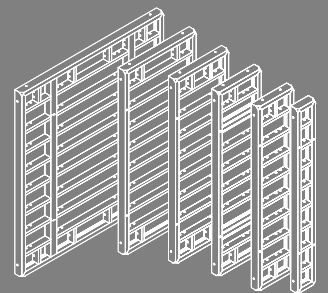


TRIO Panel Formwork

Instructions for Assembly and Use – Standard Configuration



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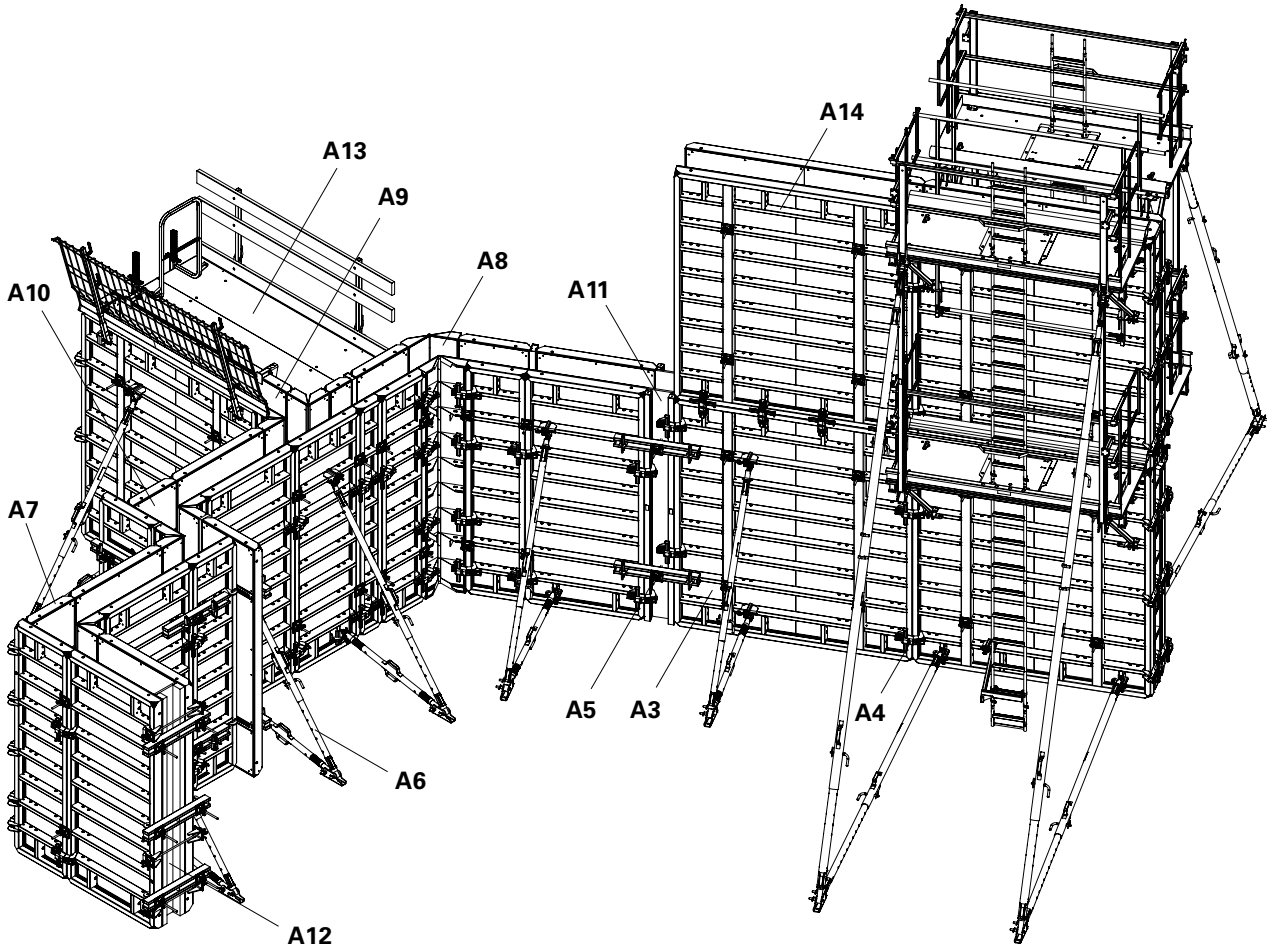
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Main components



- A3 Panels
- A4 Panel connections
- A5 Tie Technology
- A6 Push-Pull Props, Kickers
- A7 90° Corners
- A8 Oblique angles
- A9 T-Junctions
- A10 Offsets
- A11 Length compensations
- A12 Stopend formwork
- A13 Working and concreting platforms
- A14 Extensions

Without illustrations:


- A15 Parapets, Foundations, Beams
- A16 Circular structures
- A17 Shaft formwork
- B1 TRIO 330
- B2 TRIO Alu
- B3 TRIO Structure


Key

Pictogram | Definition


 Safety instructions

 Note

 Load-bearing point

 Visual check


 Tip


 Safety helmet

 Safety shoes

 Safety gloves

 Safety glasses

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

 Misapplication

Dimension specifications

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

Conventions

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

Arrows

- ➔ Arrow representing an action
- ⇒ Arrow representing a reaction of an action*
- Forces

* If not identical to the action arrow.

Presentational reference

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 correspondingly valid for all component sizes contained in the standard configuration.

For a better understanding, detailed illustrations are partly incomplete. The safety installations which have possibly not been featured in these detailed drawings must nevertheless still be available.

Target groups

Contractors

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

- assemble, modify and dismantle the formwork systems, or
- use them, e.g. for concreting, or
- allow them to be used for other work operations, e.g. carpentry or electrical work.

Competent person

(Construction Site Coordinator)

The Safety and Health Coordinator*

- 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 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 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 correctly carry out inspections. Depending on the complexity of the inspection to be undertaken, e.g. scope of testing, type of testing or the use of a certain measuring device, a range of specialist knowledge is necessary.

Qualified persons

Formwork systems may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. For the work to be carried out, the qualified persons must have received instructions** which contain at least the following points:

- Explanation of the plan for the assembly, modification or dismantling of the formwork in an understandable form and language.
- Description of the measures for assembling, modifying or dismantling the formwork.

- Designation of the preventive measures to avoid the risk of persons and objects falling.
- Designation of the safety precautions in the event of changing weather conditions which could adversely affect the safety of the formwork system as well as the persons concerned.
- Details regarding the permissible loads.
- Description of any other risks that are associated with the assembly, modification or dismantling procedures.



- **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 rules and regulations.**
- **A competent person must be present on site during formwork operations.**

* Valid in Germany: Regulations for Occupational Health and Safety on Construction Sites 30 (RAB 30).

** Instructions are given by the contractor himself or a competent person selected by him.

Additional technical documentation

- Poster: TRIO
- Instructions for Use:
 - Lifting Hook MAXIMO 1.5 t
 - Lifting Gear Combi MX
 - Lifting Gear MX
 - Pallets and Stacking Devices
 - Concrete Cones
 - PERI Bio Clean
- Data Sheet: Anchor Bolt PERI 14/20 x 130
- PERI Design Tables – Formwork and Shoring
- Brochure: TRIO

Intended use

Product description

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

PERI TRIO is a panel formwork used for forming walls and columns with different dimensions.

The panels can be used both vertically and horizontally.

TRIO only requires a few panel widths. Only one part is required for all panel connections, the Alignment Coupler BFD. This allows compensations up to 10 cm and height extensions up to 5.40 m without any additional bracing.

System components such as the Shaft Panel or the Stopend Panel for continuous reinforcement and the installation of water bars make forming operations very easy.

Accessories such as concreting platforms and a complete platform system provide safe working conditions. Components made of steel are coloured red – aluminium components are yellow powder-coated.

System dimensions

Panels are available in the following heights:

- 3.30 m (steel)
- 2.70 m (steel and aluminium)
- 1.20 m (steel)
- 0.90 m (aluminium)
- 0.60 m (steel)

The panel size increments are 30 cm.

Application

The standard configuration includes formwork for vertical walls up to 8.10 m high and wall thicknesses from 18 to 40 cm including Push-Pull Props and safety equipment.

As anchor systems, DW 15 or DW 20 are used.

| Technical data | Fresh concrete pressure according to DIN 18218 | Evenness according to DIN 18202 |
|-----------------------|--|---------------------------------|
| TRIO 270 Steel | | |
| Hydrostatic pressure | 67.5 kN/m ² | line 7 |
| Constant pressure | 56.0 kN/m ² | line 7 |
| Constant pressure | 81.0 kN/m ² | line 6 |
| TRIO 270 Alu | | |
| Hydrostatic pressure | 67.5 kN/m ² | line 7 |
| TRIO 330 | | |
| Hydrostatic pressure | 82.5 kN/m ² | line 7 |
| Constant pressure | 75.0 kN/m ² | line 7 |
| Constant pressure | 83.0 kN/m ² | line 6 |

Instructions on use

The 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 parts may be used. The use of other products and spare parts is not allowed.

Changes to PERI components are not permitted.

Care and maintenance instructions

In order to maintain the value and operational readiness of the formwork materials over the long term, clean the panels after each use.

Some repair work may also be inevitable due to the tough working conditions.

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

Spray the formwork on both sides with concrete release agent before each use; this allows easier and faster cleaning of the formwork. Spray the concrete release agent very thinly and evenly!

Spray the rear side of the formwork with water immediately after concreting; this avoids any time-consuming and costly cleaning operations.

When used continuously, spray the panel formlining with concrete release agent immediately after striking; then clean by means of a scraper, brush or rubber lip scraper. Important: do not clean formlining made of plywood with high-pressure equipment; this could result in the formlining being damaged.

Fix box-outs and mounting parts with double-headed nails; as a result, the nails can easily be removed later, and damage to the formlining is largely avoided.

Close all unused anchor holes with plugs; this eliminates any subsequent cleaning or repair work. Anchor holes accidentally blocked with concrete are freed by means of a steel pin from the formlining side.

When placing bundles of reinforcement bars or other heavy objects on horizontally-stored formwork elements, suitable support, e.g. square timbers, is to be used; as a result, impressions and damage to the formlining are largely avoided.

Internal concrete vibrators should be fitted with rubber caps if possible; as a result, any damage to the formlining is reduced if the vibrator is accidentally "inserted" between the reinforcement and formlining.

Never clean powder-coated components, e.g. panels and accessories, with a steel brush or hard metal scraper; this ensures that the powder-coating remains intact.

Use spacers for reinforcement with large-sized supports or extensive areas of support; this largely avoids impressions being formed in the formlining when under load.

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

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

Do not clean components suspended on a crane.

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. These Instructions for Assembly and Use do not replace the risk assessment!

Always take into consideration 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:

- signs of damage,
- stability and
- functionality.

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 conform with the characteristics required in these Instructions for Assembly and Use as well as all valid construction guidelines and standards. Unless otherwise indicated, this applies in particular to:

- Timber components: Strength Class C24 for Solid Wood according to EN 338.
- Scaffold tubes: galvanised steel tubes with minimum dimensions of $\varnothing 48.3 \times 3.2$ 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.

On the basis of this risk assessment, appropriate measures for working and operational safety as well as stability are to be determined.

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 regarding the safety of the formwork system, the contractor must immediately

- create another risk assessment, with appropriate measures for ensuring the stability of the formwork system being carried out based on the results,
- arrange for an extraordinary inspection to be carried out by competent person qualified to do so. The aim of this inspection is to identify and rectify any damage in good time in order to guarantee the safe use of the formwork system.

Exceptional occurrences can include:

- accidents,
- longer periods of non-use,
- natural events, e.g. heavy rainfall, icing, heavy snowfall, storms or earthquakes.

Assembly, modification and dismantling work

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

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

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

- safety helmet,
 - safety shoes,
 - safety gloves,
 - safety glasses,
- is available and used as intended.

If personal protective equipment against falling (PPE) is required or specified in local regulations, the contractor must determine appropriate attachment points on the basis of the risk assessment.

The personal protective equipment 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 the stability during all stages of construction, in particular during assembly, modification and dismantling operations.
- ensure and prove that all loads can be safely transferred.

Utilisation

Every contractor who uses or allows formwork systems or sections of the formwork to be used, has the responsibility for ensuring that the equipment is in good condition.

If the formwork 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

Do not exceed the permissible fresh concrete pressure.

Retract 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.

During striking, do not tear off the formwork panels with the crane.

If a storm warning is given, additional Push-Pull Props are to be attached or other bracing measures are to be carried out along with implementing the details contained in the PERI design tables.

Storage and transportation

When storing and transporting components ensure 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 as well as only those load-bearing points provided on the component.

During the moving procedure

- ensure that components are picked up and set down so that unintentional falling over, falling apart, sliding, falling down or rolling is avoided.
- no persons are allowed to remain under the suspended load.

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

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

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

Storage

PERI provides stacking devices for safe storage of the panels.

The corners of the panels are placed in four stacking devices.

Stacking Device MAXIMO



- Only panels of the same size are to be transported in one stack!
- Use Lifting Gear Combi MX or 4-sling lifting gear.
- On each stacking device, attach a hook (11a) to one load-bearing point (1a).
→ Four load-bearing points (Fig. A1.03)



Stacking devices (1)

- are suitable for lifting by crane or forklift.
- can also be moved with the PERI Pallet Lifting Trolley.
- can be lifted using the longitudinal as well as front sides.
(Fig. A1.01)

| Pos. Aids | Item no. |
|--------------------------|----------|
| 1 Stacking Device MAXIMO | 115058 |
| 11 Lifting Gear Combi MX | 117321 |

Perm. load-bearing capacity

650 kg/device = 2.6 t/stack

Number of panels per stack

2 – 5 TRIO Panels of one size

Crane sling angle $\beta \leq 45^\circ$

4-sling lifting gear L = 3.0 m (Fig. A1.02)

Max. stacking height

3 stacking devices on top of each other

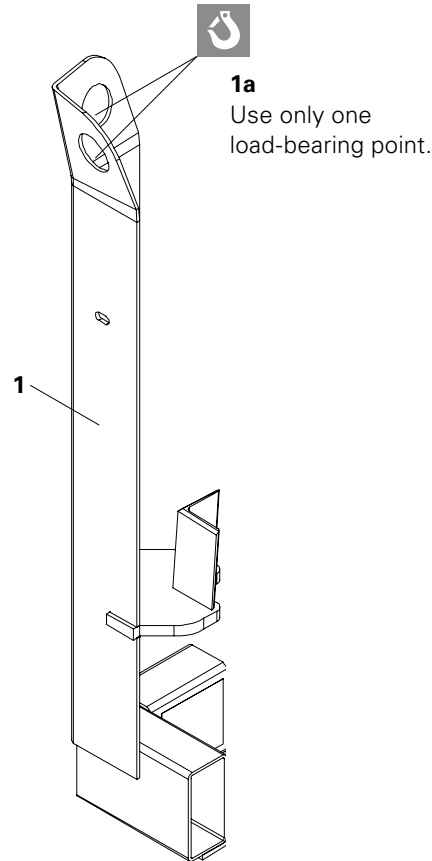


Fig. A1.01

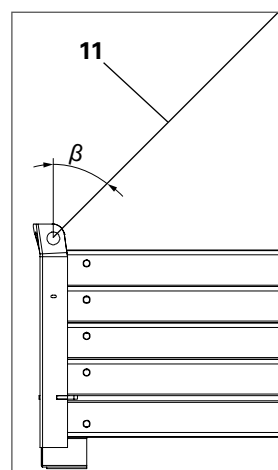


Fig. A1.02

Transport

PERI provides lifting accessories e.g. Lifting Gear Combi MX (11), for ensuring safe transportation.



Risk of slipping!

The panels should not be treated with concrete release agent immediately before transport.



- During moving operations, no persons are allowed to remain under the suspended load.
- Ensure transport units are correctly stacked and secured.
- Use PERI lifting accessories and slings.
- Use the designated load-bearing points on the components.
- Store, transport and move components ensuring 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.

Unloading the stacking devices

Unload the stacks using the crane with the help of Lifting Gear Combi (11) or 4-sling lifting gear. (Fig. A1.03)

1. Attach load hook (11a) to the load-bearing point (1a) of the stacking device – 4x. (Fig. A1.01 + A1.03)
2. Lift the stack with the crane and place on the ground.

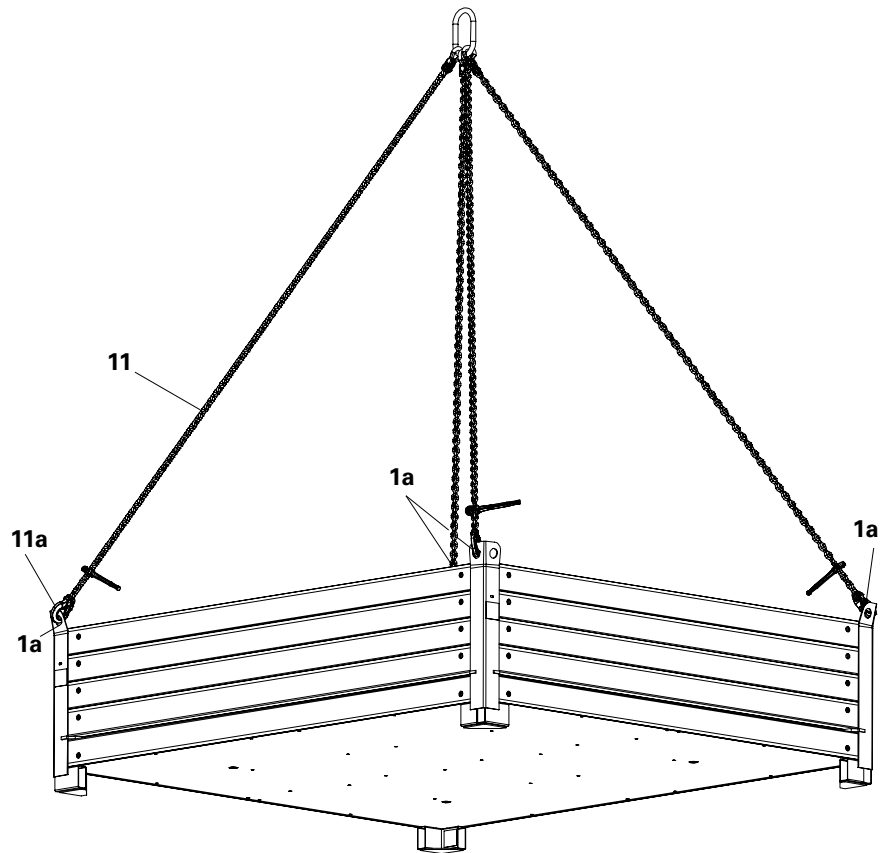


Fig. A1.03

Setting down panels individually



Remove panels (10) individually or max. 4 panels as a stack from the stacking devices. (Fig. A1.04)

| Pos. | Lifting accessory | Item no. |
|------|-----------------------|-------------------|
| 10 | Panel TR/4 | according to size |
| 11 | Lifting Gear Combi MX | 117321 |
| 12 | Lifting Gear MX | 117322 |

1. Insert locking pins (12.1) of the lifting gear (12) into the drilled holes of the top panel as far as possible – 4x. (Fig. A1.04 + A1.04a + A1.04b)
2. Attach Lifting Gear MX to the crane.
3. Lift panel out of the stacking device. (Fig. A1.05)
4. Place timbers on the ground.
5. Position the panel on timbers.
6. Remove locking pins – 4x.

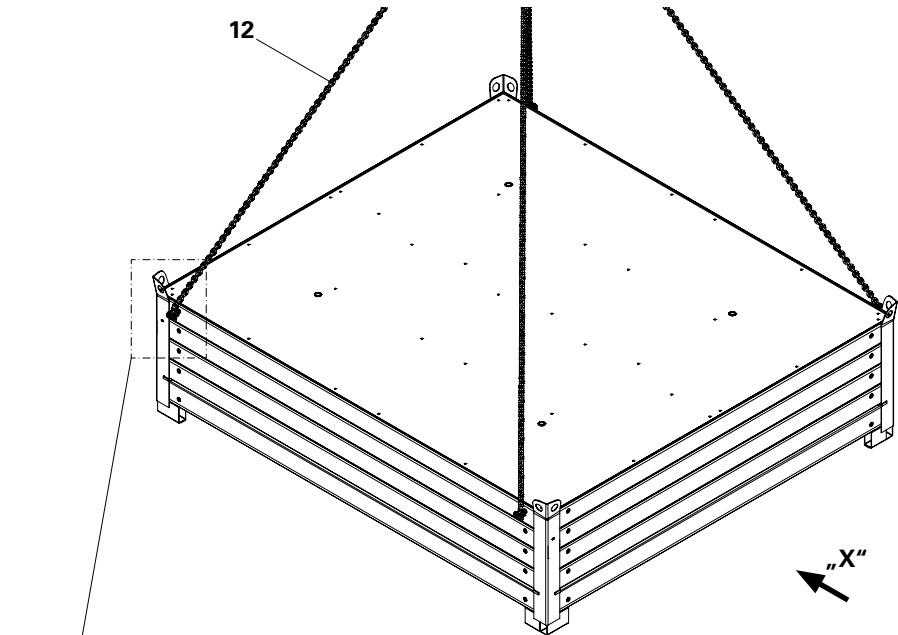


Fig. A1.04

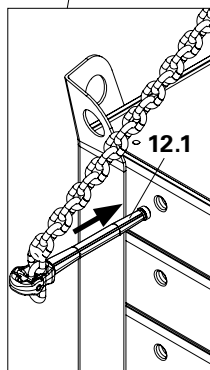


Fig. A1.04a

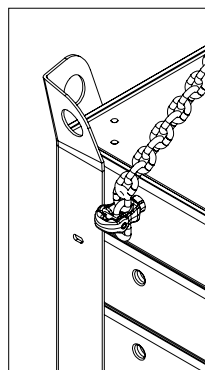


Fig. A1.04b



As an alternative to the locking pins of the lifting gear (12), the locking pins of the Lifting Gear Combi (11) can also be inserted into the drilled holes of the panels.

View "X"

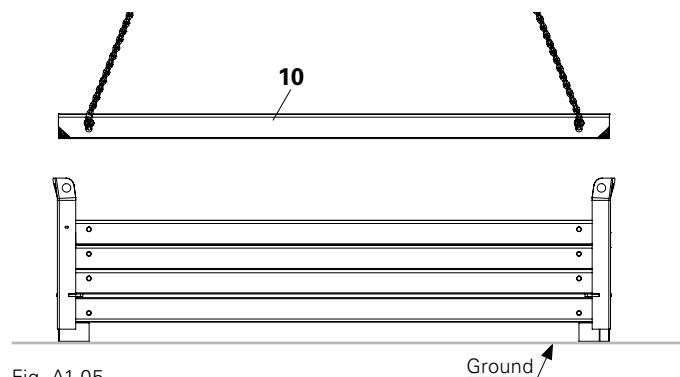


Fig. A1.05

Turning panels individually

| Pos. | Lifting accessory | Item no. |
|------|---------------------------|-------------------|
| 10 | Panel TR/4 | according to size |
| 11 | Lifting Gear Combi MX | 117321 |
| 12 | Lifting Gear MX | 117322 |
| 13 | Lifting Hook MAXIMO 1.5 t | 115168 |

1. Attach lifting hook (13) to the panel – 2x. (Fig. A1.06)
2. Turn panel, i.e. pull upwards while suspended on the crane using the lifting hook until the panel is in a vertical position, and then slowly lower onto the timbers with the formlining facing downwards. (Fig. A1.06 + A1.07 + A1.08)
Ensure that the chain is always tensioned!



The bottom panel is already placed in position with the formlining facing downward and does not have to be turned.

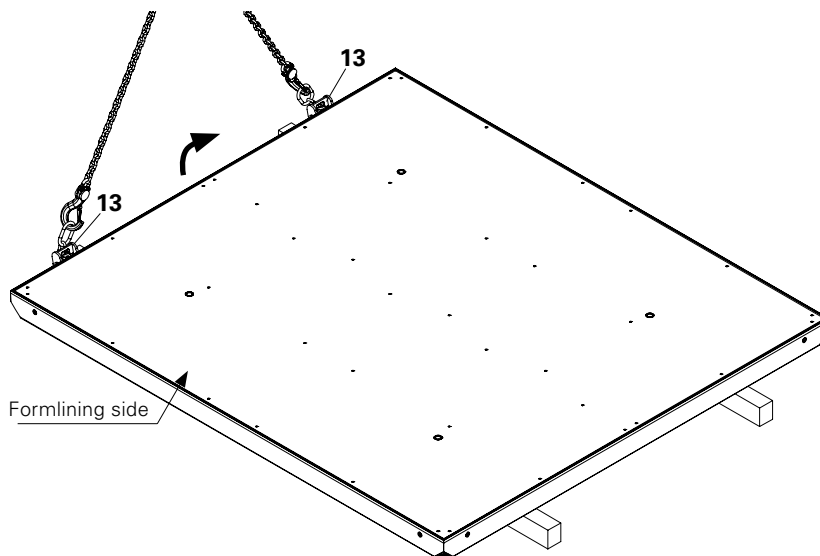


Fig. A1.06

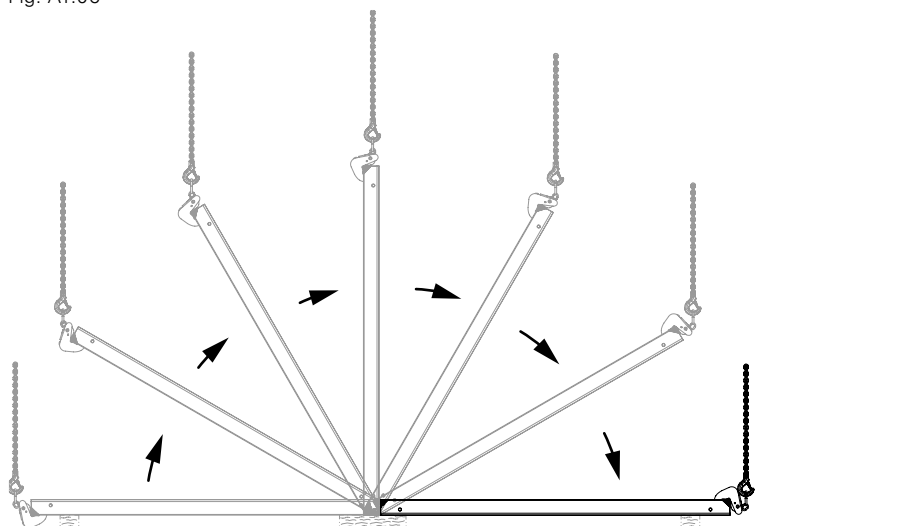


Fig. A1.07

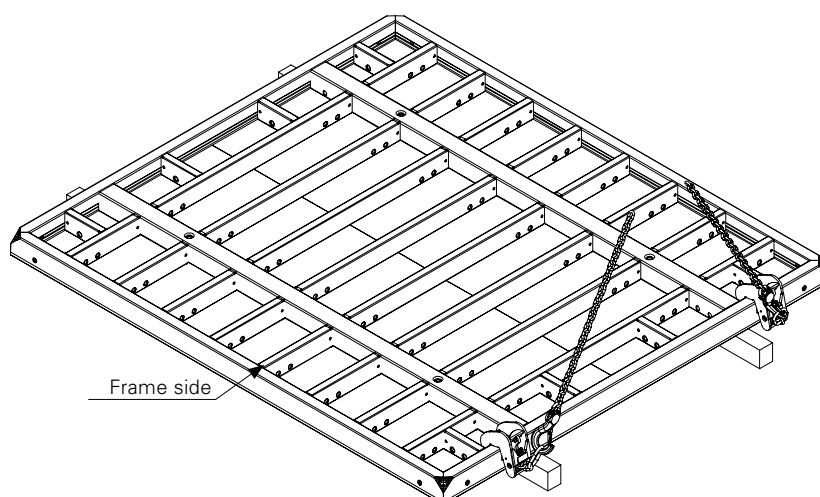


Fig. A1.08

Transportation on the construction site

As stacks and without stacking device



- Transport a max. of 5 panels placed on top of each other as one stack or lift out of stacking device.
- The tie rod must be approx. 15 cm longer than the height of the stack.

| Pos. | Components | Quantity |
|------|-----------------|----------|
| 12 | Lifting Gear MX | 1x |
| 30 | Tie Rod DW 15 | 2x |
| 44 | Wingnut DW 15 | 2x |

(Fig. A1.09)

1. Hold both tie rods (30) against the stack of panels in order to compare the height of the stack with the length of the tie rod.
2. Screw a Wingnut (44) onto each protruding end of the tie rod. Leave approx. 5 cm between the stack and wingnut. (Fig. A1.09a)
3. Insert the long end of the tie rod into one external tie hole of the panel until resting against the wingnut. (Fig. A1.09a)
 - At the bottom, tie rod protrudes approx. 5 cm.
4. Insert second tie rod (30) into the external tie hole which is positioned diagonally to the first tie rod. (Fig. A1.09)
 - Middle holes remain open.
5. Insert locking pins of the lifting gear by hand as far as possible into the holes on the side of the bottom panel – 4x.
6. Lift up stack with the crane.
 - The tie rods prevent the panels from moving.

(Fig. A1.09)



Alternatively, steel straps can also be used to secure the stack (not shown here).

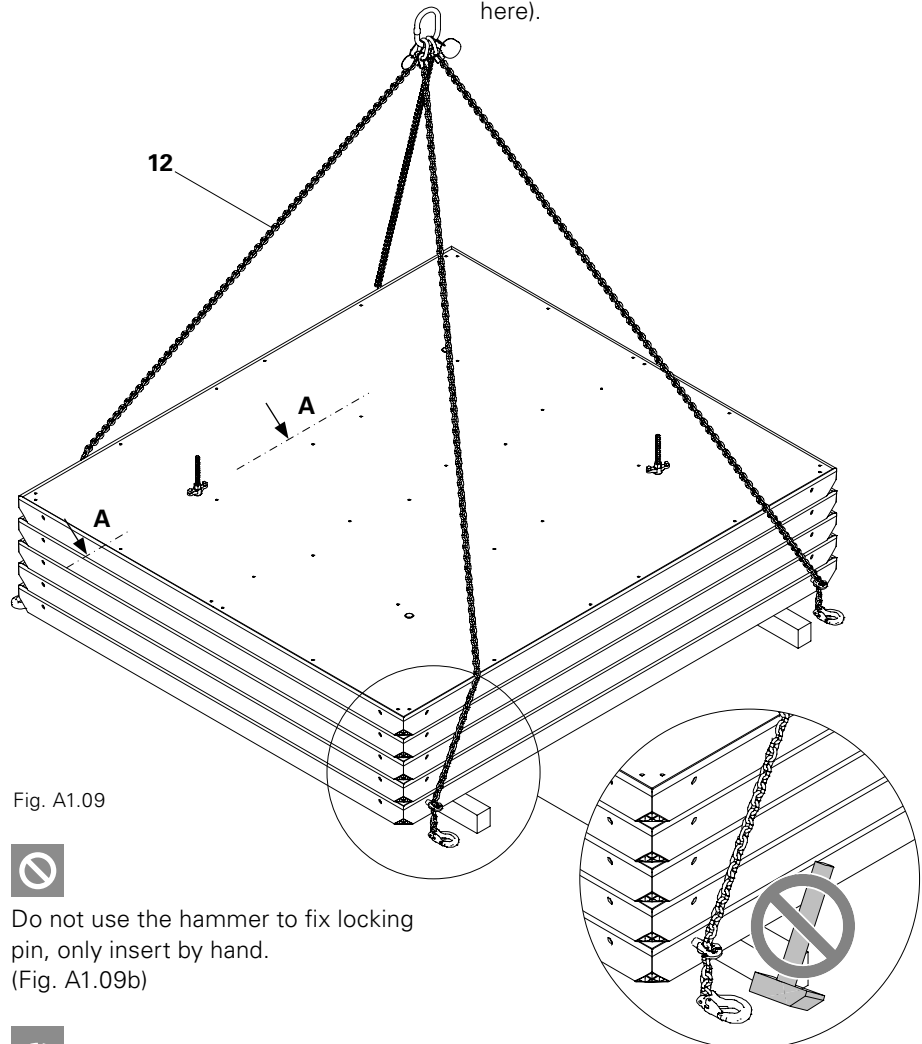


Fig. A1.09



Do not use the hammer to fix locking pin, only insert by hand. (Fig. A1.09b)



Have all four locking pins been completely inserted into the holes?



If necessary, clean tie holes and holes on the side for the locking pins.

Fig. A1.09b

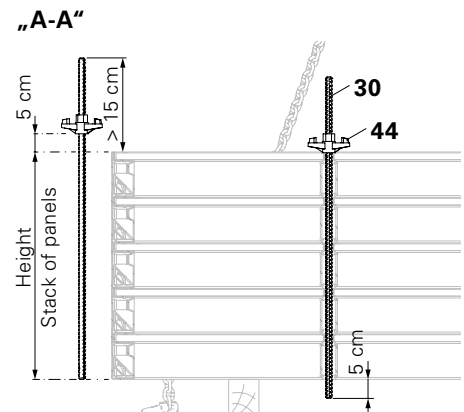


Fig. A1.09a

Putting loads into the stacking device



- Ensure transport units are correctly stacked and secured.
- Follow Instructions for Use for pallets and stacking devices.
- For reasons of safety, the panels should never be treated with a concrete release agent immediately before transport.



Stacking devices (1)

- are suitable for lifting by crane or forklift,
- can also be moved with the PERI Pallet Lifting Trolley,
- can be lifted both from the longitudinal and front sides.

1. Place the first panel with the formlining facing downwards on the rectangular tubes (1.2). (Fig. A1.10)
2. Place the second panel with the formlining facing upwards in the stacking device. (Fig. A1.11)
 - The vertical support plate (1.1) positions the panel and now allows safe transportation of the panels.
3. Place other panels with the formlining facing upwards until the maximum number of panels has been reached.

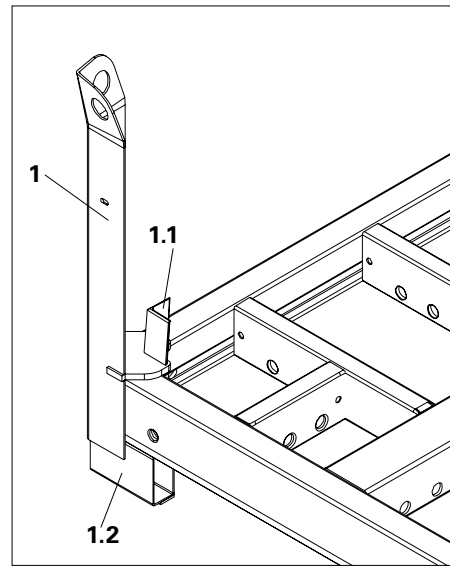


Fig. A1.10

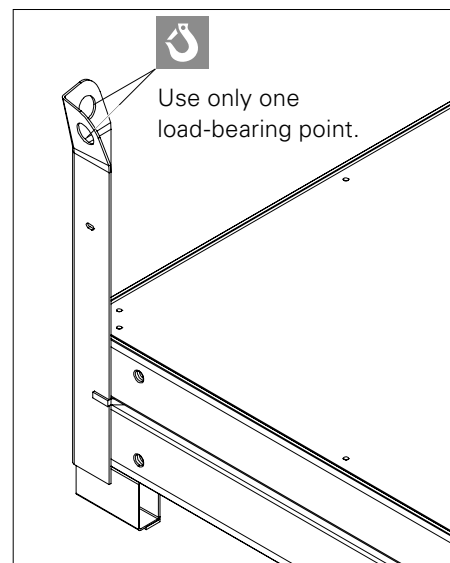


Fig. A1.11

Stacking Aid TRIO Corner



Risk of slipping!
Stacking aids are to be used only in conjunction with transportation straps.

| Pos. | Component | Item no. |
|------|-----------------------------|----------|
| 2 | Stacking Aid TRIO Corner | 124554 |
| 3 | Stacking Aid TRIO Corner LI | 128313 |
| 4 | Stacking Aid TRIO Corner RE | 128494 |

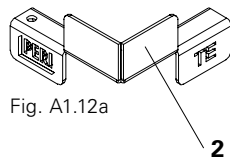


Fig. A1.12a

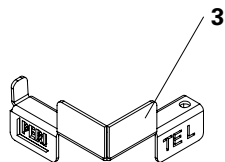


Fig. A1.12b

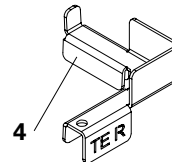


Fig. A1.12c

(Fig. A1.12a + A1.12b + A1.12c)

Installation



Take into account there are right and left versions. (Fig. A1.13)

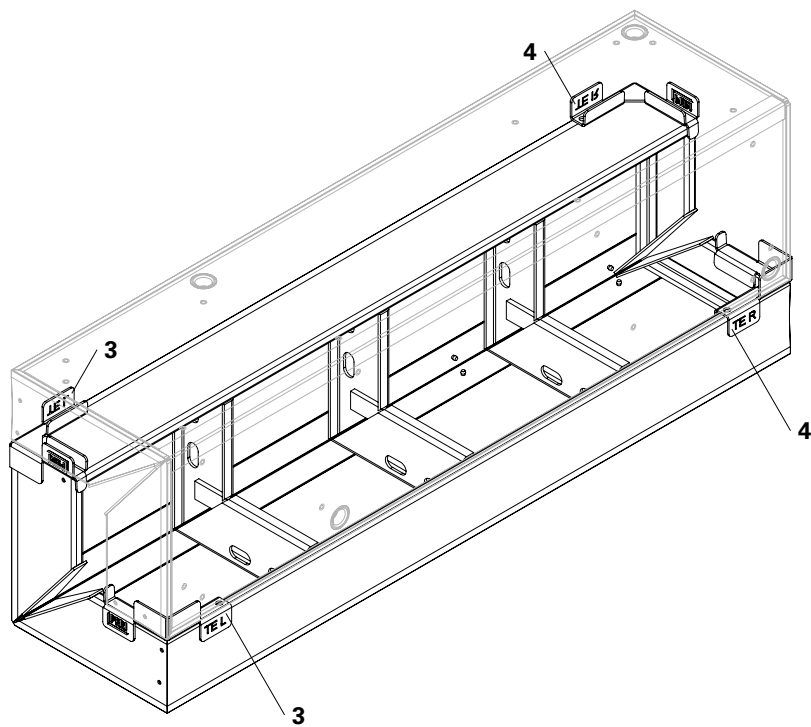


Fig. A1.13

Transport position

(Fig. A1.14)

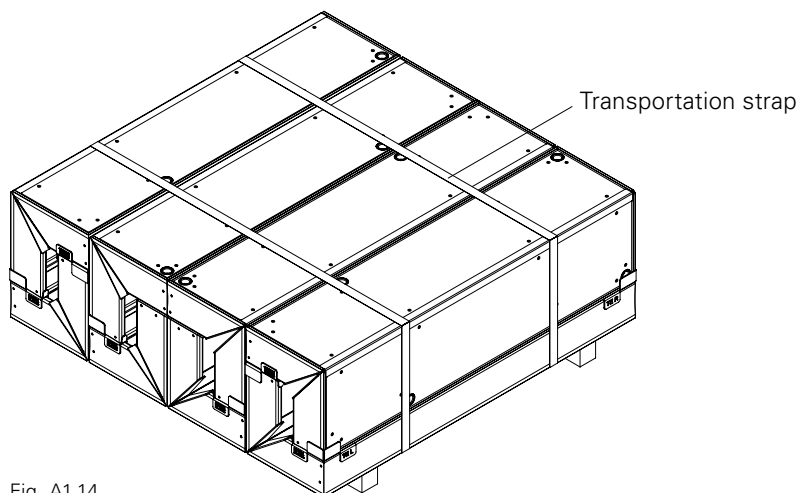


Fig. A1.14

Assembling the primary formwork



- **Secure panels against tipping over and wind forces!**
- **Secure Push-Pull Props first, and then release crane lifting gear!**
- **Follow Instructions for Use for Lifting Hook MAXIMO 1.5 t!**

1. Mount Brace Connector TRIO on the horizontal panel, see Section A6.
2. Mount Push-Pull Prop, see Section A6.
 - on the first panel: 2 Push-Pull Props.
 - second panel onwards: 1 Push-Pull Prop. (Fig. A2.01)
3. Mount Lifting Hook MAXIMO 1.5 t.
4. Attach the 2-sling lifting gear.
5. Transport panel to place of operation by crane. (Fig. A2.02)
6. Secure Push-Pull Props, see Section A6.
7. Release crane lifting gear.

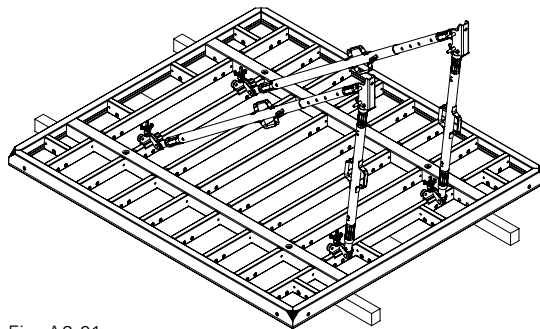


Fig. A2.01

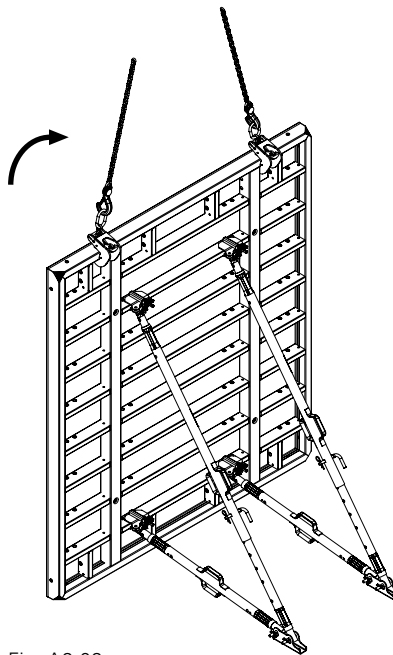


Fig. A2.02

Mounting the closing formwork with working and concreting platform



**Install top anchor first.
Release 2-sling lifting gear when all anchors have been installed.**

1. Mount the working and concreting platform on the horizontally-positioned panel, see Section A13. (Fig. A2.03)
2. Mount Lifting Hook MAXIMO 1.5 t.
3. Attach the 2-sling lifting gear.
4. Erect panel. (Fig. A2.04)
5. Transport panel to place of operation by crane.
6. Mount anchors, see Section A5.
7. Release the 2-sling lifting gear.



Forming from the external or internal corner in the direction of the compensation.

Concreting

From a working scaffold. (Fig. A2.05)

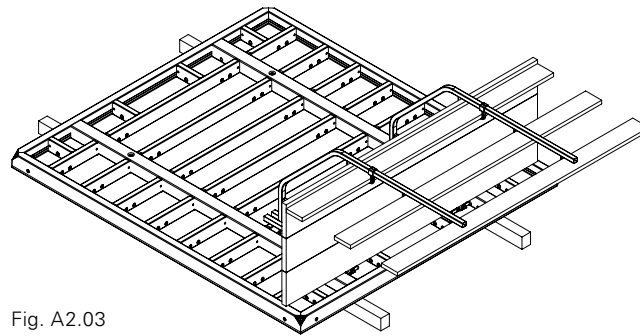


Fig. A2.03

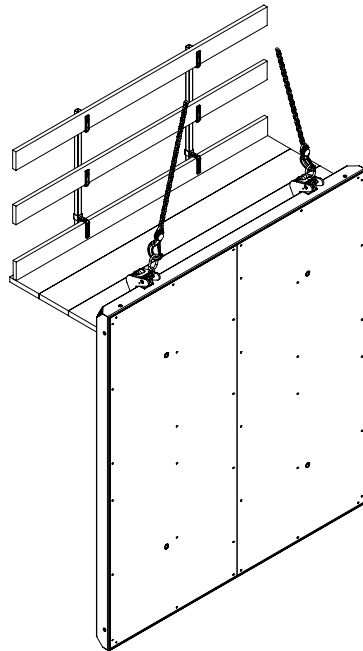


Fig. A2.04

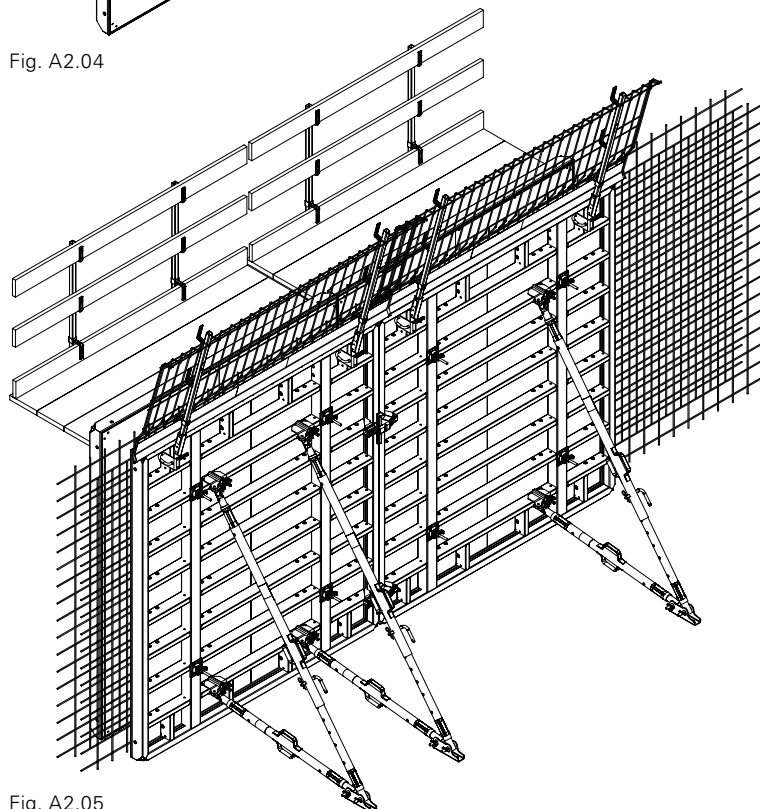


Fig. A2.05

Striking and moving from the compensation to the corners



- Use PPE!
- Before moving, dismantle the working and concreting platform!
- Concrete strength must be taken into account!
- Secure panels against tipping over and wind forces!
- Secure Push-Pull Props first, and then release crane lifting gear!

Releasing the closing formwork

1. Dismantle the working and concreting platform.
2. Mount Lifting Hook MAXIMO 1.5 t on the panel and attach to the crane lifting gear.
3. Dismantle the Tie System DW 15/20.
4. Release panel connection.
5. Release panel from the concrete, e.g. with the stripping bar.g. (Fig. A2.06)
6. Carefully lay the panel down and clean.

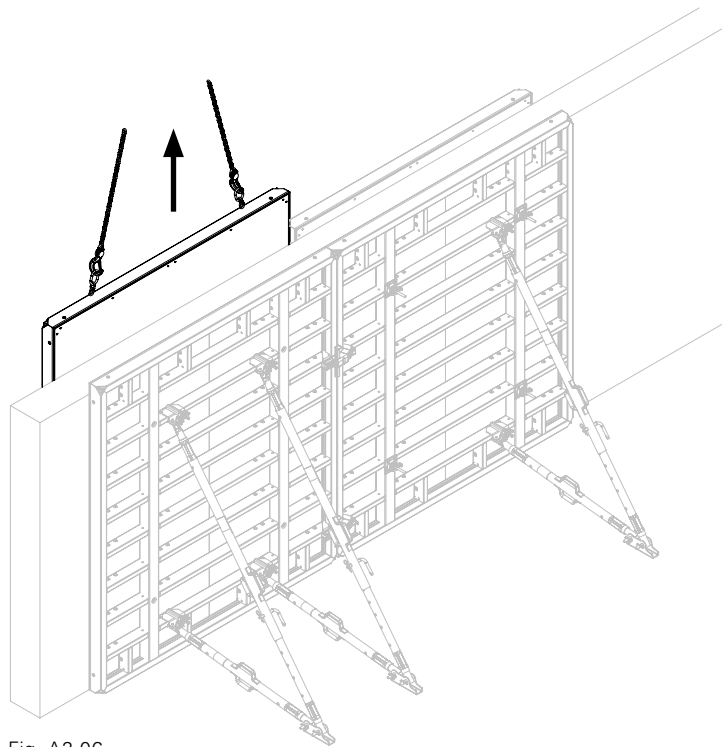


Fig. A2.06



Use PPE!

Moving the primary formwork

1. Dismantle opposing guardrails.
2. Mount lifting hook on the panel and attach to the crane lifting gear.
3. Release panel connection.
4. Remove anchor bolts of the Push-Pull Props.
5. Release panel from the concrete, e.g. with the stripping bar.g. (Fig. A2.07)
6. Carefully lay the panel down and clean.
7. Move panel to place of operation by crane.
8. Connect panel with the Alignment Coupler BFD, see Section A4.
9. Secure Push-Pull Props, see Section A6.
10. Release crane lifting gear.

