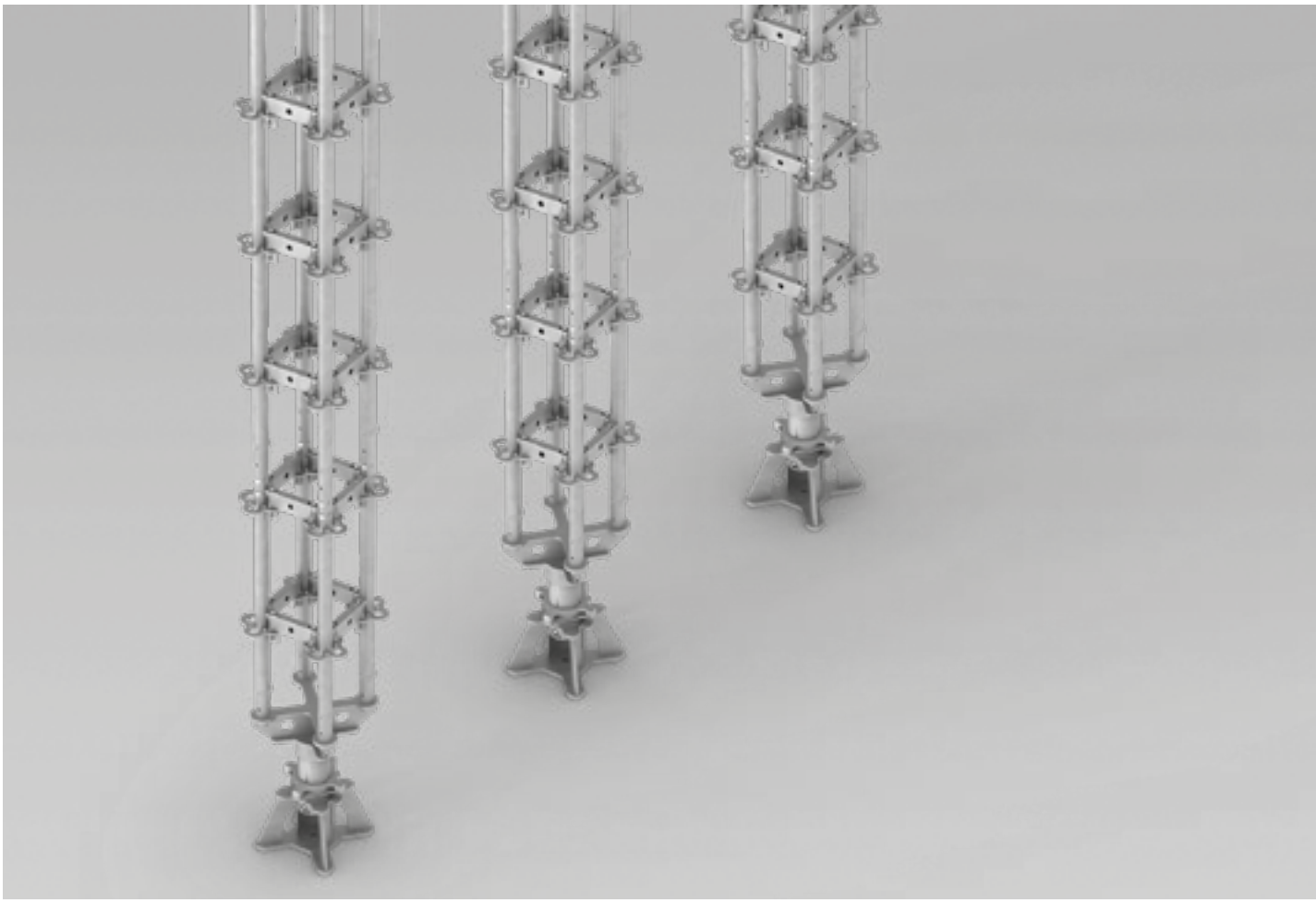
PERI UP Flex

Heavy-Duty Prop HD

Instructions for Assembly and Use – Standard Configuration – Version 2.2



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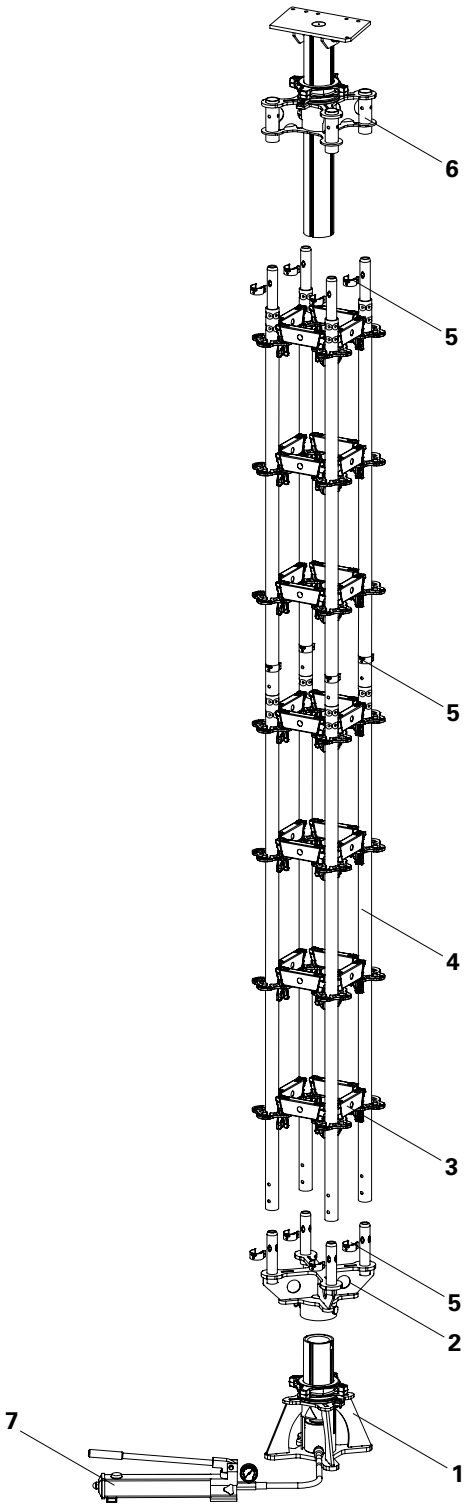
Main components



1 Lowering Jack HD
2 Connection Plate UJC
3 Horizontal Ledger UH Plus
4 Standard UVR
5 Locking Pin Ø 48/57 or Screw M10 x 70, Mu
6 Head Spindle TR 110-80/55
7 Hydraulic Lowering Unit HD

Key

Pictogram | Definition


Danger / Warning / Caution


Note


To be complied with


Visual inspection


Tip


Incorrect use


Correct use


Load-bearing point


Safety helmet


Safety shoes


Safety gloves


Safety goggles


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

Arrows in the illustrations

→ 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 are featured at the beginning of the section or ahead of the instructions, and are highlighted as follows:


Danger

This sign indicates an extremely hazardous situation which, if not avoided, will result in death or serious, irreversible injury.


Warning

This sign indicates a hazardous situation which, if not avoided, could result in death or serious, irreversible injury.


Caution

This sign indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.


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.

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).

Several position numbers, i.e. alternative components, are shown with a slash, e.g. **1 / 2**.

Units shown in the illustrations

Dimensions featured in the illustrations are in cm, but without units. Deviating units are indicated additionally, e.g. in m.
Exception:
In the Program overview section, measurements are always given in mm.

Load details featured in the illustrations are in kg, but without units. Deviating units are specified in addition, e.g. in t.

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 installations which have possibly not been shown in these detailed illustrations must nevertheless be available.

Target groups

Scaffolding contractors/contractors
These Instructions for Assembly and Use are intended for contractors who either
- assemble, modify and dismantle the scaffolds, or
- use them, e.g. for concreting, or
- allow them to be used, e.g. for forming operations.

Safety and Health Protection Coordinator (SiGeKo)
- is appointed by the client,
- 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 person
- is appointed by the scaffolding contractor,
- must be on site for all scaffolding work,
- prepares and updates the plan for assembly, modification and dismantling,
- prepares and updates the plan for use of the scaffold by the scaffold user,
- supervises the assembly, modification and dismantling work (supervisor).

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

- **In other countries, ensure that the relevant national guidelines and regulations in the respective current version are complied with!**
- **If no country-specific regulations are available, it is recommended to proceed according to German guidelines and regulations.**

Intended use

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

The four-legged Heavy-Duty Prop HD made of standard PERI UP System components is used for the vertical transfer of concentrated individual loads of up to 200 kN.
These occur both in shoring and when building on existing structures. The hydraulic cylinder in the base section allows displacement and force-controlled lowering of the prop under load as well as scheduled force-controlled prestressing, which is required for shoring in existing structures. However, it is not intended for lifting loads or lowering loads!
For the construction of the HD Heavy-Duty Prop, individual standards are connected with PERI UP Horizontal Ledgers UH Plus, which are particularly easy to assemble due to their wedge connections.
By combining standards of different lengths, all heights can be continuously achieved.

Features
- The height is always adjusted using the head spindle.
- The preloading and load release of the Heavy-Duty Spindle is carried out using the lowering jack with the aid of the Hydraulic Lowering Unit HD.
- The force is transmitted in a non-operating mode mechanically via the adjusting nut; the Hydraulic Lowering Unit HD is thus load-free and is removed.
- Horizontal Ledgers UH 25 Plus must be used for the Heavy-Duty Props HD.
- The Heavy-Duty Props HD in the form of shoring assemblies facilitate a wide range of project-specific applications.

System dimensions
Ground plan of the standard design 25 x 25 cm.

Permissible load capacities
All components listed in the coponent catalogue may be used for assembly. Other components are named or must be planned and verified on a project-specific basis.
– Body height ≤ 8.40 m.
– Permissible prop load up to 200 kN.
– Correspond to design class B1 according to DIN EN 12812.
- For leg loads, see Section B

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 scaffold components 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 contractor must ensure that the personal protective equipment required for cleaning, maintenance and repair work such as
- safety helmet,
- safety shoes,
- safety gloves,
- safety goggles,

is available and used as intended.

The following points should help to keep cleaning and maintenance costs as low as possible.

Cleaning tools must be adapted to the respective surfaces of the components so that they are not damaged.

Clean mechanical components, e.g. spindles, to remove dirt or concrete residues before and after use and grease them with suitable lubricants. The thread must not be greased. Only the underside (grinding surface) of the adjusting nut TR110.

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

For maintenance and cleaning of the hydraulic unit, observe the Instructions for Use of the hydraulic unit.

Do not use plastic components if fibre reinforcements are exposed.

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.

Components with wood parts are to be stored in well-ventilated and dry conditions.

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

Disposal

Dispose of in accordance with the relevant national regulations.

Additional technical documentation

- Approval – Z-8.22-863 PERI UP Flex Modular System
- Approval – Z-8.34-873 Girder Clamp HD

- Instructions for Use
  - Hydraulic Lowering Unit HD
  - Pallets and stacking devices

- Instructions for Assembly and Use
  - Push-Pull Props RS and RSS
  - PERI UP Flex core components
- Data sheet – Anchor bolt PERI 14/20 x 130
- Design tables PERI UP / Edition 2021

Cross-system

General
The contractor must ensure 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. However, these Instructions for Assembly and Use do not replace the risk assessment!

Refer to 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 on a regular basis, especially 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.

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.
- scaffold tubes: galvanised steel tubing with minimum dimensions Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- Scaffold tube couplings according to EN 74.

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 exceptional occurrences that may have an adverse effect on the safety of the scaffolding system, the contractor must immediately
- produce another risk assessment and make use of its results to take suitable steps to guarantee the stability of the scaffolding system,
- arrange for an extraordinary inspection by a qualified person. The aim of this inspection is to detect and repair damage in good time in order to ensure the safe use of the scaffold.

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

Assembly, modification and dismantling work
Scaffolding may only be assembled, modified or dismantled under the supervision of a person qualified to do so and by technically suitable employees. 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 the Instructions for Assembly and Use, the contractor must draw up assembly instructions to ensure safe assembly, modification and dismantling of the scaffold.

The scaffold must be checked for safe operation by a competent person before it is used for the first time. The results of the inspection must be documented in an inspection record.

The employer must ensure that the personal protective equipment required for erecting, modifying or dismantling the scaffold 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 against falling to be used 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. Areas of risk must be cordoned off and clearly marked,
- ensure stability during all stages of construction, in particular during assembly, modification and dismantling,
- ensure and demonstrate that all loads that occur are safely transferred.

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

If the scaffolding 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

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.

The load-distributing support used, such as planking, must match the respective base used. If several layers are required, planks are to be arranged crosswise.

Tighten couplings with screw closures using 50 Nm. This corresponds to a force of 20 kg using a lever arm length of 25 cm.

Tighten the wedge joints with a 500 g hammer using a jarring blow.

Storage and transportation

Store and transport components in such a way that no unintentional change in their position is possible. Detach lifting accessories and slings 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 persons are allowed to remain under the suspended load.

Always guide pre-assembled scaffold bays, scaffolding units or scaffolding sections with ropes when moving them by crane.

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

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

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

A1 Vertical Assembly of Individual Props

Lowering Jack HD

Warning
Mechanically moving parts.
During operations, there is a risk of pinching and crushing hands and feet.
⇒ Wear safety shoes and safety gloves and do not grasp or reach into the cylinder in the lowering jack during operations. Keep feet away from the lowering jack.

Permissible load capacity up to 200 kN.

- The height of the prop is adjusted exclusively via the adjusting nut on the head spindle.
- "Slot 9" is recommended as a universally suitable basic setting, regardless of the intended use.
- Set up the lowering jack on level and sufficiently load-bearing ground, e.g. for load distribution: steel plate 350 x 350 x 15 mm on concrete of grade C 12/15.

Preparation
Unscrew the spindle tube (**1.1**) until the red pressure piece is visible in the "Slot 9".
(Fig. A1.01 + A1.01a)

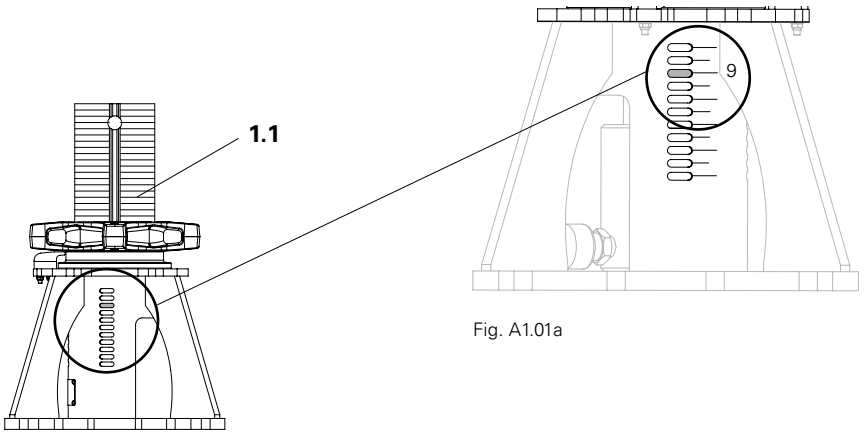


Fig. A1.01a

Fig. A1.01

Connection Plate UJC

The connecting bolt secures the inner spherical piece.

Assembly
1. Place the connection plate (2) with connecting bolt (2.2) on the spindle tube. (Fig. A1.02a)
2. Loosen the cotter pin and remove the plate.
3. Remove the connecting bolt (2.2). Connecting plate slides down and spherical piece (2.1) is positioned on the spindle tube. (Fig. A1.02b)
4. Insert connecting bolts into the connection plate.
5. Fit the plate and secure it with a cotter pin. (Fig. A1.02c)

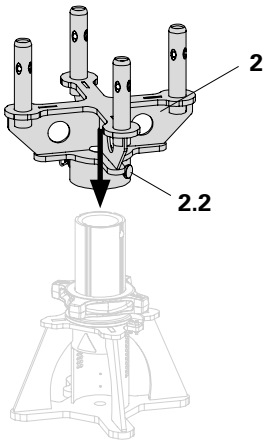


Fig. A1.02a

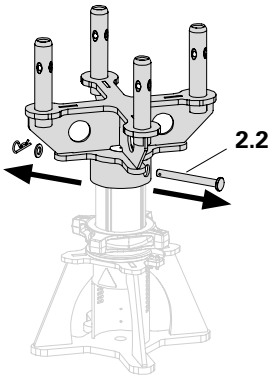


Fig. A1.02b

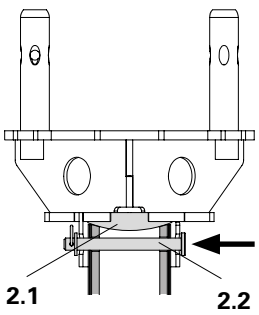


Fig. A1.02c

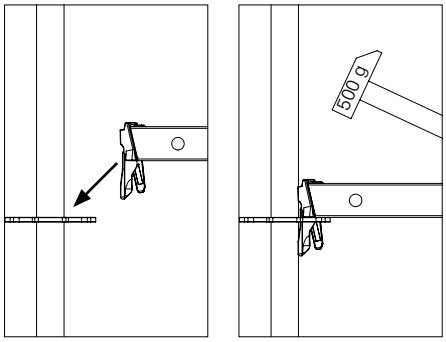
Pre-assembly of props

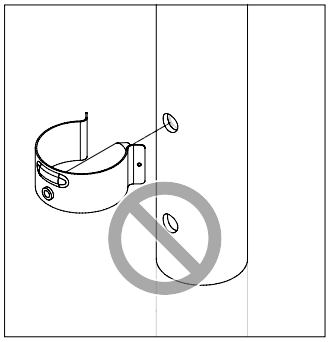
3 Horizontal Ledger UH 25 Plus
4 Standard UVR
5 Locking pin Ø 48/57
Screw M10 x 70, Mu (alternatively)

- For props with a structure height h > 6 m, the Standard UVR 300 must be installed centrally.
- When assembling, keep the symmetrical arrangement of the standard joints.
- The prop can be pre-assembled in units or full length, e.g. from a working scaffold.
- The prop can be tilted up to 2° via the connection plate.
- Align all the holes of the standards in one direction.
- Spacing of horizontal ledgers one above the other: 50 cm.

Assembly

1. Assemble Standards UVR (4) and Horizontal Ledgers (3) to the required height to form a prop or unit. (Fig. A1.03)
2. Use a 500-g hammer to secure all wedges firmly.
3. Push the unit onto the pins of the connection plate (2). (Fig. A1.04)
4. Fit pre-assembled units onto the pins of the bottom standards.
5. Tightly connect Standards UVR with locking pins (5).
6. Secure the prop against tipping, see A3.





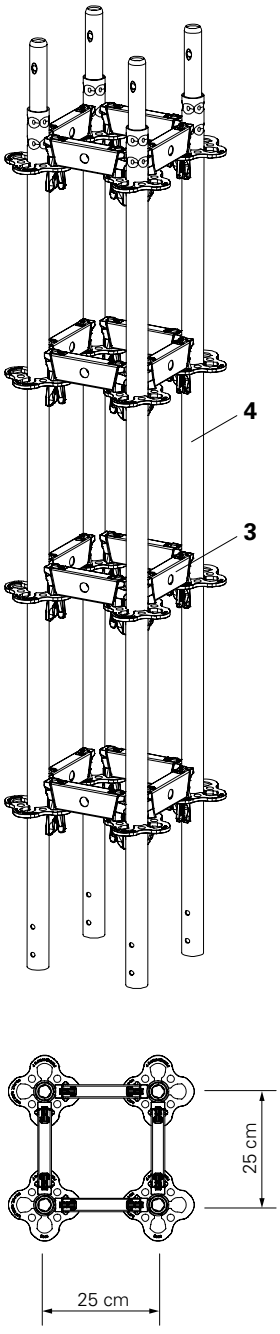


Fig. A1.03

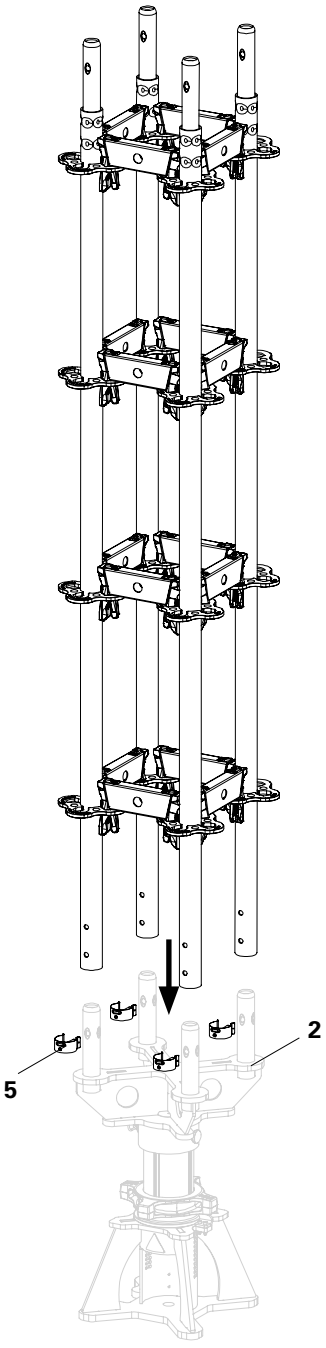


Fig. A1.04

Head Spindle TR 110-80/55

6	Head Spindle TR 110-80/55	1x
5	Locking pin Ø 48/57 Screw M10 x 70, Mu (alternatively)	

Usable spindle length 55 cm.

- The height of the prop is adjusted exclusively via the adjusting nut on the head spindle.
- The head spindle can be tilted uniaxially up to 3°.
- Assembly is carried out in a safe working area, e.g. working scaffold.

Assembly

1. Fit the head spindle (6) onto the pins of the Standards UVR.
2. Tightly connect the Standards UVR and the head spindle with locking pins Ø 48/57 (5). (Fig. A1.05)
3. Secure the prop against tipping, see Section A3.

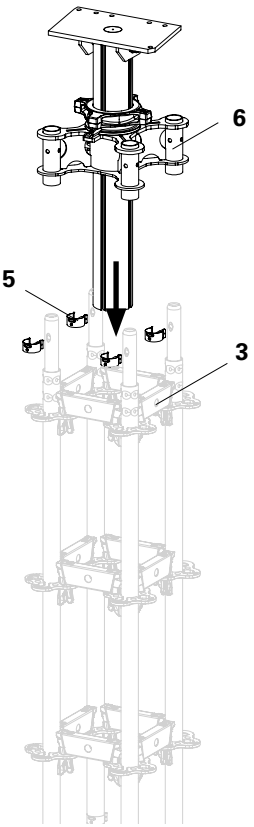


Fig. A1.05

Existing building redevelopment

If there is not enough free space to mount the head spindle from above during vertical assembly, the head spindle can be mounted from the side.

Assembly

1. Remove the horizontal ledger (3) up to the joint of the standard on three sides of the prop.
2. Remove the Ø 48/57 locking pins (5) from two opposite standards.
3. Turn both free Standards UVR by 45°. (Fig. A1.06a)
   → Head spindle (not spindled out) can be installed from the side.
4. Push the spindle tube (6.1) between the rosettes of the turned standards and put the head spindle on the standards. (Fig. A1.06)
5. Turn back the standards.
6. Connect the standard joints and the head spindle with locking pins so that they are tension-proof.
7. Install the remaining horizontal ledgers.

