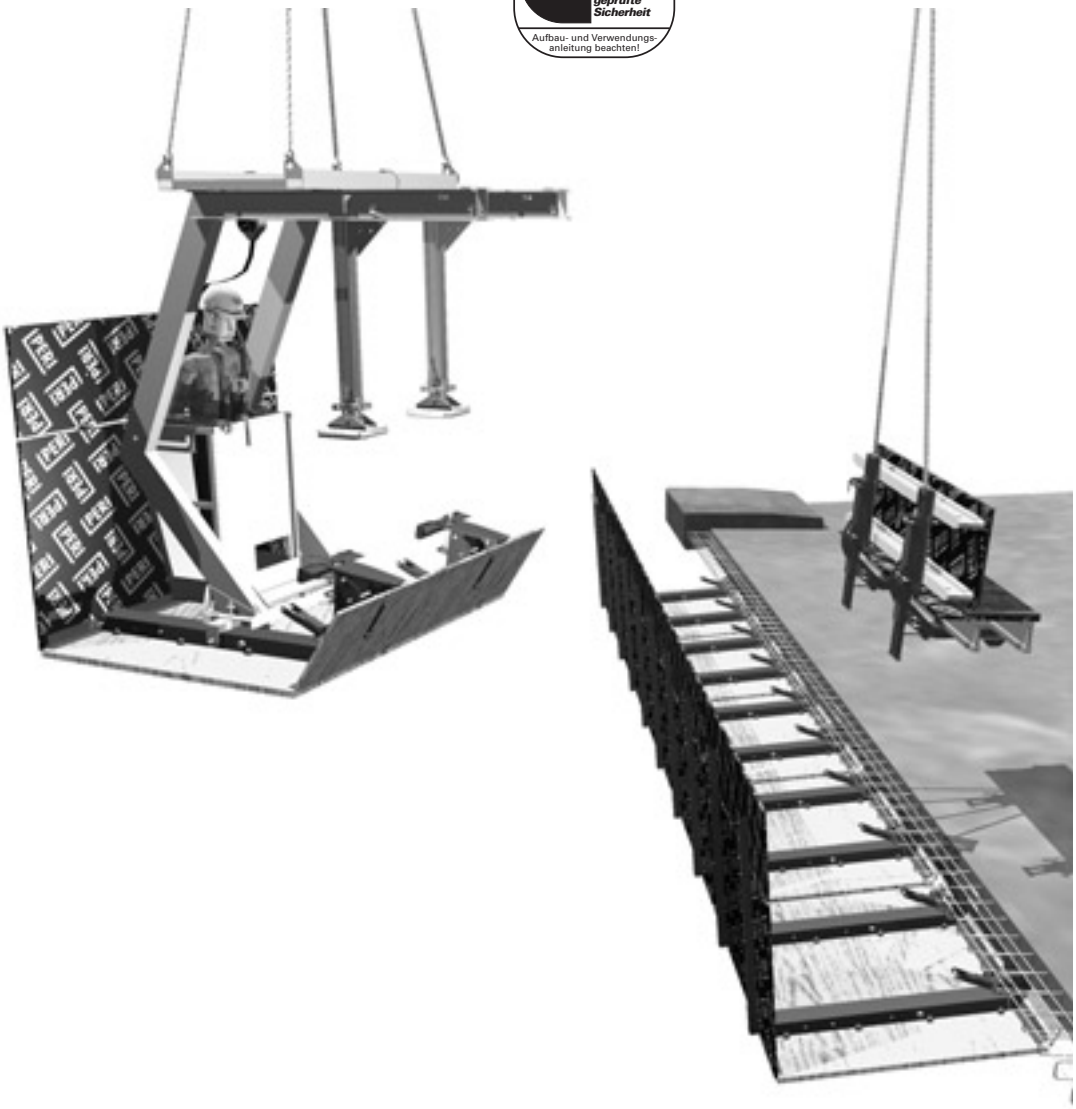
PERI®

GKB Cantilevered parapet platform

Erection and Instructions for use

Edition 07/2002

BG-PRÜFZERT Bau 00063 GS geprüfte Sicherheit Aufbau- und Verwendungsanleitung beachten!



product range 7.40

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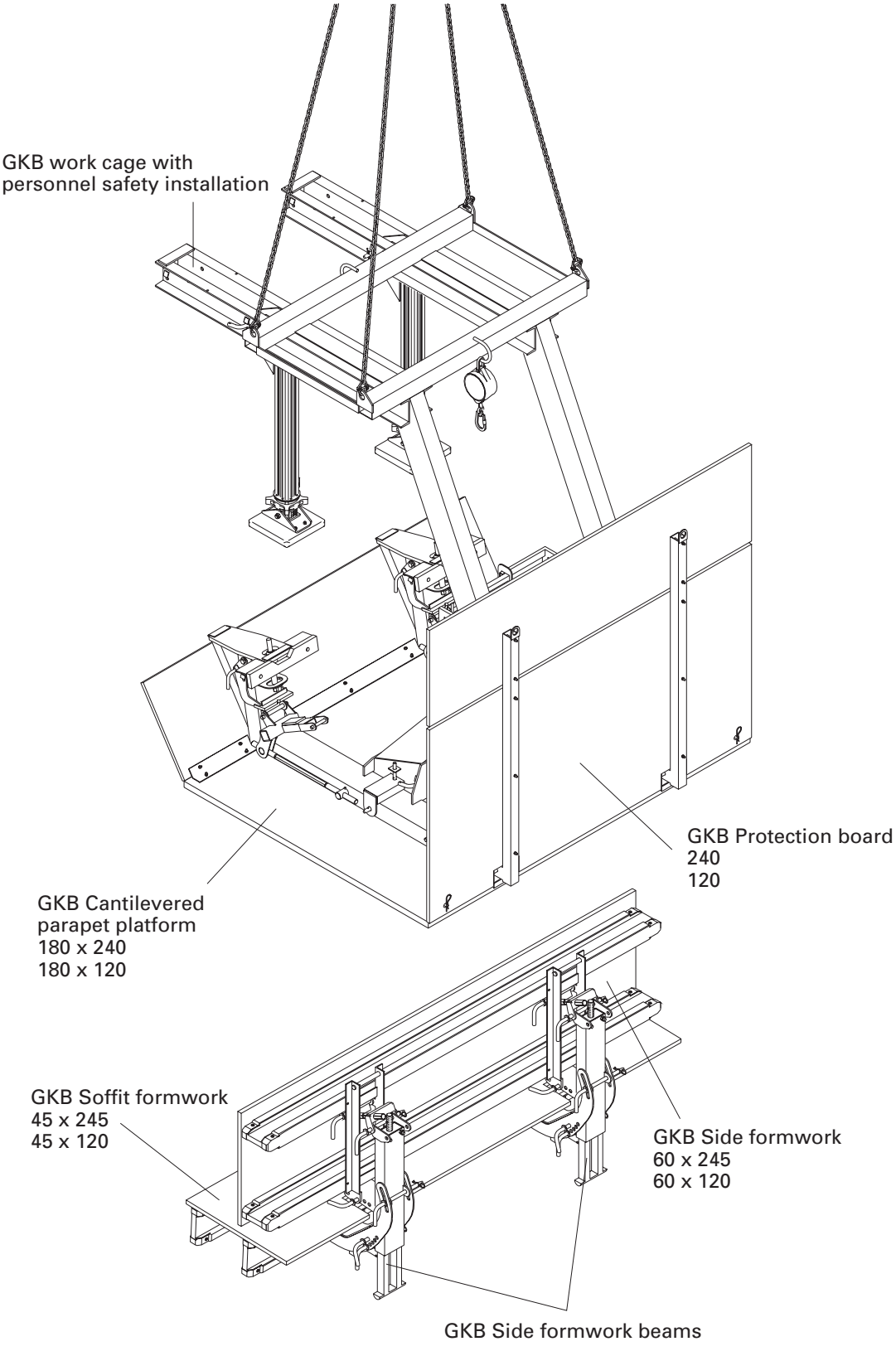

Safety warnings


Hints


Safety check


Tip

A1 Overview


GKB work cage with
personnel safety installation
GKB Protection board
240
120
GKB Cantilevered
parapet platform
180 x 240
180 x 120
GKB Soffit formwork
45 x 245
45 x 120
GKB Side formwork
60 x 245
60 x 120
GKB Side formwork beams

A2 Product characteristics

The PERI cantilevered parapet platform serves to concrete cantilevered parapets on in-situ concrete or prefabricated concrete bridges. It consists of a pre-assembled platform with protection boards and assembled formwork elements. The formwork (soffit and side formwork) can be used for parapet sizes of up to 600 mm high and 450 mm wide.
The static calculations and geometry have to be checked for cantilevered parapets having different shapes and sizes.

- Allocated to Scaffolding Group 2 according to DIN 4420 (loading capacity of 150 kg/sq.m.)
- Nominal lengths of 2.50m and 1.25m
- Continuous anchor spacing of 1250 mm or 625 mm
- At the transfer from long to short elements the anchor spacing is 938 mm
- Use short elements for length adjustment
- No alteration in the anchor spacing for curved bridges and small curve radii
- Adjusting appliances on platform brackets and formwork beams
- Other items are available for special applications

Special feature:
The secured assembler travels to the assembly and disassembly position in a work cage.
Register the crane as equipment used for lifting personnel !
See page 23 for a form.

The system provides high working safety from the very beginning of assembly. It has very short assembly and disassembly times and has an extremely low height. This enables large headrooms or the use of lower overhead crossings.

The names used in the illustrations will be shown in **bold print** in the text.

Proper application

These working instructions contain information for the handling and proper application of the cantilevered parapet platform. Safety warnings and loading capacities are to be strictly observed. Any other or excessive use requires our explicit permission.
Only perfect materials may be used. Damaged components are to be exchanged.
Only original PERI parts are to be used as spare parts.