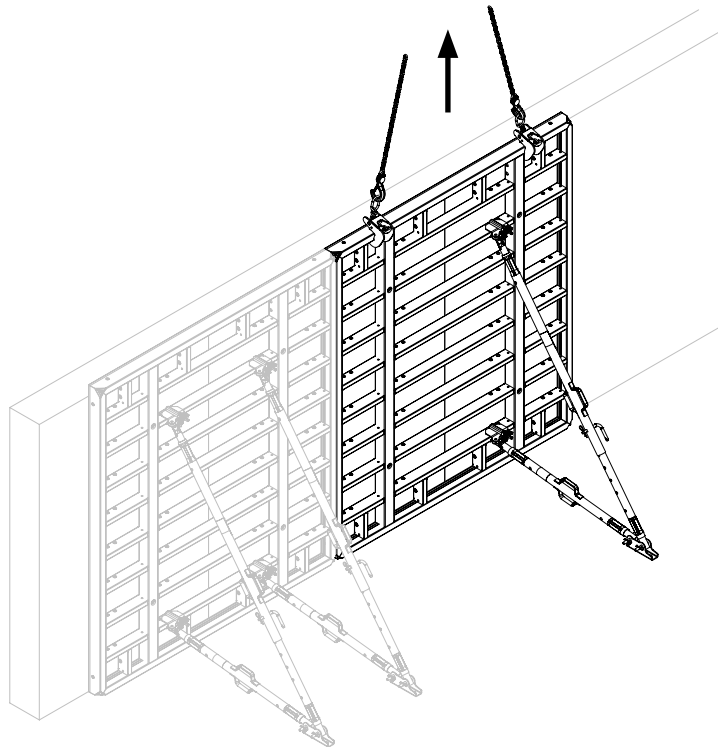


Fig. A2.07

Closing the formwork

1. Move panel of the closing formwork to the place of operations by crane.
2. Connect panels.
3. Install Tie System DW 15/20.
4. Release crane lifting gear.
5. Mount the working and concreting platform. (Fig. A2.08)

Cleaning

- With PERI Bio Clean and PERI spraying equipment.
- Follow Instructions for Use.

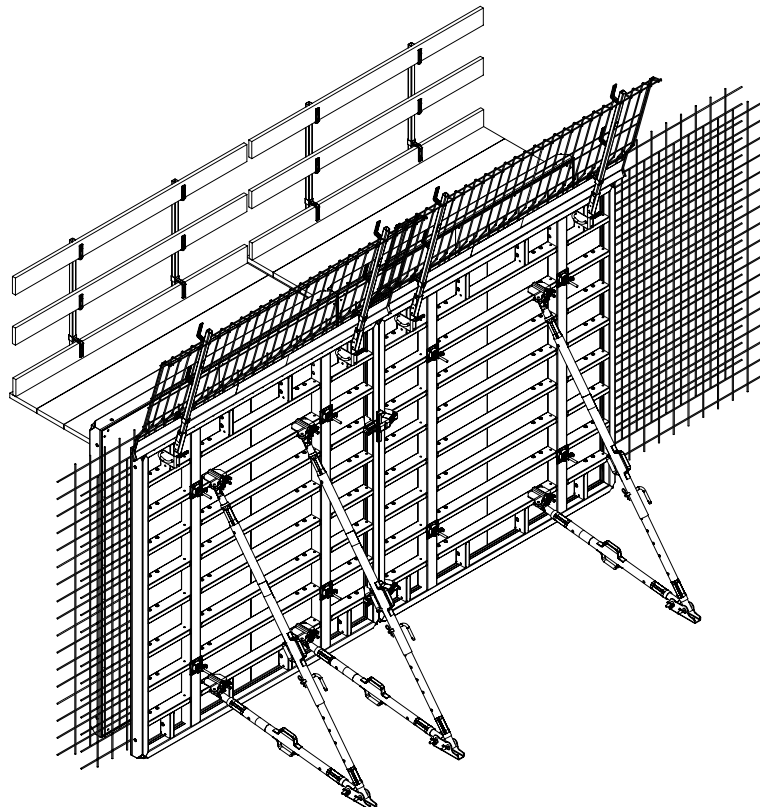


Fig. A2.08

Panel overview

| | | Width [cm] | | | | | | | |
|-------------|-----|------------|--------|-----------|--------------|-----------|-----------|----|-----|
| | | 240 | 120 | 90 | 72 | 60 | 30 | TE | TGE |
| Height [cm] | 330 | S) | S) | S) | S) N) | S) | S) | | |
| | 270 | S) | S) | S) A) | S) A) N) | S) A) | S) A) | | |
| | 120 | S) | S) | S) | S) N) | S) | S) | | |
| | 90 | | A) | | A) M) | A) | A) | | |
| | 60 | | | S) | S) | S) | S) | | |

Key

S) Panels with steel frames (red powder-coated)
A) Panels with aluminium frames (yellow powder-coated)

N) Standard panels or multi-purpose panels
M) Panels only as multi-purpose panels

Panel width 2.40 m

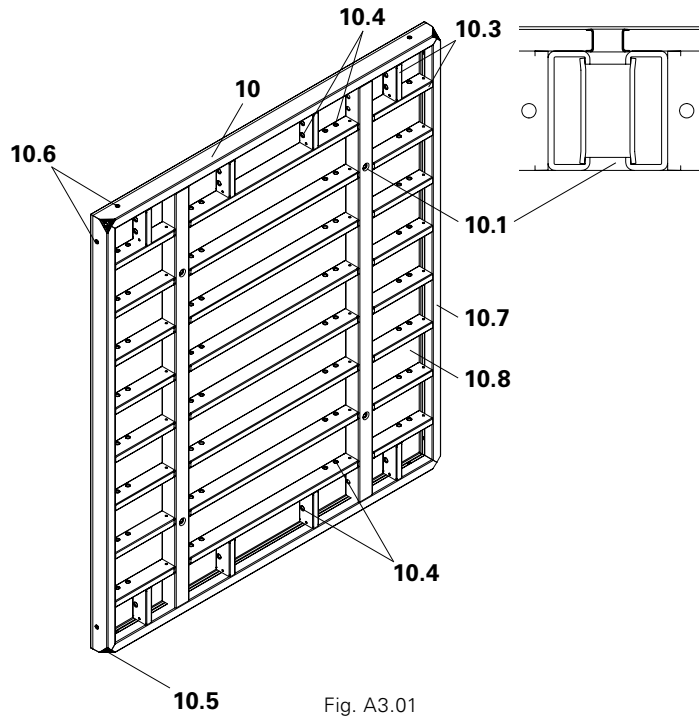


Fig. A3.01

Panel width < 2.40 m

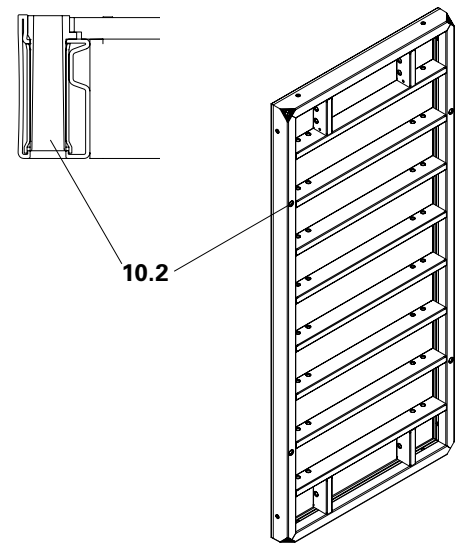


Fig. A3.02

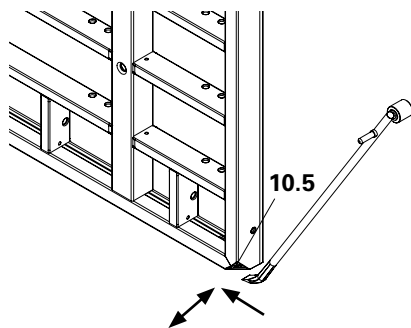


Fig. A3.03a

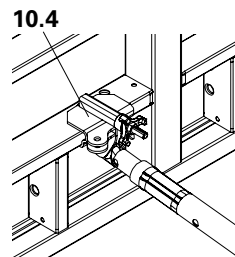


Fig. A3.03b

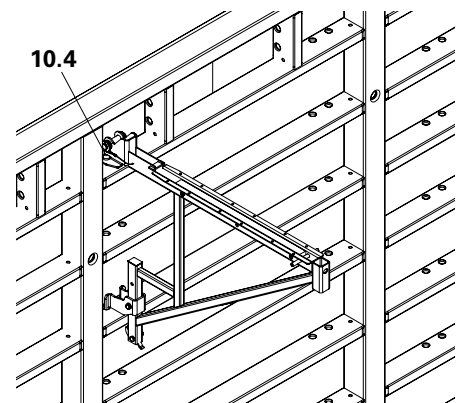


Fig. A3.03c

- 10 Panel (Fig. A3.01 + A3.02)
- 10.1 Offset tie point
- 10.2 Tie point in edge profile
- 10.3 Panel strut
- 10.4 Connecting holes for Scaffold Brackets, Push-Pull-Props and other accessories (Fig. A3.03b + A3.03c)
- 10.5 Levering corner (Fig. A3.03a)
- 10.6 Connecting holes for transportation
- 10.7 Frame
- 10.8 Plywood formlining

Alignment Coupler BFD

By hammering in the wedge, the panel connections are:

1. Flush
2. Aligned
3. Tight (Fig. A4.01)

Areas of use:

- Standard panel joints
- External corners, internal corners, see A7
- Oblique and acute-angled corners, see A8
- Stopend formwork, see A12
- Filler timber, see A11
- Extensions, see A14

Quantity

2 x Alignment Coupler BFD (20) with $h = 2.70 \text{ m}$ on the standard panel joint. (Fig. A4.02)

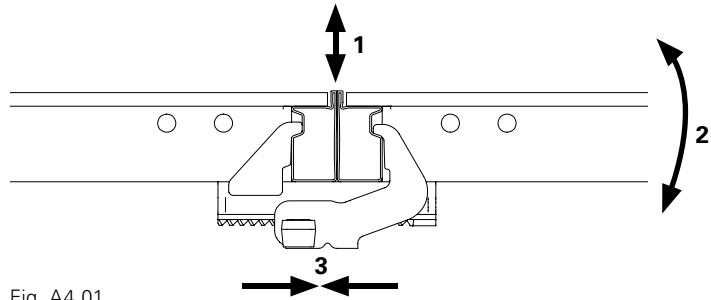


Fig. A4.01

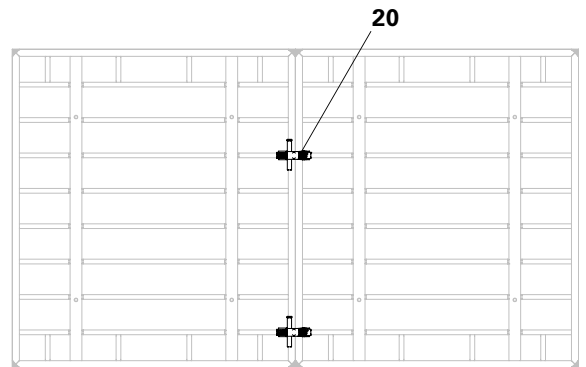
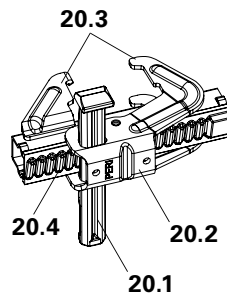


Fig. A4.02



If the Wedge Head (20.5) is up against the sliding part, there is no clamping effect! (Fig. A4.02b)

In this case: release wedge, re-position the sliding part and secure once again with the hammer. (Fig. A4.02a)

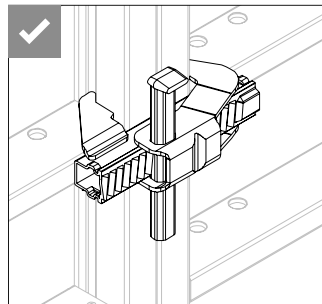


Fig. A4.02a

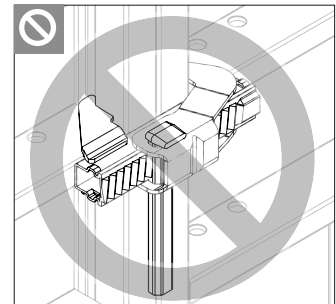


Fig. A4.02b

Assembly

1. Place wedge (20.1) in upper end position. (Fig. A4.03)
 2. Open sliding part (20.2).
 3. Place Alignment Coupler BFD (20) on the panel strut (10.3).
 4. Close sliding part. Continuous adjustment using the keyway (20.4) is possible.
 5. Secure wedge. (Fig. A4.04)
- The Alignment Coupler BFD (20) is now mounted.

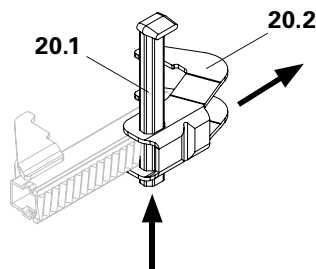


Fig. A4.03

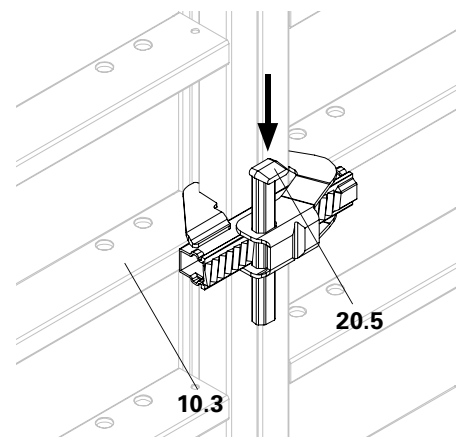


Fig. A4.04

Compensation Waler TAR 85

The Compensation Waler TAR 85 (23) is used as a bracing, aligning and load-transferring panel connection. (Fig. A4.05)

Areas of use:

- Length compensation, see A11
- Corners with large wall thicknesses, see A7
- Acute and oblique-angle corners, see A8
- Wall offsets, see A10
- Extensions, see A14

Assembly

1. Attach hooks of the hook clip (23.1) to the connection holes (10.4) of the panel.
2. Securely fix the Wedges (23.2). (Fig. A4.06)

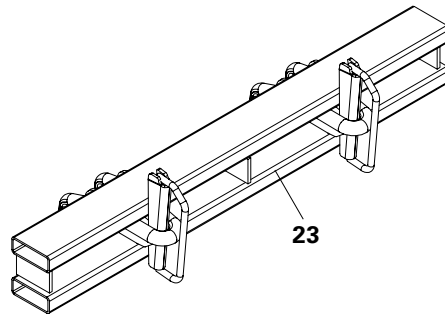


Fig. A4.05



Alternatively, the Compensation Waler MAR 85 can be used (not shown here).

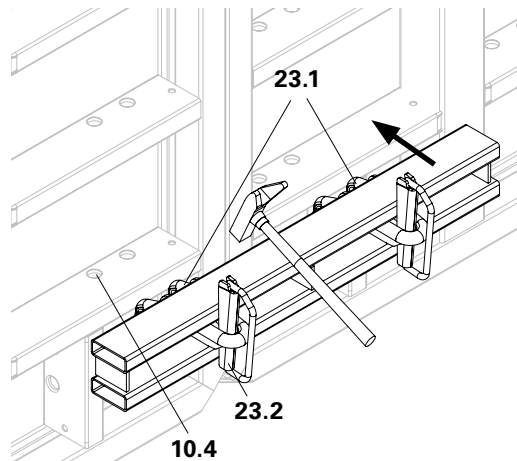


Fig. A4.06

Waler 85

For stopend formwork. (Fig. A4.07)

Assembly

1. Push Stopend Tie TS (25) through the TRIO Waler 85 (24) and attach to the frame profiles of the panels.
2. Tighten by means of the Wingnut Pivot Plate (33). (Fig. A4.08)

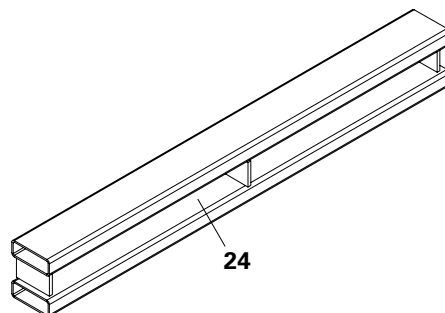


Fig. A4.07

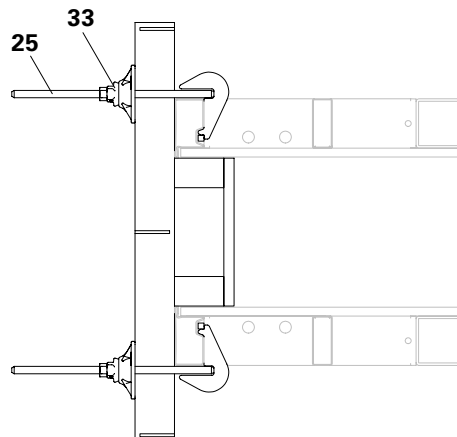
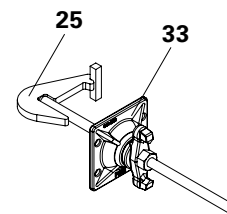


Fig. A4.08

Tie System DW 15 (standard)

Permissible load 90 kN according to DIN 18216.

Pos. Component

| | |
|----|---------------------------|
| 30 | Tie Rod DW 15 |
| 31 | Spacer Tube |
| 32 | Cone |
| 33 | Wingnut Pivot Plate DW 15 |

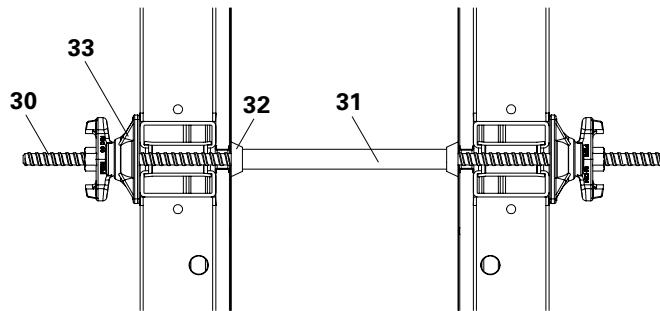


Fig. A5.01

(Fig. A5.01)

Tie System DW 20

Permissible load 150 kN according to DIN 18216.

For higher concrete pressures of 56 kN/m² and more, the DW 20 is used.

Pos. Component

| | |
|----|--------------------|
| 30 | Tie Rod DW 20 |
| 31 | Spacer Tube |
| 34 | Counterplate DW 20 |
| 35 | Wingnut DW 20 |
| 39 | DK Sealing Cone |

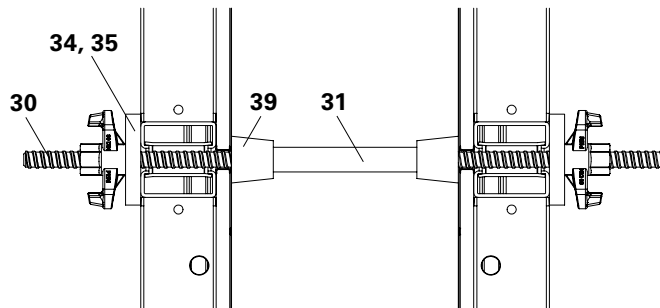


Fig. A5.02

(Fig. A5.02)



Application

- Only use the number of ties as is required. Seal tie holes which are not required in the panel with Plugs Ø 20/24 mm.
- Do not exceed permissible tie loads.
- Comply with rate of rise.
- Ensure that the contact surfaces are clean when using the sealing cone.

Accessories

- Tie Rod Wrench 15 (36) for one-man tie point operations from one side of the formwork.
 - Plugs Ø 20/24 mm (37) for closing tie holes which are not required.
- (Fig. A5.03)

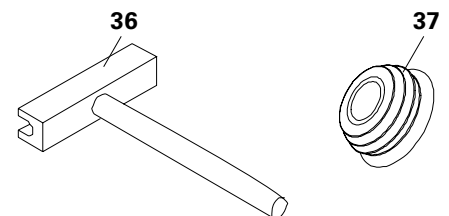


Fig. A5.03



Due to their conical shape, tie holes in the panels which are filled with concrete can be freed with a hammer blow.

(Fig. A5.04)

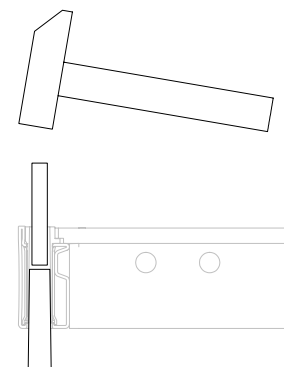


Fig. A5.04

Inclined anchorage with DW 15



- Secure panels against lifting!
- Inclined anchorage is possible on both vertically and horizontally-positioned panels.

The conical-shaped tie hole allows inclined anchorage on all sides of up to 3°.
(Fig. A5.05)

This results in additional areas of application:
(Fig. A5.06 + A5.07 + A5.08)

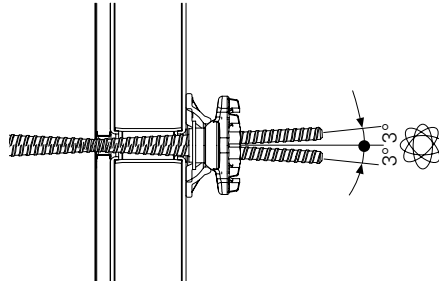


Fig. A5.05

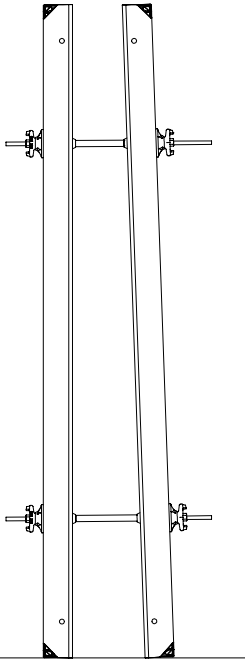


Fig. A5.06

Inclined on one side
max. 3°

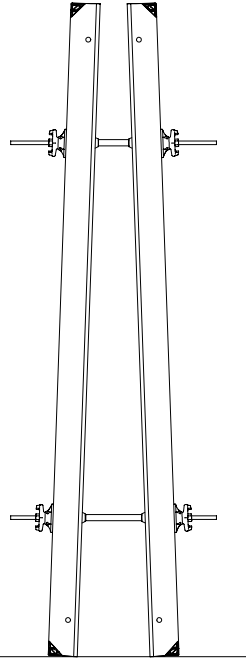


Fig. A5.07

Inclined on both sides
max. 2 x 3°

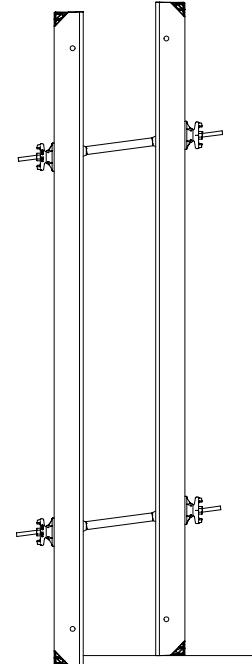


Fig. A5.08

Height offset
max. 1 cm per 10 cm wall thickness

Brace Connector TRIO

Push-Pull Props and Kickers are attached to the panel with the Brace Connector TRIO. Connecting to both horizontal and vertical panel struts is possible.

Pos. Component

41 Brace Connector

(Fig. A6.01)

Assembly

1. Attach the Brace Connector (41) to the panel strut (10.3) so that the Hook Tie (41.1) is linked into a connecting hole (10.4).
2. Tighten the Brace Connector by means of a Triple Wingnut (41.2).

Connecting to horizontal panel strut

(Fig. A6.02)

Connecting to vertical panel strut

(Fig. A6.03)

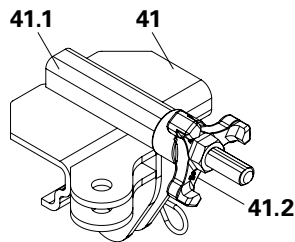


Fig. A6.01

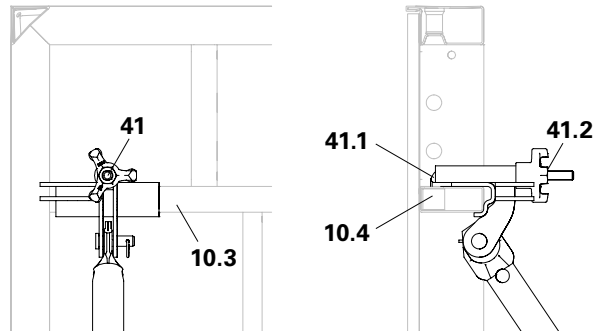


Fig. A6.02

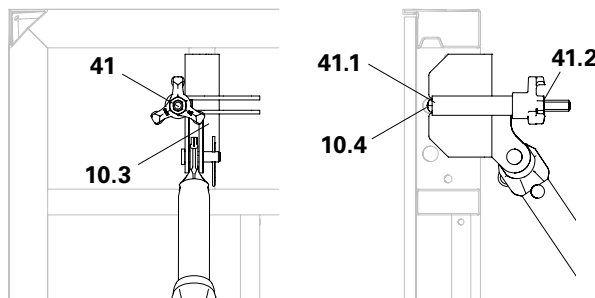


Fig. A6.03

Base Plate RS

| Pos. Components | Item no. |
|---|----------|
| 40 RS Push-Pull Prop according to size | |
| 47 Base Plate-3 RS | 126666 |

Assembly

1. Fix the bottom part of the Push-Pull Prop (40) – here as Kicker – with bolts (47.1) and cotter pins (47.2) to the back of the Base Plate (47).
2. Fix the bottom part of another Push-Pull Prop – here as Push-Pull Prop – with bolts (47.3) and cotter pins (47.4) to the Base Plate (47).

(Fig. A6.03)

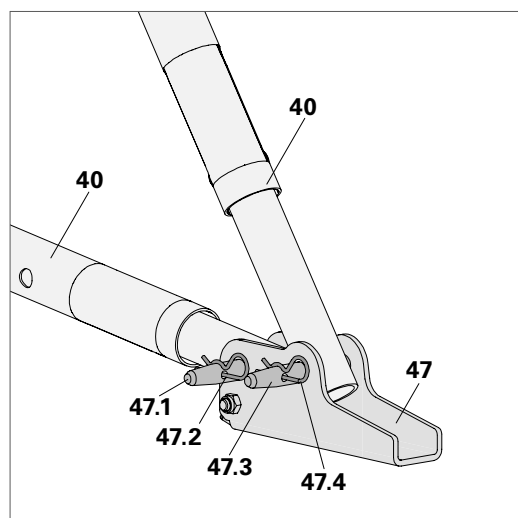


Fig. A6.03

Push-Pull Props and Kickers

(Fig. A6.04)



Refer to Design Tables for more information on the maximum widths of influence for Push-Pull Props and Kickers.

Assembly

1. Attach Push-Pull Prop or Kicker with bolt and cotter pin to the Brace Connector TRIO. (Fig. A6.04a)
2. Mount Base Plate, e.g. with PERI Anchor Bolt 14/20 x 130 or similar (42). (Fig. A6.04b)



Take into consideration the Data Sheet for PERI Anchor Bolt 14/20 x 130. (Fig. A6.05)



- If the installation or adjustment of the Kicker on the lowest element strut is not possible, the connection can also be carried out on the second cross strut.
- Instead of Push-Pull Props RS, the Push-Pull Props RSS and Kickers AV can also be used.

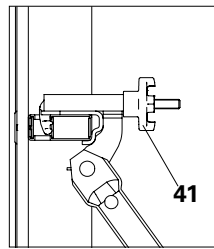


Fig. A6.04a

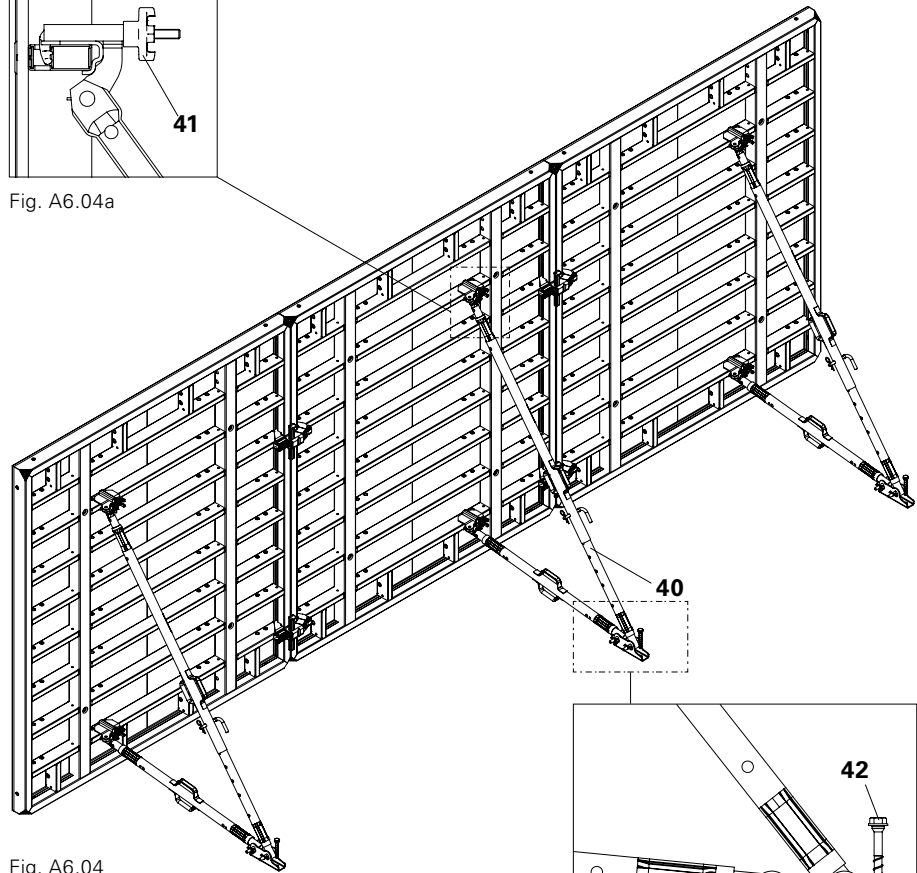


Fig. A6.04

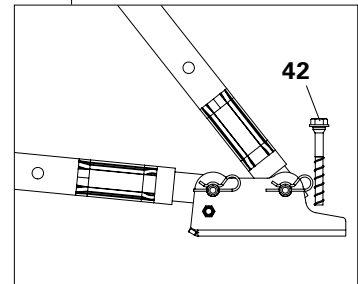


Fig. A6.04b



Fig. A6.05

Right-angled corners

Wall thicknesses from 18 cm to 40 cm can be continuously formed. (Fig. A7.01)



- Wall thickness 30 cm without adjustment
- Internal adjustment for wall thicknesses < 30 cm
- External adjustment for wall thicknesses > 30 cm

Adjustment takes place with Wall Thickness Compensator WDA (18) or compensation (50) supplied by contractor.

For the number of Alignment Couplers for other panel heights, see TRIO Poster.

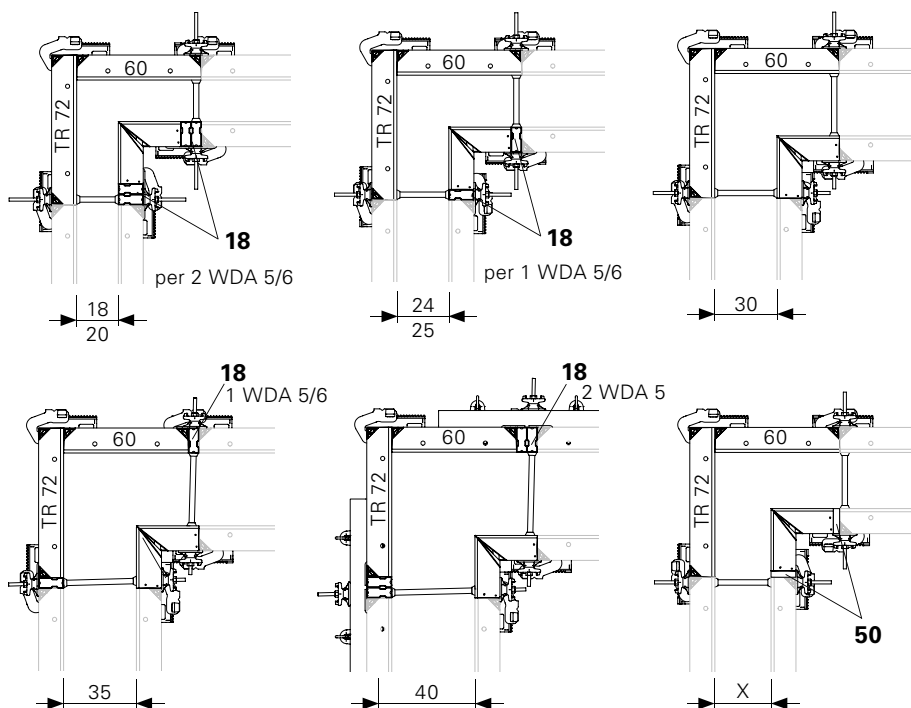


Fig. A7.01



As seen from the outside, the Panel TR 72 (15) must always be positioned on the right and Panel TR 60 (14) covers the front side.

Ensure that the Alignment Coupler BFD is correctly installed. (Fig. A7.02)

External corner consisting of:

- Panel TR 60 (14)
- Panel TR 72 (15)
- Alignment Coupler BFD (20) (5 x BFD for h = 2.70 m) (Fig. A7.03)

Internal corner consisting of:

- TRIO Inside Corner TE (5) or Internal Corner TAE (Alu)
- Alignment Coupler BFD (20) (2 x BFD for h = 2.70 m) (Fig. A7.04)
- Always transport TRIO Inside Corners in combination with the next panel. Attach Lifting Hook to the next panel (high profile)! (Fig. A7.04a)

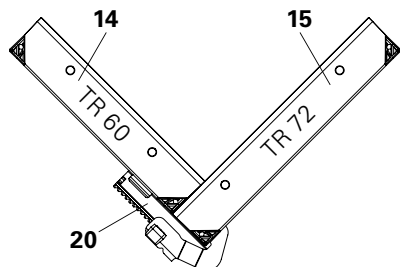


Fig. A7.02

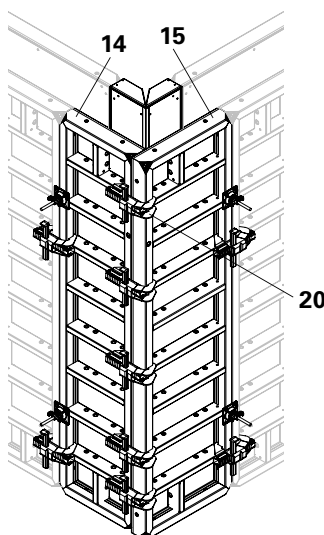


Fig. A7.03

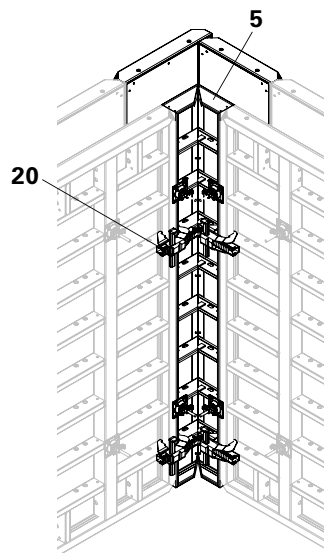


Fig. A7.04

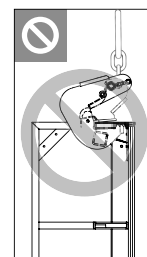


Fig. A7.04a

Right-angled corners

Wall thicknesses of 60 cm and 80 cm.
Perm. fresh concrete pressure 60 kN/m².

Wall thickness 60 cm

Panel connection with h = 2.70 m:

- 3 x Alignment Coupler BFD (20) for a length L of 2.25 m per panel joint
 - Compensation Waler TAR 85 (23)
- (Fig. A7.05 + A7.05a)

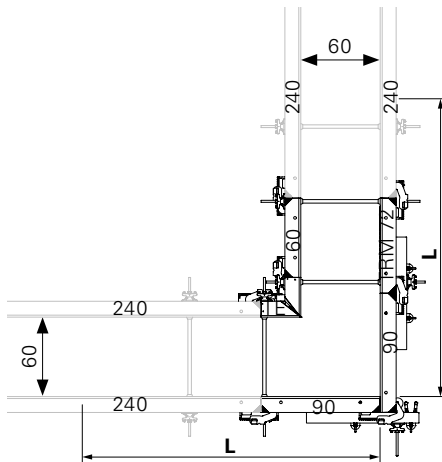


Fig. A7.05

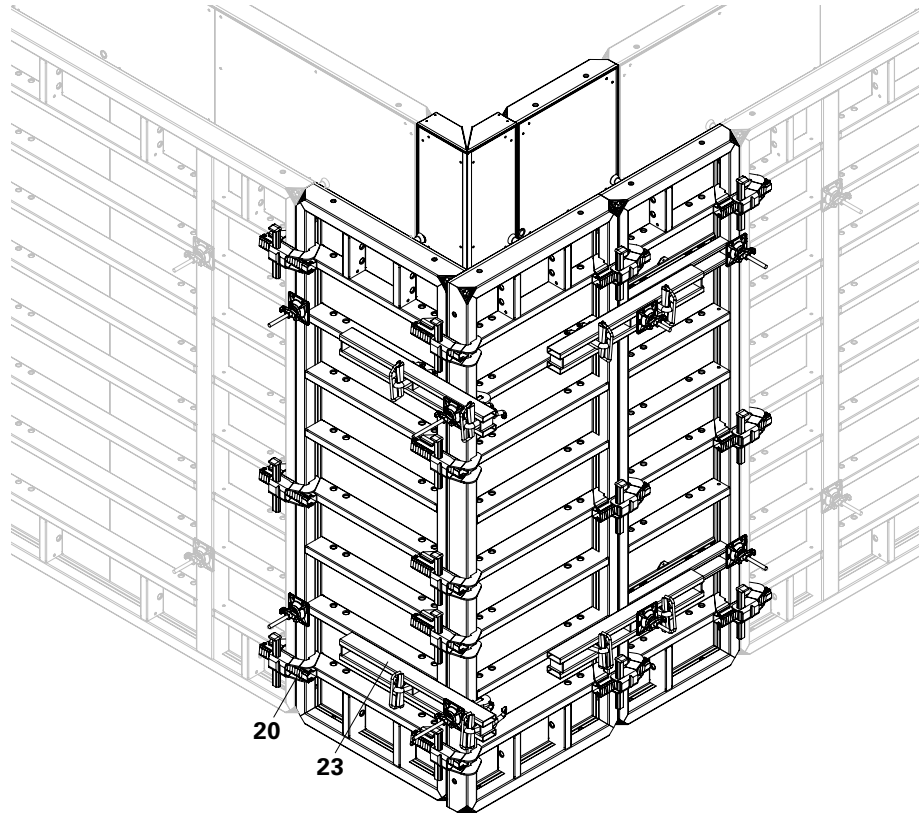


Fig. A7.05a

Wall thickness 80 cm

Panel connection with h = 2.70 m:

- 3 x Alignment Coupler BFD (20) for a length L of 3.0 m per panel joint
 - Universal Waler 245 (26) with Waler Stop (27) and Tie Yoke (28)
- (Fig. A7.06 + A7.06a)

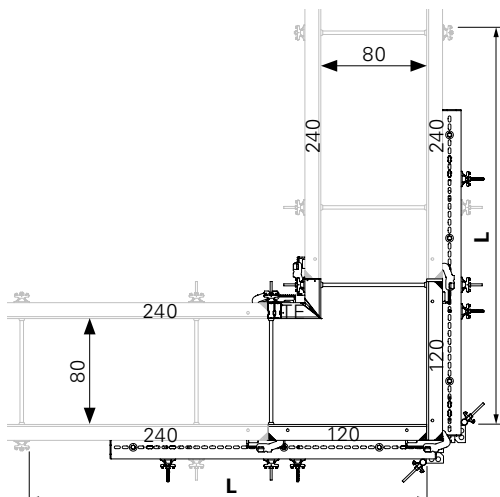


Fig. A7.06

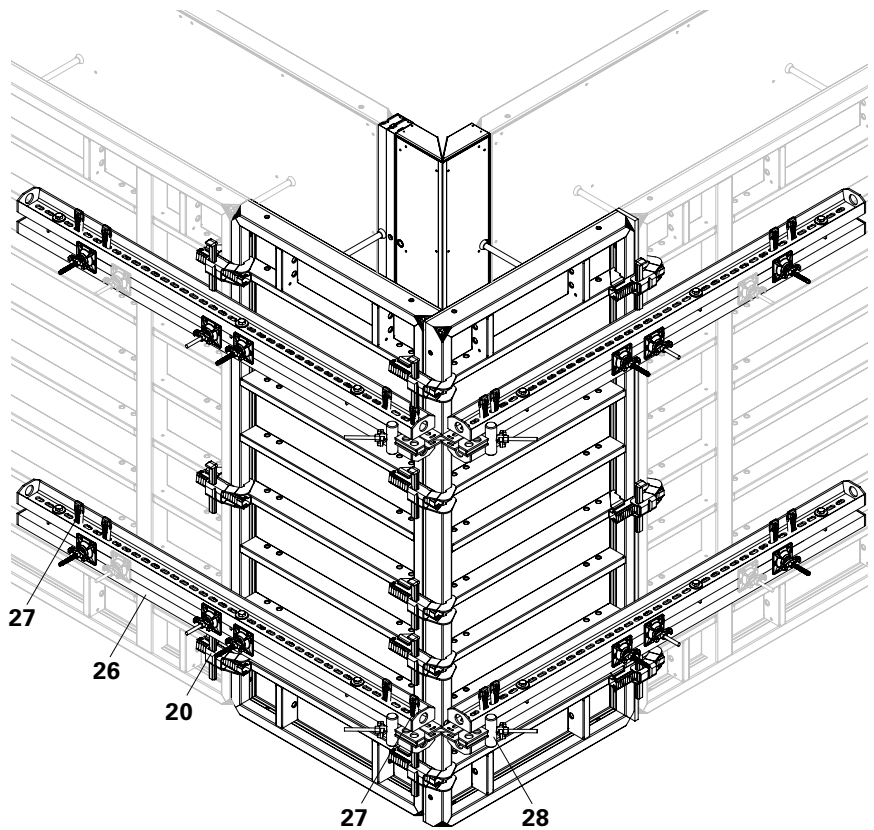


Fig. A7.06a

Obtuse and acute-angled corners

The Articulated Corner TGE (9) is used to form angles of 75° and more. (Fig. A8.01)



Alignment Couplers BFD are to be mounted from bottom to top on both external and internal formwork. For the number of Alignment Couplers BFD for other panel heights, see TRIO Poster.

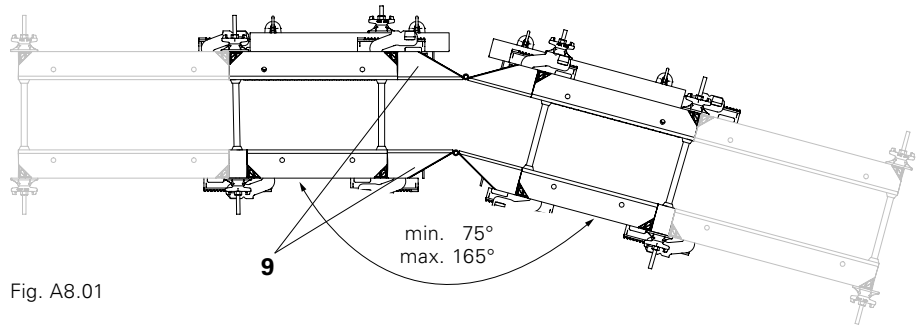


Fig. A8.01

External formwork

The external formwork is stabilised with the Compensation Waler TAR 85 (23). (Fig. A8.02)

Internal formwork

Only Alignment Couplers BFD are required on the internal formwork. (Fig. A8.03 + A8.03a)

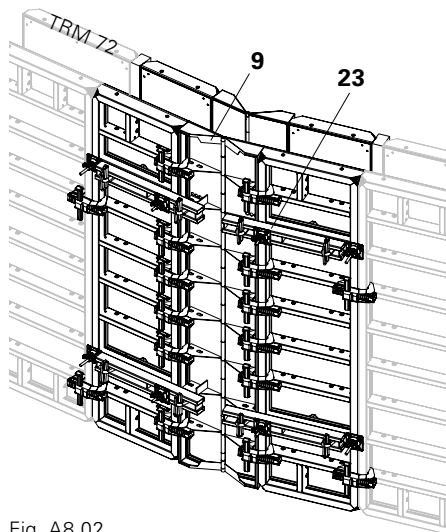


Fig. A8.02

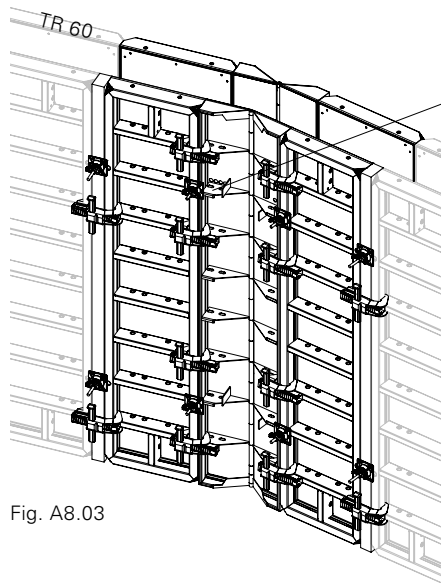


Fig. A8.03

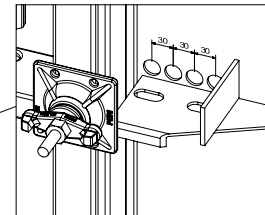


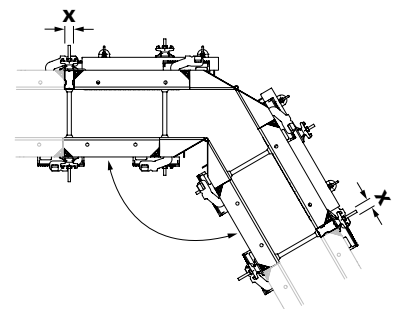
Fig. A8.03a

Table

Required compensation x [cm]

- Internal compensation
- External compensation

| Angle α | Wall thickness [cm] | | | | | |
|-------------------|---------------------|-----|-----|-----|-----|------|
| | 20 | 25 | 30 | 35 | 36 | 40 |
| 165° | 9.2 | 8.5 | 7.8 | 7.2 | 7.1 | 6.5 |
| 150° | 6.2 | 4.9 | 3.5 | 2.2 | 1.9 | 0.9 |
| 135° | 3.1 | 1.0 | 1.1 | 3.2 | 3.6 | 5.2 |
| 120° | 0.5 | 3.4 | 6.2 | 9.1 | 9.7 | 12.0 |
| 105° | 4.6 | 8.4 | 5.8 | 1.9 | 1.5 | 1.9 |
| 75° | 13.8 | 7.3 | 0.8 | 5.7 | 7.0 | 12.2 |



90° T-junction

Wall thicknesses from 18 cm to 60 cm can be continuously formed. (Fig. A9.01)



- Wall thickness 30 cm without adjustment
- Internal adjustment for wall thicknesses < 30 cm
- External adjustment for wall thicknesses > 30 cm

Adjustment takes place with Wall Thickness Compensator WDA (18) or compensation (50) supplied by contractor.

Assembly

- T-junctions are formed with Inside Corner TE (5).
 - The straight wall positioned opposite is formed with one Panel TR 90 (16) or TR 120 (17).
- (Fig. A9.01)



With two Compensations (WDA), mount one WDA each on the right and left of the panel.

