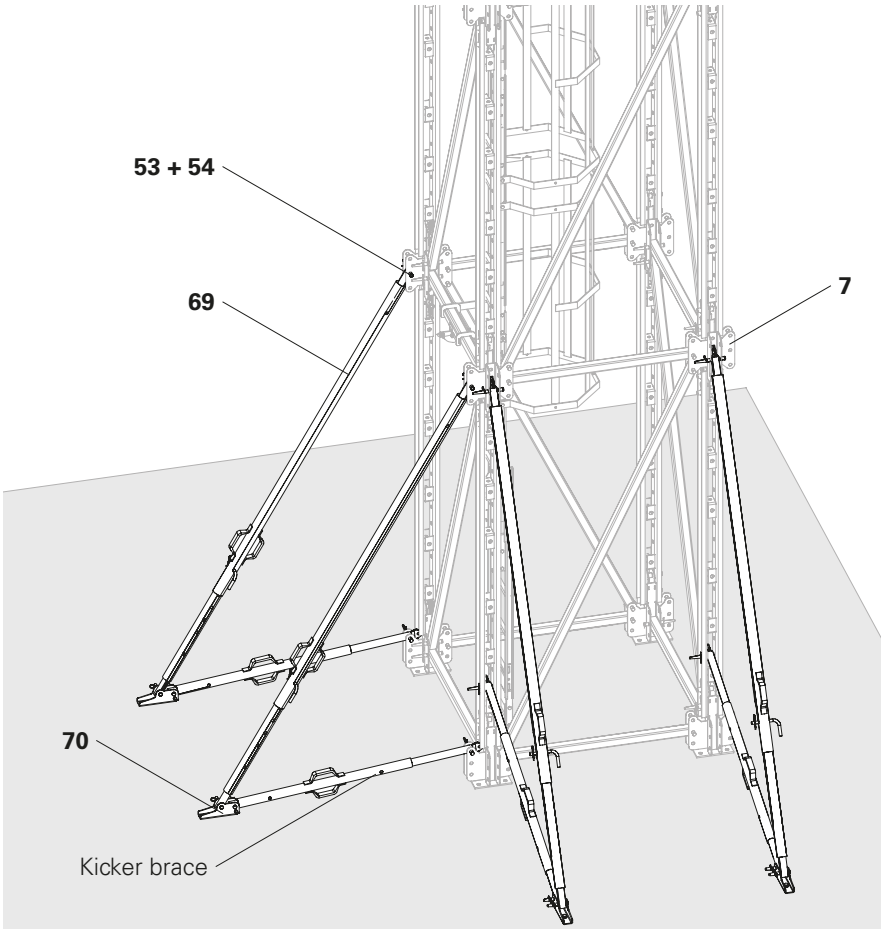


Fig. B1.04

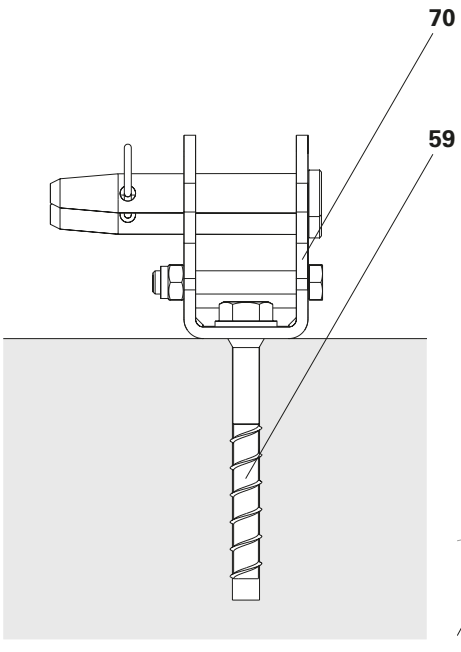


Fig. B1.04a

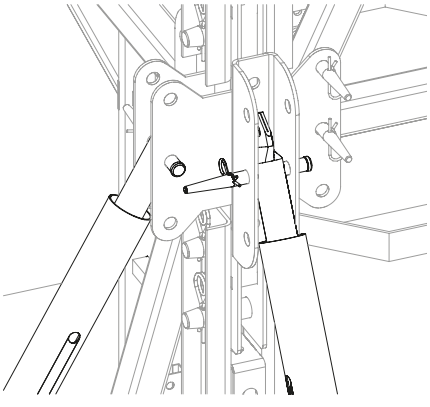


Fig. B1.04b

Variant 3
Anchoring of the tower with tie rod in the ground.

Assembly
1. Move tower using the crane to the specified position.
2. Using a suitable drill, drill holes through the holes in the Prop Base ATS (**1**) into the foundations.
3. Anchor the tower to the foundations using 4x tie rods and nuts per Prop Base ATS (**1**) respectively.
4. Detach crane lifting gear.

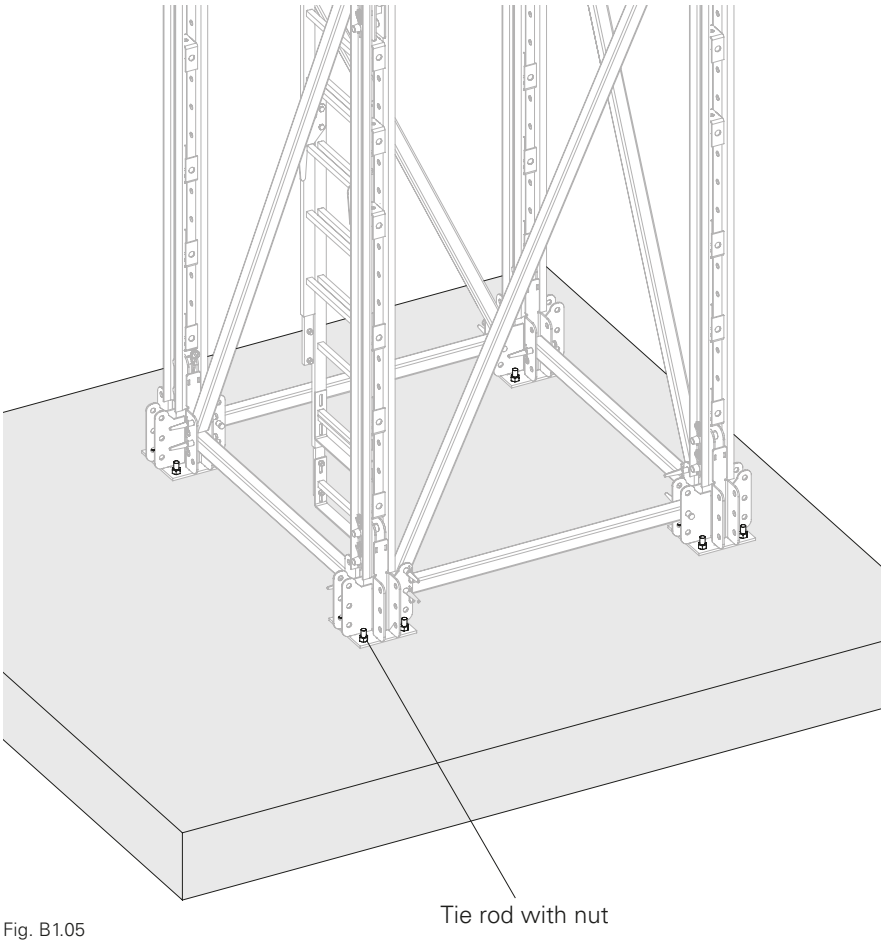


Fig. B1.05

Variant 4
Anchoring with tie rod and swelling mortar.

Assembly
1. Move concrete bases to the specified locations.
2. Screw 2x nuts per tie rod to the correct height and counter against each other.
3. Apply swelling mortar on the foundation.
4. Move tower using the crane to the specified position.
5. Fix tower on the tie rods using the nuts.
6. Allow the swelling mortar to harden.
7. Detach crane lifting gear.

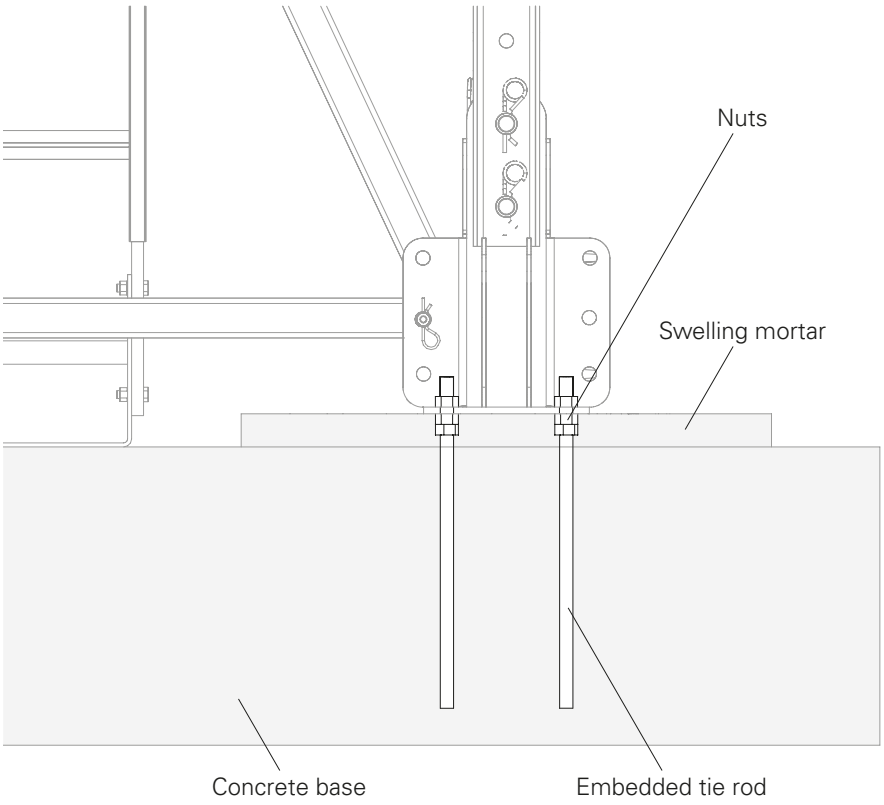


Fig. B1.06

Warning

The additional frame can tip over during assembly if the horizontal posts have not been mounted!
Risk of injury!

⇒ Detach the additional frame from the crane lifting gear only after the frame has been connected to the tower.

⇒ Mount the horizontal posts from a safe working position.

Fly in the additional frame

1. Attach the additional frame to the crane lifting gear.
2. Set down the additional frame at the correct distance from the tower. (Fig. B2.01)

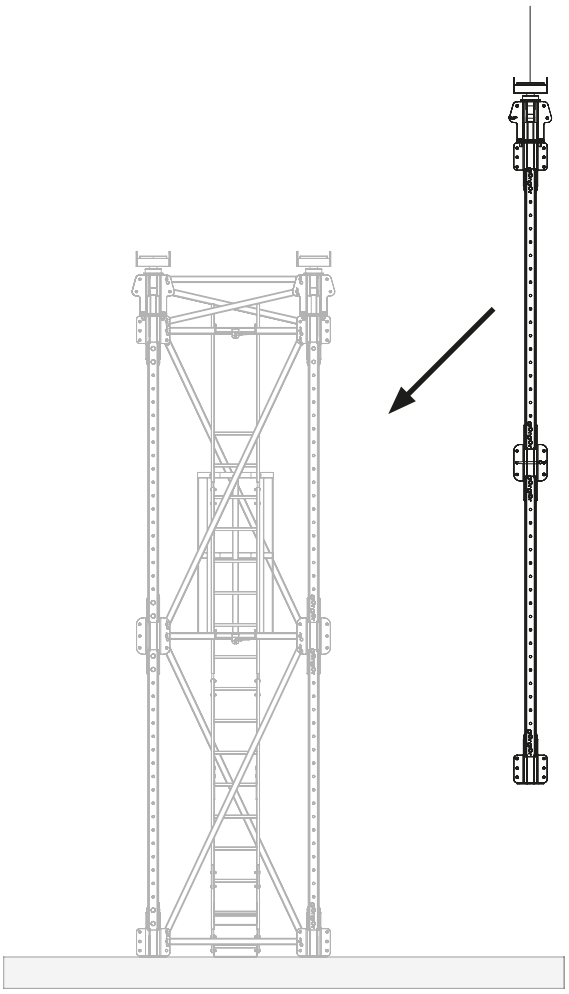


Fig. B2.01

During the assembly of the additional frame ensure that the steel walers have been turned. (Fig. B2.02)

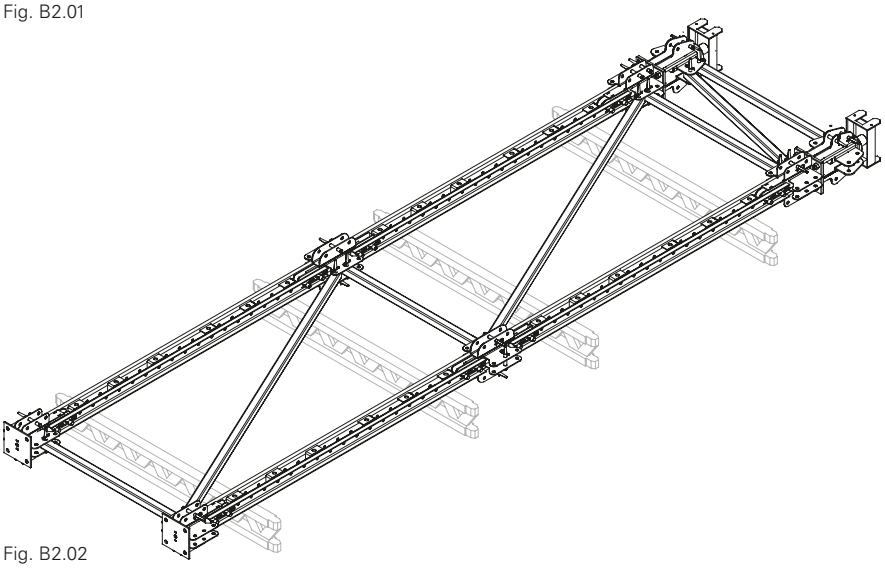


Fig. B2.02

Make sure the Steel Walers have been turned correctly. (Fig. B2.02a + B2.02b)

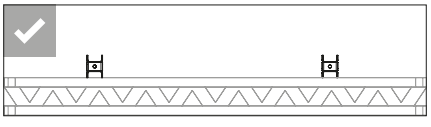


Fig. B2.02a

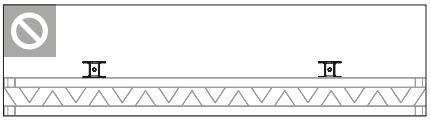


Fig. B2.02b

B2 Additional frame

Parts list per horizontal post

20	Horizontal Post 50 Alpha	1x
53	Fitting pin Ø 21 x 120	2x
54	Cotter pin 4/1	2x

Mounting the additional frame

1. Between each pair of Prop Bases ATS (**1**), insert a Vertical Connector ATS (**7**) and Head Spindles ATS (**2**) for each Horizontal Post 50 Alpha (**20**).
2. Fix Horizontal Post 50 Alpha (**20**) on each side using 1x fitting pin Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

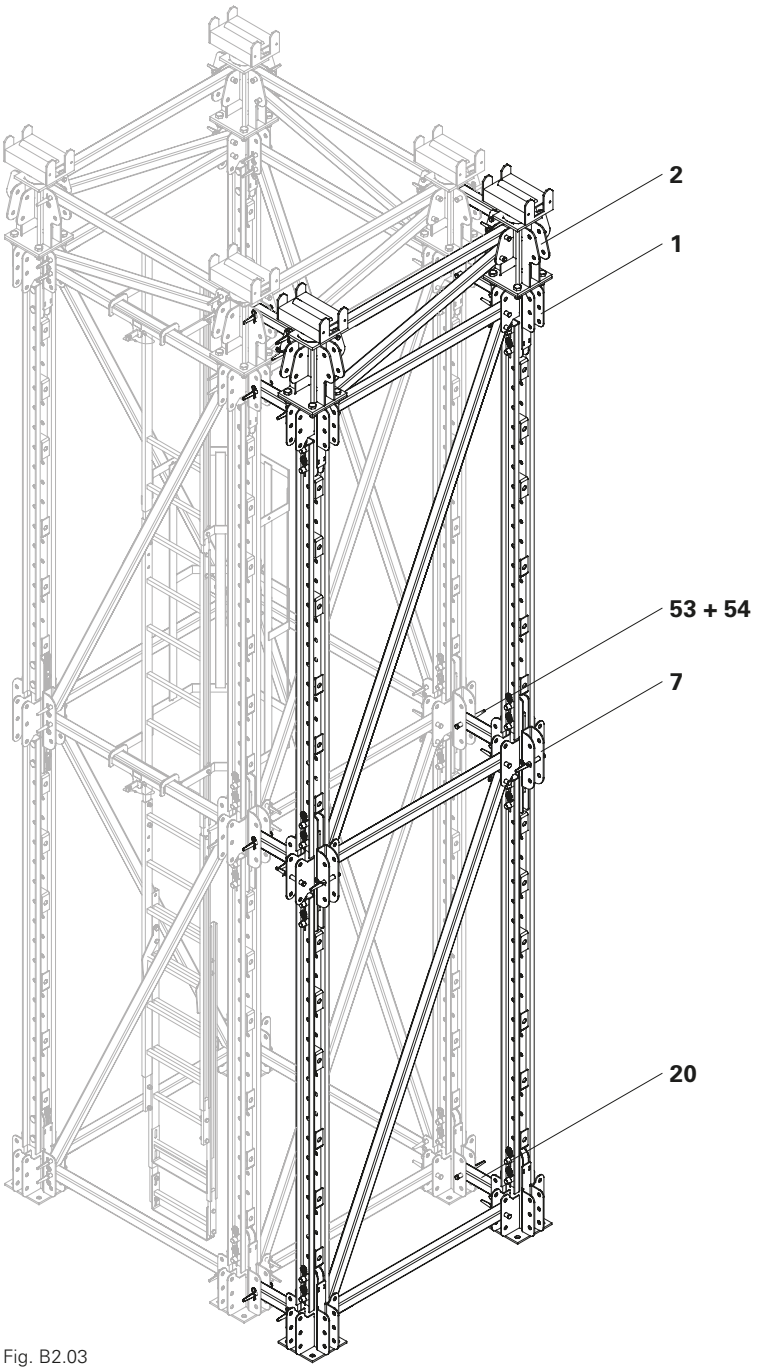


Fig. B2.03

B3 Anchoring on the abutment

Warning

The additional frame can tip over during assembly if the horizontal posts have not been mounted!
Risk of injury!

⇒ Detach the additional frame from the crane lifting gear only after the frame has been connected to the tower.

⇒ Mount the horizontal posts from a safe working position.

- Anchor the module to the foundation. (see Section B1)
- The frame must be kept in a horizontal position at all node points, e.g. using a Steel Waler SRU U120 and Heavy-Duty Spindles SLS.
- The following can be used for bracing: Swivel Couplers AF 48/48 (**71**) and Steel Scaffolding Tubes Ø 48.3 x 3.2 (**77**).
- Take into account the project-specific planning.

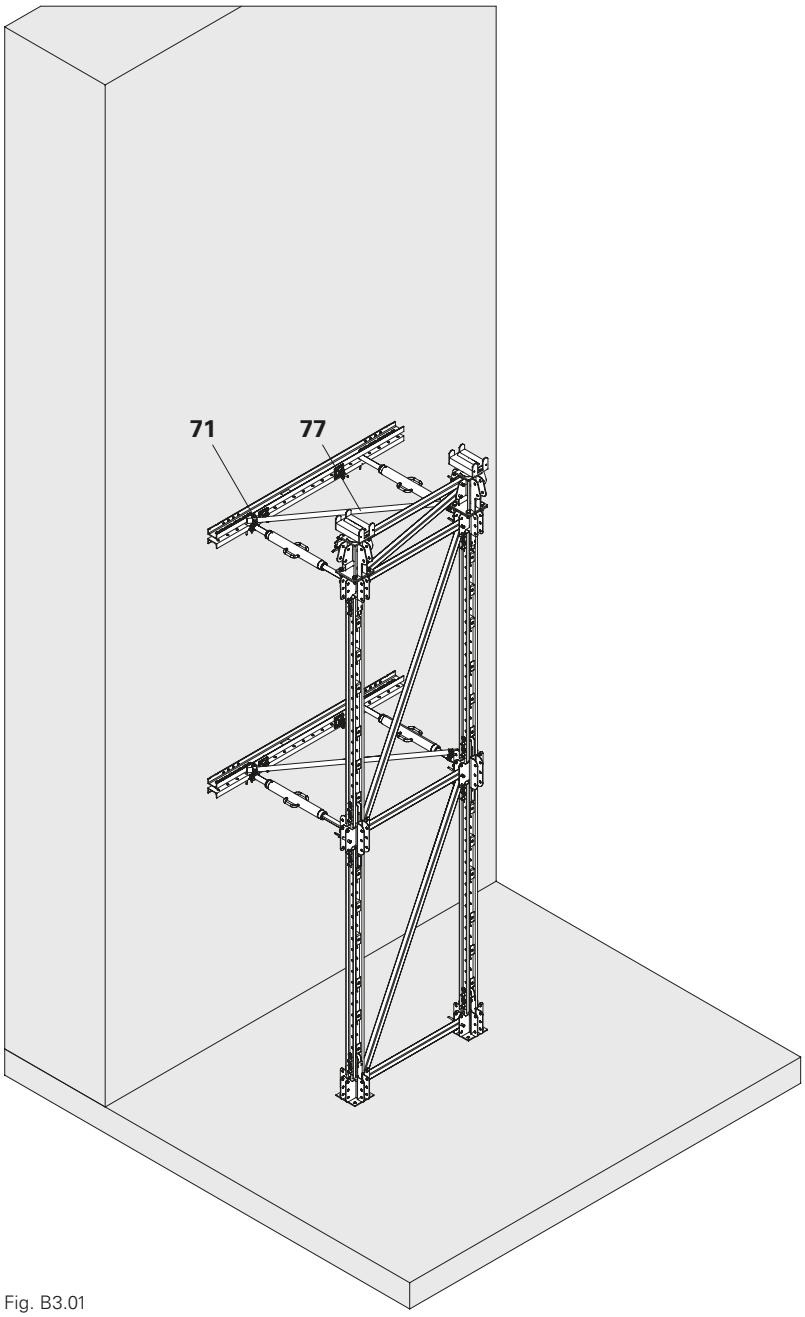


Fig. B3.01

B4 Tower spacing

- Set down the other towers using the correct spacing, and then anchor.
- Refer to the assembly drawings for the correct spacing.

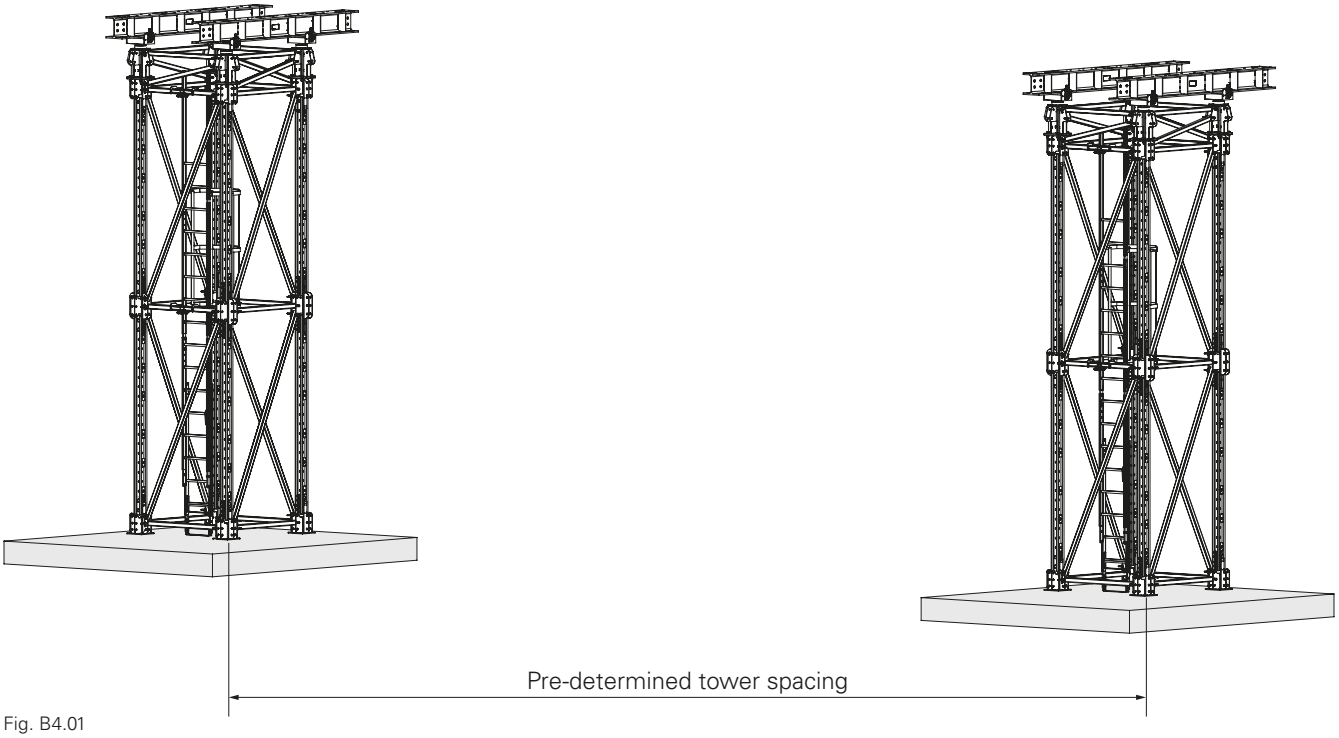


Fig. B4.01

C1 Assembling the main beam

The heavy-duty truss girders are mounted on the main beam or cross girder depending on what is specified in the assembly drawings.

Assembly

1. Attach main beams (**36/37/38**) to the crane lifting gear.
2. Position main beams (**36/37/38**) on the Head Spindles ATS (**2**).
3. Fix main beams (**36/37/38**) to the Head Spindles ATS (**2**) using 2x Girder Clamp HD 70 mm (**72**) respectively. (Fig. C1.01a)
4. Remove crane lifting gear.
5. Check the height of the main beams and adjust if necessary.