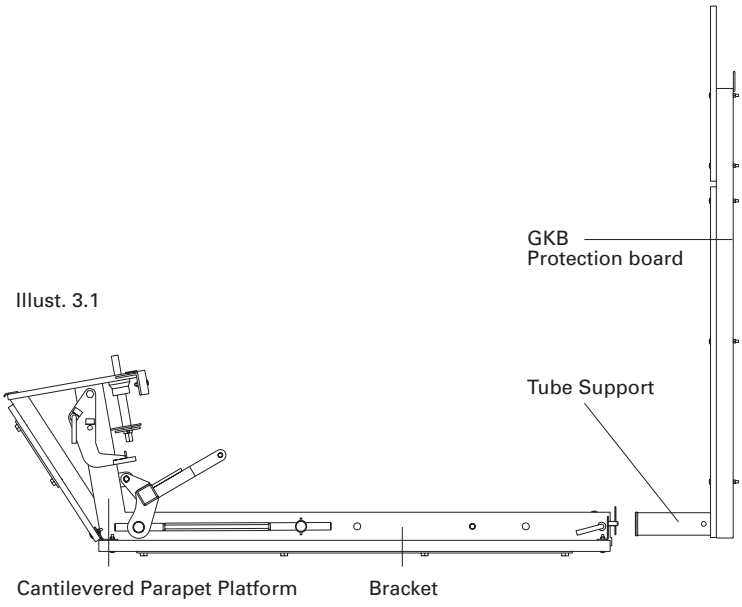
The safety and environmental regulations of the appropriate country or State are to be observed when using our products.

A3 GKB Cantilevered parapet platform

GKB work cage
Item no.: 102197
Manufacturers no.:
Year of manufacture: 20
Loading capacity: 520 kg
Own weight: 580 kg
Number of personnel: 1
Minimum bearing capacity of the crane: 1.65 t
Observe the working instructions!
Use safety harness

⚠

- **The crane must be registered as lifting gear for personnel with the Construction Accident Association. See form.**
- **The crane must be fitted out in such a way for personnel transport, that if the energy or the controls fail, the personnel cage returns to the starting position, or can be moved to another position where the personnel can leave the cage without danger.**
- **Check that the minimum loading capacity of the crane is 1.65 t. If necessary the crane boom must be fitted with a stop switch, for the load given on the name plate.**
- **The position of the anchor sleeves are to be marked permanently on the front of the cantilevered slab.**

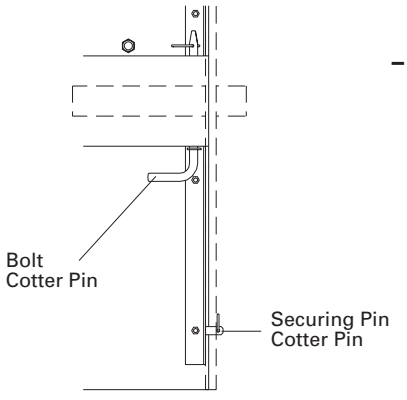


Illust. 3.1

Preparation:
The cantilevered parapet platform is to be completed with the **protection board:**

- Remove the cotter pin and bolt on the end of the bracket
- Remove the cotter pin of the securing pin.
- Push the protection board, **Tube Supports** delivered complete, into the tubes of the **Cantilevered Parapet Brackets.**
- Secure the protection boards to the cantilevered parapet brackets with **Bolts** and **Cotter Pins.**
- Secure the protection boards to the **Securing Pins** with cotter pins. Illust. 3.1

Plan



A4 GKB
Work Cage

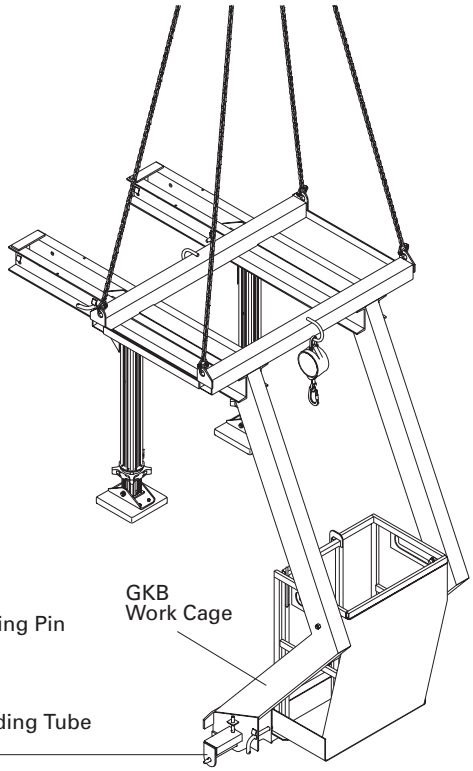
The cantilevered parapet platform is moved from the assembly area to the working site with the **GKB Work Cage**, and is assembled or dis-assembled. Illust. 4.1

Preparation:

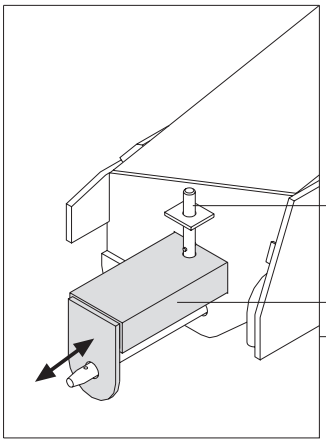
The crane slings must not be twisted.

Adjust the work cage to be transported to the platform width:

- The GKB work cage is hung on the crane for adjustment, just above the ground.
- Pull up the **Fixing Pin** on one side of the gallows until the **Sliding Tube** is unlocked. Illust. 4.2
- Pull out the tube for the width of the platform 240 until the fixing pin automatically snaps in.
- Repeat on the other side.
- Pull out the fixing pin for the Platform width of 120.
- Push in the **Sliding Tube.**
- The fixing pin will snap in place. Illust. 4.3

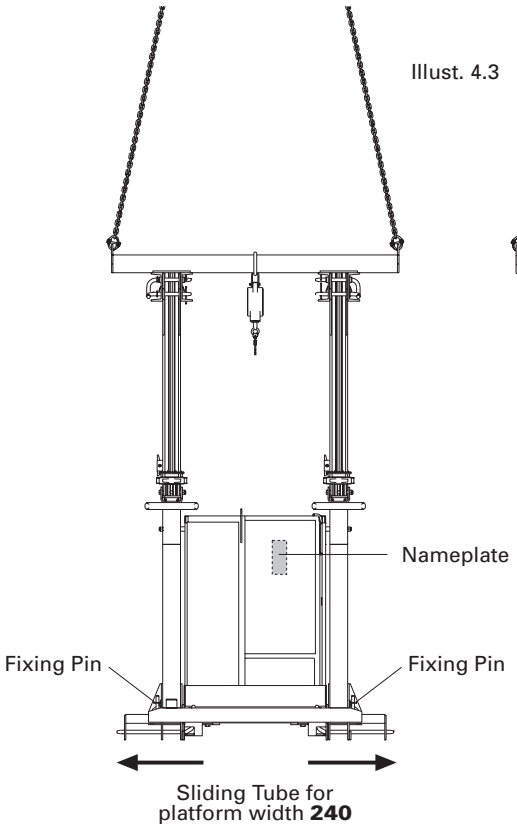


Illust. 4.1

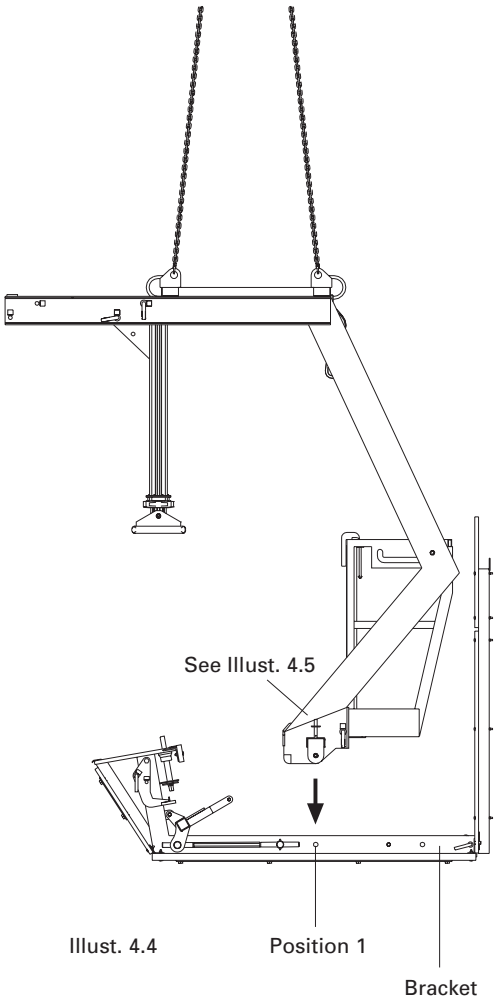


Illust. 4.2

Illust. 4.3



A4 GKB
Work Cage



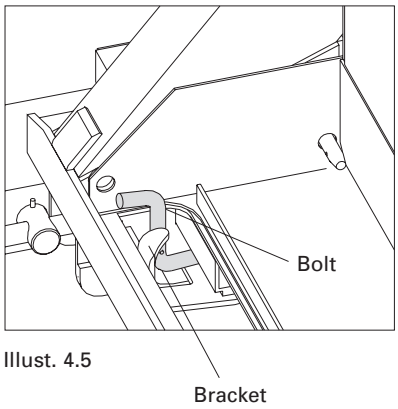
Illust. 4.4

Setting down on the platform:

– Set down the work cage in **Position 1** on the **Brackets** of the cantilevered parapet platform. Illust.4.4

– Push the captive **Bolts** from the inside outwards and turn the handles behind the **Bracket** into the secure position. Illust. 4.5

Visual inspection of the pins!