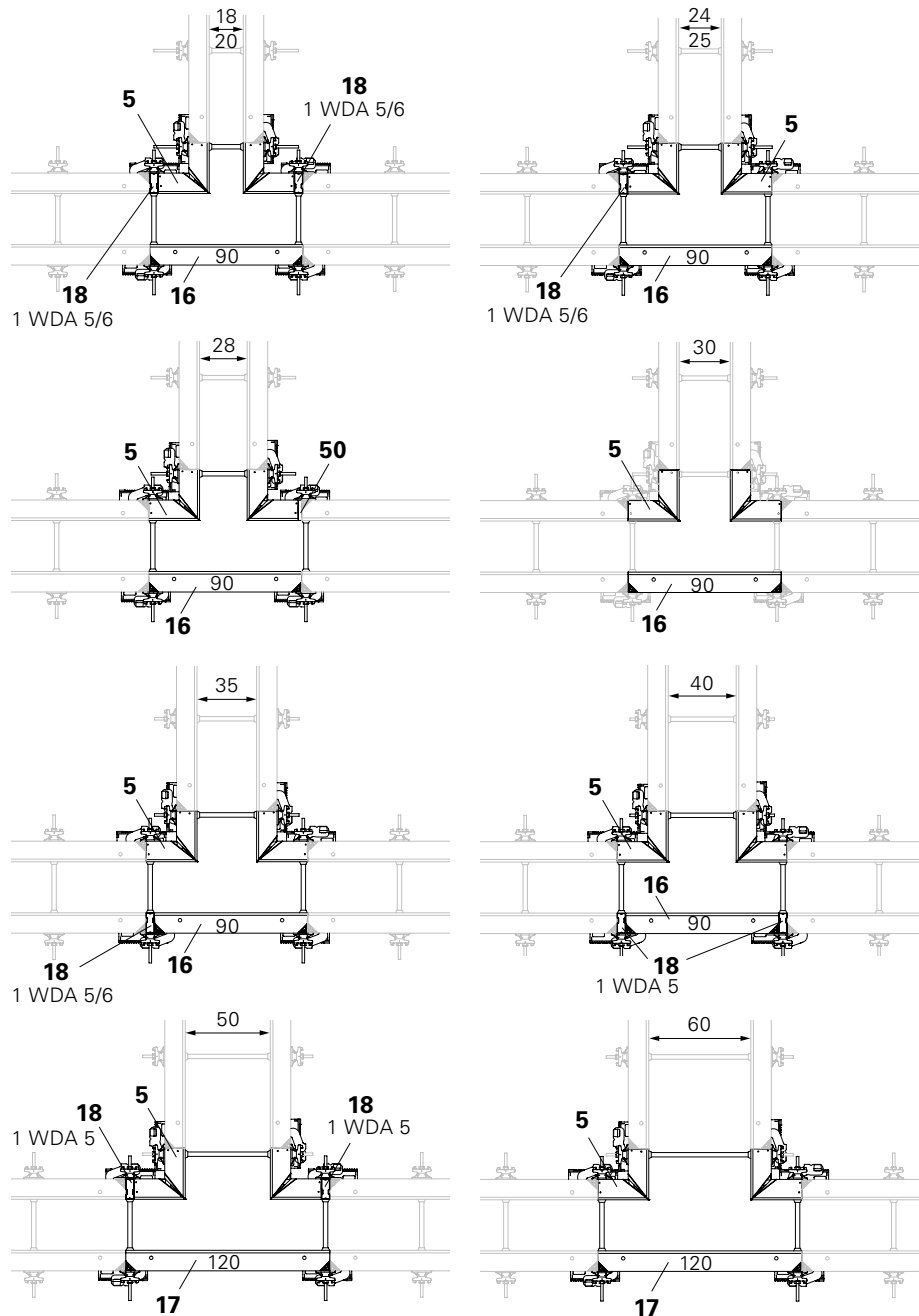


Fig. A9.01

Pilaster

For the arrangement and number of horizontal Walers 85 (24) with Stopend Tie TS (25) and Top Tie Bracket AH (55) with tie sets, see Section A12 Stopend formwork with timbers. (Fig. A9.02)

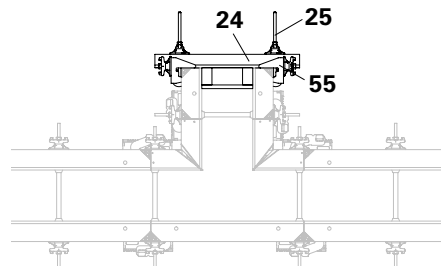


Fig. A9.02

Obtuse-angle wall connection

With Panel TR 270 x 240.
(Fig. A9.03)

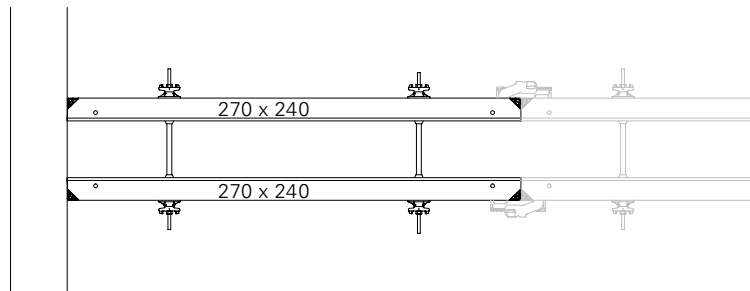


Fig. A9.03

With Multi-Purpose Panel TRM 72.
(Fig. A9.04)

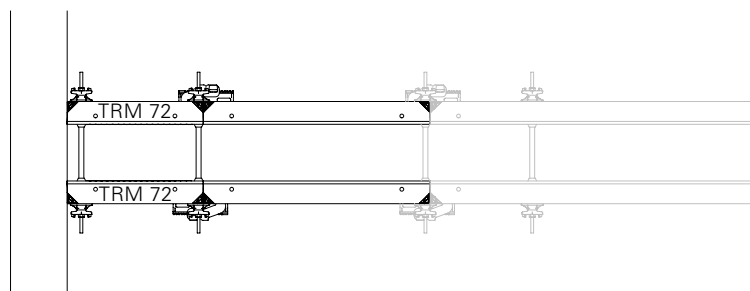


Fig. A9.04

With Wall Thickness Compensator WDA (18) or timbers.
(Fig. A9.05)

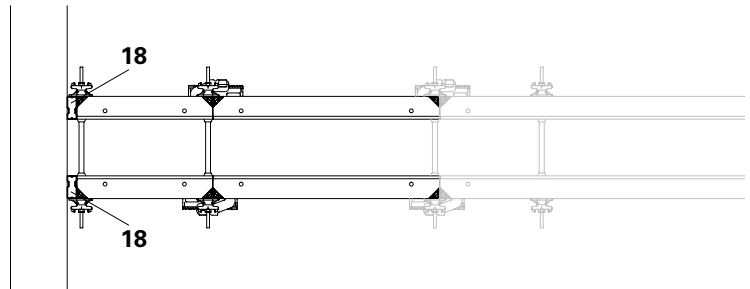


Fig. A9.05

With Cam Nut DW 15 (19).
(Fig. A9.06)

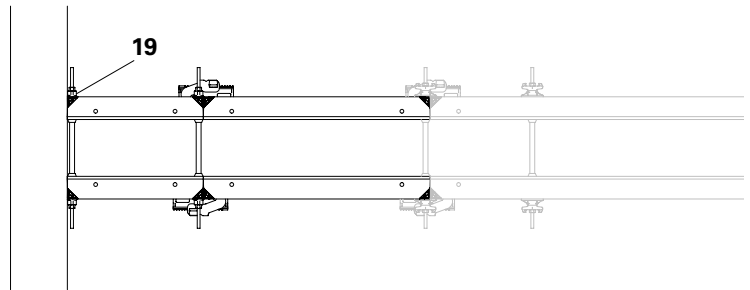


Fig. A9.06

Wall offsets

Wall offset ≤ 20 cm

Pos. Components

- 23** Compensation Waler TAR 85
- 29** Hook Tie DW 15/400
- 50** Compensation provided by contractor
- 51** Filler plate
- 21** Panel TR 30
- 20** Alignment Coupler BFD
(additional BFD from 12 cm)

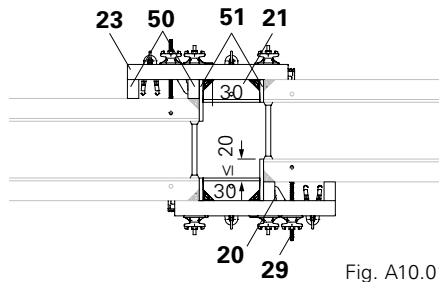


Fig. A10.01

(Fig. A10.01)

Wall offset 21 – 80 cm

Consisting of inside and outside corners.

Pos. Components

- 5** TRIO Inside Corner TE
- 14** Panel TR 60
- 22** Multi Panel TRM 72
- 23** Compensation Waler TAR 85
- 25** Stopped Tie TS
- 50** Compensation provided by contractor

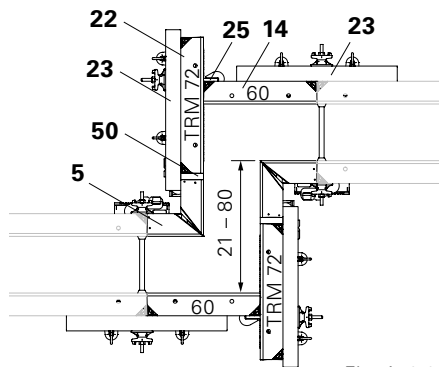


Fig. A10.02

(Fig. A10.02)

Wall offset 81 – 90 cm

Consisting of inside and outside corners.

Pos. Components

- 5** TRIO Inside Corner TE
- 14** Panel TR 60
- 22** Multi Panel TRM 72
- 23** Compensation Waler TAR 85
- 25** Stopped Tie TS
- 38** Additional tie points
- 50** Compensation provided by contractor

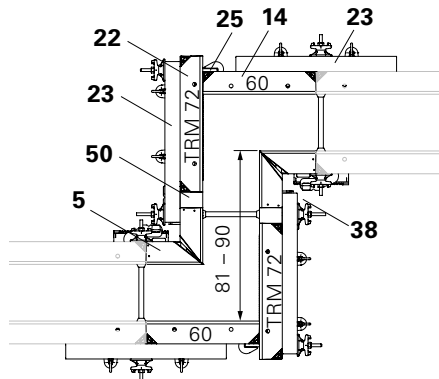


Fig. A10.03

(Fig. A10.03)

Wall offset 91 – 100 cm

Consisting of inside and outside corners.

Pos. Components

- 5** TRIO Inside Corner TE
- 14** Panel TR 60
- 20** Alignment Coupler BFD
- 22** Multi Panel TRM 72
- 50** Compensation provided by contractor

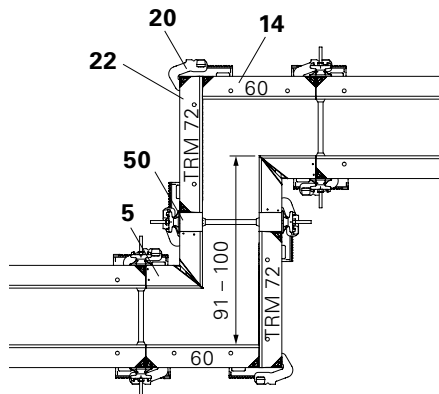


Fig. A10.04

(Fig. A10.04)



Locating board facilitates the positioning of the formwork panel.

Shown:
Wall thickness 30 cm

Height offsets

For height offsets: depending on the offset, Alignment Couplers BFD (20) are mounted alternately on the frame struts of the right and left panels.

(Fig. A10.05)

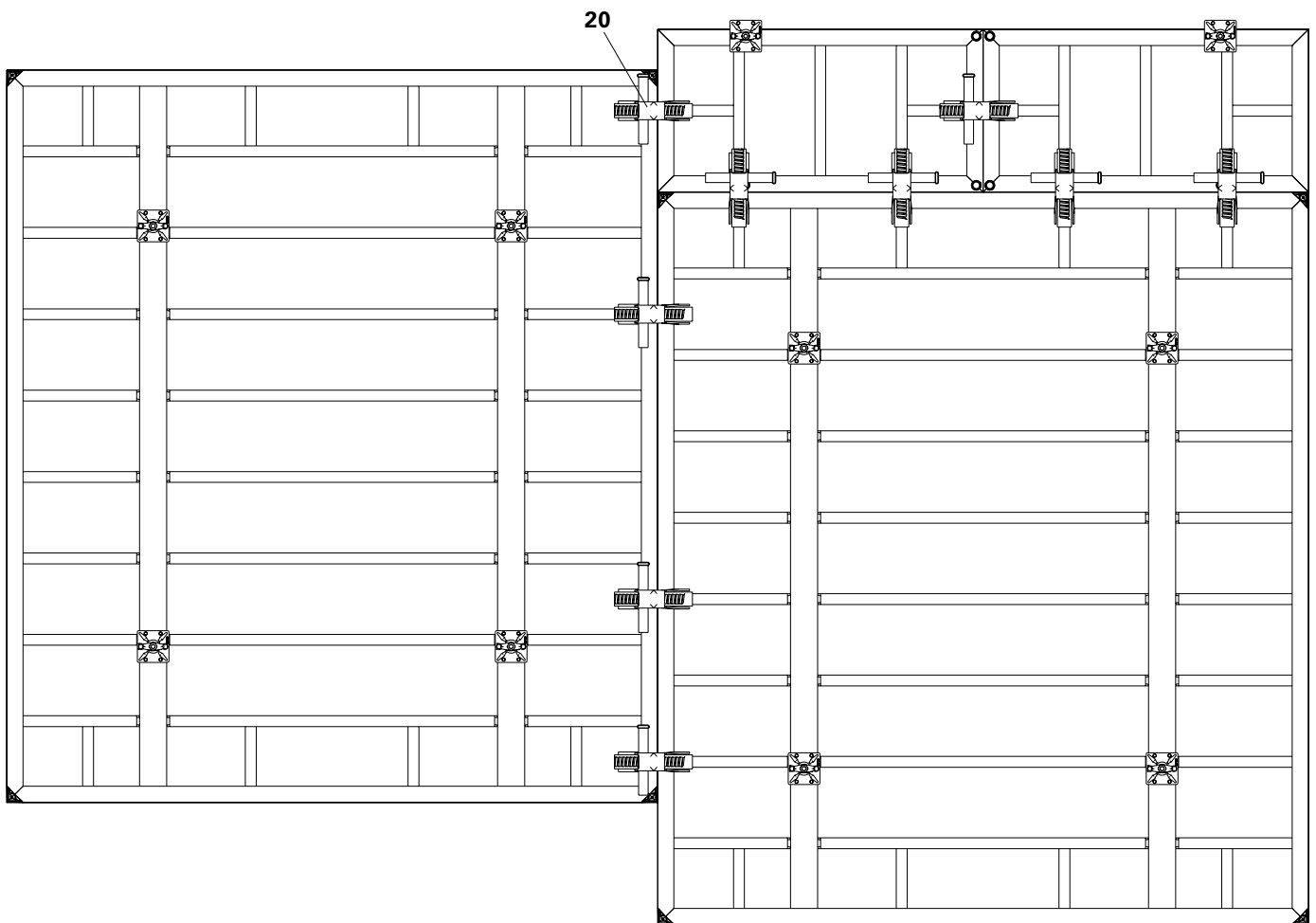


Fig. A10.05

Timber supplied by contractor

Compensation up to max. 10 cm

Length compensation takes place using timber (50) which has been cut to size. (Fig. A11.01)



- With compensations > 2.5 cm, anchor in the middle of the timber.
- Alignment Couplers BFD (20) are to be arranged as for standard panel joints.
- The Wingnut Pivot Plate must overlap the frame of the adjacent panel by at least 1 cm.

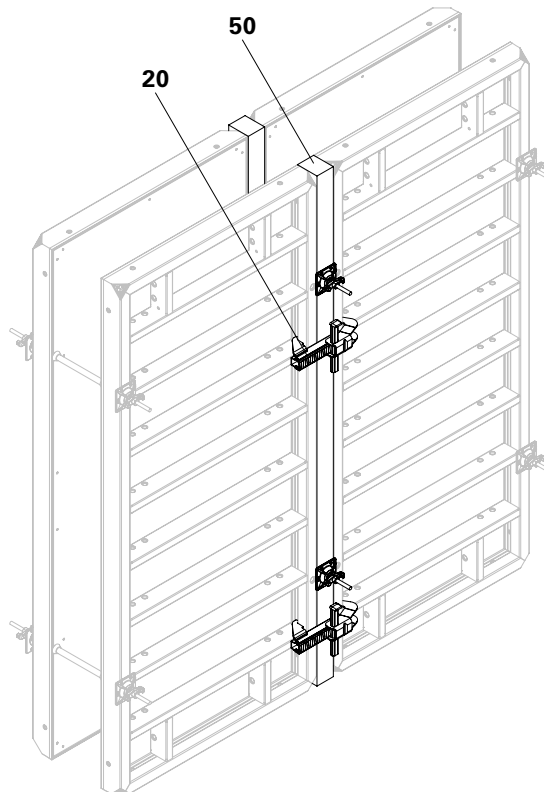


Fig. A11.01

TRIO Filler Plate LA

Compensations from 6 to 36 cm

With similar compensations on the opposite side, install the Compensation Waler TAR 85 (23) by means of the hooks from above. (Fig. A11.02)

The top tie hole (a) is used for anchoring. (Fig. A11.02a)

(Fig. A11.02a)



Always anchor through the TRIO Filler Plate LA (52)!



The bottom Compensation Waler TAR 85 (23) must be mounted in the strut with the hooks from below if a TRIO Panel is installed on the opposite side, e.g. Multi Panel TRM 72. (Fig. A11.02b)

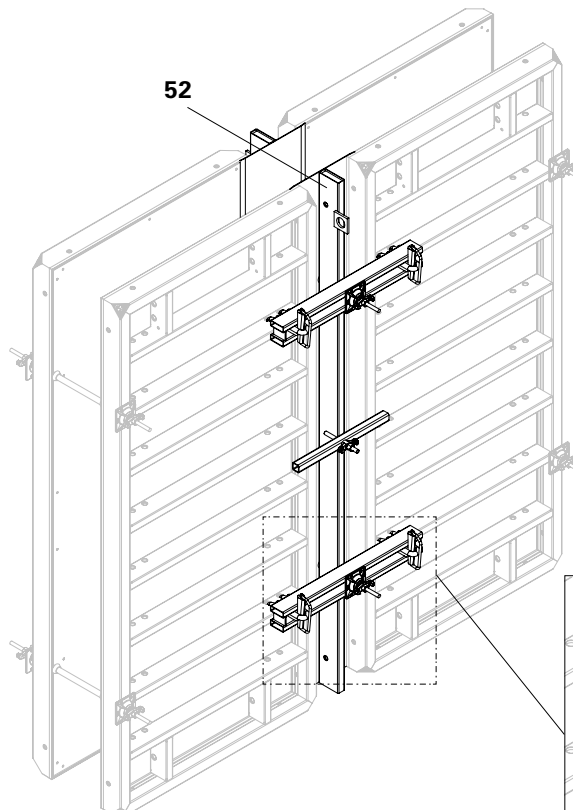


Fig. A11.02

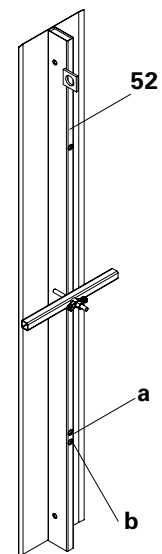


Fig. A11.02a

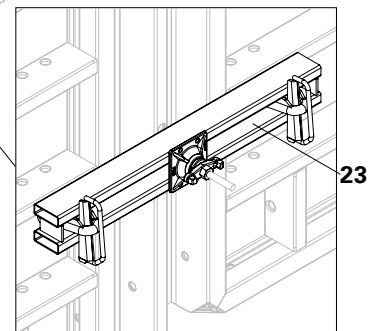


Fig. A11.02b

TRIO Filler Profile TPP

Compensations from 20 to 36 cm

Consisting of:

- Filler Profile TPP (53) (2x)
 - Plywood filler 21 mm (51)
- (Fig. A11.03a)



Anchoring is to take place so that the anchor forces are transferred in the middle through the Compensation Waler TAR 85 (23) to the adjacent panel. (Fig. A11.03b)

Installation

(Fig. A11.03)

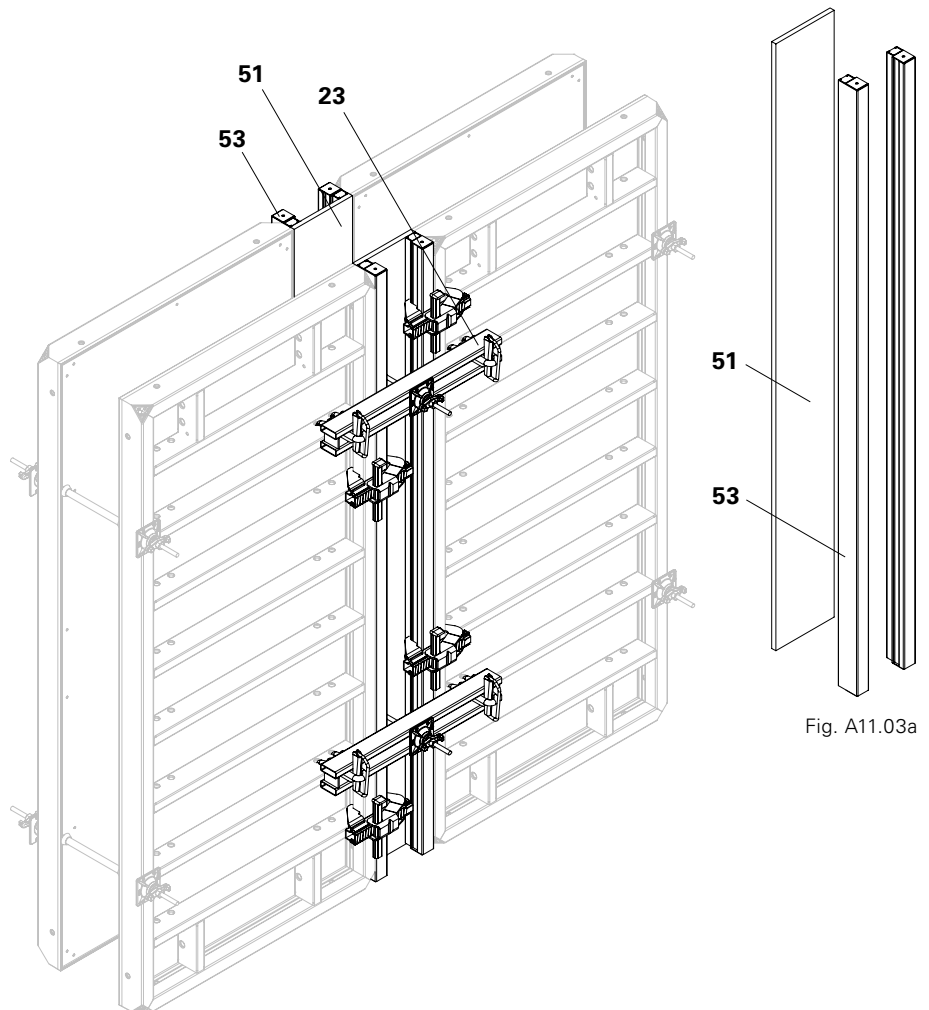


Fig. A11.03

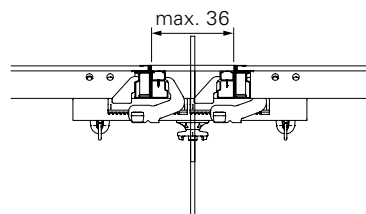


Fig. A11.03b

Stopend Panel TR 24

For wall thickness 24 cm
(Fig. A12.01)



- The Stopend Panel TR 24 (54) can also be used as a wall panel.
- The Panel TR 30 can be used as stopend panel for wall thickness 30 cm (not shown here).

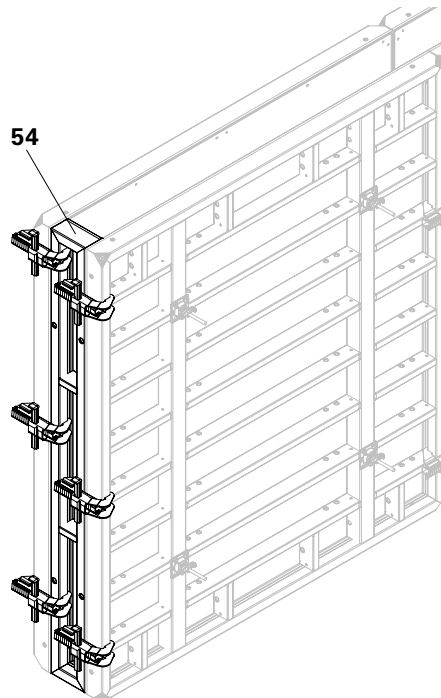


Fig. A12.01

Timbers and filler plywood

For all wall thicknesses

The concrete pressure from the stopend formwork is transferred with the TRIO Stopend Tie TS and Walers 85 to the TRIO Panels.

For use with panel widths < 2.40 m at the wall end.
(Fig. A12.02)

Required components:

- 3 x Waler 85 (24)
- 6 x Stopend Tie TS (25) with Wingnut Pivot Plate DW 15
- 6 x Top Tie Bracket-2 AH (55) with tie set

For use with panel width = 2.40 m at the wall end (not shown here).

Required components:

- 3 x Waler 85 (24)
- 6 x Stopend Tie TS (25) with Wingnut Pivot Plate DW 15.

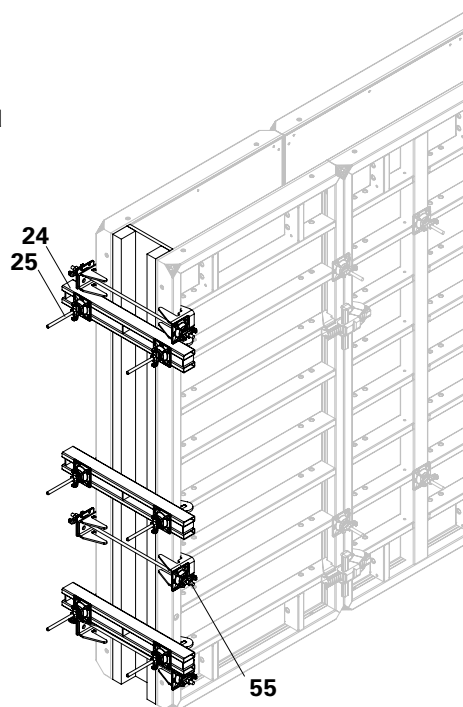
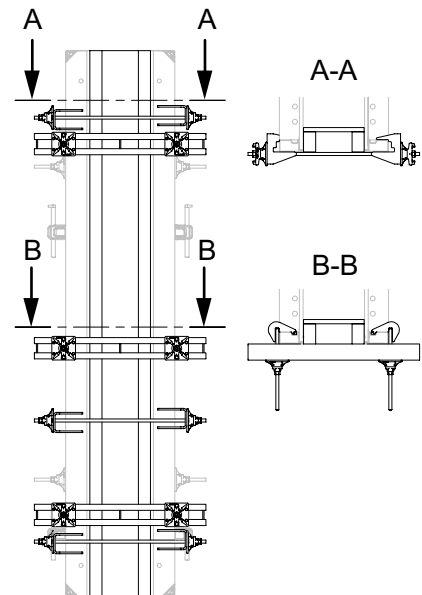


Fig. A12.02



Stopend panel without water bar

H = 2.70 m and 1.20 m

Required components:

- 2 x Stopend Panel TRIO AT 3/AT 5 (56) for approx. 2.5 cm/5 cm concrete cover
- 1 x Stopend Panel TRIO MT (57) (Fig. A12.03)

Assembly

1. Position primary formwork.
 2. Attach Stopend Panel TRIO AT (56) to the primary formwork using the Alignment Coupler BFD (20).
 3. Install first row of reinforcement.
 4. Position the Stopend Panel TRIO MT (57).
 5. Install second row of reinforcement.
 6. Attach Stopend Panel TRIO AT to the closing formwork with the Alignment Coupler BFD.
 7. Position the closing formwork; thereby insert the Stopend Panel TRIO AT in the Stopend Panel TRIO MT.
 8. Close formwork, and insert ties to secure.
- (Fig. A12.04)

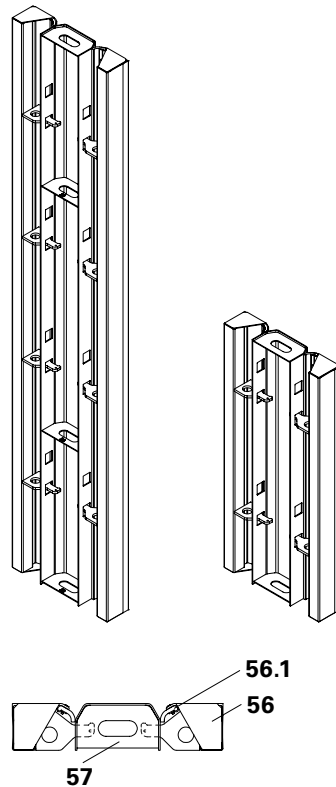
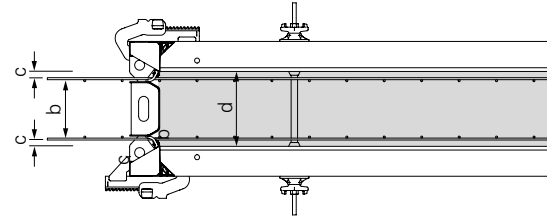


Fig. A12.03

Concrete cover c:

$$c = \frac{d - b}{2} - \varnothing \text{ Reinforcement}$$



The rubber lip (56.1) of the Stopend Panel TRIO AT allows a reinforcement thickness of 16 mm.

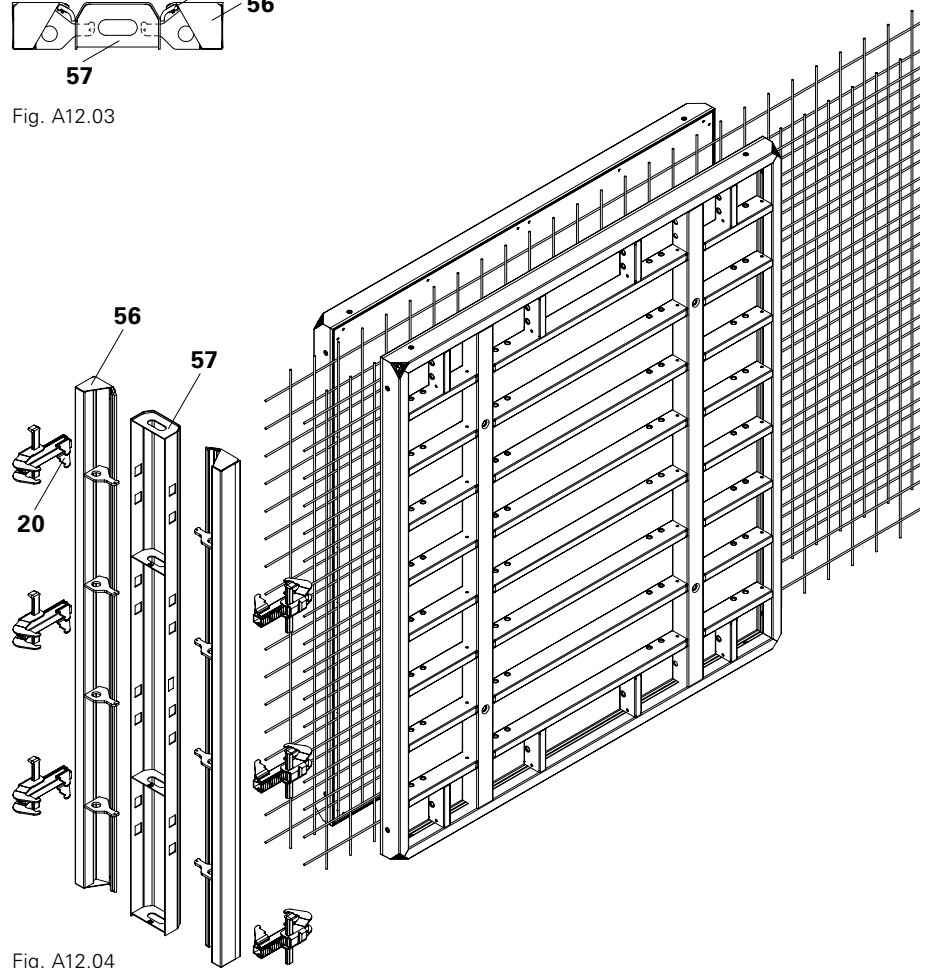


Fig. A12.04

Stopend panel with water bar

H = 2.70 m and 1.20 m

Required components:

- 2 x Stopend Panel TRIO AT 3 (56) for approx. 2.5 cm or AT 5 for approx. 5 cm concrete cover respectively
- 1 x Stopend Panel TRIO MTF (58) (Fig. A12.05)

Assembly

1. Position first side of the formwork.
2. Attach Stopend Panel TRIO AT (56) to the primary formwork using the Alignment Coupler BFD (20).
3. Install first row of reinforcement.
4. Install Stopend Panel TRIO MTF (58) and water bar.
5. Install second row of reinforcement.
6. Insert Stopend Panel TRIO AT in the Stopend Panel TRIO MT and secure with the Alignment Coupler BFD.
7. Position closing formwork.
8. Close formwork, and insert ties to secure.

(Fig. A12.06 + A12.06a)

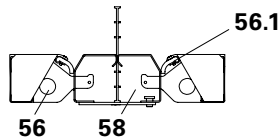
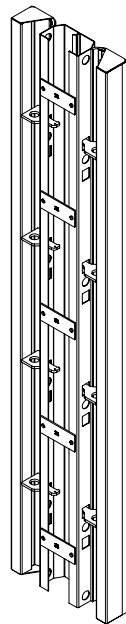


Fig. A12.05

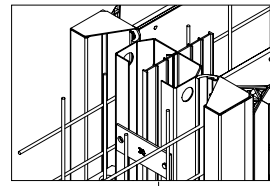


Fig. A12.06a

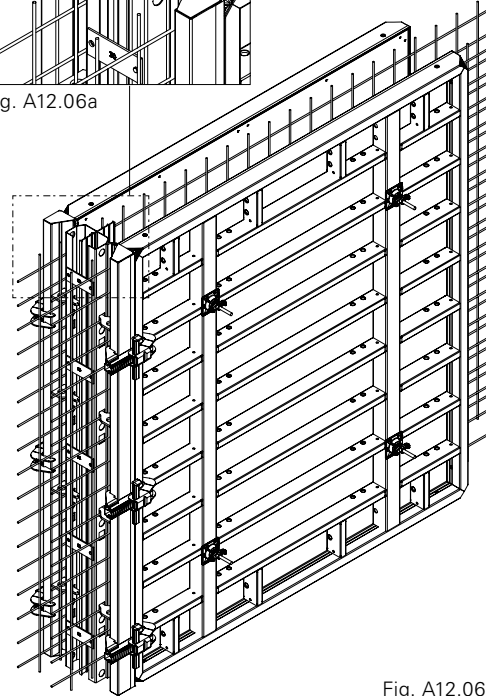


Fig. A12.06

Stopend panel with expandable water bar

Required components:

- 2 x Stopend Panel TRIO AT (56)
- 1 x Stopend Panel TRIO MTF (58)
- 1 x filler plate (51) supplied by the contractor

(Fig. A12.07)

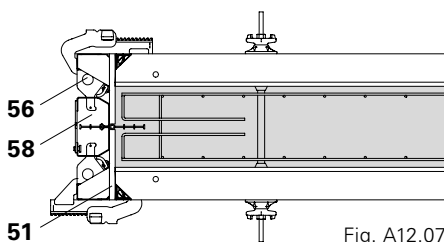


Fig. A12.07

H = 2.70 m
AT 270x3
AT 270x5

MT 270x20
MT 270x24/25
MT 270x30
MT 270x35/36

MTF 270x20
MTF 270x24/25
MTF 270x30
MTF 270x35/36

H = 1.20 m
AT 120x3
AT 120x5

MT 120x20
MT 120x24/25
MT 120x30
MT 120x35/36

MTF 120x20
MTF 120x24/25
MTF 120x30
MTF 120x35/36

| b [mm] | Wall thickness d [cm] | | | | | | | |
|-----------|------------------------------|-------|----|-------|------------------------------|----|-------|----|
| | Concrete cover approx. 25 mm | | | | Concrete cover approx. 50 mm | | | |
| | 20 | 24/25 | 30 | 35/36 | 24/25 | 30 | 35/36 | 40 |
| – | 2 | 2 | 2 | 2 | | | | |
| – | | | | | 2 | 2 | 2 | 2 |
| | without water bar | | | | without water bar | | | |
| 118 | 1 | | | | 1 | | | |
| 158 | | 1 | | | | 1 | | |
| 218 | | | 1 | | | | 1 | |
| 268 | | | | 1 | | | | 1 |
| | with water bar | | | | with water bar | | | |
| 118 | 1 | | | | 1 | | | |
| 158 | | 1 | | | | 1 | | |
| 218 | | | 1 | | | | 1 | |
| 268 | | | | 1 | | | | 1 |

| | | | | | | | | |
|-----|-------------------|---|---|---|-------------------|---|---|---|
| – | 2 | 2 | 2 | 2 | | | | |
| – | | | | | 2 | 2 | 2 | 2 |
| | without water bar | | | | without water bar | | | |
| 118 | 1 | | | | 1 | | | |
| 158 | | 1 | | | | 1 | | |
| 218 | | | 1 | | | | 1 | |
| 268 | | | | 1 | | | | 1 |
| | with water bar | | | | with water bar | | | |
| 118 | 1 | | | | 1 | | | |
| 158 | | 1 | | | | 1 | | |
| 218 | | | 1 | | | | 1 | |
| 268 | | | | 1 | | | | 1 |

Stopend Waler height 270



The fresh concrete pressure of the stopend formwork is transferred to the TRIO Panels by means of the Stopend Walers.

Wall end with Panels 270 x width

Valid for TRIO Panels:
270 x 30/45/60/90/120/240
Shown: 270 x 120



Arrangement of the Stopend Waler:

Wall thickness ≤ 40 cm for: perm. fresh concrete pressure 80 kN/m² (Fig. A12.08 + A12.08a)
Perm. fresh concrete pressure 60 kN/m² (Fig. A12.09 + A12.08a)

| Pos. | Components | Item no. |
|------|------------------------|----------|
| 18 | Filler timber | |
| 48 | Stopend Waler MX 15-40 | 127732 |
| 51 | Plywood filler 21 mm | |



Fix 3 x Stopend Walers with 2 nails respectively thus ensuring that the filler timber does not slide inwards. (Fig. A12.09a)

Section A-A
WD 15 to WD 40 (Fig. A12.08a)

Wall thicknesses ≤ 40 cm

Perm. fresh concrete pressure 80 kN/m²

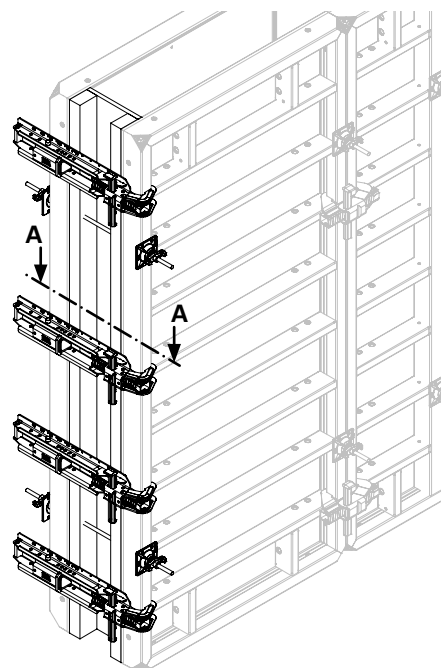


Fig. A12.08

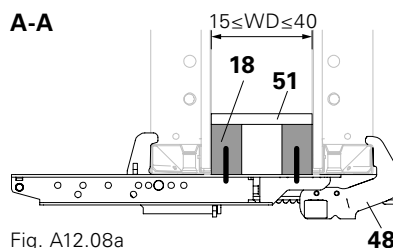


Fig. A12.08a

Perm. fresh concrete pressure 60 kN/m²

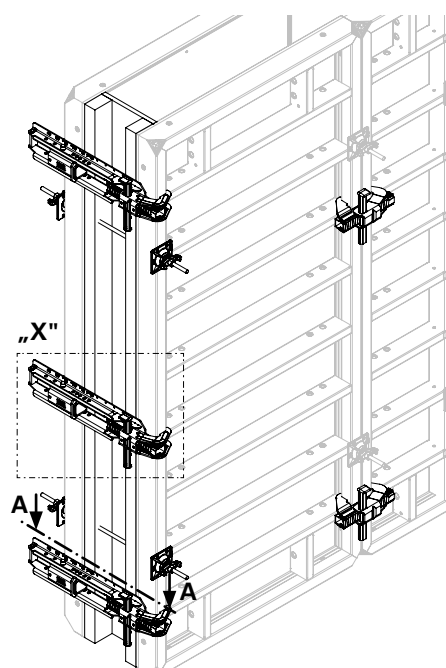


Fig. A12.09

Detail "X"

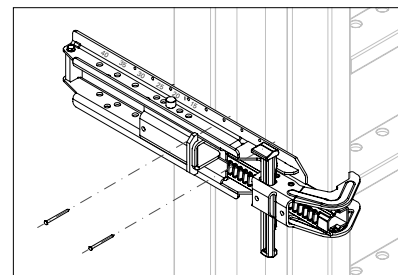


Fig. A12.09a

Stopend Waler height 330



The fresh concrete pressure of the stopend formwork is transferred to the TRIO Panels by means of the Stopend Walers.

Wall end with Panels 330 x width

Valid for TRIO Panels:
330 x 30/45/60/90/120/240
Shown: 330 x 120



Arrangement of the Stopend Waler:

- Wall thickness ≤ 40 cm for:
perm. fresh concrete pressure 80 kN/m²
(Fig. A12.10 + A12.10a)
- perm. fresh concrete pressure 60 kN/m²
(Fig. A12.11 + A12.10a)

| Pos. | Components | Item no. |
|------|------------------------|----------|
| 18 | Filler timber | |
| 48 | Stopend Waler MX 15-40 | 127732 |
| 51 | Plywood filler 21 mm | |



Fix 3 x Stopend Walers with 2 nails respectively thus ensuring that the filler timber does not slide inwards. (Fig. A12.11a)

Section A-A
WD 15 to WD 40 (Fig. A12.10a)

Wall thicknesses ≤ 40 cm
Perm. fresh concrete pressure 80 kN/m²

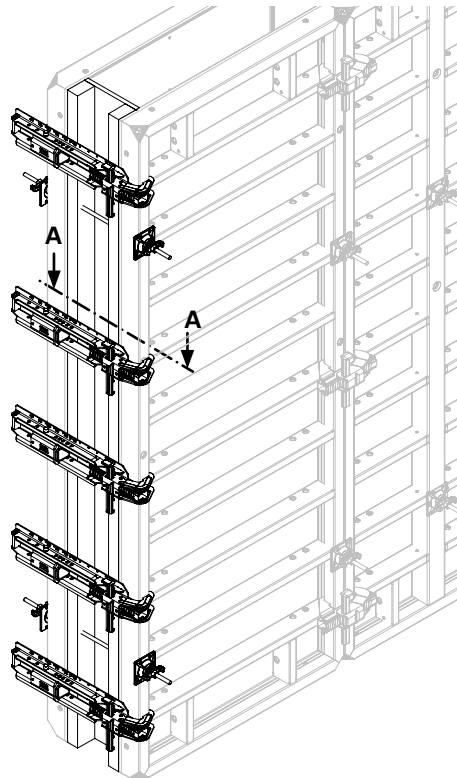


Fig. A12.10

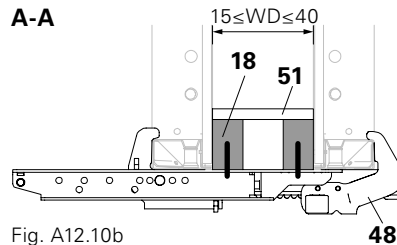


Fig. A12.10b

Perm. fresh concrete pressure 60 kN/m²

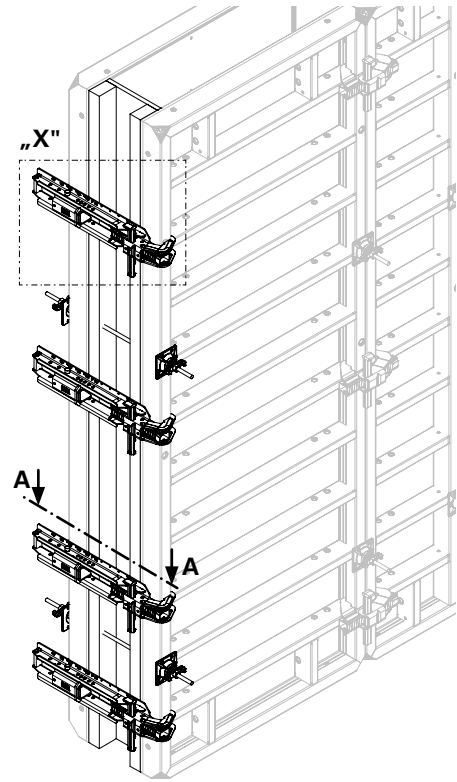


Fig. A12.11

Detail "X"

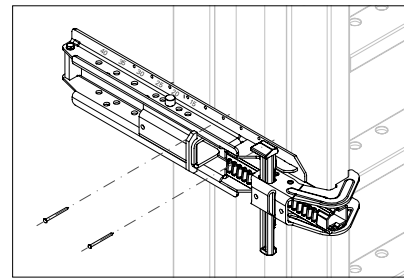


Fig. A12.11a

Concreting Platform TRIO 120 x 270



The Concreting Platform TRIO 120 x 270 must be dismantled during temporary storage of the panels.

Perm. load: 150 kg/m²
Load Class 2 according to
DIN EN 12811-1.



The load-bearing points of the Concreting Platform TRIO 120 x 270 are coloured yellow.

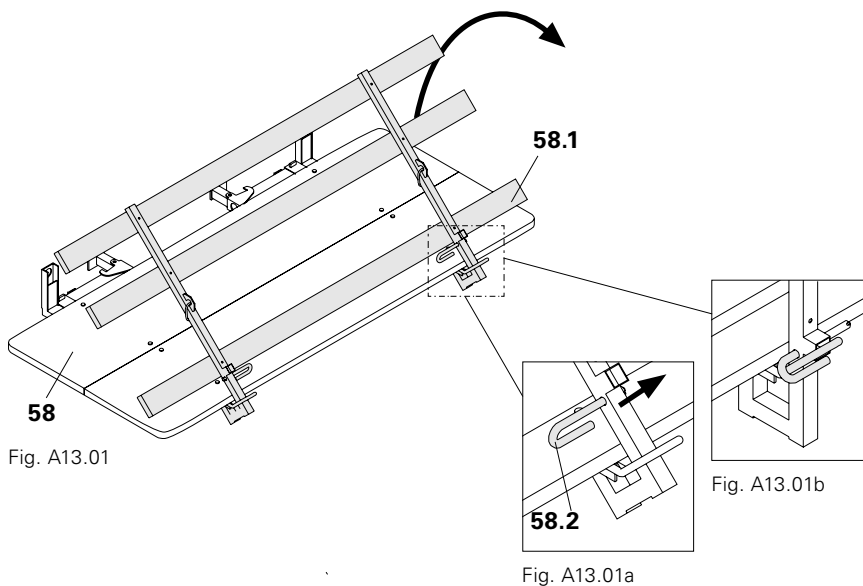


Fig. A13.01

Fig. A13.01b

Fig. A13.01a

| Pos. | Components | Item no. |
|------|------------------------------------|-------------------|
| 10 | TRIO Panel | according to size |
| 10.7 | Frame profile | |
| 58 | Concreting Platform TRIO 120 x 270 | 022950 |
| 58.1 | Guardrail | |
| 58.2 | Bolts | |
| 58.3 | Suspension beam | |
| 58.4 | Sliding sleeve | |
| 58.5 | Retaining claw | |

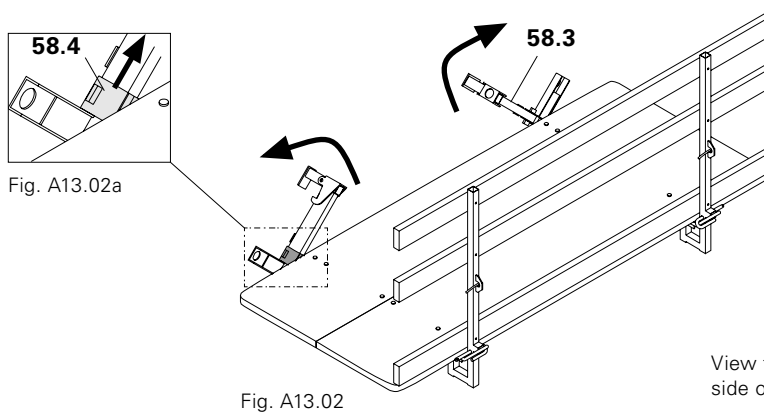


Fig. A13.02a

Fig. A13.02

View from the inner side of the boards

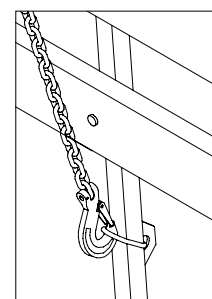


Fig. A13.03b

Preparation

1. Fold up guardrail (58.1). (Fig. A13.01)
2. Secure guardrail with bolts (58.2). (Fig. A13.01a + A13.01b)
3. Fold up suspension beam (58.3). Ensure that the sliding sleeve (58.4) is at the top. (Fig. A13.02 + A13.02a)
4. Push sliding sleeve (58.4) downwards.
5. Attach 4-sling lifting gear to the TRIO Concreting Platform. (Fig. A13.03 + A13.03a + A13.03b)

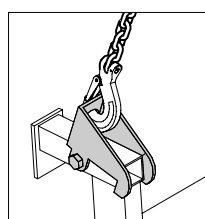


Fig. A13.03a

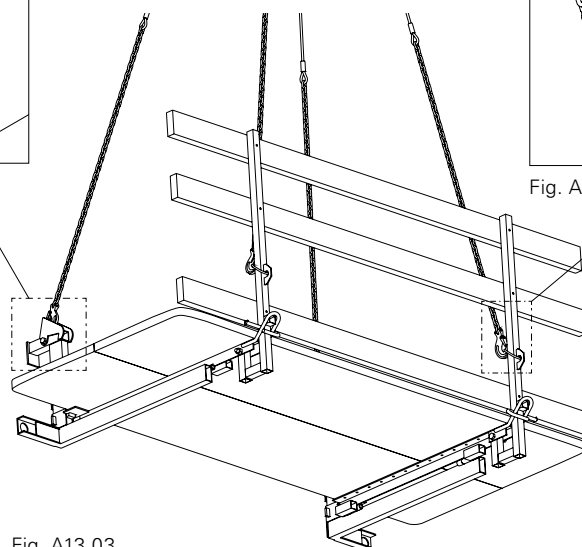


Fig. A13.03

Assembly on panel



Do not stand under suspended loads.