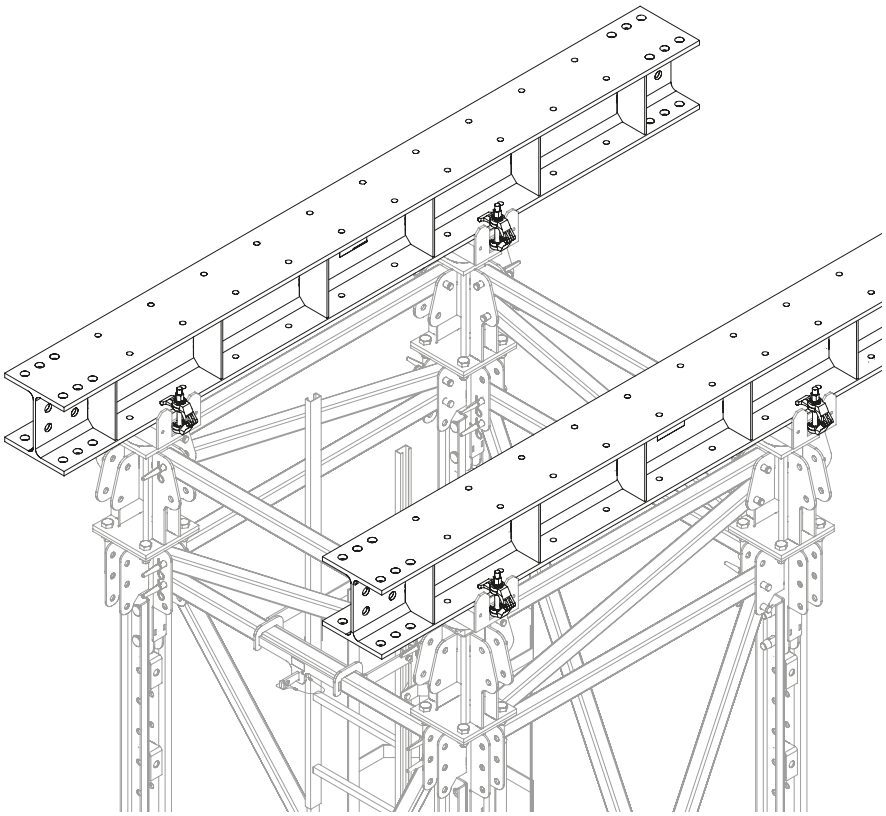


Fig. C1.01

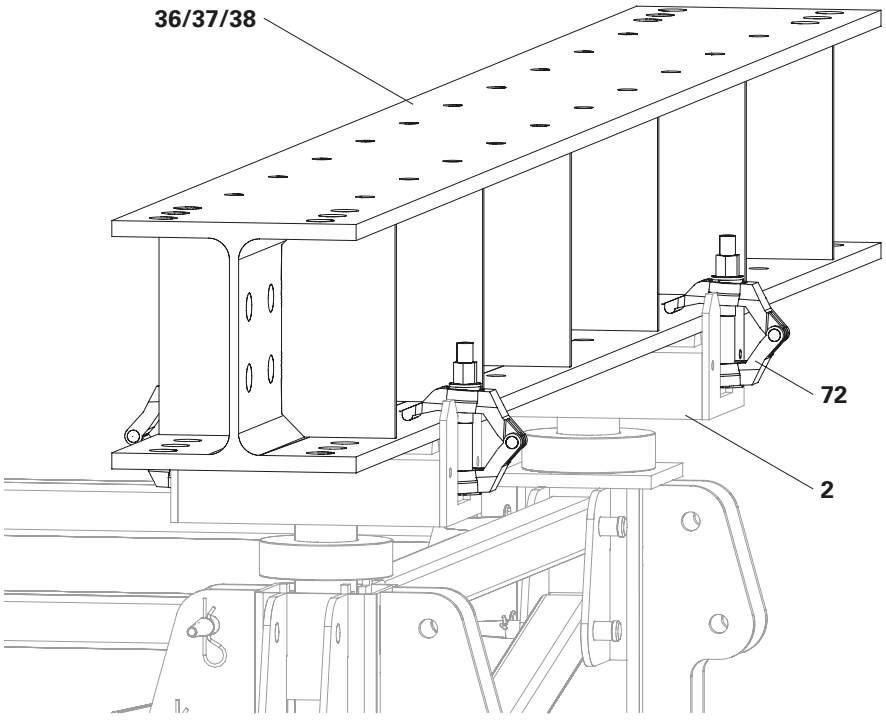


Fig. C1.01a

C2 Height adjustment (+/- 75 mm)

- If the head spindle is not loaded, it can be adjusted manually.
- The head spindle must be raised or lowered by means of a hydraulic cylinder when loaded.
- Follow the Instructions for Use for the hydraulic cylinder.
- Project-specific lifting and lowering plans are to be observed.
- The head spindle must be spindled out at least 50 mm.

Height adjustment when loaded for 500 – 565 mm

1. Insert hydraulic cylinder (**50.1**) into the head spindle (**2.1**). (Fig. C2.01a)

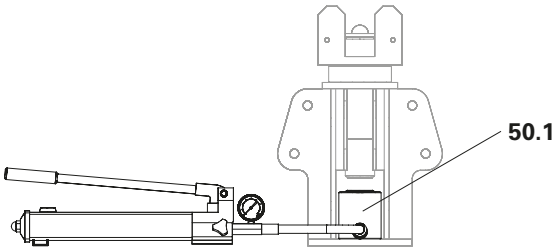


Fig. C2.01a

2. Pump up the hydraulic cylinder (**50.1**) to the required height (min. 50 mm). (Fig. C2.01b)

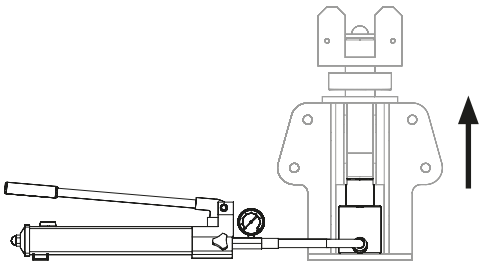


Fig. C2.01b

3. Tighten the head spindle nut (**2.3**). (Fig. C2.01c)

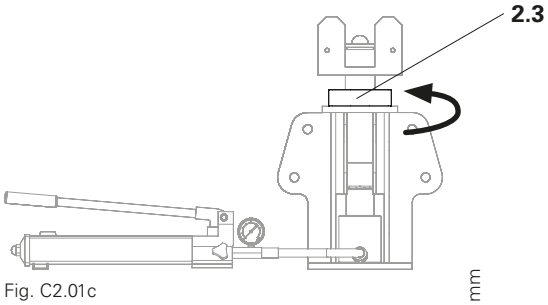


Fig. C2.01c

4. Release pressure from the hydraulic cylinder (**50.1**). (Fig. C2.01d)
5. Repeat the procedure until the required height has been reached.
6. Adjust the height for all four head spindles (**2**)

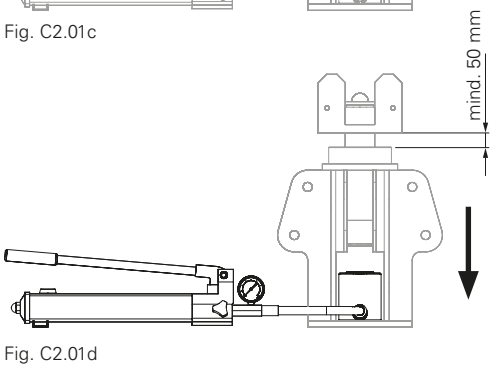


Fig. C2.01d

C2 Height adjustment (+/- 75 mm)

Height adjustment when loaded for 550 – 615 mm

1. Slide the Head Spindle Tube ATS (**73**) into the head spindle (**2.1**) in a lower position.
2. Position the hydraulic cylinder (**50.1**) on the Head Spindle Tube ATS (**73**). (Fig. C2.02a)

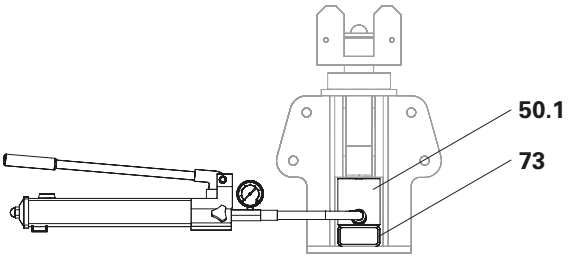


Fig. C2.02a

3. Pump up the hydraulic cylinder (**50.1**) to the required height (min. 50 mm). (Fig. C2.02b)

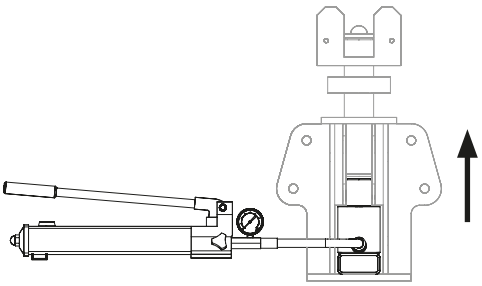


Fig. C2.02b

4. Tighten the head spindle nut (**2.3**). (Fig. C2.02c)

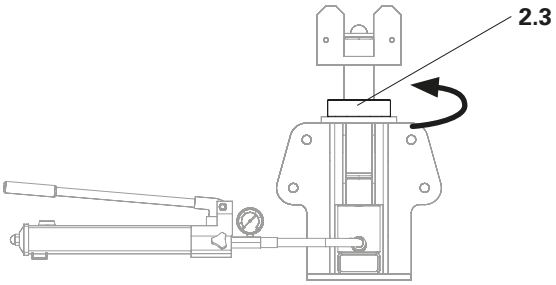


Fig. C2.02c

5. Release pressure from the hydraulic cylinder (**50.1**). (Fig. C2.02d)
6. Repeat the procedure until the required height has been reached.
7. Remove the Head Spindle Tube ATS (**73**).
8. Adjust the height for all four head spindles (**2**).

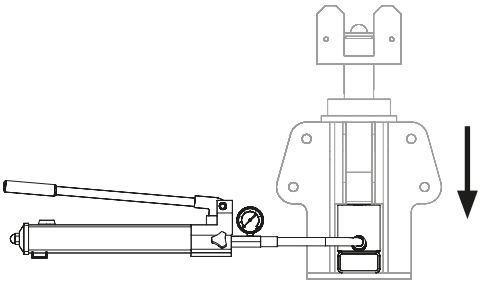


Fig. C2.02d

C2 Height adjustment (+/- 75 mm)

Height adjustment when loaded for 600 – 665 mm

1. Insert the hydraulic cylinder (**50.1**) into the head spindle and push upwards.
2. Slide the Head Spindle Tube ATS (**73**) into the head spindle (**2.1**) in an upright position.
3. Position the hydraulic cylinder (**50.1**) on the Head Spindle Tube ATS (**73**). (Fig. C2.03a)

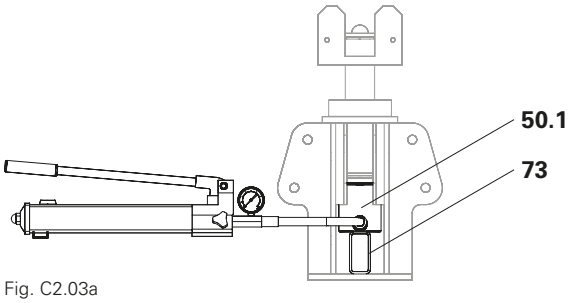


Fig. C2.03a

4. Pump up the hydraulic cylinder (**50.1**) to the required height (min. 50 mm). (Fig. C2.03b)

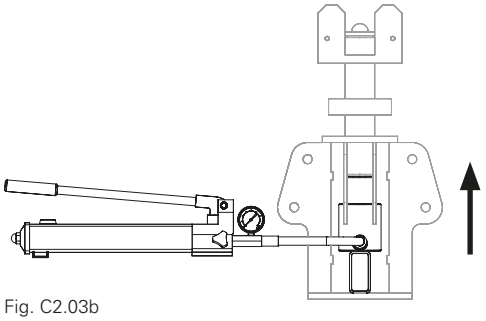


Fig. C2.03b

5. Tighten the head spindle nut (**2.3**). (Fig. C2.03c)

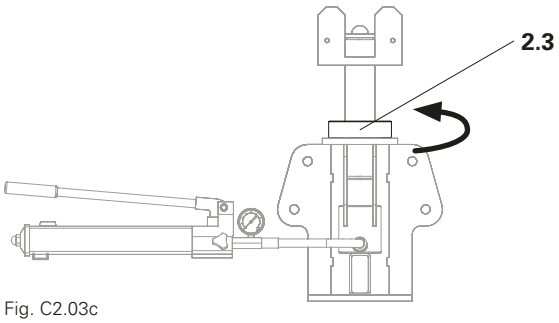


Fig. C2.03c

6. Release pressure from the hydraulic cylinder (**50.1**). (Fig. C2.03d)
7. Repeat the procedure until the required height has been reached.
8. Remove the Head Spindle Tube ATS (**73**).
9. Adjust the height for all four head spindles (**2**).

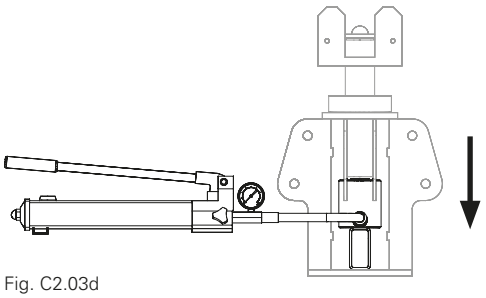


Fig. C2.03d

Warning

Cross Girder can tip over during assembly if it has not been fixed in position!
Risk of injury!
⇒ Secure cross girder against tipping over.

Assembly

1. Lift the cross girder onto the main beam using the crane.
2. Place the cross girder at the position specified in the assembly drawings.
3. Fix the cross girder to the main beam using 2x Girder Clamp HD 70 mm (**72**) per main beam. (Fig. C3.01 + C3.01a)

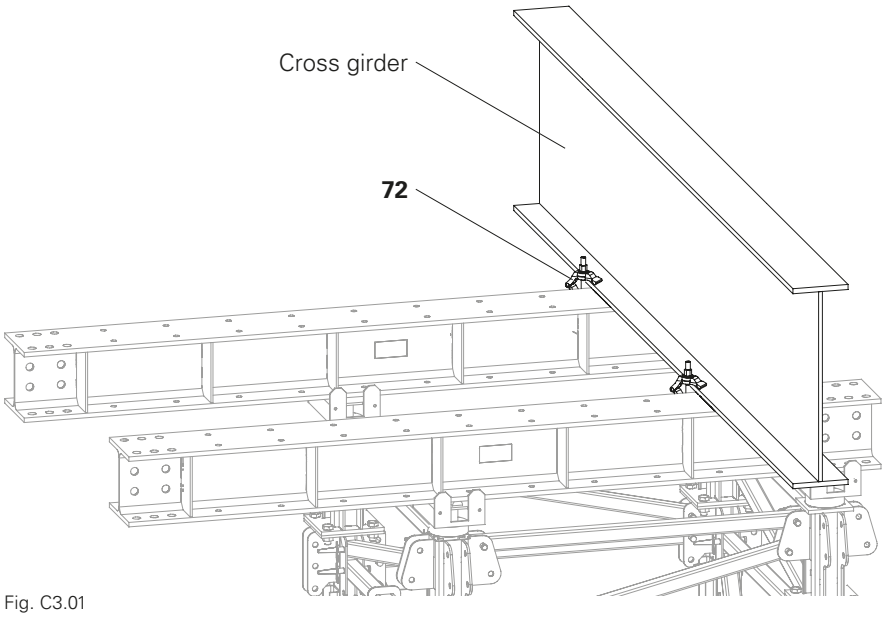


Fig. C3.01

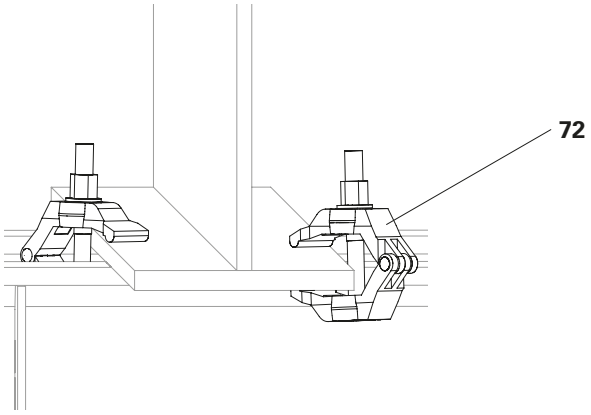


Fig. C3.01a

4. Mount 2x Support Calotte ATG (**8**) on the cross girder using the truss girder frame spacing of the truss girder package. (Fig. C3.02)
5. Repeat the procedure for every tower.

Check whether the positions specified in the assembly drawings have been complied with.

The Support Calottes ATG can be placed directly on the main beam.

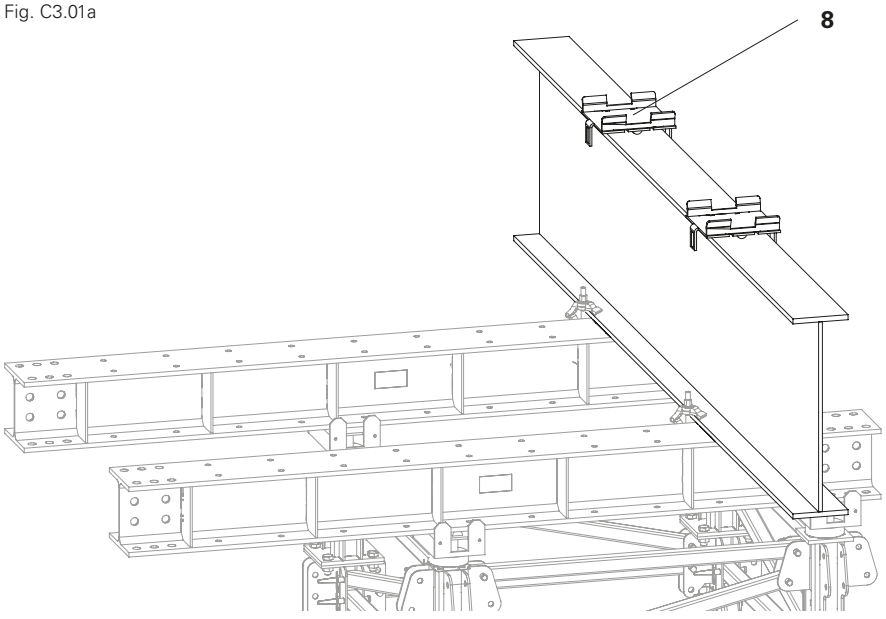


Fig. C3.02

C4 Connecting the main beam and cross girder

If necessary, bolts in the top flange are to be removed during the moving procedure or when striking. Project-specific verification of the remaining bolts is required.

Connecting the main beam

Parts list per connection

42	Bolt ISO 4017 M30 x 100-8.8	24x
43	Hex. Nut ISO 4032 M30-8	32x
51	Web Coupler ATG	2x
52	Flange Connector ATG	4x
88	Bolt ISO 4017 M30 x 90-8.8	8x
89	Washer ISO 7092 200 HV, A 30	64x

Connecting

1. Place 1x web coupler (**51**) on both sides of the main beams (**36/37/38**).
2. Connect web coupler (**51**) and main beams (**36/37/38**) in each hole with bolt ISO 4017 M30 x 90 (**88**), hex. nut ISO 4032 M30 (**43**) and 2x washer ISO 7092, A 30 (**89**).
3. Place 1x flange connector (**52**) on the four undersides of the main beams (**36/37/38**).
4. Connect web coupler (**52**) and main beams (**36/37/38**) in each hole with bolt ISO 4017 M30 x 100 (**42**), hex. nut ISO 4032 M30 (**43**) and 2x washer ISO 7092, A 30 (**89**).

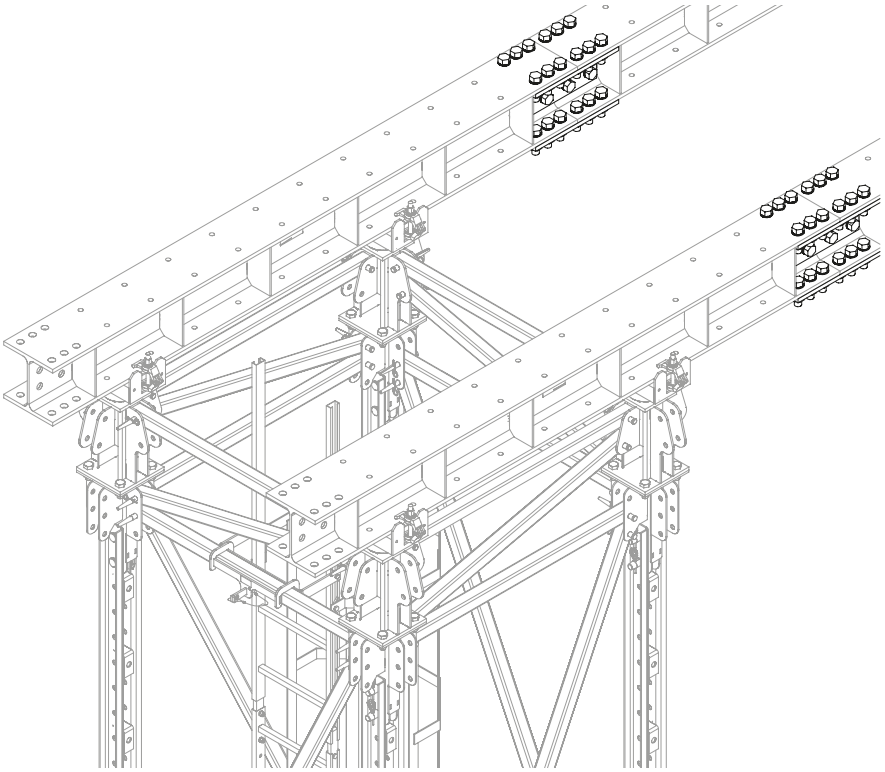


Fig. C4.01

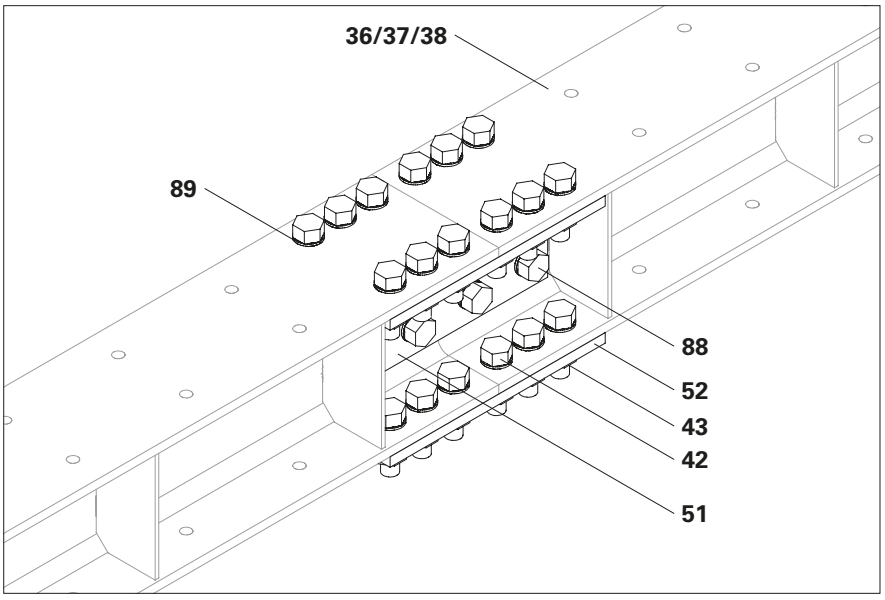


Fig. C4.01a

Connecting the cross girder

Parts list per connection

42	Bolt ISO 4017 M30 x 100-8.8	24x
43	Hex. nut ISO 4032 M30-8	32x
51	Web Coupler ATG	2x
52	Flange Connector ATG	4x
88	Bolt ISO 4017 M30 x 90-8.8	8x
89	Washer ISO 7092 200 HV, A 30	64x

Connecting

1. Place web coupler (**51**) on the cross girder at the specified positions.
2. Drill holes in the cross girder using a suitable Ø 31 mm drill bit.
3. Place 1x web coupler (**51**) on both sides of the cross girder.
4. Connect web coupler (**51**) and cross girders in each hole with bolt ISO 4017 M30 x 90 (**88**), hex. nut ISO 4032 M30 (**43**) and 2x washer ISO 7092, A 30 (**89**).
5. Place web coupler (**52**) on the cross girder at the specified positions.
6. Drill holes in the cross girder using a suitable Ø 31 mm drill bit.
7. Place 1x flange connector (**52**) on the four undersides of the cross girder.
8. Connect web coupler (**52**) and cross girder to each hole using bolt ISO 4017 M30 x 100 (**42**), hex. nut ISO 4032 M30 (**43**) and 2x washer ISO 7092, A 30 (**89**).

