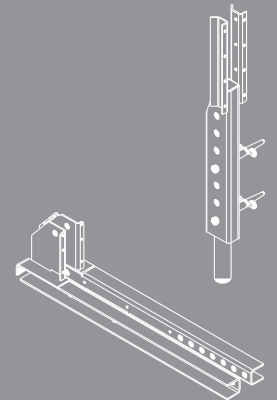
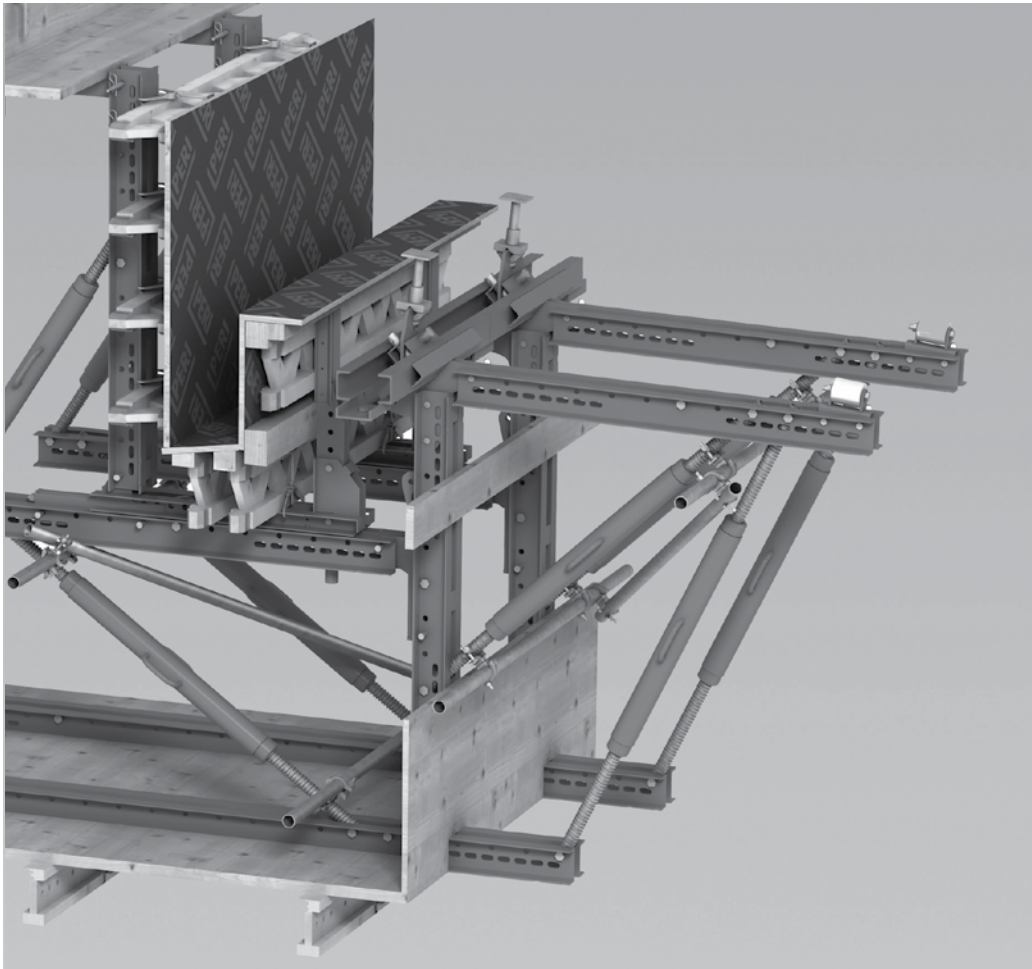


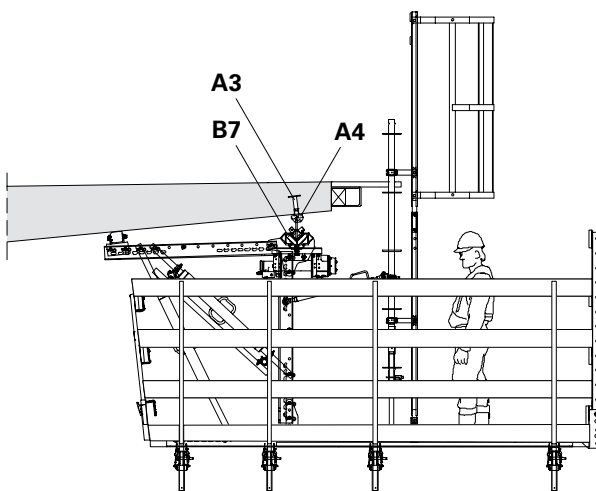
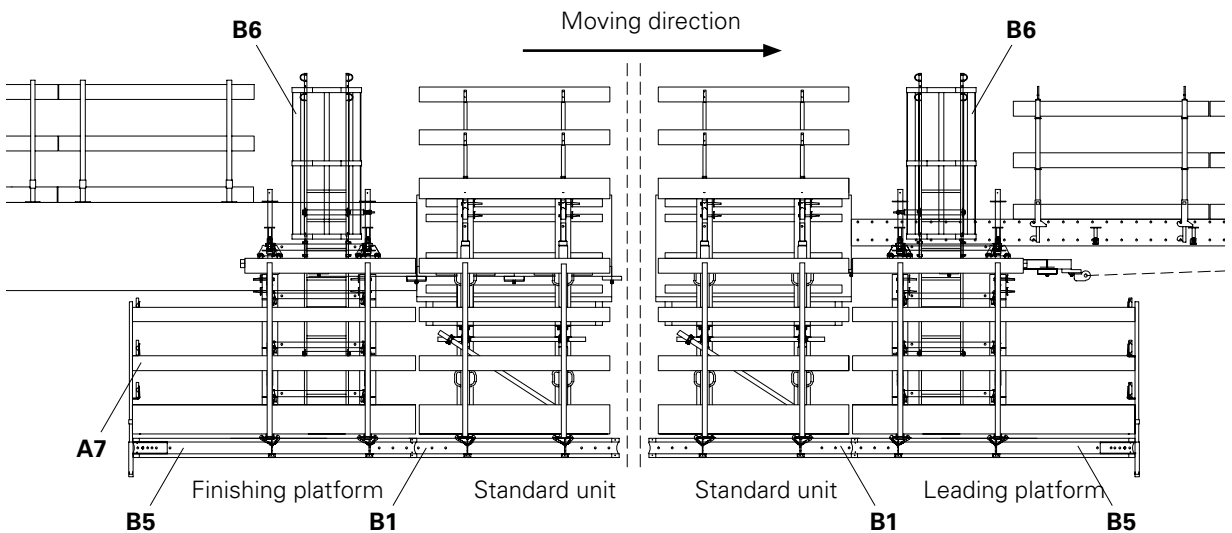
VGB

Cantilevered Parapet Track

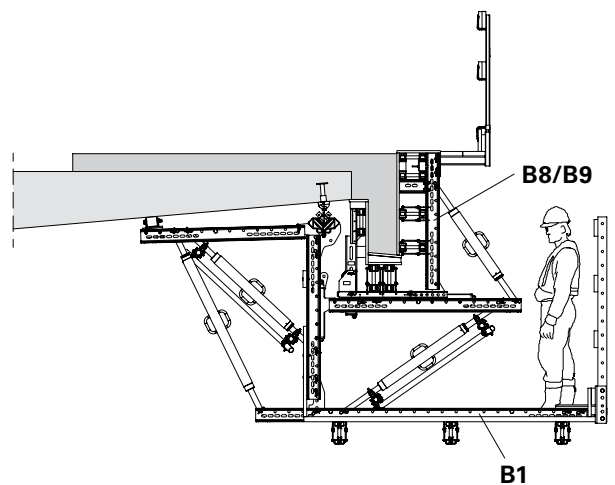
Instructions for Assembly and Use – Standard Configuration – Issue 03 | 2019



Main Components



Side view of leading platform



Side view of standard concreting unit

- A3 Anchoring
- A4 Fixing the Suspension Heads
- A7 Planking and Guardrails
- B1 Standard Unit
- B5 Leading Platform / Finishing Platform
- B6 Ladder Access
- B7 Roller Units
- B8 Formwork Type 1
- B9 Formwork Type 2

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Key

Pictogram | Definition

 Danger / Warning / Caution

 Information

 To be complied with

 Load-bearing point

 Visual check

 Tip


 Misapplication

 Safety helmet

 Safety shoes


 Safety gloves

 Safety glasses

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

Arrows

 Arrow representing an action

 Arrow representing a reaction of an action*

 Forces

* If not identical to the action arrow.

Safety instruction categories

The safety instructions alert site personnel to the risks involved and provide information on how to avoid these risks. Safety instructions are featured at the beginning of the section or ahead of the instructions, and are highlighted as follows:

Danger

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

Warning

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

Caution

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

Information

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

Set-up of the safety instructions

Signal word

Type and source of the danger!
Consequences of non-compliance.
⇒ Avoidance measures.

Dimension specifications

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

Conventions

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

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

For a better understanding, detailed illustrations are partly incomplete. Some safety installations which have possibly not been shown in these detailed descriptions 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 system, or
- use it, e.g. for concreting, or
- allow it to be used for other operations, e.g. carpentry or electrical work.

Competent person

(Construction Site Coordinator)

The Safety and Health Protection 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 carry out inspections correctly. Depending on the complexity of the inspection to be undertaken, e.g. scope of testing, type of testing or the use of certain measuring devices, a range of specialist knowledge is necessary.

Qualified personnel

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 personnel must have received instructions** covering 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.

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



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

- Approvals:
 - Approval Z-21.6-1768 PERI Anchor Sleeve M24
- Instructions for Use:
 - Crane Eye BR-2 2.5 t
- Assembly Instructions:
 - VGB Pulling Unit

Intended Use

Product description

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

The Cantilevered Parapet Track is used for concreting cantilevered parapets on cast in-place or prefabricated concrete bridges.

The Cantilevered Parapet Track can be flexibly adapted to suit different parapet geometries and carriageway radii.

The main elements are standardised PERI components taken from the VARIOKIT Engineering Construction Kit.

The basis is created by two parallel brackets consisting of Steel Walers SRU and Spindles SLS, which form a platform unit with spacings of 1.00 m, 1.25 m or 1.50 m depending on the size of the parapet and bridge radius. Both brackets are thereby connected by means of Guide Rails 100 and 150 as well as wind bracing and other reinforcement.

Optimum adaptation to the respective parapet geometry takes place via the Formwork Support VARIOKIT and Adjusting Unit VARIOKIT.

The system is anchored by means of the PERI Anchor Sleeve M24 that is concreted into the bridge superstructure, on which the Roller Unit VARIOKIT is mounted via the Suspension Head M24 VARIOKIT.

Features

- No interference on and under the bridge due to suspension on the bridge cantilever.
- Mobile solution for a fast moving procedure.
- Shuttering and striking in two steps.
- The Roller Unit can transfer the concreting loads without any additional measures.
- Optionally, the Cantilevered Parapet Track can be combined with a hydraulic winch system in order to pull it to the next casting segment.

Technical data

- Possible widths of influence:
 - 1.00 m
 - 1.25 m
 - 1.50 m
- Project-specific planning required.
- Recommended track length: 25 m
- Anchoring Bolt: ISO 4014 M24x150-8.8-VZ
- The total weight results from the project-specific planning.
- Temperature range:
 - -20 °C to +60 °C

Instructions on Use

Use in a way not intended according to the Instructions for Assembly and Use, or any use deviating from the standard configuration or the intended 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.

The system described in these Instructions for Assembly and Use may contain patent-protected components.

Cleaning 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 facilitates 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: this largely avoids impressions and damage to the formlining.

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. elements 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 crane lifting gear.

Cross-System

General

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

These Instructions for Assembly and Use can be used as the basis for creating a risk assessment. The risk assessment is compiled by the contractor. However, these Instructions for Assembly and Use do not replace the risk assessment!

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
- function.

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 to 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.

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

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

Before and after exceptional occurrences that may have an adverse effect on the safety of the formwork system, the contractor must immediately

- create another risk assessment, with appropriate measures being carried out based on the results, to ensure the stability of the formwork system,
- arrange for an extraordinary inspection to be carried out by a competent person qualified to do so. The aim of this inspection is to identify and rectify any damage in good time in order to guarantee 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 personnel must have received appropriate training for the work to be carried out with regard to specific risks and dangers.

On the basis of the risk assessment and the Instructions for Assembly and Use, the contractor must create installation instructions 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 formwork system, e.g.

- safety helmet,
- safety shoes,
- safety gloves,
- safety glasses,

is available and used as intended.

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

The contractor stipulates the PPE to be used to prevent falling.

The contractor must

- provide safe working areas for site personnel, which are to be reached through the provision of safe access ways. Areas of risk must be cordoned off and clearly marked.
- ensure stability during all stages of construction, in particular during assembly, modification and dismantling 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, is responsible 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

A detailed static calculation is required for each respective assembly of a Cantilevered Parapet Track.

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

If the hydraulic winch is used to pull the Cantilevered Parapet Track, only the operator is allowed to remain on the leading platform in order to control the system.

During the pulling procedure, leading edges are created. Suitable safety measures to prevent falling are to be implemented.

The following is not permitted:

- overloading the Pulling Unit.
- overloading the suspension point.
- site personnel are not allowed to remain in the area of the Hydraulic Winch during the moving procedure.

Anchoring

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

When mounting the scaffold anchoring and installing the bracket scaffold, the contractor or his authorised competent person must be present. This ensures that the work is properly completed. Verification of the existing concrete strength as well as the inspection of individual components, proper assembly and the anchoring depth must be documented. Proof must be provided that all load transfers in the building are distributed into the ground.

Damaged anchoring components or advanced mountings must not be used.

Examples of damage:

- deformed components
- rough or scratched surfaces
- rough-running / deformed threads
- deformed hex. thread in the Threaded Cone M24/40
- widened nail hole in the Threaded Cone M24/40

Storage and Transportation

Store and transport 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.

Do not drop the components.

Use PERI lifting accessories and slings and 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 construction site must be free of obstacles and tripping hazards, as well as being slip-resistant.

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

Use original PERI storage and transport systems, e.g. Crate Pallets, Pallets or Stacking Devices.



Danger

Load specifications must not be exceeded!

Risk of falling for the VGB Cantilevered Parapet Track.

- ⇒ Do not place any materials or other objects on the complete length of the VGB Cantilevered Parapet Track.
- ⇒ Ensure that the load transfer takes place centrally in the Guide Rail VGB (± 10 cm).
- ⇒ For "Load Case: Concreting", only access the working platform to carry out inspection work.

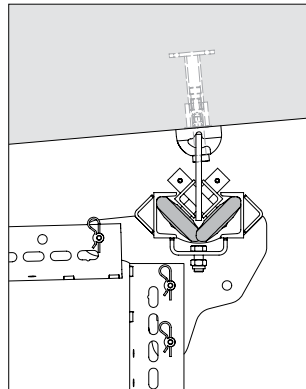


Fig. A1.01

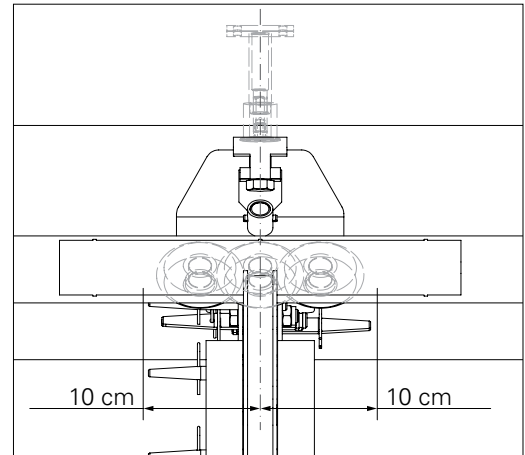


Fig. A1.02

Working/concreting



The supporting structure of the VGB Cantilevered Parapet Track is to be provided with project-specific verification by means of a static calculation on the basis of PERI product information as well as valid standards.

Anchoring verification (load transfer into the concrete) according to General Building Approval No.: Z-21.6-1768 PERI Anchor Sleeve M24.

Proof must be provided that all load transfers in the building are distributed into the ground.

Work procedures in "Load Case: Working":

- cleaning the formwork,
- installing reinforcement in the cantilevered parapet,
- closing the formwork,
- concreting,
- striking,
- inspection and maintenance.

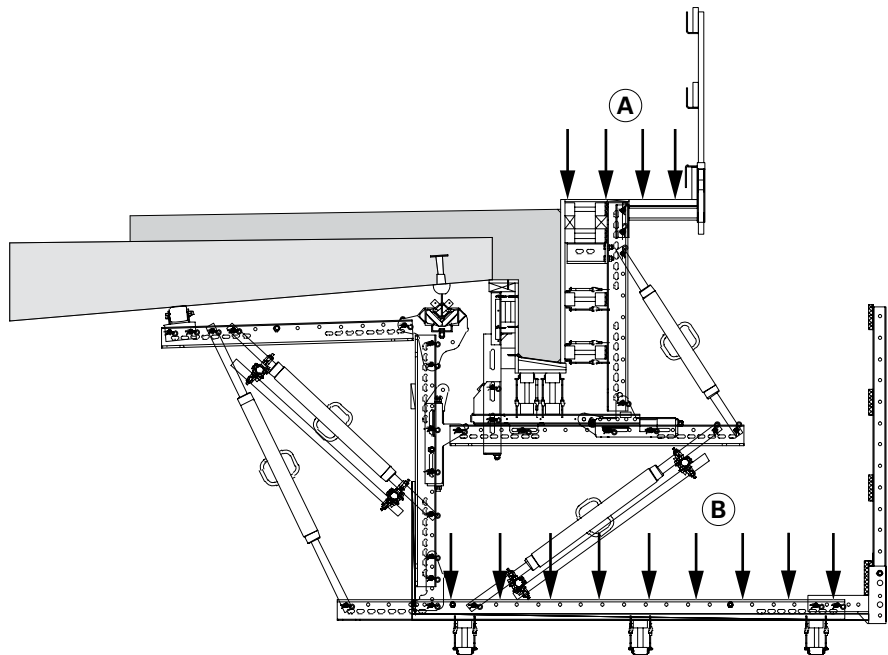


Fig. A1.03

Load Case: Working/Concreting	
Live Load A	0,75 kN/m ²
Live Load B	0,75 kN/m ²
Max. working wind speed	0,20 kN/m ² (vW = 64 km/h)
Fresh concrete pressure	in accordance with the static calculation

Table A1.01

Load Case: Storm	
Live Load A	0,00 kN/m ²
Live Load B	0,00 kN/m ²
Wind gust velocity	in accordance with the static calculation
Fresh concrete pressure	in accordance with the static calculation

Table A1.02

Moving



Danger

Unsecured concrete edges!

A fall can result in serious injury or even death.

Risk of falling.

⇒ Assembly and dismantling take place from a safe and secure working area, e.g. lifting platform, or
⇒ use PPE.



- Load specifications must not be exceeded.
- Do not place any materials or other objects on the complete length of the VGB Cantilevered Parapet Track.

Preparation

Before moving, the formwork must be released from the building by turning the Heavy-Duty Spindles SLS (2a) and (2b) or (2c).

(Fig. A1.04 and Fig. A1.05)



Transport freed-up Roller Units VARIOKIT (7) when moving the VGB Cantilevered Parapet Track via the Cantilevered Parapet Track to the leading platform. (see Section C8)

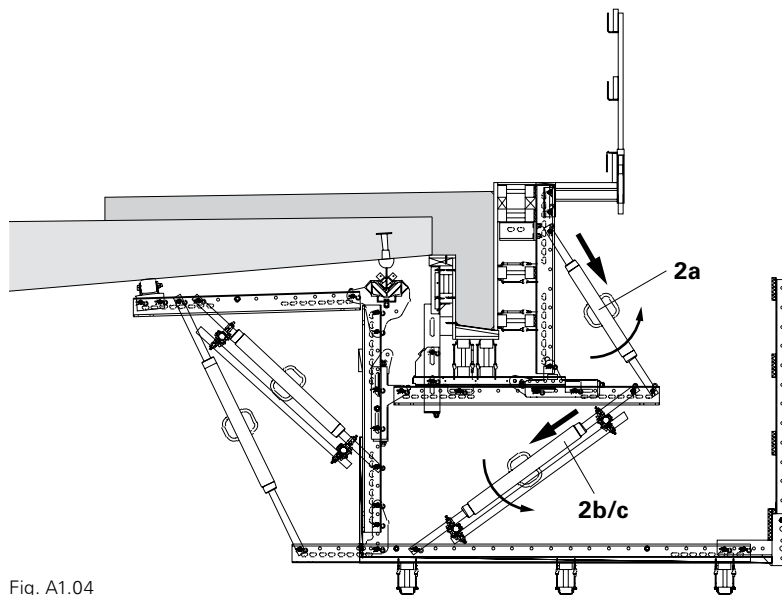


Fig. A1.04

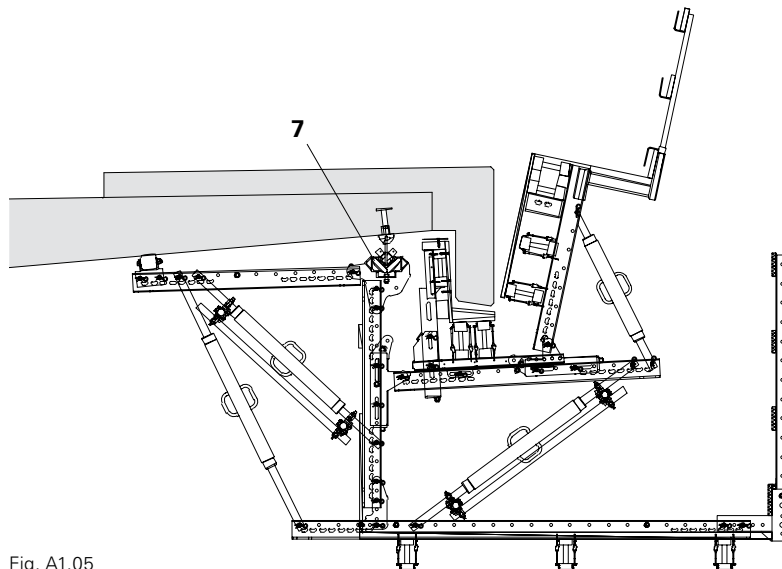


Fig. A1.05

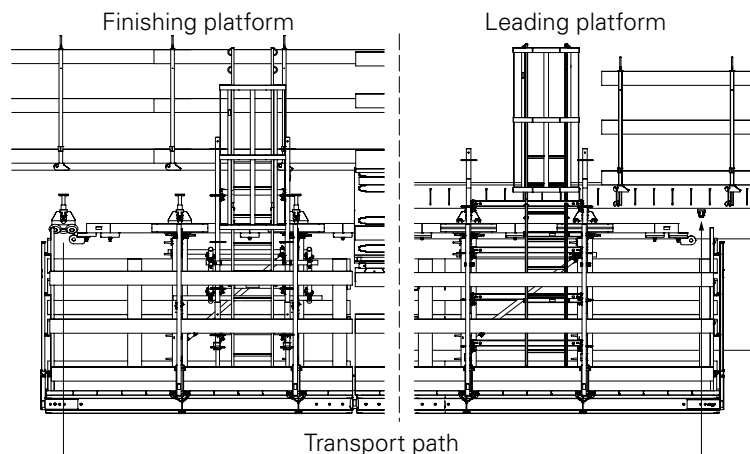


Fig. A1.06

Load Case: Moving

Live Load A	0,00 kN/m ²
Live Load B	0,75 kN/m ²
Max. working wind speed	0,20 kN/m ² (vW = 64 km/h)

Table A1.03



The dimensions and geometric dependencies shown in Fig. A2.01 are important for pre-dimensioning! A project-specific static calculation is always required.

Standard components:

- 1c** Steel Waler Universal SRU U120 L = 1.22 m
- 1d** Steel Waler Universal SRU U120 L = 1.47 m
- 1e** Steel Waler Universal SRU U120 L = 1.72 m
- 1f** Steel Waler Universal SRU U120 L = 2.97 m
- 2a** Heavy-Duty Spindle SLS 80/140
- 2b** Heavy-Duty Spindle SLS 100/180
- 2c** Heavy-Duty Spindle SLS 140/240
- 7** Roller Unit VARIOKIT

(Fig. A2.01)

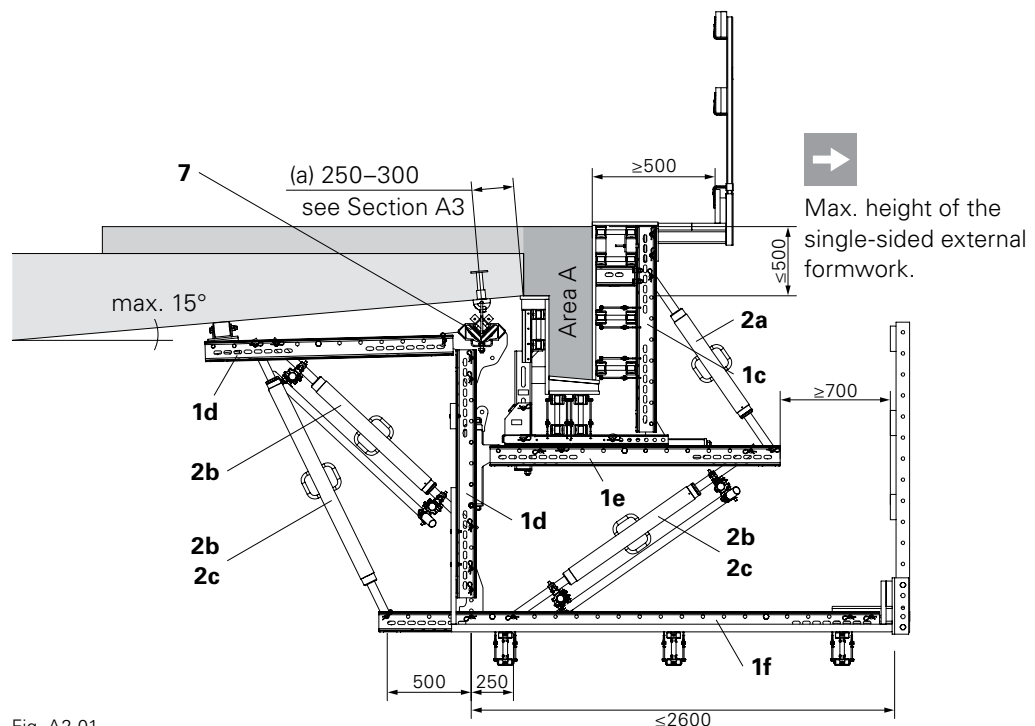


Fig. A2.01

Permissible anchor spacings depending on parapet size:

Anchor spacing b2 (Fig. A2.02)	1000 mm
max. parapet area A (Fig. A2.01)	0.6 m ²

→ Where appropriate, the anchoring can be decisive.

Anchor spacing b2 (Fig. A2.03)	1250 mm
max. parapet area A (Fig. A2.01)	0.4 m ²

Anchor spacing b2 (Fig. A2.04)	1500 mm
max. parapet area A (Fig. A2.01)	0.2 m ²

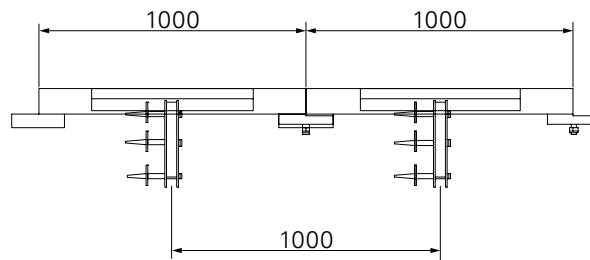


Fig. A2.02

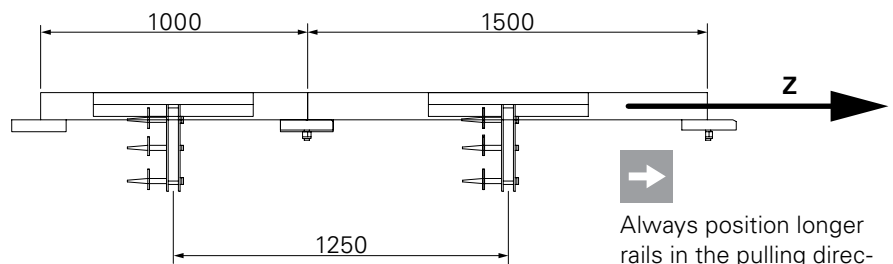


Fig. A2.03

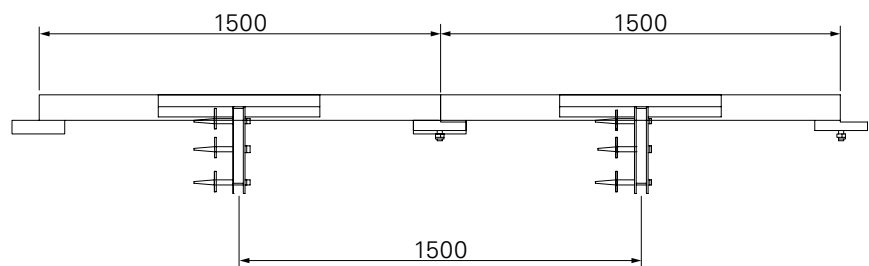


Fig. A2.04

Selection of the right formwork assembly

Type 1

Parapets with large overhang on the inner side (>10 cm with formwork support)



Always place the external formwork on the bottom element. (Fig. A2.05a)

- With the adjustable Vertical Post VGB 100 (3), the internal formwork can be adapted to suit the structure separately from the external formwork. (Fig. A2.05)
- By turning the Bolt (SW 30), the Vertical Post can be adjusted by ± 5.0 cm. (Fig. A2.05b)

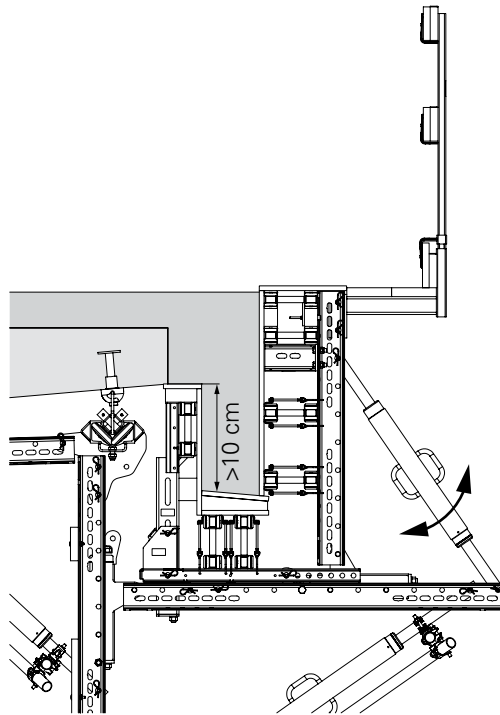


Fig. A2.05

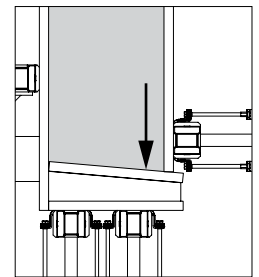


Fig. A2.05a

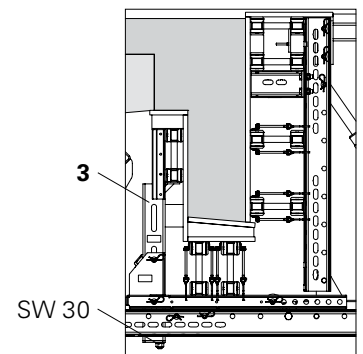


Fig. A2.05b

Type 2 Parapets with small overhang on the inner side (≤10 cm height)



Always place the external formwork on the bottom element.

- For parapets with an inner parapet height up to 10 cm, the Adapter VGB (4) and Up Lift Protector SRU (5) are used. (Fig. A2.06a)
- The internal formwork is pressed against the formwork girder with Wingnut Pivot Plate DW 15 (8) by means of a Tie Rod DW 15 (6). (Fig. A2.06b)
- Hit the internal formwork in an upwards direction with a hammer and fix with wedges. The formwork is optimally adapted to suit the structure.

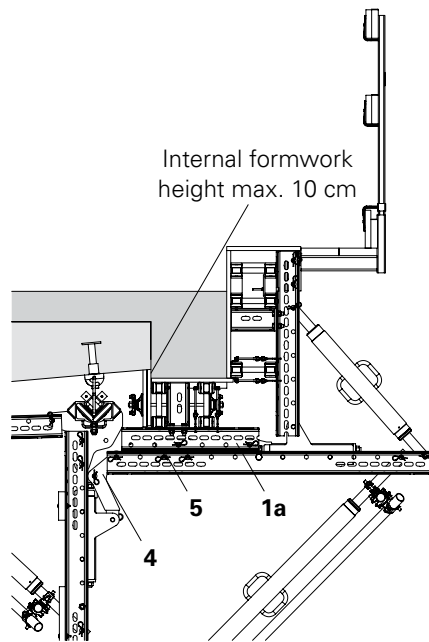


Fig. A2.06

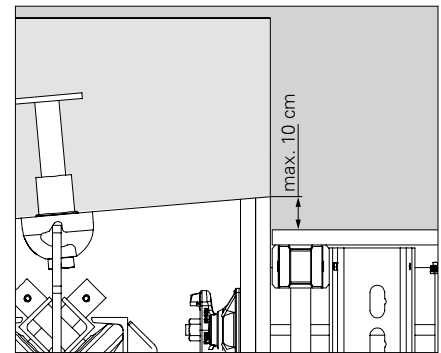
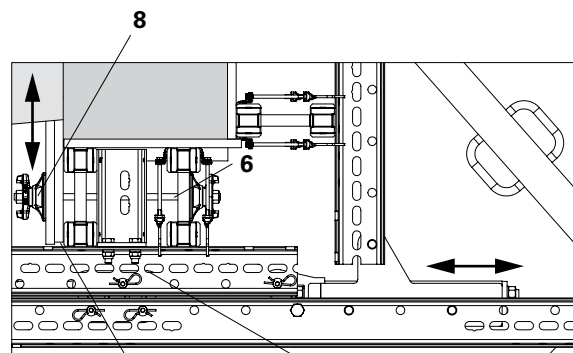


Fig. A2.06a



Wedges for pressing the formwork

Fig. A2.06b

Positioning and installation of the ties



Check anchoring components and advance mountings for any signs of damage prior to installation.

Anchor spacing in a longitudinal direction

3 different anchor spacings (b2) are possible depending on parapet size and bridge gradient: 1.00 m, 1.25 m and 1.50 m.

The connection of the parapet in the area of the abutment is planned on a project-specific basis. The spacing to the abutment wall (b1) is determined from the cantilever of the standard platform unit, as well as a dimension tolerance of 5.0 cm according to the reference values in Table A3.01.

Damaged anchoring components or advanced mountings must not be used.

Examples of damage:

- deformed components
- rough or scratched surfaces
- rough-running / deformed threads
- deformed hex. thread in Threaded Cone M24/40
- widened nail hole in Threaded Cone M24/40



Check installation

- distance to the edge,
- anchor spacings,
- completely screwed in,
- planned position.

Checking of the anchors by a competent person and reinforcement measures can be done at the same time.

PERI recommends compiling an acceptance report.

