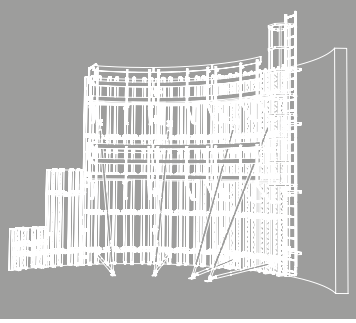
PERI®

RUNDFLEX
Circular Formwork

Instructions for Assembly and Use – Standard Configuration

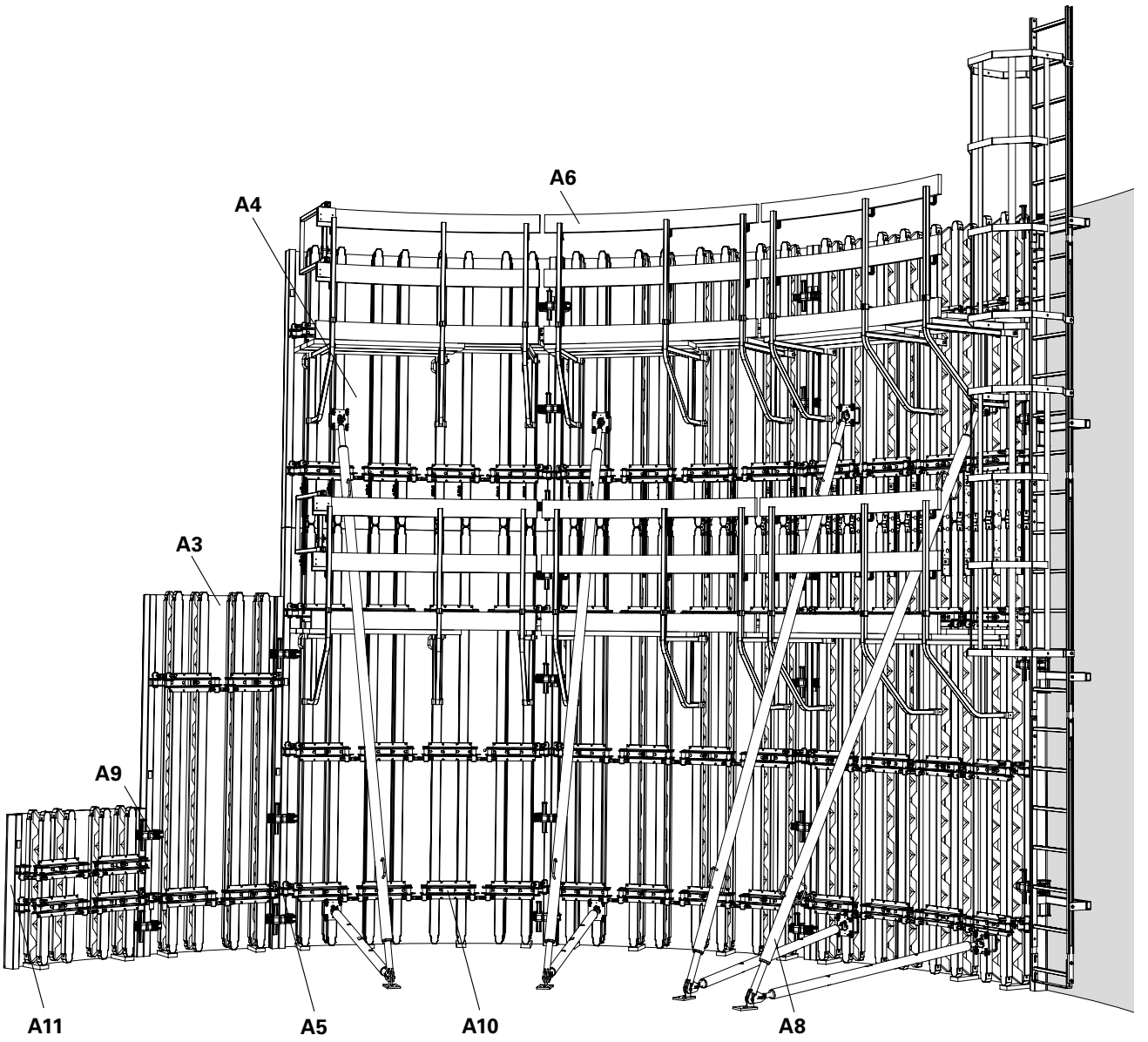




Edition 08 | 2016

Introduction

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Load-bearing point

Dimension specifications
Dimensions are usually given in mm and m. Other measurement units, e.g. cm, are shown in the drawings.

Conventions
– Instructions are numbered. (1. ...., 2. ...., ...)
Multiple position numbers, i.e. alternative components, are represented with a slash: 1 / 2.

Arrows
Actions
Forces

General
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 assembly.

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

Target groups

Contractors
These Instructions for Assembly and Use are designed for contractors who use the formwork systems for
- assembling, modifying and dismantling, or
- use them, e.g. for concreting, or
- for other operations, e.g. carpentry or electrical work.

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

Qualified persons
Formwork systems may only be assembled, modified or dismantled by personnel who are suitably qualified to do so. For the work to be carried out, the qualified persons must have received instructions** which contain at least the following points:
- An explanation of the plan for the assembly, modification or dismantling of the formwork system in an understandable form and language.
- Description of measures in order to safely assemble, modify or dismantle the formwork system.
- Designation of the preventive measures to avoid the risk of persons and objects falling.
- Designation of the safety precautions in the event of changing weather conditions which could adversely affect the safety of the formwork system concerned as well as the personnel.
- Details regarding the permissible loads.
- Description of any other risks that are associated with the assembly, modification or dismantling procedures.

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

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

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

Additional technical documentation

- Poster
  – RUNDFLEX

- Brochures
  – RUNDFLEX
  – SB Brace Frame

- Instructions for Use
  – Crane Splice 24
  – Instructions for Use for Pallets and Stacking Devices

- PERI Design Tables – Formwork and Scaffolding

Intended use

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

The RUNDFLEX Circular Formwork System is used for forming circular walls. It can be adapted quickly and easily to suit changing radii of 1.00 m and more without dismantling and re-assembly of the panels.
The panels are delivered to the construction site already pre-asembled.
Radii adjustment is carried out by the use of spindles and with the help of a radius template.
Panels are connected by means of the Alignment Coupler BFD which is also used to fasten the required filler timbers.
Tie points are pre-defined.
Components for working and concreting scaffolds, height extensions, support and other applications are included in the system.

Features
6 panel heights: 60, 120, 180, 240, 300, 360 cm
3 panel widths:
externally 250 cm, 128 cm, 85 cm
internally 240 cm, 123 cm, 72 cm

Compensations up to 10 cm with the Alignment Coupler BFD.

Transportation height of approx. 37 cm.

Continuously adjustable radii from R = 1.0 m.

Height extensions carried out horizontally for panel heights of up to 7.80 m.

Connection to PERI RUNDFLEX Plus, PERI TRIO and PERI MAXIMO possible or to all profiles suitable for Alignment Coupler BFD.

Technical data

Perm. fresh concrete pressure
60 kN/m², Line 6, Table 3, DIN 18202.

Tie allocation:
0.54 ties per m² of wall area.

Perm. load capacity of the platform:
1.50 kN/m², Load Class 2.

Instructions on use

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

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

Changes to PERI components are not permitted.

Care and maintenance instructions

In order to maintain the value and operational readiness of the formwork materials over the long term, clean the elements after each use.
Some repair work may also be inevitable due to the tough working conditions. The following points should help to keep care and maintenance costs as low as possible.

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

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

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

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

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

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

Internal concrete vibrators should be fitted, if possible, with rubber caps; as a result, any damage to the formlining is reduced if the vibrator is accidently "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 when suspended on a crane.

Cross-system

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

These Instructions for Assembly and Use can be used as the basis for creating a risk assessment. The risk assessment is compiled by the contractor. The Instructions for Assembly and Use 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 must be observed in the respective countries where they are being used.

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 with the characteristics required in these Instructions for Assembly and Use as well as all valid construction guidelines and standards. Unless otherwise indicated, this applies in particular to:
- Timber components: Strength Class C24 for Solid Wood according to EN 338.
- Scaffold tubes: galvanised steel tubes with minimum dimensions of Ø 48.3 x 3.2 mm according to EN 12811-1:2003 4.2.1.2.
- Scaffold tube couplings according to EN 74.

Deviations from the standard configuration are only permitted after a further risk assessment has been carried out by the contractor. On the basis of this risk assessment, determine appropriate measures for working and operational safety as well as stability.

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

If exceptional occurrences are foreseen that may have an adverse effect regarding the safety of the formwork system, the contractor must immediately
- create another risk assessment, with appropriate measures for ensuring the stability of the formwork system being carried out based on the results,
- and arrange for an extraordinary inspection by a competent person. The aim of this inspection is to identify and rectify any damage in good time in order to guarantee the safe use of the formwork system.

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

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

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

The contractor must ensure that the personal protective equipment required for the assembly, modification or dismantling of the system, e.g.
- safety helmet,
- safety shoes,
- safety gloves,
- safety glasses,

is available and used as intended.

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

The contractor must
- provide safe working areas for site personnel which are to be reached through the provision of safe access ways. Areas of risk must be cordoned off and clearly marked.
- ensure the stability during all stages of construction, in particular during assembly, modification and dismantling of the formwork.
- ensure and prove that all loads can be safely transferred.

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

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

System-specific

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

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

Only use PERI lifting accessories.

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

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

The contractor must ensure that appropriate fire protection measures are in place!

For heat-producing equipment, such as welding equipment, heaters or lamps, appropriate measures must be taken.

Fire-fighting equipment must be available and emergency exits clearly marked.

Open fires and smoking on the platforms is prohibited!

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 as well as only those lifting points provided on the component.

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

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

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

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

A1 Storage and transportation

Follow Instructions for Use for PERI pallets and stacking devices! Manually-created transport units must be correctly stacked and secured!

Transportation
PERI pallets and stacking devices are suitable for lifting by crane or forklift. They can also be moved with the PERI pallet lifting trolley.
All pallets and stacking devices can be lifted using both the longitudinal and front sides.

Stacking

Only panels of the same size are to be transported in one stack!

Stacking height / panel
Without distribution waler: 37 cm.

The number of panels that can be transported depends on the respective national transport regulations.
(Fig. A1.01)

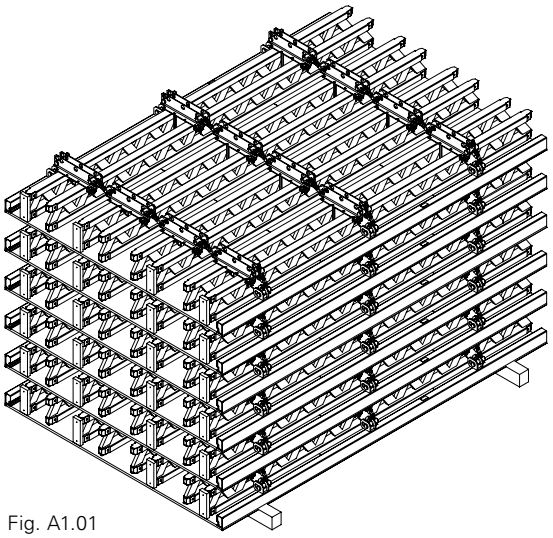


Fig. A1.01

Storage
For longer storage periods, store the panels in a straight horizontal position.
Place boards on the walers in order to protect the formlining.
Bottom panel is to be positioned on timbers.

Loading on a truck
Secure with 3 tension belts.
Use edge protection on panels.
(Fig. A1.02)

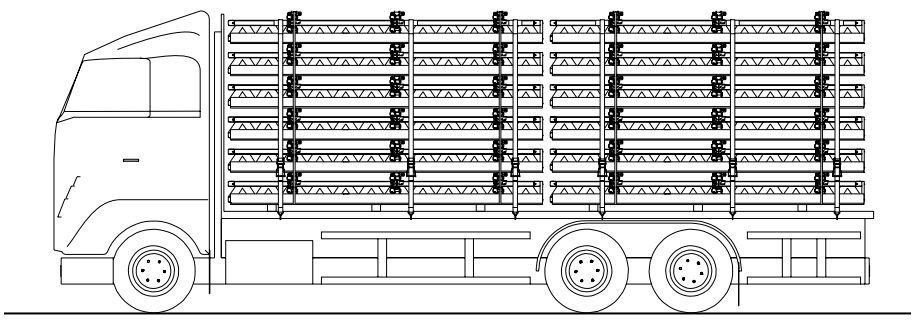


Fig. A1.02

Working steps

Position the panel on timbers.

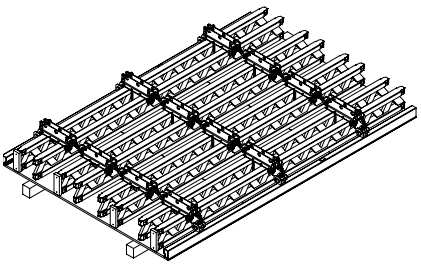


Fig. A2.01

Height extensions (carried out in a horizontal position) up to 7.80 m.

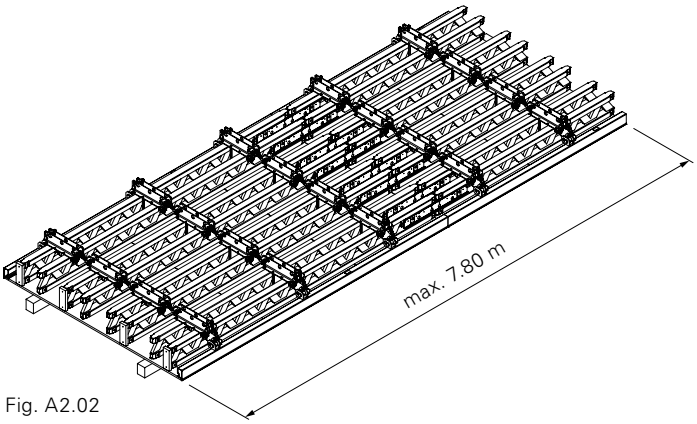


Fig. A2.02

Adjust radii.

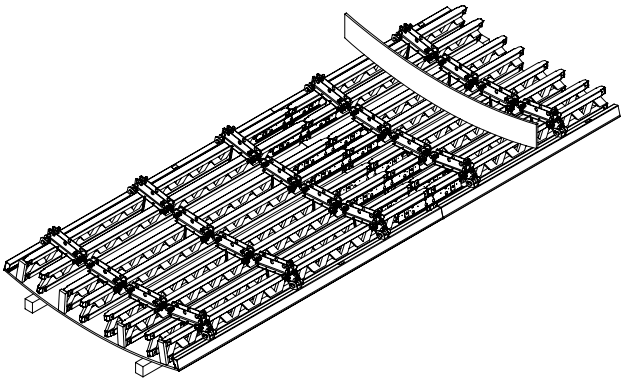


Fig. A2.03

Assembly of platforms, access ladders and push-pull props.

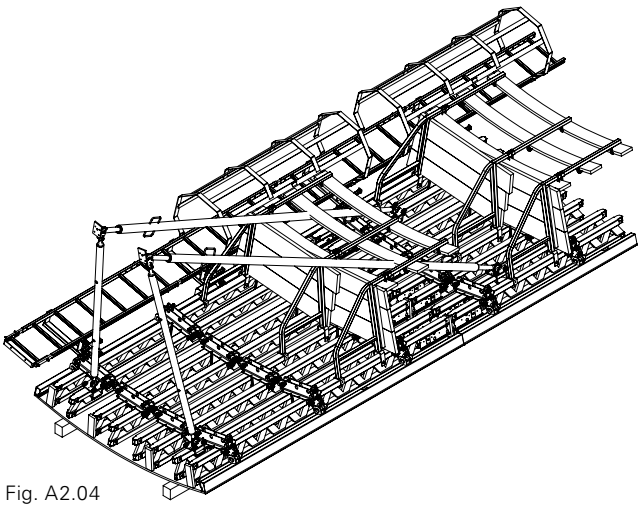


Fig. A2.04

Moving the panel with the crane.

Lifting capacity 700 kg / Crane Splice 24.
Crane hook is released only when the panel is secured by means of push-pull props and kickers, and base plates have been dowelled.

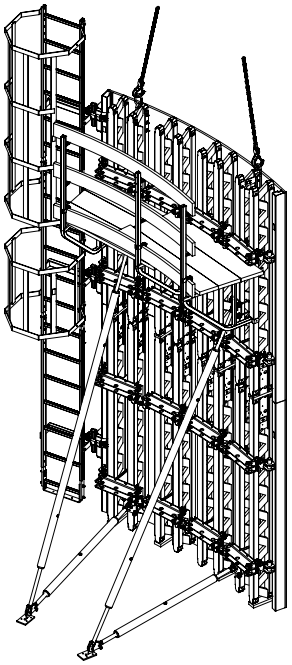


Fig. A2.05

Assembly

1. Position lead formwork.
2. Install reinforcement.
3. Close formwork.
4. Concrete.
5. Strike.
6. Clean formwork.
7. Apply release agent.

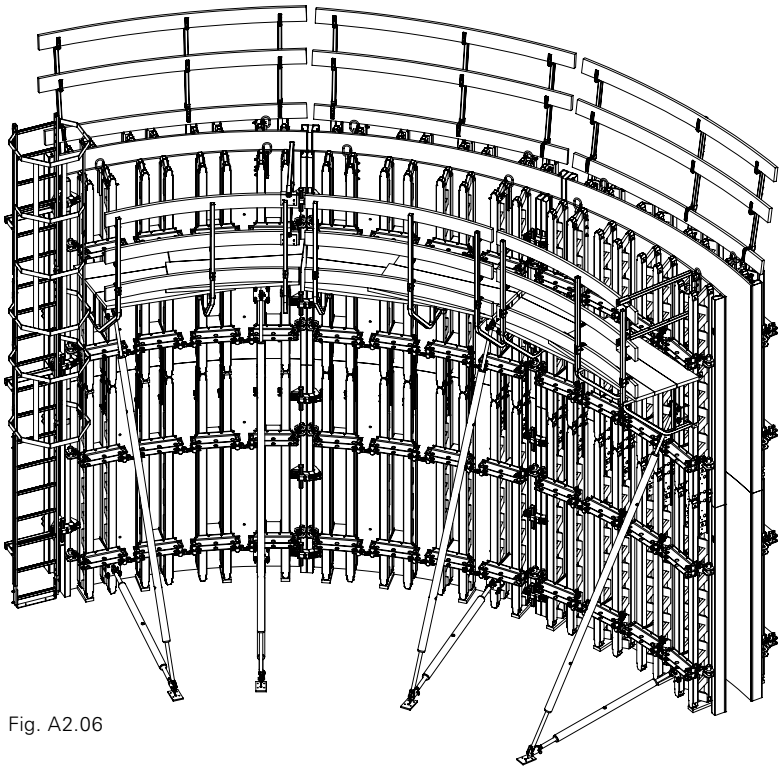
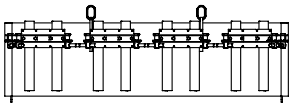
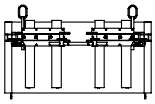
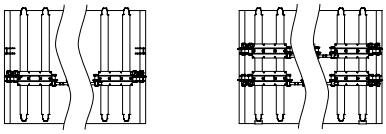
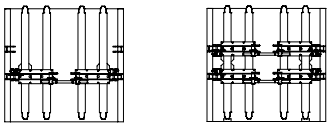
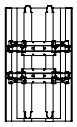
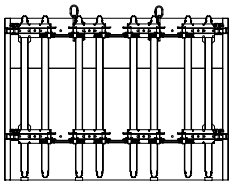
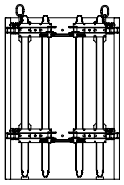
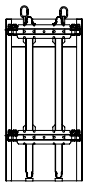
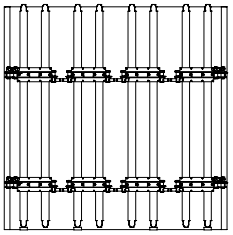
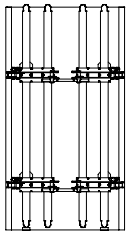
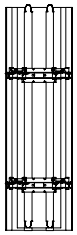
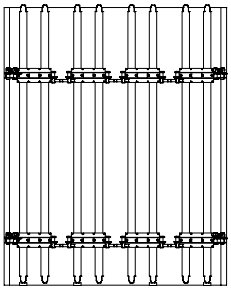
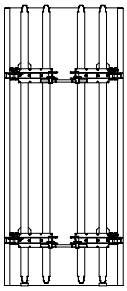
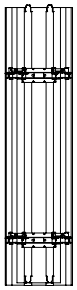
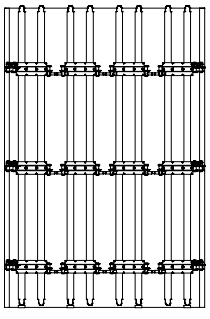
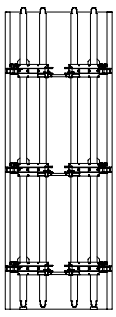
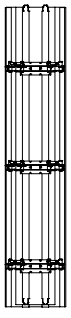


Fig. A2.06

A3 Panel

Panel overview

Height [cm]	Width [cm]		
	Outside Panel 250 Inside Panel 240	Outside Panel 128 Inside Panel 123	Outside Panel 85 Inside Panel 72
60			
120			
180			
240			
300			
360			

Individual components

Example: panel height 2.40 m.
(Fig. A3.01 + A3.02)

Required components:

1	GT 24 Girder
2	Edge Profile
3	T-Waler
4	Spindle 210 or 500
5	Anchor Point
6	Distribution Waler with Waler Bolt
7	Plywood
8	Rubbing Board
9	Crane Splice 24
10	Alignment Coupler BFD