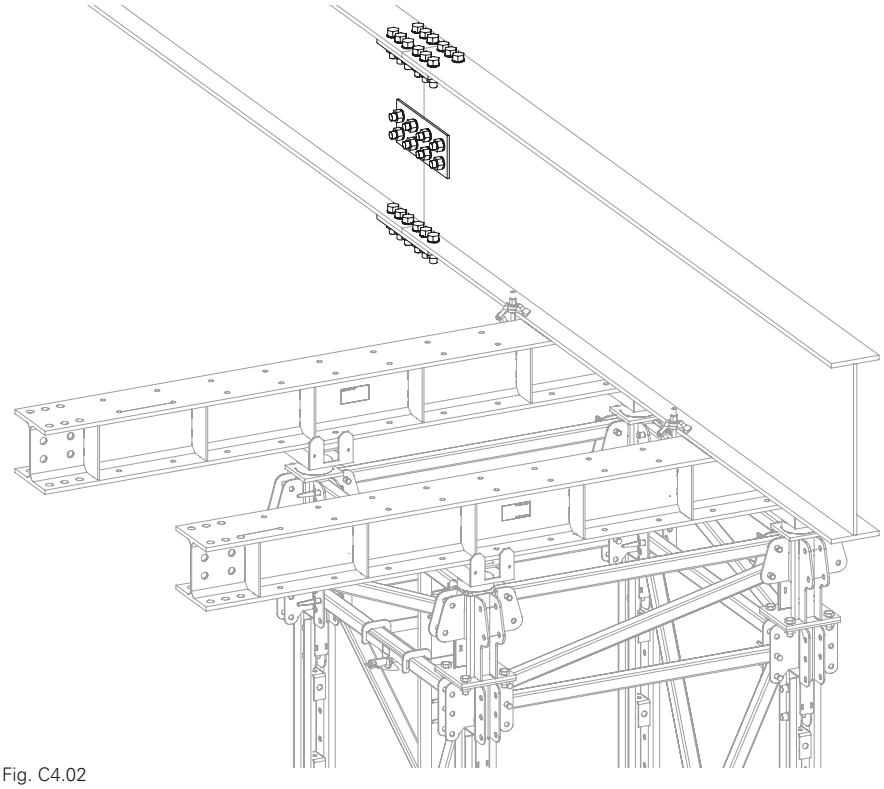


Fig. C4.02

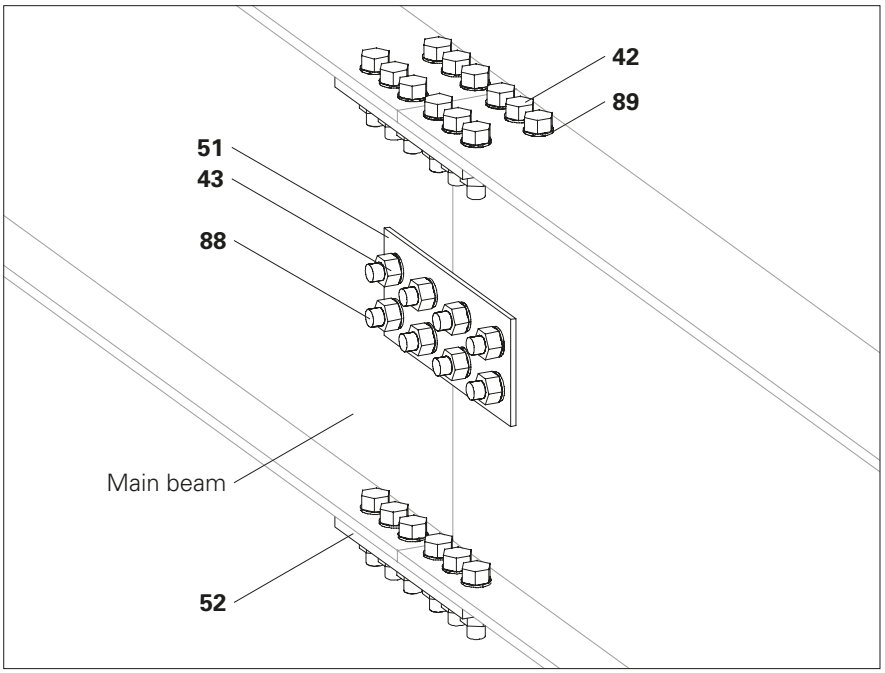


Fig. C4.02a

C5 Moving the truss girder package

Warning
Leading edges are created or are already present during the moving procedure!
Risk of falling.
⇒ Always mount from a safe working position.
⇒ Use PPE.

- A truss girder package is best moved as a complete unit.
- If the crane capacity is insufficient, the frames must be moved individually or the girder packages are to be divided (with intermediate tower).
- Crane sling angle and edge distance must be defined by the contractor.

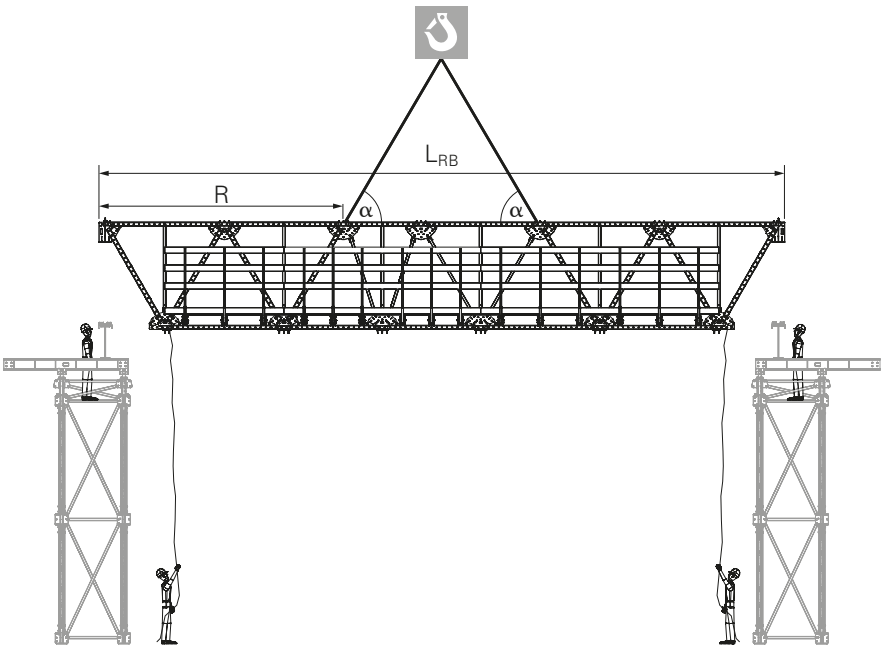


Fig. C5.01

PERI recommends the following values:

Crane sling angle
$\alpha > 60°$

Edge distance
$R \approx L_{Rb}/4$

Moving procedure
1. Attach suitable 4-sling lifting gear to the truss girder package.
2. Lift the truss girder package using the 4-sling lifting gear and crane.
3. Position the truss girder package on the Support Calottes ATG (**8**).

- Guide the truss girder package with ropes.
- On request, PERI can provide the dimensions and weight of the truss girder package in order that a suitable transportation device can be selected.

C6 Moving the truss girder frame

- If the crane capacity is insufficient, a truss girder frame must be moved individually.
- Always install the horizontal posts from one support side to the other.

Moving procedure

1. Attach truss girder frame to the crane lifting gear.
2. Ensure that the deflection in the truss girder frame is in an outward direction. (Fig. C6.01)
3. Place the support nodes of the truss girder frame on the Support Calottes ATG (**8**). (Fig. C6.02)
4. Connect the truss girder frame with horizontal posts to the truss girder package.

When the truss girder frame rests on the Support Calottes ATG (**8**), it automatically aligns itself in a straight direction.

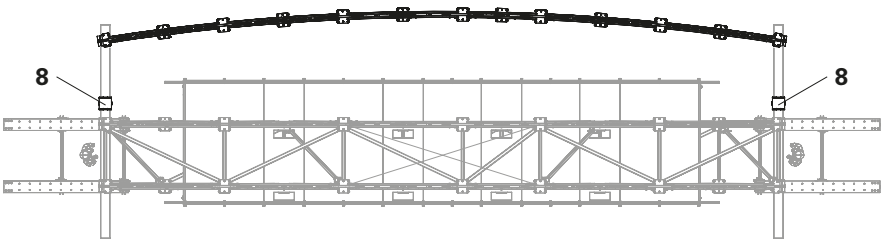


Fig. C6.01

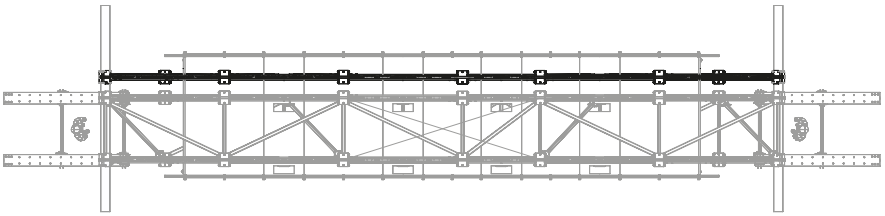


Fig. C6.02

Ensure that the support nodes (**6**) are positioned in the support calottes (**8**).

Parts list

30	Bolt ISO 4014 M20 x 90-8.8, galv.	2x
32	Bolt ISO 4017 M20 x 50-8.8, galv.	2x
39	H-Load Tie Yoke DW15 ATG	2x
40	H-Load Connector ATG	2x
56	Nut ISO 4032 M20-8	8x
87	Bolt ISO 4017 M20 x 70-8.8, galv.	4x
108	Articulated Spanner DW15	2x
111	Twist lock articulated sp. DW15	2x

Assembly

1. Fix 2x H-Load Connectors ATG (**40**) to the main beam using 2x bolt ISO 4017 M20 x 70 (**87**) respectively.
2. Secure bolt ISO 4017 M20 x 70 (**87**) with hex. nut ISO 4032 M20 (**56**)

(Fig. C7.02)

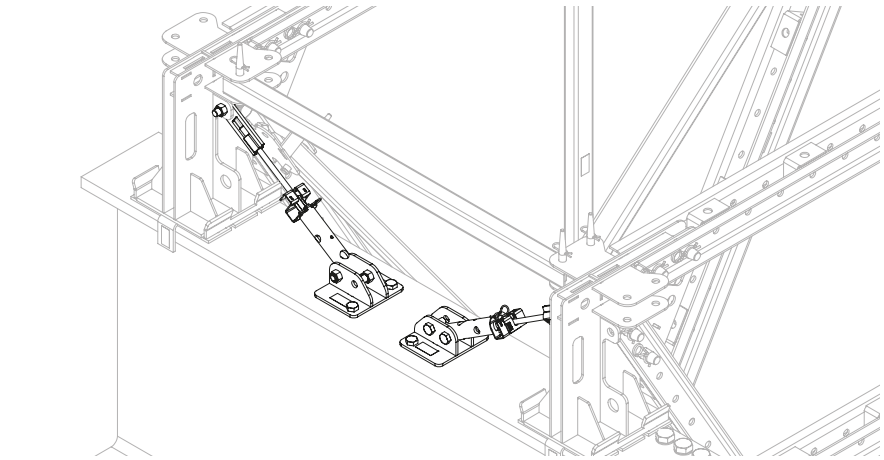


Fig. C7.01

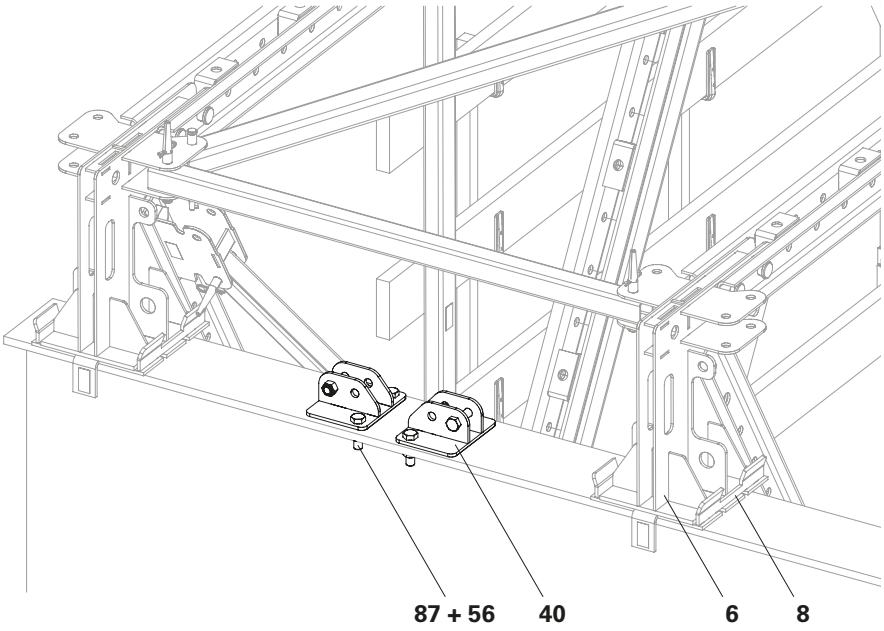


Fig. C7.02

3. Screw together clamping units consisting of H-Load Tie Yoke DW15 (**39**), Tie Rod DW15, Articulated Spanner DW15 (**108**) and Twist Lock Articulated Spanner. DW15 (**111**). (Fig. C7.03)

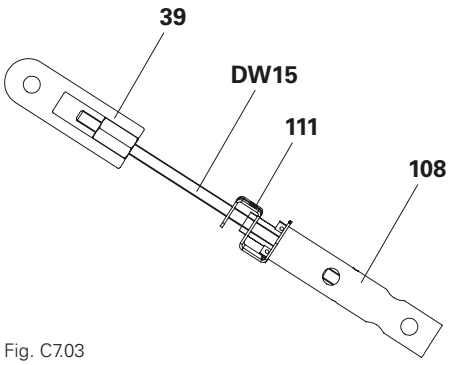


Fig. C7.03

4. Attach 1x clamping unit with Articulated Spanner DW15 (**108**) to the H-Load Connector (**40**) using bolts ISO 4014 M20 x 90 (**30**) and nuts ISO 4032 M20 (**56**). (Fig. C7.04a)

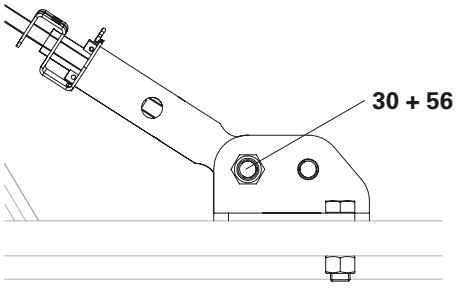


Fig. C7.04a

5. Attach clamping unit with H-Load Tie Yoke DW15 (**39**) to the support nodes (**6**) using bolt ISO 4017 M20 x 50 (**32**) and nut ISO 4032 M20 (**56**). (Fig. C7.04b)

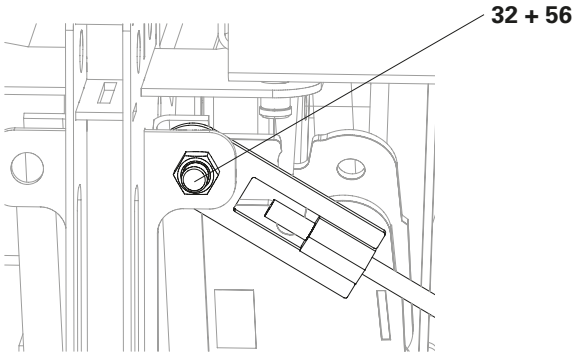


Fig. C7.04b

D1 Concreting

Danger

If the concrete is unevenly distributed on the formwork, the construction can tip over or collapse!
Risk of injury and falling.
⇒ Pour concrete into the middle of the superstructure.

Concreting

1. Pour concrete into the middle of the superstructure.
2. Distribute concrete evenly in the direction of the superstructure cantilever.
3. Compact the concrete.

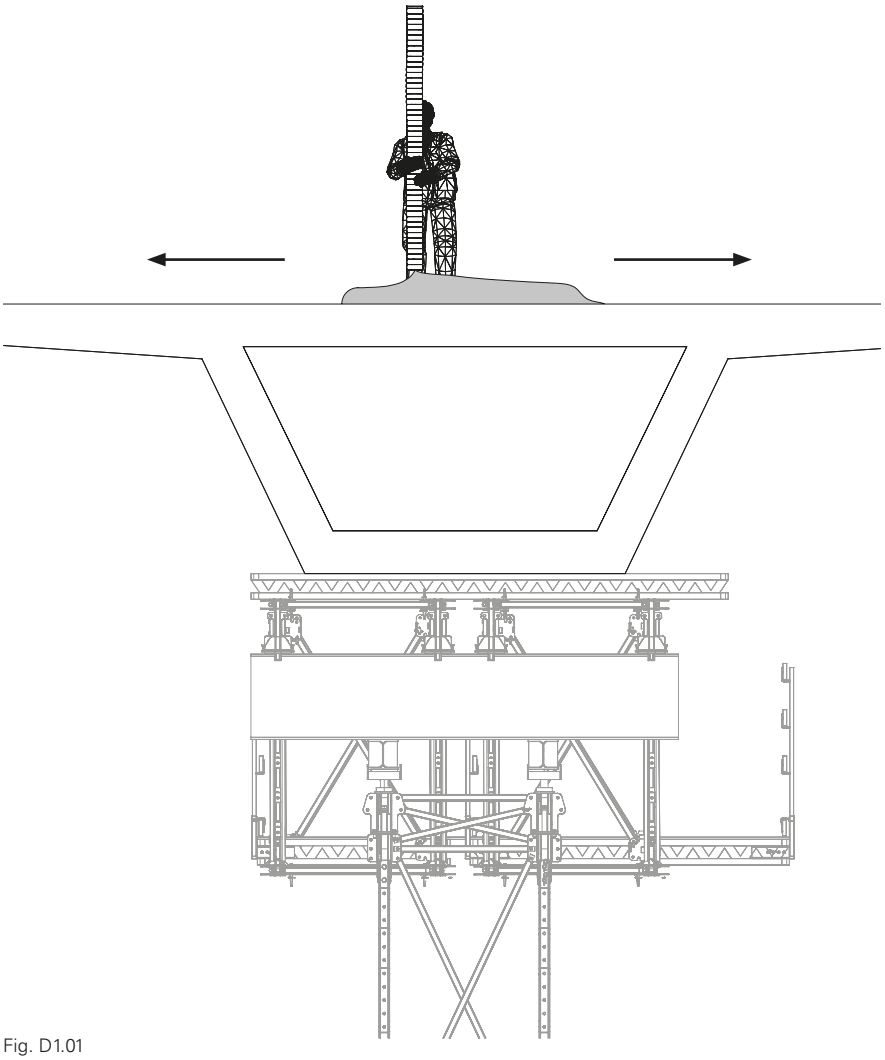


Fig. D1.01

Warning

Main beam bracket can fall during transportation or when used!
Risk of injury!

⇒ Only use suitable lifting gear.
⇒ Components must be sufficiently secured.
⇒ Secure the Main Beam Bracket by means of securing bolts to prevent lifting.

- Take into account the project-specific planning and static proof.
- Edge distances: see BI.
- Before dismantling, pull the securing bolts and only use two slings of the 4-sling lifting gear when moving out.

Tie installation

Parts list per tie

93	Anchor Sliding Piece-2 M36/12	1x
94	Heavy-Duty Cone M36/ DW 26 -Ø108	1x
95	Bolt ISO 4014 M36 x 160-10.9	1x
96	Tie Rod DW 26, L = 0.50 m	1x
97	Threaded Anchor Plate DW 26	1x
98	Anchor Positioning Plate M36	1x
99	Hex. wood screw DIN 571, 6 x 20	4x

Preparation

1. Connect the Heavy-Duty Cone M36/DW 26 (**94**) and Threaded Anchor Plate DW 26 (**97**) using Tie Rod DW 26 (**96**).
2. Mount Anchor Positioning Plate M36 (**98**) using 4x hex. wood screws DIN 571 6 x 20 (**99**) at the specified spacing of 400 mm.
3. Attach 2x Heavy-Duty Cones per Main Beam Bracket Alpha (**92**) using the pre-defined spacing (**400 mm**) on the formlining before concreting begins.

(Fig. D2.02)

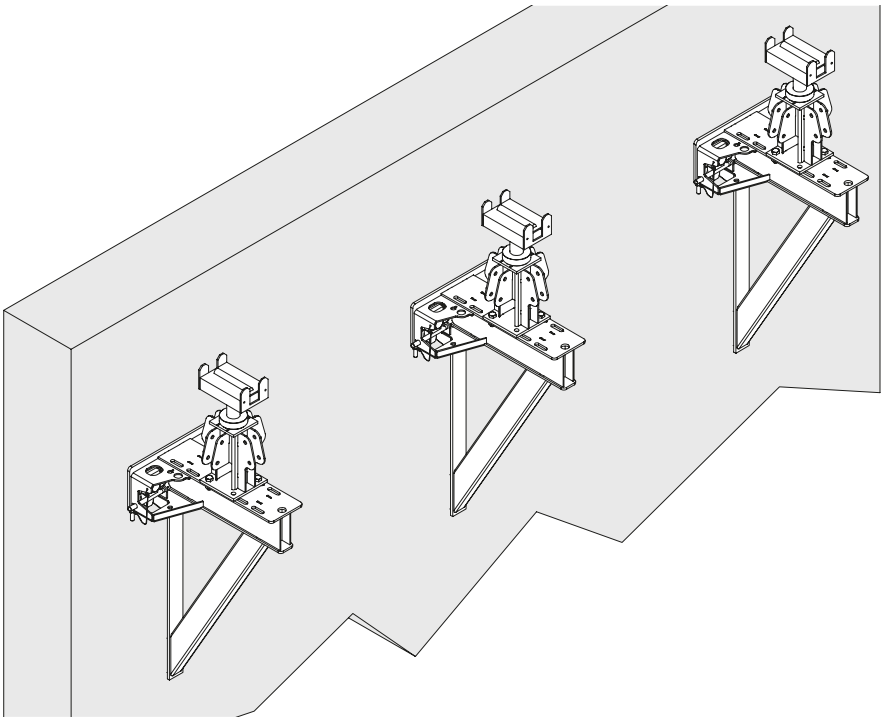


Fig. D2.01

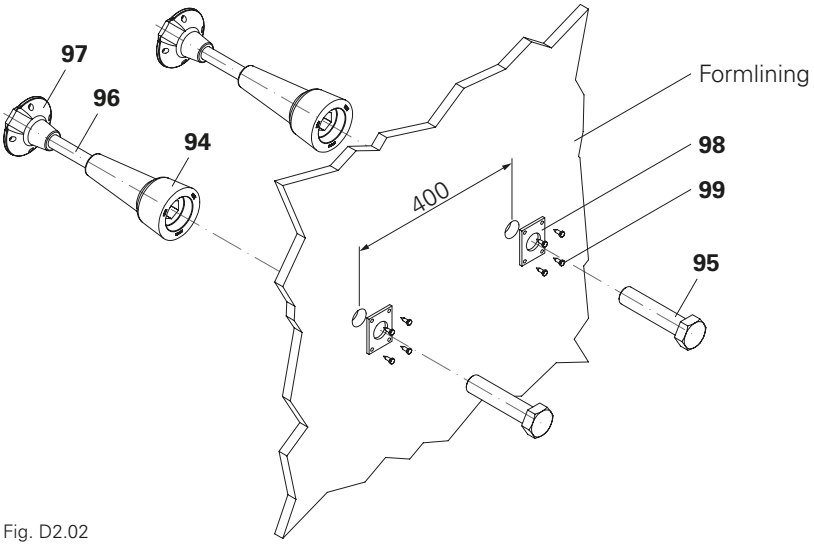


Fig. D2.02

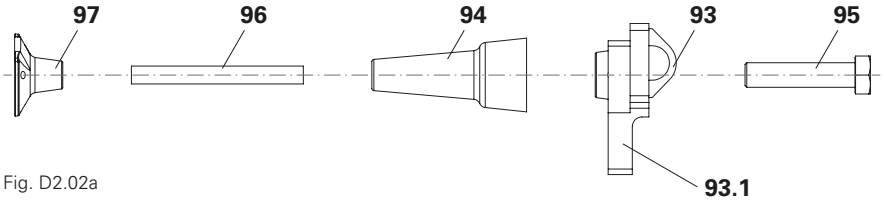


Fig. D2.02a

Warning

Incorrect installation position of the Anchor Sliding Piece-2 M23/12 (**93**) may cause the main beam bracket to slip when being suspended!
This can result in serious injuries.

⇒ Mount the Anchor Sliding Piece-2 M36/12 (**93**) with the spigot (**93.1**) facing downwards. (Fig. D2.02a + D2.02c)

Mounting the climbing tie

1. Screw 1x Anchor Sliding Piece-2 M36/12 (**93**) onto each Heavy-Duty Cone M36/DW 26 (**94**) using bolt ISO 4014 M36 x 160 (**95**).

(Fig. D2.02b)

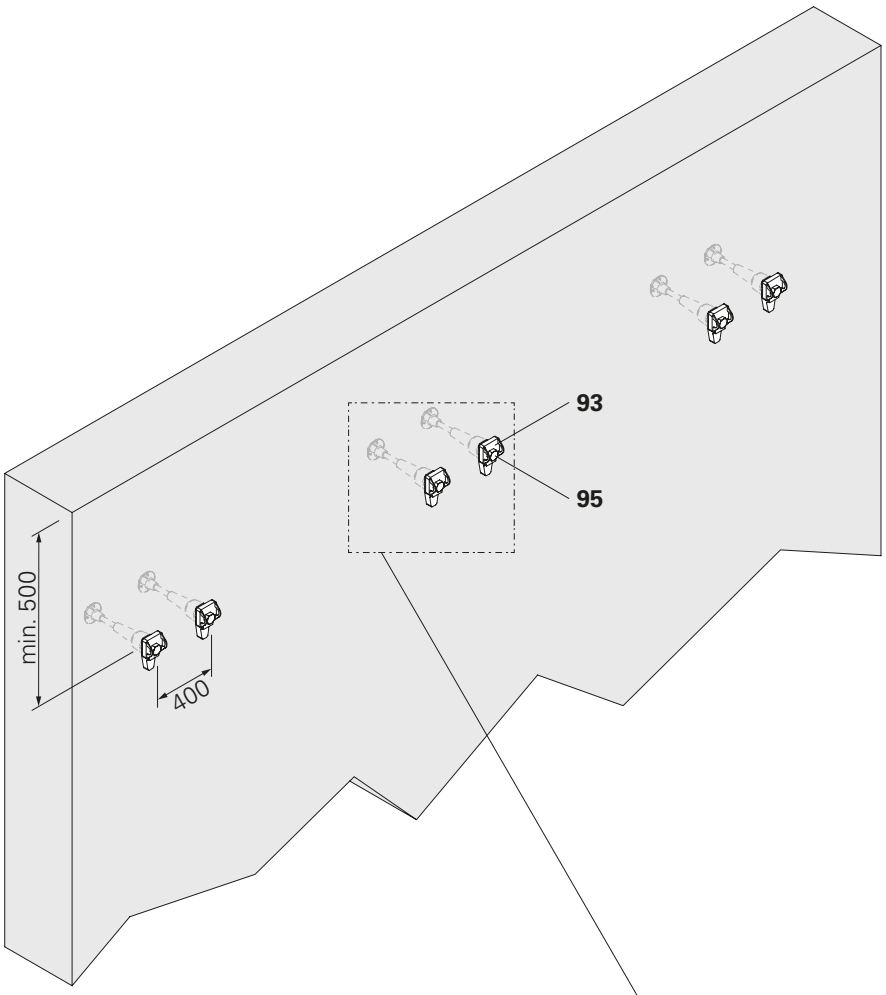


Fig. D2.02b

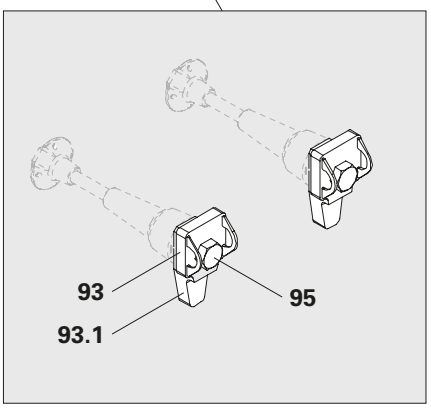


Fig. D2.02c

Console bracket assembly

Warning

Main beam bracket or spindle can fall to the ground!
Risk of injury!