1. Attach the TRIO Concreting Platform with the suspension beam to the top frame profile. Guide from below using guide rope. (Fig. A13.04)
2. Remove 4-sling lifting gear.
 - The retaining claw (58.5) grips the frame profile (10.7) and secures. (Fig. A13.04a)



Does the hook of the retaining claw (58.5) grip the frame profile (10.7)? (Fig. A13.04a)

3. Attach side protection, e.g. End Guardrail Frame 55.

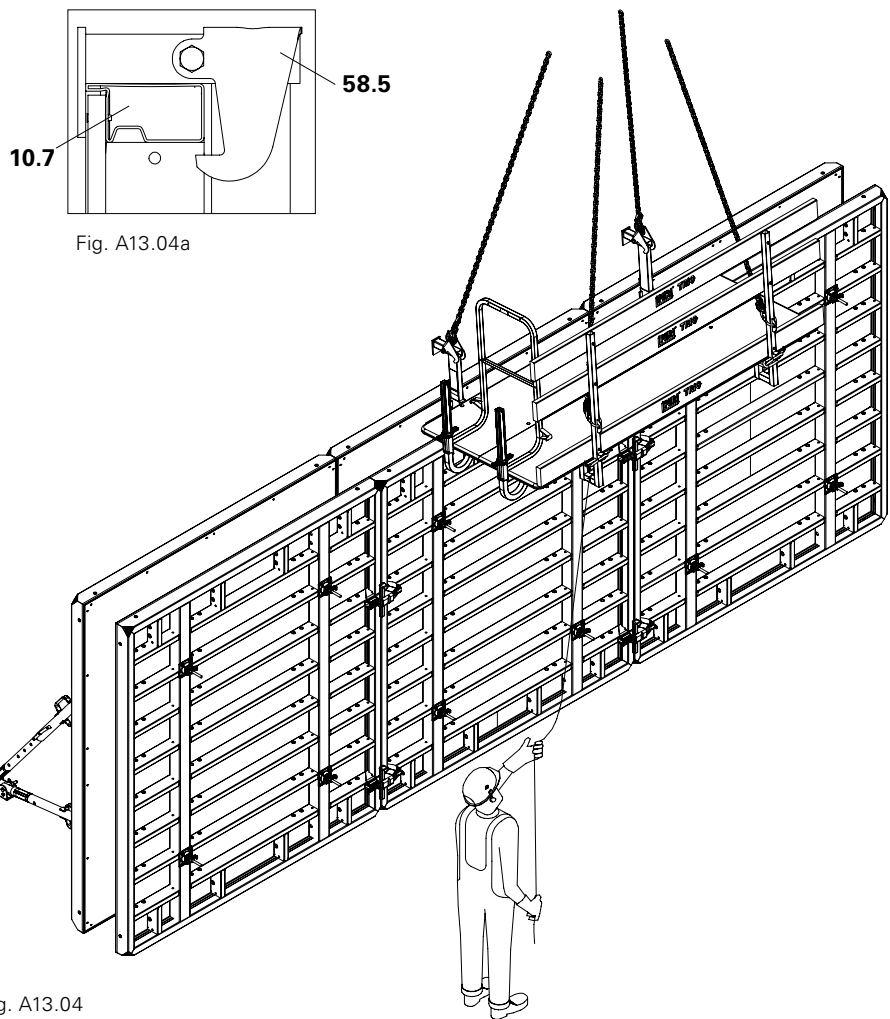


Fig. A13.04

Placing the guardrail in an inclined position



Always place guardrail in an inclined position before moving with the crane.

| Pos. | Components | Item no. |
|------|-------------------------------------|----------|
| 58 | Concreting Platform TRIO 120/270 | 022950 |
| 58.1 | Guardrail | |
| 58.2 | Bolt | |

Assembly

1. Remove securing pin and cotter pin (58.2). (Fig. A13.05)
2. Incline the guardrail (58.1) backwards, max. 15°.
3. Install securing pin (58.2) and secure with cotter pin.
→ Guardrail is now in an inclined position. (Fig. A13.06)

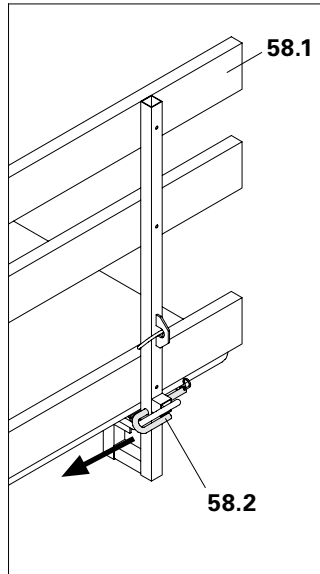


Fig. A13.05

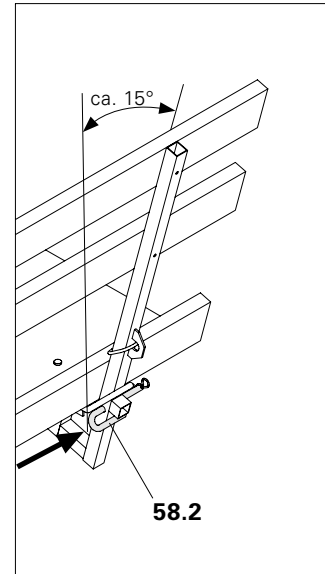


Fig. A13.06

Concreting Platform MX



Risk of falling! When closing leading edges which can arise between the concrete platforms, use PPE at all times!



The Concreting Platform MX must be dismantled during temporary storage of the panel.

Perm. load: 150 kg/m²

Load Class 2 according to DIN EN 12811-1.

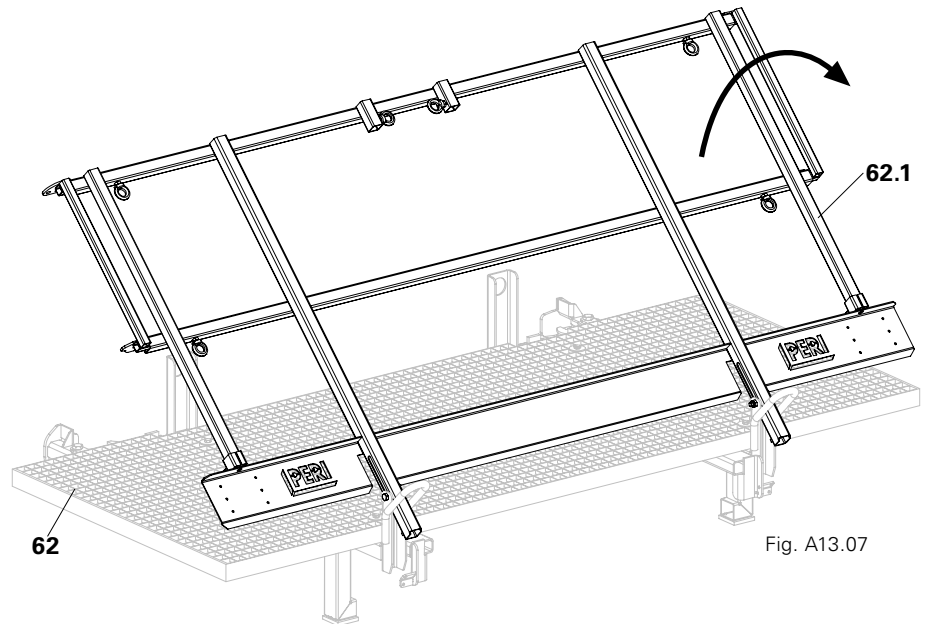


Fig. A13.07

Concreting Platform MX 100 x 240

| Pos. | Components | Item no. |
|------|----------------------------------|----------|
| 62 | Concreting Platform MX 100 x 240 | 127273 |
| 62.1 | Guardrail | |
| 62.2 | Suspension beam | |
| 62.3 | Sliding sleeve | |
| 62.4 | Eyebolt | |
| 62.5 | Guardrail Extension | |
| 62.6 | Retaining claw | |
| 62.7 | Lug | |
| 69 | End Guardrail MXP | |
| | right | 115946 |
| | left | 115945 |
| 69.1 | Bolt | |

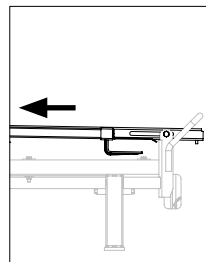


Fig. A13.07a

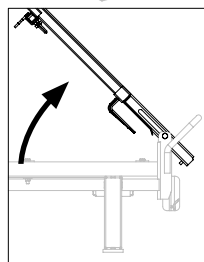


Fig. A13.07b

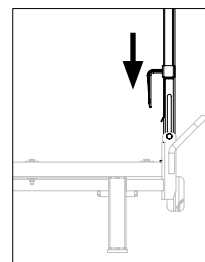


Fig. A13.07c

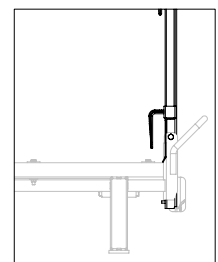


Fig. A13.07d

Preparing the Concreting Platform MX 100 x 240

1. Pull out guardrail (62.1) horizontally.
(Fig. A13.07a)
2. Fold up guardrail (62.1) until the guardrail is at right-angles to the decking.
(Fig. A13.07 + A13.07b + A13.07c)
3. Push guardrail (62.1) downwards.
→ Guardrail is now secured.
(Fig. A13.07d)
4. Fold up suspension beam (62.2).
Ensure that the sliding sleeve (62.3) is at the top.
(Fig. A13.08 + A13.08a + A13.08b)
5. Push the sliding sleeve (62.3) downwards.
→ The suspension beam is now engaged.
(Fig. A13.08c + A13.08d)

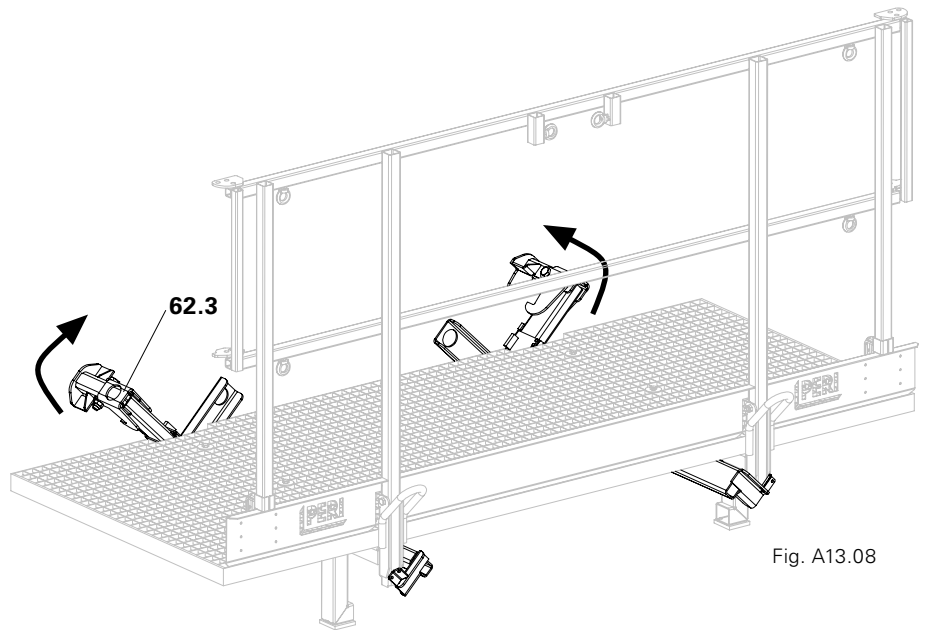


Fig. A13.08

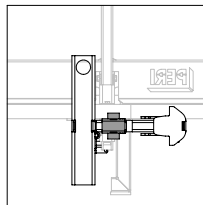


Fig. A13.08a

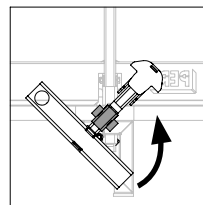


Fig. A13.08b

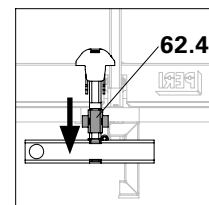


Fig. A13.08c

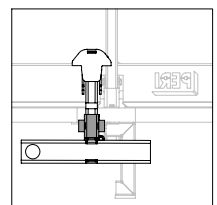


Fig. A13.08d

Guardrail installation



- Mount End Guardrail Frames (69) on all leading edges. (Fig. A13.09)
- Position guardrail extension of the concreting platform, see Fig. A13.10c.

Assembly

1. Pull bolt (69.1) upwards and hold. (Fig. A13.09a)
2. Install End Guardrail Frame. (Fig. A13.09)
3. Release bolt.



Is the bolt engaged? (Fig. A13.09b)
→ The guardrail is now secured.



- In order to position the extension of the guardrail (62.5), pull out the extension sideways, turn it 90° and then insert into the sleeves on the top guardrail and secure with the eyebolt (62.4) – right and left is possible. (Fig. A13.10c)
- Gaps between the concreting platforms: max. 50 cm.
 - In order to close any gaps, pull out the guardrail extension (62.5) sideways and secure using eyebolts (62.4). (not shown)
 - Fix Toe Board with nails.
 - Install scaffold boards and secure.

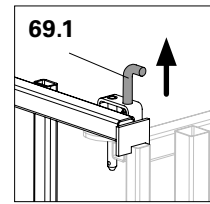


Fig. A13.09a

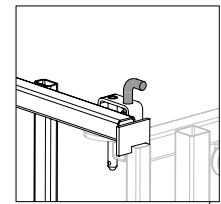


Fig. A13.09b

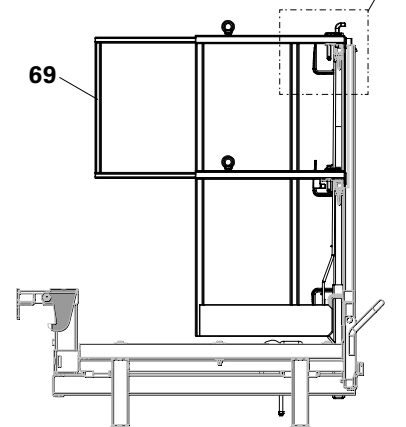


Fig. A13.09

Attaching the Concreting Platform MX 100 x 240

Attach the concreting platform to the four load-bearing points (62.6 + 62.7 2x each) using the 4-sling lifting gear. Ensure that the two chains which are attached to the lugs (62.7) are outside of the guardrail. (Fig. A13.10 + A13.10a + A13.10b)

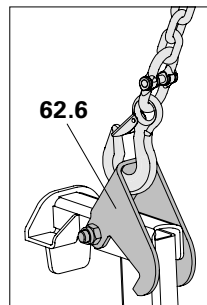


Fig. A13.10a



Fig. A13.10b

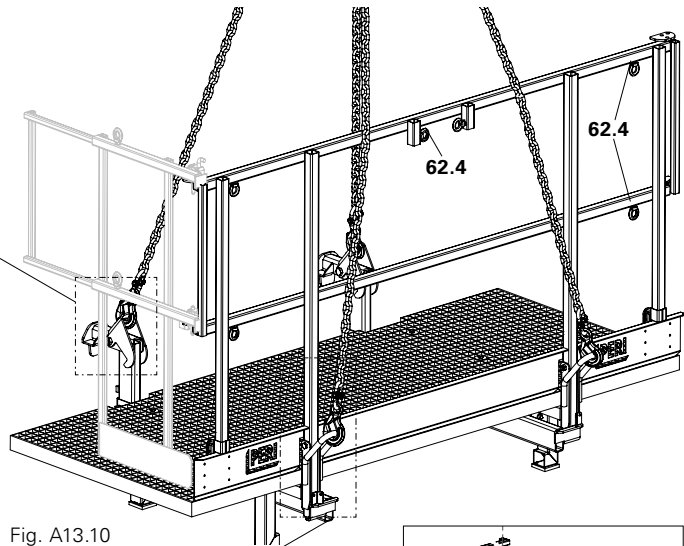


Fig. A13.10

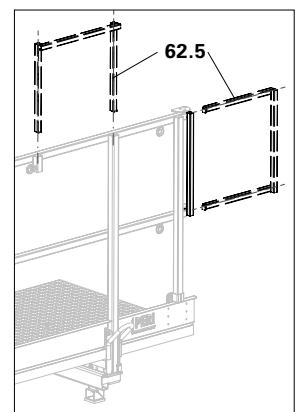


Fig. A13.10c
(without crane chain)

Mounting the Concreting Platform MX 100 x 240 on the panel



Do not stand under suspended loads.

| Pos. | Components | Item no. |
|------|--|----------|
| 10 | Panel TRIO height x width according to size | |
| 10.7 | Frame profile | |
| 62 | Concreting Platform MX 100 x 240 | 127273 |
| 62.2 | Suspension beam | |
| 62.6 | Retaining claw | |
| 69 | End Guardrail MXP right | 115946 |
| | left | 115945 |

Assembly

1. Attach the concreting platform (62) with the suspension beams (62.2) to the top frame profile of the panel. Guide from below using guide rope. (Fig. A13.11)

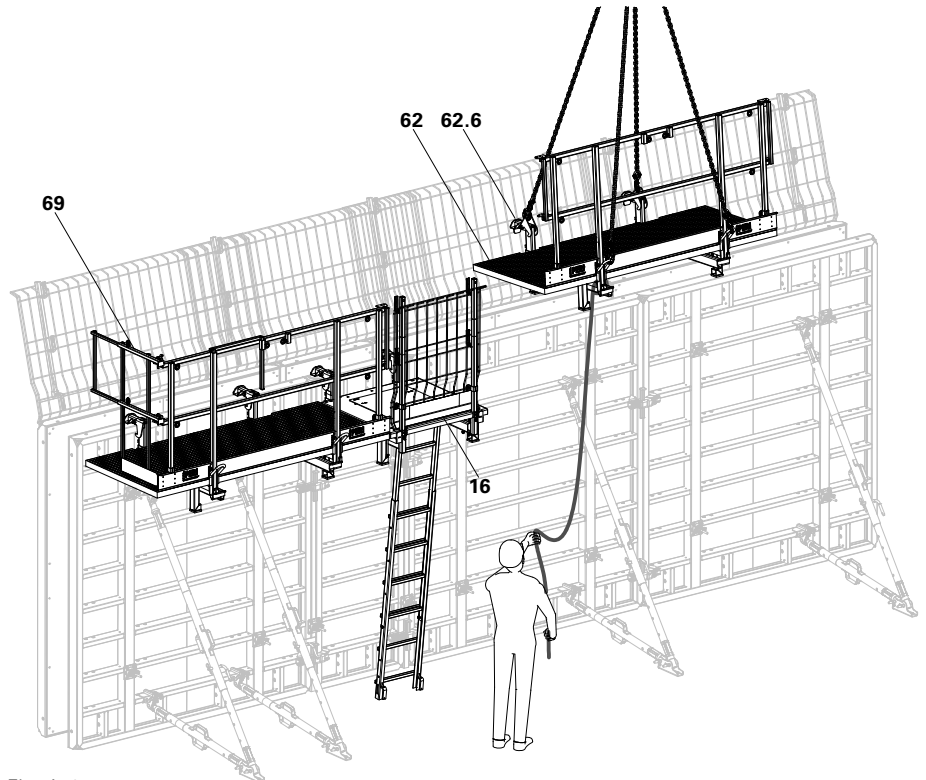


Fig. A13.11



Does the hook of the retaining claw (62.5) grip the frame profile (10.7) of the panel? (Fig. A13.12a)

2. Remove 4-sling lifting gear.
→ The retaining claw (62.6) grips the frame profile and concreting platform is secured. (Fig. A13.12 + A13.12a)

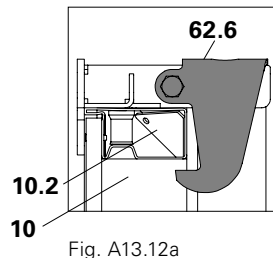


Fig. A13.12a

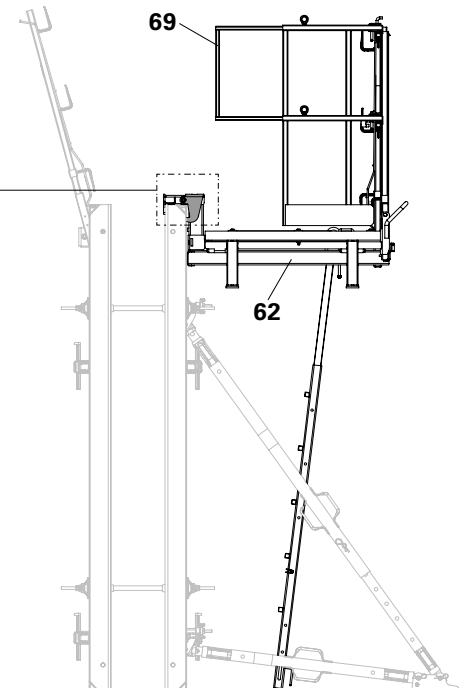


Fig. A13.12

Concreting Platform Hatch MX 100 x 100

| Pos. | Components | Item no. |
|-------------|---|----------|
| 63 | Concreting Platform Hatch MX 100 x 100 | 127885 |
| 63.1 | Suspension beam | |
| 63.2 | Sliding sleeve | |
| 63.3 | Retaining claw | |
| 63.4 | Post holder | |
| 63.5 | Suspension bracket | |
| 64 | Ladder 240-360 | 107738 |
| 64.1 | Hook | |
| 67 | Side Mesh Barrier PMB 90 | 126381 |
| 68 | Guardrail Post MXK | 126360 |

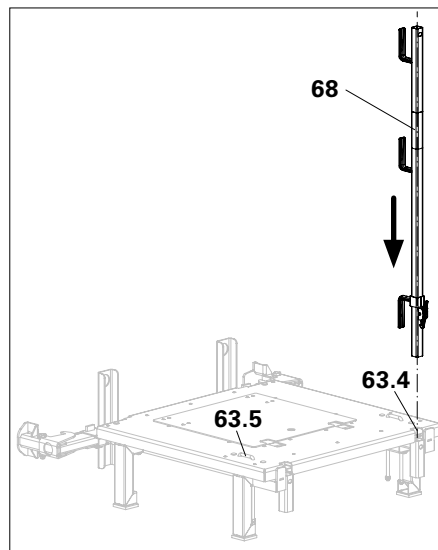


Fig. A13.13

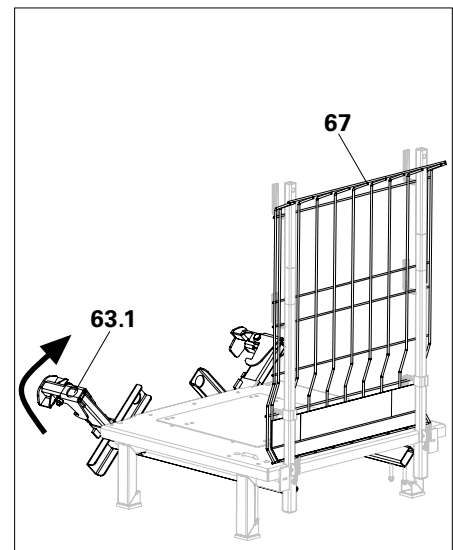


Fig. A13.14

Preparation of the Concreting Platform with Hatch

1. Insert Guardrail Post (68) in the Post Holder (63.4) – 2x. (Fig. A13.13)
2. Mount the Side Mesh Barrier (67). (Fig. A13.14)
3. Fold suspension beam (63.1) upwards. Ensure that the sliding sleeve (63.2) is at the top. (Fig. A13.14 + A13.14a + A13.14b)
4. Push the sliding sleeve downwards. (Fig. A13.14c)
→ The suspension beam is now engaged. (Fig. A13.14d)

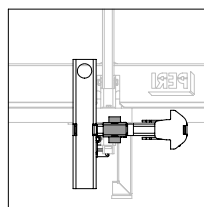


Fig. A13.14a

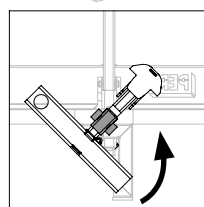


Fig. A13.14b

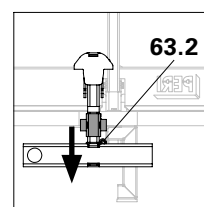


Fig. A13.14c

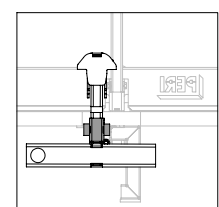


Fig. A13.14d

Attaching the Concreting Platform with Hatch

1. Take hold of the suspension bracket, pull upwards and attach to the crane hook of the 4-sling lifting gear – 2x.
2. Attach crane hook of the 4-sling lifting gear to the suspension beam (63.3) – 2x.
(Fig. A13.15 + A13.15a + A13.15b)
→ The chains are positioned inside of the Side Mesh Barrier.

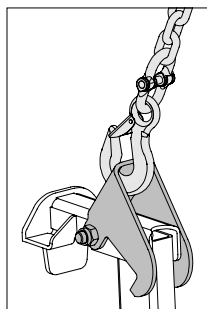


Fig. A13.15a

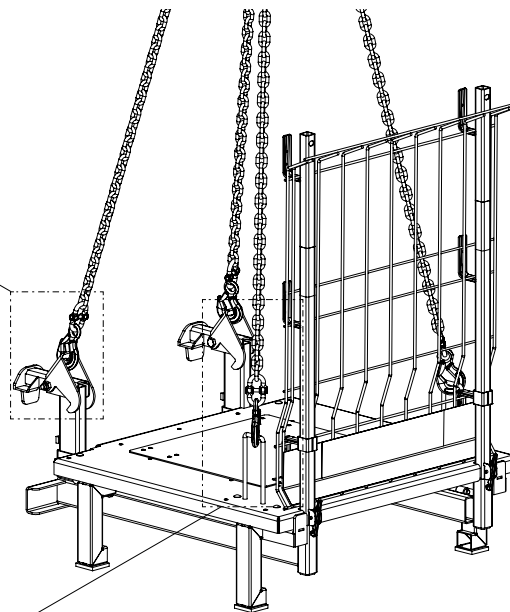


Fig. A13.15



Does the hook of the retaining claw (63.3) grip the frame profile (10.7) of the panel? (Fig. A13.12a)

Mounting the Concreting Platform with Hatch on the panel



Do not stand under suspended loads.

1. Attach the Concreting Platform (63) with the suspension beams (63.1) to the top frame profile of the formwork. Guide from below using guide rope. (Along the same lines as the Concreting Platform MX 100 x 240.)
2. Remove 4-sling lifting gear.
→ The retaining claw (63.3) grips the frame profile and concreting platform is secured.
(Fig. A13.12a)

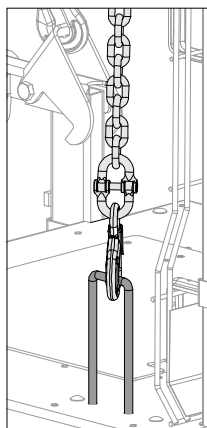


Fig. A13.15b

Mounting Ladder 240-360

1. Adjust the ladder (64) to the required length and secure using a linch pin.
2. If the ladder is too long, remove the base.
3. From below, push the ladder with the hooks (64.1) through the openings of the hatch cover.
 - Cover of the hatch opens.
4. Push the hooks (64.1) of the ladder over the cross beam of the concreting platform.
 - (Fig. A13.16)
 - Ladder is attached.
 - (Fig. A13.17)

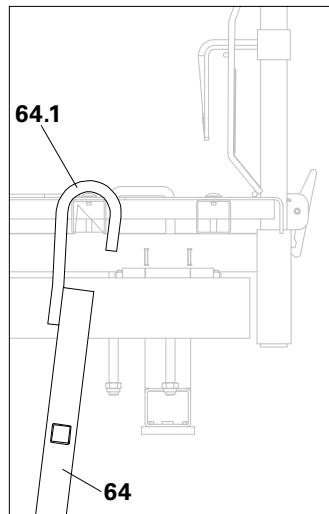


Fig. A13.16

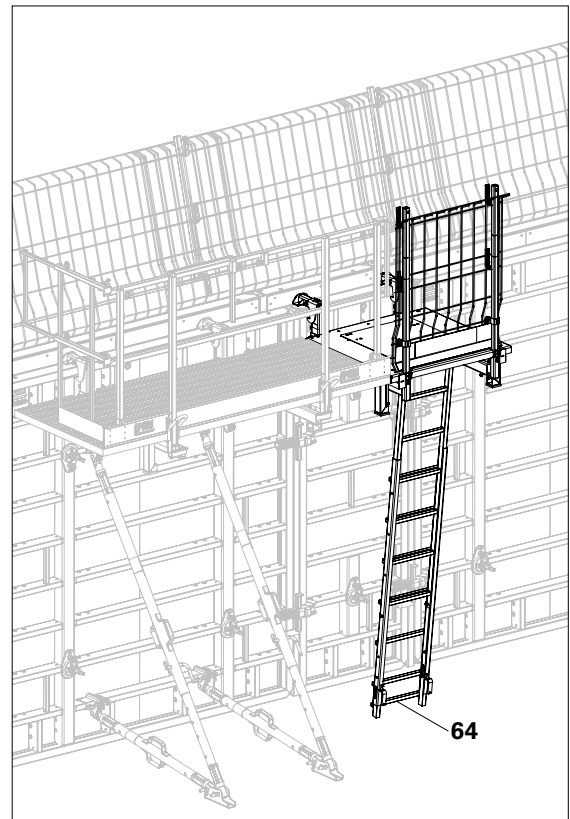


Fig. A13.17

Installing the Concreting Platform with Hatch at 90° inside corners

Use the Concreting Platform Hatch MX 100 x 100 (63) for 90° corners on the internal formwork. Subsequently mount the Concreting Platform MX 100 x 240 (62) in both directions. (Fig. A13.18)

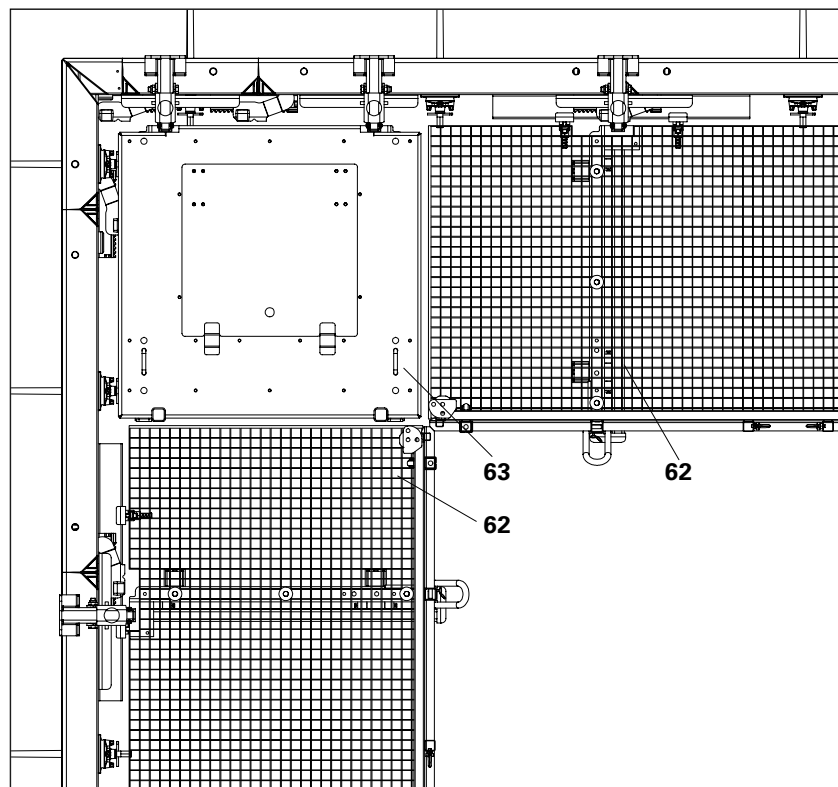


Fig. A13.18

Bracket System – MAXIMO MXK

A concreting platform is installed on the formwork using the Scaffold Bracket MXK (60).

Technical data

- Perm. load: 150 kg/m² Load Class 2 according to DIN EN 12811-1.



- **Secure planking.**
- **Decking components and guardrails must be positioned so that any movement is prevented.**
- **Follow Instructions for Assembly and Use for the MAXIMO MXK Bracket System.**



Assembly: see Instructions for Assembly and Use for the MAXIMO MXK Bracket System.

| Pos. | Components | Item no. |
|------|----------------------|----------|
| 60 | Scaffold Bracket MXK | 126356 |
| 68 | Guardrail Post MXK | 126360 |

Shown: height 2.70 m
(Fig. A13.19)

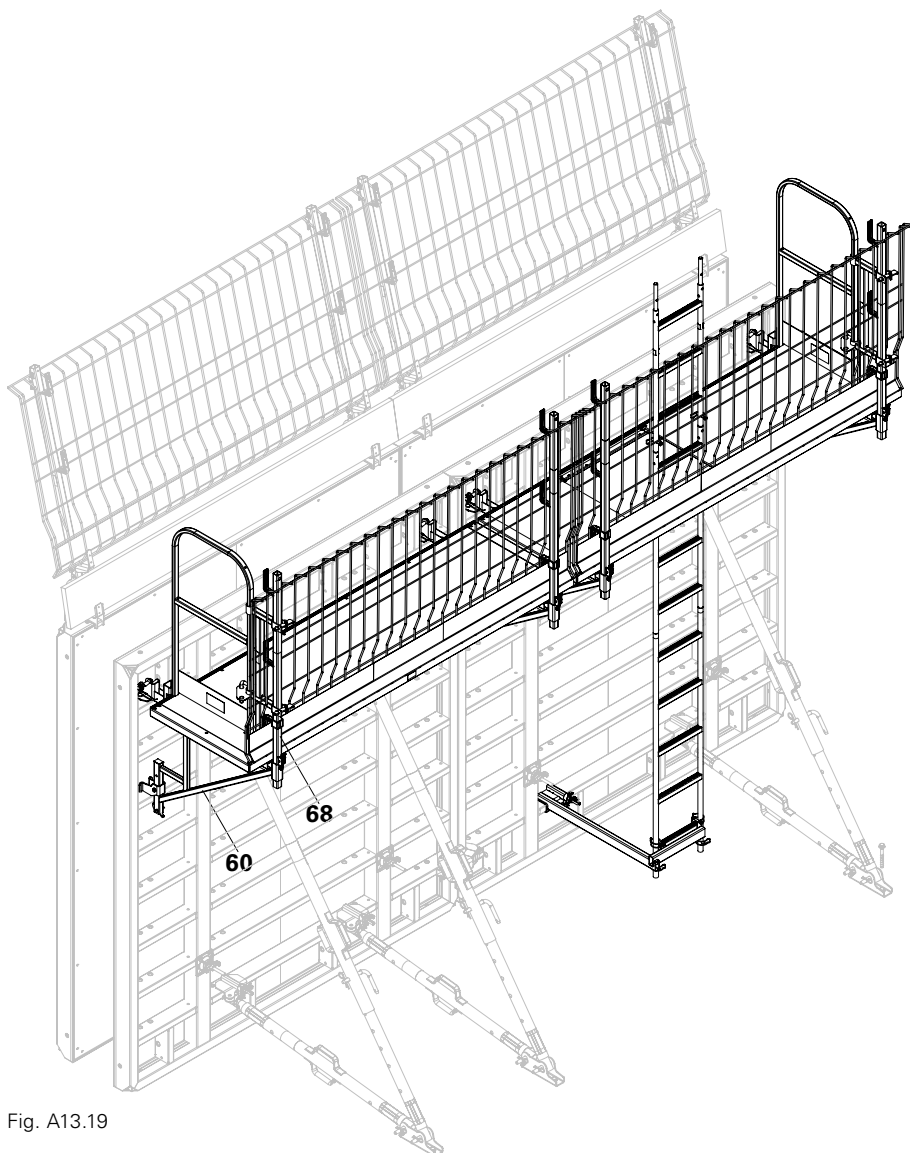


Fig. A13.19

Scaffold Bracket MXK-RS

The Scaffold Bracket MXK RS (59) provides the possibility of connecting a push-pull prop. Regarding the assembly and widths of influence, see design information for the Scaffold Bracket MXK-RS!

| Pos. | Components | Item no. |
|------|-------------------------|----------|
| 59 | Scaffold Bracket MXK-RS | 126540 |
| 68 | Guardrail Post MXK | 126360 |

(Fig. A13.19a)

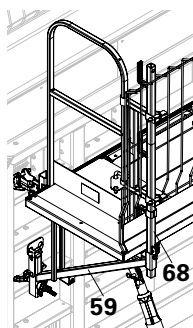


Fig. A13.19a

Scaffold Brackets TRG 80 and TRG 120

A concreting platform is mounted on the TRIO Panels using the Scaffold Brackets TRG 80 and TRG 120 (61).

Technical data

- Perm. load: 150 kg/m² Load Class 2 according to DIN EN 12811-1
- Max. width of influence 1.35 m

Assembly

1. Hook in Scaffold Brackets (61) in the connecting holes of the panels. (Fig. A13.20).
Installation is possible on the horizontal (Fig. A13.20a) and vertical (Fig. A13.20b) panel struts.
2. Install planking from below over the complete width of the brackets and secure in position.
3. Install ladder safety cage and secure.
4. Attach side protection, e.g. End Guardrail Frame 55 (72). (Fig. A13.21)

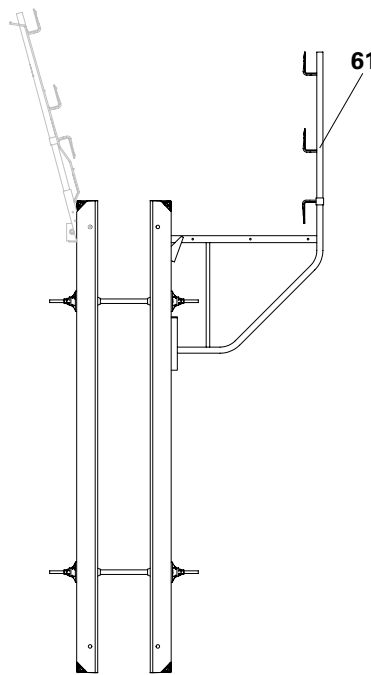
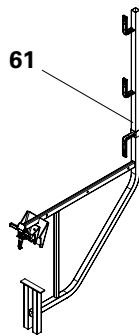


Fig. A13.20

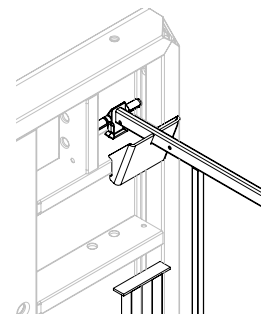


Fig. A13.20a

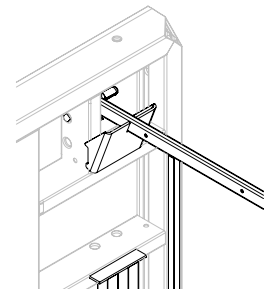


Fig. A13.20b



With extended formwork units, the working scaffold is mounted as part of the pre-assembly process.



Visual check of the suspension equipment.

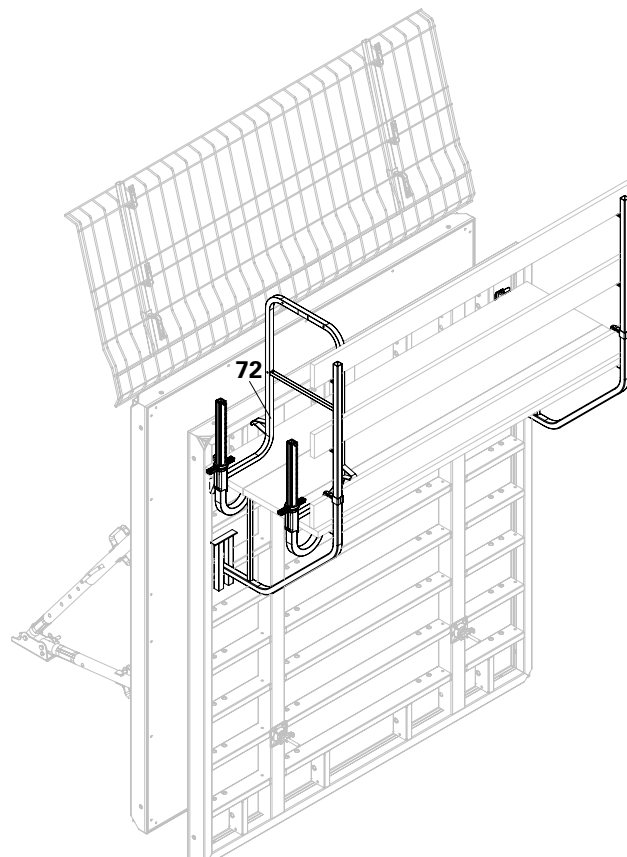


Fig. A13.21

Guardrail Post Holder TRIO



- Assembly is carried out on the horizontally-positioned panel!
- Connection is only possible to vertical panel struts!

Guardrails are mounted using the TRIO Guardrail Post Holder on the opposite side of the concreting platform.

Required components:

- Guardrail Post Holder TRIO (65)
 - Guardrail Post HSGP-2 (66)
- (Fig. A13.22 + A13.22a)

Technical data

Max. width of influence 1.35 m

Assembly

1. Hook in Guardrail Post Holder TRIO (65) into the connecting holes of the vertical struts of the panels.
 2. Secure with cotter pin.
 3. Insert Guardrail Post HSGP-2 (66).
 4. Install ladder safety cage and secure.
 5. Erect with the crane.
- (Fig. A13.23)



When erecting the panel, make sure that the ladder safety cage is not damaged by the lifting gear. With extended formwork units, the guardrails are mounted as part of the pre-assembly process. When striking, do not place the panel on the Guardrail Post Holder TRIO (65).

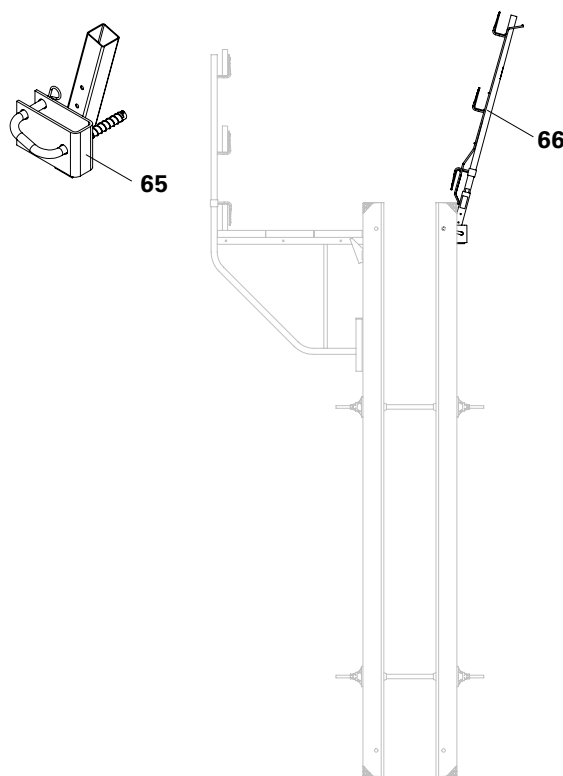


Fig. A13.22

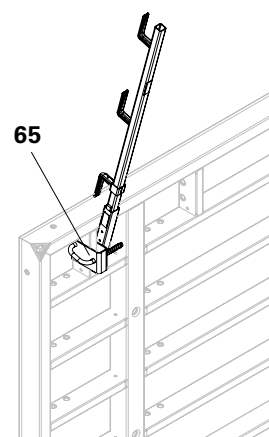


Fig. A13.22a

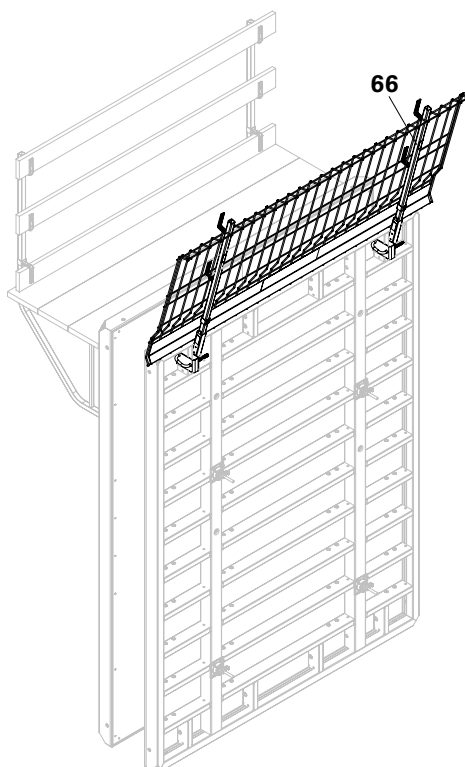


Fig. A13.23

Extensions up to $h = 5.40$ m



- Permissible load-bearing capacity of the Lifting Hook 1.5 t:
- With steel panels: 1.5 t
- With aluminium panels: 750 kg.
- Follow Instructions for Use: Lifting Hook MAXIMO 1.5 t!

Panel connections

With height extension units < 5.40 m, the Alignment Coupler BFD (20) is used on the panel joints. (Fig. A14.01a – d)



For extension possibilities, number and arrangement of Alignment Couplers BFD, Compensation Walers TAR 85 and formwork ties, see TRIO poster. Pre-assemble extension units in a horizontal position, with the formlining facing downwards, on a flat assembly surface. Place timbers or the like underneath.

Erection by crane. (Fig. A14.02)

TR 30 / 60 / 72

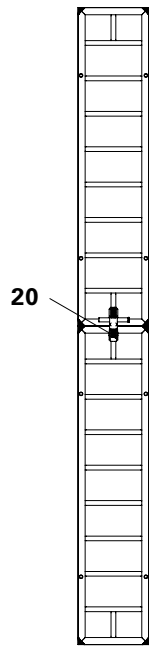


Fig. A14.01a

TR 90 / 120

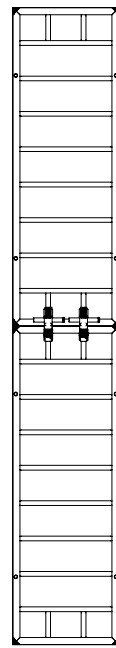


Fig. A14.01b

TR 270 x 240

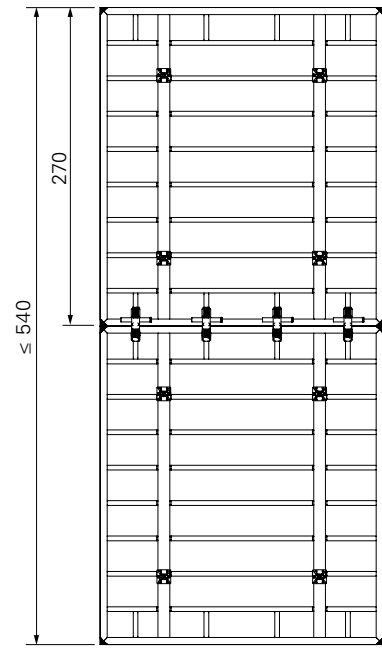


Fig. A14.01c

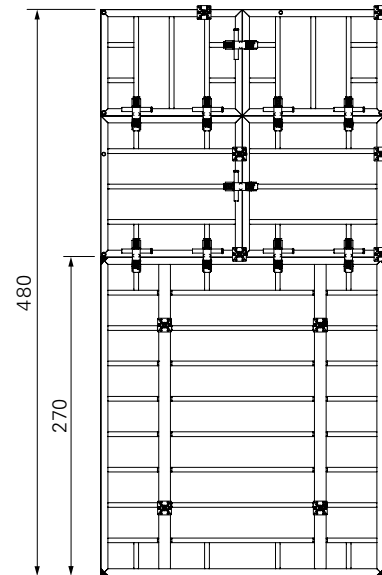


Fig. A14.01d

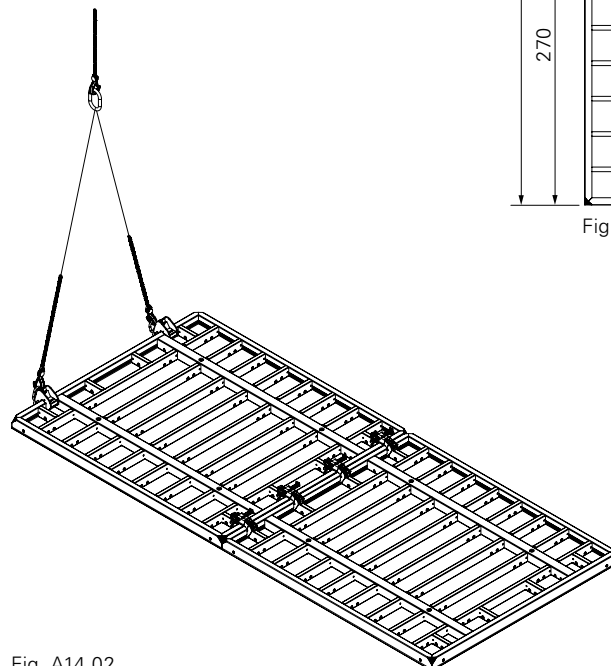


Fig. A14.02

Extensions up to $h = 8.10$ m



- Permissible load-bearing capacity of the Lifting Hook 1.5 t:
- With steel panels: 1.5 t
- With aluminium panels: 750 kg.
- Follow Instructions for Use: Lifting Hook MAXIMO 1.5 t!

Panel connections

With extension heights > 5.40 m, the Alignment Coupler BFD (20) and Compensation Waler TAR 85 (23) are used on the panel joints. (Fig. A14.03a + A14.03b)



For extension possibilities, number and arrangement of Alignment Couplers BFD, Compensation Walers TAR 85 and formwork ties, see TRIO poster. Pre-assemble extension units in a horizontal position, with the formlining facing downwards, on a flat assembly surface. Place timbers or the like underneath. When using the Panel TR 30 as the topmost extension panel, the top tie point is left unused.