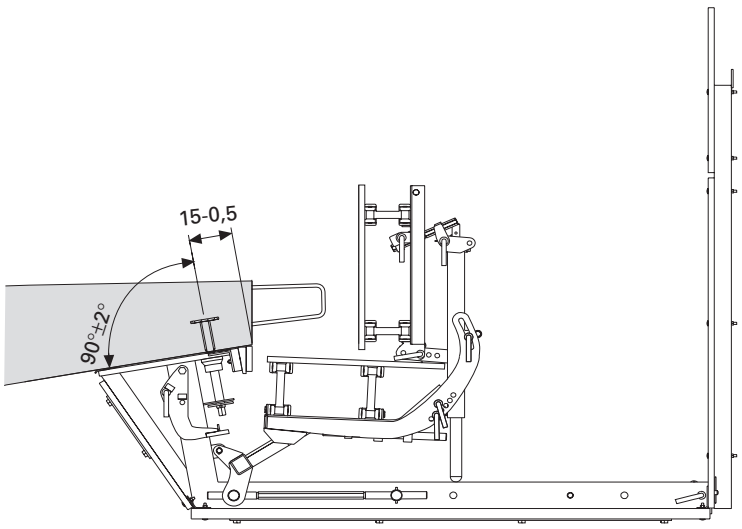
Illust. 4.5

A5 Anchoring

- **Use only PERI parts for anchoring.**
- **The concrete must have a strength of 15 N/sq.mm with a max. tensile force of 49 kN.**
- **This responsibility lies with the contractor.**
- **The maximum usable height of the working platform is 20 m above ground level.**
- **No concreting may be carried out with a wind force of more than 64 km/h.**

Spacing:

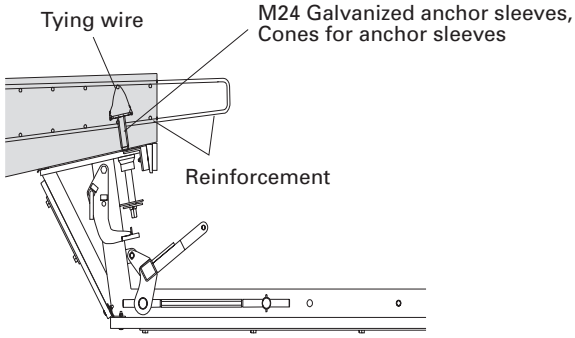
The anchor sleeves must be installed, within the given size tolerances, whilst constructing the cantilevered slab. Illust. 5.1



Illust. 5.1

The correct inclination of the anchor sleeves must be ensured:

- Secure the **M24 Galvanized Anchor Sleeves** with **Tying Wire** to the **Reinforcement.** Illust. 5.2

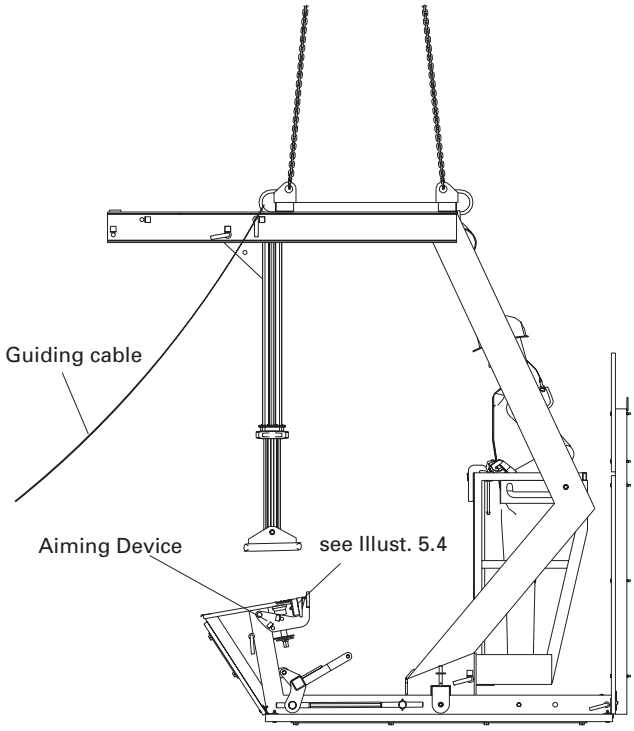


Illust. 5.2

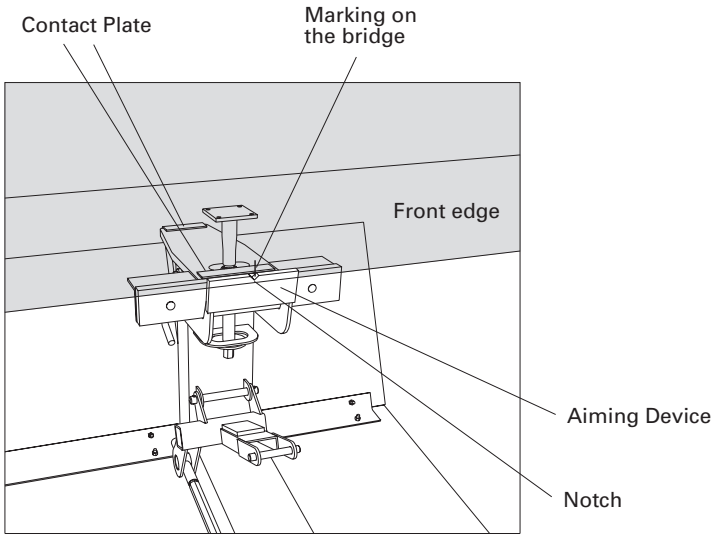
The anchor spacing is 1250 mm or 625 mm.
When transferring from one platform size to another the anchor spacing alters once only to 938 mm (see table).

Platform	Anchor Spacing [mm]	Max. Anchor tensile force/ Anchor point	Permissible Loading Scaffolding Group 2
Cantilevered Parapet Platform 180 x 240	125	43 kN	1,5 kN/m²
Cantilevered Parapet Platform 180 x 120 with Electrical Protection Formwork	62,5	49 kN	1,5 kN/m²
Cantilevered Parapet Platform 180 x 240 next to 180 x 120	93,8	180 x 240 or 180 x 120 43 kN or 49 kN	1,5 kN/m²

A5 Anchoring



Illust. 5.3



Illust. 5.4

⚠

- **The assembler, secured with the installed safety strap unit, travels in a closed work cage.**
- **The unit is directed whilst travelling by a secured person standing on the bridge. A guiding cable is to be used in heavy winds.**

Move the platform to the bridge:

- Lift up the **Aiming Device** of the platform.
- Fit the bolt
- Move the complete cantilevered parapet platform unit to the **Cantilevered Bridge Slab.** Illust. 5.3

- Place the **Contact Plates** of the brackets under the cantilevered slab until they lie level. The inclination of the contact plates is then the same as that of the cantilevered slab soffit.

- The aiming device lies on the **Front Edge** of the cantilevered slab.

- Adjust the **Notch** to the **Marking** on the front edge. Illust. 5.4

With an inclination of 10° of the cantilevered slab soffit the platform will hang horizontally. The illustration is drawn without reinforcement.

A5 Anchoring

⚠

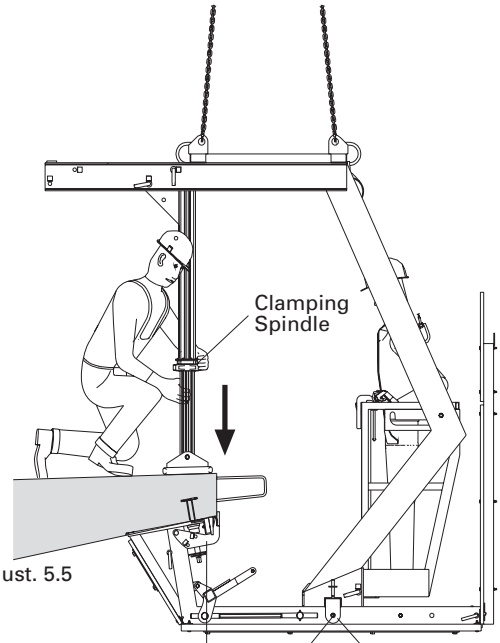
- **The person on the bridge is to be secured against falling (e.g. handrail, cable and harness etc.)**
- **The work cage with platform is held by the crane during assembly work on the cantilevered bridge slab.**
- **The work cage may only be released when both anchor bolts are fixed tight.**
- **Loosen the clamping spindles and raise only when both anchor bolts are fixed tight.**
- **The platform may only be entered by other persons when the anchor bolts are fixed tight.**
- **End platforms are to be properly secured at the open end.**

Anchor platforms:

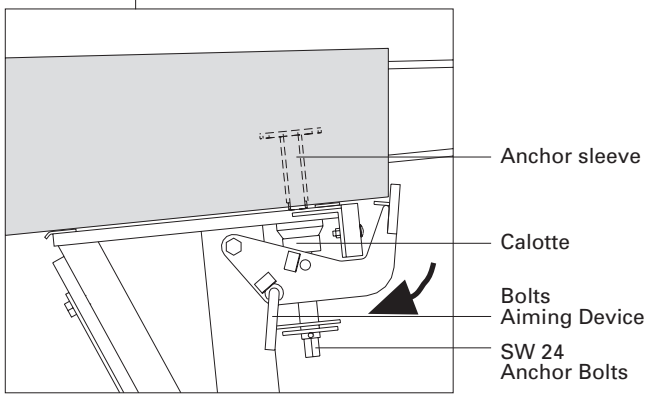
- A person on the bridge (secured against falling) unscrews both **Clamping Spindles**.
- Clamp the platform tightly to the cantilevered bridge slab. Illust. 5.5
- Screw the **Anchor Bolts** into the **Anchor Sleeves** embedded in the concrete by an assembler secured in the work cage.
- Tighten with an SW 24 ratchet wrench.
- Draw the **Bolts** to the aiming device.
- Move the aiming device downwards and secure with bolts again. Illust. 5.6

👁 Check that the **Calotte** has no all round movement, as well as no movement of the contact plates on the concrete.