⇒ Do not remove the 3-sling lifting gear from the main beam bracket until the bracket has engaged the anchoring points and has been secured with locking pins Ø 25 x 260.

⇒ Secure spindles against falling out during assembly or install after setting up has been completed.

Parts list per main beam bracket

2	Head Spindle ATS	1x
59	Bolt ISO 4017 M24 x 60-8.8	2x
60	Nut ISO 4032 M24-8	2x
92	Main Beam Bracket Alpha	1x

Preparation

1. Set down the Main Beam Bracket Alpha (**92**) on the ground ensuring that it cannot tip over. (Fig. D2.03)
2. Remove spindle (**2.2**) from the Head Spindle (**2.1**). (Fig. D2.04)

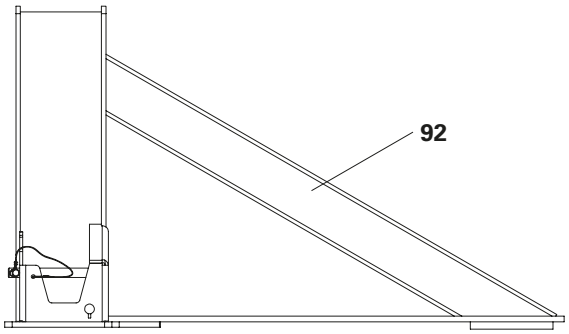


Fig. D2.03

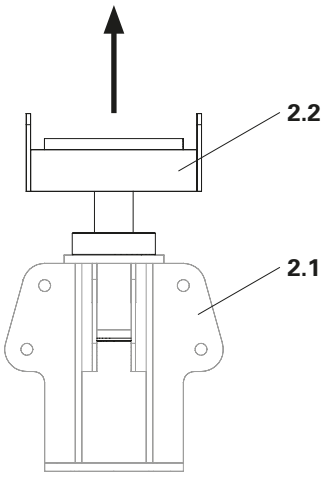


Fig. D2.04

Position of the head spindles

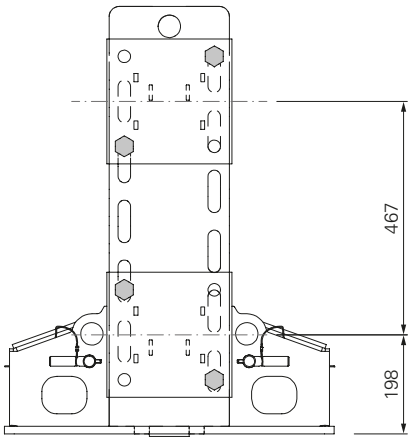


Fig. D2.05

Caution

If the Head Spindle ATS is wrongly turned when mounted, it can accommodate less load and is also less accessible!
Risk of injury!

⇒ Ensure that correct assembly has been carried out.
→ The opening of the Head Spindle ATS must not point towards the wall (Fig. D2.06a).

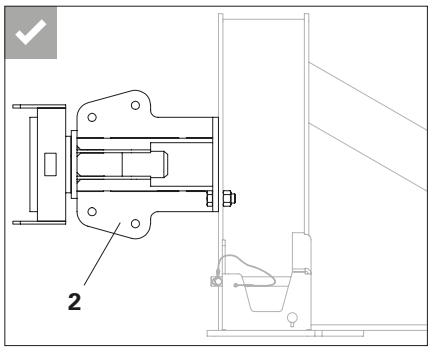


Fig. D2.06a

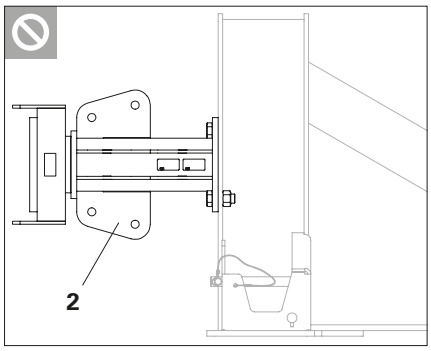


Fig. D2.06b

Assembly

1. Screw the Head Spindle (**2.1**) crosswise onto the Main Beam Bracket Alpha (**92**) using 2x bolt ISO 4017 M24 x 60 (**59**) and nut ISO 4032 M24-8 (**60**). (Fig. D2.06 + D2.06c)
2. Insert spindle (**2.2**) into head spindle (**2.1**) and secure against falling out. (Fig. D2.07)

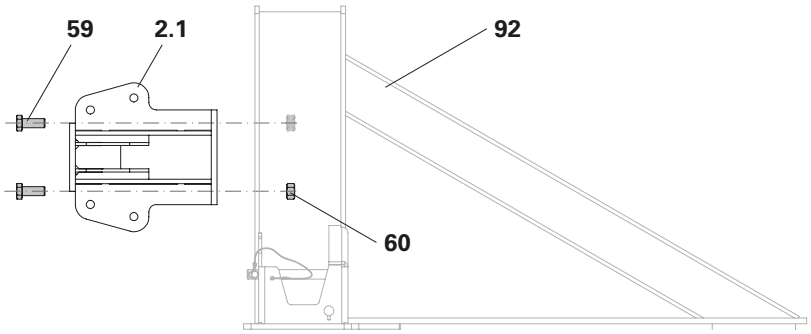


Fig. D2.06

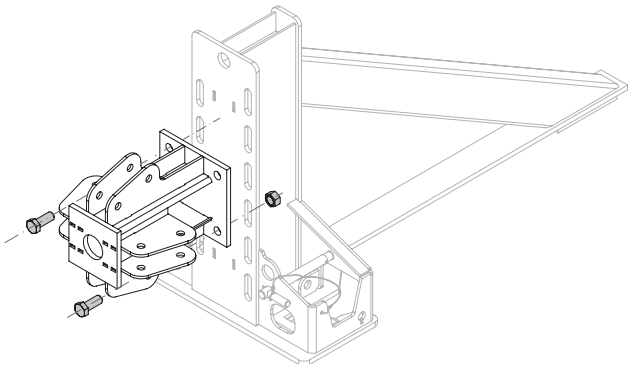


Fig. D2.06c

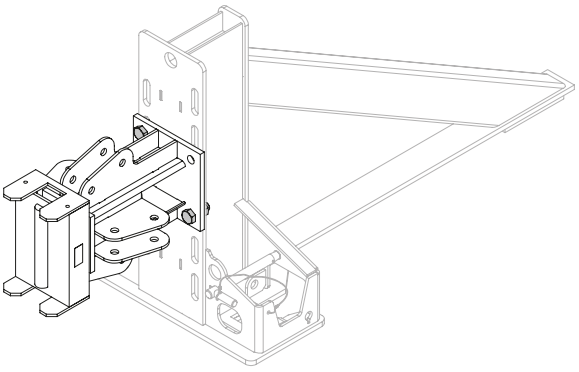


Fig. D2.07

If the angle has not been reached, the chain may need to be shortened.

Attaching

1. Attach the pre-assembled Main Beam Bracket Alpha to the 3-sling lifting gear.
2. Lift the Main Beam Bracket Alpha with the crane and bring it to a slightly inclined position (approx. 0 – 5°)
3. Move the Main Beam Bracket Alpha into position.

(Fig. D2.08 + D2.08a)

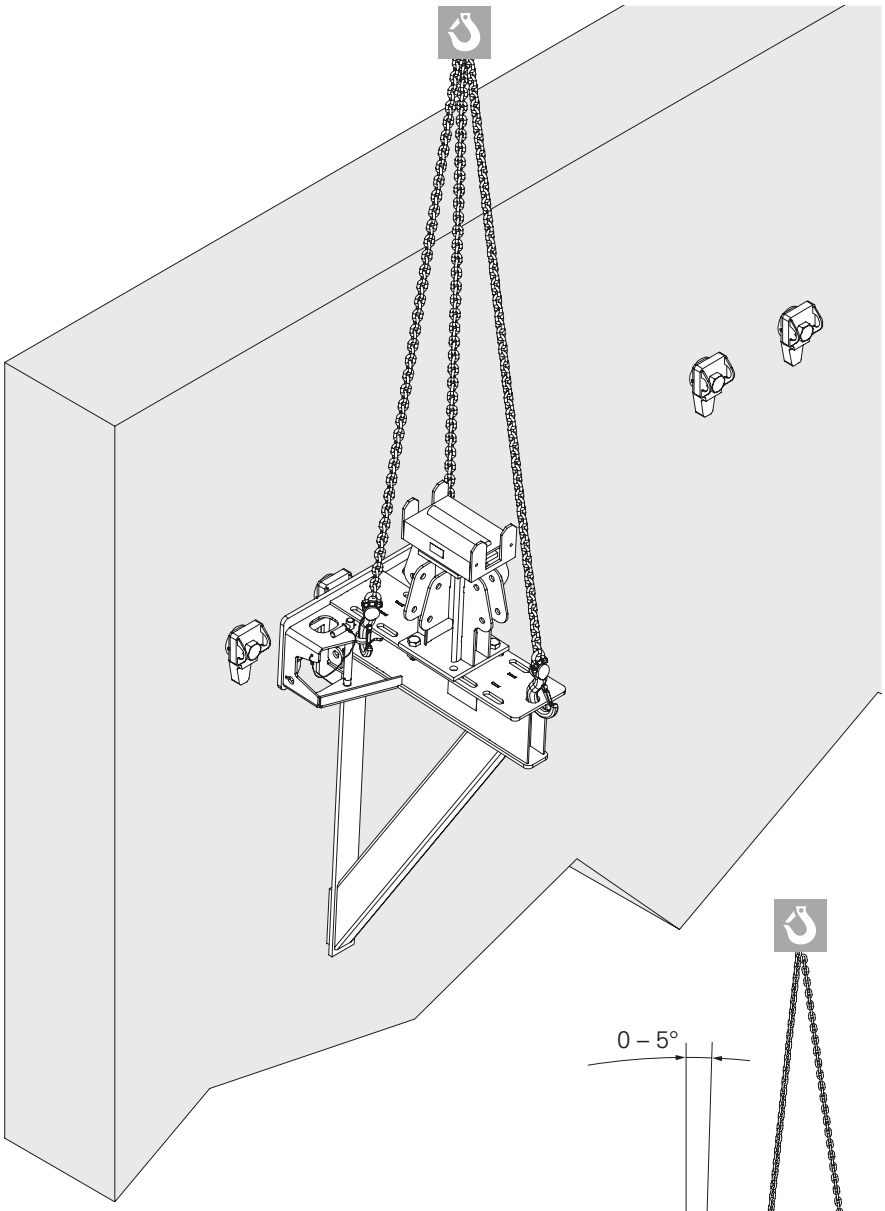


Fig. D2.08

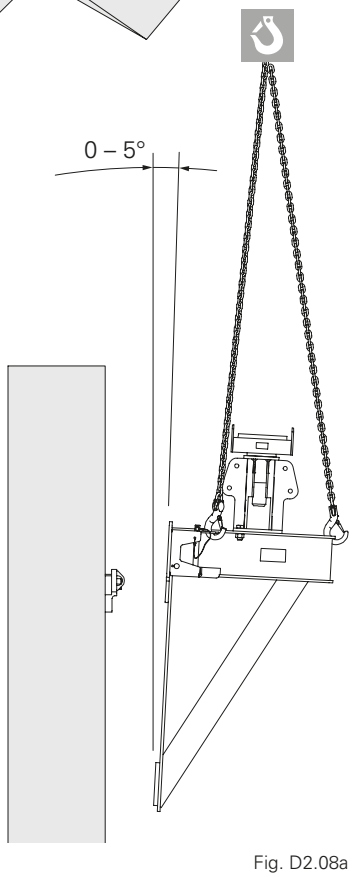


Fig. D2.08a

Mount the main beam bracket from a safe working position, e.g. Folding Platform 180.

Attaching

1. Guide the Main Beam Bracket Alpha with the crane into the designated Anchor Sliding Piece-2 (**93**). (Fig. D2.09 + D2.09a)

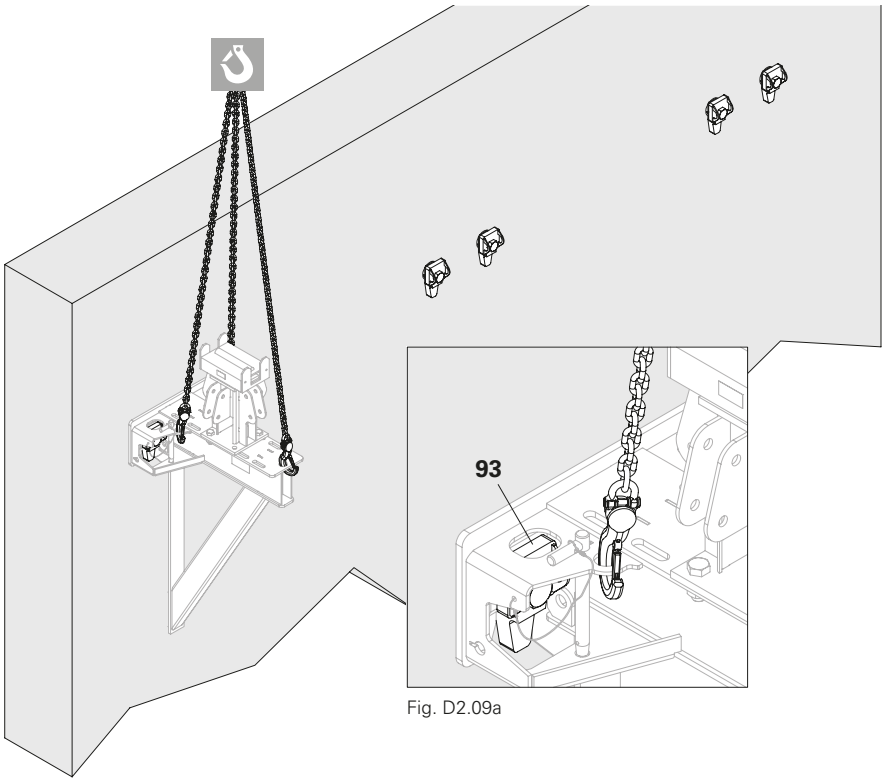


Fig. D2.09a

Fig. D2.09

Securing

1. Secure the Main Beam Bracket Alpha with locking pin Ø 25 x 260 (**92.1**).
2. Remove the crane lifting gear.
3. Spindle out the spindle (**2.2**) to the required length (Fig. D2.10 + D2.10a)

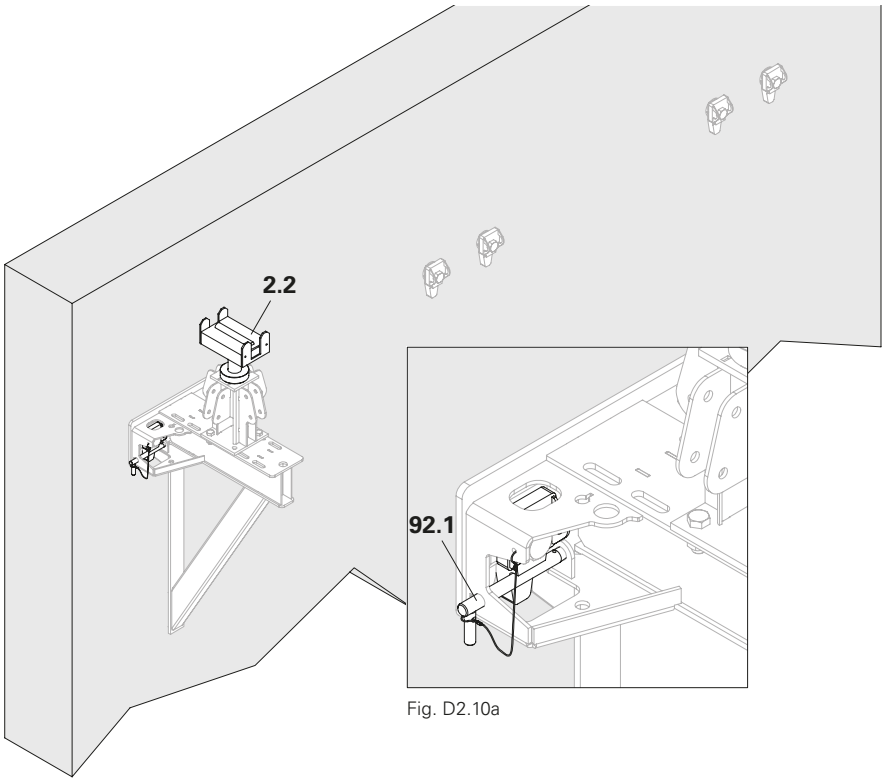


Fig. D2.10a

Fig. D2.10

Additional main beam brackets

1. Repeat the procedure for every Main Beam Bracket Alpha. (Fig. D2.11)

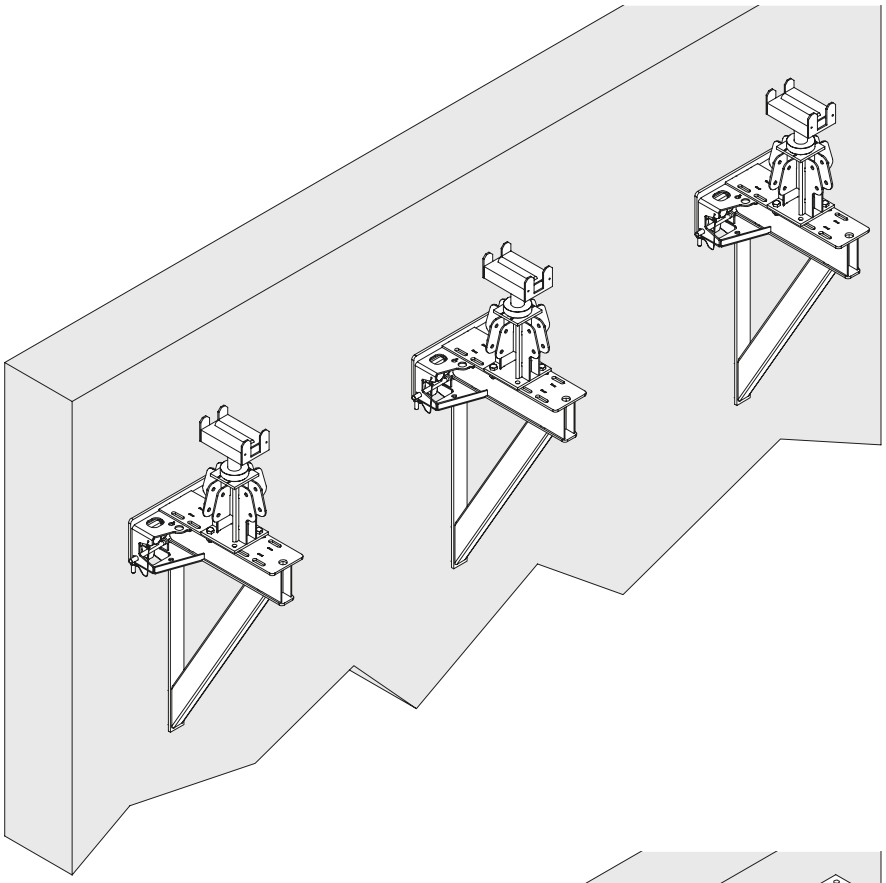


Fig. D2.11

The main beam must be secured in its position in all directions.

Installing the main beam

1. Install main beam (**37/38/39**). (Fig. D2.12)

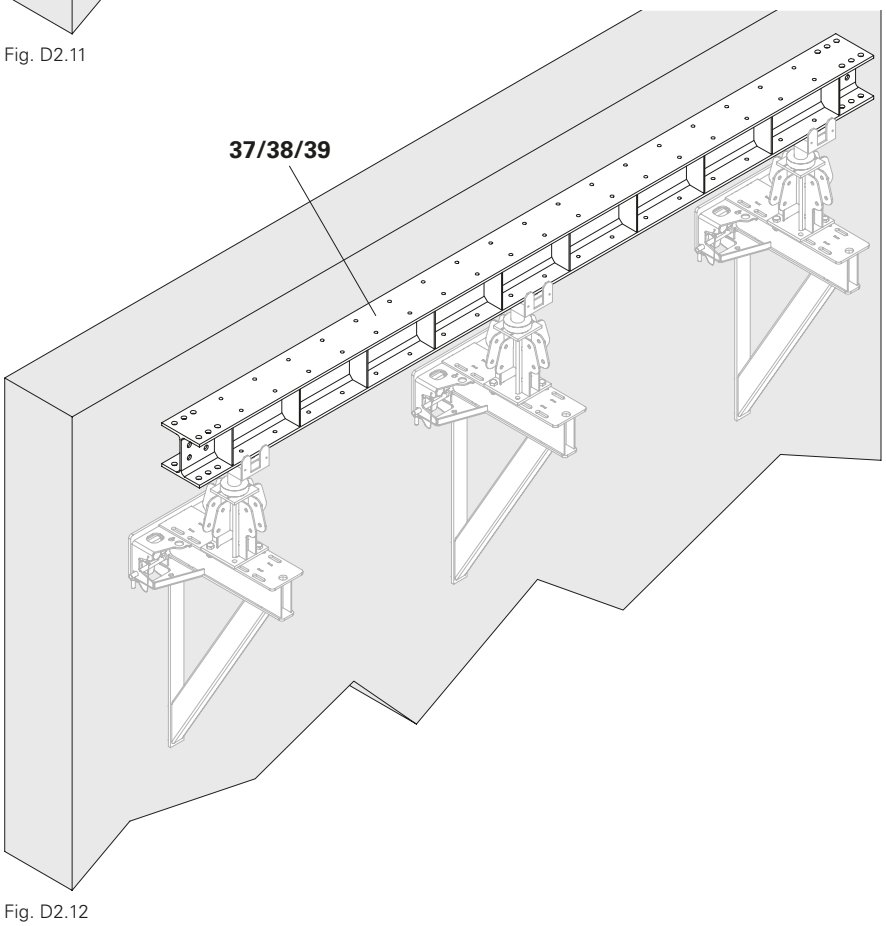


Fig. D2.12

Disassembly

- Dismantling is to be carried out from a safe working position (e.g. lifting platform).
- Determine a site-specific solution before assembling.
- Close the tie points with SWLK Concrete Cone M36-105/52, see the Instructions for Assembly and Use for concrete cones and concrete adhesives.

Overview

Danger

- Bridge can collapse!
  Risk of injury!
  ⇒ In the accessible areas, bolts must be secured against any deliberate tampering such as being pulled out.
  ⇒ Use bolts with nuts and lock nuts in all accessible areas.
- Components could fall to the ground!
  Risk of injury!
  ⇒ Only use suitable lifting gear.
  ⇒ Components must be sufficiently secured.

- The scaffolding tube bracing must have tension and compression-proof connections on both sides in the second bay.
- Assembly on the fixed support first.
- Bracing must be mounted approx. every 4.5 m.

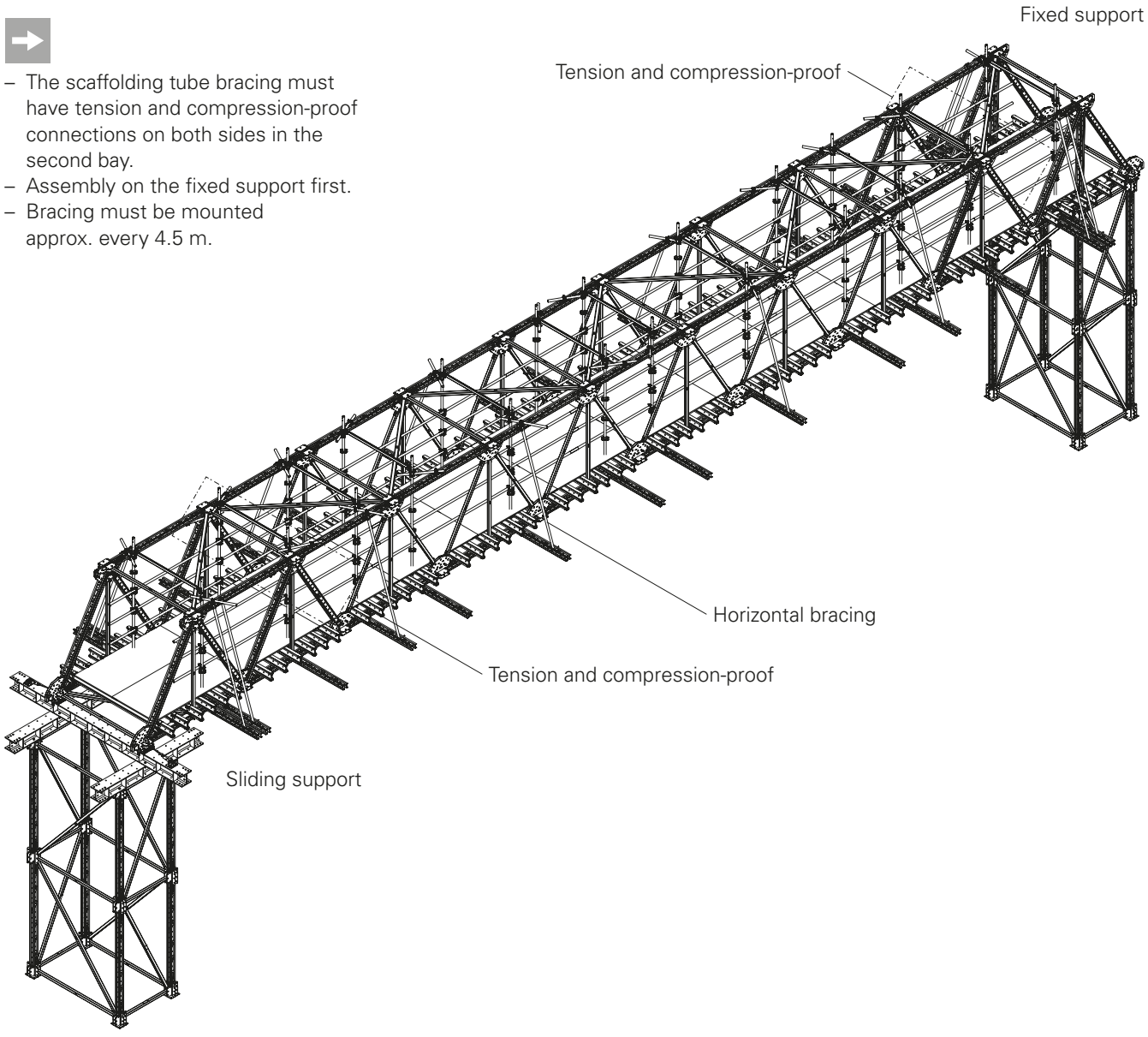


Fig. D3.01

Scaffolding tubes

- Mount scaffolding tube as lateral protection every 50 cm.
- Take into consideration country-specific standards and regulations.