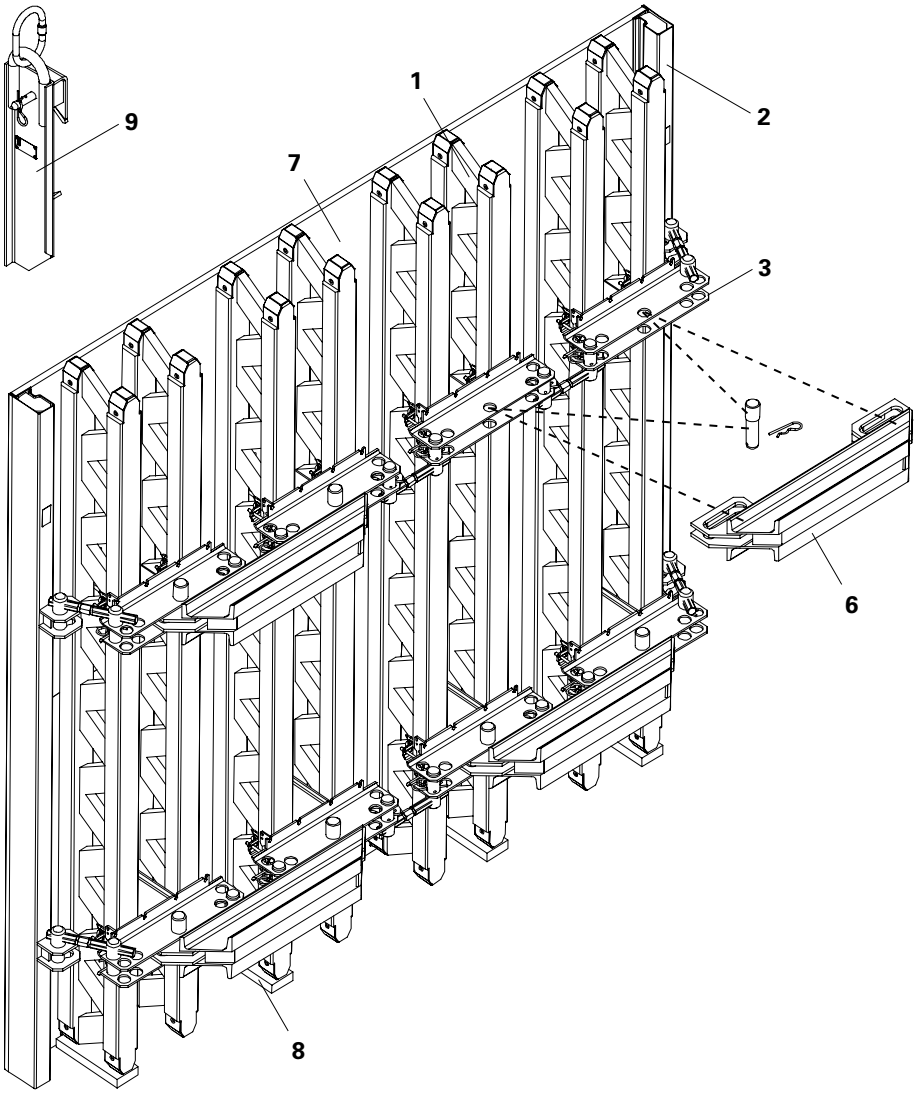


Fig. A3.01

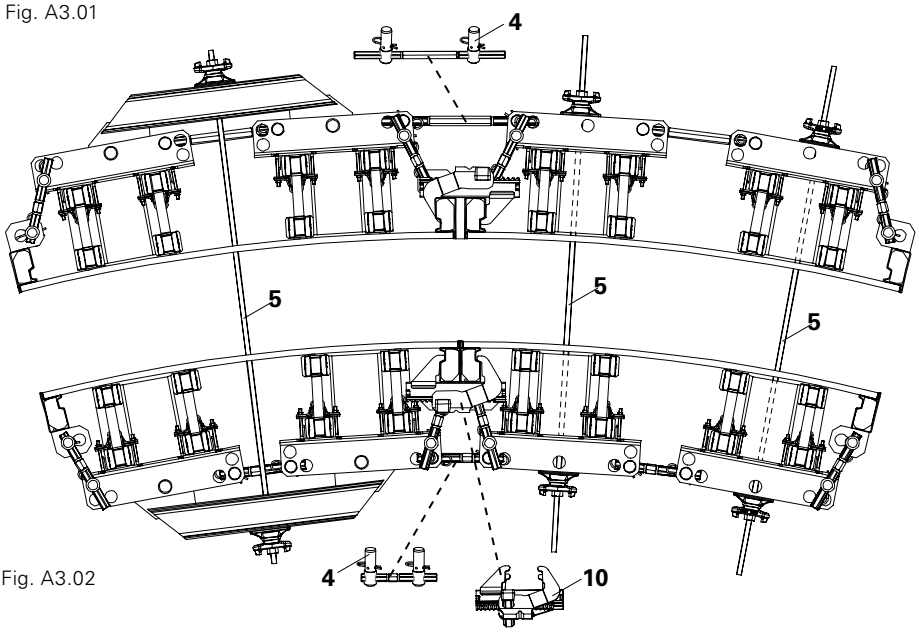


Fig. A3.02

A4 Height extensions

Height increments

RUNDFLEX Panels can be extended in 60 cm increments.
(Fig. A4.01)

– 3.0 m high panels are always installed at the top.
– Higher units are possible, see A4 Vertical extensions.
– For extended panels with h = 120 cm, 1 x Alignment Coupler BFD on the panel joint is sufficient for the panel connection.

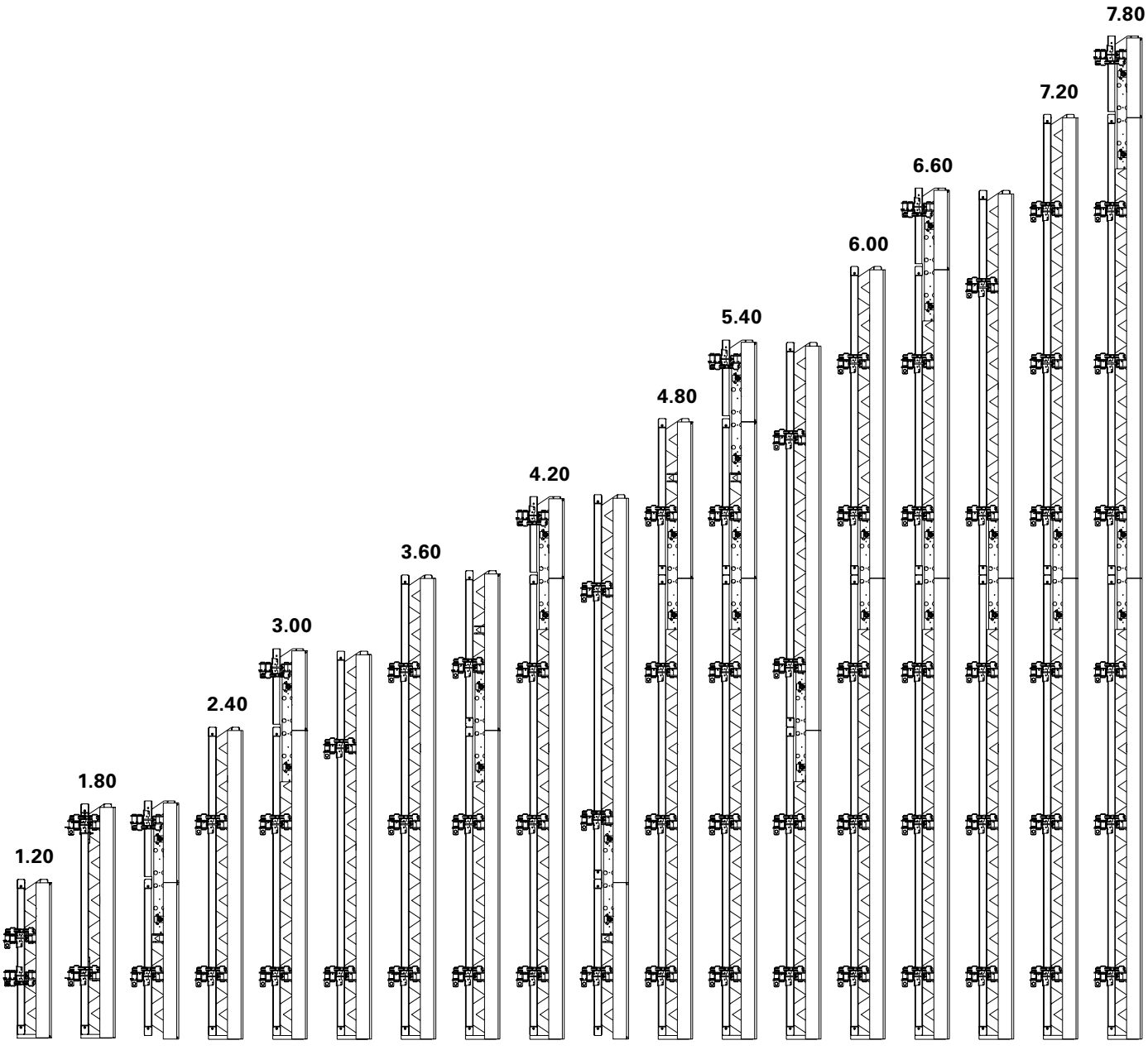
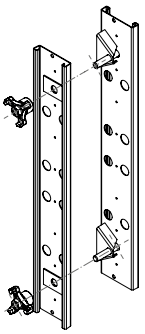


Fig. A4.01

Horizontal extensions

– Panels are always in a horizontal and straight position.
– Height extensions up to 7.80 m possible.
– Higher units are possible, see A4 Vertical extensions.



Assembly of Crane Splice 24

1. Place panel on timbers and bring into position. The formlining is facing downwards.
2. Insert extension splice (11) at every girder joint in the latticework.
3. Secure triple wingnuts (11.1) with hammer.
   (Fig. A4.02 + A4.03)

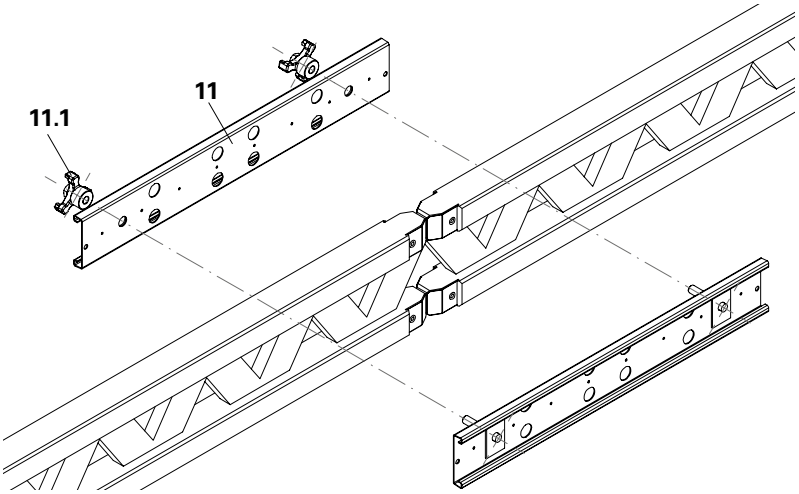


Fig. A4.02

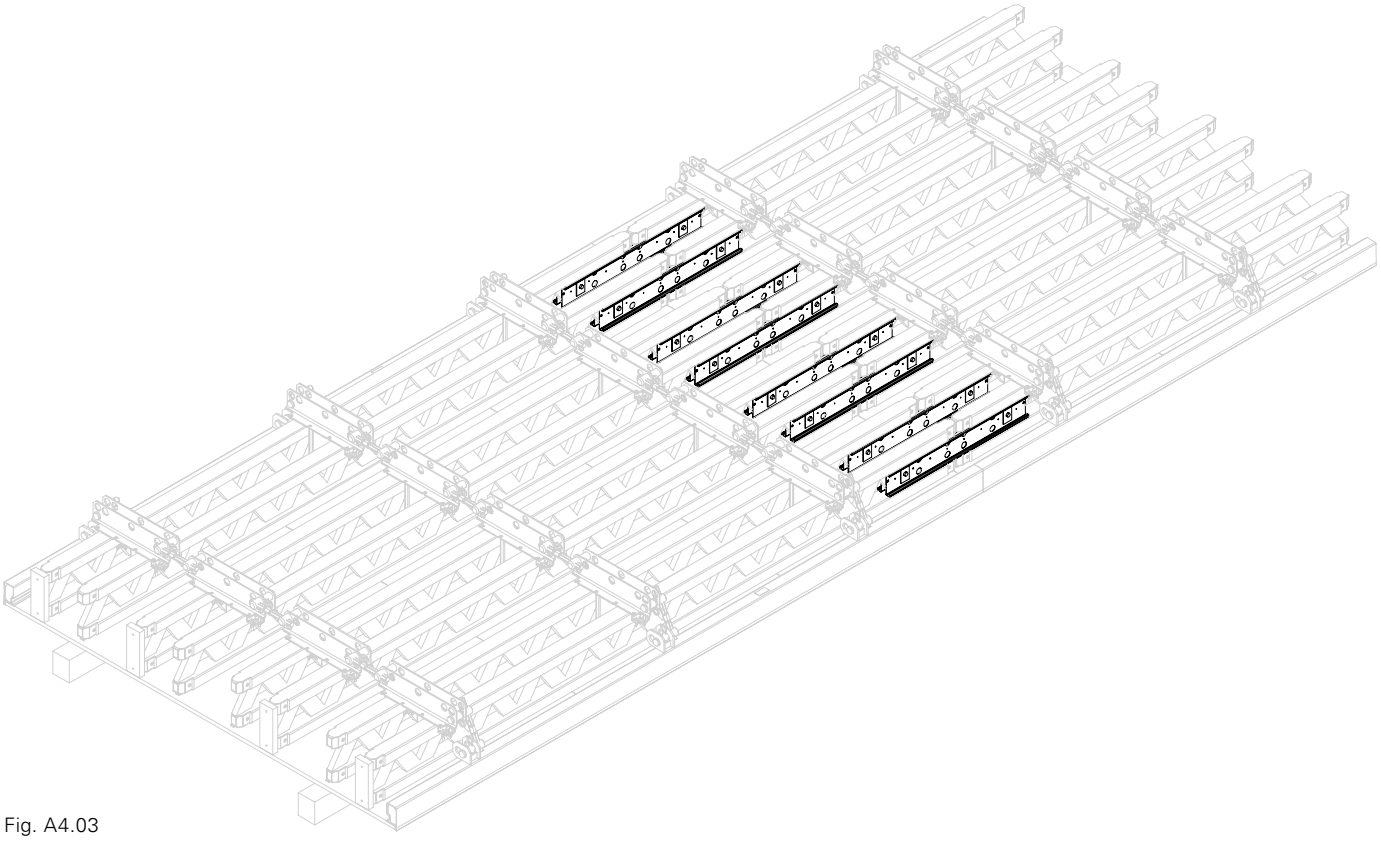


Fig. A4.03

Vertical extensions

Plan the position of the joints!
Arrange platform positions so that the work required for vertical extensions can be carried out safely from there. For vertical extensions, do not mount any brackets in the area of the extension splice.

Horizontal pre-assembly

1. Extend unit horizontally over the entire height and mount rubbing boards (8).
2. Adjust radius, see A5.
3. Mount all platforms, see A6.
4. Mount access ladder.
5. Divide unit into base panel and extension panel. Divide access ladder.
6. Mount crane splices (9), push-pull props and kickers to the base panel. (Fig. A4.04)
7. Move base panel.
8. Attach push-pull props and kickers to dowelled base plates. (Fig. A4.05)

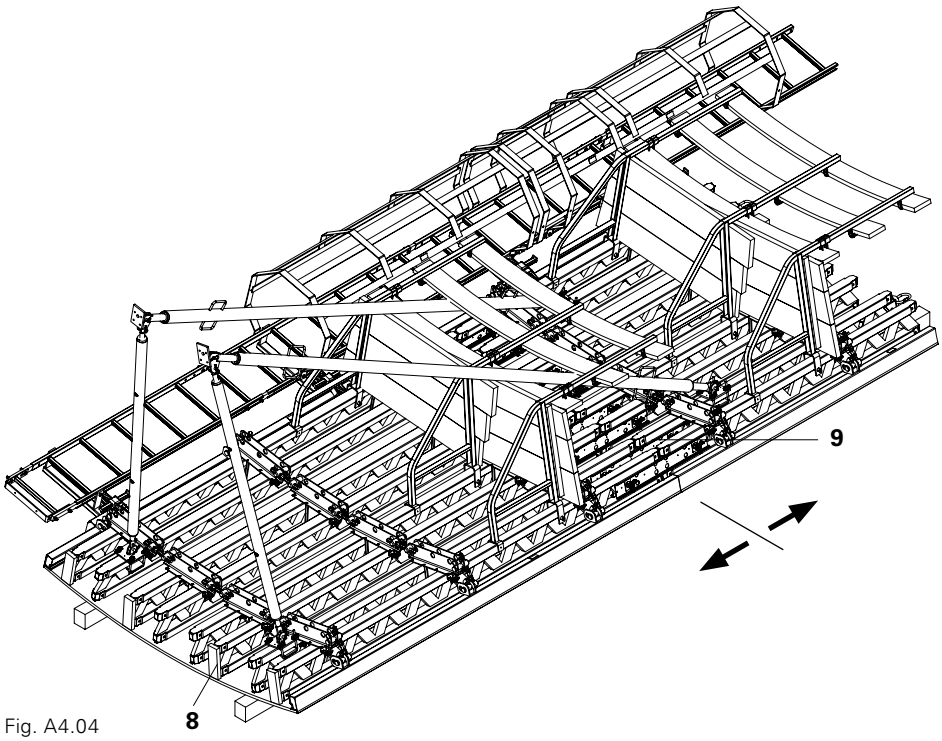


Fig. A4.04

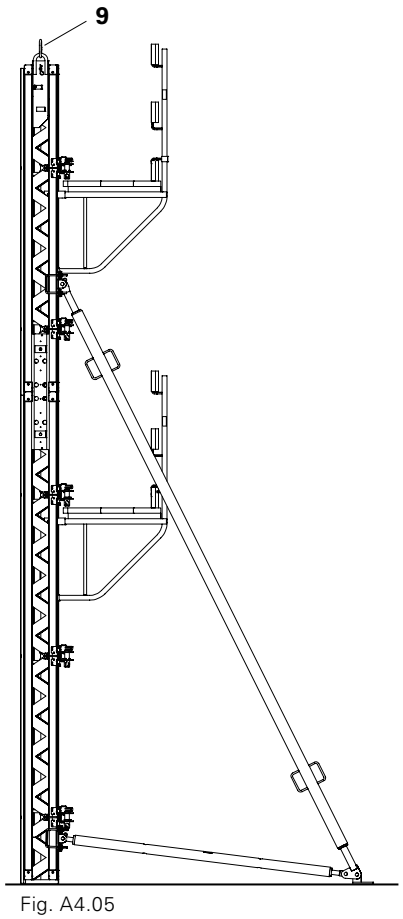


Fig. A4.05

Vertical assembly

1. Remove crane splices (9) from the base panel and attach to the extension panel.
2. Fix push-pull props to the extension panel.
3. Lower extension panel onto the base panel.
4. Mount extension splices (11) from the working platform, see A4 Horizontal extensions. (Fig. A4.06)
5. Secure extension panel with push-pull props.
6. Detach crane hook.
7. Align extension panel. (Fig. A4.07)

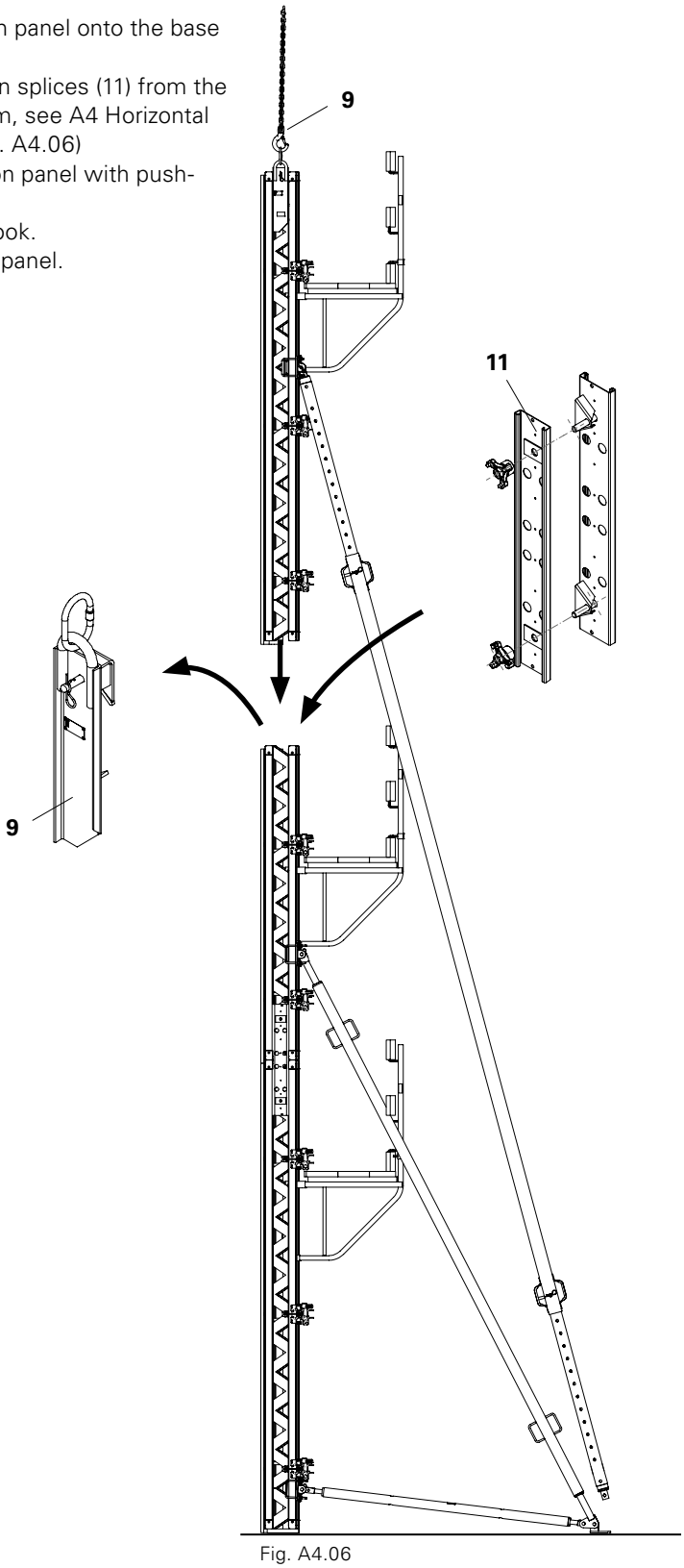


Fig. A4.06

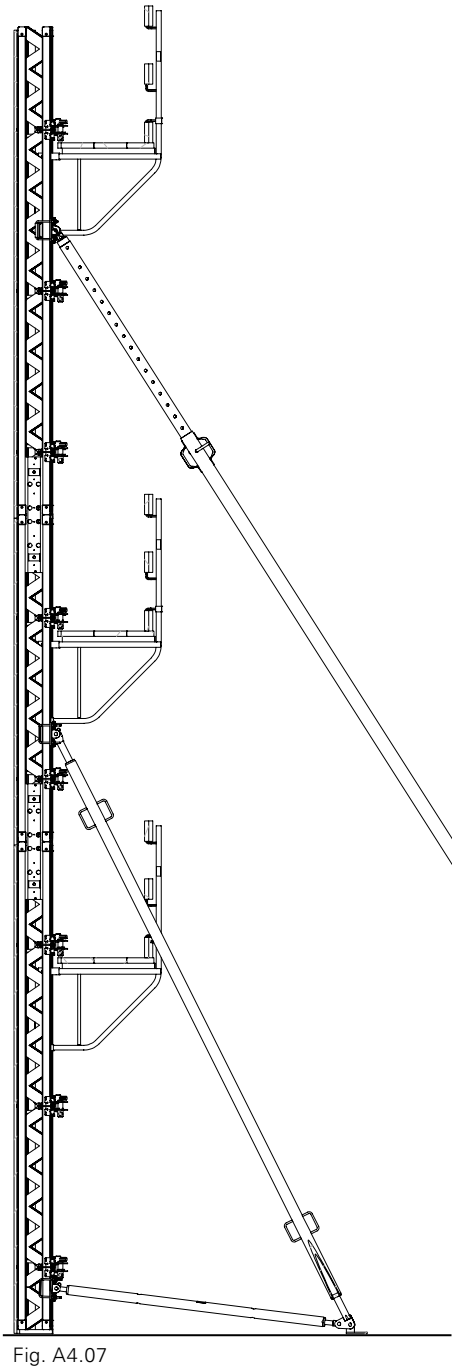


Fig. A4.07

A5 Radii adjustment

- Radii are always adjusted on horizontally-positioned panels by two site personnel!
- Outside panels are only to be used for the outer side of the walls!
- Inside panels are only to be used for the inner side of the walls!
- Before radii adjustment takes place, the panels are extended whilst in a horizontal position.
- Horizontal extension is possible up to a max. panel height of 7.80 m.
- Spindles are to be sprayed with a release agent which allows an easier spindling procedure.
- A radius template with L = 2.50 m is to be used for fine adjustment of half panels – panels are to be positioned on trestles.
- Tool required: Combi Ratchet Spanner SW 24.