Erection by crane. (Fig. A14.04)

TR 90 / 120

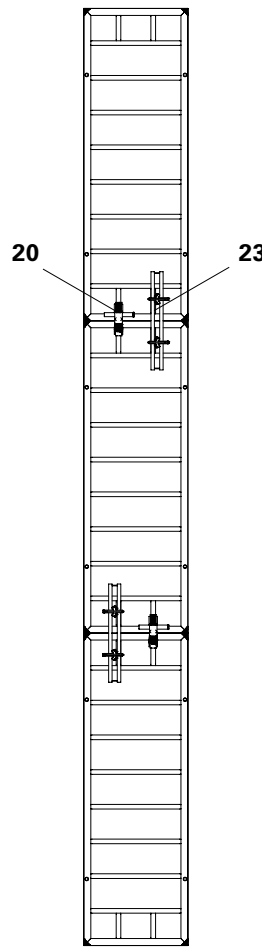


Fig. A14.03a

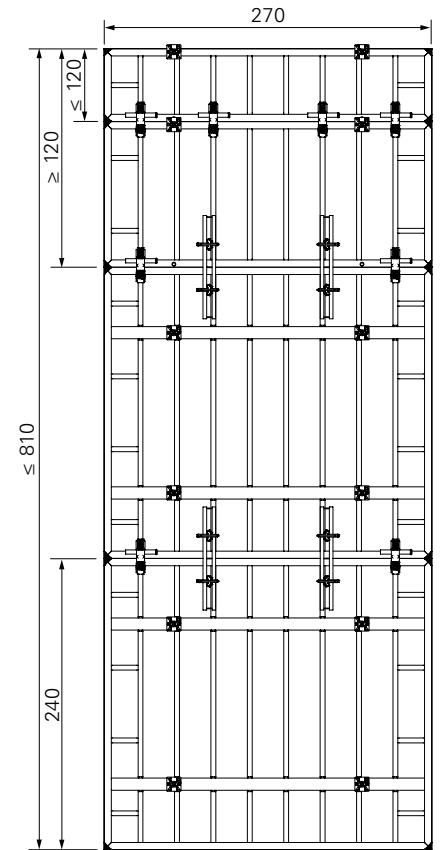


Fig. A14.03b

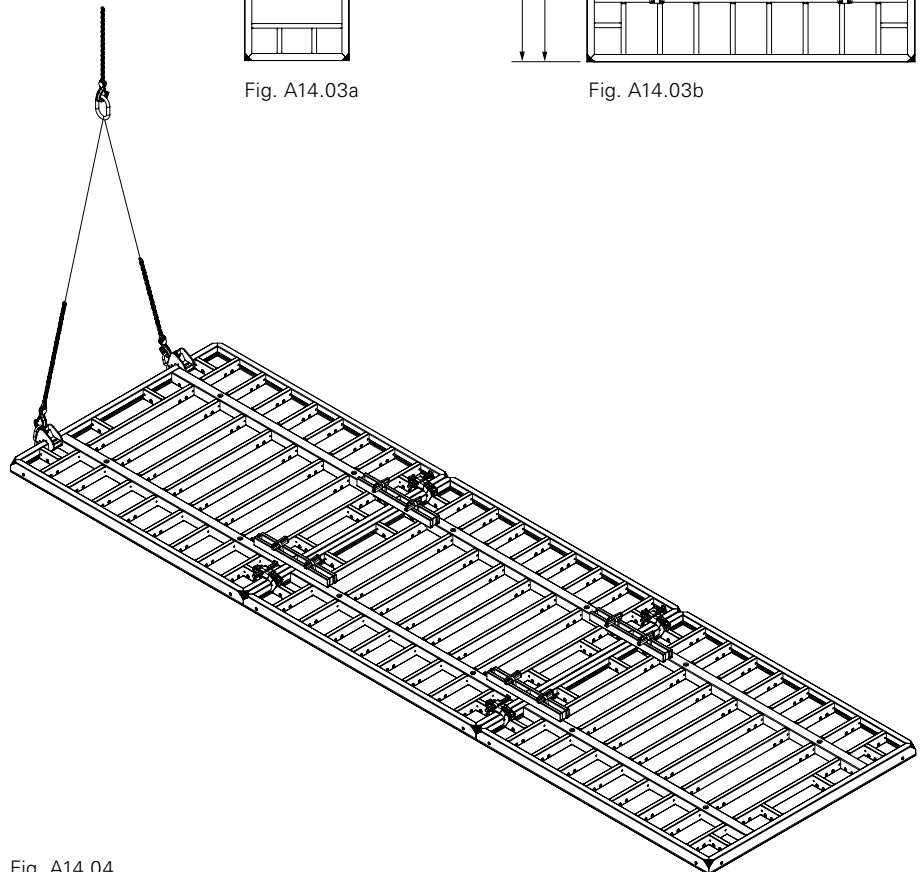


Fig. A14.04

Tension and Compression Brace

MX15-40 and MX 15-100



Perm. tension and compression force = 9 kN.

For max. height = 1.20 m, e.g. parapets.

Adjust Tension and Compression Brace to:

Setting dimension = wall thickness + 5 mm

| Pos. | Components | Item no. |
|------|---|----------|
| 70 | Tension and Compression Brace MX 15-40 | 115350 |
| 70.1 | Safety Hook | |
| 70.2 | Mounting Shoe | |
| 70.3 | Spacer Rack | |
| 71 | Tension and Compression Brace MX 15-100 | 123842 |

Preparation

- Adjust Mounting Shoe (70.2) of the Tension and Compression Brace to required setting dimension:
 - Remove cotter pin from bolt.
 - Pull bolt out of Spacer Rack.
 - Slide holes of the Mounting Shoe (70.2) and Spacer Rack (70.3) on top of each other according to the setting dimension.
 - Insert bolts through holes.
 - Insert cotter pin into the hole of the bolt.
- Swing Safety Hook (70.1) of the compression brace upwards. (Fig. A15.01a)
 - Tension and Compression Brace is opened for positioning.
- Oil the Spacer Rack (70.3).

Assembly

- Place Tension and Compression Brace on the panel; at the same time, mount the Mounting Shoe (70.2) in the edge profile of the formwork.
- Press the Safety Hook (70.1) downwards over the edge profile and the panel strut of the formwork.
 - Tension and Compression Brace is locked in position.

Depending on the wall thickness, the following table shows which Tension and Compression Brace can be used.

| Wall thickness | Tension and Compression Brace | |
|----------------|-------------------------------|-----------|
| | MX 15-40 | MX 15-100 |
| ≤ 40 cm | x | x |
| ≤ 100 cm | – | x |

Wall thickness

- Wall thickness ≤ 40 cm: MX 15-40 (Fig. A15.01)
- Wall thickness ≤ 100 cm: MX 15-100 (Fig. A15.02)

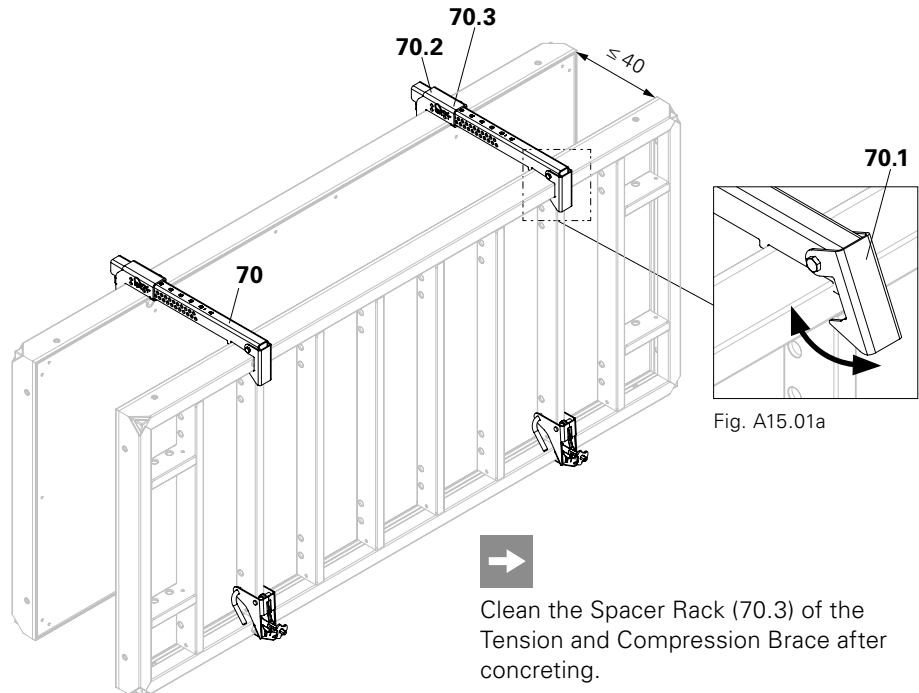


Fig. A15.01



Clean the Spacer Rack (70.3) of the Tension and Compression Brace after concreting.

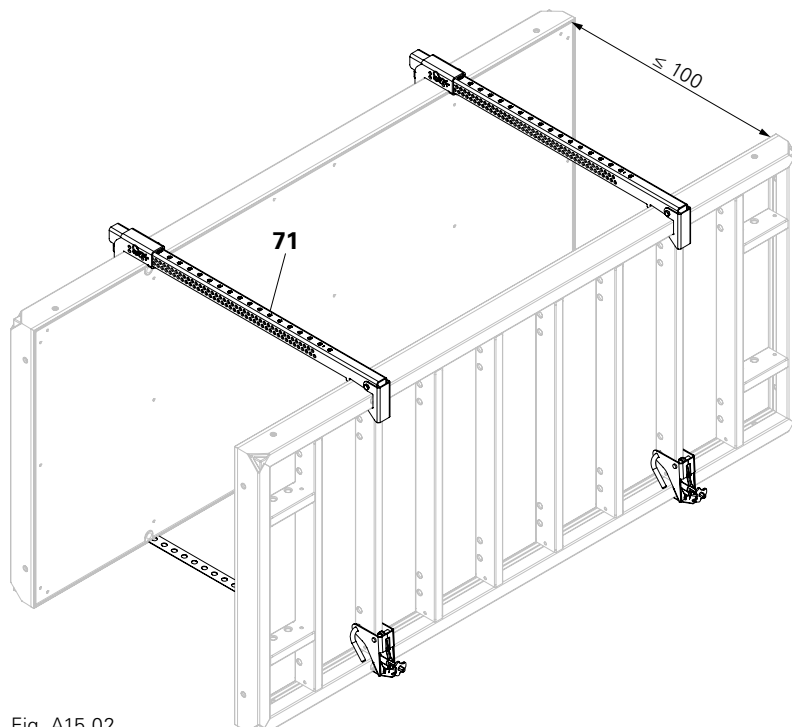


Fig. A15.02

Foundation Tie Clamp TRIO TLS

If the bottom tie positions in the strip and individual foundations are missing, the Foundation Tie Clamp with Perforated Foundation Tie are used.

Required length of the Perforated Foundation Tie:

Foundation width + 50 cm.

Assembly

1. Place TRIO Panels on the Perforated Foundation Tie (86).
2. Attach Foundation Tie Clamp TRIO TLS (85) to the bottom connection hole by means of bolts (85.1).
3. Attach Perforated Foundation Tie to the Tensioning Lever (85.2).
4. Tension using Ratchet, SW 14.
Perm. tension force: 12.9 kN.
(Fig. A15.03)

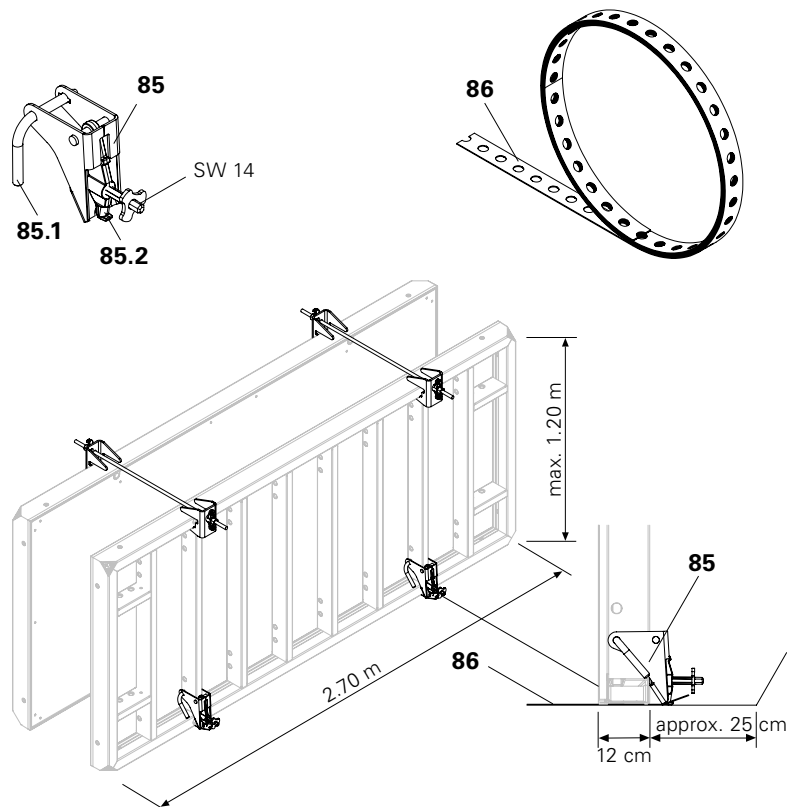


Fig. A15.03

Foundation Strap TRIO

Item no. 023800

The Foundation Strap (75) is used for forming individual foundations using the "windmill configuration".
(Fig. A15.04 + A15.04a)

| Pos. | Components | Quantity |
|------|---------------------------|----------|
| 10 | Panel TRIO height x width | 4x |
| 75 | Foundation Strap TRIO | 8x |
| 76 | Locating board | 4x |

| H [cm] | perm. B [cm] |
|--------|--------------|
| 60 | 255 |
| 90 | 200 |

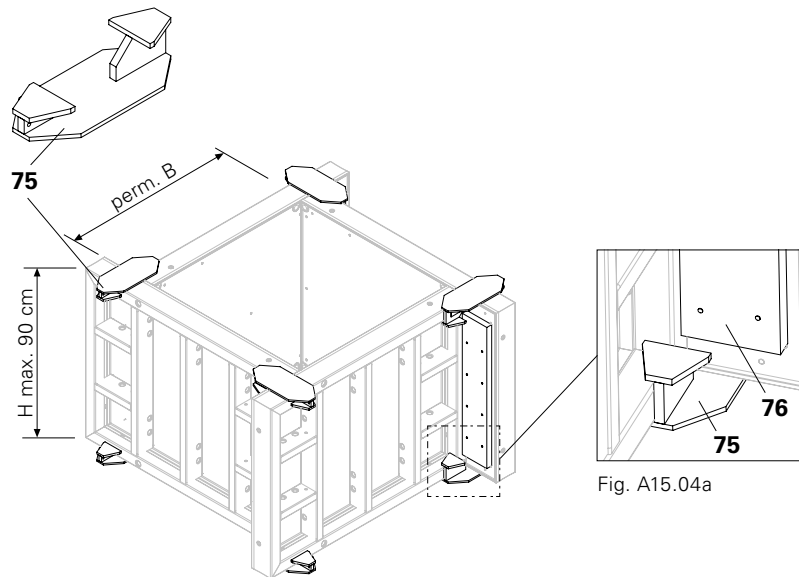


Fig. A15.04

Assembly

- Place two panels (10) at right angles to each other on the ground in a Foundation Strap.
- Secure locating board (76) on the formlining with nails.
 - with spacing $B + 12$ cm as well as
 - 5 cm from the edge of the panel at the top and bottom.
- Place the Foundation Strap (75) on the edge of the panel on the protruding panel.
- Slide Foundation Strap as far as possible on the offset panel.
 - Upper web rests against the panel.
(Fig. A15.04a)
- Install additional panels, locating boards and Foundation Straps.
(Fig. A15.04)

Polygonally formed TRIO Panels

Circular structures can be formed with TRIO by using the corresponding panel widths and filler timber. See table below.

Anchoring takes place by means of filler timber.



- In order that the effectiveness of the Alignment Coupler BFD (20) is not impaired, the panels may not deviate from the centre more than 2.6° . (Fig. A16.01)
- Filler timber width of the inner compensation (50) = min. 4 cm.
- Filler timber width of the outer compensation (50) = max. 10 cm. (Fig. A16.02)
- Do not set the Alignment Coupler BFD (20) on the struts. (Fig. A16.03)

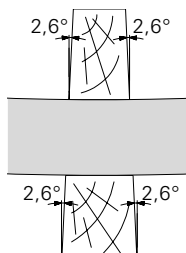


Fig. A16.01

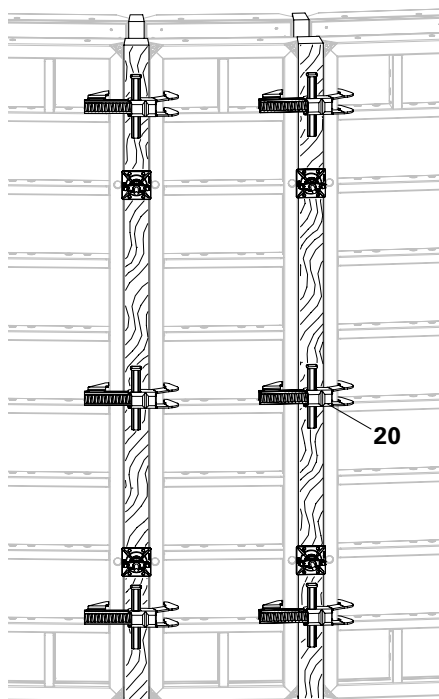


Fig. A16.03

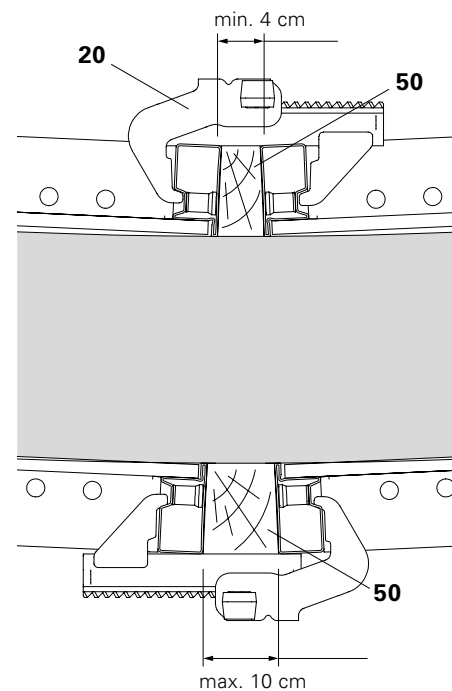
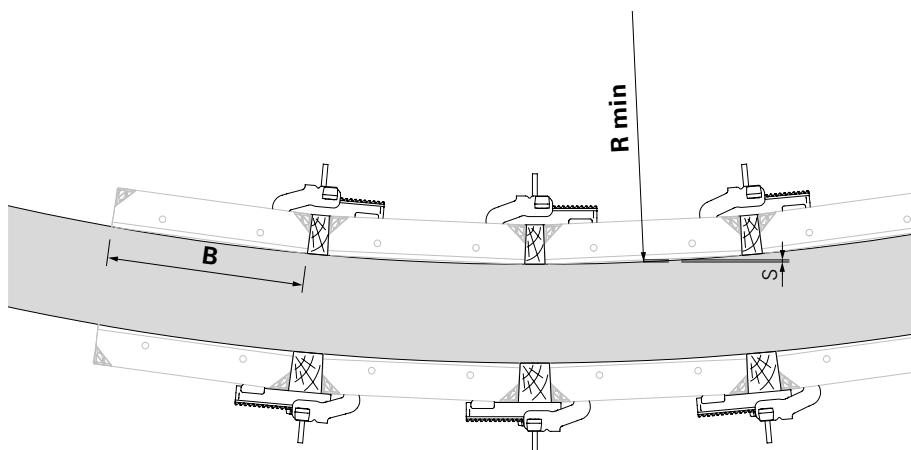


Fig. A16.02

| B | R min [m] | S [mm] |
|--------|-----------|--------|
| TR 30 | 3.55 | 4 |
| TR 60 | 6.90 | 7 |
| TR 72 | 8.25 | 8 |
| TR 90 | 10.25 | 11 |
| TR 120 | 13.60 | 14 |
| TR 240 | 26.95 | 28 |
| TR 270 | 30.30 | 31 |



Shaft Element TSE



Load-bearing capacity 2.0 t!

For fast striking and moving of TRIO Shaft Formwork.

Assembly

1. Insert Shaft Element (90) between two TRIO Panels. (Fig. A17.01)
2. Secure with bolt and cotter pin (90.1). (Fig. A17.02)
 - Panel TR 30 is secured using the inner drilled holes.
 - With TRIO Panel TR 60, 72, 90 and 120, secure in the outer bore hole.
3. Transport panel unit to place of use and attach to the internal formwork with the Alignment Couplers BFD. (Fig. A17.03)
4. Bring shaft element into shuttering position by means of a crowbar. Press formwork lever downwards. (Fig. A17.04a + A17.04b)
5. Anchor through the shaft element.



- Minimum internal shaft width 1.30 m.
- With Panel TR 30 upwards, there is the possibility of connecting the panels with the Shaft Element TSE.
- It is not possible to connect the Panel TR 24 and TRIO Inside Corner TU.

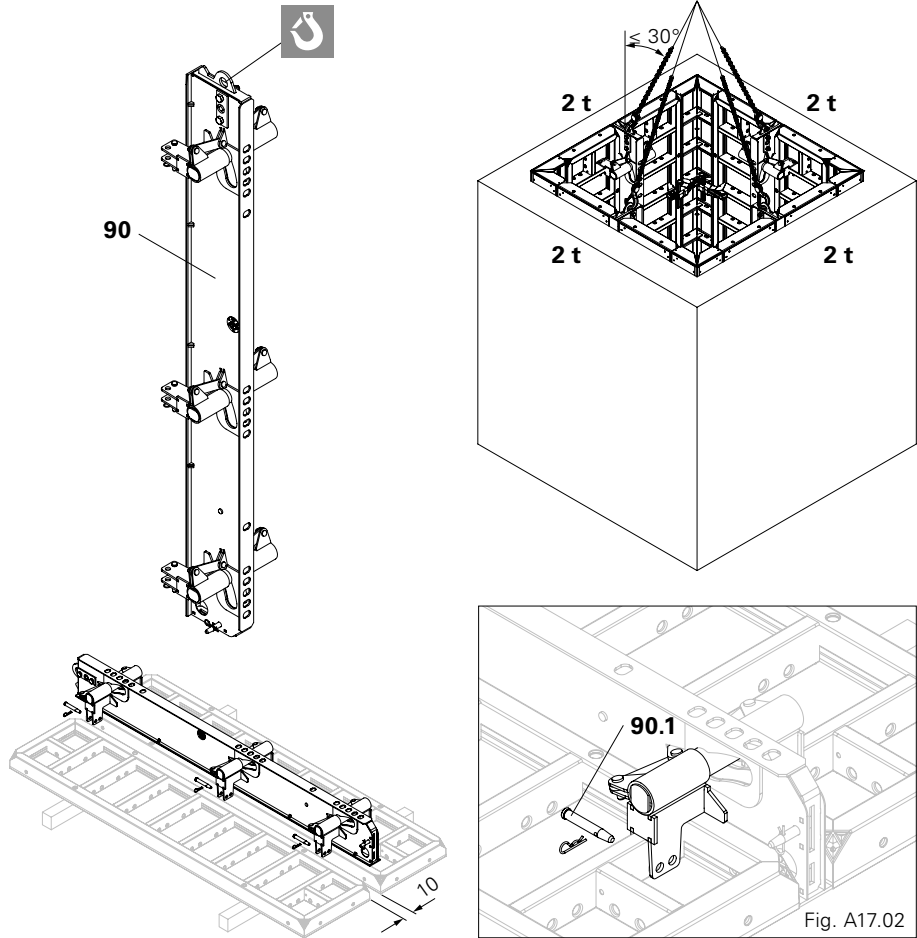


Fig. A17.01

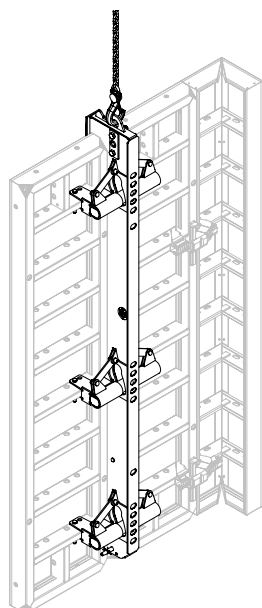


Fig. A17.03

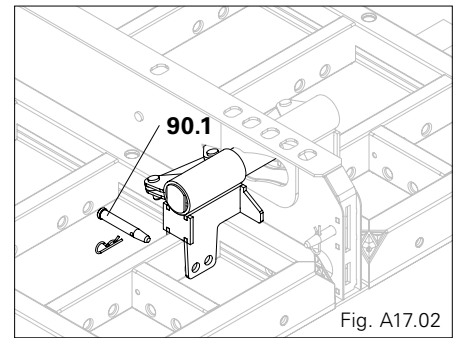


Fig. A17.02

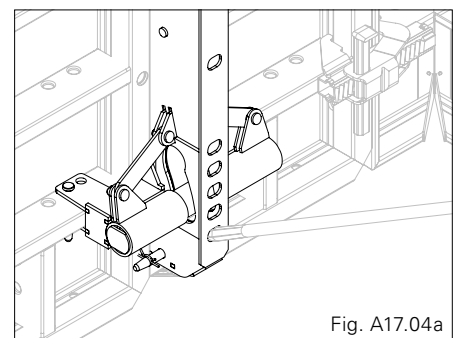


Fig. A17.04a

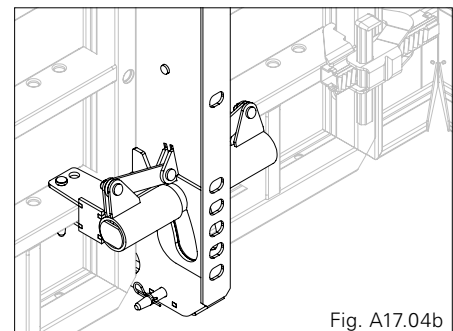
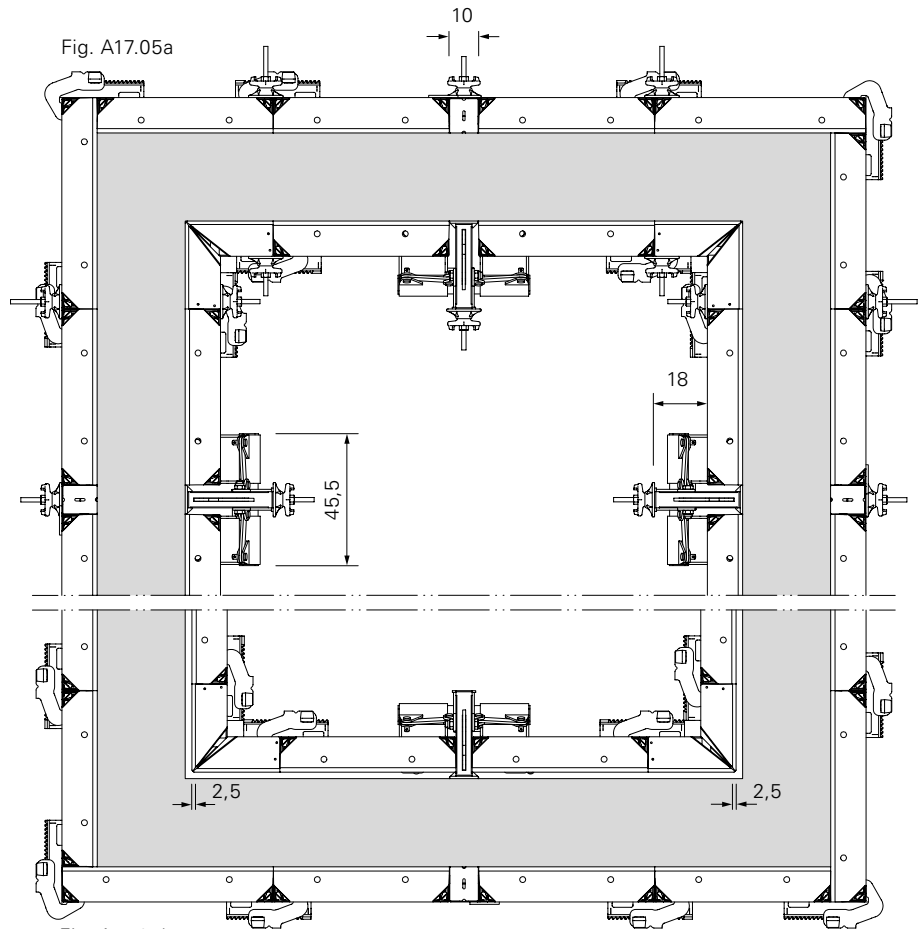


Fig. A17.04b

Shuttered condition

- The compensation in the external formwork opposite is 10 cm wide.
 - Anchoring takes place through the shaft element.
- (Fig. A17.05a)



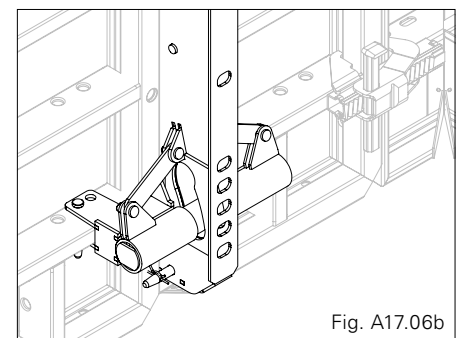
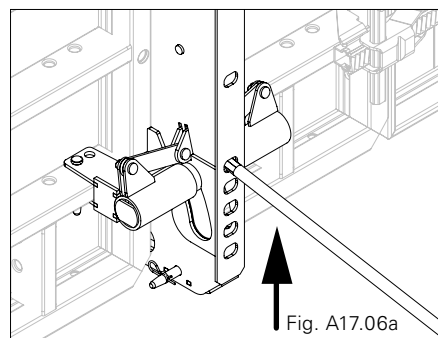
Struck condition

Striking

1. Remove anchoring components.
2. Attach crane lifting gear to all four shaft elements.
3. Tension slightly and bring the shaft element into striking position with crowbar. Push crowbar upwards. (Fig. A17.06a + A17.06b)
The striking dimensions are reduced by 2.5 cm on each side of the shaft. (Fig. A17.05b)
4. Lift the complete shaft internal formwork.

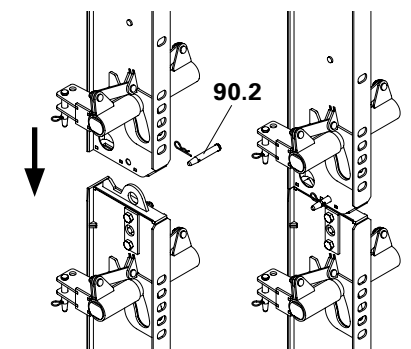


With rectangular shafts, adjustable lifting chains are required due to the different lengths of the attachment points in order to achieve virtually the same tension force on all four slings.



Extensions

Place shaft elements on top of each other and secure with bolts (90.2). (Fig. A17.07a + A17.07b)





Not permissible for other formwork systems.

Shaft Corner TRIO 330

(Fig. A11.01)

| Pos. | Components | Item no. |
|------|-----------------------|----------|
| 89 | Shaft Corner TRIO 330 | 129945 |
| 89.6 | Hole of the lug | |



Horizontally pre-assemble the shaft formwork. (Fig. A17.09a)

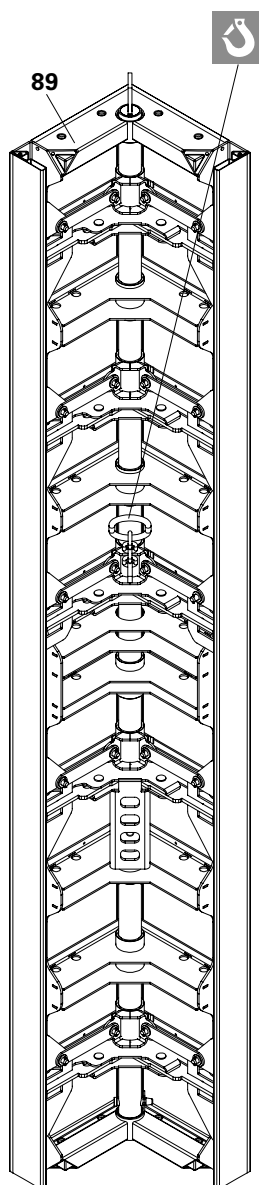


Fig. A17.08



Do **not** attach the crane hook into the lug hole (89.6)! (Fig. A17.08a)

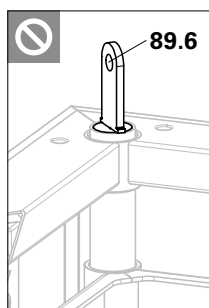


Fig. A17.08a

Crane suspension



- Perm. load-bearing capacity of the lifting hook: 1.5 t.
- Follow Instructions for Use for the Lifting Hook MAXIMO 1.5 t.

Lifting Hook MAXIMO 1.5 t

For use with:
two Shaft Corners TRIO (89) and two TRIO Corners TE (5) height 270/330.
(Not shown)

| Pos. | Components | Qty |
|------|---------------------------|-----|
| 5 | Corner TE/4 330 | 2 |
| 11 | Lifting Gear Combi MX | 1 |
| 13 | Lifting Hook MAXIMO 1.5 t | 2 |
| 89 | Shaft Corner TRIO 330 | 2 |

For use with:
four Shaft Corners TRIO height 330 (89).
(Fig. A17.09a + A17.09b)

| Pos. | Components | Qty |
|------|---------------------------|-----|
| 11 | Lifting Gear Combi MX | 1 |
| 13 | Lifting Hook MAXIMO 1.5 t | 2 |
| 89 | Shaft Corner TRIO 330 | 4 |

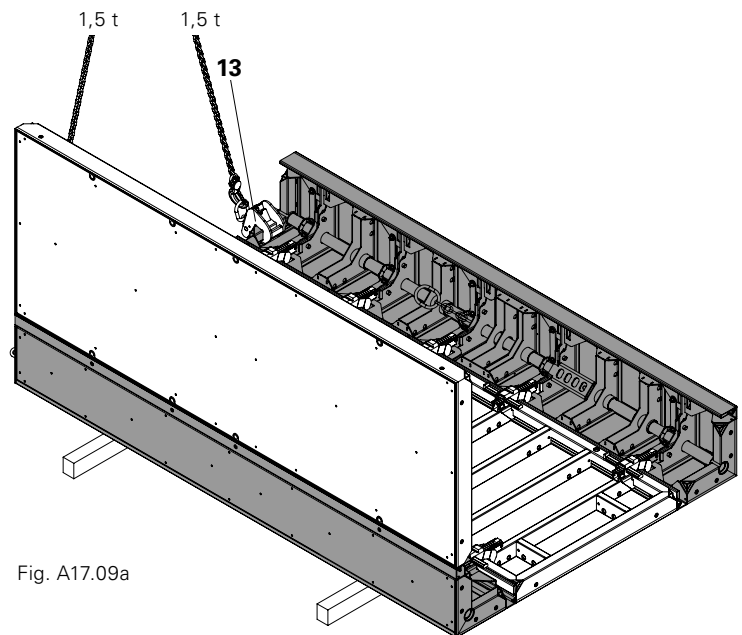


Fig. A17.09a

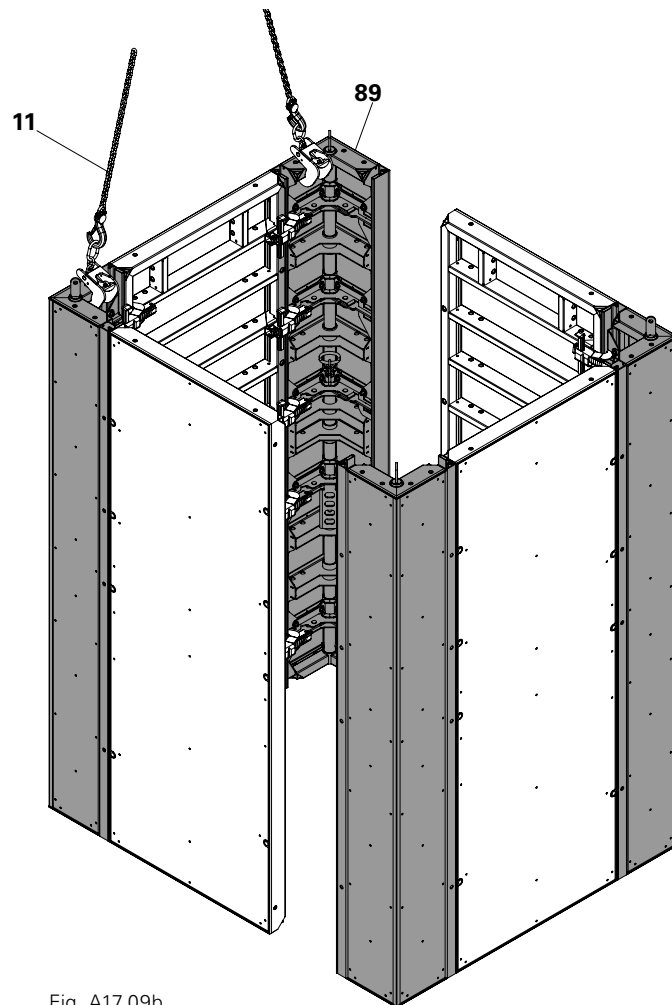


Fig. A17.09b

Height 270 Shaft Corner TRIO

Two TRIO Shaft Corners 330 and
two Corners TE 270-2
Height 270
Wall thickness 150/200/250

Internal shaft wall

| Pos. | Components | Item no. |
|------|-----------------------|----------|
| 6 | Corner TE 270-2 | 022580 |
| 20 | Alignment Coupler BFD | 023500 |
| 45 | Panel TRIO 270 x 120 | 022510 |
| 89 | Shaft Corner TRIO 330 | 129945 |

Arrangement of the Alignment Couplers BFD

Shown:

- Shaft dimensions: 2.50 m x 2.50 m
 - Wall thickness 20 cm
- (Fig. A17.10 + A17.10a + A17.10b)

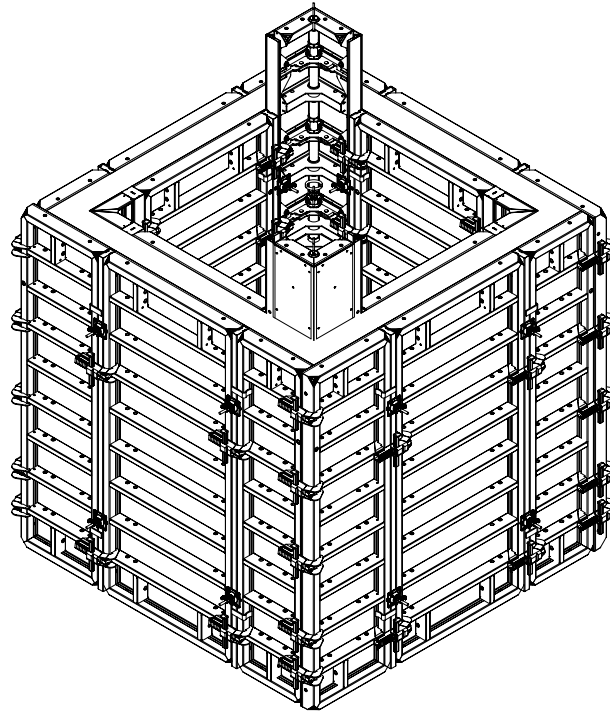


Fig. A17.10

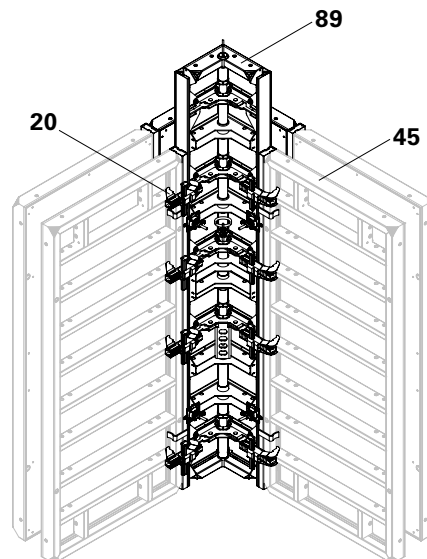


Fig. A17.10a

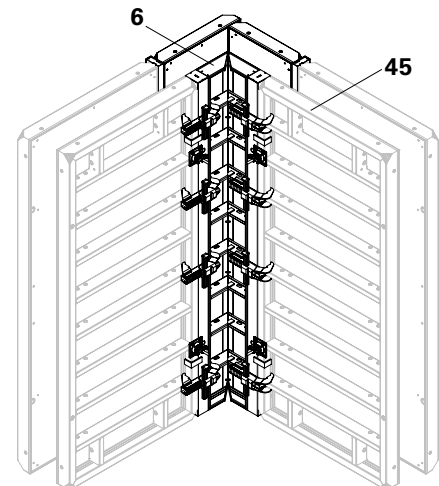


Fig. A17.10b

Height 270 Shaft Corner TRIO

Four Shaft Corners TRIO 330
Height 270
Wall thickness 150/200/250

Internal shaft wall

| Pos. | Components | Item no. |
|------|-----------------------|----------|
| 20 | Alignment Coupler BFD | 023500 |
| 45 | Panel TRIO 270 x 120 | 022510 |
| 89 | Shaft Corner TRIO 330 | 129945 |

Arrangement of the Alignment Couplers BFD

Shown:

- Shaft dimensions 2.50 m x 2.50 m
 - Wall thickness 20 cm
- (Fig. A17.11 + A17.11a)

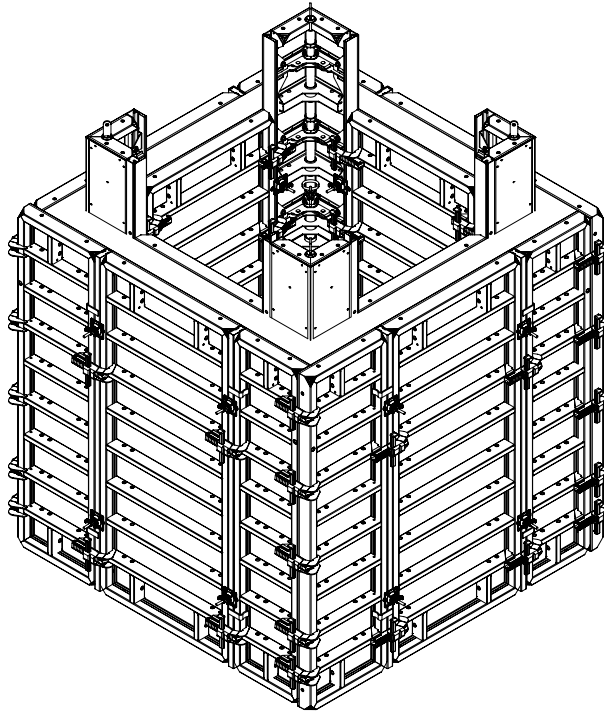


Fig. A17.11

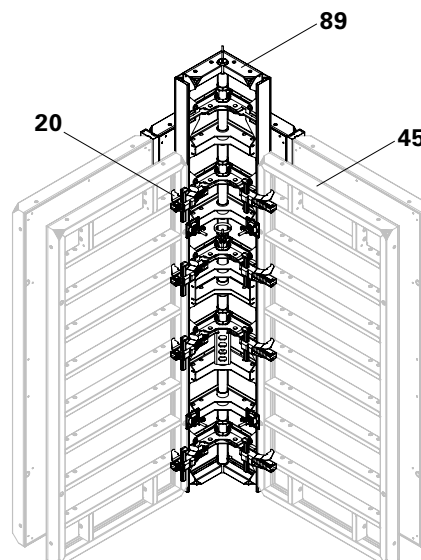


Fig. A17.11a

Height 3300 Shaft Corner TRIO

Two TRIO Shaft Corners 330 and
two Corners TE/4 330
Height 330
Wall thickness 150/200/250

Internal shaft wall

| Pos. | Components | Item no. |
|------|-----------------------|----------|
| 7 | Corner TE/4 330 | 054374 |
| 20 | Alignment Coupler BFD | 023500 |
| 46 | Panel TRIO 330 x 120 | 054314 |
| 89 | Shaft Corner TRIO 330 | 129945 |

Arrangement of the Alignment Couples BFD

Shown:

- Shaft dimensions 2.50 m x 2.50 m
 - Wall thickness 20 cm
- (Fig. A17.12 + A17.12a + A17.12b)

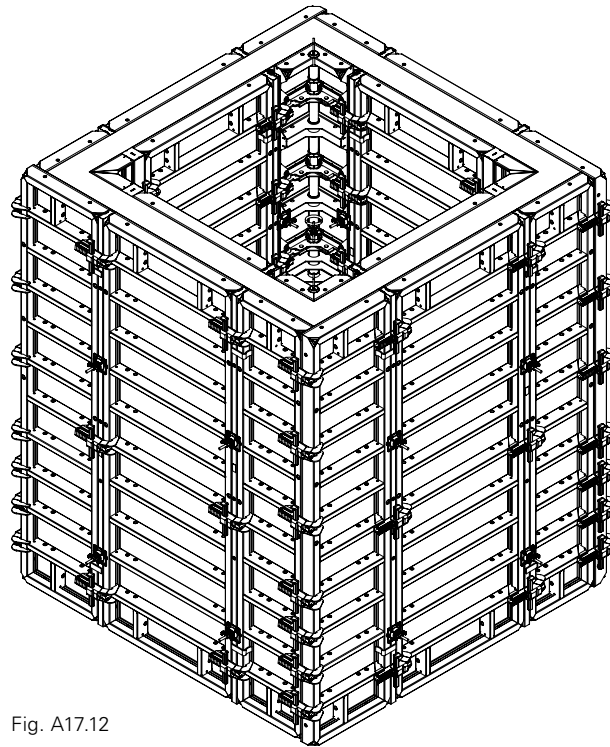


Fig. A17.12

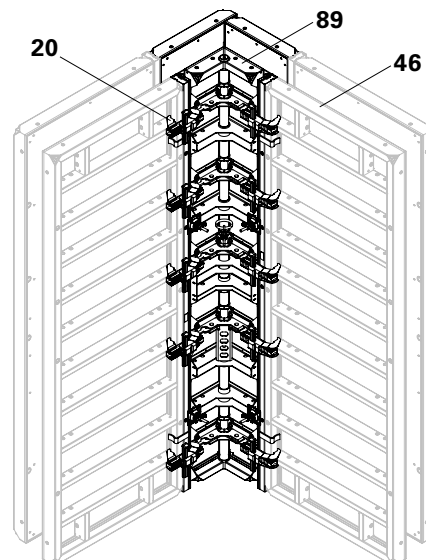


Fig. A17.12a

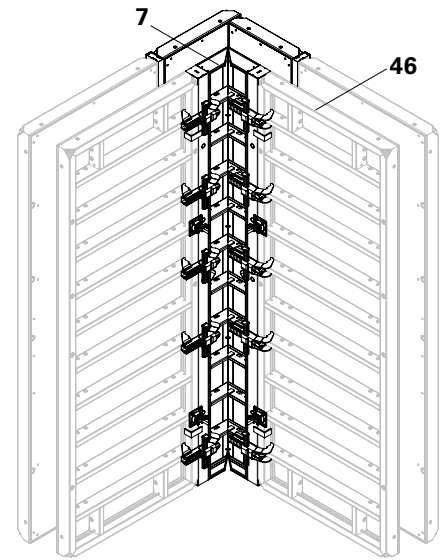


Fig. A17.12b

Height 330 Shaft Corner TRIO

Four Shaft Corners 330
Height 330
Wall thickness 150/200/250

Internal shaft wall

| Pos. | Components | Item no. |
|------|-----------------------|----------|
| 20 | Alignment Coupler BFD | 023500 |
| 46 | Panel TRIO 330 x 120 | 054314 |
| 89 | Shaft Corner TRIO 330 | 129945 |

Arrangement of the Alignment Couplers BFD

Shown:

- Shaft dimensions 2.50 m x 2.50 m
 - Wall thickness 20 cm
- (Fig. A17.13 + A17.13a)

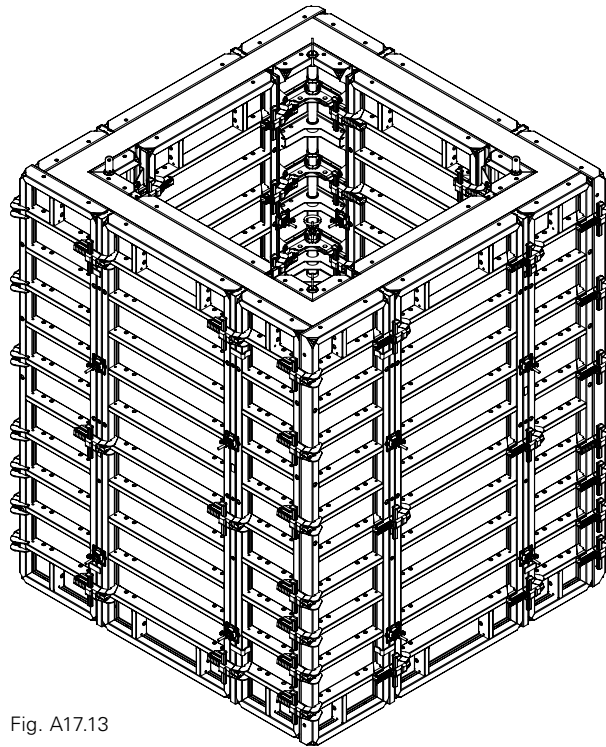


Fig. A17.13

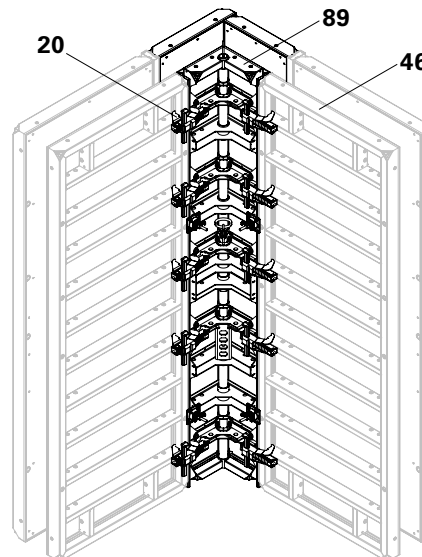
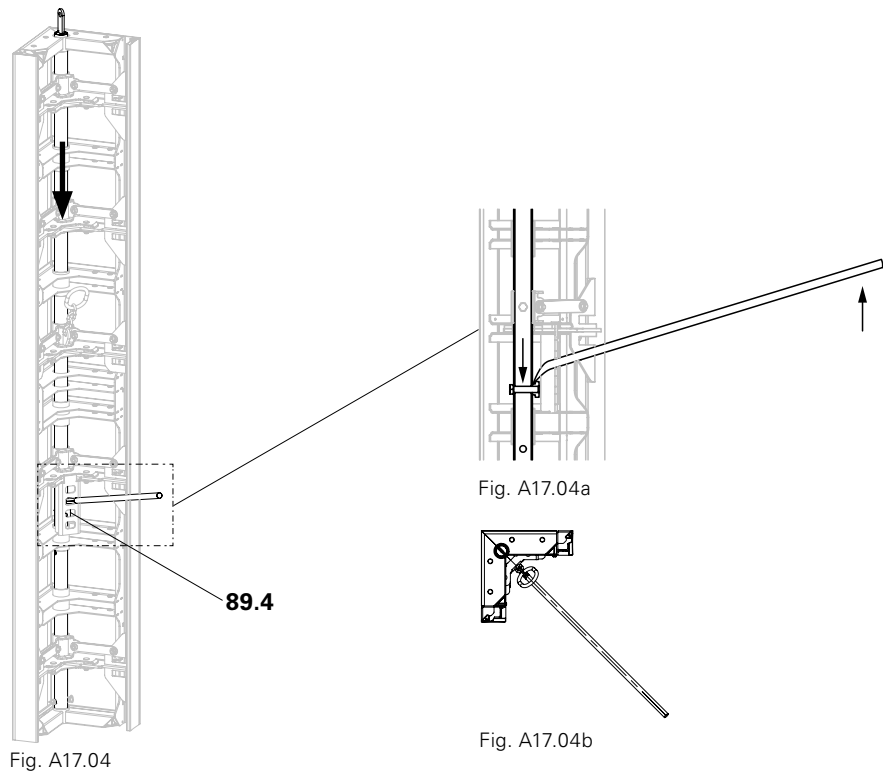


Fig. A17.13a

Shuttering

1. Insert crowbar into the opening (89.4) and press upwards.
→ The tube slides downwards.
(Fig. A17.04 + A17.04a + A17.04b)
2. Press movable edge strut outwards using the crowbar.
→ The transition from shaft corner to following panel is flush and tight.