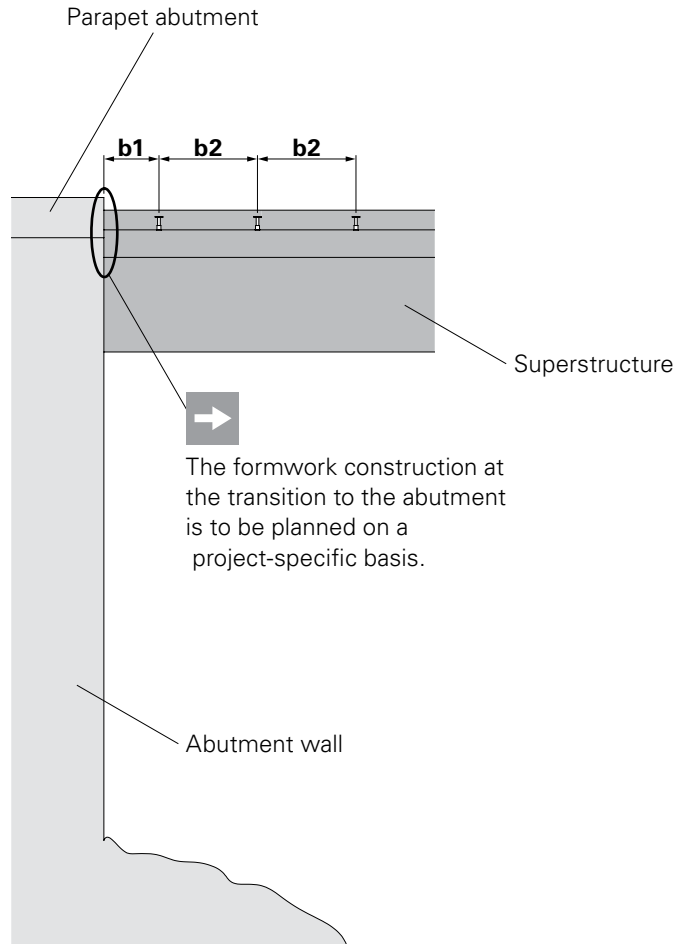


Fig. A3.01

Rails [Type]	b1 [cm]	b2 [cm]
100/100	65	100
100/150	65	125
150/150	90	150

Table A3.01

Anchor Sleeve M24

The Anchor Sleeve M24 (9) is also embedded when concreting the cantilevered parapet.



- Dimension "a": see Approval Z-21.6-1768 PERI Anchor Sleeve M24
- Maintain the selected dimension "b" over the entire length of the bridge. (Fig. A3.03)

Anchor Positioning Stud M24 x 65

Required components per tie point

9	Anchor Sleeve M24	1x
10	Anchor Positioning Stud M24	1x
11	Cone FRC Ø 32/52	1x

Installation with the Anchor Positioning Stud

1. Mount Anchor Positioning Stud M24 (10) on the formlining by means of 4x wire nails 3 x 80. (Fig. A3.02)
Note: edge spacing "a" and distance to sides "b1" and "b2". (Fig. A3.03 + Table A3.01)
2. Push Cone FRC Ø 32/52 (11) over the thread of the Anchor Positioning Stud.
3. Screw Anchor Sleeve M24 (9) onto the Anchor Positioning Stud M24 as far as possible. (Fig. A3.03)
4. Secure Anchor Sleeve M24 (9) in the reinforcement using tie wire.

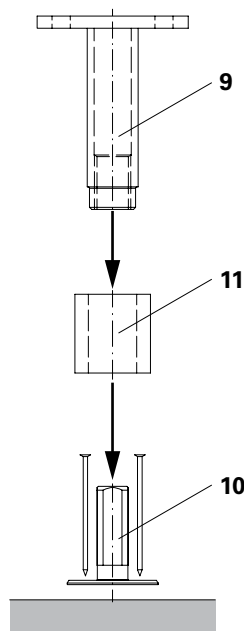


Fig. A3.02

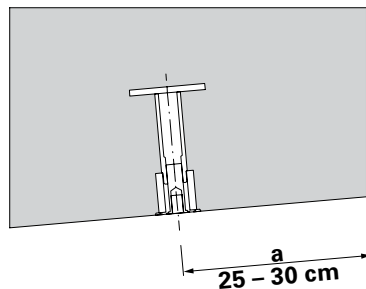


Fig. A3.03

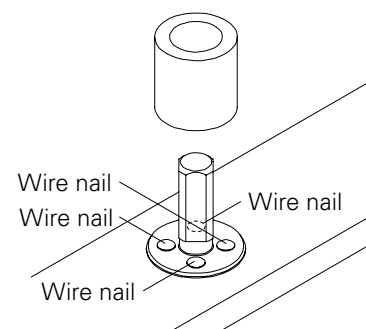


Fig. A3.03a

Threaded Cone M24/40

Required components per tie point

9 Anchor Sleeve M24	1x
12 Threaded Cone M24/40	1x
13 Wire Nail Ø 4.6 x 130	1x

Installation with the Threaded Cone

1. Insert wire nail Ø 4.6 x 130 (13) into the Threaded Cone M24/40 (12).
2. Position the Threaded Cone M24/40 (12) on the formlining and completely hammer in the wire nail Ø 4.6 x 130 (13). (Fig. A3.04)
3. Screw in Anchor Sleeve M24 (9) as far as possible, at 90° to the formlining. (Fig. A3.05)
4. Secure the Anchor Sleeve M24 (9) in the reinforcement with tie wire to ensure that it does not change its position during concreting.

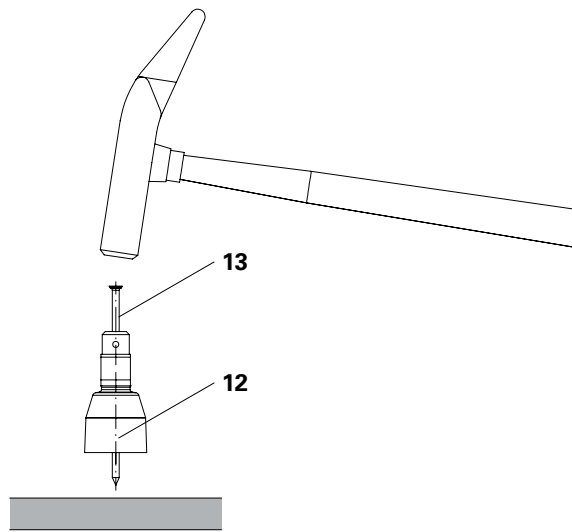


Fig. A3.04

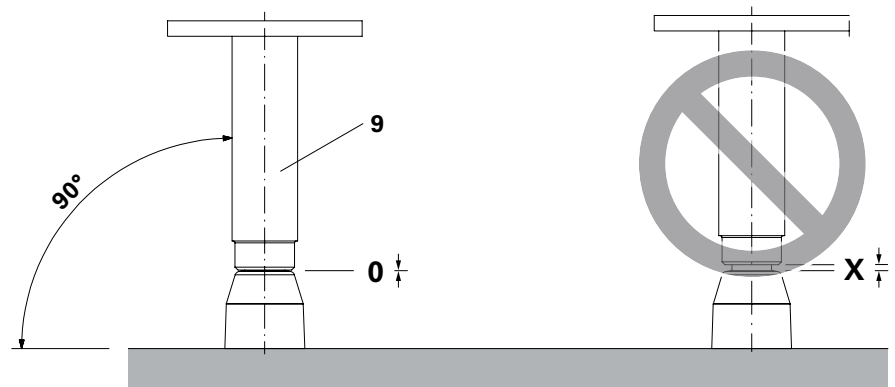


Fig. A3.05

Suspension Head M24 VARIOKIT



Installation of the Suspension Heads M24 VARIOKIT is carried out from a safe working position, e.g.

- leading platform of the VGB Cantilevered Parapet Track
- telescopic working platform
- temporary working scaffold



- Dimension "a": see Approval Z-21.6-1768 PERI Anchor Sleeve M24.
- The advance mounting of the Anchor Sleeve M24 is gradually removed during the pulling procedure of the VGB Cantilevered Parapet Track, and the Suspension Head M24 VARIOKIT is then fixed.

Dismantling the Anchor Positioning Stud

1. Turn over wire nails with a hammer.
2. Screw out the Anchor Positioning Stud M24 (10) from the Anchor Sleeve by means of an Allen key (SW 14) (Fig. A4.01)

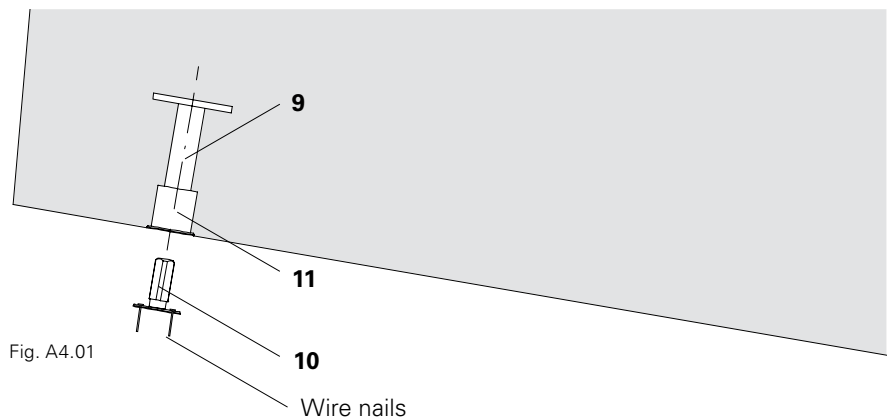


Fig. A4.01

Dismantling the Threaded Cone

1. Push back wire nail with a hammer.
2. Screw out the Threaded Cone M24/40 (12) from the Anchor Sleeve using ratchet wrench and socket (SW 22).

Mounting the Suspension Head



Do not exceed max. permissible inclination of the Suspension Head M24 VARIOKIT. ($\pm 15^\circ$)

Assembly

1. Attach Suspension Head M24 VARIOKIT (14) to the Anchor Sleeve M24 by means of Bolts M24 x 150 (15). (Fig. A4.02)

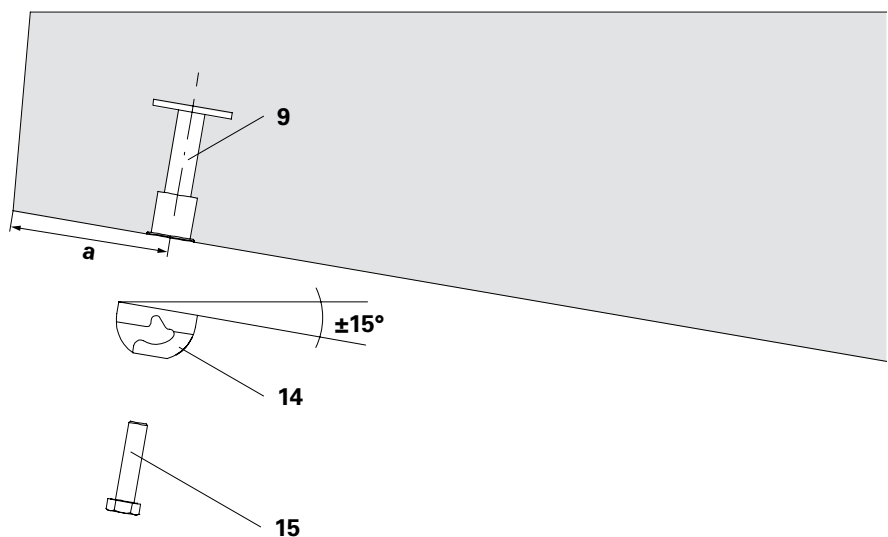


Fig. A4.02

A4 Fixing the Suspension Heads



For parapets with large overhangs, PERI recommends mounting the Suspension Head M24 VARIOKIT with the opening to the bridge superstructure to allow easier dismantling of the Roller Units.
(Fig. A4.02a)

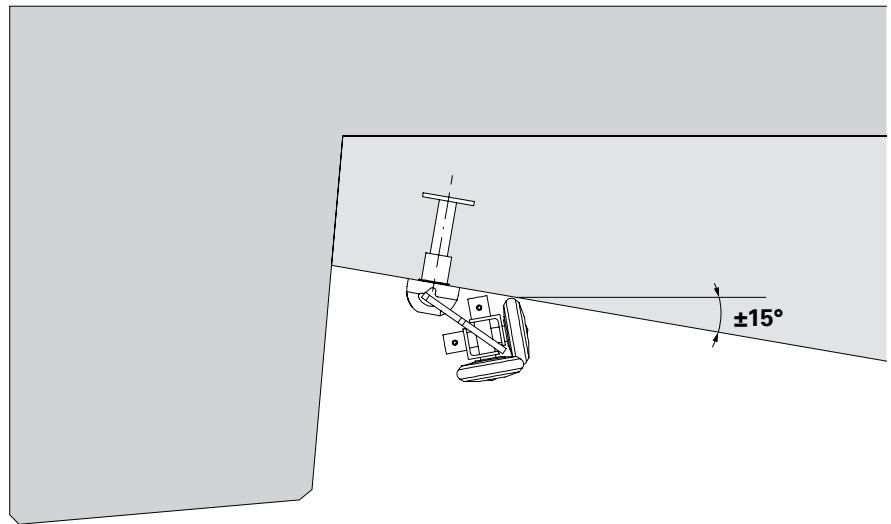


Fig. A4.02a



Closing the tie holes is carried out from a safe working position, e.g.

- the finishing platform of the VGB Cantilevered Parapet Track
- telescopic working platform
- temporary working scaffold

Removal

1. Release Bolts M24 x 150 (15) in the Suspension Head M24 VARIOKIT (14).
2. Remove the Suspension Head M24 VARIOKIT (14).



Comply with the safety data sheet for the Repoxal adhesive.

Closing tie holes with the Cone FRC

1. Clean anchor hole.
2. Mix adhesive (16) according to the manufacturer's instructions.
3. Immerse Cone FRC 32/20 (17b) on one side in the adhesive.
4. Tap into anchor hole using a rubber-headed hammer until flush with hole.
5. Remove adhesive residue with a spatula. (Fig. A5.01)

Closing tie holes with the Threaded Cone

1. Clean anchor hole.
2. Mix adhesive (316) according to the manufacturer's instructions.
3. Immerse Cone FRC 40/20 (17a) on one side in the adhesive.
4. Tap into anchor hole using a rubber-headed hammer until flush with hole.
5. Remove adhesive residue with a spatula.

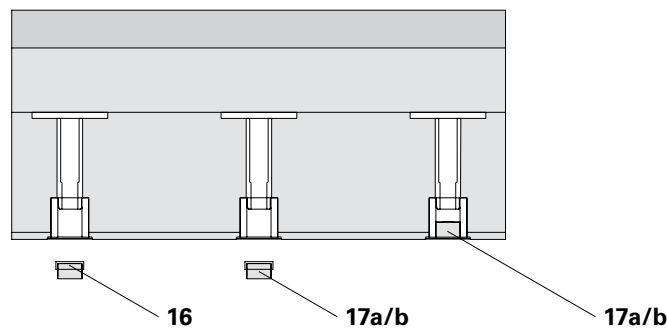


Fig. A5.01

Adjusting Unit VARIOKIT

The Adjusting Unit VARIOKIT (18) is installed with the bolts in the middle position.

By turning the Adjusting Bolt SW 30, the Adjusting Unit VARIOKIT (18) ± 6.5 cm can be variably moved in the Steel Waler SRU U120 (1e) or (1d).

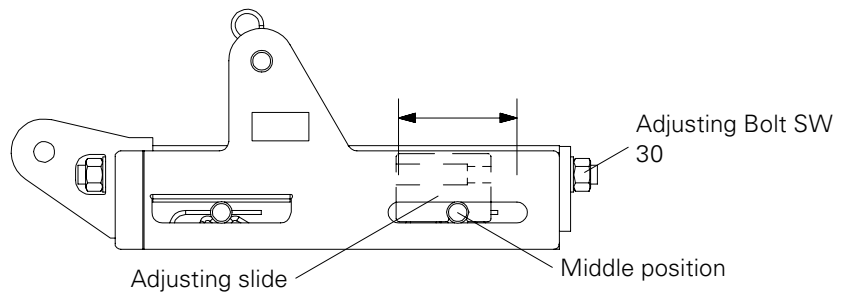


Fig. A6.01

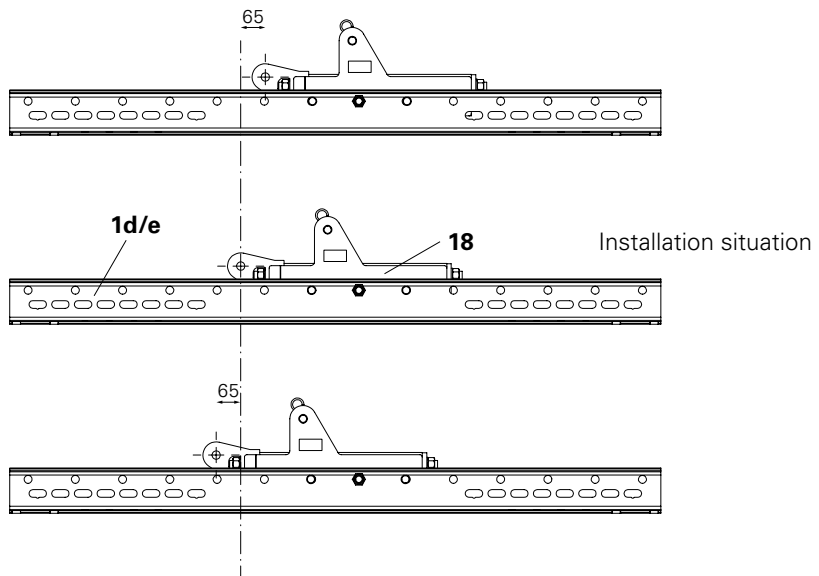


Fig. A6.02

Modifying the Steel Waler SRU

If a mounting part collides with a Spacer, the latter must be re-positioned.

The Spacer must be re-installed in the next possible free position.

Dismantling and installation

1. Loosen Bolt M20 and remove.
2. Remove Sleeve.
3. Insert the Sleeve in new position.
4. Re-insert Bolt M20 and tighten.



After dismantling the Adjusting Unit VARIOKIT (18), move the Spacer to its original position again.

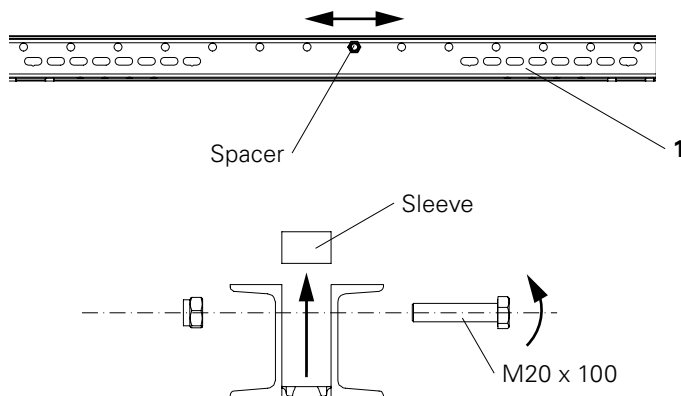


Fig. A6.03



- Only access the VGB Cantilevered Parapet Track after it has first been checked and approved by the site management or another competent person.
- For the installation of cantilevered planking, separate static proof is required.

Planking

Dimensioning of the planking is carried out according to country-specific, valid standards.

(For Germany, DIN 4420-1 can be used).

Assembly

1. The planking is to be fixed to the beams at each intersection point using nails or screws.

(Fig. A7.01)

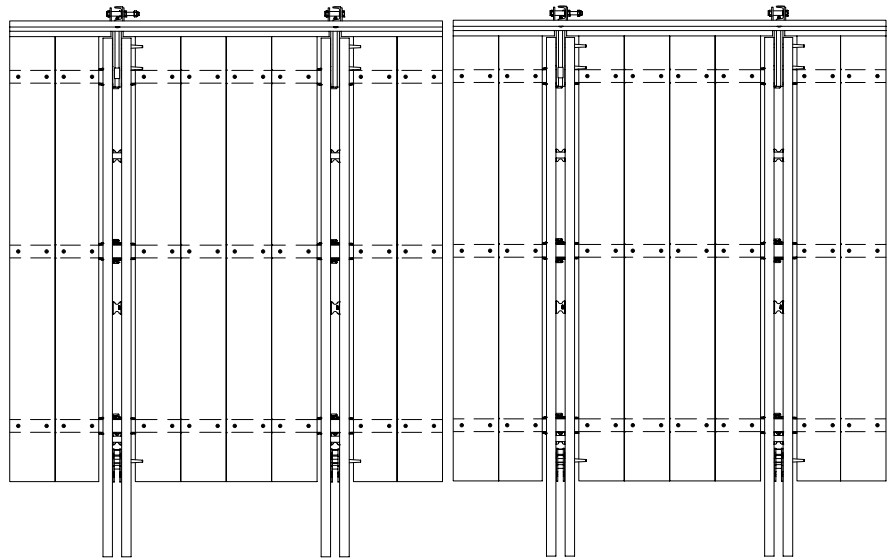


Fig. A7.01

Guardrails



- Dimension the guardrails in accordance with EN 12811.
- All leading edges are to be provided with guardrail protection.
- Guardrails and Toeboards are to be fixed to guardrail posts at every intersection point using nails or screws.
- For side protection on the bridge superstructure, the Guardrail Post GKB can be used.
- Guardrails must also be mounted at the rear section of the standard unit. (Fig. A7.02)

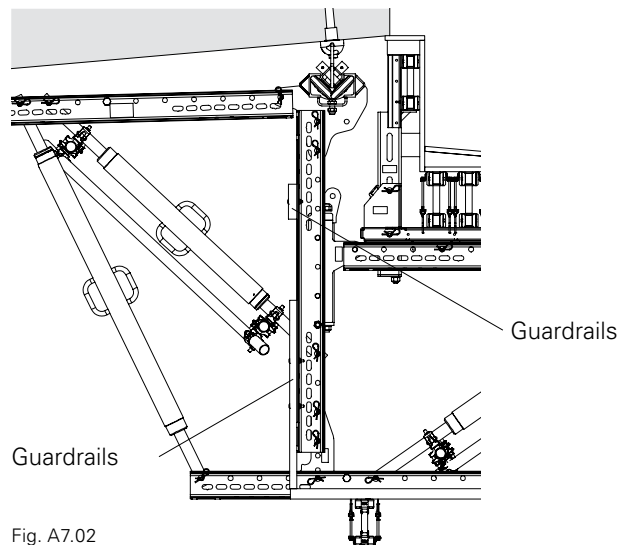


Fig. A7.02

Variant for full enclosure



The full enclosure variant results in increased areas exposed to the wind and must be taken into consideration in the project-related static. (Fig. A7.02a)

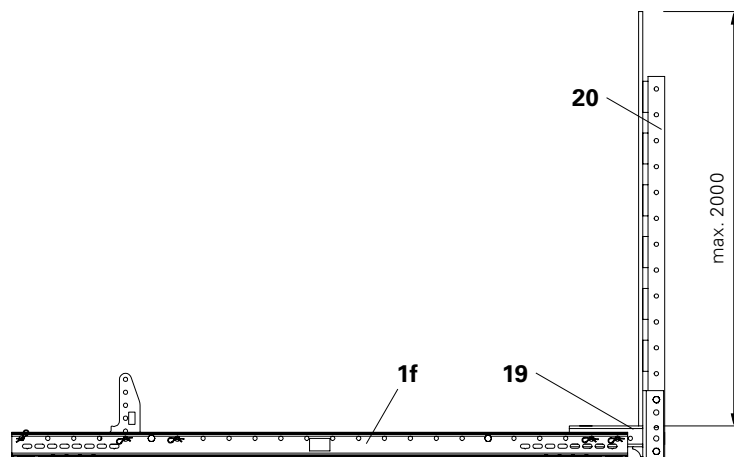


Fig. A7.02a

Guardrail Post GKB



Danger

Unsecured concrete edges!

A fall can result in serious injury or even death.

Risk of falling.

⇒ Assembly and dismantling take place from a safe and secure working area, e.g. lifting platform, or ⇒ use PPE.



- All occurring loads must be safely transferred.
- Reinforcement stirrups must have sufficient load-bearing capacity.

For temporary fall protection on bridge edges, the Guardrail Post GKB is to be used in accordance with EN 13374. Side Guardrails are to be installed according to Table A7.01 or Table A7.02.

Two mounting versions are possible:

Version 1

The Guardrail Post GKB is clamped in the reinforcement stirrup. (Fig. A7.03)

Required components

21 Guardrail Post GKB	1x
22 Guardrail Boards	3x

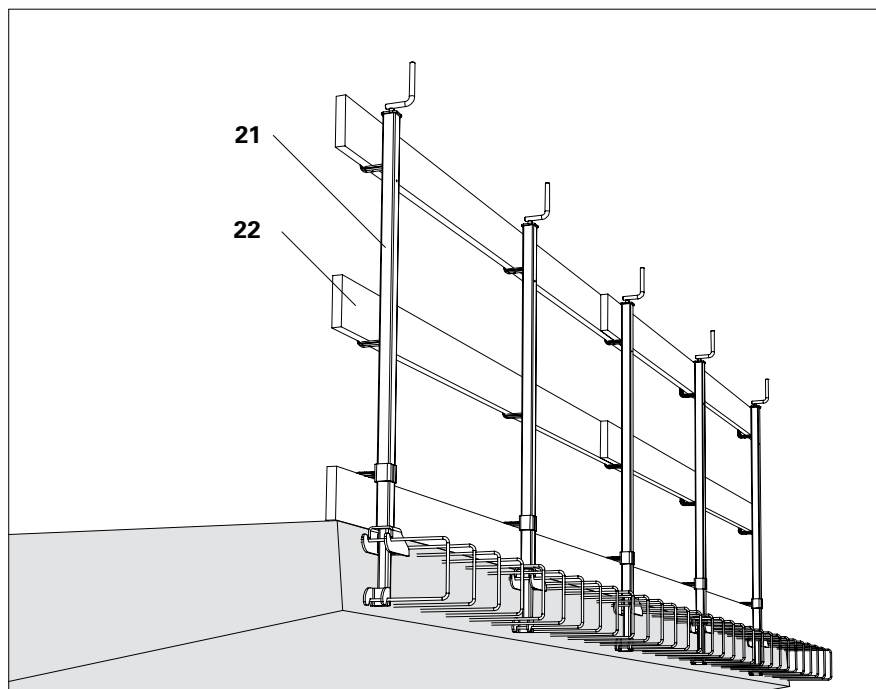


Fig. A7.03

Permissible width of influence for the Guardrail Posts

Guardrail Board h/w [cm]	perm. width of influence* [m]
12/4	1.60
15/3	1.55

* Values are valid only in compliance with the boundary conditions in Table A7.02 and Fig. A7.03b

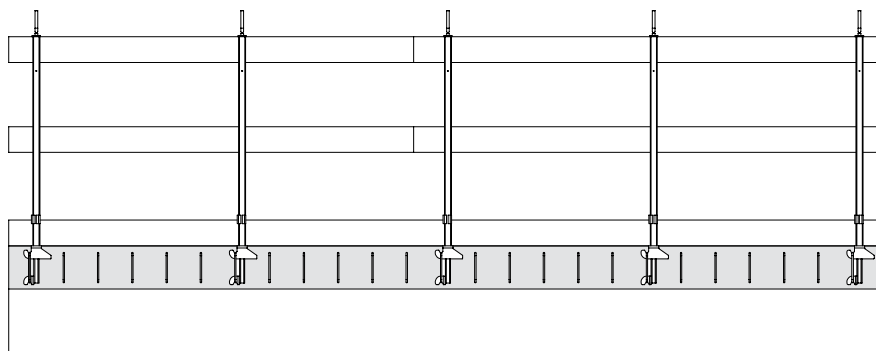


Fig. A7.03a

Assembly

1. Pre-adjust Guardrail Post GKB (21) with the crank.
2. Place the Guradrail Post GKB (21) in the reinforcement stirrup and tension with the crank.
3. Position Guardrail Boards (22) and secure, e.g. by means of wire pins or wood screws. (Fig. A7.04 + A7.05)

Dismantling

1. Turn crank until the lower holder is free and the Guardrail Post can be removed from the top reinforcement.

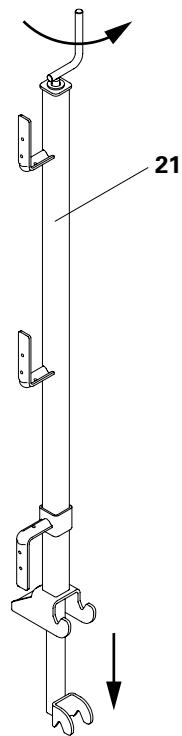


Fig. A7.04

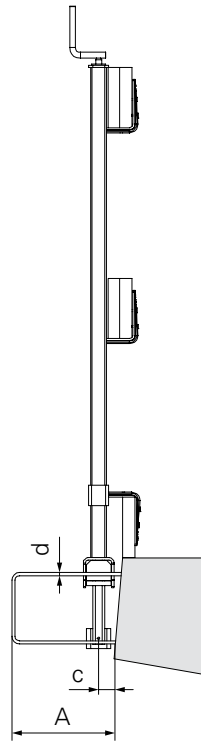


Fig. A7.05

Boundary conditions

Tightening torque with the crank	≥ 60 Nm
Reinforcement stirrup spacing A	≥ 15 cm
Reinforcement stirrup diameter d	≥ 12 mm
Spacing of axis/Guardrail Post to the front side of concrete c	≤ 6 cm

Table A7.02

Version 2

The Guardrail Post GKB is fixed to the parapet/bridge.
(Fig. A7.05c)

Required components

21	Guardrail Post GKB	1x
23	Screw-On Sleeve PERI M16/164	1x
24	Bolt ISO 4017 M16 x 120-8.8	1x
25	Washer ISO 7094 100 HV, A16	1x



- Installation of the PERI Screw-In Sleeve M16/164 (23), see data sheet. (Fig. A7.07)
- Tighten and slightly tension the Bolt M16 x 120 (24) together with Washer ISO 7094 100 HV, A16 (25). (Fig. A7.05a + A7.05b + A7.06)

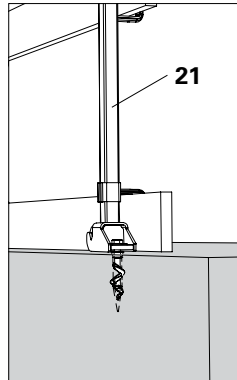


Fig. A7.05a

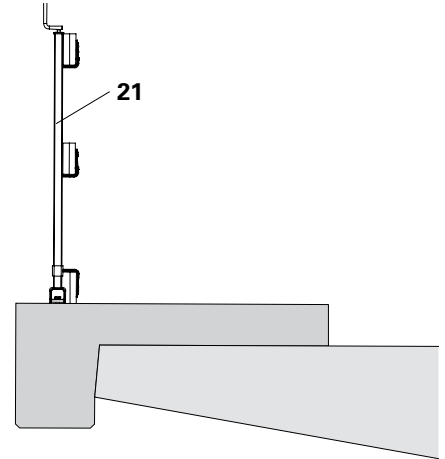


Fig. A7.05b

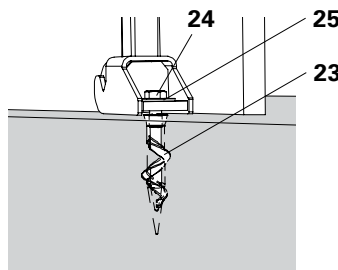


Fig. A7.05c

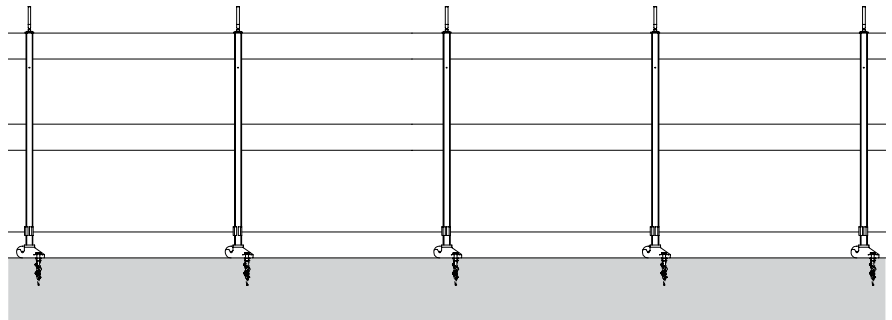


Fig. A7.06

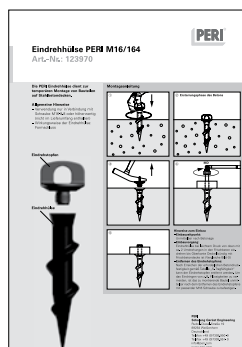
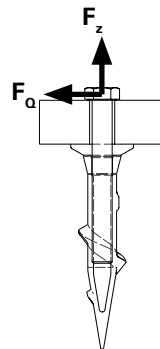


Fig. A7.07

Permissible width of influence for the Guardrail Posts when using the PERI Screw-In Sleeve



- The forces shown in the table can be linearly reduced or increased when using other anchoring methods with smaller or larger widths of influence.
- The permissible width of influence in Version 2 is limited:
 - Guardrail Board h/w = 12 cm / 4 cm: perm. width of influence = 1.50 m
 - Guardrail Board h/w = 15 cm / 3 cm: perm. width of influence = 1.20 m
- For Guardrail Boards which extend across only 2 bays, the permissible width of influence of the Guardrail Post is to be divided by 1.25.
- The safe transfer of existing forces into the building must be guaranteed.
- Take into account the manufacturer's information on the selected anchoring.



Guardrail Boards h/w [cm]	perm. width of influence* [m]	actual tensile force Fz on the anchoring [kN]	actual shear force FQ on the anchoring [kN]
12/4	1.20	9.89	0.53
15/3	0.95	9.74	0.53

* Values are valid only in compliance with the boundary conditions in Table A7.04

Table A7.03

Boundary conditions	
Tightening torque with the crank	≥60 Nm
Reinforcement stirrup spacing A	≥15 cm
Reinforcement stirrup diameter d	≥12 mm
Spacing of axis/Guardrail Post to the front side of concrete c	≤6 cm

Table A7.04



- For the installation, a crane or other lifting device as well as a level assembly surface is required.
- Intermediate states are to be correctly secured by means of temporary supports to prevent any tipping over.



- PERI recommends having a sufficiently large area available for temporary storage purposes.
- Delivery of pre-assembled units is possible on request.

The specified quantity of Fitting Pins to be installed is based on the two-dimensional supporting structure of the platforms in each case. Ensure that each platform unit consists of two of these supporting structures. Secure all fitting pins $\varnothing 21 \times 120$ (26) with cotter pins 4/1, galv. (27).