Panel widths 250, 240, 128, 123

1. Always begin with the Adjusting Spindles (4) in the middle of the panel; then adjust the Adjusting Spindle right and left. (Fig. A5.01)
2. For rough adjustment purposes, use the same number of turns on the Adjusting Spindles section by section.
3. Repeat the procedure until all lattice girders lie against the template.
4. The radius is to be checked along each waler line by means of the template.

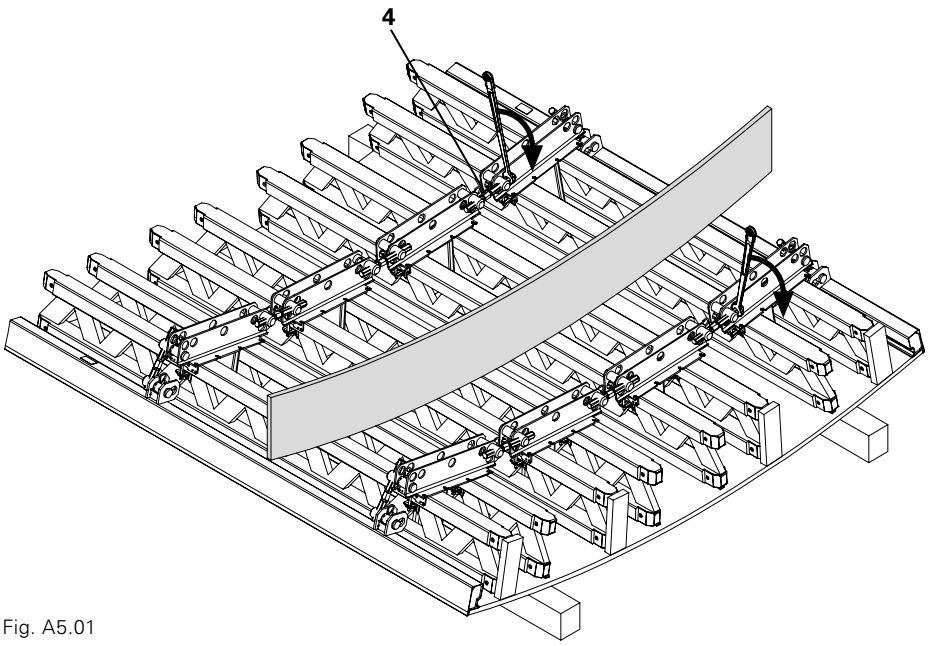


Fig. A5.01

Edge Profile on panel widths 250, 240, 128, 123

1. With the Adjusting Spindle 210 (4.1), adjust spacing to 14.5 cm between the top edge of the Edge Profile (2) and bottom edge of the template, see A6.04. (Fig. A5.02a + A5.02b)

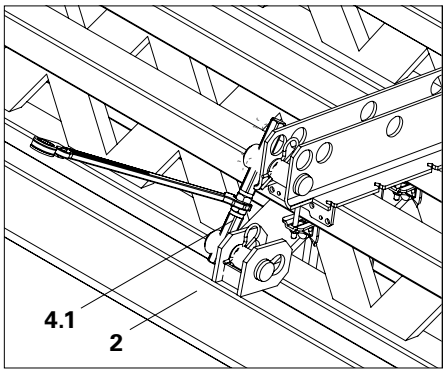


Fig. A5.02a

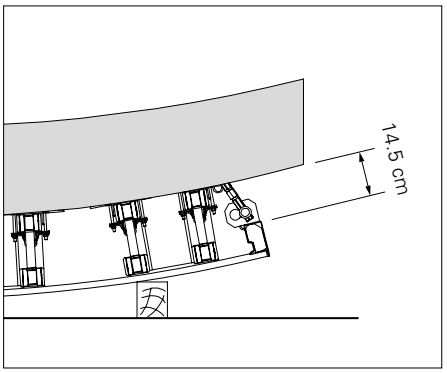


Fig. A5.02b

A5 Radii adjustment

Adjusting panel widths 85, 72

Template radius – concrete radius.

Edge Profile on panel widths 85, 72

1. Place template on the formlining side.
2. Evenly turn the Adjustable Spindle 210 (4.1) until the template rests against the formlining. (Fig. A5.03)
3. The radius is to be checked along each waler line by means of the template.

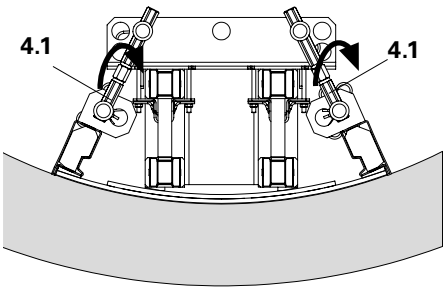
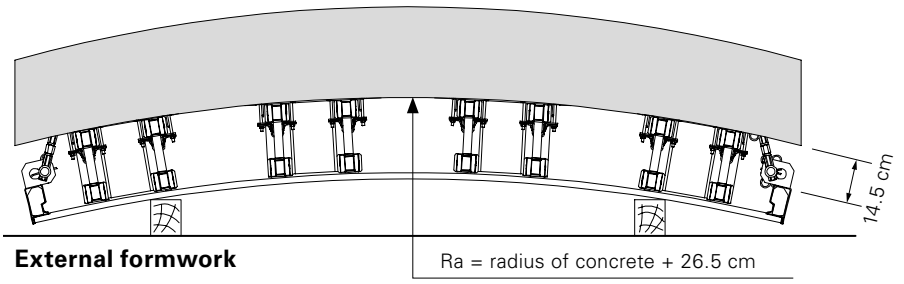


Fig. A5.03

Creating the template
Panel widths 250, 240, 128, 123

They are normally cut for the rear side (girder) of the formwork.
(Fig. A5.04)



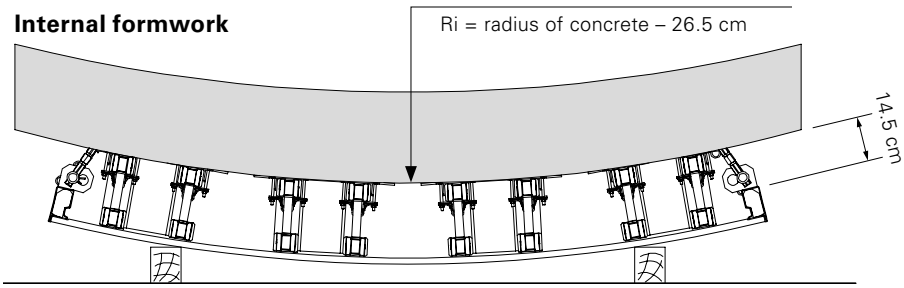


Fig. A5.04

Creating the template
Panel widths 85, 72

The cut is normally for the formlining side.
(Fig. A5.05)

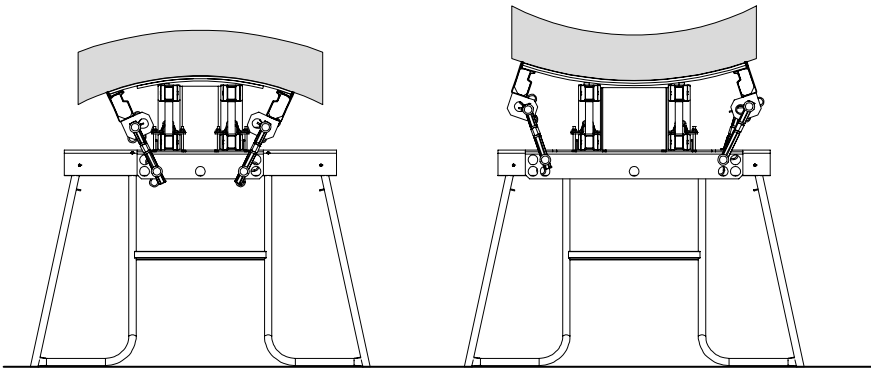


Fig. A5.05

Individual brackets

Permissible load of 150 kg/m², according to Load Class 2. Maximum width of influence of the bracket 1.25 m.

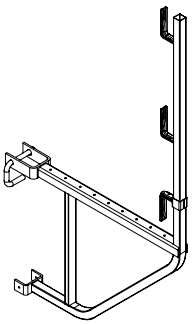
Assembly is carried out on horizontally-positioned panel! Decking components and guardrails must be mounted securely in position at all times!

Required components:

20	Scaffold Bracket GB 80	1x
21	Guardrails + Toe Board	
22	Decking	

Scaffold Bracket GB 80
The scaffold bracket can be mounted at each nodal point of the Lattice Girder GT 24.

Assembly
1. Remove locking pin (20.1) and place scaffold bracket with U-profile (20.2) on the girder.
2. Secure scaffold bracket with the locking pins.
3. Secure claw (20.3) with nails. (Fig. A6.01 + A6.01a)



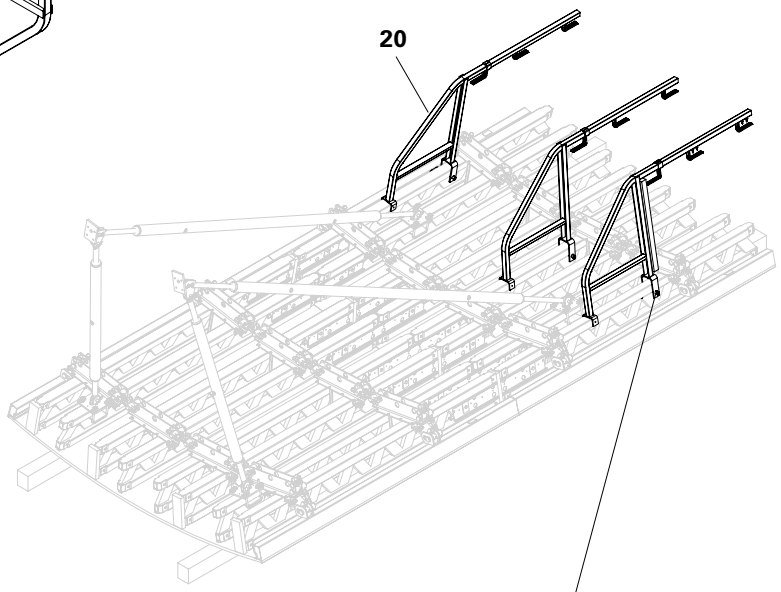


Fig. A6.01

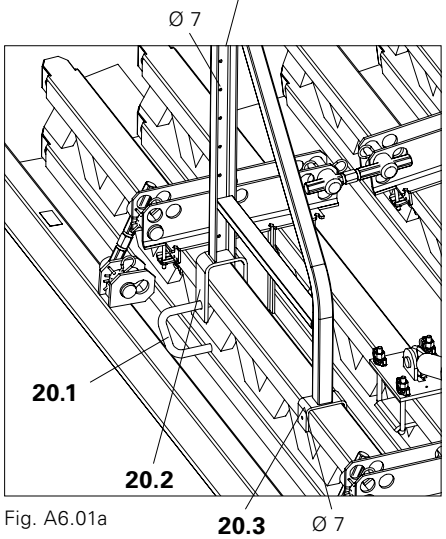


Fig. A6.01a

Scaffold boards and guardrails

Assembly is carried out on horizontally-positioned panel!
Scaffold boards and guardrails are installed on-site in accordance with respective national regulations.

Assembly

1. Position scaffold boards (22) across the complete width of the bracket and secure against moving. Fix boards from below using Torx 6 x 40.
2. Mount guardrails (21) including toe board and secure with nails or screws!
3. Mount side protection at the end of the platform.
4. Adapt scaffold boards, guardrails and toe boards to suit the push-pull props. (Fig. A6.02)

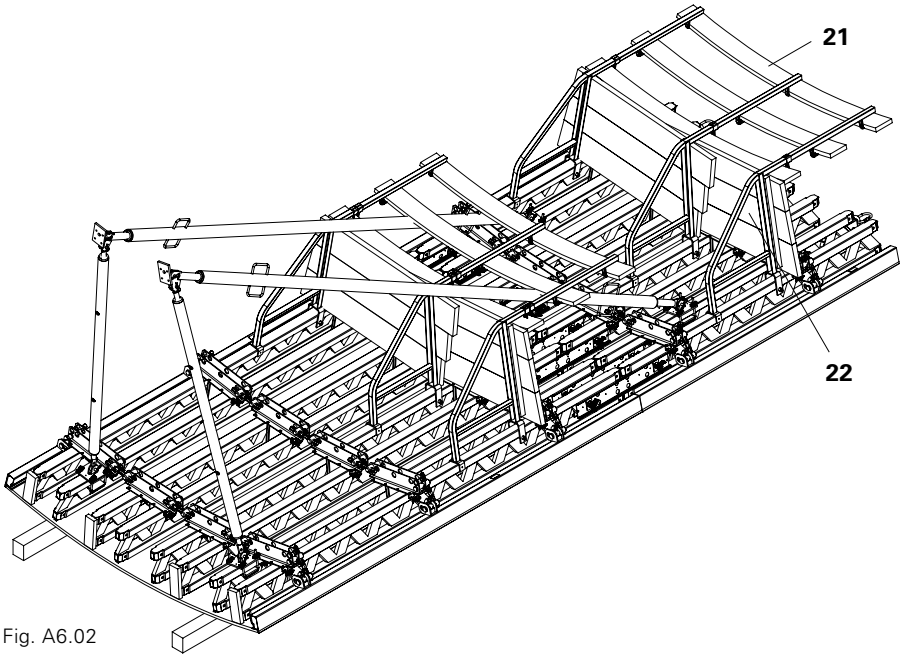
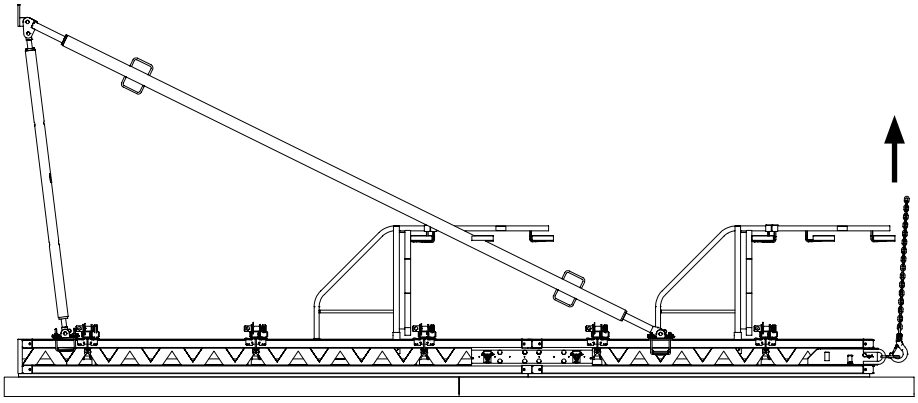


Fig. A6.02

Erect panel

When erecting the panel, make sure that the guardrails are not damaged by the lifting gear.
(Fig. A6.03)


Fig. A6.03

Oppositely-arranged guardrails

Assembly is carried out on horizontally-positioned panel!

Required components:

24	Handrail Post Holder VARIO	1x
25	Guardrail Post HSGP-2	1x

Assembly

1. Insert Handrail Post Holder VARIO (24) into the lattice of the girder and secure by means of a wedge.
2. Insert Guardrail Post HSGP-2. (Fig. A6.04)

Maximum width of influence of the Handrail Post Holder with HSGP-2: 2.00 m.

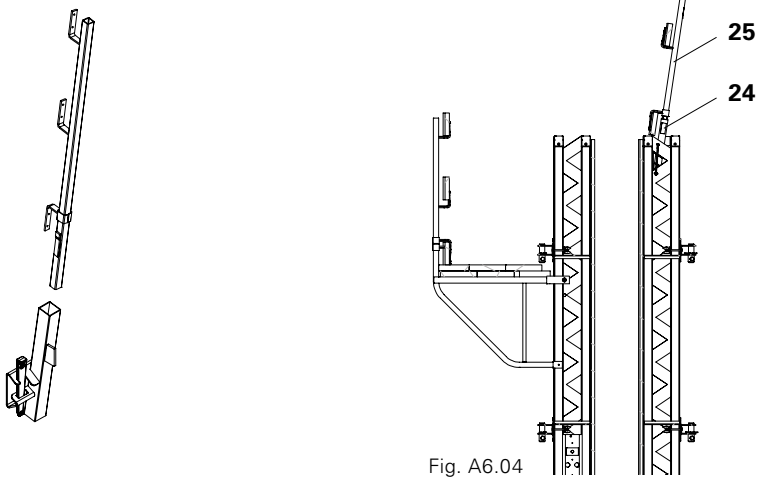


Fig. A6.04

Access ladders

An access ladder can be mounted to the first and last panel of a set of formwork.

Assembly is carried out on horizontally-positioned panel!

Assembly

1. Attach Ladder Holder RFP (26) with Alignment Coupler BFD (10) to the top end of the Edge Profile. Other ladder holders to be attached with max. 2.0 m spacing in a downwards direction. (Fig. A6.05)
2. Bolt together two Ladders 180/6 (27). Insert into the first ladder holder from above and secure with clamping plates (28). Projection over the top platform 2.0 m.
3. Push additional ladders from below through a ladder holder in each case and bolt to ladder positioned above.
4. When the last ladder segment protrudes over the bottom edge of the panel, bolt on the ladder hooks and ladder base. This ladder segment is mounted to the top ladder as compensation. (Fig. A6.06)
5. Bolt on Ladder Safety Cage RFP 200 (29) at the height of each platform. (Fig. A6.07)
   By turning the ladder safety cages by 180°, exiting can be arranged to the right or left.
6. Close gaps with Ladder Safety Cage 75 or 150. Clear spacing between the ladder safety cages ≤ 30 cm. (Fig. A6.07)

The clamping plates (28) must lie against the ladder profile! (Fig. A6.06a)

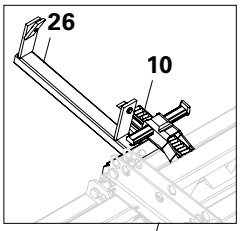
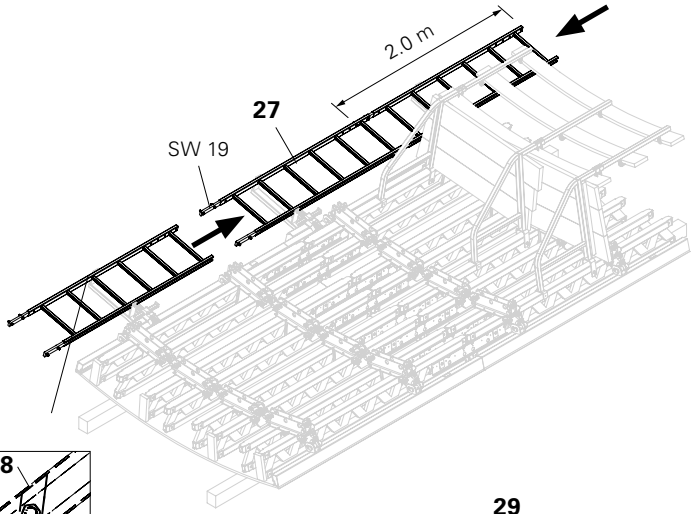


Fig. A6.05a

Fig. A6.05



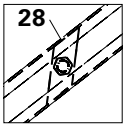


Fig. A6.06

Fig. A6.06a

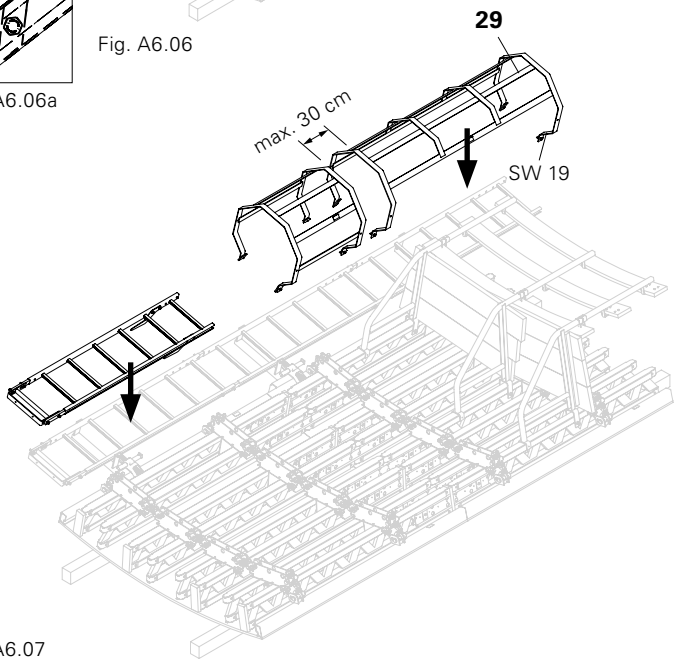
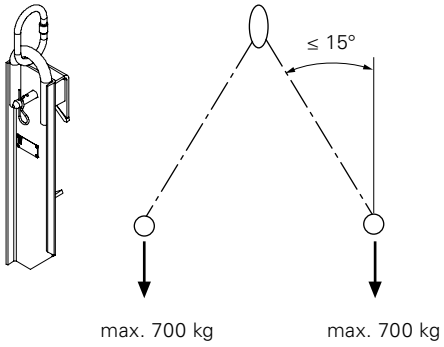


Fig. A6.07

Crane Splice 24

For moving formwork panels with PERI GT 24 Lattice Girders.

Permissible load-bearing capacity 700 kg!
Always attach two Crane Splices 24 symmetrically to the load centre of gravity!
Follow Instructions for Use!