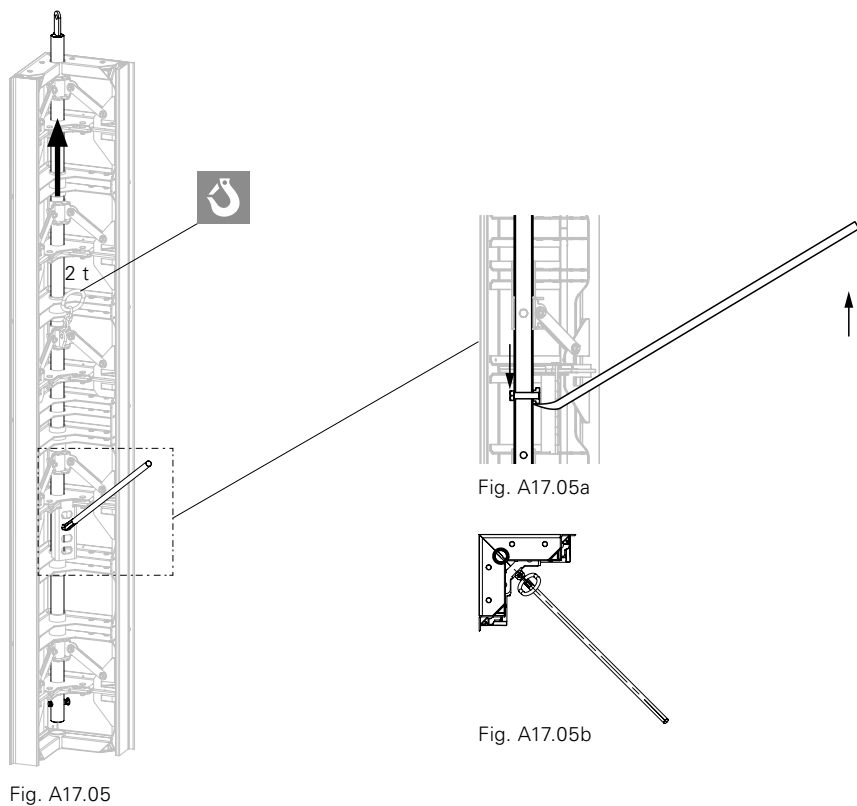


Striking



- Perm. load capacity of 2 t per load-bearing point.
- Do not exceed the crane capacity.
- Follow Instructions for Use for Lifting Gear Combi MX.

1. Remove tie rods of the closing formwork¹⁾
2. Attach crane lifting gear to the load-bearing point (Fig. A17.05):
 - with 4 shaft corners, use 4 load-bearing points,
 - with 2 shaft corners, use 2 load-bearing points.
3. Tension crane slings.
4. Press crowbar downwards.
→ The tube slides upwards and the striking position has been adjusted.
(Fig. A17.05 + A17.05a + A17.05b)
5. Pull the complete internal formwork upwards and move.



1) Closing formwork is the external formwork of the shaft.



There are two possibilities for constructing a shaft:

- With two Shaft Corners TRIO
- With four Shaft Corners TRIO

The option to be used is project-specifically determined. It depends on:

- the striking clearance
- the weight per shaft and
- the number of nails for box-outs of individual components, e.g. for windows and doors.

Shaft with two Shaft Corners TRIO

The striking dimensions are reduced by 17.5 mm on each side of the shaft. (Fig. A17.06)

shuttered

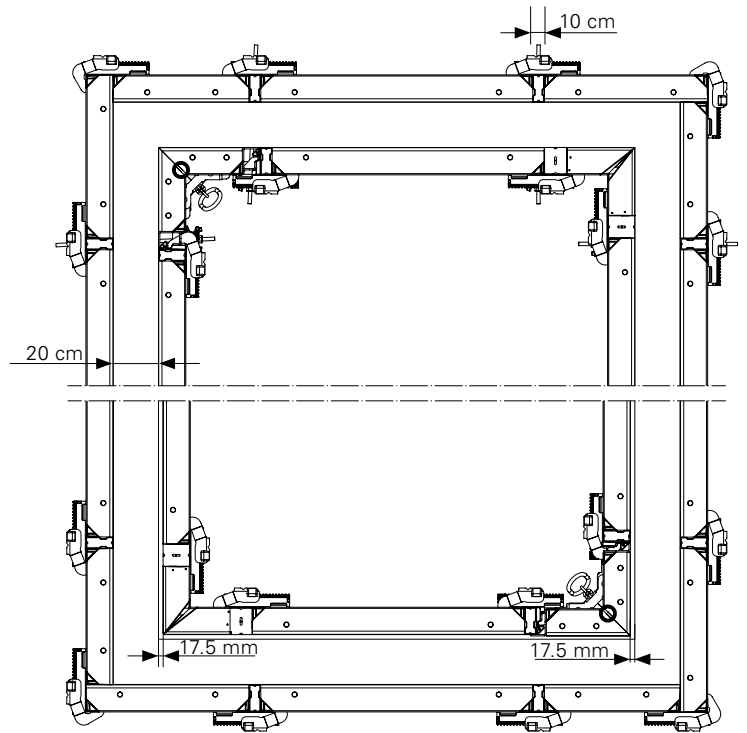


Fig. A17.06

struck

Shaft with four Shaft Corners TRIO

The striking dimensions are reduced by 35 mm on each side of the shaft. (Fig. A17.07)

shuttered

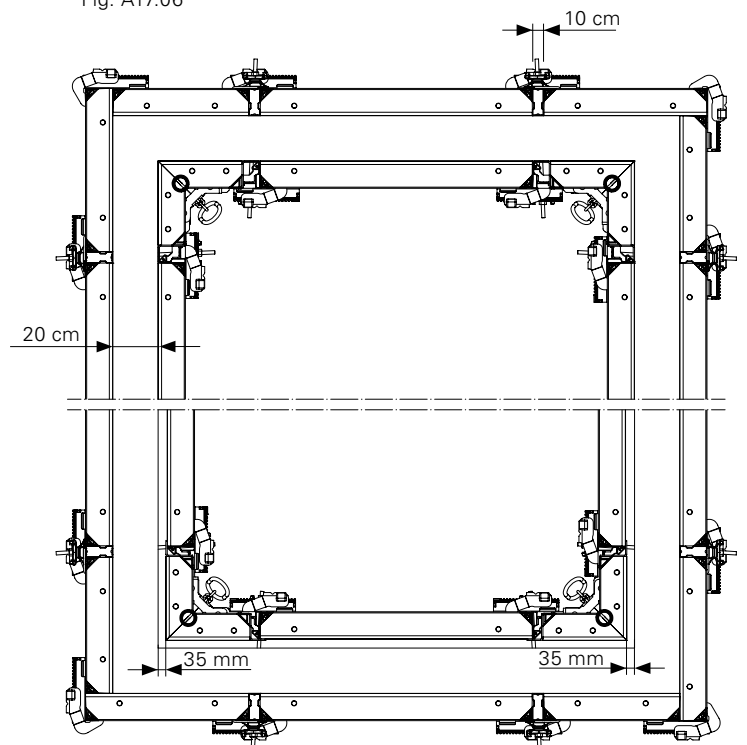


Abb. A17.07

struck

Wall thicknesses



Dimensions in the illustrations of the wall thicknesses (WD) are given in mm.

Shaft with two Shaft Corners TRIO

Shaft with four Shaft Corners TRIO

Wall thickness 150

(Fig. A17.08a + A17.08b)

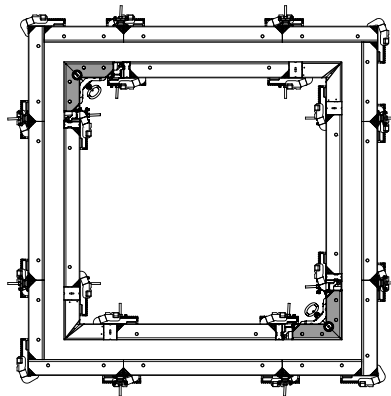


Fig. A17.08a

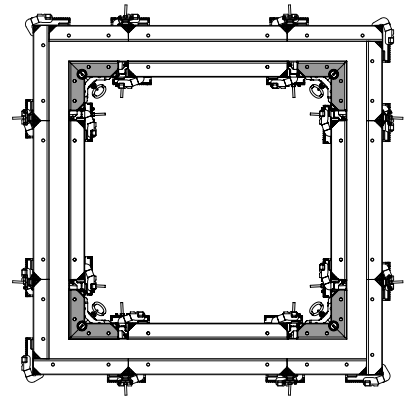


Fig. A17.08b

Wall thickness 200

(Fig. A17.09a + A17.09b)

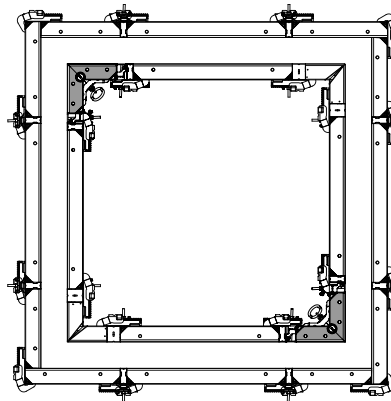


Fig. A17.09a

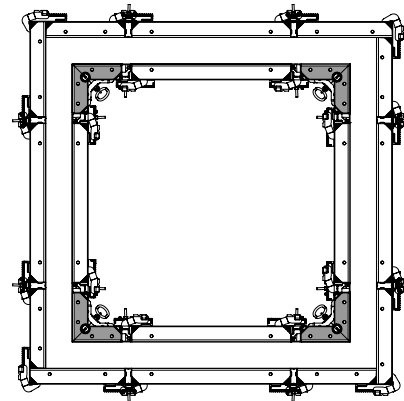


Fig. A17.09b

Wall thickness 250

(Fig. A17.10a + A17.10b)

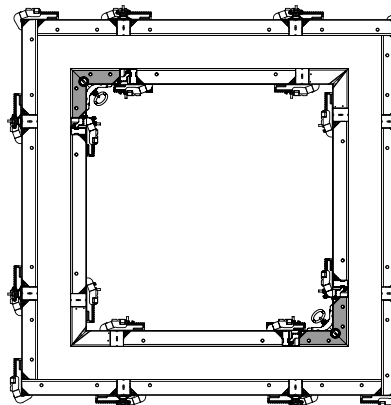


Fig. A17.10a

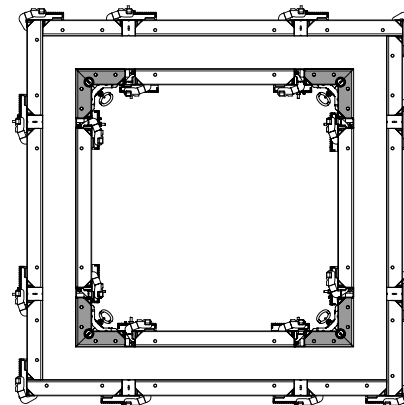


Fig. A17.10b

Extensions

Shown: height 330 cm

Assembly

1. Remove cotter pins and bolts (89.3).
(Fig. A17.11a)
2. Position shaft corners on top of each other. (Fig. A17.11 + A17.11b) Thereby, push the tension strap of the bottom panel into the tube of the top panel.
→ The holes are congruent.
3. Insert bolts (89.3) through the congruent holes and secure with cotter pins.
(Fig. A17.11 + A17.11c)

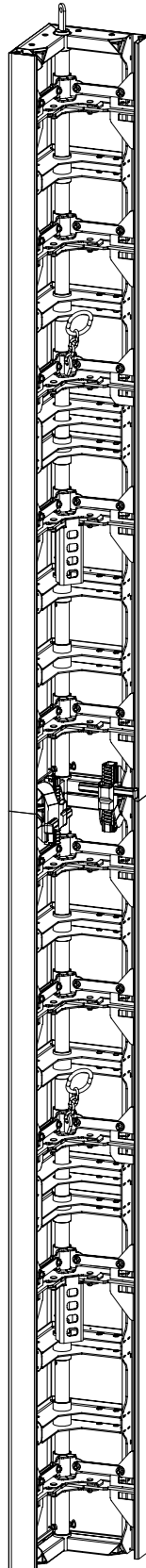


Fig. A17.11

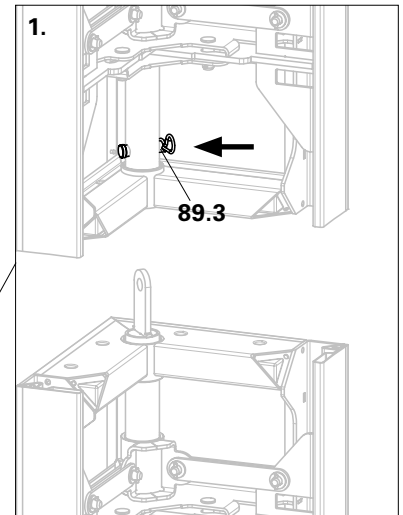


Fig. A17.11a

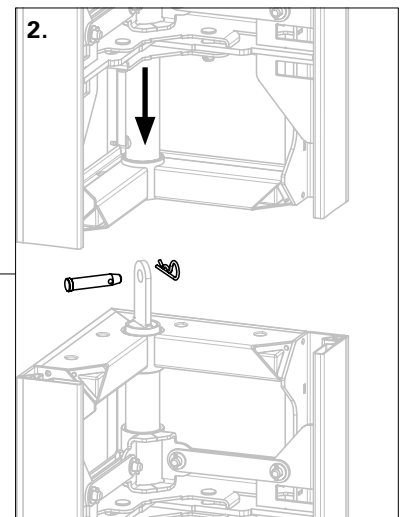


Fig. A17.11b

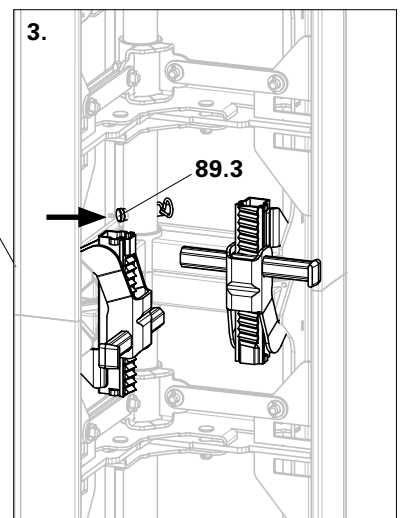


Fig. A17.11c

Standard joint

Panel connection with 3 x Alignment Coupler BFD (20).
(Fig. B1.01)



For concreting height 3.30 m, only anchor rows ① + ③ are to be used.

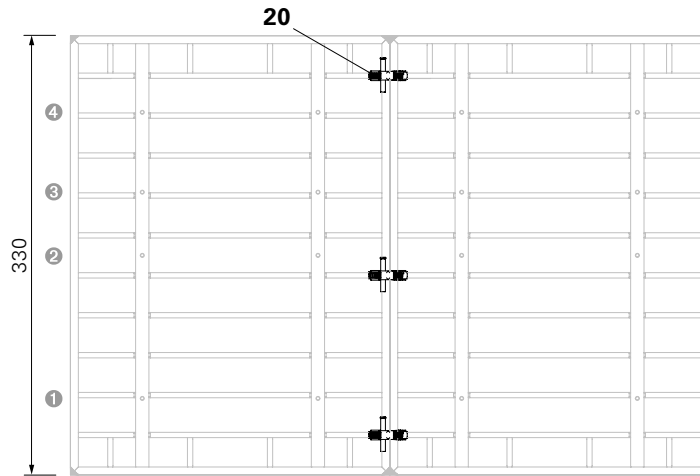


Fig. B1.01

Combination 330 + 270

$h = 330$ with $h = 270$
(Fig. B1.02)

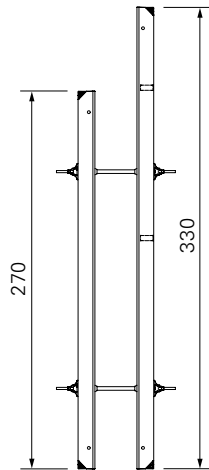


Fig. B1.02

External corner

Panel connection with 7 x Alignment Coupler BFD (20).
(Fig. B1.03)

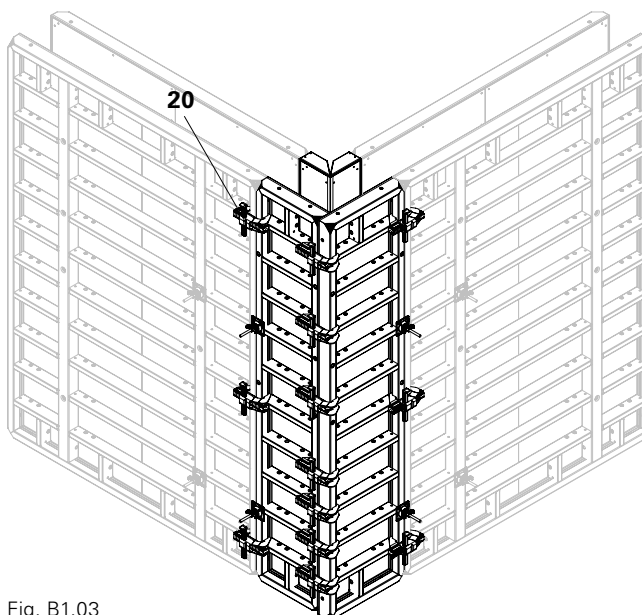


Fig. B1.03

Obtuse and acute-angled corners

Outside

Panel connection per side with 8 x Alignment Coupler BFD (20) and 2 x Compensation Waler TAR 85 (23). (Fig. B1.04)

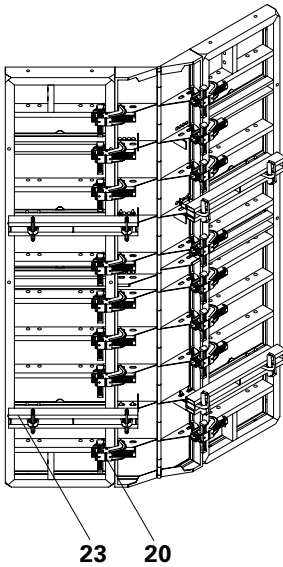


Fig. B1.04

Inside

Panel connection per side with 5 x Alignment Coupler BFD (20). (Fig. B1.05)

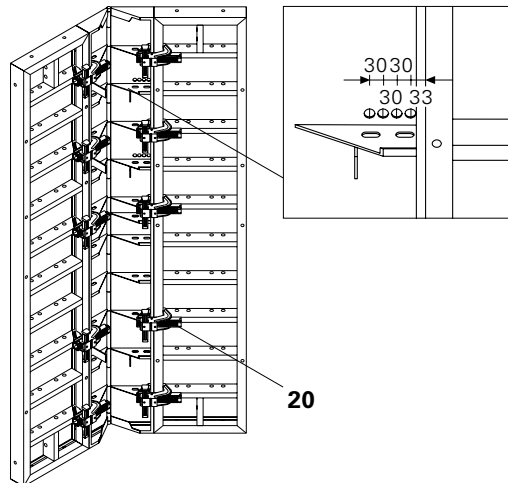


Fig. B1.05

Extension $h = 330 + 270$

Height 330

Panel connection per side with 6 x Alignment Coupler BFD (20) and 3 x Compensation Waler TAR 85 (23).

Height 270

Panel connection per side with 6 x Alignment Coupler BFD (20) and 2 x Compensation Waler TAR 85 (23). (Fig. B1.06)

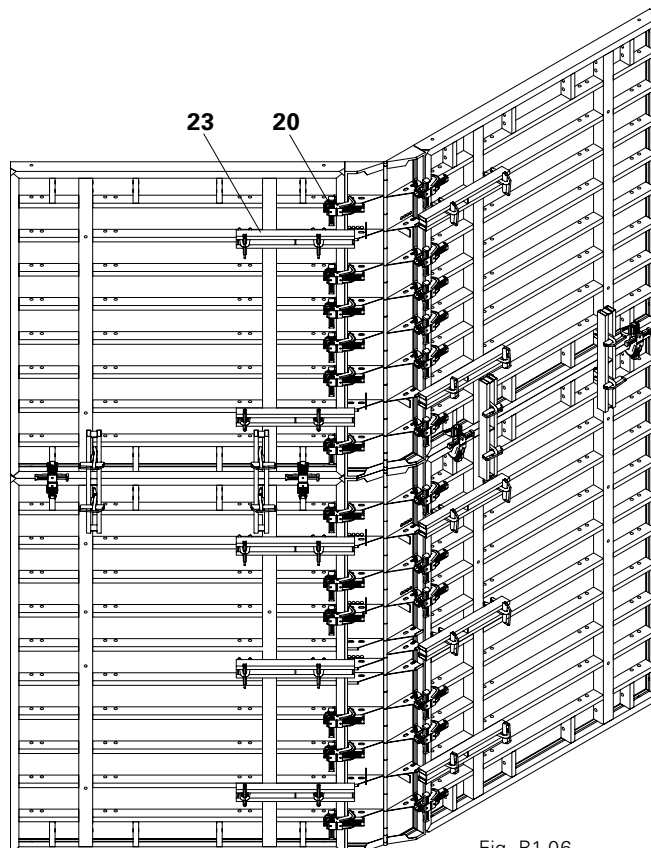


Fig. B1.06

Extensions up to h = 5.40 m



- Permissible load-bearing capacity of the Lifting Hook 1.5 t:
- With steel panels: 1.5 t
- With aluminium panels: 750 kg
- Follow Instructions for Use: Lifting Hook MAXIMO 1.5 t!

Panel connections

With height extension units < 5.40 m, the Alignment Coupler BFD (20) is used on the panel joints. (Fig. B1.07a + B1.07b)



For extension possibilities, number and arrangement of Alignment Couplers BFD, Compensation Walers TAR 85 and formwork ties, see TRIO poster 330. Pre-assemble extension units in a horizontal position, with the formlining facing downwards, on a flat assembly surface. Place timbers or the like underneath.

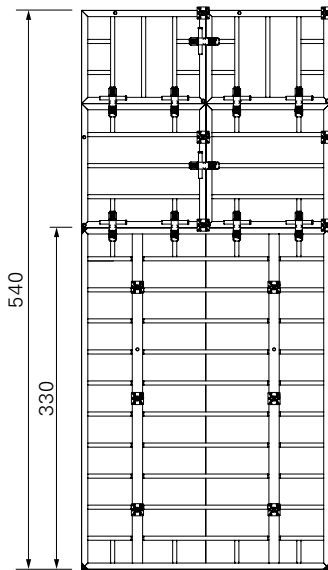


Fig. B1.07a

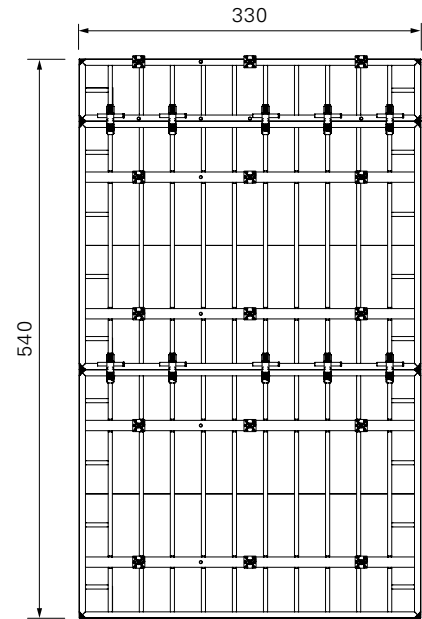


Fig. B1.07b

Extensions h = 6.00 m

With the combination 330 below + 270 above: 5 anchors per height. (Fig. B1.07c)

With the combination 270 below + 330 above: 4 anchors per height. (Fig. B1.07d)

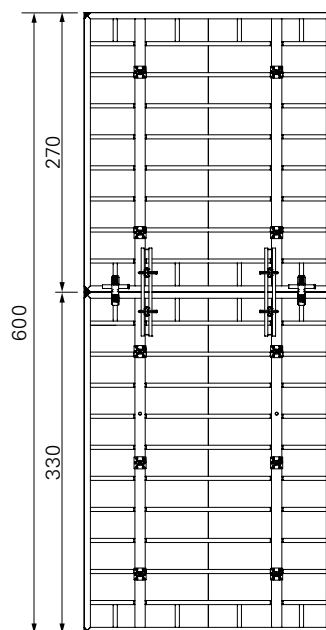


Fig. B1.07c

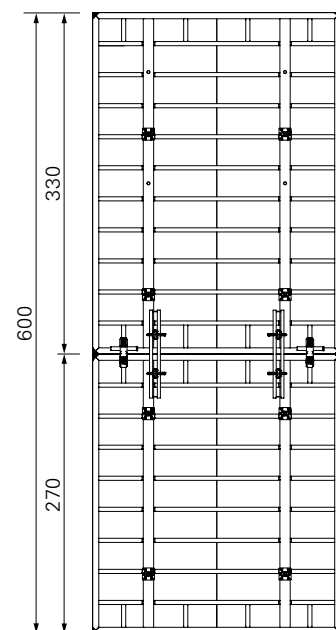


Fig. B1.07d

Extensions up to $h = 8.10$ m



- Permissible load-bearing capacity of the Lifting Hook MAXIMO 1.5 t:
- With steel panels: 1.5 t.
- With aluminium panels: 750 kg.
- Follow Instructions for Use: Lifting Hook MAXIMO 1.5 t!

Panel connections:

With extension heights > 5.40 m, the Alignment Coupler BFD (20) and Compensation Waler TAR 85 (23) are used on the panel joints. (Fig. B1.08a + B1.08b + B1.08c)



For extension possibilities, number and arrangement of Alignment Couplers BFD, Compensation Walers TAR 85 and formwork ties, see TRIO poster 330. Pre-assemble extension units in a horizontal position, with the formlining facing downwards, on a flat assembly surface. Place timbers or the like underneath. When using the Panel TR 30 as the topmost extension panel, the top tie point is left unused.

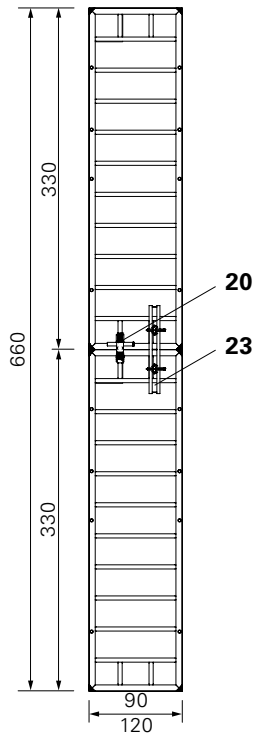


Fig. B1.08a

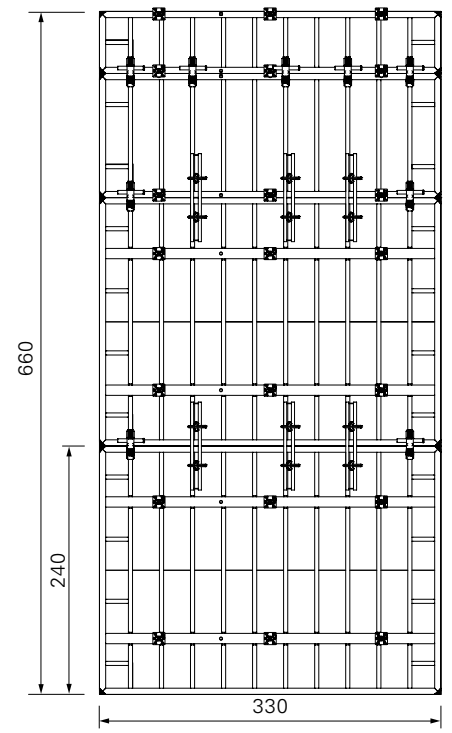


Fig. B1.08b

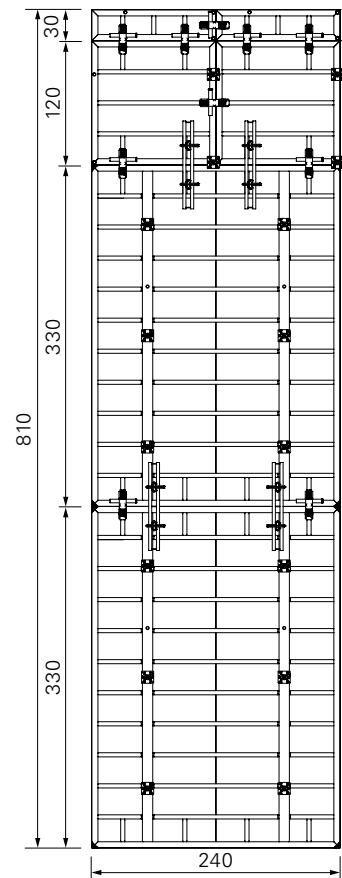


Fig. B1.08c

TRIO Aluminium Panels



- Permissible load-bearing capacity of the Lifting Hook 1.5 t for aluminium panels is 750 kg!
- Follow Instructions for Use: Lifting Hook MAXIMO 1.5 t!
- For extensions in connection with steel panels, the aluminium panels must always be used on top!



- When using TRIO Alu Panels, the same formwork guidelines apply as for the TRIO 270 Steel.
- TRIO Alu Panels can be combined with steel panels.

Panel widths with $h = 2.70$ m:
90 / TAM 72 / 60 / 30 cm.
(Fig. B2.01)

Panel widths with $h = 0.90$ m:
120 / TAM 72 / 60 / 30 cm.

Technical data

Hydrostatic pressure 67.5 kN/m²,
Line 7, DIN 18202.

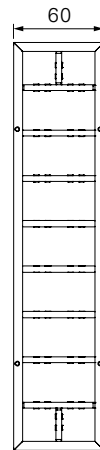
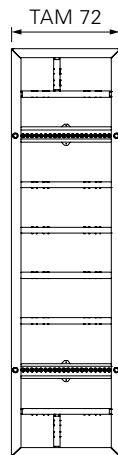
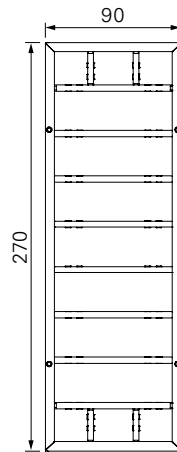


Fig. B2.01

TRIO Structure Panels

TRIO Structure has been developed for special concrete surfaces, see also the brochure on TRIO Structure.

The TRIO Panel is delivered complete with a fixing board (10.9). It can be covered with profiled boards (10.8) (board structure). (Fig. B3.01)

When using TRIO Structure Panels, the same formwork guidelines apply as for the TRIO 270 Steel.

It can be fully combined with TRIO 270 and TRIO 330 Steel.



Assembly of profiled boards

Fixing can be done from either the front or the back.

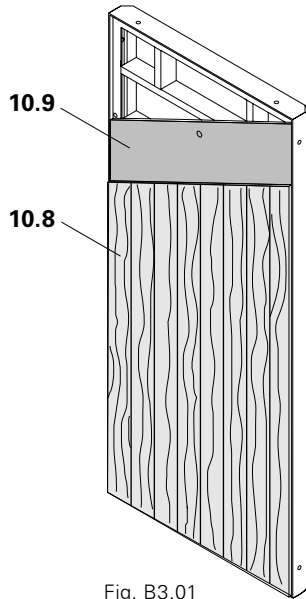


Fig. B3.01

Corner 90° consisting of:

Pos. Components

- | | |
|----|--------------|
| 77 | Panel TSM 72 |
| 78 | Panel TS 60 |
| 79 | Corner TSE |

(Fig. B3.02)

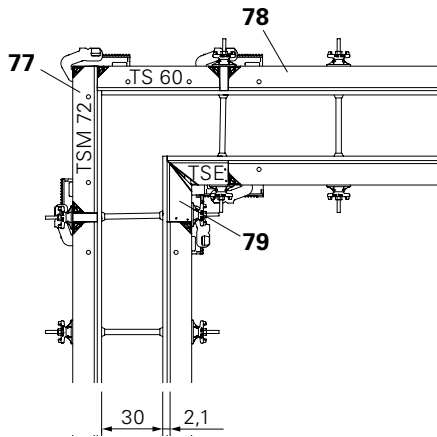


Fig. B3.02

Corner 135° consisting of:

Pos. Components

- | | |
|----|---------------------------|
| 23 | Compensation Waler TAR 85 |
| 77 | Panel TSM 72 |
| 78 | Panel TS 60 |
| 80 | Articulated Corner TSGE |

(Fig. B3.03)

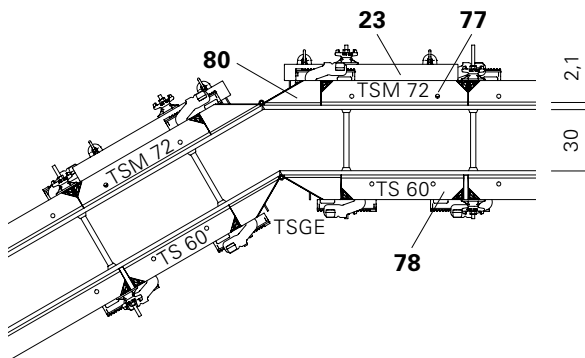


Fig. B3.03

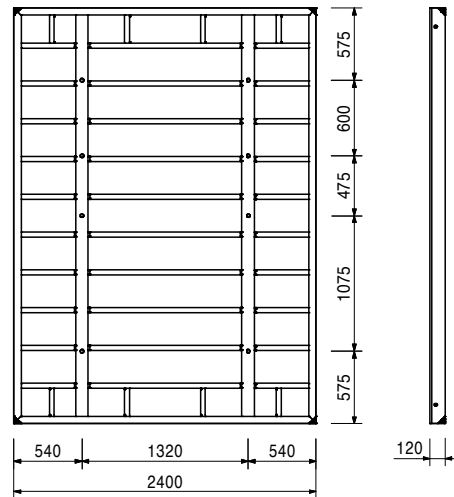
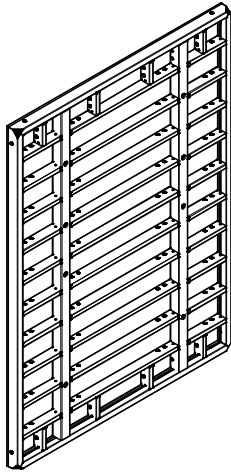
TRIO Panel Formwork

Instructions for Assembly and Use – Standard Configuration

TRIO Panel Formwork

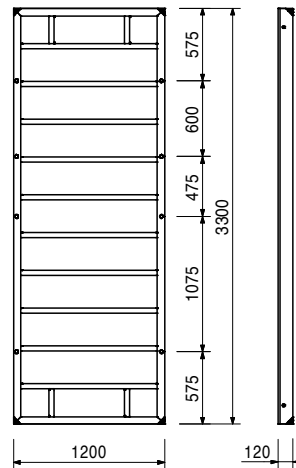
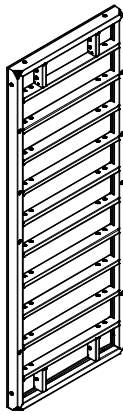
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|----------|-----------|
| 054304 | 399.000 |

Panel TR/4 330 x 240
Steel panel with 18 mm plywood.



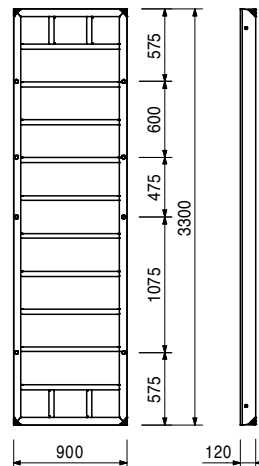
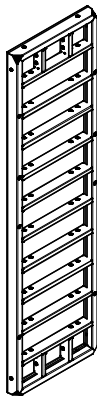
| | |
|--------|---------|
| 054314 | 196.000 |
|--------|---------|

Panel TR/4 330 x 120
Steel panel with 18 mm plywood.



| | |
|--------|---------|
| 054324 | 138.000 |
|--------|---------|

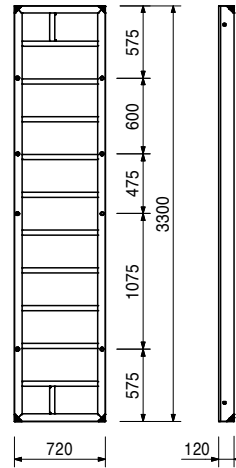
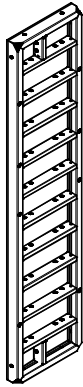
Panel TR/4 330 x 90
Steel panel with 18 mm plywood.



TRIO Panel Formwork

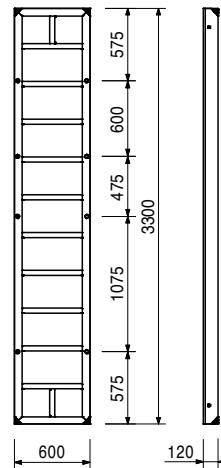
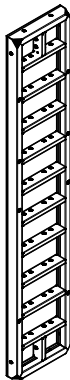
| Item no. | Weight kg |
|----------|-----------|
| 054334 | 118.000 |

Panel TR/4 330 x 72
Steel panel with 18 mm plywood.



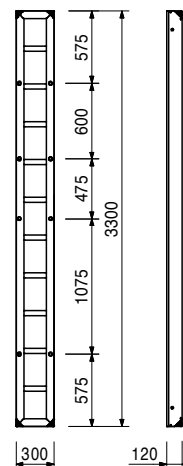
| | |
|--------|---------|
| 054354 | 106.000 |
|--------|---------|

Panel TR/4 330 x 60
Steel panel with 18 mm plywood.



| | |
|--------|--------|
| 054364 | 73.400 |
|--------|--------|

Panel TR/4 330 x 30
Steel panel with 18 mm plywood.



TRIO Panel Formwork



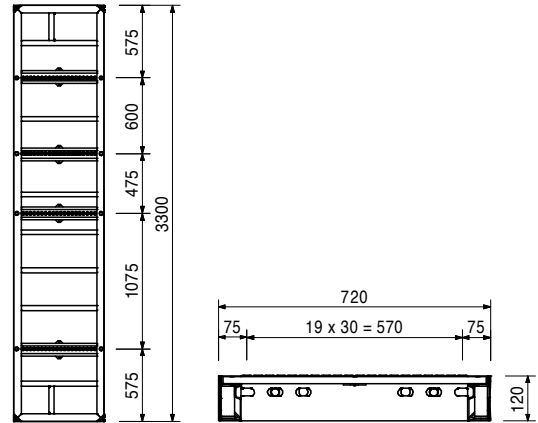
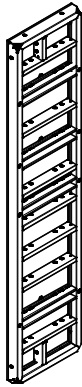
| Item no. | Weight kg |
|----------|-----------|
| 054344 | 134.000 |

Multi Panel TRM/4 330 x 72

Steel panel with 18 mm plywood. For oblique angles, wall connections etc.

Complete with

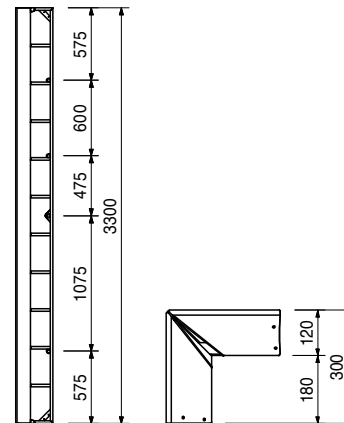
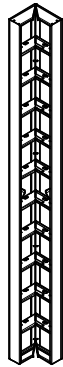
88 pc. 030300 Plug Ø 20/24 mm



| | |
|--------|--------|
| 054374 | 85.800 |
|--------|--------|

Inside Corner TE/4 330

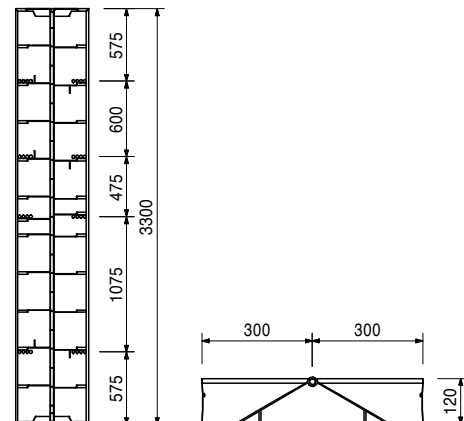
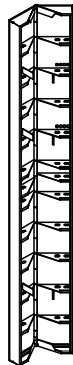
Steel panel with 18 mm plywood. For 90° internal corners.



| | |
|--------|---------|
| 054414 | 119.000 |
|--------|---------|

Articulated Corner TGE/4 330

Steel panel with steel formlining. For oblique angles from 75° upwards, used externally and internally.

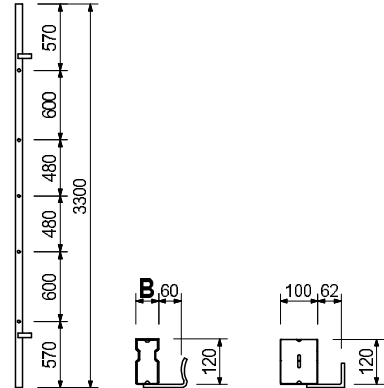


TRIO Panel Formwork

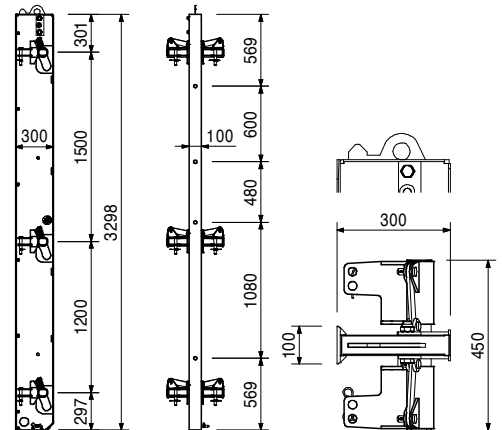
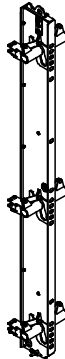


| Item no. | Weight kg | | B |
|----------|-----------|--|-----|
| 054391 | 20.100 | Wall Thickness Comp. WDA/4 330 | 50 |
| 054401 | 21.400 | Wall Thickness Comp. WDA/4 330 x 5 | 60 |
| 054435 | 12.400 | Wall Thickness Comp. WDA/4 330 x 10, Alu | 100 |

For adjusting to wall thicknesses.



| | | | |
|--------|---------|--|---|
| 105525 | 142.000 | Shaft Element TSE 330 Panel for moving complete shaft internal formwork. | Complete with 7 pc. 105400 Pin Ø 20 x 140, galv. 7 pc. 018060 Cotter Pin 4/1, galv. Technical Data Permissible load-bearing point capacity 2.0 t. |
|--------|---------|--|---|

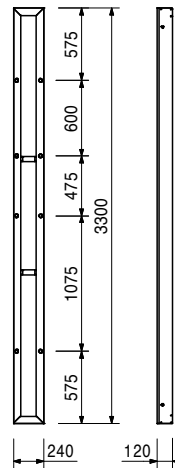


Item no. Weight kg

023050 62.300

Stopend Panel TR/4 330 x 24

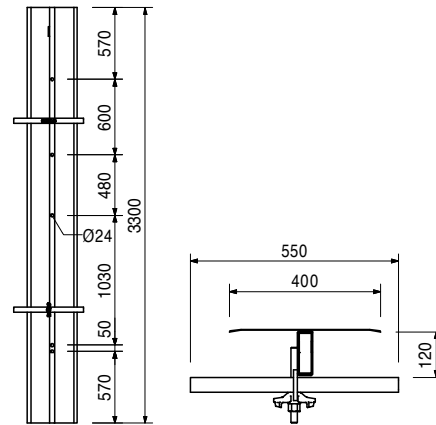
Steel panel with 18 mm plywood.



054384 62.200

Filler Plate LA/4 330 x 36

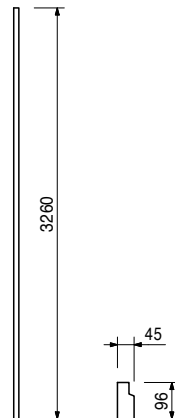
For continuous compensations from 6 to 36 cm.



054430 6.400

Filler Support TPA 330

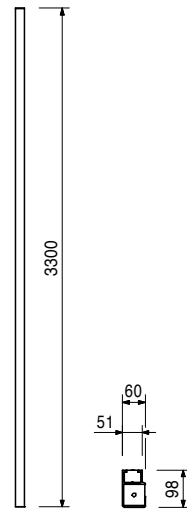
For compensations with 21 mm filler plates.



TRIO Panel Formwork

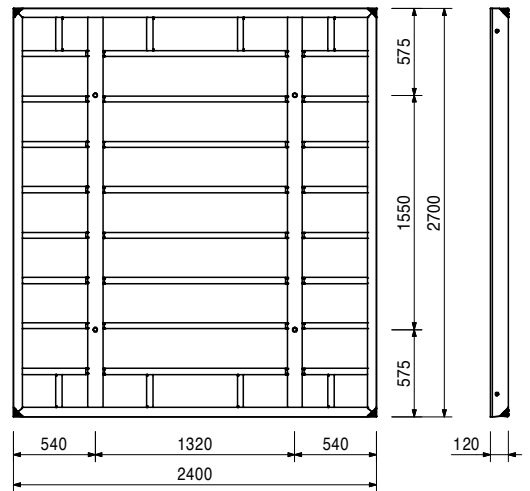
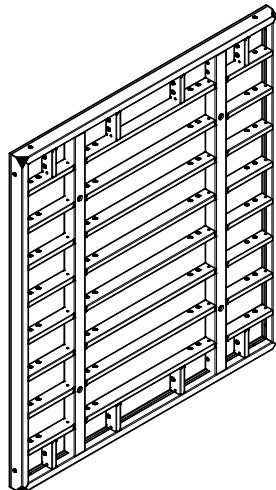
| Item no. | Weight kg |
|----------|-----------|
| 101829 | 9.820 |

Filler Profile TPP 330, Alu
For compensation with 21 mm filler plates.