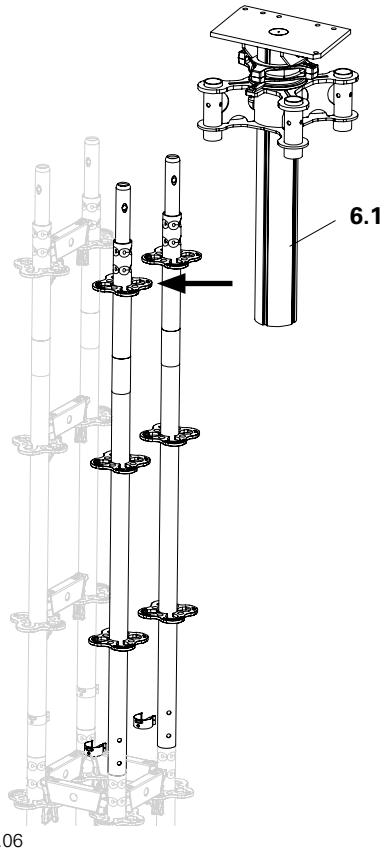


Fig. A1.06

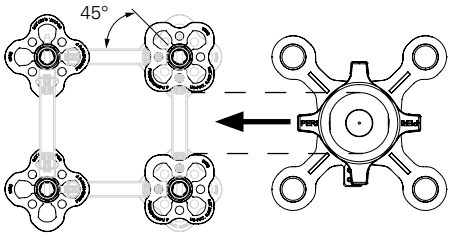
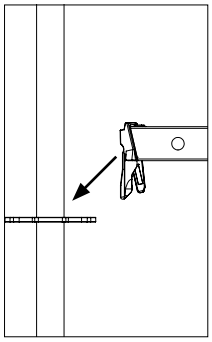
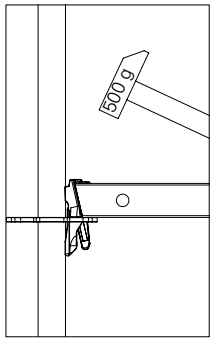


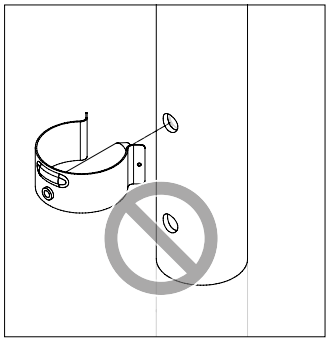
Fig. A1.06a

Pre-assembly of props

2 Connection Plate HD
3 Horizontal Ledger UH 25 Plus
4 Standard UVR
5 Locking pin Ø 48/57
Screw M10 x 70, Mu (alternatively)
6 Head Spindle TR 110-80/55







- For props with a structure height h > 6 m, the Standard UVR 300 must be installed centrally.
- When assembling, keep the symmetrical arrangement of the standard joints. The prop can be pre-assembled in units or full length.
- Align all the holes of the standards in one direction.
- Spacing of horizontal ledgers one above the other: 50 cm.

Assembly

1. Assemble Standards UVR (4) and Horizontal Ledgers UH Plus (3) to form a prop according to the required height. (Fig. A2.01)
2. Use a 500-g hammer to secure all wedges firmly.
3. Push the connection plate (2) onto the pins of the standards and tightly connect it using the locking pins (5). (Fig. A2.02)
4. Fit the Head Spindle TR 110-80/55 (6) onto the pins of the standards and tightly connect using the locking pins (5). (Fig. A2.03)

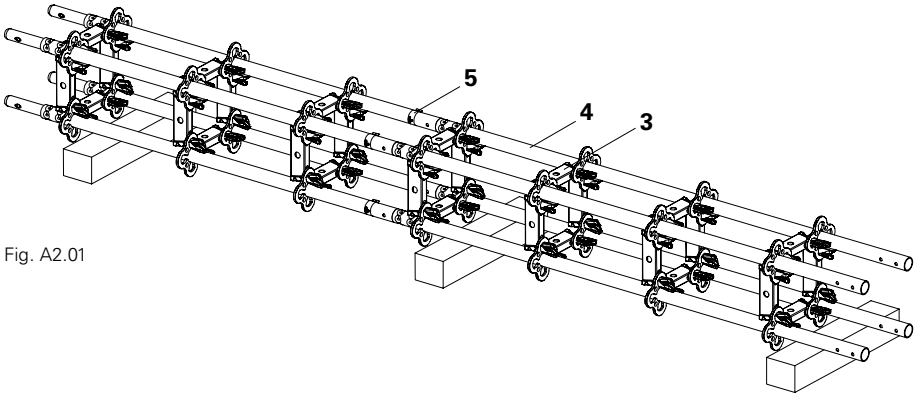


Fig. A2.01

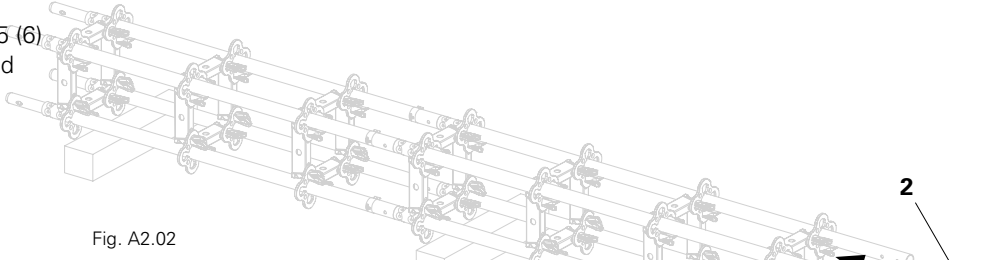


Fig. A2.02

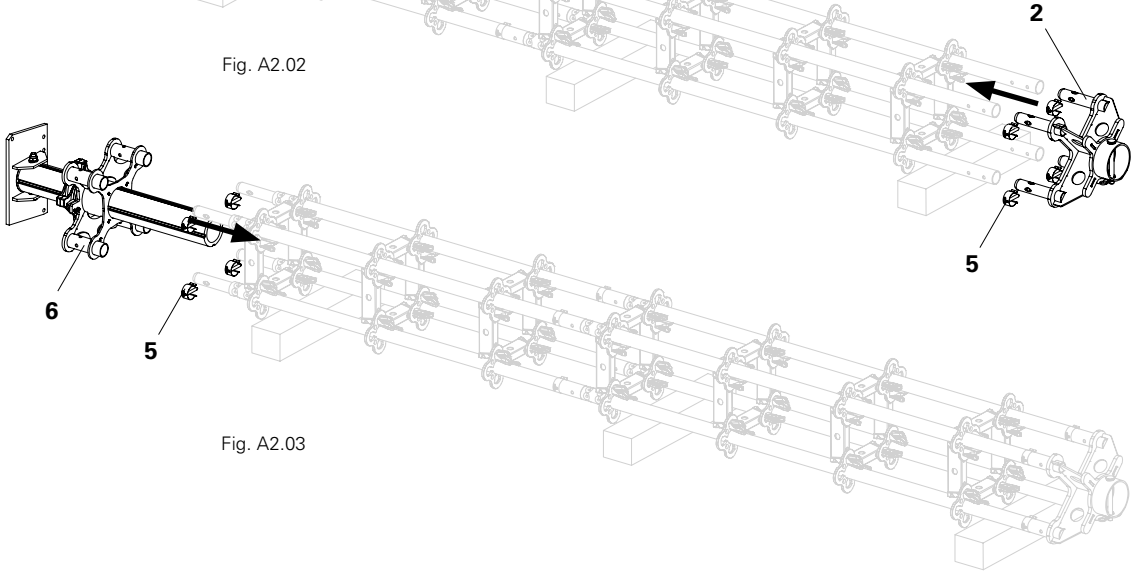


Fig. A2.03

Prop erection

1 Lowering Jack HD 1x
2 Connection Plate UJC 1x

– The height of the prop is adjusted via the adjusting nut on the head spindle.
– Set up the lowering jack on a level and sufficiently load-bearing surface, e.g. for load distribution: steel plate 350 x 350 x 15 mm on concrete of grade C 12/15.

– Are all connections tight?
– Are all horizontal ledgers secured in position?

Preparation
Unscrew the spindle tube (**1.1**) until the red pressure piece is visible in the "Slot 9". (Fig. A2.04)

Erection
1. Enclose prop e.g. with textile straps underneath the head spindle. (Fig. A2.05)
2. Attach the prop to the crane and raise it to a vertical position. (Fig. A2.06)
3. Place the prop with the connection plate (2) on the spindle tube (1.3) of the lowering jack.
4. Loosen the cotter pin and remove the plate.
5. Remove the connecting bolt (2.2). Connection plate slides down and spherical piece is positioned on the spindle tube.
6. Insert connecting bolts into the connection plate.
7. Fit the plate and secure it with a cotter pin. (Fig. A2.06a)
8. Secure the prop against tipping, see Section A3.
9. Release the prop from the crane.

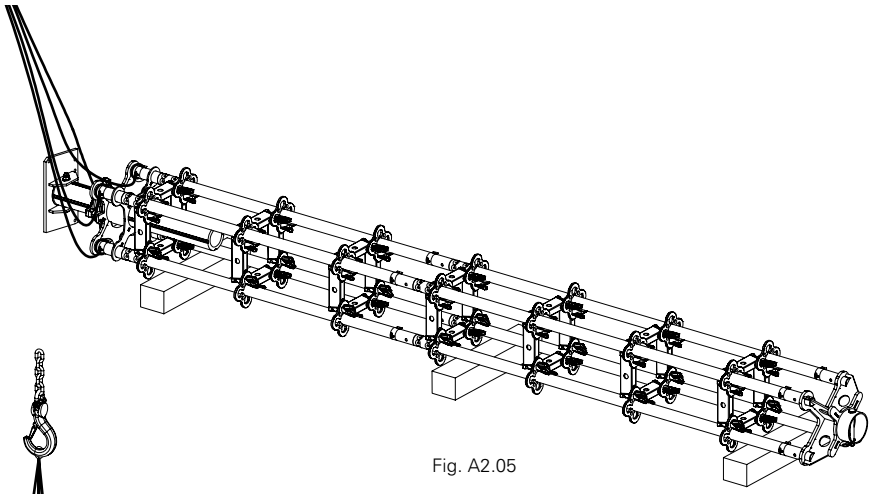


Fig. A2.05

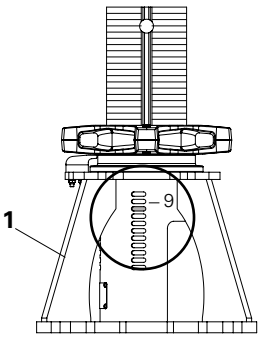


Fig. A2.04

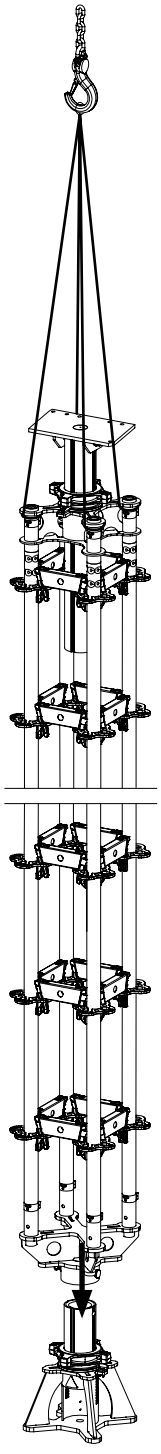


Fig. A2.06

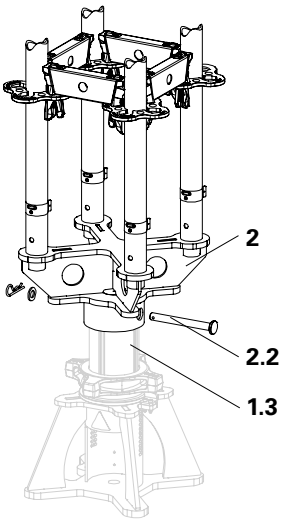


Fig. A2.06a

Bracing

- During assembly or disassembly, the Heavy-Duty Props HD are held in a secure position with a crane until temporary assembly aids are fitted to prevent tipping.
- For longer Heavy-Duty Props HD, additional support holders are required at higher positions.

Bracing with Push-Pull Props

8 Push-Pull Prop 3x
9 Brace Connector HDR-2 3x
10 Base Plate-2 for RS 3x
11 Tie Bolt 14/20 x 130 3x

Mount 3 push-pull props as assembly aids to ensure stability!

Assembly

1. Connect the half-coupler of the Brace Connector HDR-2 (9) to the Standard UVR. (Fig. A3.01)
2. Fasten push-pull prop (8) with bolt and cotter pin. (Fig. A3.01a)
3. Fasten the base plate (10) to the foundation with the tie bolt (11).
4. Fix Push-Pull Prop to the base plate with bolts and cotter pins. (Fig. A3.01b)
5. Release the prop from the crane. (Fig. A3.01)

Bracing additional props using horizontal ledgers

12 Horizontal Ledger UH Plus 2x

Install push-pull props and horizontal ledgers for stability!

Assembly

1. Fit push-pull props, see above.
2. Attach the horizontal ledger (12) into the rosettes and knock it tight. (Fig. A3.02)

Alternatively, the props can also be secured to existing structural parts, e.g. walls, in the assembly state to prevent them from falling over or shifting horizontally.

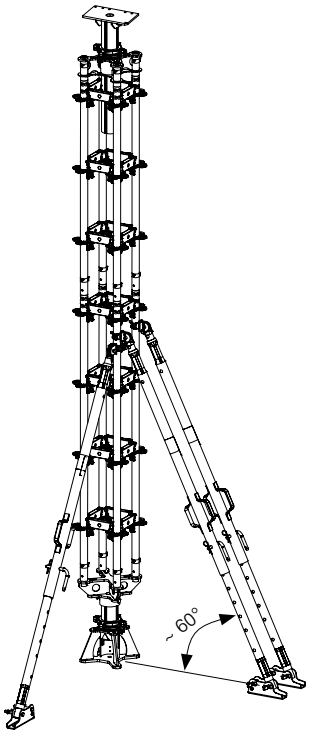


Fig. A3.01

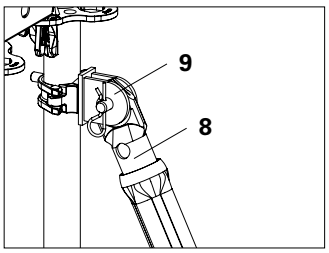


Fig. A3.01a

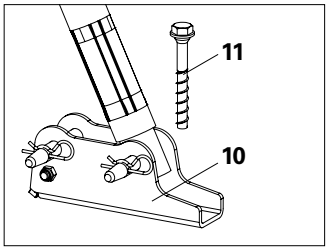


Fig. A3.01b

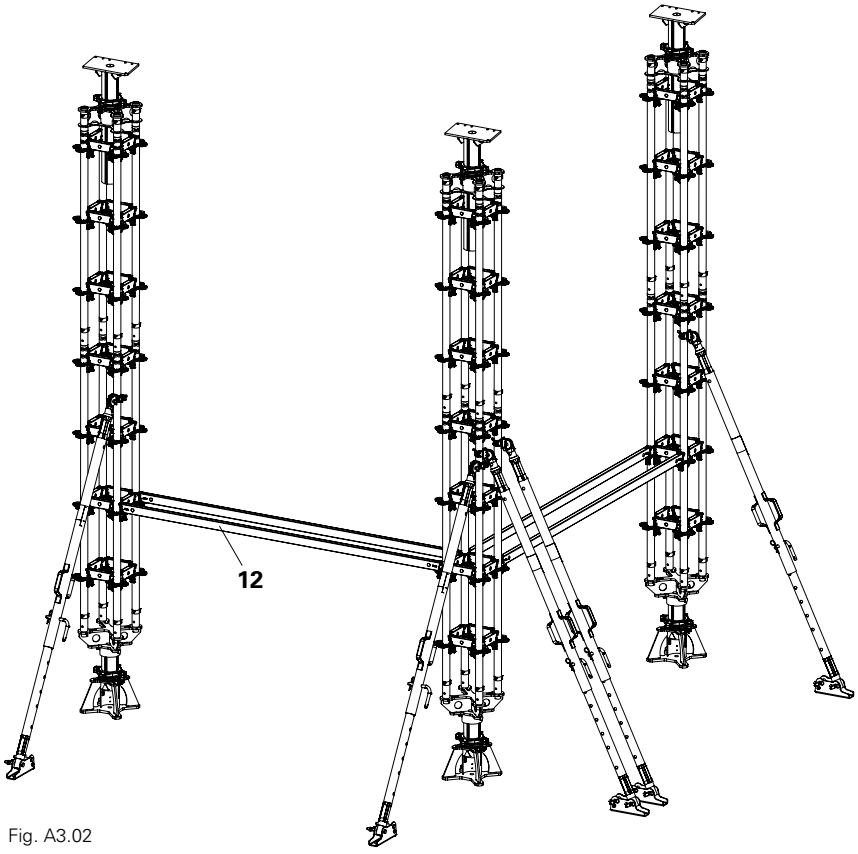


Fig. A3.02

A4 Dismantling of Individual Props

Heavy-Duty Prop HD

Tipping risk!
No horizontal movement of individual props!

Disassembly
The prop can be dismantled when in a vertical or horizontal position.

Horizontal dismantling:
1. Attach the prop to the crane lifting gear.
2. Remove the Lowering Jack HD.
3. Lift out the prop with a crane and lay it on squared timbers.
4. Release locking pins.
5. Remove the Head Spindle TR and the Lowering Jack HD.
6. Release the horizontal ledger with a hammer and remove it.
7. Place components in transport containers according to type.

Vertical dismantling:
Dismantling is carried out from top to bottom in a secure working area, e.g. from a working scaffold.

If there is not enough free space to remove the head spindle from above during vertical disassembly, the head spindle can be removed from the side.

Removing the head spindle
1. Lower the head spindle (6).
2. Remove the horizontal ledger (3) up to the joint of the standard on three sides of the prop.
3. Remove the Ø 48/57 locking pins (5) from two opposite standards.
4. Turn both free Standards UVR by 45°.
   → Head spindle can be removed from the side.
5. Lift the head spindle and remove the spindle tube (6.1) from the side between the rosettes of the turned standards.
   (Fig. A4.02a + A4.02b)

Connection Plate HD
1. Remove the connection plate (2) from the spindle tube. (Fig. A4.01a)
2. Remove the spherical piece (2.1).
3. Turn the connection plate over and insert the spherical piece.
4. Secure connecting bolts (2.2) with plate and cotter pins.
   (Fig. A4.01b)

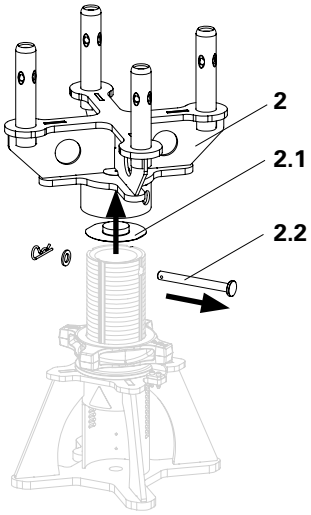


Fig. A4.01a

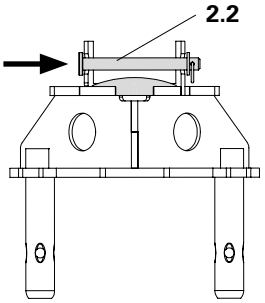


Fig. A4.01b

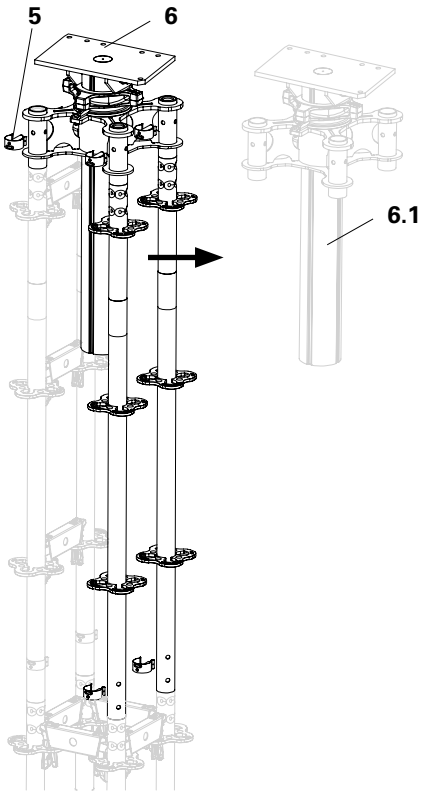


Fig. A4.02a

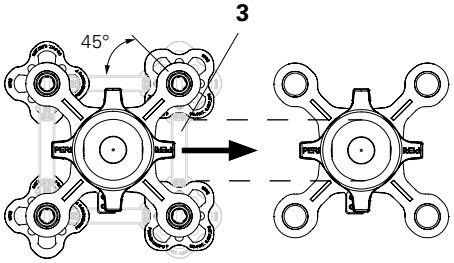


Fig. A4.02b

Load-controlled preloading

- Follow the Instructions for Use for the Hydraulic Lowering Unit HD!
- Permissible load-bearing capacity of up to 200 kN!
- Follow the prestressing plan!
- Remove assembly aids!

- Illustrations are without Connection Plate and Heavy-Duty Prop HD.
- Cylinder stroke limited to max. 10 mm through the adjusting nut and hold-down device.
- Monitor the load distribution on the manometer.

Precondition

- Prop or main beam frame with lowering jack is perpendicular under the component to be supported and the red pressure piece is visible in "slot 9".
- The pump is connected to the hydraulic cylinder. The cylinder is retracted.
- The pump valve is closed. (Fig. A5.01 + A5.02)

Prestressing the prop

1. Insert the hydraulic cylinder into the lowering jack (1).
2. Operate the pump lever until the cylinder rests on the red pressure piece (1.1) of the spindle tube. (Fig. A5.02a)
3. Build up pressure with the pump lever until the specified force is displayed on the pressure gauge, see static and prestressing plan. Monitor the free path on the hold-down device and the pressure gauge. (Fig. A5.03)
4. Rotate the adjusting nut downwards in a clockwise direction by hand until it rests on the plate. (Fig. A5.04)
5. Repeat steps 3 and 4 until the required force is reached.
6. Open the pump valve. Hydraulic cylinder retracts and the load is transferred via the adjusting nut.