Assembly

1. Insert Crane Splice 24 (9) into the lattice-work of the girder and secure using securing bolts and cotter pins (9.1).
2. The supporting plate must enclose the web of the GT 24. (Fig. A7.01)

For the panels h = 60 cm and h = 180 cm, the Crane Eye 24 (9.2) is mounted at the assembly hall. (Fig. A7.01a)

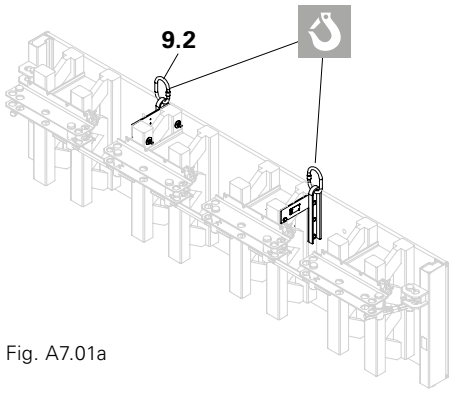


Fig. A7.01a

Rubbing board

Assembly

The rubbing board (8) is to be fixed to every second lattice girder with nails. (Fig. A7.01)

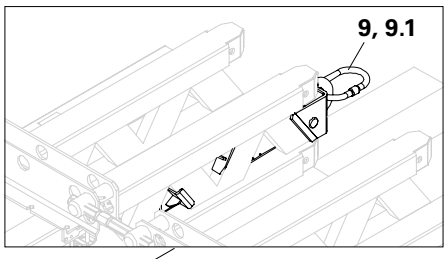


Fig. A7.01b

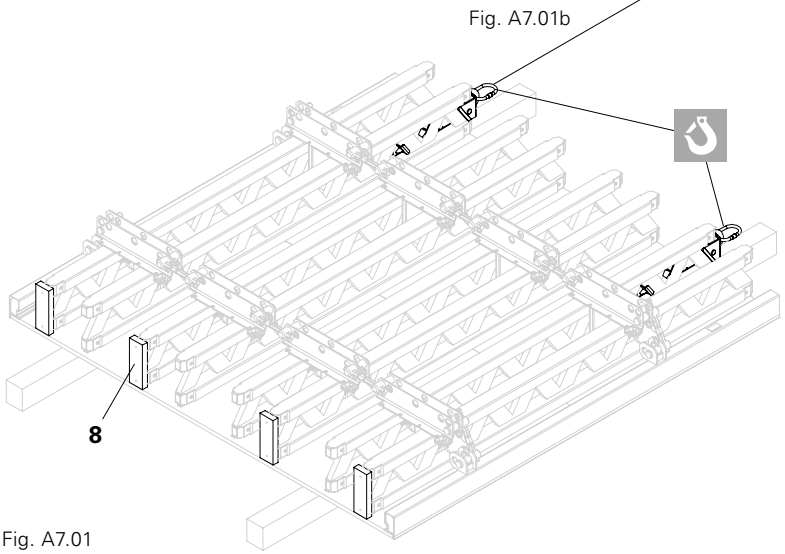


Fig. A7.01

Maximum widths of influence for push-pull props and kickers

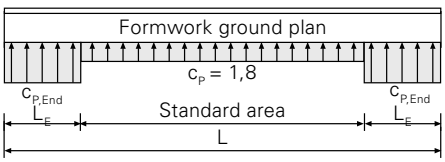
Standard application

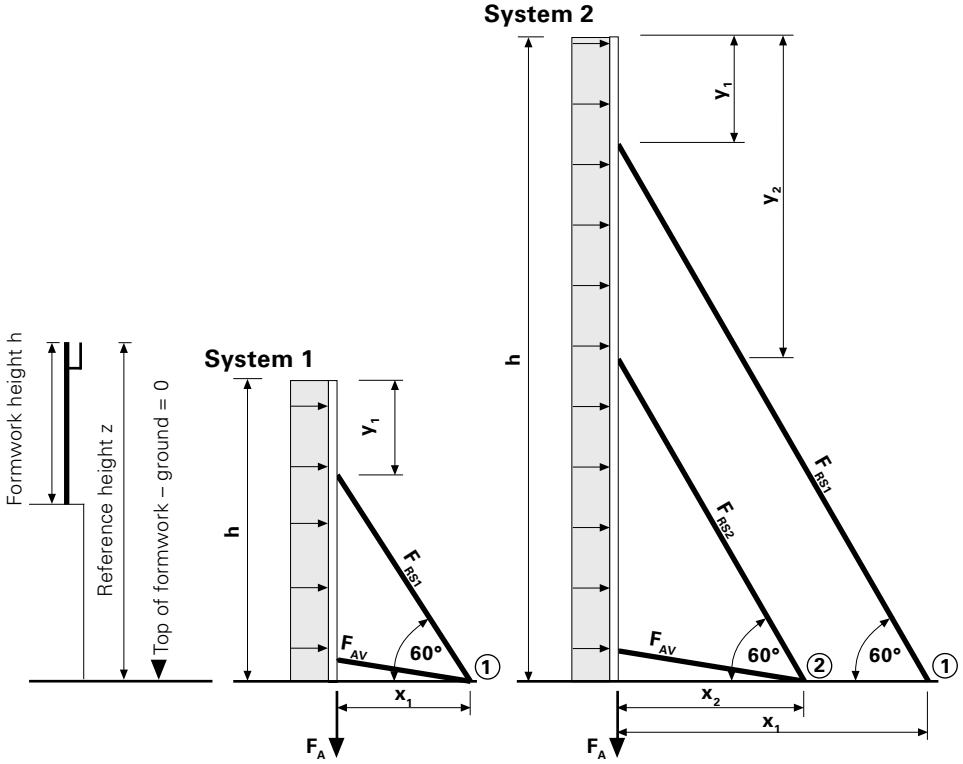
		Formwork height h [m] System 1						Formwork height h [m] System 2			
		3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00
Permissible width of influence [m]	**EB_{ref}**	**4.41**	**3.42**	**2.69**	**2.22**	**2.02**	**1.74**	**2.45**	**2.07**	**1.80**	**1.52**
Actual push-pull prop load [kN]	F_{RS1}	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.0	11.5	11.5
	F_{RS2}							10.9	11.5	11.2	10.5
Actual kicker load [kN]	F_{AV}	2.7	2.9	2.8	2.7	3.2	3.5	4.2	3.6	3.4	3.1
Base plate Resulting force [kN]	①	13.7	13.7	13.5	13.4	13.7	13.9	11.5	11.0	11.5	11.5
	②							14.2	14.3	13.7	12.8
Base plate Resulting angle of attack [°]	①	52.4	51.1	51.1	51.1	49.4	48.2	60.0	60.0	60.0	60.0
	②							47.9	49.8	49.9	49.8
Lifting force V_{wind} [kN/m]		2.5	3.1	3.9	4.7	5.1	5.9	8.4	9.9	11.4	13.0
x = Distance of base plate from rear edge of formwork [m]	x_1	1.2	1.6	2.0	2.4	3.0	3.6	4.2	4.7	5.1	5.5
	x_2							2.6	2.6	2.8	3.0
y = Distance of top connection point [m] from top of formwork [m]	y_1	1.0	1.2	1.5	1.8	1.8	1.8	1.5	1.8	2.1	2.4
	y_2							4.5	5.5	6.2	6.9
$q_{stand} = q(z) \times \kappa$ [kN/m²] with z = h		0.35	0.35	0.35	0.35	0.35	0.37	0.38	0.40	0.41	0.43

Load assumptions:
- Wind loads according to DIN 1055-4:2005-03
- Inland, Wind Load Zone 2
- Standard area (see graphic below)
- Assumed aerodynamic coefficient $c_p = 1.8$
- Formwork in vertical position on ground
- Service life factor $\kappa = 0.6$
- q(z) = peak velocity pressure
- Reference value q_{stand} for panel standing vertically on the ground
- Inclination of the push-pull prop to the horizontal 60°
- Values are characteristic values.

In the end area L_E, the following c_p values or wind loads are assumed:
L/h ≤ 3: $c_{p,\,End} = 2.3$*
L/h = 5: $c_{p,\,End} = 2.9$*
L/h ≥ 10: $c_{p,\,End} = 3.4$*
L_E = length of end area (0.3 x h)
h = formwork height
L = formwork length

*intermediate values are interpolated





(lifting) force F_A to be anchored = 1.5 x V_{Wind} – 0.9 x G x h
G = surface area weight of the formwork including platforms

Connections

The panels are supported with push-pull props and kickers.

Assembly is carried out on horizontally-positioned panel!

– Always attach two push-pull props and kickers to the first panel which is to be positioned. (Fig. A8.01)
– On each additional panel, a minimum of one push-pull prop and kicker is to be attached, see widths of influence.

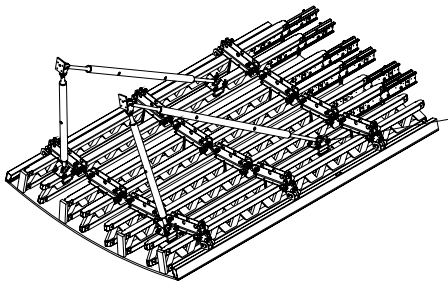


Fig. A8.01

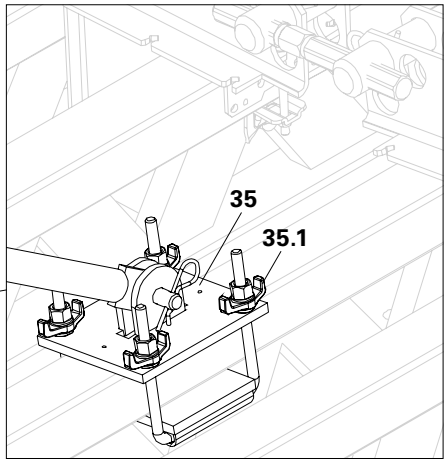


Fig. A8.01a

Girder Headpiece GT 24 (35)
For mounting push-pull props and kickers to the Lattice Girder GT 24.

Assembly
1. Release wingnuts (35.1) and push plate through the girder lattice.
2. Clamp plate to lattice girder using holder.
3. Tighten wingnuts. (Fig. A8.01a)

Girder Headpiece GT 24/A (36)
For mounting push-pull props and kickers in the area of the Extension Splice 24.

Assembly
1. Release Wingnuts (36.1).
2. Attach connections in the extension splice and tighten wingnuts. (Fig. A8.01b)

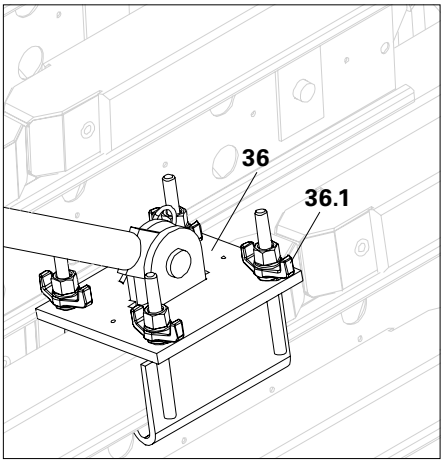


Fig. A8.01b

Base Plate assembly
Fix the appropriate Base Plate (37) for the push-pull props and kickers, e.g. with PERI Anchor Bolt 14/20x130 (37.1). (Fig. A8.01c)

Assembly of push-pull props and kickers
Fix push-pull prop and kickers with bolts and cotter pins.
(Fig. A8.01c)

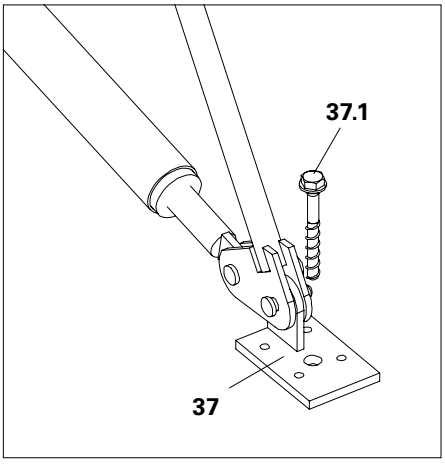


Fig. A8.01c

Panel joint with Alignment Coupler BFD

Number required: see Fig. A9.01.

Assembly

1. Position Alignment Coupler BFD (10) on the edge profile of the panel joint and push together.
2. Hammer on Alignment Coupler BFD until the panel joint is flush and tight. (Fig. A9.02)

When extending the 120 Panel, only one alignment coupler on the panel joint is required.

If the wedge is incorrectly placed, there is no clamping effect! In that case, release the wedge, re-position the Alignment Coupler BFD and use hammer to secure.

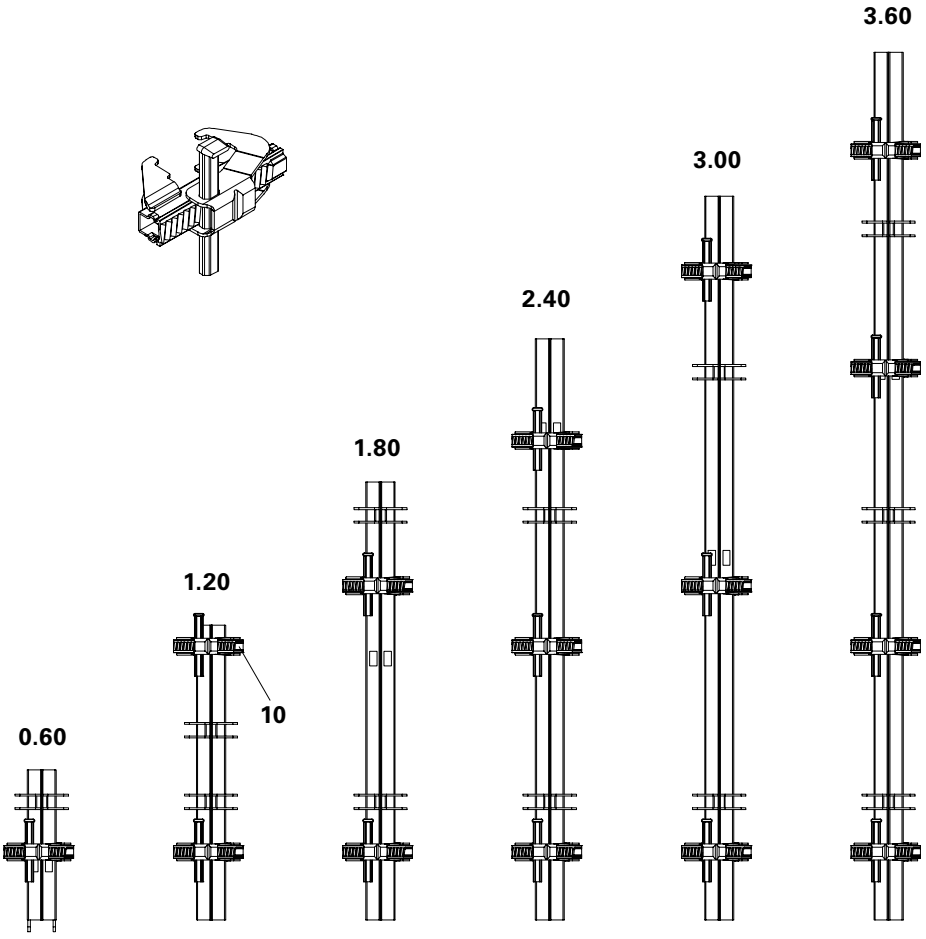


Fig. A9.01

Panel extensions

For ensuring a neat panel joint on extended formwork, position one additional Alignment Coupler BFD (10) so that all four panels are held at the same time. (Fig. A9.02a)

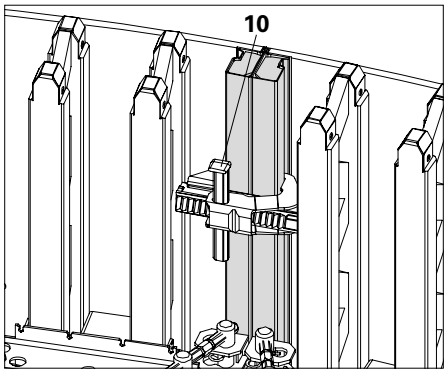


Fig. A9.02

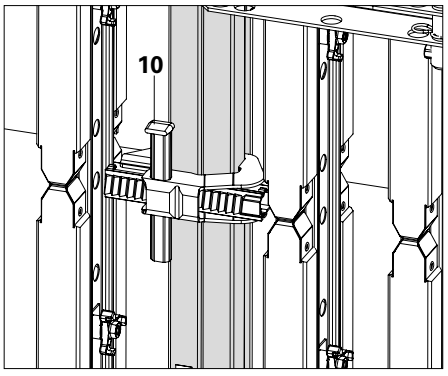


Fig. A9.02a

Compensations

Compensation widths: see Tables. Depending on the wall radius and wall thickness, the filler timbers are to be installed between the internal or external panels. It may be necessary to cut filler timbers to a taper for smaller radii. For compensation widths of 10 cm and more, anchoring must also take place through the filler timber.

Max. compensation width:
Alignment Coupler BFD ≤ 10 cm.
(Fig. A9.03)
Alignment Coupler 38 ≤ 26 cm.
(Fig. A9.04)

Adjusting spindles
Counter spindles (4) are to be installed for radii ≥ 20 m.
(Fig. A9.05)

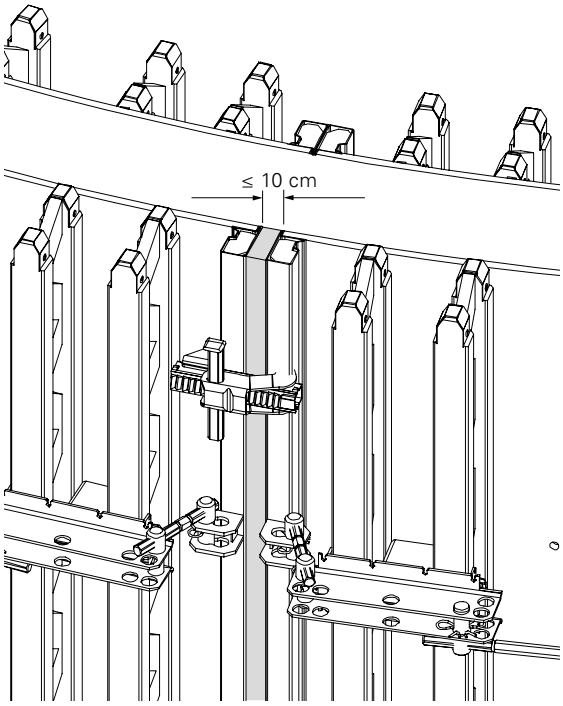


Fig. A9.03

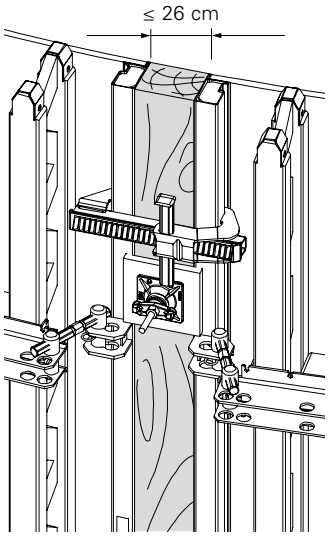


Fig. A9.04

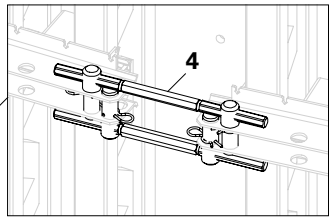


Fig. A9.05

Adjusting Spindle 500 and 210 on the panel joint

Not used for radii adjustment. Only as tension and compression pressure relief, and for moving panel units.
Always use the adjusting spindles with the yellow chromated parts facing in the same direction = same direction of rotation.

Assembly
1. Mount Adjusting Spindle 500 (4) on the external panel and Adjusting Spindle 210 (4) on the internal panel from below in the T-waler, and secure with cotter pins 5/1. (Fig. A9.06)
2. Tension-proof connection on the external panel, compression-proof connection on the internal panel.

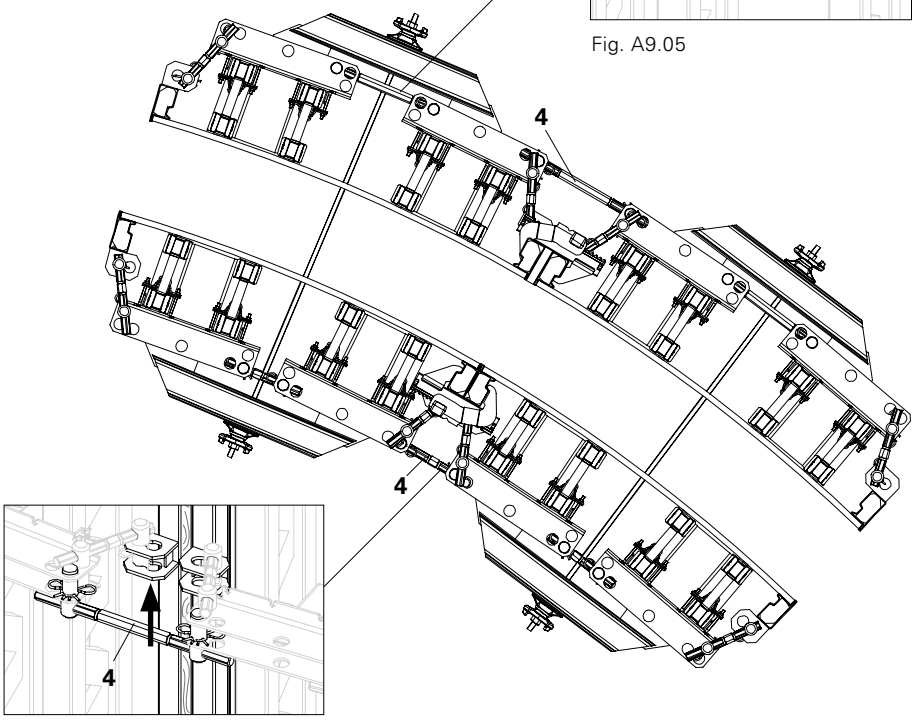


Fig. A9.06

A10 Anchor points

There are two anchoring possibilities:

Anchors with distribution walers

With distribution waler you can save up to 50% on anchors.

Assembly
Insert distribution waler (6) into the T-waler and secure with two waler bolts (6.1) and cotter pins.
(Fig. A10.01 + A10.01a)

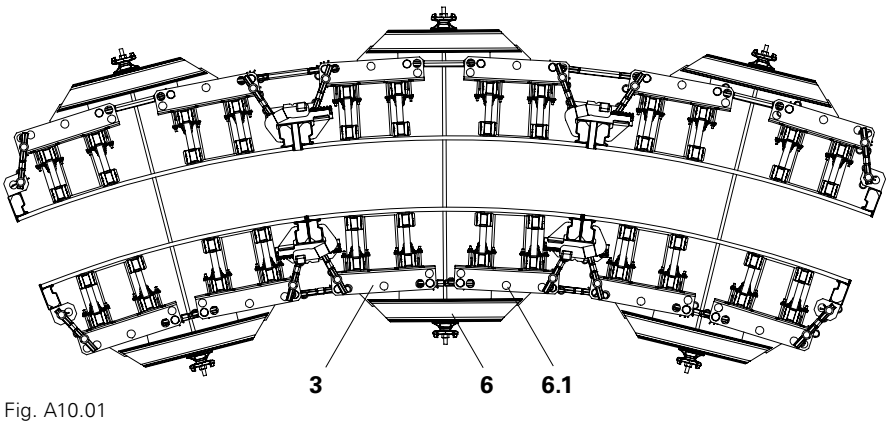


Fig. A10.01

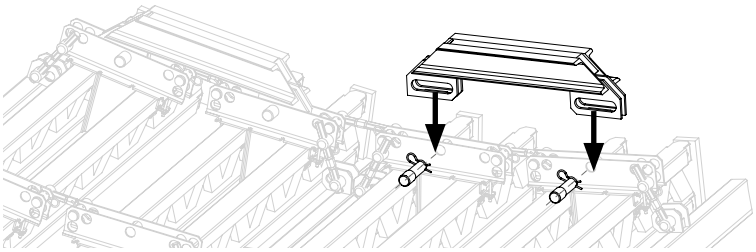


Fig. A10.01a

Anchors without distribution walers

– Anchoring without distribution walers always takes place whenever tight working areas do not allow higher formwork assembly and directly in front of stopend formwork, see A11. (Fig. A10.02)

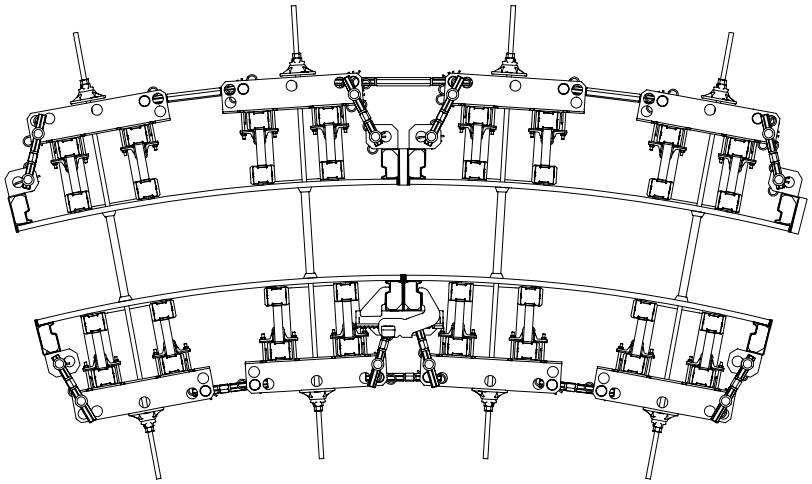


Fig. A10.02

Anchor Point

- Always install tie rods through the pre-drilled tie holes.
- Always use tie rods together with Wingnut Pivot Plate DW 15.
- During concreting, check that nuts are tightly connected; tighten if necessary.
- Close unused tie holes with Plugs 20/24, Item no. 030300.