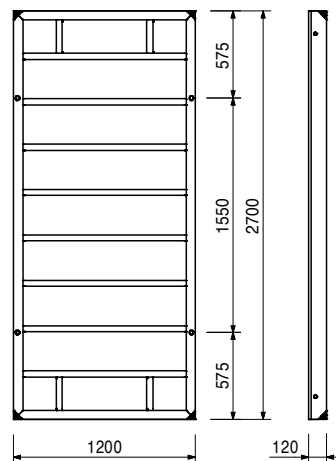
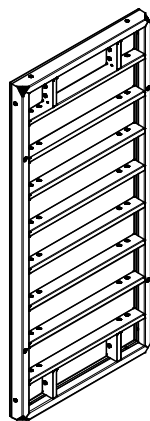
| | |
|--------|---------|
| 022570 | 330.000 |
|--------|---------|

Panel TR 270 x 240
Steel panel with 18 mm plywood.



| | |
|--------|---------|
| 022510 | 162.000 |
|--------|---------|

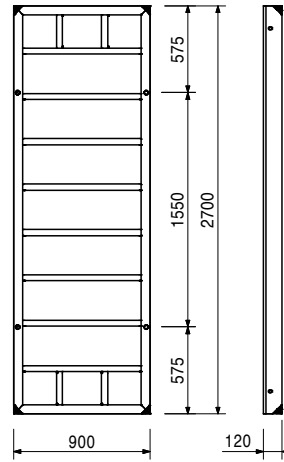
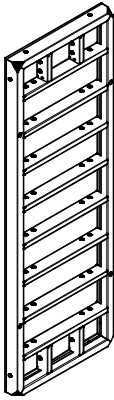
Panel TR 270 x 120
Steel panel with 18 mm plywood.



TRIO Panel Formwork

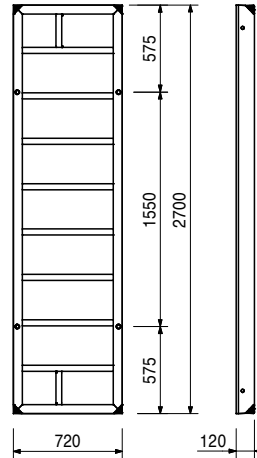
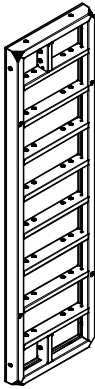
| Item no. | Weight kg |
|----------|-----------|
| 022520 | 114.000 |

Panel TR 270 x 90
Steel panel with 18 mm plywood.



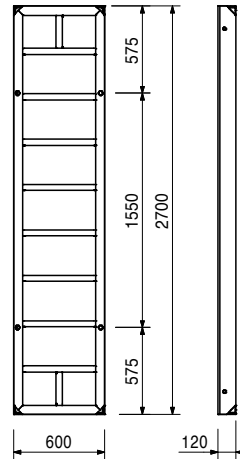
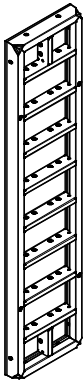
| | |
|--------|--------|
| 022530 | 97.200 |
|--------|--------|

Panel TR 270 x 72
Steel panel with 18 mm plywood.



| | |
|--------|--------|
| 022550 | 87.400 |
|--------|--------|

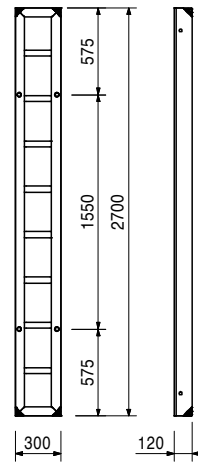
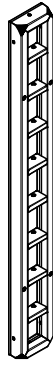
Panel TR 270 x 60
Steel panel with 18 mm plywood.



TRIO Panel Formwork

| Item no. | Weight kg |
|----------|-----------|
| 022560 | 59.500 |

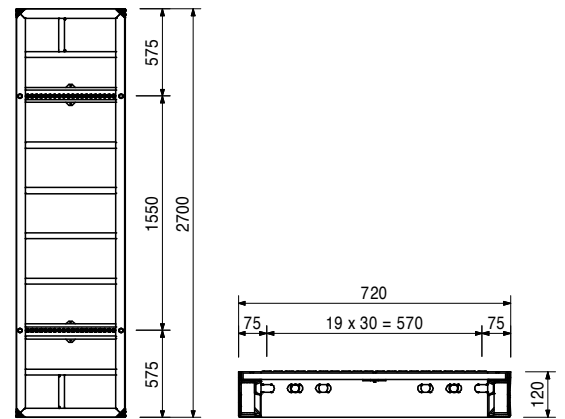
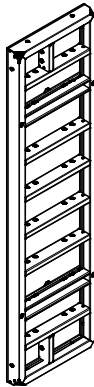
Panel TR 270 x 30
Steel panel with 18 mm plywood.



| | |
|--------|---------|
| 022540 | 103.000 |
|--------|---------|

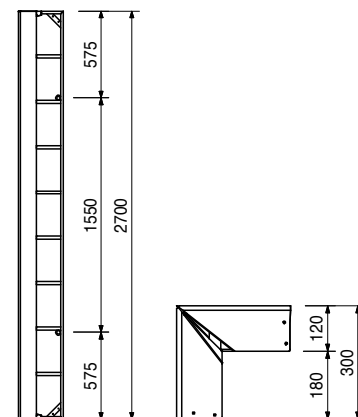
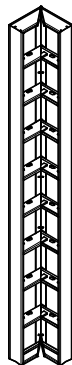
Multi Panel TRM 270 x 72
Steel panel with 18 mm plywood. For oblique angles, wall connections etc.

Complete with
44 pc. 030300 Plug Ø 20/24 mm



| | |
|--------|--------|
| 022580 | 70.000 |
|--------|--------|

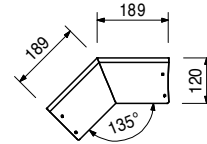
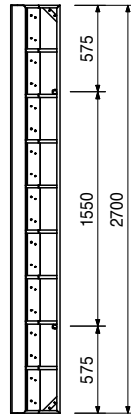
Inside Corner TE 270-2
Steel panel with 18 mm plywood. For 90° internal corners.



| Item no. | Weight kg |
|----------|-----------|
| 103317 | 56.900 |

Internal Corner TEI 270/135°

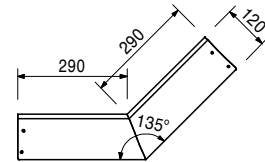
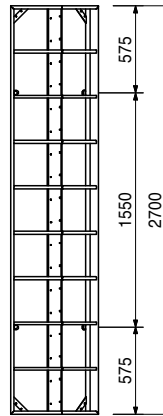
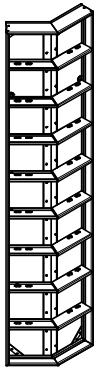
Steel panel with 18 mm plywood. For 135° internal corners.



| | |
|--------|--------|
| 103337 | 76.500 |
|--------|--------|

Outside Corner TEA 270/135°

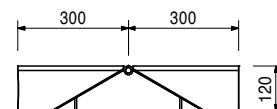
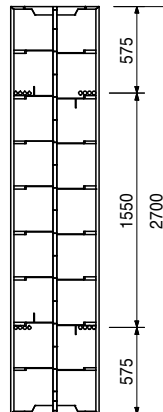
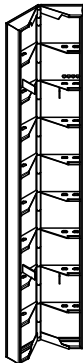
Steel panel with 18 mm plywood. For 135° external corners.



| | |
|--------|--------|
| 023200 | 94.900 |
|--------|--------|

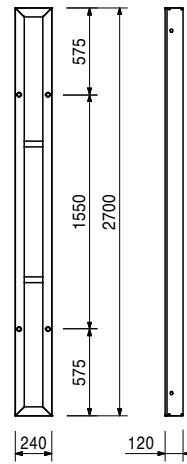
Articulated Corner TGE 270

Steel panel with steel formlining. For oblique angles from 75° upwards, used externally and internally.



| Item no. | Weight kg |
|----------|-----------|
| 023040 | 50.500 |

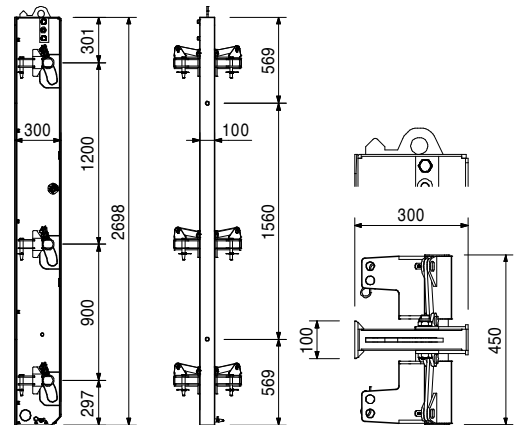
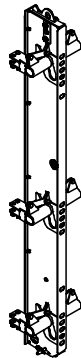
Stopend Panel TR 270 x 24
Steel panel with 18 mm plywood.



| | |
|--------|---------|
| 105523 | 127.000 |
|--------|---------|

Shaft Element TSE 270
Panel for moving complete shaft internal formwork.

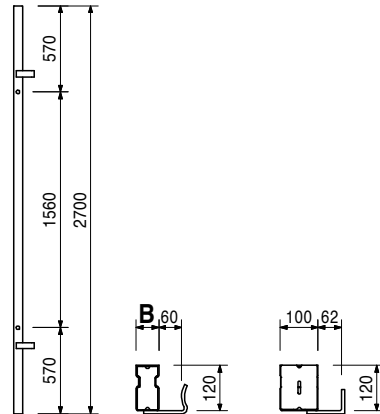
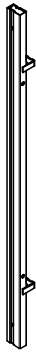
Complete with
7 pc. 105400 Pin Ø 20 x 140, galv.
7 pc. 018060 Cotter Pin 4/1, galv.
Technical Data
Permissible load-bearing point capacity 2.0 t.



TRIO Panel Formwork

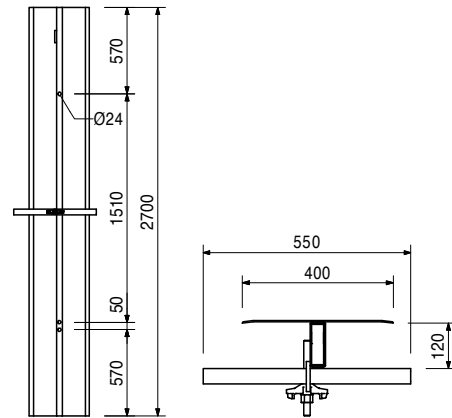
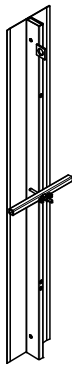
| Item no. | Weight kg | | B |
|----------|-----------|---|-----|
| 023182 | 16.200 | Wall Thickness Comp. WDA 270 | 50 |
| 023192 | 17.200 | Wall Thickness Comp. WDA-2 270 x 5 | 60 |
| 023995 | 10.100 | Wall Thickness Comp. WDA 270 x 10, Alu | 100 |

For adjusting to wall thicknesses.



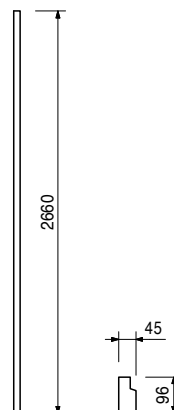
| | | | |
|--------|--------|---------------------------------|--|
| 023170 | 48.900 | Filler Plate LA 270 x 36 | |
|--------|--------|---------------------------------|--|

For continuous compensations from 6 to 36 cm.



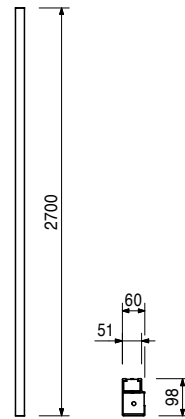
| | | | |
|--------|-------|-------------------------------|--|
| 023460 | 4.710 | Filler Support TPA 270 | |
|--------|-------|-------------------------------|--|

For compensations with 21 mm filler plates.



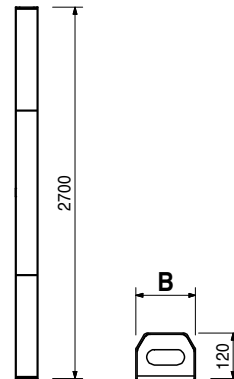
| Item no. | Weight kg |
|----------|-----------|
| 101813 | 8.040 |

Filler Profile TPP 270, Alu
For compensation with 21 mm filler plates.



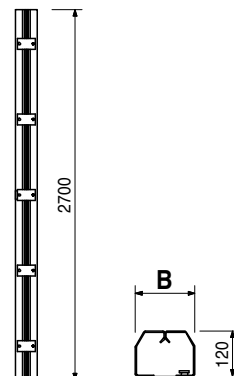
| | | Stopend Panels TRIO MT w/o waterstop bar | B |
|--------|--------|---|----------|
| 023061 | 26.500 | Stopend Panel TRIO MT 270 x 20 | 118 |
| 023062 | 30.400 | Stopend Panel TRIO MT 270 x 24/25 | 158 |
| 023064 | 36.300 | Stopend Panel TRIO MT 270 x 30 | 218 |
| 023065 | 41.300 | Stopend Panel TRIO MT 270 x 35/36 | 268 |

Centre piece without waterstop bar installation for stopend formwork.



| | | Stopend Panels TRIO MTF w. waterstop bar | B |
|--------|--------|---|----------|
| 023074 | 29.200 | Stopend Panel TRIO MTF 270 x 20 | 118 |
| 023075 | 33.400 | Stopend Panel TRIO MTF 270 x 24/25 | 158 |
| 023077 | 38.600 | Stopend Panel TRIO MTF 270 x 30 | 218 |
| 023076 | 42.500 | Stopend Panel TRIO MTF 270 x 35/36 | 268 |

Centre piece with waterstop bar installation for stopend formwork.



TRIO Panel Formwork

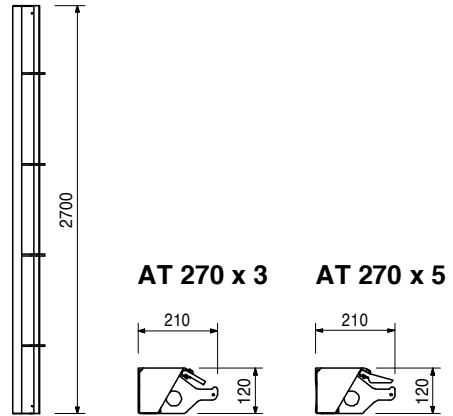


Item no. Weight kg

023060 17.200
105953 19.000

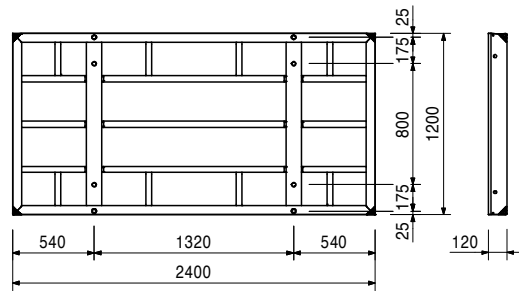
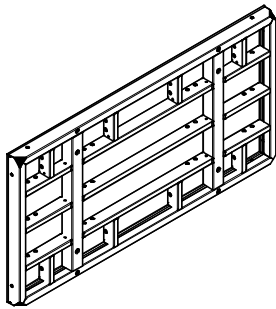
Stopend Panels TRIO AT
Stopend Panel TRIO AT 270 x 3
Stopend Panel TRIO AT 270 x 5
 External piece for stopend formwork.

Note
 Concrete cover approx. 30 or 50 mm.



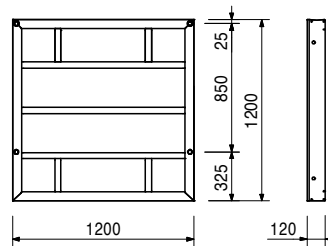
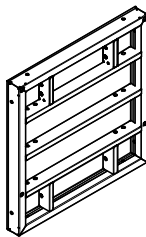
022514 162.000

Panel TR 120 x 240
 Steel panel with 18 mm plywood.



022600 76.100

Panel TR 120 x 120
 Steel panel with 18 mm plywood.



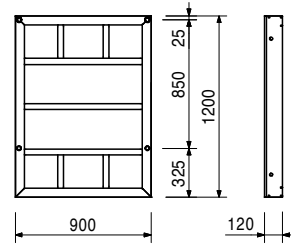
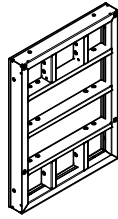
TRIO Panel Formwork

Item no. Weight kg

022610 58.300

Panel TR 120 x 90

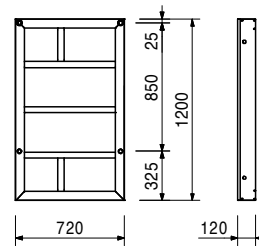
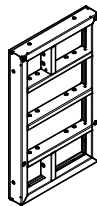
Steel panel with 18 mm plywood.



022620 48.600

Panel TR 120 x 72

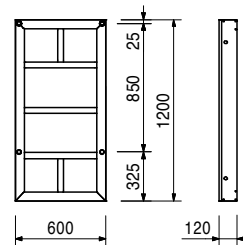
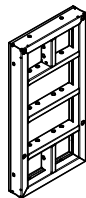
Steel panel with 18 mm plywood.



022640 43.500

Panel TR 120 x 60

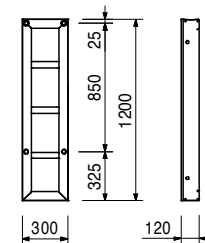
Steel panel with 18 mm plywood.



022650 28.400

Panel TR 120 x 30

Steel panel with 18 mm plywood.



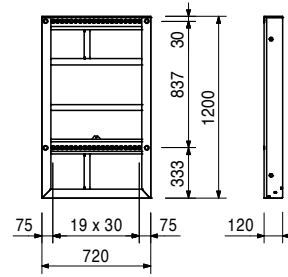
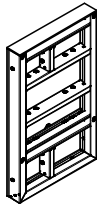
| Item no. | Weight kg |
|----------|-----------|
| 022630 | 56.300 |

Multi Panel TRM 120 x 72

Steel panel with 18 mm plywood. For oblique angles, wall connections etc.

Complete with

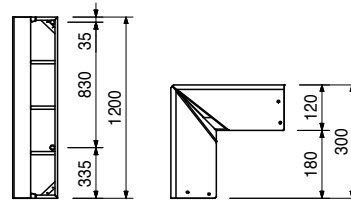
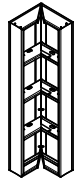
44 pc. 030300 Plug Ø 20/24 mm



| | |
|--------|--------|
| 022660 | 32.900 |
|--------|--------|

Inside Corner TE 120-2

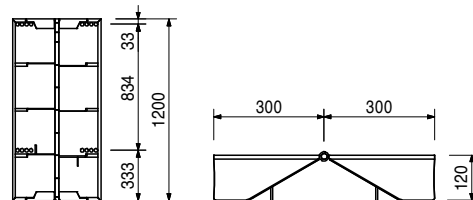
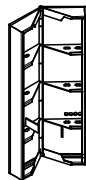
Steel panel with 18 mm plywood. For 90° internal corners.



| | |
|--------|--------|
| 023300 | 43.600 |
|--------|--------|

Articulated Corner TGE 120

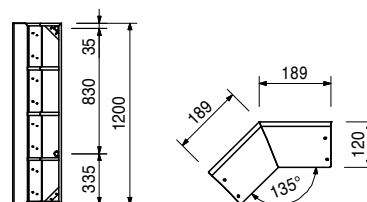
Steel panel with steel formlining. For oblique angles from 75° upwards, used externally and internally.



| | |
|--------|--------|
| 103284 | 26.400 |
|--------|--------|

Internal Corner TEI 120/135°

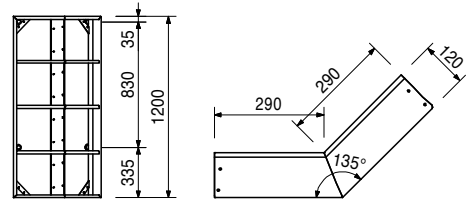
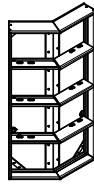
Steel panel with 18 mm plywood. For 135° internal corners.



| Item no. | Weight kg |
|----------|-----------|
| 103330 | 35.900 |

Outside Corner TEA 120/135°

Steel panel with 18 mm plywood. For 135° external corners.



| | |
|--------|-------|
| 023282 | 7.610 |
| 023292 | 8.090 |
| 023990 | 4.680 |

Wall Thickness Comp. WDA 120

Wall Thickness Comp. WDA-2 120 x 5

Wall Thickness Comp. WDA-2 120 x 6

Wall Thickness Comp. WDA 120 x 10, Alu

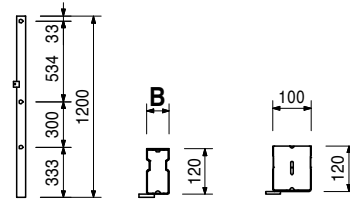
For adjusting to wall thicknesses.

B

50

60

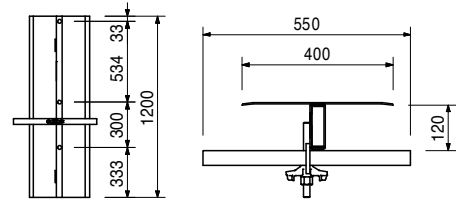
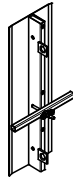
100



| | |
|--------|--------|
| 023270 | 24.500 |
|--------|--------|

Filler Plate LA 120 x 36

For continuous compensations from 6 to 36 cm.



| | |
|--------|--------|
| 105524 | 72.600 |
|--------|--------|

Shaft Element TSE 120

Panel for moving complete shaft internal formwork.

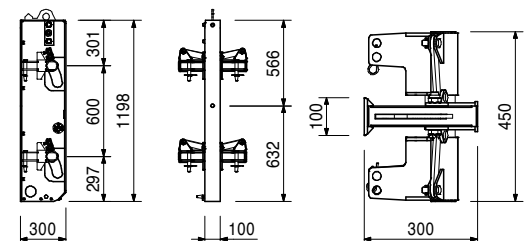
Complete with

5 pc. 105400 Pin Ø 20 x 140, galv.

5 pc. 018060 Cotter Pin 4/1, galv.

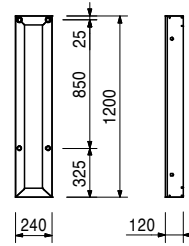
Technical Data

Permissible load-bearing point capacity 2.0 t.



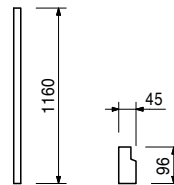
| Item no. | Weight kg |
|----------|-----------|
| 023030 | 23.600 |

Stopend Panel TR 120 x 24
Steel panel with 18 mm plywood.



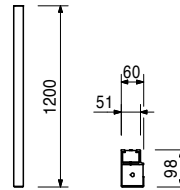
| | |
|--------|-------|
| 023450 | 2.060 |
|--------|-------|

Filler Support TPA 120
For compensations with 21 mm filler plates.



| | |
|--------|-------|
| 101823 | 3.590 |
|--------|-------|

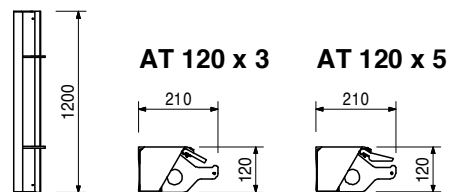
Filler Profile TPP 120, Alu
For compensation with 21 mm filler plates.



| | |
|--------|-------|
| 023067 | 7.790 |
| 105978 | 8.590 |

Stopend Panels TRIO AT
Stopend Panel TRIO AT 120 x 3
Stopend Panel TRIO AT 120 x 5
External piece for stopend formwork.

Note
Concrete cover approx. 30 mm.

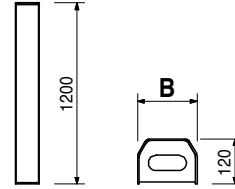


TRIO Panel Formwork

Item no. Weight kg

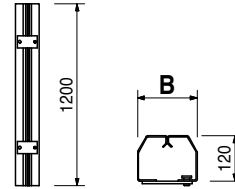
| Item no. | Weight kg | Stopend Panels TRIO MT w/o waterstop bar | B |
|----------|-----------|--|-----|
| 023068 | 11.800 | Stopend Panel TRIO MT 120 x 20 | 118 |
| 023069 | 13.500 | Stopend Panel TRIO MT 120 x 24/25 | 158 |
| 023071 | 16.300 | Stopend Panel TRIO MT 120 x 30 | 218 |
| 023072 | 18.500 | Stopend Panel TRIO MT 120 x 35/36 | 268 |

Centre piece without waterstop bar installation for stopend formwork.

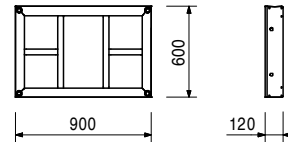
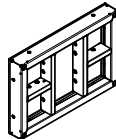


| Item no. | Weight kg | Stopend Panels TRIO MTF w. waterstop bar | B |
|----------|-----------|--|-----|
| 023081 | 12.800 | Stopend Panel TRIO MTF 120 x 20 | 118 |
| 023080 | 14.700 | Stopend Panel TRIO MTF 120 x 24/25 | 158 |
| 023078 | 16.800 | Stopend Panel TRIO MTF 120 x 30 | 218 |
| 023079 | 18.600 | Stopend Panel TRIO MTF 120 x 35/36 | 268 |

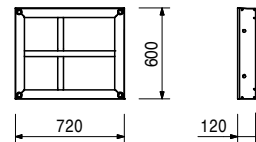
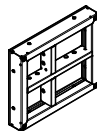
Centre piece with waterstop bar installation for stopend formwork.



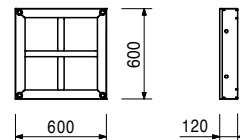
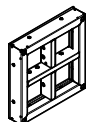
| | | |
|--------|--------|--|
| 022790 | 34.500 | Panel TR 60 x 90 Steel panel with 18 mm plywood. |
|--------|--------|--|



| | | |
|--------|--------|--|
| 022800 | 28.600 | Panel TR 60 x 72 Steel panel with 18 mm plywood. |
|--------|--------|--|



| | | |
|--------|--------|--|
| 022810 | 25.700 | Panel TR 60 x 60 Steel panel with 18 mm plywood. |
|--------|--------|--|

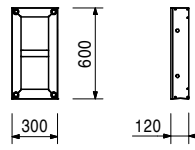


Item no. Weight kg

022820 15.600

Panel TR 60 x 30

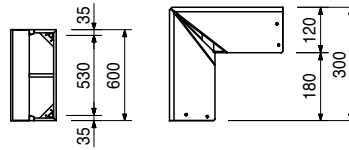
Steel panel with 18 mm plywood.



022840 18.000

Inside Corner TE 60-2

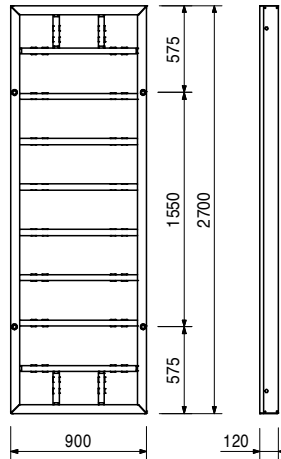
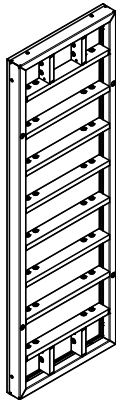
Steel panel with 18 mm plywood. For 90° internal corners.



023850 70.200

Panel Alu TRA 270 x 90

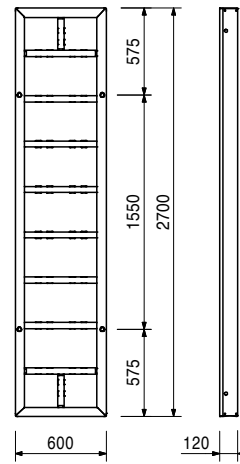
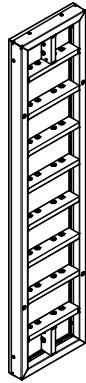
Aluminium panel with 18 mm plywood.



TRIO Panel Formwork

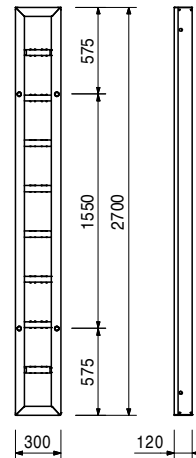
| Item no. | Weight kg |
|----------|-----------|
| 023870 | 49.300 |

Panel Alu TRA 270 x 60
Aluminium panel with 18 mm plywood.



| | |
|--------|--------|
| 023880 | 31.400 |
|--------|--------|

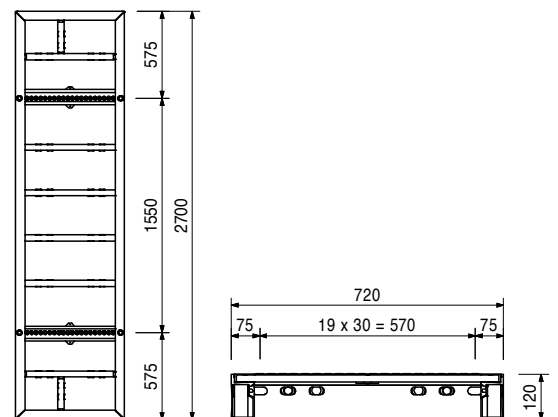
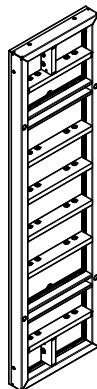
Panel Alu TRA 270 x 30
Aluminium panel with 18 mm plywood.



| | |
|--------|--------|
| 023860 | 60.700 |
|--------|--------|

Multi Panel Alu TAM 270 x 72
Alu panel with 18 mm plywood. For oblique angles, wall connections etc.

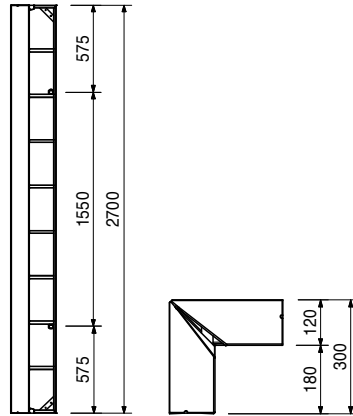
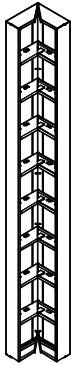
Complete with
44 pc. 030300 Plug Ø 20/24 mm



| Item no. | Weight kg |
|----------|-----------|
| 023891 | 42.200 |

Corner Alu TAE 270/2

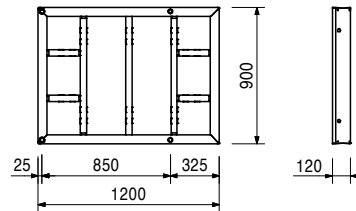
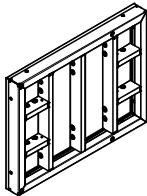
Alu element with 18 mm plywood. For 90° internal corners.



| | |
|--------|--------|
| 023900 | 33.600 |
|--------|--------|

Panel Alu TRA 90 x 120

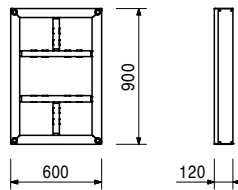
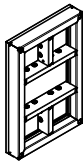
Aluminium panel with 18 mm plywood.



| | |
|--------|--------|
| 023950 | 18.000 |
|--------|--------|

Panel Alu TRA 90 x 60

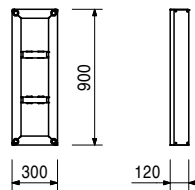
Aluminium panel with 18 mm plywood.



| | |
|--------|--------|
| 023960 | 10.700 |
|--------|--------|

Panel Alu TRA 90 x 30

Aluminium panel with 18 mm plywood.



TRIO Panel Formwork

| Item no. | Weight kg | | |
|----------|-----------|---|---|
| 023980 | 23.500 | Multi Panel Alu TAM 90 x 72 Alu panel with 18 mm plywood. For oblique angles, wall connections etc. | Complete with 44 pc. 030300 Plug Ø 20/24 mm |
| | | | |

| | | | | |
|--------|--------|---|--|--|
| 023971 | 15.200 | Corner Alu TAE 90/2 Alu element with 18 mm plywood. For 90° internal corners. | | |
|--------|--------|---|--|--|

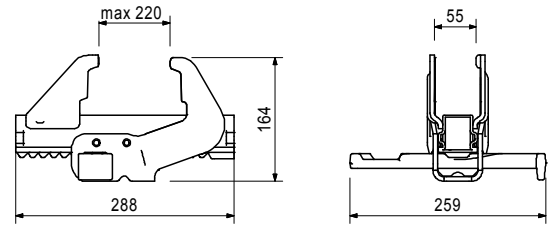
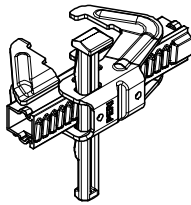
| | | |
|--------|---------|---|
| 054305 | 374.000 | Panels TRIO Structure TS/4 330 |
| 054315 | 183.000 | Panel TRIO Structure TS/4 330 x 240 |
| 054325 | 131.000 | Panel TRIO Structure TS/4 330 x 120 |
| 054335 | 112.000 | Panel TRIO Structure TS/4 330 x 90 |
| 054355 | 101.000 | Panel TRIO Structure TS/4 330 x 72 |
| 054365 | 71.100 | Panel TRIO Structure TS/4 330 x 60 |
| 054345 | 128.000 | Panel TRIO Structure TSM/4 330 x 72 |
| 054375 | 80.200 | Corner TRIO Structure TSE/4 330 |
| 054395 | 10.800 | Wall Thickness Comp. WDAS/4 330 x 5, Alu |
| 054405 | 11.700 | Wall Thickness Comp. WDAS/4 330 x 6, Alu |
| | | Panel with 21 mm base plate. |

| | | |
|--------|---------|---|
| 022571 | 311.000 | Panels TRIO Structure TS 270 |
| 022511 | 152.000 | Panel TRIO Structure TS 270 x 240 |
| 022521 | 107.000 | Panel TRIO Structure TS 270 x 120 |
| 022531 | 91.600 | Panel TRIO Structure TS 270 x 90 |
| 022551 | 82.700 | Panel TRIO Structure TS 270 x 72 |
| 022561 | 57.300 | Panel TRIO Structure TS 270 x 60 |
| 022541 | 99.800 | Panel TRIO Structure TSM 270 x 72 |
| 022581 | 65.600 | Corner TRIO Structure TSE 270 |
| 023201 | 88.700 | Artic. Corner TRIO Structure TSGE 270 |
| 023181 | 8.840 | Wall Thickness Comp. WDAS 270 x 5, Alu |
| 023191 | 9.560 | Wall Thickness Comp. WDAS 270 x 6, Alu |
| | | Panel with 21 mm base plate. |

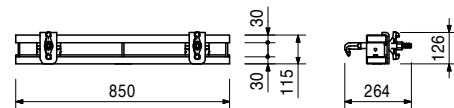
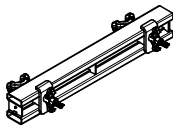
| | | |
|--------|---------|--|
| 126740 | 155.000 | Panel TRIO Structure TS 240 x 120 |
| | | Panel with 21 mm base plate. |

| Item no. | Weight kg | |
|----------|-----------|---|
| | | Panels TRIO Structure TS 120 |
| 022601 | 72.000 | Panel TRIO Structure TS 120 x 120 |
| 022611 | 55.000 | Panel TRIO Structure TS 120 x 90 |
| 022621 | 46.000 | Panel TRIO Structure TS 120 x 72 |
| 022641 | 41.300 | Panel TRIO Structure TS 120 x 60 |
| 022651 | 27.200 | Panel TRIO Structure TS 120 x 30 |
| 022631 | 54.900 | Panel TRIO Structure TSM 120 x 72 |
| 022661 | 30.900 | Corner TRIO Structure TSE 120 |
| 023301 | 41.300 | Artic. Corner TRIO Structure TSGE 120 |
| 023281 | 3.970 | Wall Thickness Comp. WDAS 120 x 5, Alu |
| 023291 | 4.320 | Wall Thickness Comp. WDAS 120 x 6, Alu Panel with 21 mm base plate. |

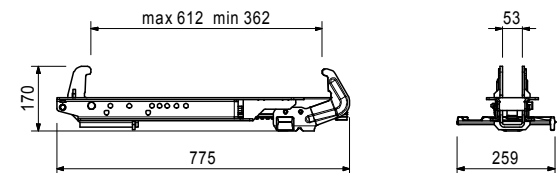
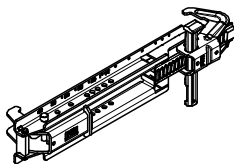
| | | | |
|--------|-------|--|---|
| 123500 | 4.580 | Alignment Coupler BFD, galv. For all panel connections for MAXIMO, TRIO and RUNDFLEX. Fillers up to 10 cm. | Technical Data Permissible tension force 20.0 kN. |
|--------|-------|--|---|



| | | | |
|--------|--------|---|--|
| 124941 | 14.100 | Waler MAR 85-3 For longitudinal compensation, height extensions, stopend formwork and special applications with MAXIMO. With captive connecting components. | Technical Data Permissible bending moment 3.9 kNm. |
|--------|--------|---|--|



| | | | |
|--------|--------|---------------------------------|--|
| 127732 | 11.000 | Stopend Waler MX 15 - 40 | |
|--------|--------|---------------------------------|--|



Item no. Weight kg

| | | |
|--------|-------|---|
| 115350 | 6.310 | Tension and Compression Braces MX Tension and Compression Brace MX 15 – 40 |
| 123842 | 9.070 | Tension and Compression Brace MX 15 – 100 For use with MAXIMO and TRIO. |

Complete with

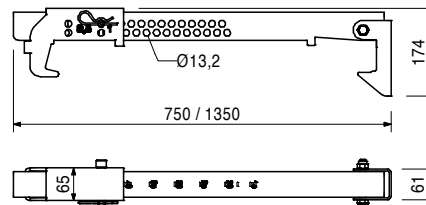
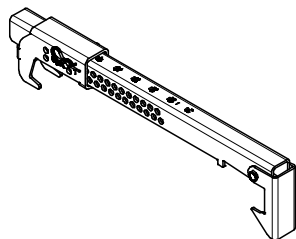
1 pc. 115331 Bolt Ø 12 x 96, galv.
1 pc. 018060 Cotter Pin 4/1, galv.

Note

Adjustable in 0.5-cm-increments from 15 to 40 cm and in 0.5-cm-increments from 15 to 100 cm.

Technical Data

Permissible tension and compressive force 9 kN.



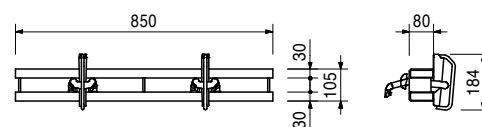
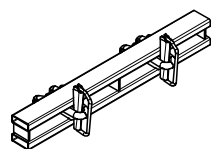
023550 12.300

Compensation Waler TAR 85

For longitudinal compensation, height extensions, stopend formwork and special applications with TRIO and MAXIMO. With captive connecting components.

Technical Data

Permissible bending moment 4.4 kNm.



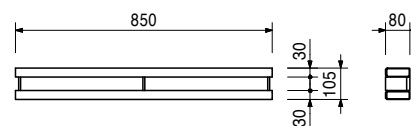
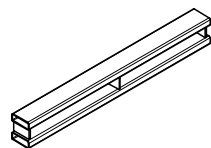
023551 8.520

Waler 85

Corresponds to Compensation Waler TAR 85 but without mounting hooks.

Technical Data

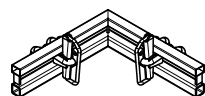
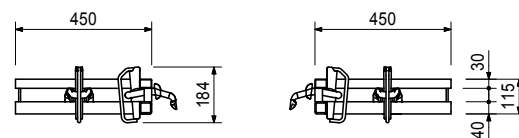
Permissible bending moment 4.4 kNm.



128387 8.900

Projection Waler TVR 45/45-2

For connecting on internal corners without using TE Corners particularly for wall offsets.



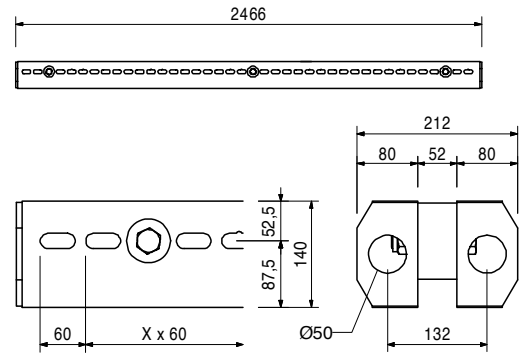
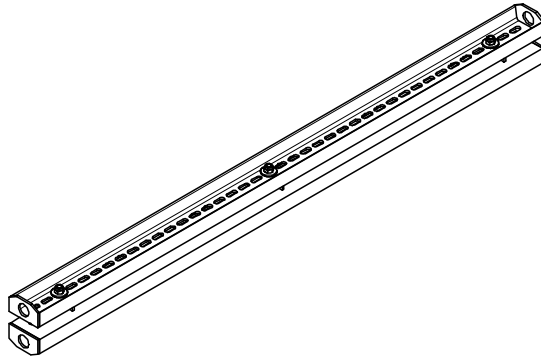
| Item no. | Weight kg |
|----------|-----------|
| 023920 | 78.400 |

Universal Waler 245

For anchoring oblique angles especially with thick walls and for special applications.

Complete with

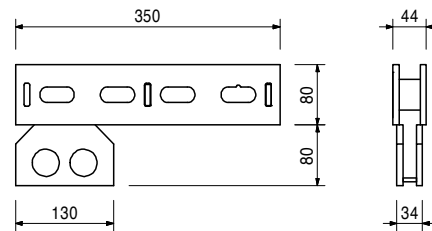
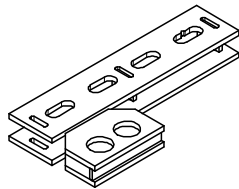
- 6 pc. 024180 Compensation Washer 20, galv.
- 3 pc. 104178 Spacer Unit HFT
- 3 pc. 024910 Bolt ISO 4014 M20 x 100-8.8, galv.
- 3 pc. 781053 Nut ISO 7042 M20-8, galv.



| | |
|--------|-------|
| 023930 | 4.100 |
|--------|-------|

Waler Stop

For use with the Universal Waler 245.



Accessories

| | |
|--------|-------|
| 024240 | 0.805 |
| 022030 | 2.170 |

Wedge KZ, galv.

Tie Yoke, galv.

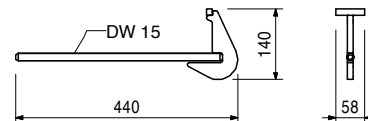
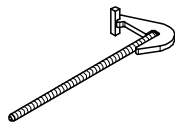
| | |
|--------|-------|
| 023640 | 1.140 |
|--------|-------|

Bulkhead Tie TS, galv.

For force application from the stopend formwork in MAXIMO and TRIO panels. DW 15 thread.

Technical Data

Permissible tension force 20.0 kN.



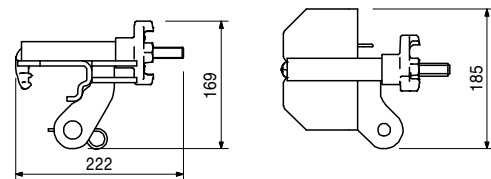
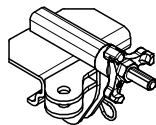
| | |
|--------|-------|
| 023660 | 3.300 |
|--------|-------|


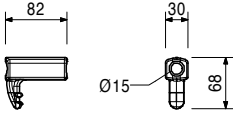
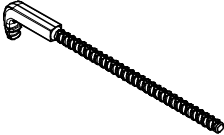
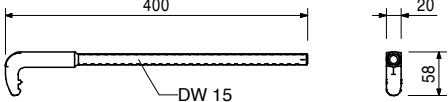

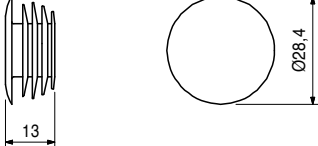
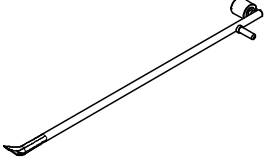
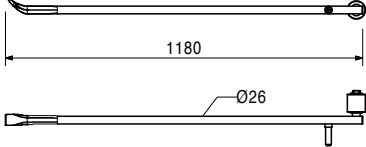
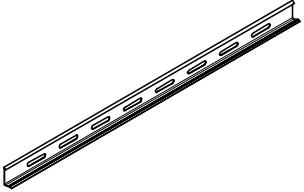
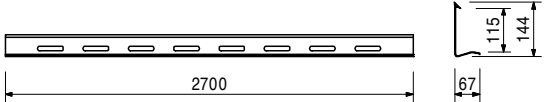
Brace Connector TRIO, galv.

For connecting push-pull props and kicker braces to MAXIMO and TRIO Panels. Mounted on vertical and horizontal struts.

Complete with

- 1 pc. 027170 Pin Ø 16 x 42, galv.
- 1 pc. 018060 Cotter Pin 4/1, galv.



| Item no. | Weight kg | | | |
|----------|-----------|--|---|---|
| 023820 | 0.375 | Hook Tie Head DW 15, galv. For connecting accessories to MAXIMO and TRIO Panels. DW 15 thread. |  | Technical Data Permissible tension force 20.0 kN.  |
| 023650 | 0.769 | Hook Tie DW 15, l = 400 mm, galv. For connecting accessories to MAXIMO and TRIO Panels. DW 15 thread. |  | Technical Data Permissible tension force 20.0 kN.  |
| 030300 | 0.002 | Plug Ø 20/24 mm For sealing unused tie holes Ø 20, Ø 22, Ø 24 mm. |  | Note Delivery unit 250 pieces.  |
| 112588 | 5.520 | Stripping Bar TRIO |  |  |
| 054240 | 1.900 | Chamfer Strip, l = 2.70 m Chamfer strip made of plastic. For TRIO Column Formwork. Edge length 15 x 15 mm. |  |  |

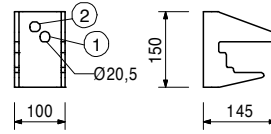
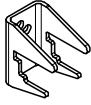
| Item no. | Weight kg |
|----------|-----------|
| 023630 | 2.080 |

Top Tie Bracket-2 AH, galv.

For grid-independent anchoring outside of the panel, especially for foundations and height extensions.

Technical Data

Permissible anchor tension force:
Hole 1 = 30 kN
Hole 2 = 15 kN



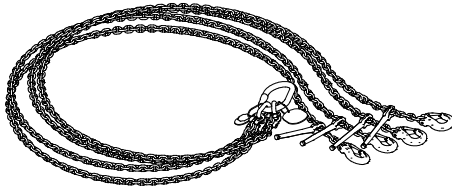
| | |
|--------|--------|
| 117321 | 31.000 |
|--------|--------|

Lifting Gear Combi MX

For transporting stacks of MAXIMO and TRIO Panels. For attaching Lifting Hook MAXIMO 1.5 t and Stacking Device MAXIMO.

Note

Follow Instructions for Use!



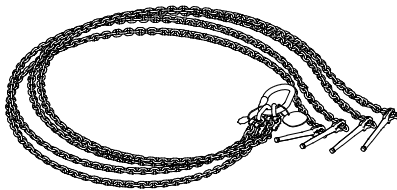
| | |
|--------|--------|
| 117322 | 25.000 |
|--------|--------|

Lifting Gear MX

For transporting stacks of MAXIMO and TRIO Panels.

Note

Follow Instructions for Use!



| | |
|--------|-------|
| 115168 | 7.470 |
|--------|-------|

Lifting Hook MAXIMO 1.5 t

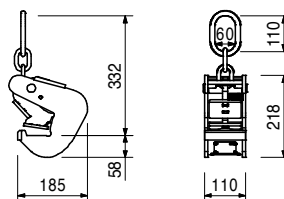
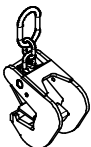
For transporting MAXIMO and TRIO Panels.

Note

Follow Instructions for Use!

Technical Data

Permissible load-bearing capacity:
Steel elements 1.5 t
Alu elements 750 kg



| Item no. | Weight kg |
|----------|-----------|
| 115058 | 7.450 |

Stacking Device MAXIMO

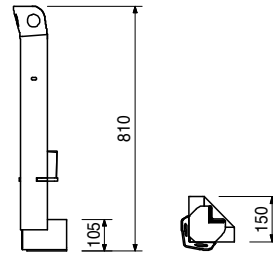
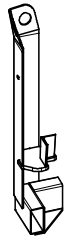
For stacking and transportation of 2 – 5 MAXIMO or TRIO Panels of all sizes. Suitable for crane and fork-lift transport.

Note

Follow Instructions for Use!

Technical Data

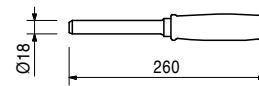
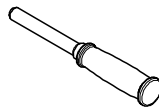
Permissible load-bearing capacity 650 kg per post, 2.6 t per stack.



| | |
|--------|-------|
| 023440 | 0.312 |
|--------|-------|

Lifting Pin TRIO

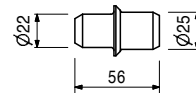
For easy carrying of TRIO Panels.



| | |
|--------|-------|
| 750303 | 0.014 |
|--------|-------|

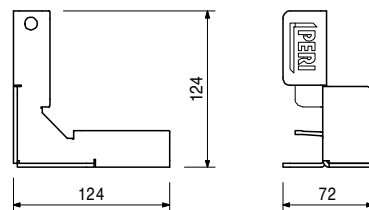
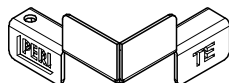
Stacking Aid TRIO DW 20

Prevents elements sliding and protects the plywood formlining against damage.