Element assembly sequence of the standard concreting unit

- A** Platform Unit
- B** Slab Formwork
- C** Side Formwork

(Fig. B1.01)

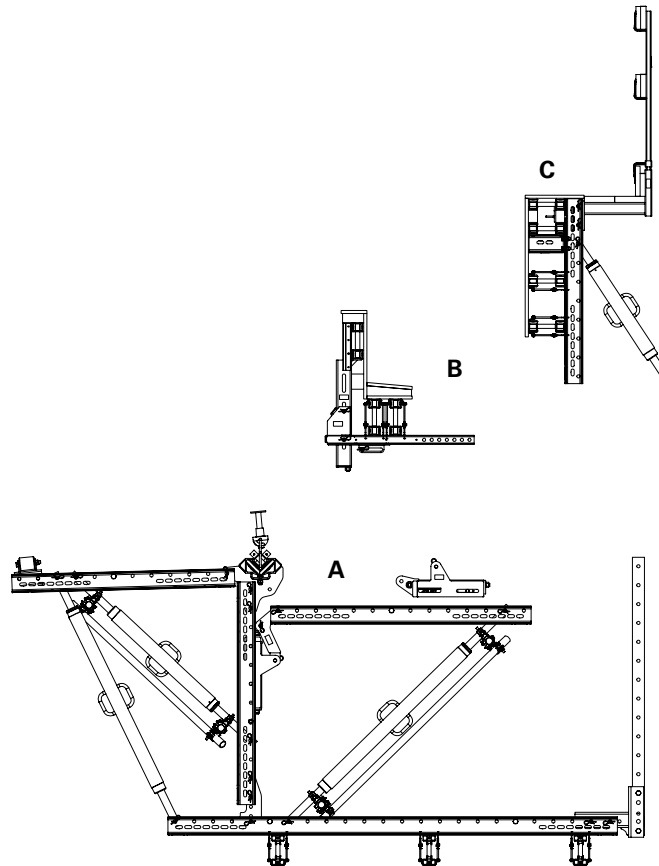


Fig. B1.01

Depending on the anchor spacing (b2), this results in the following platform geometry:

b2	1.00 m	1.25 m	1.50 m
d	1.98 m	2.48 m	2.98 m
VT 20K (28)	2.15 m	2.45 m	2.90 m

Table B2.01

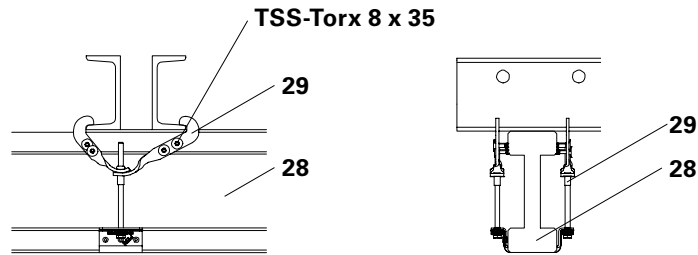


Fig. B2.01a

Assembly of the platform unit

1. Fix Girder VT 20K (28) to the Steel Waler SRU U120 (1f) with the Hook Strap HBU (29).
2. Attach Hook Strap HBU (29) to the Girder VT 20 (28) by means of 8x TSS Torx 8 x 35. (Fig. B2.01a)
3. Install planking. (see Section A7)
4. Bolt Corner Connector SRU VARIOKIT (30) onto the Steel Waler SRU U120 (1f) using 1x fitting pin \varnothing 21 mm (26).
5. Bolt Heavy-Duty Spindle SLS (2b) or (2c) onto the Steel Waler SRU U120 (1f) using 1x fitting pin \varnothing 21 mm (26). (Fig. B2.02b)
6. Bolt Angle Connector RCS/SRU (19) onto the Steel Waler SRU U120 (1f) using 1x fitting pin \varnothing 21 mm (26). (Fig. B2.02a)
7. Attach Guardrail Post RCS/SRU 184 (20) to the Angle Connector RCS/SRU (19) with Spacer RCS 184 (31) and the two Bolts M20. (Fig. B2.02a)

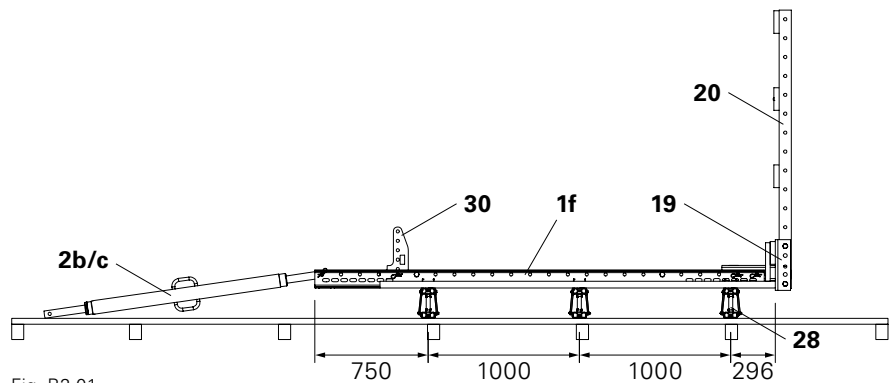


Fig. B2.01

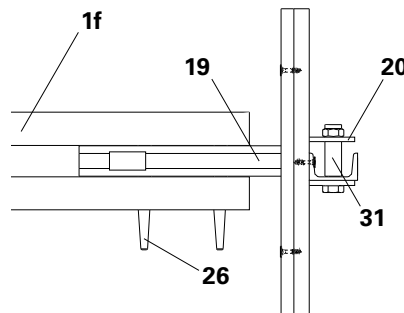


Fig. B2.02a

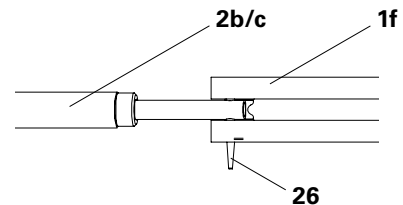


Fig. B2.02b

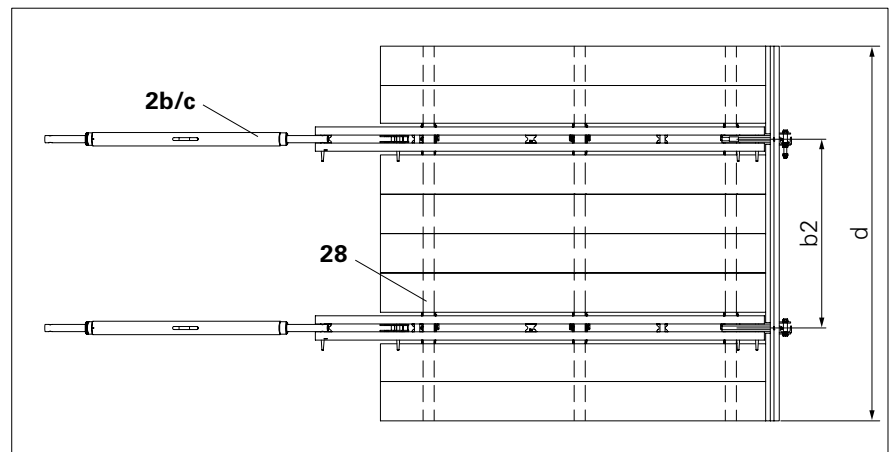


Fig. B2.02

B2 Platform Unit Element 1

For the version with anchor spacing $b_2 = 1.00$ m, the Girder VT 20K (28) must be fixed from platform to platform in an offset position to the Steel Walers SRU U120 (1f) as shown.
(Fig. B2.03)



Project-specific planning for the bridge radii is to be taken into consideration.

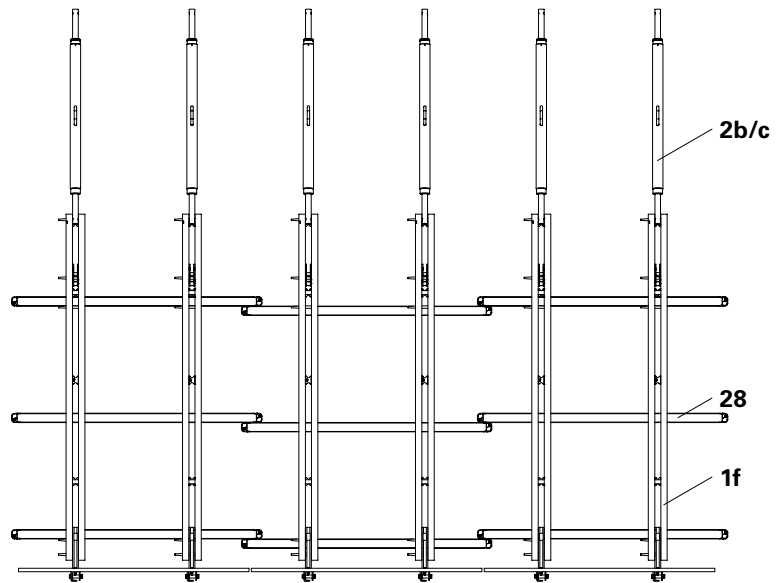


Fig. B2.03

Taking the anchor spacing into consideration

By combining the Rails 100 (32a) and 150 (32b), an anchor configuration (b2) of 1.25 m can be realised. In this case, it is recommended that the Rail 150 (32b) is always arranged in front of the Rail 100 (32a) in the pulling direction (Z). (Fig. B3.01)

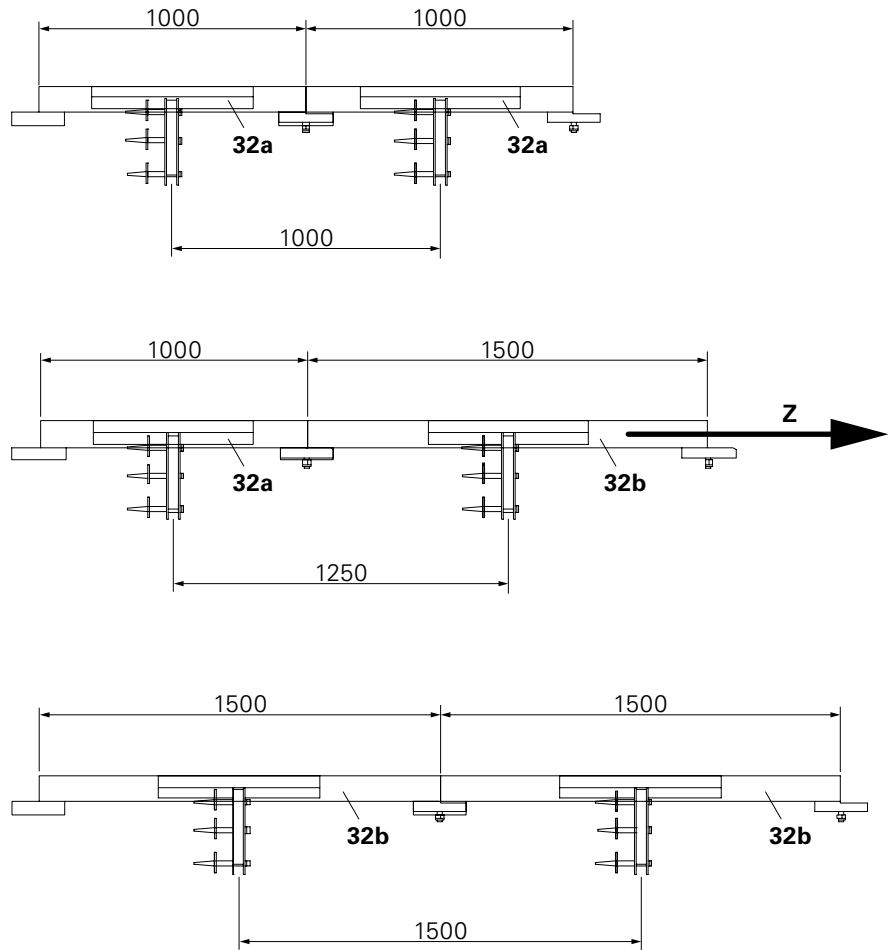


Fig. B3.01

Assembly of Version b2 = 100 cm

(b2 = 125/150 cm are analogous)

1. Assemble Rails 100 VARIOKIT (32a) at the connecting plate joint and connect using Bolts M20 x 45. (Fig. B3.02a)
2. Bolt the Steel Waler SRU U120 (1d) vertically onto the Rail 100 VARIOKIT (32a) using 2x fitting pins \varnothing 21 mm (26). (Fig. B3.02)
3. Bolt the Steel Waler SRU U120 (1d) horizontally onto the Rail 100 VARIOKIT (32a) using 1x fitting pin \varnothing 21 mm (26).
4. Install the Heavy-Duty Spindle SLS (2b) using 2x fitting pins \varnothing 21 mm (26).
5. Install the Pressure Roller VARIOKIT (33) using 2x fitting pins \varnothing 21 mm (26).
6. Horizontally mount Steel Scaffold Tubes (34a) using Standard Couplers RA 48/48 (35) on the thread of the Heavy-Duty Spindle SLS 100/180 (2b) (top and bottom).
7. Diagonally fix Steel Scaffold Tubes (34b) to the horizontal Steel Scaffold Tubes (34a) using Swivel Couplers SW 48/48 (36). (Fig. B3.03a)

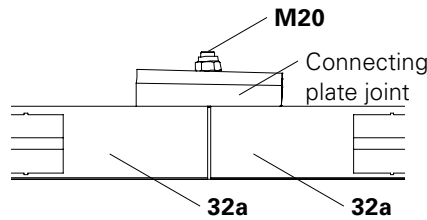


Fig. B3.02a

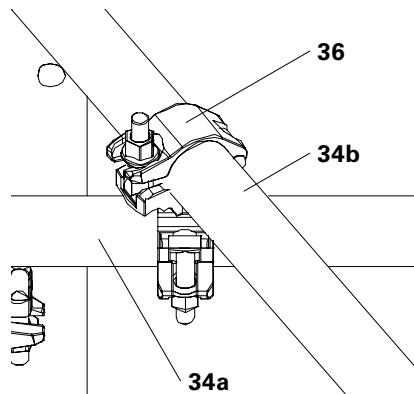


Fig. B3.03a

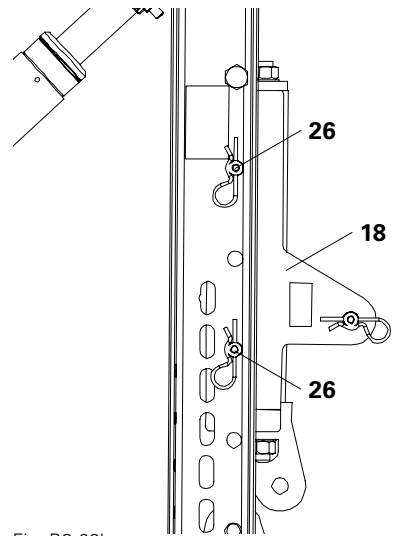


Fig. B3.02b



For Version 1 (b2 = 100 cm), the horizontally positioned scaffold tubes can be realised with the Wall Tie UWT 140.

8. Modify the Spacer in the vertical Steel Walers SRU U120 (1d) so that the Adjusting Unit VARIOKIT (18) can be mounted if these collide. (See Section A6)
9. Mount the Adjusting Unit VARIOKIT (18) on the vertical Steel Waler SRU U120 (1d) using 2x fitting pins \varnothing 21 mm (26). (Fig. B3.02b)

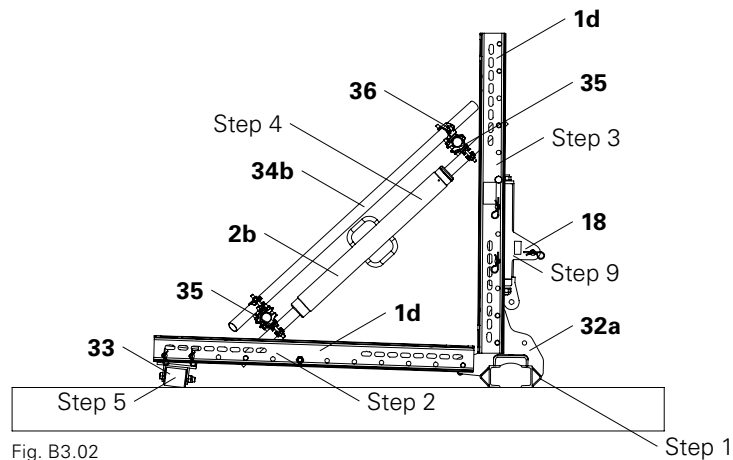


Fig. B3.02

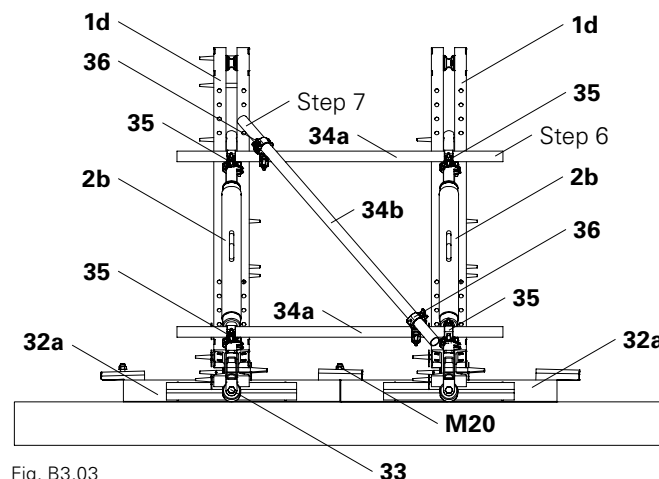


Fig. B3.03

B4 Connecting the Platform Units

Assembly of Version b2 = 100 cm (b2 = 125/150 cm are analogous)

1. Connect Element 1 and Element 2 to the vertical Steel Waler SRU U120 (1d) and Corner Connector SRU VARIOKIT (30) using 2x fitting pins \varnothing 21 mm (26). (Fig. B4.02a)
2. Pivot the Heavy-Duty Spindle SLS (2c) upwards and bolt onto the horizontal Steel Waler SRU U120 (1d) using 1x fitting pin \varnothing 21 mm (26). (Fig. B4.01)
3. Bolt the Heavy-Duty Spindle SLS (2b) onto the Steel Waler SRU U120 (1f) using 1x fitting pin \varnothing 21 mm (26). (Fig. B4.02)
4. Bolt the horizontal Steel Waler SRU U120 (1e) onto the Adjusting Unit VARIOKIT (18) using 1x fitting pin \varnothing 21 mm (26).
5. Bolt the horizontal Steel Waler SRU U120 (1e) onto the Heavy-Duty Spindle SLS (2b) using 1x fitting pin \varnothing 21 mm (26).
6. Horizontally mount Steel Scaffold Tubes steel (34a) using Standard Couplers RA 48/48 (35) to the thread of the Heavy-Duty Spindle SLS (2b) (top and bottom).
7. Diagonally fix the Steel Scaffold Tube (34b) to the horizontal Steel Scaffold Tubes (34a) using Swivel Couplers SW 48/48 (36). (Fig. B4.02b)
8. Modify the Spacer in the Steel Waler SRU U120 (1e) so that the Adjusting Unit VARIOKIT (18) can be mounted if these collide. (See Section A6)

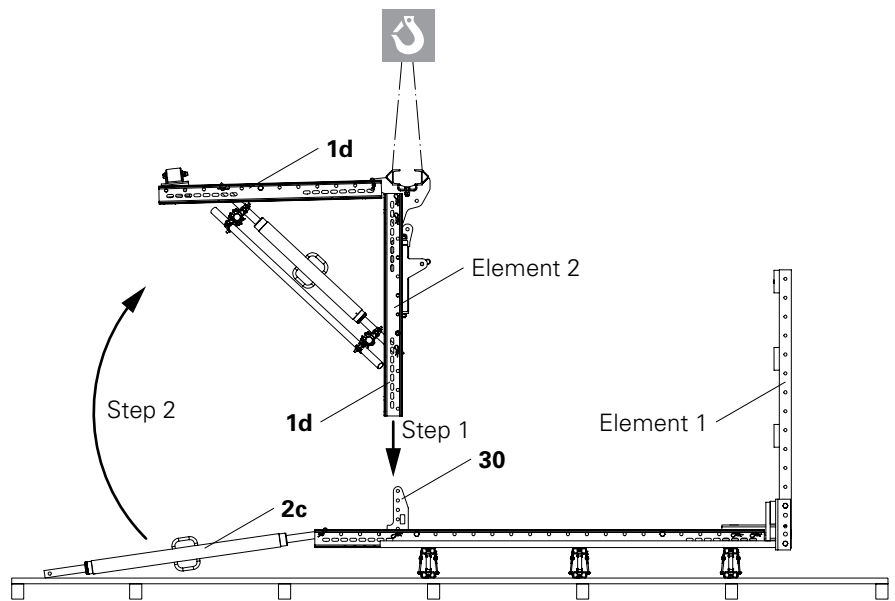


Fig. B4.01

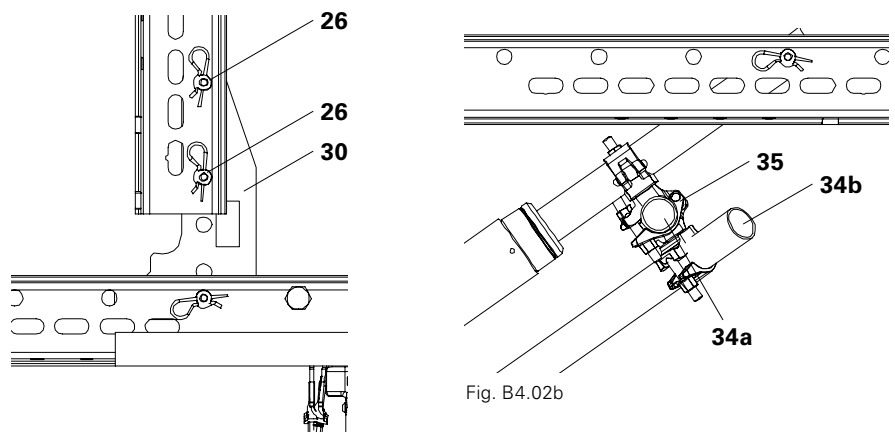


Fig. B4.02a

Fig. B4.02b

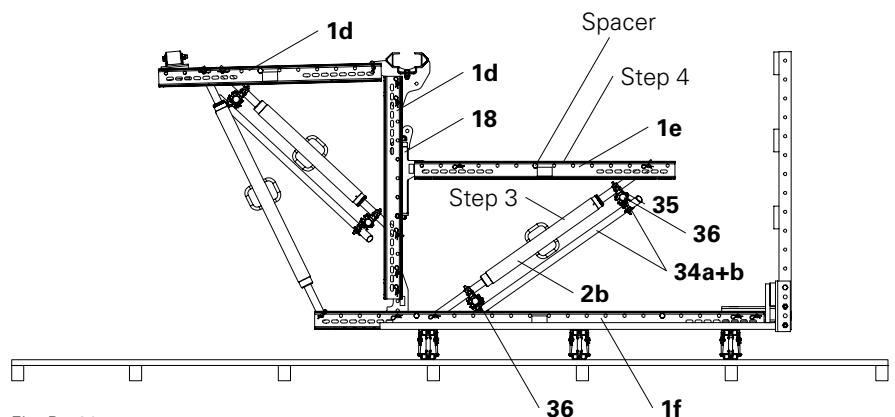


Fig. B4.02

Leading Platform

For assembling the Roller Units, the Leading Platform cantilevers outwards at the start. Thereby, the shoring remains the same as for the standard concreting units but without formwork support and with an enlarged platform.

Guardrails

- Front-mounted Guardrails with Guardrail Post SGP (38) and Guardrail Holder GT 24 / VT 20 (39).
- Internal Guardrails with Guardrail Post HSGP-2 (40) and Guardrail Holder SRU/SRZ (41).
- External Guardrails with Guardrail Post RCS/SRU (20) and Angle Connector RCS/SRU (19) (each 2x bolted).

Rail Slide 25-5

- Assemble the Rail Slide 25-2 VARIOKIT (42) on the first Rail.

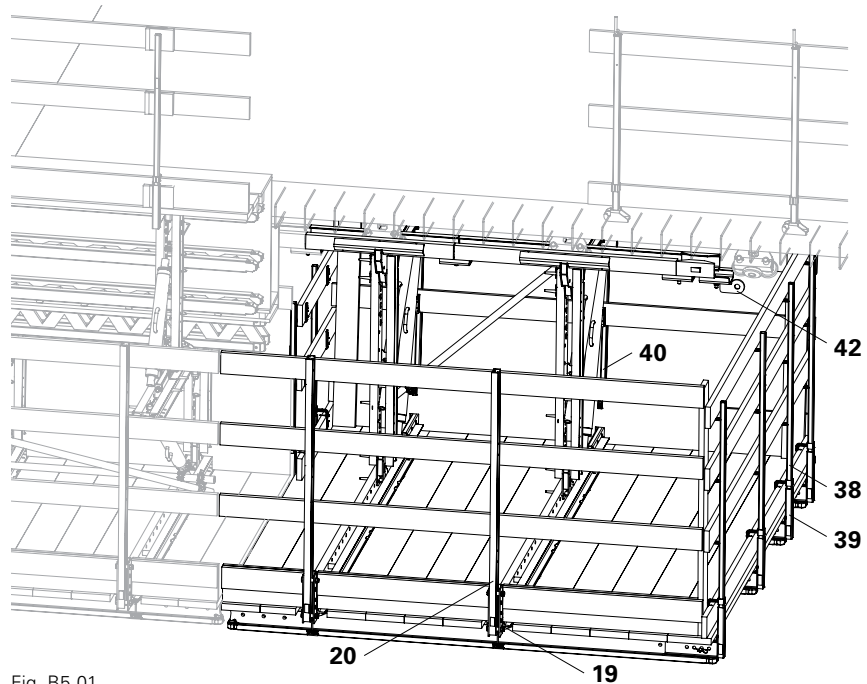


Fig. B5.01

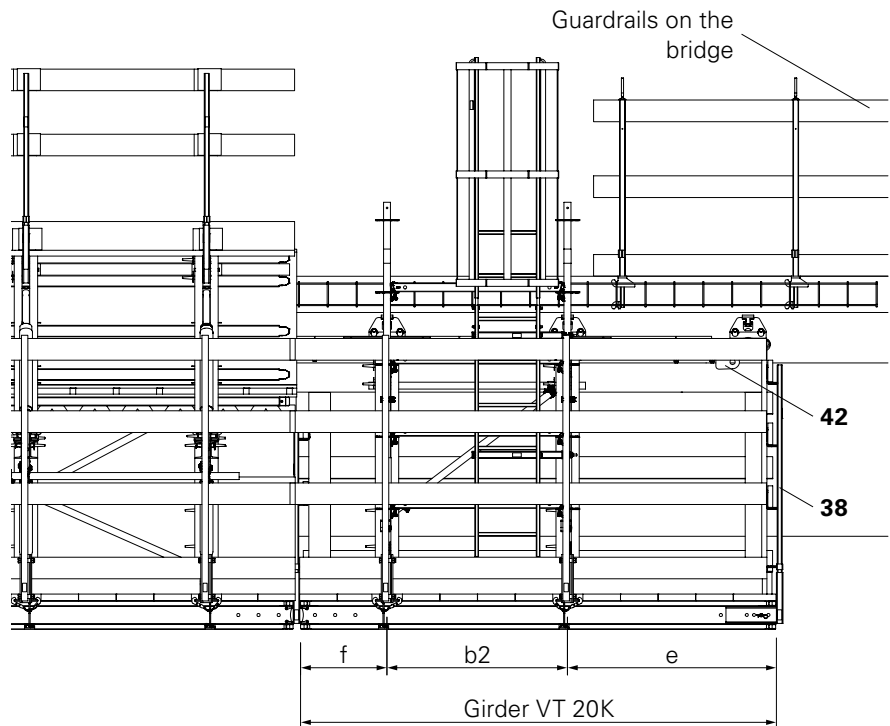


Fig. B5.02

Leading and finishing platform dimensions (Fig. B5.02)

b2	1.00 m	1.25 m	1.50 m
e	1.40 m	1.45 m	1.70 m
f	0.50 m	0.60 m	0.70 m
VT 20K	2.90 m	3.30 m	3.90 m

Table B5.01

Finishing Platform

For dismantling the Roller Units, the Finishing Platform cantilevers outwards at the end. Thereby, the shoring remains the same as for the standard concreting units but without formwork support and with an enlarged platform.

Guardrails

- Rear-mounted Guardrails with Guardrail Post SGP (38) and Guardrail Holder GT 24/VT 20 (39).
- Internal Guardrails with Guardrail Post HSGP-2 (40) and Guardrail Holder SRU/SRZ (41).
- External Guardrails with Guardrail Post RCS/SRU (20) and Angle Connector RCS/SRU (19) (each 2x bolted).

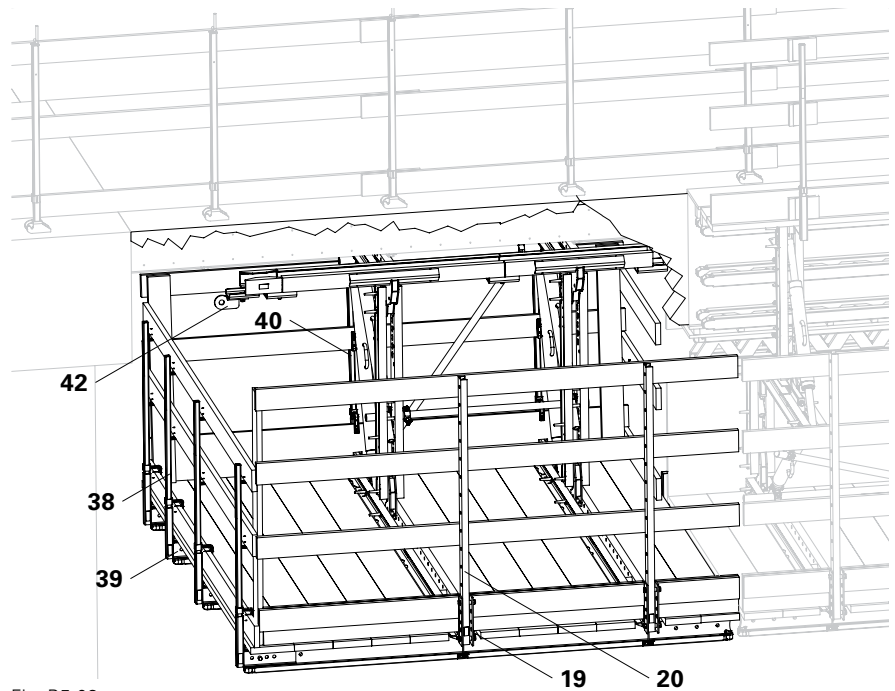


Fig. B5.03



Closing the rail profile:

At the end of the Rail VARIOKIT, the Rail Slide 25-2 VARIOKIT (42) must be mounted using the Bolt M24.

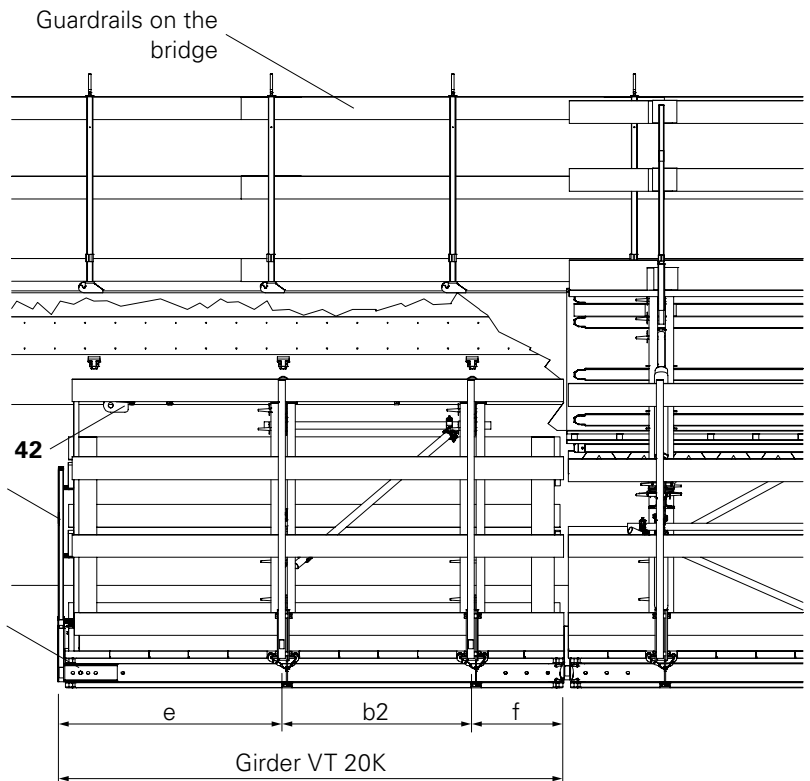


Fig. B5.04

Assembly of the Guardrail Holders

Assembly on the steel girder:

1. Bolt the Guardrail Holder SRU/SRZ (41) using 2x bolts $\text{\O} 20 \times 140$ (41.1) to the Steel Waler SRU (1) and secure with cotter pins 4/1.
2. Insert the Guardrail Post HSGP-2 (41) into the Guardrail Holder SRU/SRZ (41).

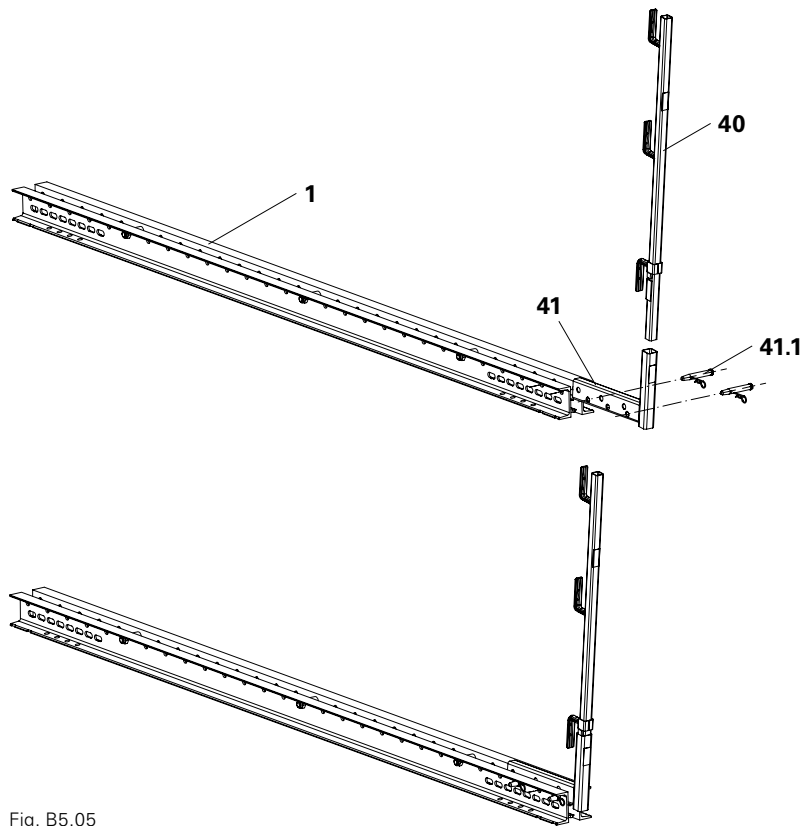


Fig. B5.05

Assembly on the Girder VT 20K:

1. Bolt the Guardrail Holder GT 24 / VT 20 (39) using 1x bolt $\text{\O} 20 \times 140$ (39.1) to the Girder VT20K (28) and secure with cotter pin 4/1.
2. Insert the Guardrail Post SGP (38) in the Guardrail Holder GT 24 / VT 20 (39).