Space requirements with and without distribution waler
(Fig. A10.03)

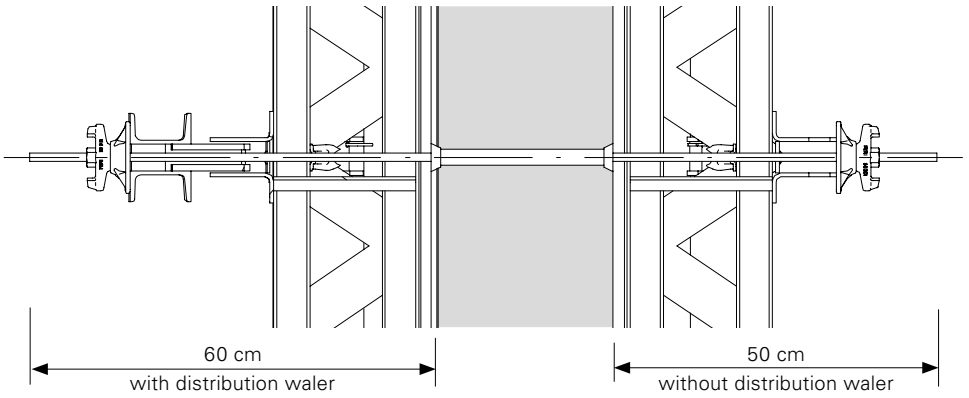
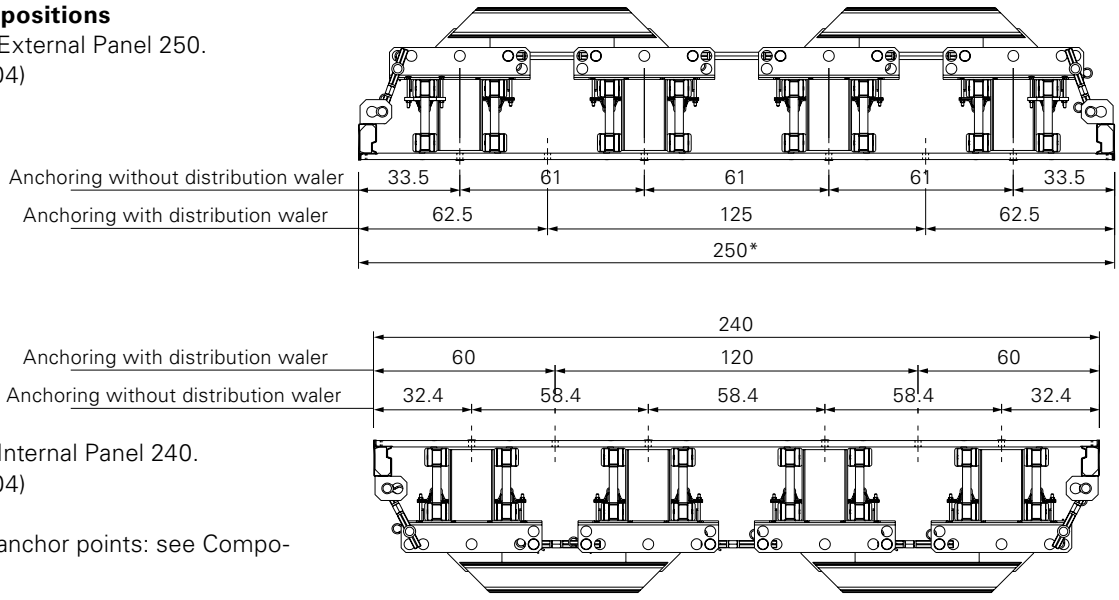


Fig. A10.03

Tie point positions
Example: External Panel 250.
(Fig. A10.04)



Example: Internal Panel 240.
(Fig. A10.04)

Height of anchor points: see Components.

Fig. A10.04
* cm

Stopend Panel TRIO

– without Water Bar Installation – MT
– with Water Bar Installation – MTF

Required components:

43	Outer Parts AT 3 or AT 5**	2x
44	Centre Part MT or MTF	1x
41	Steel Waler SRZ 120	1x
42a	Hook Tie DW 15	2x
42b	Wingnut Pivot Plate DW 15	2x

Assembly without / with water bar

1. Position placing formwork, and then fix Outer Part AT (43) to the placing formwork with the Alignment Coupler BFD (10).
2. Install first layer of reinforcement and position Centre Part MT / MTF (44a, 44b). (Install water bar if necessary)
3. Install second layer of reinforcement and position closing formwork.
4. Insert Outer Part AT into Centre Part MT and secure by means of Alignment Coupler BFD.
5. Mount Steel Waler (41) and Hook Ties (42a + 42b). (Fig. A11.01)

The rubber lip allows a maximum reinforcement diameter of approx. 16 mm. (Fig. A11.01)

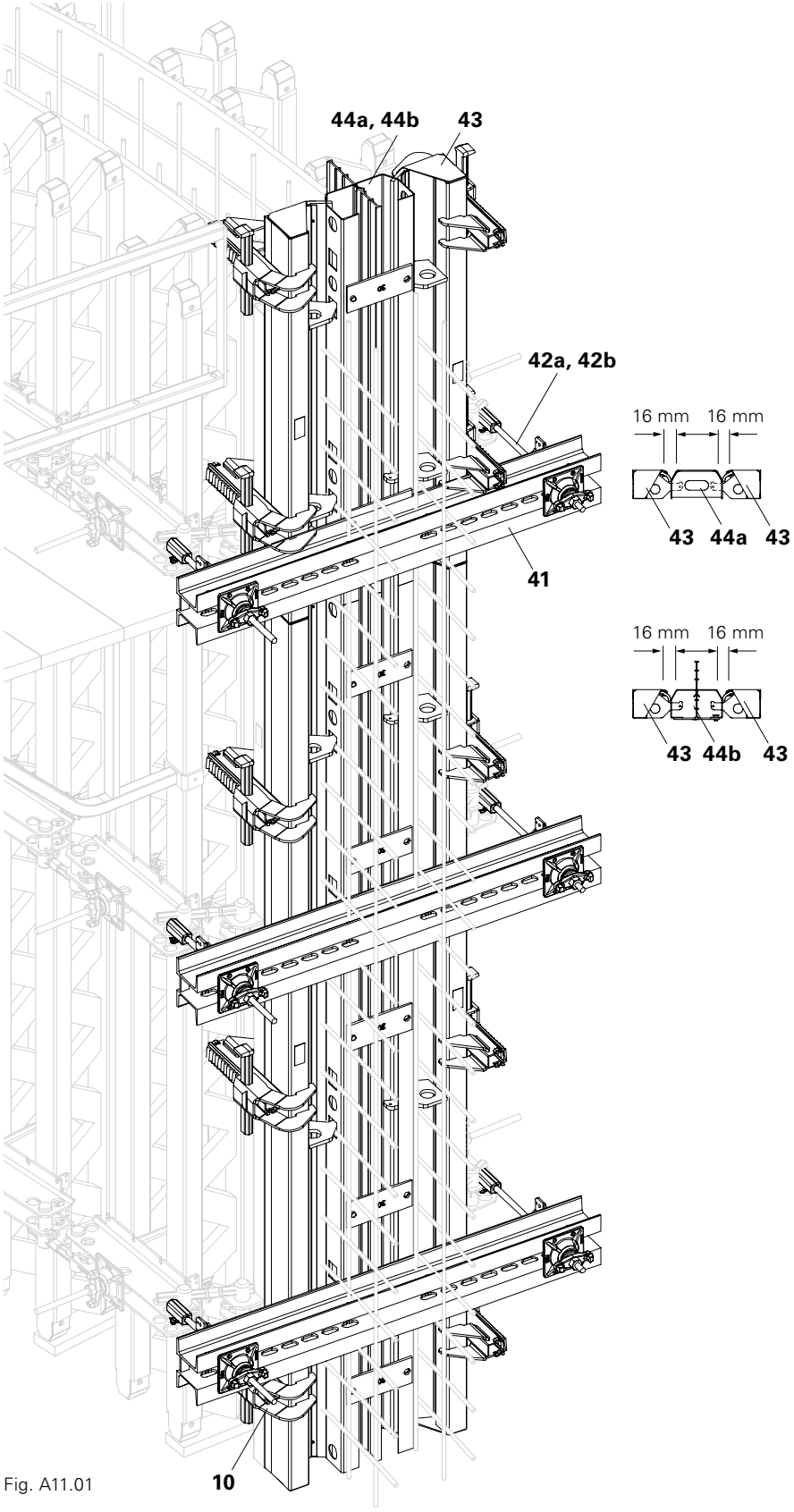


Fig. A11.01

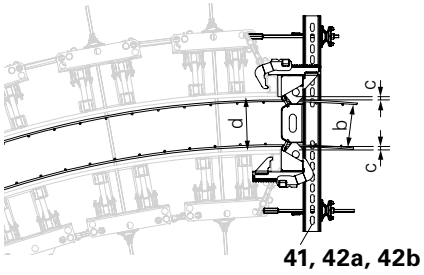
A11 Stopend formwork

Concrete cover c:

$$c = \frac{d - b}{2} - \text{Ø reinforcement}$$

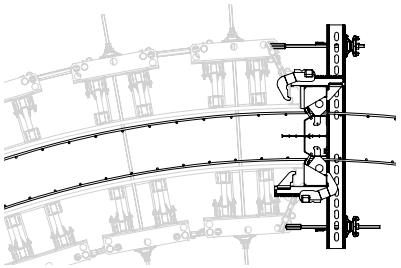
**** Concrete cover:**
- AT 3 approx. 2.5 cm,
- AT 5 approx. 5 cm.

With continuous reinforcement:
Without water bar.



41, 42a, 42b

With continuous reinforcement:
With water bar.

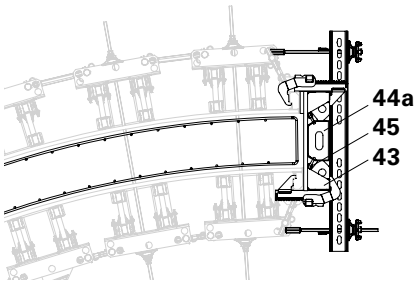


Stopend Panel TRIO with Filler Plate

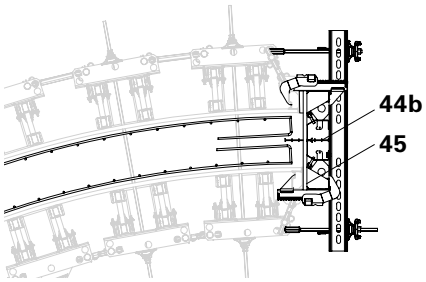
Required components:

43	Outer Part AT 3 or AT 5**	2x
44	Centre Part MT or MTF	1x
41	Filler plates supplied by the contractor Water bar	1x

Without continuous reinforcement:
Without water bar.



Without continuous reinforcement:
With water bar.



h = 2.70 m	b [mm]	Wall thickness d [cm]							
		Concrete cover approx. 25 mm				Concrete cover approx. 50 mm			
		20	24/25	30	35	24/25	30	35	40
AT 270x3	-	2	2	2	2				
AT 270x5	-					2	2	2	**2**
		without water bar				without water bar			
MT 270x20	118	1				1			
MT 270x24/25	158		1				1		
MT 270x30	218			1				1	
MT 270x35/36	268				1				1
		with water bar				with water bar			
MTF 270x20	118	1				1			
MTF 270x24/25	158		1				1		
MTF 270x30	218			1				1	
MTF 270x35/36	268				1				1
h = 1.20 m									
AT 120x3	-	2	2	2	2				
AT 120x5	-					2	2	2	2
		without water bar				without water bar			
MT 120x20	118	1				1			
MT 120x24/25	158		1				1		
MT 120x30	218			1				1	
MT 120x35/36	268				1				1
		with water bar				with water bar			
MTF 120x20	118	1				1			
MTF 120x24/25	158		1				1		
MTF 120x30	218			1				1	
MTF 120x35/36	268				1				1

Setting of stopends through the contractor

No distribution waler on the last two pairs of girders due to unequal load distribution.

Required components:

41	Steel Waler SRZ 120*	1x
42a	Hook Tie DW 15	2x
42b	Wingnut Pivot Plate DW 15	2x

* Number per waler line.

Assembly
Push hook tie (42a) through the steel waler (41), attach to the T-waler and secure by means of the wingnut pivot plate (42b).
Permissible tension force 20 kN / hook tie.
(Fig. A11.02)

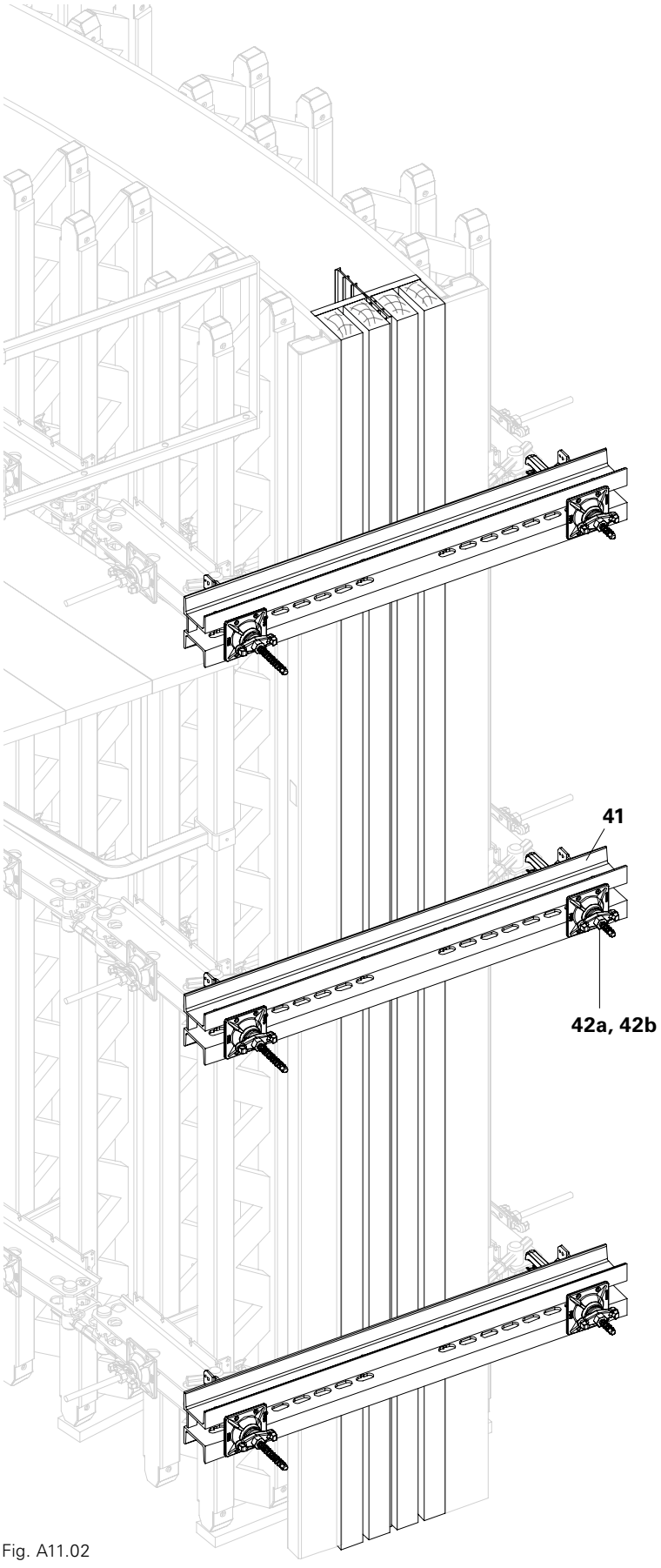


Fig. A11.02

Steel Circular Column SRS

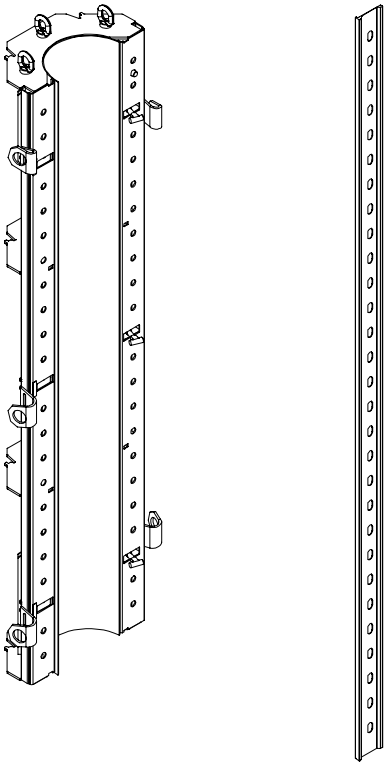
Required components:

41	Steel Waler SRZ 120*	1x
42a	Hook Tie DW 15	2x
42b	Wingnut Pivot Plate DW 15	2x
46	Adapter Strip SRS	1x

* Number depends on the height.

Assembly
- Clamp Adapter Strip (46) between the Edge Profile RUNDFLEX and Steel Circular Column SRS, and fix to the column with plugs.
- Number of alignment couplers (10) for the height depends on the tie yoke.
- Setting of stopend with Steel Waler SRZ (41) and hook tie with wingnut pivot plate (42a + 42b). (Fig. A11.03)

Please note:
Instructions for Assembly and Use for SRS Column Formwork!



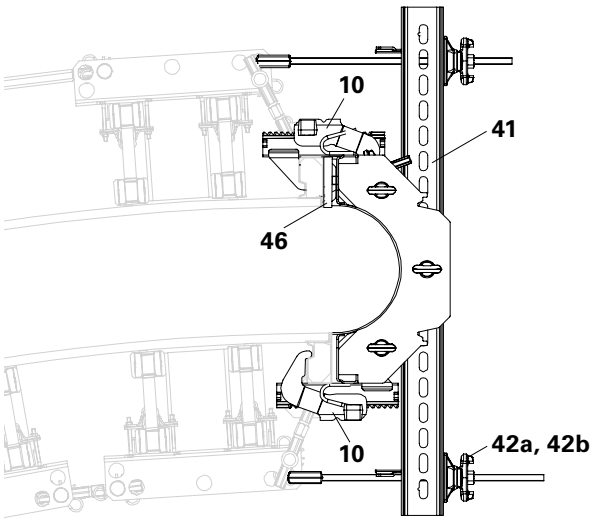
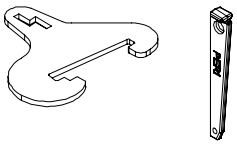


Fig. A11.03

Waler Connector SB-A, B, C

For the construction of single-sided formed walls, Waler Connectors SB-A,B,C are mounted in place of anchors. They transfer the fresh concrete pressure to the brace frame.



The support (connection) of the panels must always occur at the position where the tie rod is installed for normal use (double-sided). Otherwise, the static system of the formwork panel is changed which could lead to large deformations or even breakage in extreme cases.
When extending the formwork, take into account the information provided by PERI for the respective system.

Assembly on horizontally-positioned panel

1. Adjust panel to match the required radius.
2. With the crane lift brace frame in the distribution waler. The distribution waler lies on the formwork support (48.2). (Fig. B1.01a)
3. Slide waler connectors (48) onto the profiles of the brace frames, insert into the distribution walers and secure with Wedge K (48.1). (Fig. B1.01b)
4. Secure brace frame against lateral tilting. Release crane lifting gear.
5. Mount second brace frame in the same way.
6. Stiffen brace frames with scaffold tubes: see "PERI Design Tables" and "Brace Frame Brochure".
7. Mount concreting platform.
8. Erect unit, move to place of use, align and anchor. (Fig. B1.01)

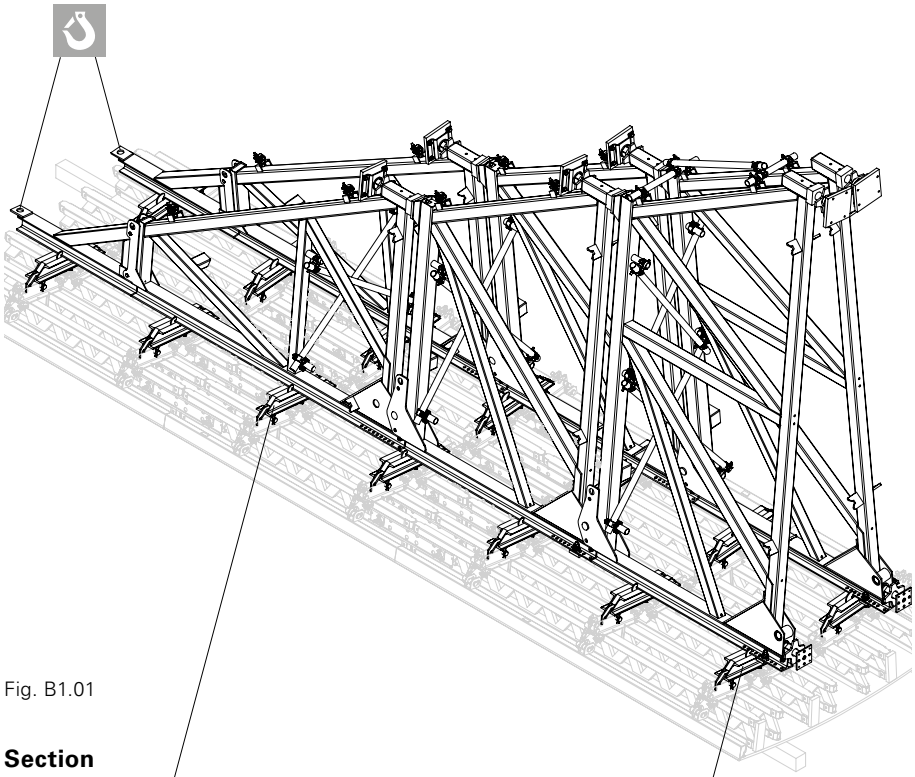


Fig. B1.01

Section

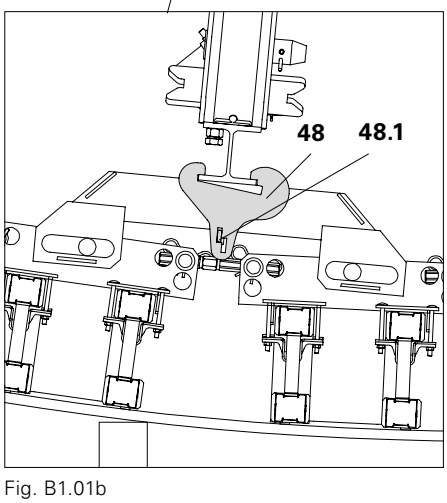


Fig. B1.01b

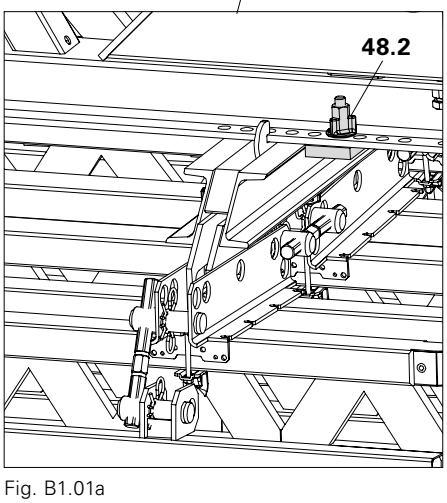
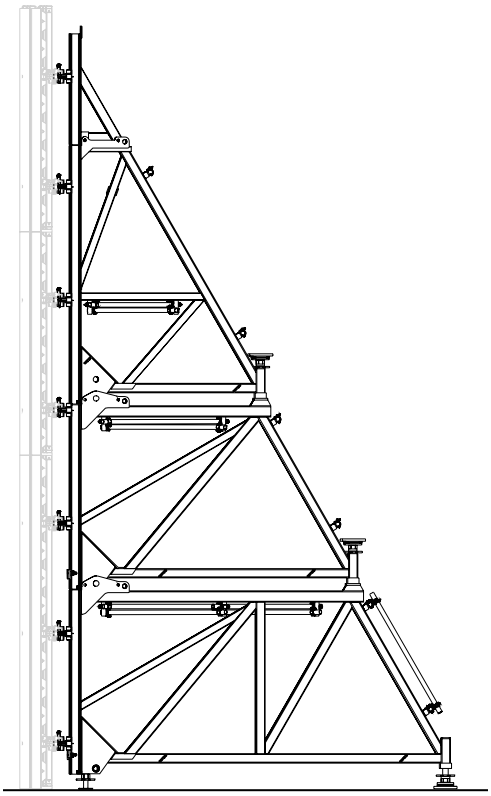


Fig. B1.01a

– When planning, make sure that the ends of the brace frames do not touch (high walls, inner radius min. 6.0 m).
– Depending on the top edge of the brace frame, the concreting platform can only be assembled using individual brackets and guardrail posts along with decking and handrail boards supplied by the contractor.
– Brace frame anchorage and perm. width of influence are dependent on the concreting height: see PERI Brace Frame SB Brochure and PERI Design Tables.