Assembly

1. Attach the Standard Coupler 48/48 (**90**) to the PERI UP Vertical.
2. Attach the Steel Scaffolding Tube Ø 48.3 x 3.2 (**77**) to the Standard Coupler RA 48/48 (**90**).
3. If necessary, attach additional anti-fall protection, e.g. PROKIT EP 200. Follow the Instructions for Assembly and Use for PROKIT EP 200.

(Fig. D3.02)

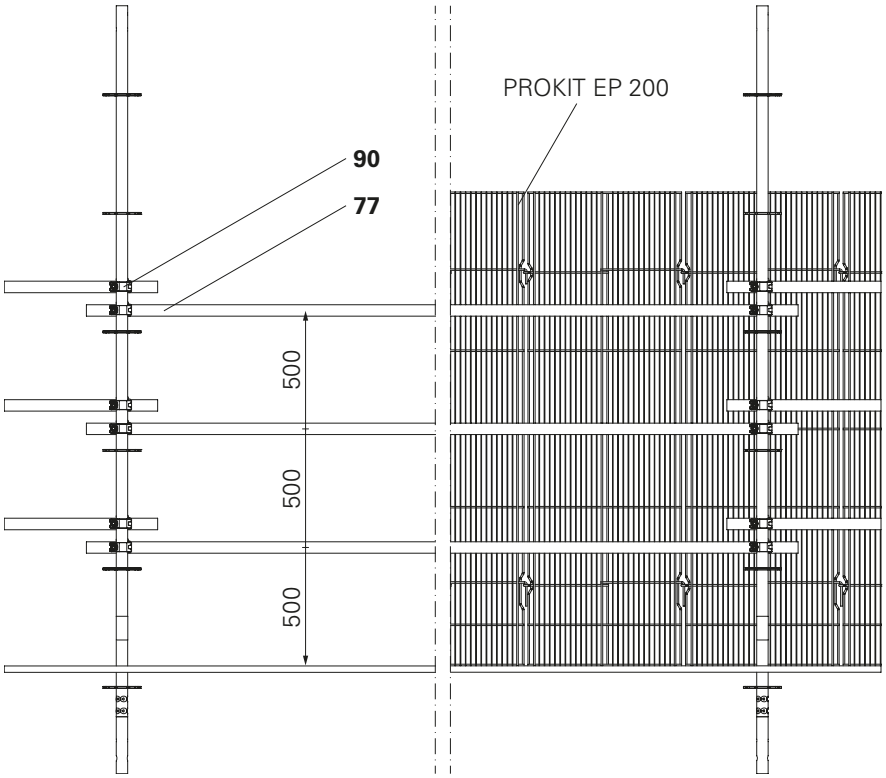


Fig. D3.02

Support on the first tower (fixed support)

The vertical Steel Waler 212 Alpha (**26**) is bolted to the top Chord Node ATG (**5**) using a fitting pin Ø 32 (**28**) and is slightly inclined when correctly assembled.

Assembly

1. Fix 1x Bearing APB (**83**) per side at the specified spacing using 1x fitting pin Ø 21 (**53**) and secure with cotter pin 4/1 (**54**).
2. Instead of the Chord Nodes, Support Chord Nodes (**61**) can be used on the outer node points.
3. Fix Steel Waler 212 Alpha (**26**) as Vertical Posts using 3x fitting pins Ø 32 (**28**) and secure with cotter pins 5/2 (**29**).
4. Mount Support Chord Node ATG (**61**) and Bearing APB (**83**) on the Prop Bases of the tower using 4x Bolt ISO 4017 M24 x 60-8.8 (**59**) and Nut ISO 4032 M24-8 (**60**) respectively.

(Fig. D3.03)

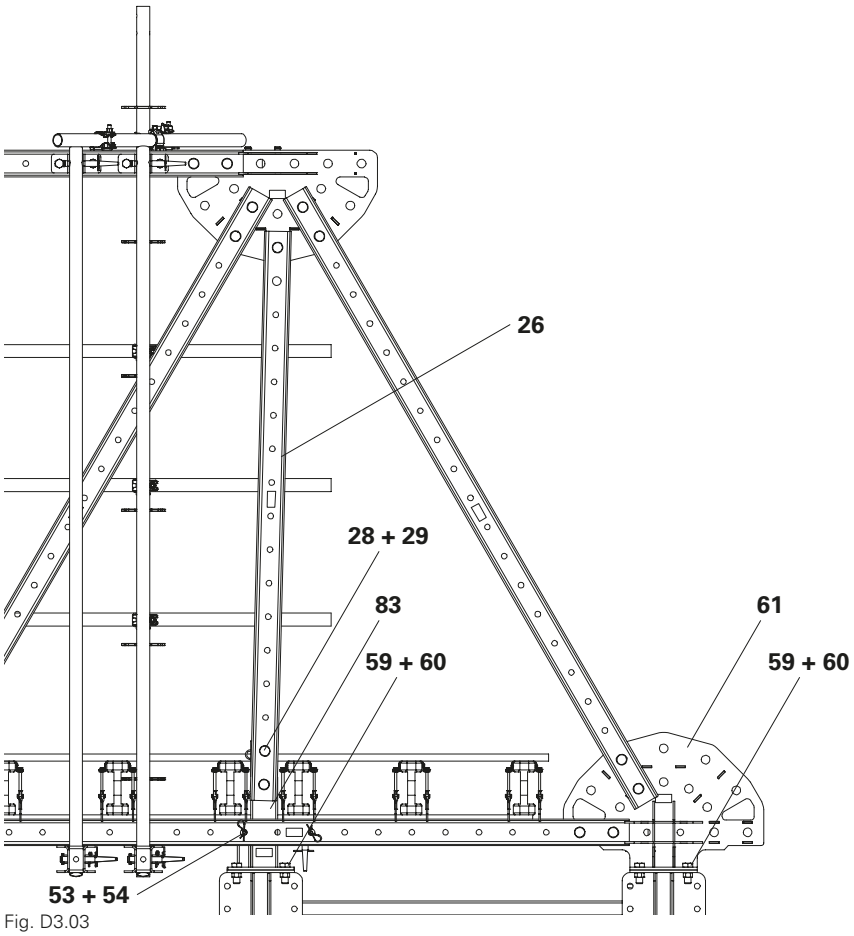


Fig. D3.03

Support on the second tower (sliding support)

Depending on which side matches the grid dimensions of the Main Beam, this side is bolted on during assembly. The other side is secured using Girder Clamps HD 70 mm.

Assembly

1. Position Main Beam Alpha (**36/37/38**) as Cross Girder.
2. Mount Main Beam Alpha (**36/37/38**) on one side of every Main Beam using 1x Bolt ISO 4017 M20 x 70-8.8 (**87**) and Nut ISO 4032 M20-8 (**56**) respectively.
3. Fix Main Beam Alpha (**36/37/38**) on the other side of every Main Beam using 1x Girder Clamp HD 70 mm (**72**) respectively.
4. Instead of the Chord Nodes, Support Chord Nodes (**61**) can be used on the outer node points.
5. Position the Support Chord Nodes ATG (**61**) on the Support Calottes ATG (**8**).

(Fig. D3.04 + D3.04a)

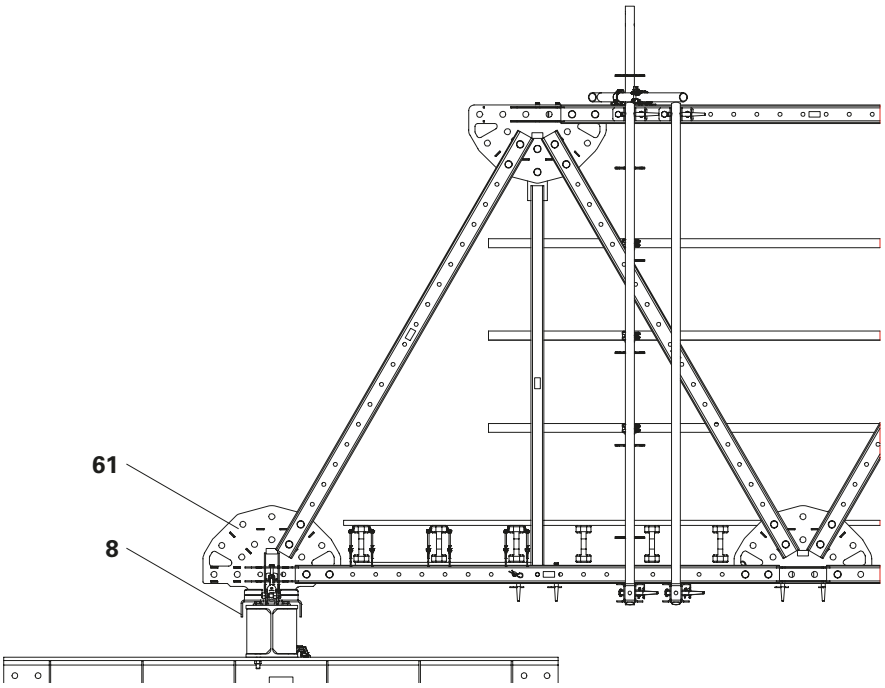


Fig. D3.04

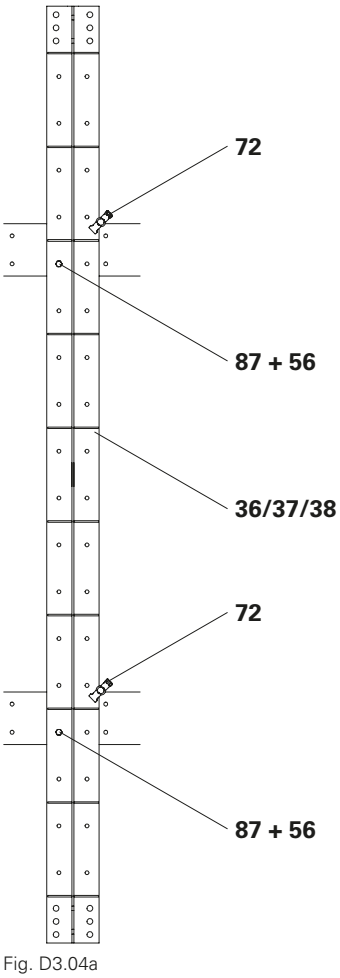


Fig. D3.04a

Bracing

1. Fix H-Load Connectors ATG (**40**) to the Main Beam using 2x Bolt ISO 4017 M20 x 70 (**87**) respectively.
2. Secure Bolt ISO 4017 M20 x 70 (**87**) with Nut ISO 4032 M20 (**56**) and counter using Nut ISO 4032 M20 (**56**).
3. Pre-assemble the bracing: Consisting of Articulated Spanner DW15 (**108**), Twist Lock Articulated Spanner DW15 (**111**), H-Load Tie Yoke DW15 ATG (**39**) and Tie Rod DW15.
4. Mount bracing with H-Load Tie Yoke DW15 ATG (**39**) to the Support Chord Nodes ATG (**61**) using bolt ISO 4014 M20 x 100-8.8 (**55**) and nut ISO 4032 M20-8 (**56**).
5. Mount bracing with Articulated Spanner DW15 (**108**) to the H-Load Connector ATG (**40**) using bolt ISO 4014 M20 x 90-8.8 (**30**) and nut ISO 4032 M20-8 (**56**).

(Fig. D3.04b)

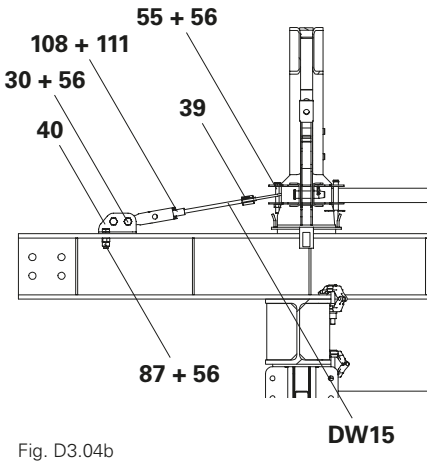


Fig. D3.04b

Installing the guardrails

Mounting the PERI UP Verticals

1. Fix Base Standard Alpha – Up (**91**) at the specified positions using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).
2. Insert PERI UP Vertical into the Base Standard Alpha – Up (**91**).
3. Fix Scaffold Tube Adapter Ø 48 Alpha (**35**) in the top steel waler using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).
4. Attach the Standard Coupler RA 48/48 (**90**) to the PERI UP Vertical.
5. Insert the steel scaffolding tube Ø 48.3 x 3.2 (**77**) through the Scaffold Tube Adapter Ø 48 Alpha (**35**) and Standard Coupler RA 48/48 (**90**). (Vertical must be in a perpendicular position)

(Fig. D3.05)

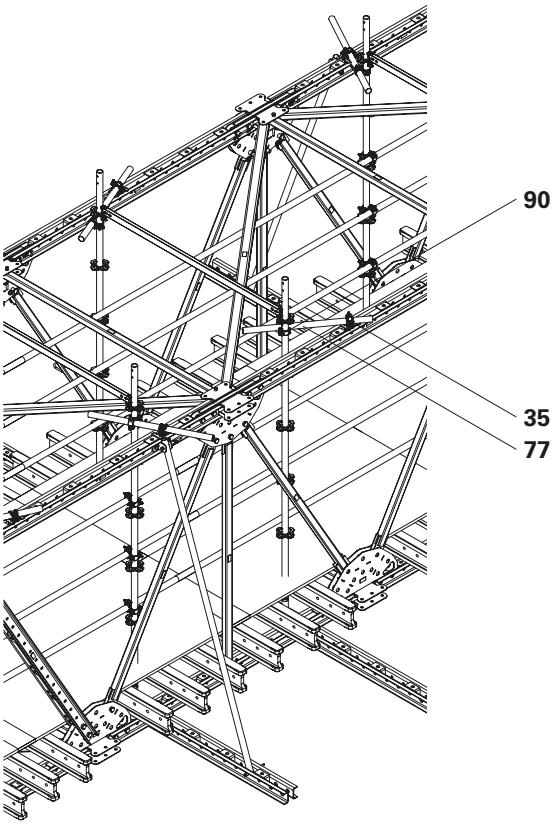


Fig. D3.05

Horizontal bracing

Mounting the bracing

1. Connect 2x Steel Walers 262 Alpha (**25**) with Waler Connector Alpha (**82**) and 4x fitting pins Ø 32 respectively and secure with cotter pins 5/2.
2. Fix the steel waler construction with Cross Connector Alpha (**81**) to longitudinally positioned steel walers at a distance of approx. 4.5 m with fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).
3. Mount the Bracing Connector APB (**80**) at the height of the steel waler using bolt ISO M20 x 100-8.8 (**55**) and nut ISO 4032 M20-8 (**56**).
4. Cut the steel scaffolding tube 48.3 x 3.2 (**77**) to the specified length and drill holes in the correct positions (Ø 21.5 mm).
5. Mount the steel scaffolding tube 48.3 x 3.2 (**77**) at the top to the Bracing Connector APB (**80**) using bolts ISO M20 x 100-8.8 (**55**) and nuts ISO 4032 M20-8 (**56**).
6. Mount the steel scaffolding tube 48.3 x 3.2 (**77**) below using fitting pins Ø 21 (**53**) and secure with cotter pins 4/1 (**54**).

(Fig. D3.05a)

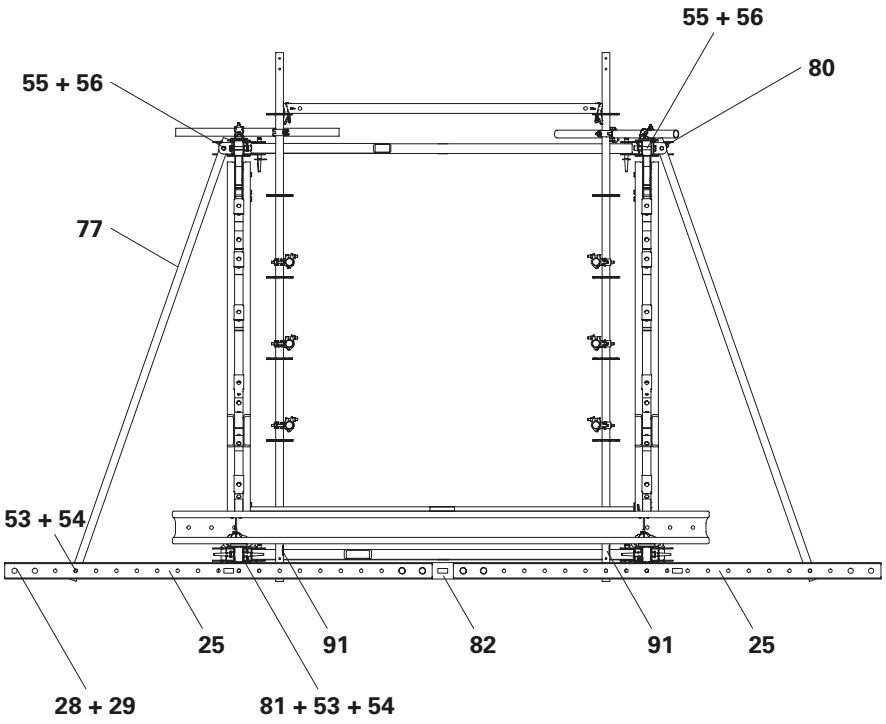


Fig. D3.05a

E1 Lowering sequence

Warning

During the lowering procedure, body parts could become trapped! Risk of injury!

⇒ Lowering is carried out from a safe working position.

⇒ Project-specific lifting and lowering plans are to be observed.

⇒ Consider the lowering range.

- Retract components only when the concrete has sufficiently hardened and the person in charge has given the go-ahead for striking to take place.

Lowering

Observe project-specific lowering guidelines.

Otherwise:

1. Lower all verticals one after the other from the inside to the outside using the specified lowering range.
   – Observe the lowering sequence.
   – Consider the lowering range.

(Fig. E1.01 + Tab. E1.01)

2. Repeat the procedure until the required spindling distance has been reached.

Lowering path

Configuration	H < 10 m	10 m ≤ H < 20 m	20 m ≤ H < 30 m
Head Spindle ATS	1/2 turn (5 mm)		
Spindle ATS 360-550	1/4 turn (6 mm)		

Tab. E1.01

- In the case of multiple centre supports, the shoring towers may have to be lowered one after the other using the same principle regarding the maximum permissible lowering range.
  → This avoids temporary overloading of individual verticals or towers.

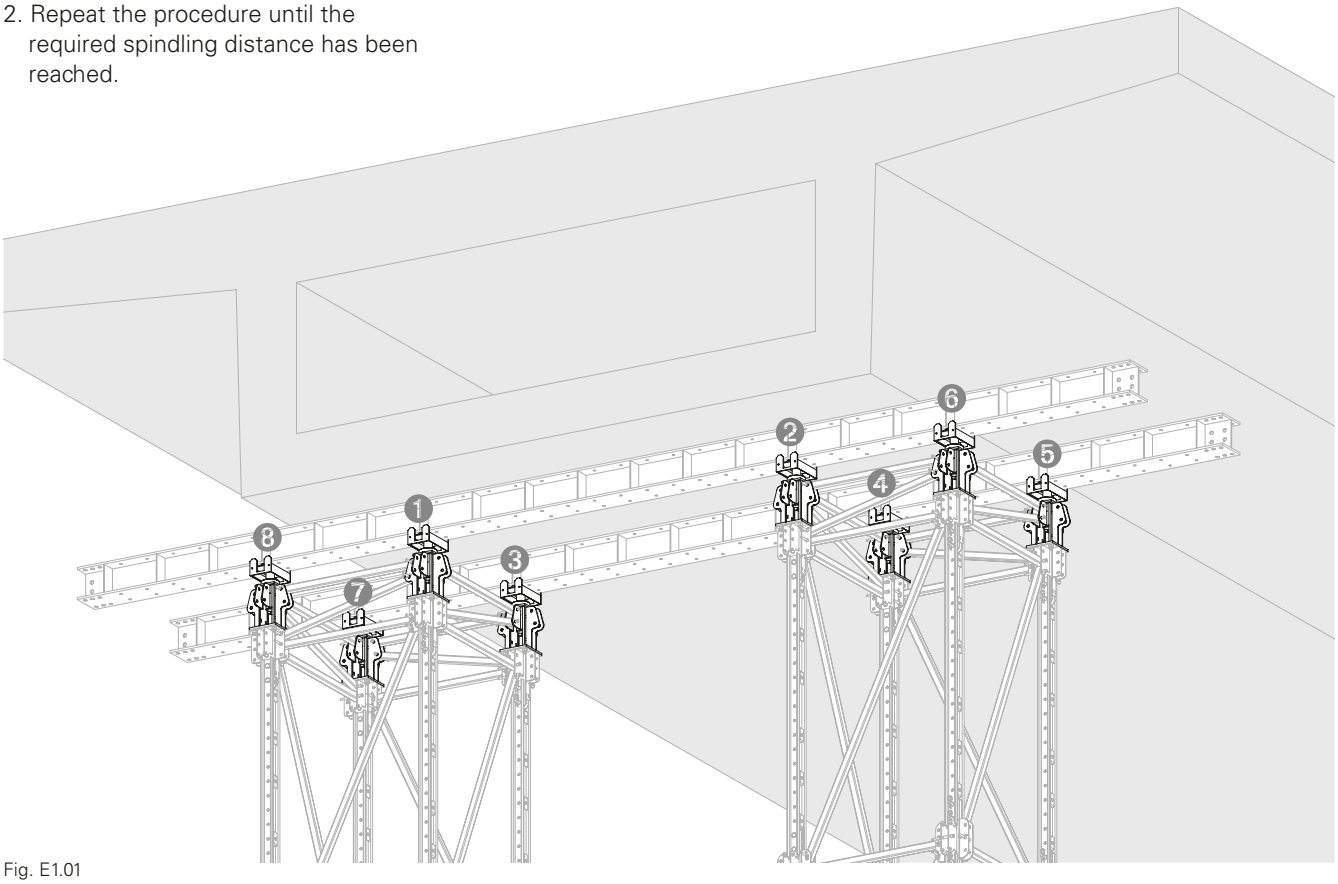


Fig. E1.01

E2 Lowering procedure with hydraulic cylinder

Warning

During the lowering procedure, body parts could become trapped!
Risk of injury!

⇒ Lowering is carried out from a safe working position.

⇒ Project-specific lifting and lowering plans are to be observed.

- Retract components only when the concrete has sufficiently hardened and the person in charge has given the go-ahead for striking to take place.

Lowering procedure

1. Position the hydraulic cylinder (**50.1**) on the Head Spindle Tube ATS (**73**). (Fig. E2.01a)
2. Pump up the hydraulic cylinder (**50.1**) until the head spindle nut (**2.3**) is relieved.

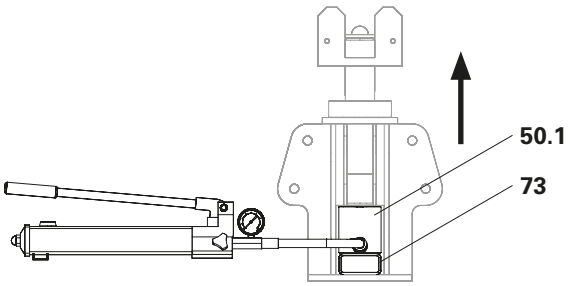


Fig. E2.01a

3. Screw in the head spindle nut (**2.3**) by half a turn (**5 mm**). (Fig. E2.01b)

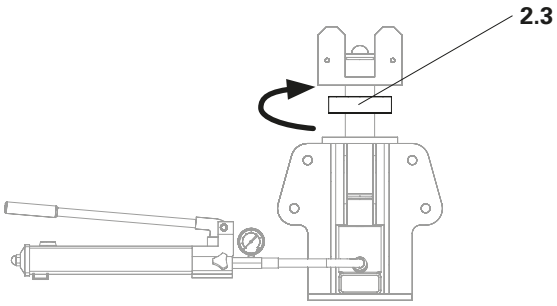


Fig. E2.01b

4. Release pressure from the hydraulic cylinder (**50.1**). (Fig. E2.01c)
5. Repeat the procedure until the planned lowering range has been reached.