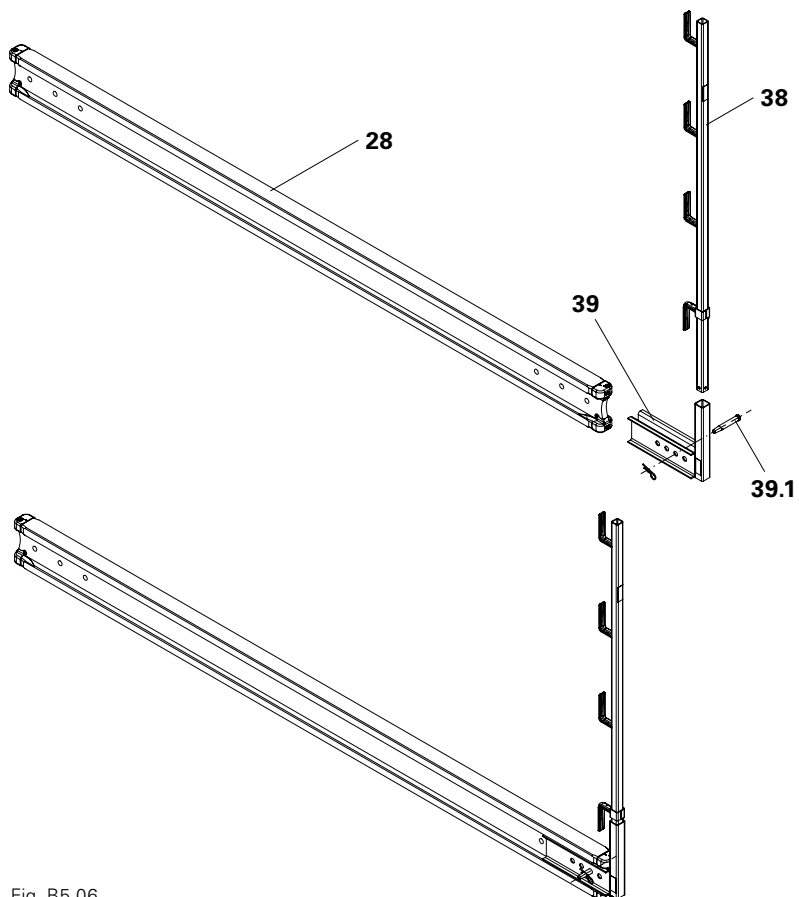


Fig. B5.06

Assembly

1. Bolt Column Tie Yoke (43) to the Steel Waler SRU U120 (1f).
2. Fix the Steel Waler SRU U120 (1e) using the Column Tie Yoke (43) and Wingnut Pivot Plate DW 15 to the Steel Waler SRI U120 (1f) and secure with Nut DW 15. (Fig. B6.02a)
3. Insert Base Standard UVB (44) into the Top Standard UVH (48) and secure with Spindle Locking UJS (46).
4. Bolt Base Standard UVB (44) onto the Steel Waler SRU U120 (1e) via the Spindle Head SRU (46) using 2x fitting pins \varnothing 21 mm (26).
5. Bolt Scaffold Tube Connector FTF (47) to the Steel Waler SRU U120 (1d) using 2x fitting pins \varnothing 21 mm (26) each time.
6. Fix 1x horizontal Steel Scaffold Tube (34a) using Swivel Couplers SW 48/48 (36) to the Scaffold Tube Connector FTF (47) and Top Standard UVH (48).
7. Fix the Steel Scaffold Tube (34) to the horizontal Steel Scaffold Tubes (34a) using Swivel Couplers SW 48/48 (36).
8. Install Ledger UH (54) between the two Top Standards UVH (48) and Base Standards UVB (44).
9. Fix Ladder Connector UAC-2 (49) to the Top Standard UVH (48) and Base Standard UVB (44).
10. Assemble Ladder 180/6 (50), End Ladder 180/2 (51) and Ladder Base (52).
11. Attach Ladder Safety Cage 150 (53) to the Access Ladder 180/2 (51).
12. Fix Ladder with Ladder Safety Cage to the Ladder Connector UAC-2 (49).
13. Bolt Ladder Base (52) to the planking.

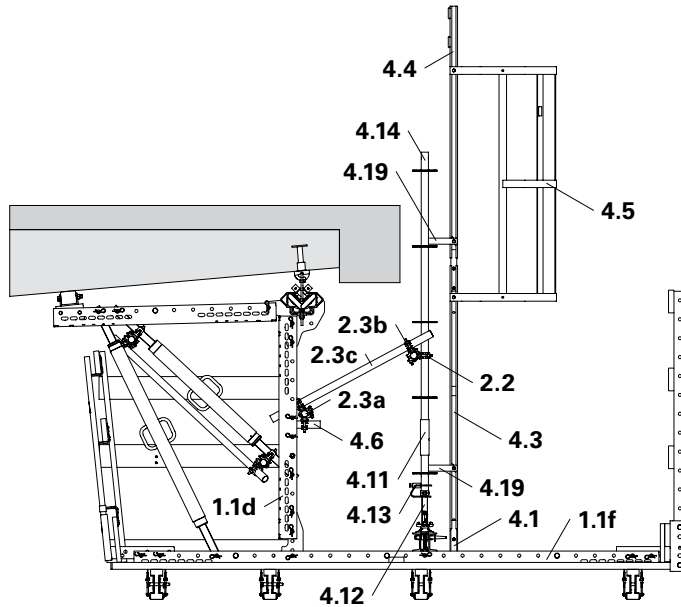


Fig. B6.01

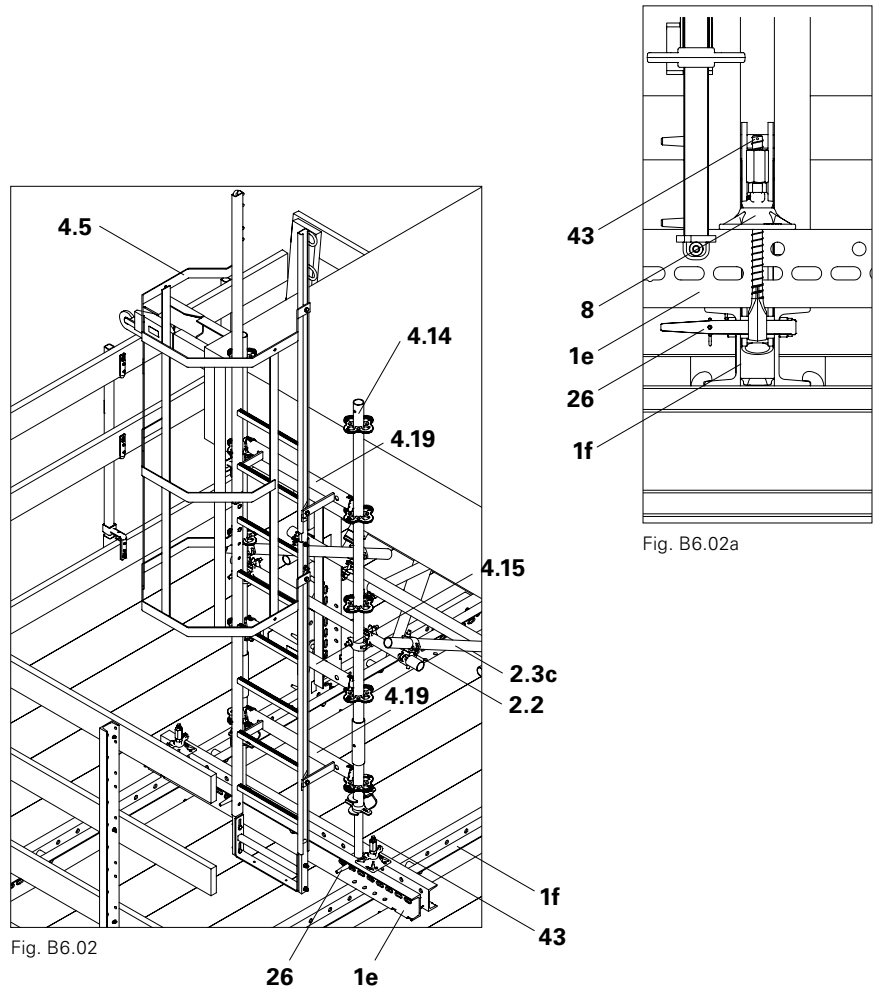


Fig. B6.02

Fig. B6.02a

Pre-assembly of Ladder

1. Lay out End Ladder 180/2 (51), Ladder 180/6 (50) and Ladder Base (52).
2. Connect End Ladder 180/2 (51) to Ladder 180/6 (50) using Bolts M12x40, SW 19.
3. Fix Ladder Base (52) to Ladder 180/6 (50) using Bolts M12x40 SW 19. (Fig. B6.03)

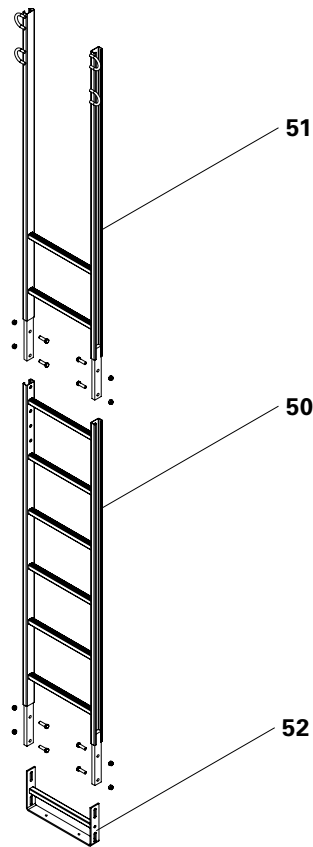


Fig. B6.03

Mounting the Ladder Base

1. For horizontal mounting of the Ladder, tightly screw the drawn-out bracket of the Ladder Base to the planking with 3 Torx TSS 6 x 40. (Fig. B6.03)

Mounting the Ladder Safety Cage

1. Bring and hold the Ladder Safety Cage 150 (53) in position using a rope.
2. Slightly loosen Bolts M12x25 on the clamping plates, position clamping plates on the ladder longitudinal members, and tighten screws. (Fig. B6.04a)

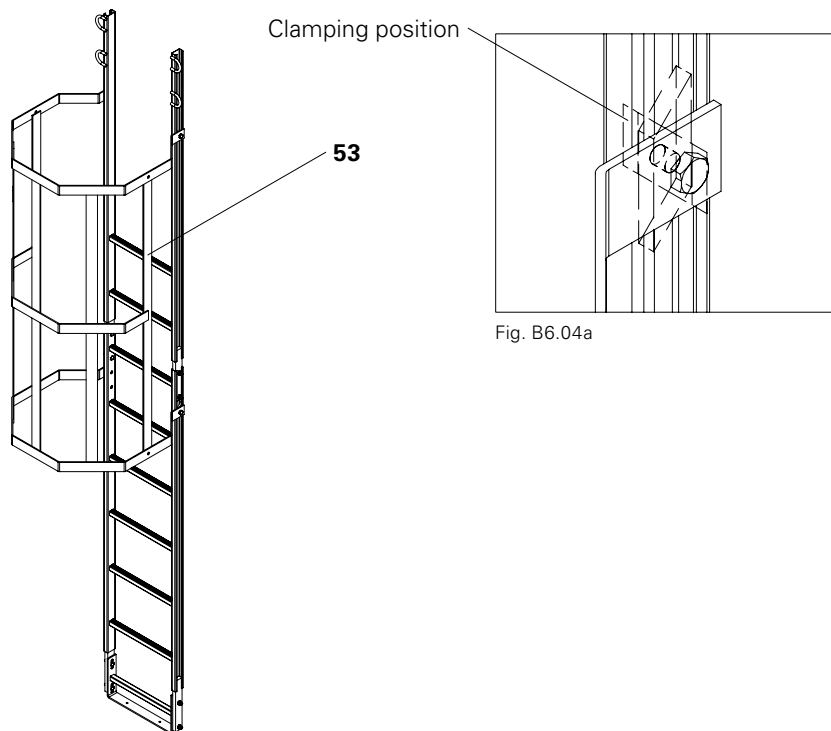


Fig. B6.04a

Fig. B6.04

Roller Unit



Ensure that the Suspension Head M24 VARIOKIT (14) is correctly assembled. The hook pockets of the Suspension Head M24 VARIOKIT (14) should always be alternately pointing towards the outer edge and inner edge of the cantilever. (Fig. B7.01)

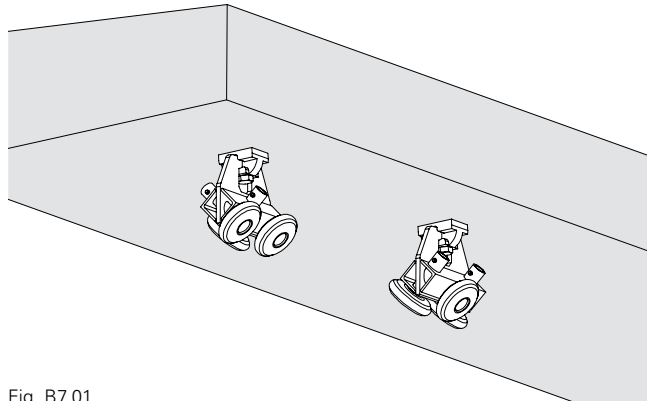


Fig. B7.01

Assembly of the Roller Units

1. Laterally insert Roller Unit VARIOKIT (7) into the Suspension Head M24 VARIOKIT (14). (Fig. B7.01a)
2. Pivot the Roller Unit VARIOKIT (7) downwards.



Roller Unit VARIOKIT (7) pivots into the vertical end position as a result of gravity. (Fig. B7.01b)

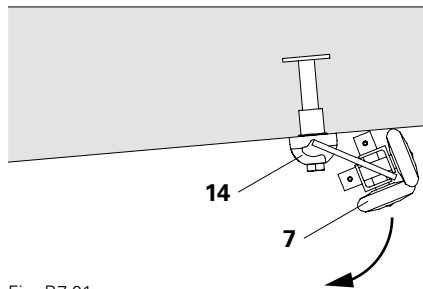


Fig. B7.01a



For parapets with large overhangs, we recommend mounting the Suspension Head M24 VARIOKIT with the opening to the bridge superstructure in order to allow easier dismantling of the Roller Units. (see Section A4)

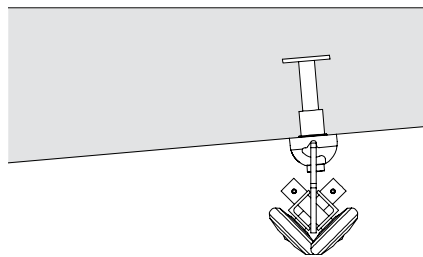


Fig. B7.01b

Preparing the auxiliary construction

For lifting the platform units in or out, an auxiliary construction must be mounted on the platforms.

The following additional material is required:

Pos.no.	Designation	Quantity	Item no.
26	Fitting Pin \varnothing 21 x 120	12	104031
27	Cotter Pin 4/1	12	018060
55	Cross Connector VARIOKIT	6	111279
1g	Steel Waler Universal SRU U120, L = 2.72 m	3	103929
56	Spacer for Platform Beam BR	4	020620
57	Crane Eye BR-2 2.5 t	4	127834

Table B7.01



The auxiliary construction must be statically verified for each project.

Assembling the auxiliary construction with Leading and Finishing Platforms



For ballasting purposes, a third Steel Waler Universal SRU U120 must be mounted as a storage surface (Fig. B7.03).

Assembly

1. Mount 6x Cross Connector VARIOKIT (55) using 1x fitting pin $\text{Ø} 21 \times 120$ (26) respectively in the Steel Waler Universal SRU U120 of the Leading/Finishing Platforms and secure with cotter pins 4/1 (27).
2. Mount 3x Steel Waler Universal SRU U120 (1g) with 1x fitting pin $\text{Ø} 21 \times 120$ (26) respectively per Cross Connector VARIOKIT (55) and secure with cotter pins 4/1 (27). (Fig. B7.02)

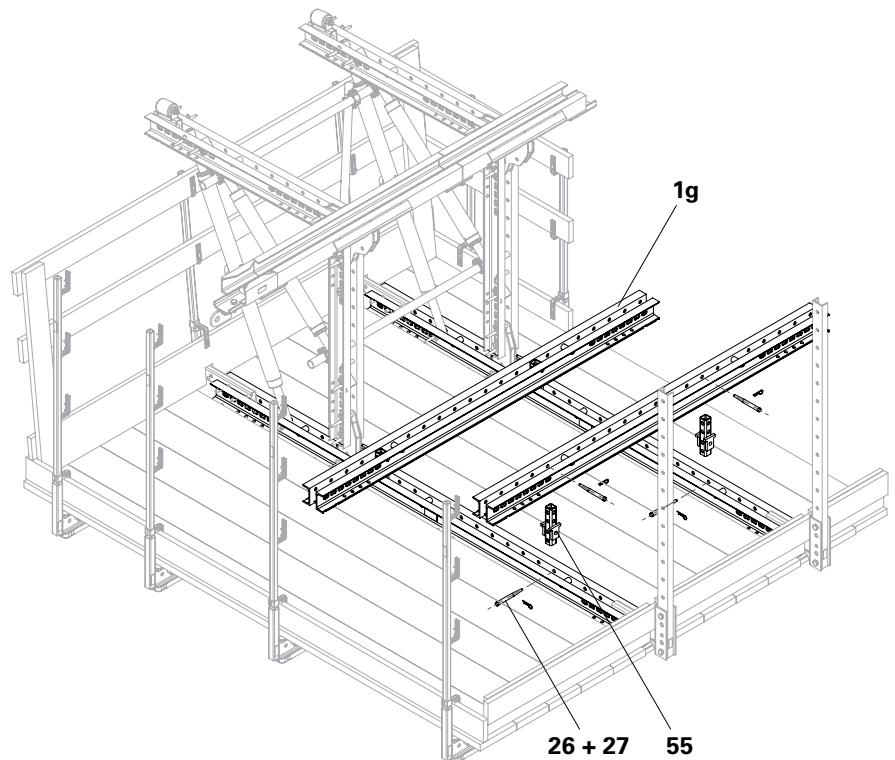


Fig. B7.02

Assembling the Lifting Eye (4x)

3. Insert the sleeve (56.1) of the Spacer for the Platform Beam BR (56) through the Crane Eye BR-2 2.5 t (57).
4. Slide the Crane Eye BR-2 2.5 t (57) and sleeve into the Steel Waler Universal SRU U120 (1g) and secure with the bolt (56.2) and nut (56.3). (Fig. B7.03)

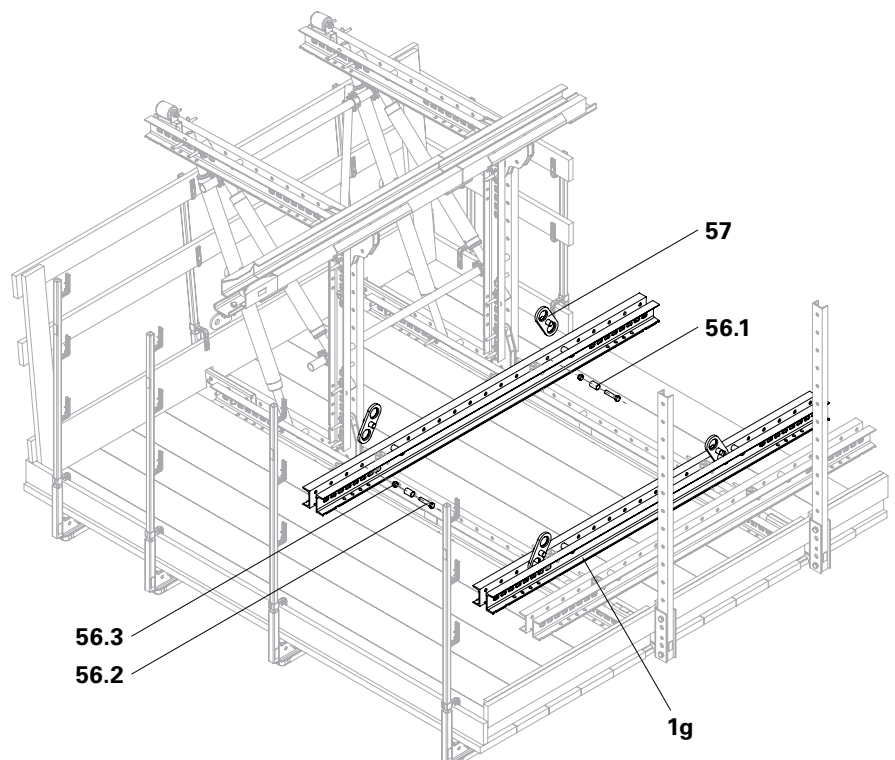


Fig. B7.03

Assembling the auxiliary construction with standard platforms

Assembly

1. Mount 4x Cross Connector VARIOKIT (55) using 1x fitting pin \varnothing 21 x 120 (26) respectively to the Steel Waler Universal SRU U120 of the platform support and secure with cotter pins 4/1 (27).
2. Mount 2x Steel Waler Universal SRU U120 (1g) with 1x fitting pin \varnothing 21 x 120 (26) respectively per Cross Connector VARIOKIT (55) and secure with cotter pins 4/1 (27).
(Fig. B7.04)

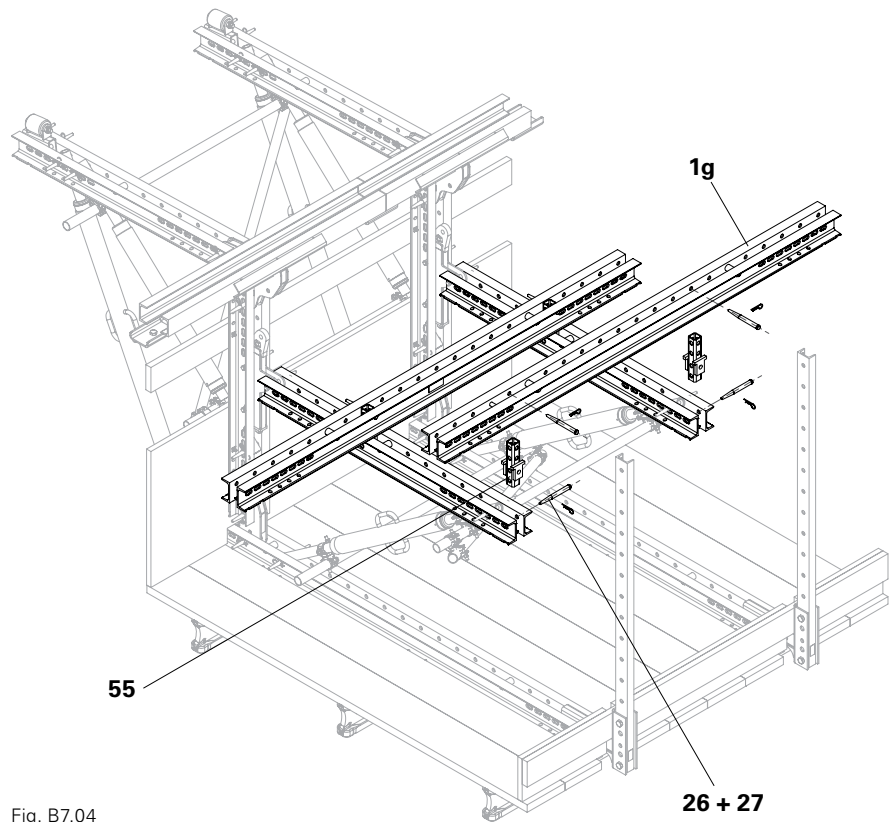


Fig. B7.04

Assembling the Lifting Eye (4x)

3. Insert the sleeve (56.1) of the Spacer for the Platform Beam BR (56) through the Crane Eye BR-2 2.5 t (57).
4. Slide the Crane Eye BR-2 2.5 t (57) and sleeve into the Steel Waler Universal SRU U120 (1g) and secure with the bolt (56.2) and nut (56.3).
(Fig. B7.05)

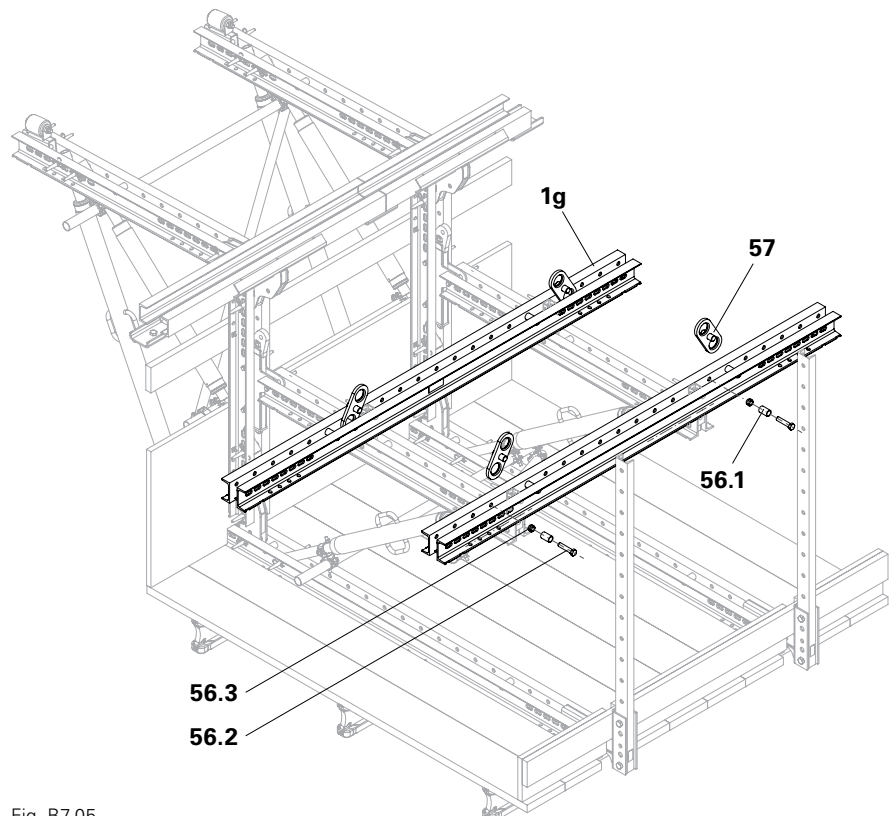


Fig. B7.05

B7 Cantilevered Parapet Track



- Depending on the size of the platform, place the Steel Walers in an offset position as the Spacers may collide with the Cross Connectors VARIOKIT.
- Regarding the arrangement, ensure that the weight is evenly distributed. (Fig. B7.08 + B7.08a)

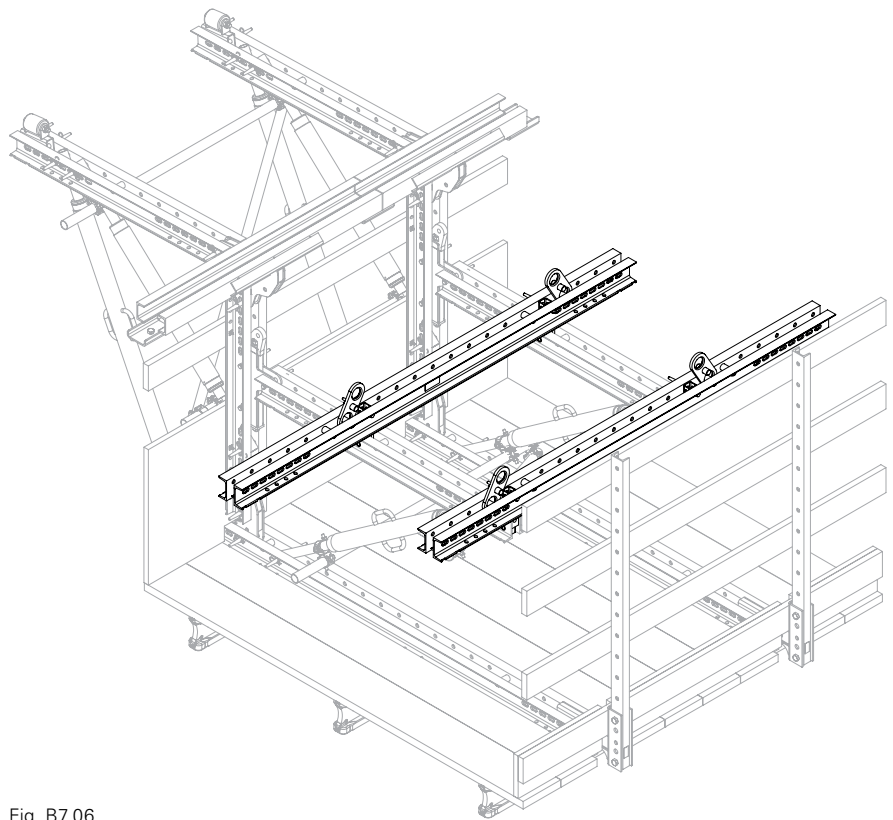


Fig. B7.06

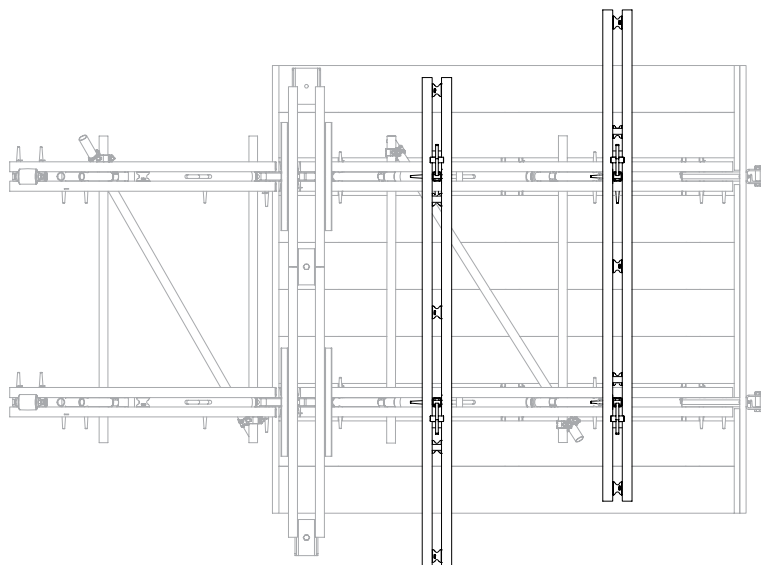


Fig. B7.06a

Attachment points for the crane lifting gear



- Determine the ballast and its position on site by means of tests and ensure it is immovably secure (e.g. with tension straps).
- Do not place the ballast directly on the platform decking.
- Project-specific static proof for the auxiliary construction required.



- Pay attention to the actual platform weight.
- Take the max. crane sling angle into consideration.
- Use appropriate 4-sling lifting gear.
- The lifting equipment must have sufficient load-bearing capacity.

Attaching

1. Attach crane lifting gear to the Crane Eyes BR-2 2.5 t (57). (Fig. B7.07)

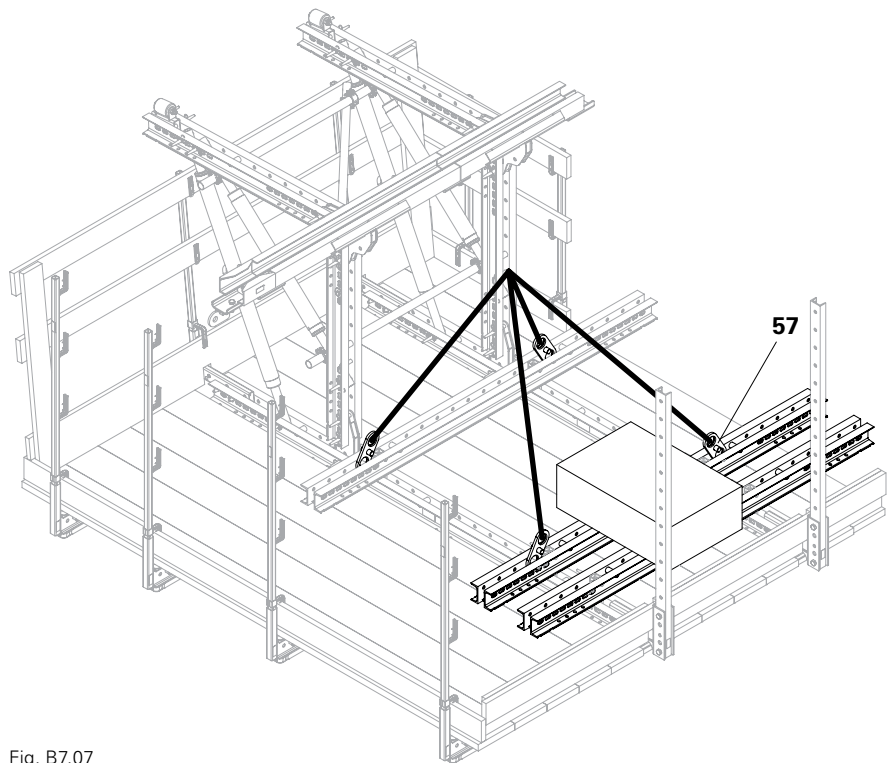


Fig. B7.07

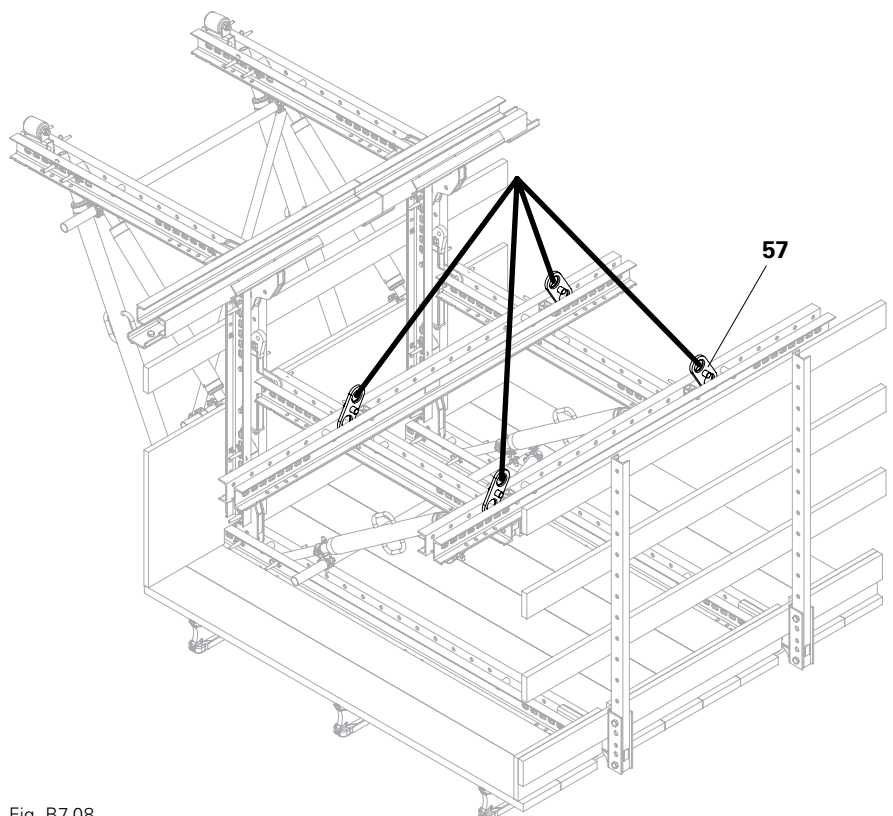


Fig. B7.08

Fixing points for PPE



Attach PPE to the Spacers in the vertical Steel Waler Universal SRU, U120 (1).

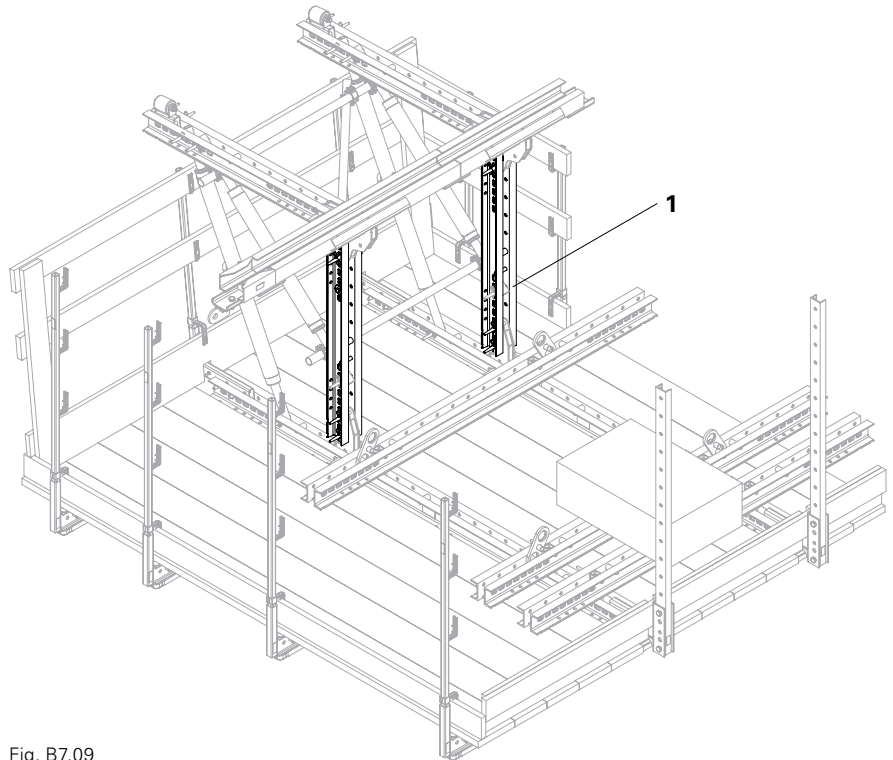


Fig. B7.09

Lifting procedure: outer parapet



Mount the platforms from a safe working position.