Assembly on vertically-positioned panels

1. Adjust panel to match the required radius, position and secure with push-pull props.
2. Position brace frame behind the distribution walers. The bottom distribution waler lies on the formwork support (48.2). (Fig. B1.01a)
3. Slide waler connectors (48) onto the profiles of the brace frames, insert into the distribution walers and secure with Wedge K (48.1).
4. Secure brace frame against lateral tilting. Release crane lifting gear and stiffen brace frames with scaffold tubes.
5. Anchor brace frames. (Fig. B1.02)



Top view

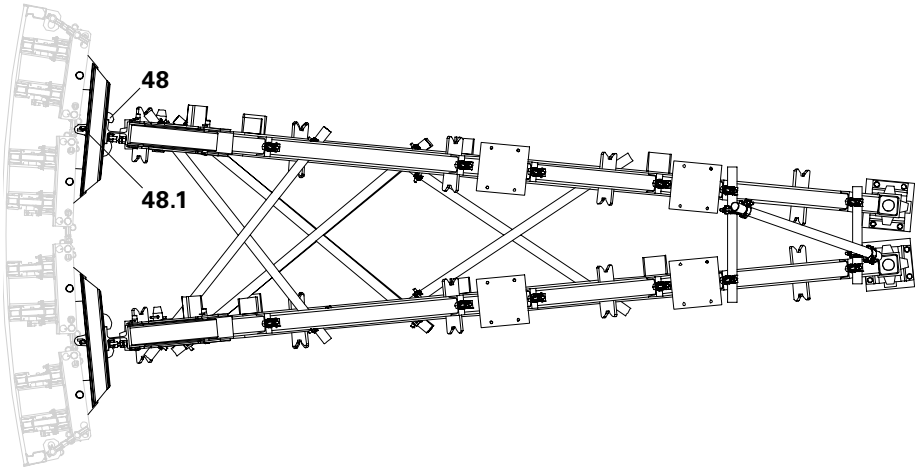


Fig. B1.02

Combination with PERI panel formwork

The edge profile of the RUNDFLEX panel allows the combination with PERI panel formwork which features a BFD-suitable profile (MAXIMO, TRIO).

– For normal wall thicknesses, the 90 cm wide panel is used on the outer side and two articulated corners or two inside corners on the inner side.
– The concrete covering is less on straight wall areas.

Example with PERI TRIO. (Fig. B2.01)

Please note: number of alignment couplers, see instructions for assembly and use of the corresponding panel formwork.

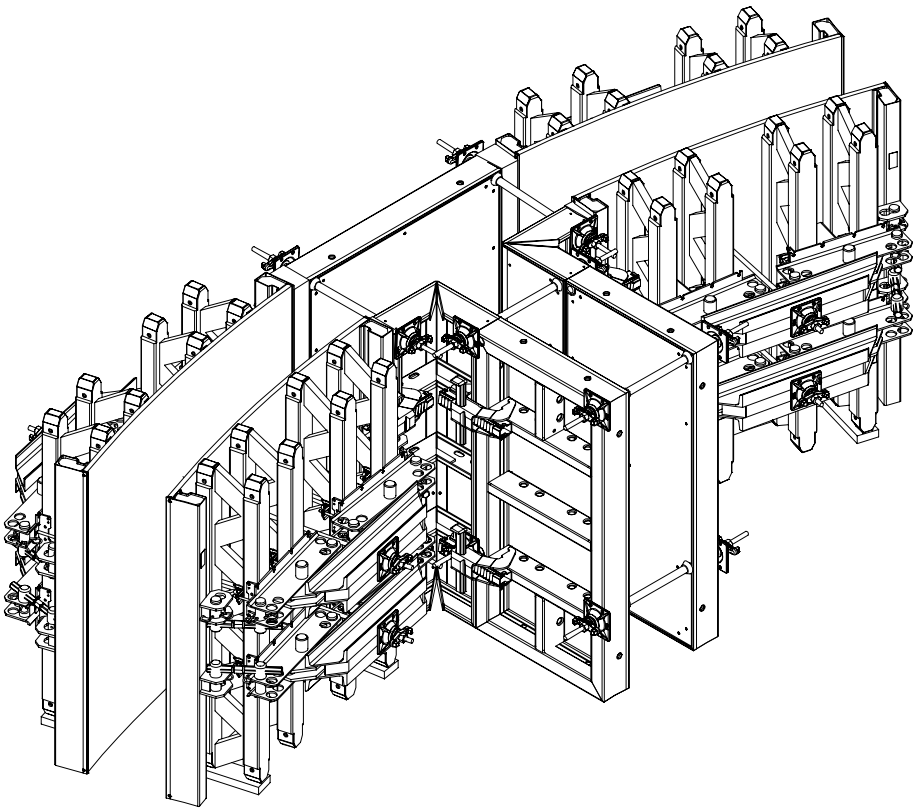


Fig. B2.01

Formula for calculating dimension f

The "dimension f" is dependent on the radius.
(Fig. B2.01a)

$$f = r \cdot (1 - \cos\frac{\alpha}{2})$$

r = radius
f = dimension
α = angle

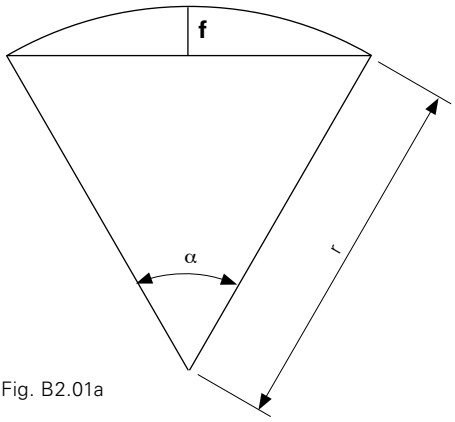
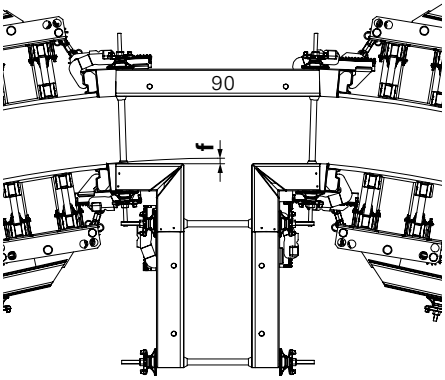


Fig. B2.01a



B3 Straight wall connection

Combination with PERI panel formwork

The edge profile of the RUNDFLEX panel allows the combination with PERI panel formwork which features a BFD-suitable profile.

- Install filler timbers according to the radius.
- Number of alignment couplers: see instructions for assembly and use of the corresponding panel formwork.

Example with PERI MAXIMO.
(Fig. B3.01)

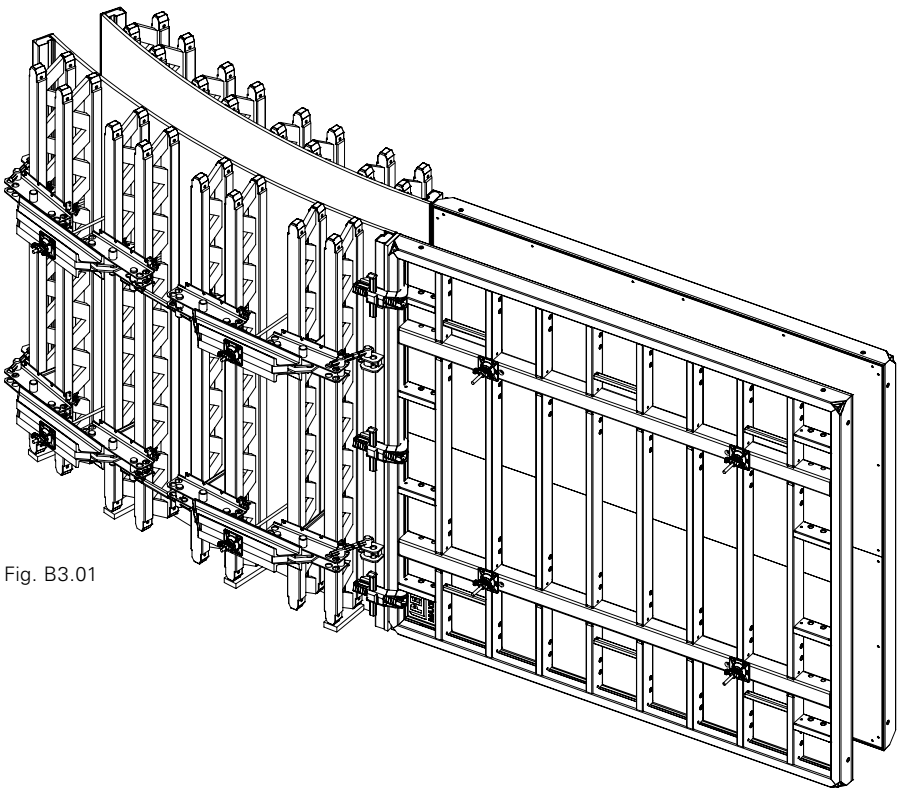


Fig. B3.01

B4 Striking

Laterally-clamped internal formwork

Especially with small radii (use of Panels 85 and 72), ensure that there is sufficient striking clearance.

In order to avoid jamming during striking of the internal panels, one filler timber must be replaced by two timber wedges.
(Fig. B4.01)

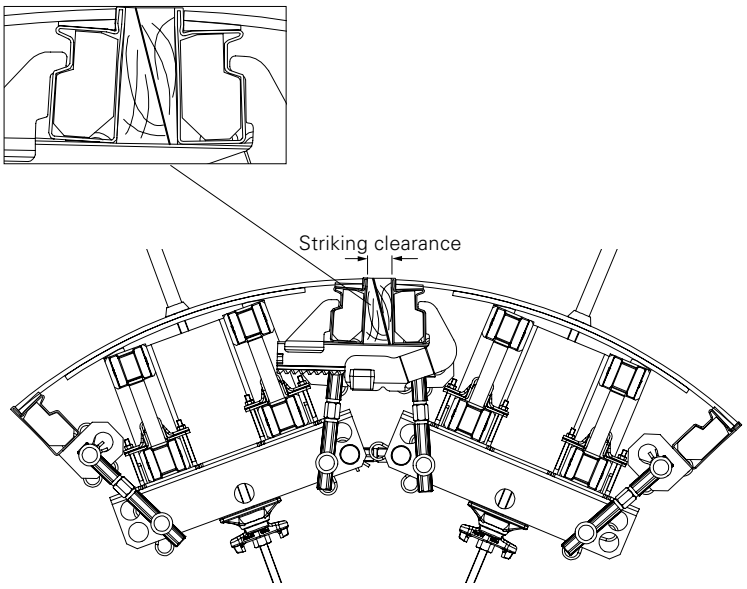


Fig. B4.01

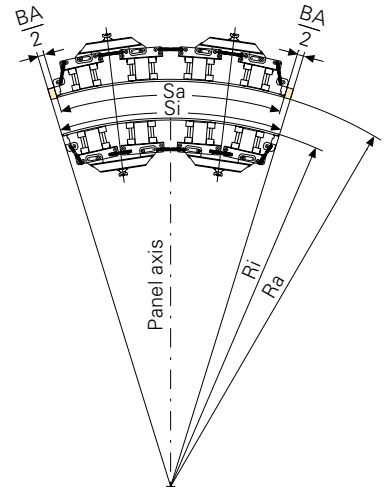
Compensation timber widths
Panels A 250 outside / I 240 inside

Inside radius [m]	Wall thickness d [m]				
	0.20	0.25	0.30	0.35	0.40
4.00	33	63	93		
4.20	27	55	84		
4.40	21	48	76		
4.60	16	42	68	94	
4.80	11	36	61	86	
5.00	6	30	54	78	
5.20	2	25	48	72	95
5.40	2	21	43	65	87
5.60	5	16	38	59	81
5.80	8	12	33	54	75
6.00	11	9	29	49	69
6.20	14	5	24	44	63
6.40	16	2	21	39	58
6.60	19	1	17	35	53
6.80	21	4	13	31	49
7.00	23	7	10	27	45
7.20	25	9	7	24	41
7.40	27	12	4	20	37
7.60	29	14	2	17	33
7.80	31	16	1	14	30
8.00	33	18	3	11	26
8.20	34	20	6	9	23
8.40	36	22	8	6	20
8.60	37	24	10	4	18
8.80	39	25	12	1	15
9.00	40	27	14	1	12
9.20	41	28	16	3	10
9.40	43	30	17	5	8
9.60	44	31	19	7	5
9.80	45	33	21	9	3
10.00	46	34	22	10	1
10.50	48	37	26	15	4
11.00	51	40	29	18	8

Inside radius [m]	Wall thickness d [m]				
	0.20	0.25	0.30	0.35	0.40
11.50	53	42	32	22	12
12.00	55	45	35	25	15
12.50	57	47	37	28	18
13.00	58	49	40	31	22
13.50	60	51	42	33	24
14.00	61	52	44	35	27
14.50	62	54	46	38	29
15.00	64	56	48	40	32
15.50	65	57	49	42	34
16.00	66	58	51	43	36
16.50	67	60	52	45	38
17.00	68	61	54	47	40
17.50	69	62	55	48	41
18.00	70	63	56	49	43
18.50	70	64	57	51	44
19.00	71	65	58	52	46
19.50	72	66	59	53	47
20.00	73	67	60	54	48

BA = Compensation timber width outside [mm]

BI = Compensation timber width inside [mm]



for $\frac{Ra}{Ri} = \frac{Sa}{Si}$

no compensation required

$\frac{Ra}{Ri} > \frac{Sa}{Si}$

yes

no

$BA = \frac{Ra}{Ri}\ Si - Sa$

$BI = \frac{Ra}{Ri}\ Sa - Si$

Compensation timber widths
Panels A 128 outside / I 123 inside

Inside radius [m]	Wall thickness d [m]				
	0.20	0.25	0.30	0.35	0.40
2.50	60	85			
2.60	56	79			
2.70	52	75	98		
2.80	48	70	92		
2.90	45	66	88		
3.00	42	62	83		
3.20	36	55	75	94	
3.40	31	49	68	86	
3.60	27	44	61	78	95
3.80	23	39	55	72	88
4.00	19	35	50	66	81
4.20	16	31	45	60	75
4.40	13	27	41	55	69
4.60	11	24	37	51	64
4.80	8	21	34	47	59
5.00	6	18	30	43	55
5.20	4	16	27	39	51
5.40	2	13	25	36	48
5.60	0	11	22	33	44
5.80	2	9	20	30	41
6.00	3	7	17	28	38
6.20	4	5	15	25	35
6.40	6	4	13	23	33
6.60	7	2	11	21	30
6.80	8	1	10	19	28
7.00	9	1	8	17	26
7.20	10	2	6	15	24
7.40	11	3	5	13	22
7.60	12	4	4	12	20
7.80	13	5	2	10	18
8.00	14	6	1	9	16
8.20	15	7	0	7	15
8.40	16	8	1	6	13

Inside radius [m]	Wall thickness d [m]				
	0.20	0.25	0.30	0.35	0.40
8.60	16	9	2	5	12
8.80	17	10	3	4	11
9.00	18	11	4	2	9
9.20	18	12	5	1	8
9.40	19	12	6	0	7
9.60	20	13	7	1	6
9.80	20	14	8	2	5
10.00	21	15	9	3	4
10.50	22	16	10	5	1
11.00	23	18	12	7	1
11.50	24	19	14	8	3
12.00	25	20	15	10	5
12.50	26	21	16	11	7
13.00	27	22	17	13	8
13.50	28	23	19	14	10
14.00	28	24	20	15	11
14.50	29	25	21	16	12
15.00	30	26	21	17	13
15.50	30	26	22	18	14
16.00	31	27	23	19	15
16.50	31	28	24	20	16
17.00	32	28	24	21	17
17.50	32	29	25	22	18
18.00	33	29	26	22	19
18.50	33	30	26	23	20
19.00	33	30	27	24	20
19.50	34	31	27	24	21
20.00	34	31	28	25	22

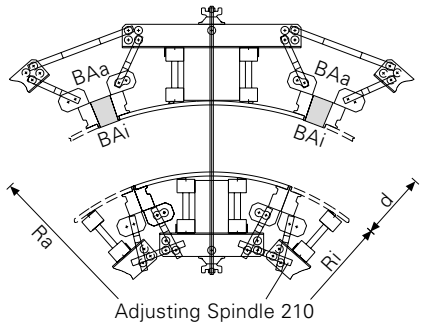
BA = Compensation timber width outside [mm]

BI = Compensation timber width inside [mm]

Compensation timber widths
Panels A 85 outside / I 72 inside

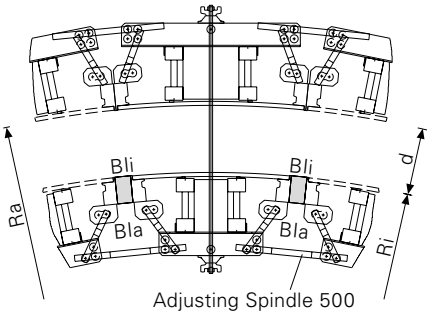
Inside radius Ri [m]	Wall thickness d [m]						
			0.20	0.25	0.30	0.35	0.40
1.00	BAi BAa	Adjusting Spindle 210 inside	21	57 63	93 102		
1.10	BAi BAa		7	40 44	73 79		
1.20	Bli Bla		4	26	56 60	86 93	
1.30	Bli Bla		12	14	42 45	69 74	97 104
1.40	Bli Bla		19	4	29	55 59	81 86
1.50	Bli Bla		26	5	19	43	67 71
1.60	Bli Bla		32	11	9	32	54 58
1.70	Bli Bla		37	17	1	22	44
1.80	Bli Bla	Adjustable Spindle 500 inside	41	23	5	14	34
1.90	Bli Bla		46	28	11	6	25
2.00	Bli Bla		50	32	16	0	18
2.10	Bli Bla		53 50	37	21	6	11
2.20	Bli Bla		56 53	40	25	11	4
2.30	Bli Bla		59 56	44	29	15	1
2.40	Bli Bla		62 59	47	33	19	6
2.50	Bli Bla		64 61	50	36	23	10
2.60	Bli Bla		67 64	53	40	27	14
2.70	Bli Bla		69 66	56	43	30	18
2.80	Bli Bla		71 68	58	45	33	22
2.90	Bli Bla		73 70	60	48	36	25
3.00	Bli Bla		75	62	51	39	28
3.10	Bli Bla		76	64	53	42	31
3.20	Bli Bla		78	66	55	44	34

Inside radius Ri [m]	Wall thickness d [m]						
			0.20	0.25	0.30	0.35	0.40
3.30	BAi BAa	Adjusting Spindle 500 inside	79	68	57	47	36
3.40	BAi BAa		81	70	59	49	39
3.50	Bli Bla		82	71	61	51	41
3.60	Bli Bla		83	73	63	53	43
3.70	Bli Bla		85	74	64	55	45
3.80	Bli Bla		86	76	66	57	47
3.90	Bli Bla		87	77	68	58	49
4.00	Bli Bla		88	78	69	60	51
4.10	Bli Bla		89	80	70	62	53
4.20	Bli Bla		90	81	72	63	55
4.30	Bli Bla		91	82	73	65	56
4.40	Bli Bla		92	83	74	66	58
4.50	Bli Bla		92	84	75	67	59



Adjusting Spindle 210

BA = [1]Compensation timber width on the outside panel [mm]



Adjusting Spindle 500

BI = [1]Compensation timber width on the inside panel [mm]

BA = Compensation timber width outside [mm]

BI = Compensation timber width inside [mm]

[1]If the width of the compensation timber varies less than 3 mm between inside and outside, the cut is then rectangular.

Item no.	Weight kg	
		Outside Panels A 250
021800	127.000	**Outside Panel A 250 x 60**
021820	176.000	**Outside Panel A 250 x 120**
102856	231.000	**Outside Panel A 250 x 120 2R**
126073	292.000	**Outside Panel A 250 x 180**
021840	342.000	**Outside Panel A 250 x 240**
021400	422.000	**Outside Panel A 250 x 300**
021880	513.000	**Outside Panel A 250 x 360**

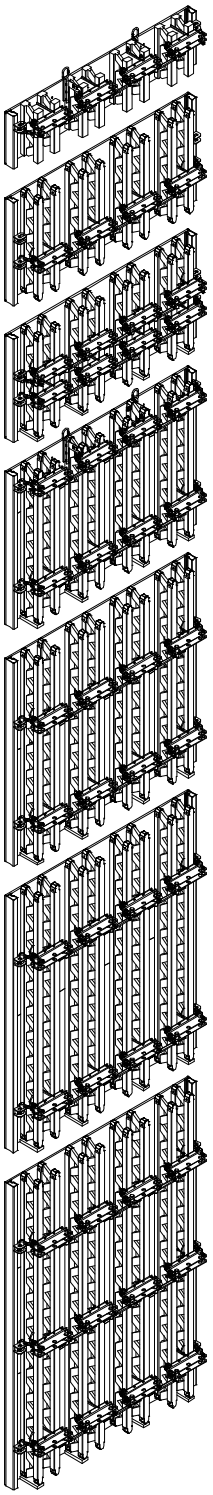
Ready-to-use formwork panel for circular structures.