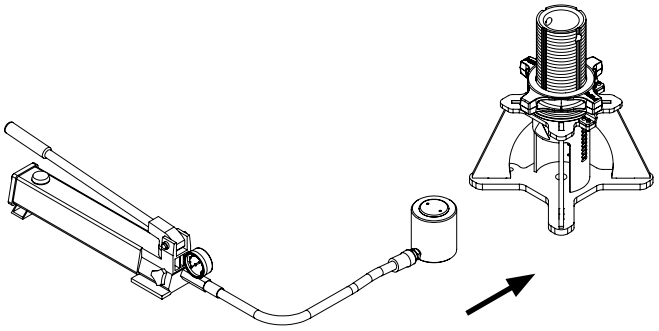


Fig. A5.01

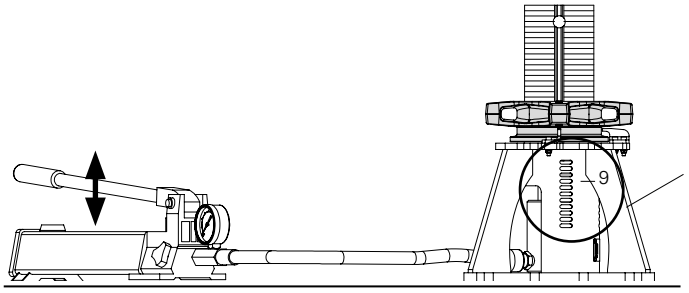


Fig. A5.02

Fig. A5.02a

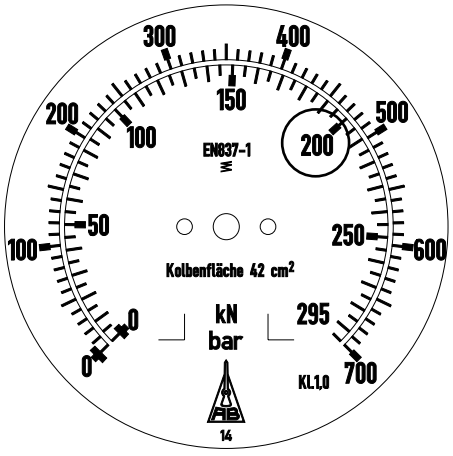


Fig. A5.03

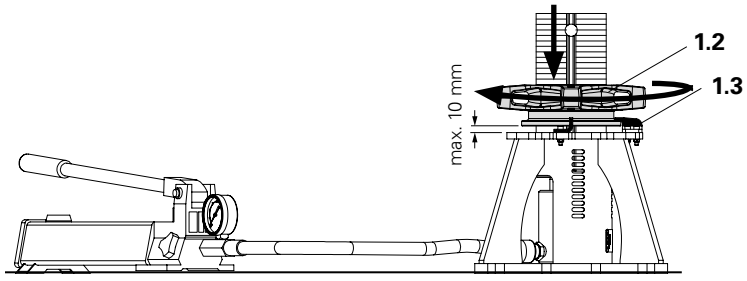


Fig. A5.04

Load-controlled lowering

- Follow the Instructions for Use for the Hydraulic Lowering Unit HD!
- Permissible load-bearing capacity of up to 200 kN!
- In the case of multi-part supports, ensure that all supports are lowered evenly!
- Follow the lowering plan!
- Remove assembly aids!

- Illustrations are without Connection Plate and Heavy-Duty Prop HD.
- Cylinder stroke limited to max. 10 mm through the adjusting nut and hold-down device.
- Monitor the load distribution on the manometer.

Precondition
- The pump is connected to the hydraulic cylinder.
- The pump valve is closed' (Fig. A5.05)

Preparation
1. Insert the hydraulic cylinder into the lowering jack (1).
2. Operate the pump lever until the cylinder rests on the red pressure piece (1.1) of the spindle tube. (Fig. A5.06)

Loosen the adjusting nut and lower
1. Operate pump lever until the adjusting nut (1.2) is load-free (from half a pump stroke).
2. Monitor manometer: max. 200 kN.
3. Turn the adjusting nut upwards by hand anticlockwise until the adjusting nut rests against the hold-down device. (Fig. A5.07)
4. Carefully open the pump valve (7.1) on the pump and monitor the load indication on the manometer. Cylinder retracts and is lowered with the adjusting nut and prop by max. 10 mm. (Fig. A5.07)
5. Close the pump valve.
6. Repeat the procedure until the pressure gauge shows the specified force, see static and prestressing plan. (Fig. A5.08)

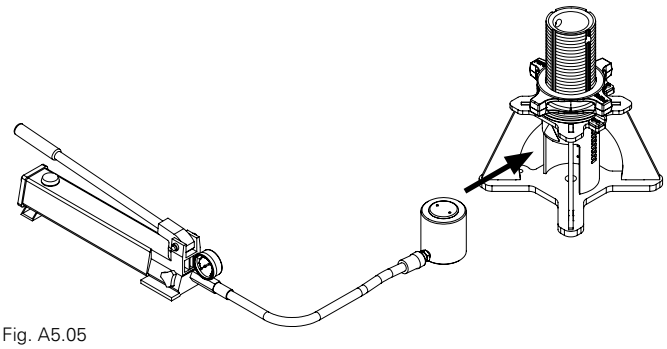


Fig. A5.05

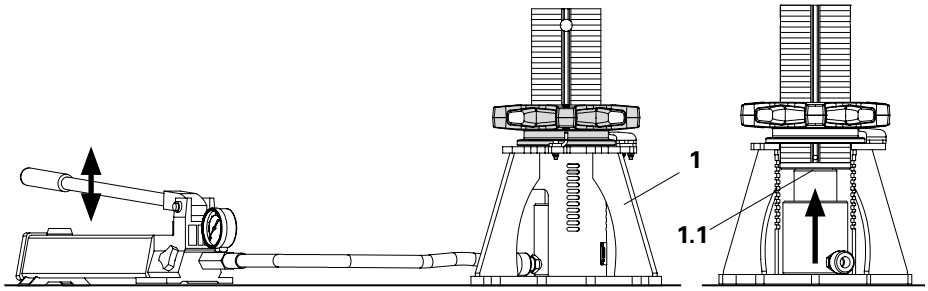


Fig. A5.06

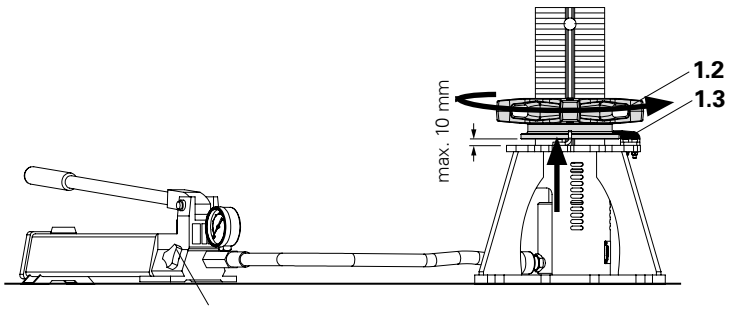


Fig. A5.07

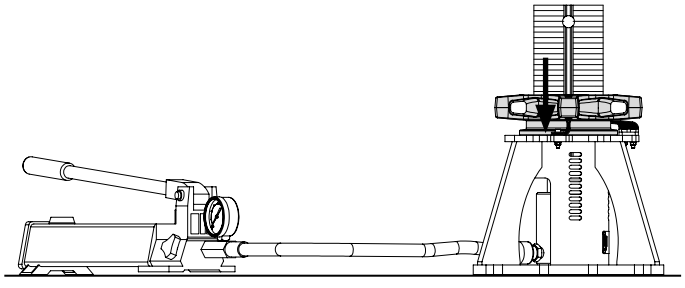


Fig. A5.08

Displacement-controlled lowering

Hydraulic lowering

- Follow the Instructions for Use for the Hydraulic Lowering Unit HD!
- In the case of multi-part supports, ensure that all supports are lowered evenly!
- Follow the lowering plan!
- Remove assembly aids!

- Cylinder stroke is limited to max. 10 mm. This corresponds to the spacing of the slots in the lowering jack. (Fig. A5.09)

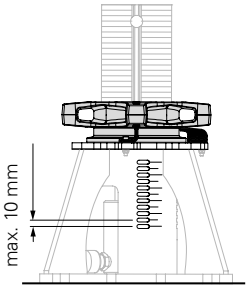


Fig. A5.09

Precondition
Load-controlled as in the lowering procedure.

Hydraulic lowering

1. Operate the pump lever until the cylinder rests on the red pressure piece (1.1) of the spindle tube.
2. Operate pump lever until the adjusting nut (1.2) is load-free (possible from half a pump stroke).
3. Turn the adjusting nut upwards by hand anticlockwise until the adjusting nut rests against the hold-down device.
4. Carefully open the pump valve (7.1) on the pump and monitor the slots on the lowering jack.
5. If the red pressure piece (1.1) of the spindle tube appears in the next slot, close the pump valve. (Fig. A5.10)
6. Repeat steps 3 and 4 until the prop or main beam frame is lowered by the specified amount.

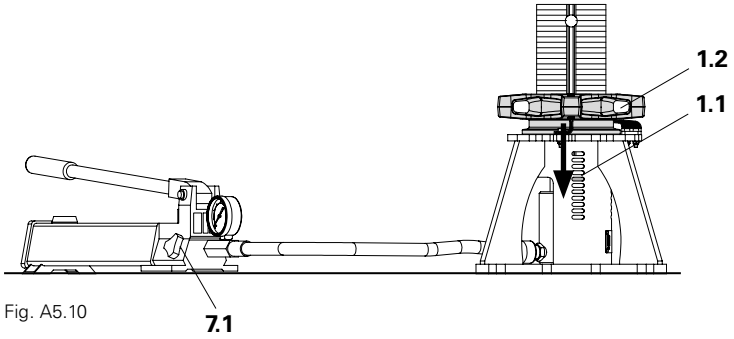
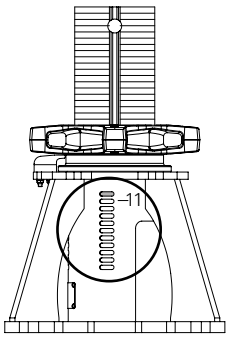


Fig. A5.10

Displacement-controlled lowering

Lowering with the Wing Nut Spanner HD with low loads



– The lowering range via the lowering jack is 100 mm (starting position "slot 11").
– With a load ≤ 50 kN, lowering can be done using the Wingnut Spanner HD without the use of hydraulics.
– The lowering range for extending the formwork superstructure is done using the adjusting nut of the head spindle.

Lowering

1. Turn adjusting nut (1.2) downwards with Wing Nut Spanner HD (13). (Fig. A5.11a)
2. Spindle off the head spindle. (Fig. A5.11b)

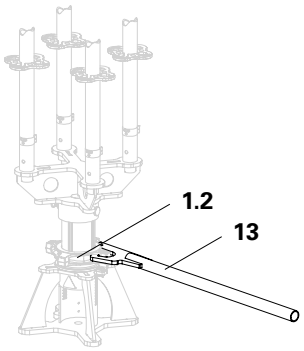


Fig. A5.11a

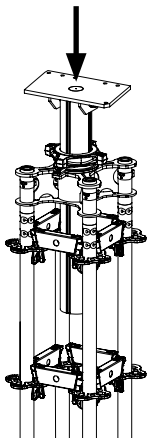


Fig. A5.11b

A6 Vertical Assembly of the Main Beam Frame

Warning

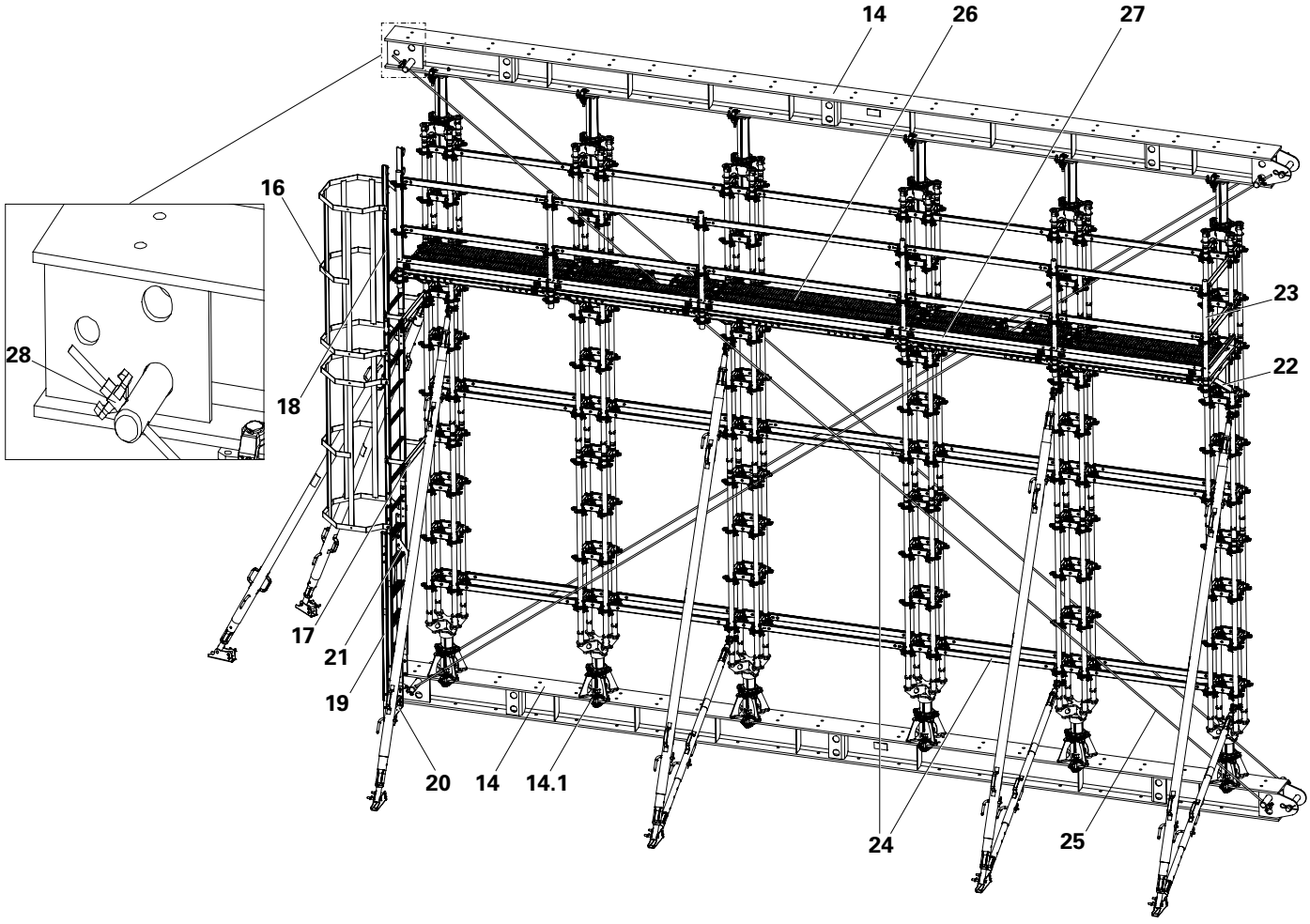
There is no safe working area during assembly!
Risk of falling!
⇒ Use personal protective equipment to prevent falling!
⇒ Use a working scaffold or lift truck to assemble the components.

Overview

This section shows the assembly of a vertical Main Beam Frame with PERI UP Flex Heavy-Duty Props HD. In addition to the components of the PERI UP Flex Heavy-Duty Prop HD, the following components are required.

Additional components for the Main Beam Frame

14	Main Beam HDT 880
14.1	Girder Clamp HD 70
16	Ladder Safety Cage 150
17	Ladder Connector UAC
18	Access Ladder 180/2
19	Ladder 180/6
20	Ladder base
21	Ladder hook
22	Console Bracket UCM 75
23	Top Standard UVH 100
24	Horizontal Ledger UH Plus (as connecting ledger)
25	Tie Rod DW 15
26	Steel Deck UDG
27	Toe Board Steel UPY
28	Wing Nut DW 15



A6 Vertical Assembly of the Main Beam Frame

Ladder access

Pre-assembly
Assemble the Heavy-Duty Prop HD as an individual prop, as in Section A2.

Assembly
1. Screw the Ladder Connectors HD 200 (17) to the standards. (Fig. A6.01)
2. Pre-assemble ladder to required length.
3. Attach the ladder base (20) and ladder hook (21). (Fig. A6.02)
4. Secure the ladder to ladder connectors with the clamping plates (19.1). (Fig. A6.03)
5. Attach the ladder cage (16) to the ladder with the clamping plates. (Fig. A6.03 and A6.04)
6. Mount the Console Bracket UCM 75 (22) to the Heavy-Duty Prop HD. Insert the Top Standard UVH 100 (23) as a guardrail post into the Console Bracket UCM 75 (22) and secure it with locking pins Ø 48/57 (5). (Fig. A6.05)

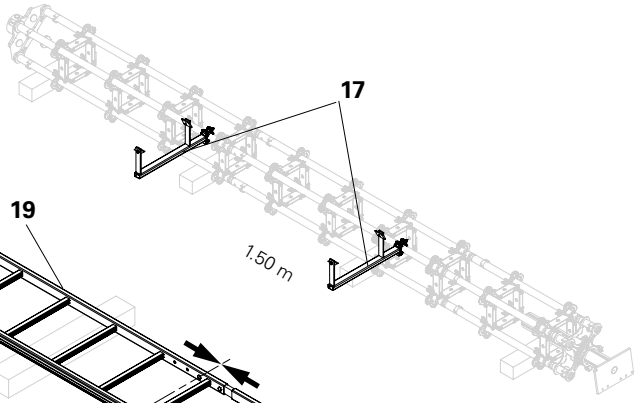


Fig. A6.01

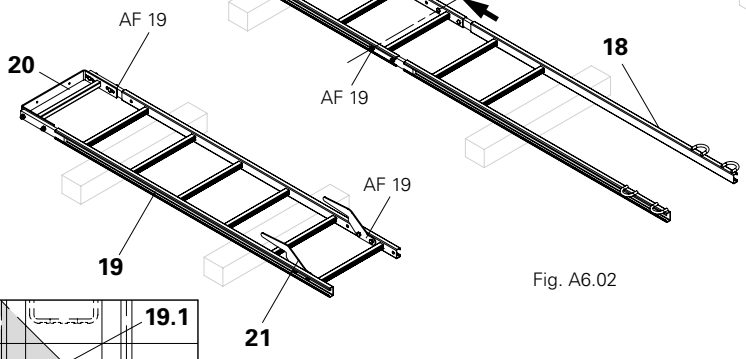


Fig. A6.02

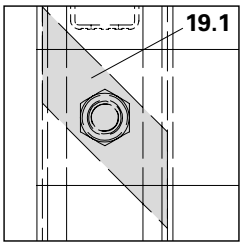


Fig. A6.03

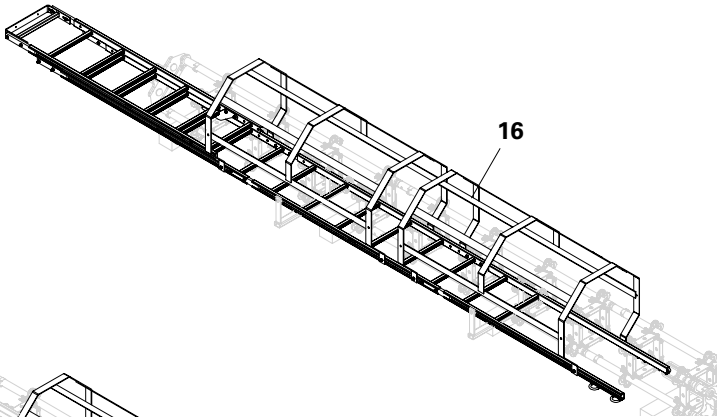


Fig. A6.04

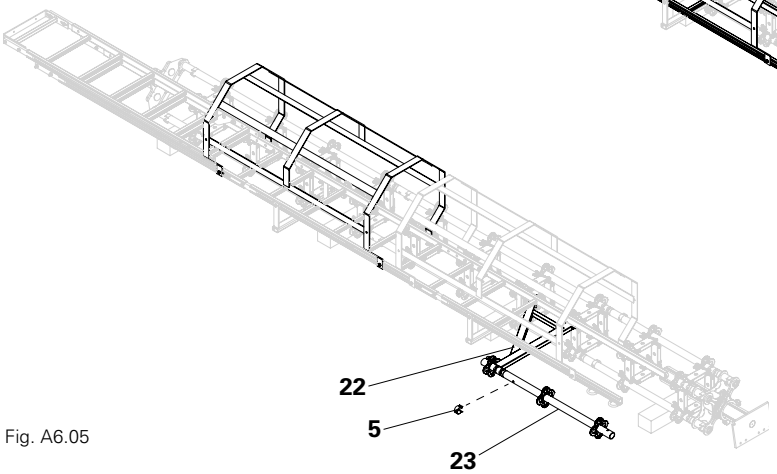


Fig. A6.05

!

– Do not attach the ladder cage in the area of the ladder joint.
– Mount the first Console Bracket UCM 75 on the left leg of the first Heavy-Duty Prop HD.
– Mount additional Console Brackets UCM 75 project-specifically, depending on the length of the Decks UDG and Toe Boards Steel UPY on the respective left or right leg of the next Heavy-Duty Prop HD.
– The UPY 50 and 75 steel side plates can be bolted to longer steel side plates for intermediate lengths.

– Visual check of the clamping plates. The contact surface of the clamping plate (19.1) must be in contact with the ladder profile! (Fig. A6.03)
– Visual check on the Top Standard UVH 100 (23). The Top Standard UVH 100 and the Console Bracket UCM 75 must be tightly connected with locking pins Ø 48/57 (5). (Fig. A6.05)

Main Beam HDT as base beam

Secure lifting gear, e.g. chains or textile strapping, against slipping.

Assembly

1. Before setting down the base beams, remove the bolts (observe the distance to existing components).
2. Place the base beam (14) on the place of use (foundation). The beam must rest fully on a level and load-bearing surface.
3. Depending on the length, connect and secure base beam with bolts and cotter pins (14.2). (Fig. A6.06)

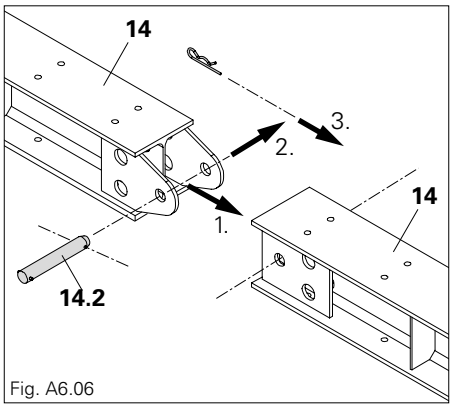


Fig. A6.06

Pre-assembly

Pre-assemble the required number of individual props for the required height according to the instructions in Section A2.

Lowering Jacks

Assembly

1. Place the required number of Lowering jacks (1) on the Main Beam HDT (14).
2. Fix the first Lowering Jack with centring screws and additionally secure with two opposite girder clamps (14.1).
3. From the second Lowering Jack onwards:
   - **Variant 1:** If the holes in the base plate of the Lowering Jacks are outside the hole pattern (400 mm) of the Main Beam HDT (14), secure the Lowering Jack with two diagonally opposite girder clamps (14.1).
   - **Variant 2:** If the holes in the base plate of the Lowering Jacks are within the hole pattern (400 mm), first fix the Lowering Jack with centring screws and then secure with diagonally opposite girder clamps.