Mounting

1. The individual units are pushed along the Rails (32a) and (32b) laterally on the Roller Units (7).



If necessary, guide the unit by means of a rope.

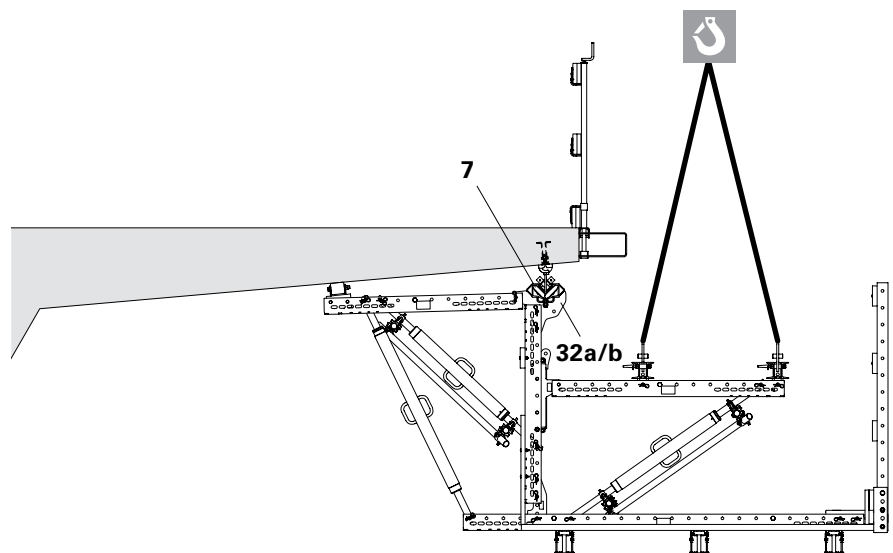


Fig. B7.10

Connecting the individual platforms

The individual segments are connected using Rails 100 (32a) and 150 (32b).

Platform connection

1. Push connection plates into each other. (Fig. B7.07a)
2. Screw the connection plates together using Bolts M20 x 45. (Fig. B7.11 + B7.11a)

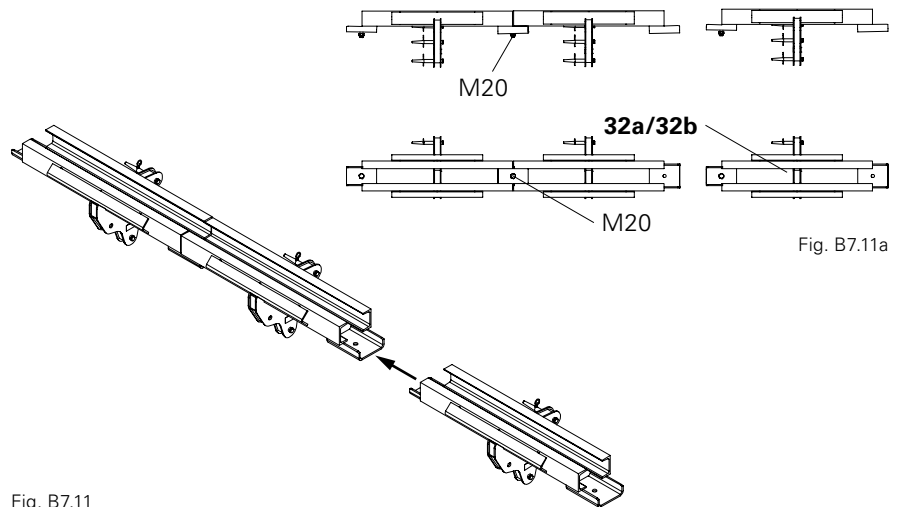


Fig. B7.11a

Fig. B7.11



- With a longitudinal inclination, secure the platform units in the various suspension positions in order to prevent any horizontal movement.
- Guardrails remain fitted until the Finishing Platform has been installed. Use PPE.
- Move the platform units away accordingly during the suspension procedure.



The Work Cage GKB can be used for suspending the Roller Units.

Installation procedure step 1

1. Roller Units VARIOKIT (3.7) are positioned on tie points 5, 6 and 7.
→ Leave tie points 1, 2, 3, 4 free for the suspension procedure.
2. Mount Leading Platform on the Roller Units (3.7) 5 and 6.

Installation procedure step 2

1. Roller Units VARIOKIT are positioned on tie points 3 and 4.
2. Mount standard concreting unit on Roller Units VARIOKIT 3 and 4.
3. Connect standard concreting unit to the Leading Platform using Bolts M20 x 45.

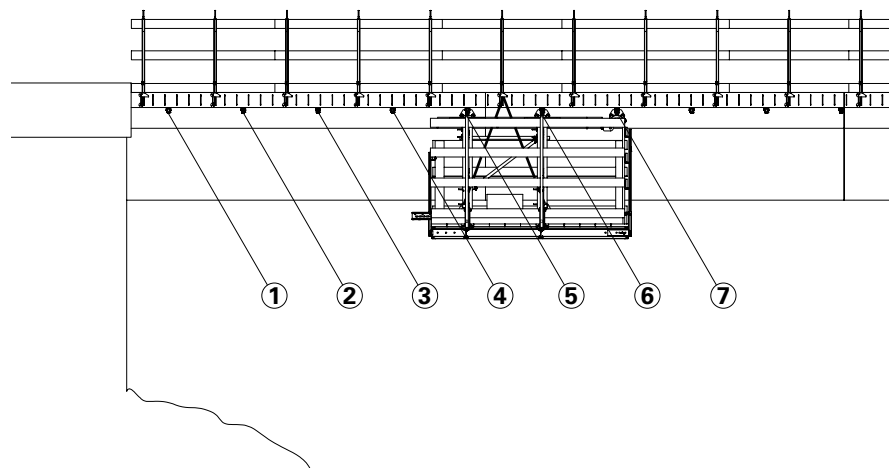


Fig. B7.12

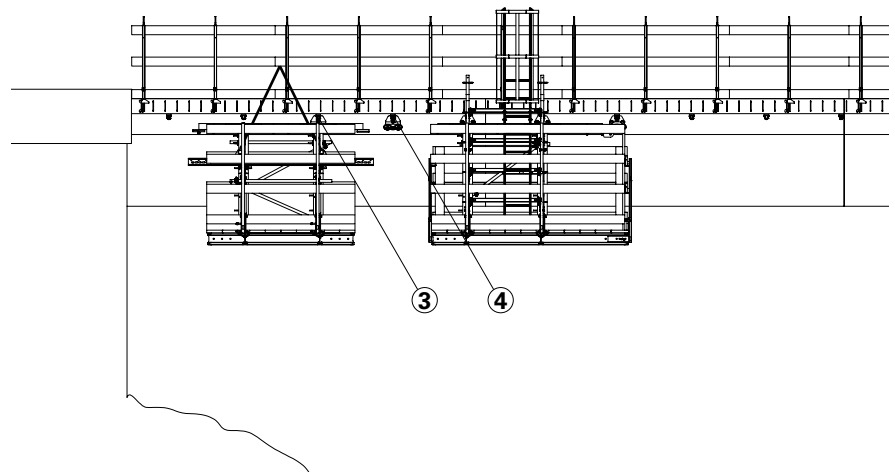


Fig. B7.13

Installation procedure step 3

1. Roller Units VARIOKIT are positioned on tie points 8 and 9.
2. Pull coupled units onto Roller Units 5, 6, 7 and 8.
 - Roller Units 3 and 4 are free.

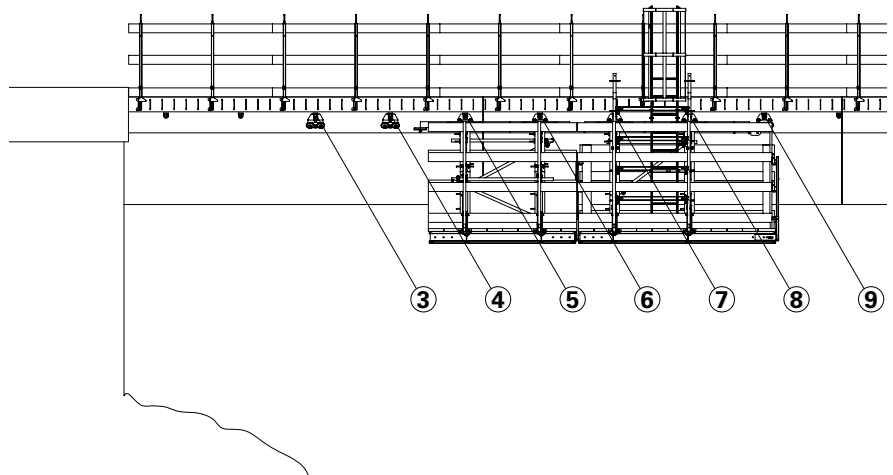


Fig. B7.14

Installation procedure step 4

1. Mount standard concreting unit on Roller Units VARIOKIT 3 and 4.
2. Connect standard concreting unit and coupled units using Bolts M20 x 45.
 - Repeat steps 3 and 4 until all standard concreting units have been mounted.
 - In the process, Roller Units VARIOKIT can be successively mounted on the Anchor Sleeves M24 (3.1) from the leading platform, from tie point 10 onwards.

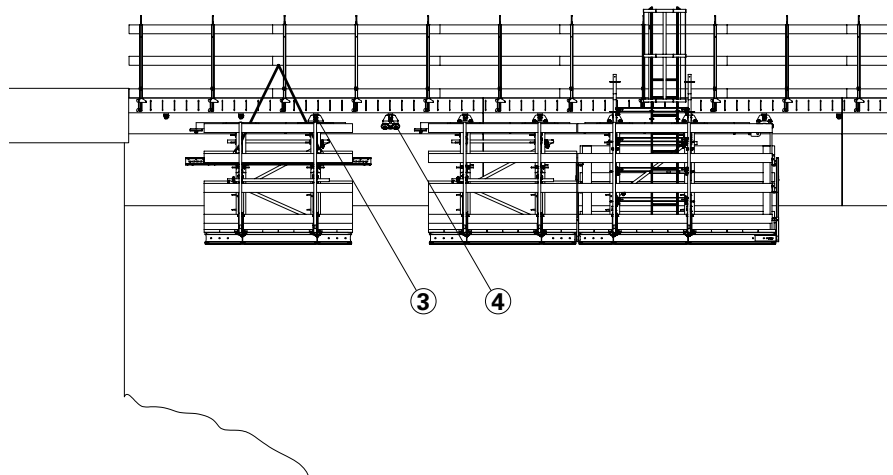


Fig. B7.15

Installation procedure step 5

1. Mount Roller Units VARIOKIT on tie points 1 and 2.

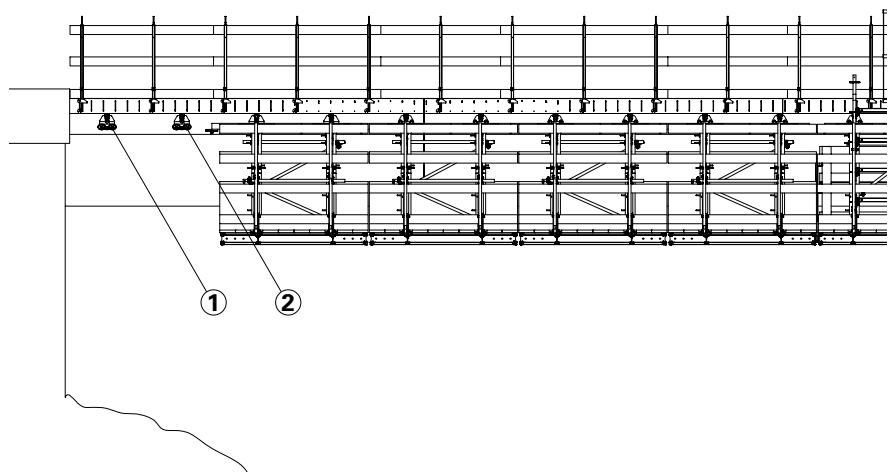


Fig. B7.16

Installation procedure step 6

1. Retract track up to the abutment.
2. Install parapet formwork. (see Sections C3 and C4)
3. Concrete the first parapet section. (see Section C5)

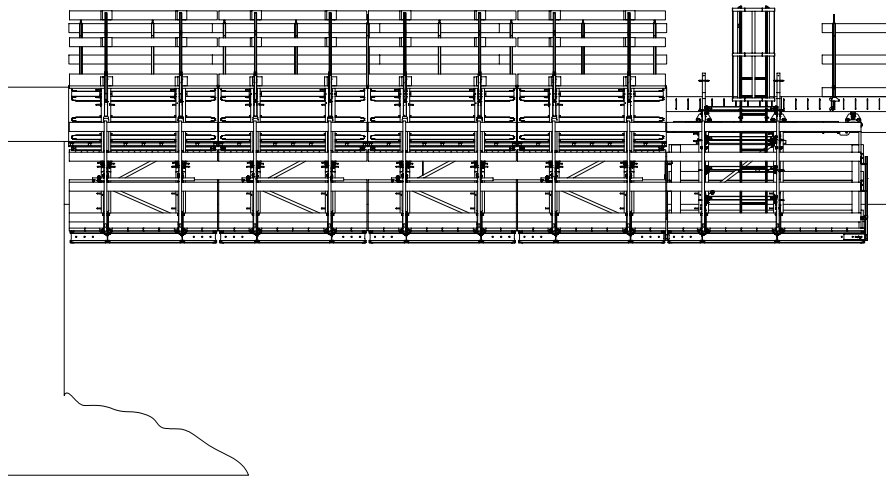


Fig. B7.17

Installation procedure step 7

1. Pull VGB Cantilevered Parapet Track forward until tie points 1, 2, 3, 4, 5 and 6 are free.
2. In the process, remove Roller Units VARIOKIT from tie points 1, 2, 3 and 4.
3. Mount Finishing Platform on Roller Units VARIOKIT 5 and 6.
4. Connect Finishing Platform and coupled units using Bolts M20 x 45.

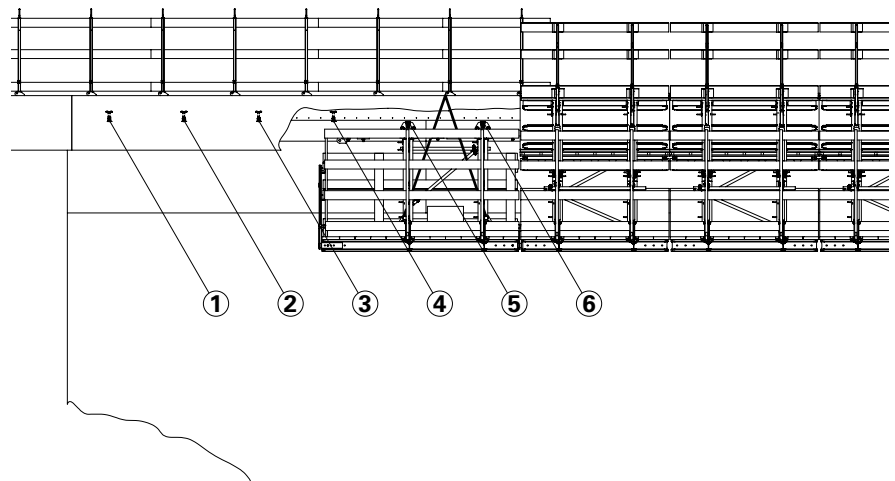


Fig. B7.18

Standard operating procedure

1. Pull the VGB Cantilevered Parapet Track up to the next parapet section.
2. Shutter the parapet. (see Sections C3 and C4)
3. Install reinforcement.
4. Concreting. (see Section C5)
5. Strike the parapet. (see Sections C6 and C7)
6. Begin the moving procedure. (see Section C8)
7. During the moving procedure, successively mount Guardrails on the cantilevered parapet. (see Section A7)

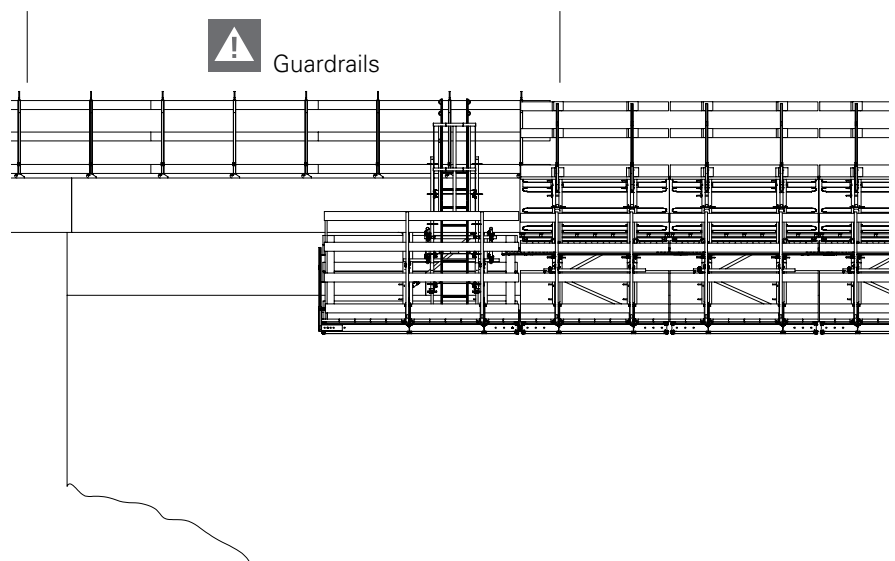


Fig. B7.19

Last concreting cycle

Last concreting cycle step 1

1. Lift out the Leading Platform 4 tie points before the end of the bridge. To do this, mount the auxiliary construction on the Leading Platform, position the ballast and attach crane lifting gear.
2. Release the connection to the standard unit, leave the Leading Platform and then lift the platform.

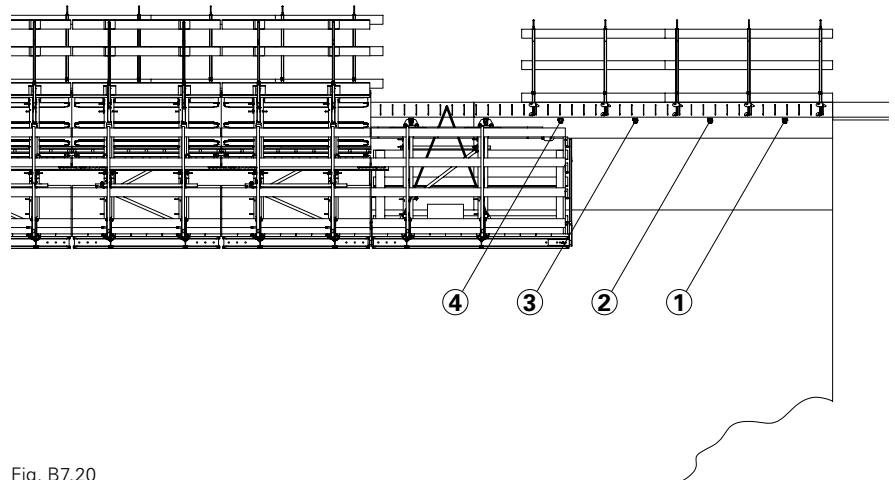


Fig. B7.20

Last concreting cycle step 2

1. Pull the track up to the abutment (contractor) and concrete the last cycle. Remove the formwork element.

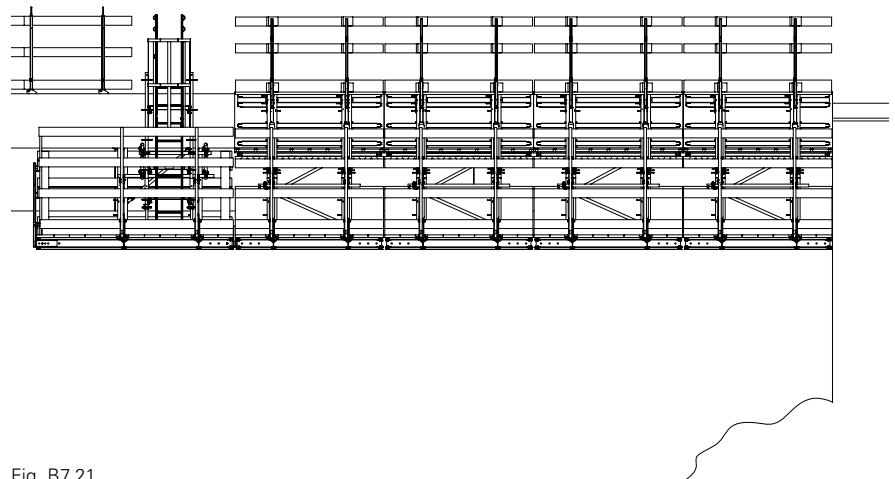


Fig. B7.21

Lifting out procedure

Lifting out procedure step 1

1. Retract the track and remove the Roller Units at the first two tie points.

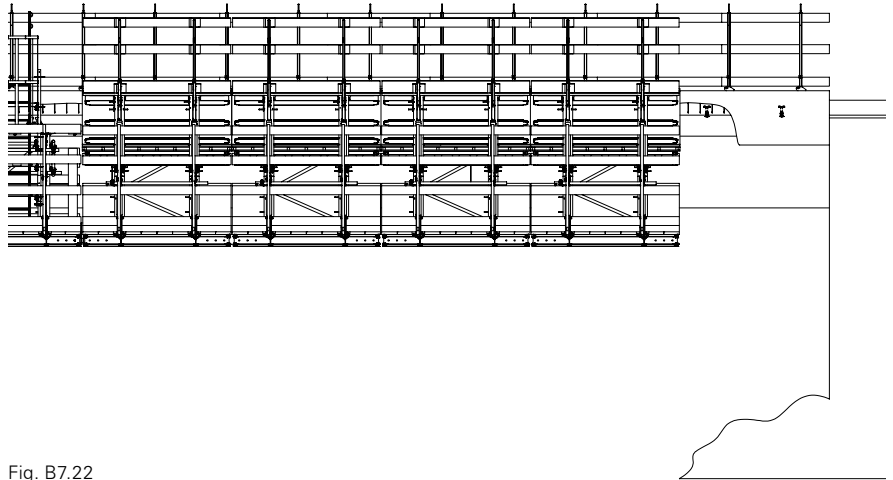


Fig. B7.22

Lifting out procedure step 2

1. Mount the auxiliary construction, position the ballast and attach the crane lifting gear.
2. Release the connection to the other standard unit, leave the platform and then lift the platform.

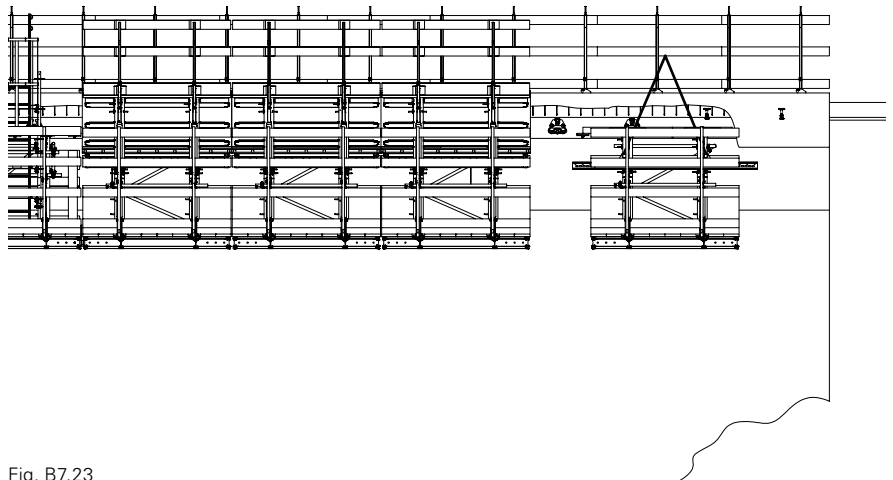


Fig. B7.23

Lifting out procedure step 3

1. After lifting out the last standard unit, also lift out the Finishing Platform analogously to the Leading Platform.

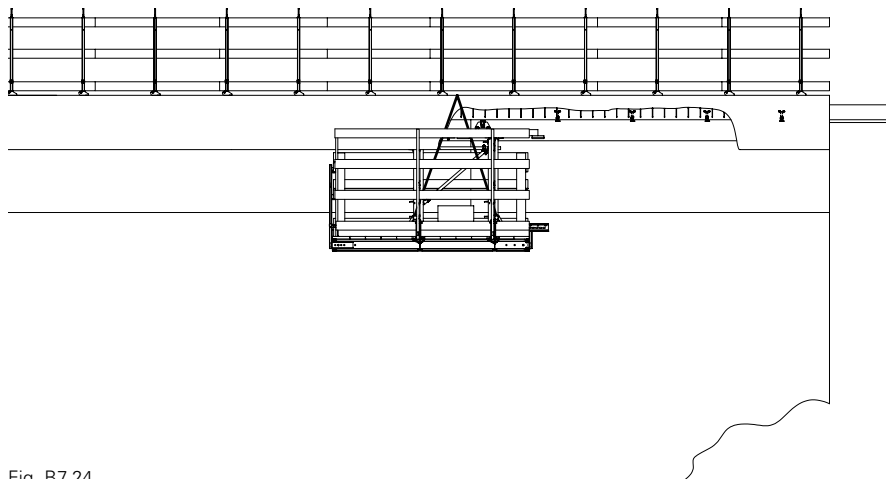


Fig. B7.24

Lifting procedure: middle parapet



- The centre of gravity of the platforms, as well as the required ballast and position of the load-bearing points, are determined according to the individual project.
- When lifted, the platform must be balanced.
- As leading edges could be created during lifting in and out, PPE is to be used.

Platform Unit

1. Attach 4-sling lifting gear to the Crane Eyes BR-2 2.5 t (57).
2. Lift platform and mount on Roller Units VARIOKIT (7).

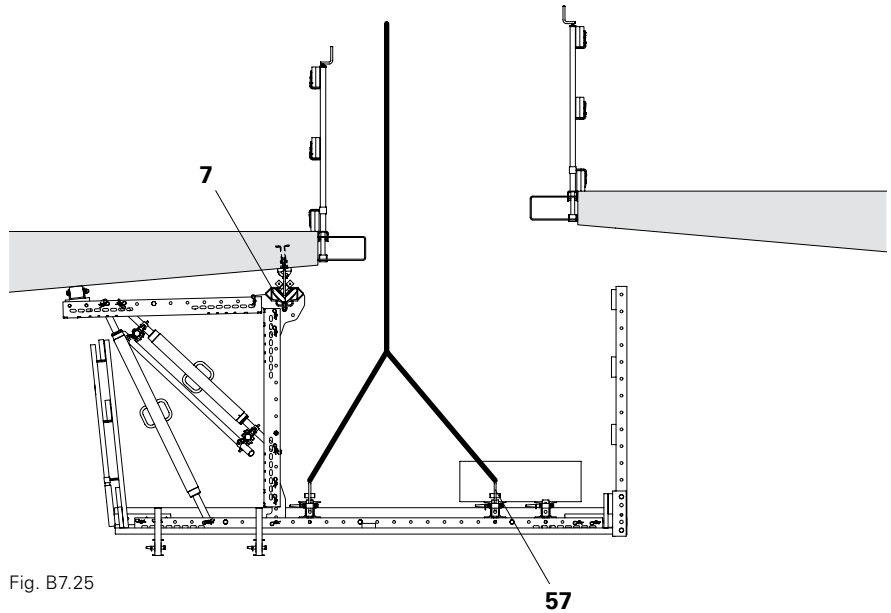


Fig. B7.25

- The suspension procedure is the same as for the outer parapet (see Section B7).
- Assembly takes place, for example, with the help of a working platform.

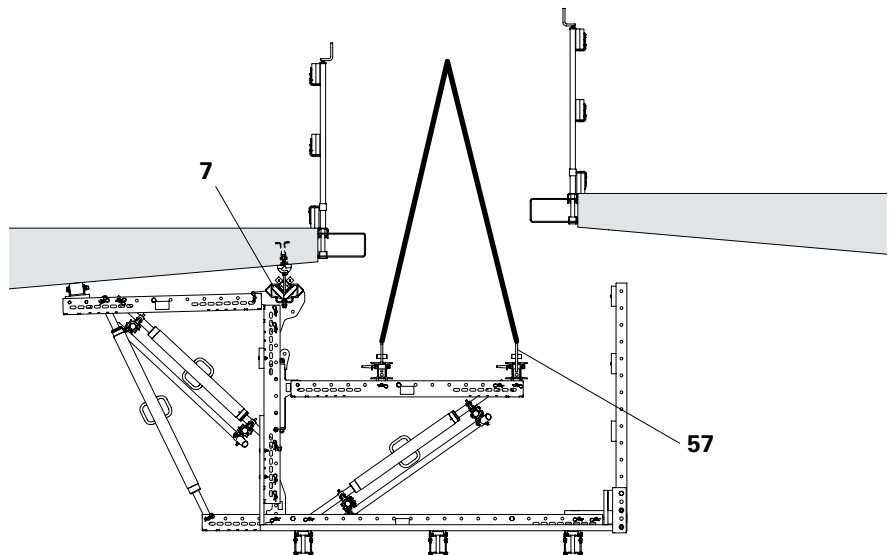


Fig. B7.26

Internal formwork

Assembly

1. Bolt the Adjusting Unit VARIOKIT (18) onto the Steel Waler SRU U120 (1e) using 2x fitting pins \varnothing 21 mm (26).
2. Insert pre-assembled Slab Formwork B into the Steel Waler SRU U120 (1e).
3. Bolt the Slab Formwork B onto the Adjusting Unit VARIOKIT (18) and Steel Waler SRU U120 (1e) using 2x fitting pins \varnothing 21 mm (26).

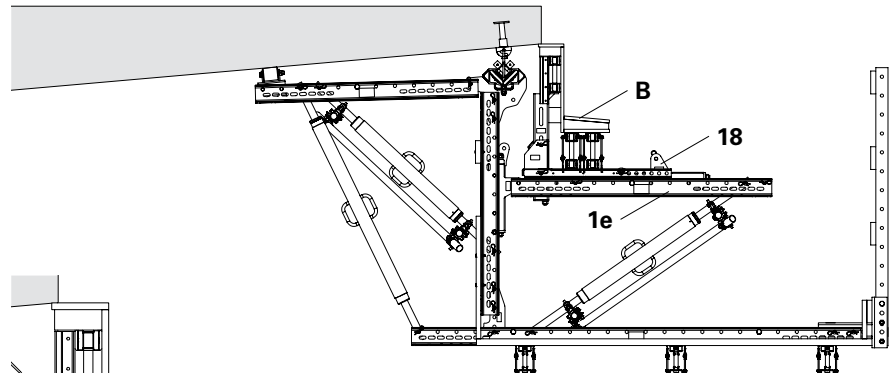


Fig. B8.01

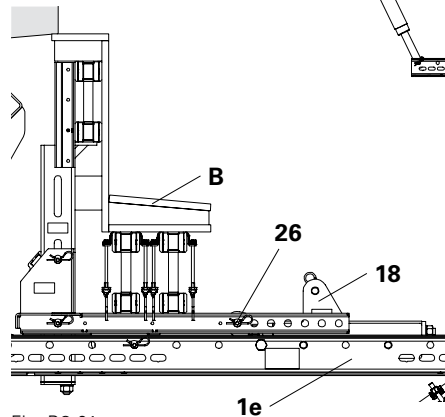


Fig. B8.01a

External formwork



Ensure there is sufficient overlap length on the decking and handrail boards to prevent any tipping.

Assembly

1. Bolt Platform Beam SRU (58) onto the Steel Waler SRU U120 (1c) of the pre-assembled External Formwork Element A using 2x fitting pins \varnothing 21 mm (26).
2. Insert Guardrail Post HSGP-2 (40) into the Platform Beam SRU (58).
3. Attach handrail boards and platform decking, and fix using screws.
4. Bolt the Formwork Element with Platform Beam onto the Adjusting Unit VARIOKIT (18) using 1x fitting pin \varnothing 21 mm (26). (Fig. B8.02a)
5. Bolt the Heavy-Duty Spindle SLS (2a) between the Steel Waler SRU U120 (1c) and Steel Waler SRU U120 (1e) using 2x fitting pins \varnothing 21 mm (26). (Fig. B8.02b)

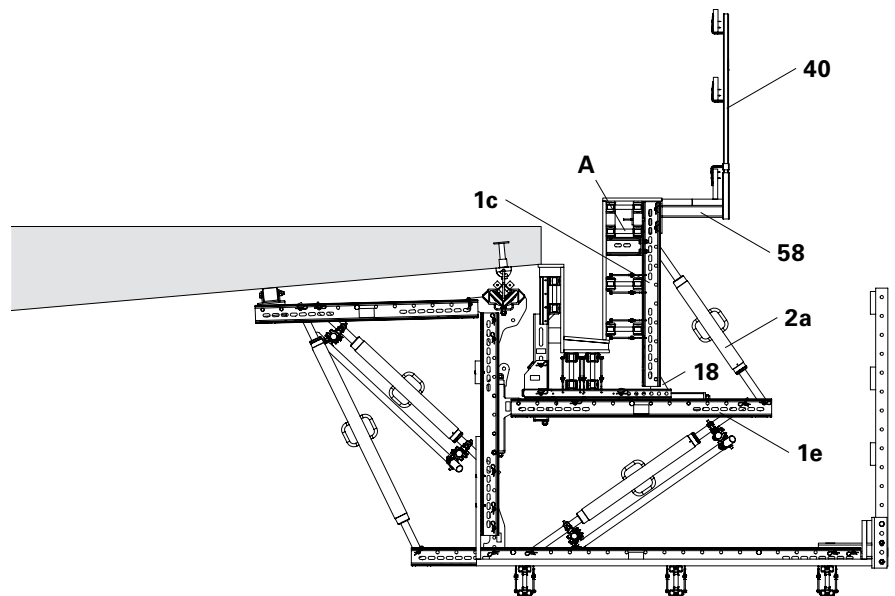


Fig. B8.02

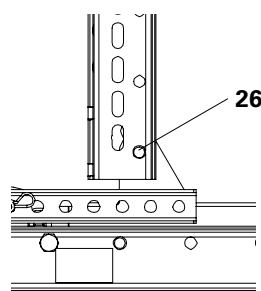


Fig. B8.02a

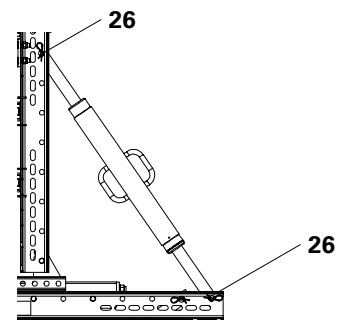


Fig. B8.02b

Internal formwork

Assembly

1. Insert pre-assembled Slab Formwork B into the Steel Waler SRU U120 (1e).
2. Bolt Slab Formwork B onto the Adjusting Unit VARIOKIT (18) using 1x fitting pin \varnothing 21 mm (26).
3. Bolt the Up Lift Protector SRU (5) onto the Steel Waler SRU U120 (1e) using 2x fitting pins \varnothing 21 mm (26).