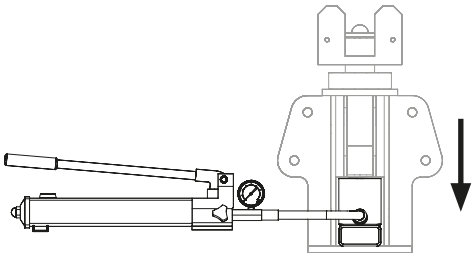


Fig. E2.01c

E3 Dismantling the H-Load Connector ATG

Disassembly

1. Dismantle the H-Load Tie Yoke DW15 ATG (**39**). (Fig. E3.01a)

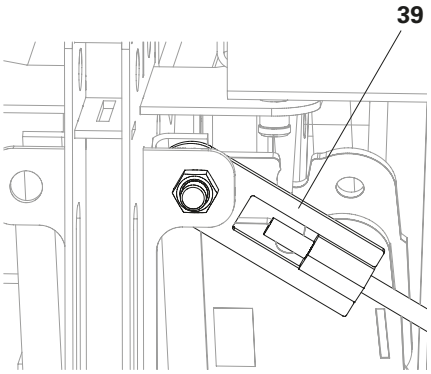


Fig. E3.01a

2. Remove the Articulated Spanner DW15 (**79**). (Fig. E3.01b)

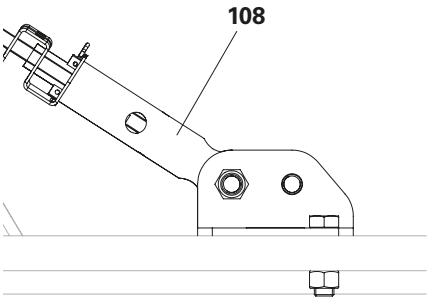


Fig. E3.01b

3. Remove the H-Load Connector ATG (**40**). (Fig. E3.02)

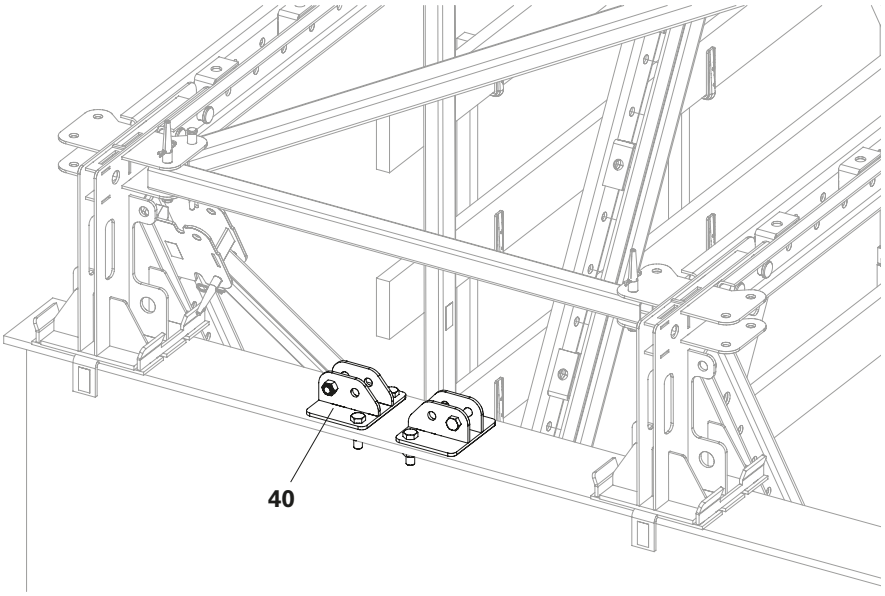


Fig. E3.02

E4 Striking

- Retract components only when the concrete has sufficiently hardened and the person in charge has given the go-ahead for striking to take place.
- The striking plans will indicate whether an anchor chain has to be mounted for braking.

Preparation

1. Apply grease on the main beams in the direction of striking in order to reduce friction between the main beams and Support Calottes ATG.
2. Attach an anchor chain in the direction of striking.
3. If necessary, mount an anchor chain on the opposite side which is to be used for braking.

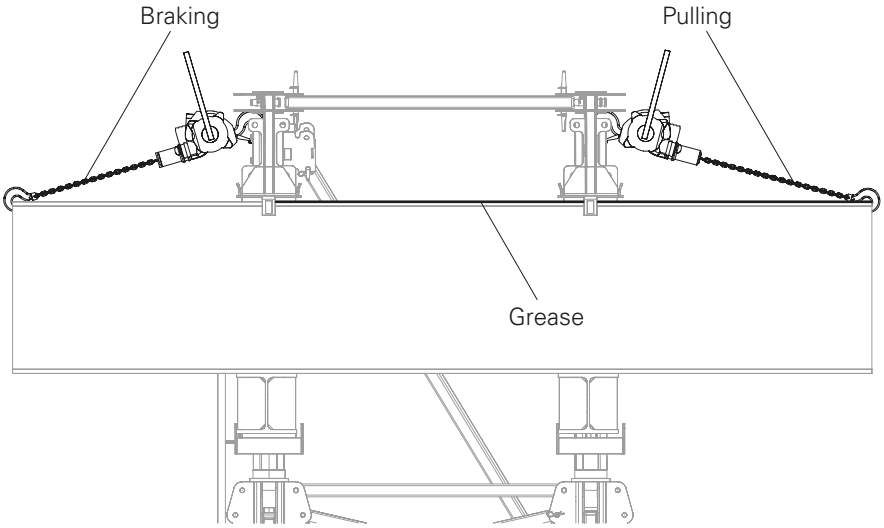


Fig. E4.01

Warning

Main beams may fall over when striking if they have not been secured!
Risk of injury!

⇒ Before dismantling the truss girder package, the main beams must be braced vertically against the tower.

⇒ The truss girder package may be removed only if site personnel are in a safe position or wearing PPE in order to prevent falling.

- If the crane capacity is insufficient, the truss girder package must be divided and moved in individual transportable components.
- During the striking procedure, the stability of the towers must be checked.

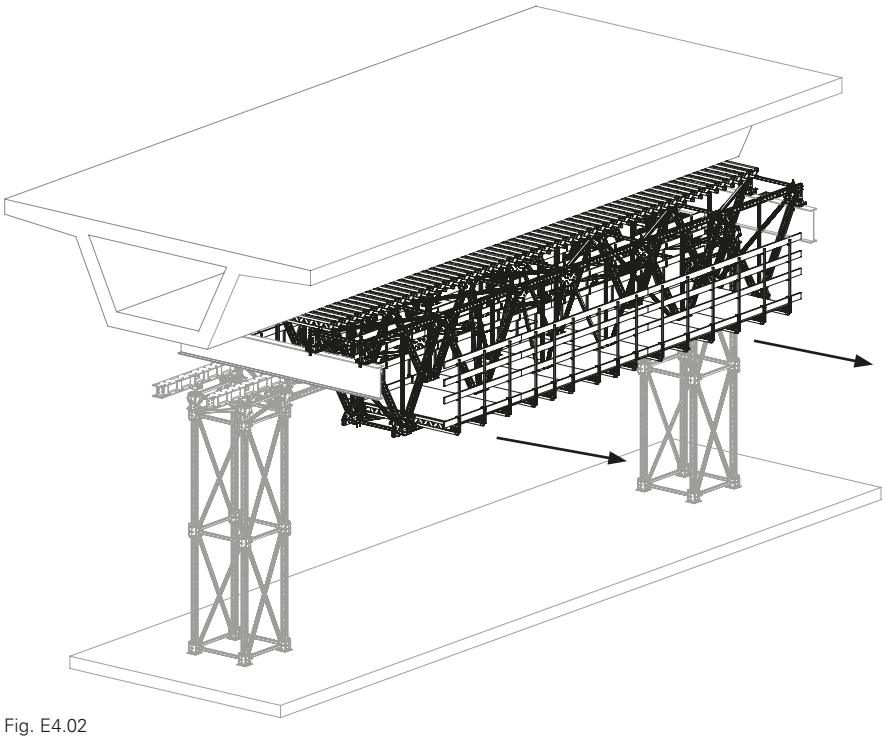
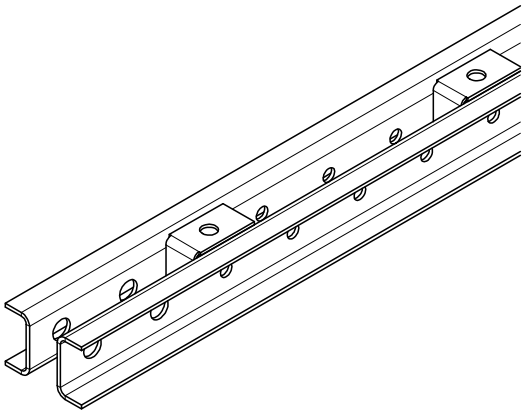


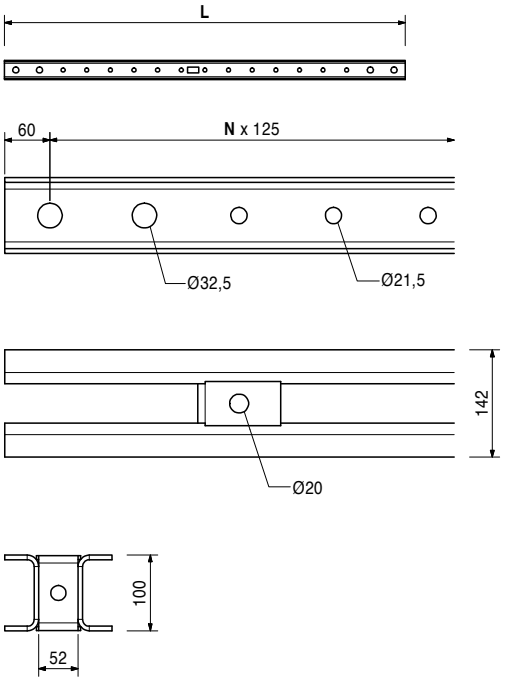
Fig. E4.02

Procedure

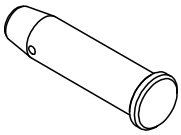
1. Pull out the truss girder package with the help of chain hoists on the main beams with site personnel in a safe position or wearing PPE.
2. Attach 4-sling lifting gear to the truss girder package.
3. Move the truss girder package to the next place of use or dismantling area using the 4-sling lifting gear.

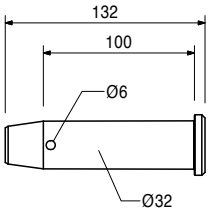
Art. no.	Weight [kg]		L [mm]
		Steel Waler Alpha	
129877	27.500	**STEEL WALER 162 ALPHA**	1620
129874	35.300	**STEEL WALER 212 ALPHA**	2120
129871	44.100	**STEEL WALER 262 ALPHA**	2620





Art. no.	Weight [kg]	
130057	0.802	**FITTING PIN D32 ALPHA**

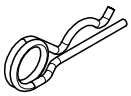


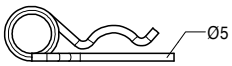


Accessories (not included)

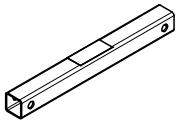
130010	0.050	**COTTER PIN 5/2 GALVANISED**

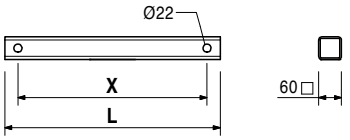
Art. no.	Weight [kg]	
130010	0.050	**COTTER PIN 5/2 GALVANISED**



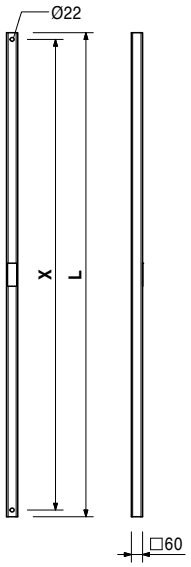


Art. no.	Weight [kg]		L [mm]	X [mm]
		Horizontal Post, Alpha		
130085	1.260	**HORIZONTAL POST 37.5 ALPHA**	195	125
130067	2.100	**HORIZONTAL POST 50 ALPHA**	320	250
130083	3.780	**HORIZONTAL POST 75 ALPHA**	570	500
130069	5.460	**HORIZONTAL POST 100 ALPHA**	820	750
130065	8.810	**HORIZONTAL POST 150 ALPHA**	1320	1250
133764	15.500	**HORIZONTAL POST 250 ALPHA**	2320	2250

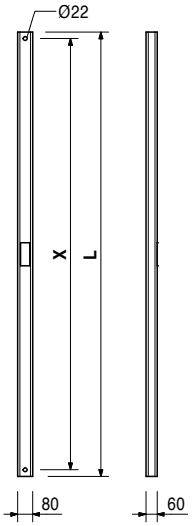




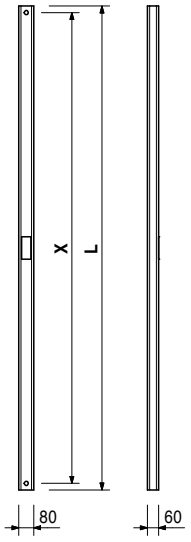
Art. no.	Weight [kg]		L [mm]	X [mm]
		Diagonals-4 150, ATS		
130053	14.300	**DIAGONAL-4 150/162 ATS**	2143	2073
130047	17.100	**DIAGONAL-4 150/212 ATS**	2560	2490
130049	20.100	**DIAGONAL-4 150/262 ATS**	3004	2934



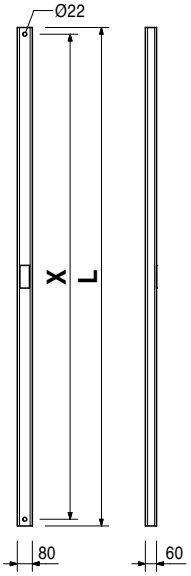
Art. no.	Weight [kg]		L [mm]	X [mm]
		Diagonals-6 100, Alpha		
130059	21.300	**DIAGONAL-6 100/162 ALPHA**	1886	1816
130061	26.600	**DIAGONAL-6 100/212 ALPHA**	2351	2281
130063	32.000	**DIAGONAL-6 100/262 ALPHA**	2829	2759



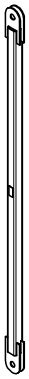
Art. no.	Weight [kg]		L [mm]	X [mm]
		Diagonals-6 150, Alpha		
130071	24.200	**DIAGONAL-6 150/162 ALPHA**	2143	2073
130090	28.900	**DIAGONAL-6 150/212 ALPHA**	2560	2490
130079	34.000	**DIAGONAL-6 150/262 ALPHA**	3004	2934

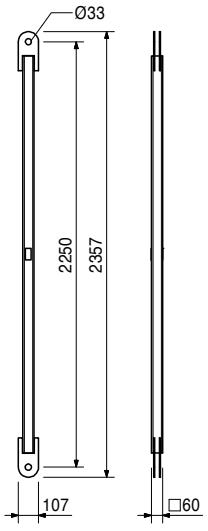


Art. no.	Weight [kg]		L [mm]	X [mm]
		Diagonals-6 250, Alpha		
133766	29.800	**DIAGONAL-6 250/131 ALPHA**	2636	2566
133765	40.100	**DIAGONAL-6 250/262 ALPHA**	3549	3479

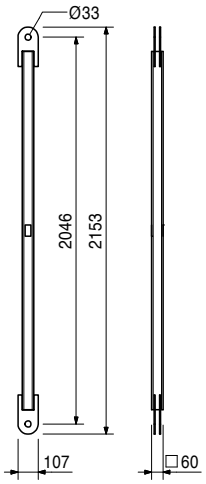


Art. no.	Weight [kg]	
130122	16.500	**TRUSS DIAGONAL 262 ATG**

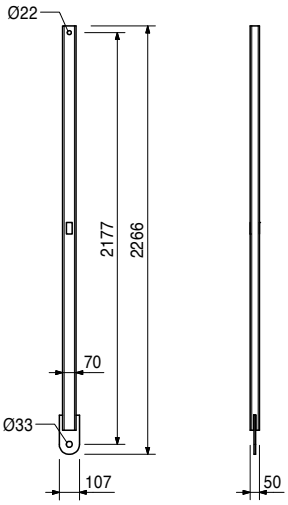




Art. no.	Weight [kg]	
130098	15.100	**TRUSS DIAGONAL 212 ATG**

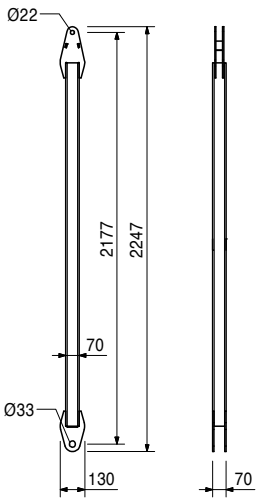


Art. no.	Weight [kg]	
130088	15.900	**VERTICAL MEMBER ATG**



Art. no.	Weight [kg]	
137201	18.800	**VERTICAL MEMBER-2 ATG**

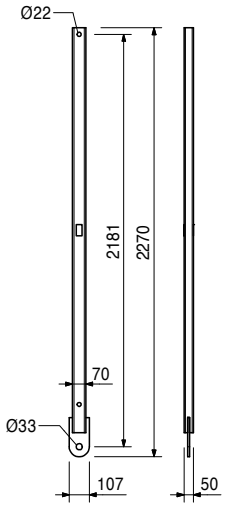
Increases the load-bearing capacity of trusses with spans up to 15.25 m.



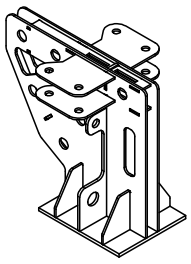
Art. no.	Weight [kg]	
131442	15.900	**VERTICAL MEMBER 212 ATG**

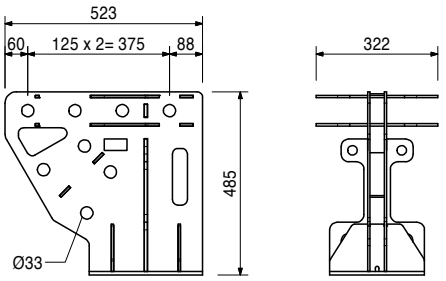
Note

To be used for adjusting the span with a Steel Waler 212 Alpha in the top chord.

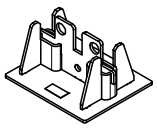


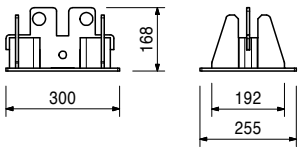
Art. no.	Weight [kg]	
130115	34.500	**SUPPORT NODE ATG**



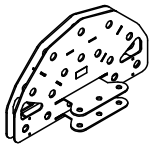


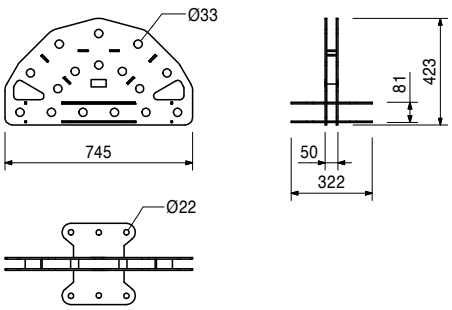
Art. no.	Weight [kg]	
130094	10.100	**SUPPORT ADAPTER ATG**



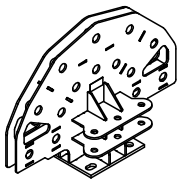


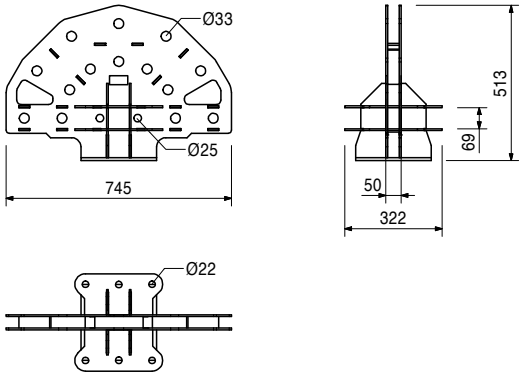
Art. no.	Weight [kg]	
130119	30.000	**CHORD NODE ATG**



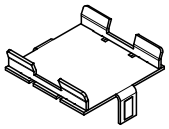


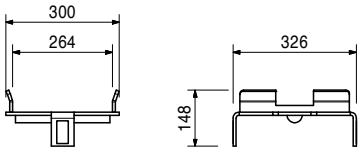
Art. no.	Weight [kg]	
130332	39.800	**SUPPORT CHORD NODE ATG**



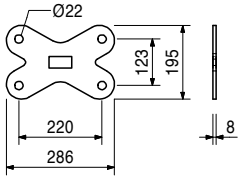


Art. no.	Weight [kg]	
130103	8.960	**SUPPORT CALOTTE ATG**

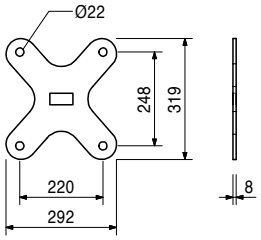




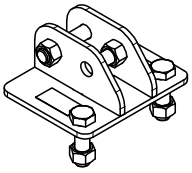
Art. no.	Weight [kg]	
131363	2.460	**CONNECTOR X 37.5 ATG**

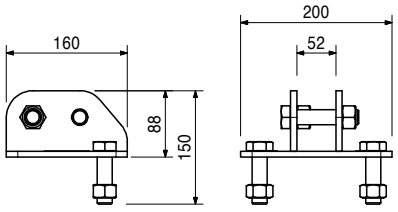


Art. no.	Weight [kg]	
130249	3.490	**CONNECTOR X 50 ATG**

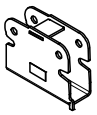


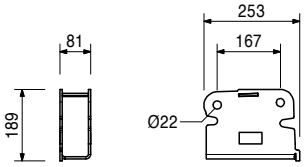
Art. no.	Weight [kg]	
130029	4.520	**H-LOAD CONNECTOR ATG**





Art. no.	Weight [kg]	
130124	4.570	**BRACING CONNECTOR ATG**

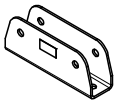


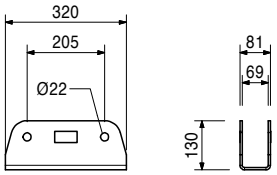


Accessories (not included)

130003	0.819	**BOLT ISO4017-M30X100-8.8-VZ**
130152	0.220	**HEX. NUT ISO4032-M30-8-VZ**

Art. no.	Weight [kg]	
130081	4.470	**BRACING CONNECTOR 75 ATG**

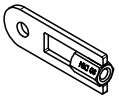


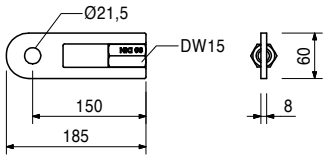


Accessories (not included)

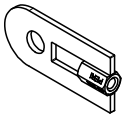
024910	0.303	**BOLT ISO4014-M20X100-8.8-VZ**
710334	0.064	**HEX. NUT ISO4032-M20-8-VZ**

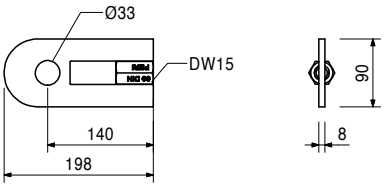
Art. no.	Weight [kg]	
130032	0.669	**TIE YOKE DW15 D21**





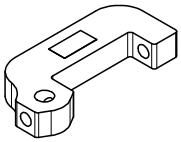
Art. no.	Weight [kg]	
130739	1.030	**TIE YOKE DW15 D32**

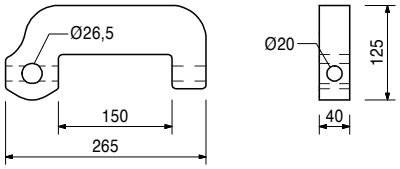




Art. no.	Weight [kg]	
115375	6.100	**ARTICULATED SPANNER RCS DW15**

For tensioning and as an articulated connection of bracing with DW 15 on Climbing Rails RCS, Steel Walers SRU or Bracing Shoe RCS.

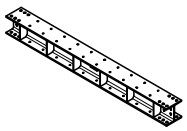


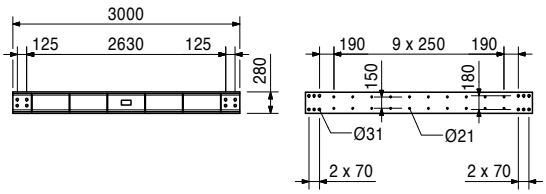


Accessories (not included)

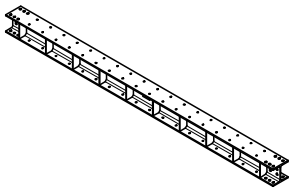
018060	0.014	**COTTER PIN 4/1 GALVANISED**
022230	0.033	**COTTER PIN 5/1 GALVANISED**
030030	1.440	**TIE ROD SPECIAL LENGTH DW15**
030070	0.222	**HEX. NUT AF 30/50, galv. DW15**
104031	0.462	**FITTING PIN D=21X120**
111567	0.729	**FITTING PIN D=26X120**

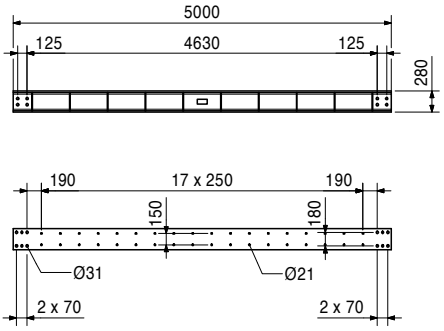
Art. no.	Weight [kg]	
130042	327.000	**MAIN BEAM 300 Alpha**



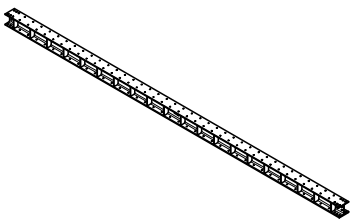


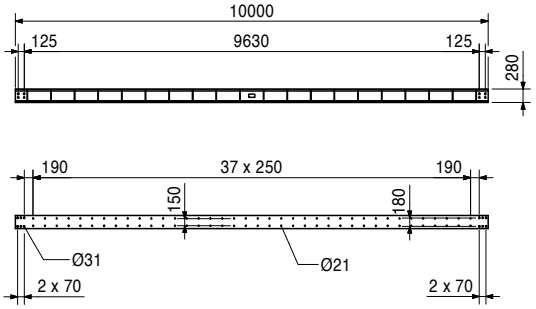
Art. no.	Weight [kg]	
130039	548.000	**MAIN BEAM 500 Alpha**





Art. no.	Weight [kg]	
130036	1,100.000	**MAIN BEAM 1000 ALPHA**



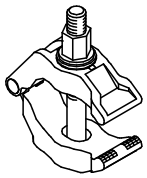


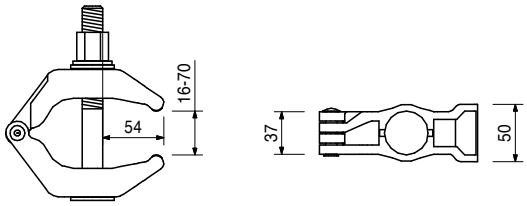
Art. no.	Weight [kg]	
106183	2.200	**GIRDER CLAMP HD 70 MM, GALV.**

For connecting beams running crosswise.

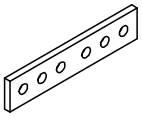
Note

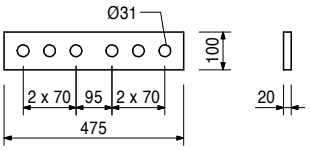
Observe the permissions!
Plan for 2 pieces per Head Spindle!