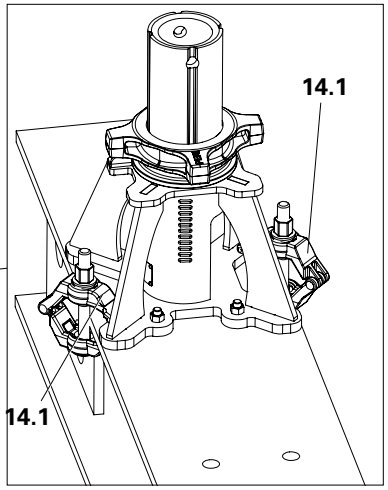


Fig. A6.07

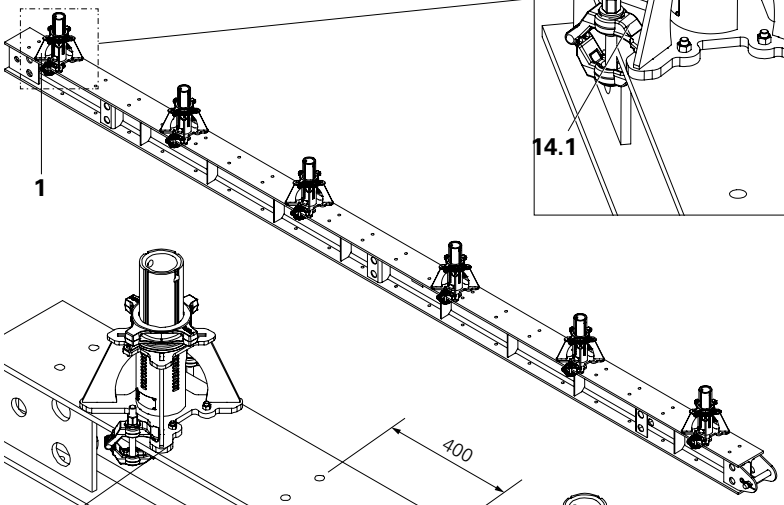


Fig. A6.08

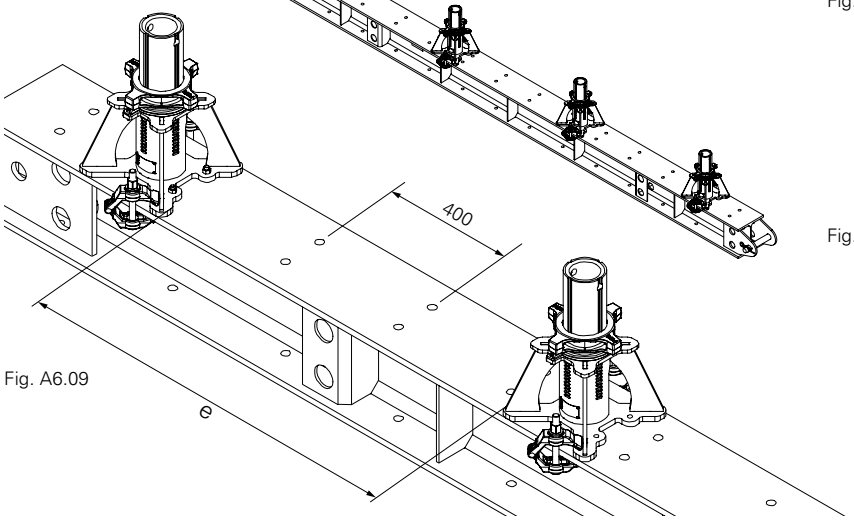


Fig. A6.09

4. Measure the dimension e from the straight edge of the base of one Lowering Jack to the next Lowering Jack and secure each with two girder clamps. (Fig. A6.09) The table shows the distance between the Lowering Jacks for the different horizontal ledger lengths. The maximum horizontal ledger length is 1.50 m. (Tab. A6.01)

Spacing table	
Horizontal Ledger UH Plus	Spacing "e" between the lowering jacks [cm]
25	20.0
50	45.0
75	70.0
100	95.0
125	120.0
150	145.0

Tab. A6.01

First Prop

1. Lift and position the first Heavy-Duty Prop HD with mounted ladder, Console Bracket UCM 75 and Top Standard UVH 100 as guardrail posts and Push-Pull Props RS onto the first Lowering Jack using a crane. (For pre-assembly of Heavy-Duty Prop HD, see Section A2 "Horizontal Assembly of Individual Props")
2. Support the Heavy-Duty Prop HD with three Push-Pull Props for the assembly. (See Section A3 "Bracing with Push-Pull Props")

– The attachment point of the Push-Pull Prop RS on the Heavy-Duty Prop HD is at the next possible position below the Console Bracket UCM 75.

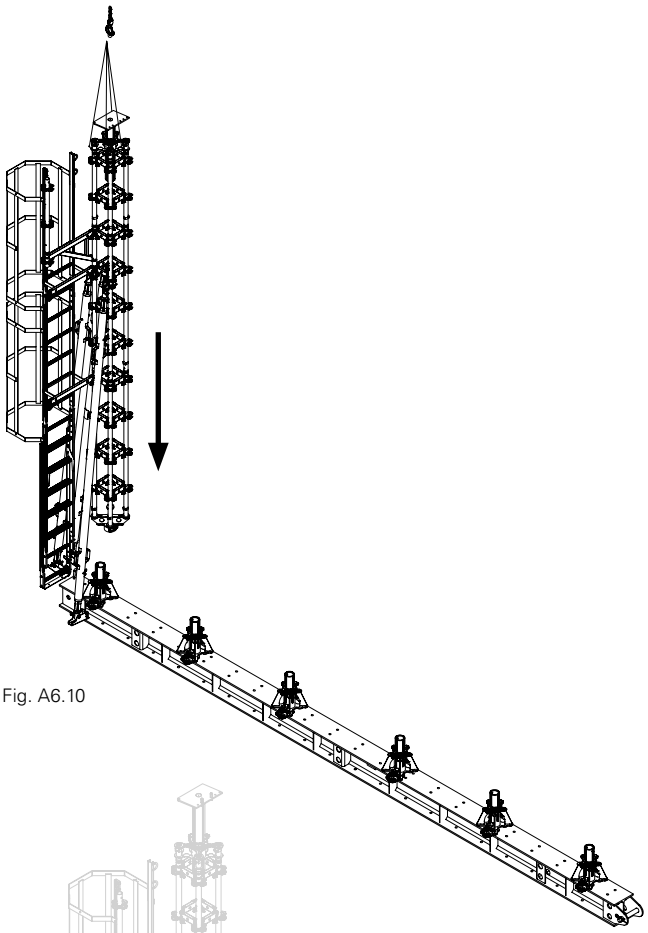


Fig. A6.10

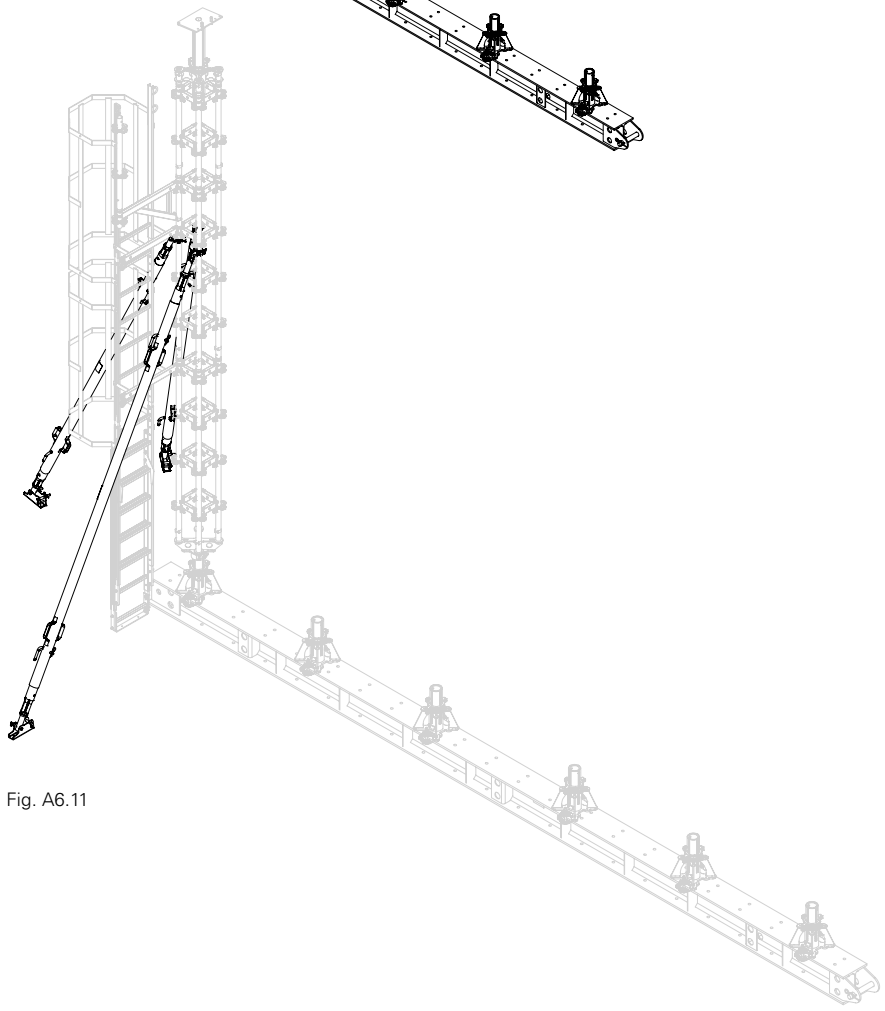


Fig. A6.11

Additional props

24 Horizontal Ledger UH Plus (as connecting ledger)
8 Push-Pull Prop RS

Assembly

1. Lift and position the second Heavy-Duty Prop HD with mounted Console Bracket UCM 75 (22) and guardrail posts onto the second Lowering Jack with a crane. Leave the Heavy-Duty Prop HD suspended on the crane lifting gear.
2. First install horizontal ledgers (24) in the rosettes of the bottom level as an assembly aid (max. 1.50 m). Subsequently, the spacing of the horizontal ledgers (24) at the top must not exceed 2.50 m. (Fig. A6.12) For more information see Section A6 "Working Platform".

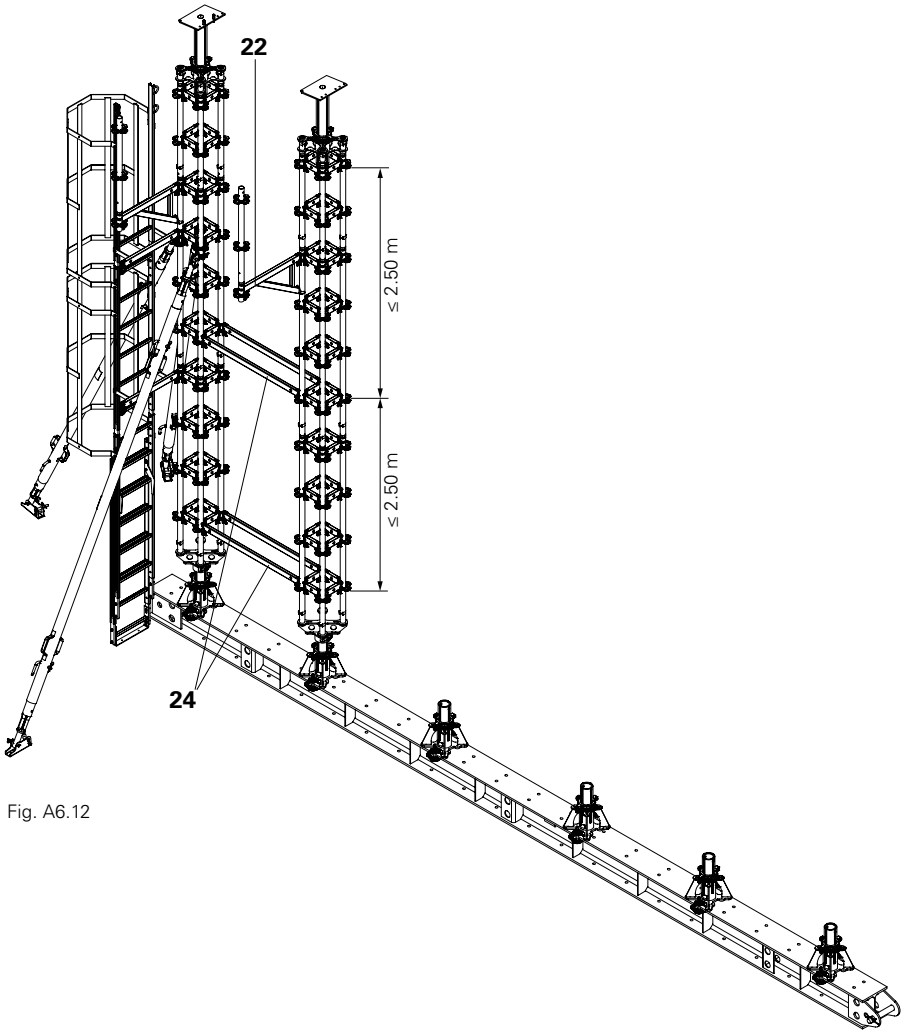


Fig. A6.12

3. Erect the third Heavy-Duty Prop HD. A Push-Pull Prop RS (8a) is attached to this and every second Heavy-Duty Prop HD (after the third) (for attachment point see "First Prop"). If the Lowering Jacks of these Heavy-Duty Props HD are only attached to the Base Beam HDT with two girder clamps, a second Push-Pull Prop RS (8b) must be mounted below the lower ledger level! See Section A3 "Bracing with Push-Pull Props". (Fig. A6.13)
4. Repeat steps 1. to 3. until the desired number of Heavy-Duty Props HD are installed on the main beam frame. (Fig. A6.13)
5. The last Heavy-Duty Prop HD is mounted on the main beam frame in the same way as the third Heavy-Duty Prop HD.

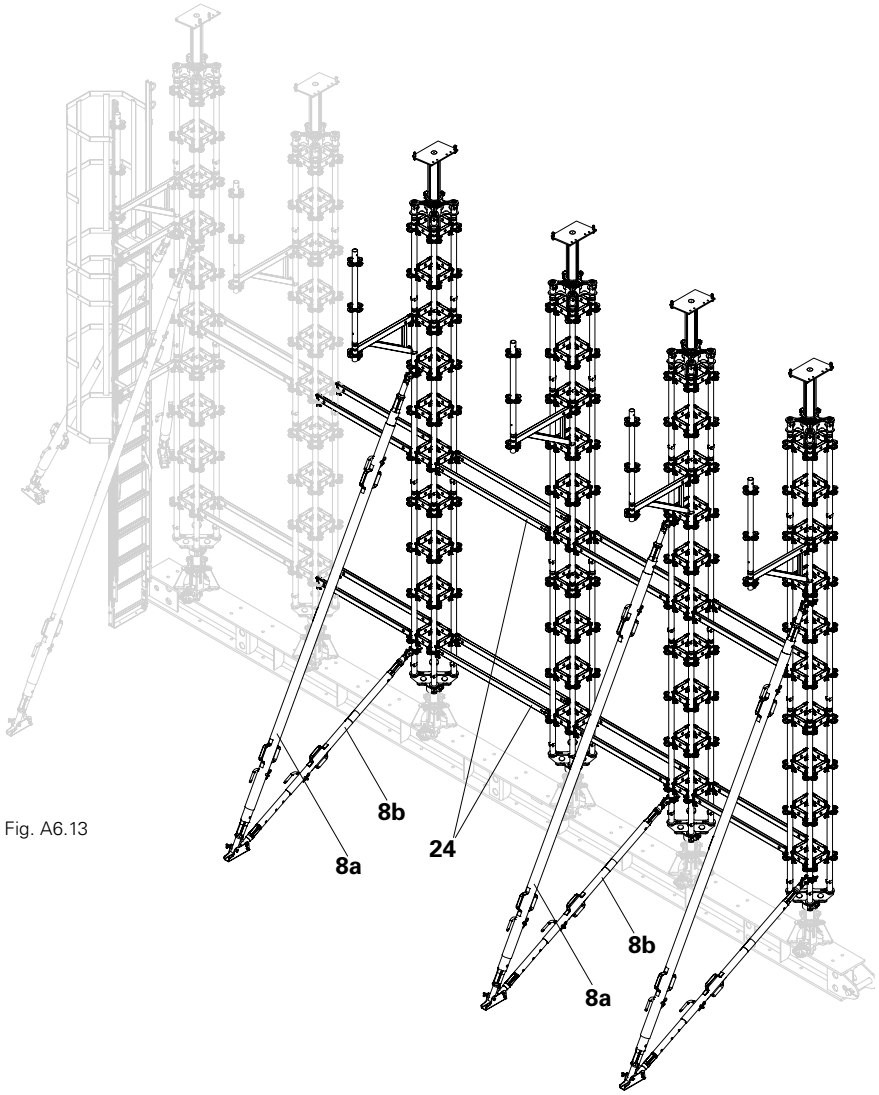


Fig. A6.13

Work platform

24 Horizontal Ledger UH Plus (as connecting ledger)
26 Steel Deck UDG
27 Toe Board Steel UPY

Attachment points for PPE
– The rosettes (a) of the Heavy-Duty Props HD that are on the level of the work platform and only Heavy-Duty Props HD that are held with at least one Push-Pull Prop RS. (Fig. A6.14 and Fig. A6.15)

Assembly
1. Attach Steel Deck UDG to Console Bracket UCM 75.
2. Mount the horizontal ledgers (24) on the guardrail posts as anti-fall protection and attach the Toe Board Steel UPY (27) (Fig. A6.14)
3. Mount additional steel decks (26), horizontal ledgers (24) and toe boards until the work platform is completed. (Fig. A6.15)

Alternative
– Assembly of a PERI UP Flex Working Scaffold.
– Lift truck.

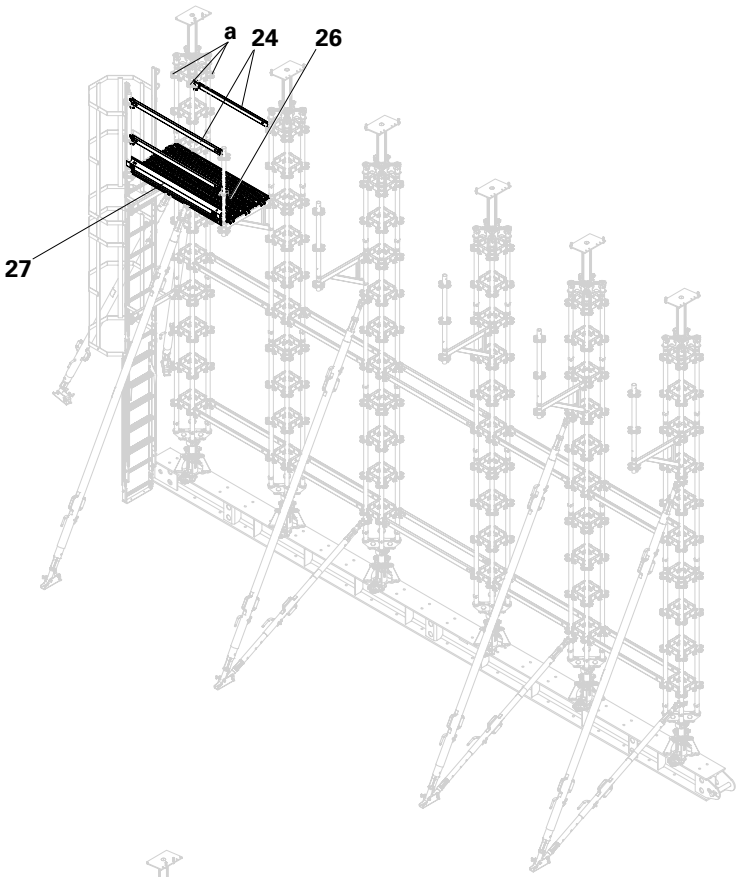


Fig. A6.14

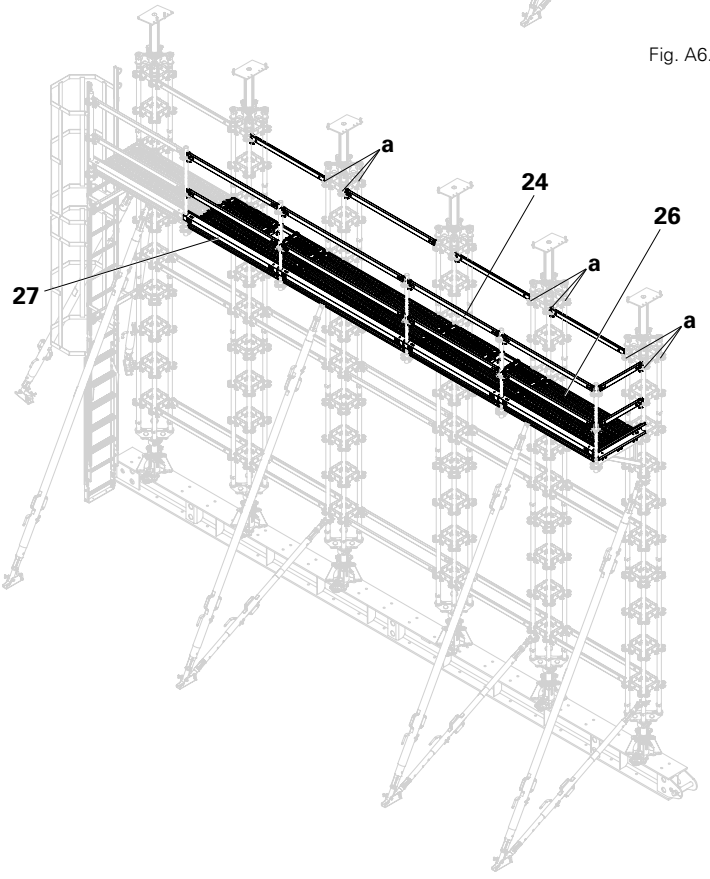


Fig. A6.15

Recess between decks

30	Ledger-to-Ledger Coupler UHA 6x
24	Horizontal Ledger UH Plus 4x

If a working platform is mounted on the main beam frame, two recesses must be made for the tie rods. The position of the recesses must be planned specifically for the project.

Assembly

1. Attach the first Horizontal Ledger UH Plus (24a) to the rosettes of the Heavy-Duty Prop HD at the bay concerned.
2. Then attach two Ledger-to-Ledger Couplers UHA (30a) to this ledger. In addition, fit a Ledger-to-Ledger Coupler UHA (30b) to each of the two Console Brackets 75.
3. Attach the second Horizontal Ledger UH Plus (24b) into the previously installed ledger-to-ledger couplers of the Console Brackets 75.
4. Attach two Ledger-to-Ledger Couplers UHA (30c) to the second Horizontal Ledger UH Plus (24b). Make sure that the recess also matches the point through which the tie rod runs.
5. Then attach two Horizontal Ledgers UH 25 Plus (24c) into the Ledger-to-Ledger Couplers UHA (30a + 30c). (Fig. A6.17)
6. Finally, install Steel Decks UDG on the working platform.