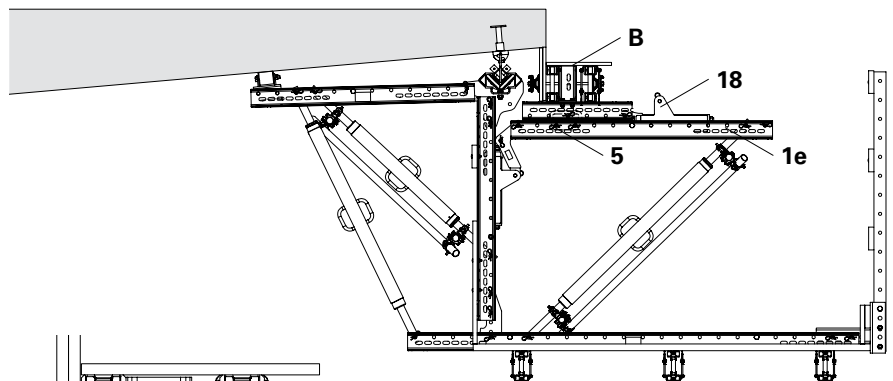


Fig. B9.01

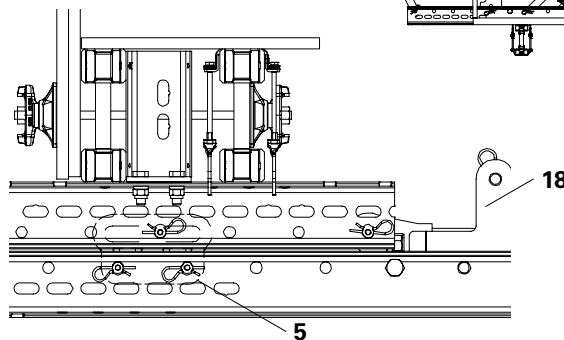


Fig. B9.01a

External formwork



Ensure there is sufficient overlap length on the decking and handrail boards to prevent any tipping.

Assembly

1. Bolt Platform Beam SRU (58) onto the Steel Waler SRU U120 (1c) of the pre-assembled External Formwork Element A using 2x fitting pins \varnothing 21 mm (26).
2. Insert Guardrail Post HSGP-2 (40) into the Platform Beam SRU (58).
3. Attach handrail boards and platform decking, and fix using screws.
4. Bolt the External Formwork Element Steel Waler SRU U120 (1.1c) with Platform Beam onto the Adjusting Unit VARIOKIT (18) using 1x fitting pin \varnothing 21 mm (26).
5. Bolt the Heavy-Duty Spindle SLS (2a) between the Steel Waler SRU 120 (1c) and Steel Waler SRU U120 (1e) using 2x fitting pins \varnothing 21 mm (26).

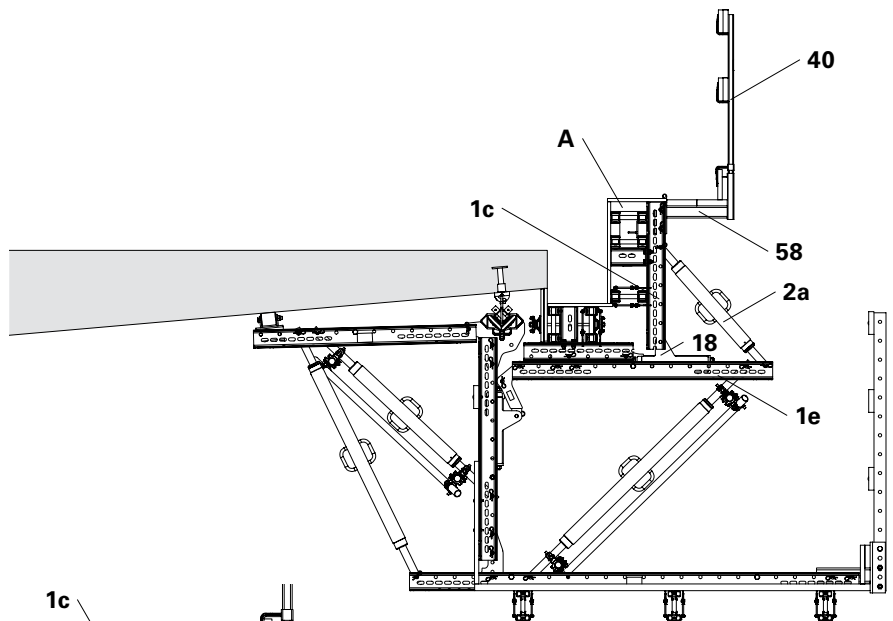


Fig. B9.02

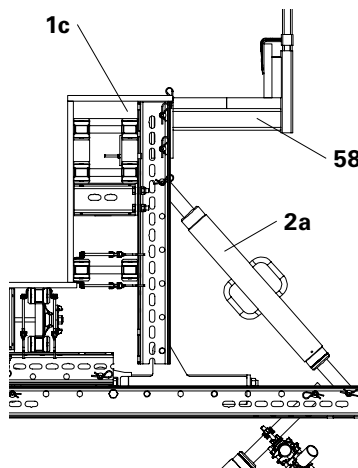


Fig. B9.02a

C1 Basic Settings before Initial Concreting Work - Formwork Type 1

Tools

072180	Ratchet Wrench 1/2"
104823	Socket SW 30-1/2"

Vertical adjustment

1. Carry out vertical fine adjustment with the Adjusting Unit VARIOKIT (18a) and Heavy-Duty Spindle SLS (2b) or (2c). (Fig. C1.01a + C1.01b)
2. Slightly loosen the Swivel Coupler SW 48/48 (36) on the diagonal Scaffold Tube Steel (34b).
3. Height adjustment is carried out by turning the Adjusting Unit VARIOKIT (18a) using a ratchet wrench and socket SW 30. (Fig. C1.01a)
4. Horizontally align the Steel Waler SRU U120 (1e) using the Heavy-Duty Spindle SLS (2b) or (2c).
5. Tighten the Swivel Coupler SW 48/48 (36) on the diagonal Scaffold Tube Steel (34b).
6. By turning the nut on the Vertical Post VGB (3.1) using a ratchet wrench and socket SW 30, superstructure inaccuracies can be compensated.

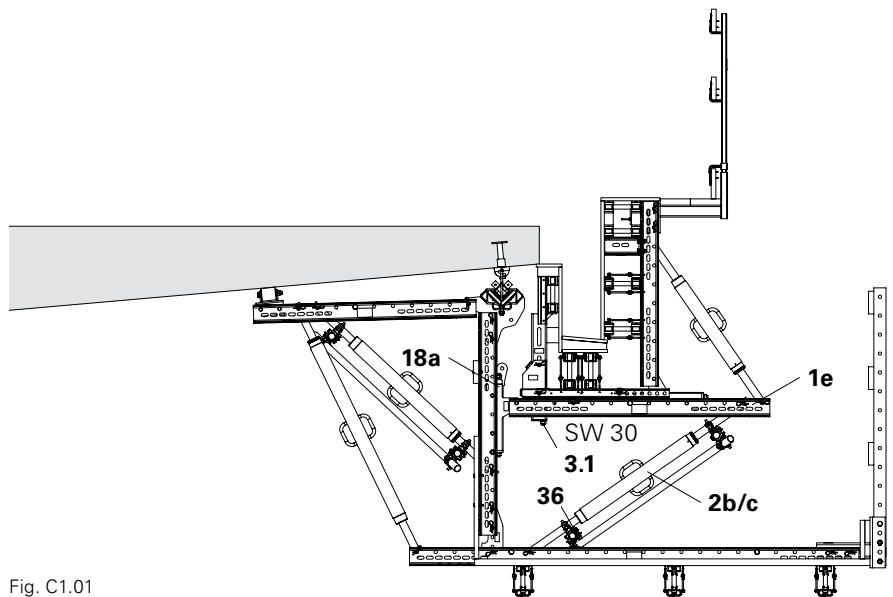


Fig. C1.01

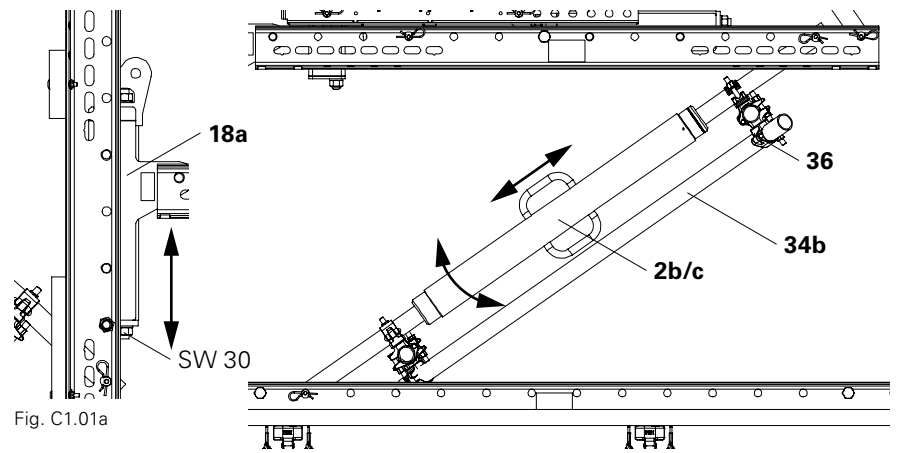


Fig. C1.01a

Fig. C1.01b

Horizontal adjustment

1. Bring internal formwork into position by turning the Adjusting Unit VARIOKIT (18b) using a ratchet wrench and socket SW 30.
2. Align the external formwork using the Heavy-Duty Spindle SLS (2a).

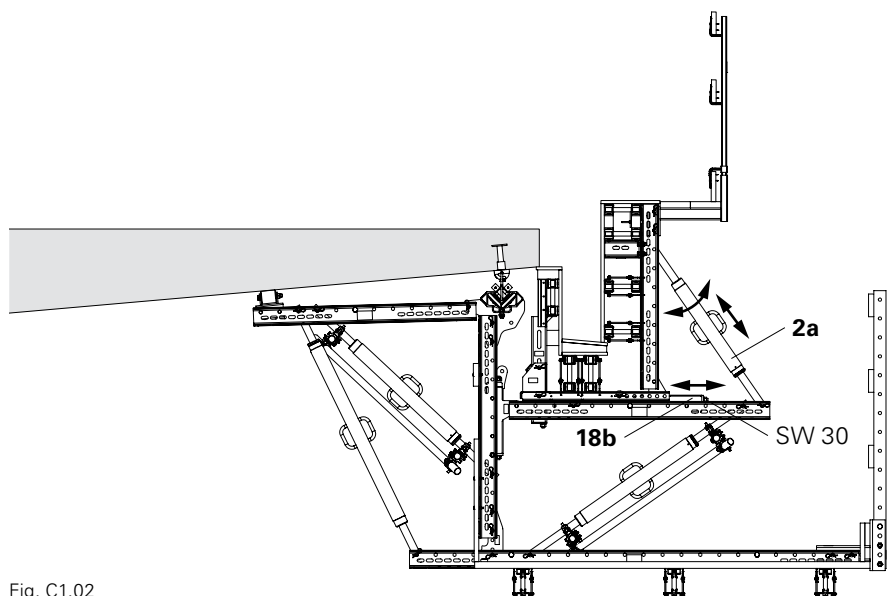


Fig. C1.02

C2 Basic Settings before Initial Concreting Work - Formwork Type 2

Tools

072180	Ratchet Wrench 1/2"
104823	Socket SW 30-1/2"

Vertical adjustment

1. Carry out the vertical fine adjustment with the Adjusting Unit VARIOKIT (18a) and Heavy-Duty Spindle SLS (2b) or (2c). (Fig. C2.01a + C2.01b)
2. Slightly loosen the Swivel Coupler SW 48/48 (36) on the diagonal Scaffold Tube Steel (34b).
3. Height adjustment is carried out by turning the Adjusting Unit VARIOKIT (18a) using a ratchet wrench and socket SW 30. (Fig. C2.01a)
4. Horizontally align the Steel Waler SRU U120 (1e) using the Heavy-Duty Spindle SLS (2b) or (2c).
5. Tighten the Swivel Coupler SW 48/48 (36) on the diagonal Scaffold Tube Steel (34b).
6. Superstructure inaccuracies can be compensated by means of wooden wedges under the internal formwork.

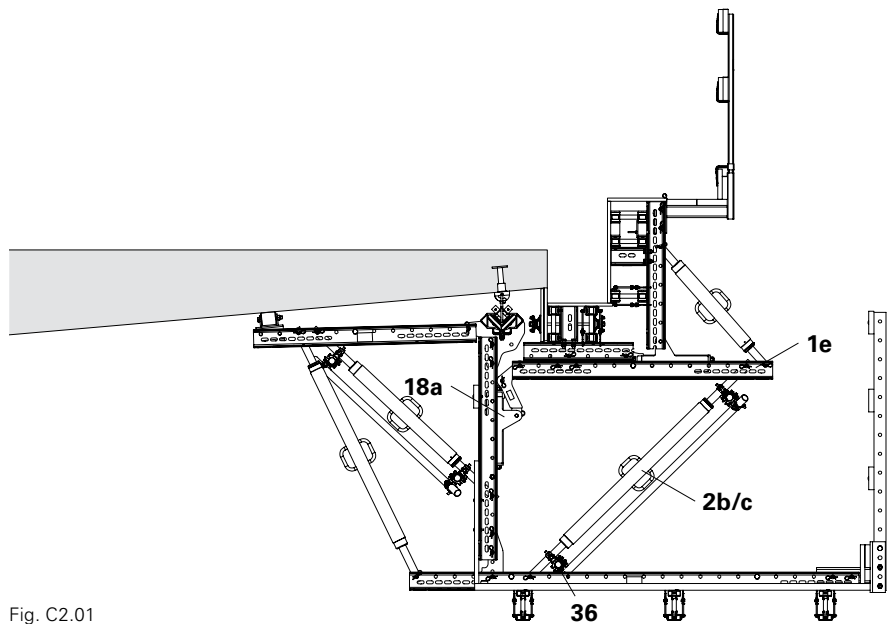


Fig. C2.01

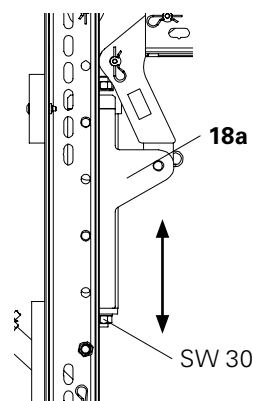


Fig. C2.01a

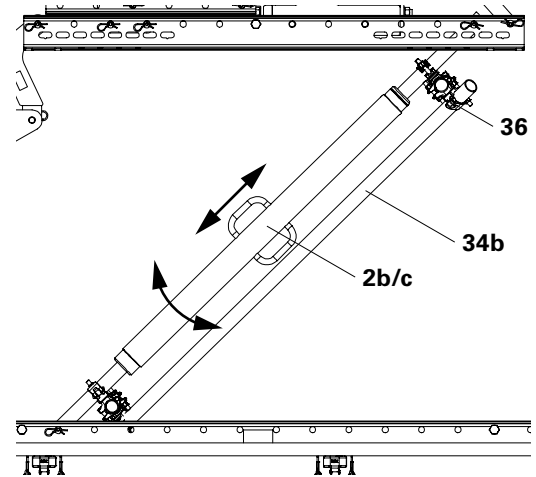


Fig. C2.01b

Horizontal adjustment

1. Bring internal formwork into position by turning the Adjusting Unit VARIOKIT (18b) using a ratchet wrench and socket SW 30.
2. Align the external formwork using the Heavy-Duty Spindle SLS (2a).

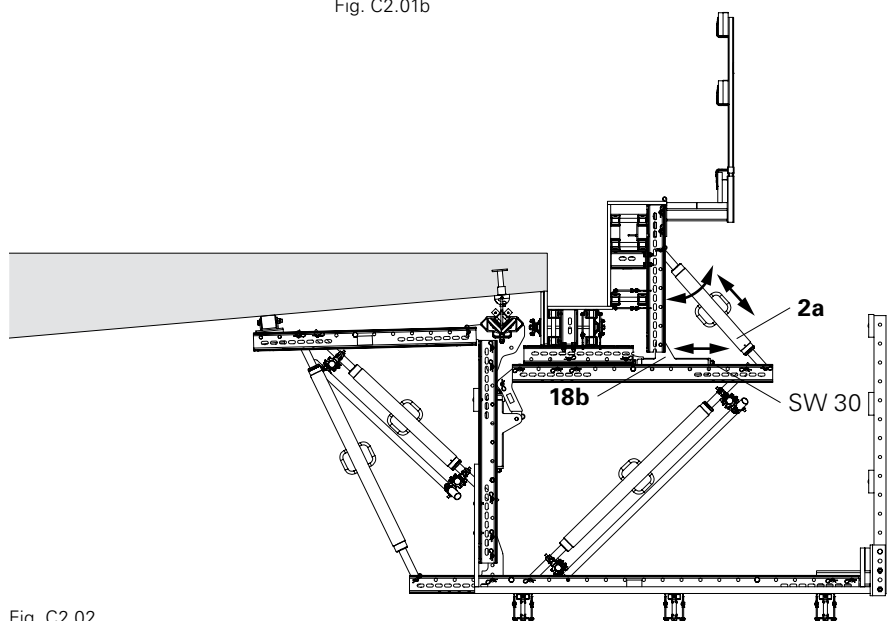


Fig. C2.02

Tools

072180	Ratchet Wrench 1/2"
104823	Socket SW 30-1/2"

Slab and internal formwork

1. Position of the slab formwork is aligned by means of the Adjusting Unit VARIOKIT (18).
2. Internal formwork can be adjusted by turning the nut on the Vertical Post VGB (3) and pressing firmly against the bottom edge of the superstructure with the ratchet wrench and socket SW 30.

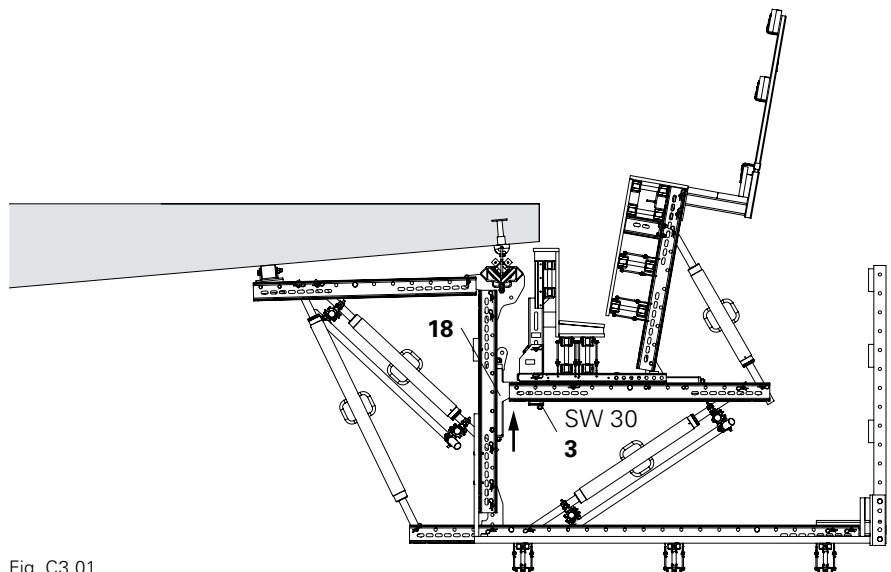


Fig. C3.01

External formwork

1. Bring the external formwork into position by turning on the Heavy-Duty Spindle SLS (2a).

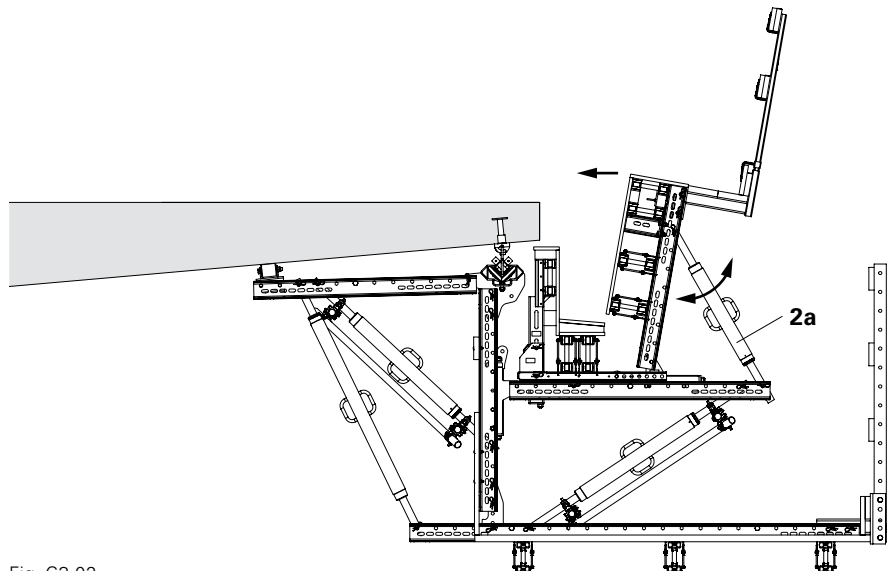


Fig. C3.02

Concreting position

1. Install reinforcement.
2. Concrete cantilevered parapet. (see Section C5)

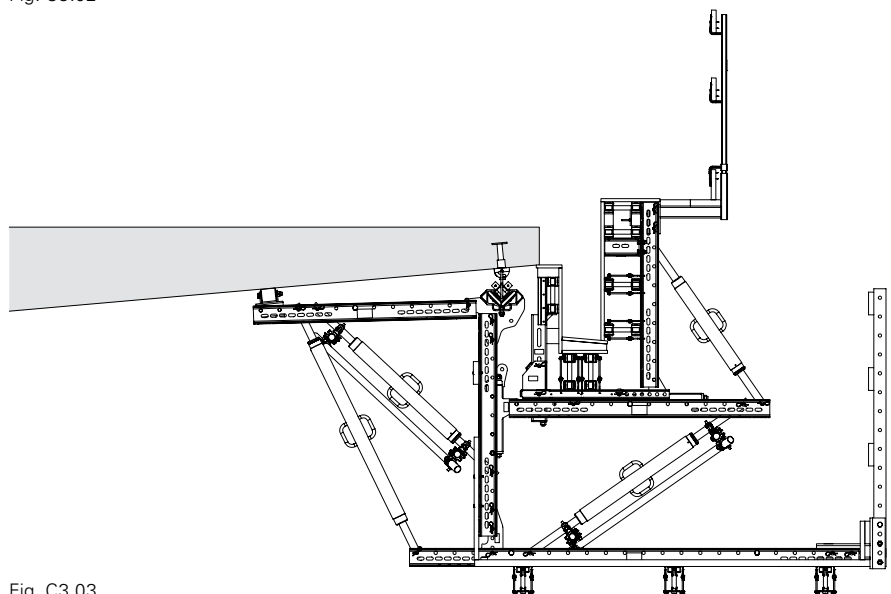


Fig. C3.03

Slab and internal formwork

1. Position of the slab formwork is aligned by means of the Adjusting Unit VARIOKIT (18).
2. Press the internal formwork with wooden wedges against the superstructure.

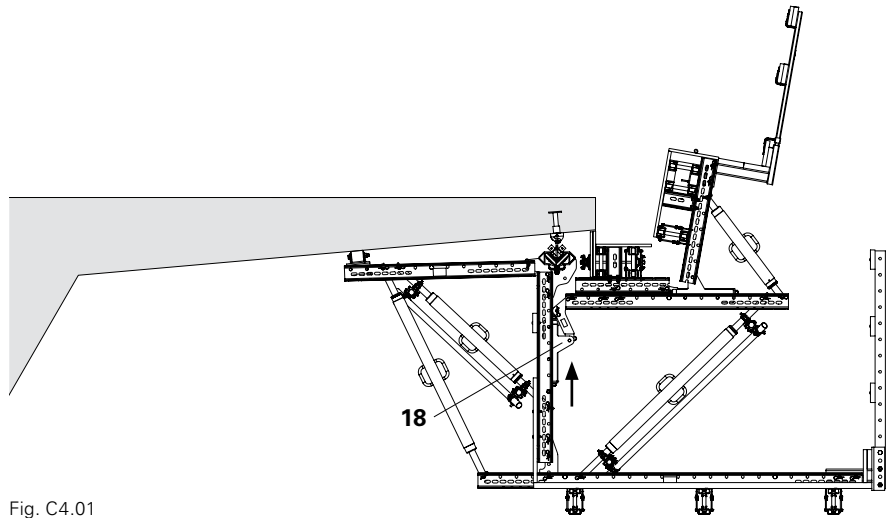


Fig. C4.01

External formwork

1. Bring the external formwork into position by turning on the Heavy-Duty Spindle SLS (2a).

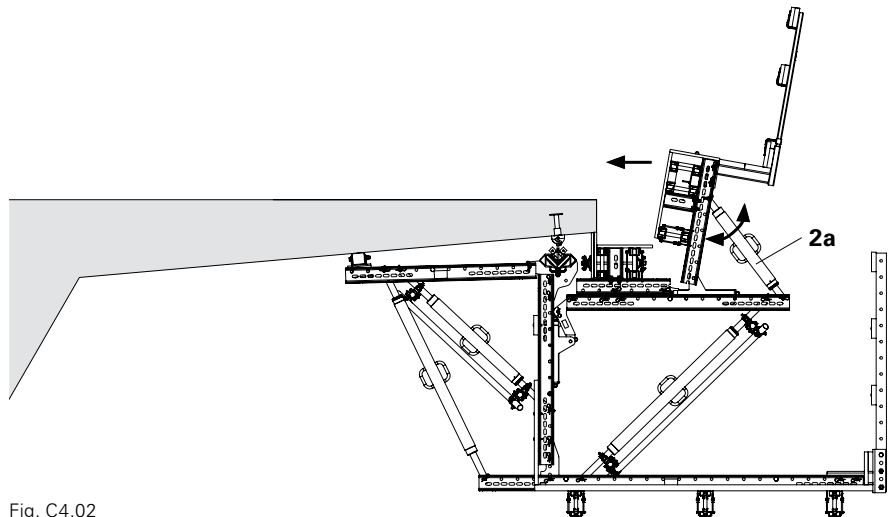


Fig. C4.02

Concreting position

1. Install reinforcement.
2. Concrete cantilevered parapet. (see Section C5)

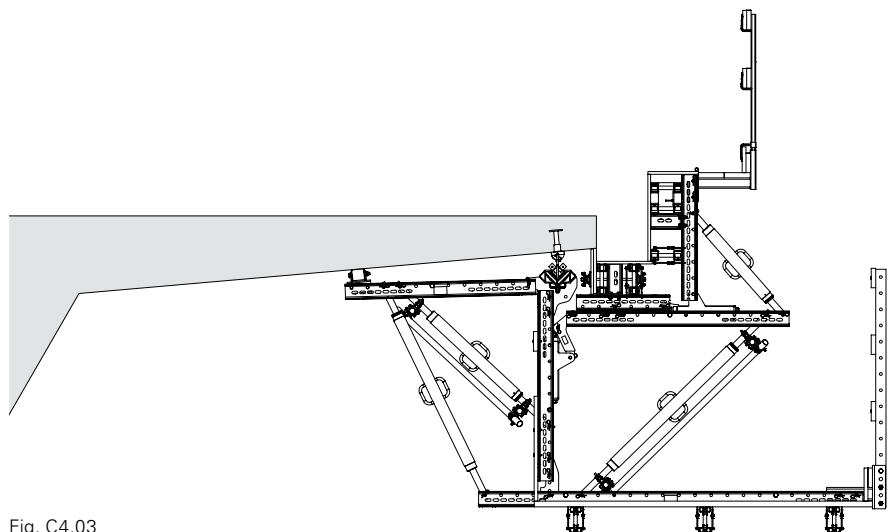


Fig. C4.03

Concreting position



Danger

Risk of overloading!

VGB Cantilevered Parapet Track or platforms could fall to the ground.

- ⇒ During concreting, all vertical Steel Walsers SRU U120 (1d) of the track must be positioned centrally under the suspension points (1). Acceptable is +/- 10 cm within the reinforcement of the Rails 100 VARIOKIT (32a) or 150 VARIOKIT (32b).
- ⇒ Do not pour the concrete directly from the mixer vehicle or concrete bucket into the formwork construction.
- ⇒ Avoid any accumulation of concrete in the area of the VGB Cantilevered Parapet Track.

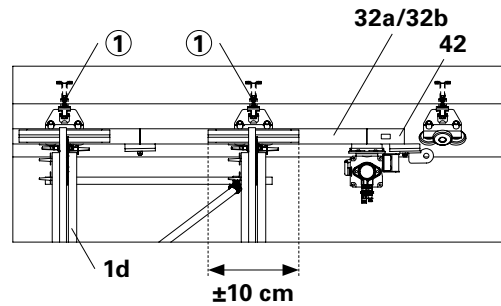


Fig. C5.01

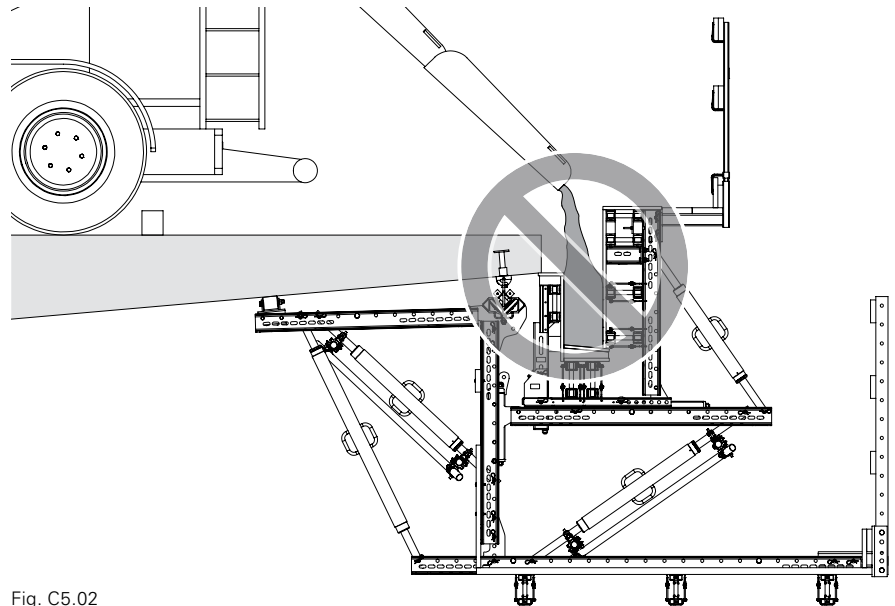


Fig. C5.02

Concreting

1. Pour concrete on the bridge cantilever.
2. Bring concrete into the formwork construction using a rake or something similar.
3. Compact concrete.

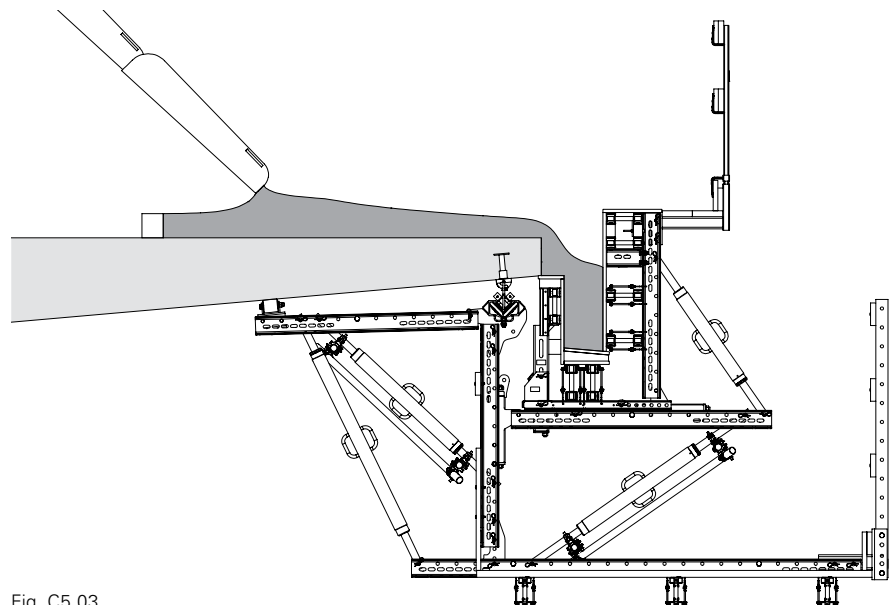


Fig. C5.03

External formwork

1. Release the external formwork by turning on the Heavy-Duty Spindle SLS (2a).

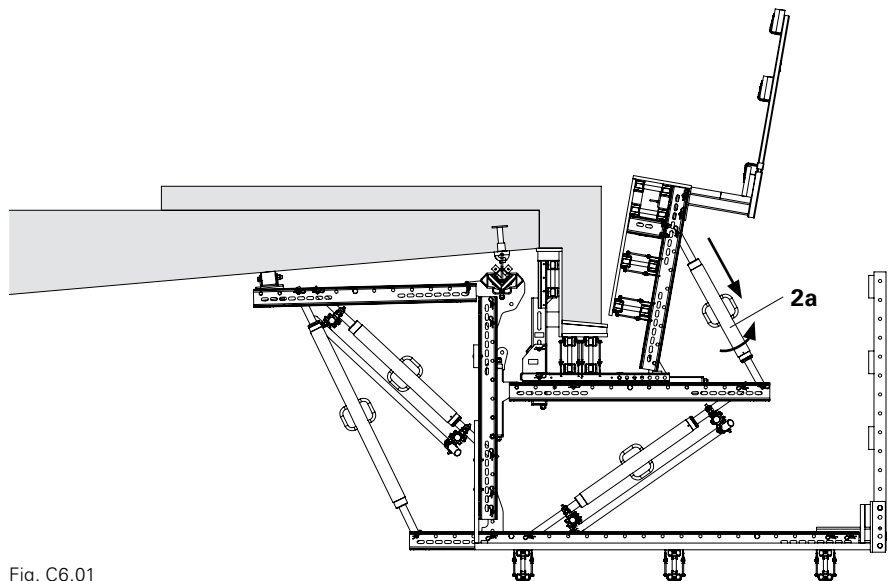


Fig. C6.01

Tools

072180	Ratchet Wrench 1/2"
104823	Socket SW 30-1/2"

Slab and internal formwork

1. Release the slab and internal formwork by lowering the Adjusting Unit VARIOKIT (18) using a ratchet wrench and socket SW 30.
2. After striking, the VGB Cantilevered Parapet Track can be moved to the next casting segment.