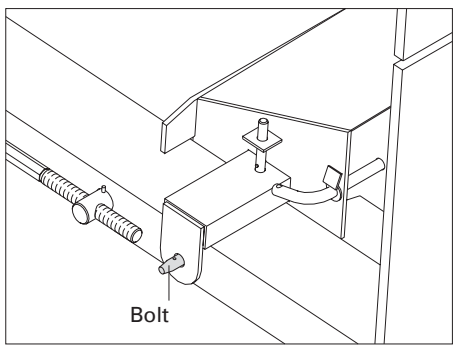
- **Loosen the work cage:**
- Loosen the **Bolt** connections between work cage and platform. Transport the work cage, with assembler, on the crane to the next platform. Illust. 5.7



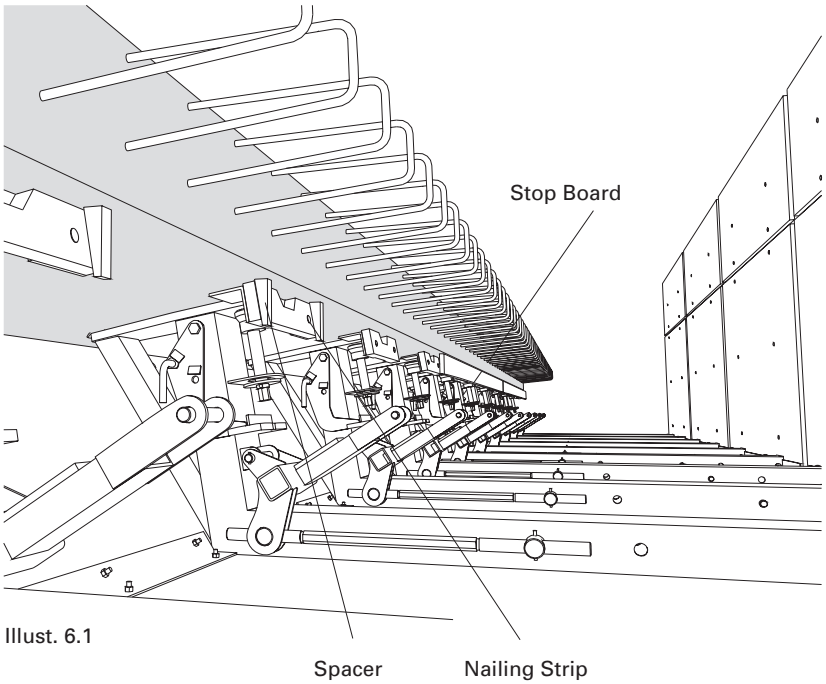
Illust. 5.5



Illust. 5.6



Illust. 5.7

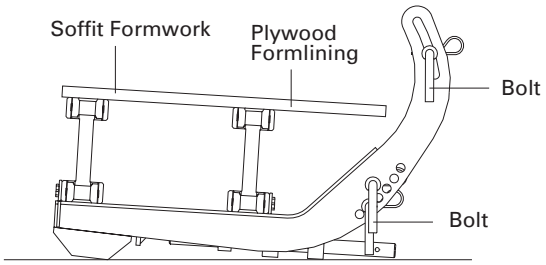


Illust. 6.1

Preparation:
For easy assembly fix the **Stop Board** to the **Nailing Strip** of the platform brackets before placing the GKB formwork.
Nailed **Spacers** enable an exact adjustment.
A stable positioning of the stop board on the soffit formwork is given by the constant spacing.
Illust. 6.1

The soffit formwork 45 x 245 (120) and the side formwork 60 x 245 (120) are both pre-assembled with a plywood formlining at the factory.

- The illustrations are drawn without formlinings.
- The formlinings are assembled on site.

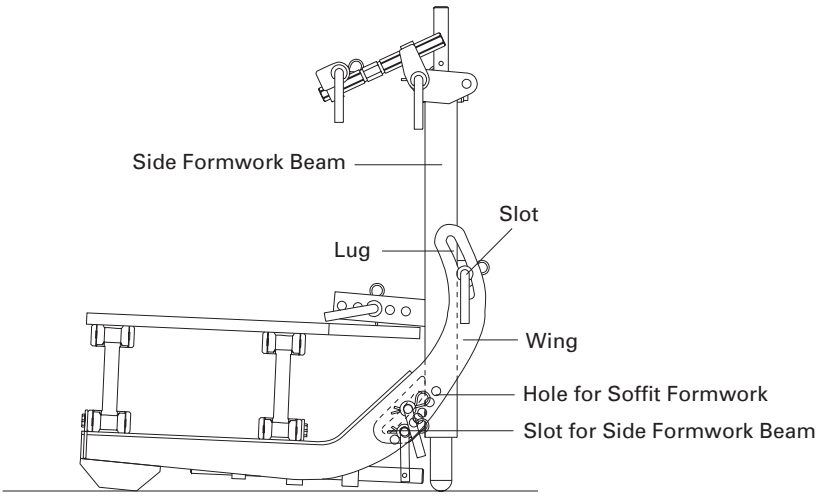


Illust. 6.2

Assembly:
- Take the **Soffit Formwork** from the stack and set it down.
- Remove the **Bolts.** Illust. 6.2

- Place the **Side Formwork Beam** in the **Wings** of the soffit formwork from above.
- Connect the **Lugs** of the side formwork beams with the **Slots** in the wings of the soffit formwork with bolts.
- Connect the holes in the soffit formwork with the slots in the side formwork beam. Illust. 6.3

3



Illust. 6.3

Assembly:

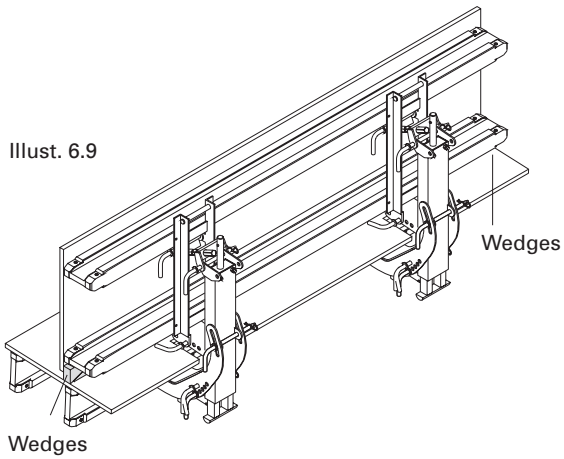
– Hang the **Side Formwork** on the **Side Formwork Beams.**
– Insert the **Bolts** in the **Slotted Guides** for the required thickness of parapet. Illust. 6.4

– Determine the required angle of both pieces of formwork to each other by moving the formwork in the slotted guides.
– Fit the bolts in the row of vernier slots. Illust. 6.5

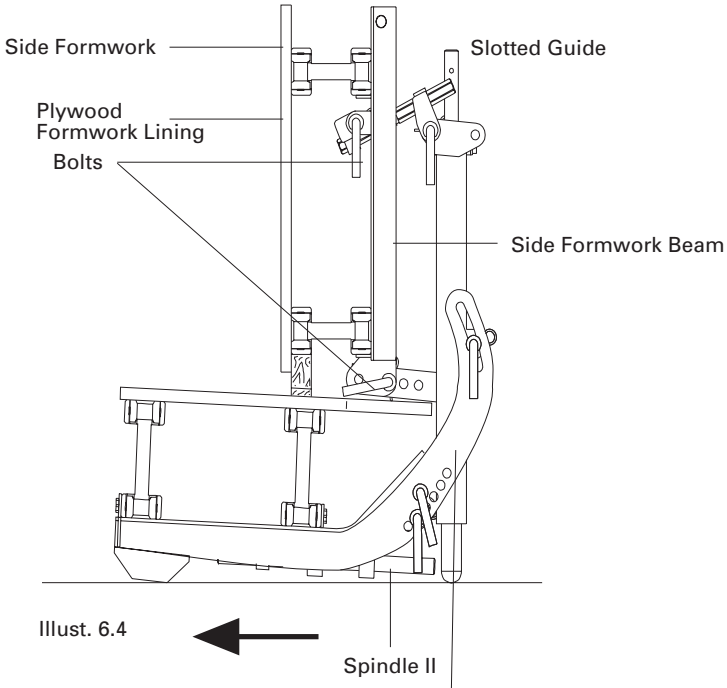
– Turn the **Spindle II** to the left until it stops.

– The angle can be pre-adjusted through the **Vernier** at 2.5° intervals.
– All spindles (SW 24) are to be turned to the right for assembling formwork, and to the left for striking the formwork.

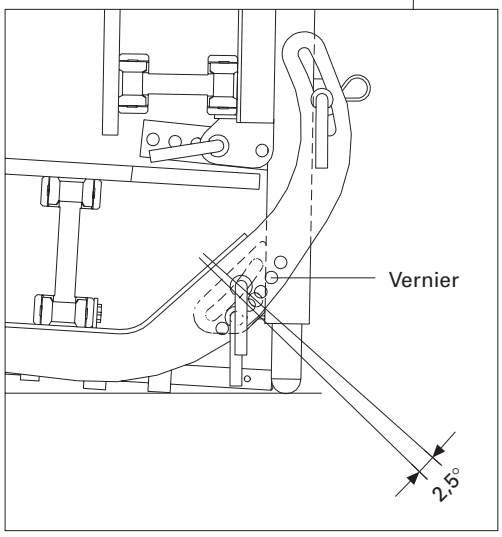
Any play between soffit formwork and side formwork can be avoided by inserting wedges. Illust. 6.9