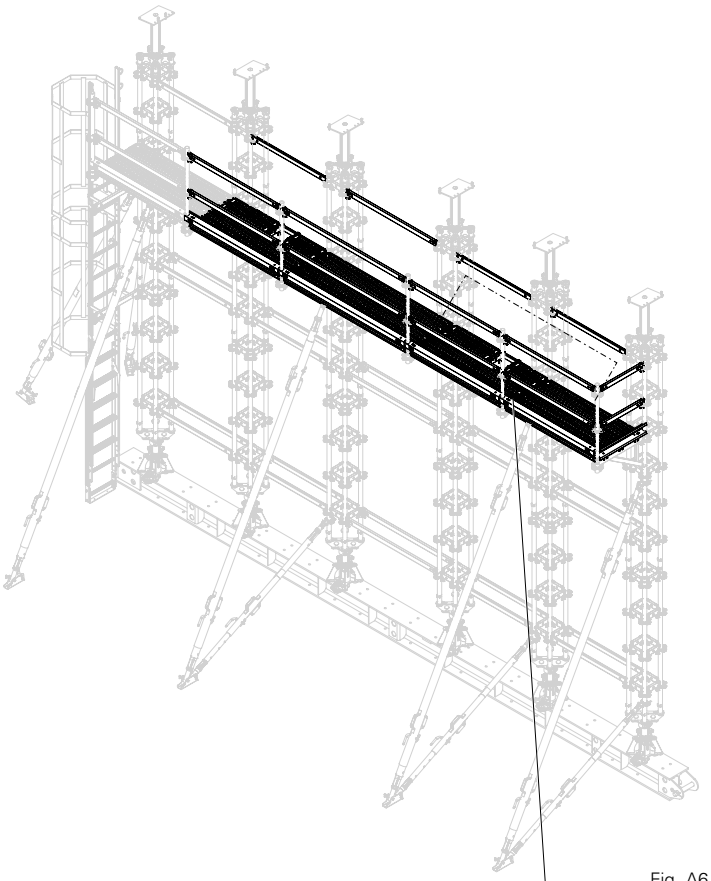


Fig. A6.16

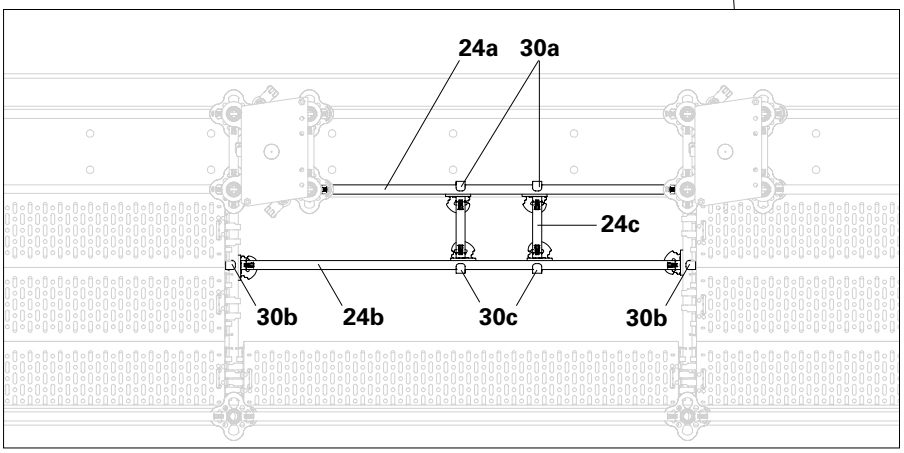


Fig. A6.17

Head spindles

– First and last Heavy-Duty Props HD with Push-Pull Prop RS (8) as primary props: spindle out head spindle approx. 50 mm above the specified dimension.
– Other Heavy-Duty Props HD as intermediate props: head spindles remain 50 mm below specified dimension.

The Top Beam HDT is first placed on the primary props to ensure secure mounting. See Section A6 "Main Beam HDT as Top Beam".

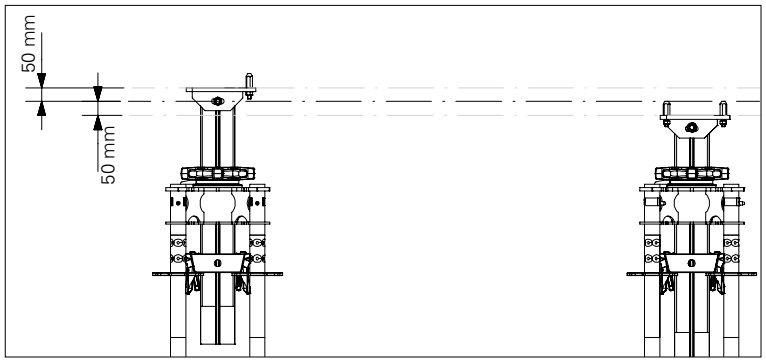


Fig. A6.18

Main Beam HDT as top beam

– Safe assembly of the top beam by attaching a working platform with access. See Section A6 "Working Platform".

Alternative

– Assembly of a PERI UP Flex Working Scaffold.
– Lift truck.

Required components

6.2	Centring bolts
14b	Main Beam HDT (top)
14.1	Girder Clamp HD 70
28	Heavy-Duty Prop HD

Assembly

1. Attach the top beam (14b) with textile strapping to prevent slipping.
2. Position Top Beam HDT on primary props (28a, 28b)
3. On the primary props (28b):
   – If the holes in the articulated head plate are outside the hole pattern (400 mm), fix the articulated head plates (6.3) first with the external centring bolts (6.2b), then secure each with two girder clamps (14.1). (Fig. A6.20 + Fig. A6.21)
   – If the holes in the articulated head plate are within the hole pattern, first fix the articulated head plate with the centring bolts (6.2a), then secure with girder clamps (14.1). (Fig. A6.19 + Fig. A6.21)
4. Level the head spindles (6) of the primary prop to the specified dimension.
5. Spindle out the head spindles of the intermediate props up to the Main Beam HDT (14b). Fix laterally with centring bolts (6.2b). (Fig. A6.19 + Fig. A6.20)
6. Secure the articulated head plates to the top beam with girder clamps.
   → The top beam is mounted.
7. Remove textile strapping.

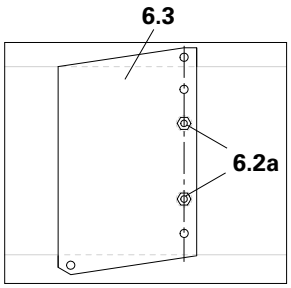


Fig. A6.19

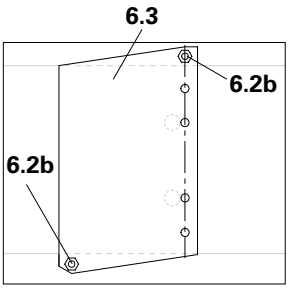


Fig. A6.20

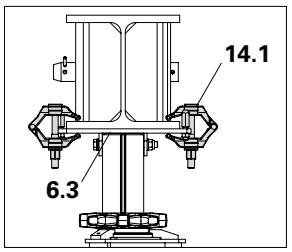


Fig. A6.21

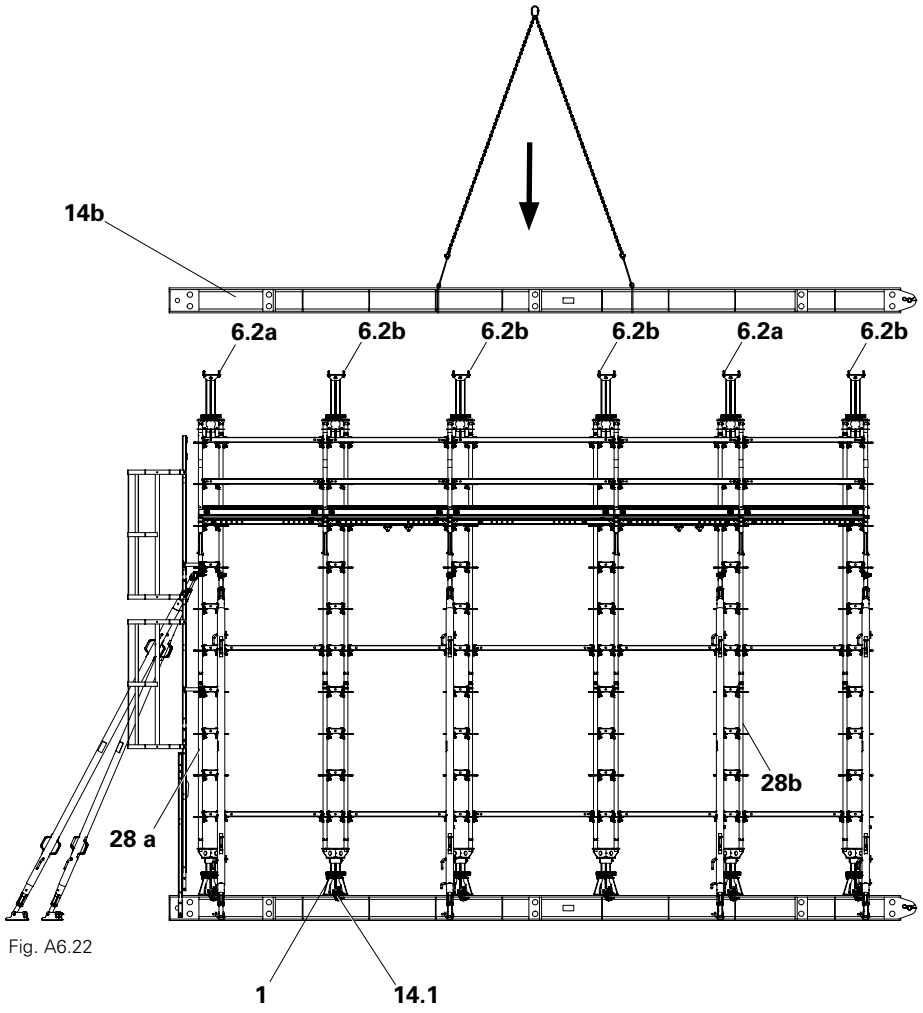


Fig. A6.22

Diagonal Bracing

Before positioning longitudinal beams or prefabricated girders, mount horizontal brackets in transverse direction of the main beam frame as statically required.

Mount diagonal bracing on both sides of the main beam frame to stabilise and transfer horizontal loads (Fig. A6.23)

Assembly

1. Insert the double tie yoke (6.1) into the main beams and ensure symmetrical overlap on both sides.
2. Insert Tie Rod DW 15 (6.2) diagonally on both sides.

In each case, the change in length of the Tie Rod DW 15 must be statically checked. If necessary, use Tie Rod DW 20.

3. Ensure uniform tensioning using a wing nut or cam nut (6.3). (Fig. A6.23a)

The diagonal bracing is now completed.
→ The main beam frame assembly is now completed.

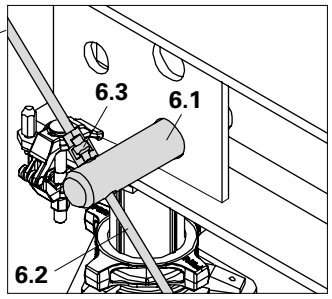


Fig. A6.23a

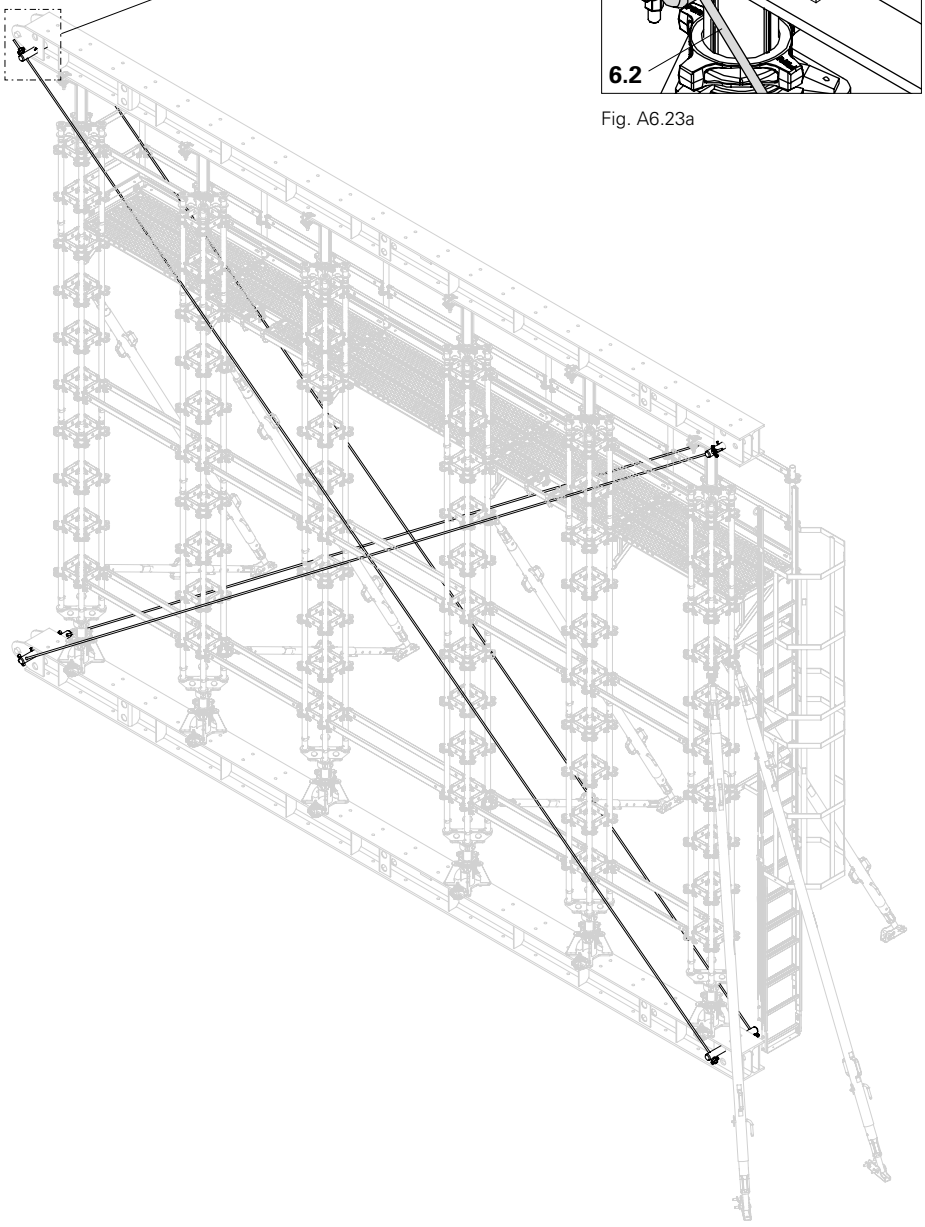


Fig. A6.23

Relieving the Main Beam Frame

– lower the prop segments evenly as described in Section A5 to prevent overloading of the individual props.
– A project-specific lowering plan must be prepared for each dismantling operation. The described procedure must be followed.

Dismantling the Longitudinal Beams

If it is not possible to dismantle the longitudinal beams directly under the supporting structure, the trolley (**12**) can be used.

Always use two trolleys at the same time!

Required components

12	The trolley consists of:
12.**1**	Cross tube
12.**2**	Longitudinal profiles
12.**3**	Lever
12.**4**	Cam nut
29	Longitudinal beam

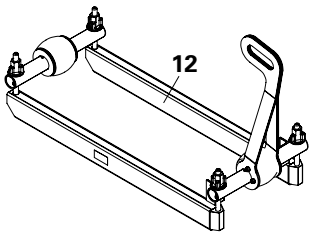


Fig. A7.02

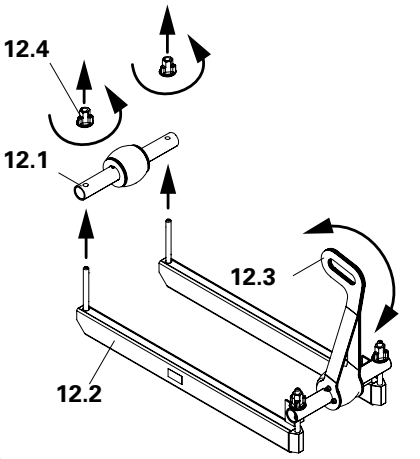


Fig. A7.03

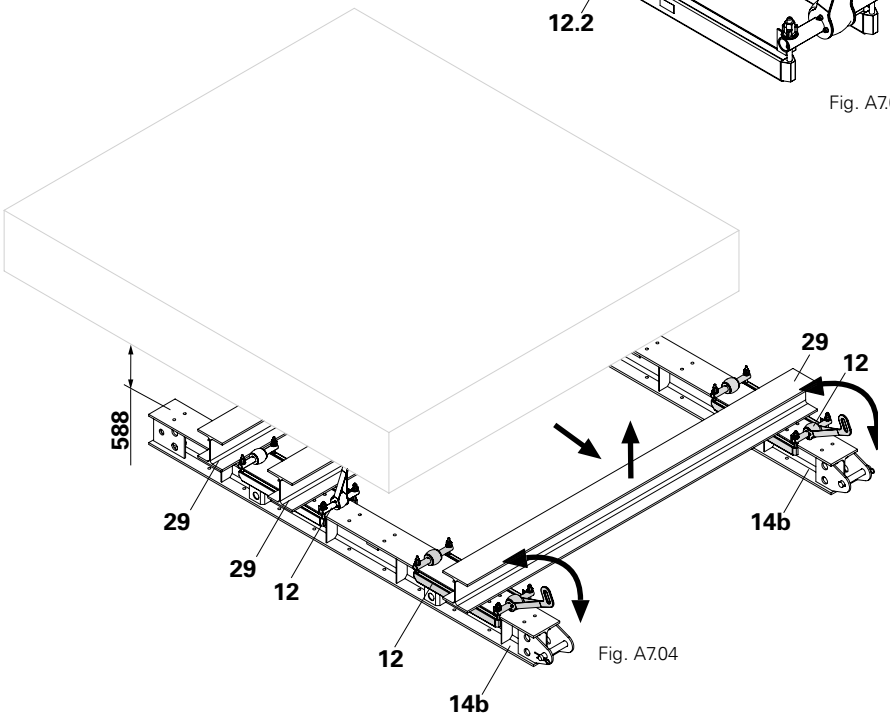


Fig. A7.04

Assembly

1. Remove cross tube (12.1) from the trolley (12). (Fig. A7.03)
2. Push the trolley (12) under the longitudinal beam (29) on the Main Beam HDT (14b) and fix the cross tube (12.1).
3. Tighten the cam nuts (12.4) evenly until the longitudinal profiles (12.2) are in contact with the longitudinal beam.
4. Push the lever (12.3) downwards, the longitudinal beam (29) is then lifted approx. 5 mm.
5. If installed, remove centring bars (6.4). (Fig. A7.05)
6. Release all 4 cam nuts with the lever (12.3) pressed down with spanner (SW 27) until there is a gap of approx. 3 mm between the Main Beam HDT and longitudinal beam.

Crushing risk! Always keep the lever pressed down when extending the longitudinal beams.
Stop procedure by lifting the lever upwards.

7. Move out the longitudinal beams onto the Main Beam HDT (14b).
8. Remove the trolley and remove the longitudinal beams, e.g. with a crane.

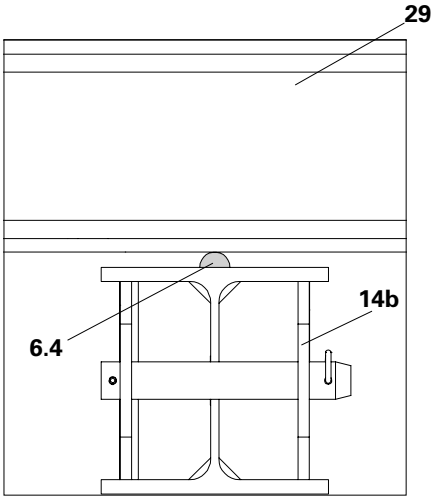


Fig. A7.05

Beware of falling parts!
- **Dismantling is carried out from a safe working position, e.g. using PERI UP Flex Working Scaffold.**
- **Remove loose parts or secure them against falling.**

Preparation

1. Remove diagonal bracing, Steel Decks UDG and Ledgers UH Plus between the guardrail posts.
2. Dismantle the working platform in reverse order as described in Section A6 "Working Platform".

Lowering

1. Loosen the Push-Pull Props (5), but do not remove them. Lower Heavy-Duty Props HD according to the lowering plan one after the other by Lowering Jack HD with Hydraulic Unit HD as follows. See Section A5 "Hydraulic Lowering Unit HD".
   - Lowering the last prop:
     - Release the wedges of the Connecting Ledger UH Plus on the side of the Heavy-Duty Prop HD that is to be lowered.
     - Lower the last Heavy-Duty Prop HD. (Fig. A7.01a)
   - Lowering additional props:
     - Release the wedges of the Connecting Ledger UH Plus on the side of the Heavy-Duty Prop HD that is to be lowered.
     - Lower the Heavy-Duty Prop HD, then fix the wedges of all Connecting Ledgers UH Plus that were released in the previous step. (Fig. A7.01b)
2. Retract the Push-Pull Props (5) in parallel.
3. Repeat steps 1 to 2 until the Main Beam Frame has been lowered approx. 100 mm.
4. Attach textile strap to the Top Beam and remove it.

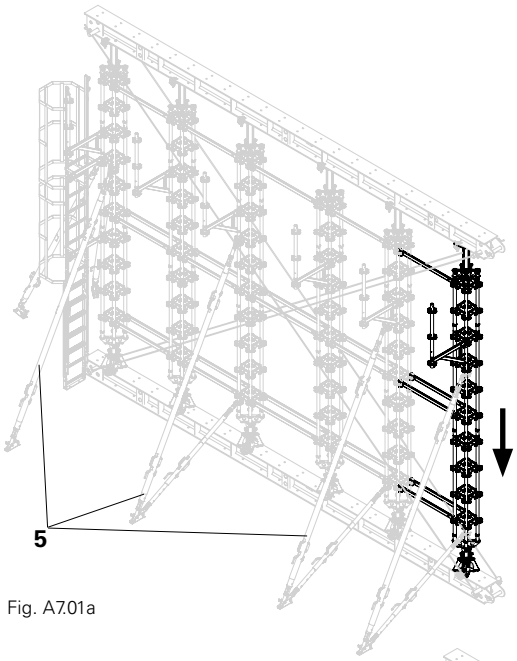


Fig. A7.01a

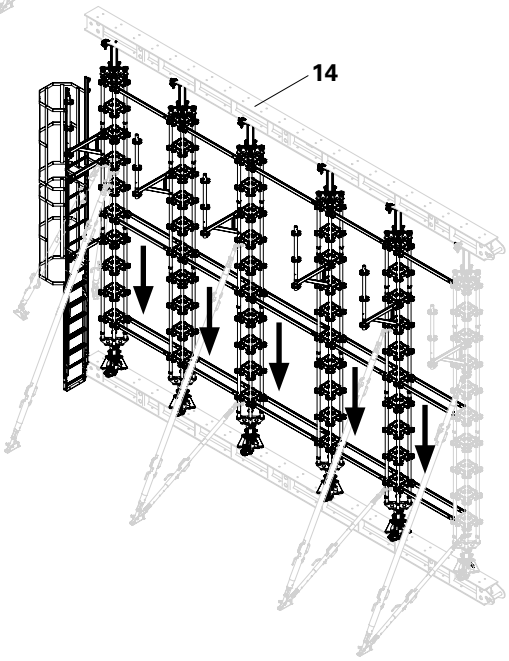


Fig. A7.01b

If disassembly by crane is not possible, lift the top Main Beam HDT (**14**) with a lift truck or telescopic stacker and remove it.