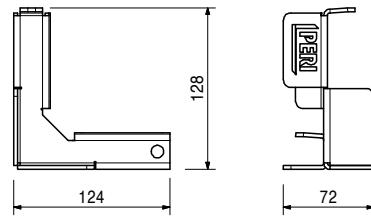
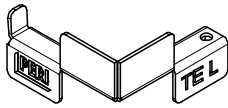
| | |
|--------|-------|
| 124554 | 0.386 |
|--------|-------|

Stacking Device TRIO Corner



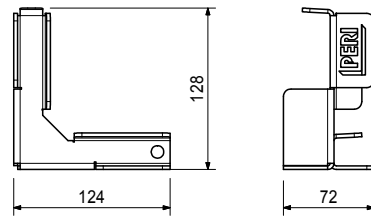
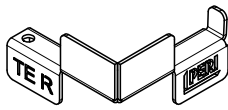
| Item no. | Weight kg |
|----------|-----------|
| 128313 | 0.395 |

Stacking Device TRIO LI



| | |
|--------|-------|
| 128494 | 0.395 |
|--------|-------|

Stacking Device TRIO RE



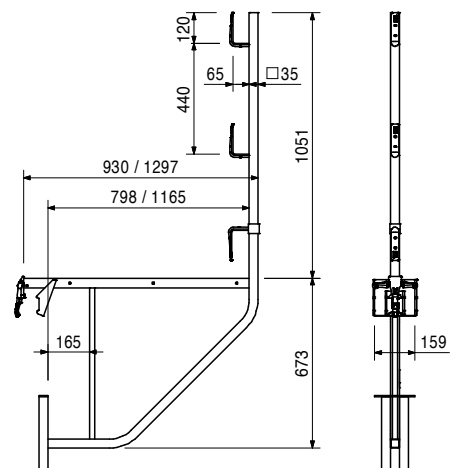
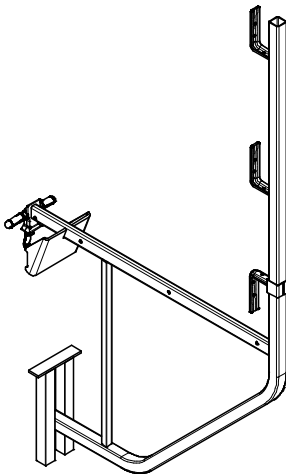
| | |
|--------|--------|
| 023670 | 12.600 |
| 023680 | 16.700 |

Scaffold Brackets TRG Scaffold Bracket TRG 80 Scaffold Bracket TRG 120

For assembly of a working and concreting scaffold with MAXIMO and TRIO. Mounted on horizontal and vertical struts.

Technical Data

Permissible load 150 kg/m²
with maximum width of influence 1.35 m.



| Item no. | Weight kg |
|----------|-----------|
| 023590 | 13.000 |

Scaffold Bracket TRG 100/112

For assembly of a working and concreting scaffold with TRIO and MAXIMO.

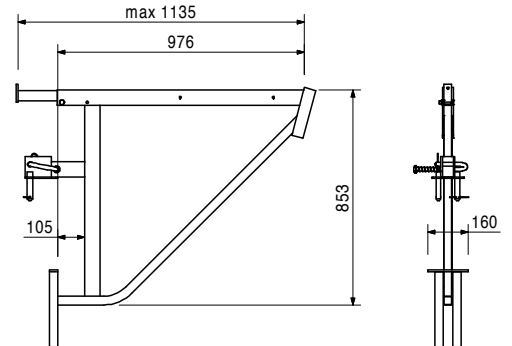
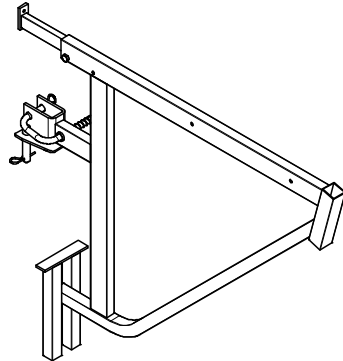
Mounted on horizontal and vertical struts. When attaching to the top strut, the scaffolding platform can be cantilevered up to the front edge of the formlining.

Complete with

1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.

Technical Data

Permissible load 150 kg/m²
with maximum width of influence 1.35 m.



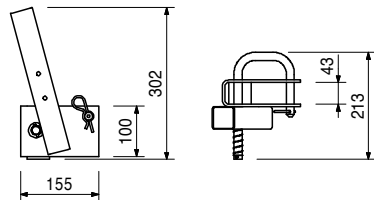
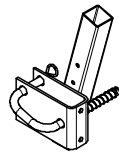
| | |
|--------|-------|
| 101592 | 2.810 |
|--------|-------|

Guardrail Post Holder TRIO

For assembling of a guardrail to TRIO Panels.

Complete with

1 pc. 018060 Cotter Pin 4/1, galv.



Accessories

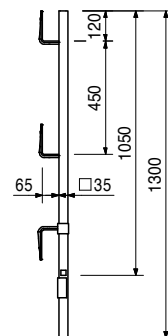
| | |
|--------|-------|
| 116292 | 4.720 |
|--------|-------|

Guardrail Post HSGP-2

| | |
|--------|-------|
| 116292 | 4.720 |
|--------|-------|

Guardrail Post HSGP-2

As guardrail for different systems.



TRIO Panel Formwork



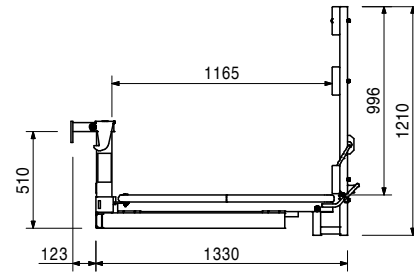
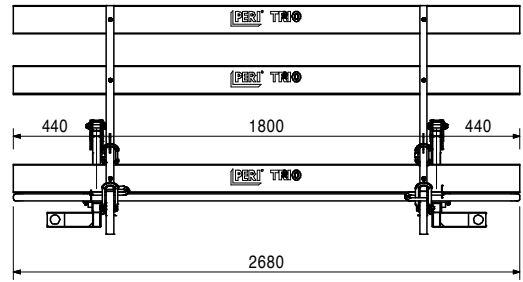
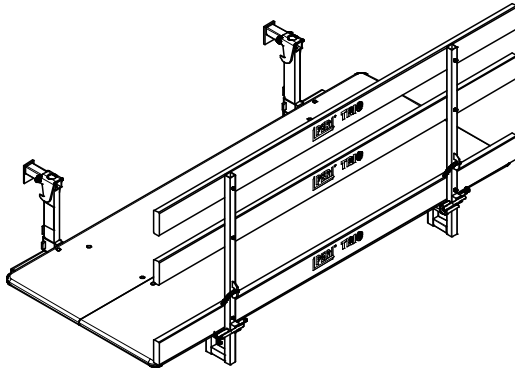
| Item no. | Weight kg |
|----------|-----------|
| 022950 | 129.000 |

Concreting Platform TRIO 120 x 270

Working and concreting platform for MAXIMO and TRIO. Attached from above to the panel, self-securing.

Technical Data

Permissible load 150 kg/m².



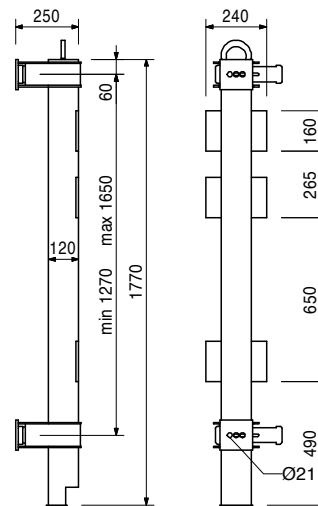
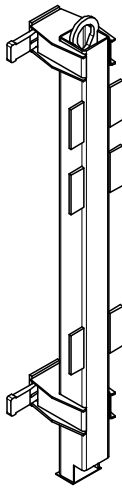
| | |
|--------|--------|
| 027680 | 49.600 |
|--------|--------|

Connector SB-1, 2 - MX/TR/D

For assembly of Brace Frame SB-1, 2 to MAXIMO, TRIO and DOMINO Panels.

Technical Data

Permissible load-bearing point capacity 1.0 t with crane sling angle $\leq 15^\circ$.



| | |
|--------|-------|
| 027690 | 0.368 |
| 027590 | 2.400 |
| 113255 | 0.414 |
| 114107 | 1.190 |
| 114417 | 1.400 |

Accessories

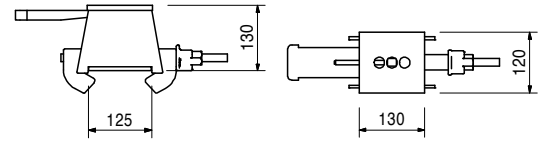
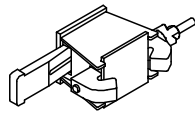
- Bolt SB-TRIO/DOMINO, galv.**
- Hook Strap for SB-1, 2**
- Bolt SB-MAXIMO, galv.**
- Sleeve SB-MAXIMO, galv.**
- Sleeve SB-MAXIMO WDMX**

TRIO Panel Formwork

| Item no. | Weight kg |
|----------|-----------|
| 025740 | 9.140 |

Connector SB-A, B, C - MX/TR/D
 For connecting MAXIMO, TRIO and DOMINO Panels with Brace Frames SB-A0, A, B, C.

Note
 1 piece per anchor point.

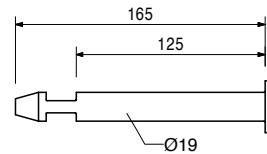
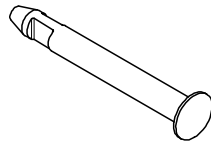


| | |
|--------|-------|
| 027690 | 0.368 |
| 113255 | 0.414 |
| 114107 | 1.190 |
| 114417 | 1.400 |

Accessories
Bolt SB-TRIO/DOMINO, galv.
Bolt SB-MAXIMO, galv.
Sleeve SB-MAXIMO, galv.
Sleeve SB-MAXIMO WDMX

| | |
|--------|-------|
| 027690 | 0.368 |
|--------|-------|

Bolt SB-TRIO/DOMINO, galv.
 For panel formwork with 12 cm overall thickness.

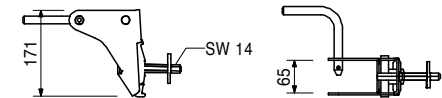
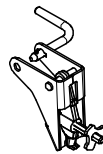


| | |
|--------|-------|
| 114107 | 1.190 |
| 114417 | 1.400 |

Accessories
Sleeve SB-MAXIMO, galv.
Sleeve SB-MAXIMO WDMX

| | |
|--------|-------|
| 023010 | 2.330 |
|--------|-------|

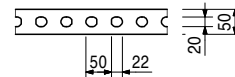
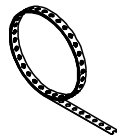
Foundation Tie Clamp TRIO TLS
 For anchoring foundation formwork in combination with the Perforated Foundation Tie.



| | |
|--------|-------|
| 023020 | 0.676 |
|--------|-------|

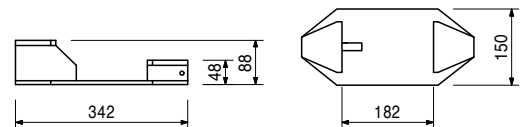
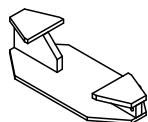
Perforated Foundation Tie, 25 m
 For use with Foundation Tie Clamp TRIO, DOMINO, LIWA and HANDSET.

Technical Data
 Permissible tension force 12.9 kN.



| | |
|--------|-------|
| 023800 | 4.840 |
|--------|-------|

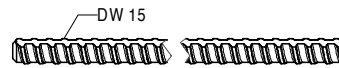
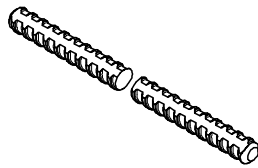
Foundation Strap TRIO
 For connecting TRIO panels with 6 cm wide edge profiles, assembled in a "windmill" configuration.



| Item no. | Weight kg | |
|----------|-----------|---|
| | | Tie Rods DW 15 |
| 030030 | 1.440 | Tie Rod DW 15, spec. length |
| 030050 | 0.000 | Cutting Cost Tie Rod DW 15, B 15 |
| 030005 | 0.720 | Tie Rod DW 15, l = 0.50 m |
| 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 |

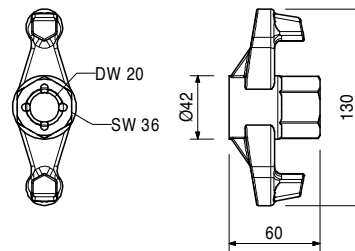
Note
Non-weldable! Take official Approval into consideration!

Technical Data
Permissible tension force 90 kN.



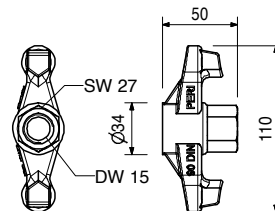
| | | |
|--------|-------|---|
| 030990 | 0.786 | Wingnut DW 20, galv. For anchoring with Tie Rod DW 20 and B 20. |
|--------|-------|---|

Technical Data
Permissible load 150 kN.



| | | |
|--------|-------|---|
| 030100 | 0.439 | Wingnut DW 15, galv. For anchoring with Tie Rod DW 15 and B 15. |
|--------|-------|---|

Technical Data
Permissible load 90 kN.

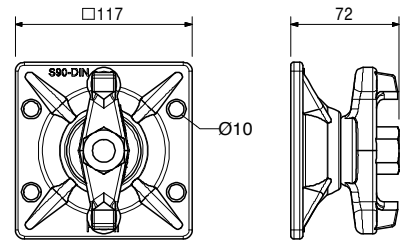
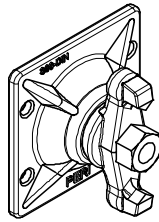


| Item no. | Weight kg |
|----------|-----------|
| 030370 | 1.660 |

Wingnut Pivot Plate DW 15, galv.
 For anchoring with Tie Rod DW 15 and B 15. With pivoting captive nut. Maximum angle of tilting 8°.

Note
 Wrench size SW 27.

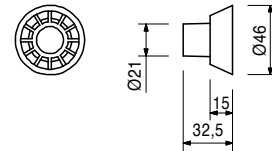
Technical Data
 Permissible load 90 kN.



| | |
|--------|-------|
| 065033 | 0.010 |
|--------|-------|

Cone DR 22
 Plastic. Suitable for Spacer Tube DR 22.

Note
 Delivery unit 500 pieces.

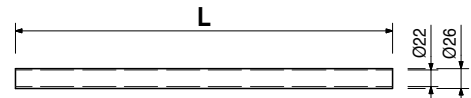
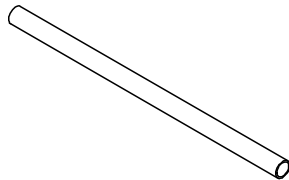


| | |
|--------|-------|
| 065027 | 0.359 |
| 065031 | 0.050 |
| 065030 | 0.039 |

Spacer Tubes rough DR 22
Spacer Tube rough DR 22, l = 2.00 m
Spacer Tube rough DR 22, l = 0.27 m
Spacer Tube rough DR 22, l = 0.21 m
 Plastic Spacer Tube for DW 15, B 15.

L

| |
|------|
| 2000 |
| 270 |
| 210 |

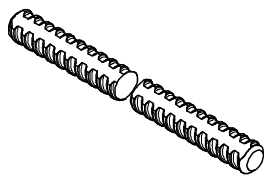


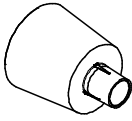
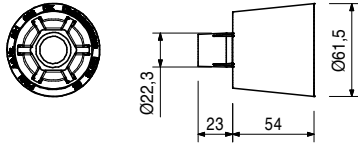
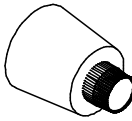
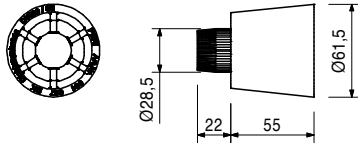
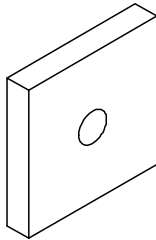
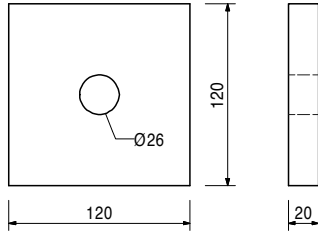
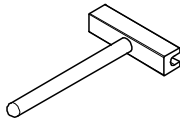
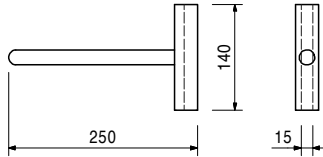
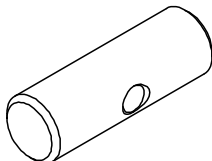
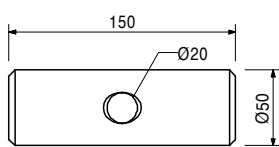
| | |
|--------|--------|
| 030700 | 2.560 |
| 030800 | 0.000 |
| 030640 | 1.280 |
| 030641 | 2.560 |
| 030680 | 15.400 |

Tie Rods DW 20
Tie Rod DW 20, spec. length
Cutting Cost Tie Rod DW 20/B 20
Tie Rod DW 20, l = 0.50 m
Tie Rod DW 20, l = 1.00 m
Tie Rod DW 20, l = 6.00 m

Note
 Non-weldable! Take official Approval into consideration!

Technical Data
 Permissible tension force 150 kN.

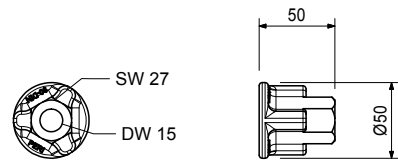
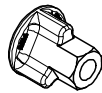


| Item no. | Weight kg | | |
|----------|-----------|---|--|
| 031636 | 0.063 | <p>DK Cone DW 15/55</p> <p>For waterproof, fire-resistant and soundproof anchor points with Tie Rod DW 15. Used with Spacer Tube rough 22.</p>  | <p>Note</p> <p>Delivery unit 50 pieces.</p>  |
| 031637 | 0.055 | <p>DK Cone DW 20/55</p> <p>For waterproof, fire-resistant and soundproof anchor points with Tie Rod DW 20. Use with Spacer Tube rough 28.</p>  | <p>Note</p> <p>Delivery unit 50 pieces.</p>  |
| 030830 | 2.180 | <p>Counterplate DW 20, 120 x 120 x 20</p> <p>For anchoring with Tie Rod DW 20 and B 20.</p>  | <p>Technical Data</p> <p>Permissible load 150 kN.</p>  |
| 031070 | 1.260 | <p>Tie Rod Wrench 15, galv.</p> <p>For easy handling of Tie Rod DW 15.</p>  |  |
| 022030 | 2.170 | <p>Tie Yoke, galv.</p> <p>For anchoring with Tie Rod DW 15 and B 15.</p>  | <p>Technical Data</p> <p>Permissible load 90 kN.</p>  |

| Item no. | Weight kg |
|----------|-----------|
| 030130 | 0.318 |

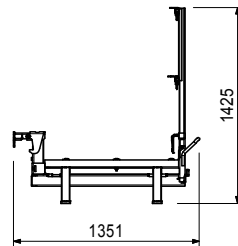
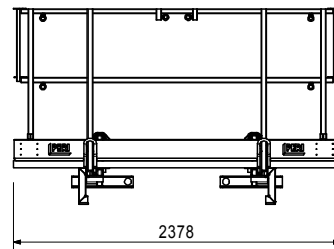
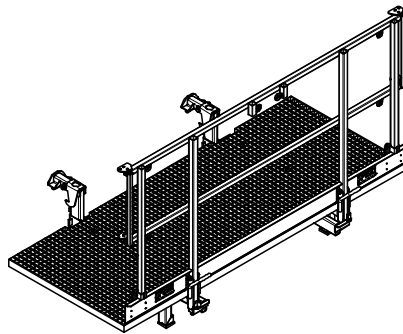
Cam Nut DW 15, galv.
For anchoring with Tie Rod DW 15 and B 15.

Technical Data
Permissible load 90 kN.



| | |
|--------|---------|
| 127273 | 192.000 |
|--------|---------|

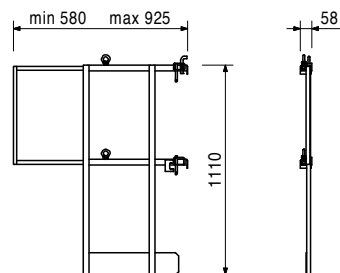
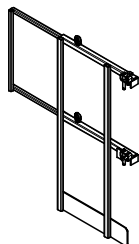
Concreting Platform MX 100 x 240
Working and concreting platform for MAXIMO and TRIO. Attached from above to the panel, selfsecuring.



| | |
|--------|--------|
| 115945 | 10.700 |
| 115946 | 10.700 |

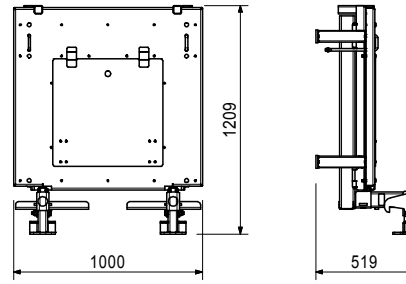
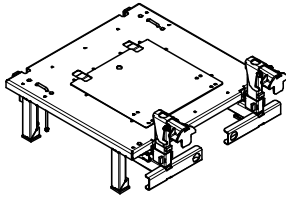
End Guardrails MXP
End Guardrail MXP left
End Guardrail MXP right
For MAXIMO Platforms MXP.
Drawing shows End Guardrail MXP left.

Complete with
2 pc. 722802 Eye Bolt M10 DIN 580, galv.



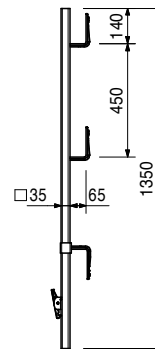
| Item no. | Weight kg |
|----------|-----------|
| 127885 | 71.600 |

Concreting Platform Hatch MX 100 x 100
 Working and concreting platform for MAXIMO and TRIO. Attached from above to the panel, selfsecuring.



| | |
|--------|-------|
| 126360 | 4.920 |
|--------|-------|

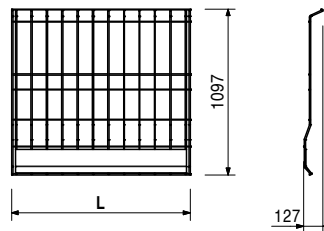
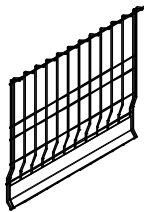
Guardrail Post MXK
 As guardrail for MAXIMO and TRIO.



| | |
|--------|--------|
| 126381 | 7.140 |
| 126376 | 9.260 |
| 126371 | 17.700 |

Side Mesh Barriers PMB
Side Mesh Barrier PMB 90
Side Mesh Barrier PMB 120
Side Mesh Barrier PMB 240

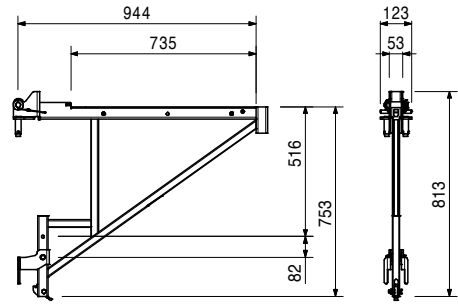
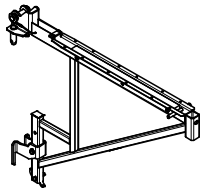
| L |
|------|
| 900 |
| 1180 |
| 2400 |



| Item no. | Weight kg |
|----------|-----------|
| 126356 | 10.200 |

Scaffold Bracket MXK

For assembly of a working and concreting scaffold with MAXIMO and TRIO.



| | |
|--------|-------|
| 126360 | 4.920 |
|--------|-------|

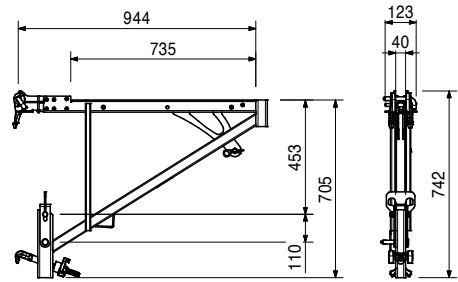
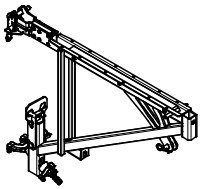
Accessories

Guardrail Post MXK

| | |
|--------|--------|
| 126540 | 14.600 |
|--------|--------|

Scaffold Bracket MXK-RS

For assembly of a working and concreting scaffold with MAXIMO and TRIO.



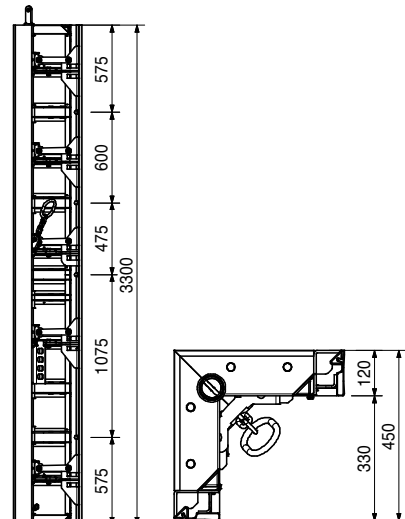
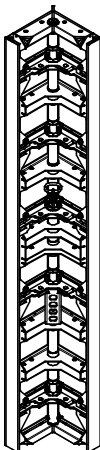
| | |
|--------|-------|
| 126360 | 4.920 |
|--------|-------|

Accessories

Guardrail Post MXK

| | |
|--------|---------|
| 129945 | 293.000 |
|--------|---------|

Striking Corner TRIO 330/270



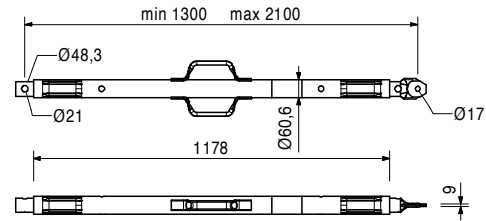
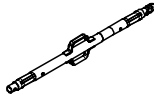
| Item no. | Weight kg |
|----------|-----------|
| 117466 | 10.600 |

Push-Pull Prop RS 210, galv.

Extension length $l = 1.30 - 2.10$ m.
For aligning PERI Formwork Systems and precast concrete elements.

Note

Permissible load see PERI Design Tables.



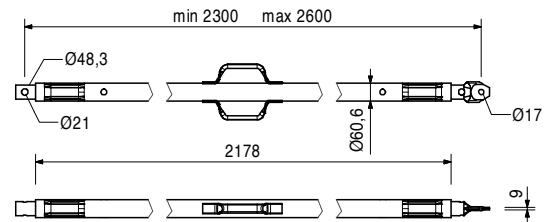
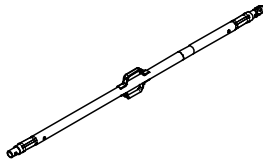
| | |
|--------|--------|
| 118238 | 12.100 |
|--------|--------|

Push-Pull Prop RS 260, galv.

Extension length $l = 2.30 - 2.60$ m.
For aligning PERI Formwork Systems and precast concrete elements.

Note

Permissible load see PERI Design Tables.



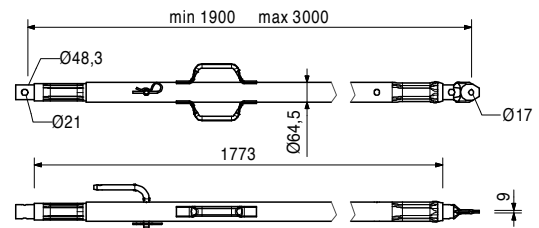
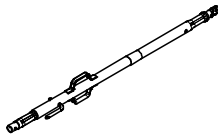
| | |
|--------|--------|
| 117467 | 15.500 |
|--------|--------|

Push-Pull Prop RS 300, galv.

Extension length $l = 1.90 - 3.00$ m.
For aligning PERI Formwork Systems and precast concrete elements.

Note

Permissible load see PERI Design Tables.



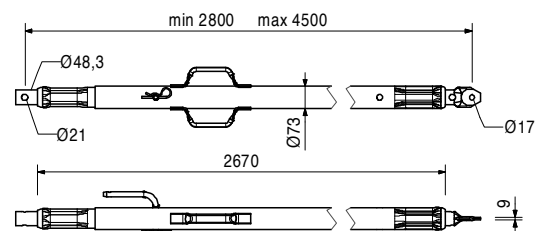
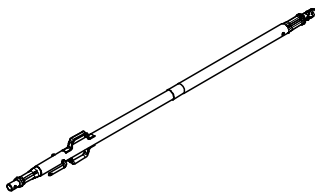
| | |
|--------|--------|
| 117468 | 23.000 |
|--------|--------|

Push-Pull Prop RS 450, galv.

Extension length $l = 2.80 - 4.50$ m.
For aligning PERI Formwork Systems and precast concrete elements.

Note

Permissible load see PERI Design Tables.



TRIO Panel Formwork



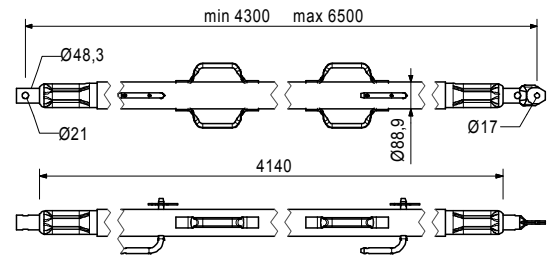
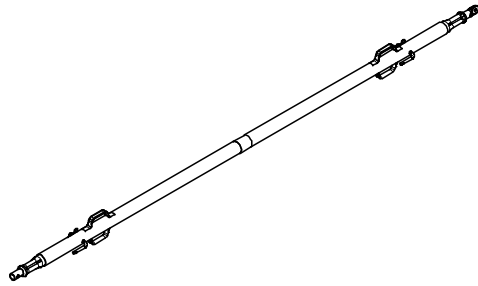
| Item no. | Weight kg |
|----------|-----------|
| 117469 | 39.900 |

Push-Pull Prop RS 650, galv.

Extension length $l = 4.30 - 6.50$ m.
For aligning PERI formwork systems and precast concrete elements.

Note

Permissible load see PERI Design Tables.



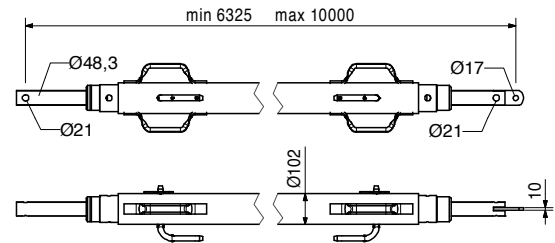
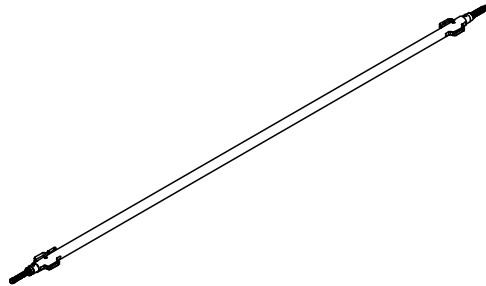
| | |
|--------|---------|
| 028990 | 115.000 |
|--------|---------|

Push-Pull Prop RS 1000, galv.

Extension length $l = 6.40 - 10.00$ m.
For aligning PERI formwork systems.

Note

Permissible load see PERI Design Tables.



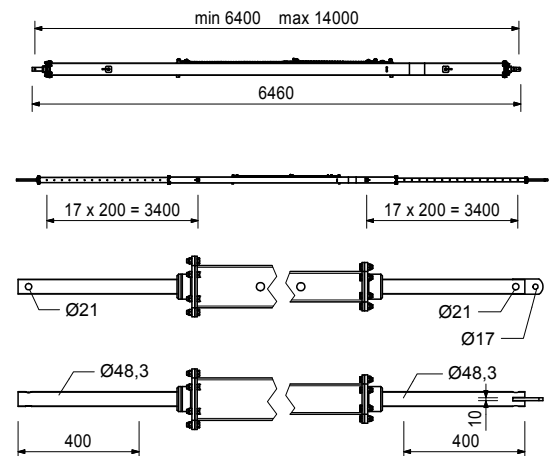
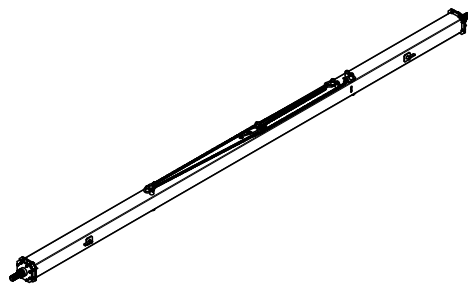
| | |
|--------|---------|
| 103800 | 271.000 |
|--------|---------|

Push-Pull Prop RS 1400, galv.

Extension length $l = 6.40 - 14.00$ m.
For aligning PERI formwork systems.

Note

Permissible load see PERI Design Tables.
Chain can be operated from bottom.



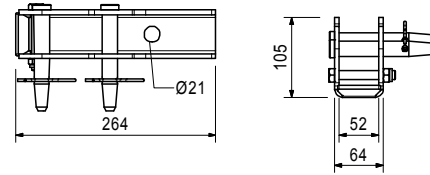
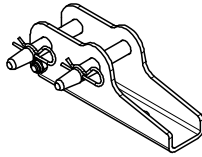
| Item no. | Weight kg |
|----------|-----------|
| 126666 | 3.070 |

Base Plate-3 for RS 210 – 1400

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

Complete with

- 2 pc. 105400 Pin 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 ISO7042-M12-8-G, galv.



Accessories

| | |
|--------|-------|
| 124777 | 0.210 |
|--------|-------|

Anchor Bolt PERI 14/20 x 130

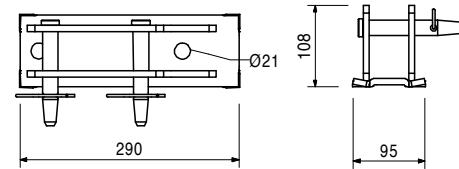
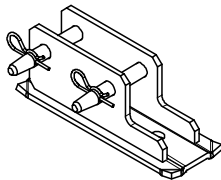
| | |
|--------|-------|
| 102018 | 4.880 |
|--------|-------|

Base Plate-2 for RS 1000/1400, galv.

For assembly of Push-Pull Props RS 210, 260, 300, 450, 650, 1000, 1400 and Heavy Duty Spindles.

Complete with

- 2 pc. 105400 Pin Ø 20 x 140, galv.
- 2 pc. 018060 Cotter Pin 4/1, galv.



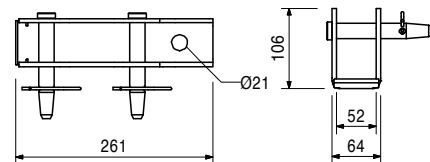
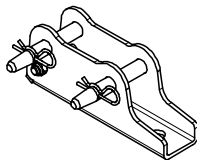
| | |
|--------|-------|
| 117343 | 3.250 |
|--------|-------|

Base Plate-2 for RS 210 – 1400, galv.

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

Complete with

- 2 pc. 105400 Pin Ø 20 x 140, galv.
- 2 pc. 018060 Cotter Pin 4/1, galv.



Accessories

| | |
|--------|-------|
| 124777 | 0.210 |
|--------|-------|

Anchor Bolt PERI 14/20 x 130

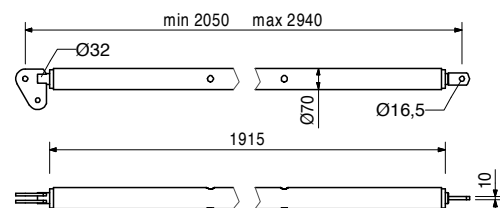
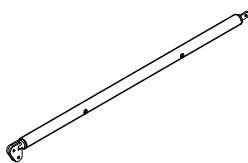
| | |
|--------|--------|
| 028010 | 17.900 |
|--------|--------|

Push-Pull Prop RSS I

Extension length $l = 2.05 - 2.94$ m.
For aligning PERI Formwork Systems.

Note

Permissible load see PERI Design Tables.



Accessories

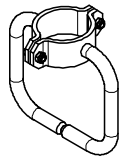
| | |
|--------|-------|
| 113397 | 1.600 |
|--------|-------|

Spindle Handle RSS / AV

| Item no. | Weight kg |
|----------|-----------|
| 113397 | 1.600 |

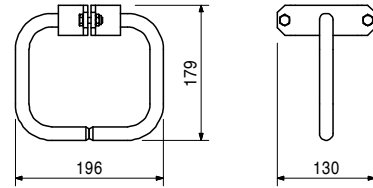
Spindle Handle RSS / AV

Spindle handle for screwing on Push-Pull-Props RSS I, RSS II and Kickers AV 210 and AV RSS III.



Complete with

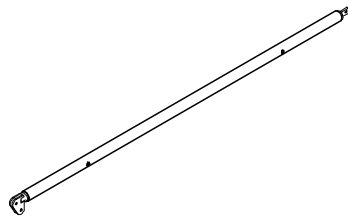
2 pc. 722342 Screw ISO 4017 M8 x 25-8.8, galv.
2 pc. 711071 Nut ISO 7042 M8-8, galv.



| | |
|--------|--------|
| 028020 | 22.000 |
|--------|--------|

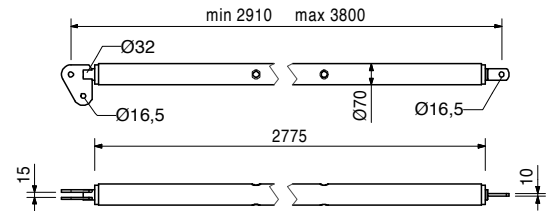
Push-Pull Prop RSS II

Extension length $l = 2.91 - 3.80$ m.
For aligning PERI Formwork Systems.



Note

Permissible load see PERI Design Tables.



Accessories

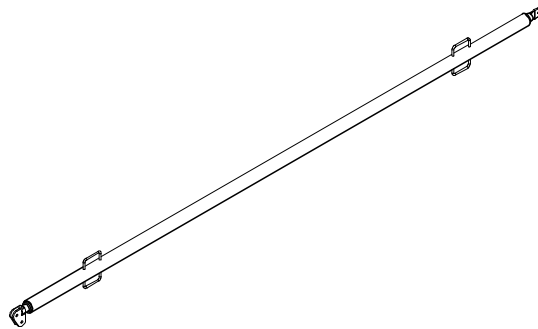
| | |
|--------|-------|
| 113397 | 1.600 |
|--------|-------|

Spindle Handle RSS / AV

| | |
|--------|--------|
| 028030 | 38.400 |
|--------|--------|

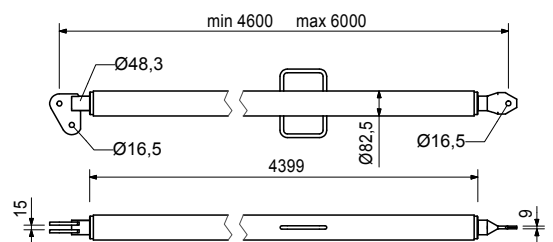
Push-Pull Prop RSS III

Extension length $l = 4.60 - 6.00$ m.
For aligning PERI formwork systems.



Note

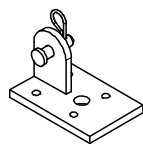
Permissible load see PERI Design Tables.



| | |
|--------|-------|
| 106000 | 1.820 |
|--------|-------|

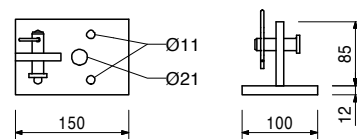
Base Plate-2 for RSS, galv.

For assembly of Push-Pull Props RSS.



Complete with

1 pc. 027170 Pin $\varnothing 16 \times 42$, galv.
1 pc. 018060 Cotter Pin 4/1, galv.



Accessories

| | |
|--------|-------|
| 124777 | 0.210 |
|--------|-------|

Anchor Bolt PERI 14/20 x 130

TRIO Panel Formwork



Item no. Weight kg

| | |
|--------|-------|
| 057087 | 3.510 |
| 057088 | 4.200 |

Kickers AV
Kicker AV 82
Kicker AV 111
 For aligning PERI Formwork Systems.

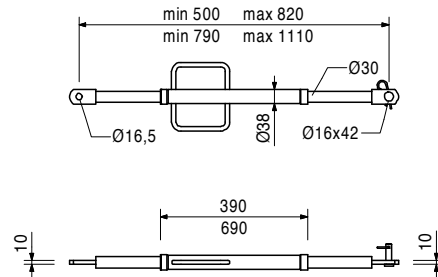
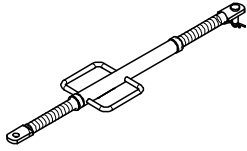
| min. L | max. L |
|--------|--------|
| 500 | 820 |
| 790 | 1110 |

Complete with

- 1 pc. 027170 Pin Ø 16 x 42, galv.
- 1 pc. 018060 Cotter Pin 4/1, galv.

Note

Permissible load see PERI Design Tables.



028110 4.850

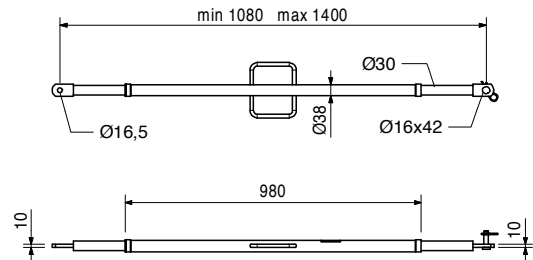
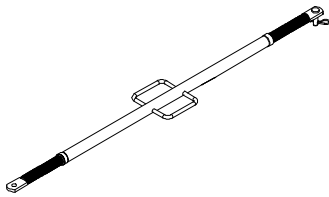
Kicker AV 140
 Extension length l = 1.08 – 1.40 m.
 For aligning PERI Formwork Systems.

Complete with

- 1 pc. 027170 Pin Ø 16 x 42, galv.
- 1 pc. 018060 Cotter Pin 4/1, galv.

Note

Permissible load see PERI Design Tables.



108135 12.900

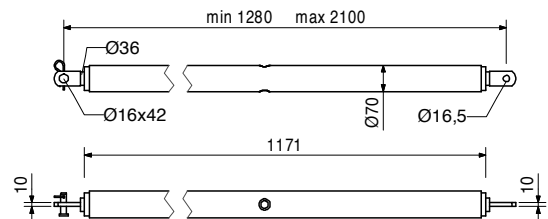
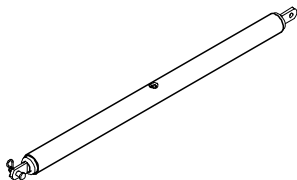
Kicker AV 210
 Extension length l = 1.28 – 2.10 m.
 For aligning PERI Formwork Systems.

Complete with

- 1 pc. 027170 Pin Ø 16 x 42, galv.
- 1 pc. 018060 Cotter Pin 4/1, galv.

Note

Permissible load see PERI Design Tables.



Accessories

113397 1.600

Spindle Handle RSS / AV

| Item no. | Weight kg |
|----------|-----------|
| 028120 | 17.000 |

Kicker AV RSS III

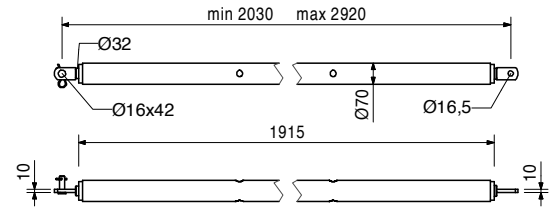
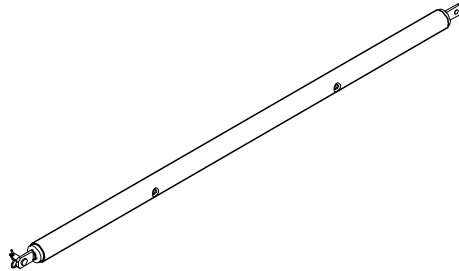
Extension length $l = 2.03 - 2.92$ m.
For aligning PERI formwork systems.

Complete with

1 pc. 027170 Pin $\varnothing 16 \times 42$, galv.
1 pc. 018060 Cotter Pin 4/1, galv.

Note

Permissible load see PERI Design Tables.



| | |
|--------|-------|
| 113397 | 1.600 |
|--------|-------|

Accessories

Spindle Handle RSS / AV

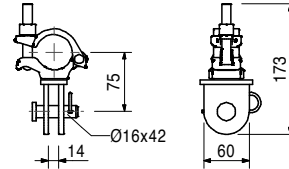
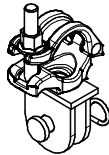
| | |
|--------|-------|
| 022016 | 1.290 |
|--------|-------|

Brace Connector HDR

For connecting push-pull props and kicker braces to components $\varnothing 48$ mm.

Complete with

1 pc. 027170 Pin $\varnothing 16 \times 42$, galv.
1 pc. 018060 Cotter Pin 4/1, galv.



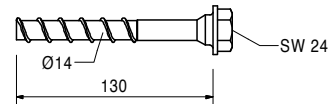
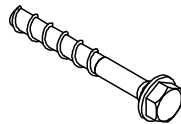
| | |
|--------|-------|
| 124777 | 0.210 |
|--------|-------|

Anchor Bolt PERI 14/20 x 130

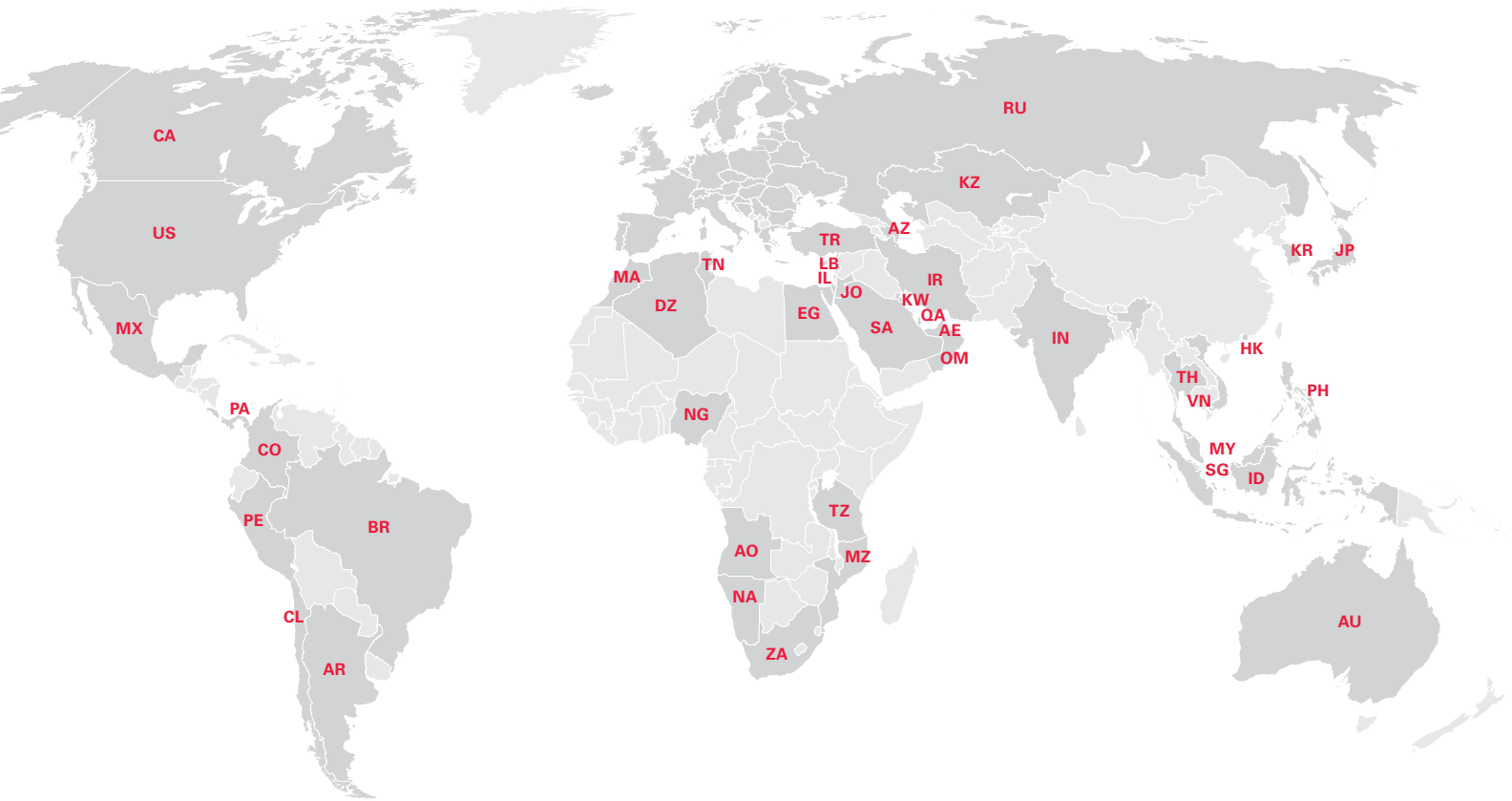
For temporary fixation to reinforced concrete structures.

Note

See PERI data sheet!
Drilling $\varnothing 14$ mm.



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PERI

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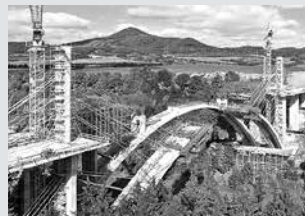
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