Illust. 6.9

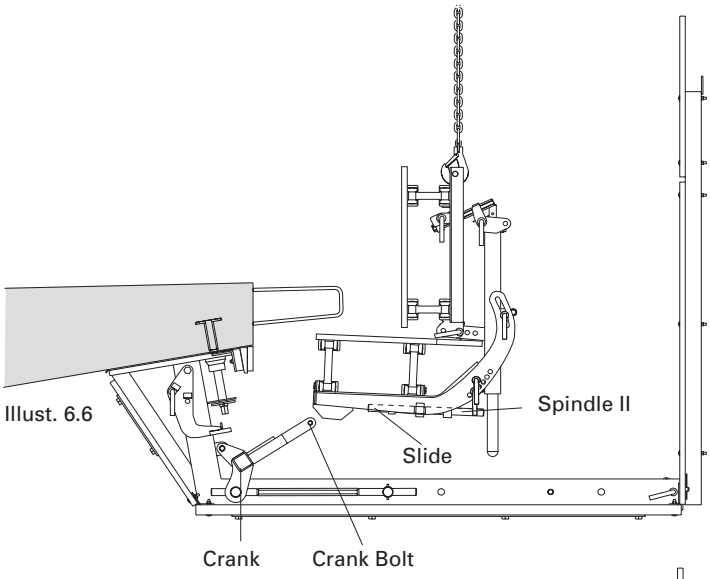


Illust. 6.4

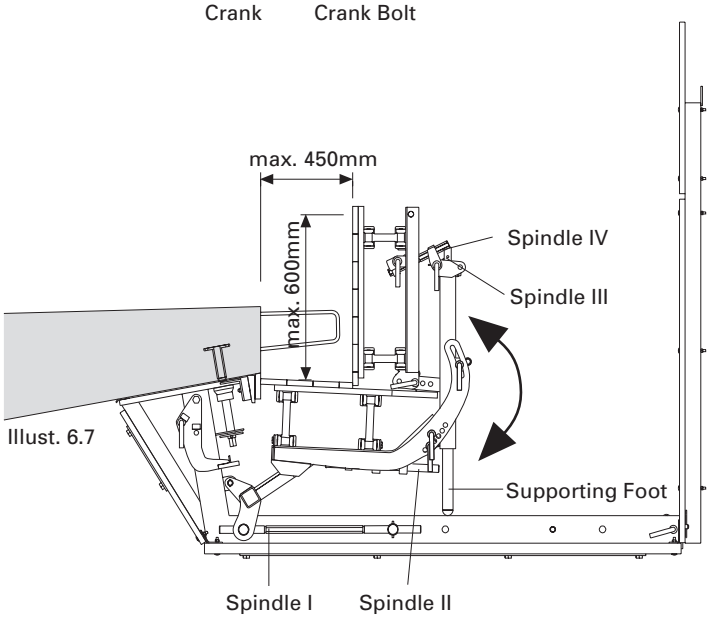


Illust. 6.5

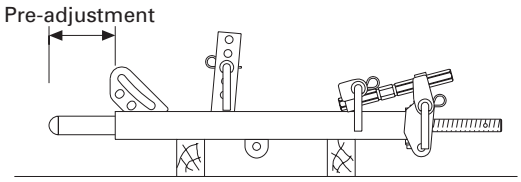
A6 GKB
Formwork

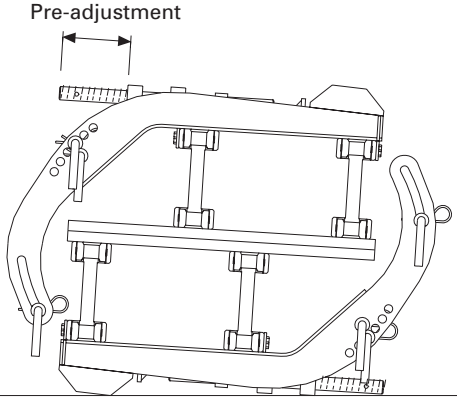


Illust. 6.6



Illust. 6.7





Illust. 6.8

Installation of the first pre-assembled formwork unit:

- Transport the unit to the cantilevered parapet platform on the bridge slab.
- Set down on the **Crank Bolts.**
- Turn the **Spindle II** to the right until the front edge of the **Slides** are at least flush with the formwork beam (use a ratchet wrench with extension). The lifting security is thus in place and takes effect. Illust. 6.6

Adjust formwork:

- Wind out the **Supporting Foot** with **Spindle III** on the bracket.
- Align the side formwork.
- Make a rough adjustment in height and sideways movement with spindles I, II and III. Take into account the thickness of the formwork face lining.
- Loosen the bolted connections if necessary and re-adjust the side formwork to the cantilevered parapet formwork with the vernier. Fine adjust the angle between
- soffit and side formwork with **Spindle IV**. Illust. 6.7

Installation of other formwork units:

Before setting down the following formwork units, the cranks on all platforms are to be adjusted to the size of the first unit. Also **Pre-adjust** the soffit and side formwork through the **Spindles** to the values of the first formwork unit. Illlust. 6.8

Carry out the bolted connections as for the first formwork unit.

The assembly of both formwork parts, as well as setting down the formwork, is as for the first formwork unit. All formwork units are to be aligned exactly.

The side formwork can be temporarily removed for easier assembly.

Check there is no movement at supports before concreting!

A7 Transporting
Dis-assembly

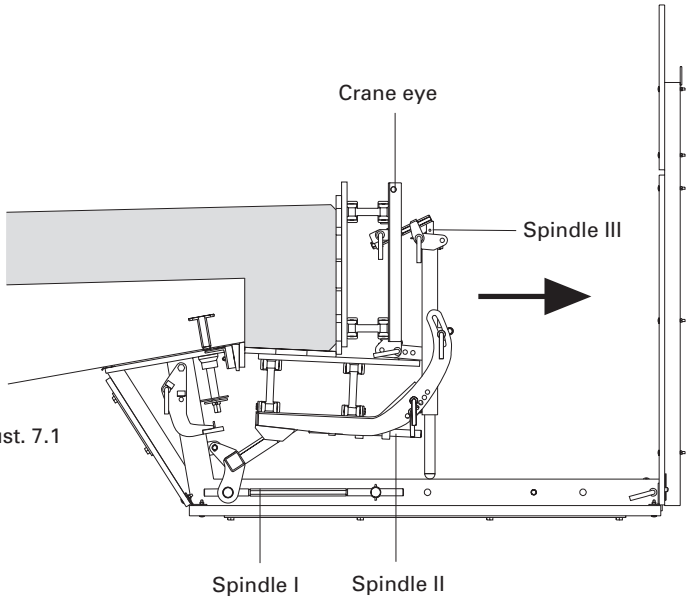
Formwork

⚠ **Avoid tilting the formwork units!**
Damage to the face formwork can thus be avoided.

– Ease **Spindles I, II and III** by turning to the left and using the clearance.

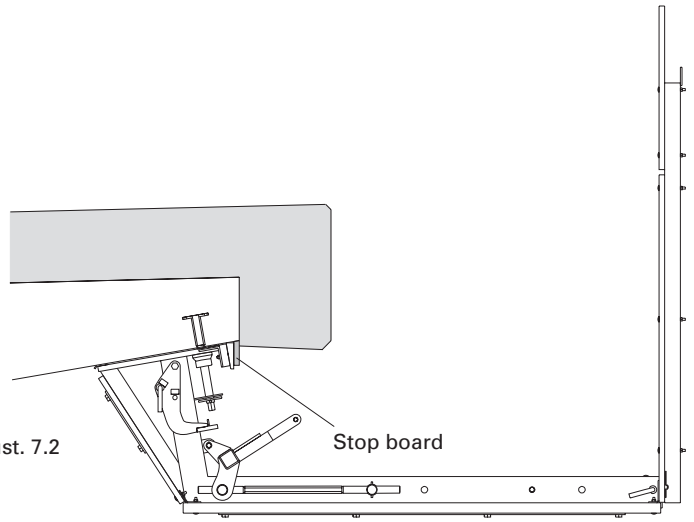
– Loosen the formwork units from the concrete one after another over the whole platform length in small stages.

After completely spindling all formwork units back, the face lining can easily be removed. Hang the formwork unit on the crane, lift, transport or set down. Illust. 7.1



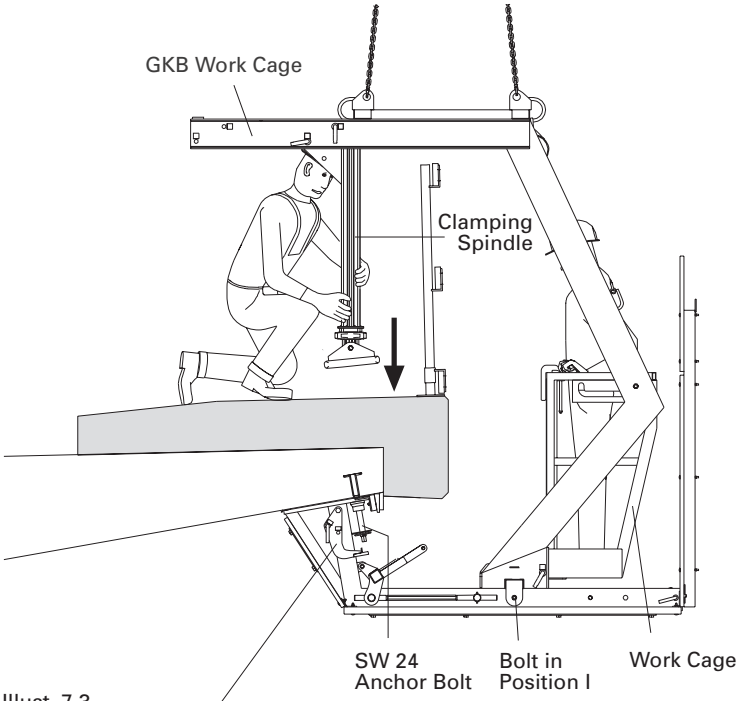
Illust. 7.1

Loosen the **Stop Board** from the nailing strip and remove. Illust. 7.2

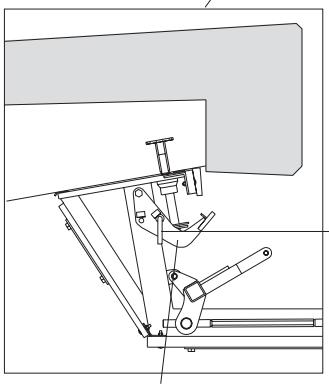


Illust. 7.2

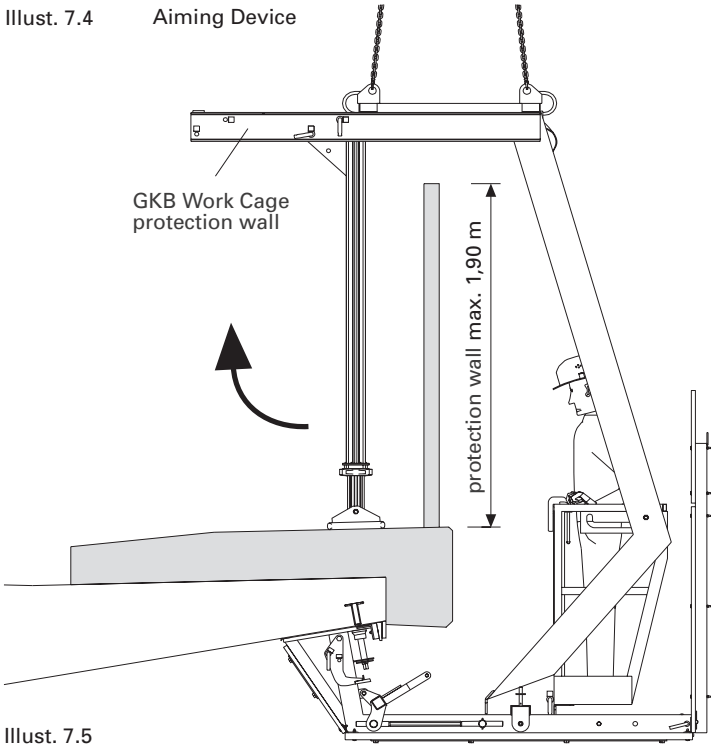
A7 Transporting, Dis-assembly



Illust. 7.3



Illust. 7.4



Illust. 7.5

GKB Cantilevered parapet platform

- **Fixing the GKB Work Cage:** Move the GKB work cage, with secured person, to the cantilevered parapet platform.
- Working from the work cage, fix the work cage in Position I with **Bolts**.
- Move out the **Clamping Spindle** from the bridge, by a secured person, and press down the transport unit. Illust. 7.3