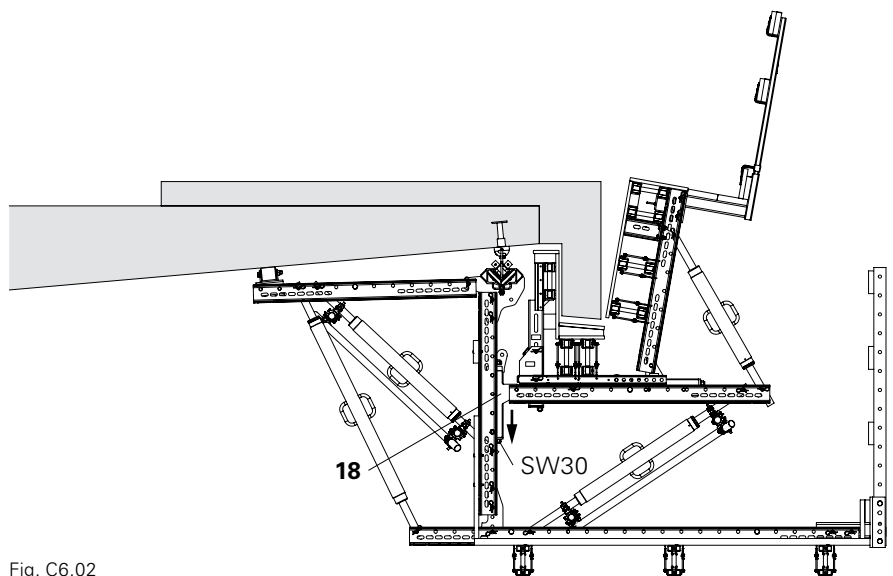


Fig. C6.02

External formwork

1. Release the external formwork by turning on the Heavy-Duty Spindle SLS (2a).

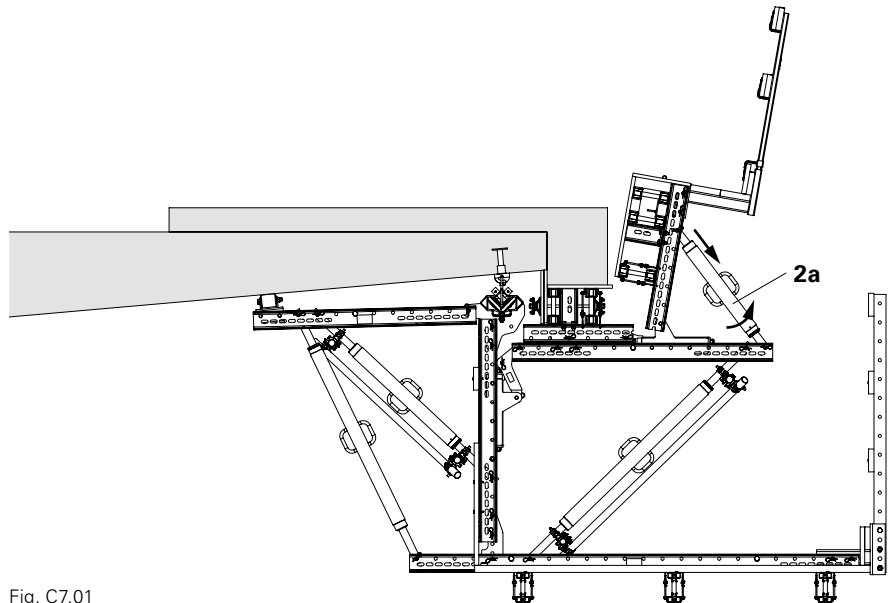


Fig. C7.01

Tools

072180	Ratchet Wrench 1/2"
104823	Socket SW 30-1/2"

Slab formwork

1. Release the slab formwork by lowering the Adjusting Unit VARIOKIT (18) using a ratchet wrench and socket SW 30.
2. After striking, the VGB Cantilevered Parapet Track can be moved to the next casting segment.

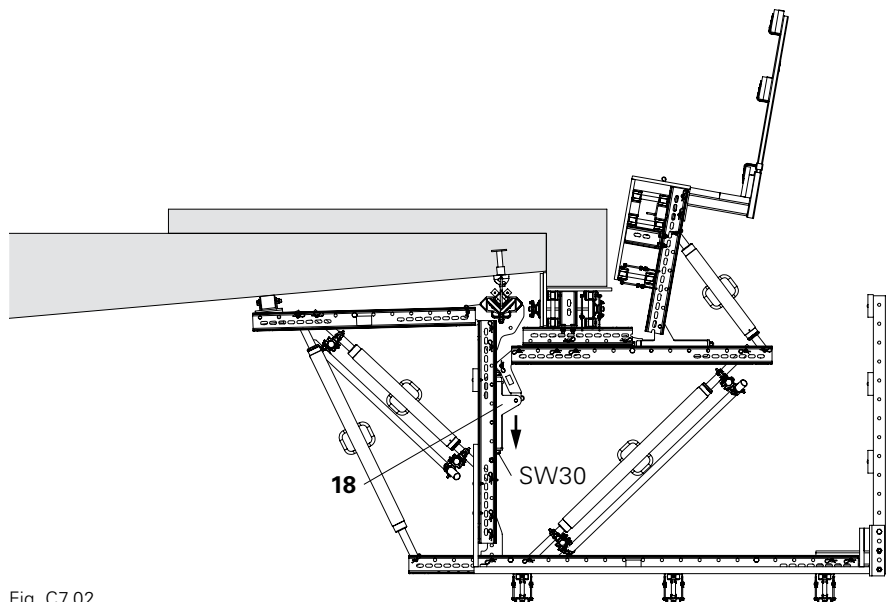


Fig. C7.02



- The recommended moving and concreting length of the VGB Cantilevered Parapet Track is 25 m.
- Always pull in the axis of the Rails.
- After dismantling the Roller Units VARIOKIT (7) and Suspension Heads M24 VARIOKIT (14), the tie holes must be closed, (see Section A5)
- When using the Hydr. Cable Winch H60, follow the instructions in the Assembly Instructions for the VGB Pulling Unit.

Depending on the curve radius and geometry of the superstructure, the optimum length of the project-related moving procedure can be < 25 m.

Pulling can take place using the Hydr. Cable Winch H60 from PERI, which is attached directly to the Leading Platform, or with a pulling device provided by the contractor, which is attached to the lug of the Rail Slide 25-2 VARIOKIT. (Fig. B8.02)

Assembling the Tension Support

1. Attach the Tension Support VGB-2 (59) to the Anchor Sleeve M24 (9) using Bolts M24 x 150 (15).

During the moving procedure, the Roller Units VARIOKIT (7) and Suspension Heads M24 VARIOKIT (14) are dismantled from the Finishing Platform, brought to the Leading Platform and mounted at the front.



The GKB Work Cage can be used for mounting the Tension Support.

Version 1: site-specific pulling procedure

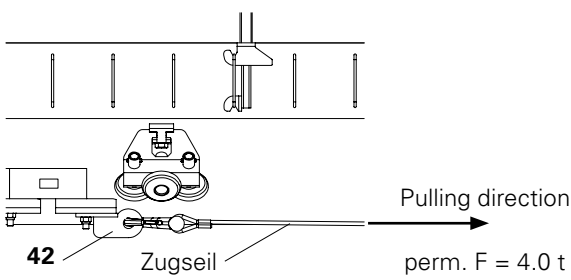


Fig. C8.02

Version 2: pulling with the Hydr. Cable Winch H60

Follow the Assembly Instructions for the VGB Pulling Unit.

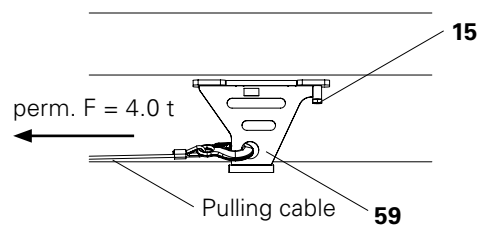


Fig. C8.01

Moving procedure

Step 1

1. Remove the Roller Unit VARIOKIT (7).
2. Unscrew the Suspension Head M24 VARIOKIT (14).
3. Close tie hole. (see Section A5)
4. Transport the Suspension Head M24 VARIOKIT (14) and Roller Unit VARIOKIT (7) to the Leading Platform.

View of the Finishing Platform

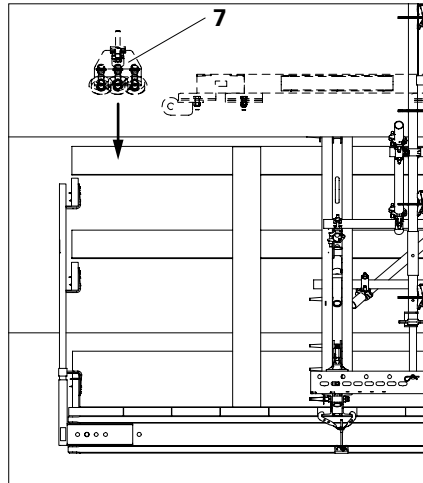


Fig. C8.03

Step 2

1. Screw the Suspension Head M24 VARIOKIT (14) into the Anchor Sleeve M24 (9).
2. Suspend the Roller Unit VARIOKIT (7).
3. Move the VGB Cantilevered Parapet Track to the next anchor sleeve.

Repeat operational steps 1 and 2 until the next casting segment has been reached.



We recommend mounting the Roller Units VARIOKIT (7) with the double roller side alternating outward and inward. (see Section B7)

View of the Leading Platform

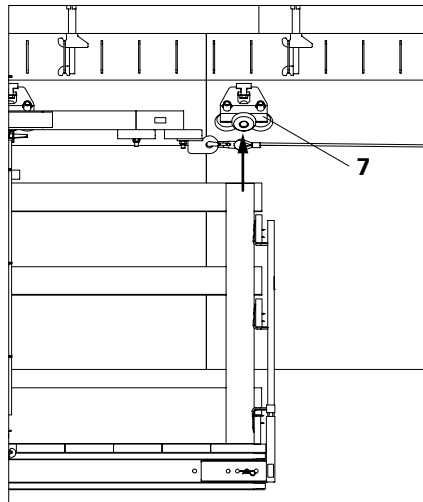


Fig. C8.04

Horizontal mounting with the Tension Support VGB

1. Ensure that the connection between the Tension Support-2 VGB (59) and Rail Slide 25-2 VARIOKIT (42) is very tight.

The Leading and Finishing Platforms should be mounted horizontally if the bridge has a longitudinal inclination or for storm protection.

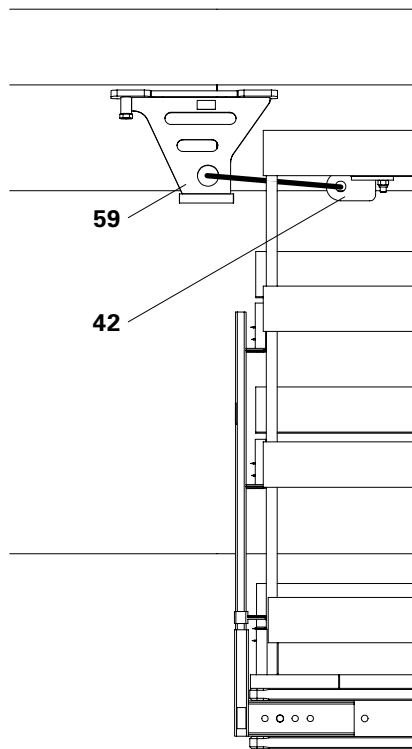


Fig. C9.01



Dismantling is carried out in the reverse order to the assembly procedure (see Section B7).

Dismantling procedure

1. Remove the Finishing Platform.
2. Remove the Leading Platform.



The Leading Platform is normally lifted out shortly before reaching the final position in the last casting segment, in order to concrete the cantilevered parapet at the transition area to the abutment. (see Section B7)

3. Remove the standard concreting units.



All valid safety regulations are to be observed during all dismantling and construction stages. In particular, anti-fall prevention measures are to be provided at all times so that the working area is safe and can be safely used for work operations.



If required, secure the platform units in the various suspension positions to prevent any horizontal movement.

Working procedure during lifting

1. Project-specific dismantling of the formwork units.
2. Release the Connecting Bolt M20 on the Rail to the next platform unit.

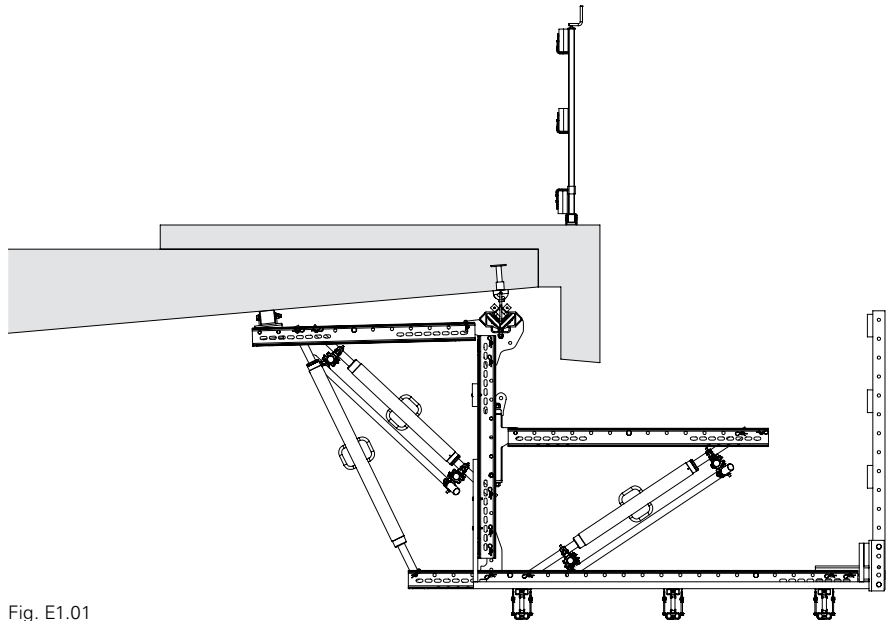


Fig. E1.01

1. Attach the crane lifting gear to the auxiliary construction and Crane Eye BR-2 2.5 t (57). (see Section B5)
2. Pull out platform unit laterally.
3. Set platform unit down on the assembly area, safely dismantle and store.

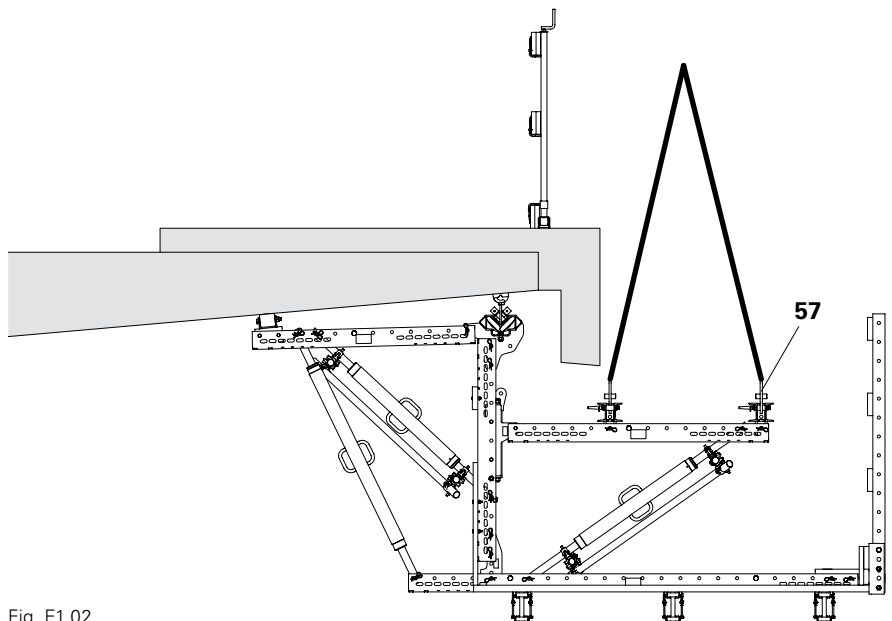
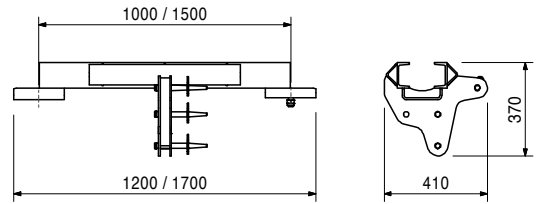
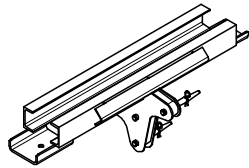
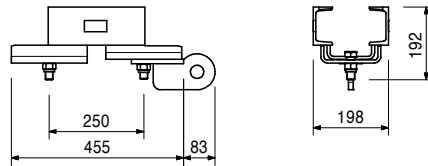
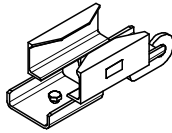


Fig. E1.02

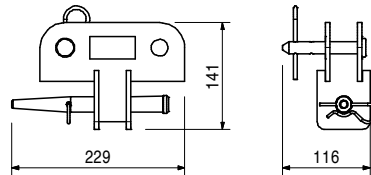
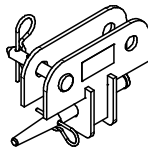
Item no.	Weight kg		
116291	41.300	Guide Rails VARIOKIT	Complete with 3 pc. 104031 Fitting Pin \varnothing 21 x 120 3 pc. 018060 Cotter Pin 4/1, galv. 1 pc. 113546 Bolt ISO 4017 M20 x 45-8.8, galv. 1 pc. 781056 Top Duo Tread Plate 712 x 835
116297	52.100	Guide Rail 100 VARIOKIT	
		Guide Rail 150 VARIOKIT	



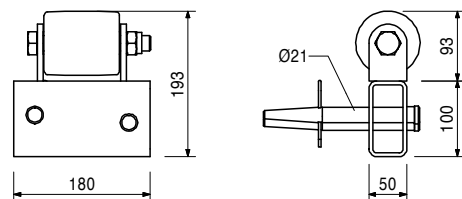
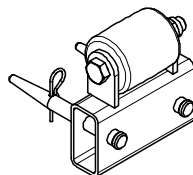
131430	12.500	Rail Slide 25-2 VARIOKIT	Complete with 1 pc. 057139 Hex. Bolt ISO 4017-M20 x 60-8.8 1 pc. 781053 Nut ISO 7040 M20-8, galv.
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131420	2.720	Spindle Cross-Connector SRU	Complete with 1 pc. 104031 Fitting Pin \varnothing 21 x 120 1 pc. 018060 Cotter Pin 4/1, galv. 1 pc. 018050 Pin \varnothing 16 x 65/86, galv. 1 pc. 022230 Cotter Pin 5/1, galv.
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114599	4.980	Pressure Roller VARIOKIT	Complete with 2 pc. 104031 Fitting Pin \varnothing 21 x 120 2 pc. 018060 Cotter Pin 4/1, galv.
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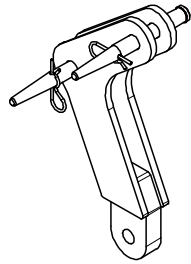


VGB Parapet Track

Item no.	Weight kg
123727	6.780

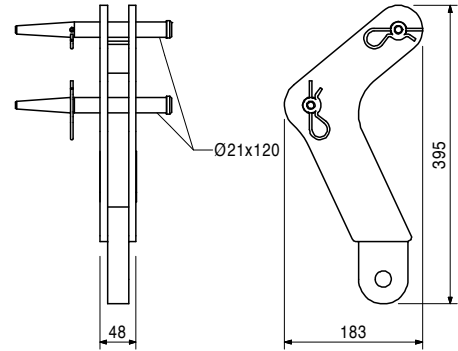
Adapter VGB

For vertical adjusting of the formwork of small parapets.



Complete with

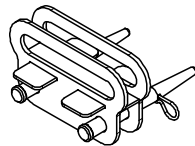
2 pc. 104031 Fitting Pin Ø 21 x 120
2 pc. 018060 Cotter Pin 4/1, galv.



123732	3.130
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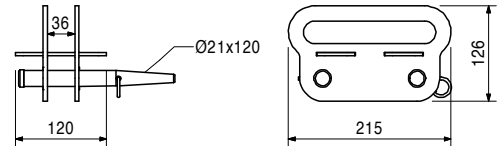
UP Lift Protector SRU

For assembling the slab formwork to Steel Waler SRU of small parapets.



Complete with

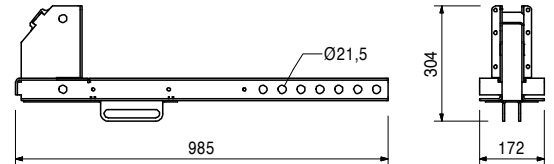
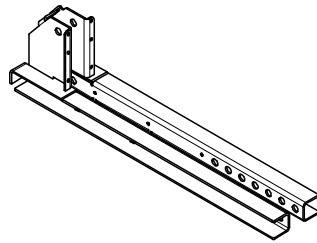
2 pc. 104031 Fitting Pin Ø 21 x 120
2 pc. 018060 Cotter Pin 4/1, galv.



116446	16.100
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Formwork Girder VGB 90

For horizontal adjusting of the formwork and accommodation of the internal formwork of large parapets.



Accessories

104031	0.462
018060	0.014

Fitting Pin Ø 21 x 120

Cotter Pin 4/1, galv.

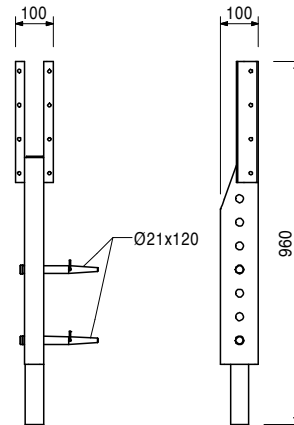
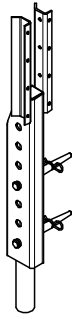
Item no.	Weight kg
118258	8.400

Vertical Post VGB 100

For adjusting to the interior height of cantilevered parapets of large parapets.

Complete with

2 pc. 104031 Fitting Pin \varnothing 21 x 120
2 pc. 018060 Cotter Pin 4/1, galv.



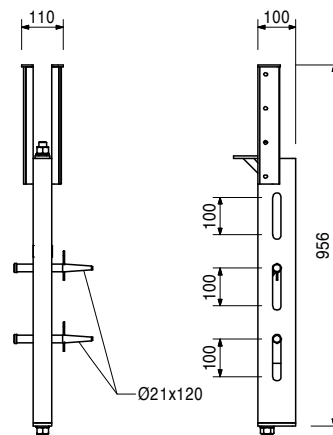
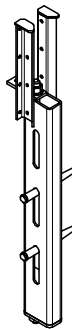
124905	14.300
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Vertical Post VGB 100, adjustable

For continuous adjustment to the interior height of cantilevered parapets of large parapets.

Complete with

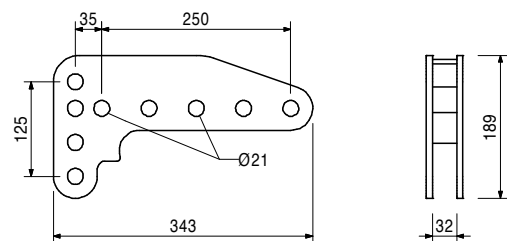
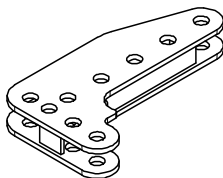
2 pc. 104031 Fitting Pin \varnothing 21 x 120
2 pc. 018060 Cotter Pin 4/1, galv.



115623	5.060
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Connector SRU VARIOKIT

For a rigid connection of Steel Walers SRU.



104031	0.462
018060	0.014

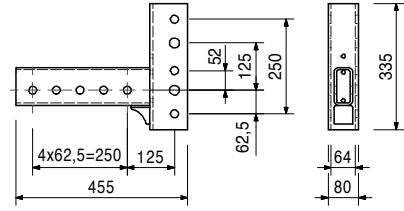
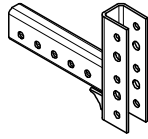
Accessories

Fitting Pin \varnothing 21 x 120
Cotter Pin 4/1, galv.

Item no.	Weight kg
111283	9.950

Angle Connector RCS/SRU

For right-angled connection of Steel Walers SRU to the Climbing Rails RCS and for attaching guardrail posts to Steel Walers SRU.



Accessories

104031	0.462
018060	0.014
111567	0.729
022230	0.033

Fitting Pin Ø 21 x 120

Cotter Pin 4/1, galv.

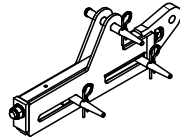
Fitting Pin Ø 26 x 120

Cotter Pin 5/1, galv.

113933	17.400
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Adjusting Unit VARIOKIT

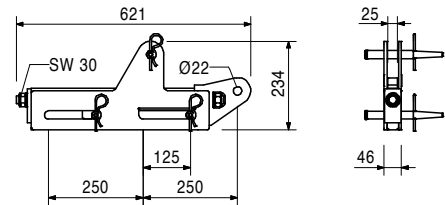
For an articulated connection of Steel Walers SRZ and SRU. With integrated adjustment feature.



Complete with

3 pc. 104031 Fitting Pin Ø 21 x 120

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



Accessories

104031	0.462
018060	0.014

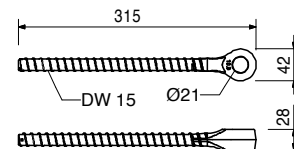
Fitting Pin Ø 21 x 120

Cotter Pin 4/1, galv.

037150	0.641
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Tie Yoke DW 15

For fixing SRZ Steel Walers to the strongback.



030370	1.660
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Wingnut Pivot Plate DW 15, galv.

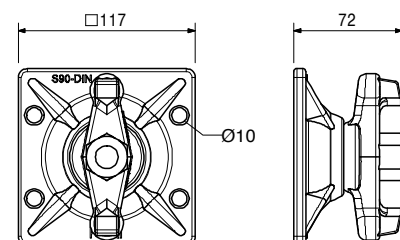
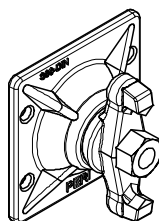
For anchoring with Tie Rod DW 15 and B 15. With pivoting captive nut. Maximum angle of tilting 8°.

Note

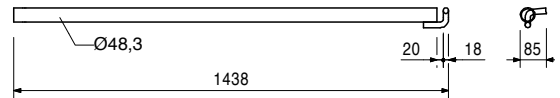
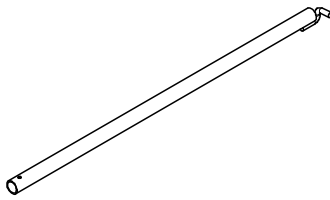
Wrench size SW 27.

Technical Data

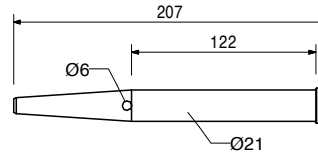
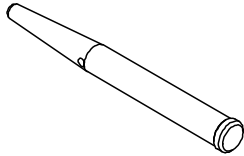
Permissible load 90 kN.



Item no.	Weight kg	
100093	5.870	Wall Tie UWT 140



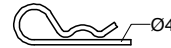
104031	0.462	Fitting Pin Ø 21 x 120 For different connections.
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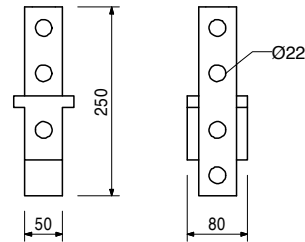
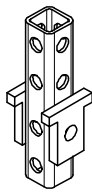
Accessories

018060	0.014	Cotter Pin 4/1, galv.
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018060	0.014	Cotter Pin 4/1, galv.
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111279	2.450	Cross Connector VARIOKIT For right-angled connection of Steel Walers SRU with SRU or Steel Walers SRU with RCS.
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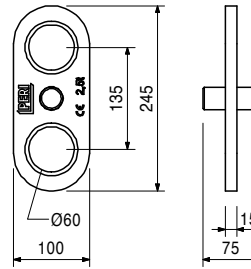
Accessories

104031	0.462	Fitting Pin Ø 21 x 120
018060	0.014	Cotter Pin 4/1, galv.

Item no.	Weight kg
127834	2.210

Crane Eye BR-2 2.5 t, galv.
As attachment point for moving climbing systems or Platform Beam BR.

Note
Follow Instructions for Use!
Technical Data
Permissible load-bearing capacity 2.5 t.



Accessories

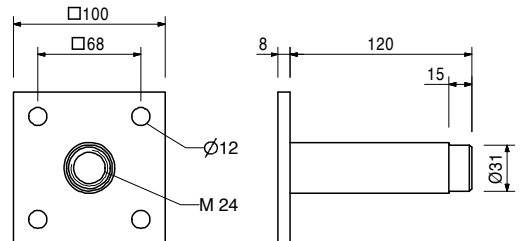
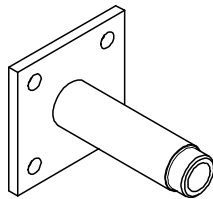
020620	0.561
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Spacer for Platform Beam BR

026230	1.010
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Anchor Sleeve M24
To anchor platform systems.

Note
Separate design information on request.



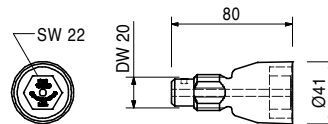
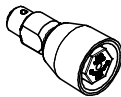
Accessories

026240	0.026
026250	0.005
116233	0.116
026420	0.123
116234	0.033
115150	0.200
123800	0.045

Cone PP Ø 31/26, c = 25
Plug Ø 26 mm
Cone FRC Ø 32/52, c = 40
Anchor Positioning Stud M24, galv.
Plug FRC Ø = 32
Anchor Positioning Stud M24 x 65, galv.
Metric Threaded Cone M24

123800	0.045
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Metric Threaded Cone M24
For pre-fixing of Anchor Sleeve M24 with a concrete cover of 40 mm in bridge cantilevers

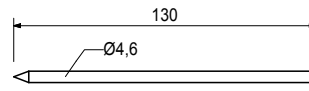
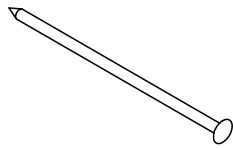


Accessories

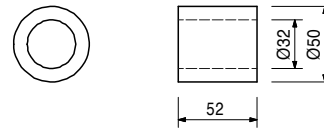
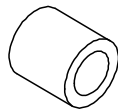
026230	1.010
123820	0.063
129157	0.017

Anchor Sleeve M24
Plug FRC Ø = 40
Nail 4.6 x 130

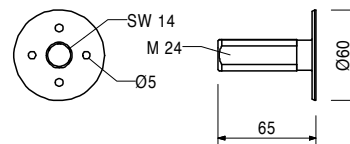
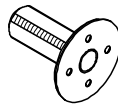
Item no.	Weight kg	
129157	0.017	Nail 4.6 x 130



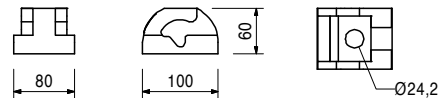
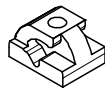
116233	0.116	<p>Cone FRC Ø 32/52, c = 40</p> <p>Ensures a concrete cover of 40 mm in conjunction with Anchor Sleeve M24. Made of fibre reinforced concrete.</p>
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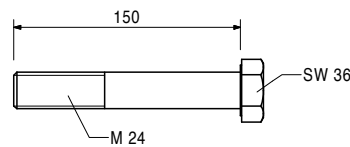
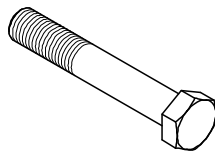
115150	0.200	<p>Anchor Positioning Stud M24 x 65, galv.</p> <p>For fixing the Anchor Sleeve M24 if fixation through formlining is not possible.</p>
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114534	2.220	<p>Suspension Anchor M24 VARIOKIT</p> <p>Fixing part for mounting the Roller Unit VARIOKIT underneath the bridge cantilever.</p>
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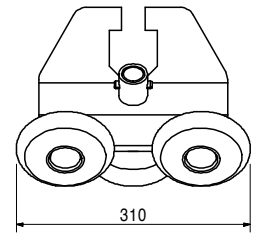
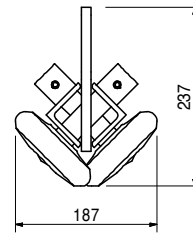
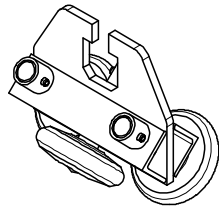
104540	0.654	Bolt ISO 4014-M24 x 150-8.8, galv.
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Item no.	Weight kg
114535	18.000

Roller Unit VARIOKIT

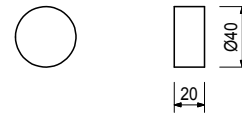
Roller unit and mounting suspension for Guide Rails VARIOKIT.



123820	0.063
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Plug FRC $\varnothing = 40$

For closing the tie hole when using Threaded Cone M24.



031550	1.000
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Accessories
Repoxxal Glue

116234	0.033
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Plug FRC $\varnothing = 32$

For closing the Cone FRC $\varnothing 32$. Made of fibre reinforced concrete.



031550	1.000
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Accessories
Repoxxal Glue

031550	1.000
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Repoxxal Glue

Two-component adhesive for bonding fibre reinforced concrete plugs.
Requirements: 1 kg adhesive for approx. 200 Plugs FZR 32 or 330 Plugs FZR 22.

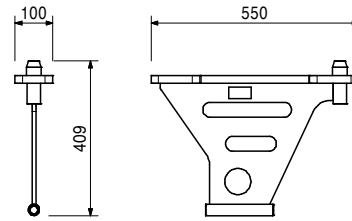
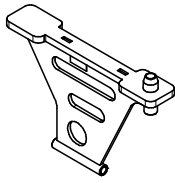
Note

See Safety Data sheet!
Delivery unit 1.0 kg

Item no.	Weight kg
131707	12.800

Tension Shoe-2 VGB

Tension Shoe-2 VGB for moving the VGB Parapet Track.



Accessories

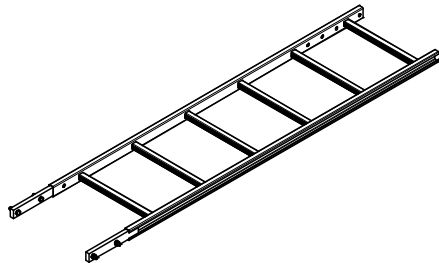
104540	0.654
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Bolt ISO 4014-M24 x 150-8.8, galv.

051410	11.700
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Ladder 180/6, galv.

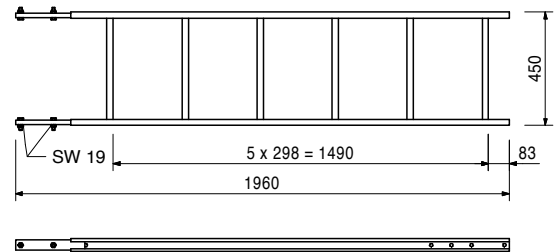
As access for PERI Formwork Systems.



Complete with

4 pc. 710224 Bolt ISO 4017 M12 x 40-8.8, galv.

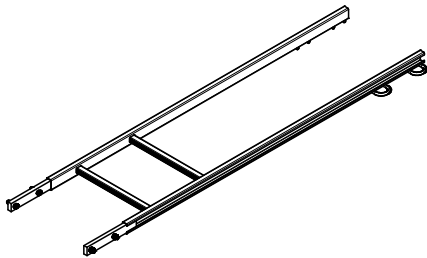
4 pc. 710381 Nut ISO 7042 M12-8, galv.



103724	10.400
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End Ladder 180/2, galv.

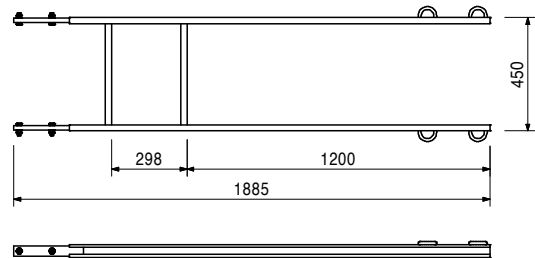
As access for PERI Formwork Systems.



Complete with

4 pc. 710224 Bolt ISO 4017 M12 x 40-8.8, galv.

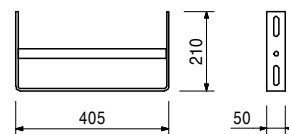
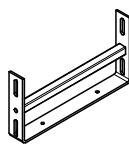
4 pc. 710381 Nut ISO 7042 M12-8, galv.