A7 Vertical Dismantling of the Main Beam Frame

Tipping risk! Do not dismantle the last prop (f) until all other HD Props have been removed!

Dismantling Heavy-Duty Props HD

1. Wrap textile straps around the Head Spindle TR (2) of the Heavy-Duty Props HD (a to e) ensuring that they do not slip and lift them slightly with the crane lifting gear. (Fig. A7.08)
2. Dismantle Connecting Ledger UH Plus.
3. Remove safety bolts of the Lowering Jack for the Heavy-Duty Prop HD to be lifted out.
4. Lift the Heavy-Duty Prop HD and set down.
5. Remove both girder clamps (4.2) on the bottom Main Beam HDT (14) of the HD Props (a to e).
6. Remove each lowering jack.

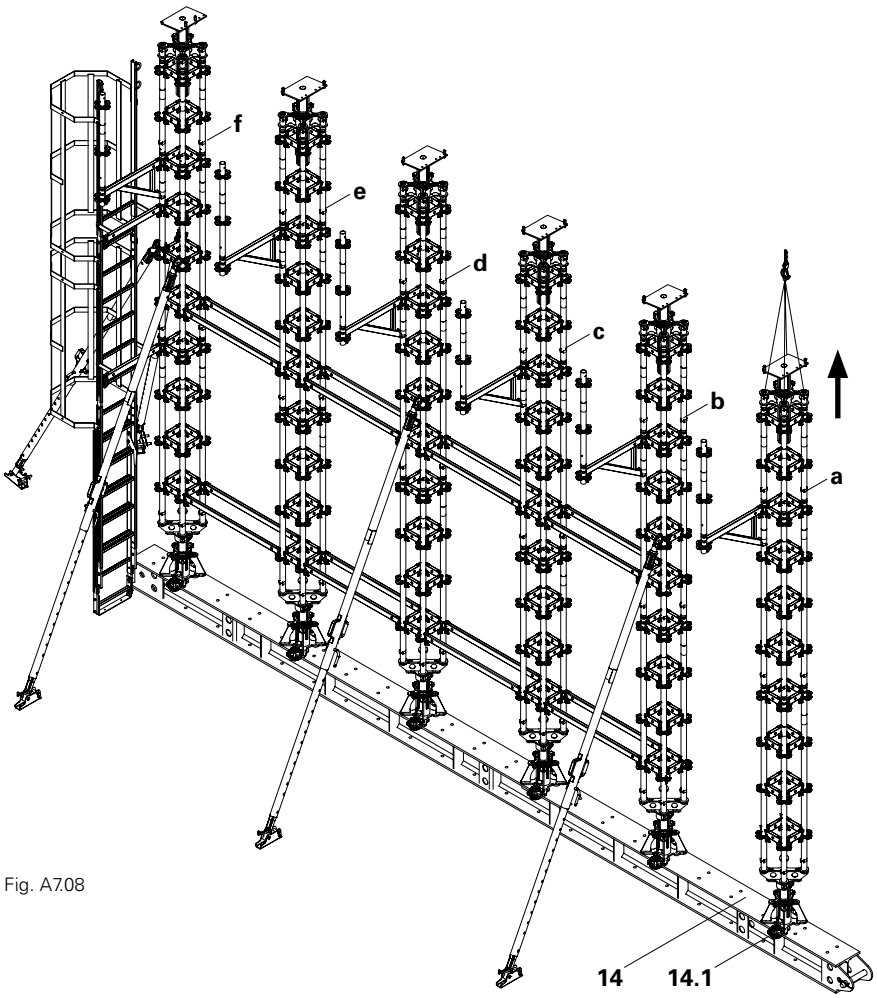


Fig. A7.08

Dismantling Horizontally Positioned Props

The dismantling of the Heavy-Duty Props HD is described in Section A4 "Horizontal Dismantling".

For the safe and correct storage of components, such as the Head Spindle TR (**2**) or the Horizontal Ledgers UH Plus, it is recommended that PERI wire crates are used.

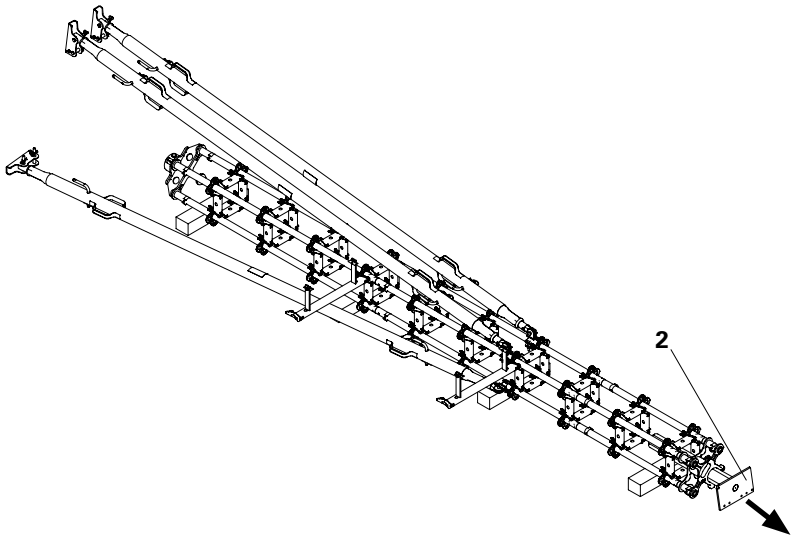


Fig. A7.09

Load Transfer

Always transfer loads centrally to the main beam!

Install centring bar (**6.4**) between the Main Beams HDT (**4b**) and the longitudinal beams (**29**). (Fig. B1.01)
Check right angle between the centring bar (**6.4**) and longitudinal beam (**29**).

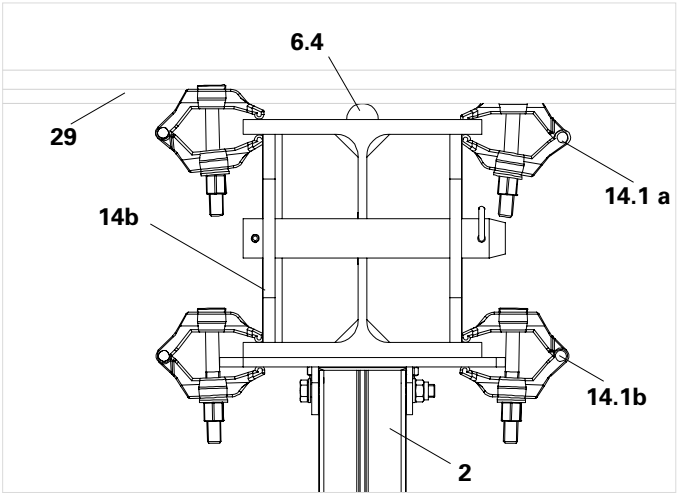


Fig. B1.01

Horizontal Loads

Do not transfer horizontal loads onto the Heavy-Duty Props HD (10)! Transfer the loads from top girder level directly to suitable structural components! Girder clamps fix the position of the longitudinal beam (29).
Do not clamp the flanges of the top main beam and bottom longitudinal beam flanges together with girder clamps!

General
Bracing consisting of Tie Rods DW 15 is used to transfer horizontal loads to main beam frames and to stabilise Heavy-Duty Props HD.

Horizontal loads from longitudinal beams
Transfer horizontal loads by means of friction and girder clamps (**14.1a/b**) onto the top beam.

Horizontal loads at the level of the main beam frame
Transfer horizontal loads from the main beam to the base beam via diagonal bracing (**25**) consisting of DW 15 Tie Rods (if necessary DW 20).
From here, transfer the load into the ground via friction or embedded components and foundations. (Fig. B1.02)

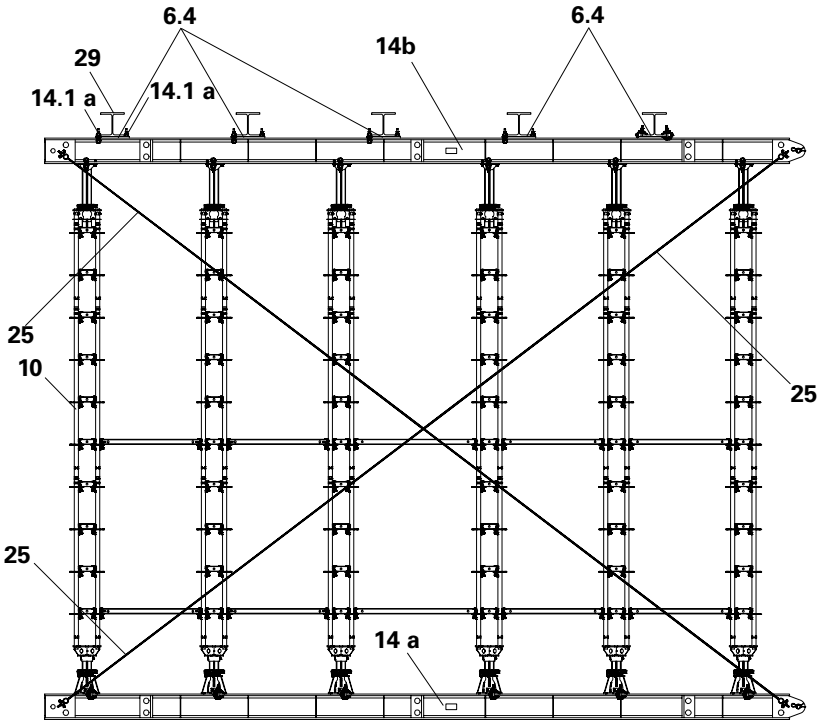


Fig. B1.02

Installation of Girder Clamps
For transferring horizontal loads:
– Laterally to the Main Beam HDT (14b).
→ Girder clamp (14.1b).
– Longitudinally to the Main Beam HDT.
→ Girder clamp (14.1a).

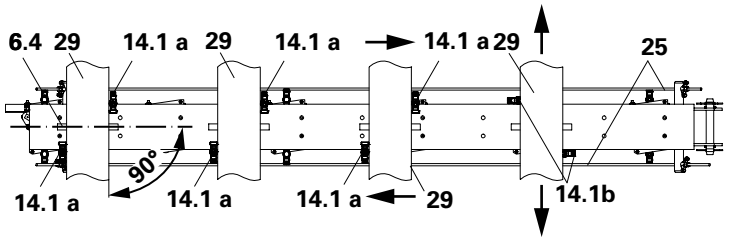


Fig. B1.03

Horizontal loads at right-angles to the level of the main beam frame are transferred directly from the Main Beam HDT (**14b**) onto existing structures e.g. abutments.

Tipping risk!
Push-Pull Props do not carry horizontal loads!
They are only assembly aids!
(See Fig. B1.04a)

Embedded components must be planned during the production of the abutment.

Examples
Tensile and compression-proof connection
According to structural analysis with Tie Rods DW 15 and, for example, Tie Sleeve M24 (variant A) or via existing tie holes (variant B).

Required components

28 Steel Waler SRZ U100 1x
29 Column Tie Yoke DW 15 2x
30 Hex. Nut DW 15 SW 30/108 2x
31 Tie Rod DW 15, galvanised 2x
32 Coupling VKZ 99 1x
33 Wingnut Pivot Plate DW 15 2x
34 Squared timber (on site) 2x
35 Nut M20-8, galv. 2x
36 Screw M20 x 100-8.8, galvanised 2x

Fastening to an existing structure

Variant A (Fig. B1.05)

37 Tie Sleeve DW 15 1x
31 Tie Rod DW 15, galvanised 2x (length varies)
33 Wingnut Pivot Plate DW 15 2x

Variant B (Fig. B1.05)

31 Tie Rod DW 15 1x (length varies)
33 Wingnut Pivot Plate DW 15 2x

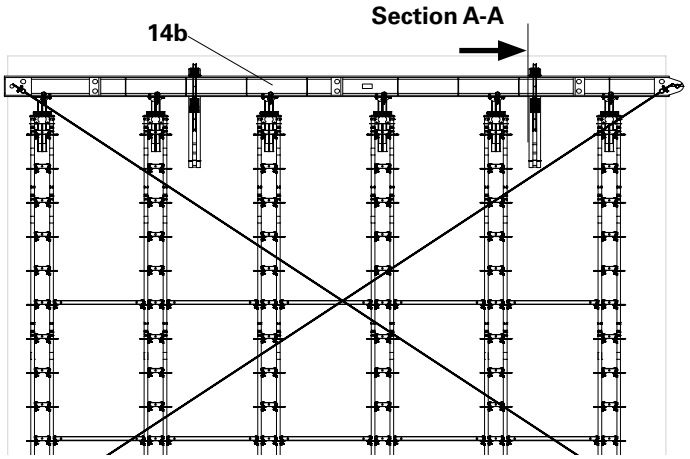


Fig. B1.04

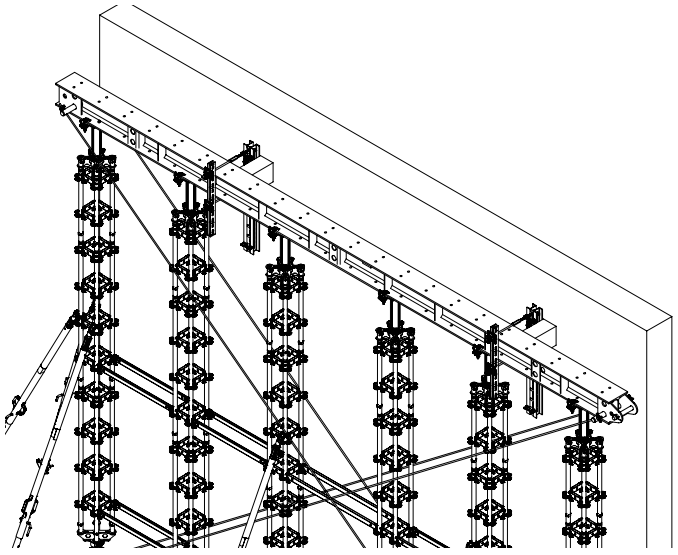


Fig. B1.04a

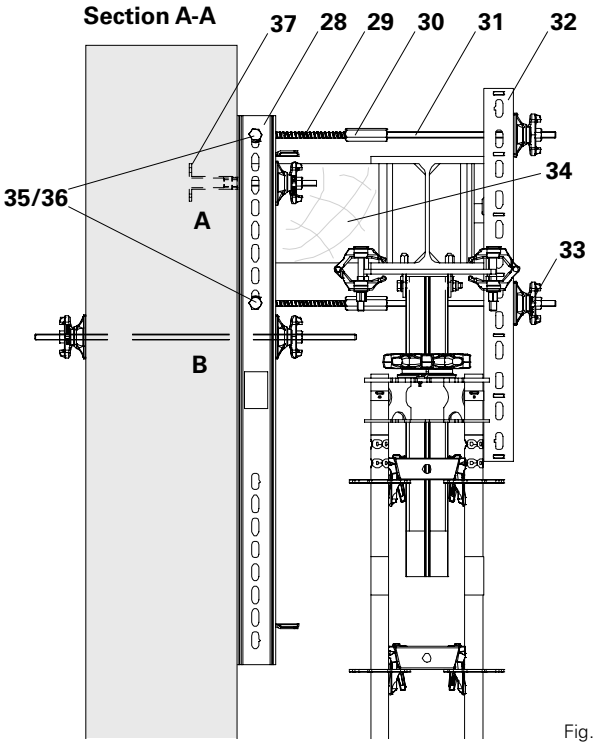


Fig. B1.05

Free-standing Main Beam Frames

1. Assemble free-standing main beam frames as described in Section A6.
2. Horizontal forces at the level of the main beam frame are transferred via diagonal bracing (25). (See Section A6)
3. Horizontal forces lateral to the main beam frame are transferred via Push-Pull Props (8) that are fixed to auxiliary foundations by means of a Connecting Plate AV (5.4) on the Main Beam HDT (14b) and Base Plate-2 RS 210-1400 (5.2). (Fig. B2.01a/ B2.01b)
4. For permissible forces, see tables below.
5. Install Push-Pull Prop at β = 30°.
6. Secure Connection Plate AV against slipping.
7. Fasten the Connection Plate AV on the bottom chord of the Main Beam HDT (14b) by means of bolts and nuts M24 (5.5).
8. In addition, place one girder clamp (4.2) each to the right and left of the Connection Plate AV (5.4). (Fig. B2.01b)
9. Arrangement and installation of the girder clamp according to the approval.

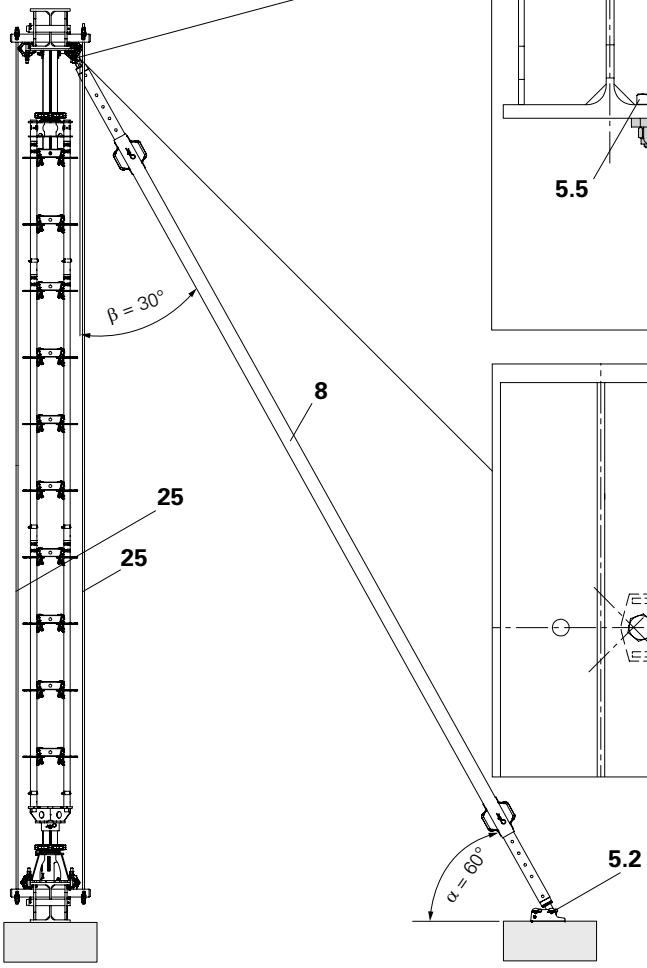


Fig. B2.01

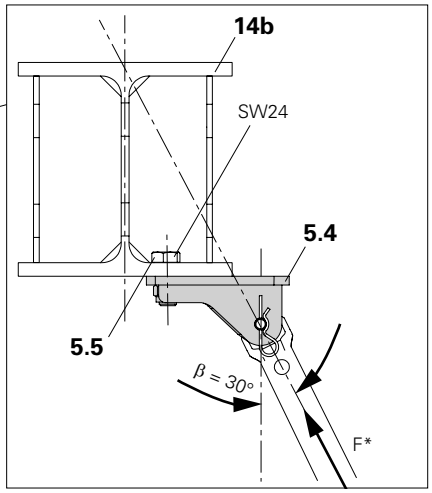


Fig. B2.01a

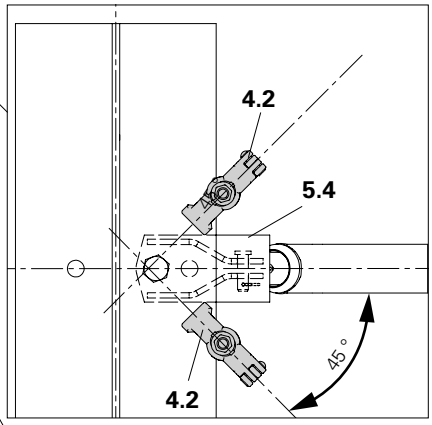


Fig. B2.01b

The permissible load of the respective Push-Pull Prop must be considered separately.

Permissible force to be carried by Connection Plate AV for β = 30°

Perm. compressive force		Perm. tensile force	
F*	perm. horizontal component	F*	perm. horizontal component
[kN]	[kN]	[kN]	[kN]
70.8	35.4	24.7	12.4

The total amount of the vertical components of all push-pull prop forces per main beam frame must be less than 3% of the total amount of all permissible prop loads of the main beam frame.