Removing the GKB Cantilevered Parapet Platform:

⚠ **Check the connection between the GKB platform and the work cage before loosening the anchor bolts!**

- Secured assembler is on the platform.
- Loosen the **Anchor Bolts** (SW 24). Illust. 7.3

When using a ratchet wrench the **Aiming Device** must be fitted in the centre position. Illust. 7.4

Transporting the GKB Cantilevered Parapet Platform:

⚠ **The assembler is in the closed work cage!**

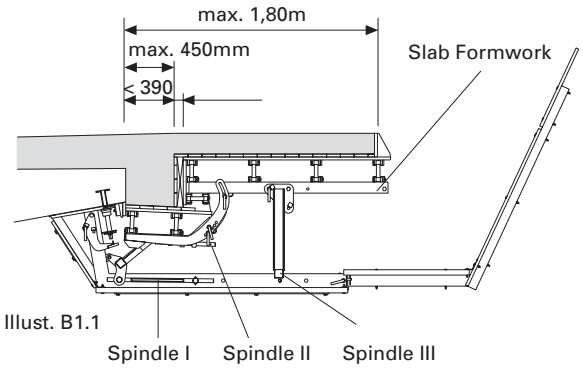
- Use the **GKB Work Cage protection wall** for travelling over electrical protection walls. The clamping spindle is loosened from the bridge by a secured person.
  Carefully remove the cantilevered parapet platform from the edge of the bridge.
- The secured person raises the clamping spindle. Illust. 7.5
- Transport and lower.

Before removing the platform it is recommended to seal the anchor points with the appropriate plastic stoppers. They can only be reached later with a great deal of effort.

B1 Other Possible Applications

Electrical Protection Slab Formwork

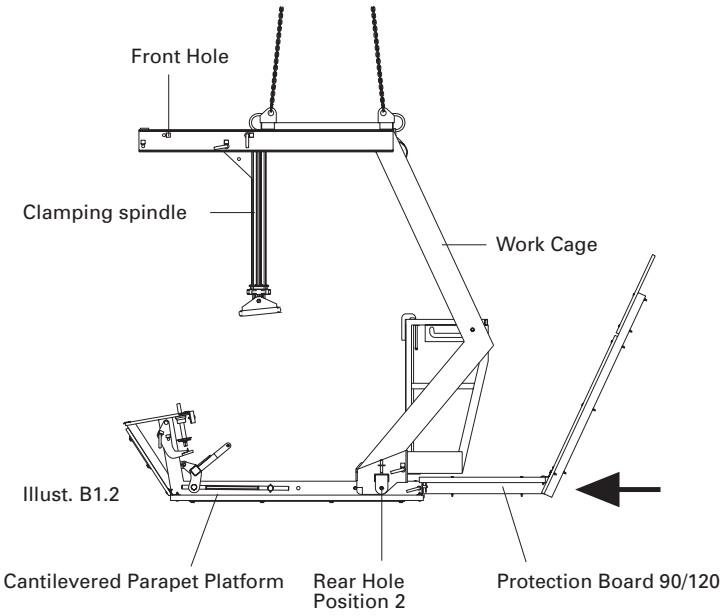
For use on cantilevered parapets with cantilevered electrical protection slabs (e.g. above overhead high voltage lines,) cantilevered parapet platforms of size 180 x 120 are used. The **Protection Boards** and the **Slab Formwork** of the formwork unit are adjusted to each use. Illust. B1.1



Illust. B1.1

Preparation:

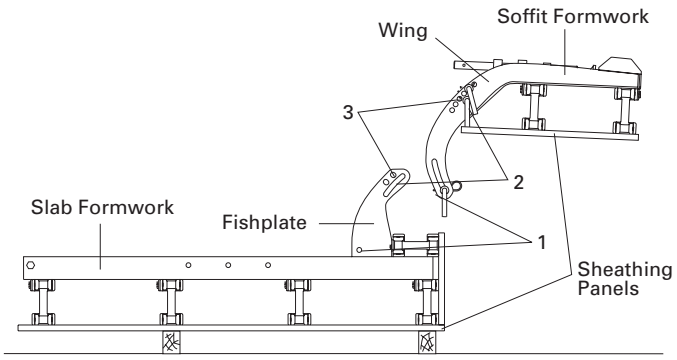
- Push the protection boards 90/120 into the platform brackets.
- Fix with bolts and cotter pins.
- Fix the work cage into the rear holes (Position 2) of the brackets with the bolts.
- Fix the clamping spindles into the **Front Holes** of the gallows. Illust. B1.2



Illust. B1.2

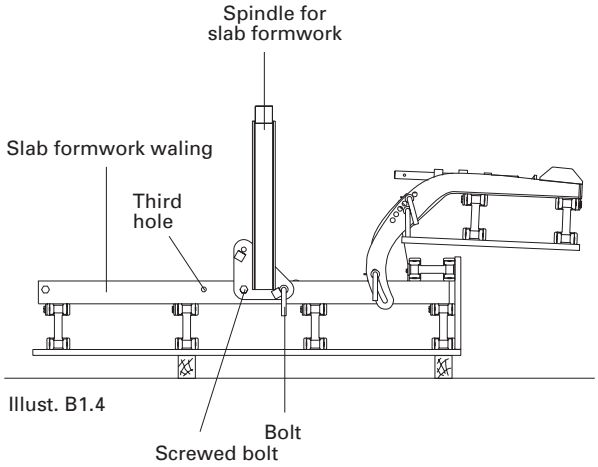
Assembly:

- Lay the slab formwork 140 x 120 on timbers with sheathing panels facing downwards.
- Push the **Soffit Formwork** with its **Wings,** from above, over the **Fishplates** of the slab formwork.
- Connect both parts with bolts in positions 1 and 2.
- Bring soffit formwork in position. Fix in hole 3 of the row of holes. Illust. B1.3



Illust. B1.3

B1 Other Possible Applications



Illust. B1.4

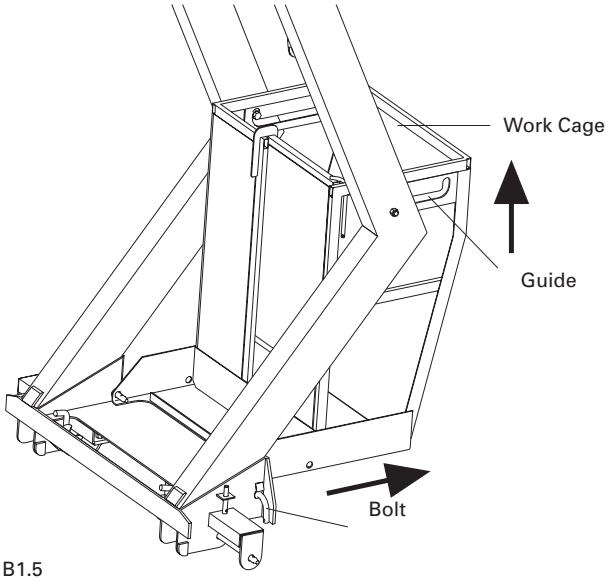
Assembly:

– Fix the **Spindle for the Slab Formwork** in the centre hole of the **Slab Formwork Waling** with the **Screw Bolt** (SW 24).
– Fix with **Bolts** in the first hole. The spindle stands vertically to the slab formwork. Illust. B1.4

– Turn the formwork over.
– Transport to the platform.
– Set down on crank bolts.
– Adjust with spindles I, II, and III. Illust. B1.1

Fit the safety lines!

– Loosen the formlining of the soffit formwork and adjust again as necessary.
– With a parapet width of less than 350 mm it will be necessary to fit padding units on site.



Illust. B1.5

Disassembly:

– Fold up the spindles to dis-assemble the formwork.
– Fix in the third hole.
– The **Work Cage** must be moved to the rear for dis-assembly of the platform:
– Pull out the **Bolts** on the lower part of the cage.
– Raise the cage and push it in the **Guides** to the rear.
– Lower the cage and secure with bolts. Illust. B1.5

B1 Other Possible Applications

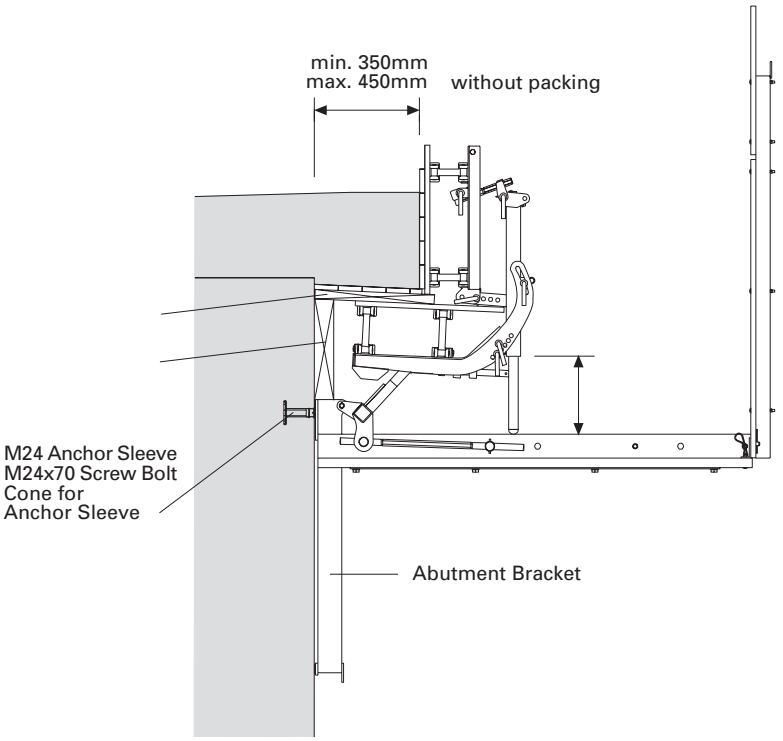
On Abutments
There are special abutment platforms available for assembly on abutments, the **Brackets** of which are supported on the wing walls.