Art. no.	Weight [kg]	
130247	6.750	**FLANGE CONNECTOR ATG**

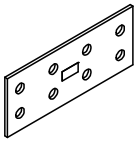


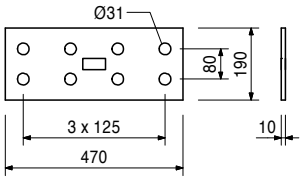


Accessories (not included)

130003	0.819	**BOLT ISO4017-M30X100-8.8-VZ**
130152	0.220	**HEX. NUT ISO4032-M30-8-VZ**

Art. no.	Weight [kg]	
130244	6.540	**WEB COUPLER ATG**

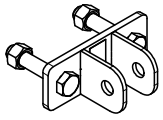


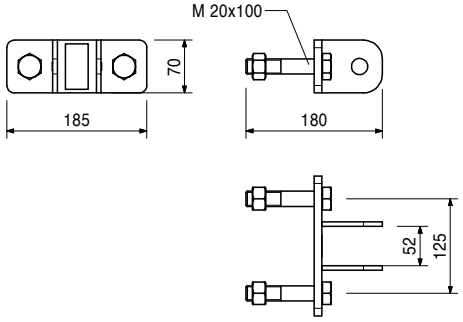


Accessories (not included)

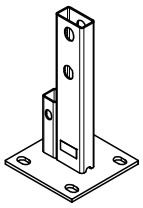
130003	0.819	**BOLT ISO4017-M30X100-8.8-VZ**
130152	0.220	**HEX. NUT ISO4032-M30-8-VZ**

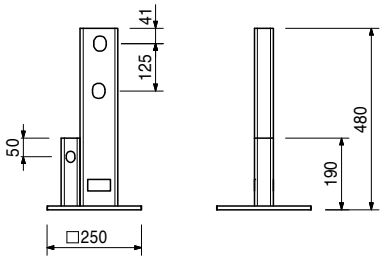
Art. no.	Weight [kg]	
130727	2.150	**CONNECTION APB**



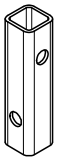


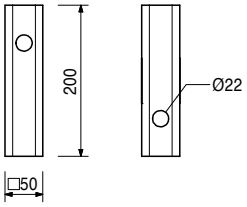
Art. no.	Weight [kg]	
130720	9.420	**BEARING APB**



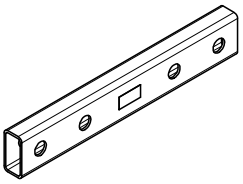


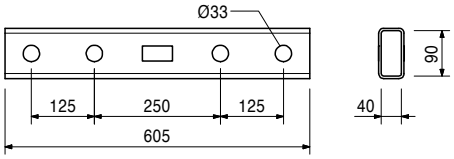
Art. no.	Weight [kg]	
130731	1.250	**CROSS CONNECTOR ALPHA**



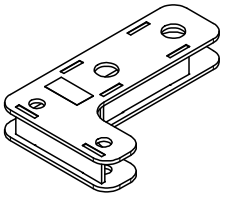


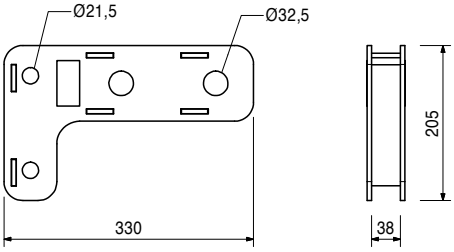
Art. no.	Weight [kg]	
130729	6.080	**WALER CONNECTOR ALPHA**



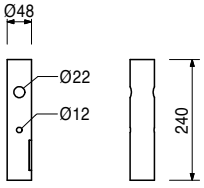


Art. no.	Weight [kg]	
130259	4.350	**CORNER CONNECTOR ALPHA**

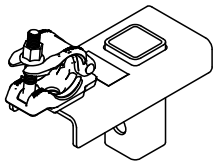


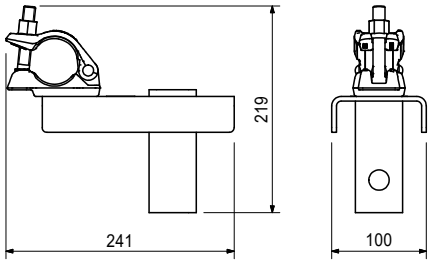


Art. no.	Weight [kg]	
130568	0.832	**BASE STANDARD ALPHA – UP**



Art. no.	Weight [kg]	
131716	2.740	**SCAFFOLDING ADAPTER ALPHA**

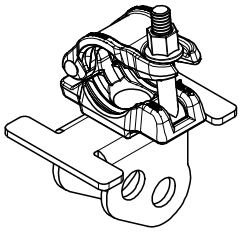


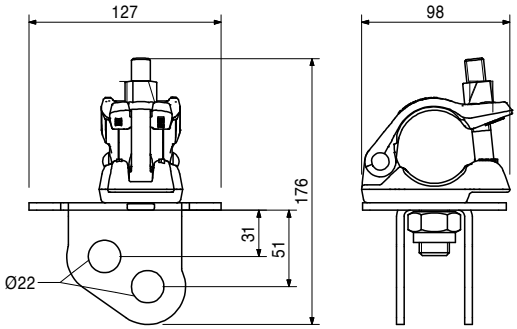


Art. no.	Weight [kg]	
130045	1.670	**SCAFFOLD TUBE ADAPTER D48 ALPHA**

Note

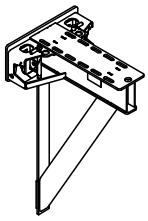
Also suitable for fitting to an SRU STEEL WALER.

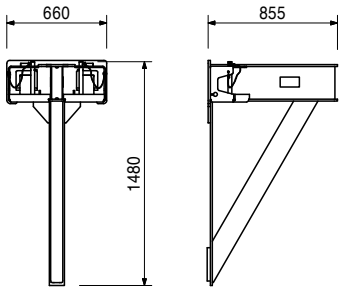




Art. no.	Weight [kg]	
132622	116.000	**MAIN BEAM BRACKET ALPHA**

Console bracket to be attached to the structure as a support for the Head Spindle and the main beam for the Truss Girder Alphakit.

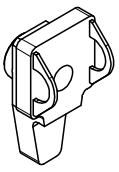


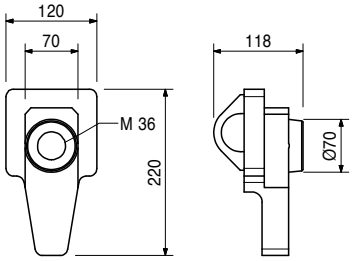


Complete with

1 pc. 113247 locking pin Ø 25 x 260, mount.

Art. no.	Weight [kg]	
134701	6.430	**ANCHOR SLIDING PIECE-2 M36/12**



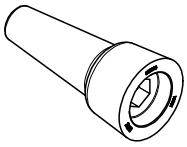


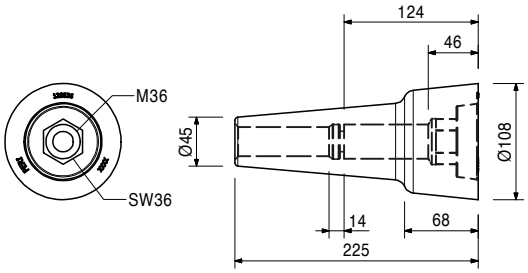
Art. no.	Weight [kg]	
128536	5.870	**HEAVY-DUTY CONE M36-DW26-D108**

For transferring loads from high shear and tensile forces into reinforced concrete.

Note

Load-bearing capacity according to expert opinion (on request)!



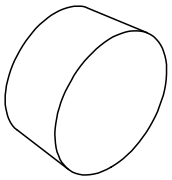


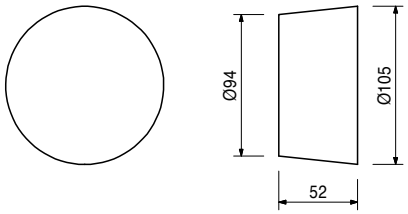
Art. no.	Weight [kg]	
136576	0.838	**SWLK CONCRETE CONE M36-105/52**

For closing tie points with Heavy-Duty Cone M36/DW26 – Ø108.

Note

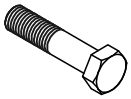
Delivery unit: 10 pieces

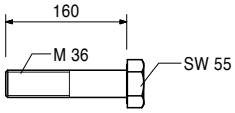




Art. no.	Weight [kg]	
128932	1.630	**BOLT ISO4014-M36X160-10.9**

Bolt for anchoring climbing systems.

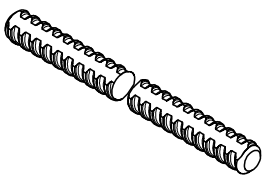


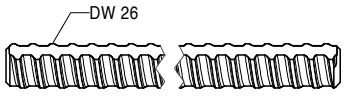


Art. no.	Weight [kg]	
030340	4.480	**TIE ROD SPECIAL LENGTH DW26**

Note

Non-weldable! Observe the permissions!
Permissible tension force 250 kN.



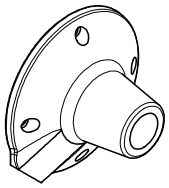


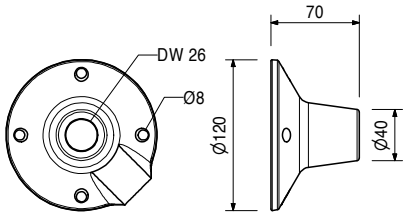
Art. no.	Weight [kg]	
030870	1.260	**THREADED ANCHOR PLATE DW26**

For use with Tie Rod DW 26 or Screw-On Cone M36/DW 26. For anchoring in concrete.

Note

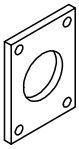
Lost tie component.

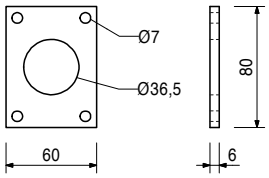




Art. no.	Weight [kg]	
029390	0.170	**ANCHOR POSITIONING PLATE M36, GALV.**

For fixing the Tie System M36 if the plywood formlining has been drilled through.

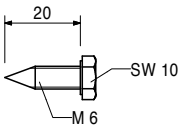




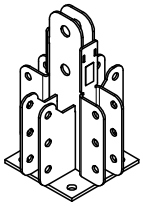
Accessories (not included)

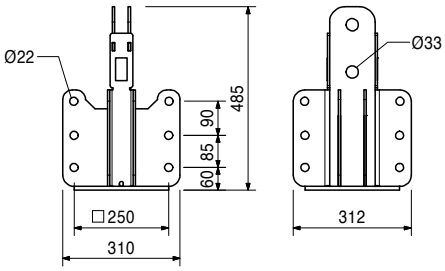
029440	0.005	**HEX WOOD SCREW 6X 20 DIN 571 VZ**

Art. no.	Weight [kg]		L [mm]
029440	0.005	**HEX WOOD SCREW 6X 20 DIN 571 VZ**	20



Art. no.	Weight [kg]	
130150	22.400	**PROP BASE ATS**

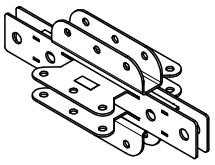


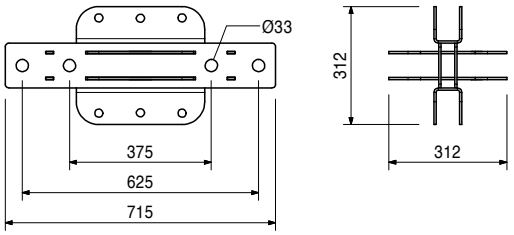


Accessories (not included)

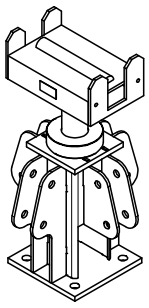
022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**

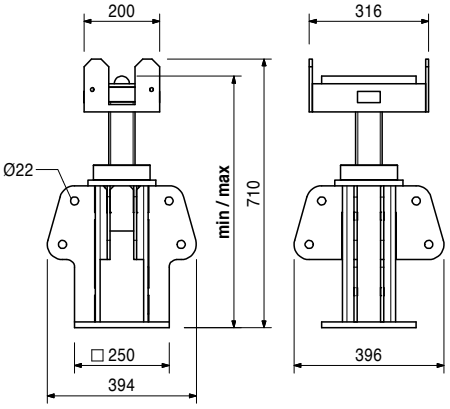
Art. no.	Weight [kg]	
130108	22.200	**VERTICAL CONNECTOR ATS**





Art. no.	Weight [kg]		min. L [mm]	max. L [mm]
130144	61.000	**HEAD SPINDLE ATS**	500	650





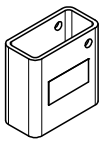
Accessories (not included)

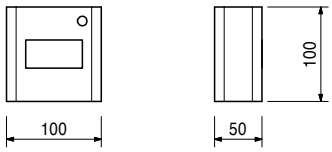
022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**

Art. no.	Weight [kg]	
130722	1.040	**HEAD SPINDLE TUBE ATS**

Note

1 piece per hydraulic unit!



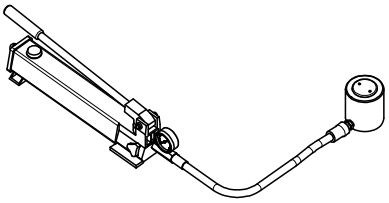


Art. no.	Weight [kg]	
126438	12.900	**HYDRAULIC UNIT HD**

Permissible load-bearing capacity up to 295 kN (can be read off the pressure gauge). Cylinder stroke up to 62 mm.

Note

Maximum 1 piece per tower!
Observe Instructions for Use.

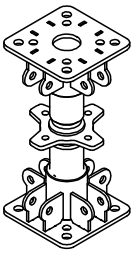


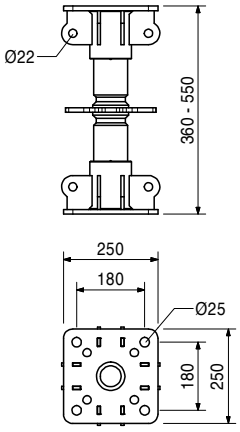
Art. no.	Weight [kg]	
135438	37.500	**SPINDLE ATS 360-550**

Spindle ATS 360-550 for Alphakit Shoring Towers.

Note

Permissible load up to 300 kN.



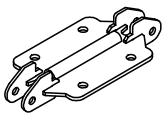


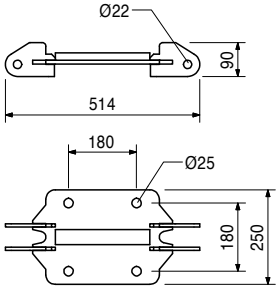
Accessories (not included)

022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**

Art. no.	Weight [kg]	
135932	9.740	**HEAD SPINDLE CENTRING ATS**

For centring the load of the main beam on the Spindle ATS 360-550.

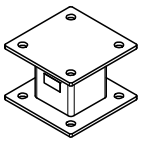


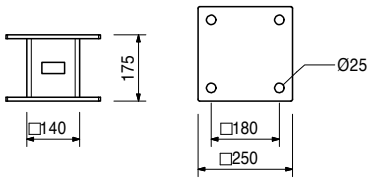


Accessories (not included)

022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**

Art. no.	Weight [kg]	
131383	13.300	**HEIGHT ADJUSTMENT 17.5 ATS**



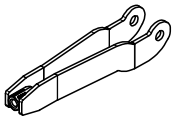


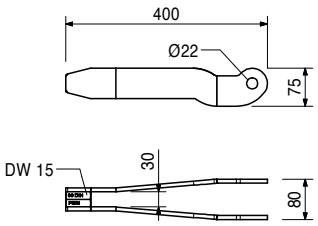
Accessories (not included)

022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**

Art. no.	Weight [kg]	
129693	3.130	**TENSION TIE CONNECTION CB/SCS**

For connecting wind bracing with Tie Rod DW 15 to the Crossbeam Unit SCS 250/190 or CB Climbing Bracket.

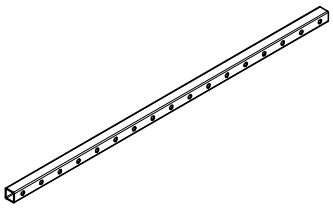


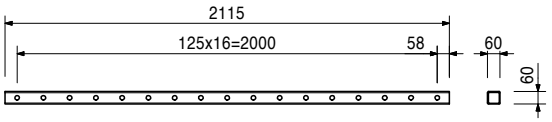


Accessories (not included)

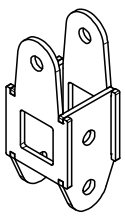
711078	0.360	**BOLT ISO4014-M20X130-8.8-VZ**
781053	0.065	**HEX. NUT ISO7040-M20-8-VZ**

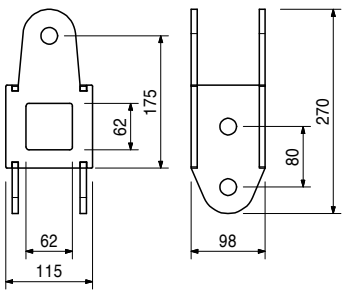
Art. no.	Weight [kg]	
137533	14.200	**BRACING DISTRIBUTION TUBE VARIOKIT**





Art. no.	Weight [kg]	
137531	3.480	**BRACING CONNECTOR VARIOKIT**

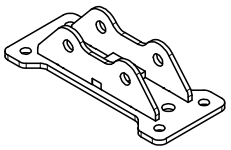


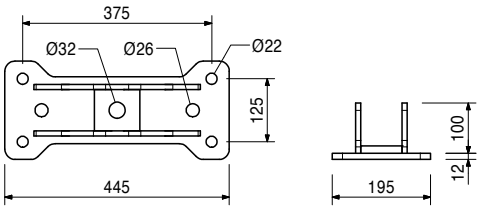


Accessories (not included)

018060	0.014	**COTTER PIN 4/1 GALVANISED**
104031	0.462	**FITTING PIN D=21X120**
137533	14.200	**BRACING DISTRIBUTION TUBE VARIOKIT**

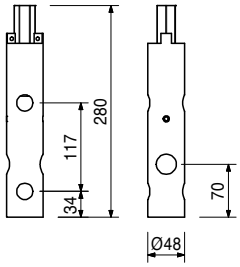
Art. no.	Weight [kg]	
137527	10.500	**BRACING SHOE VARIOKIT**



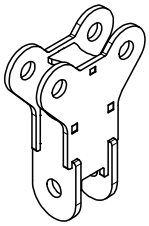


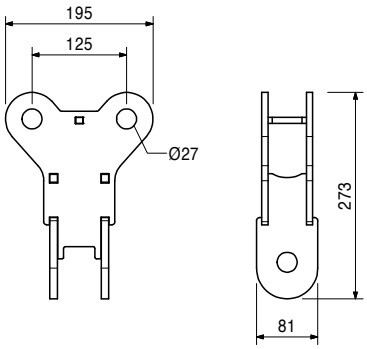
Art. no.	Weight [kg]	
137538	1.980	**ARTICULATED SPANNER DW15**

for clamping Tie Rods DW15 – in combination with the Twist Lock Articulated Spanner DW15 (art. no. 137939), tie rods are secured against unintentional release



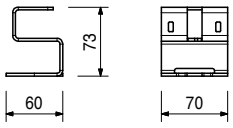
Art. no.	Weight [kg]	
137522	4.570	**Y-ADAPTER VARIOKIT**





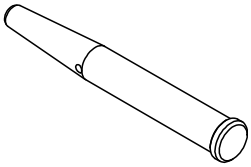
Art. no.	Weight [kg]	
137939	0.248	**TWIST LOCK ARTICULATED SPANNER DW15**

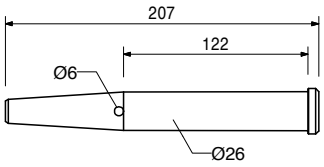
secures Tie Rods DW15 against unintentional release when fitted to the Articulated Spanner DW15 (art. no. 137538) with a cotter pin 4/1



Art. no.	Weight [kg]	
111567	0.729	**FITTING PIN D=26X120**

For various connections.

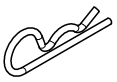




Accessories (not included)

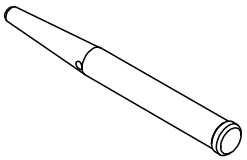
018060	0.014	**COTTER PIN 4/1 GALVANISED**

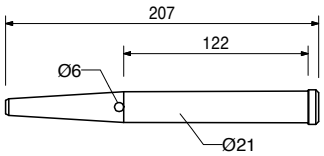
Art. no.	Weight [kg]	
022230	0.033	**COTTER PIN 5/1 GALVANISED**



Art. no.	Weight [kg]	
104031	0.462	**FITTING PIN D=21X120**

For various connections.

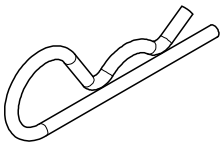




Accessories (not included)

018060	0.014	**COTTER PIN 4/1 GALVANISED**

Art. no.	Weight [kg]	
018060	0.014	**COTTER PIN 4/1 GALVANISED**

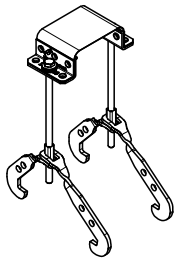


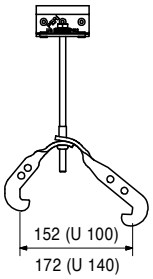
Art. no.	Weight [kg]	
103845	0.893	**HOOK STRAP UNIVERSAL HBU 24-28**

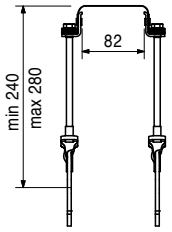
For fixing Girders GT 24 to Steel Walers SRZ, SRU and BR: U100 – U140.

Note

The girders can be mounted at right-angles or diagonally to the steel walers and also outside of the nodes.







Accessories (not included)

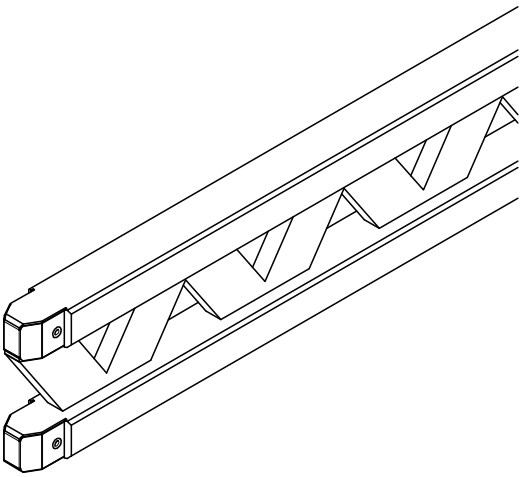
024540	0.005	**TSS-TORX 6X40**

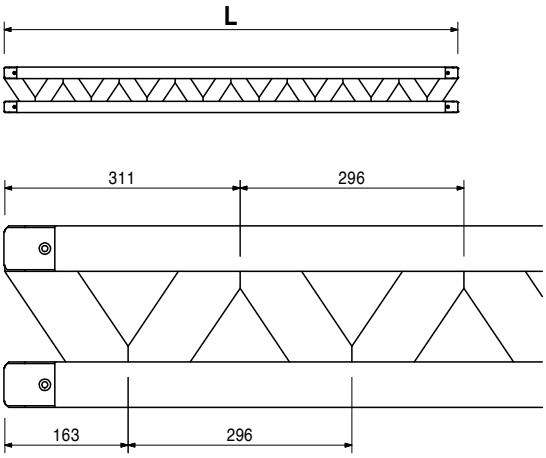
Art. no.	Weight [kg]		L [mm]
		Formwork Girder GT 24	
075100	5.300	**PERI GIRDER GT24 90**	918
075120	7.100	**PERI GIRDER GT24 120**	1214
075150	8.900	**PERI GIRDER GT24 150**	1510
075180	10.600	**PERI GIRDER GT24 180**	1806
075210	12.400	**PERI GIRDER GT24 210**	2102
075240	14.200	**PERI GIRDER GT24 240**	2398
075270	15.900	**PERI GIRDER GT24 270**	2694
075300	17.700	**PERI GIRDER GT24 300**	2990
075330	19.500	**PERI GIRDER GT24 330**	3286
075360	21.200	**PERI GIRDER GT24 360**	3582
075390	23.000	**PERI GIRDER GT24 390**	3878
075420	24.800	**PERI GIRDER GT24 420**	4174
075450	26.600	**PERI GIRDER GT24 450**	4470
075480	28.300	**PERI GIRDER GT24 480**	4766
075510	30.100	**PERI GIRDER GT24 510**	5062
075540	31.900	**PERI GIRDER GT24 540**	5358
075570	33.600	**PERI GIRDER GT24 570**	5654
075600	35.400	**PERI GIRDER GT24 600**	5950

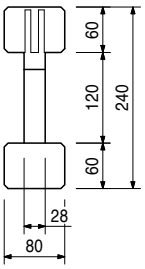
Universal formwork girder made of wood.

Note

Special lengths possible with 078xxx numbers.