Permissible force to be carried by Base Plate-2 RS 210-1400 for α = 60°
(Fig. B2.01c)

Perm. compressive force		Perm. tensile force	
F*	res. dowel force	F*	res. dowel force
[kN]	[kN]	[kN]	[kN]
25.1	12.5	16.9	23.7

*F = push-pull prop load

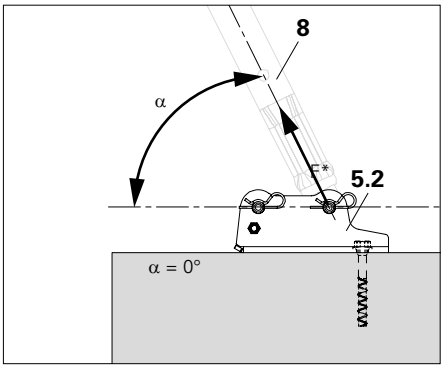


Fig. B2.01c

Individual props without main beam

- **Appropriately secure Heavy-Duty Props HD (10) at top and bottom against lateral movement.**
- **Secure free-standing individual props against tipping over, e.g. in a longitudinal direction with Horizontal Ledgers UH Plus (24) and in a lateral direction with Push-Pull Props RS.**

Main beam frames without bottom Main Beam HDT

- Forces from the diagonal bracing (25) must be transferred directly into the foundations, e.g. via the anchoring system of the PERI Brace Frame.
- The base plates of the Lowering Jack HD (1) must rest fully faced on the foundations. (Fig. B2.02)

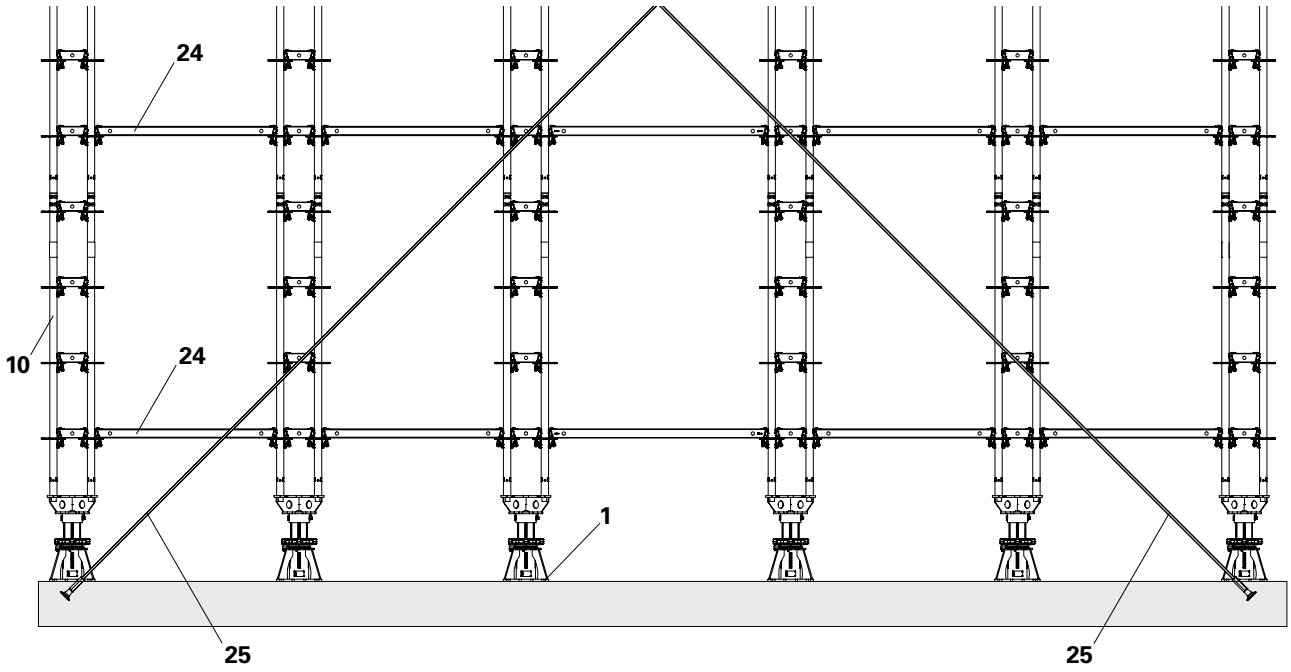
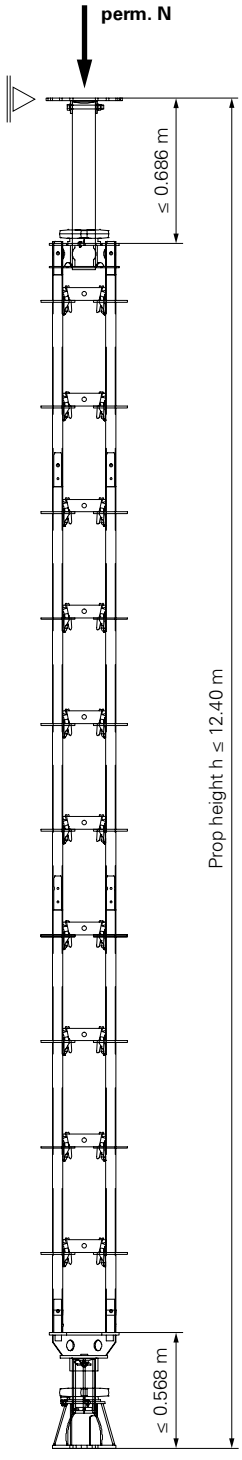


Fig. B2.02

B3 Load-bearing capacities

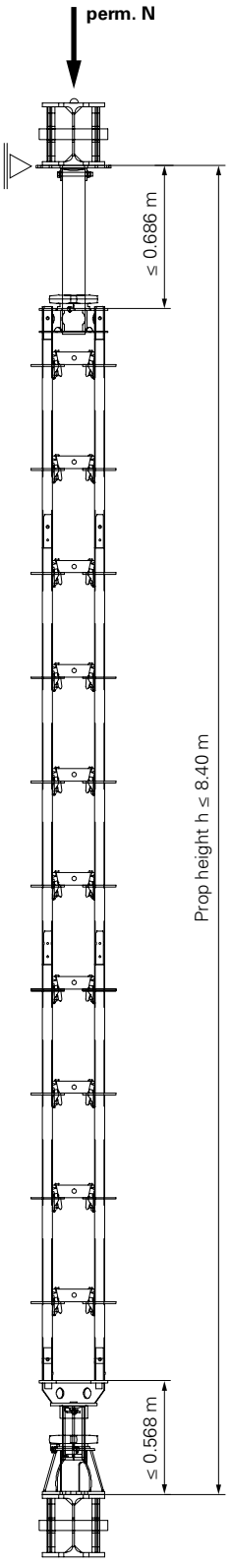
- The values shown in the following tables only apply to configurations compiled according to Section "B4 Material List" on page 42.
- For props with a structure height h > 6 m, the Standard UVR 300 must be installed centrally due to the static deformation figure.
- When assembling, keep the symmetrical arrangement of the standard joints.
- All tables in the PERI Design Tables or in the PERI brochures which are not separately marked feature permissible load-bearing capacities.
- The permissible load capacities can also be converted into a design value of the resistance R_d for the method with partial safety factors after multiplication by $\gamma F = 1.5$.
- Intermediate values as a result of other wind loads may be determined by linear interpolation between the load-bearing capacities.



Individual props with Standards UVR / UVH and Horizontal Ledgers UH Plus [in kN]						
		with q = 0.00 kN/m²	with q = 0.20 kN/m²	with q = 0.50 kN/m²	with q = 0.90 kN/m²	with q = 1.30 kN/m²
		perm. N	perm. N	perm. N	perm. N	perm. N
Prop height (cm)	340	201	200	200	199	198
	440	201	200	200	197	192
	540	195	192	187	180	174
	640	188	184	178	171	163
	740	178	173	167	158	149
	840	165	160	154	144	135
	940	147	141	132	–	–
	1,040	129	122	112	–	–
	1,140	111	103	92	–	–
	1,240	93	84	72	–	–

The same conditions apply as for individual supports on previous page.

Main Beam Frame with Horizontal Ledgers UH Plus [in kN]						
		with q = 0.00 kN/m²	with q = 0.20 kN/m²	with q = 0.50 kN/m²	with q = 0.90 kN/m²	with q = 1.30 kN/m²
		perm. N	perm. N	perm. N	perm. N	perm. N
Prop height [cm]	340	183	182	180	178	175
	440	176	174	172	169	166
	540	173	171	168	164	159
	640	168	166	162	155	147
	740	160	156	151	144	137
	840	150	146	139	131	115



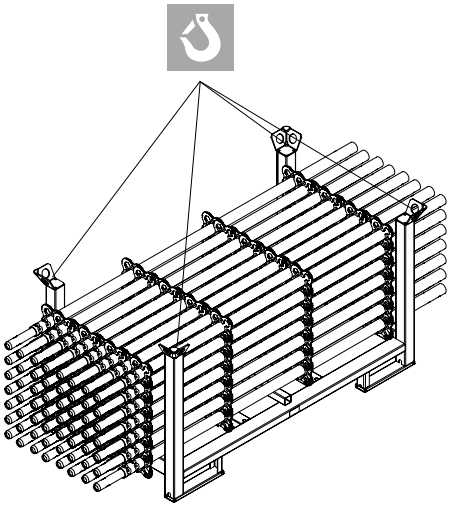
Prop heights with Material List as individual prop

Prop height (m)		Standards UVR					Ledger UH 25 Plus	Locking pin D 48/57	Head Spindle TR 110	Lowering Jack HD	Connection Plate UJC	Weight (kg)
min.	max.	50	100	150	200	300						
1.28	1.83	4					4	8	1	1	1	78.47
1.78	2.33		4				8	8	1	1	1	93.35
2.28	2.83			4			12	8	1	1	1	108.27
2.78	3.33				4		16	8	1	1	1	123.19
3.28	3.83		4	4			20	12	1	1	1	141.39
3.78	4.33		4		4		24	12	1	1	1	156.31
4.28	4.83			4	4		28	12	1	1	1	171.23
4.78	5.33				8		32	12	1	1	1	186.15
5.28	5.83			4		4	36	12	1	1	1	201.39
5.78	6.33		8			4	40	16	1	1	1	219.58
6.28	6.83		4	4		4	44	16	1	1	1	234.50
6.78	7.33			8		4	48	16	1	1	1	249.42
7.28	7.83			4	4	4	52	16	1	1	1	264.34
7.78	8.33				8	4	56	16	1	1	1	279.26
8.28	8.83		4	4	4	4	60	20	1	1	1	297.46
8.78	9.33		8	8		4	64	24	1	1	1	315.66
9.28	9.83		8	4	4	4	68	24	1	1	1	330.58
9.78	10.33		8		8	4	72	24	1	1	1	345.50
10.28	10.83		4	4	8	4	76	24	1	1	1	360.42
10.78	11.33			8	8	4	80	24	1	1	1	375.34
11.28	11.83			4	12	4	84	24	1	1	1	390.26
11.78	12.33				16	4	88	24	1	1	1	405.18

- Only PERI UP Flex 1st generation articles are permitted!
- For props with a structure height h > 6 m, the Standard UVR 300 must be installed centrally due to the static deformation figure.
- When assembling, keep the symmetrical arrangement of the standard joints.

- **The Instructions for Use for PERI Pallets and Stacking Devices must be observed!**
- **Transportation units must be correctly stacked and secured!**

Storage
PERI pallets are suitable for lifting by crane and forklift.
When using a crane, 4-sling lifting gear is used to move the pallets.

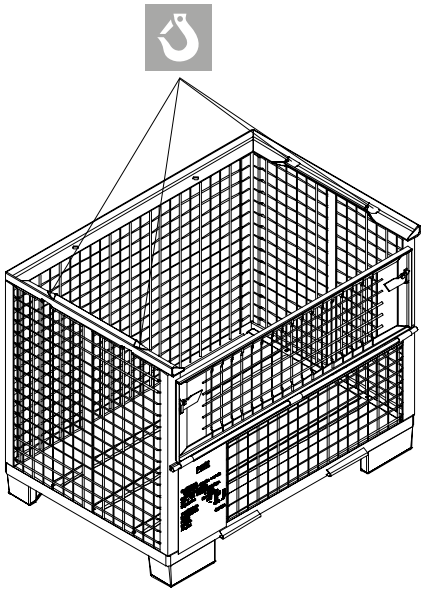


During forklift operations, the pallets can be moved either by a forklift truck or by using the lifting trolley.
All pallets can be picked up from the long side as well as from the short side.

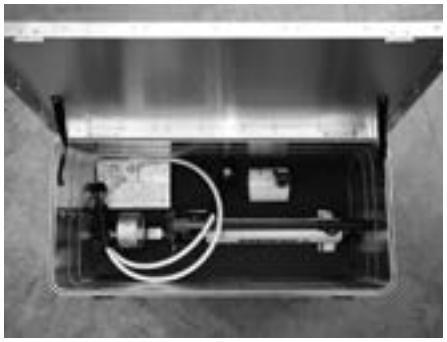
Transportation

- **Ensure loads are correctly secured during transport!**
- **Use tension belts or steel bands!**

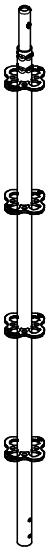
The number of pallets to be transported depends on the national transport regulations.

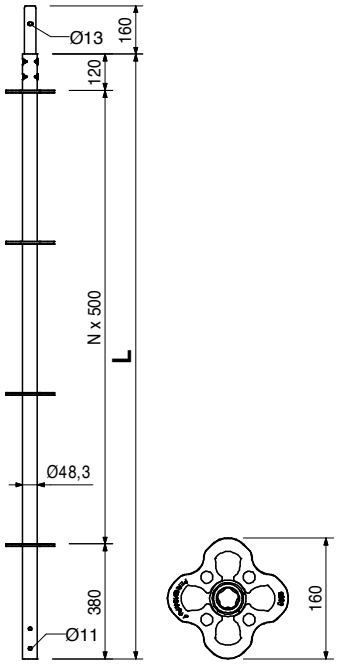


Hydraulic Unit HD
When transporting or placing in storage, the hydraulic components - hose, cylinder and hand pump - must be separately stored and transported in the designated aluminium case.



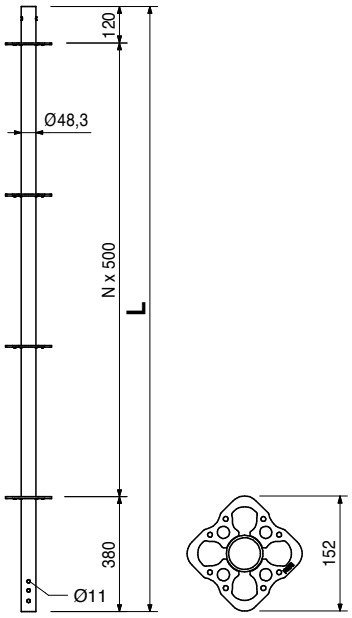
Article no.	Weight kg	Standard UVR	L
102859	3.080	**Standard UVR 50**	500
101306	5.380	**Standard UVR 100**	1,000
102860	7.690	**Standard UVR 150**	1,500
100009	10.000	**Standard UVR 200**	2,000
100012	14.700	**Standard UVR 300**	3,000
100013	19.200	**Standard UVR 400**	4,000





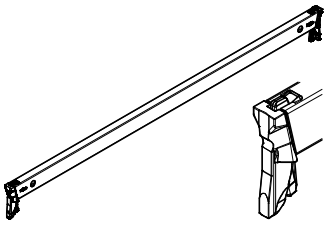
Article no.	Weight kg	Top Standards UVH	L
101309	2.510	**Top Standard UVH 50**	500
100000	4.610	**Top Standard UVH 100**	1,000
100003	6.920	**Top Standard UVH 150**	1,500
100005	9.230	**Top Standard UVH 200**	2,000
100007	11.500	**Top Standard UVH 250**	2,500

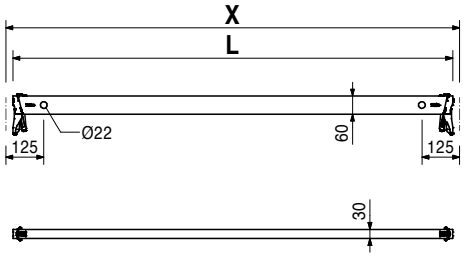
Without pin for supporting head spindles.



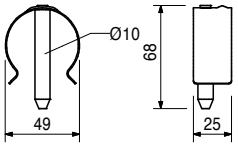
Article no.	Weight kg		L	X
		Horizontal Ledger UH Plus		
114613	1.420	**Horizontal Ledger UH 25 Plus**	204	250
114595	2.070	**Horizontal Ledger UH 50 Plus**	454	500
114629	2.730	**Horizontal Ledger UH 75 Plus**	704	750
114632	4.460	**Horizontal Ledger UH 100 Plus**	954	1,000
114638	5.430	**Horizontal Ledger UH 125 Plus**	1,204	1,250
114641	4.720	**Horizontal Ledger UH 150 Plus**	1,454	1,500

Note
With length marking for easier identification.
The 1st generation Horizontal Ledgers UH Plus 100 and 125 are up to 20 % heavier.

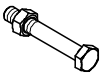


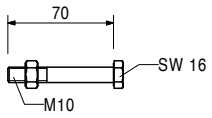


111053	0.059	**Locking pin Ø 48/57** As tension-proof connection of standards with a diameter of 48 up to 57 mm.



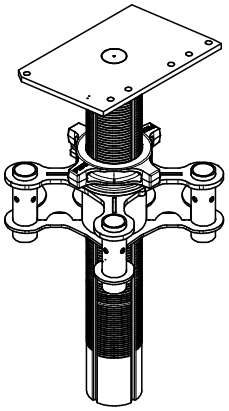
100719	0.060	**Bolt ISO 4014 M10 x 70-8.8** As tension-proof connection of standards at suspended scaffolds and lattice girders.

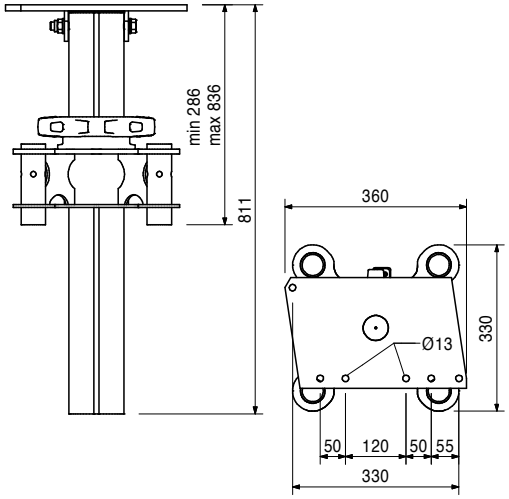




Article no.	Weight kg	
126435	25.800	**Head Spindle TR 110 - 80 /55** Head spindle for PERI UP Heavy-Duty Prop. Can be tilted up to 3° along one axis.

Note
Loads > 50 kN are to be released with hydraulics.

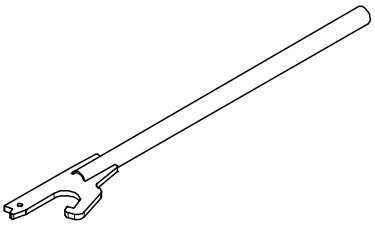


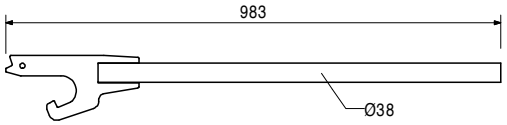


Accessories

022027	3.600	**Wing Nut Spanner HD**

022027	3.600	**Wing Nut Spanner HD** For easy removal of Head Spindle HDK 45, Head Spindle TR 110 - 80 / 55 and the MULTIPROP Slab Prop.

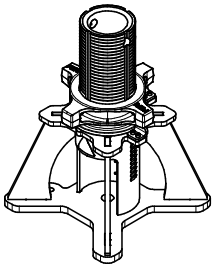


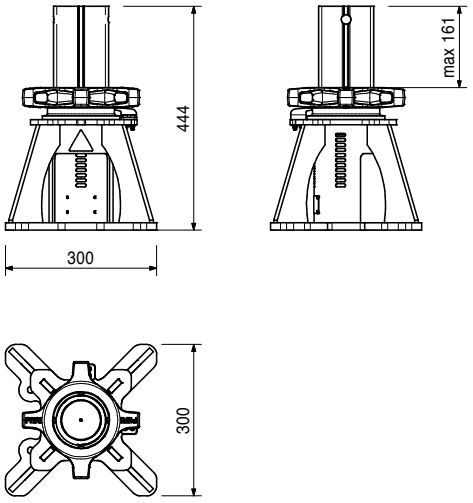


Article no.	Weight kg	
126436	21.400	**Lowering Jack HD**

For releasing high loads up to 200 kN and displacement-controlled lowering as well as for systematic prestressing of supports.

Note
Loads > 50 kN are to be released with hydraulics.



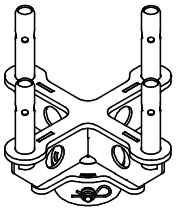


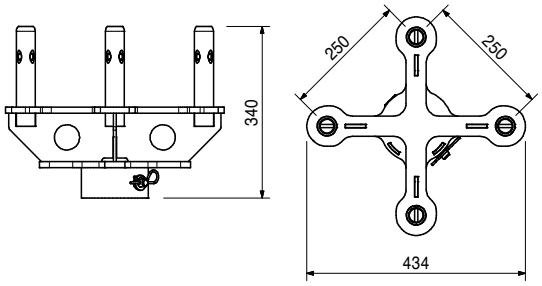
Accessories

126438	12.900	**Hydraulic Unit HD**
126437	12.800	**Connection Plate UJC**

126437	12.800	**Connection Plate UJC**

For connecting the Standards UVR in a 25 x 25 cm grid. Tilting in any direction by 2°.

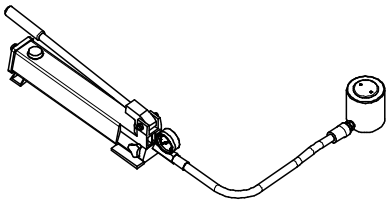




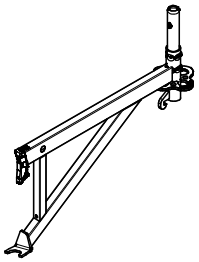
126438	12.900	**Hydraulic Unit HD**

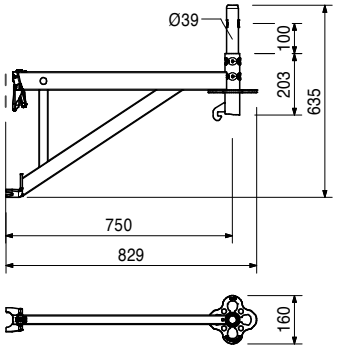
Permissible load-bearing capacity up to 295 kN (readable directly on the manometer). Cylinder stroke up to 62 mm.

Note
Maximum 1 piece per tower!
Observe Instructions for Use!

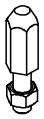


Article no.	Weight kg	
112678	6.510	**Console Bracket UCM 75 with pin**

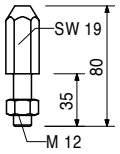




022013	0.137	**Centring Bolt HD M12, galv.** For the HD 200 system.

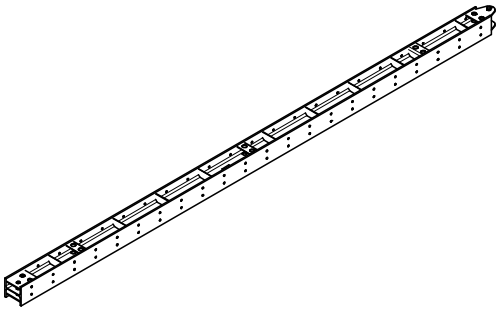


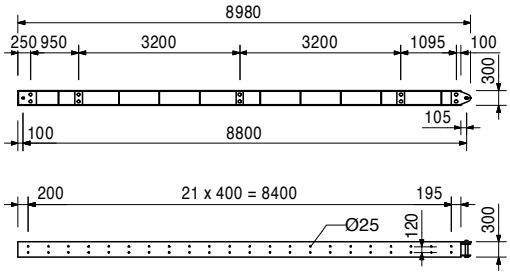
Kit with
1 pc. 710330 nut ISO 4032 M12-8, galv.



022008	1130.000	**Main Beam HDT 880** System steel beam for use with HD 200 main beam frames and special constructions. Profile HEB 300.

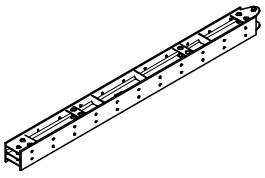
Kit with
1 pc. 105435 Bolt Ø 50 x 330
1 pc. 722457 Sleeve ISO 8752 10 x 70, galv.
1 pc. 710618 Cotter pin 8/1, galv.

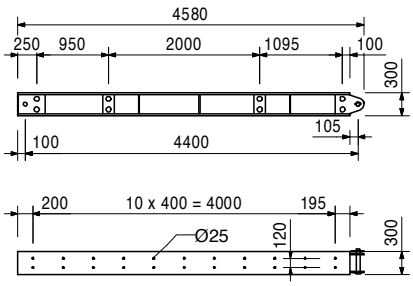




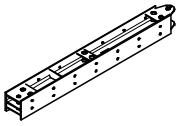
022009	582.000	**Main Beam HDT 440** System steel beam for use with HD 200 main beam frames and special constructions. Profile HEB 300.

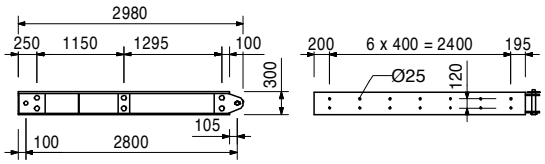
Kit with
1 pc. 105435 Bolt Ø 50 x 330
1 pc. 722457 Sleeve ISO 8752 10 x 70, galv.
1 pc. 710618 Cotter pin 8/1, galv.