051460	2.180
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Ladder Base, galv.

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



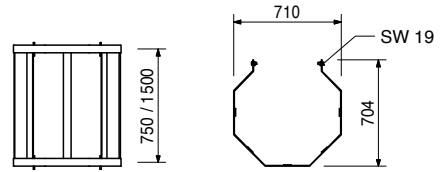
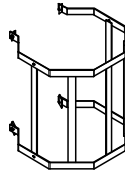
VGB Parapet Track

Item no. Weight kg

104132	15.600
051450	25.200

Ladder Safety Cages, galv.
Ladder Safety Cage 75, galv.
Ladder Safety Cage 150, galv.
 Ladder safety cage for PERI Access Ladders.

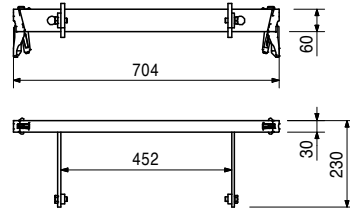
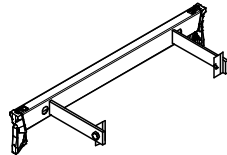
Complete with
 4 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv.
 4 pc. 701763 Clamping Plate FI 25 x 10 x 90



124813 4.050

Ladder Connection UAC-2

Complete with
 1 pc. 051410 Ladder 180/6, galv.
Note
 For connection of Ladder 180/6 (Item no 051410) with PERI UP Standards.



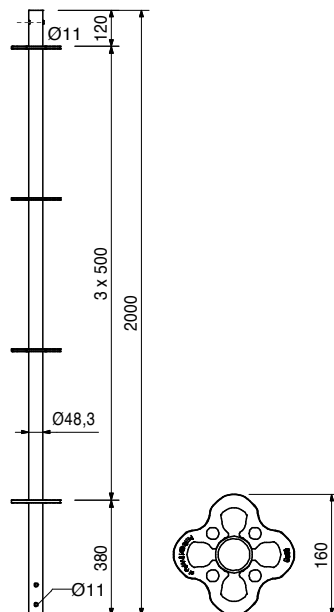
Accessories

051410	11.700
051460	2.180
103724	10.400
104132	15.600
051450	25.200

Ladder 180/6, galv.
Ladder Base, galv.
End Ladder 180/2, galv.
Ladder Safety Cage 75, galv.
Ladder Safety Cage 150, galv.

100005 9.240

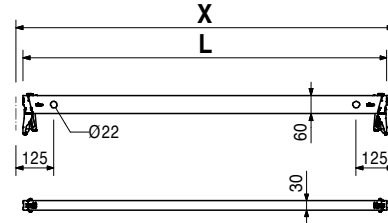
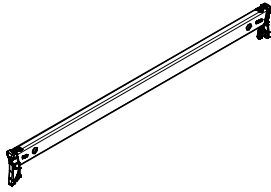
Top Standard UVH 200
 Without pins for supporting head spindles.



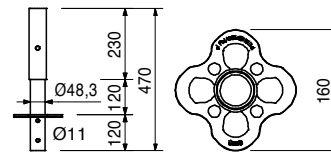
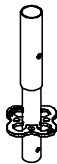
Item no.	Weight kg	
114632	4.390	Ledgers UH Plus
114638	5.340	Ledger UH 100 Plus
114641	4.720	Ledger UH 125 Plus
		Ledger UH 150 Plus

L	X
954	1000
1204	1250
1454	1500

Note
Longitudinally-stamped for easier identification.

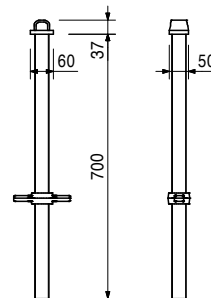


100014	2.470	Base Standard UVB 24 For assembly directly on the base spindle.
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109630	4.240	Spindle Head SRU For connecting the Steel Walers SRU and SRZ to the shoring.
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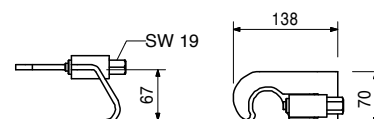
Note
With captive Quick Jack Nut.



Accessories		
104031	0.462	Fitting Pin Ø 21 x 120
018060	0.014	Cotter Pin 4/1, galv.

100863	1.020	Spindle Locking UJS Secures the Adjustable Base Plates and Section Spindles Ø 38 mm in the leg while moving.
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Technical Data
Permissible load 1.5 kN.



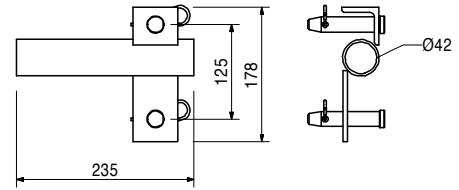
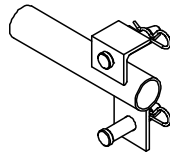
Item no.	Weight kg
103945	1.840

Scaffold Tube Connector FTF

For connecting scaffold tubes to the Steel Walers SRU.

Complete with

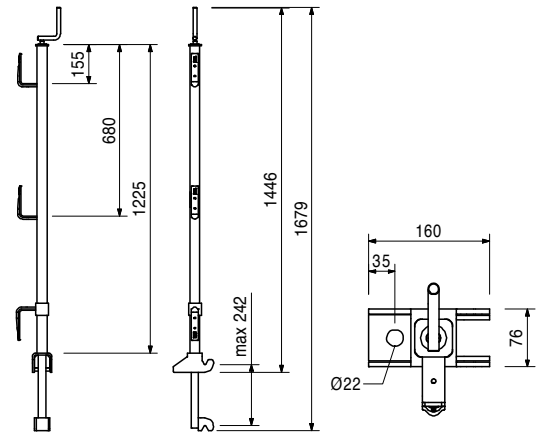
2 pc. 105822 Bolt \varnothing 20 x 102, galv.
2 pc. 018060 Cotter Pin 4/1, galv.



114299	9.520
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Guardrail Post GKB

For fixing to the reinforcement or to the embedded anchors.



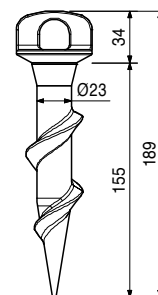
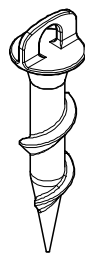
123970	0.047
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Screw-On Sleeve PERI M16/164

For temporary mounting of components on reinforced concrete slabs.

Note

Inserted into the fresh concrete immediately after concreting.



Accessories

123973	0.240
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Bolt ISO 4014 M16 x 130-8.8, galv.

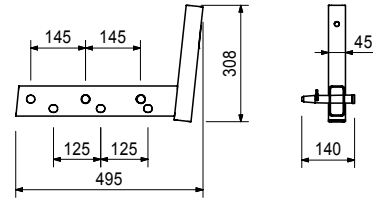
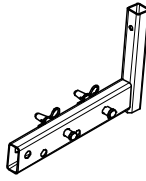
Item no.	Weight kg
104131	3.940

Guardrail Holder SRU/SRZ

For assembling a guardrail to the Steel Walers SRU and SRZ, Profile U100 to U140.

Complete with

2 pc. 105400 Pin \varnothing 20 x 140, galv.
2 pc. 018060 Cotter Pin 4/1, galv.



Accessories

116292	4.720
061260	6.150

Guardrail Post HSGP-2 Guardrail Post SGP

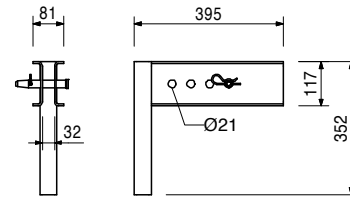
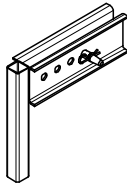
101290	5.670
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Guardrail Holder GT 24 / VT 20

For assembling a guardrail to GT 24 and VT 20 Girders.

Complete with

1 pc. 105400 Pin \varnothing 20 x 140, galv.
1 pc. 018060 Cotter Pin 4/1, galv.



Accessories

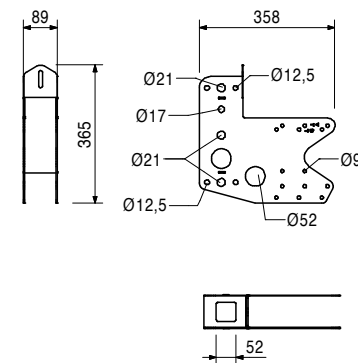
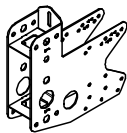
116292	4.720
061260	6.150

Guardrail Post HSGP-2 Guardrail Post SGP

126088	4.390
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Guardrail Post Holder Multi

For fixing of an end guardrail post on Girders GT 24, VT 20 or Timbers 80/160.
Fixing of the guardrail posts by means of Hex. Bolts M20 or Clamp A64.



Accessories

710285	0.050
024090	0.005
024470	0.008

Bolt ISO 4014 M8 x 100-8.8, galv. Nut ISO 4032 M8-8, galv. TSS-Torx 6 x 60, galv.

VGB Parapet Track

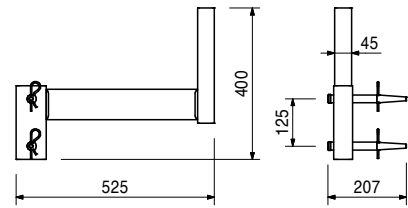
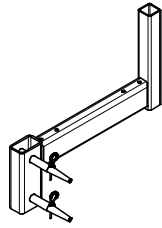
Item no.	Weight kg
114557	6.980

Platform Beam SRU

For assembling a platform and guardrail at vertical Steel Waler SRU.

Complete with

2 pc. 104031 Fitting Pin \varnothing 21 x 120
2 pc. 018060 Cotter Pin 4/1, galv.



Accessories

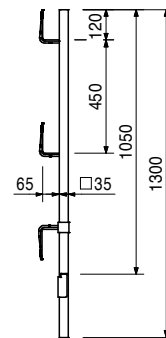
116292	4.720
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Guardrail Post HSGP-2

116292	4.720
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Guardrail Post HSGP-2

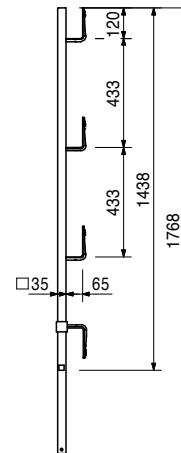
As guardrail for different systems.



061260	6.150
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Guardrail Post SGP

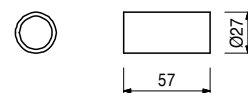
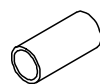
As guardrail for different systems.



116363	0.089
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Spacer RCS 184

Compensator between Angle Connector RCS/SRU and Guardrail Post RCS 184.



Item no.	Weight kg
114328	16.600

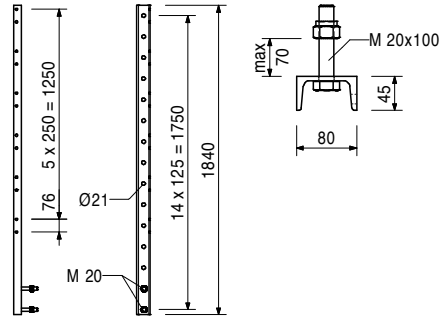
Guardrail Post RCS/SRU 184

For assembly of the guardrail on the Platform Beam RCS/SRU or Angle Connector RCS/SRU.



Complete with

2 pc. 114727 Bolt ISO 4017 M20 x 100-8.8, galv.
2 pc. 781053 Nut ISO 7040 M20-8, galv.



110296	0.220
710330	0.017

Accessories

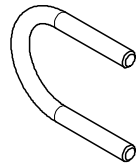
Clamp A64 DIN 3570 M12, galv.

Nut ISO 4032 M12-8, galv.

110296	0.220
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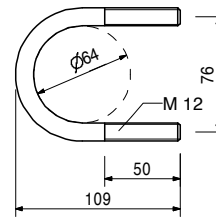
Clamp A64 DIN 3570 M12, galv.

For assembling Scaffold Tubes Ø 48 or Ø 60.



Note

Wrench size SW 19.



710330	0.017
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Accessories

Nut ISO 4032 M12-8, galv.

Item no.	Weight kg		L
		Steel Walers Universal SRU U120	
103868	18.100	Steel Waler Universal SRU U120, l = 0.72 m	722
103871	24.200	Steel Waler Universal SRU U120, l = 0.97 m	972
123809	29.500	Steel Waler Universal SRU U120, l = 1.17 m	1172
103874	30.900	Steel Waler Universal SRU U120, l = 1.22 m	1222
103877	38.100	Steel Waler Universal SRU U120, l = 1.47 m	1472
103886	44.700	Steel Waler Universal SRU U120, l = 1.72 m	1722
125088	46.100	Steel Waler Universal SRU U120, l = 1.77 m	1772
103889	52.000	Steel Waler Universal SRU U120, l = 1.97 m	1972
103898	58.600	Steel Waler Universal SRU U120, l = 2.22 m	2222
123812	63.000	Steel Waler Universal SRU U120, l = 2.37 m	2372
103892	65.600	Steel Waler Universal SRU U120, l = 2.47 m	2472
103929	72.000	Steel Waler Universal SRU U120, l = 2.72 m	2722
103903	81.000	Steel Waler Universal SRU U120, l = 2.97 m	2972
103906	92.600	Steel Waler Universal SRU U120, l = 3.47 m	3472
103915	106.000	Steel Waler Universal SRU U120, l = 3.97 m	3972
103918	119.000	Steel Waler Universal SRU U120, l = 4.47 m	4472
103922	135.000	Steel Waler Universal SRU U120, l = 4.97 m	4972
103925	146.000	Steel Waler Universal SRU U120, l = 5.47 m	5472
103928	159.000	Steel Waler Universal SRU U120, l = 5.97 m	5972

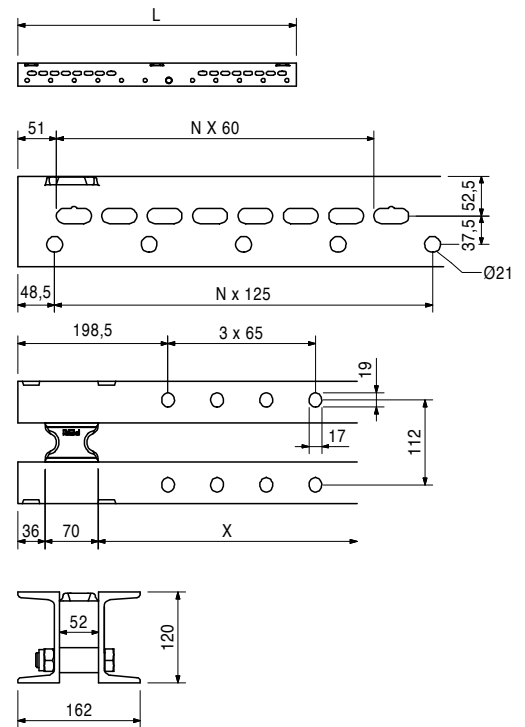
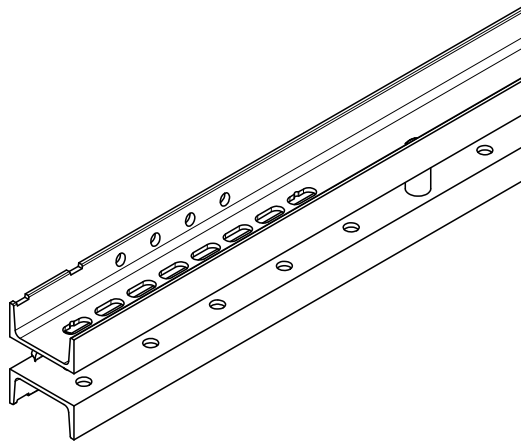
Universal Steel Waler Profile U120 used as waling for girder wall formwork and for diverse special applications. With adjustable spacers.

Note

Permissible load: see PERI Design Tables.

Technical Data

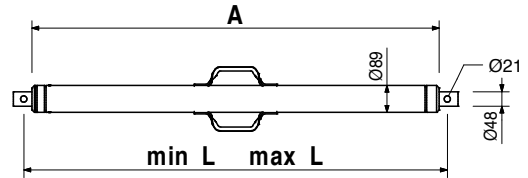
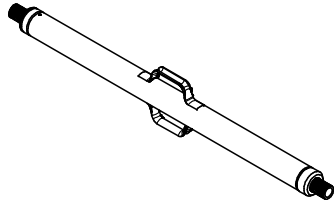
U120: $W_y = 121.4 \text{ cm}^3$, $I_y = 728 \text{ cm}^4$.



Item no.	Weight kg		A	min. L	max. L
		Heavy Duty Spindles SLS			
111035	12.000	Heavy Duty Spindle SLS 40/80	344	400	800
101773	15.300	Heavy Duty Spindle SLS 80/140	746	800	1400
101774	18.300	Heavy Duty Spindle SLS 100/180	946	1000	1800
101776	24.900	Heavy Duty Spindle SLS 140/240	1346	1400	2400
101778	32.300	Heavy Duty Spindle SLS 200/300	1944	2000	3000
101779	38.500	Heavy Duty Spindle SLS 260/360	2544	2600	3600
109726	44.800	Heavy Duty Spindle SLS 320/420	3144	3200	4200
109785	51.000	Heavy Duty Spindle SLS 380/480	3744	3800	4800

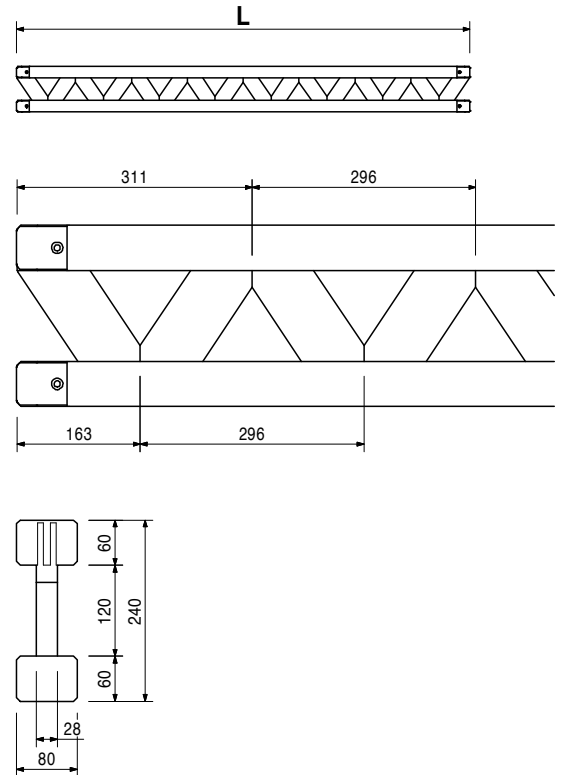
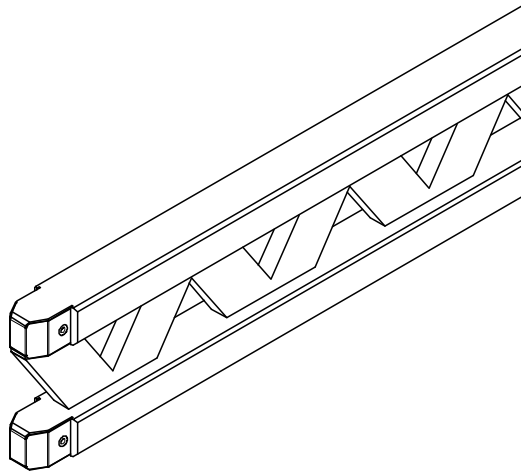
Used as adjustable spindle for truss beams made of Steel Walers SRU and Climbing Rails RCS.

Note
Permissible load see PERI Design Tables.



Accessories		
104031	0.462	Fitting Pin Ø 21 x 120
018060	0.014	Cotter Pin 4/1, galv.
110477	3.990	Spindle Adapter SLS/RCS
129695	0.028	Reducing Sleeve Ø 26 - 21, galv.

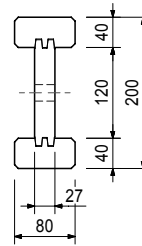
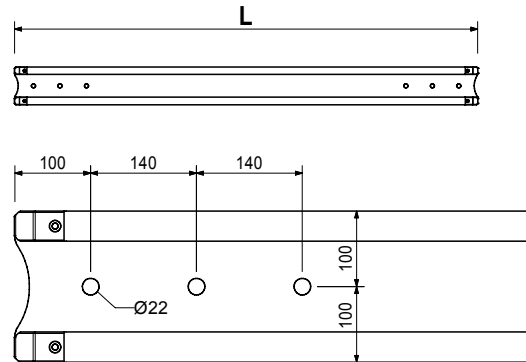
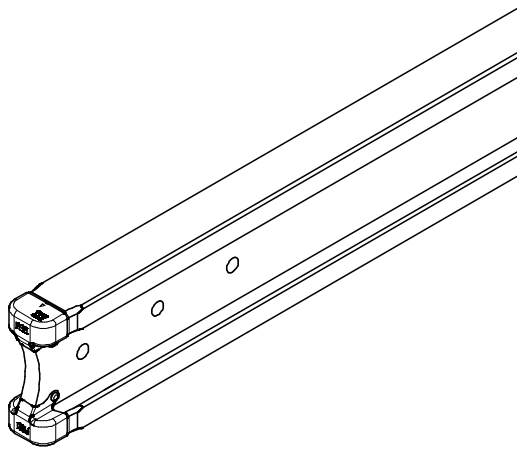
Item no.	Weight kg		L
075100	5.300	Girder GT 24	918
075120	7.100	Girder GT 24, l = 0.90 m	1214
075150	8.900	Girder GT 24, l = 1.20 m	1510
075180	10.600	Girder GT 24, l = 1.80 m	1806
075210	12.400	Girder GT 24, l = 2.10 m	2102
075240	14.200	Girder GT 24, l = 2.40 m	2398
075270	15.900	Girder GT 24, l = 2.70 m	2694
075300	17.700	Girder GT 24, l = 3.00 m	2990
075330	19.500	Girder GT 24, l = 3.30 m	3286
075360	21.200	Girder GT 24, l = 3.60 m	3582
075390	23.000	Girder GT 24, l = 3.90 m	3878
075420	24.800	Girder GT 24, l = 4.20 m	4174
075450	26.600	Girder GT 24, l = 4.50 m	4470
075480	28.300	Girder GT 24, l = 4.80 m	4766
075510	30.100	Girder GT 24, l = 5.10 m	5062
075540	31.900	Girder GT 24, l = 5.40 m	5358
075570	33.600	Girder GT 24, l = 5.70 m	5654
075600	35.400	Girder GT 24, l = 6.00 m	5950



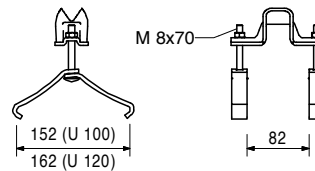
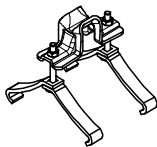
Item no.	Weight kg		L
		Girder VT 20K with Steel Cap	
074990	8.230	Girder VT 20K, l = 1.45 m	1447
074905	12.010	Girder VT 20K, l = 2.15 m	2152
074910	13.630	Girder VT 20K, l = 2.45 m	2452
074890	14.710	Girder VT 20K, l = 2.65 m	2652
074920	16.060	Girder VT 20K, l = 2.90 m	2902
074930	18.220	Girder VT 20K, l = 3.30 m	3292
074940	19.840	Girder VT 20K, l = 3.60 m	3592
074950	21.460	Girder VT 20K, l = 3.90 m	3892
074960	24.700	Girder VT 20K, l = 4.50 m	4492
074970	26.860	Girder VT 20K, l = 4.90 m	4902
074980	32.260	Girder VT 20K, l = 5.90 m	5902
074900	0.000	Cutting Cost VT Girder	

Universal formwork girder made of wood.

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



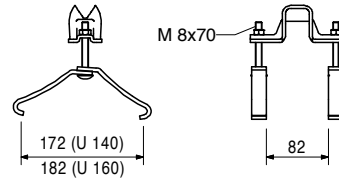
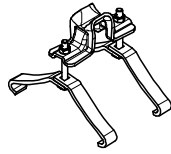
024070 0.691 **Hook Strap HB 24-100/120, galv.**
For fixing GT 24 Girders to Steel Walers SRZ, SRU and BR: U100 – U120.



Item no.	Weight kg
024080	0.735

Hook Strap HB 24-140/160, galv.

For fixing GT 24 Girders to Steel Walers SRZ, SRU and BR: U140 – U160.



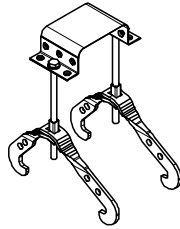
104931	0.865
103845	0.893

Hook Straps Uni HBU

Hook Strap Uni HBU 20-24

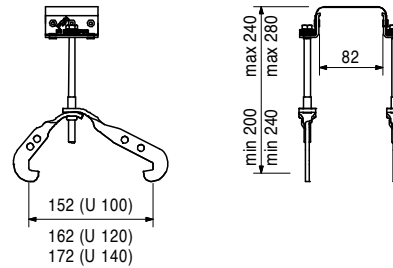
Hook Strap Uni HBU 24-28

For fixing GT 24 Girders or VT 20 Girders to Steel Walers SRZ and SRU Profiles U100 – U140.



Note

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



024540	0.005
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Accessories

TSS-Torx 6 x 40, galv.

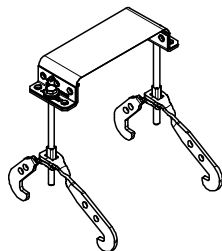
104930	0.887
104096	0.912

Hook Straps Uni Double HBUD

Hook Strap Uni Double HBUD 20-24

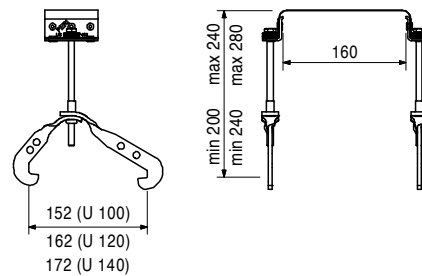
Hook Strap Uni Double HBUD 24-28

For fixing two GT 24 Girders or VT 20 Girders to SRZ Steel Walers and SRU Profiles U100 – U140.



Note

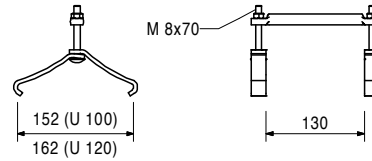
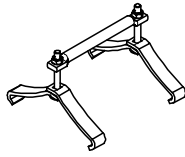
The girders can be mounted at right-angles or diagonally to the steel walers and also outside of the nodes.



Item no.	Weight kg
024860	0.616

Hook Strap HB 24 QB 150, galv.

For fixing GT 24 Girders independent from girder node and timber beams to Steel Walers SRZ, SRU and BR: U100 – U120.



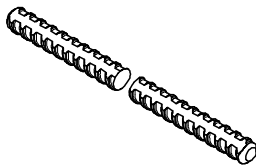
		Tie Rods DW 15
030030	1.440	Tie Rod DW 15, spec. length
030050	0.000	Cutting Cost Tie Rod DW 15, B 15
030005	0.720	Tie Rod DW 15, l = 0.50 m
030010	1.230	Tie Rod DW 15, l = 0.85 m
030480	1.440	Tie Rod DW 15, l = 1.00 m
030490	1.730	Tie Rod DW 15, l = 1.20 m
030170	2.160	Tie Rod DW 15, l = 1.50 m
030020	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

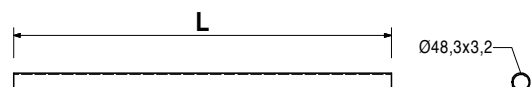
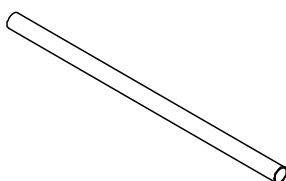
Non-weldable! Take official Approval into consideration!

Technical Data

Permissible tension force 90 kN.



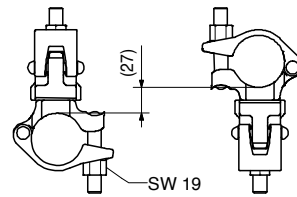
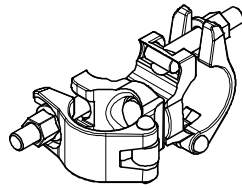
		Scaffold Tubes Steel Ø 48.3	L
026415	3.550	Scaff. Tube Steel Ø 48.3 x 3.2, special length	
026417	0.000	Cutting Cost Scaffold Tube	
026411	3.550	Scaff. Tube Steel Ø 48.3 x 3.2, l = 1.0 m	1000
026412	7.100	Scaff. Tube Steel Ø 48.3 x 3.2, l = 2.0 m	2000
125976	8.900	Scaff. Tube Steel Ø 48.3 x 3.2, l = 2.5 m	2500
026413	10.650	Scaff. Tube Steel Ø 48.3 x 3.2, l = 3.0 m	3000
114287	12.500	Scaff. Tube Steel Ø 48.3 x 3.2, l = 3.5 m	3500
026414	14.200	Scaff. Tube Steel Ø 48.3 x 3.2, l = 4.0 m	4000
026419	17.750	Scaff. Tube Steel Ø 48.3 x 3.2, l = 5.0 m	5000
026418	21.600	Scaff. Tube Steel Ø 48.3 x 3.2, l = 6.0 m	6000



VGB Parapet Track

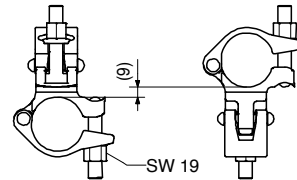
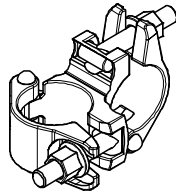
Item no.	Weight kg
017010	1.400

Swivel Coupling SW 48/48, galv.
For Scaffold Tubes \varnothing 48 mm.



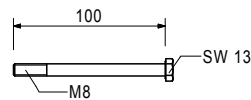
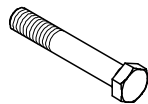
017020	1.120
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Standard Coupler RA 48/48, galv.
For Scaffold Tubes \varnothing 48 mm.



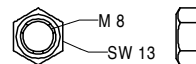
710285	0.050
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Bolt ISO 4014 M8 x 100-8.8, galv.



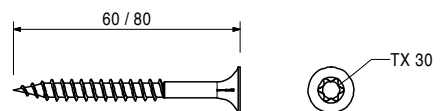
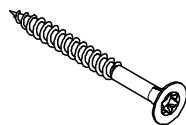
024090	0.005
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Nut ISO 4032 M8-8, galv.



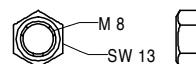
024470	0.008
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TSS-Torx 6 x 60, galv.
For Torx Blade TX 30. Self-drilling.



710330	0.017
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Nut ISO 4032 M12-8, galv.

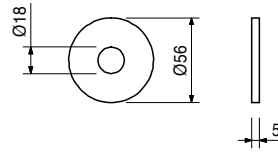


Item no.	Weight kg
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113349	0.087
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0.087	
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Washer ISO 7094 100 HV, A 16, galv.



020620	0.561
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0.561	
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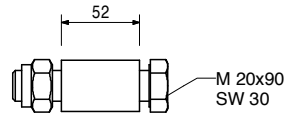
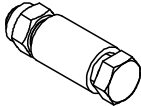
Spacer for Platform Beam BR

For Platform Beam BR or Steel Walers SRU.

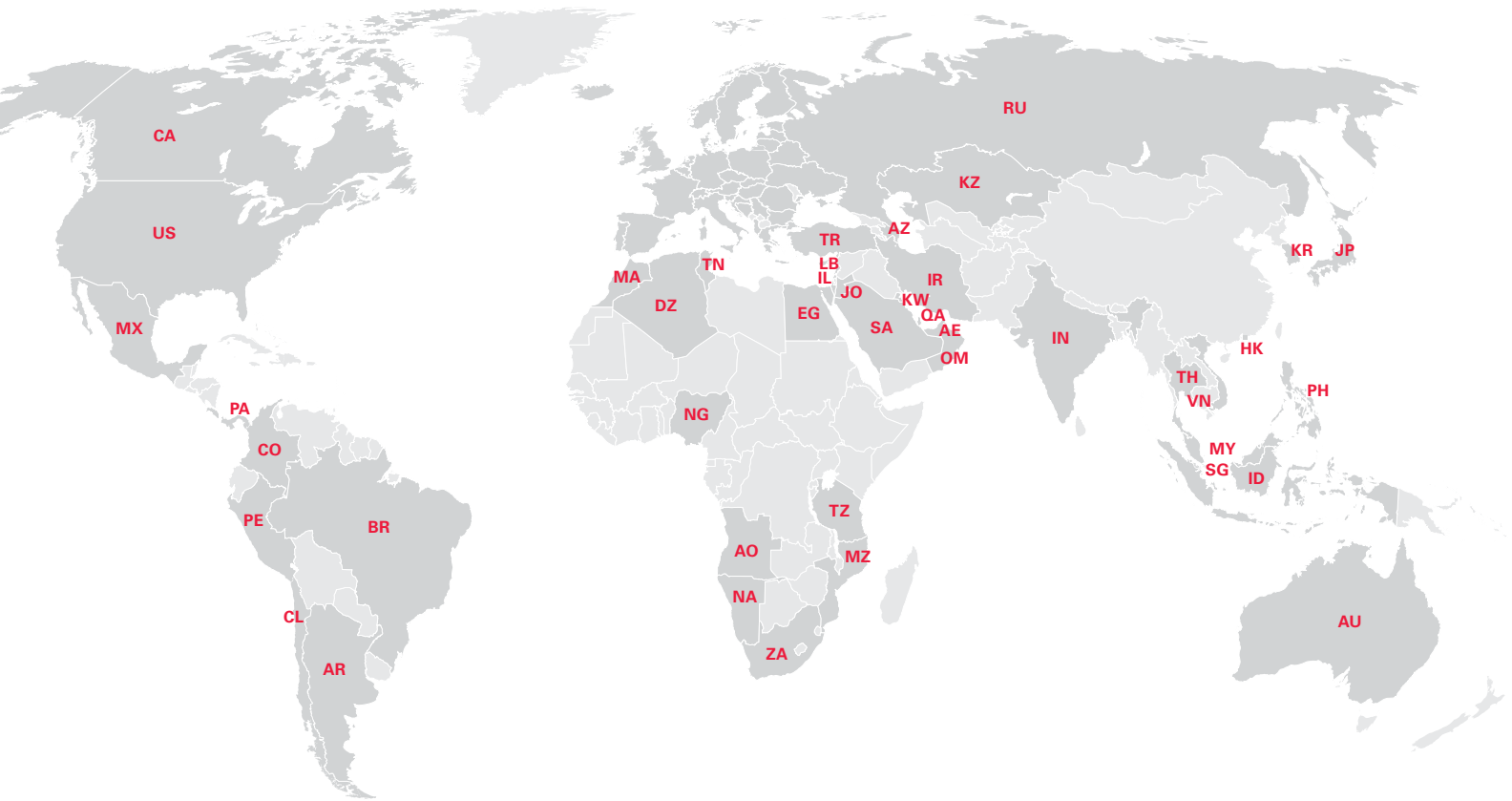
Complete with

1 pc. 710226 Bolt ISO 4014 M20 x 90-8.8, galv.

1 pc. 781053 Nut ISO 7040 M20-8, galv.



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Wall Formwork



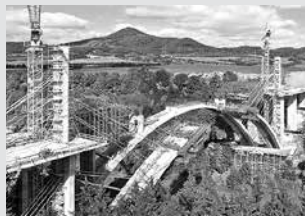
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