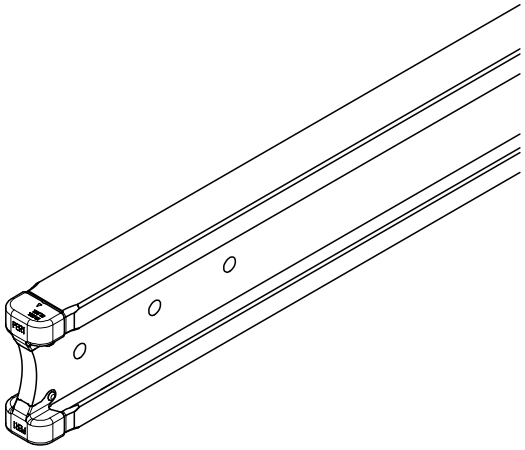


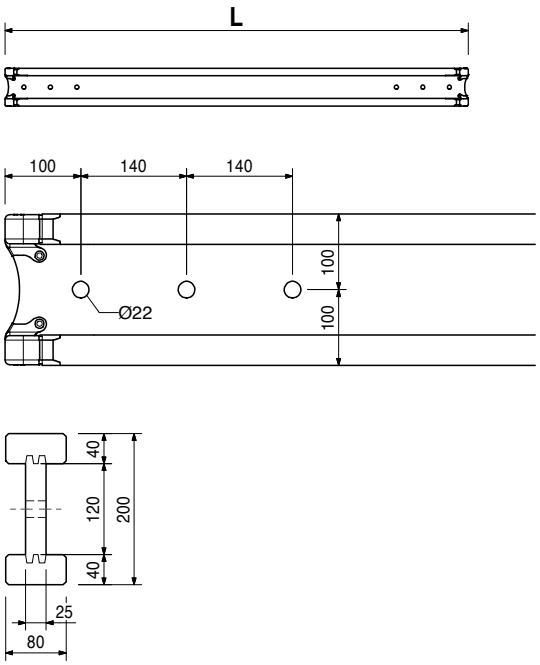
Art. no.	Weight [kg]		L [mm]
		Girder VT 20K	
074990	8.230	**PERI GIRDER VT-20K 145**	1447
074905	12.010	**PERI GIRDER VT-20K 215**	2152
074910	13.630	**PERI GIRDER VT-20K 245**	2452
074890	14.710	**PERI GIRDER VT-20K 265**	2652
074920	16.060	**PERI GIRDER VT-20K 290**	2902
074930	18.220	**PERI GIRDER VT-20K 330**	3292
074940	19.840	**PERI GIRDER VT-20K 360**	3592
074950	21.460	**PERI GIRDER VT-20K 390**	3892
074960	24.700	**PERI GIRDER VT-20K 450**	4492
074970	26.860	**PERI GIRDER VT-20K 490**	4902
074980	32.260	**PERI GIRDER VT-20K 590**	5902

Universal formwork girder made of wood.

Note

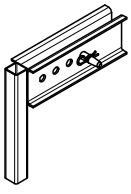
The girder fulfils all requirements of DIN EN 13377 Class P20 (Declaration of Conformity).

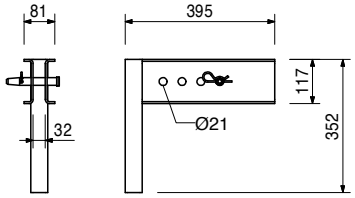




Art. no.	Weight [kg]	
101290	5.670	**GUARDRAIL HOLDER GT24/VT20**

For assembling a guardrail onto Girder GT 24 and VT 20.





Accessories (not included)

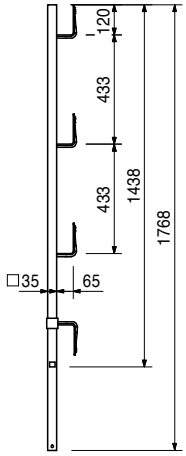
061260	6.150	**GUARDRAIL POST SGP**
116292	4.720	**GUARDRAIL POST HSGP-2**

Complete with

1 piece 018060 cotter pin 4/1, galv.
1 piece 105400 bolt Ø 20 x 140, galv.

Art. no.	Weight [kg]	
061260	6.150	**GUARDRAIL POST SGP**

As guardrails for various systems.

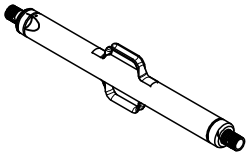


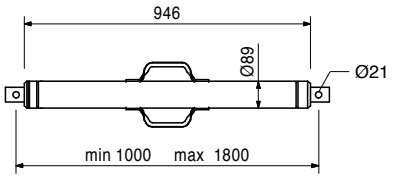
Art. no.	Weight [kg]		min. L [mm]	max. L [mm]
101774	18.300	**HEAVY-DUTY SPINDLE SLS 100/180**	1000	1800

Used as adjustable spindle for truss beams made of Steel Walers SRU and Climbing Rails RCS.

Note

See PERI Design Tables for permissible load.



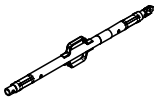


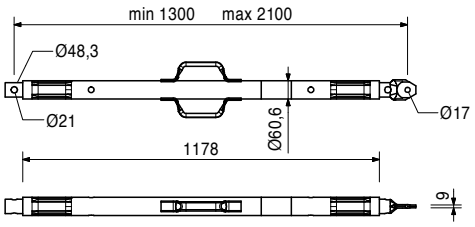
Art. no.	Weight [kg]	
117466	10.600	**PUSH-PULL PROP RS 210**

Extension length L = 1.30 – 2.10 m.
For aligning PERI formwork systems and
pre-cast concrete elements.

Note

See PERI Design Tables for permissible load.



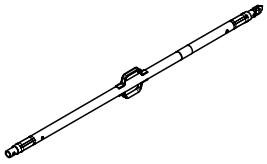


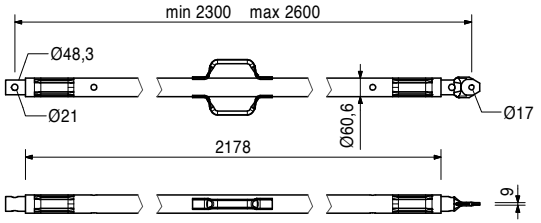
Art. no.	Weight [kg]	
118238	12.100	**PUSH-PULL PROP RS 260**

Extension length L = 2.30 – 2.60 m.
For aligning PERI formwork systems and pre-cast concrete elements.

Note

See PERI Design Tables for permissible load.



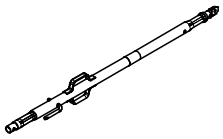


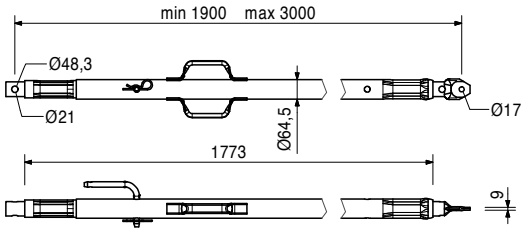
Art. no.	Weight [kg]	
117467	15.500	**PUSH-PULL PROP RS 300**

Extension length L = 1.90 – 3.00 m.
For aligning PERI formwork systems and pre-cast concrete elements.

Note

See PERI Design Tables for permissible load.



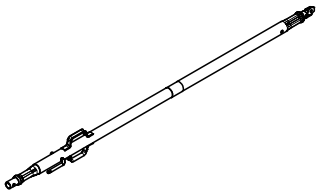


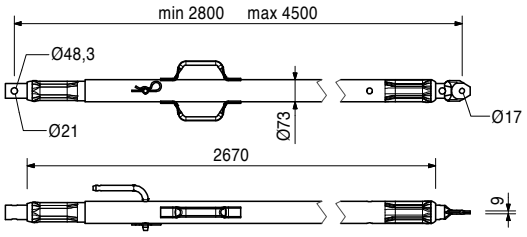
Art. no.	Weight [kg]	
117468	23.000	**PUSH-PULL PROP RS 450**

Extension length L = 2.80 – 4.50 m.
For aligning PERI formwork systems and pre-cast concrete elements.

Note

See PERI Design Tables for permissible load.



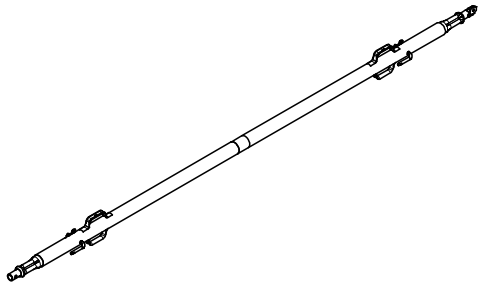


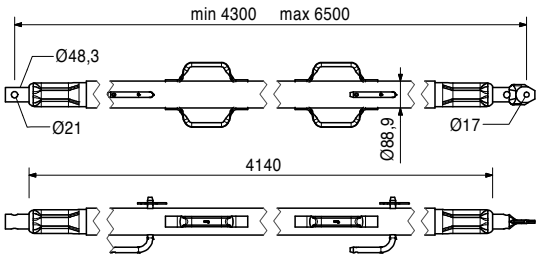
Art. no.	Weight [kg]	
117469	39.900	**PUSH-PULL PROP RS 650**

Extension length L = 4.30 – 6.50 m.
For aligning PERI formwork systems and pre-cast concrete elements.

Note

See PERI Design Tables for permissible load.



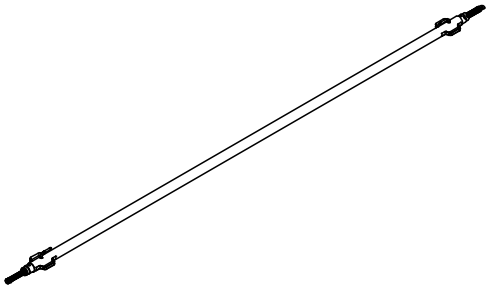


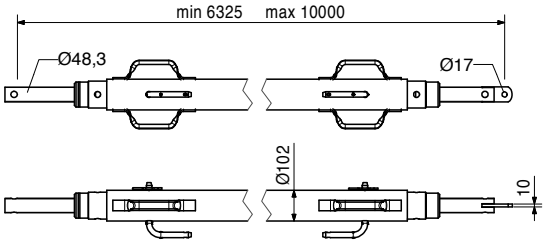
Art. no.	Weight [kg]	
028990	115.000	**PUSH-PULL PROP RS 1000, GALV.**

Extension length L = 6.40 – 10.00 m.
For aligning PERI formwork systems.

Note

See PERI Design Tables for permissible load.



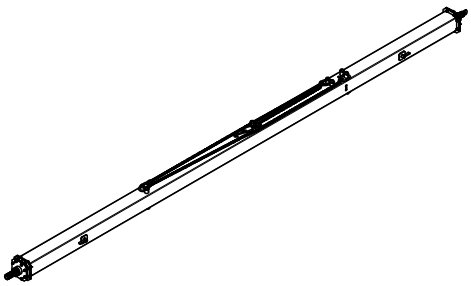


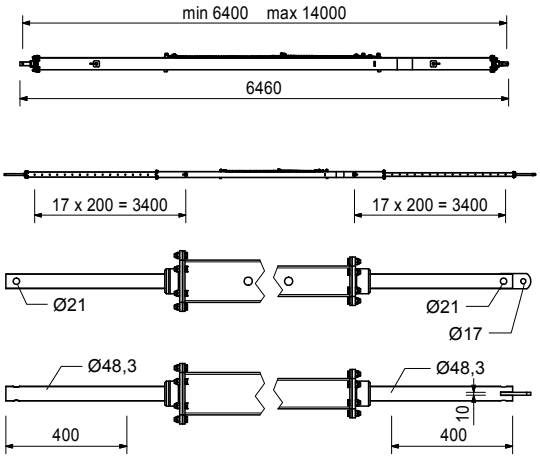
Art. no.	Weight [kg]	
103800	271.000	**PUSH-PULL PROP RS 1400, GALV.**

Extension length L = 6.40 – 14.00 m.
For aligning PERI formwork systems.

Note

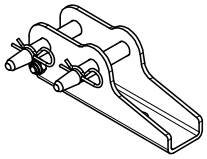
See PERI Design Tables for permissible load.
Chain attached/detached from the ground.

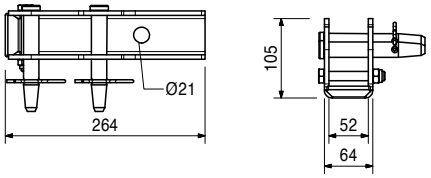




Art. no.	Weight [kg]	
126666	3.040	**BASE PLATE-3 F. RS 210-1400**

For assembling the RS 210, RS 260, RS 300, RS 450, RS 650, RS 1000 and RS 1400 Push-Pull Props.





Accessories (not included)

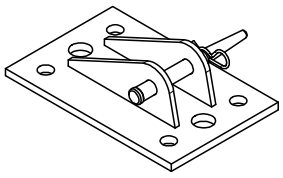
124777	0.210	**PERI TIE BOLT 14/20X130**

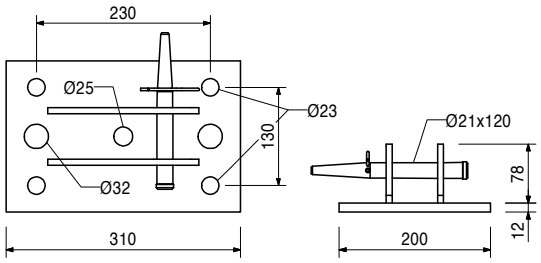
Complete with

2 pieces 018060 cotter pin 4/1, galv.
2 pieces 105400 bolt Ø 20 x 140, galv.
1 piece 113063 bolt ISO 4014 M12 x 80-8.8, galv.
1 piece 113064 hex nut ISO 7040-M12-8-G, galv.

Art. no.	Weight [kg]	
114997	7.160	**BRACING SHOE RCS DW15**

For anchoring bracing with DW 15 to the structure. Tie System M24 or appropriate dowels to be used during assembly.





Complete with

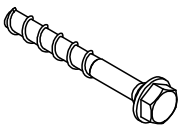
1 piece 018060 cotter pin 4/1, galv.
1 piece 104031 fitting pin Ø 21 x 120

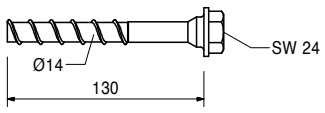
Art. no.	Weight [kg]	
124777	0.210	**PERI TIE BOLT 14/20X130**

For temporary fixing to reinforced concrete components.

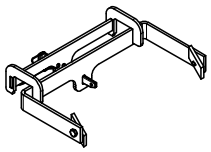
Note

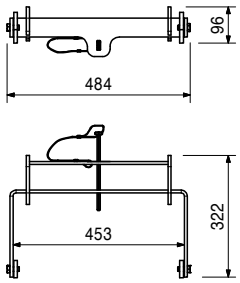
Take the PERI Data Sheet into consideration!
Hole Ø 14 mm.





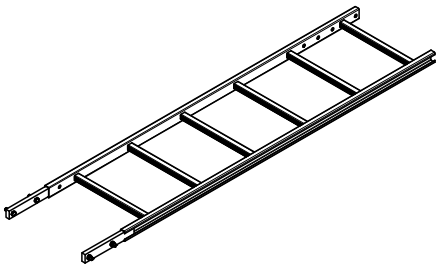
Art. no.	Weight [kg]	
130077	5.490	**LADDER CONNECTOR 60/60 ATS**

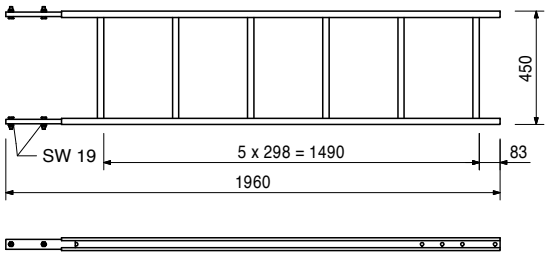




Art. no.	Weight [kg]	
051410	11.700	**LADDER 180/6**

For accessing PERI formwork systems.



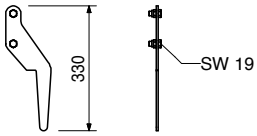


Complete with

4 pieces 710224 bolt ISO 4017 M12 x 40-8.8, galv.
4 pieces 710381 nut ISO 7040 M12-8, galv.

Art. no.	Weight [kg]	
103718	0.684	**LADDER HOOK**

For adjusting the bottom ladder. Always use in pairs.

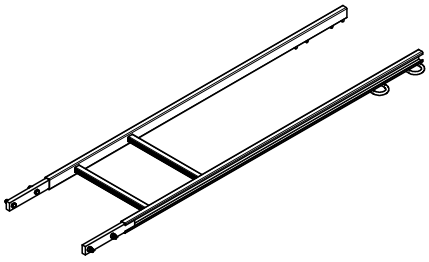


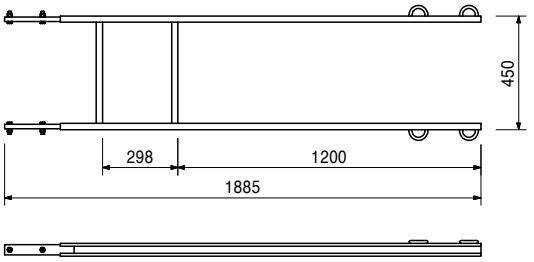
Complete with

2 pieces 710266 bolt ISO 4017 M12 x 25-8.8, galv.
2 pieces 710381 nut ISO 7040 M12-8, galv.

Art. no.	Weight [kg]	
103724	10.400	**ACCESS LADDER 180/2 CPL.**

For accessing PERI formwork systems.



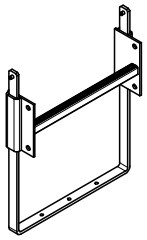


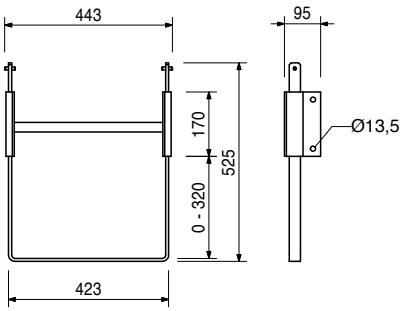
Complete with

4 pieces 710224 bolt ISO 4017 M12 x 40-8.8, galv.
4 pieces 710381 nut ISO 7040 M12-8, galv.

Art. no.	Weight [kg]	
109105	5.070	**LADDER BASE 30,VZ.**

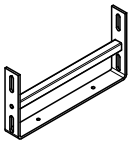
For horizontal restraint of ladders on platform decking.

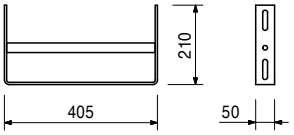




Art. no.	Weight [kg]	
051460	2.180	**LADDER BASE VZ.**

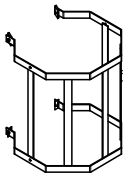
As bottom ladder connection and for securing ladders against sliding on the scaffold decks.

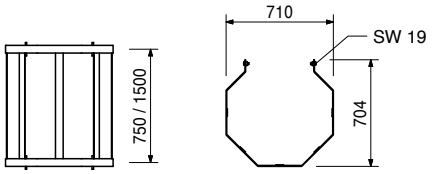




Art. no.	Weight [kg]	
		Ladder cage, galv.
104132	15.600	**LADDER CAGE 75**
051450	25.200	**LADDER CAGE 150**

Ladder cage for PERI ladder access.



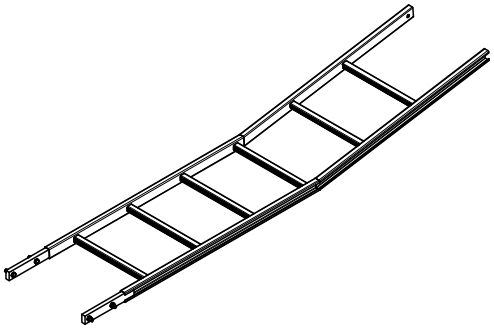


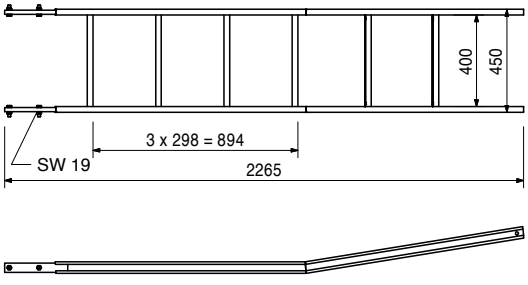
Complete with

4 pieces 701763 clamping plate Fl 25 x 10 x 90
4 pieces 710266 bolt ISO 4017 M12 x 25-8.8, galv.

Art. no.	Weight [kg]	
051420	12.800	**LADDER 220/6**

For accessing PERI formwork systems.





Complete with

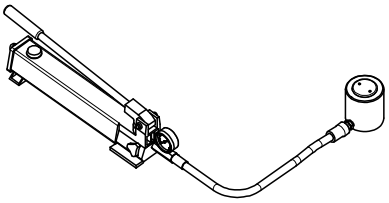
4 pieces 710224 bolt ISO 4017 M12 x 40-8.8, galv.
4 pieces 710381 nut ISO 7040 M12-8, galv.

Art. no.	Weight [kg]	
126438	12.900	**HYDRAULIC UNIT HD**

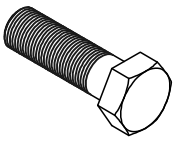
Permissible load-bearing capacity up to 295 kN (can be read off the pressure gauge).
Cylinder stroke up to 62 mm.

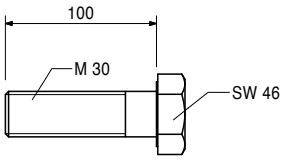
Note

Maximum 1 piece per tower!
Observe Instructions for Use.

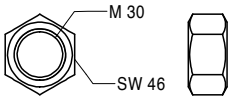


Art. no.	Weight [kg]	
130003	0.819	**BOLT ISO4017-M30X100-8.8-VZ**

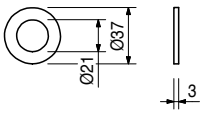




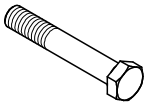
Art. no.	Weight [kg]	
130152	0.220	**HEX. NUT ISO4032-M30-8-VZ**



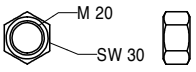
Art. no.	Weight [kg]	
127581	0.030	**WASHER ISO7092-30-200HV-VZ**



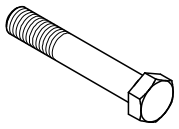
Art. no.	Weight [kg]		L [mm]
		Bolts ISO 4014-8.8, galv.	
710226	0.340	**BOLT ISO4014-M20X090-8.8-VZ**	90
024910	0.303	**BOLT ISO4014-M20X100-8.8-VZ**	100

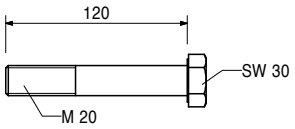


Art. no.	Weight [kg]	
710334	0.064	**HEX. NUT ISO4032-M20-8-VZ**



Art. no.	Weight [kg]		L [mm]
104477	0.300	**BOLT ISO4014-M20X120-8.8-VZ**	120





Accessories (not included)

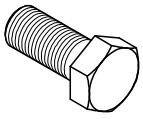
781053	0.065	**HEX. NUT ISO7040-M20-8-VZ**

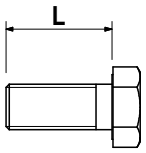
Art. no.	Weight [kg]	
781053	0.065	**HEX. NUT ISO7040-M20-8-VZ**

Self-locking.

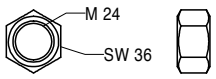
Art. no.	Weight [kg]		L [mm]
		Bolts ISO 4017-8.8, galv.	
780357	0.178	**BOLT.ISO4017-M20X050-8.8-VZ**	50
721912	0.244	**BOLT.ISO4017-M20X070-8.8-VZ**	70
706480	0.214	**BOLT.ISO4017-M24X030-8.8-VZ**	30
125462	0.343	**BOLT.ISO4017-M24X060-8.8-VZ**	60
111759	0.760	**BOLT.ISO4017-M30X090-8.8-VZ**	90

With continuous thread.





Art. no.	Weight [kg]	
022250	0.100	**HEX. NUT ISO4032-M24-8-VZ**

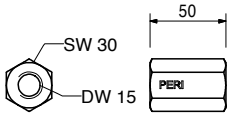


Art. no.	Weight [kg]	
030070	0.222	**HEX. NUT AF 30/50, galv. DW15**

For anchoring with Tie Rod DW 15 and B 15.

Note

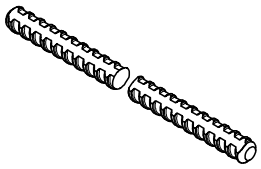
Permissible load 90 kN.



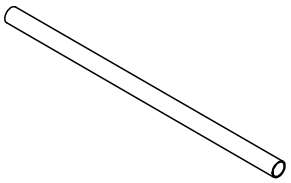
Art. no.	Weight [kg]	
030030	1.440	**TIE ROD SPECIAL LENGTH DW15**

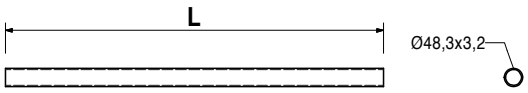
Note

Non-weldable! Observe the permissions!
Permissible tension force 90 kN.



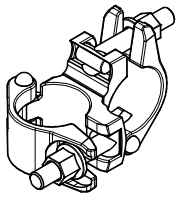
Art. no.	Weight [kg]	
		Steel scaffolding tubes Ø 48.3
026415	3.550	**SCAFFOLDING TUBE 48.3X3.2 LM-GALV**
026411	3.550	**SCAFFOLDING TUBE 48.3X3.2X1000 GALV**
026412	7.100	**SCAFFOLDING TUBE 48.3X3.2X2000 GALV**
125976	8.900	**SCAFFOLDING TUBE 48.3X3.2X2500 GALV**
026413	10.650	**SCAFFOLDING TUBE 48.3X3.2X3000 GALV**
114287	12.500	**SCAFFOLDING TUBE 48.3X3.2X3500 GALV**
026414	14.200	**SCAFFOLDING TUBE 48.3X3.2X4000 GALV**
026419	17.750	**SCAFFOLDING TUBE 48.3X3.2X5000 GALV**
026418	21.600	**SCAFFOLDING TUBE 48.3X3.2X6000 GALV**
026417	0.000	**CUTTING COSTS F. SCAFFOLDING TUBES**

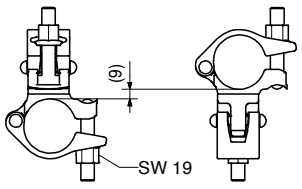




Art. no.	Weight [kg]	
017020	1.120	**STANDARD COUPLER RA 48/48, GALV.**

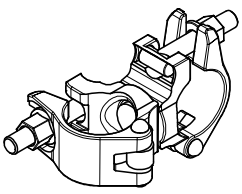
For scaffolding tubes Ø 48 mm.

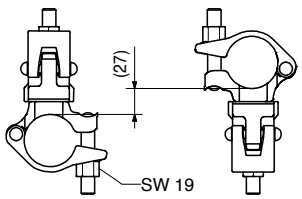




Art. no.	Weight [kg]	
017010	1.400	**SWIVEL COUPLING AF 48/48, GALV.**

For scaffolding tubes Ø 48 mm.





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PERI Ltd
Formwork Scaffolding Engineering
Market Harborough Road
Clifton upon Dunsmore
Rugby
CV23 0AN
United Kingdom
Telephone +44 (0)1788 861600
info@peri.ltd.uk
www.peri.ltd.uk