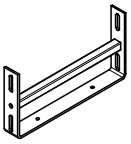


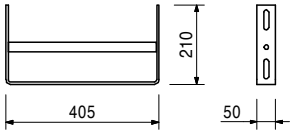
Article no.	Weight kg		
022010	379.000	**Main Beam HDT 280** System steel beam for use with HD 200 main beam frames and special constructions. Profile HEB 300.	**Kit with** 1 pc. 105435 Bolt Ø 50 x 330 1 pc. 722457 Sleeve ISO 8752 10 x 70, galv. 1 pc. 710618 Cotter pin 8/1, galv.



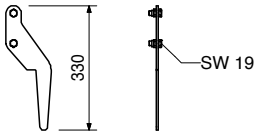


051460	2.180	**Ladder base, galv.** As bottom ladder connection and for securing ladders against sliding on the scaffold decks.	

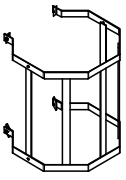


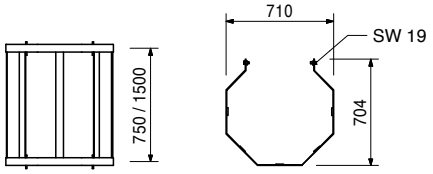


103718	0.684	**Ladder hook, galv.** For adjusting the bottom ladder. Always use in pairs.	**Kit with** 2 pc. 710266 bolt ISO 4017 M12 x 25-8.8, galv. 2 pc. 710381 nut ISO 7040 M12-8, galv.



104132 051450	15.600 25.200	**Ladder Cage, galv.** **Ladder Cage 75, galv.** **Ladder Cage 150, galv.** Ladder cage for PERI ladder access.	**Kit with** 4 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv. 4 pc. 701763 Clamping Plate Fl 25 x 10 x 90

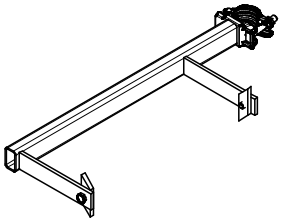


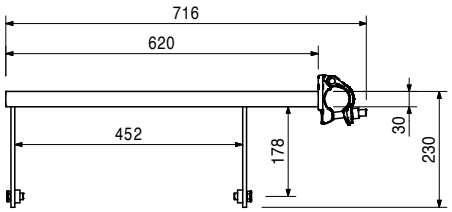


Article no.	Weight kg
104646	4.220

Ladder Connector HD 200
For connecting ladders to the Prop Section HD 200.

Kit with
2 pcs. 701763 Clamping Plate Fl 25 x 10 x 90
1 pc. 710266 Screw ISO 4017 M12 x 25-8.8, galv.

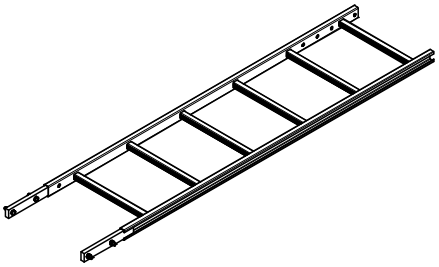


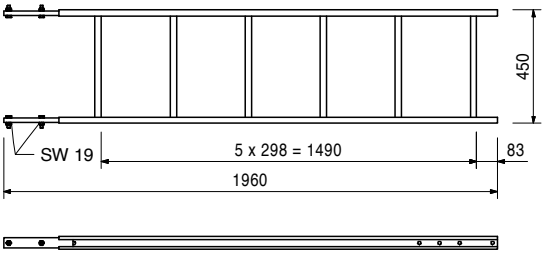


051410	11.700

Ladder 180/6, galv.
For accessing PERI formwork systems.

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

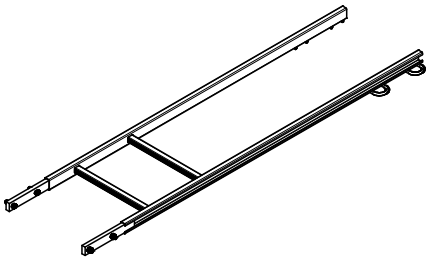


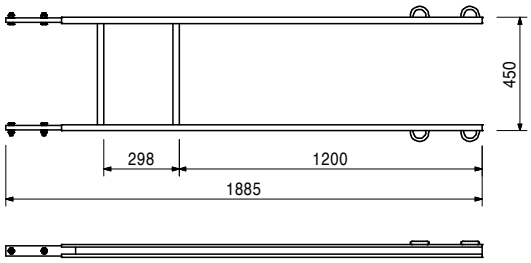


103724	10.400

Access ladder 180/2, galv.
For accessing PERI formwork systems.

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

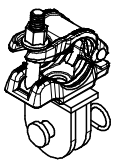


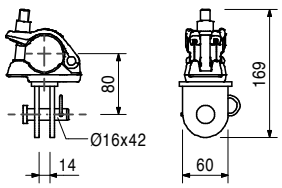


131723	1.440

Brace Connector HDR-2
For connecting push-pull props and kicker braces to components with Ø 48 mm.

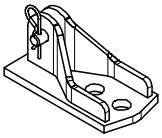
Kit with
1 pc 027170 bolt Ø 16 x 42, galv.
1 pc. 018060 cotter pin 4/1, galv.

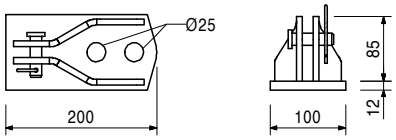




Article no.	Weight kg	
028080	2.970	**Connector Plate AV/Push-Pull Prop** For connecting push-pull props and kicker braces to the Main Beam HDT.

Kit with
1 pc. 018060 cotter pin 4/1, galv.
1 pc. 027170 bolts Ø 16 x 42, galv.



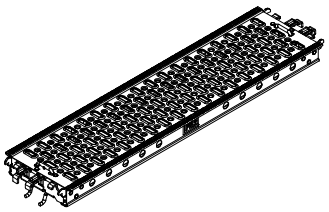


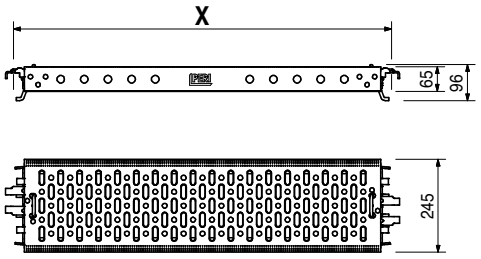
		Steel Decks UDG 25
124124	3.880	**Steel Deck UDG 25 x 50**
124121	5.260	**Steel Deck UDG 25 x 75**
124118	6.630	**Steel Deck UDG 25 x 100**
124115	8.010	**Steel Deck UDG 25 x 125**
124112	9.410	**Steel Deck UDG 25 x 150**
124109	12.200	**Steel Deck UDG 25 x 200**
123771	14.900	**Steel Deck UDG 25 x 250**
124915	17.700	**Steel Deck UDG 25 x 300**

Fit onto Horizontal Ledgers UH.

X	perm. p [kN/m²]	max. p [kN/m²]
500	6.0	40.0
750	6.0	40.0
1,000	6.0	40.0
1,250	6.0	28.4
1,500	6.0	19.6
2,000	6.0	10.9
2,500	4.5	6.9
3,000	3.0	4.7

Note
Values corresponding to EN 12811-1.
max. p = max. possible surface load without deflection restriction.

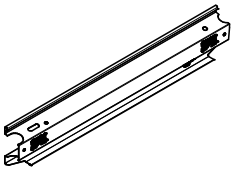


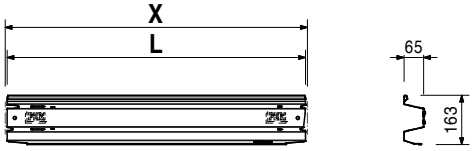


		Toe Boards Steel UPY
132592	0.414	**Toe Board Steel UPY 25**
110213	0.929	**Toe Board Steel UPY 50**
110514	1.450	**Toe Board Steel UPY 75**
110073	1.960	**Toe Board Steel UPY 100**
110160	2.990	**Toe Board Steel UPY 150**
110176	4.030	**Toe Board Steel UPY 200**
110208	5.060	**Toe Board Steel UPY 250**
110211	6.090	**Toe Board Steel UPY 300**

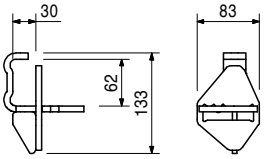
L	X
236	250
486	500
736	750
986	1,000
1,486	1,500
1,986	2,000
2,486	2,500
2,986	3,000

Note
• Default: Surface, galvanised and painted in yellow.

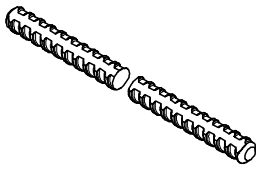




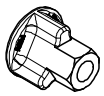
Article no.	Weight kg	
101731	0.841	**Ledger-to-Ledger Coupler UHA** For connecting horizontal ledgers at right-angles.

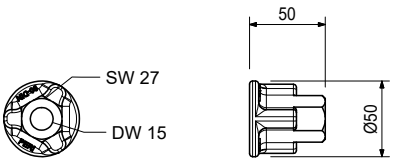


		Tie Rod DW 15	**Note**
030030	1.440	**Tie Rod DW 15, special length**	Non-weldable! Observe the permissions!
030050	0.000	**Cutting cost Tie Rod DW 15, B 15**	**Technical data**
030005	0.720	**Tie Rod DW 15, L = 0.50 m**	Permissible tensile force 90 kN.
030010	1.230	**Tie Rod DW 15, L = 0.85 m**	
030480	1.440	**Tie Rod DW 15, L = 1.00 m**	
030490	1.730	**Tie Rod DW 15, L = 1.20 m**	
030170	2.160	**Tie Rod DW 15, L = 1.50 m**	
030020	2.450	**Tie Rod DW 15, L = 1.70 m**	
030180	2.880	**Tie Rod DW 15, L = 2.00 m**	
030710	3.600	**Tie Rod DW 15, L = 2.50 m**	
030720	4.320	**Tie Rod DW 15, L = 3.00 m**	
030730	5.040	**Tie Rod DW 15, L = 3.50 m**	
030160	8.640	**Tie Rod DW 15, L = 6.00 m**	

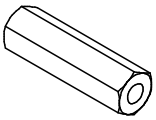


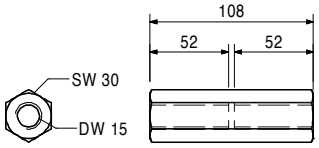
030130	0.318	**Cam nut DW 15, galv.** For anchoring with Tie Rod DW 15 and B 15.	**Technical data** Permissible load 90 kN.





030090	0.402	**Hex. Nut DW 15 SW 30/108, galv.** For coupling Tie Rod DW 15 and B 15.	**Technical data** Permissible load 90 kN.

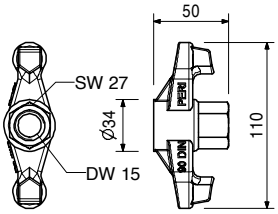




Article no.	Weight kg
030100	0.439

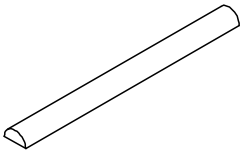
Wingnut DW 15, galv.
For anchoring with Tie Rod DW 15 and B 15.

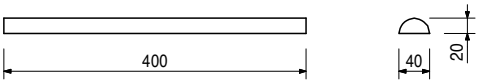
Technical data
Permissible load 90 kN.



022025	1.970

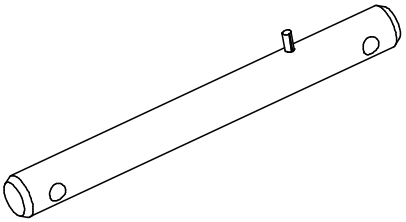
Centring Bar HD 40 x 20 x 400
For centring cross girders on the Main Beam HDT.

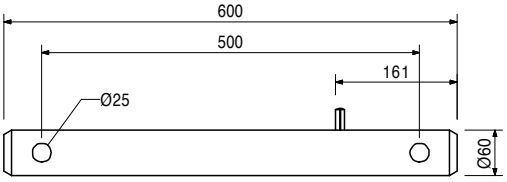




022011	13.200

Double Tie Yoke HDD
For anchoring with Tie Rods DW 15 and DW 20.

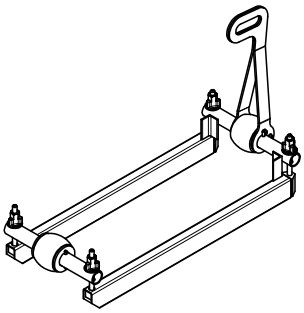


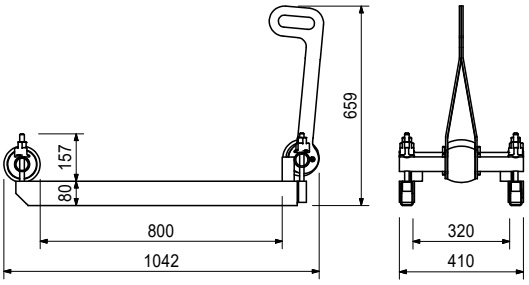


022021	31.900

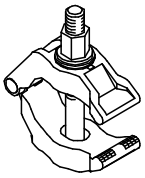
Trolley HD
For moving longitudinal beams on the Main Beam HDT.

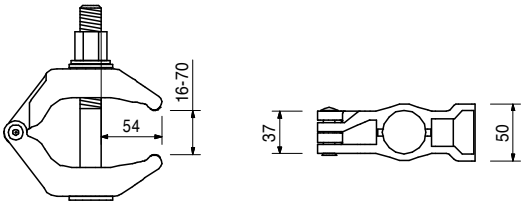
Technical data
Permissible load-bearing capacity 2.5 t.



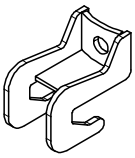


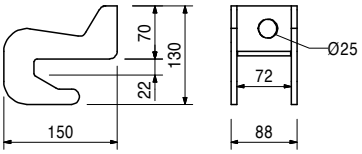
Article no.	Weight kg		
106183	2.200	**Girder Clamp HD 70 mm, galv.** For connecting beams running crosswise.	**Note** Observe the permissions! Plan for 2 pieces per Head Spindle!



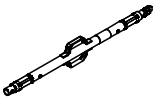


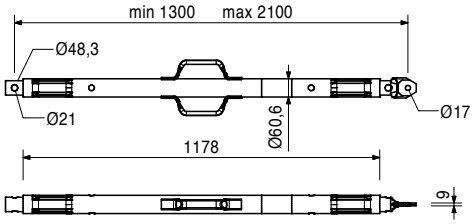
022026	1.780	**Flange Clamp IPB 300 – 1000** To create an anti-tilt device.	



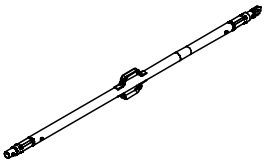


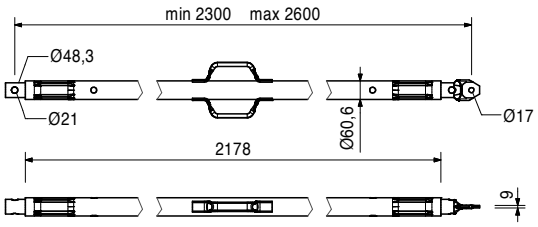
117466	10.600	**Push-pull prop RS 210, galv.** Extension length L = 1.30 – 2.10 m. For aligning PERI formwork systems and precast concrete elements.	**Note** For permissible load see PERI tables.



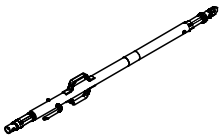


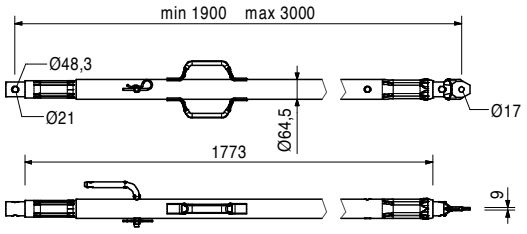
118238	12.100	**Push-pull prop RS 260, galv.** Extension length L = 2.30 – 2.60 m. For aligning PERI formwork systems and precast concrete elements.	**Note** For permissible load see PERI tables.



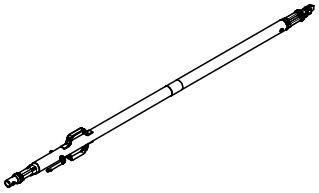


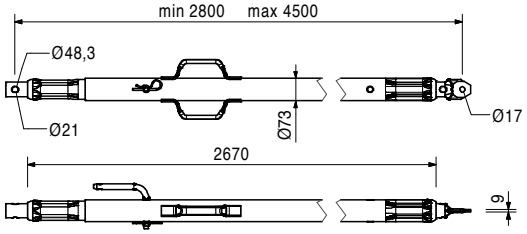
Article no.	Weight kg		
117467	15.500	**Push-pull prop RS 300, galv.** Extension length L = 1.90 – 3.00 m. For aligning PERI formwork systems and precast concrete elements.	**Note** For permissible load see PERI tables.



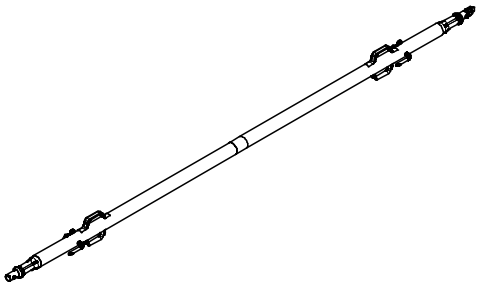


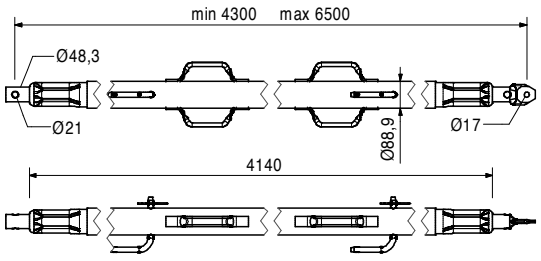
117468	23.000	**Push-pull prop RS 450, galv.** Extension length L = 2.80 – 4.50 m. For aligning PERI formwork systems and precast concrete elements.	**Note** For permissible load see PERI tables.



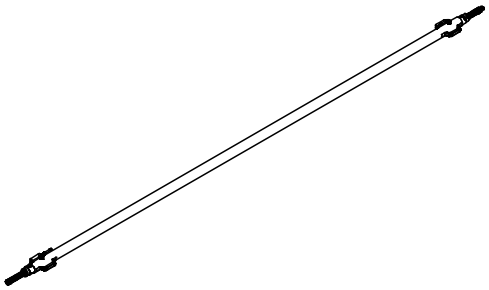


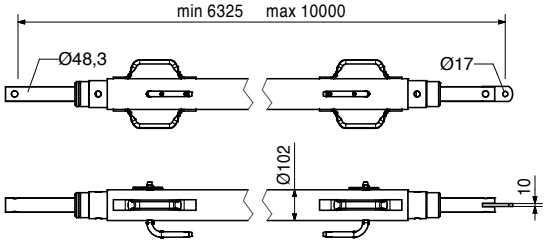
117469	39.900	**Push-pull prop RS 650, galv.** Extension length L = 4.30 – 6.50 m. For aligning PERI formwork systems and precast concrete elements.	**Note** For permissible load see PERI tables.



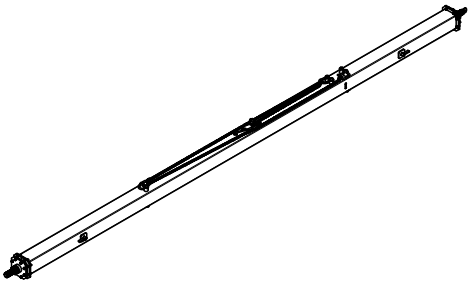


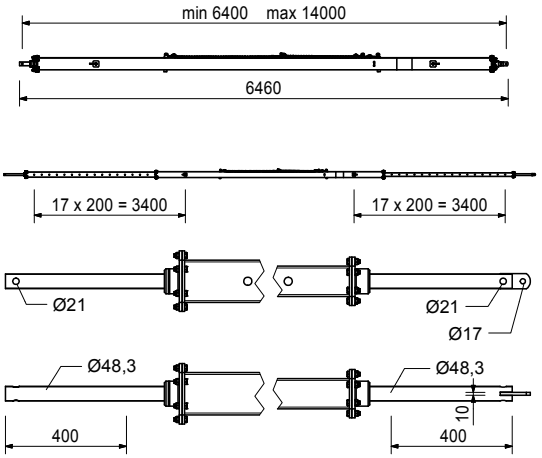
028990	115.000	**Push-pull prop RS 1000, galv.** Extension length L = 6.40 – 10.00 m. For aligning PERI formwork systems.	**Note** For permissible load see PERI tables.



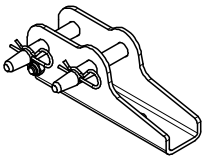


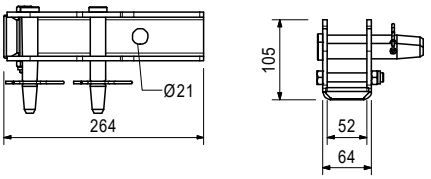
Article no.	Weight kg		
103800	271.000	**Push-pull prop RS 1400, galv.** Extension length L = 6.40 – 14.00 m. For aligning PERI formwork systems.	**Note** For permissible load see PERI tables. Chain attached/detached from the ground.





126666	3.070	**Base Plate-3 for RS 210 – 1400** For assembling the RS 210, RS 260, RS 300, RS 450, RS 650, RS 1000 and RS 1400 push-pull props.	**Kit with** 2 pcs 105400 bolt Ø 20 x 140, galv. 2 pc. 018060 cotter pin 4/1, galv. 1 pc. 113063 bolt ISO 4014 M12 x 80-8.8, galv. 1 pc. 113064 hex nut ISO 7040-M12-8-G, galv.

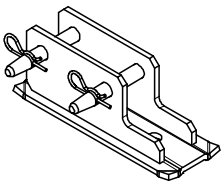


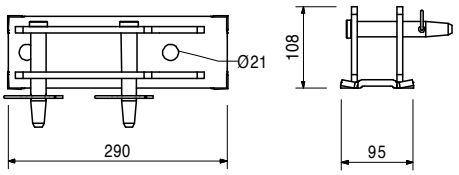


Accessories

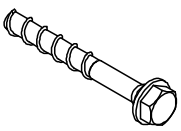
124777	0.210	**Tie Bolt PERI 14/20 x 130**

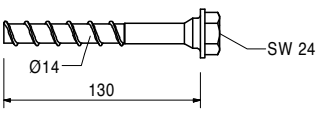
102018	4.880	**Base Plate-2 for RS 1000/1400, galv.** For fitting the Push-Pull Props RS 210, 260, 300, 450, 650, 1000, 1400 and heavy-duty spindles.	**Kit with** 2 pcs 105400 bolt Ø 20 x 140, galv. 2 pc. 018060 cotter pin 4/1, galv.





124777	0.210	**Tie Bolt PERI 14/20 x 130** For temporary attachment to reinforced concrete components.	**Note** Take the PERI Data Sheet into consideration! Hole Ø 14 mm.





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