Cantilevered parapets having a width of between 350 and 600 mm can be constructed. Illust. B1.6

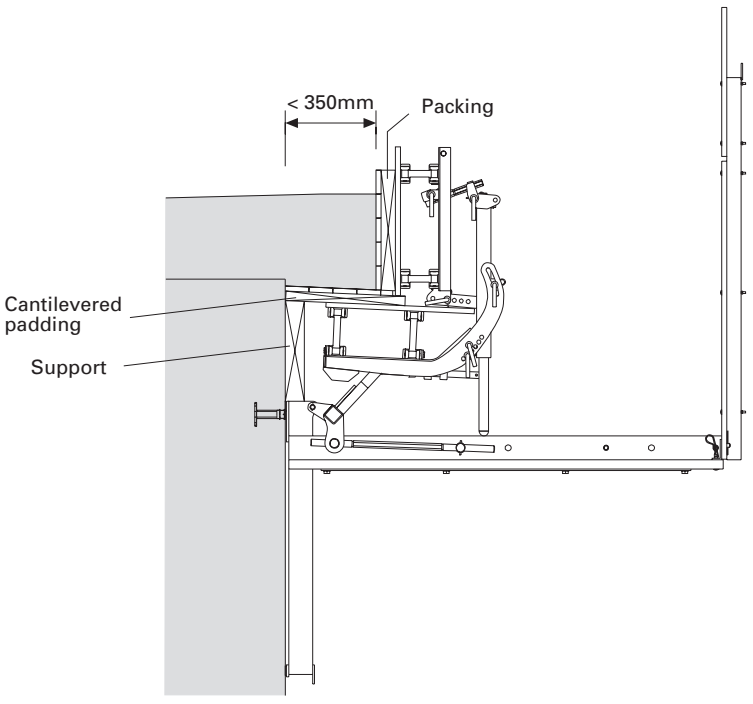
The assembly of the protection boards, the formwork and the work cage is as described under A1–A6.

The anchoring is made with a PERI Anchor point, with a **galvanized M24 Anchor Sleeve,** Anchor sleeve cone and an M24 x 70 (SW 36) screwed bolt, previously embedded in the concrete.

- The abutment platform must be horizontal to take the work cage.
- For parapets of **less than 350 mm** the side formwork will have to be fitted with **Padding** on site. Illust. B1.7
  The formlining of the soffit formwork will have to be adjusted to the geometry of the parapet.
- Padding (pieces of timber or similar) will have to be fitted, according to the geometry of the cantilevered parapet, between the formlining and the plywood of the soffit formwork. Support this padding if required. Illust. B1.7
- Abutment platforms can also be used for constructing cantilevered bridge slabs having a width of less than 600 mm, if a vertical abutment is available.



Illust. B1.6

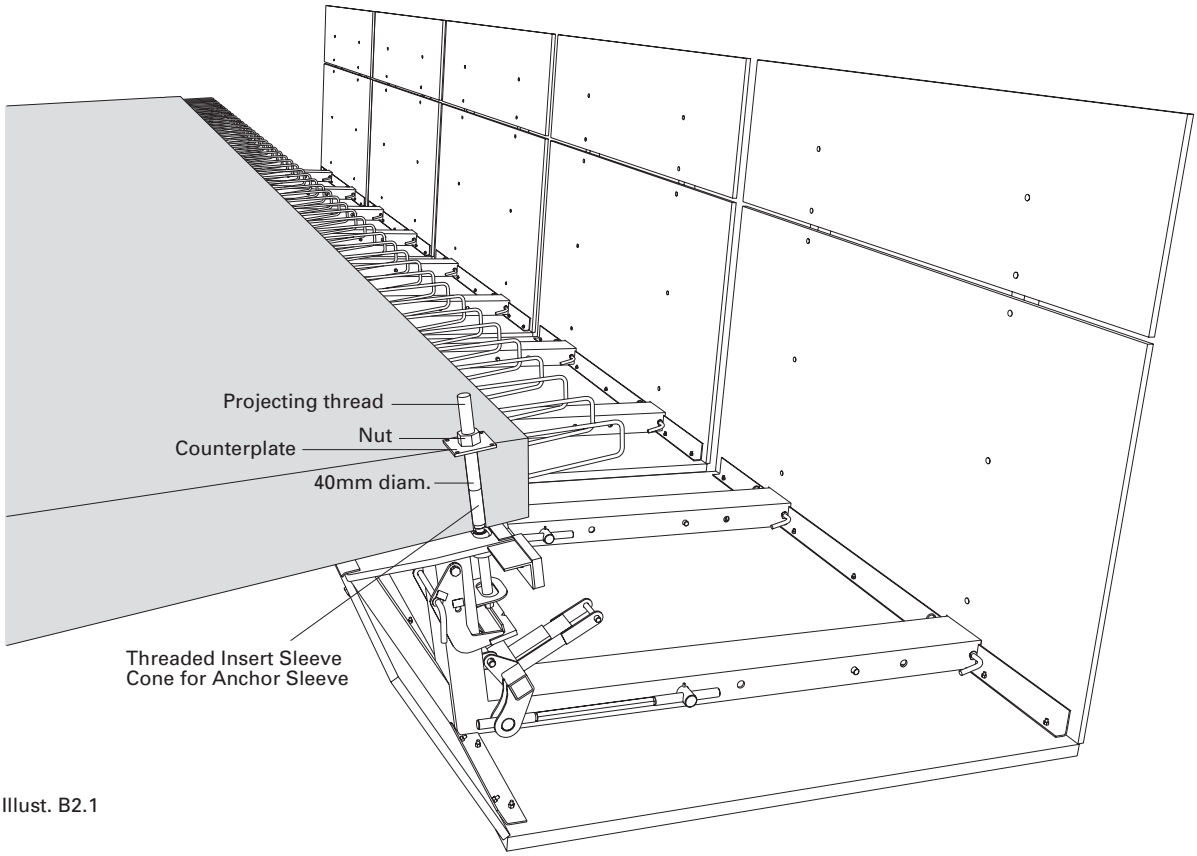


Illust. B1.7

B2 Anchoring

Installing anchors later
In difficult construction places, or with wrongly installed anchor points, a special anchor sleeve can be installed later.

– A hole of 40 mm diameter, at right angles to the soffit of the cantilevered slab, is made at a predetermined point.
– Screw back the **Counterplate** and **Nut** on the threaded insert sleeve.
– Fit the **Threaded Insert Sleeve** in the hole with the thread downwards.
– Adjust the **Cone** for the M24 anchor sleeve to the diameter of the hole and press in from below.
– Screw up the counterplate and nut on the threaded insert sleeve.
– Shorten the **projecting thread** above and weld the nut to the thread to prevent turning.
– Fix the counterplate to the reinforcement with a plug.
Illust. B2.1

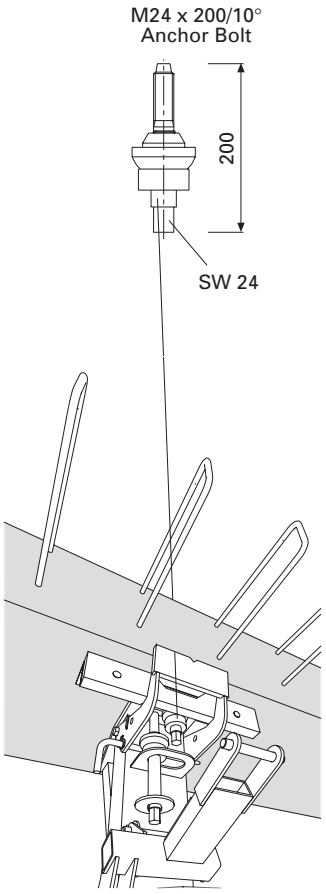


Illust. B2.1

B2 Anchoring

In special cases Anchor sleeves can be installed up to 10° from the vertical, in reference to the bridge soffit, with the **M24 x 200/100 Bolt.**

– Store the existing anchor bolt in the slotted plate.
– Screw the M24 x 200/10° anchor bolt into the anchor sleeve. Illust. B2.2



Illust. B2.2

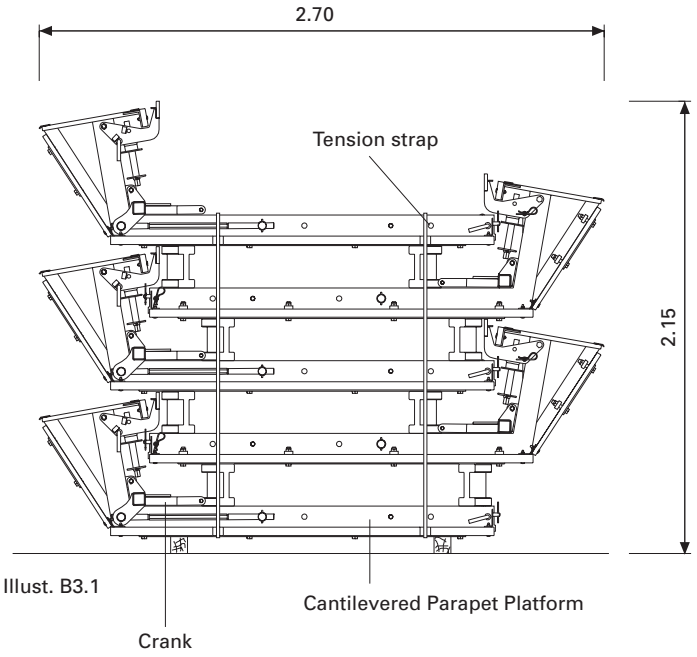
B3 Storage and Transport

Cantilevered Parapet Platform:

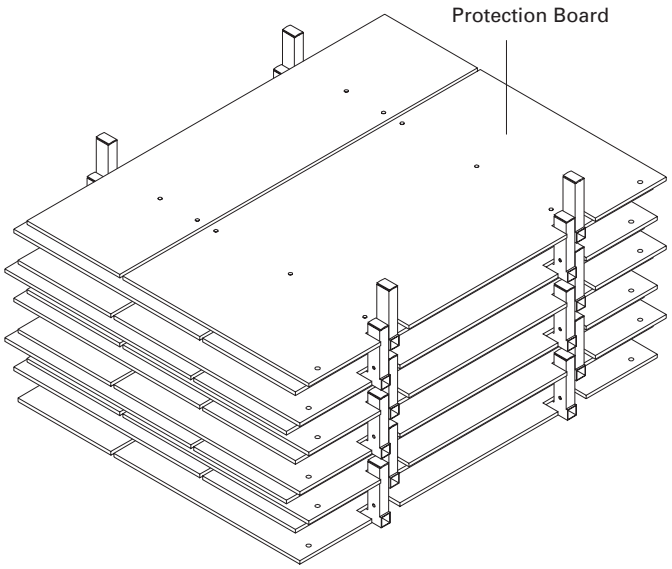
- Fix the aiming device at the top.
- Turn the crank over the spindle downwards to the bottom stop.
- Lay the first platform on timbers.
- Set down other platforms in alternate directions.
- Put **short pieces of GT24 Beams** as spacers diagonally in-between.
- Put 5 cantilevered parapet platforms, 240 or 120, in one stack (normal truck height).
- Secure with tension straps.
  Illust. B3.1

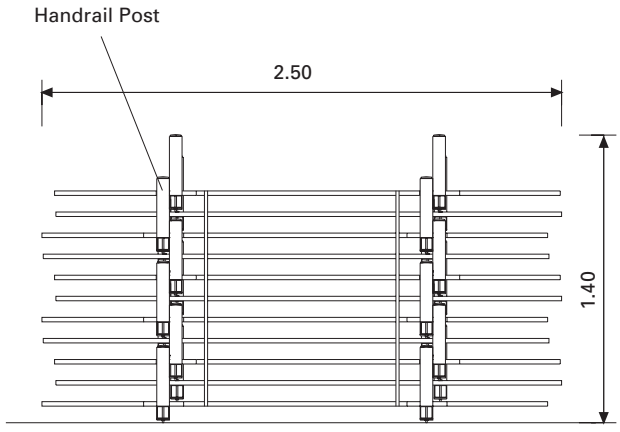
- Upon return delivery the short pieces of beams must be laid in the stack again.
- Seven platforms can be stacked for low loaders.

- Stack the **Protection Boards 240 and 120** again alternately. The tube supports of the protection boards point upwards and are offset around the handrail posts.
  Illust. B3.2



Illust. B3.1





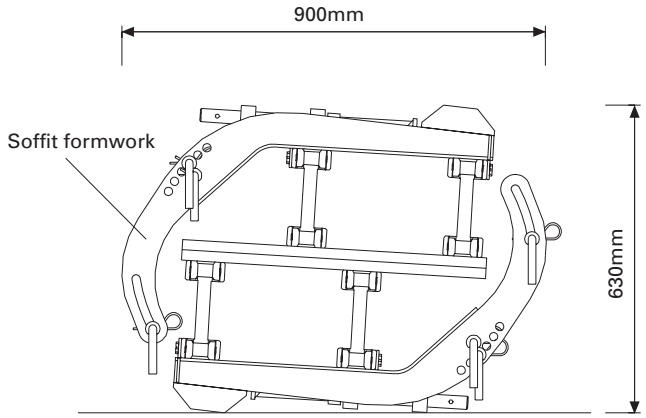
Illust. B3.2

B3 Storage and Transport

Formwork:

- Stack the **Soffit Formwork** and the **Side Formwork** with the plywood lining against each other.
- Offset the soffit formwork around the steel beams. Illust. B3.3

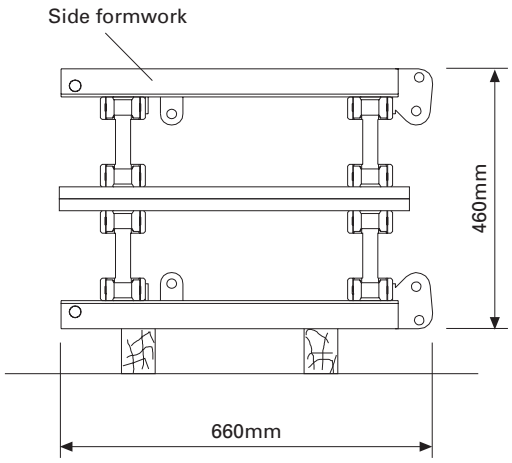
Max. stacking height: six units



Illust. B3.3

⚠ All stacks for return transport are to be secured with edge protection and tension straps.

The platforms, protection boards and formwork stacks are to be surrounded with lifting straps or chains for crane transport.



B4 Height Safety Unit

⚠ Safety warnings
There can be serious accidents with injuries to persons if the safety instructions are not observed.

1. Before use, visually inspect and examine the HSU to ensure perfect functioning and condition.
2. Use the HSU only in connection with a safety strap according to DIN EN 361!
3. Use the lifting equipment according to EN 795!
4. One person per HSU **at all times!**
5. Keep the strap tight!
6. Do not lead the strap over sharp edges!
7. Never roll up the strap into the HSU without tension!
8. The space below the user must be at least 1.4 m!
9. After use do not fix the hook with the strap below in an extended position
10. Do not use the HSU as a lifting aid for loads!
11. After an incident, which can influence the loading capacity, the HSU is to be examined by a specialist!

Maintenance
– The HSU is not to be exposed to any influences during storage that could affect its safe condition.

– The contractor is to ensure that no HSU is used without the prescribed examination according to DIN EN 365. Observe the testing plate!

– Apart from this legally prescribed examination the HSU is to be examined after every use for possible damages, maintained properly, and released by a specialist for further use.

– Any repairs are to be carried out by the manufacturer only. (customer service).

Product features
The Height Safety Unit (HSU) consists of a steel housing in which there is a cable storage drum with a pre-tensioned spring. The spring tension causes the braking equipment to start immediately in the case of a fall. The cable exit speed of about 1.5 m/s brakes slowly so that the braking distance is less than 1000 mm. The HSU has a double surface protection and is fitted with a dirt remover. The strap is 5 m long.

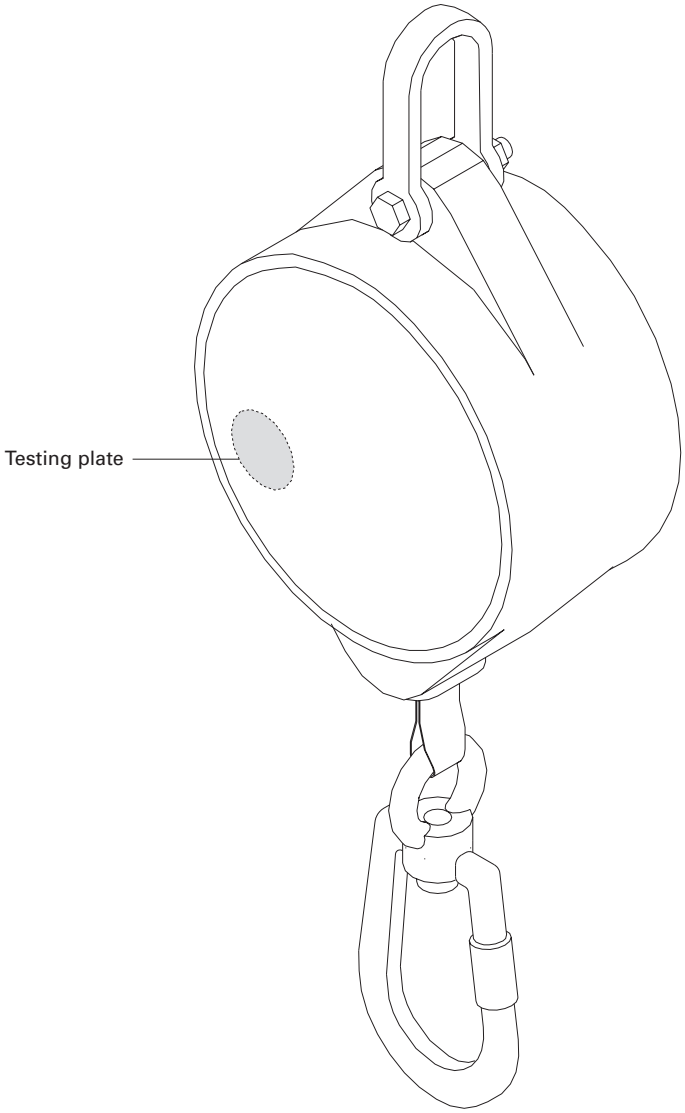
Proper use
The HSU secures workers at dangerous points against possible falls, without restricting their movements.
The HSU is designed for only one person!
Only original spare parts may be used. Damaged HSU's must be exchanged.

B4 Height Safety Unit

Standards and Rules

– BGR 198 (ZH1-709) 4/98 Edition
Use of personal protection equipment against falling

– BGV C 22 (VBG 37) UVV
Construction work, 1/97 Edition.



B5 Notice to the Construction Accident Association

According to the "Safety Rules for Equipment used for Lifting Personnel" (PAM) (ZH 1/461) we herewith notify you of the intended personnel lifting and give the following information for this:

Information on the site of use:

Construction site:.....

Type of work for which the personnel lifting is required:.....

.....

Start of lifting personnel:.....

End of lifting personnel:.....

Information on the lifting equipment:

Manufacturer:.....

Type:.....

Year of manufacture.....

Make no.: .....

Proof of specialist examination and fault repairs is enclosed

Yes/No

Proof of expert examination and fault repairs is enclosed

Yes/No

Information on personnel lifting equipment::

Manufacturer: PERI Formwork and Scaffolding, Rudolf-Diesel-Strasse, 89264 Weissenhorn, Germany

Type: Work cage for cantilevered parapet platform

Declaration:

The "Safety Rules for Equipment used for Lifting Personnel" (ZH 1/461) are maintained and have been handed over to the responsible supervisor.

Company stamp:

Membership no.:

Responsible person:

PERI GmbH
P. O. Box 12 64
89259 Weissenhorn
Tel.: 0 73 09 / 9 50-0
Fax: 0 73 09 / 9 51-0
info@peri.de
www.peri.de

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