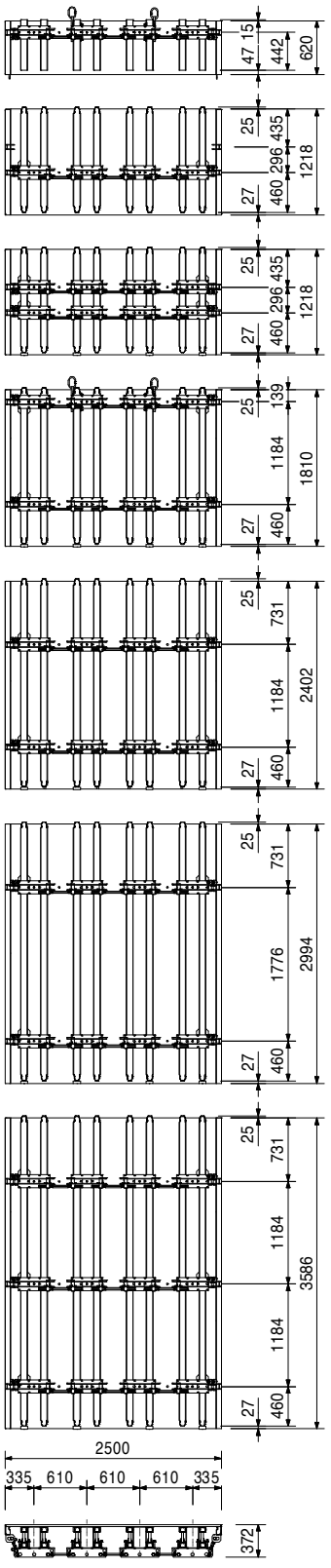
Note

Element without distribution waler.
Panel A 250 x 60 and A 250 x 180 complete with crane eye on the left and on the right side.

Technical Data

Minimum radius 4.0 m. Plywood 21 mm.
Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.





Item no.	Weight kg	
		Inside Panels l 240
021810	124.000	**Inside Panel l 240 x 60**
021830	169.000	**Inside Panel l 240 x 120**
102855	219.000	**Inside Panel l 240 x 120 2R**
126043	283.000	**Inside Panel l 240 x 180**
021850	335.000	**Inside Panel l 240 x 240**
021410	408.000	**Inside Panel l 240 x 300**
021890	499.000	**Inside Panel l 240 x 360**

Ready-to-use formwork panel for circular structures.

Note

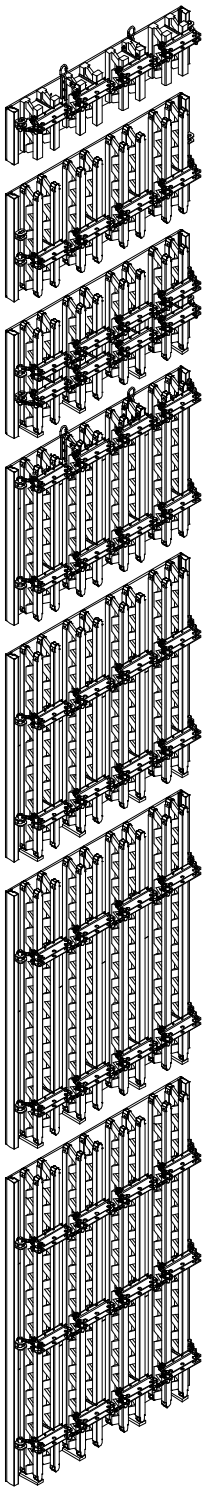
Element without distribution waler.

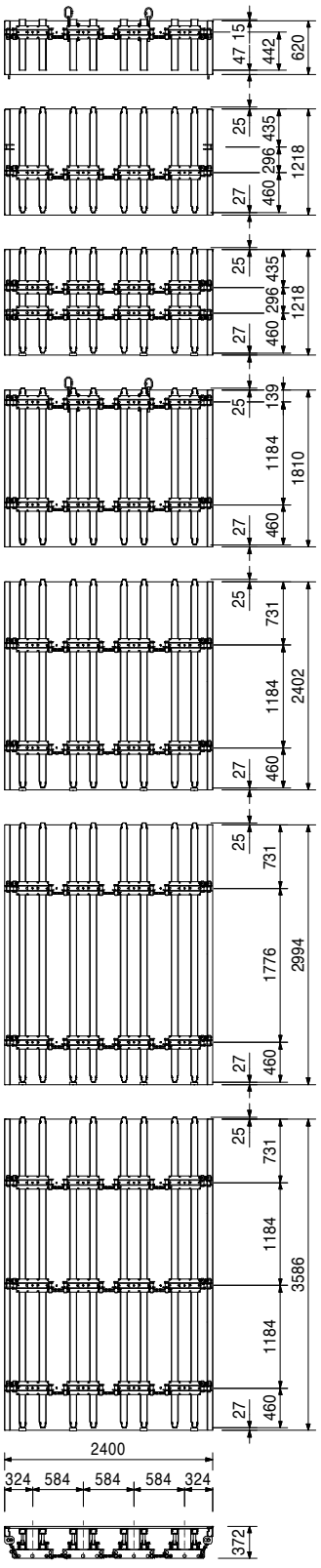
Panel l 240 x 60 and l 240 x 180 complete with crane eye on the left and on the right side.

Technical Data

Minimum radius 4.0 m. Plywood 21 mm.

Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.





Item no.	Weight kg	
		Outside Panels A 128
021900	72.500	**Outside Panel A 128 x 60**
021920	99.000	**Outside Panel A 128 x 120**
102854	128.000	**Outside Panel A 128 x 120 2R**
126075	167.000	**Outside Panel A 128 x 180**
021940	194.000	**Outside Panel A 128 x 240**
021420	243.000	**Outside Panel A 128 x 300**
021960	289.000	**Outside Panel A 128 x 360**

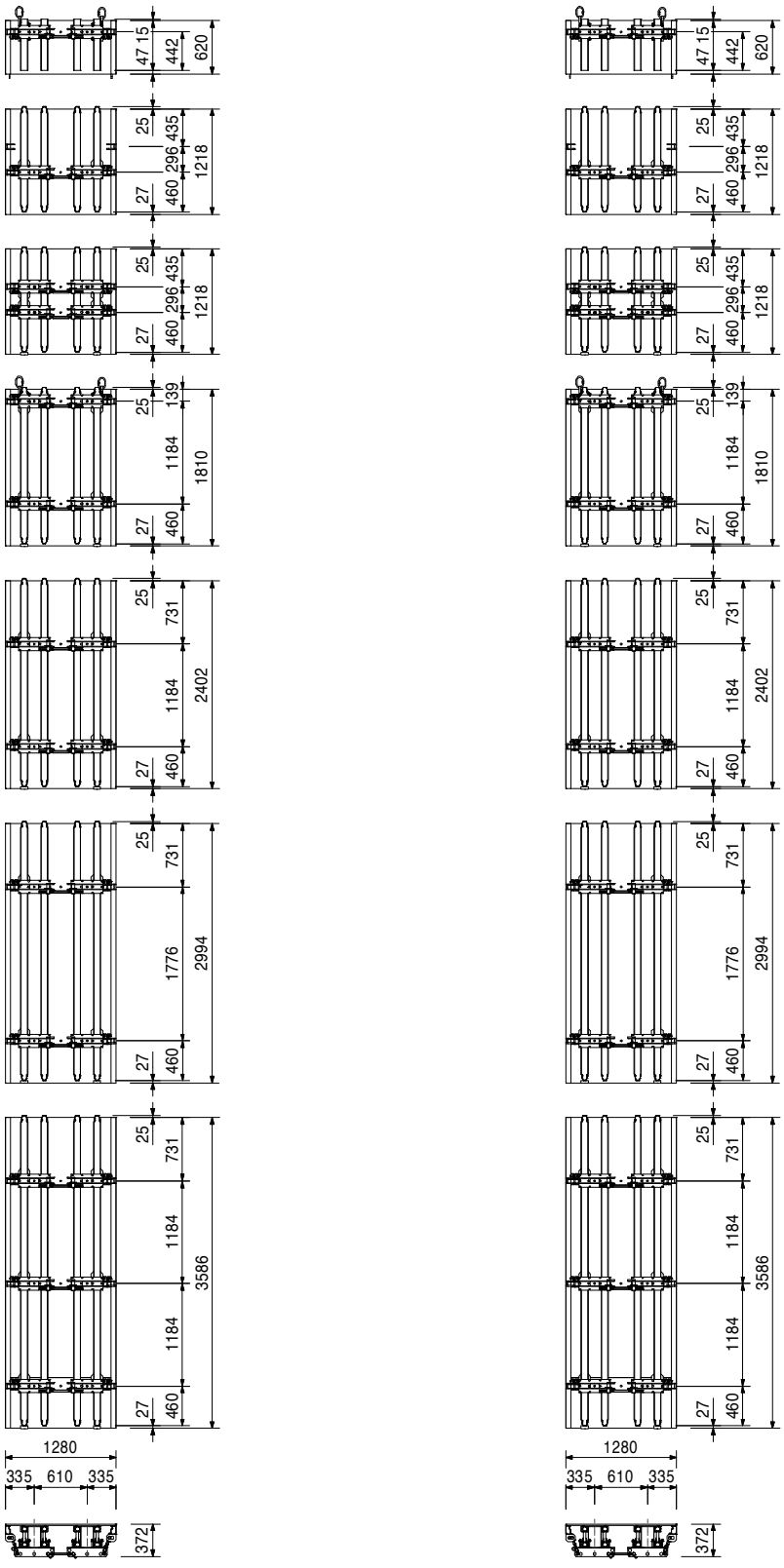
Ready-to-use formwork panel for circular structures.

Note

Element without distribution waler.
Panel A 128 x 60 und A 128 x 180 complete with crane eye on the left and on the right side.

Technical Data

Minimum radius 2.5 m. Plywood 18 mm.
Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.



Item no.	Weight kg	
		Inside Panels l 123
021910	71.200	**Inside Panel l 123 x 60**
021930	95.300	**Inside Panel l 123 x 120**
102853	122.000	**Inside Panel l 123/120 2R**
126067	160.000	**Inside Panel l 123 x 180**
021950	186.000	**Inside Panel l 123 x 240**
021430	235.000	**Inside Panel l 123 x 300**
021970	275.000	**Inside Panel l 123 x 360**

Ready-to-use formwork panel for circular structures.

Note

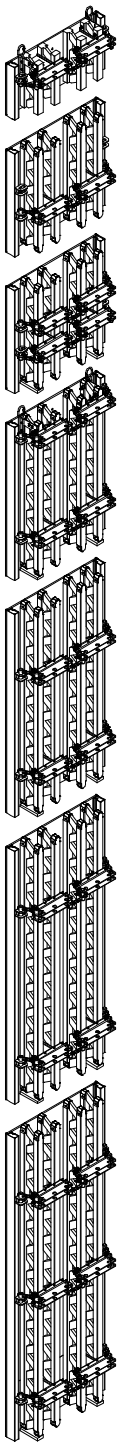
Element without distribution waler.

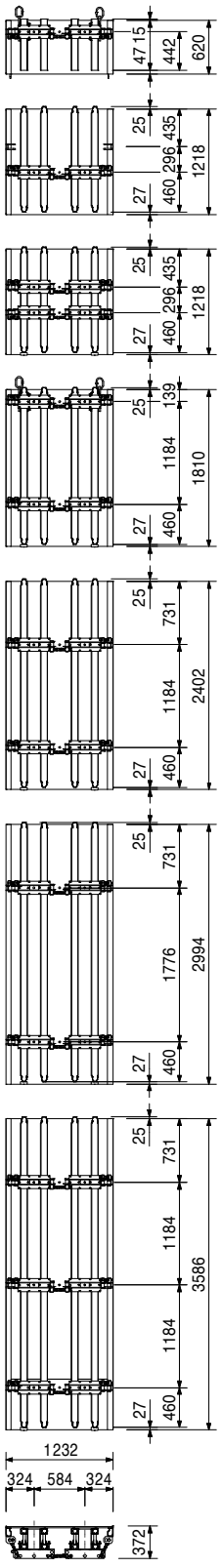
Panel l 123 x 60 and l 123 x 180 complete with crane eye on the left and on the right side.

Technical Data

Minimum radius 2.5 m. Plywood 18 mm.

Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.





Item no.	Weight kg	
		Outside Panels A 85
020820	91.300	**Outside Panel A 85 x 120**
126079	120.000	**Outside Panel A 85 x 180**
020840	136.000	**Outside Panel A 85 x 240**
020860	175.000	**Outside Panel A 85 x 300**
020880	203.000	**Outside Panel A 85 x 360**

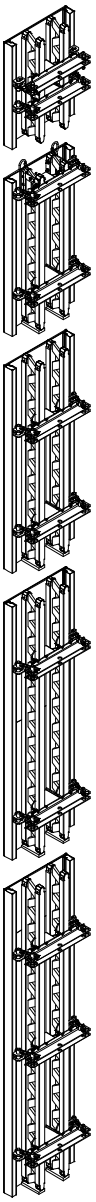
Ready-to-use formwork panel for circular structures.

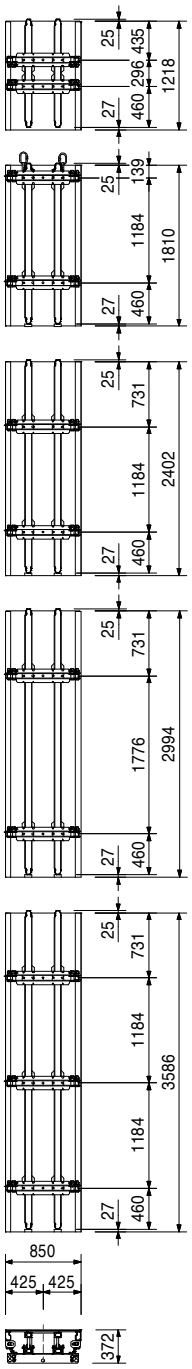
Note

Element without distribution waler.
Panel A 85 x 180 complete with crane eye on the left and on the right side.

Technical Data

Minimum radius 1.0 m. Plywood 2 x 9 mm.
Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.





Item no.	Weight kg	
		Inside Panels I 72
020830	74.200	**Inside Panel I 72 x 120**
126070	101.000	**Inside Panel I 72 x 180**
020850	116.000	**Inside Panel I 72 x 240**
020870	151.000	**Inside Panel I 72 x 300**
020890	172.000	**Inside Panel I 72 x 360**

Ready-to-use formwork panel for circular structures.

Note

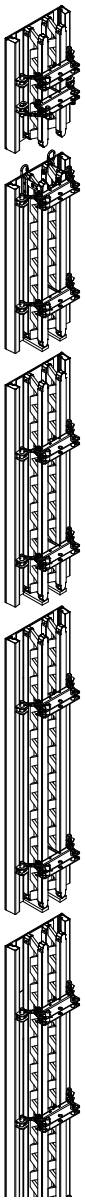
Element without distribution waler.

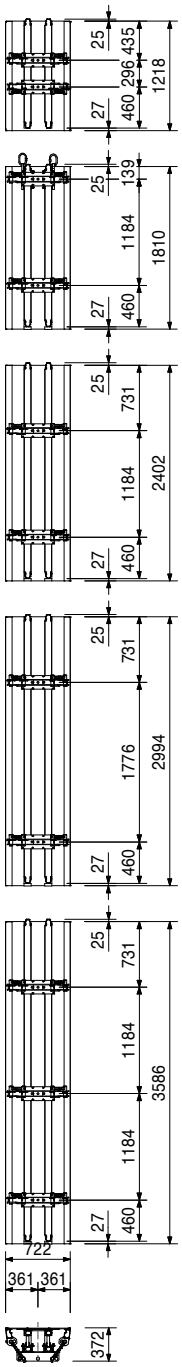
Panel I 72 x 180 complete with crane eye on the left and on the right side.

Technical Data

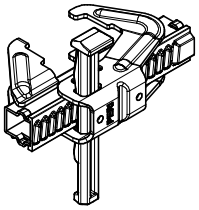
Minimum radius 1.0 m. Plywood 2 x 9 mm.

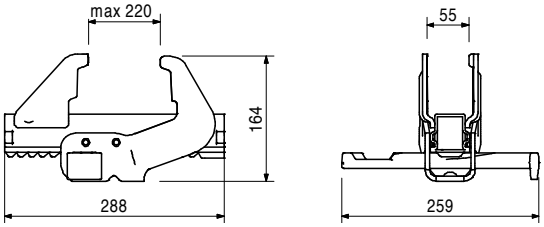
Permissible load-bearing point capacity 700 kg with crane sling angle ≤ 15°.



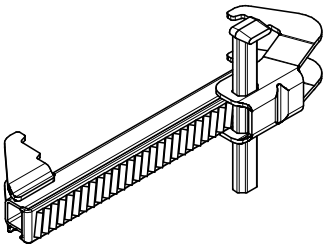


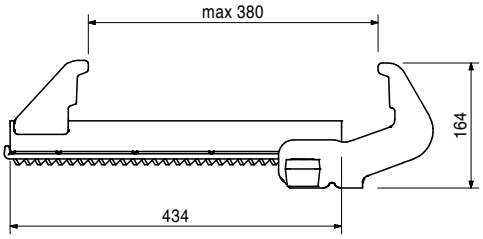
Item no.	Weight kg		
023500	4.580	**Alignment Coupler BFD, galv.** For all panel connections for MAXIMO, TRIO and RUNDFLEX. Fillers up to 10 cm.	**Technical Data** Permissible tension force 20.0 kN.



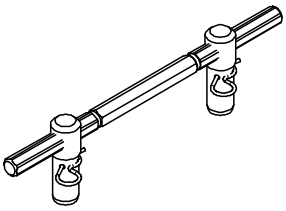


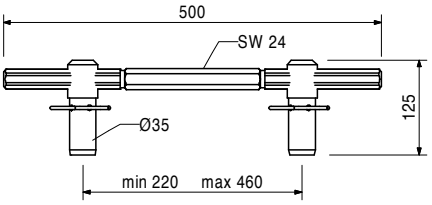
023940	6.080	**Alignment Coupler 38, galv.** For element connections with RUNDFLEX.	**Note** Compensation up to 26 cm. **Technical Data** Permissible tension force 20.0 kN.



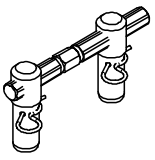


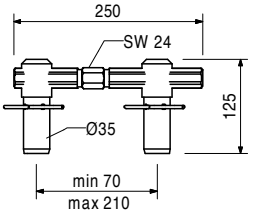
021620	3.770	**Adjusting Spindle 500, galv.** For aligning RUNDFLEX external elements. For panel joints of external and internal elements.	**Complete with** 2 pc. 022230 Cotter Pin 5/1, galv. **Note** With self-cleaning hexagonal thread.



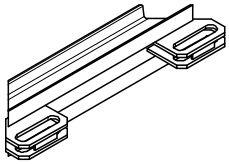


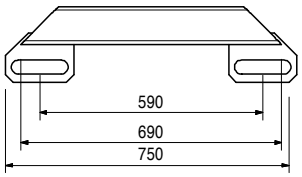
021610	2.830	**Adjusting Spindle 210, galv.** For aligning RUNDFLEX internal elements and the edge profiles on external and internal elements.	**Complete with** 2 pc. 022230 Cotter Pin 5/1, galv. **Note** With self-cleaning hexagonal thread.

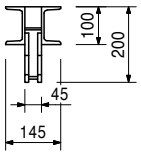




Item no.	Weight kg	
021630	18.300	**Distribution Waler** For transferring anchor forces on two adjacently positioned T-walers.



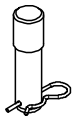


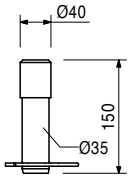


Accessories

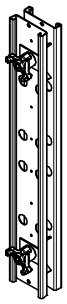
021640	1.260	**Waler Bolt for RUNDFLEX, galv.**

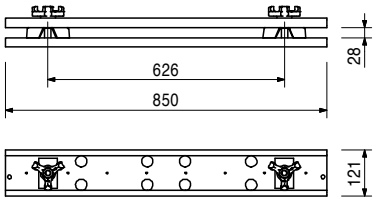
021640	1.260	**Waler Bolt for RUNDFLEX, galv.** For fixing the distribution waler on the T-Waler.	**Complete with** 1 pc. 022230 Cotter Pin 5/1, galv.



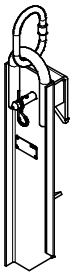


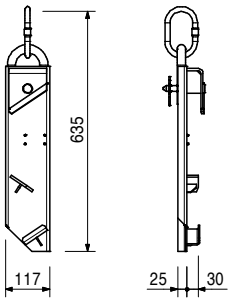
024480	7.040	**Extension Splice 24-2** For extending GT 24 girders and VARIO GT 24 panels up to max. height of 8.00 m.	**Complete with** 2 pc. 030190 Three Wingnut DW 15, galv. **Note** Permissible load: see PERI Design Tables.



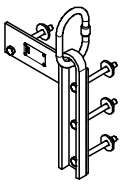


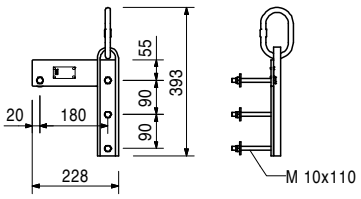
Item no.	Weight kg		
070760	4.650	**Crane Splice GT 24** For transporting elements by crane with the GT 24 girder.	**Complete with** 1 pc. 018050 Pin Ø 16 x 65/86, galv. 1 pc. 018060 Cotter Pin 4/1, galv. **Note** Follow Instructions for Use! **Technical Data** Permissible load-bearing capacity 700 kg with crane sling angle ≤ 15°.



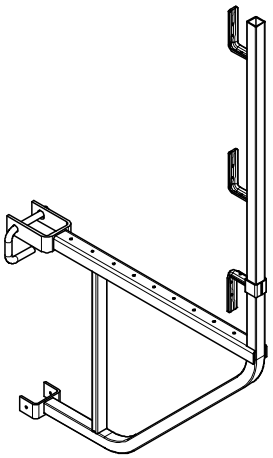


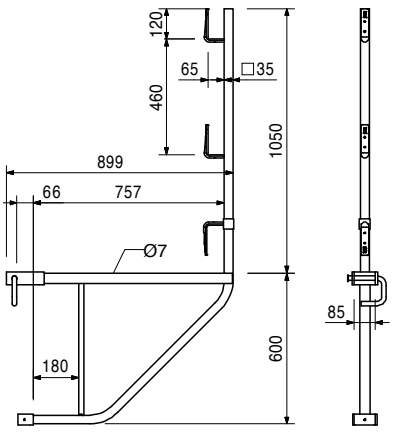
		Crane Eyes 24	**Complete with**
021990	2.780	**Crane Eye 24, right**	4 pc. 710138 Bolt ISO 4014 M10 x 110-8.8, galv.
021980	2.780	**Crane Eye 24, left**	4 pc. 780356 Nut ISO 7042 M10-8, galv.
		For transporting elements by crane with the GT 24 girder. Mounted securely to the element.	4 pc. 710139 Washer R11 DIN 440, galv. **Note** Illustration shows Crane Eye 24, left. Follow Instructions for Use! **Technical Data** Permissible load-bearing capacity 700 kg with crane sling angle ≤ 15°.



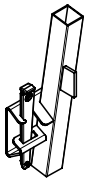


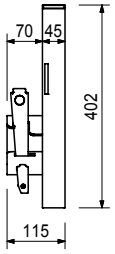
027110	11.000	**Scaffold Bracket GB 80** For assembly of a working and concreting scaffold with GT 24 girder.	**Technical Data** Permissible load 150 kg/m2. Maximum width of influence 1.25 m.

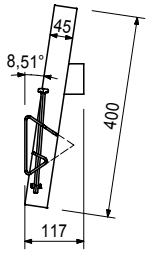




Item no.	Weight kg		
112159	2.120	**Handrail Post Holder VARIO** For assembling a guardrail with GT 24 Girder.	**Complete with** 1 pc. 024250 Wedge K, galv. 1 pc. 780800 Sleeve ISO 8752 8 x 20, galv. **Technical Data** Maximum width of influence 2.00 m.





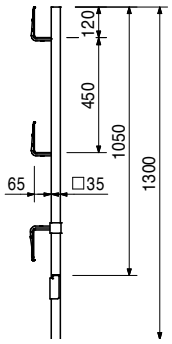


Accessories

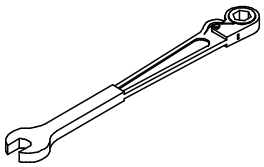
116292	4.720	**Guardrail Post HSGP-2**

116292	4.720	**Guardrail Post HSGP-2** As guardrail for different systems.	

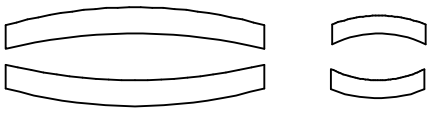




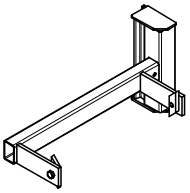
021790	1.000	**Ratchet Spanner SW 24 "Combi"** For adjusting RUNDFLEX Panels and Cantilevered Parapet Platform GKB.	**Note** Length approx. 500 mm.

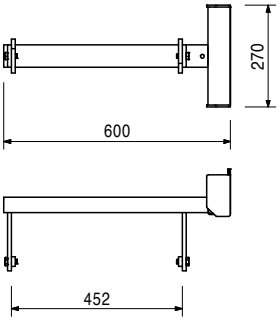


		Templates for RUNDFLEX	**Note**
099540	0.000	**Template for RUNDFLEX A 250, I 240, A 128, I 123**	Including material (formlining). Produced in accordance with project requirements.
098217	0.000	**Template for RUNDFLEX A 85, I 72** The template is used for external and internal elements.	

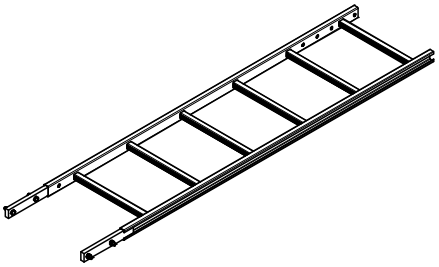


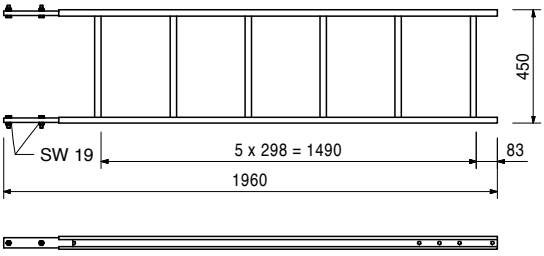
Item no.	Weight kg		
109411	6.450	**Ladder Connector RFP** For connecting ladders at RUNDFLEX Plus and RUNDFLEX panels.	**Complete with** 2 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv. 2 pc. 701763 Clamping Plate Fl 25 x 10 x 90



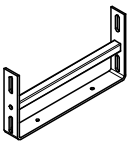


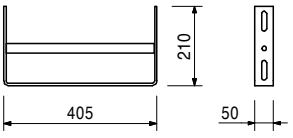
051410	11.700	**Ladder 180/6, galv.** As access for PERI Formwork Systems.	**Complete with** 4 pc. 710224 Bolt ISO 4017 M12 x 40-8.8, galv. 4 pc. 710381 Nut ISO 7042 M12-8, galv.





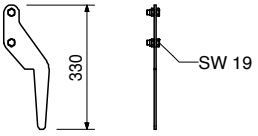
051460	2.180	**Ladder Base, galv.** As bottom ladder connection and for securing ladders against sliding on the scaffold decks.	



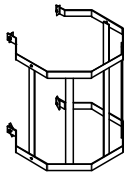


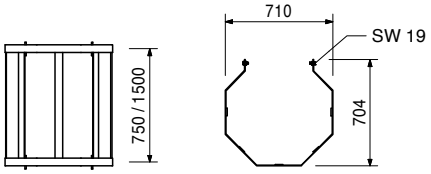
103718	0.684	**Ladder Hook, galv.** For adjusting the bottom ladder. Always use in pairs.	**Complete with** 2 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv. 2 pc. 710381 Nut ISO 7042 M12-8, galv.



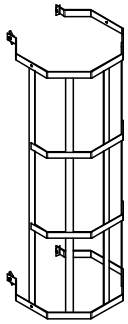


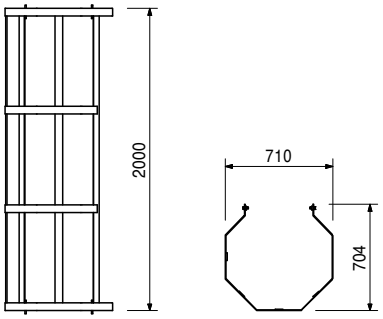
Item no.	Weight kg		
104132	15.600	**Ladder Safety Cages, galv.** **Ladder Safety Cage 75, galv.**	**Complete with** 4 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv. 4 pc. 701763 Clamping Plate Fl 25 x 10 x 90
051450	25.200	**Ladder Safety Cage 150, galv.** Ladder safety cage for PERI Access Ladders.	



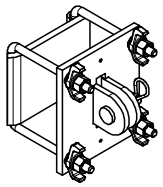


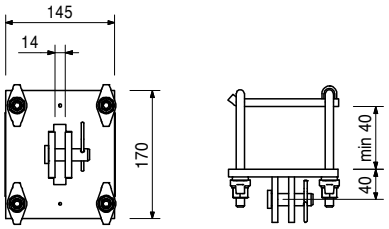
109420	27.000	**Ladder Safety Cage RFP 200** Ladder safety cage for access ladders with exit on the side.	**Complete with** 4 pc. 710266 Bolt ISO 4017 M12 x 25-8.8, galv. 4 pc. 701763 Clamping Plate Fl 25 x 10 x 90



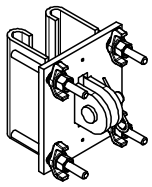


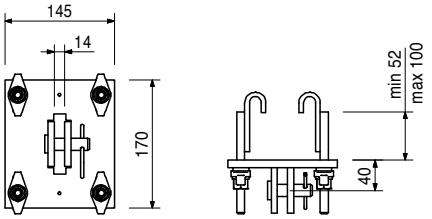
028050	4.550	**Girder Headpiece GT 24, galv.** For connecting push-pull props and kicker braces to GT 24 Girders	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv.



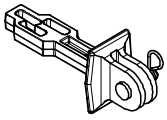


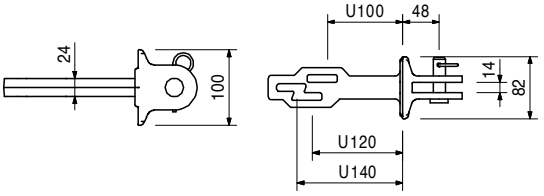
028070	4.680	**Girder Headpiece GT 24/A, galv.** For connecting push-pull props and kicker braces to extended GT 24 Girders in the area of the Extension Splice 24-2.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv.





Item no.	Weight kg		
028060	1.940	**Wedge Headpiece SRZ/SRU** For connecting push-pull props and kicker braces to Steel Waler SRZ and SRU Profile U100 – U140.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv.



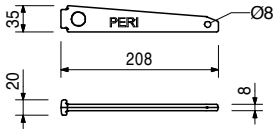


Accessories

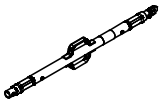
024250	0.331	**Wedge K, galv.**

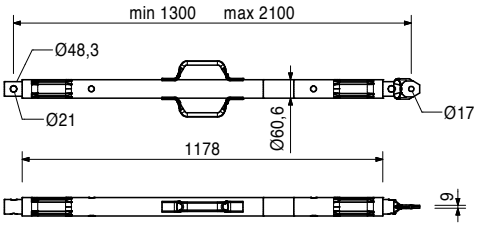
024250	0.331	**Wedge K, galv.** For coupling Compression Plate KDP, Wedge Head Piece SRZ/SRU and Waler Connector SB-A, B, C.	



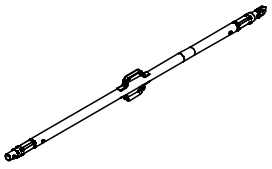


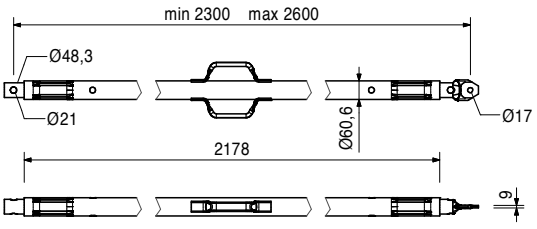
117466	10.600	**Push-Pull Prop RS 210, galv.** Extension length l = 1.30 – 2.10 m. For aligning PERI formwork systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



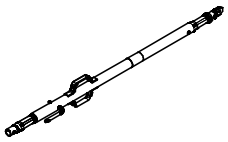


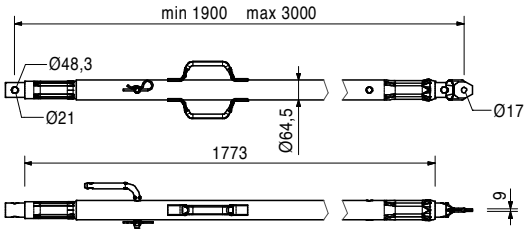
118238	12.200	**Push-Pull Prop RS 260, galv.** Extension length l = 2.30 – 2.60 m. For aligning PERI formwork systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



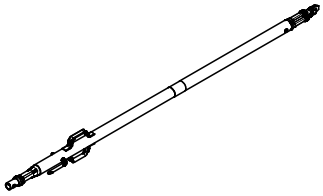


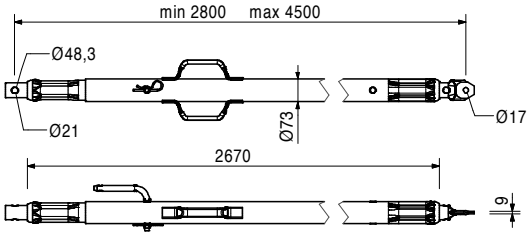
Item no.	Weight kg		
117467	15.500	**Push-Pull Prop RS 300, galv.** Extension length l = 1.90 – 3.00 m. For aligning PERI formwork systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



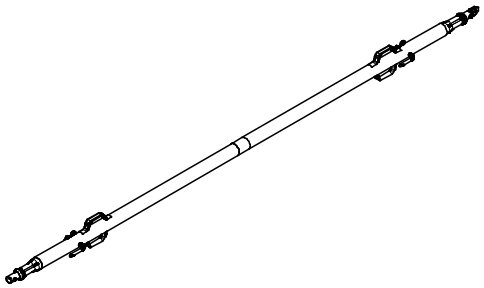


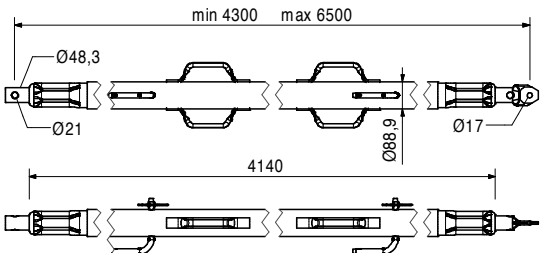
117468	23.000	**Push-Pull Prop RS 450, galv.** Extension length l = 2.80 – 4.50 m. For aligning PERI formwork systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



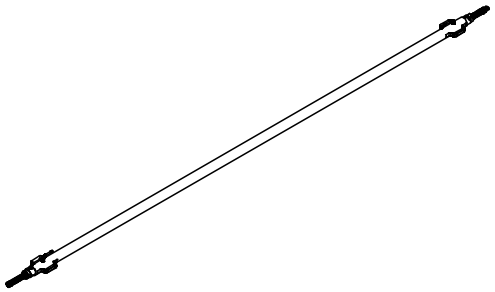


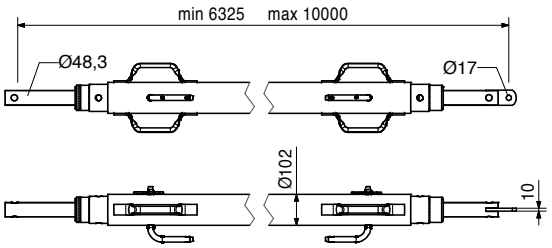
117469	40.000	**Push-Pull Prop RS 650, galv.** Extension length l = 4.30 – 6.50 m. For aligning PERI formwork systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



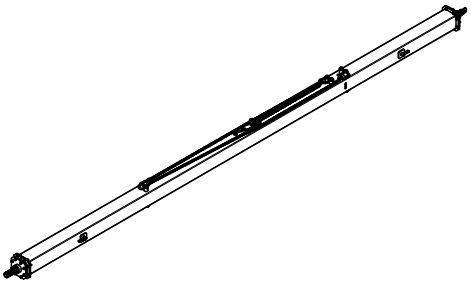


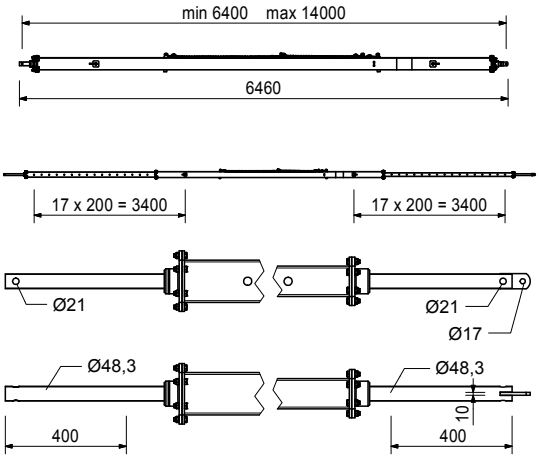
028990	115.000	**Push-Pull Prop RS 1000, galv.** Extension length l = 6.40 – 10.00 m. For aligning PERI formwork systems.	**Note** Permissible load see PERI Design Tables.



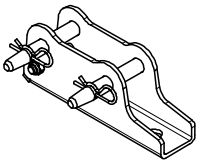


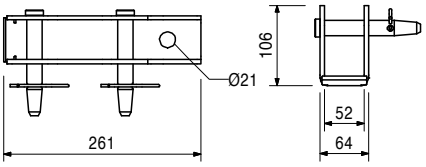
Item no.	Weight kg		
103800	271.000	**Push-Pull Prop RS 1400, galv.** Extension length l = 6.40 – 14.00 m. For aligning PERI formwork systems.	**Note** Permissible load see PERI Design Tables. Chain can be operated from bottom.





117343	3.250	**Base Plate-2 for RS 210 – 1400, galv.** For assembly of Push-Pull Props RS 210, 260, 300, 450, 650, 1000 and 1400.	**Complete with** 2 pc. 105400 Pin Ø 20 x 140, galv. 2 pc. 018060 Cotter Pin 4/1, galv.

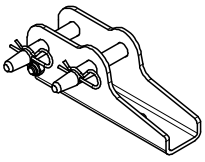


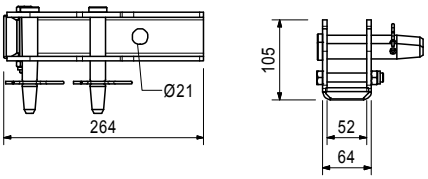


Accessories

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

126666	3.070	**Base Plate-3 for RS 210 – 1400** For assembly of Push-Pull Props RS 210, 260, 300, 450, 650, 1000 and 1400.	**Complete with** 2 pc. 105400 Pin Ø 20 x 140, galv. 2 pc. 018060 Cotter Pin 4/1, galv. 1 pc. 113063 Bolt ISO 4014 M12 x 80-8.8, galv. 1 pc. 113064 Hex Nut ISO7042-M12-8-G, galv.

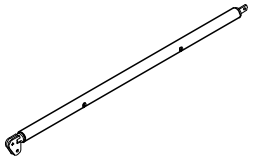


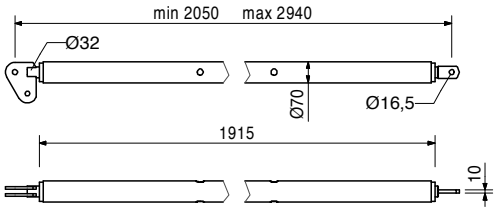


Accessories

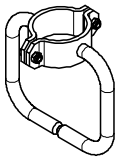
124777	0.210	**Anchor Bolt PERI 14/20 x 130**

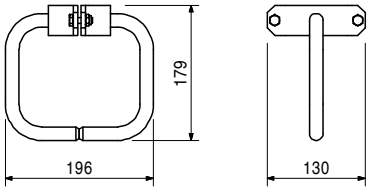
Item no.	Weight kg		
028010	17.900	**Push-Pull Prop RSS I** Extension length l = 2.05 – 2.94 m. For aligning PERI formwork systems.	**Note** Permissible load see PERI Design Tables.



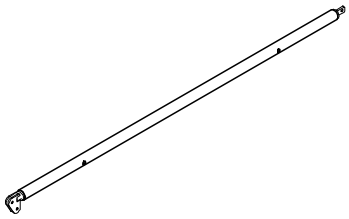


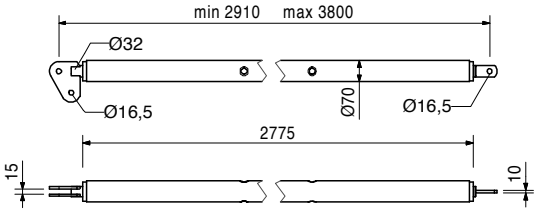
113397	1.600	**Spindle Handle RSS / AV** Spindle Handle for screwing on Push-Pull-Props RSS I, RSS II, RSS III and Kickers AV 210 and AV 190 complete with 2 bolts and nuts M8.	



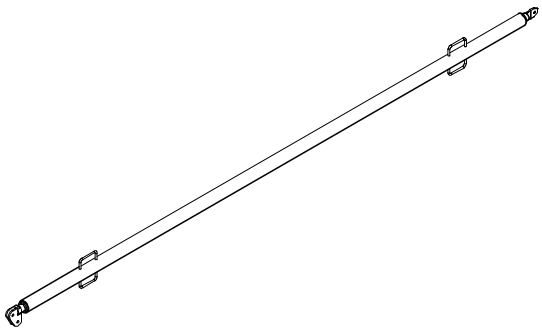


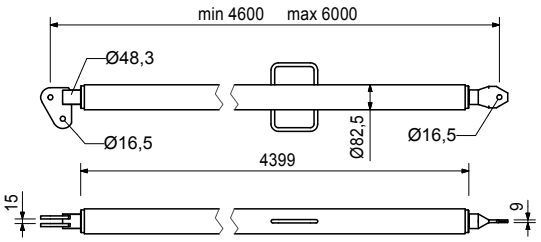
028020	22.000	**Push-Pull Prop RSS II** Extension length l = 2.91 – 3.80 m. For aligning PERI formwork systems.	**Note** Permissible load see PERI Design Tables.



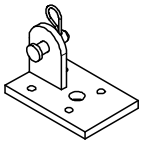


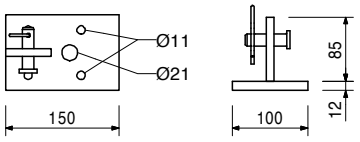
028030	38.400	**Push-Pull Prop RSS III** Extension length l = 4.60 – 6.00 m. For aligning PERI formwork systems.	**Note** Permissible load see PERI Design Tables.





Item no.	Weight kg		
106000	1.820	**Base Plate-2 for RSS, galv.** For assembly of RSS Push-Pull Props.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv.





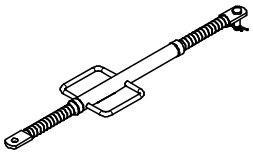
Accessories

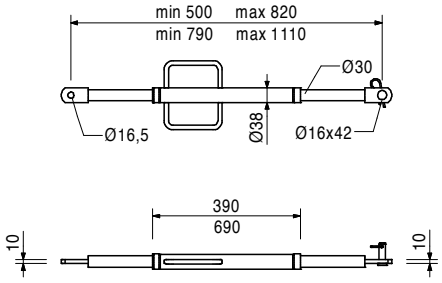
124777	0.210	**Anchor Bolt PERI 14/20 x 130**

		Kickers AV	**min. L**	**max. L**
057087	3.720	**Kicker AV 82**	500	820
057088	4.410	**Kicker AV 111**	790	1110

For aligning PERI formwork systems.

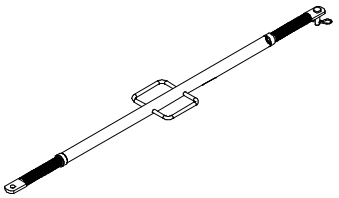
Complete with
1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.
Note
Permissible load see PERI Design Tables.

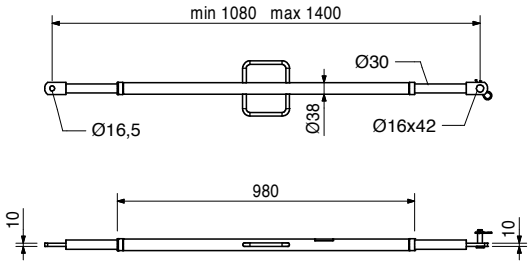




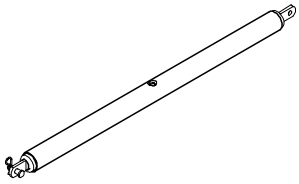
028110	5.180	**Kicker AV 140** Extension length l = 1.08 – 1.40 m. For aligning PERI formwork systems.

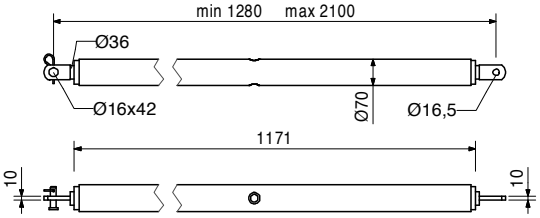
Complete with
1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.
Note
Permissible load see PERI Design Tables.



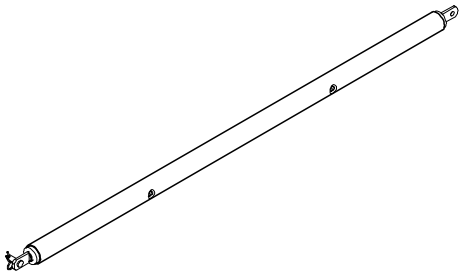


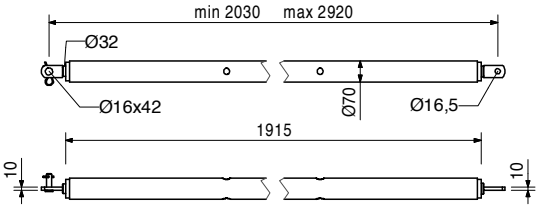
Item no.	Weight kg		
108135	12.900	**Kicker AV 210** Extension length l = 1.28 – 2.10 m. For aligning PERI formwork systems.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv. **Note** Permissible load see PERI Design Tables.



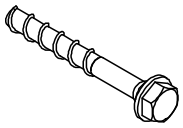


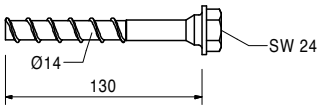
028120	17.000	**Kicker AV RSS III** Extension length l = 2.03 – 2.92 m. For aligning PERI formwork systems.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv. **Note** Permissible load see PERI Design Tables.





124777	0.210	**Anchor Bolt PERI 14/20 x 130** For temporary fixation to reinforced concrete structures.	**Note** See PERI data sheet! Drilling Ø 14 mm.





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